

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for scanning. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of scanning are checked below.

L'Institut a numérisé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de numérisation sont indiqués ci-dessous.

- Coloured covers /
Couverture de couleur
- Covers damaged /
Couverture endommagée
- Covers restored and/or laminated /
Couverture restaurée et/ou pelliculée
- Cover title missing /
Le titre de couverture manque
- Coloured maps /
Cartes géographiques en couleur
- Coloured ink (i.e. other than blue or black) /
Encre de couleur (i.e. autre que bleue ou noire)
- Coloured plates and/or illustrations /
Planches et/ou illustrations en couleur
- Bound with other material /
Relié avec d'autres documents
- Only edition available /
Seule édition disponible
- Tight binding may cause shadows or distortion
along interior margin / La reliure serrée peut
causer de l'ombre ou de la distorsion le long de la
marge intérieure.
- Additional comments /
Commentaires supplémentaires:

Continuous pagination.

- Coloured pages / Pages de couleur
- Pages damaged / Pages endommagées
- Pages restored and/or laminated /
Pages restaurées et/ou pelliculées
- Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées
- Pages detached / Pages détachées
- Showthrough / Transparence
- Quality of print varies /
Qualité inégale de l'impression
- Includes supplementary materials /
Comprend du matériel supplémentaire
- Blank leaves added during restorations may
appear within the text. Whenever possible, these
have been omitted from scanning / Il se peut que
certaines pages blanches ajoutées lors d'une
restauration apparaissent dans le texte, mais,
lorsque cela était possible, ces pages n'ont pas
été numérisées.

The Canadian Patent Office RECORD

Vol. XI.—No. 7.

JULY, 1883.

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

CONTENTS.

INVENTIONS PATENTED.....	193
ILLUSTRATIONS.....	219
INDEX OF INVENTIONS.....	I
INDEX OF PATENTEES.....	II

INVENTIONS PATENTED.

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

No. 16,882. Improvement in Horse Rakes. (*Perfectionnement des râteliers à cheval.*)

Joseph E. Beauchemin, Sorel, Que., 12th June, 1883; 5 years.

Claim.—1st. The combination of the double flexured hand lever L, pivoted at the end *l*₂ to the frame of the rake, and connected to the dumping bracket D centered upon the rake-head H by links *l*₁, and having the draft lever N pivoted to the said lever L, connecting to the foot lever F in such a manner as to form a series of dead centres, which cannot be overcome by the draft power acting on the draft lever N, in a forward direction, said lever H being further supported by a pin *l*₂ resting upon the bars B, or other support, when the said lever is depressed. 2nd. The combination, with the wheeled axle, of a horse rake supporting the rake-head H, pivotally supporting the rake teeth T and having, centered upon it, a dumping bracket D, operating the lifting bar R, which is provided with suitable means of lifting the teeth, the shaft S, cross-bars B and longitudinal bars B forming the frame, the dumping device consisting of a hand lever L and foot lever F, connected by links N, acting as draft lever, the said lever L connected with the dumping bracket D by links *l*₁. 3rd. In a dumping device for horse rakes, the foot lever F, pivoted to the frame and pivotally connected to a hand lever by links N, acting as draft lever, which said connections form a locking device immovable by the draft power, while easily manipulated by the said foot or hand levers. 4th. In a dumping device for horse rakes, the wheelbarrow hand-lever H, its end *l*₂ pivoted to the frame and being, at its rearward flexure, connected to the dumping bracket by suitable links and, at its forward flexure, jointed to a draft lever, its shape designed to form dead centres with the foot lever and connecting draft lever, when in its highest and lowest position, all substantially as shown and described and for the purpose set forth.

No. 16,883. Feed Water Heater and Purifier. (*Chauffeur et épurateur de l'eau d'alimentation.*)

Robert W. Jones, London, Ohio, U. S., 14th June, 1883; 5 years.

Claim.—1st. An improved feed water heater and purifier consisting of a cylinder divided into two unequal chambers by a vertical perforated partition, the smaller one of which is provided with the exhaust and water exit pipe, and the larger one with steam and water supply pipes, and with sediment-collecting pans having perforated slides arranged one above the other, and a grating below the said pans, as set forth. 2nd. The combination, with the cylinder provided with the vertical partition, of the purifying chamber provided with the pans having perforated sides and placed one above the other, and the grating arranged below the pans, as set forth.

No. 16,884. Improvements in Car-Couplings. (*Perfectionnements aux accouplages des chars.*)

Charles H. Pelton and John N. Wheeler, Grand Rapids, Mich., U. S., 14th June, 1883; 5 years.

Claim.—The eccentric A turning on bolt D, and provided with the shoulders *b* *l* and beveled point *a*, in combination with the draw-bar having lugs E E, the connecting link C and lever B, with the fulcrum H, all constructed and arranged substantially as described and for the purposes set forth.

No. 16,885. Improvements in Sickle Grinders. (*Perfectionnements aux rémouleurs des lames des faucheuses.*)

William S. Ingraham, Waukegan, Ill., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with the frame of a grindstone and the pivoted joint-bar or connecting piece P, of the laterally movable frame K and the flanged holder H, pivoted to said frame and angularly adjustable thereon, substantially as specified. 2nd. The sickle-holding attachment for grindstones consisting of the joint-bar or connecting piece P, its pivot rod, the laterally movable frame K hinged to said connecting piece, the flanged holder H pivoted to the frame K, and its lever cam M, substantially as specified. 3rd. The combination, with an angularly adjustable holder and laterally-movable frame, to which said holder is pivoted, of a joint-bar or connecting piece having bearings at its front edge, for the slide-journals of said frame, and pivoted at its rear edge to the grindstone frame, substantially as specified. 4th. The combination, with the grindstone frame A and its stop S, of the pivoted connecting piece P, the laterally movable frame K and angularly adjustable holder H, substantially as specified.

No. 16,886. Improvements on Screw-Drivers. (*Perfectionnements aux tourne-vis.*)

Martin B. Crawford, Terre Haute, Ind., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with a tubular stock or barrel provided at its end with interior longitudinal grooves, of a suitable bit-plate seated in said grooves, as set forth. 2nd. The combination, with a tubular stock or barrel provided at its end with A-shaped points and interior longitudinal grooves, of a bit-plate seated in said grooves and provided with notches in its sides to receive the said points, as set forth. 3rd. The combination, with the tubular stock or barrel provided at its inner end with a tapering annular recess, of the socketed wooden handle and a tapering clamping cap or ferrule, as and for the purpose set forth. 4th. The tubular stock or barrel provided at its inner end with an annular tapering recess, and having a tapering cap or ferrule secured thereto by a transverse pin or rivet, in combination with the socketed wooden handle having a transverse longitudinal slot, as and for the purpose set forth. 5th. The combination of the tubular stock or barrel, the bit-plate seated in the end of the same and having a curved notch or recess in its inner end, and the longitudinally sliding rod having a pair of hinged clamping jaws bearing against the inner notched end of the bit-plate, as set forth. 6th. In a screw-driver of the class described, the described clamping jaws, stamped or constructed of sheet metal, and consisting essentially of a longitudinally curved or corrugated body or shank, an approximately U-shaped notched head bent substantially as shown, at an angle to the body, and a lug projecting laterally from the shank or stem and having a perforation or hinge-hole, as set forth. 7th. The combination of the tubular barrel, the bit seated in the end of the same, the slide rod bifurcated and perforated at its outer end, the clamping jaws having stems provided on opposite sides with laterally projecting perforated lugs, and means for hinging said clamping jaws to the said slide rod, as set forth. 8th. The combination of the slide rod bifurcated and perforated at its outer end, the clamping jaws having perforated hinge lugs fitted in the bifurcated end of the slide rod, and a spring coiled around said slide rod and having its outer end bent so as to form an arm extending through the perforations in the slide rod and clamping jaws, whereby the latter are hinged to the former and the upper end of the spring connected to the outer end of the slide rod, as set forth. 9th. The combination of the tubular stock or barrel, the bit seated in the same, the longitudinally sliding rod carrying a pair of hinged clamping jaws, and a spring coiled around and having its upper end connected to said slide rod, and having its inner end hooked over the lower end of the tubular barrel, as set forth. 10th. The combination of the tubular stock or barrel, the bit seated in the same, the longitudinally sliding rod carrying a pair of hinged clamping jaws, a spring coiled around and forcing the said slide rod in an inward direction in the tubular stock, and a suitable handle permanently attached to said slide rod, whereby the latter may be forced outwardly against the tension of the spring, as set forth. 11th. In a screw-driver of the class described, the combination, with the slide rod carrying the clamping jaws, of the described thumb-piece or handle stamped or struck up from sheet metal, and provided with laterally projecting upturned lugs or flanges clamped or clinched around the inner end of said slide rod, and thereby bracing the said thumb-piece in position at an angle to the said slide rod, as set forth. 12th. The combination of the tubular stock or barrel, the bit seated in the end of the same, the longitudinally sliding rod carrying the clamping jaws and provided, at its inner end, with a

rigidly attached handle at an angle to the body of the same, a spring forcing the said rod inwardly into the barrel, and a handle having a longitudinal slot to receive and admit of a longitudinally sliding movement of the thumb-piece or handle of the slide rod, as set forth. 13th. The combination of the tubular stock or barrel having a tapering annular recess at its lower end and provided with a tapering clamping cap or ferrule, the bit seated in the end of said barrel, the socketed and longitudinally slotted handle, the slide rod carrying the clamping jaws, and the spring coiled around and attached at its outer end to the said slide rod, and having its inner end hooked over the lower end of the barrel, whereby, when the said barrel is driven into place in the socketed handle, the hooked end of the spring is clamped and held between the said handle and barrel, as set forth.

No. 16,887. Improvements in Spike Extractors. (*Perfectionnements aux tenailles à clous barbelés.*)

Albert P. Prout, Woodhaven, N.Y., U.S., 14th June, 1883; 5 years.

Claim.—1st. An improved clawbar consisting of a lever having an enlarged end to which is hinged a claw, and a supporting block, substantially as described and for the purpose specified. 2nd. The combination, with the lever A, the claw C hinged thereto, and the fulcrum bearing plate D, of the supporting block E hinged to said plate so as to swing under and form a support for the same, substantially as and for the purpose described. 3rd. The combination, with the lever A carrying hinged claw C, and provided with enlargement or wings B B, as described, of the plate D bearing the fulcrums, and the bars hinged to said block, with slotted ends working on the projecting ends of rod *e* on said enlargement or wings, all substantially as and for the purpose specified. 4th. The combination, with the lever provided with the wings B B, or corresponding solid enlargement of the plate D, carrying the bit fulcrum *b* and the roller fulcrum *n*, one or both together, with the claw C hinged to said lever, and the supporting block hinged to said fulcrum plate, so as to swing under the same, all substantially as and for the purpose specified. 5th. The combination, with the described spike extractor, of the tempered steel plugs *a* inserted in the lower end of the head A, near the lugs *a* and *d*, and provided with roughened faces at their outer ends, as and for the purpose specified. 6th. The combination, with the described lever head of the claw represented in figure 7, consisting of the pivoted jaws L L, the links *r* and *s* pivoted respectively to the said jaws and to the arm *p* 3, as and for the purpose described. 7th. The combination, with the jaws L L, of a spring which acts to close the same, as and for the purpose described.

No. 16,888. Improvement on Car-Couplings. (*Perfectionnement des accouplages de chars.*)

Columbus B. Tucker, Angerona, W.V., and Josephus Tucker, Coolville, Ohio, U.S., 14th June, 1883; 5 years.

Claim.—1st. A draw-head having a link setting socket *a*, in the upper part of its rear, whereby the link may be held horizontally in the upper part of the cavity *b*, as described. 2nd. The tube *f* undercut at its lower end, and the screw *h*, both arranged on the top of a draw-head, in combination with a slotted slide *d*, as and for the purpose specified.

No. 16,889. Combined Wrench and Pinchers. (*Cle à écrou et pinces combinées.*)

Samuel L. Willmor, Shingletown, Cal., U. S., 14th June, 1883; 5 years.

Claim.—The stock or body A having the stationary jaw B of a monkey-wrench at one end, and the stationary jaw D of a pair of pinchers at the other end, in combination with the movable jaw C of the wrench, having a shank *e* extending within the stock, and a ratchet *a*, and the swinging jaw E of the pinchers pivoted in the stock A, and having a pawl F pivoted at its base, and engaging with the ratchet *a*, under the influence of a spring G, said pawl having a pin or lug *m* extending through the stock A, and the ring or band H, all arranged and forming a combined wrench and pinchers, substantially as described.

No. 16,890. Machine for Applying Colouring Matter to Fibrous Material. (*Machine pour appliquer les matières colorantes aux matières fibreuses.*)

Henry W. Vaughan, Providence, R.I., U.S., 14th June, 1883; 5 years.

Claim.—1st. The combination, substantially as set forth, of a receptacle for colour charged powder in mass, suitable mechanism, as described, for producing a blast of air, and arranged to carry such powder against a passing sliver or sheet of fibrous material to be coloured thereby, and a bed for supporting the sliver constructed as described, to admit of a free passage of air through it, as and for the purposes specified. 2nd. The combination, substantially as set forth, of suitable mechanism, as described, for producing a blast of air, a perforated or open work revolving bed for supporting the sliver or sheet of fibrous material to be coloured, and a perforated or open work apron concentric with said bed, as and for the purposes specified. 3rd. The combination, substantially as set forth, of a receptacle for a mass of colour charged powder, suitable mechanism, as described for producing a blast of air, and arranged, as described, to carry said powder against a travelling sliver or sheet of fibrous material to be coloured thereby, a perforated or open work bed to support such material, and pressure or rubbing roller for condensing the sliver or sheet, and incorporating the applied powder more intimately with the fibre, substantially as described. 4th. The combination, substantially as set forth, of a receptacle for colour charged powder in mass, suitable mechanism, as described, for producing a blast of air, and arranged to carry such powder against a passing sliver or sheet of fibrous material to be coloured thereby, devices, substantially, as described, for regulating the measured discharge of said powder from

said receptacle into the air current, and a bed for supporting the sliver, constructed as described, to admit of a free passage of air through it, as and for the purposes specified.

No. 16,891. Method of Applying Dye Stuffs to Fibrous Material. (*Mode d'application des teintures aux matières fibreuses.*)

Henry W. Vaughan, Providence, R.I., U.S., 14th June, 1883; 5 years.

Claim.—1st. The method of applying dye stuffs to fibre suitable for textile fabrics, substantially as described, by spraying said fibre with oleaginous matter and blowing upon said fibre, the colouring matter, combined with a pulverulent vehicle, as set forth. 2nd. The method of applying dye stuffs and their mordants to fibre suitable for textile fabrics, substantially as described, by spraying the fibre with oleaginous matter and blowing upon said fibre the colouring matter, combined with a pulverulent vehicle and a mordant, as set forth.

No. 16,892. Method of Preparing Dye Stuffs. (*Méthode de préparer les teintures.*)

Henry W. Vaughan, Providence, R.I., U.S., 17th June, 1883; 5 years.

Claim.—1st. The method, substantially as described, of preparing dye-stuff or dye-stuffs for application in a finely powdered condition to fibrous matter, by first comminuting or grinding the colouring matter with an oleaginous constituent, and then incorporating therewith a pulverulent vehicle, which renders the coloured mass pulverulent and enables it to be worked in a finely powdered condition, as set forth. 2nd. The method, substantially as described, of preparing dye-stuff or dye-stuffs with a mordant for application in a finely powdered condition, by first comminuting or grinding the colouring-matter and a mordant with an oleaginous constituent, and then incorporating therewith a pulverulent material, which renders the coloured mass pulverulent and enables it to be worked in a finely powdered condition, as set forth.

No. 16,893. Improvements in Watch Cases. (*Perfectionnements aux boîtes des montres.*)

Edward A. Muckle, Rockford, Ill., U.S., 14th June, 1883; 5 years.

Claim.—1st. The outer case having the pendant rigidly connected to the rim thereof, a pusher extending through said pendant and capable of an axial movement therein, in combination with an inner or movement-containing case adapted to be turned within the outer case, substantially as and for the purpose set forth. 2nd. A pusher capable of an axial movement in the pendant of the outer case, in combination with an inner or movement-containing case, said pusher forming one of the pivots upon which the inner or movement-containing case may turn, substantially as and for the purpose set forth. 3rd. The combination, with the pusher and with the movement-containing case pivoted thereto, of the packing *s* surrounding the stem of the pusher within the movement-containing case, to prevent the admission of dust or water thereto, as set forth. 4th. The combination, with the detent spring of the outer case and with the movement-containing case, of a pusher capable of a limited axial movement to depress the detent spring and forming one of the pivots upon which the movement-containing case may turn, substantially as and for the purpose set forth. 5th. The combination, with the pendant, the spring detent and the movement-containing case, of a pusher capable of a limited axial movement in the pendant, said pusher adapted to depress the detent spring, and having a pivotal connection with the movement-containing case, and the inner end adapted to engage the winding mechanism of a movement contained within the case, substantially as and for the purpose set forth.

No. 16,894. Improvement in Waggon Yokes. (*Perfectionnement des jougs de waggons.*)

William A. Baker, Colona, Mich., U. S., 14th June, 1883; 5 years.

Claim.—1st. An improved yoke for supporting tongues of waggons, adapted to be suspended under the horses from the back-pads, substantially as and for the purpose set forth. 2nd. The yoke B, formed with the slots *e* and provided with the pins *e*, whereby the straps *d* and the holdback-straps *f* may be attached to it, substantially as and for the purpose set forth. 3rd. The combination, with the short pole A, of the yokes B, pivoted to the said pole and provided with the straps *d*, substantially as and for the purpose set forth.

No. 16,895. Improvements in Mowing Machines. (*Perfectionnements aux faucheuses.*)

Joseph Savoie, St. Germain de Grantham, Que., 14th June, 1883; 5 years.

Claim. 1st. A channel rearwardly decreasing in width, formed by flat upright cheeks made in sections overlapping rearwardly inside the sections, held together and flexibly hinged together in opposite by cranked distance rods and the cheeks supported on small wheels, the said attachment thus formed being carried by the reaper knife-bar suitably connected with, and held operated by a mowing machine. 2nd. The combination of the cheek sections flexibly hinged together, the lower edge of the rare sections in the channel provided with inwardly in-lined serrated plates. 3rd. The combination of the front sections having horns or studs H, which carry double levers L. 4th. The combination of the front sections and the knife-bar K held therein in slots by pins and springs, and provided with shelves S.

No. 16,896. Improvements in Car-Couplings. (*Perfectionnements aux accouplages des chars.*)

Henry Keller, Corpus Christi, Texas, U. S., 14th June, 1883; 5 years.

Claim.—1st. A car-coupling link formed in two parts that couple

together at or near the middle by hooks, and having a cavity with an intermediate rise in the middle, whereby it will not uncouple as long as both cars remain on the track, but will automatically uncouple when one car leaves the track, as set forth. 2nd. The combination, with a slotted piece provided at one end with an enlargement having inwardly projecting hook portions, of a U-shaped piece provided at the ends of the shanks with outwardly projecting hook portions, passing within the hook projections on the other piece, as set forth. 3rd. The combination, with the slotted piece having an enlargement provided with inwardly projecting hook portions and a recess, of the U-shaped piece having outwardly projecting hook portions at the ends of the shanks and of the plates secured to the top and bottom of the enlarged part of the slotted piece, as set forth. 4th. A two-part coupling link having the plates H I, one above and the other below their junction, whereby the section F is prevented from rising or falling out of the plane of the other section.

No. 16,897. Improvements in Flour Bolts.

(*Perfectionnements dans les blutoirs.*)

Henry A. Graeter, Kansas, Mo., U. S., 14th June, 1883; 5 years.

Claim.—The combination of the shaft, the radial arms, G G, longitudinal ribs H H, spirally arranged flights supported on the longitudinal ribs, and the spiral wire, substantially as set forth.

No. 16,898. Improvements in Windmills.

(*Perfectionnements aux moulins à vent.*)

Randolph O. Robinson, Gliden, Iowa, U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with the sides of a drum or disk A, or vanes E arranged tangentially to the disk and obliquely to a circle about equidistant between the shaft and the periphery of the shaft, substantially as described. 2nd. The combination, with the sides of a drum, or disk A, of vanes E, arranged tangentially to a circle about equidistant between the shaft and the periphery of the disk and obliquely to the shaft, and being hinged to the side of the disk and provided with stay-braces G, substantially as described. 3rd. A windmill wheel consisting of a drum or disk A, having conical sides, and vanes E mounted on said sides, said vanes being arranged with the outer ends and also the outer edges pitched or inclined in the same direction with respect to the plane of rotation of the disk, substantially as described. 4th. A wind wheel, consisting of a disk or drum A, having conical sides, and vanes E mounted on said sides, the vanes of each side being pitched or inclined in the same direction with respect to each other, whereby the wheel turns in the same direction alike, whether the wind acts upon one side or the other, substantially as described. 5th. The combination of auxiliary vanes I, with a wind wheel consisting of a drum or disk A having a conical side, and vanes E arranged thereon, substantially as described.

No. 16,899. Improvements in Flour Packers.

(*Perfectionnements aux appareils à empaqueter la farine.*)

John Handy and Drew H. Lord, Northfield, Minn., U. S., 14th June, 1883; 5 years.

Claim.—1st. A packer tube, a platform for supporting the receptacle for the flour and adapted to be elevated to cause said receptacle to pass upward outside of said tube, in combination with a packing ring encircling said packer tube and resting upon the top of said receptacle, and springs for connecting said packing ring and platform, substantially as and for the purpose set forth. 2nd. The combination of the packer tube D, the flour receptacle C, and a ring E covered with one or more thicknesses of cloth or similar material, and encircling said tube and resting upon the upper edge of said receptacle, substantially as and for the purpose set forth. 3rd. The combination of the packer tube D, receptacle C, platform B, packing ring suspension straps at a', and springs F, substantially as and for the purpose set forth.

No. 16,900. Improvements in Corset Buses.

(*Perfectionnements aux busques des corsets.*)

Adelaide E. Mann, Lawrence, Mass., U. S., 14th June, 1883; 5 years.

Claim.—The busk C having its front edge turned back against the main body thereof, providing a space between the turned back portion and the main body of said busk, and having slots cut through into the said inner space, and the busk A having the hooks B extended out from its edge and adapted to enter the slots on busk C, substantially as described.

No. 16,901. Improvement in Pots and Kettles.

(*Perfectionnement des marmites et des bouilloires.*)

David Snyder, Grafton, Mass., U. S., 14th June, 1883; 5 years.

Claim.—1st. A pot or kettle having a vertically arranged flue at or near its centre, and a partition wall dividing it into compartments, said flue being connected with the partition wall and adapted to receive the steam and fumes from the compartments of the kettle and conduct the same down through a hole in its bottom, substantially as shown and described. 2nd. A pot or kettle having a flue opening through its bottom for carrying off the steam or fumes, said flue being provided with inlet-holes arranged above the top of the kettle, and the kettle provided with a cover or covers, substantially as and for the purpose set forth. 3rd. A pot or kettle provided with a cover or covers and having a flue opening through its bottom for carrying off the steam or fumes, said flue being provided with inlet holes arranged above the top of the kettle, in combination with a partition wall for dividing the kettle into compartments, said wall being closely connected to the flue and rising above the top of the kettle, substantially as and for the purpose specified. 4th. A flue opening through the bottom of the kettle and adapted to carry off the steam or fumes, said flue being integral with a partition wall or walls

for dividing the kettle into compartments, substantially as set forth. 5th. A pot or kettle having a double partition wall, a double bottom and a flue opening through its bottom, the sections forming the walls being integral with corresponding sections of the inner or supplemental bottom, substantially as shown and described. 6th. A blank consisting of the sections J J, provided with the curved ends m m, slot d, nicks f f and hole D, a blank consisting of the sections L M, provided with the curved end W, nick n and hole Q, and a blank consisting of the sections G H, provided with the curved end z, nick r and hole N, said blanks being bent or shaped and arranged to form the partition walls, flue and supplemental bottom of the kettle, substantially as shown and described.

No. 16,902. Improvements in Brick Machines.

(*Perfectionnements aux machines à briques.*)

Edwin F. Andrews, Saint Louis, Mo., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with the hammer of a brick-machine, of a pivoted latch or lever automatically operated by tappets on the side of the charger to engage and disengage from under the hammer, substantially as described and for the purpose set forth. 2nd. The combination, in a hammer brick-machine, of the pivoted cam block H, with the hook-bar O and disengaging mechanism, substantially as described, for the purpose set forth. 3rd. The combination, in a hammer brick-machine, of the ratchet bar L having teeth l, and adjusting holes and bolts $\frac{1}{2}$ U, with the pawl U, bell-crank lever M, pin m and hammer helve B, as described and for the purpose set forth. 4th. The combination, in a hammer brick-machine, of the pivoted cam-block H and operating-cam H, with the hook-bar O, disengaging lever N and sliding ratchet bar L, operated by the hammer helve B, substantially as described and for the purpose set forth. 6th. The combination, in a brick-machine, of a movable charger, vertically-moving mold-bottoms, lever E₂ and operating cam H, having a holding face h, as described and for the purpose set forth. 6th. The combination, of a movable charger, vertically-moving mold bottoms, with a lever E₂ operated by cam H, substantially as described, and for the purpose set forth. 7th. The combination, with a brick-machine, of the lever E₂, having a movable fulcrum that is automatically raised and lowered by the movement of the charger, substantially as described and for the purpose set forth. 8th. The combination of a lever E₂, movable fulcrum rod e, incline e', lever I and tappets i i with the mold bottoms C₁ and charger F, as described and for the purpose set forth. 9th. The combination of the charger F, having a removable table F₂, as described and for the purpose set forth. 10th. The charger F formed with an open-top oil chamber f₂, in combination with the capillary wicks f', removable table F₂ and plate f₃, attached loosely to the charger, as described and for the purpose set forth. 11th. The bumper P having its supporting frame P₁ extending down to, and resting on the anvil-block E, as described and for the purpose set forth.

No. 16,903. Combined Check Valve, Stop Cock and Blow-Off Cock.

(*Soupape de détente, robinet de retenue et robinet de vidange combinés.*)

James H. Blessing, Albany, N. Y., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with the casing A provided with the openings a a', having enlargements on their upper and lower sides at their points of junction with the conical body of said casings, as set forth, of a reversible hollow plug B, provided with openings b₁ b₂ b₃, severally arranged in relation to the upper and lower chambers of said plug, as shown and described, and the valve C, the whole being so constructed and arranged that the device may be optionally operated either as a check valve, a stop cock, or a blow-off cock, as specified. 2nd. The combination, with a casing A, having induction-opening a and eduction opening a', enlarged at their junction with the conical body of said casing, of a reversible hollow plug B, provided with openings b₁ b₂, adapted to interchangeably connect with the openings a a' of the casing A and the valve C, all constructed and arranged to operate as and for the purpose specified. 3rd. In a combined check valve and stop cock, the combination, with a rotatable hollow plug B, containing a puppet valve C and provided with an eduction opening b₂, as described, of an operating handle D, secured to the plug B in relation to the eduction opening b₂, as set forth, and adapted to operate as an index to the position of said eduction opening, as and for the purpose specified. 4th. The combination, with the hollow plug B provided with an opening in its head, for the purpose of introducing a valve C into the cavity of said plug, as described, of the screw-cap B' adapted to close the head of the plug B and to secure the operating handle D to said plug, as specified.

No. 16,904. Improvements on Car Trucks.

(*Perfectionnements aux châssis des chars.*)

Eleanor Whiting, (Co-inventor with Joseph N. Smith,) and Josephine M. Smith, Brooklyn, N. Y., U. S., 14th June, 1883; 5 years.

Claim.—1st. A truck-frame constructed of thin metal, comprising the contracted waist, consisting of the roof portion a and sides a' and the elevated platforms b b', the said frame having the spring housings and the pedestals formed on it, substantially as set forth. 2nd. The combination of the thin metal frame A formed, as shown, in substantially one piece, and the axial beam C extending through and secured to said frame, substantially as set forth. 3rd. The combination, with a metal truck-frame provided with sockets arranged to receive the brake staffs, of the said brake staffs provided with shoes e arranged to draw up into the sockets the double wedge D mounted to slide on the axial beam of the truck, the retracting spring and the chain G, all combined and arranged to operate substantially as set forth. 4th. A truck frame A cast from steel in one piece and comprising the roof portion a depressed at the middle and arched over the wheels, the elevated platforms b b' for the car body to rest upon, the sides a' drawn in at the middle of the truck, the housings for the springs and the jaws h of the pedestal, all substantially as and for the purposes

set forth. 5th. The combination, with the truck-frame, provided with sockets for the brake staffs, of the said brake staffs provided with shoulders *t*, the wedge D provided with a central part D₁ to take over and ride on the saddle plate E, and inclined wings D₂, the said saddle-plate, the beam C and the retracting spring, all arranged to operate substantially as set forth. 6th. The shoe of the brake, provided with a central recess *x* in the face that rests on the track, substantially as and for the purposes set forth. 7th. The combination, with the springs and their housings, of the spring seat *d* secured to the saddle *f*, and the said saddle, substantially as set forth. 8th. The combination, with the truck-frame provided with a housing for the springs, of the said springs, the cap *g*, seat *d* and saddle *f*, all constructed and arranged substantially as set forth. 9th. The combination, with the truck-frame provided with a housing for the springs, of the said springs, the seat *d* and the cushion block *v*, all arranged substantially as set forth.

No. 16,905. Piston Head for Engine Cylinders. (*Calotte de piston pour les cylindres de machines à vapeur.*)

Hugh D. Garrett, Philadelphia, Pa., U. S., 14th June, 1883; 5 years.

Claim.—1st. A piston head provided with levers and supports substantially as described, whereby the weight of the piston through said levers bears directly against the upper circumference of the packing rings, to expand the same in the upper part of the cylinder. 2nd. A solid piston head provided with levers and supports, substantially as described, whereby the weight of the piston through said levers bears directly against the upper circumference of the packing rings, to expand the same in the upper part of the cylinder. 3rd. A piston head provided with levers, supports and centering device, substantially as described, whereby the piston is centered in the cylinder and the weight thereof utilized through said levers, to bear directly against the upper circumference of the packing rings, to expand the same in the upper part of the cylinder. 4th. A piston head having a lever or levers fulcrumed in the lower portion of the piston head and extending into the upper portion so as to rest against the packing at that point with suitable bearings for the piston against the levers, whereby the weight of the piston is utilized to expand the packing, substantially as set forth. 5th. In a solid piston head, the combination of the levers B, bolts C and openings G, substantially as and for the purpose specified. 6th. The combination of levers B, bolts C and blocks D E, substantially as described. 7th. The combination of levers B, bolts C and their nuts *d*, and blocks D E, substantially as described. 8th. The combination of levers B, bolts C having the extension heads *d*, nuts *d* and blocks D E, substantially as described.

No. 16,906. Improvements in Elastic Stockings. (*Perfectionnements aux bas élastiques.*)

David D. M. Master, Flushing, N. Y., U. S., 14th June, 1883; 5 years.

Claim.—1st. An elastic stocking or similar bandage provided on each side with longitudinal flexible, but non-elastic stays, in combination with loops or straps attached to said stays, as set forth. 2nd. An elastic stocking or similar bandage provided on each side with a pair of longitudinal flexible, but non-elastic stays formed of a single piece, so as to form a loop at the top, in combination with loops or straps attached to said stays, as set forth.

No. 16,907. Improvements in Grain Cars.

(*Perfectionnements aux chars à grain.*)

Treat T. Prosser, Chicago, Ill., U. S., 14th June, 1883; 5 years.

Claim.—A railroad freight car composed of a stationary grain receptacle and a surrounding-revolving shell, the length of which exceeds the gage of the track, and which is encircled by flanged rings for supporting the car on said track, all substantially as and for the purpose specified.

No. 16,908. Improvements in Grain Cars.

(*Perfectionnements aux chars à grain.*)

Treat T. Prosser, Chicago, Ill., U. S., 14th June, 1883; 5 years.

Claim.—1st. In a freight car for transporting grain, the combination, substantially as specified, of the rolling grain receptacle and a fixed hopper or hoppers adapted to feed grain into the receptacle, while the car is running, to compensate for packing so as to keep the receptacle filled to full capacity. 2nd. In a freight car for transporting grain, the rolling grain receptacle having hollow journals and perforations in its shell, substantially as and for the purpose specified. 3rd. In a freight car for transporting grain, the combination, substantially as specified, of the rolling grain receptacle having perforations in its shell, the hollow journals thereof and the fixed hopper or hoppers adapted to feed grain into the receptacles, while the car is running. 4th. In a freight car the combination, substantially as specified, of the rolling grain receptacle or receptacles, the frame for drawing them, and the platform supported on the above receptacles. 5th. In a freight car for transporting grain, the combination, substantially as specified, of the rolling grain receptacle, the hollow journals thereof, the screw conveyed in the journals and the hoppers.

No. 16,909. Improvements in Saw Filing Machines. (*Perfectionnements aux machines à limer les scies.*)

Amos B. Fisher, Caribou, Mo., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination of bar E having means for adjusting it upon the saw, guide-bar L turning upon bolt K in bearing J, and having screw-threaded pin Q, and thumb-nut R, slotted segmental plate O supported upon arms N above the end of the bar E, and file frame V sliding upon bar L and fastened upon the end of hinged arm U, as and for the purpose shown and set forth. 2nd. The combination of bar E having means for adjusting it upon the saw, bent to one side,

forming an obtuse angle, and having transverse bar G, passing through the point of the angle, provided with screws H at both ends, and counter-balance I, guide-bar L, segmental plate O and file-frame V, as and for the purpose shown and set forth. 3rd. The combination and arrangement of expansion bushing A, perforated bar B, screw-bolt D, flat bar E having cross-bar G, weight I, bearing J, bar L having pin K, segmental plate O, sliding rod T, bent arm U, file W, frame V, clamps X Y Z and *a b c*, slides *d e f g*, handle *h*, spiral spring *i*, adjustable hook *j*, and arched slotted-plate *l*, all constructed to operate as and for the purpose shown and set forth.

No. 16,910. Improvements in Horse Shoes.

(*Perfectionnements aux fers à cheval.*)

Reuben G. Wilcox, Hiram Rapids, Ohio, U. S., 14th June, 1883; 5 years.

Claim.—1st. A detachable toe or side weight for horse shoes formed with an elongated mortise *f*, and provided with a spring *a* secured to its outer face, said spring having a lug *b* working in the perforation *c* of said weight, substantially as and for the purpose set forth. 2nd. The combination of the horse shoe H formed with a toe or side clip B, having an inclined slot *e* and perforation *d*, with the detachable weight C, formed with an elongated mortise *f* and provided with a spring *a*, having a lug *b* working in the perforation *c* of the weight, and engaging with the perforation *d* of the clip, all arranged to operate substantially as shown and described.

No. 16,911. System of Electric Distribution.

(*Système de distribution électrique.*)

Elihu Thompson, New Britain, Ct., U. S., 14th June, 1883; 5 years.

Claim.—1st. In an electric light and power system, the combination with an electric generator local circuit and two or more pairs of circuit closings, such as described, arranged in series in said circuit of a number of working light or power circuits, the two terminals of each of which are kept insulated from one another and formed into a plug for insertion between any pair of springs, whereby the working circuits may be included in series and in any desired combination, in the same generator circuit. 2nd. In an electric light and power system, the combination, with an electric generator, of two or more switch points or circuit closers arranged in series, a number of light or power circuits, the two terminals of each of which are brought into suitable proximity with the generator circuit and means, as described, whereby the light or power circuit may be interposed in series and in any desired combination or relation, in the same generator circuit. 3rd. In an electric lighting and distributing system, the combination of two or more electric generators, two or more pairs of springs for each generator through the opposed surfaces of which the circuit of a generator is closed in series, a series of lightening or distributing circuits, and a set of plugs forming the terminals of said circuits, whereby said circuits may be inserted as a part of, or removed from the circuits of said generators in any desired combination, or may be changed from one generator to another. 4th. A switch plug or plugs P provided with a symbol for indicating the direction of the current, when inserted between the switching surfaces, in combination with the switch board or spring having corresponding symbol. 5th. The combination, substantially as described, of two or more generators, a pair of circuit closing springs in each generator circuit, and two switch plugs constructed as described and joined by two insulated conductors. 6th. In an electric lighting and distributing system, the combination of two or more electric generators, each provided with a circuit containing a lamp or lamps operated by said generators independently, with a partial circuit common to the generators and containing lamps or equivalent resistances in which the energy given out, as useful work is due to the combined current strengths of the said generators or the differences thereof, according to the respective directions of their individual currents. 7th. The combination of two or more electric circuits, each containing one or more electric lamps, with a partial single circuit common to both, and in which partial circuit lamps of greater or less lighting power than those used upon the other parts of the circuits are placed and operated, substantially as described.

No. 16,912. Improvements on Drag-Saw Machines. (*Perfectionnements aux mécanismes des scies traînantes.*)

George G. Seeger, Hillsdale, Iowa, U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with the inclined legs and parallel bars, of a saw-lever journaled between said bars and projecting slightly above them to receive a counterbalance weight, while the lower end of said lever is provided with hinges, by which it is connected with the shank of the saw, and a saw-handle having the perforated segmental portion and adapted to move within the semi-circular guide secured to the rear ends of the parallel bars, substantially as set forth. 2nd. The combination, with the parallel bars and legs, and a saw operated by suitable means, of spring holders situated between the bars and adapted to hold the saw elevated above the wood, substantially as set forth. 3rd. The combination, with the saw-lever, of a two-part handle, one portion being secured to the lever and provided with a sector-bar, at its outer end, and the other portion being constructed to be adjustably secured to the sector-bar, substantially as set forth. 4th. The combination, with the saw-frame, lever, weight, saw and guide T, of a handle secured to the saw-lever and provided with the segmental portion W₂, as and for the purpose described. 5th. The combination, with the saw frame, lever, weight and saw, of an adjustable handle having the perforated segmental portion W₂, and moving within an arc-shaped guide T secured to the parallel bars, substantially as set forth.

No. 16,913. Improvements in Camp Stoves.

(*Perfectionnements aux poêles de camp.*)

Samuel J. McDowell and Josiah Knight, Boston, Mass., U. S., 14th June, 1883; 5 years.

Claim.—1st. A sectional sheet metal oven, in combination with a flue space all around it, and a sectional refractory bottom, all arranged and operating substantially in and for the purpose set forth. 2nd. The combination of the sectional oven G, provided with the openings 7 and flange 8, with the sectional oven-case and the separate sleeve 9 adapted to such case and flange, all being arranged and constructed substantially as set forth. 3rd. The combination of the outer casing and oven, constructed in sections, and arranged and provided with the flange 8 and sleeve 9, as described, with one or more shallow pans 13, arranged in the oven and upon its bottom, and charged or to be charged with sand as explained.

No. 16,914. Improvements in Force Pumps.

(*Perfectionnements aux pompes foulantes.*)

Daniel Johnson, Jacob P. Cowan and Frank Cowan, Ashland, Ohio, U. S., 14th June, 1883; for 5 years.

Claim.—1st. A forcing pump consisting of the cylindrical compression chamber provided with an offset *b*, the pipe *c* connected to said offset, the pipe *d* arranged within the pipe *e*, opening into said offset and connected at its upper end with the spout *k*, the bulb B connected to the pipe *e*, and the casting *g* secured in said bulb, and the piston rod outside of said pipes provided with pistons, the parts being combined and adapted to operate as shown and described. 2nd. A pump piston consisting of the two tapering blocks, the packing, the ring and the spindle, with means, substantially as described, for pressing the blocks together, as set forth. 3rd. A force pump consisting of the cylinder of variable bore, and provided with an offset in said cylinder and having suitable pistons for lifting the water, in combination with the water exit pipe surrounded by the air protecting pipe, as set forth and described.

No. 16,915. Improvements in Tire Tighteners. (*Perfectionnements aux serre bandages des roues.*)

Sumner Basford, Bangor, Me., U. S., 14th June, 1883; 5 years.

Claim.—1st. The cylinder or socket *e* secured to the face of the spoke *b*, between the hub *a* and felly *c*, and operating, substantially by the mechanism described, to force said felly outward, as set forth and shown. 2nd. The socket *e* secured to the face of the spoke by means of the split link *g* and wedge *h*, in combination with the screw-bolt *i*, nut *j* and crutch *k*, or equivalent devices, all arranged within the inner circumference of the felly and operating to enlarge the same, substantially as and for the purposes set forth. 3rd. In combination with the crutch shaped bearing *k* or like device adapted to clasp the under side of a wheel felly, the lining or funder *l*, as and for the purposes set forth. 4th. In combination with a tire tightener operating to tighten the tires of wheels by increasing the diameter of the fellyes, the disks *p* adapted to fit into and fill the cavities *o* between the ends of the spokes *b* and said tires, as set forth.

No. 16,916. Improvements on Barbed Fence Wire. (*Perfectionnements au fil de fer des clôtures barbelées.*)

George M. Fish, Joliet, Ill., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with a fence wire, of a barb and a perforated plate, constructed and locked together, substantially as described. 2nd. The combination, with a fence wire composed of two strands, of a plate arranged upon one side of said strands, and a barb passing between said strands, and having a bearing against the other face of the plate, all substantially as described. 3rd. The combination, with a fence wire composed of two strands, of a perforated plate confined between said strands, and a barb passing between the strands in the opening of the plate, and having a bearing against one side of the plate, substantially as described. 4th. A barbed fence wire composed of two strands, twisted together at a point intermediate the barbs, but otherwise arranged substantially parallel to each other, as shown and described.

No. 16,917. Machine for Drying and Cooling Grain and Other Substances. (*Machin pour sécher et rafraîchir les grains et autres substances.*)

Stanley E. Worrell, Hannibal, Mo., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination of the inclined revolving metal cylinder or case containing cups or troughs and partly inclosed or surrounded by a furnace or heating chamber, with the means of producing a current of air, and appliances for varying the inclination of said cylinder and rotating it, substantially as described. 2nd. The combination of the inclined revolving metal cylinder or case containing cups or troughs and partly enclosed or surrounded by a furnace or heating chamber, and appliances for varying the inclination of said cylinder and rotating it, substantially as described.

No. 16,918. Improvements in Grinding Mills. (*Perfectionnements aux moulins à blé.*)

James M. Collier, Atlanta, Ga., U. S., 14th June, 1883; 5 years.

Claim.—1st. A grinding mill constructed substantially as shown and described, and consisting of the frame A, the stationary concave stone B, the cylindrical runner C and the hinged supporting racks D R, as set forth. 2nd. The combination, with the frame A and the stationary stone B, of the hinged rack D, the connecting rods G, the cross bars I and the rock shaft J, substantially as shown and described, whereby the said stone can be adjusted by turning the said shaft, as set forth. 3rd. The combination, with the frame A and the cylindrical runner C, of the hinged rack R, the connecting rods Q, the cross bars I and the rock shaft J, substantially as shown and described, whereby the said runner can be adjusted by turning the said shaft as set forth. 4th. The combination, with the frame A and the racks D R that carry the grinding stones, of the connecting rods

G Q, the cross bars I and the rock shaft J, substantially as shown and described, whereby both stones can be adjusted by one operation, as set forth. 5th. The combination, with the rack D, carrying the stationary stone B and the connecting rods G, of the hook nuts H, substantially as shown and described, whereby the said connecting rods can be readily detached from the said rack, as set forth. 6th. The combination, with the rock shaft J carrying the cross bars I and connecting rods G Q, of the lever K, rack segment L, gear-wheel M and ratchet and pawl O P, substantially as shown and described, whereby the said shaft can be readily turned to adjust the stones, and will be securely held when adjusted, as set forth. 7th. The combination, with the frame A and the rack R, that carries the runner of the stationary bolts W, substantially as shown and described, whereby the said rack can be locked in place, as set forth. 8th. The combination, with the feed hopper *b*, of the roller K and its driving mechanism, substantially as shown and described, whereby the material is fed to the grinding stones in uniform quantities, as set forth.

No. 16,919. Improvements in Sofa Beds.

(*Perfectionnements aux sofas-lits*)

Henry F. Hover, Philadelphia, Penn., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination of the folding wings A¹ A¹ and back rail B, with the self-acting latch or catch *b* and plate *g*, substantially and for the purposes specified. 2nd. The double-hinged block *f*, or its equivalent, interposed between the inner ends of the rails *d d*, and notched, recessed, or otherwise inserted into the supporting ledge *c*. 3rd. The bureau or chest E, formed under the mattress frame, as described, and having the front part of the mattress adapted to form a movable lid for the same. 4th. The self-acting latch or catch *b* constructed in the form and manner shown and described and adapted to lock the end of the wing A¹ to the back rail B, by dropping into place by its own weight. 5th. The ornamental finishing rail F, inserted by dowels *h h* into the upper edge of the cushion C, and removable at pleasure. 6th. The combination of the bedstead frame A, wings A¹ A¹, back-rail B, self-acting latch or catch *b*, duplex cushion or mattress C, with double set of hinges *e e* at each end, intermediate block *f*, or its equivalent, recessed or inserted into the supporting ledge *c*, bureau or chest E and removable top rail F, to form a combined and convertible sofa and bed, substantially as shown and described.

No. 16,920. Improvements in Harvesters.

(*Perfectionnements dans les moissonneuses.*)

David Patterson, Northwood, Ont., 14th June, 1883; 5 years.

Claim.—An attachment to a harvester consisting of the supplemental finger bar A, provided with means of attaching the same to the harvester, and with the fingers located above and projecting downward in front of the guard fingers of said harvester, each of said supplemental fingers having a concave lower face in cross-section, and a convex in longitudinal section, and provided with a longitudinal rib on its upper face and with an elongated head, substantially as and for the purposes described.

No. 16,921. Improvements in Pitch-Forks.

(*Perfectionnements aux fourches à foin.*)

Francis L. Brandon, Hicksville, Ohio, U. S., 14th June, 1882; 5 years.

Claim.—1st. The single strip or piece forming the end tines and bowed or arched at its centre to form an upturned back, as set forth. 2nd. The combination, with the tines of the fork secured in a cross piece or brace, or equivalent device, and with the back D arranged back of, or at the cross piece, of the handle connected with the tine portion of the fork and with the said back, as set forth. 3rd. The combination, with the arched piece forming the two end tines, and with the middle tines, of the cross brace or strips provided with openings through which the tines pass and secured on the latter, as set forth. 4th. The combination, with the single strip forming the end tines and bowed or arched at its middle portion to form a back, and with the cross piece having a series of openings, of the middle tines, the rear ends of which are passed through these openings and then turned upwardly and secured to the arch, as set forth. 5th. The combination of the arched piece forming the end tines, the cross piece or strip having a series of openings, the middle tines having upturned ends, and the rod or handle secured to the arch and cross piece, as set forth.

No. 16,922. Improvements in Valves.

(*Perfectionnements dans les soupapes.*)

James H. Blessing, Albany, N. Y., U. S., 14th June, 1883; 5 years.

Claim.—1st. The combination, with a valve-casing A, whose partition *a* is provided with an annular tongue *a*, as described, of the removable valve-seat *c*, provided with an annular groove *c*, adapted to engage with the annular tongue of the valve casing and maintain the centrality of said valve-seat, as specified. 2nd. The combination, with a removable seat C provided on its under side with an annular groove *c*, and with passages *c* *c* leading into and out of said annular groove as set forth, of the annular tongue *a* and packing *c* *2*, as and for the purpose specified.

No. 16,923. Improvements in Corn Planers. (*Perfectionnements aux semoirs à blé d'inde.*)

Randolph O. Robinson, Gidden, Iowa, U. S., 14th June, 1883; 5 years.

Claim.—The combination, with the wheels A, the axle B, the seed slide E, provided with arm R and hoppers D, of the sleeve H bolted to one of the wheels the drum G, the clutch K, radial arm Q Q provided with cams P P, and radial arms T T provided with markers S S, intermediate between them, substantially as and for the purpose set forth.

No. 16,924. Improvements in Fruit Evaporators. (*Perfectionnements aux séchoirs à fruits.*)

Charles B. Irish, Grande Isle, Vt., U.S., 14th June, 1883; 5 years.

Claim.—1st. The close, hollow base pan *a* having above it a series of close hollow shelves *b*, supported by intermediate upright central tubes *c*, forming passages *k* communicating with the chambers *l* of the shelves, and in line with an upper feeding vessel, the whole forming an entire hollow shelved vessel, substantially as specified. 2nd. The combination, with the hollow shelved vessel *A*, having the base pan and central tubes supporting the shelves, of the open bottom enclosing jacket having an opening at its top, substantially as specified. 3rd. The combination, with the hollow shelved vessel *A* and its enclosing jacket, of the movable perforated under shelves in position close to the bottom thereof, substantially as specified.

No. 16,925. Improvements in Vehicle Springs. (*Perfectionnements aux ressorts des voitures.*)

Charles R. Wilson and Joseph C. Wilson, Detroit, Mich., U. S., 14th June, 1883; 5 years.

Claim.—1st. A vehicle spring for side-bar vehicles consisting of a top section adapted to be directly or indirectly secured to the body, and a bottom section adapted to be secured to the side bars, said sections supported by intervening blocks *C* located at the right and left of the middle point, substantially as described. 2nd. A vehicle spring for side-bar vehicles consisting of a top section adapted to be directly or indirectly connected with the body, a bottom section adapted to be connected with the side bars, a block *C* interposed between the top and bottom sections at the right and left of the middle point, the space between the blocks being left open, substantially as described.

No. 16,926. Improvements in Steam Engines. (*Perfectionnements dans les machines à vapeur.*)

James S. Parmenter, Woodstock, Ont., 16th June, 1883; 5 years.

Claim.—1st. In a steam engine having a reciprocating piston-rod, a pin sliding in a guide attached to or forming part of said rod, the said rod in combination with two spiral guides formed on the periphery of a cylindrical block fixed to a forming part of the main engine-shaft, the said guides being inversely formed upon the cylinder, the ends of the one meeting the ends of the other, so that the pin moving with the piston-rod, and following the channel of one guide shall, upon reaching the end of the stroke and commencing to travel on the return-stroke, be directed to the depressed part of the other guide, thereby imparting to the grooved cylinder a rotary movement in the same direction, derived by it from the contrary movement of the piston-rod, and thereby the reciprocating movement of the piston-rod imparts the required rotary motion to the main shaft, substantially as described. 2nd. The combination, with a cylinder, reciprocating piston, and its rod and cross-head, of a shaft *D* arranged parallel with the piston-rod, a cylinder *G* secured upon said shaft, having two spiral grooves *H* set inversely to each other, the end of one groove being deeper than the contiguous end of the opposite groove, and a spring *J* attached to said cross-head and adapted to rise up the incline at the end of one groove, and drop into the recess at the beginning of the other, substantially as and for the purpose specified.

No. 16,927. Improvements in Locks.

(*Perfectionnements dans les serrures.*)

Napoléon J. Côté and Jean B. L. Rolland, jr., Montreal, Que., 16th June, 1883; 5 years.

Claim.—1st. The combination, with a suitable back plate, of a slotted bolt and a revolving front plate, arranged and operating substantially in the manner and for the purpose set forth. 2nd. The combination, with a suitable back plate, a slotted bolt and a revolving front plate provided with two or more holes, of the key *D* having projections *e* *c* fitting into said holes, substantially as and for the purpose described. 3rd. The combination of the back plate *A*, bolt *B* having slots *b* *h*, revolving front plate *C* provided with holes *c* *c*, revolving key plate *E* and escutcheon *F*, as and for the purpose set forth. 4th. The combination of the key *D* having a gear formed thereon and a projecting end *d*, with the revolving front plate *C* having geared opening, slotted bolt *B* and back plate *A*, substantially as and for the purpose set forth.

No. 16,928. Improvements in Grain Cars.

(*Perfectionnements aux chers à grain.*)

Treat T. Prosser, Chicago, Ill., U. S., 16th June, 1883; 5 years.

Claim.—1st. A freight cylinder, the flanged tires of which are frictionally secured on metal hoops, which are in turn positively secured to the cylinder, substantially as set forth. 2nd. A freight cylinder, the flanged tires of which are frictionally secured between riveted confining strips on metal hoops, which are in turn positively secured to the cylinder, substantially as set forth. 3rd. A freight cylinder lined on its interior surface with felt or its equivalent, substantially as and for the purpose set forth. 4th. The combination, substantially as set forth, of the head of the freight cylinder, the tubular journal thereof, the check-plate on the exterior of said head, and the nut on the interior thereof. 5th. The combination, substantially as set forth, of the tubular journals, the nuts on the interior of the heads of the cylinder, and the sectional perforated pipe for connecting the said nuts. 6th. The combination, substantially as set forth, of the journal nuts having inclined ends, the reversely-inclined fixed seat on the draft-frame, and the spring or springs for yieldingly connecting the draft-frame to the journal box.

No. 16,929. Improvements in Smelting Furnaces. (*Perfectionnements aux fourneaux de fusion.*)

Benjamin Bayliss, Pittsburgh, Pa., U. S., 16th June, 1883; 5 years.

Claim.—1st. The chamber *A* having the air blasts *a* *b* and sloping back wall *a*, substantially as and for the purpose set forth. 2nd. The chamber *A* having the air blasts *a* *b*, sloping back wall *a* and steam pipe *a* *b*, substantially as and for the purpose set forth. 3rd. The combination of the chamber *A* and the chamber *B* having a sloping bottom *b*, substantially as and for the purpose set forth. 4th. The combination of the chamber *C* and steam pipes *c*, substantially as described. 5th. The combination of the flue chamber *D* with the water jacket *d*, substantially as and for the purpose set forth. 6th. The combination, with the chamber *A* of the chambers *B* *C* *D*, substantially as described and set forth, and for the purposes mentioned.

No. 16,930. Improvements in Memorandum Books. (*Perfectionnements aux agendas.*)

The Grip Printing and Publishing Company, (Assignee of John R. Carter), Toronto, Ont., 16th June, 1883; 5 years.

Claim.—1st. In a cover for holding the pages of paper forming a memorandum book, the combination of a wire bail, the ends of which are securely fastened on either side of the cover and, extending across the inside of the same, forms a spring hold-fast for retaining the leaves in position. 2nd. In a cover for holding the pages of paper forming a memorandum book, a wire bail extending across the side of the cover to which its ends are secured and curled at or near the point of connection in order to form projections designed to prevent the lateral displacement of the leaves. 3rd. In a cover in which one-half is provided with a stiff curved back *a*, and the other half flexibly connected thereto, a spring bail *B* secured as described to one side of the cover *A*, and provided with spikes *b*, in combination with the leaves *D*, perforated as described and placed below the spring bail with the spikes *b* entering the perforations. 4th. In a cover provided with a spring bail arranged to hold within the cover the leaves of a memorandum book, the combination of an index sheet held in position by spring bars extending across the inside of one-half of the cover.

No. 16,931. Improvements in Sewing Machines. (*Perfectionnements dans les machines à coudre.*)

Richard M. Wanzor, (Assignee of Asha Abell), Hamilton, Ont., 16th June, 1883; 5 years.

Claim.—1st. The combination of the parts for operating the shuttle, consisting of the eccentric *G* on the shaft *B*, the same being provided with collars *K* *K*, a hub *V* and enclosed in an eccentric box *H* in two halves, and the eccentric and box enclosed on the sides in an outer casing *D*, and attaching the vertical spindle at the top, to the same, by a pivot pin *E*, and at the bottom, to the horizontal shuttle arm *I*, and taking up the wear of the eccentric *G*, by the screw *F*, substantially as and for the purpose specified. 2nd. The combination of the cam *M*, on the shaft *B*, the cam rod *N*, the feed lever *Q* and feed bar *S*, for operating the feed mechanism, substantially as and for the purpose specified. 3rd. In combination with the feed lever *Q*, the bracket *u*, also the same provided with hollow projections *s*, packing *g*, plunger *t* attached to end of said feed lever *Q* working in said hollow projection *s* to deaden the sound of the feed as set forth. 4th. The bobbin post *a*, the same provided with lugs *c*, the swiveling tension arm *d*, spring *e*, the same being hinged to the post by spindle rod *b*, and the post also provided with an auxiliary spring *t* to depress the spring *g* when so desired, and a lug *h* to keep the arm in place, substantially as and for the purpose specified. 5th. In combination with a sewing machine, the throat plate in two parts, the one *T* being stationary, and the other *U* movably pivoted to the machine, substantially as set forth. 6th. The device for throwing the hand wheel *W* in and out of gear, consisting of the recessed hub *u* of the wheel *W*, having notches *C* cut in it, the hollow threaded screw *e*, the same provided with a notch *e* *1*, the spindle *f* *1* passing through the same, the spring *r* surrounding the spindle, the dog *h* made to catch and work in and out of the notches *c* of the hub *u* (*11* and *e* *1*) of the screw-head *e*, the latter having its threaded portion screwed into the hollow screw-threaded shaft *s*, as shown at Fig. 7, substantially as and for the purpose specified. 7th. The combination of the wheel *u*, cam *b*, pin *p*, for regulating the stitches, as specified.

No. 16,932. Improvements in Strap Hinges.

(*Perfectionnements aux joints des courroies.*)

William M. Kurtz, Columbus, Ohio, U. S., and David Martin, Galt, Ont., 16th June, 1883; 5 years.

Claim.—1st. A strap hinge consisting of a strap leaf *A*, provided with upturned side ears or flanges *b* *b*, combined with strap leaf *B* formed with tubular knuckle *c* and pintle *a*, substantially as set forth. 2nd. A strap hinge consisting of a strap leaf provided with upturned ears or flanges, and separate and independent re-enforcing blocks, in combination with a strap leaf formed with a tubular knuckle received between the two ears of the other leaf, and a pintle which passes through said knuckle, ears and external re-enforcing blocks, substantially as shown and described. 3rd. The re-enforcing block *c*, in combination with a strap hinge, substantially as described.

No. 16,933. Improvements on Portable Ovens. (*Perfectionnements aux fourneaux portatifs.*)

Samuel J. McDowell and Josiah Wright, Boston, Mass., U. S., 16th June, 1883; 5 years.

Claim.—1st. The outer casing *F* consisting of doubled sheet-metal lined with asbestos, and the inner casing *E* of sheet-metal having its lower portion protected by a covering *E* *2* of sheet-metal, and interposed layer *E* *1* of asbestos, substantially as shown and set forth. 2nd.

The portable oven consisting of the outer asbestos, lined casing F, inner casing E having protecting shells E¹, E², fire-plate K, door J, removable furnace B suspended in slides D, detachable legs U, pipe O and smaller pipe P, all constructed and combined substantially as and for the purpose shown and set forth.

No. 16,934. Improvements on Window Fasteners. (*Perfectionnements aux arrêtoirs croisés.*)

William R. Miller, Andrew E. Miller and William Raine, Guolph, Ont., (assignees of Samuel Wicks, Springfield, Mass., U. S.,) 16th June, 1883; 5 years.

Claim.—A metal frame C arranged to be screwed to the edge of the window-frame and having, on its inside, a boss G, to form the pivot point of the lever E, and a recessed bracket I, to retain the end of the spiral spring I, in combination with the lever E, having a piece of rubber F inserted in its face, and a teat J on its back, substantially as and for the purpose specified.

No. 16,935. Improvements in Elevators. (*Perfectionnements dans les ascenseurs.*)

Lorenzo D. Hawkins, Stoneham, (assignee of John H. Webster, Boston,) Mass., U. S., 16th June, 1883; 5 years.

Claim.—1st. The combination of a flanged stop wheel, whether acting by cogs or by friction, with a broken friction-ring, actuated to produce friction by the contact of its outer surface, expanded by a wedging device, placed between the ring ends, with the inner surface of the flange, all substantially as described and shown. 2nd. The combination, with the elevator cage or platform, of one or more racks and flanged cog wheels, the latter provided with one or more broken rings, and the twisting block J, or its mechanical equivalent, actuated through the lever K, or its equivalent, by the hanging bolt Q, all substantially as described and shown. 3rd. The combination, with the elevator cage or platform, of one or more racks and flanged cog-wheels, the latter provided with one or more broken rings, and the twisting block J, or its mechanical equivalent, actuated through the lever K, or its equivalent, by the hanging bolt Q, with the stop-bar T and its fulcrum, all substantially as described and shown.

No. 16,936. Improvements in Harvesters. (*Perfectionnements dans les moissonneuses*)

Joseph H. Blain, Henry H. Osgood and Abraham L. Blain, (assignees of William F. Cornell and Wesley Smith,) Adrian, Mich., U. S., 16th June, 1883; 5 years.

Claim.—1st. The combination of the rock-shaft F having forked arm G, the sliding rod H having forked arm I, flange K and washer L, the spring M interposed between said arm I and washer, and mechanism for manipulating the rock-shaft by the raising or lowering of the driver's seat, as set forth. 2nd. The combination of the seat-bar O having plate P, provided with socket Q and opening R, the seat S having stud T, the coiled spring U, placed in socket Q encircling the stud P, the pin B² adjustable in transverse perforations in the socket and stud, the connecting rod X, rock-shaft F, and mechanism operated by said rock-shaft for throwing the machine in or out of gear, as set forth.

No. 16,937. Improvements in Wire Cloths. (*Perfectionnements aux tissus métalliques.*)

The E. T. Barnam Wire and Iron Works, (assignees of Theodore L. Smith,) Detroit, Mich., U. S., 16th June, 1883; 5 years.

Claim.—A wire dummy form composed of a seamless woven wire netting, in combination with rings L, rods or wires K and a top-piece A, recessed for the reception of a supporting standard, substantially as described.

No. 14,938. Improvements in Butter Packages. (*Perfectionnements aux boîtes à beurre.*)

Cicero D. Van Allen, Brussels, Robert A. Climie and John M. Climie, Listowell, Ont., 16th June, 1883; 5 years.

Claim.—1st. The package A provided with the bevelled corners F F, substantially as shown and described and for the purpose specified. 2nd. The package A, provided with bevelled corners F, and waterproof lining E, clamps D D and cover B, provided with packing C, substantially as shown and described and for the purpose specified.

No. 16,939. Improvements in Balanced Slide Valves. (*Perfectionnements aux tiroirs de vapeur équilibrés.*)

Frederick W. Richardson, Troy, N. Y., U. S., 16th June, 1883; 5 years.

Claim.—1st. In combination with the supplemental port, a balancing device and an exhaust cavity in a valve for steam-engines, the perforation or channel connecting the exhaust with the shallow chamber on top of the valve, said perforation being made through a centrally located stud, substantially as and for the purposes set forth. 2nd. The combination and arrangement of the slide valve having the supplemental channel for conveying live steam in the manner explained, the four packing strips located in grooves cut in the top of the valve, the central perforation connecting the exhaust cavity and a shallow chamber formed in the top of the valve, and the balance plate, substantially as shown and described.

No. 16,940. Device for Indicating the Presence of Fire Damp in Mines and Giving Notice Thereof. (*Appareil pour indiquer la présence du feu grisou dans les mines et en donner l'éveil.*)

Isidor Kitsee, Cincinnati, Ohio, U. S., 16th June, 1883; 5 years.

Claim.—1st. The method and means, or equivalent means, described, for indicating the presence of fire-damp in a mine in dangerous volume, at a point or station distant from the point where such fire-damp exists, by the ignition or combustion of fire-damp, closing a normally broken electric circuit to actuate suitable signalling devices. 2nd. The method and means, or equivalent means, described, for indicating the presence of fire-damp in a mine in dangerous volume at a point or station distant from the point where such fire-damp exists, by the ignition or combustion of fire-damp, breaking a normally closed electric circuit, to actuate suitable signalling devices. 3rd. The method and means, or equivalent means described, for indicating the presence of fire-damp, at a specific point or place in a mine, at a point or station distant from such place where the fire-damp exists, by the ignition or combustion of fire-damp breaking a normally closed electric circuit or closing a normally broken electric circuit to actuate signalling devices, giving a specific signal indicative of the said specific place or spot of the mine where such fire-damp exists. 4th. The method and means, or equivalent means, described, for indicating the presence of fire-damp at any specific point or portion of a mine, at a station or point distant from that where the fire-damp exists, by the ignition or combustion of the fire-damp within a lamp or other receptacle closing a normally broken electric circuit, or breaking a normally closed electric circuit, a series of, or all such lamps, or receptacle being within the same electric circuit and arranged to operate independently of each other, and actuate the signalling devices so as to give a specific signal, to indicate the precise point of the mine where such fire-damp exists. 5th. The construction of safety lamp, or other apparatus, whereby a normally broken electric circuit may be automatically closed by the ignition or combustion of fire-damp within such lamp, or other apparatus, whenever such is present in sufficient volume either through the medium of an expandible metal or by establishing a contact between the wires of a circuit, as described and shown in figs. 1 to 7, inclusive. 6th. The construction of safety lamp or other apparatus whereby a normally closed electric circuit may be automatically broken by the ignition or combustion of fire-damp within such lamp or other apparatus wherever such is present in sufficient volume, as described and shown in figs. 8 to 9 and 10. 7th. The construction of circuit breakers, as described and shown in figures 11 12 and 13, in combination with a lamp or analogous apparatus, for the purpose specified.

No. 16,941. Improvements in Knitting Machines. (*Perfectionnements dans les machines à tricoter.*)

John Bradley, North Chelmsford, Mass., U. S., 16th June, 1883; 5 years.

Claim.—1st. In a circular knitting machine, the combination, with a needle cylinder having two series of needles arranged in two concentric circles, of a stationary thread guide and a vibrating thread-guide, adapted to actuate different coloured threads, whereby vertical stripes may be formed in the fabric, substantially as described. 2nd. The combination, with a needle-cylinder having two series of concentric needles, of a stationary thread-guide and two vibrating thread-guides, each adapted to actuate a different coloured thread, whereby vertical and horizontal stripes may be formed in the fabric, substantially as described. 3rd. The combination, with a circular needle-head having two series of concentric needles, of a stationary thread-guide, two vibrating thread-guides, a stationary knife and a horizontal toothed actuating-wheel suspended within the series of needles, whereby the threads of the vibrating-guides may be alternately severed, as and for the purposes set forth. 4th. The combination, with the circular needle-head B having two series of concentric needles E and H, of the horizontal toothed actuating wheel U, cam-plate V, pawl C, arm B, ratchet-wheel M, face-cams P H, cam-rods S T, vibrating thread-guides L N, bracket-plate G provided with a groove E, and the stationary knife F, substantially as described and for the purposes set forth.

No. 16,942. Compound for Lining Vessels. (*Composition pour doubler les vaisseaux.*)

Edgar G. Frisbie, Monroe, Mich., U. S., 16th June, 1883; 5 years.

Claim.—A compound for coating or lining the inside of vessels intended to contain butter, lard, oils, beer, wines, liquors, or mineral waters, and for preparing wrapping paper to be used for wrapping meat, lard, butter, etc., consisting of shellac, beeswax, whiting and alcohol, in about the proportions specified.

No. 16,943. Improvements in Thrashing Machine Separators. (*Perfectionnements aux séparateurs des machines à battre.*)

Francis J. Craig, Sarnia, Ont., 16th June, 1883; 5 years.

Claim.—The combination of the straw deck B, borne upon a two-throw crank shaft D and hung to swinging hangers F F, and the grain deck C hung near one end from rock shaft G by hangers H H pivoted to the opposite and inner sides of deck C, the hangers H H connected to crank shaft D, by pitmans K K pivoted to the hangers H H, the other end of deck C supported on shaft I hung in hangers J J, and both decks reciprocating in opposite directions by rotation of shaft D, as set forth.

No. 16,944. Sounding Board for Upright Piano Fortes. (*Table d'harmonie pour les pianos droits.*)

Frederick Pitt, Ionia, Mich., U. S., 16th June, 1883; 5 years.

Claim.—1st. An upright piano having the wrest-plate A constructed in one piece with the frame B, or rigidly attached thereto, in combination with an undivided sound-board extended above and beyond the range of the tuning-pins, substantially as described. 2nd. An upright piano-forte having an undivided sound-board extended above and beyond the range of the tuning-pins, in the manner and for the purpose substantially as specified.

No. 16,945. Improvements in Harvesters.*(Perfectionnements aux moissonneuses.)*

John Keys, Beloit, Ks., U.S., 16th June, 1883; 5 years.

Claim.—1st. In combination with the platform having an upward inclination to the rear, the endless belts or chains having the rake head hinged thereto, substantially as shown. 2nd. The combined rake and reel consisting of the endless belts or chains provided with the fixed reel blades, and the rake-bar attached thereto by hinged arms, substantially as shown. 3rd. In combination with the platform having an upward inclination to the rear, the endless reel belts or chains provided with the fixed and the hinged blades or bars, and arranged to approach the surface of the platform as they travel from its front to its rear, whereby the slats are caused to assist in retaining the moving grain in position. 4th. The combination of the inclined platform, the endless belts or chains, the rake head connected to the belts by hinged arms the tripping arm attached to the hinged arms, and the stud to act upon the tripping arm and elevate the rake head at the completion of its action, substantially as shown. 5th. In combination with the travelling rake head, the hinged presser bar arranged to travel in advance thereof, the sustaining arms upon said presser bar, and the stationary tracks or cams to carry the sustaining arms while the compressor bar is pressing upon the grain. 6th. The combination of the endless chains, the rake head attached thereto by hinged arms, the presser bar hinged to and in advance of the rake head, and means, substantially as described, to sustain the presser-bar until it has passed over the butts of the grain. 7th. In combination with the reel, the fixed posts, the notched hinge post and means, substantially as described, for securing the hinged posts in position.

No. 16,946. Improvements in Thrashing Machines.*(Perfectionnements dans les machines à battre.)*

George W. Sharp, Crawfordsville, Ind., U. S., 16th June, 1883; 5 years.

Claim.—1st. A band-cutting and feeding attachment for thrashing-machines, the side tables G having carriers which operate to move the grain toward the central carrier between them, in combination with the oscillating band-cutters K, which operate transversely of the direction in which said carriers operate (their forward paths being nearer the paths of the centres of the sheaves than their backward paths) and located between said carriers, substantially as and for the purpose set forth. 2nd. The combination, with the cylinder and grain-carriers of a thrashing-machine, of a rotary feeder F, consisting essentially of two-toothed bars $f_1 f_2$, parallel to, but on opposite sides of its axis, connected together and adapted to revolve round their axis, and also to move longitudinally, the operating bars β and the strikes γ on the frame-work, with which the said operating bars come in contact as F is revolved, whereby the toothed bars are caused to make sudden longitudinal movements for the purpose of distributing the grain, substantially as and for the purpose set forth. 3rd. The combination, with the cylinder of a thrashing-machine and the side-tables of a band-cutter and feeder for the same, of the rotary shaft F₁, parallel to the shaft of the cylinder, and the shafts G₁ arranged at right angles therewith and located so as to drive the mechanism of the side-tables, and the gear wheels F₂ ρ , whereby the shafts G₁ G₂ are driven by F₁, substantially as and for the purpose set forth. 4th. In a band-cutter and feeder for a thrashing-machine, the combination of the adjustable side-table G, band cutting mechanism and carriers therein, the shaft G₁ for driving said mechanism, and the combined journal and pivot boxings L, in which said shafts run and whereon said tables are pivoted, whereby the axis of rotation of the shaft and of the swing of the table is rendered coincident, substantially as and for the purpose set forth. 5th. The combination, with the side-tables G, of the extensions O, the lever P and the cam Q, on the shaft G₁ for operating it, substantially as and for the purpose set forth. 6th. The combination of the side-table G, the carriers ρ_2 , band-cutter K and the spring bars H, to hold the sheaves in position, the several parts being constructed and arranged and operating substantially as and for the purpose set forth. 7th. The combination, with the side-table G, of the table-leg M, the rack-bar m , the pinion n_2 , the clevis m_2 , the shaft N, and the ratchet n_2 , arranged and operating substantially as and for the purpose set forth. 8th. The combination, with the grain carriers ρ_2 , of the fingers G₃, revolving simultaneously, arranged parallel with each other and moving faster above the table than said carriers, substantially as and for the purpose set forth. 9th. The combination, with a thrashing-machine and an automatic band-cutter and feeder thereof, of the counter-shafts C D, the cone pulleys C₁ D₁, the belt c_1 and the belt shipper E, combined, arranged and operating, substantially as and for the purpose set forth. 10th. In a self band-cutter for a thrashing-machine, the combination of the two parallel shafts J₁ J₂, the transverse cutter-bar K with its blades $k_1 k_2$, the shaft G₁, the gear-wheel ρ_1 and the gear-wheels of half its size ρ_2 , the oscillating toothed bars $\rho_2 \rho_2$, and the belt β_2 located within the table and arranged so that the bands are cut by the upward stroke of k_2 , and yet the path of the sheaves is unobstructed during the greater portion of their forward movement, substantially as and for the purpose set forth.

No. 16,947. Improvements in Car Axle Boxes.*(Perfectionnements aux boîtes à graisse.)*

Eleanor Whiting, Brooklyn, N. Y., U. S., 16th June, 1883; 5 years.

Claim.—1st. An axle box comprising a shell or housing provided with a cap to close its outer end, and an abutting flange at its inner end, a thimble which fits over the axle and is secured thereto, and which is provided with a flange, at its inner end, arranged to abut against the flange on the housing, a boxing provided with internal grooves mounted on the axle-thimble and arranged to abut against the flange thereon at its inner end, means, substantially as described, for preventing the boxing from turning with the axle, and an intermediary part arranged between the outer end of the boxing and the cap proper, which closes the outer end of the housing, all arranged

substantially as set forth. 2nd. The combination with the housing and boxing of an axle box, and the axle spindle of a thimble D, arranged to fit snugly on the said spindle, but so as to be readily removable therefrom, said thimble being provided with a flange c , adapted to be clamped between the boxing and the housing, and with means for securing said thimble removably to the spindle, substantially as set forth. 3rd. The combination, with the shell or housing constructed cylindrical interiorly, of the boxing E, arranged to be turned half way around in the said housing when worn on one side, all constructed and arranged to operate substantially as set forth. 4th. The combination, with the housing, of the screw cap F with a tubular part k , the boxing E and the flanged thimble D, all constructed and arranged to operate substantially as set forth. 5th. The combination, with the housing, the flanged thimble and the boxing, of the cap F provided with a packing j , and said cap arranged to screw into the housing, and all arranged to operate substantially as set forth. 6th. The combination, with the housing provided with a flange a and recess q , of the washer or plate C, constructed and shaped as shown, the boxing E provided with flutes or grooves for the passage of the oil, and the thimble D provided with a flange c having apertures e , all constructed and arranged to operate substantially as set forth. 7th. A boxing E, for an axle box, constructed cylindrical exteriorly and nearly cylindrical interiorly, and provided with flutes or grooves f , and plane vertical interior faces g , substantially as and for the purpose set forth. 8th. The combination, with the housing having a plane surface on its top, and convex-faced abutments x on its bottom, of the saddle I provided with a bearing-plate to rest upon the top of the housing, and a latch-bar J hinged in the saddle and arranged to engage the space between the abutments x on the housing, substantially as and for the purposes set forth. 9th. The combination, with the saddle I provided with the latch-bar, and the bearing-plate s , of the housing provided with a plane top surface, with abutments x on its bottom, and with projecting faces w on its sides, substantially as and for the purposes set forth. 10th. As a means for securing an axle-box in its saddle, whereby the saddle is prevented from lifting off the box and the latter is limited in its longitudinal movement in the saddle, a latch-bar hinged in one pendent cheek of the saddle, and provided with a sliding bolt or latch arranged to engage a latch socket in the other cheek of the saddle, and said latch-bar arranged to engage a cross recess in the bottom of the housing, substantially as herein set forth.

No. 16,948. Improvements in Car-Couplings.*(Perfectionnements aux accouplages des chars.)*

François Thérien, St. Eustache, Que., 16th June, 1883; 5 years.

Claim.—1st. In combination with the draw-head H, link L and the platform of a car, the double lifting bar B, pivoted to the coupling pin P and held down by spring S, connected by rods R passing through guide brackets M N, the lifting bar B, fulcrumed at the ends upon brackets F and having chains attached to the ends which pass through eyes $b_3 b_4 b_5$, having a narrow elongation which serves as a catch to the chain, said eyes formed on brackets secured to the car at suitable heights, the link lifters l , pivoted brackets l_1 , secured to the platform. 2nd. The combination of the lifting bar B, with the coupling-pin P, the spring S connected by rods R, and the chains $b_1 b_2$. 3rd. The combination with the draw-head H, and the link L, of the link-lifter l , pivoted to brackets secured to the platform of cars, all substantially as described and for the purpose set forth.

No. 16,949. Improvements in Harness Pads.*(Perfectionnements aux sellettes des harnais.)*

Philip H. Case, Alexandria, Maine, U. S., 16th June, 1883; 5 years.

Claim.—The burr or nut plate composed of the upper leather section d , provided with the burrs or nuts i , and the metal plate e rivetted, or otherwise secured to the under surface of the leather section, as set forth.

No. 16,950. Improvements in Testing Roller Mills.*(Perfectionnements dans l'épreuve des moulins à cylindres.)*

William D. Gray, Milwaukee, Wis., U. S., 16th June 1883; 5 years.

Claim.—1st. The described method of adjusting the rolls of grinding mills to bring their axes to a common plane, consisting in placing the rolls in position side by side, placing upon them a plane surface of sufficient extent to bear upon both ends of the rolls or upon their journals, and finally adjusting the rolls until each is in contact with said surface at both ends, as described. 2nd. The test plate for roller mills constructed with depending edges, flanges or feet in one and the same plane, said plate being adapted for application to two rolls, substantially as described. 3rd. The test plate for roller mills provided with a central opening and with depending surfaces at its two ends, said surface having their faces in one and the same plane. 4th. The test plate for roller mills having the depending surfaces or feet as described; and the handles e at its ends.

No. 16,951. Improvements in Riding Saddles.*(Perfectionnements aux selles pour monter à cheval.)*

Joseph Bassler, San Jose, Cal., U. S., 16th June 1883; 5 years.

Claim.—1st. The combination, with the saddle-tree of a riding-saddle, of the coil springs a , having their upper spirals tied together, by the wire bands b , a short distance from their upper ends, connecting wires l and removable cushion A provided with the straps s , substantially as and for the purpose shown and set forth. 2nd. The combination of the bottom frame d_1 , spiral springs a fastened rigidly to the bottom frame and having their upper coils connected by short strands of wire b , and removable cushion A provided with the fastening straps s , substantially as and for the purpose shown and set forth. 3rd. In a cushion for a riding-saddle, the combination of the springs a secured by metallic base supports e , and bottom d_1 , cushion A and cover d , substantially as shown and for the purpose set forth.

No. 16,952. Improvements in Grain Cars.*(Perfectionnements aux chars à grain.)*

Treat T. Prosser, Chicago, Ill., U. S., 14th June, 1883; 5 years.

Claim.—1st. The rolling cylinder of a freight car having dome-shaped ends or heads, substantially as set forth. 2nd. The rolling cylinder of a freight car having its flanged tires seated on overhanging enlargements thereof, substantially as set forth. 3rd. The rolling cylinder of a freight car having its flanged tires seated on overhanging enlargements expanded into the tires, for securing said tires, substantially as set forth. 4th. The combination, substantially as set forth, of the rolling cylinder of a freight car, the flanged tires seated on overhanging enlargements of the cylinder, and elastic packing under the overhanging enlargements. 5th. The combination, substantially as set forth, of a pair of rolling cylinders of a freight car, the vibratory frames for connecting the journals of the cylinders, the draft-frame, and the king-bolts for connecting the vibratory frames to the draft-frame. 6th. The combination, substantially as set forth, of the vibratory frames, and the journal boxes for the cylinder journals, loosely arranged in the vibratory frames and having inclines on top to act on corresponding inclines on the vibratory frames. 7th. The combination, substantially as set forth, of the draft-frame, the vibratory frames for connecting the journals of a pair of rolling cylinders, the king-bolts, the springs included in the vibratory frames, and the journal boxes having inclines on top to act on corresponding inclines on the vibratory frames. 8th. The combination, substantially as set forth, of the draft-frame, the king-bolt, the vibratory frame, the spring within said vibratory frame, and the disk or plate under the spring having inclined edges to act on corresponding inclines on the vibratory frames. 9th. The combination, substantially as set forth, of a single draft-frame and two pairs of rolling cylinders, each pair being connected to the draft-frame by separate vibratory frames and king-bolts. 10th. The combination, substantially as set forth, of the rolling cylinders, the draft-frame and the box car.

No. 16,953. Improvements in Car-Couplings.*(Perfectionnements aux accouplages des chars.)*

Lyman N. Bedford, Sioux Falls, Dakota, U. S., 16th June, 1883; 5 years.

Claim.—1st. The coupling-head consisting of the two hooked pivoted jaws, having their hooked ends arranged to swing in different vertical planes, and means substantially as described for moving the jaws simultaneously in opposite directions. 2nd. In combination with the upwardly moving jaw, pivoted at its rear end, the lower jaw pivot. d thereto at a middle point, and a bearing or fulcrum to the lower jaw, located in advance of its pivot, whereby the elevation of the upper jaw is caused to depress the lower jaw, and vice versa. 3rd. In combination with the hooked jaws F and G, arranged to move in opposite directions, the two eccentrics D and E located thereunder, as shown and described. 4th. In combination with the two coupling jaws, as described, the eccentrics and the horizontal eccentric shaft, the vertical shaft connected with the horizontal shaft by chains, as described and shown. 5th. In combination with the hooked jaws F and G, arranged to open in opposite directions, the finger I pivoted to one of the jaws and arranged to engage at its free end with the opposite jaw, as described and shown, whereby the movement of the jaws is caused to lock and unlock the finger.

No. 16,954. Improvements in Electric Lamps.*(Perfectionnements aux lampes electriques.)*

Elihu Thomson, New Britain, Ct., U. S., 16th June, 1883; 5 years.

Claim.—1st. The combination, with the upper carbon electrode in an electric lamp, of two differentially-moving clamps, each arranged so that its clamping edges or jaws tend to propel the carbon downward or to prevent movement of the carbon upward through the clamp, and means for disengaging said clamps to allow the carbons to come together upon an abnormal increase in the length of arc. 2nd. The combination, substantially as described, with an armature-lever, of two lifting-clamps connected thereto at different distances from its fulcrum, so that said clamps may have a different range of movement with a given movement of the armature. 3rd. The combination, substantially as described, with a carbon electrode, of two differentially-moving clamps, and an operating armature provided with supporting links or similar rigid supporting devices for both clamps. 4th. The combination, substantially as described, with the upper carbon in an electric lamp, of differentially-moving clamps arranged as described, to move at different speeds, and each consisting of a movable body and pivoted clamping-toe, said clamping-toes being arranged with relation to the carbon, as described, to lock against the carbon, so as to prevent a movement upward of the carbon through a clamp or to move the carbon downward positively with a clamp. 5th. The combination, substantially as described, with a carbon rod, of two differentially-moving clamp bodies, clamping-toes arranged, as described, so that a shifting downward of the clamp with relation to the carbon rod is prevented by the locking of the toe upon the rod, springs for holding the clamping-toes in engagement with the carbon, and stops arranged to release said clamping-toes. 6th. Clamps C G, movable toes *t t*, springs S S' and stops *c c*, in combination with a movable armature or its equivalent, and means for giving a differential movement to the clamps, whereby the following actions upon a carbon pencil are effected, viz: a free release of said carbon pencil when said armature is unacted upon by its controlling-magnet, a lift of said pencil from contact with the other carbon pencil, when said armature is acted upon by its controlling-magnet, and a downward feed due to a difference of range of said clamps, when said armature is again released from said magnet. 7th. The combination, substantially as described, with two lifting or propelling clamps having a different range of movement, of a propelling electro-magnet for said clamps, a derived circuit electro-magnet, and a circuit closer and breaker for intermittently controlling the flow of a current through the propelling electro-magnet in obedience to the changes of arc-resistance. 8th.

The combination, substantially as described, with the plate P1, supporting the lamp mechanism and its inclosing case B, of the depending ribs R R1 placed with their edges to the light, clamping devices for the lower carbon carried by said ribs, supports *q q* and the globe carried by said supports and surrounding the ribs and the light-giving focus. 9th. A hanging support consisting of the parts H H1, substantially such as described, and movable joints *m m*, whereby a rapid change of the position of the lamp is effected, in combination with a lamp-body B and extension B1, and removable cap thereto, T, whereby a renewal of carbons may be rapidly and conveniently effected, as described. 10th. The combination, substantially as described, of an electric lamp hung on pivoted supports and a shunt-circuit closer for completing a path around the lamp when the lamp is changed from its vertical position. 11th. The combination, substantially as described, of the rigid supporting-arms, the hinged hanging arms and a shunt-circuit closer, all combined in the manner set forth, so that, when the lamp is swung from the vertical, said lamp is cut out of circuit. 12th. The combination, substantially as described, of the main frame of the lamp, the jointed supports H H1, casing and tubular extension B B1, removable cap T and automatic out-out for completing a circuit around the lamp, when the latter is swung into a horizontal position for the purpose of inserting a new carbon.

No. 16,955. Improvements in Wood Pulp Machines.*(Perfectionnements aux machines à pâte à papier de bois.)*

Robinson Cartmell, Bellows Falls, Vt., U. S., 16th June, 1883; 5 years.

Claim.—As an improvement in machines for converting wood into paper pulp, the cylindrical casing having radiating boxes or hoppers, provided with sliding covers and suitably operated followers, in combination with the grinding wheel having a convex rim and suitable operating mechanism, as described, for the purpose set forth.

No. 16,956. Improvements in Spindles for Loom Shuttles.*(Perfectionnements aux broches des navettes de métiers à tisser.)*

William T. Coggeshall, Lowell, Mass., U. S., 16th June, 1883; 5 years.

Claim.—1st. A spindle longitudinally grooved at *b* in its upper portion, and having the spring *c* rigidly fastened by its rear portion in the groove, rising at its upper edge above said groove and provided with the raised rounded projection *g*, or inclined plane at its free end or point, substantially as specified. 2nd. A spindle formed with a longitudinal groove *b* in its upper portion, and partially slotted through the bottom of said groove, near the point end, and having the spring *c* rigidly fastened in said groove, with its holding upper edge extended out of the groove, and its lower extension *k* adapted to project through the slot, substantially as specified.

No. 17,957. Dust Guard for Railway Car Windows.*(Garde-poussière des voitures de chemin de fer.)*

John H. Reynolds, Troy, N. Y., U. S., 16th June, 1883; 5 years.

Claim.—1st. A dust-guard for railway car windows adapted to open and close automatically, as described, and provided with self-locking hinges adapted to secure the said dust-guard in position when turned in a perpendicular line to the side of the car, and when thrown back from the window in line with the side of the car, substantially as specified. 2nd. The combination, with a dust-guard E, of hinges composed of a socket *a* provided with depressions *a'* formed in the front and two sides of said socket, as described, and a pintle C provided with a pendent projection *c* for the purpose of locking said dust-guard in position when projected perpendicularly from the side of the car, and when thrown back from the windows in line with the side of the car, and for raising said guard in the first phase of a turning movement as specified. 3rd. In a dust-guard hinge, the pintle C provided with a shoulder *c'*, adapted to strike against the socket piece A, for the purpose of preventing the outer edge of the dust-guard from striking against the side of the car, as specified. 4th. The guard-strip B, provided with a lip D, arranged as described, for the purpose of guiding and retaining the inner edge of the dust-guard against the face of the adjoining flange *b*, as specified.

No. 16,958. Improvements in Car-Couplings.*(Perfectionnements aux accouplages des chars.)*

Lyman Hatfield, Boston, Mass., U. S., 16th June, 1883; 5 years.

Claim.—1st. The combination, with the slotted draw-head, of a pin B of inverted U-shape, a carrier secured to said pin and provided with a shoulder *e* and shank D, and a crank secured to the upper end of the pin and adapted to hold the pin and carrier in position for coupling, substantially as set forth. 2nd. The combination, with a draw-head provided with a vertical slot, of a Ω -shaped pin, and a carrier adapted to extend through said slot, said carrier being keyed to the upper end of the pin and provided with a shoulder and shank, and a crank secured within an elongated opening at the upper end of the pin, substantially as set forth. 3rd. The combination, with a pin B formed Ω -shaped at its upper end, and provided with key-seat *c c*, of the carrier C also provided with key-seats, and the keys *d d*, whereby the pin is secured to the carrier, substantially as described.

No. 16,959. Improvement in Snow Shovels.*(Perfectionnement des pelles à neige.)*

Henry W. Staples, Old Orchard, Me., U. S., 16th June, 1883; 5 years.

Claim.—1st. The improved snow-shovel described, the same consisting of the blade A, guards E E D, handle B and runners C C, con-

structed, combined and arranged to operate substantially as set forth. 2nd. A snow-shovel having a blade provided with a pair of runners, the front ends of which are in rear of the front edge of the blade, a distance corresponding with one-third of the length of the blade, or thereabout, substantially as specified.

No. 16,960. Improvement in Vehicles.

(*Perfectionnement dans les voitures.*)

Edgar A. Loucks, West Band, Iowa, U. S., 16th June, 1883; 5 years.

Claim.—1st. The combination of the bent bracket D, pivoted to the centre of the compensating lever E, to the ends of which are journalled rods F, having journal blocks G secured to the axles of the reach, and the bracket D secured to the body of a vehicle. 2nd. The combination of the bent bracket D, pivoted to the centre of the compensating lever E, to the ends of which are journalled rods F having journal blocks G secured to the body B, and the bracket D secured to the reach C of a vehicle, all substantially as described and for the purpose set forth.

No. 16,961. Improvements in Faucets.

(*Perfectionnements aux chuintepleures.*)

John Howes, Worcester, Mass., U. S., 16th June, 1883; 5 years.

Claim.—1st. The combination, substantially as described, of the body or shell A, having the externally screw-threaded projection *a* and valve-seat *a* formed as shown, the independent valve-piece D, provided with the depending stem *d* supported and guided within the part *a* of said shell, and the screw-threaded thimble or nozzle B, having the bridge bar or plate *e* across its interior below the end of the valve-stem, the parts being constructed and adapted for operation, as and for the purpose set forth. 2nd. The combination, as described, of the body A, having the screw-threaded extension *a'* provided with an offset rim or groove *b* at the junction thereof with the head, and the screw-threaded valve operating thimble B, having its top end fitted to, and adapted for making a close joint at said offset or groove, when in its elevated position, as and for the purpose set forth. 3rd. The shell A, provided with the deflecting lug or flange *m* located within the neck-passage adjacent to the valve seat *a*, whereby the current of water is deflected upward, as and for the purpose set forth. 4th. In a water service faucet, the combination, with the shell A and valve D, having intermeshing lugs and grooves *h*, for preventing rotation of said valve, of an inclined projection *l* or deflector, whereby a whirl or spiral action is imparted to the water in contact with said valve, substantially as and for the purpose set forth. 5th. The combination, with the rotating screw-threaded thimble B, provided with the handle I, of the hinged stop pin K fixed in the under part of the shell A, substantially as and for the purpose set forth.

No. 16,962. Improvements in Car-Couplings.

(*Perfectionnements aux accouplages des chars.*)

Lyman Hatfield, Boston, Mass., U. S., 16th June, 1883; 5 years.

Claim.—1st. A pin-carrier, said pin-carrier being provided with a clamp so constructed and secured to the said pin-carrier as to be adapted to hug or clamp the pin, substantially as and for the purpose shown and described. 2nd. A pin-carrier, said pin-carrier being provided with a recess or recesses, for the reception of the heads and collars of pins of different construction, said recess preventing the upward movement of the pin, and a clamp, said clamp being adapted to hug or clamp the pin to the carrier, substantially as specified and described. 3rd. The combination, with a pin-carrier and crank, of a bolt formed with its head at a right angle to its shank, said head resting in a recess formed on the said carrier, whereby it is prevented from becoming displaced, substantially as shown and described. 4th. The combination, with a crank adapted to operate the pin-carrier, of a retaining device adapted by engaging with the said crank, to prevent the coupler from acting, substantially as shown and described. 5th. The combination, with a crank-rod, of a supporting device secured to the car near its outer end or ends, said supporting device being adapted to release its hold on the crank when necessary, substantially as specified and described.

No. 16,963. Improvement in Steam Boilers.

(*Perfectionnement des chaudières à vapeur.*)

Heinrich Stollwerck, Cologne on the Rhine, Germany, 16th June, 1883; 5 years.

Claim.—1st. In a feed water purifier for steam boilers, the combination of a cylinder or boiler having perforated plates or diaphragms, a water inlet pipe located at one end of said plates or diaphragms, a water outlet pipe arranged at the other end thereof, and a steam inlet pipe arranged at the end of the boiler near the water inlet pipe, all being so constructed that the feed water entering through the said water inlet pipe is carried along by the mixture of steam and hot water issuing from the steam inlet pipe and forced through the said perforated plates or diaphragms, thereby depositing on the latter and the inner sides of the said cylinder or boiler practically all its incrustation before entering the steam boiler proper, substantially as and for the purpose specified. 2nd. In an apparatus for freeing feed water from incrustation, the combination, with two or more boilers K K¹, entered by the hot water and steam ejecting pipes *b b¹*, and opposite to the latter by the feed water inlet *c* and circulation pipe *d* respectively, and having a series of sieve-like or perforated plates arranged as described, of a steam boiler, the feed water to be freed from its incrustation being so conducted or circulated through the said boiler K K¹, as to be repeatedly met by the steam, before passing through all the series of perforated plates and entering the steam boiler proper, substantially as and for the purpose set forth. 3rd. The method of freeing feed water from its incrustation by allowing the said feed water to enter a boiler K having perforated plates or diaphragms, and a steam inlet pipe *b* so arranged that the feed water, by means of the steam and hot water ejected from the said steam inlet pipe, is forced

through the said perforated plates or diaphragms and through another or several similarly constructed boilers K¹ connected together by means of a circulation pipe *d*, so as to be repeatedly met by the steam and passed through the perforated plates or diaphragms in the several boilers, thereby depositing on the said plates and the inner sides of the said boilers practically all its incrustation before entering the steam boiler proper, substantially as and for the purpose specified. 4th. The combination of the steam receiver D, constructed as described, with a subjacent cylinder or boiler having perforated diaphragms or plates, water inlet and outlet openings, and steam inlet and discharge pipes, substantially as and for the purpose set forth.

No. 16,964. Improvements in Butter Tubs.

(*Perfectionnements dans les tinettes.*)

Henry F. Coombs, Charlottetown, P. E. I., 16th June, 1883; 5 years.

Claim.—1st. A circular package for butter or other substances increasing in diameter from bottom to top inside, and decreasing in size from bottom to top outside, arranged as described and for the purposes shewn and set forth.

No. 16,965. Improvements in Carriage Tops.

(*Perfectionnements aux dessus des voitures*)

Henry F. Coombs, Charlottetown, P. E. I., 16th June, 1883; 5 years.

Claim.—The combination, in a wagon or car top, of the pipes D E, the threaded plate A, stays A¹, socket B¹ and plate C, and nut F, the whole arranged as described and for the purposes set forth.

No. 16,966. Improvements in Stoves for Cooking, Heating and Generating Steam.

(*Perfectionnements aux poêles de chauffage et de cuisine et pour la production de la vapeur.*)

Edouard Julien, Montreal, Que., 16th June, 1883; 5 years.

Claim.—1st. The combination, with a stove, of the cover C, and pipe or pipes *c c*, as and for the purposes set forth. 2nd. In combination with a stove, the cover C with rim C¹, and pipes *c c*, all as described. 3rd. The stove D, with chute D¹ and shell E, as described. 4th. The combination, with the doors F¹, of shell F, of shelves *f* hinged thereto, as and for the purposes set forth. 5th. The combination, with the stove A or D set in the shell G, placed on F and having a steam generator formed therein, of pipes or pipe *g g*, as and for the purposes described. 6th. The stove A with chimney B B¹, constructed as set forth.

No. 16,967. Improvements in Vehicle Hubs.

(*Perfectionnements aux moyeux des roues.*)

Frederic M. Hurtle, Donagiar, Mich., U. S., 16th June, 1883; 5 years.

Claim.—1st. The vehicle axle having screw-thread I and annular flange H, being adapted to receive and support an interiorly threaded sand band, as and for the purposes set forth. 2nd. The vehicle axle having screw-thread I and annular flange H, in combination with the interiorly-threaded sand band J abutting against the flange H, and the hub having double-flanged band D, as shown and specified.

No. 16,968. Improvements in Butter Plates.

(*Perfectionnements aux beurriers.*)

The Smith Manufacturing Company, (assignee of Seth H. Smith), Delta, Ohio, U. S., 15th June, 1883; 5 years.

Claim.—The described wooden plate consisting of a thin shell cut from the face of a block of wood across the grain of said block, by a single pass of a rapidly revolving knife or cutter, towards which the said block is fed between the passes of the same, whereby a thin concavo-convex shell is formed segmental in cross section, as and for the purpose set forth.

No. 16,969. Improvements in Barbed Fence Wire.

(*Perfectionnements dans le fil de fer à clôtures barbelées.*)

James Carpenter and Leander Fitts, Moravia, N. Y., U. S., 18th June, 1883; 5 years.

Claim.—1st. A fence-wire of oval or elliptical form in cross-section, and bent serpentine or waving longitudinally and in the same plane as the greater diameter of the said wire, as shown and set forth. 2nd. A fence-wire bent serpentine or waving in the direction of its length, and having projecting from the alternate upward and downward bends or curves respectively, upward and downward projecting barbs. 3rd. A fence-wire bent serpentine or waving in the direction of its length, and secured with its bends in a vertical plane by fastenings to the post, at the highest and lowest points of two or more of the bends in the wire, substantially as and for the purpose set forth.

No. 16,970. Improvements in Harrows.

(*Perfectionnements dans les hersees.*)

John D. Privett and Joshua Draper, jr., Oxford, Ala., U. S., 18th June, 1883; 5 years.

Claim.—The improved harrow consisting of the toothed bars connected together by eyebolts, which are inserted through the bars from opposite sides, one near the upper and the other near the lower surface of said bars, the supplemental bar H and the longitudinal bar F, combined with the toothed bars and loosely connected to the first of the same and to the bar H, by the chains G, substantially as and for the purpose set forth.

No. 16,971. Condenser for Roving Machines. (*Condenseur des machines à fil doux.*)

The Whitehead and Atherton Machine Company, (assignee of Abel T. Atherton,) Lowell, Mass., U. S., 18th June, 1883; 5 years.

Claim.—The described condenser consisting of the external tube, in combination with the inner tube cast with a spiral bore of substantially cylindrical cross-section, and with smooth unbroken walls throughout, as shown and described.

No. 16,972. Improvement in Carding Machines. (*Perfectionnement des machines à carder.*)

The Whitehead and Atherton Machine Company, (assignee of William E. Whitehead,) Lowell, Mass., U. S., 18th June, 1883; 5 years.

Claim.—The combination of a carding cylinder, which revolves in the direction specified, top flats, a dogger and lickers-in, both of which are on one and the same side of the machine, and a casing extending beneath the cylinder and surrounding it peripherally from the lickers-in to the top-flats, the combination being and acting as set forth.

No. 16,973. Improvement in Carding Machines. (*Perfectionnements des machines à carder.*)

The Whitehead and Atherton Machine Company, (assignee of William E. Whitehead,) Lowell, Mass., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the carding cylinder, the top-flats, under-flats mounted on, or forming part, of a power-driven travelling endless apron, placed below the axis of said cylinder, and a stripper for said under-flats, for joint operation, as shown and described. 2nd. The combination, with the carding-cylinder and top-flats, of travelling buckets and flats combined, placed below the axis of said cylinder, substantially as set forth. 3rd. The combination, substantially as set forth, of the carding-cylinder, top-flats, rollers and clearers combined, arranged above the axis of said cylinder, and flats and buckets combined, arranged below the axis of said cylinder. 4th. The combination of the lickers-in, the carding-cylinder, the travelling-buckets and flats, the rollers and clearers, the top-flats and the doffer, under the arrangement and for operation, substantially as set forth.

No. 16,974. Improvements in Grain Cleaners, Separators and Graders. (*Perfectionnements dans les nettoyeurs, séparateurs et trieurs des grains.*)

Charles R. Wild, (assignee of William E. Wild,) Candalara, Nev., U. S., 18th June, 1883; 5 years.

Claim.—In a grading device, the combination of longitudinal parallel bars, a cross-bar under their lower ends, inclined sieves having longitudinal corrugations corresponding to said parallel bars, connecting and aligned with them, and provided with transverse slots, transverse spouts at their lower ends, and an apron under said corrugated sieves having a transverse spout at its lower end, whereby three grades of the grain may be made by the device, as described.

No. 16,975. Machine for Making Bale Bands. (*Machine à faire les cercles des ballots.*)

Granville Nicholson, (assignee of Theodore A. Weber,) New York, N. Y., U. S., 18th June, 1883; 5 years.

Claim.—1st. In a machine for making wire bale bands, the combination of feeding mechanism, shears for cutting off the wire, mechanism for feeding the links, and mechanism for doubling or bending the wire and twisting it to form a loop, all constructed and operating substantially as described. 2nd. The combination of feeding mechanism, shears for cutting off the wires, mechanism for feeding the links, a rotary carriage for the wire after being cut off, and mechanism rotating with said carriage for doubling or bending the wire and twisting it to form a loop, all constructed and operating substantially as described. 3rd. The combination, with the grooved and geared feeding wheels C₂ C₃, of the lever E provided with uprights b₁₀, the yoke c and cam c, substantially as described. 4th. The combination of feeding mechanism, shears for cutting off the wire, a box or trough for the reception of links, mechanism for ejecting the links transversely from said box or trough, a divided guide for the wire, and mechanism for opening said guide to permit the removal of the wire transversely therefrom, substantially as described. 5th. The combination of the box or trough F and pusher or blade e, the arm e₁, rock-shaft e₂ and lever e₃, for working said pusher or blade, and the disk or flange H, provided with the depression e₆ and spring e₅, all substantially as described. 6th. The combination of the divided conical guide f₁, the lever f₂, the link f₃, arm f₄, rock-shaft e₂ and the lever e₃, and the disk or flange H, provided with the depression e₆ and spring e₅, all substantially as described. 7th. The combination of a rotary carriage for the wire comprising fixed fingers and a series of oscillating fingers, a table or bed for the cut wire, through which said oscillating fingers may pass, and mechanism for moving said oscillating fingers in one direction to pass under and lift the wire from said table or bed, and mechanism for moving said fingers in the other direction, to carry the wire into said fixed fingers, substantially as described. 8th. The combination of the V-shaped table or bed g₆, the shaft B and its disks or flanges H H₁, the fixed fingers or forks g, the shaft or rod g₁, the oscillating fingers or forks g₂, the spring g₆ and the cam g₃, and arm g₄, all substantially as described. 9th. The combination of feeding mechanism, shears for cutting off the wire, a main shaft, a rotary wire carriage and two disks, all fixed upon said shaft, a rotary twister carried by one of said disks, mechanism carried by the other disk for doubling or bending the wire over

said twister and holding it while being twisted, substantially as described. 10th. The combination of the shaft B, the rotary wire carriage, the disk G, the shouldered finger i, the dog i₂, the rotary dog j₅, the reciprocating rack-bar j₃ and stationary cam G₁, and the disk k carrying the twister h, and the stationary cam F₂ for operating the twister, all substantially as described. 11th. The combination of the main shaft B, the rotary wire carriage, the flange F, the rotary twister h carried by said flange, and the reciprocating rack-bar K and stationary cam F₂, for rotating said twister, all substantially as described. 12th. The combination of the main shaft B, the flanges or disks F G and the rotary wire carriage fixed upon the saw shaft, the doubling or bending and the twisting mechanism carried by said flanges or disks, the feed wheels C₂ C₃ and the transverse counter-shaft C, and gearing by which said shaft C is driven from the shaft B, and through which it drives said feed-wheels, substantially as described.

No. 16,976. Improvements in Oil Cups.

(*Perfectionnements aux godets à graisse.*)

The Ruggles Duplex Oil Cup Company, (assignee of Thomas D. Ruggles,) Kent, Ohio, U. S., 18th June, 1883; 5 years.

Claim.—1st. An oil-cup having two or more compartments, each provided with a separate duct leading to the wearing surfaces, substantially as and for the purpose set forth. 2nd. An oil-cup having two or more compartments, each provided with a separate duct, said ducts uniting before reaching the wearing-surfaces, substantially as described and for the purpose specified.

No. 16,977. Machine for Consolidating Loose and Bulky Material into Solid Blocks. (*Machine pour consolider en blocs solides les matières en grenier et volumineuses.*)

The Smith Consolidation Company, (assignee of William H. Smith,) Chicago, Ill., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of an anvil with a mould mounted thereon, and a hammer adapted to fit said mould, and provided with means whereby the actuating force is made to follow up the descending blow of the hammer, said hammer, anvil and mould, one or more, being provided with air passages, substantially as specified. 2nd. The combination of an anvil with a steam hammer, piston and cylinder, a mould mounted on said anvil under said hammer, means for the escape of air from the material being consolidated in the mould, and for its admission to the mould above the material as partially formed block as the hammer makes its upward stroke, and means whereby the force of the steam is made to follow up the hammer on its descending stroke, substantially as specified. 3rd. The combination, with a steam hammer, piston, and cylinder, of an anvil and a mould mounted thereon under said hammer, means for the escape and admission of air thereto, means for causing the force of the steam to follow up the descending blow of the hammer, mechanism for discharging the block from the mould, and a device for delivering the loose material to the mould, substantially as specified. 4th. The combination, with a steam hammer, piston and cylinder, wherein the force of the steam follows up the descending blow of the hammer, of an anvil, and a mould mounted thereon under said hammer, and provided with means for the escape and admission of air thereto, mechanism for separating said anvil and mould, mechanism for pushing out the block from said mould, and a device for delivering the material to the mould, substantially as specified. 5th. The combination, with a steam hammer, of an anvil and a mould mounted thereon under said hammer, and provided with means for the escape and admission of air, mechanism for discharging the block from the mould, and a yielding support or table for receiving the block as it is discharged from the mould, substantially as specified. 6th. The combination of a steam hammer with an anvil, a series of revolving moulds, means for the escape and admission of air to the moulds, mechanism for intermittently revolving said moulds and centering them in turn in position under the hammer, mechanism for delivering the loose material to the moulds and packing or partially compressing it therein before the mould is brought under the hammer, and mechanism for pushing out the block from the mould, substantially as specified. 7th. The combination, with the hammer, anvil and revolving moulds, of a hopper for delivering the material to the mould, a screw-blade and packer-dish adapted to fit said moulds, mechanism for revolving the packer-shaft, and a friction clamp on the packer-shaft for regulating the pressure of the packer on the material in the mould, substantially as specified. 8th. The combination, with a steam hammer, of an anvil, and a mould resting thereon provided with narrow bearing shoulder b₂ at its base, substantially as specified. 9th. The combination, with a hammer, of an anvil, a series of moulds mounted on a vertical shaft, and mechanism for raising the moulds off the anvil and revolving the same, substantially as specified. 10th. The combination, with a hammer, of an anvil, a series of revolving moulds, mechanism for raising and revolving the moulds, and a clutch for centering the mould with the hammer, substantially as specified. 11th. The combination, with the hammer, anvil and revolving moulds, of a clutch for holding the moulds in position under the hammer, and a lever for operating the clutch bolt connected with the lever for operating the mechanism for raising and revolving the moulds, whereby said clutch-bolt is withdrawn before said mould, raising and revolving mechanism is set in operation, substantially as specified. 12th. The combination, with the hammer, anvil and revolving moulds, of a clutch for holding the moulds in position under the hammer, a lever for setting in operation the mechanism for raising and revolving the moulds, and a cam on the moulds for tripping said lever, whereby the moulds are lowered, and their revolution stopped the instant the clutch bolt drops into the clutch, substantially as specified. 13th. The combination, with the mould, of a device for pushing and knocking the block out of the mould, and a yielding device or support under the mould, for receiving and supporting the block as it is discharged from the mould, substantially as specified. 14th. The combination, with the mould, of a device for discharging

the block therefrom, a yielding support for receiving the block as it is discharged, and a device for carrying the blocks away from the machine, substantially as specified. 15th. The combination of the hammer, anvil and series of revolving moulds, of a plate or table beneath the moulds, having openings therein for the anvil and for the discharge of the blocks from the mould, substantially as specified. 16th. The combination, with the hammer, anvil and revolving moulds adapted to be raised off the anvil for the purpose of revolving the same, and a wedge to prevent said moulds lifting up from the anvil during the operation of the hammer, substantially as specified. 17th. The combination, with the hammer, anvil and revolving moulds, of a table or disk beneath the moulds, supported on springs, whereby it is pressed firmly against the bottom of the moulds, and provided with an opening for the discharge of block from the moulds, substantially as specified. 18th. The combination, with an anvil, steam hammer and mould, of a pan surrounding the hammer above the mould and provided with an elastic band or packing, for the purpose of collecting leakage and preventing the water from dropping into the mould, substantially as specified.

No. 16,978. Improvements in Match Machines. (*Perfectionnements aux machines à allumettes.*)

Francis Westlake, London, and Anna Dorenwood, Toronto, Ont., 18th June, 1883; 5 years.

Claim.—1st. The cutters C C, for cutting round matches, the dies of which are square at the upper side where the matches are cut, and tapered till they are round at the underside where the matches pass through the cutters, constructed substantially as shown and described and for the purpose specified. 2nd. The cutters C C₂ for cutting square matches, constructed and arranged substantially as shown and described and for the purpose set forth. 3rd. The combination of the shaft A, provided with cranks A¹, pulley A², pitman A³, connecting rod A⁴, guide A⁵, pivoted tubular arm B provided with flange B⁴, upright C₃ and cutters C C, constructed substantially as shown and described and for the purpose specified. 4th. The combination of the shaft A, cam G provided with flange G¹, lever G², guide plate G³, arm G³, weight G⁷, bolt G⁸ provided with shoulder H², lever G⁴, spring H³, dog H⁴, shaft H¹, toothed wheel G⁵ and spring dog H⁵, substantially as shown and described and for the purpose specified. 5th. The combination of the shaft H, toothed wheel B², tubular arm B provided with springs B³, and flange B⁴, substantially as shown and described and for the purpose set forth. 6th. The holder E³ provided with cogged side piece I³, side piece I⁷, conical shaped perforations e, constructed substantially as shown and described and for the purpose specified. 7th. The combination of the shafts H I⁴ I⁵, cog wheels I I¹ I², hangers I⁶, holder E³ provided with cogged side piece I³, and carrier E, substantially as shown and described and for the purpose set forth. 8th. The combination of the holding frame F provided with divisions F³, sliding bar F² provided with pins F¹, supports E⁷, crank-shaft E², crank E⁴, eccentric E⁵, chains E⁶ and holder E³, substantially as shown and described and for the purpose specified. 9th. The combination of the upright arm K, guide plate G³, lever K¹, upright C₃, carrier E, shaft A, cam K² provided with flange K³, spring K⁵ and arm x₄, constructed substantially as shown and described and for the purpose specified. 10th. The combination of the upright arm J provided with shoulders J² J³, guide plate G³, spring J¹, levelling plate J⁴, shaft A and cam J⁶ provided with flange J⁵, substantially as shown and described and for the purpose specified.

No. 16,979. Improvements in Saws. (*Perfectionnements dans les scies.*)

Charles H. Douglass and Elias C. Chapin, Chicago, Ill., U. S., 18th June, 1883; 5 years.

Claim.—1st. A circular saw provided with teeth substantially of the character described, said teeth having the rib *a* at one side and extending nearly in a circumferential direction, and being bevelled as at *b* on the opposite face, substantially as described. 2nd. A saw tooth having a rib *a* on one side thereof, on which there is a flat face that is nearly or quite parallel with the face of the saw, the rear portion of the tooth being slightly below the front portion, or the line of the cut of the saw, substantially as set forth. 3rd. A circular saw provided with teeth having ribs on one side, and bevelled surfaces on the other side, each succeeding tooth having the ribs and bevels reversed with reference to the preceding one, substantially as described.

No. 16,980. Improvements in Hammocks and Hammock Chairs. (*Perfectionnements aux hamacs et aux chaises suspendues*)

Charles Moore and George M. Elliott, Lowell, Mass., U.S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the hammock chair and means of giving the same a swivelled suspension, as and for the purpose specified. 2nd. The combination of the hammock-chair, the bar A, the hook B swivelled to said bar, and the hook F, as and for the purpose specified. 3rd. The combination of the hammock-chair, the bar A, the hook B swivelled to said bar, the hook F and the spring E interposed between and connecting each of said hooks to the other, as and for the purpose specified. 4th. The combination of the bar A, the slot U provided with blocks T T₁, the hook B and washer and nut v, and the hammock as and for the purpose specified. 5th. The combination, with a hammock provided with rounds I I₁, and means of suspending said hammock, of the stretcher J provided with hollowed cross-heads R R₁, as and for the purpose specified. 6th. The combination, with a hammock-chair having slats *g* connected by cords M M₁ N N₁, of means of reducing the distance between two inter-slat spaces to form a head rest. 7th. The combination, with a hammock chair formed of slats *g* connected by cords M M₁ N N₁, of the double hooks *w w*₁, or hooked rods adapted to engage with said cords between said slats, as and for the purpose specified. 8th. The combination, with a hammock-chair having slats *g* connected by cords M M₁ N N₁, of a

foot rest consisting of a plate H, having its lower edge adapted to rest upon and between said cords and between two slats, and means of securing said plate at an angle to the adjacent slats, as and for the purpose specified. 9th. The combination of the flexible hammock having the round I, and the cords *o n* connecting said round and the bottom of said hammock, as and for the purpose specified. 10th. The combination of the hammock-chair having the round I, and the slats *g* flexibly connected together, and the cords *o n o n* connecting said round and two of said slats, as and for the purpose specified.

No. 16,981 Improvements in Neck Ties. (*Perfectionnements aux cravates.*)

James M. Jack and Charles H. Anderson, Montreal, Que., 18th June, 1883; 5 years.

Claim.—1st. In combination with a necktie or scarf, a band made in two halves and arranged to be fastened together at the back of the neck, substantially as described. 2nd. The combination of a tie or bow A, double bands B B₁ and pin C, arranged substantially as and in the manner set forth. 3rd. The combination, with the tie A and bands B B₁, of hooks *c c* equidistant from the centre of the tie and arranged to hold the same in place upon the neck of the wearer, substantially in the manner described.

No. 16,982. Improvement in Oral Speculums. (*Perfectionnement des spéculums.*)

John H. Doyle, Hillsborough, Ohio, Robert A. Holliday, Atlanta, and Orvilla Hope, Hopeville, Ga., U. S., 18th June, 1883; 5 years.

Claim.—1st. In a cheek-distender, a hook having its curved portion made narrow to accommodate the angle of the mouth, and its inner end made large and provided with a reflecting surface, whereby the hook shall be adapted to repress the flow of saliva and serve as a speculum, while distending the cheek, substantially as specified. 2nd. In a cheek-distender, a hook having the central portion of its outer end curved inward toward its inner end, and the inner end made broad and concavo-convex to accommodate the curve of the front portion of the teeth and gums, substantially as shown and described. 3rd. In a cheek-distender, the combination of one set of hooks having narrow portions for fitting the corners of the mouth, and large inner ends provided with reflecting surfaces, and another hook having the inner end made broad and deeply concavo-convex for accommodating the alveolar ridge, said hooks being provided with cords and clasps, substantially as shown and described, whereby the lips may be held entirely out of the way in taking impressions of the alveolar ridge, or in performing surgical operations upon throat or mouth, as set forth. 4th. The instrument having the curved plate secured to a concavo-convex handle, and having the edges of the plate opposite to the handle provided with one or more scallops, as and for the purposes described. 5th. The instrument having the curved plate secured to a handle, and having the edges of the plate nearest the handle sloping from the handle, and the edge opposite to the handle provided with one or more scallops, substantially as and for the purposes described. 6th. The instrument having the curved plate set at, or nearly at, a right angle to the handle, and having the end of the handle opposite to the plate made broad and concavo-convex, substantially as and for the purposes described.

No. 16,983. Horse Power Speed Regulator. (*Régulateur des machines force de cheval.*)

Jasper A. Rouse, East Berkshire, Vt., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the drive-wheel B, bell crank lever I, with the weighted-rod H, spring *m*, loose pulley C having a rope drum D, hung on the arbor A and between the drive-wheel and the power, and connected by a rope to a brake-lever F operating on the drive-wheel, substantially as and for the purpose described. 2nd. The loose pulley C, having a tubular drum-extension D placed between the drive-wheel and the motive power, substantially as described. 3rd. The combination of the loose-pulley C having a drum-extension D, placed between the drive-wheel B and the motive power, with the bell-crank lever I and spring-actuated weighted-rod H, substantially as shown and for the purpose specified. 4th. The bell-crank lever I, with its brake-face J and pivoted at *o*, in combination with the spring-actuated rod H, which acts centrifugally, and drive-wheel B to control the movement of the loose-pulley C, whereby a brake may be applied to the drive-wheel B substantially as and for the purpose set forth.

No. 16,984. Apparatus for Feeding Horses and Cattle. (*Appareil pour nourrir les chevaux et les bestiaux.*)

John P. Milbourne, Manchester, Eng., 18th June, 1883; 5 years.

Claim.—The combination, with a "snail cam" or other equivalent device attached to a clock, of automatic weighted levers, substantially as described, which upon the clock reaching a certain fixed hour, will open a flap or door and thus supply, or give access to the fodder, or other material previously placed in readiness.

No. 16,985. Improvements in Drilling Machines. (*Perfectionnements aux machines à forer.*)

George C. Taft, Worcester, Mass., U.S., 18th June, 1883; 5 years.

Claim.—1st. The combination, with the drill-shaft B, bevel gears B₁ B₂, sleeve C and its attached crank-hub, of the loose pinion C₁ with its mortised projection E upon the side of its hub, the fixed intermediate gears F F₁, gear F₂ and interchangeable crank bar *d*, all arranged and constructed as described and for the purposes set forth. 2nd. The combination of the spring *c*, lug *c*₁, vibrating bent lever I, pawl I₁, ratchet wheel H₁ and eccentric K on the drill-spindle, as described and for the purposes set forth. 3rd. The combination of the vibrating bent lever I, pawl I₁, ratchet wheel H₁, eccentric K

on the drill spindle, adjusting screw *e* and lug *err*, as shown and for the purposes specified. 4th. The drill-shaft B and the connected feed-screw G, in combination with the ratchet wheel H¹¹, vibrating lever I, pawl I and eccentric K on the drill spindle, as shown and for the purposes set forth.

No. 16,986. Improvement in Car Wheels.

(*Perfectionnement dans les roues des chars.*)

Nathan Washburn, Allston, Mass., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the car-wheel body or rim and the two metallic rings, and their connecting bolts arranged in such body or rim, substantially as set forth. 2nd. The combination of the two metallic rings, their connection bolts, and the series of spokes, with the rim and hub arranged with and cast upon them, as specified. 3rd. The combination of the two metallic rings, their connection bolts, the series of spokes, and the steel tire with the hub cast upon the spokes, and with the rim cast within and against the tire, and upon the rings and bolts, all substantially as set forth.

No. 16,987. Improvements in Oil Cans.

(*Perfectionnements aux bidons à huile.*)

Xavier St. Pierre, Osceola, Nev., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the check-valve G with the nozzle F of an oil can having a vacuum-chamber D, within the spring bottom B, and an ejecting passage E through which the oil passes from the said nozzles, substantially as specified. 2nd. The combination, with the spring bottom oil can having a handle R, of a lever P to actuate the bottom of the can by the hand of the operator, substantially as specified. 3rd. The combination, with the oil can having a spring bottom B, of the partition C, the outlet pipe E, the nozzle F, the valve G, and the chamber *c*, substantially as specified. 4th. The combination, with an oil can having a spring bottom, of the pipe F, the nozzle E, the partition C, the valve G, the chamber *c* and the upwardly-swinging check-valve *b*, substantially as specified. 5th. The combination, with an oil-can A having a spring bottom B, of the pipe E, the check-valve G, the nozzle F, the partition C, the chamber *c*, the valve *b* and the valve *f*, substantially as specified. 6th. The combination, with the oil can A having a spring bottom B, of the outlet tube E, the valve G for closing the same, and the rod H to which the valve G is attached, which rod H extends through the pipe E and is attached to the spring bottom B, substantially as specified. 7th. An oil-can constructed with a spring bottom and a partition above it, which partition forms a vacuum space between the spring bottom and the partition, and an outlet pipe which is brought in communication with the vacuum chamber formed on the partition and extending to the lower end of the outlet pipe, substantially as specified. 8th. The combination, with an oil can, of the partition C, the spring bottom B, the outlet pipe E, the valve G and the filling-tube N, provided with a cap N¹ having a valve U, substantially as specified.

No. 16,988. Improvements in Car Door Fastenings.

(*Perfectionnements aux fermetures des portes de chars.*)

John Scanlan, Poughkeepsie, N. Y., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination with the sliding car-door of a vertical bolt above the back part of the door, and mechanism above the car for operating such bolt, substantially as set forth. 2nd. The lever *h* pivoted at one end above the top of the car, the bolt connected to the lever and passing vertically or nearly so in behind the door of the car, and means for locking the lever and bolt, substantially as set forth.

No. 16,989. Improvements in Hydro-Carbon Lamps.

(*Perfectionnements dans les lampes à hydro-carbures.*)

James R. Burchfield, Sharon, Pa., U. S., 18th June, 1883; 5 years.

Claim.—1st. The burner-wick cup of a hydro-carbon lamp, having the top-gutter I, and its lower integral part formed with a long passage *d* of small diameter, and a screw socket, substantially as described. 2nd. The apparatus for lighting with hydro-carbon oil described, consisting of the reservoir B, the supply-chamber A, the connecting-pipe *a*, having the cock *al*, the distributing pipe or pipes E F, the burner-cup G having the drip-gutter I and the long narrow passage *d*, and the non-burning wick H placed in joining and sealing relation to the narrow passage *d* of the burner-cup, all constructed and described, for the purpose specified.

No. 16,990. Method of, and Apparatus for Making and Raising Salt Brine from Deep Veins.

(*Méthode de faire l'eau salée et la tirer des veines profondes, et appareils pour cet objet.*)

George H. Smith, New York, N. Y., U. S., 18th June, 1883; 5 years.

Claim.—1st. The method of obtaining brine from salt wells, which consists in forcing fresh water into the well under pressure, permitting it to absorb salt by contact with underground deposit, and then expelling the same from the well by the pressure of a column of water or air, all substantially as described. 2nd. The combination of the force pump with the inflow and outflow pipes arranged within the well and with reference to a subterranean deposit of salt, substantially as shown and described. 3rd. The combination of the force pump, the stand pipe, the inflow pipe and the outflow pipe, when all are arranged with reference to a subterranean salt deposit at great depth, substantially as set forth.

No. 16,991. Improvements in Evaporating Apparatus.

(*Perfectionnements dans les appareils évaporatoires.*)

Franklin P. Taber, Auburn, N. Y., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination, with the boiler or generator, of the supply-pipe B with its laterals D D, and throttle-valves E E E placed above and between the sets of kettles and communicating, through the flange or rim of the inner kettle, with the steam-space between the jackets of the kettles, substantially as described, and the manner of extending and continuing such supply-pipe and laterals and connections for any number or sets of kettles. 2nd. In combination with the boiler or generator, the supply B with its laterals D D, and cocks or throttles E E, the jacketed kettles C C provided with air valves G, placed in the rim or flange of the inner kettles, substantially as described. 3rd. In combination with the boiler, supply pipe B with its laterals D D, throttles E E and the jacketed kettles C C, with the air valve G, the return-pipe K connected with the boiler A, for the water of condensation, placed at or near the bottom of the kettles and connected with the steam-space, between the outer and inner kettles, by means of the laterals I I, substantially as set forth. 4th. In combination with the boiler, supply-pipe B, with its laterals D D and throttles E E, the jacketed kettles C C, with the air valves G and the return-pipe K, with its laterals I I, the sliding check-valve J J in the laterals I I, for allowing the water of condensation to pass out of the steam-space F F and hold in check any back pressure from the boiler, and thereby prevent the flooding of the steam-space between the kettles with water from the boiler. 5th. In combination with the boiler, supply-pipe B with its connections, laterals D D and throttles or cocks E E, the jacketed kettles C C with the air-valves G, the return-pipe K with its laterals I I, each supplied with the sliding check-valve J J, the non-conducting covering L L for the respective pipes, kettles and exposed heated surfaces of the apparatus. 6th. In combination with the boiler, supply-pipe B with its laterals D D, and throttles or cocks E E, the jacketed kettles C C, with the air-valve G, the return-pipe K, with its laterals I I, each supplied with the sliding-check-valve J J, and the non-conducting substance L L to be placed upon the respective pipes and kettles, the manner and mode of running and laying the supply and return pipes to and from the said kettles and boiler, substantially as shown, so that the water of condensation shall not impede or neutralize the steam to be introduced to the kettles. 7th. In combination with the boiler, supply-pipe B, with the laterals D D and throttles E E, the jacketed kettles C C with the air valves G, the return-pipe K with its laterals I I, the non-conducting substance L L and the manner of running and laying the supply and return pipes, the manner and mode of placing the bottom of the kettles above the level of the water line of the boiler, by means of which the water of condensation is caused to return to the boiler without the use of a steam-trap and other appliance.

No. 16,992. Improvements in Hydraulic Engines.

(*Perfectionnements dans les machines hydrauliques.*)

William Donaldson, Ambleside, Eng., 18th April, 1883; 5 years.

Claim.—The combination of parts consisting of one or more cylinders *c*, surrounded by a liquid holding casing *d*, the balanced cylindrical valve *v* and its adjusting weight, with the loose safety valve cylinder cover or lid *b*, cap *k* and lubricators *se*, together with the weighted valve *h*, all substantially as described and illustrated for the purposes set forth.

No. 16,993. Feed Water Regulator and Alarm for Steam Boilers.

(*Régulateur de l'eau d'alimentation et indicateur à sonnerie pour les machines à vapeur.*)

John S. Clarke, Detroit, Mich., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the float B, balanced valve F, double valve *d* *er*, steam pipe *d*, feed water pipe *at* and the waste pipe *er*, substantially, as described. 2nd. The combination, with the feed water pipe *at*, boiler steam pipe *d* and waste pipe *er*, of the connected valves *d* *er*, arranged as, and for the purposes specified. 3rd. The combination, with the boiler dome of the nipple *qr* having guard N, and perforated reducer *st*, as shown and described. 4th. In a boiler feed water apparatus, the combination, with the boiler, the steam regulator and the feed water pipe, of the injector or inspirator having an overflow outlet with its valve adapted to be closed by the action of the overflow water, after leaving the overflow outlet, to cause the feeding of the water to the boiler, substantially as set forth. 5th. In a boiler feed water apparatus, the combination, with the boiler, the steam regulator and the feed water pipe, of the injector or inspirator having an overflow outlet with its valve connected to a piston rod also connected to a valve in the feed water pipe, the piston being acted upon by the overflow water, substantially as and for the purpose set forth. 6th. The combination of the injector D, overflow *h*, vessel *i*, levers *ln*, piston *k* and its rod *kr*, pipe *g* and valve *m*, substantially as and for the purpose set forth. 7th. The combination of the injector D, overflow *h*, vessel *i*, levers *ln*, the latter having the pawl *n*, piston *k* and its rod *kr*, pipe *g* and valve *m*, substantially as and for the purpose set forth. 8th. The relief valve *a*, combined with the regulator and fitted for operation by the main valves F, substantially as described. 9th. The regulator valves F of the form shown, and the double valve *a*, combined for operation as specified. 10th. The combination of the injector D, the overflow *h*, the vessel *i*, levers *ln* and valve *m*, substantially as described, for operation in the manner specified. 11th. The combination and arrangement, substantially as described, of the hollow tube E with the float B for equalizing the pressure and admitting only dry steam to the float.

No. 16,994. Improvements in Rotary Engines or Pumps.

(*Perfectionnements aux machines ou pompes rotatoires.*)

Salmon D. Jones, Chatham, N. J., U. S., 18th June, 1883; 5 years.

Claim.—1st. A rotary engine or pump composed of two cylinders placed concentrically one within the other, and secured at one and the same end to a disk or head, and having between them a single continuous annular chamber for pressure, said cylinders being constructed to revolve simultaneously and together, the outside cylinder revolving around the abutment in said annular chamber and the periphery of the inside cylinder against the abutment, substantially as and for the purposes described. 2nd. A rotary engine or pump composed of the two cylinders A B, placed concentrically one within the other, having between them the single continuous annular chamber R, and both cylinders being secured at one and the same end to a single head V and constructed to revolve, as described, around an abutment, the inside cylinder A being provided with the sliding wings C, having the studs I and rollers O, and the wings being operated by means of the cams D, placed as described and for the purposes set forth. 3rd. In a rotary engine or pump, a roller-abutment constructed to be attached, in the manner described, to the packing-ring G or to the stationary head T, and composed of two or more rollers, and of the framework, substantially as and for the purposes described. 4th. A rotary engine or pump composed of the two cylinders A B placed concentrically one within the other, and secured at one and the same end to the single head V, and having at the other end the stationary head T, provided with the ports F and S, which is secured to the packing-ring G attached to an abutment, the single continuous annular chamber R, the cams D situated as described, and the wings C provided with studs and rollers, substantially as described.

No. 16,995. Improvement in Canning Meat, Fish, Fruits, etc. (*Perfectionnement dans la mise en boîtes des conserves alimentaires.*)

Thomas Levi, New Westminster, B.C., 18th June, 1883; 5 years.

Claim.—The combination of the case or cylinder B with the preserving can A, when applied as shown in the figure C, substantially as and for the purposes set forth.

No. 16,996. Feed Mechanism for Saw-Mills. (*Appareil d'alimentation des scieries.*)

Thomas J. Reamy, Rocky Mount, N. C., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of mandrel B, having secured to it the two faceplates D C of unequal size, the friction disk E and the shaft G, to which the disk is secured and upon which the disk slides backward and forward, substantially as shown. 2nd. The combination of the mandrel B, having secured to it the two face plates D C, the disk E, the shaft G, the rod Q, provided with the clutch T, the disk being adapted to be brought in contact with either one of the face plates, substantially as described. 3rd. The combination of the mandrel B, the face plates C D, the disk E and shaft G, having its ends journaled in pivoted boxes with the rod Q, by which the disk is moved, substantially as set forth. 4th. The combination of the mandrel, the two face plates, the boxes N supported directly upon the mandrel, the support P, the lever L, shaft G provided with a friction disk, and the endwise operating lever, whereby the friction disk is moved both backward and forward on the shaft, and the shaft is moved laterally, substantially as specified. 5th. The combination of the mandrel B, face plates C D, disk E, shaft G journaled in pivoted boxes, lever L and rod Q, provided with a clutch and cam, substantially as shown.

No. 16,997. Improvement in Veneering Presses. (*Perfectionnement dans les presses de plaçage.*)

Richard Goff, St. Johns, Newfoundland, 18th June, 1883; 5 years.

Claim.—1st. The combination of the series of foraminous pipes C and their induction pipes D E F F, provided with stop cocks (G G, as described, with the bed B having the partitions b and with the platen H, its two sets of cross-bars I L and screws K, all being arranged and adapted in manner, and to operate substantially as set forth. 2nd. The combination of the "turn down" rails N N adapted to the frame A, as described, with such frame, the hollow bed B and the platen H, and their cross-bars I L, and the screws K thereof, all being substantially as set forth. 3rd. The combination of the bar M, with the bars L, and with the hollow bed, and the platen provided with the bars I, and their depressing screws, as set forth.

No. 16,998. Improvements in Spoon Baits. (*Perfectionnements aux cuillers-appâts.*)

William T. J. Lowe, Buffalo, N.Y., U.S., 18th June, 1883; for 5 years.

Claim.—1st. The combination, with a wire spring rigidly connected at one end to the revolving spoon, and having an eye formed at its other end, which fits loosely upon the wire upon which the spoon revolves, of a loose connecting link which limits the outward play of the spoon, substantially as shown and described. 2nd. In combination, the spoon d provided with the eye d₁ at its upper end, and the loop or bend f upon its inner surface, the spring E located near the top of the spoon, as shown, and provided with the eye E₁, and a connecting link loosely pivoted at one end in the loop or bend f and loosely encircling, at its other end, the outer portions of the spring E, as and for the purpose stated. 3rd. In combination, the rod or wire a, the spoon d provided with the eye d₁, its upper end and the spring loop or f upon its inner surface, the spring provided with the eye E₁, and connecting link g having the eye g₁, as and for the purpose stated.

No. 16,999. Improvements in Centrifugal Reels. (*Perfectionnements dans les blutoirs centrifuges.*)

John J. A. Walterhouse, Vincennes, Ind., U. S., 18th June, 1883; 5 years.

Claim.—1st. In a centrifugal reel, substantially such as described, the combination of a reel provided with journals at its ends and laterally adjustable boxes or bearings adapted to receive and support said journals. 2nd. The combination of a reel, a beater or cylinder arranged within said reel and laterally adjustable boxes or bearings for the journals of the reel and beater, all arranged substantially as described and shown, whereby the beater may be accurately centered within the reel. 3rd. In a flour dressing machine, substantially such as described, a beater having its blades made in independent longitudinal sections, the sections of each blade being directly in line with, and abutting against one another and forming a continuous blade, whereby the different sections are adapted to be adjusted at varying inclinations without destroying the continuity of the blades. 4th. In a flour dressing machine, substantially such as described, a horizontal rotary beater having blades forming continuous lines from end to end, said blades having a varying inclination relatively to the axis of the beater at different parts of their lengths, substantially as and for the purpose specified. 5th. In a flour dressing machine, substantially such as described, a beater having its blades made in independent longitudinal sections, whereby they are adapted to be renewed in part without renewing the whole. 6th. A beater cylinder for flour dressing machines provided with blades inclined in relation to the central axis of the cylinder, and having a greater inclination at one part of their length than at another, substantially as and for the purpose set forth. 7th. In combination with a reel having cloth or clothing of differing grades, an intermediate beater having its blades set at varying inclinations at different points in their length, to correspond with the variations in the cloth. 8th. In combination with reel B and band L, a series of circular cams or wedges mounted upon studs or pivots on the heads, and adapted to move the band outward, substantially as set forth. 9th. In combination with reel B, band L, circular wedges M, having toothed peripheries and pinions meshing therewith, said parts being arranged to operate substantially as explained.

No. 17,000. Improvements in Railway Frogs. (*Perfectionnements aux rails de croisement.*)

Denison C. Pierce, Chicago, Ill., U.S., 18th June, 1883; 5 years.

Claim.—1st. A railway frog provided with wings or extensions at its end, projecting beyond the body of the frog lying between said extensions, substantially as described and shown. 2nd. As a new article of manufacture, the railway frog A provided with wings or extensions a, separated by an uninterrupted space as shown. 3rd. In combination with frogs A having extensions a, rail B and fish plate C, all combined substantially as shown and described.

No. 17,001. Improvements in Car Axle Lubricators. (*Perfectionnements aux boîtes à graisse.*)

William G. Mitchell, New York, N.Y., 18th June, 1883; 5 years.

Claim.—1st. The spool D bearing bristles D₁ combined with a frame B provided with a notch and support or equivalent device arranged to form a journal bearing for the spool, from which the spool can be readily removed. 2nd. The spool D bearing bristles D₁ held thereto by staple d or equivalent device, arranged to be readily removed for renewing the bristles. 3rd. A wiper wick E formed as an endless apron, capable of being occasionally turned to bring fresh portions against the axle, in combination with a spring support, as set forth. 4th. An oiling device combined with a spiral spring support, formed of one wire having its two end parts bent into spirals up from the portion forming the base, as shown. 5th. The top frame B having notches and a wire spring base forming journal bearings between them, combined with a rotary brush spool. 6th. The combination of a frame having a supporting spring, with a rotary spool bearing bristles and changeable wick wipers E E.

No. 17,002. Improvements in Mail Bags. (*Perfectionnements aux valises à lettres.*)

William Haron, Knoxville, Tenn., U.S., 18th June, 1883; 5 years.

Claim.—1st. A mail-bag having four sections of leather, or other non-metallic substance, connected to its sides around its open end, substantially as shown, whereby the material from which the bag is composed between the ends of the sections will operate as hinges enclosing the bag, substantially as and for the purpose set forth. 2nd. A mail-bag having sections of leather, or other non-metallic substance, secured around its sides at its open end, substantially as shown, the intervening spaces of the material from which the bag is composed serving as hinges in opening and closing the bag, two of the sections having overlapping flanges which cover the mouth of said bag when closed, substantially as and for the purpose specified. 3rd. The combination, with the sections B, of the non-metallic sections C, formed with or having flanges c diagonally opposite and parallel with each other when opened, the sections B C being of such length and connected to the bag, as shown, that the material composing it or the leather of the bag between the ends of the sections will operate as hinges in opening and closing the bag, substantially as and for the purpose set forth. 4th. The combination, with the bolt e and plate D, countersunk to form a guide and seat f, of a suitable lock E removable therefrom, substantially as and for the purpose specified.

No. 17,003. Improvements in Stock Cars. (*Perfectionnements dans les chars à bestiaux.*)

Montrose H. Gilbert, Smithville, Ohio, U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination, with the uprights B of the car, of the pivoted troughs E, the connecting rods G, the crank shaft H I and the lever K, substantially as shown and described, whereby the said troughs can be readily turned into and out of position for use, as set forth. 2nd. The combination, with the crank rods H I, connected with the pivoted troughs and provided with the cranks L M, of the

two connecting rods N O, substantially as shown and described, whereby the troughs upon both sides of the car can be operated from either side of the said car, as set forth. 3rd. The combination, with the door post B and the trough E₁, of the detachable hinged frame P, substantially as shown and described, whereby the said troughs can be readily secured in and removed from the doorway, as set forth. 4th. The combination, with the trough E₁ pivoted to the detachable hinged frame P, and the adjacent trough E pivoted to the car-body uprights B, of the bolt S and keepers T U, substantially as shown and described, whereby the said trough can be readily connected with and operated by the adjacent trough, as set forth. 5th. The combination, with the braces C, of middle-curved coupling bars F, having open sockets F₁ secured to, and receiving the ends of said braces, as shown and described. 6th. The combination, with the water pipe c, of a connecting pipe e made in two telescoping parts, the hinged and forked bar f, the hinged horizontal pintle g and the eyebolt h on door V, as shown and described. 7th. The combination, with the bars f, of the two overlapping bars i hinged at, or above the centre of said bar f, pivoted together near their ends and having the lips k, whereby said bars cannot drop below a horizontal position, as described. 8th. The combination, with the telescoping coupling pipe c and the car-door V, of the hinged bar f, the pivoted connecting bars i and the handle l substantially shown and described, whereby the said coupling pipe can be readily operated and turned down, to allow the door to be opened, as set forth.

No. 17,004. Improvements in Hampers for Horses. (*Perfectionnements dans les chevêtres des chevaux.*)

Peleg Swan, Litchfield, Mich., U.S., 18th June, 1883; 5 years.

Claim.—The movable plate and pivot upon which it works, and the mode of connecting the chains B B with the padded shackles, which is done by connecting them with small copper or iron cylinders enclosed in the pads of the shackles.

No. 17,005. Mode of Applying Magnetism to the Human Body. (*Mode d'application du magnétisme au corps humain.*)

William Malloy, (assignee of Addison Norman,) Toronto, Ont., 18th June, 1883; 5 years.

Claim.—The application of magnetism to the human body by means of magnets, inserted in the ordinary clothing, viz: in gentlemen's hats, caps, coats, vests and trousers, and in ladies' hats or bonnets, dresses and cloaks, or jackets, as shown in the drawings, and as specified and described.

No. 17,006. Improvements in Faucets.

(*Perfectionnements dans les robinets.*)

Charles Whittaker, Chicago, Ill., U.S., 18th June, 1883; 5 years.

Claim.—1st. The combination and arrangement of an outward opening valve seat, an upward closing stopper and a screw cut valve rod, said valve rod being coupled to and adapted as it is turned to open the stopper against, and close the same with the pressure of the water, substantially as set forth. 2nd. The combination of the screw cut valve rod H₁ with the upward closing stopper D provided with the shank E, said parts being connected together by a sleeve or swivel, as set forth. 3rd. The combination, of the body A having outward opening valve seat B, upward closing valve or stopper D, vertically moving sleeve F, screw cut valve rod H and handle I, substantially as set forth. 3th. The combination of the sleeve F, provided with retaining shoulder K and pintle J, with the shank E, provided with retaining collar L, said shoulder K and collar L being adapted to retain said shank upon said pintle, as said forth.

No. 17,007. Grain Threshing and Separating Machines. (*Machines à battre et séparer les grains.*)

Thomas Hall and John West, Summerside, P. E. I., 18th June, 1883; 5 years.

Claim.—1st. A shaker frame O, having a flat perforated or ribbed surface I₂ on the upper side to support the straw, and a tight bottom O₁ O₃ on the under side, inclining downward from both ends to the centre and leaving an open space I₃ for the passage of grain and chaff to the fanning mill shoe underneath, with the rockers 2 2 and 4 4 which, when in operation, impart to the shaker frame O a rising and falling and backward and forward motion. 2nd. For the combination of fan shaft K, crank pulley 6, pitman H, crank A O and rockers 2 2 and 4 4.

No. 17,008. Hay Elevator and Carrier.

(*Elevateur à foin.*)

Edwin Harrington, Manchester, N. Y., U. S., 18th June, 1883; 5 years.

Claim.—1st. The described hay elevator and carrier consisting of shell A, pivoted arms B, pulley F, brake D, dogs I and trips or yokes J, combined and operating as set forth. 2nd. The combination of the body A, pulley F, arms B and vertically-sliding brake D controlled by said arms, substantially as set forth. 3rd. The combination of a pulley, a vertically-sliding brake and pivoted sustaining arms, extending through the body of the brake and serving to apply the weight of the carriage and load thereto, substantially in the manner explained. 4th. In combination with the grooved plates a b and pulley F, the brake D having ribs to fit the grooves of the plates, as and for the purpose set forth. 5th. In combination with the rope-pulley having lugs J on its sides, the combined brake and clamp D, arranged to slide vertically in the shell or casing, substantially as shown. 6th. The vertically-sliding brake and clamp D provided with laterally projecting lugs or pins, to engage with a fixed incline, as described.

No. 17,009. Improvements in Waggon Jacks.

(*Perfectionnements aux chevres de charonnerie.*)

Alvin N. Woodard, Millington, Mich., U.S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the following elements, the base A and standard B thereof, the vertically adjustable rack-bar C and bar F, the approximating ends of which are secured together and operated by the lever E, which is provided with a suitable head and a stop shoulder c, substantially as and for the purpose set forth. 2nd. In combination with the base and standard B thereof, the bars C F, lever E and dog D, when the parts are constructed, arranged and operating substantially as and for the purposes specified.

No. 17,010. Smoke and Gas Consuming and Fuel Saving Furnace. (*Fourneau fumivore économisant le combustible.*)

Ira Beasley, London, Ont., 18th June, 1883; 5 years.

Claim.—1st. A hollow burner E, constructed in sections n₁ n₂ n₃ and provided with perforations e₃, and curved bevelled upper face e₄, for introducing air with or without steam to the smoke and gas, to completely consume said smoke and gas at the rear of the furnace or bridge wall, substantially as shown and described. 2nd. The combination of the pipe D, tube B provided with funnel-shaped mouth A, burners E E₁, constructed in sections n₁ n₂ n₃ and provided with curved bevelled upper face e₄, and perforations e₂, and tubular arms H H H₁, substantially as shown and described and for the purpose specified.

No. 17,011. Machine for forming Staples.

(*Machine à former les crampons.*)

William A. Root, Montreal, Que., 18th June, 1883; 5 years.

Claim.—1st. In a wire-staple forming machine, the combination of two cutters for separating from the wire more than one blank at a time, and a reciprocating plunger for simultaneously bending said blanks into shape, substantially as set forth. 3rd. The combination with the cutter-head, of two cutters, whereby both ends of one blank, are cut at once, and two blanks detached at the same time. 3rd. The cutters arranged to cut the blanks with their oblique ends in opposite directions. 4th. A set of projecting fingers formed in the bed plate, and a corresponding set of plungers secured in a moving plunger head, so arranged that one plunger shall fit in between two fingers and vice versa, as and for the purposes set forth. 6th. In combination with the moving and fixed cutters K K₁, the bed plate L, constructed as shown and arranged to carry the intermediate cut blank. 6th. In combination with the cutter-head H and cutters K, the plunger M carried in cutter-head and holding detached blank E₂, all as set forth.

No. 17,012. Roofing Cement. (*Ciment à toiture.*)

William L. Maltby, Montreal, Que., 18th June, 1883; 5 years.

Claim.—A roofing cement or paint composed of powdered mica and soap-stone mixed with coal tar, or other liquid bituminous substances, substantially in the proportions set forth.

No. 17,013. Improvements in Double-Trees.

(*Perfectionnements aux palonniers.*)

Edward How, Erin, Ont., 18th June, 1883; 5 years.

Claim.—1st. In a vehicle provided with a pivoted double-tree, the whiffletree, the clips D adjustably fitted on the double-tree, in combination with the pivoted rod E, substantially as and for the purpose specified. 2nd. In a vehicle provided with a pivoted double-tree having whiffletrees adjustably connected to it, the pivoted rod E, arranged to adjust the clips D, in combination with the stops F, substantially as and for the purpose specified.

No. 17,014. Improvements in Sewing Machines. (*Perfectionnements aux machines à coudre.*)

James H. Whitney, Brooklyn, N. Y., U. S., 18th June, 1883; 5 years.

Claim.—1st. The combination of the fly-wheel C, frame A and means providing for an elastic vibratory movement of the bearing of the said wheel, for the purpose set forth. 2nd. The combination of the frame A, having stationary upright guides, the movable block D held by said guides the wheel C pivoted to the block D, and an elastic rest e supporting the said block, substantially as set forth. 3rd. The combination of the frame A, provided with the opening c₁, lugs or flanges E and guide bolts d in the said flanges, the block D arranged to slide upon the said guide bolts and provided with an upward projection d₁ working against a guide surface in the upper lug, the block supporting springs e and the wheel C, pivoted to the slide-block D, substantially as and for the purpose set forth. 5th. The combination, with a sewing machine stand and with the machine frame G, having fulcrum pins or projections i₁, of elastic or yielding machine supports L, having fulcra or bearings to receive the said projections, for the purpose set forth. 5th. The combination, with a sewing machine stand and with the machine frame G, having pivoting pins i₁, of the elastic supports I made of metallic springs having their free ends bent to form semi-circular bearings for the said pins, substantially as and for the purpose set forth. 6th. In combination with a sewing machine table B, having the opening b and spring bearings I underneath, at opposite sides of the said opening, the machine frame G having stops N, upon the bed-plate g₁, and bored hub g, and the rod i₁ inserted through the said hub, and in the said bearings I, simultaneously for the purpose set forth. 7th. The combination with the table B, wheels J C and belt d₁, of the machine frame G, supporting spring-bearings I, the bed plate g₂, and the elastic button M pivoted thereto, for the purpose of producing elasticity and evenness of motion, and reducing the wear of the shaft K

and its bearings, substantially as specified. 8th. In combination with the frame G, and table-top B of a sewing machine, the cushioned spring button M, pivoted to the under side of the bed-plate ρ , and locking against the under side of the table-top, substantially as shown and described, and for the purpose set forth. 9th. The pivoted needle arm H having a counter-weight h upon that end thereof, to which the eccentric-rod J is attached, for the purpose specified. 10th. In combination with the wheel e and bell b , the slotted belt guard F secured by the screws f to the brace A, the same being bent as shown and described for the purpose set forth.

No. 17,015. Starch Drying House.

(*Sécherie d'amidon.*)

George E. Full, Charlottetown, P. E. I., 18th June, 1883; 5 years.

Claim.—1st. The combination of the standard O and the floor or frame B suspended thereto, with the pins or screws R and the hooks H, substantially as shown and described and for the purpose set forth. 2nd. The combination of the standard O₂ and the rollers H₂, with the floor or platform B₂ resting thereon, substantially as shown and described. 3rd. The combination of the spindles or bar T and the drying frames C attached thereto, and the spindle or bar T pivoted on the standard E₂, substantially as shown and described. 4th. The combination of the bar or spindle N with the clamps or ringbolt V and the drying frames C₂ pivoted thereon, substantially as described and shown. 5th. The combination of the bars or strips D₃ of the drying frames C₃, with the rails L₂ and the wide space or opening between the bars or rails D₂, substantially as shown and described and for the purpose set forth. 6th. The combination of the bars or strips D₃ of the drying frames C₄, with the rails L₂ and the wide spaces between the bars or strips D₃, and the narrow slots or perforations in the bars or strips D₃, substantially as shown and described and for the purpose set forth. 7th. The combination of the drying frames C₃ and the standards G, with the drying frames C₃ suspended thereto, with the hooks H and the pins or screws R, substantially as shown and described and for the purpose set forth. 8th. The combination of the drying frames C₃ with the rollers H₃ and with the standards G₂, substantially as shown and described and for the purpose set forth.

No. 17,016. Process for Reducing Crude and Inferior Oils.

(*Procédé pour réduire les huiles crues et inférieures.*)

Walter Groves, Welland, Ont., 18th June, 1883; 5 years.

Claim.—1st. The direct process of heating the oil by fire immediately under the still. 2nd. The process of superheating the steam by carrying it through the system of chambers and pipes in an independent superheater. 3rd. The process of condensing the vapours by means of a large retort in the condenser, substantially as described.

No. 17,017. Improvements in Wire Stretchers.

(*Perfectionnements dans les appareils à tendre les fils de fer.*)

Moise Brisbois, Peterborough, Ont., 18th June, 1883; 5 years.

Claim.—The combination of the bar A having the curve A₁, and the eccentric lever B, as described and set forth.

No. 17,018. Improvements in Spark-Arresters.

(*Perfectionnements aux arrête-flammèches.*)

Thomas Patterson, Stratford, Ont., 18th June, 1883; 5 years.

Claim.—1st. A cone frustum-shaped cage composed of a series of metal rings, reducing gradually in diameter from the bottom ring to the top where a suitable cone is placed, the said cage being placed within the smoke stack, substantially as and for the purpose specified. 2nd. In a smoke stack, an open cage composed of a series of metal rings separated by suitable thimbles placed between them and having their interior surface fluted, substantially as and for the purpose specified. 3rd. In a smoke stack, an open cone-frustum shaped cage composed of a series of metal rings separated by suitable thimbles placed between them and having their interior surfaces fluted, in combination with an inverted cone-shaped top forming a cover to the cage, as and for the purposes specified.

No. 17,019. Process for Treating Copper Pyrites.

(*Procédé de traitement des pyrites de cuivre.*)

George Thomson, Dillonton, Que., 18th June, 1883; 5 years.

Claim.—1st. In an apparatus for the treatment of copper pyrites, the combination and arrangement with the burners, leaching vats, settlers, &c., of a pump or pumps, whereby the nitric oxides evolved during the series of processes, from the several vessels are drawn off through a system of pipes and forced through condensing vats, all as set forth. 2nd. In the treatment of copper pyrites, the recovery of the nitric and sulphuric acids used as solvents by drawing off the oxides and gas during the several processes, and forcing them through condensing tanks, all substantially as described. 3rd. In the treatment of copper pyrites, the producing of persulphate of iron, as and for the purposes set forth.

No. 17,020. Grain Gradual Reduction Machines.

(*Machine à réduction graduelle des grains.*)

William D. Gray, Milwaukee, Wis., U. S., 21st June, 1883; 5 years.

Claim.—1st. In an automatic apparatus for the gradual reduction of grain, the combination, substantially as shown, of four roller mills, two reels located thereunder and provided each with a central division, and elevators operating in connection with the respective

ends of each reel, said parts arranged, substantially as described, to effect the delivery of the material through the successive mills and reels alternately. 2nd. The combination of two pairs of crushing rolls and intermediate couplings connecting the rolls of each pair with the corresponding rolls of the other pair, substantially as and for the purpose described. 3rd. The roller mills B and B' and the intermediate couplings connecting the respective rolls as described, in combination with the two driving pulleys arranged on opposite sides of the machine and connected one with the forward roll of the machine, and the other with the rear rolls of the other mill, as described, whereby motion is transmitted to the forward rolls of both mills from one pulley, and to the rear rolls of both mills from the other pulley. 4th. The combination of a rectangular sustaining frame, four roller mills mounted upon the respective corners of said frame, two transversely divided reels mounted in the base of said frame below the mills, to receive the meal or break by gravity therefrom, an elevator connected with each reel and a series of spouts leading from the upper ends of the respective elevators to the respective mills, in the manner shown and described. 5th. The combination of the following elements: four roller-grinding mills, universal couplings as described connecting said mills in pairs, two driving pulleys applied in connection with each pair of mills on opposite sides of the machine, and a counter-shaft F extending transversely of the machine and provided with driving pulleys on its two ends and three driving belts extended, two from one end of the main shaft, and one from the opposite side of said shaft, to the respective rolls of the grinding mills, as described and shown. 6th. In combination with the two roller mills or reduction machines, a cylindrical reel divided transversely and arranged to receive the product from the respective mills at its opposite ends. 7th. The rotary reel or screen provided with central pulley V having the divided web or disk, to separate the two ends of the reel, and the perforations in the rim to permit the escape of tailings. 8th. The transversely divided reel having the outlets on opposite sides of its central division, in combination with the independent receiving chambers W and W' and the independent elevator belts X and X', as shown and described.

No. 17,021. Apparatus for Making Paper Vessels.

(*Appareil pour faire les ustensiles en papier.*)

Herbert A. Johnson, Medina, N. Y., U. S., 21st June, 1883; 5 years.

Claim.—1st. In an apparatus for forming paper vessels from pulp, a circular felt in the form of a disk mounted centrally upon a journal or pin, so as to have a free rotation on its own axis and serving by its rotation to transfer the pulp deposited upon it by the take-up roller to the forming roller on another side of the felt, as specified. 2nd. The combination of a circular felt mounted centrally upon a journal or pin so as to have a free rotation on its own axis, a conical take-up roller on one side and under the felt which deposits the pulp on the under side of the felt, a conical forming roller on another side and under the felt which removes the pulp from the felt and deposits it upon itself, and two pressing rollers above the felt resting over the conical take-up and forming rollers, as specified. 3rd. The combination, with the circular felt resting and turning on a central journal or pin, of the two conical forming rollers mounted on a frame pivoted to the main frame centrally between the rollers, whereby either roller may be turned up beneath and in contact with the felt when the other roller is turned down, as specified. 4th. The combination, with the circular rotating felt B mounted on a central journal or pin c , of the swinging frame I carrying the pressing roller H and the band P resting upon pulleys attached respectively to the roller H and shaft K, as shown and described and for the purpose specified.

No. 17,022. Music Desk for Upright Pianos.

(*Pupitre pour les pianos droits.*)

Theodore A. Heintzman, Toronto, Ont., 21st June, 1883; 5 years.

Claim.—The front A hinged to the case of the piano and provided with a hinged bottom rail C, in combination with an arm D hinged to the rail C and connected to a dog F, hinged or pivoted upon the back of the front A, the said part being so connected that the opening of the hinged bottom A causes the dog F to extend out and support the music desk at the desired angle substantially as and for the purpose specified.

No. 17,023. Improvements in Buttons.

(*Perfectionnements dans les boutons.*)

Nelson C. Newell, Springfield, Mass., U. S., 21st June, 1883; 5 years.

Claim.—1st. An improved button consisting of a centre having a shank on its rear side, and an under-cut groove therein surrounding said shank, of a perforated shell, substantially as described, and of an eyelet, substantially as described, adapted to engage in said groove in said centre and to engage with said shell, all as set forth. 2nd. A button-centre having a shank on its rear side, and an under-cut groove therein surrounding said shank, a perforated shell to fit upon the back of said centre and a uniting eyelet having a slotted cylindrical body adapted to engage with said shell, and a slotted flange thereon adapted to engage within said groove, all combined substantially as set forth.

No. 17,024. Improvements in Buttons.

(*Perfectionnements dans les boutons.*)

Nelson C. Newell, Springfield, Mass., U. S., 21st June, 1883; 5 years.

Claim.—A compound button consisting of a cloth-button and of a back of other material, substantially as described, a uniting eyelet having one or more slots in its body, substantially as set forth.

No. 17,025. Improvements in Measuring Pumps.

(*Perfectionnements dans les pompes à compteurs.*)

Henry E. Marchand, Allegheny, Pa., U. S., 21st June, 1883; 5 years.

Claim.—1st. The combination of a double-headed piston having a segmental liquid chamber, inlet ports opening into said chamber through the heads of the piston, and vertically movable valves fitted in said ports with suitable means for reciprocating the piston, and a cylinder having end inlet-valves and discharge pipe communicating with the chambered piston, substantially as and for the purposes set forth. 2nd. The combination of a reciprocating piston having a vertical recess and groove and a block, with a wrist-pin or an eccentric arranged therein with a cylinder having inlet and discharge ports, and an arbor or shaft carrying said block or eccentric, substantially as and for the purposes set forth. 3rd. The combination of the plug having a conical or tapering enlargement and a suitable handle, and a piston cylinder having a tubular extension provided with a flaming mouth, with an eccentric or wrist-pin block and a reciprocating piston, substantially as and for the purposes set forth. 4th. The combination of an adjustable eccentric or wrist-pin block having a rectangular recess and slot communicating therewith, the plug provided with an aerial bore and rectangular inner end projections, and the tapering stem having an end stud or pin with the recessed piston, and the cylinder having a tube for the reception of the plug, substantially as and for the purpose set forth.

No. 17,026. Screw-Driver and Screw Adjuster. (*Tourne-vis et pose-vis.*)

Cal Thomas, Terre Haute, Ind., U. S., 21st June, 1883; 5 years.

Claim.—In an implement for driving screws, the combination of the tubular shank C having upon its outer end a chambered enlargement to the interior of which the clamping-jaws are pivoted, a sliding rod C₁ which passes through the shank and enters the handle A, clamping jaws F₂ F₃, a spring A₁ for operating said jaws located in the handle, and a lever A₂, or equivalent device, for operating the clamping-jaws, the parts being constructed and arranged substantially as and for the purpose set forth.

No. 17,027. Improvements in Movable Dams. (*Perfectionnements aux digues mobiles.*)

John DuBois, DuBois, Pa., U. S., 21st June, 1883; 5 years.

Claim.—1st. In combination with a flexible dam, substantially as described, acting to insure the uniform rise and fall of the dam at different points in its length. 2nd. In combination with a flexible rising and falling dam, substantially as described, a shaft extended lengthwise thereof and means, substantially as described, connecting said shaft at various points with the dam, said connections adapted to insure the uniform rising and falling of the dam at the various points in its length. 3rd. In combination with a rising and falling dam, substantially as described, a longitudinal shaft provided with pinions secured thereto, and a series of rack bars operating in connection with said pinions. 4th. In combination with a flexible dam, substantially as described, a series of racks attached to and moving therewith, a longitudinal shaft in fixed bearings, and a series of pinions secured to said shaft and engaging with the rack-bars. 5th. In combination with the rising and falling dam, substantially as described, the rack-bars attached thereto, the pinion, the connecting shaft and the rack supporting guides N constructed substantially as described. 6th. In a flexible rising and falling dam, substantially as described, the hinge adapted, substantially as described, to permit both a swinging and a sliding motion of the edge of the dam. 7th. In combination with a flexible dam and its foundation, substantially as described, the hinge rod or pivot and the two hinge sections n and o, one provided with a slot to permit the lateral motion of the hinge pin.

No. 17,028. Improvements in Clogs or Shoes. (*Perfectionnements aux socques ou souliers.*)

John Cassidy, Cambridge, Mass., U. S., 21st June, 1883; 5 years.

Claim.—1st. A self-adjusting device for discharging explosives or coloured fires all substantially as and for the purposes set forth. 2nd. The combination of means for holding a cartridge or other explosive or shell containing coloured fire and means for discharging or igniting the same, all substantially as and for the purposes described. 3rd. The combination of the rod B having the spurs or projections c e, and the barrel C having the teeth e, all substantially as and for the purposes described. 4th. In a clog or shoe, the cavities in the sole or heel thereof having means of expelling the cartridge or pyrotechnic inserted therein, all substantially as and for the purposes set forth. 5th. A cavity or hole formed to receive a cartridge or pyrotechnic and having the bushing e and flanged cup e₂, all substantially as and for the purposes described. 6th. The combination of a series of chambers arranged for the reception of explosives or coloured fires, and means for successively discharging the explosives or igniting the coloured fires, all substantially as and for the purposes described.

No. 17,029. Combined Milk Bucket and Stool. (*Seau à lait et banc combinés.*)

Abner Woodward, Shelburne Falls, Mass., U. S., 21st June, 1883; 5 years.

Claim.—The combination of bucket A, hoop E (having clamping hooks H hinged thereto, and sockets G having legs F fitted therein), sliding inlet tube K, funnel J with movable strainer L, constructed as described and for the purposes set forth.

No. 17,030. Electric Heating Apparatus. (*Appareil de chauffage électrique.*)

Oswald Rose, Manchester, Eng., 21st June, 1883; 5 years.

Claim.—1st. The electric heater consisting of a wire or wires, or a spiral coil or coils of wire, coiled or placed round or on a central rod and enclosed in a tube to which wire electricity is applied, substantially as set forth. 2nd. The electric heater consisting of a series of independent spiral coils of wire enclosed in a tube to which wire

electricity is applied, substantially as set forth. 3rd. The electric heater consisting of carbon, or other semi-conductor of electricity, placed round a centre rod and enclosed in a tube to which carbon or other semi-conductor of electricity is applied, substantially as set forth. 4th. The electric heater consisting of a wire or wires, or a spiral coil or coils of wire, coiled or placed round or on a central tube or pipe containing water or other fluid, the said wire being enclosed in a suitable casing to which wire electricity is applied, substantially as set forth. 5th. The electric heater consisting of a series of independent spiral coils of wire placed round a central tube or pipe containing water or other fluid, the said wire being enclosed in a suitable casing to which wire electricity is applied, substantially as set forth. 6th. The electric heater consisting of carbon or other semi-conductor of electricity placed round a central tube or pipe containing water or other fluid, the said carbon or other semi-conductor being enclosed in a suitable casing to which carbon or other semi-conductor of electricity is applied, substantially as set forth. 7th. The heating apparatus consisting of the combination of the electric heater, as described and claimed, and an endless tube or pipe filled with water or other fluid and closed in all parts, and fitted with an expansion or air chamber, substantially as set forth. 8th. The heating apparatus consisting of the combination of the electric heater, as described and claimed, and a tube or pipe with ends partly filled with water or other fluid, and closed in all parts, substantially as set forth.

No. 17,031. Improvements in Ironing Machines. (*Perfectionnements aux machines à repasser le linge.*)

Gideon W. Cottingham, Little Rock, Ark., U. S., 21st June, 1883; 5 years.

Claim.—1st. In an ironing machine and in combination with a reciprocating box mounted on rollers and carrying an interchangeable table, a sad iron held away from the goods by the constant force of a spring, a pedal lever for throwing the iron into operation and power connection for impelling the box and table in either of two directions under the iron, as set forth. 2nd. A rectangular box with perforated sides, ends and bottom carrying an interchangeable table, combined and adapted to serve with a way B a sad iron, means for impelling said box and table and means for throwing the sad iron in or out of operation at will, as specified. 3rd. The spider frame I having arms i₁ and i₂ combined with the iron K, the spring J, the treadle M and a reciprocating traversing table, as set forth. 4th. In combination with the box F and table G, the way B, gear B, shaft D, pulley d₁, rope H, rollers F₁ and connection with the power shaft C, all combined and adapted to serve with a sad iron and with means for throwing the said iron in or out of operation, as and for the purposes set forth.

No. 17,032. Black Leaf Memorandum Book. (*Agenda à feuille noire.*)

George Powley, Toronto, Ont., 18th June, 1883; 5 years.

Claim.—1st. In a cover for holding a memorandum book, the combination of two keepers, placed facing each other at opposite ends, and on the inside of one cover, for the purpose of retaining in position tally sheets, substantially as and for the purpose specified. 2nd. In a cover for holding a memorandum book, a double jointed back for connecting the two halves of the cover together in such a manner that, when the memorandum leaves are fastened to the back portion of the back to which they are fastened will lie flat with the half of the cover on which the leaves rest, while the other portion of the back folds over the ends of the leaves and permits the remaining half of the cover to lie flat on the opposite side of the leaves, substantially as and for the purpose specified. 3rd. In combination with a memorandum book, having a cover with a double jointed back, one or more pins fixed on the inside of one of the halves of the cover and arranged to fit into holes made in the leaves of the memorandum book, substantially as and for the purpose specified.

EO. 17,033. Binding Pole and Chain.

(*Tortoir et chaîne d'embrelage des charges.*)

Hans M. Carlsen, Cleveland, Ohio, U. S., 21st June, 1883; 5 years.

Claim.—The combination of lever A, chain B, hook d, rope or chain b and hooks c, substantially as shown and described.

No. 17,034. Improvements in Surcingles.

(*Perfectionnements dans les surfaix.*)

Marshall R. Dowlin, North Adams, Mass., U. S., 21st June, 1883; 5 years.

Claim.—1st. A surcingle formed with two distinct inflexible bearing pads, separated so as to freely admit the ridge of the back bone between them, and adapted to bear on the fleshy parts of the back on either side of the ridge, with a flexible connection between said pads adapted to span the backbone without bearing seriously thereon, together with a buckling strap for fastening the same round the blanketed body of the horse, substantially as shown and described. 2nd. A surcingle constructed with bearing pads formed of wooden blocks joined by a flexible connection or hinge, substantially as and for the purpose set forth. 3rd. The combination, with inflexible bearing pads and their connection, of the buckling strap d fastened to the middle of the said connections and free in both directions therefrom, but passing loosely over the pads, substantially as and for the purpose set forth. 4th. The combination, with inflexible bearing pads and their connector, of the buckling strap a fastened to the middle of the connector with loops h h near the outer ends of the pads, through which the strap is loosely passed, substantially as shown and described.

No. 17,035. Improvements in Roller Mills. (*Perfectionnements aux moulins à blé.*)

John Goldie and Hugh McCulloch, Galt, Ont., 21st June, 1883; 5 years.

Claim.—1st. A milling roll divided into different sections by trans-

verse or peripheral grooves. 2nd. A milling roll divided by transverse grooves into a series of sections having their surfaces longitudinally furrowed or serrated by grooves increasing in number on each successive section. 3rd. A milling roll divided by transverse or peripheral grooves into a series of sections, the first of which being plain or smooth, and the successive sections prepared with longitudinal furrows, channels or grooves, increasing in number on each successive section, such grooving being either parallel to the axis of the roll, or diagonal and at any desired angle. 4th. A milling roll R divided by transverse grooves into sections, having longitudinal serrations of successively increasing fineness, in combination with partitions maintaining the separation of the sections through the entire casing of the machine. 5th. The combination of the framing A supporting the rolls R divided into a series of sections having longitudinal serrations increasing in number on successive sections, partitions *p p*, etc., maintaining the separation of the sections in the casing B, all substantially as described and for the purpose set forth.

No. 17,036. Portable Combined Fire-Arrester and Fire-Escape. (*Coupe-feu et sauveur d'incendie portatifs, combinés.*)

Samuel Richards, Philadelphia, Pa., U. S., 21st June, 1883; 5 years.

Claim.—1st. The combination, with a carriage, of a frame mounted thereon, supporting a blanket or cloth, which cover the exposed side of frame and carriage, and a water distributor, which is arranged at the top of said frame and adapted for connection with a water supply forming a movable fire shield, substantially as set forth. 2nd. The combination of a carriage and a frame fixed thereon, one or more adjustable frames telescoping within said fixed frame, the blankets or cloths applied to said frames, and the water distributor arranged above said cloths and adapted for connection with a water supply, the whole forming a portable fire shield for preventing the spread of fires and protecting firemen while in the discharge of their duties, substantially as set forth. 3rd. In combination with the carriage and the cloth covered frames, and a water distributor supported thereon the bars *a* and detachable stay rods *m*, for widening the base of the apparatus, when said frames are elevated, substantially as set forth. 4th. The combination, with a carriage, of a single frame fixed thereon, supporting a blanket or cloth, and a water distributor above said blanket or cloth, to form a movable fire shield, substantially as set forth. 5th. In combination, the carriage, the fixed frame *b*, the adjustable frames *b' b'' b'''*, the racks *d d' d'' d'''*, the pinions *h* and *h'*, the shafts *l*, the guides *m*, ratchet *u*, springs *v* and pivoted cams *v'*, in the manner and for the purpose substantially as set forth. 6th. In combination with the carriage, one or more water tight drawers, arranged under the platform thereof, to serve as a place of deposit for the blankets or cloths, and as a temporary reservoir for water, substantially as set forth. 7th. In combination with the carriage, one or more frames mounted thereon, the blankets or cloths covering said frames, the water distributor at the top of said frame or frames, and the pump located in the carriage platform, with or without one or more water-tight drawers, the whole forming a fire shield adapted for use in localities not supplied with water under pressure, substantially as set forth. 8th. In combination, a carriage having a jointed platform *a*, the fixed and adjustable frames, the blankets or cloths applied to said frames, the platform *k* attached to said frames, and the ladders with devices for tilting or inclining said platform *a*, and thus bringing the top of the series of frames against a building to form a fire-escape, substantially as set forth.

No. 17,037. Improvements in Pumps. (*Perfectionnements dans les pompes.*)

John G. Irving, Markdale, Ont., 21st June, 1883; 5 years.

Claim.—The combination of a flexible tube A, the bottom end of which fits over the end of the log B, and its flexible body extends within a recess or chamber made in the log below the cylinder D, substantially as and for the purpose specified.

No. 17,038. Device for Lighting the Steps of Cars. (*Appareil pour éclairer les marches-pieds des chars.*)

George W. Hunt, Philadelphia, Pa., U. S., 21st June, 1883; 5 years.

Claim.—1st. The described device for illuminating the steps of railway, or other cars or carriages, consisting of a lantern A situated beneath the steps of the car, the light from which passes through suitable apertures B in the steps, the whole arranged substantially as set forth. 2nd. The described lantern having an open face C in front, a strip of glass D at its top, and having a reflector E, all substantially as and for the purposes described. 3rd. In a lantern for illuminating the steps of cars or carriages, the combination of the glasses C and D, reflector E, glasses F and G, and door H, all arranged substantially as and for the purpose described. 4th. The combination, with a lantern for illuminating the steps of cars or carriages, of a receptacle J, said receptacle being attached to the bottom, as shown, and being furnished with a shelf *b*, the whole substantially as and for the purposes described.

No. 17,039. Improvements in Manual Powers. (*Perfectionnements aux machines à bras.*)

Jasper Bates, Thornbury, Ont., 21st June, 1883; 5 years.

Claim.—The combination, with posts C C, H H and J J, footed to base A, of the seat E having vertical stem F, straight lever G, elbow lever J, foot rests L and handle K, to operate in the manner set forth.

No. 17,040. Improvements in Gearing.

(*Perfectionnements dans les engrenages.*)

James F. Gilliland, Indianapolis, Ind., U. S., 21st June, 1883; 5 years.

Claim.—1st. A gearing composed of a metal wheel having small cogs, with wide spaces between them, and a rubber or similar wheel

having large cogs, with small spaces between them, substantially as set forth. 2nd. The combination of the metal wheel A having thin cogs *a*, with wide spaces between them, and the rubber-wheel B having thick teeth *b*, which fit in between the thin teeth in the wheel A, and narrow spaces between them which fit over the said thin teeth, the ends of said thick teeth *b*, and the bottoms of the spaces between the teeth *a* also constituting friction surfaces, substantially as set forth. 3rd. The combination of the wheels A and B constructed as specified, to form a combined spur and friction gearing, substantially as set forth.

No. 17,041. Improvements in Force Pumps.

(*Perfectionnements aux pompes foulantes.*)

David Lilienfeld, Kalamazoo, Mich., U. S., 21st June, 1883; 5 years.

Claim.—In a liquid forcing apparatus, the combination of the air pump, the discharge tube, the air-purifier having the upward extension, the fulcrum lever pivoted thereto, and the lever having the orifice surrounding the discharge tube, the said lever being pivotedly connected with the fulcrum-lever and the air-pump piston, all substantially as set forth.

No. 17,042. Electrical Signalling Apparatus.

(*Appareil électrique à signaux.*)

Horatio W. Southworth, Springfield, Mass., U. S., 21st June, 1883; 5 years.

Claim.—1st. The combination of a series of instruments in a circuit, each having an electric signalling apparatus, magnetic needle *d*, coil B and contact points *o o*, with means for adjusting the latter to different positions on the different instruments, and means, substantially as described, for sending an electric current through all of said coils simultaneously, substantially as set forth. 2nd. The combination of a series of instruments in a circuit, each having an electrical signalling apparatus, magnetic bar *d* supporting the arm *e*, to which is suspended the wire *e'*, and the separated connection wires *o o* set in different positions in the different instruments, coil B, magnet *c* and means, substantially as described, for sending an electric current through all of said coils simultaneously, substantially as described. 3rd. The combination of a series of instruments in a circuit, each having an electric signalling apparatus, magnetic bar *d*, supporting arm *e* to which is suspended the wire *e'*, the wires *o o*, coil B, magnet *c*, a graduated bar *b* and connector *a* adapted to be attached to one of said instruments, said wires *o o* being set at different positions in the different instruments, and means, substantially as described, for sending an electric current through all of said coils simultaneously, substantially as set forth. 4th. The combination, in an electric signalling apparatus, of an alarm bell, of the magnetic bar *d*, supporting arm *c* and having the wire *e* suspended thereon, of the wires *o o* connected with said bell and a battery, coil B, magnet *c* and means, substantially as described, for sending an electric current through said coil, substantially as described.

No. 17,043. Improvements in Corsets.

(*Perfectionnements dans les corsets.*)

Charles N. Chadwick, Brooklyn, N. Y., U. S., 21st June, 1883; 5 years.

Claim.—1st. A corset constructed with vertical slits extending to near the waist line, one edge provided with a pocket inclosing a stay, an extension from the opposite edge beneath and so as to underlie the said pocket, and over which the pocket will freely move, and an elastic connection from the free end on to the part having the underlying extension, substantially as described. 2nd. A corset constructed with vertical slits extending to near the waist line, one edge provided with a pocket inclosing a stay hinged to the body of the corset, at the apex of the slit, an extension from the opposite edge beneath, and so as to underlie the stay pocket, and over which the hinged stay pocket will freely move, and an elastic connection from the free end on to the part having the underlying extension, substantially as described.

No. 17,044. Improvements in Stench Traps.

(*Perfectionnements aux trappes des égouts.*)

Herman Pietsch, Flatbush, N. Y., U. S., 21st June, 1883; 5 years.

Claim.—1st. A stench trap made substantially as shown and described, and consisting of two vessels contained one within the other, and an inlet pipe passing into the inner vessel, which pipe is provided with an outwardly opening air-valve, as set forth. 2nd. The combination, with the vessel A, of the vessel F contained therein, the inlet pipe C extending down into the vessel F, the short spout or collar H, and the hinged gate J for closing the same, substantially as shown and described and for the purpose set forth. 3rd. The combination, with the vessel A, of the vessel F contained therein, the inlet pipe C extending down into the vessel F, the short spout or collar H, the gate J, and the strip K hinged to the gate J, and the pipe C above the collar H, substantially as shown and described and for the purpose set forth.

No. 17,045. Improvements in Brackets.

(*Perfectionnements dans les consoles.*)

George W. Baer, Dayton, Ohio, U. S., 21st June, 1883; 5 years.

Claim.—1st. The wall-plate A with grooves in face of eye, as shown and described, in combination with the projection C of the bracket to traverse the same, substantially as set forth. 2nd. The wall-plate A having a notch on the face of the eye communicating with the transverse groove, in combination with the projection C of the bracket, for the purpose of locking the same in a fixed position, substantially as set forth.

No. 17,046. Lath Bundling Machine.

(*Machine à empaqueter la luth.*)

Japheth W. Dester and Edward W. Rathbun, Deseronto, Ont., 21st June, 1883; 5 years.

Claim.—1st. The combination of the disks A having semi-circular gaps A', said disks mounted upon a shaft B, and the skeleton drum or cradle so formed and made of suitable length journalled in posts or standards C, the semi-circular arms F, mounted centrally above the drum A B and provided with a suitable device for raising and lowering the same, and the hooks H, secured to standards or posts G placed in proximity of the disks A. 2nd. The combination of the disks A, having semi-circular gaps A' mounted upon a shaft or centre B, at a distance apart to suit the length of the material to be operated upon, and to make the opposite gaps A' lineable, so that each pair may form a cradle, and the skeleton drum so formed suitably journalled in posts or standards. 3rd. The compressing device consisting of the arms F, having semi-circular cavities F' suitably secured to a cross piece E, at a distance apart, and provided with a rod D or other piece, and with suitable lifting device, in combination with the drum A B. 4th. The hooks H secured to posts G, so as to form a combination of the cavity formed by the gaps A', and in combination with the drum A B, all substantially as described and for the purpose set forth.

No. 17,047. Improvements in Stop and Waste Cocks. (*Perfectionnements aux robinets de retenue et de dégorgeement.*)

John F. Lamping, Cincinnati, Ohio, U.S., 21st June, 1883; 5 years.

Claim.—1st. The combination of the stem forming the two cranks, the inlet-valve hinged to one crank and the waste valve hinged to the other crank, arranged and operated substantially in the manner and for the purpose shown and set forth. 2nd. The combination of the chamber or casing having the inlet and outlet tubes diametrically opposite each other, and the waste-tube in one side, the revolving stem forming the larger and the smaller cranks diametrically opposite each other, the conical inlet-valve fitting in a seat in the inlet-tube and hinged by its stem to the larger crank, and the waste-valve fitting in a seat in the waste-tube and hinged by its stem to the smaller crank, as and for the purpose shown and set forth. 3rd. The combination of the revolving valve operating stem having a laterally projecting pin, the sleeve having one-half of its lower portion cut away, and having the opposite outer side recessed longitudinally for the reception of the locking-pin, the upper screw-threaded neck of the chamber having longitudinal recess upon its inside corresponding to the recess in the sleeve, the locking-pin fitting in the two recesses, and the screw-threaded securing cap, as and for the purpose shown and set forth. 4th. The combination of the valve operating stem having laterally projecting pin, the sleeve having one-half of the lower portion cut away, and the longitudinal recess diametrically opposite therein, the screw-threaded neck of the chamber having the longitudinal recess upon its inside, the elastic packing around the stem, the locking-pin and the screw-threaded securing cap, as and for the purpose shown and set forth. 5th. The described stop and waste cock consisting of the chamber having inlet and outlet tubes, waste-tube and upper packing-tube, the revolving crank-shaped stem having the handle at the upper end, and the laterally projecting check pin, the packing around the stem, the securing-sleeve, the securin-cap, the inlet-valve hinged to the larger crank on the stem, and the waste-valve hinged to the smaller crank and having perforated cap, all constructed, combined and arranged to operate as and for the purpose shown and set forth.

No. 17,048. Improvements in Corsets.

(*Perfectionnements dans les corsets.*)

Isaac Strouse, New Haven, Ct., U.S., 21st June, 1883; 5 years.

Claim.—A corset having a back section laced to the adjacent hip sections, the said back section provided with a central stay D, gradually increasing in width from the bottom to the top, combined with the two stays E F, arranged respectively in the back at the left and right of the central or back stay D, the said stays curved from the waist line upward and forward, and downward and forward, substantially as shown and described.

No. 17,049. Machine for Heading Cans.

(*Machine pour fonder les bidons.*)

George A. Marsh, Brunswick, Me., U.S., 21st June, 1883; 5 years.

Claim.—1st. The combination of a device for compressing the walls of the can, and a device for forcing on the cover, substantially as described for the purposes set forth. 2nd. The combination of the shouldered piece *g* and recess *J*, and a device for depressing the same, with the flanged arms *i* having the recess *m*, flange *o* and bevelled surface *K*. 3rd. The combination of the rod *c* having the shouldered piece *g* and recess *J*, guides *f f*, arms *i* having recess *m*, flange *o*, bevelled surface *K* and springs *h h*, with pieces *l l*. 4th. The combination of the rod *c* having the shouldered piece *g* and recess *J*, with the hinged arms *i* having recess *m*, flange *o* and bevelled surface *K*. 5th. In combination with a device for compressing the walls of a can and placing the cover thereon, the guides *n n*, for centering the can under the devices before named. 6th. The combination of the rod *c* having the shouldered piece *g* and recess *J*, with the hinged arms *i* having recess *m*, flange *o*, bevelled surface *K*, springs *h h* and guides *n n* and *f f*.

No. 17,050. Machine for Extracting Fish Oil. (*Machine pour extraire l'huile de poisson.*)

Freeman Payzant, Lockeport, N.S., 21st June, 1883; 5 years.

Claim.—The combination of the furnace A provided with fire-grate B, ash-pit C surrounded with the water space D, and having the draft pipe F, draft adjuster G and handle H, the whole arranged as shown and described and for the purpose set forth.

No. 17,051. Improvements in Gas Regulators. (*Perfectionnements aux régulateurs à gaz.*)

Nathaniel Sleeman, Birmingham, Ct., U.S., 21st June, 1883; 5 years.

Claim.—1st. The combination of the shell A, tube D, the rod or stem C, valve G and diaphragm E₁ of the globe P, with the float B having the bottom-plate *b₂*, with its apertures *b₄* and the flange *b₃*, all substantially as described and for the purpose specified. 2nd. The combination of the shell A, float B, tube D, stem or rod C, valve G and the globe E having inlet *e₁*, outlet *e₂* and diaphragm E₁ with the central orifice *e* and the inclined upper surface, as and for the purpose specified.

No. 17,052. Improvements in Hoists.

(*Perfectionnements dans les hoists.*)

Charles H. Miller, Montreal, Que., 21st June, 1883; 5 years.

Claim.—1st. The trap doors provided with disconnected portions of the track or guide upon which the platform or car travels, said disconnected portions having their lower ends prolonged beyond the edge of the doors, in combination with the upright beams or frames, provided with the main portions of the tracks or guides and having recesses or cavities therein for the reception of the said prolonged ends, substantially in the manner and for the purposes described. 2nd. The trap doors provided with disconnected portions of the tracks or guides upon which the platform or car travels, said disconnected portions having their lower ends bevelled and prolonged beyond the edge of the door and having both edges thereof recessed, in combination with the upright beams or frames provided with the main portions of the tracks or guides, the lower portions thereof being bevelled and tongued, and the upper portion tongued to fit the bevelled and recessed edges of the disconnected parts, and said beams having cavities or recesses for the reception of the said prolonged portions of the disconnected parts, substantially as described. 3rd. The combination, with the beams A A, tracks or guides A' A' and floor or cross beam B, of the doors B' B', disconnected parts B₂ B₂ having prolonged ends *a a*, arranged, constructed and operating substantially as and for the purposes described.

No. 17,053. Apparatus for Forming Continuous Pipes or Tubes of Concrete or Like Material. (*Appareil à mouler les tuyaux ou tubes continus en béton ou en matière similaire.*)

William M. Campbell, Mount Clemens, Mich., U.S., 21st June, 1883; 5 years.

Claim.—1st. The combination of the casing A, a former or formers J, the plunger G, the plate H and toggle mechanism for operating the said plunger, all substantially as set forth. 2nd. The combination of the casing and plunger of the machine, with a core free from the control of the casing or plunger, as set forth. 3rd. The combination of the casing and plunger of the machine, with a core free from the control of the casing or plunger, and constructed so as to be collapsible. 4th. The combination of the casing, the plunger and the core, with toggle mechanism on opposite sides of the casing for reciprocating the plunger, as set forth.

No. 17,054. Improvement in Wrenches.

(*Perfectionnement des clés à écrous.*)

Isaac W. Giles, South Abington, and Thomas F. Giles, Abington, Mass., U.S., 21st June, 1883; 5 years.

Claim.—1st. In a nut-wrench, the combination of three or more handles A, arranged to radiate from a common centre, with the stationary jaw B and adjustable jaw C, on the meeting face portions of said handles, substantially as specified. 2nd. In a nut-wrench having three or more radial handles A, the ribs or projections *e* on the backs of said handles, in combination with the jaws B C on the meeting face portions of the handles, essentially as described. 3rd. The combination of the radial handles A A, the ribs *e e e* on the backs of said handles, and the stationary jaw B and sliding jaw C, with the adjusting thumb-screw *d* on the opposite or face sides of the handles, substantially as shown and described.

No. 17,055. Improvement in Stencil-Holders. (*Perfectionnement des porte-patrons.*)

Charles H. Bennett, (assignee of John W. Bennett,) Halifax, N.S., 22nd June, 1883; 5 years.

Claim.—1st. The combination of two corresponding slotted plates A B having upwardly projecting end-flanges *c*, the plate A being shorter than, and fitting between the flanges of plate B, as shown and described. 2nd. The combination of the two slotted plates A B provided with end flanges *c* and guides *f*, substantially as shown and described. 3rd. The springs *g* provided with pins *h*, in combination with the clamping plates A B having end flanges *c*, substantially as shown and described.

No. 17,056. Combined Sheep Rack and Trough. (*Râtelier et auge combinés pour les moutons.*)

Amer K. Yost and Thomas Wilson, Somerset, Ohio, U.S., 22nd June, 1883; 5 years.

Claim.—1st. The combination, with the swinging rack R *r*, of the swinging trough T, pivoted to the outer faces of the corner posts and adapted to perform the double functions of a trough and support for the rack. 2nd. The combination of the swinging rack R *r*, having its lower rails R pivoted into the inner faces of the corner posts P just above the base, angular troughs T having the arms T₁ pivoted to the external faces of the corner posts P, and adapted to limit the outward inclination of the rack, said troughs held in their raised position by hooks and eyes *h*. 3rd. The end frames consisting of a corner post P and back post *p*, connected by a cap C, and a base B arranged to bolt back to back in pairs by bolts passing through the posts *p*, said end frames carrying the slats *r₂* for the support of the racks, and the slats *r₁* for the support of the trough, said frames having the rack and the trough pivoted to the corner post P. 4th. The

combination of the corner posts P, back posts *p* connected by caps C, and base B, the ends thus constructed and connected by the base B, and holding the rack R pivotally between the corner posts, the upper *r* of the rack resting upon a cross-piece *r'*, the rectangular trough T, having its arms pivoted to the external faces of the corner posts and arranged to swing up or down, supported in its lowered position by the projecting ends of a slot *l*, and limiting the outward swing of the rack and supported in its raised position by hooks and eyes *h*, and limiting the outward swing of the rack, all substantially as described and shown for the purpose set forth.

No. 17,057. Combined Harrow and Seeder.

(*Herse-semoir.*)

Abraham C. Scarr, Maryborough, and Daniel D. Smith Hamilton. Ont., 22nd June, 1883; 5 years.

Claim.—1st. The combination, with a suitable frame carried by the main axle and supported on two wheels, of a double crank shaft disposed at a right angle to the main axle and driven from the latter by means of a bevel gear, coupled on the axle by means of an adjustable clutch, said crank shaft giving a traverse or oscillating motion in opposite, or nearly opposite directions to the harrows, consisting of four sections coupled in pairs by means of a yoke pivoted to a central bridge on each section, and each pair strung together by a chain, each yoke being connected with one of the cranks by means of a pitman, each pair of harrow sections so coupled is made capable of being raised by lifting chains attached to the yokes and running over pulleys to a friction clutch on the main axle, said friction clutch being operated by a fettered friction disk worked by a collar, which is connected with the coupling working the crank motion and controlled by a hand lever. 2nd. The combination of the main axle A with a loose bevel wheel W₂ coupled by a fettered clutch J, which is operated by a hand lever L, a bevel wheel or pinion W₁ secured to the end of a double crank shaft C journaled on the rear frame pieces F₃ F₄. 3rd. The combination of the main axle A with a stationary conical friction collar B₁, a fettered friction disk J₁ and a friction becket B held between the collar and the disk, the latter controllable by a hand lever L, and said becket B having ratchet teeth on its rim and carrying an eye to which are secured the lifting chains N₂ N₃. 4th. A detent D pivoted on the adjacent frame piece of the machine catching into the ratchet teeth of the becket B. 4th. The combination of the main axle A carrying a loose bevel wheel W₂ coupled by a fettered clutch J, also a fettered friction disk J₁ and a loose collar J₂ adjacent thereto, the latter being connected to the clutch J by a connecting piece J₃ holding the clutch J by a fork running in a circular groove, the piece J₃ carrying a pivot *j* working in a slot in the lever L centred to the frame of the machine, said lever being drawn outward by a spring *s* against a stop notch in the bracket L. 5th. The harrow sections H provided with the bridges *h* and coupled in pairs by the yoke *h*₁, in combination with the chain N attached to hooks *h*₂ passing under a hook *h*₄ on the adjacent section, so as to hold the two sections flexibly together. 6th. A harrow section H combined with the double draft chains N₁ attached to two hooks *h*₅ and linked to a shackle *n* suspended from the frame of the machine. 7th. Two harrows sections H provided with bridges *h* flexibly connected by a yoke *h'* and a chain N, in combination with a pitman P pivoted to the yoke *h'*. 8th. A double crank shaft C with cranks at nearly right angles, or nearly opposite, each connected by a pitman to the yoke *h* flexibly coupling a pair of harrow sections H. 9th. The yoke *h* coupling a pair of harrow sections H, in combination with a lifting chain running over one or more pulleys and secured to the friction becket B. 10th. The harrow, as described, in combination with a seeder S of any suitable construction, placed in front of the axle A and secured to the frame pieces of the machine, all substantially as described and for the purpose set forth.

No. 17,058. Hydraulic Cement.

(*Ciment hydraulique.*)

William McKay, Winnipeg, Man., 22nd June, 1883; 5 years.

Claim.—1st. As a new manufacture, a hydraulic cement made by calcining a reddish coloured argillaceous stone, ferruginous limestone found interstratified with limestone in the province of Manitoba and the North West Territories of Canada, and pulverizing or grinding the same, substantially as set forth. 2nd. A cement made from one or more reddish coloured argillaceous stone found interstratified with limestone in the province of Manitoba and the North West Territories of Canada, by first drying the stone, then saturating it with an alkaline solution of soda and potash dissolved in water, then calcining the same and, when cool, pulverizing the cement, whereby the caustic property of the cement will act with energy in silica or sand when incorporated therewith, as set forth.

No. 17,059. Improvements in Carriage Tops.

(*Perfectionnements aux soufflets des voitures.*)

Daniel Conboy, Uxbridge, Ont., 22nd June, 1883; 5 years.

Claim.—1st. In a carriage top in which the pivot point of the back joint is fixed to the seat or body of the vehicle, a pivoted lever arranged to support the pivot point of the bows, in combination with clips or their equivalent arranged to secure the said lever in a horizontal or vertical position, as specified. 2nd. In a carriage top in which the pivot point of the lower end of the back curtain is fixed to the seat or body of the vehicle, a pivot pin arranged to support the pivot point of the bows, in combination with a jamb-nut arranged to secure the said pivot point of the bows in any desired position, substantially as specified. 3rd. In a carriage top in which the lower end of the back joint is pivoted upon a prop block fixed to the seat or body of the vehicle, the combination of a device arranged to support the bows in such a manner that their pivot point can be lowered for the purpose of tilting the top forward, substantially as and for the purpose specified.

No. 17,060. Improvements in Buggy Tops.

(*Perfectionnements aux soufflets des bogheis.*)

Daniel Conboy, Uxbridge, Ont., 22nd June, 1883; 5 years.

Claim.—In a buggy top provided with a lever arranged to break the back or front joint, and situated within easy reach of the occupant of the vehicle, the combination of a device arranged, substantially as described, to arrest the movement of the lever at such a point and in such a manner as will prevent the top falling back further than is required to bring the front bow at, or about right angles to the seat.

No. 17,061. Improvements in Velocipedes.

(*Perfectionnements dans les velocipedes.*)

William F. Ahlert, Joseph P. Ahlert and John G. Ahlert, San Francisco, Cal., U.S., 22nd June, 1883; 5 years.

Claim.—1st. A single wheel velocipede in which rotation of the wheel is produced by the vibration of the sectors I₃ I₄, and the gripping of the rocker I₂ upon a wedge I carried by the wheel hub, the vibration of the sectors being produced by suitable connecting cords and stirrups or pedals J, constructed, arranged and operating substantially as shown and set forth. 2nd. In a monocycle, the combination of the following elements, to wit: the driving wheel A mounted upon a bent axle and having elongated hubs carrying vibrating sectors operated by stirrups or pedals, sliding upon suitable guides and connecting cords or wires leading to the sectors, and the seat or saddle supported by the said curved or bent axle, constructed arranged and operating substantially as described, for the purpose specified. 3rd. The combination, with the wheel hub D¹ and axle D₂, of the tension or set bolt N, substantially as and for the purpose shown and set forth. 4th. In a velocipede having an axle D₂, wheel hub D¹ and set bolt N provided upon its outer projecting end with a left hand screw thread, the combination of the auxiliary steering or propelling roller-handle O and sustaining or balancing handle O' loosely journaled upon said handle O, when constructed and arranged to operate substantially in the manner and for the purpose specified. 5th. The hinged saddle E connected to the side swiveling rod E¹ attached to the bent axle D₂ and provided with a forwardly projecting perforated lip D₇, rod D₄, notched rod D₅ and flat spring D₆, constructed, arranged and operating substantially as described. 6th. In a monocycle, the combination of the rim A, rim bows C, stay rods C₂ and C₃, hubs or disks D¹ D² journaled upon the bent axle D₂ and carrying the slip and grip sectors I₃ and I₄, connecting cords J₂ and K and stirrups or pedals J¹ operating upon the downwardly projecting rods or guides J² connected at the bottom by a foot board P, constructed, arranged and operating substantially as described, for the purpose specified. 7th. In a monocycle, the slip and grip sectors I₃ I₄ connected to the same hub and carrying a pivoted rocker I₂, curved wedge I and spring I¹ contained within a casing G, and arranged to operate substantially as shown and set forth. 8th. In a monocycle, the slip and grip sectors I₃ I₄ arranged upon either side of the machine and connected by a cord K passing through a guide tube L connected to the bent axle and operating substantially as and for the purpose set forth. 9th. In a velocipede, the combination, with the brake wheel F secured upon the hub of the carrying wheel, of the brake shoe M, brake rod L₃ and lever handle L₂, pivoted upon the bent axle and arranged to operate substantially in the manner and for the purpose set forth.

No. 17,062. Circular Knitting Machine.

(*Machine à tricot circulaire.*)

John Bradley, North Chelmsford, Mass., U.S., 22nd June, 1883; 5 years.

Claim.—1st. The filling wheel C₂, journaled and operating within the circle of needles and provided with oblique teeth *c* having vertical grooves *n*, and horizontal notches *n'* adapted to divide the needles and deposit the thread in front of one needle and behind the other, substantially as described, as and for the purposes set forth. 2nd. The combination, with the stitch-wheel D and thread guide supporting mechanism, of the thread-guides A and C¹ pivoted to each other and each pivoted independently to said supporting mechanism, as and for the purposes set forth. 3rd. The combination, with the stitch-wheel D, of the thread guides A¹ and C¹ and supporting means therefor, the thread guides being pivoted to each other and each pivoted independently to the supporting mechanism, the pivoted rod Z and actuating mechanism for said rod, substantially as and for the purposes set forth. 4th. The combination of the divider lifting-wheel E located between the stitch-wheel and presser-wheel and adapted to open and hold the loops of the threads up within the neck or head of the needles, as and for the purposes set forth.

No. 17,063. Fire-Extinguishers and Alarm Apparatus.

(*Extincteur d'incendie et appareil d'alarme.*)

William Neracher, Cleveland, Ohio, U.S., 22nd June, 1883; 5 years.

Claim.—1st. A fire extinguisher and alarm apparatus consisting of a water-pipe or a series of water-pipes, each having a valve and distributing apparatus, mechanism acting in connection with a link flexible at comparatively low temperature for holding the valve in a closed position, a properly insulated wire, with earth and battery connections including in the circuit a distant alarm, and also including the mechanism for holding the valve, with a break in said line at the valve holding mechanism, the said break being closed when the link is melted and the valve freed. 2nd. In an apparatus for automatically letting on water or giving alarm, a releasing apparatus consisting of a meltable link, acting as a resistance while solid but yielding when melted, said link operating in connection with suitable lever or equivalent mechanism, substantially as described. 3rd. In a fire alarm or extinguishing apparatus, a meltable link serving while solid to dog or stop the releasing mechanism of the alarm or water supply, as set forth. 4th. The combination, with the distributor, the valve-chamber and valve, of the arms and meltable link, as set forth. 5th. The revolving distributor D having the curved nozzles inclined upward and downward, as shown, and having the flat discharge-ori-fices. 6th. In combination with the valve of a distributor, a connecting and holding device held under tension. 7th. Combined with the valve, a holding lever, a spring arm and a connecting device held

under position tension. 8th. A link having a thin flat portion composed of some soft metal, and eyes or equivalent attaching devices connected thereby. 9th. The link G constructed from a single piece of soft metal and having the eyes 7 7 and thin flat shank 7 9. 10th. The combination of the valve, its stem, the screw cap, the pivoted lever having the arm *h*, the spring-arm *a*, and the link connecting the said lever and spring arm. 11th. The valve-chamber having the conical seat. in combination with the valve having the bearing ring of soft metal. 12th. A valve holding mechanism for an automatic fire-extinguisher consisting of a lever adapted to act in the valve-stem, and a soft metal link secured thereto and held under tension bar, to force the lever against such stem, and to render the metal susceptible to heat. 13th. In combination with the distributor of a fire-extinguisher, a valve adapted to shut off the water from said distributor and means for automatically raising said valve when released, a lever adapted to hold such valve in a closed position a flexible or malleable link adapted to hold the lever against the valve, an electric circuit in connection with said lever, and a point opposite the end of the lever also in the electric circuit, the parts being arranged as specified, whereby the melting of the link releases the valve and closes the circuit, substantially as described. 14th. The combination of the valve I and its stem, the pivoted lever J and the cam-grooved brackets L L'. 15th. The valve I and its stem, in combination with the pivoted lever J and the cam-grooved brackets L L' having straight ends. 16th. The combination of the supply valve, the standard having inclined grooves, the cross-bar, the two part spindle and the weighted lever. 17th. In combination with supply valve, the weighted lever connected therewith and adapted to open the same by falling the stop lever adapted to hold up the weighted lever while the valve is closed, a temporary magnet and electrical connections to the battery adapted to remove said stop lever and allow the weighted lever to fall and open the valve.

No. 17,064. Improvements in Fruit Pickers.

(*Perfectionnements aux cueilleurs*)

Archibald McKillop, London, Ont., 22nd June, 1883; 5 years.

Claim.—1st. The combination of the band A, projections B B, with their sharp cutting edges *b b*, envelope C, block *c*, sleeve D and handle E, substantially as shown and described. 2nd. The combination, with a series of projections or fingers provided with cutting edges, of the band A, handle C and sleeve D, substantially as shown. 3rd. A fruit picker provided with projections or fingers having cutting edges, substantially as and for the purpose set forth. 4th. The envelope C in combination with the band A having the gaps or notches *a a*, sleeve D and handle E, substantially as shown and for the purpose set forth.

No. 17,065. Printing Ink for Cheques, Drafts, etc. (*Encre à imprimer les mandats, traites, etc.*)

John B. Grant and Thomas Barfoot, Toronto, Ont., 22nd June, 1883; 5 years.

Claim.—A compound composed of lithographic printers' colour, calcined magnesia, aniline dye sulphate of copper (copperas), powdered alum, litharge and lithographic varnish, substantially in the proportions and for the purposes set forth.

No. 17,066. Improvements in Pigment Distributors. (*Perfectionnements aux distributeurs des couleurs.*)

Liberty Walkrip, Rockford, Ill., (assignee of Abner Peeler, Fort Dodge, Iowa), U.S., 22nd June, 1883; 5 years.

Claim. 1st. The combination, with a reciprocating needle arranged and adapted to feed a quantity of liquid pigment to its point at every stroke, of devices for projecting a jet of air against the needle and atomising the liquid pigment, substantially as set forth. 2nd. The combination, with a reciprocating needle and a grooved or trough-shaped liquid pigment receptacle, of devices for projecting a jet of air against the point of the needle and atomising the liquid pigment, substantially as set forth. 3rd. The combination, with a reciprocating needle and a liquid pigment receptacle, of an air jet tube arranged at right angles to the point of the needle, and apparatus for projecting a jet of air against the needle point, substantially as set forth. 4th. The combination, with a liquid pigment receptacle, of a fan and a needle connected with the fan and adapted to be reciprocated thereby, substantially as set forth. 5th. The combination, with a liquid pigment receptacle, a fan and a needle connected therewith, of devices to project a jet of air both upon the fan and upon the needle, substantially as set forth. 6th. The combination, with a liquid pigment receptacle, of a fan and needle adapted to be reciprocated in the receptacle by attachment to the fan, at a point near the axis thereof, and devices to project a jet of air both upon the point of the needle and upon the periphery of the fan, substantially as set forth. 7th. The combination, with a reciprocating needle, a pigment receptacle and a fan, of a supply pipe branching at its upper end into two pipes respectively adapted to project a jet of air upon the fan, and the point of the needle, substantially as set forth. 8th. The combination, with a reciprocating needle, a pigment receptacle and a fan, of a supply-pipe adapted to convey jets of air upon the fan and needle, and a valve adapted to regulate the passage of air through the supply-pipe, substantially as set forth. 9th. The combination, with a reciprocating needle, a pigment receptacle and a fan, of a supply-pipe for carrying air jets to the fan and needle, a flexible pipe attached to the lower end of the supply-pipe and communicating therewith through an aperture in the side thereof, and a spring pressed plate adapted to compress the flexible pipe, substantially as set forth. 10th. The combination, with a reciprocating needle, a pigment receptacle and a fan, of a supply-pipe adapted to convey compressed air to the fan and needle, an air chamber connected with said pipe, and an air pump for forcing air into the said chamber, substantially as set forth.

No. 17,067. Safety and Advertising Match.

(*Allumette de sûreté et de publicité.*)

Jean B. Rouillard, Montreal, Que., 22nd June, 1883; 5 years.

Claim.—1st. A match coated with a composition capable of evolving light in the dark, as and for the purpose set forth. 2nd. As an advertising medium, a wooden chemical friction match having signs, figures, designs or words printed or stamped, or otherwise placed or affixed on one or more of its surfaces and having one non-combustible end, as and for the purpose set forth and described. 3rd. As a new advertising device, the printing or stamping of signs, figures, designs or words on the surfaces of wooden chemical friction matches, whether coated or not with a composition capable of evolving light even when not ignited, as set forth.

No. 17,068. Improvement in Waggon Jacks.

(*Perfectionnement des chèvres de voitures.*)

Alonzo B. Furman, Strattonville, and Jacob E. Dean, Reynoldsville, Pa., U.S., 22nd June, 1883; 5 years.

Claim.—1st. The combination, with the standard or post A supporting the lifting-lever B, of the friction gripping-ring D arranged upon the said post H and having the treadle *e* and the rod connecting the ring and treadle to the lever B, substantially as and for the purpose set forth. 2nd. The combination, with the standard or post A, of the automatically gripping-ring D arranged upon the said post and having the treadle *e*, the rod *f* and the lifting lever B having its outer end curved or projected at one side and pivoted to the said post, to allow of its reversal for presenting either side upward, said lever also having a reversible eye *l* to connect the rod *f* to either side thereof, substantially as and for the purpose set forth. 3rd. The lever B having its outer end curved or projected at one side and pivoted to the post A, to allow of its reversal for bringing either side upward, substantially as set forth.

No. 17,069. Improvements in Hammocks.

(*Perfectionnements dans les hamacs.*)

Vincent P. Travers, New York, (assignee of Albert O. Rood, Syracuse,) N.Y., U.S., 22nd June, 1883; 5 years.

Claim.—1st. The method described of producing the body of a hammock which consists in first joining the threads for the body, with the selvage, next forming them into interlocking body strands, near the selvage, and in then running the thread for the rest of the body, in a straight line from one end of the body to the other, and in inter-looping it with the straight strands thus formed on the way back, substantially as shown and described. 2nd. The hammock described, which consists of the selvage loops *jj* on each side, and of body strands *ghklmnopqrstuv*, substantially as described.

No. 17,070. Machine for Applying Barbs to Fence Wire. (*Machine à barbeler le fil de fer des clôtures.*)

The Worcester Barb Fence Company, Worcester, Mass., (assignee of William T. Burrows, East Dubuque, Ill.,) U. S., 22nd June, 1883; 5 years.

Claim.—1st. A hollow barb feeding tube provided with spiral grooves upon its exterior surface, as and for the purpose set forth. 2nd. A main and an auxiliary barb guide adapted to guide the barb along the top of the feeding tube, substantially as set forth. 3rd. An arm adapted to automatically insert and firmly hold the barb between the twisting strands, at each revolution of the feeding tube, and retreat after delivering each barb, substantially as and for the purpose set forth. 4th. An auxiliary barb guide adapted to be automatically and laterally adjusted, at each revolution of the feeding tube, substantially as and for the purposes set forth. 5th. The combination, with arm G, of mechanism operating to automatically advance said arm along the top of the feeding tube and withdraw it after the barb has been delivered between the twisting wires, at each revolution of said tube, substantially as and for the purpose set forth. 6th. The combination, with the auxiliary barb guide, of mechanism operating to automatically and laterally adjust said guide at each revolution of the barb feeding tube, substantially as described and for the purposes set forth. 7th. The combination, with the feeding tube C provided with spiral grooves *c*, of the main and auxiliary barb guides K M, constructed and arranged substantially as set forth. 8th. In the wire barbing machine described and in combination, the barb feeding tube C provided with spiral grooves *c* and the main barb guide K, constructed and arranged substantially as set forth. 9th. In the wire barbing machine described and in combination, the barb feeding tube C provided with spiral grooves *c*, the stationary barb guide K, movable barb guide M and mechanism, substantially as described, for operating said guide at each revolution of the feeding tube, as and for the purposes specified. 10th. In the wire barbing machine described and in combination, the barb feeding tube C provided with lug *c3*, the barb inserting arm G, constructed and arranged as described, and mechanism, substantially as described, adapted to operate said arm in the manner substantially as and for the purpose set forth. 11th. The combination, with the barb feeding tube C provided with lug *c3*, of the barb inserting arm G automatically operated at each revolution of said feeding tube, by means of the spring bolt E, spring E¹ and crank arm F, substantially as set forth. 12th. The combination, with the feeding tube C provided with spiral grooves *c* and lug *c3*, and the main and auxiliary barb guides K M, constructed and arranged as described, of the barb inserting arm G, spring bolt E, spring E¹ and crank arm F constructed and arranged substantially as set forth. 13th. In the wire barbing machine described, the combination of the feeding tube C and the barb guides K M, with the barb inserting arm G, pressure arm H, spring bolt E, spring E¹, crank arm F and rocking shaft F¹, substantially as set forth. 14th. In the wire barbing machine described and in combination with the framework thereof, consisting of the side pieces A¹ A² and cross pieces B¹ B² B³, the barb tube C provided with recess *c2* and having bearing in recesses *b1 b2* with which said cross pieces are provided, and the cross pieces A³ B⁴

provided with recesses *b3 b4* and adapted to be secured to said framework, substantially as and for the purpose set forth. 15th. In the wire barbing machine described and in combination with the frame work thereof, the cross pieces *B3 B4* provided with arms *D D1*, constructed and arranged substantially as and for the purpose set forth. 16th. In the wire barbing machine described and in combination with the frame work thereof, provided with cross pieces *B3 B4* having arms *D D1*, and the guide supporting pieces *I L*, constructed and arranged as described, the barb feeding tube *C*, barb guides *K M*, barb inserting arm *G*, pressure arm *H*, spring *E*, spring *E1*, crank arm *F* and rocking shaft *F1*, substantially as set forth. 17th. In the wire barbing machine described and in combination with the frame work provided with hangers *f1 f2*, and the feeding tube provided with lug *c*, the rocking shaft *t*, crank arm *t*, cross pieces *B3 B4* provided with arms *D D1*, spring bolt *E*, spring *E1*, pressure arm *H*, barb inserting arm *G*, pieces *I L* and barb guides *K M*, the several parts constructed arranged and adapted to operate substantially as set forth.

No. 17,071. Friction Clutch and Loose Pulley. (*Embrayage à friction et poulie folle.*)

The Vulcan Iron Works Company, (assignee of John King.) Oswego, N. Y., U. S., 22nd June, 1883; 5 years.

Claim.—A loose pulley having a series of rings *C* secured inside of it, the friction-blocks *D1*, the screws *J*, the sockets *I*, sleeve *F* and lever *G*, substantially as shown and described.

No. 17,072. Improvements in Sash Fasteners. (*Perfectionnements aux arrête-croisés.*)

Ewell B. Attwell, Leesburg, Va., U. S., 22nd June, 1883; 5 years.

Claim.—1st. The combination, as set forth, of a pair of individual sash-fasteners *F F* and a removable key *K*, each of said individual sash-fasteners comprising a spring-projected fastener dog *d* having an orifice *o*, to receive and co-act with the shaft of said key, and supplemental pivots *p* working in slots *o*, in a metallic housing, to support the individual fastener-dogs independently of said key, substantially as specified. 2nd. The combination, with a pair of spring-projected fastener-dogs having flanged heads, of recessed tubular bushings *u* within the socket-holes in the edges of the respective sashes, to prevent accidentally unfastening either sash, as specified. 3rd. A sash-fastener housing *h* constructed with parallel inclined ends and with a face extension containing a counter-sunk screw-hole at one extremity, to provide for securing the fastener within an easily cut mortise by means of single screw, as set forth.

No. 17,073. Improvements in Rein Guards. (*Perfectionnements aux garde-guides des harnais.*)

Charles R. Chute, Minneapolis, Minn., U. S., 22nd June, 1883; 5 years.

Claim.—1st. In combination with the harness, a rein guard consisting of a rigid frame or rod attached to the harness and extending backward beyond the tail of the animal and out of contact therewith, substantially as described and shown, whereby the reins are prevented from catching beneath the tail. 2nd. The guard to hold driving reins away from a horse's tail consisting of a bow or rod of rigid material provided with fastening or supporting devices, substantially as shown, said frame made of a size and form adapted to extend when in position beyond the root of the animal's tail. 3rd. The arched frame *A* and sustaining arm *B* provided with hooks or clasps rigidly attached to their ends. 4th. In combination with the rigid bow or arch *A*, the supporting arm *B*, the clasps or hooks secured rigidly to their ends by means of adjusting devices, whereby the device may be adapted for animals of different sizes.

No. 17,074. Improvements in Butter Workers. (*Perfectionnements aux battes à beurre.*)

Charles E. Horn, Barnston, Que., 22nd June, 1883; 5 years.

Claim.—1st. The combination, with the tray *A* having the curved ends, of the roller *D* having the curvilinear grooves and suitable known mechanism for rotating and moving the roller backward and forward in the tray, substantially as and for the purpose set forth. 2nd. The combination, with the tray *A* having the curved ends and vertical sides, of the rotating roller *D* provided with the curvilinear grooves having the ends of the cutting surfaces bevelled or rounded off, substantially as and for the purposes set forth. 3rd. The combination, with the tray *A* having the slotted sides, the rack bars and inner curved ends, of the roller *D* grooved and bevelled or rounded off, as described, and provided with the journals, pinions and crank, all substantially as shown and for the purpose set forth.

No. 17,075. Improvements in Electric Arc Lamps. (*Perfectionnements aux lampes électriques à arc.*)

Elihu Thomson, New Britain, Ct., U. S., 22nd June, 1883; 5 years.

Claim.—1st. The combination, with the clamp or clutch in an electric lamp, a feed operating electro-magnet normally out of circuit, and a retractor acting in opposition to said electro-magnet for holding the clamp in position where it will engage with and prevent the carbon rod from feeding, of a derived circuit electro-magnet, a circuit closer and breaker operated thereby, and circuit connections arranged in the manner described whereby, when the derived circuit magnet is strengthened owing to an increase in the length of arc, an electric current is admitted to the feed operating electro-magnet and energizes the same, for the purpose of producing a feed of the carbon. 2nd. The combination, with the feed regulating mechanism in an electric lamp, an electro-magnet for releasing said feed mechanism, and a retractor acting in opposition to said electro-magnet to hold the feed mechanism out of action, of a derived circuit electro-magnet, a circuit closer and connections, substantially as described, whereby

when the power of the derived circuit electro-magnet is increased, an electric current may be admitted to the electro-magnet of the feed regulating mechanism so as to energize the same and cause the feeding of the electrode. 3rd. The combination, with the carbon rod or carrier in an electric lamp, of a clutch or clamp and spring for normally holding said clamp in engagement with the rod or carrier, an electro-magnet for releasing the clutch from the rod or carrier, a derived circuit electro-magnet and a circuit closer and connections, as described, for admitting an electric current to the releasing electro-magnet when the power of the derived circuit electro-magnet increases. 4th. The combination, with the feed regulating clutch or clamp for the carbon rod or carrier, of means for releasing the clamp and a lug toe or projection upon the carbon rod arranged, as described, to come into contact with and actuate the releasing devices. 5th. The combination, substantially as described, with the spring-actuated clamping toe, of mechanism engaging with the toe so as to disengage it from the carbon carrier and a lug or projection upon the carbon carrier. 6th. The combination, with the carbon support and its lug *F*, of lever *L*, stop *l* and clamp jaw *t t*, substantially as and for the purpose described. 7th. The combination, with an electric lamp, of a dash-pot having division *G* placed with its opening immediately above the piston, so that the latter acts as a valve when the cup is inverted. 8th. The combination, with an electric lamp, of a dash-pot having a division *G* and curved cap *J* combined, in the manner shown and described, with the piston *II*, rod *r* and inverted cup *I*.

No. 17,076. System of Electrical Distribution. (*Système de distribution électrique.*)

Thomas A. Edison, Menlo Park, Pa., U. S., 22nd June, 1883; 5 years.

Claim.—1st. A system of electrical distribution having translating devices arranged in multiple series, the compensating conductor or conductors connecting the translation circuits with the source of energy, substantially as and for the purpose set forth. 2nd. A system of electrical distribution having, in combination, the following elements, *viz.*, a divided source of electrical energy, main conductors extending therefrom, translating devices arranged in multiple series, and a compensating conductor or conductors connecting the translation-circuits with the source of energy, at the points of division, substantially as and for the purpose set forth. 3rd. In a system of electrical distribution, the combination, with translating devices arranged in series across main conductors, of a source of electric energy divided into as many parts as there are lamps in series, and a compensating conductor or conductors connected between the divisions of the source of energy and between the lamps in series, substantially as set forth. 4th. The combination, with a source of electrical energy, of main conductors leading therefrom, translating devices in circuit from said main conductors, a compensating conductor and an adjustable resistance in each of said main conductors, substantially as set forth.

No. 17,077. Improvements in Electrical Generators and Motors. (*Perfectionnements aux générateurs et moteurs électriques.*)

Thomas A. Edison, Menlo Park, Pa., U. S., 22nd June, 1883; 5 years.

Claim.—1st. The combination, with an electrical generator or motor, of current collectors, each forming a bridge of high resistance between the bars of the commutator, substantially as set forth. 2nd. The combination, with an electrical generator or motor, of current collectors making inferior electrical contact at the commutator cylinder of said generator or motor, substantially as set forth. 3rd. A current-collector, for electrical generators or motors, made of inferior conducting material, substantially as set forth. 4th. In an electrical generator or motor, the combination, with the commutator, of current-collectors divided electrically at their bearing ends in the direction of the motion of the commutator, whereby the collectors will form bridges of high resistance between the commutator bars, substantially as set forth. 5th. A current collector for electrical generators or motors, made of inferior conducting material and divided electrically, substantially as set forth. 6th. The combination, with an electrical generator or motor, of a commutator cylinder having its bars made of, or surfaced with, a material making inferior electrical contact with the current-collectors, substantially as set forth. 7th. In an electrical generator or motor, the combination, with the commutator-cylinder, of the current-collectors, the bars of said commutator cylinder and said collectors being both constructed of, or surfaced with, a material making inferior electrical contact, substantially as set forth. 8th. In an electrical generator or motor, the combination, with the commutator cylinder, of a number of current-collectors, each offering a high resistance to the local current, and having a combined contact and conductivity sufficient to carry the main currents, substantially as set forth. 9th. A current-collector made of German silver, substantially as set forth. 10th. A commutator having its bars made of, or surfaced with, German silver, substantially as set forth. 11th. A commutator brush constructed of wires arranged in layers, the several layers being insulated from each other at the bearing end of the brush, substantially as set forth. 12th. A commutator brush constructed of wires, the separate wires being all insulated from each other at the bearing end of the brush, substantially as set forth.

No. 17,078. Pipe Cutter, Wrench and Burr Scraper Combined. (*Cisailles à tuyaux et à ébarber, et clé à écrou combinées.*)

James H. Lancaster, New York, N.Y., U. S., 22nd June, 1883; 5 years.

Claim.—1st. In a pipe cutter, the combination, with a socketed stock of a removable sliding cutter, carrier serrated on its lower edge, and a toothed lever eccentrically pivoted, with the stock socket so that its teeth may be consecutively engaged with the teeth of the carrier, for the purpose of adjusting and holding the latter, substantially as shown and described. 2nd. The combination, with the socketed stock 25, handle 27, and fixed jaws 28, of the carriers 31 provided with teeth 38, toothed eccentric lever 34 having forked end, and swinging screw bolt and nut 38, all arranged and operated substantially as set

forth. 3rd. In a pipe cutter, as a means for adjusting and holding the cutter carrier in position, the combination, with an eccentric toothed lever pivoted in the stock socket, of a suitable device for operating said lever and holding it engaged with the carrier, substantially as shown and described. 4th. In a pipe cutter, the combination, with the cutter carrier controlling lever having slotted end 44, of the spring 35, and swinging bolt and nut 36, substantially as shown and described, whereby said lever may be engaged with, or disengaged from said carrier, as set forth. 5th. Carriers 5, with revolving cutters 6 and lug 11, in combination with the nut 10 and screw 14, substantially as set forth. 6th. The nut 10, in combination with rod 14, and projection 11 attached to carriers 5, substantially as described and set forth. 7th. The collar 17, in combination with rod 14 and bearing 19 of body 2, substantially as set forth. 8th. The tapers 4, with tapered edges and shaped as shown, in combination with the jaws 3, substantially as described and set forth. 9th. A taper, as shown, with tapered edge, in combination with one or more jaws of a pipe cutter, substantially as set forth. 10th. The combination of a burr scraper having straight, or tapered, or V-shaped edge in a pipe cutter of any desired construction. 11th. The presser 60, in combination with the arms, substantially as and for the purpose set forth. 12th. The presser 48a in combination with the cutter, substantially as and for the purpose set forth. 13th. The carrier 31 (of Fig. 2) and carrier 5 (of Fig. 1) having either a revolving cutter or adjustable wrench jaw, as shown by numbers 60 and 48a in the figures, for the purpose set forth. 14th. The circular scraper 70, substantially as and for the purpose set forth. 15th. The circular scraper, in combination with a jaw or jaws of a pipe cutter, substantially as described and for the purpose set forth.

No. 17,079. Improvements in Taps and Cocks. (*Perfectionnements dans les cannettes et robinets.*)

John Green, Wilmot, Ont., 22nd June, 1883; 5 years

Claim.—The combination of a stationary taper plug A, of a proportionately large diameter to the diameter of the bore, and provided with a base A' having upon it a movable taper barrel or sleeve B, with nozzle B' and bib B₂, the latter of any suitable shape and connected by a taper ground joint or integrally formed, the barrel secured to the plug in the ordinary manner by washer and screw, and the opening B communicating with the nozzle, having a circumferential range sufficient to allow a free flow, while the barrel B is turned through an angle of 90° from the vertical to the horizontal, substantially as described and for the purpose set forth.

No. 17,080. Improvements in Clutches. (*Perfectionnements aux embrayages.*)

Edward Wilkinson, Paterson, N. J., U.S., 22nd June, 1883; 5 years.

Claim.—1st. The combination of the drum *d*, friction wheel *g*, collar K₁, sleeve *h*, feather *o*, pins *m* perforations *P*, shifting arm *j*, screw-nut *f*₂, screw *e*₁, hand-wheel *e*, wheel *f*₁, slot *b*₄, slot *j*₂, frame *b*₁, frame *b*₃, frame *b* and shaft *a*₁, as set forth. 2nd. The combination of the drum *d*, clutch *c*, lugs *m*, openings *m*₁, collar K, pins *n*, shifting arm *j*, screw-nut *f*₃, hollow screw *f*₄, screw *e*₁, stop *b*₄, wheel *e*, wheel *f*, slot *j*₂, groove *g*, collar *t*, oil hole *u*, frame *b*₁, frame *b* *b*₃ and connected shaft *a*₁, as set forth. 3rd. The combination of the friction wheel *g* and the clutch *c*, when the same are in engagement, as and for the purpose set forth.

No. 17,081. Cylinder for Rotary Armatures. (*Cylindre pour les armures rotatoires.*)

James F. Gilliland, Indianapolis, Ind, U.S. 22nd June, 1883; 5 years.

Claim.—1st. A cylinder for rotary armatures, composed of parts, each part being a longitudinal section of the cylinder and having a corresponding portion of the cylinder-heads cast integral therewith, substantially as set forth. 2nd. A cylinder for rotary armatures composed of castings A, having pole-pieces B, incorporated therewith, said castings A including the ends or heads as well as the sides of the cylinder, substantially as set forth. 3rd. In a cylinder for rotary armatures, which, including the heads, is divided longitudinally into parts, the combination, with said parts, of bushings D, for the armature-journals, which serve also to hold the parts in proper relation, substantially as set forth. 4th. The combination of the cylinder parts A, pole-pieces B, armature C and bushings D, said bushings being provided with ribs which fit into grooves in the head portions of said cylinder parts, substantially as described and for the purposes specified.

No. 17,082. Tanning Process. (*Procédé de tannage.*)

Thomas P. Tucker, Batesville, Ark., U.S., 22nd June, 1883; 5 years.

Claim.—1st. The process of bating and tanning hides consisting in treating them, first, with a liquor composed of water, wheat bran, starch, hew manure, muriatic acid and buttermilk; second, with a liquor composed of water, gambier, salt extract of hemlock and muriatic acid; third, with a liquor composed of water, gambier, muriatic acid, alum and extract of chestnut oak; fourth, with a liquor for filling and hardening the leather, composed of water, salt-petre, extract of chestnut oak, borax and alum, all in the proportions substantially as described. 2nd. The process of bating and tanning hides, consisting in treating them, first, with a liquor composed of water, wheat bran, starch, hew manure, muriatic acid, and buttermilk; second, with a liquor composed of water, gambier, salt, extract of hemlock and muriatic acid; third, with a liquor composed of water, gambier, muriatic acid, alum and extract of chestnut oak, all in the proportions substantially as described and for the purposes set forth. 3rd. The process of tanning bated hides, consisting in treating them, first, with a liquor composed of water, gambier, salt, extract of hemlock and muriatic acid; second, with a stronger liquor composed of water, gambier, muriatic acid, alum and extract of chestnut oak;

third, with a liquor for filling and hardening the leather composed of water, salt-petre, extract of chestnut oak, borax and alum, all in the proportions substantially as described and for the purposes set forth.

No. 17,083. Machine for Perfecting Cigars. (*Machine pour perfectionner les cigares.*)

Adolphus Meyersahm, Hamilton, Ont., 22nd June, 1883; 5 years

Claim.—1st. The combination of the space for burner D, burner F and steam box C, substantially as and for the purpose set forth, 2nd. The combination of steam box C and moulds E, substantially as and for the purpose set forth.

No. 17,084. Improvements in Wheel Tires. (*Perfectionnements aux bandages des roues.*)

William H. Carmont, Manchester, Eng., 22nd June, 1883; for 5 years.

Claim.—1st. The art of manufacturing grooved tires (for wheels) of a dove tail or other similarly undercut form by, first, rolling the metal with the base of the channel of a concavo-convex form, and with the sides at the angle required (the sides being either vertical or inclined to outwards) and afterwards bringing the upper edges of the sides together by flattening the base between suitable rolls, substantially as described with reference to the first part of the invention. 2nd. The art of manufacturing such tires without bending the base, by means of any of the modifications described with reference to the second part of the invention. 3rd. A grooved metallic tire, of a dove-tail or other undercut section (rolled as above described), into which an india rubber tire of suitable form is compressed and firmly fixed without cement or other extraneous means, substantially in the manner described.

No. 17,085. Improvements in Rowing Oars. (*Perfectionnements dans les rames.*)

William L. Cassaday, South Bend, and Frederick D. Smith, New Carlisle, Ind., U.S., 22nd June, 1883; for 5 years.

Claim.—1st. The combination, with an oar and handle, of a jointed rod connecting the oar and handle, and a link for accelerating the speed of the oar. 2nd. The combination, with a rocking plate and an oar and handle connected thereto near the opposite ends thereof, of a jointed rod connecting the oar and handle, and a link, one end of which is pivotally secured to the rocking plate, while the opposite end is connected to the jointed connecting rod. 3rd. The combination, with the rocking plate secured on the gunwale of the boat and provided with laterally projecting fingers, for attachment respectively of the oar, handle and link, of the oar and handle pivotally secured on the same side of the rocking plate, near the opposite ends thereof, a jointed rod connecting the two, and a link, one end of which is pivotally secured to the outwardly projecting finger on the handle end of the rocking plate, while the opposite end thereof is pivotally secured to the jointed rod, all of the above parts adapted to operate as described.

No. 17,086. Improvements in the Manufacture of Leather. (*Perfectionnements dans la fabrication des cuirs.*)

John Shaw, Hindmarsh near Adelaide, Australia 25th June, 1883; for 15 years.

Claim.—The process of converting hides or skins into leather by the application of carbolic acid, or salicylic acid, or compounds of these, along with suitable penetrating media instead of tan or its preparations, substantially as described.

No. 17,087. Apparatus for Washing and Separating Gold and Silver from their Ores. (*Appareil pour laver l'or et l'argent et les séparer de leurs minerais.*)

William J. Tanner, London, Eng., 25th June, 1883; for 15 years.

Claim.—1st. The general arrangement and combination of parts constituting the improved apparatus for use in the washing and separation of gold and silver from their ores, substantially as described and shown in the drawings. 2nd. An apparatus constructed as described, for use in washing and separating gold and silver from their ores, an amalgam plate applied to the surface of the water containing the float gold or silver, as described, and for the purpose set forth. 3rd. In apparatus, constructed as described, for use in washing and separating gold and silver from their ores, the application of electricity to an amalgam plate, or amalgam plates, placed over the surface of the water containing float gold or silver, in the manner substantially as set forth. 4th. In apparatus, constructed as described, for use in washing and separating gold and silver from their ores, the application of electricity to an amalgam plate, or amalgam plates, over which the water containing gold or silver passes, in the manner substantially as set forth. 5th. The means, substantially as described, for adjusting the plates located on the top of, or on the surface of the water.

No. 17,088. Explosive Matter and Method for Using it. (*Composition explosive et méthode de s'en servir.*)

Albert Hellhoff, Mayence, Hermann Gruson, Buckan, Germany, and Josef Halbmayr, Marienbad, Austria, 25th June, 1883; for 15 years.

Claim.—1st. An explosive compound formed by mixing together nitric acid with one of the specified nitrates of naphthaline, toluene, hylolite, phenole or bensole, or with a mixture of two or more of such nitrates, as and for the purpose described. 2nd. The method of pre-

paring, at the time when it is to be used, an explosive compound from nitric acid on the one hand, and one or more of the specified nitrates, of naphthaline, toluise, hylol, phenole and bensole on the other hand, by thus storing up the substances in different vessels or chambers, that their mixture may be caused by breaking, removing, opening or shifting the separating medium or parts, substantially in the manner and for the purpose described.

No. 17,089. Improvements in Electric Lamps. (*Perfectionnement dans les lampes électriques.*)

Robert J. Gulcher, Bielitz Biala, Austria, 25th June, 1883; 15 years.

Claim.—1st. The combination and arrangement of parts of the apparatus described with reference to, and illustrated in Figures 1 and 2, of the accompanying drawings, for adjusting the relative positions of, and regulating or controlling, the motion of the carbons in electric arc lamps, the said arrangement consisting of an oscillatory horse-shoe electro-magnet, one pole of which is in juxtaposition to, or in contact with an iron rod carrying one of the carbons, and the other pole of which is in contact with a magnetic brake and in proximity to a fixed block of iron, the attraction between which block and the magnet tends to separate the carbons or to oppose their approach towards each other when the lamp is in circuit, substantially as described and illustrated in the drawings. 2nd. Forming and covering the pole of an oscillatory electro-magnet used for actuating and controlling the motion of the carbons in electric arc lamps, as described and illustrated in Figure 4, of the drawings. 3rd. The use, in electric arc lamps, of a magnetic brake of the kind described and illustrated in Figures 1, 2, 3 and 4, of the drawings, the said arrangement consisting essentially of a block of iron and a piece of non-magnetic metal adjustably secured together, the said block being so mounted in proximity to one of the poles of an electro magnet as to be capable of being attracted towards the said pole, and to have free motion only in the direction in which the attraction of the magnet acts, and the said brake being so arranged that the part consisting of non-magnetic metal shall be nearest to the said magnet, the motion of the carbons or of the mechanism by which they are actuated being controlled by friction caused by the said attraction. 4th. The arrangement for connecting glass globes to electric lamps described with reference to and illustrated in Figures 1, 2, 7 and 8, of the drawings.

No. 17,090 Process for Preserving Eggs and Fruits. (*Procédé de conservation des œufs et des fruits.*)

Fredrick W. Storms, (assignee of George W. Mowry,) Rochester, N. Y., U.S., 25th June, 1883; 15 years.

Claim.—A compound for preserving eggs or fruits consisting in a weak solution of chloride of calcium mixed with air-slaked lime, the preparation being thoroughly dampened with water, substantially as set forth.

No. 17,091. Improvements in Injectors.

(*Perfectionnements dans les injecteurs.*)

Horace B. Murdock, Detroit, Mich., U.S., 25th June, 1883; 15 years.

Claim.—1st. The combination of a steam jet tube with a combining tube made in two parts, with an annular opening between them, whose area, combined with the area of the discharge end of the combining tube, equals the area of the annular opening between the jet tube and the combining tube, substantially as and for the purpose described. 2nd. The combination, with an auxiliary overflow port, of an auxiliary overflow valve, opening outward under the pressure of such supply water in the injector, which is not flowing through the discharge tube, substantially as and for the purposes set forth. 3rd. In an injector and in combination with an auxiliary overflow port controlled by a valve opening under the water pressure, an overflow passage communicating with said port, and the annular space between the combining tube, substantially as and for the purposes specified. 4th. The combination, with an auxiliary water supply port, communicating with the water supply pipe and controlled by a faucet valve or its equivalent, of a passage forming a communication with said port and the inlet opening of the discharge tube, substantially as and for the purpose described. 5th. The combination of an auxiliary water supply port controlled by a faucet valve, a passage forming a communication with said port and the inlet opening of the discharge tube, and an auxiliary overflow port controlled by a valve which opens outwardly under the pressure of said water in the injector, which is not flowing through the discharge tube, substantially as and for the purposes specified. 6th. The combination of two overflow ports mechanically controlled by valves, one of which opens with the pressure of such water in the injector which cannot pass through the discharge tube, and the other closes as soon as the water flows into the generator, substantially as and for the purpose set forth. 7th. The combination of an inwardly opening disk valve placed between the discharge tube and an overflow port, which it discloses mechanically as long as the water passing through said tube is not forced into the generator, and closes mechanically as soon as this is accomplished, substantially as and for the purposes described. 8th. A series of jet and combining tubes supported upon annular flanges, with a perforated distance support between the combining tube and jet tube, substantially as and for the purposes set forth. 9th. A cylindrical screen extending around the outside of the water chamber between the steam tube and combining tube, and placed concentrically to the annular opening between the steam and combining tubes, substantially as and for the purposes specified.

No. 17,092. Sorting Machine for Wood Pulp, &c. (*Machine à trier la pâte à papier de bois, etc.*)

Niclaus Kaiser, Grellingen, Switzerland, 25th June, 1883; 15 years.

Claim.—1st. A wood pulp sorting machine comprising, in its construction, a sieve-cylinder, and a plane or helical vane, or vanes, or

equivalent means applied to the shaft, for sorting or straining wood pulp, or similar fibrous material, by means of centrifugal force. 2nd. For the continuous separation of the fine from the coarse wood pulp, or similar fibrous material, and for the removal of water, the application of one or more plane or helical vanes or beaters, adapted to throw the material entering from the top against a fixed or revolving vertical sieve-cylinder *h*, adapted to let the fine particles and the water penetrate, substantially as described and illustrated. 3rd. The general arrangement of the sorting machine, substantially as described and illustrated.

No. 17,093. Machinery for the Manufacture of Linoleum, &c. (*Machine pour la fabrication des tissus imperméables etc.*)

Michael B. Nairn, Kirkcaldy, Scotland, 25th June, 1883; 15 years.

Claim.—1st. The combination of the parts *a* *a1* *f* *k* *k1* *k2* *l* and *m*, substantially as described. 2nd. The combination of the parts *a* *b* and *e*, substantially as described. 3rd. The loaded door *a3* obstructing the delivery of the material from the mixer *a*, substantially as described. 4th. The knives *d* cutting the material into slices as it issues from the mouth *a2*, substantially as described. 5th. The combination of crushing rollers *e* *e*, *f* *f* and *g* *g*, substantially as described.

No. 17,094. Improvements in Match Machines. (*Perfectionnements aux machines à allumettes*)

Bernard T. Steber, Utica, N. Y., U.S., 25th June, 1883; for 15 years.

Claim.—1st. The combination, in a match splint machine, of the feed rollers *I* *I* geared together, the wheel *I3* having pins or teeth on its face, and applied directly, on the shaft *i*, of roller *I* and the worm *J* having the walls of its grooves formed with portions which are cams, and with portions which are at right angles to its shaft, and with openings in its ends, or faces for the entrance and exit of the pins or teeth of wheel *I3*, whereby an intermittent motion of the feed rollers is produced with a very simple arrangement of gearing and shafting, substantially as described. 2nd. The combination, with the slat chain of a match splint machine, of the laterally and vertically moving lever, whereby the slat-chain is fed along properly during the operation of the match splint machine, substantially as described. 3rd. In a machine for making match splints, the combination, with a travelling slat-chain and a reciprocating cutter frame and cutting die, of a reciprocating wedge and mechanism for operating and controlling said wedge, the combination being such that the slats are opened and the match splints received directly from the cutting die, substantially as and for the purpose described. 4th. The adjustable double crank, having the throw of its crank or wrist pin *h2* adjustable by the eccentric adjustable bearing *c*, applied so as to actuate the cutter frame and cutting die in a match splint machine, as described, whereby the movement of the cutter frame and cutting die can be adjusted to suit long and short match splints, substantially as described. 5th. The combination, with the vertically feeding rollers, chute, slat-chain, cutter frame and cutting die, of the adjustable yielding "take-up" *H* applied to the bolts *h*, which are provided with springs *h4*, and swinging on the arbor of the movable feed roller *I*, substantially as described. 6th. The cutting die having a rearward movement while cutting the match splints, and a forward movement while forcing said splints into the slat-chain, and a slat-chain which receives the match splints directly from the cutting die, in combination with the reciprocating wedge and mechanism by which the wedge is operated and controlled, substantially as described. 7th. The cutting die having a rearward movement while cutting the match splints, and a forward movement while forcing said splints into the slat-chain, in combination with the laterally and vertically moving levers, the reciprocating wedge, and the mechanism by which the levers and the wedge are operated and controlled, substantially as described. 8th. The combination, in a slat-chain for a match splint machine, of the following elements, *viz*: slats *k* having oblique surfaces *k4* *k5*, links *k6* having heads *k2* and pins *k3*, and the springs *L* having slotted ends *l*, whereby the operation of opening the slats by the wedges, and the entrance of the match splints between the slats is facilitated, substantially as and for the purpose described.

No. 17,095. Telephonic Transmitter.

(*T. ansmetteur téléphonique.*)

The Overland Telephone Company, New York, N. Y., (assignee of Myron L. Baxter, Aurora, Ill.,) U.S., 25th June, 1883; for 15 years.

Claim.—1st. The combination of the suspended bar *C* carrying one of the electrodes attached to the adjusting device *ca* *ca1*, with the vibrating diaphragm carrying the other electrode, and the electro-magnetic controlling device, all operating substantially as described and for the purpose specified. 2nd. The vibrating diaphragm carrying one of the electrodes, in combination with the suspended bar *C*, and the bolt *ca* carrying the other electrode and the check nut *c*, as and for the purpose specified. 3rd. The electro magnetic controlling device operating in the manner described, in combination with the suspended bar *C*, the bolt *ca* carrying one electrode and the check nut *c*, and the vibrating diaphragm carrying the other electrode, as and for the purpose specified. 4th. The bolt *ca* carrying the carbon button *d*, and the check nut *c*, in combination with the suspended bar *C*, as and for the purpose described.

No. 17,096. Telephonic Receiver. (*Récepteur téléphonique.*)

The Overland Telephone Company, New York, N. Y., (assignee of Myron L. Baxter, Aurora, Ill.,) U.S., 25th June, 1883; 15 years.

Claim.—1st. In combination with an iron diaphragm arranged at right angles and in proximity to one pole of a permanent magnet, said magnet exerting an attractive influence at or near its centre, an inducing coil for varying the said attraction composed partly of copper and partly of iron, for the purpose specified. 2nd. In combination with a vibrating iron diaphragm arranged at right angles and its centre in proximity to one pole of a permanent magnet and rigidly

attached near its periphery to the other pole of the same magnet, an inducing coil composed partly of iron and partly of copper, for the purpose specified. 3rd. In combination with a vibrating iron diaphragm, a cylindrical electro-magnet made up of convolutions of iron ribbon, the same being surrounded by a helix of copper wire and inclosing another helix of copper wire and one pole of a permanent magnet. 4th. A compound inducing coil consisting of a cylinder made up of a continuous insulating iron ribbon, surrounded by a helix of copper wire and acting by attraction upon a superposed iron diaphragm, and by electrical induction upon one pole of a permanent magnet located within said cylinder, substantially as described. 5th. In combination with a vibrating iron diaphragm and a permanent magnet arranged at right angles thereto and exerting a magnetic attraction upon the same, at or near its centre, an inducing helix of iron ribbon surrounding, and in electrical connection with another inducing helix of copper wire. 6th. In combination with a permanently magnetic core and an iron diaphragm, an inducing coil consisting of two helices of insulated copper wire arranged concentrically and having between them, a helix of insulated iron ribbon, substantially as described and for the purpose specified. 7th. In combination with a vibrating iron diaphragm arranged at right angles, with its centre in proximity to one pole of a permanent magnet and rigidly attached near its periphery to the other pole of the same magnet, an inducing helix of iron ribbon surrounding and in electrical connection with another inducing helix of copper wire. 8th. In combination with a vibrating iron diaphragm and a permanent magnet arranged at right angles thereto and exerting a magnetic attraction upon the same, at or near its centre, an inducing helix of iron ribbon surrounding and in electrical connection with another inducing helix of copper wire, said helix of iron ribbon acting by virtue of electrical currents traversing its insulated convolutions, to vary the aforesaid magnetic attraction and, at the same time, to produce within its own substance a tubular electro-magnet.

No. 17,097. Improvement in Gas Retorts.

(*Perfectionnement dans les cornues à gaz.*)

Magnus Gross, New York, N. Y., U. S., 25th June, 1883; 15 years.

Claim.—1st. A retort for gas-making made, substantially as shown and described, with plates to distribute the oil or naphtha, a downward-projecting flange for deflecting the gases and vapours downward, a porous material and a front plate having central aperture, whereby all the gases and vapours will be made to pass through the porous material before reaching the front of the retort as set forth. 2nd. The combination, with the retort A, oil pipe R and the steam pipe S, of the perforated plate T, substantially as shown and described, whereby the oil or naphtha is distributed and made to thoroughly commingle with the superheated steam, as set forth.

No. 17,098. Improvements in Oil Presses.

(*Perfectionnements aux presses à huile.*)

William Bushell and Walter T. Haydon, Dover, Eng., 25th June, 1883; 15 years.

Claim.—1st. The press or press-box composed of bars such as *a*, with side indentations or notches, and of such a form and as arranged side by side, so that the inner corners of such bars shall touch one another and cause a space *b* to be produced between the outer sides of such bars, and so allowing a free passage for oil and, if necessary, seeds, whereby the clogging up of the press is materially diminished or prevented and the oil freely escapes to the bottom of the press, all substantially as described and illustrated with reference to figures 1 2 4 6 and 7 of the drawings. 2nd. The combination of such a press, as first claimed, with the appliances as described and shown in the accompanying drawing for securing and firmly holding the same together. 3rd. The mode of, and mechanical appliance or appliances for mechanically and automatically, or partially automatically measuring and supplying the seed to the press or series of presses, all constructed, arranged and operating in combination with oil press, the top of which can be removed as and for the purposes set forth.

No. 17,099. Improvements in Electrical Conductors. (*Perfectionnements dans les conducteurs électriques.*)

Frank Jacob, Woolwich, Eng., 25th June, 1883; 15 years.

Claim.—The described method of connecting several sets of electrical instruments or apparatus, by employing the double conductors of one set as a single conductor for another set, and multiples of such double lines as single lines.

No. 17,100. Barbed Wire Fence.

(*Clôture en fil de fer barbelée.*)

Carl Pieper, Berlin, Prussia, 25th June, 1883; 15 years.

Claim.—1st. The combination, with a barbed wire fence, of one or more smooth guard wires *a* fixed to an arm or arms projecting from the fence posts, substantially as and for the purpose described. 2nd. The combination, with a barbed wire fence, the posts of which are provided with an arm or arms carrying the wire or wires *a*, of one or more watering troughs *f* supported by the said arm or arms, as described.

No. 17,101. Automatic Cash Carrier.

(*Distributeur automate de monnaie.*)

The Lamson Cash Railway Company, Boston, (assignee of William S. Lamson, Lowell,) Mass., U. S., 25th June, 1883; 15 years.

Claim.—1st. The elevator provided with a tilting shelf *L* having a depression *L*₁ as and for the purpose specified. 2nd. The elevator *L* provided with a pivoted shelf *L* having a depression *L*₁, in combination with means for tilting said shelf, as and for the purpose specified. 3rd. In combination with the way *D*, the pivoted bridge *D*₁ and a carrier *M* *M* adapted to travel on said bridge and to tilt the same, as and for the purpose specified. 4th. In combination with the pivoted bridge *D* provided with a catch *D*₂, the elevator *L* provided with the tilting shelf *L*, as and for the purpose specified. 5th. The way *C* provided with drops *R* and means for allowing said drops to be opened by carriers *M* *M* travelling thereon, in combination with said carriers, as and for the purpose specified. 6th. The way provided with a drop, in combination with a latch and a lever adapted to be operated by a carrier travelling on said way. 7th. The combination of the drop *R* and the box *H*, provided with an opening *H*₁, as and for the purpose specified.

No. 17,102. Improvements in Vehicle Brakes. (*Perfectionnements aux freins des voitures.*)

Bascum R. Welch, Wolf Creek, Pa., U. S., 25th June, 1883; 15 years.

Claim.—1st. In a brake mechanism, the combination of the cross-bar *D*, swinging bail *E* supported thereby and having downward-bent ends, the brake-bar suspended from the bent ends of the bail, the cranked rock bar *L*, a draw-bar connecting the crank of the rock bar with the brake bar, and a brake rod for rocking the rock bar, substantially as described. 2nd. The combination of the grooved cross bar *D* secured to the hounds, with the rocking bail *E* arranged within the groove of said bar and retained therein by eye-bolts securing the grooved bar to the hounds, the brake car *G* carrying the brake shoes and connected with the crank-shaped ends of the bail, the draw-rods rigidly secured to the brake-bar and also connected to arms upon a rock bar that has its bearings upon the hounds, and the rod connected with an arm upon the rock bar and also connected with the operating lever, substantially as described.

No. 17,103. Improvements in Claw-Bars.

(*Perfectionnements aux leviers à pied de biche.*)

John H. Lakey, Wabasha, Minn., U. S., 25th June, 1883; 15 years.

Claim.—A claw-bar consisting of the lever *A*, the heel piece *C* detachably bolted to the rear edge of the lever, and the independent side piece *B* *B* arranged longitudinally along the length of the lever, and detachably connected therewith, substantially as described. 2nd. A claw-bar consisting of the lever *A* provided with the lip *d* at its rear edge, the heel piece *C* having the recess *e* and detachably bolted to the lip of the lever, and the independent side pieces *B* *B* bolted to the sides of the lever, substantially as described.

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

1. C. E. FOSBURGH, 2nd 5 years of No. 8875, from 4th day of June, 1883. Improvements on Canopy Tops for Carriages and Buggies. 4th June, 1883.
2. T. C. HEWITT, 2nd 5 years of No. 8887, from 8th day of June, 1883. Improvements on Lightning Rods 8th June, 1883.
3. T. HODGSON, 2nd 5 years of No. 8893, from the 8th day of June, 1883. Saw Gumming and Sharpening Machine, 8th June, 1883.
4. F. HYDE, 2nd and 3rd 5 years of No. 16,844, from the 11th day of May, 1888. Improvements on Self Closing Taps, 9th June, 1883.
5. E. J. SUMNER, 3rd 5 years of No. 2429, from the 11th day of June, 1883. Improvements in Dry Kilns, 9th June, 1883.
6. G. W. JOHNSON, (assignee), 3rd 5 years of No. 2443, from the 11th day of June, 1883. Improvements on Steam Pumps, 9th June, 1883.
7. H. PARKER, 2nd 5 years of No. 8901, from the 13th day of June, 1883. Improvements on Potato Diggers, 13th June, 1883.
8. E. C. FROST, 2nd 5 years of No. 8904, from the 13th day of June, 1883. Improvements on Cooking Ranges, 14th June, 1883.
9. G. V. CRESSON, (assignee) 3rd 5 years of No. 2473, from the 17th day of June, 1883. Improvements on Couplings for Shafting, 16th June, 1883.
10. J. LIVESEY and J. KIDD, 2nd 5 years of No. 8915, from the 21st day of June, 1883. Apparatus for the Production and Enrichment of Illuminating Gas, 16th June, 1883.
11. T. KINGSFORD, 2nd and 3rd 5 years of No. 8946, from the 25th day of June, 1883. Improvements in the Manufacture of Starch, 16th June, 1883.
12. P. T. ELTING, 2nd 5 years of No. 8959, from the 27th day of June, 1883. Improvements on Bed Stone Supports, 16th June, 1883.
13. A. FOSTER, 2nd 5 years of No. 9204, from the 23rd day of September, 1883. Improvements in Washing Machines, 16th June, 1883.
14. W. SEATON, 2nd and 3rd 5 years of No. 16,042, from the 30th day of December, 1887. Improvements on Permanent Ways for Railways, 16th June, 1883.
15. C. SHEPPARD, 2nd 5 years of No. 14,939, from the 10th day of June, 1887. Improvements on Coal Washing Machines, 16th June, 1883.
16. W. O. DOUGLAS and R. H. MEAGLEY, 2nd and 3rd 5 years of No. 8935, from the 24th day of June, 1883. Improvements on Truss Bridges. 20th June, 1883.
17. C. W. NICHOLS, 2nd and 3rd 5 years of No. 8988, from the 10th day of July, 1883. Improvements on Treating Feathers for Dusters. 23rd June, 1883.
18. W. VAUGHN, 2nd and 3rd 5 years of No. 16,262, from the 3rd day of February, 1888. Improvements on Putting out Machines. 23rd June, 1883.
19. J. A. FREY, 2nd 5 years of No. 8948, from the 25th day of June, 1883. Improvements in Oil Cans, 23rd June, 1883.
20. J. PARADIS, 2nd 5 years of No. 8943, from the 25th day of June, 1883. Improvements in the Method of Welding Straps to Spades or Shovel Blades, 25th June, 1883.

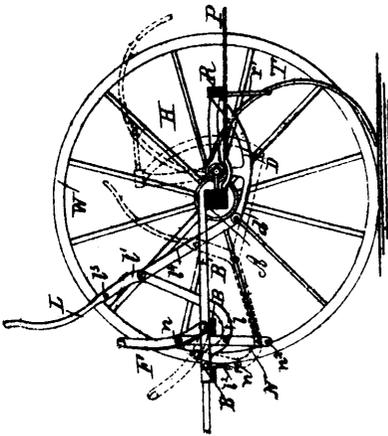
THE
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

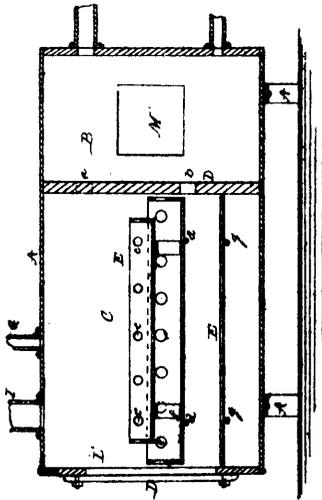
Vol. XI.

JULY, 1883.

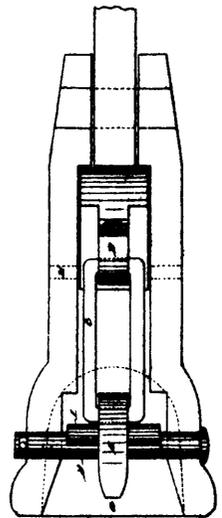
No. 7.



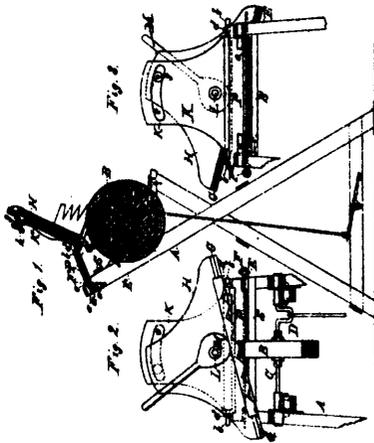
16882 Beauchemin's Improvements in Horse Rakes.



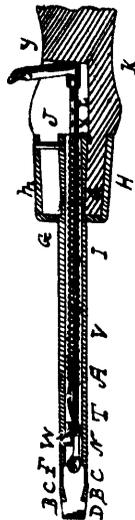
16883 Jones' Feed Water Heater and Purifier.



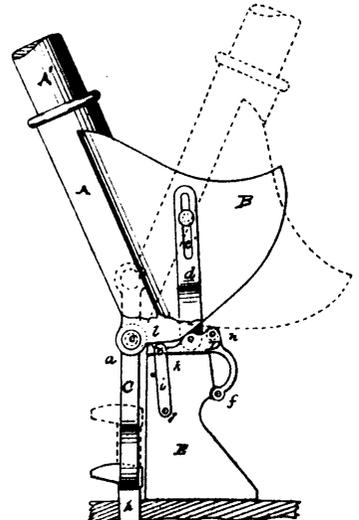
16884 Felton's Improvements in Car-Couplings.



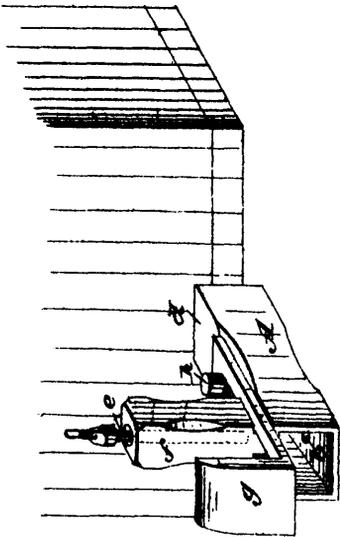
16885 Ingraham's Improvements in Stone Grinders.



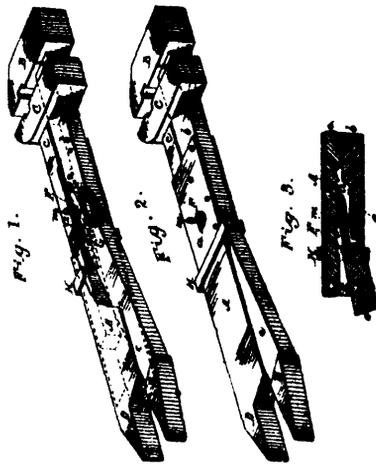
16886 Crawford's Improvements in Screw Drivers.



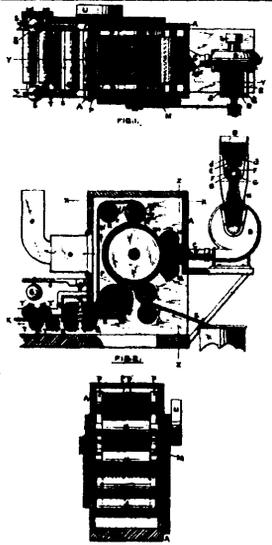
16887 Prout's Improvement in Spike Extractors.



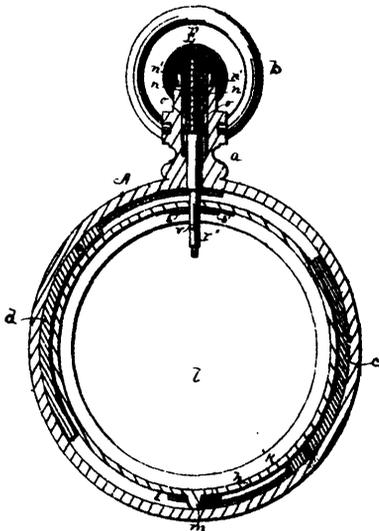
16888 Tucker's Improvement in Car-Couplings.



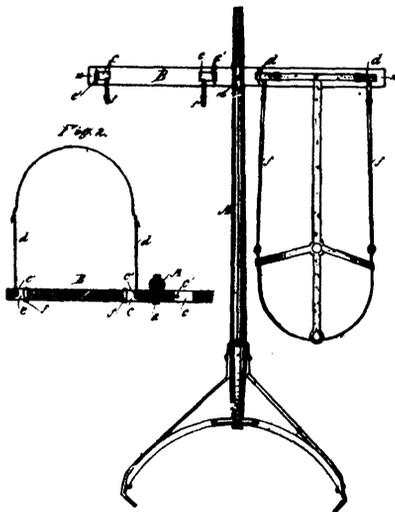
16889 Willmer's Combined Wrench and Pinchers



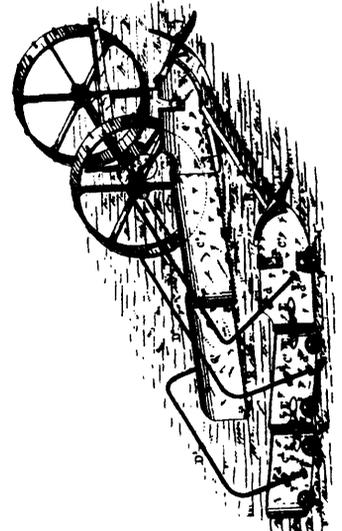
16890 Vaughan's Machine for applying colouring Matter to Fibrous Material.



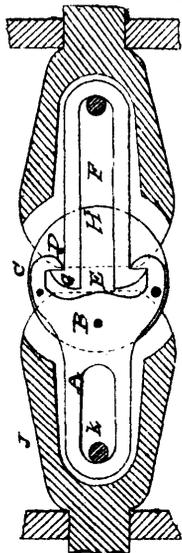
16893 Muckle's Improvements in Watch Cases.



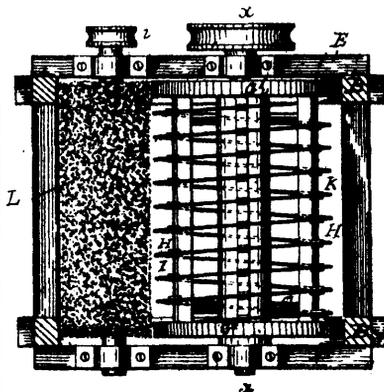
16894 Baker's Improvement in Wagon Yokes.



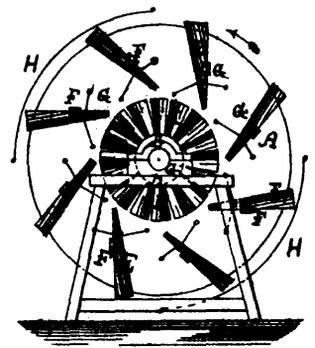
16895 Savole's Improvements in Mowing Machines.



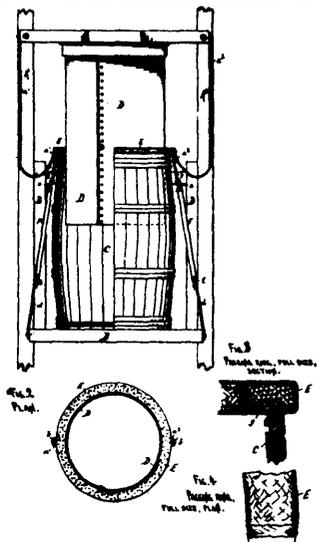
16896 Keller's Improvements in Car-Couplings.



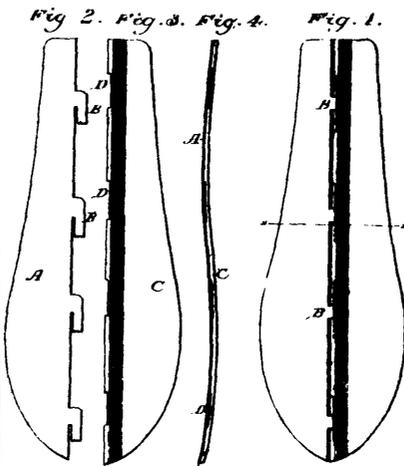
16897 Graeter's Improvement in Flour Bolts.



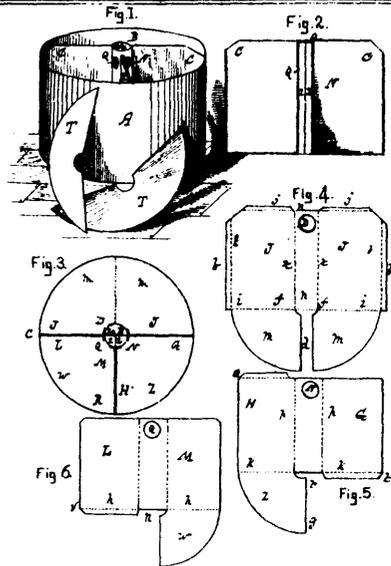
16898 Robinson's Improvements in Windmills.



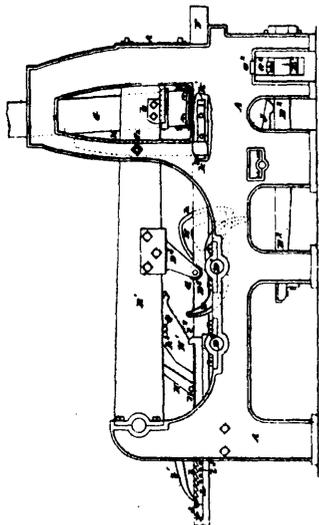
18899 Handy & Lord's Improvements in Flour Packers.



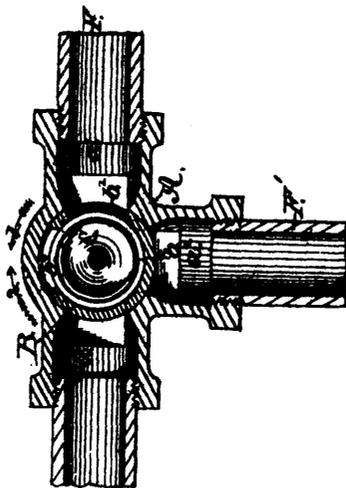
18900 Mann's Improvements in Corset Busks.



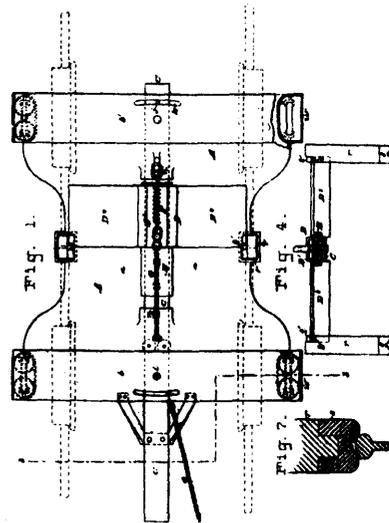
18901 Snider's Improvements in Pots and Kettles



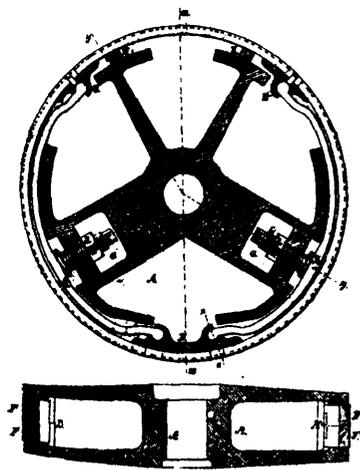
18902 Andrew's Improvements in Brick Machines.



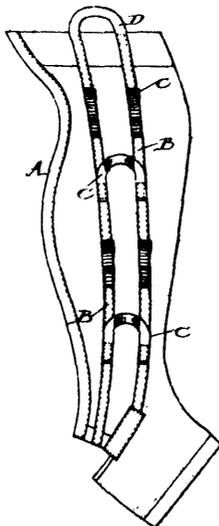
18903 Blessing's Combined Check Valve, Stop Cock, and Blow-off Cock.



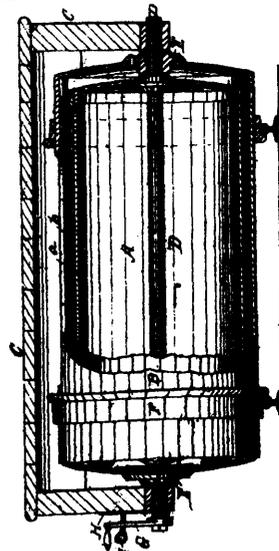
18904 Whiting & Smith's Improvements in Car Trucks.



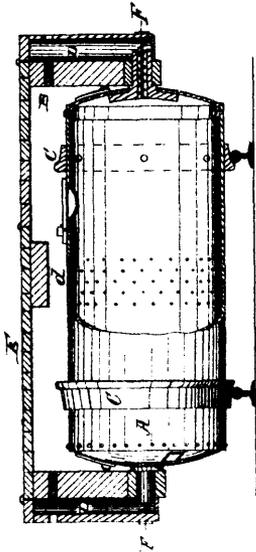
18905 Garrett's Piston Head for Engine Cylinders.



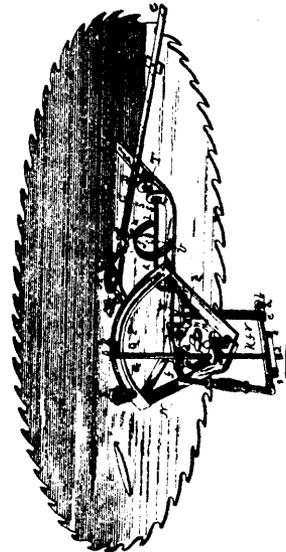
18906 Master's Improvements in Elastic Stockings.



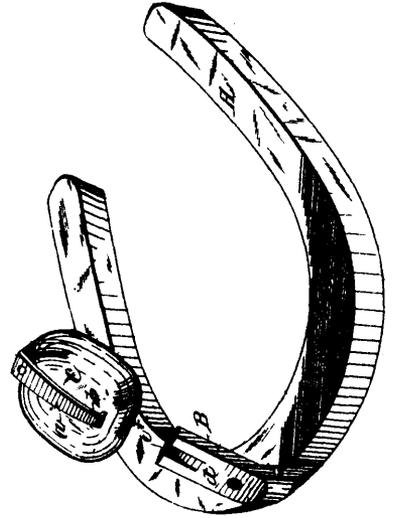
18907 Frosser's Improvements in Grain Cars.



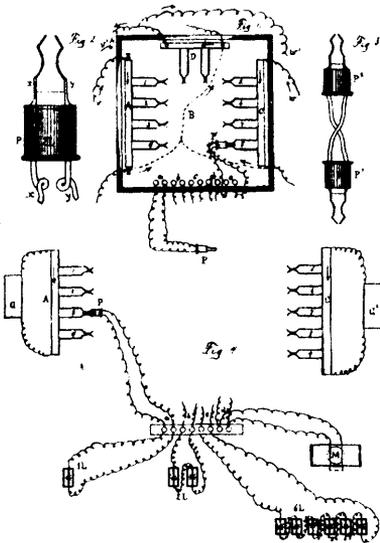
16908 Prosser's Improvements in Grain Cars.



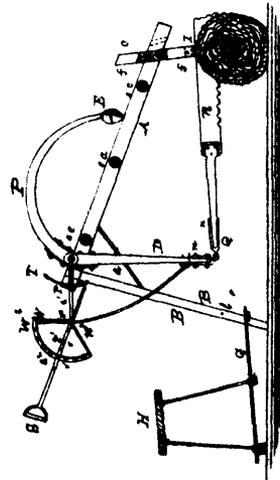
16909 Fisher's Improvements in Saw Filing Machines.



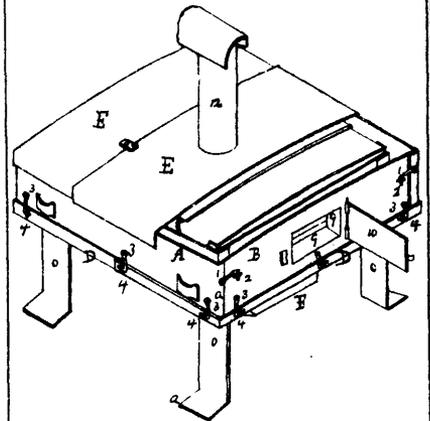
16910 Wilcox's Improvements in Horse Shoes.



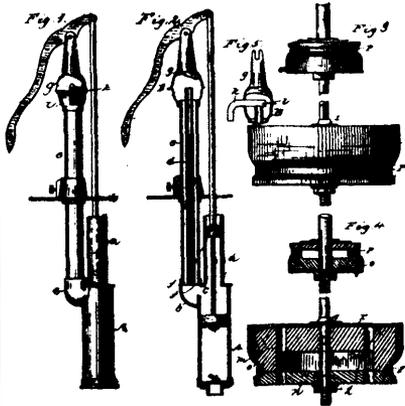
16911 Thomson's System of Electric Distribution



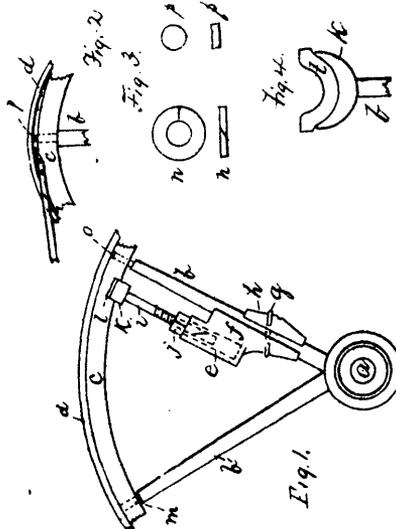
16912. Seeger's Improvements in Drag Saw Machines.



16913 McDowell's Improvements in Camp Stoves



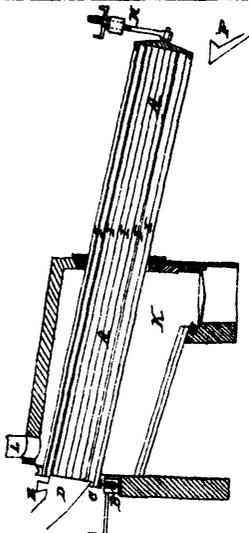
16914 Johnson & Cowan's Improvements in Force Pumps.



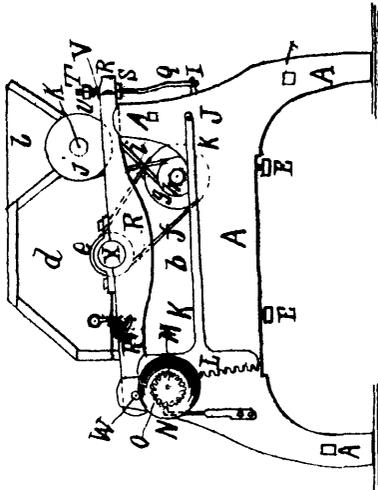
16915 Basford's Improvements in Tire Tighteners.



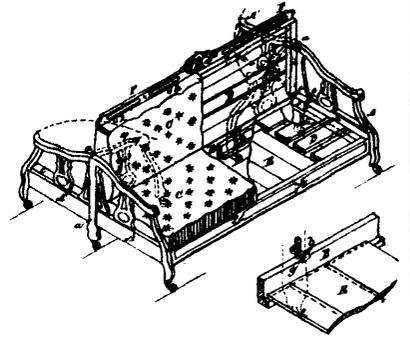
16916 Fish's Improvements in Barbed Fence Wire.



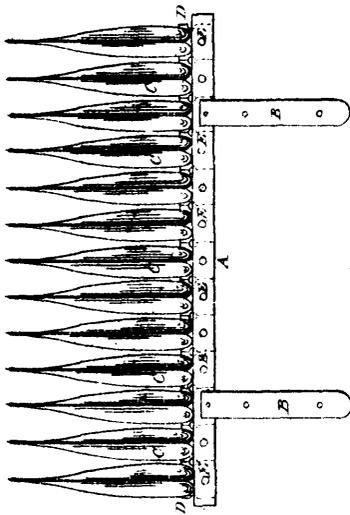
16917 Worrell's Machine for Drying and Cooling Grain and other substances.



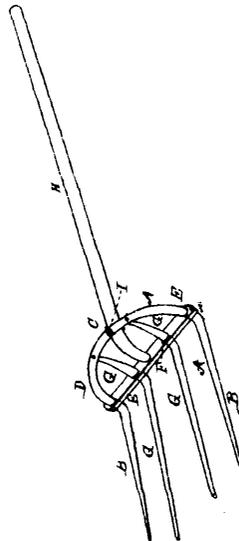
16918 Collier's Improvements in Grinding Mills



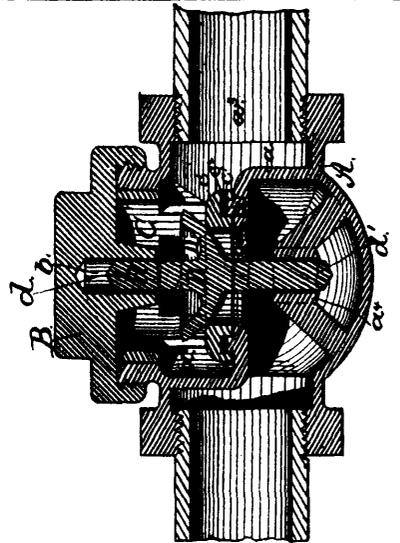
16919 Hover's Improvements in Sofa Beds.



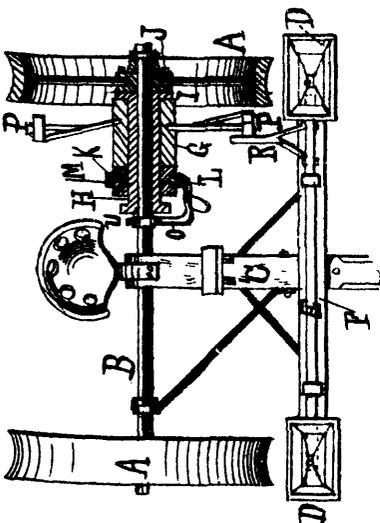
16920 Patterson's Improvements in Harvesters.



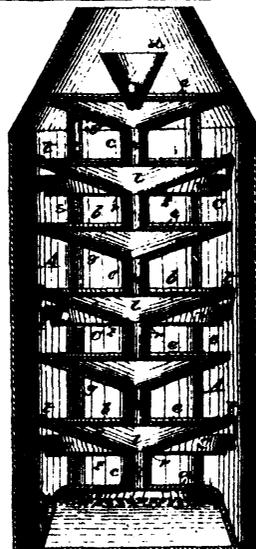
16921 Brandon's Improvements in Pitch Forks.



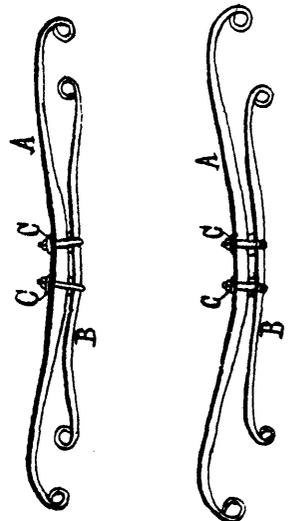
16922 Blessing's Improvements in Valves.



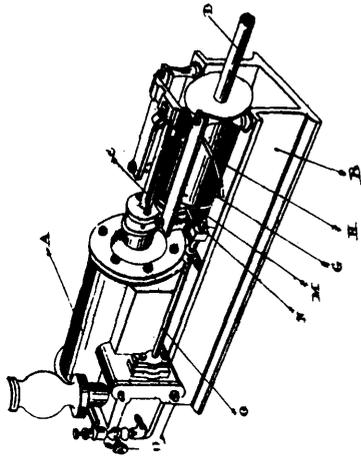
16923 Robinson's Improvements in Corn Planters.



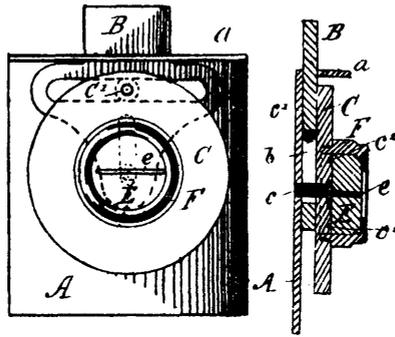
16924 Irish's Improvements in Fruit Evaporators.



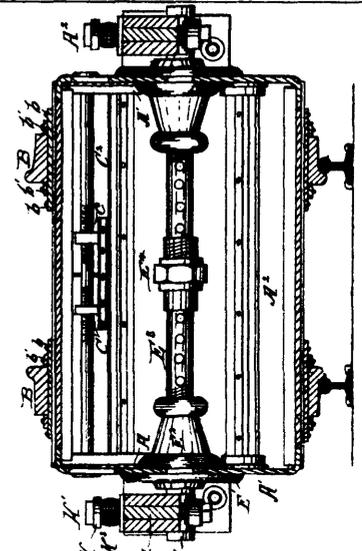
16925 Wilson's Improvements in Vehicle Springs.



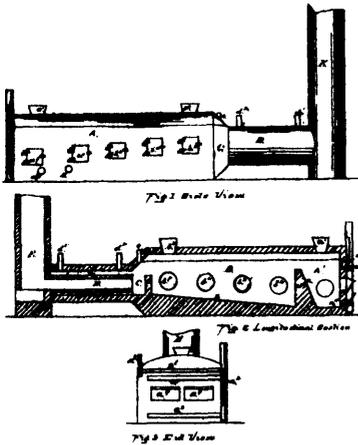
16926 Parmenter's Improvements in Steam Engines.



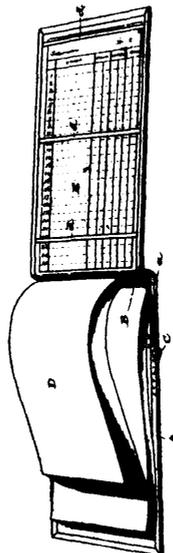
16927 Côté's Improvements in Locks.



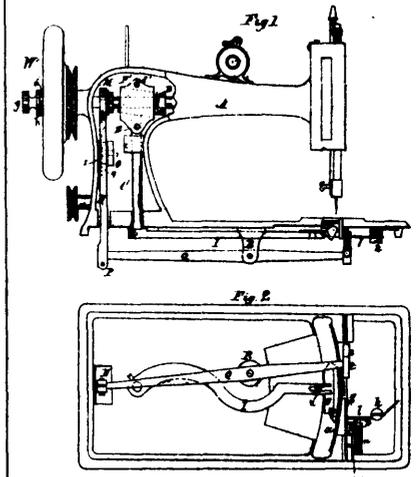
16928 Prosser's Improvements in Grain Cars.



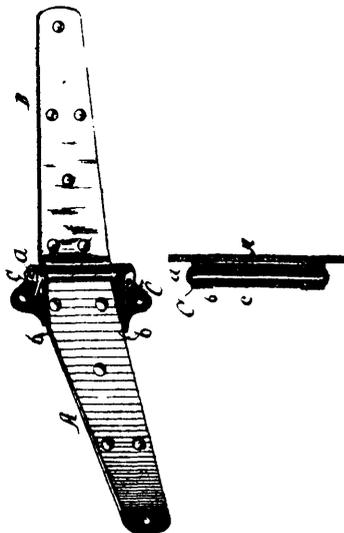
16929 Bayliss' Improvements in Smelting Furnaces.



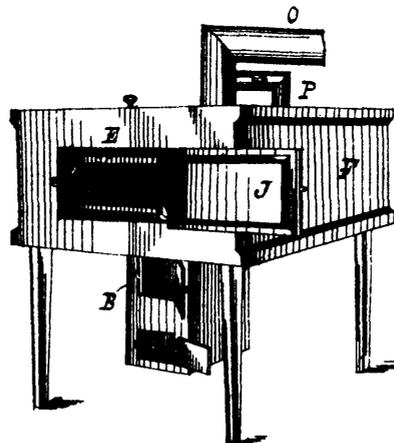
16930 Carter's Improvements in Memorandum Books.



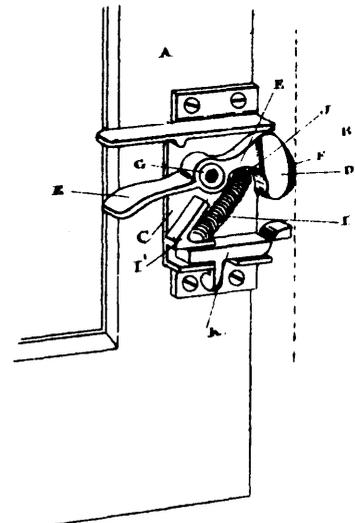
16931 Abell's Improvements in Sewing Machines



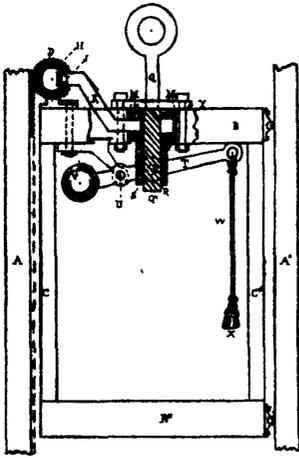
16932 Kurtz's Improvements in Strap Hinges.



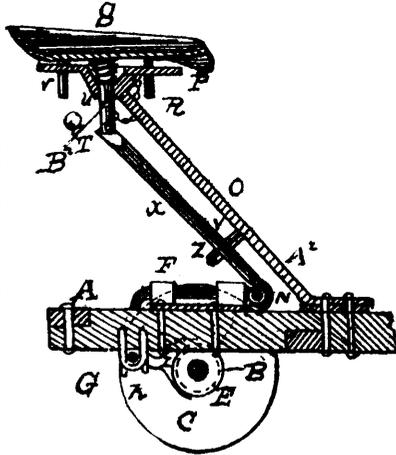
16933 McDowell's Improvements in Portable Ovens.



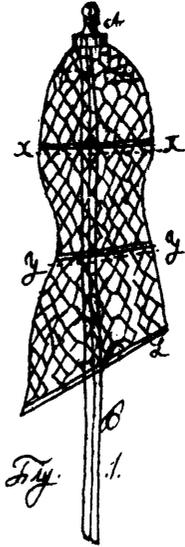
16934 Wicks' Improvements in Window Fasteners.



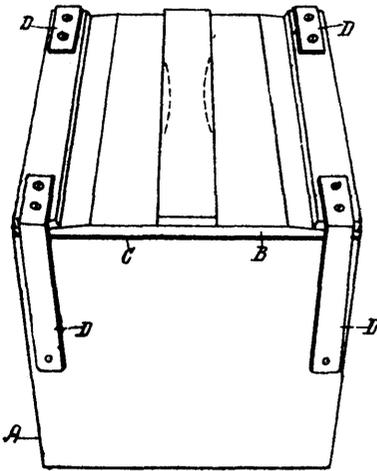
16935 Webster's Improvements in Elevators.



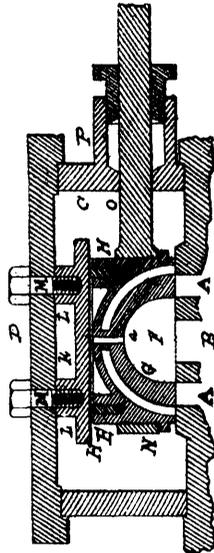
16936 Cornell & Smith Improvements in Harvesters.



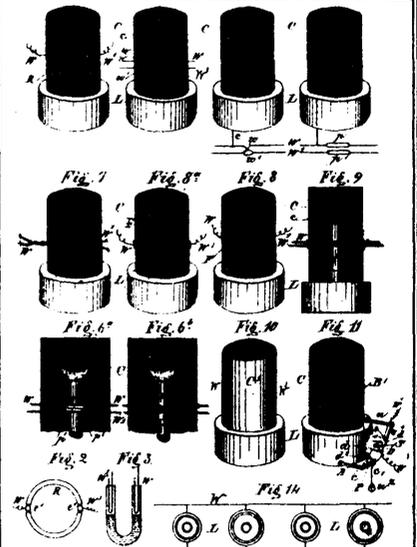
16937 Smith's Improvements in Wire Cloths.



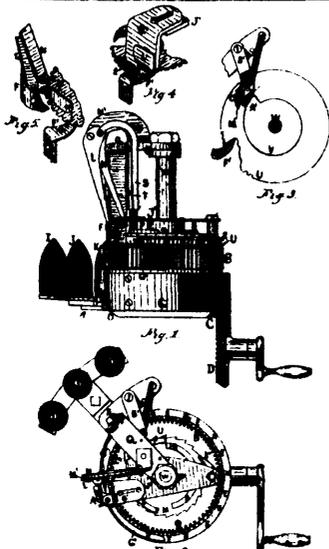
16938 Van Allan's Improvements in Butter Packages.



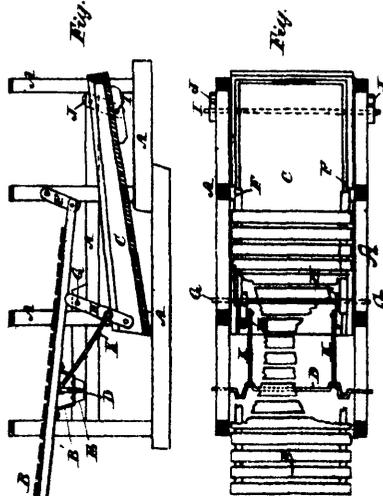
16939 Richardson's Improvements in Balanced Slide Valves.



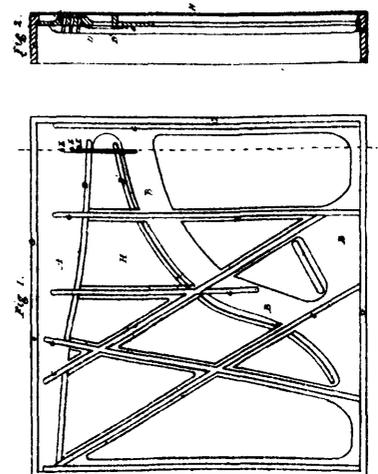
16940 Kitsee's Device for indicating the presence of Fire Damp in Mines and giving notice thereof.



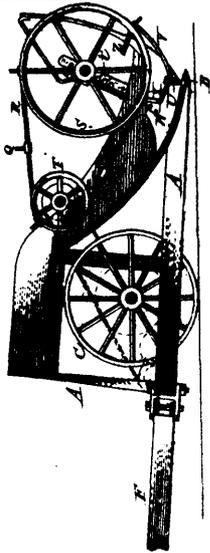
16941 Bradley's Improvements in Knitting Machines.



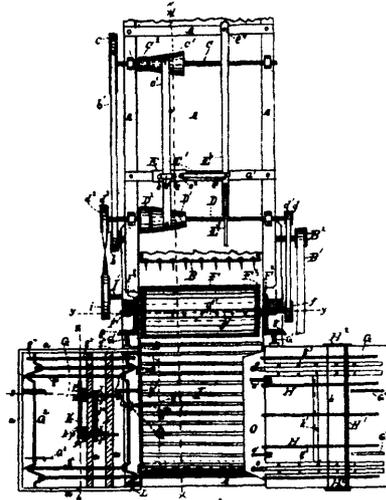
16943 Craig's Improvements in Thrashing Machine Separators.



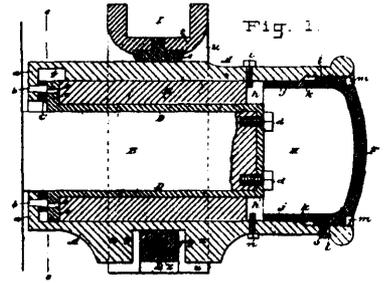
16944 Pitt's Sounding Board for Upright Piano Fortes.



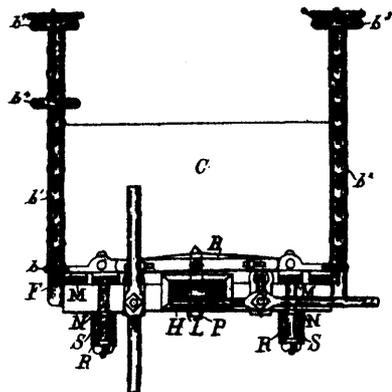
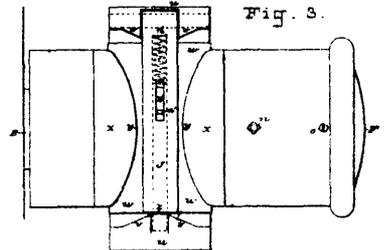
16945 Key's Improvements in Harvesters.



16946 Sharp's Improvements in Threshing Machines.



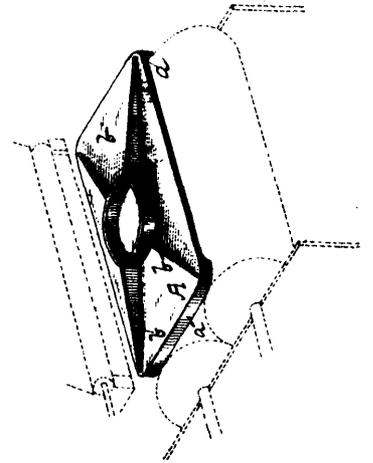
16947 Whiting's Improvements in Car Axle Boxes.



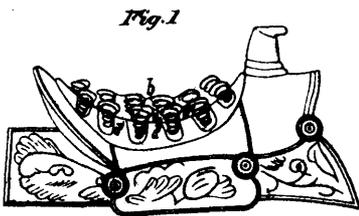
16948 Therien's Improvements in Car-Couplings



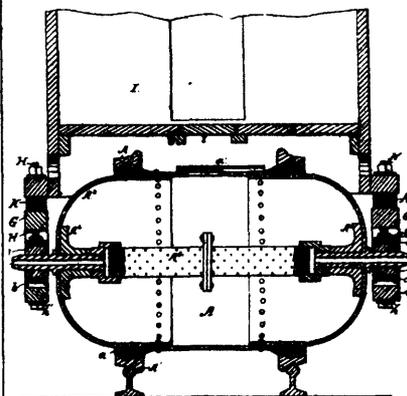
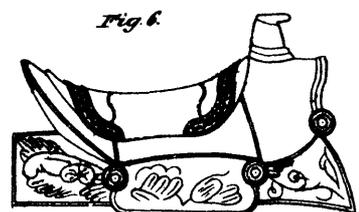
16949 Case's Improvements in Harness Pads.



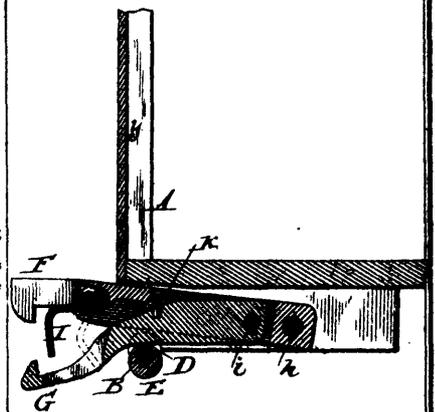
16950 Gray's Improvements in Testing Roller Mills.



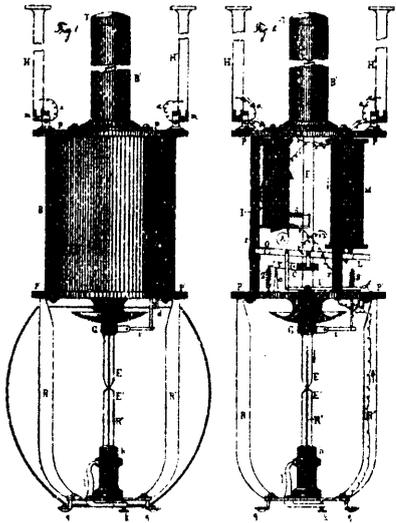
16951 Baseler's Improvements in Riding Saddles



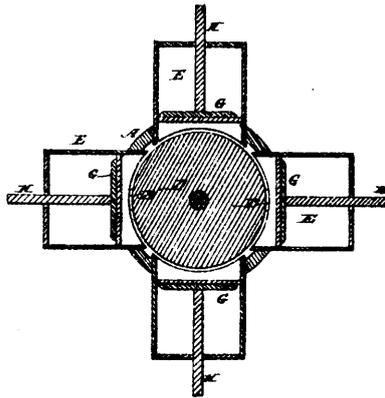
16952 Frosser's Improvements in Grain Cars.



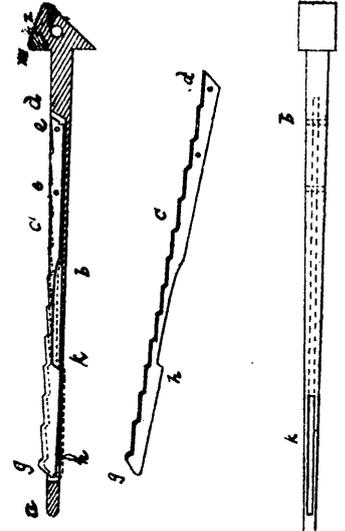
16953 Bedford's Improvements in Car-Couplings.



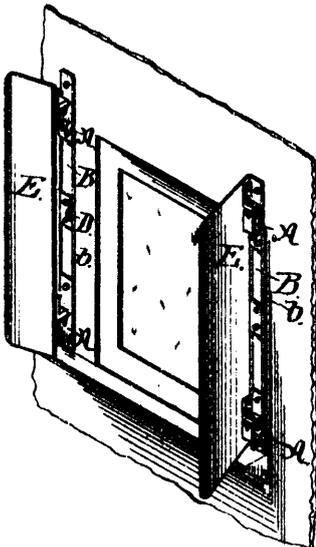
16954 Thomson's Improvements in Electric Lamps.



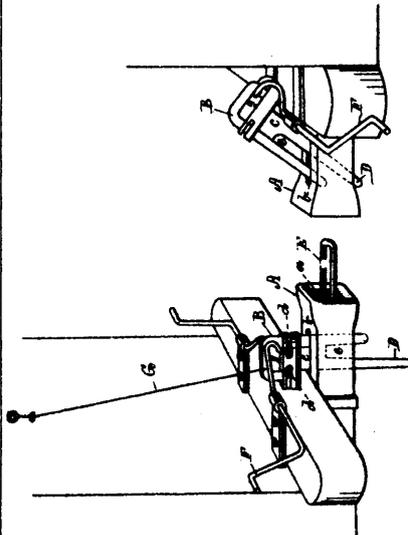
16955 Cartmel's Improvements in Wood Pulp Machines.



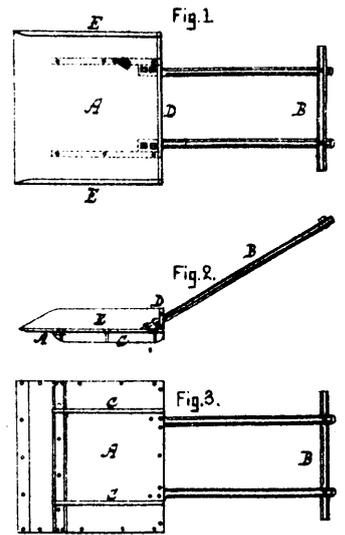
16956 Coggeshall's Improvements in Spindles for Loom Shuttlles.



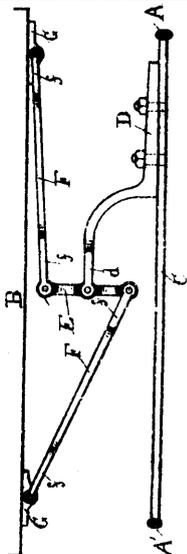
16957 Reynolds' Dust Guard for Railway Car Windows.



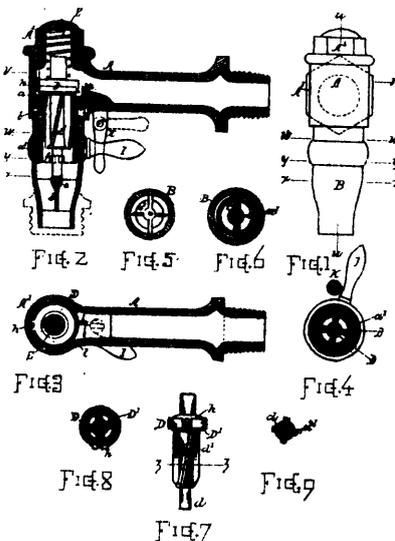
16958 Hatfield's Improvements in Car-Couplings.



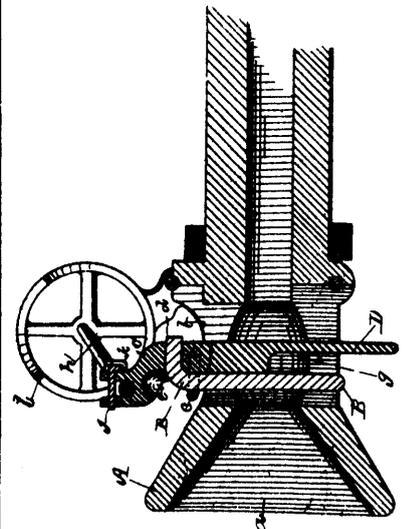
16959 Staple's Improvement in Snow Shovels.



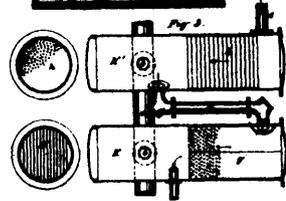
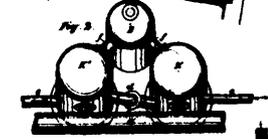
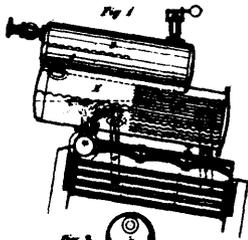
16960 Louck's Improvements in Vehicles.



16961 Howes' Improvements in Faucets.



16962 Hatfield's Improvements in Car-Couplings.



16963 Stollwerck's Improvements in Steam Boilers.

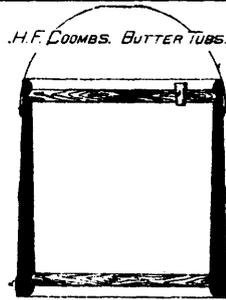


FIG. 1.

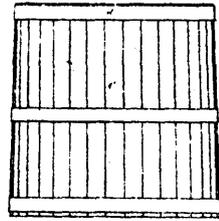
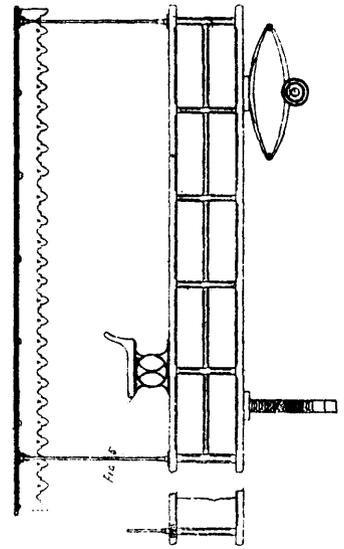
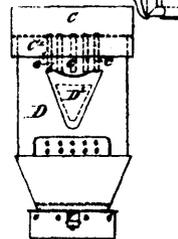
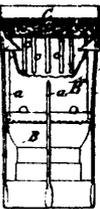
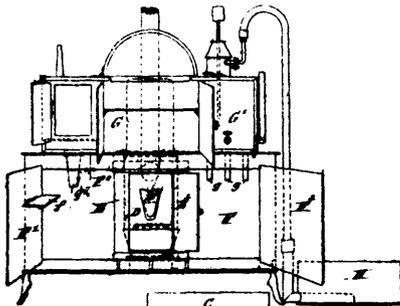


FIG. 2.

16964 Coombs' Improvements in Butter Tubs.



16965 Coombs' Improvements in Carriage Tops.



16966 Jullen's Improvements in Stoves for Cooking, Heating and Generating Steam.

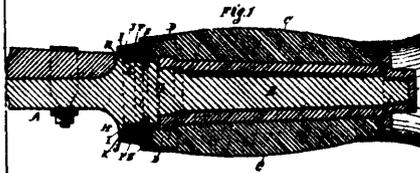


Fig. 1

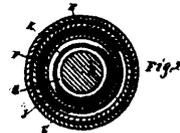


Fig. 2

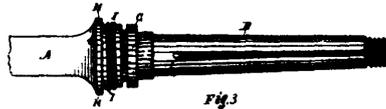
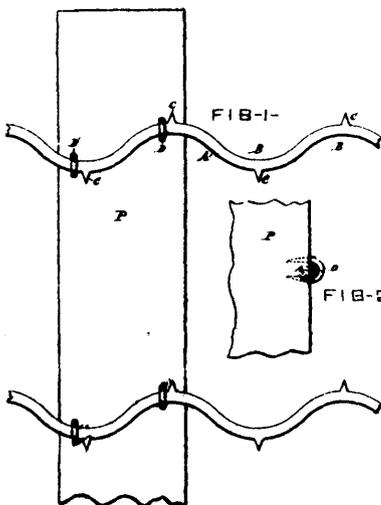


Fig. 3

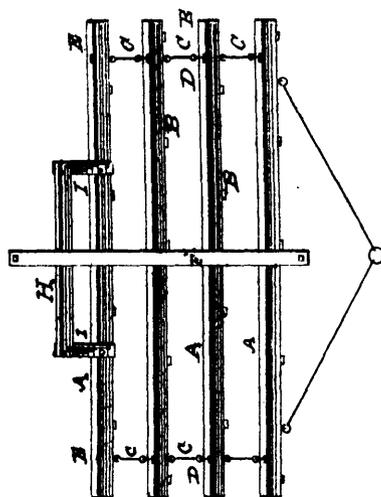
16967 Hurtle's Improvements in Vehicle Hubs.



16968 Smith's Improvements in Butter Plates.



16969 Carpenter's Improvements in Barbed Fence Wire.



16970 Privett's Improvements in Harrows.

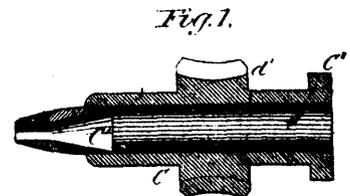


Fig. 1.

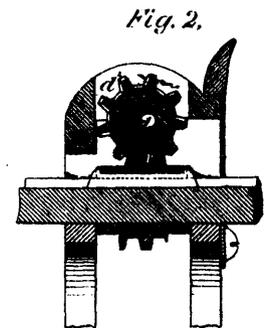
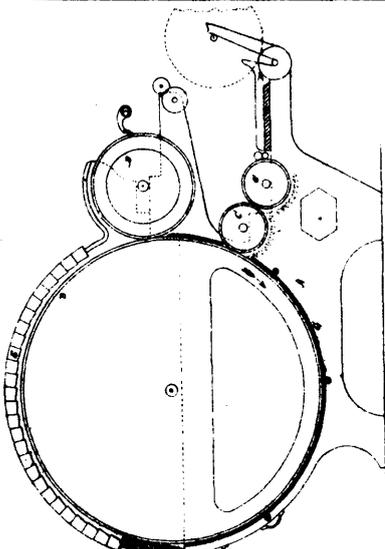
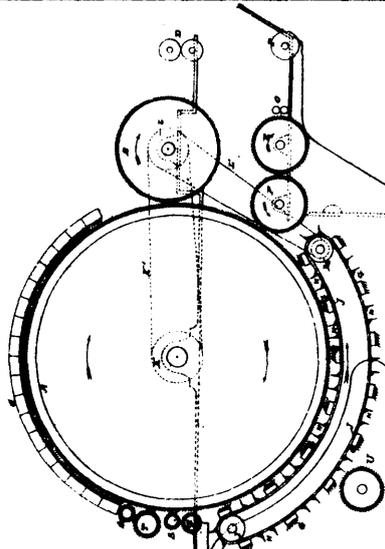


Fig. 2.

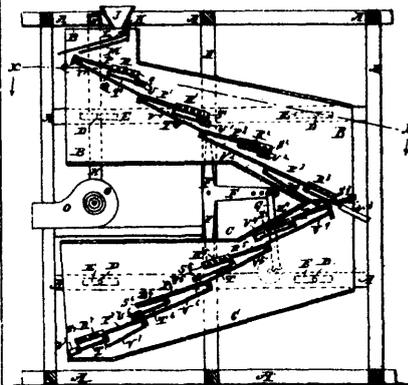
16971 Atherton's Condenser for Roving Machines.



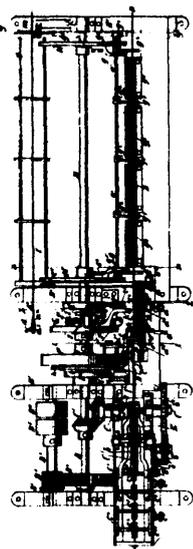
16972 Whitehead's Improvement in Carding Machines.



16973 Whitehead's Improvement in Carding Machines.



16974 Wild's Improvements in Grain Cleaners, Separators and Graders.



18975 Weber's Machine for making Bale Bands.

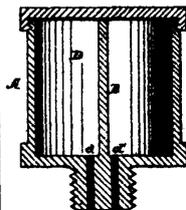


Fig. 1.

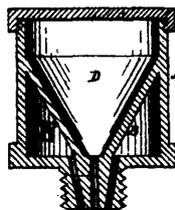
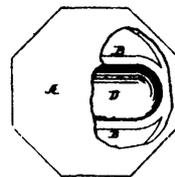
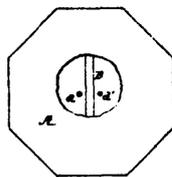
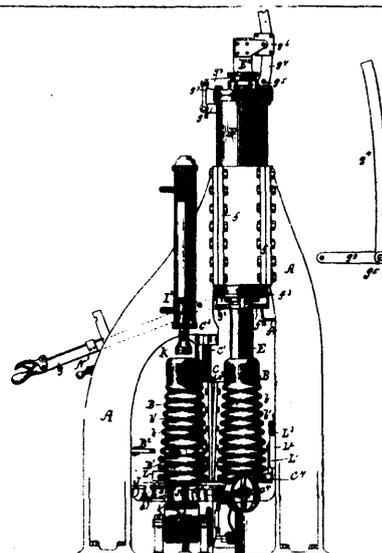


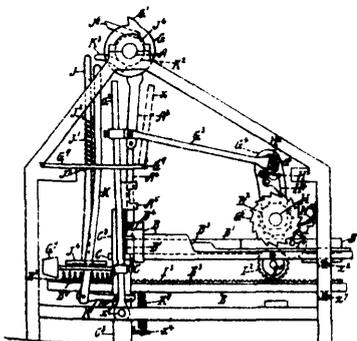
Fig. 3.



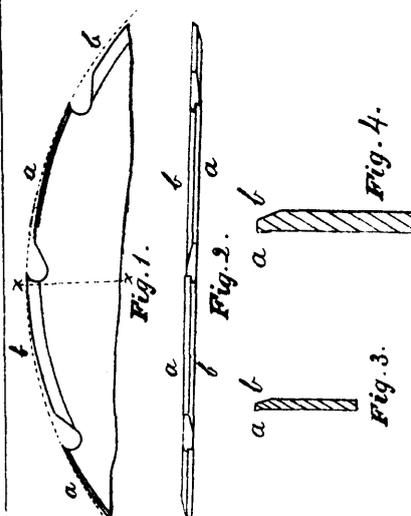
18976 Ruggles' Improvements in Oil Cups.



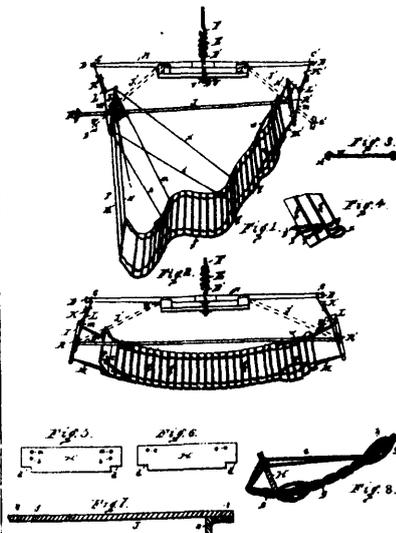
16977 Smith's Machine for Consolidating Loose and Bulky Material into Solid Blocks.



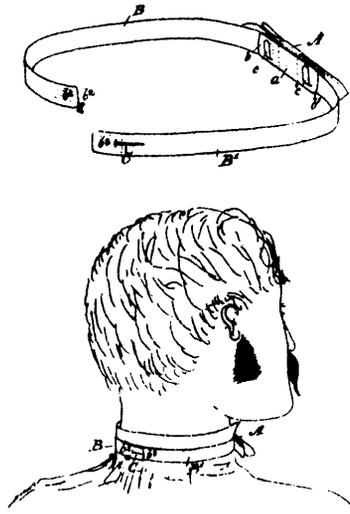
18978 Westlake's Improvements in Match Machines.



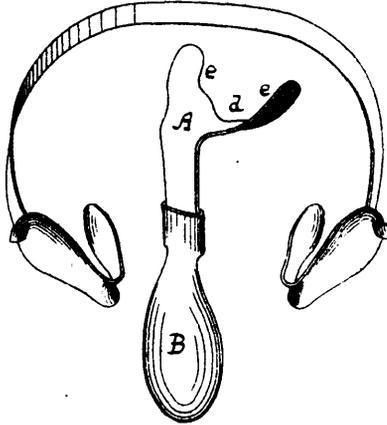
18979 Douglas's Improvements in Saws.



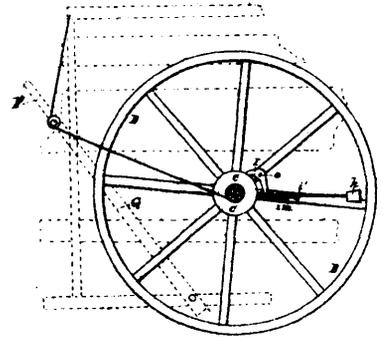
16980 Moore's Improvements in Hammocks and Hammock Chairs.



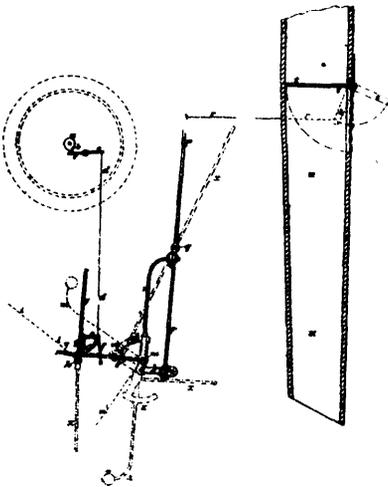
16981 Jack's Improvements in Neck-Ties



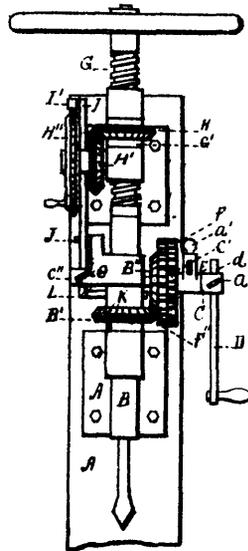
16982 Doyle's Improvement in Oral Speculums



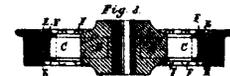
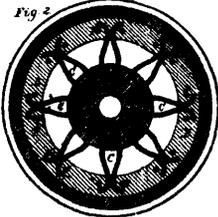
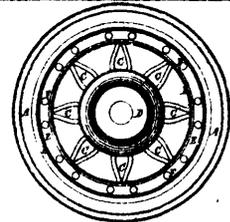
16983 Rouse's Horse Power Speed Regulator.



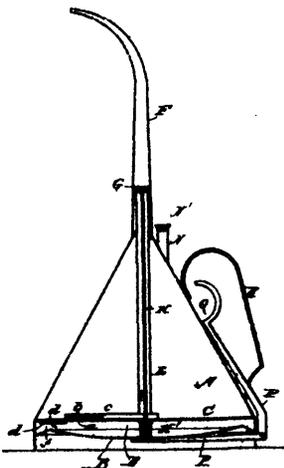
16984 Milbourne's Apparatus for Feeding Horses and Cattle.



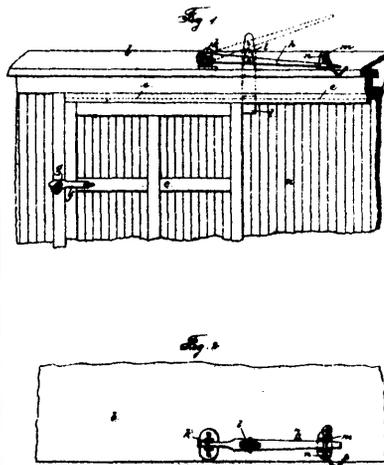
16985 Taft's Improvements in Drilling Machines.



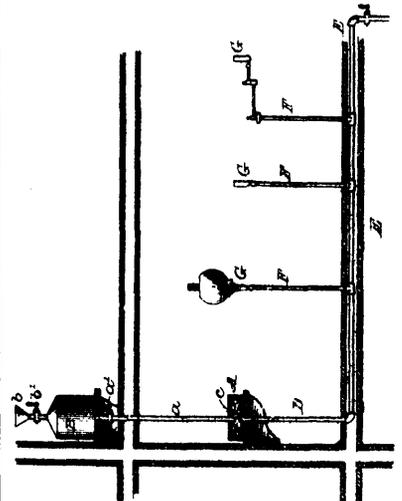
16986 Washburn's Improvement in Car Wheels.



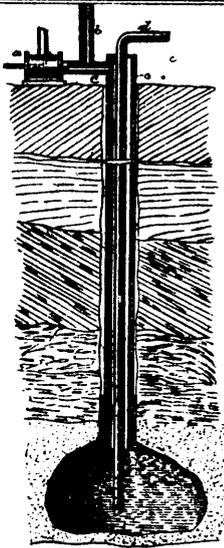
16987 St. Pierre's Improvements in Oil Cans.



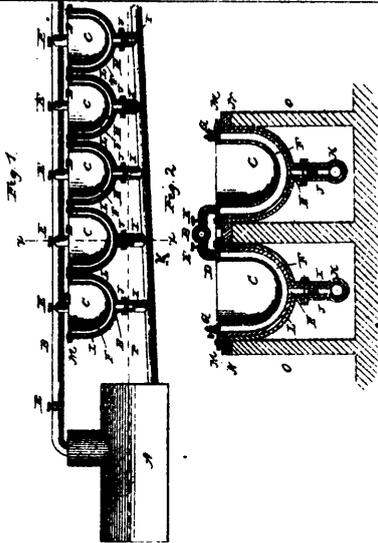
16988 Scanlan's Improvements in Car Door Fasteners.



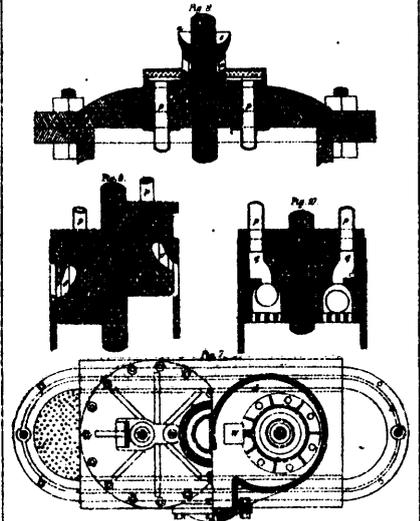
16989 Burchfield's Improvements in Hydro-Carbon Lamps.



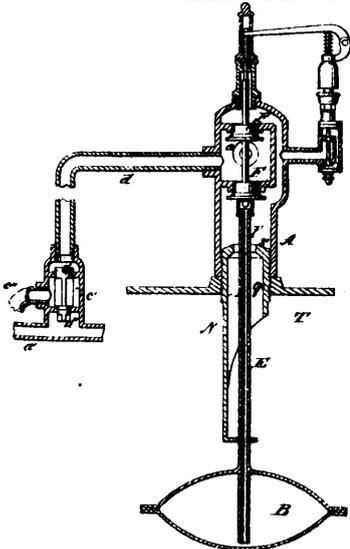
16890 Smith's Method of, and Apparatus for making and raising Brine from deep Veins.



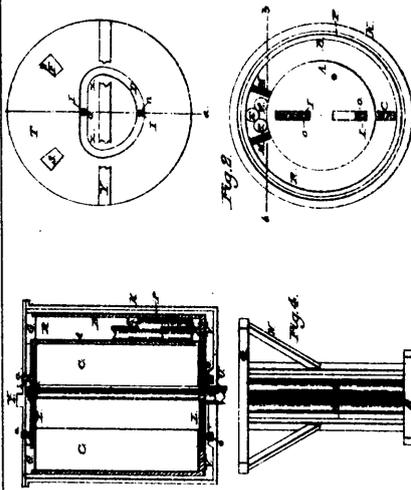
16891 Taber's Improvements in Evaporating Apparatus.



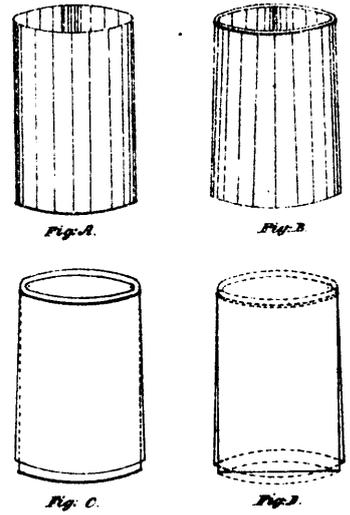
16892 Donaldson's Improvements in Hydraulic Engines.



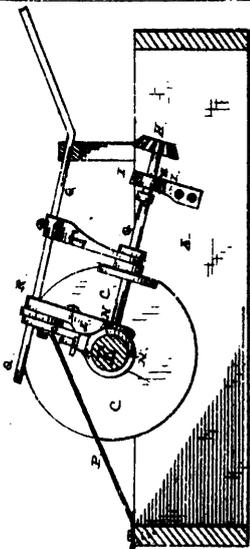
16893 Clarke's Feed Water Regulator and Alarm for Steam Boilers.



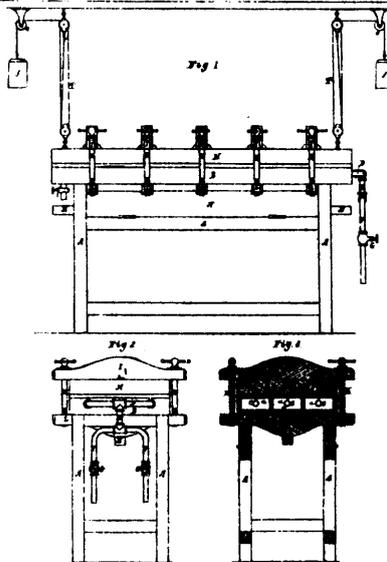
16894 Jones' Improvements in Rotary Engines or Pumps.



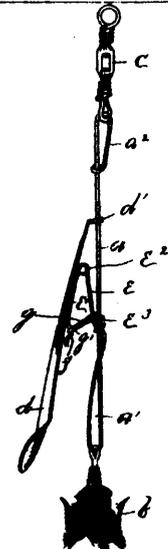
16895 Levi's Improvement in Canning Meat, Fish, Fruit, &c.



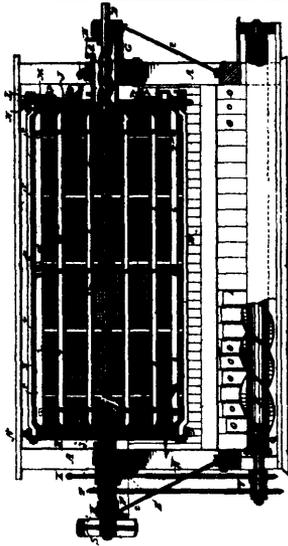
18996 Reamy's Feed Mechanism for Saw Mills.



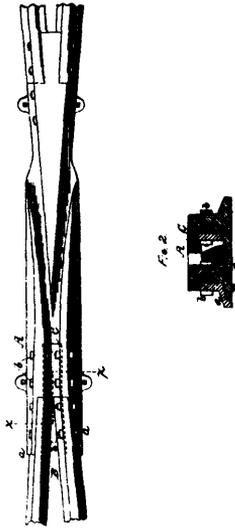
16897 Goff's Improvement in Veneering Presses.



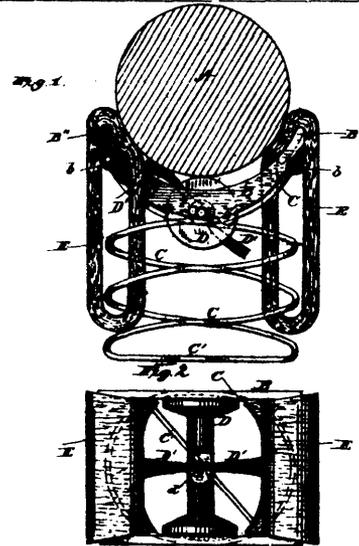
16898 Lowe's Improvements in Spoon Bolts.



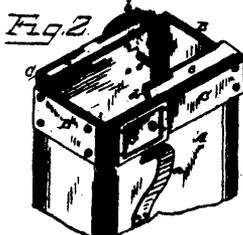
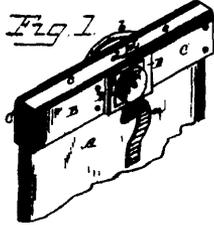
16999 Walterhouse's Improvements in Centrifugal Reels.



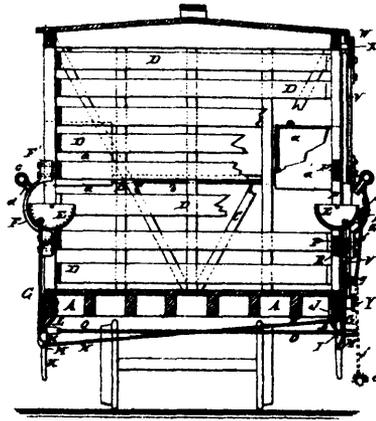
17000 Pierce's Improvements in Railway Frogs.



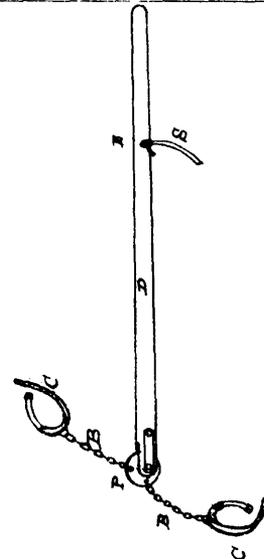
17001 Mitchell's Improvements in Car Axle Lubricators



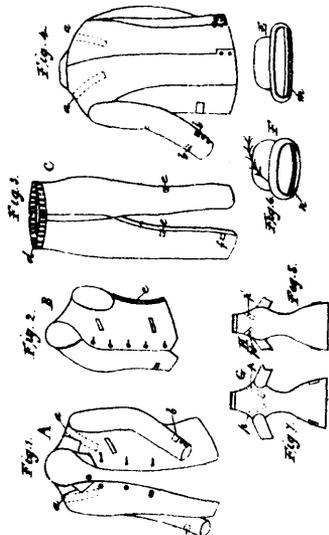
17002 Hawn's Improvements in Mail Bags.



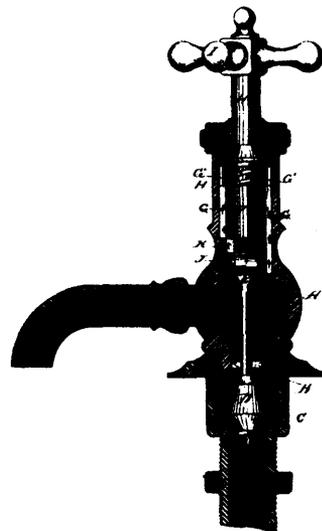
17003 Gilbert's Improvements in Stock Cars.



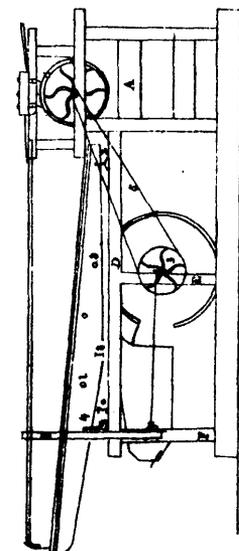
17004 Swan's Improvements in Hampers for Horses.



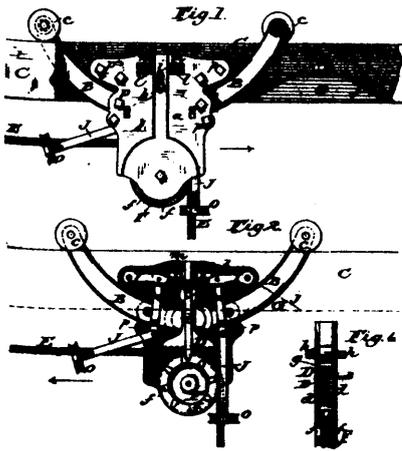
17005 Mode of applying Magnetism to the Human Body.



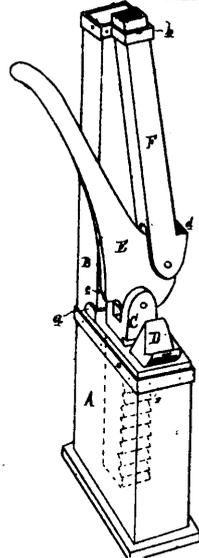
17006 Whittaker's Improvements in Faucets.



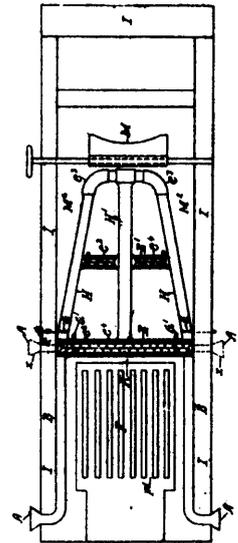
17007 Hall and West's Grain Thrashing and Separating Machines.



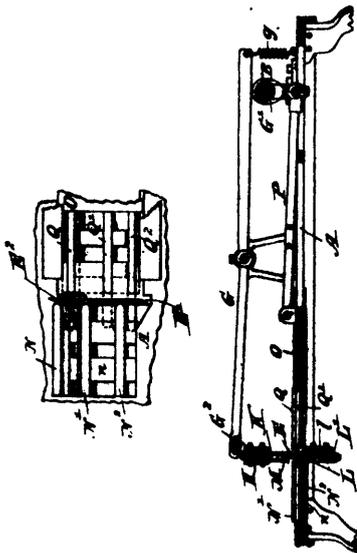
17008 Harrington's Hay Elevator and Carrier.



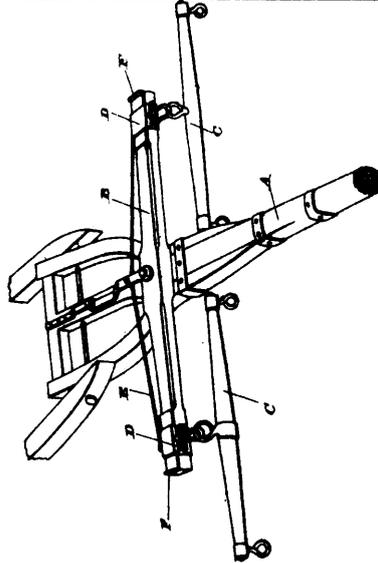
17009 Woodward's Improvements in Waggon Jacks.



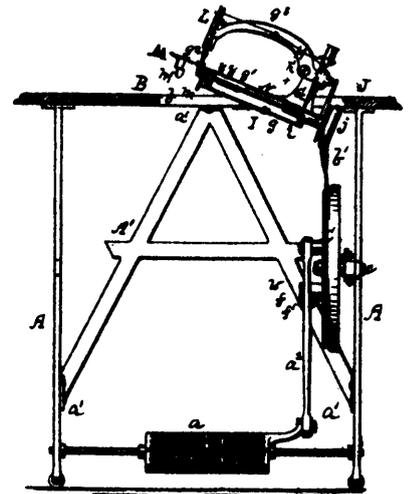
17010 Beasley's Smoke and Gas Consuming, and Fuel Saving Furnace.



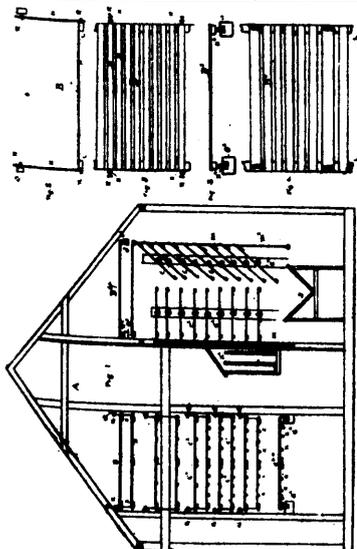
17011 Root's Machine for forming Staples.



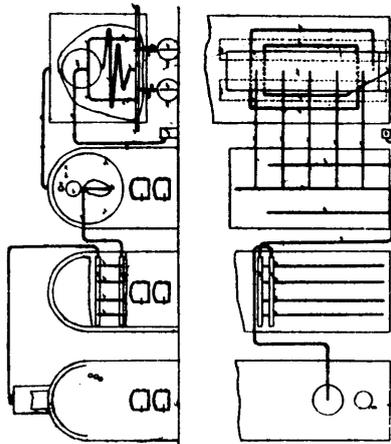
17013 How's Improvements in Double Trees.



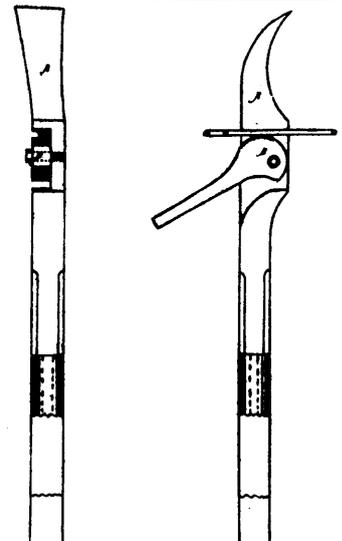
17014 Whitney's Improvements in Sewing Machines.



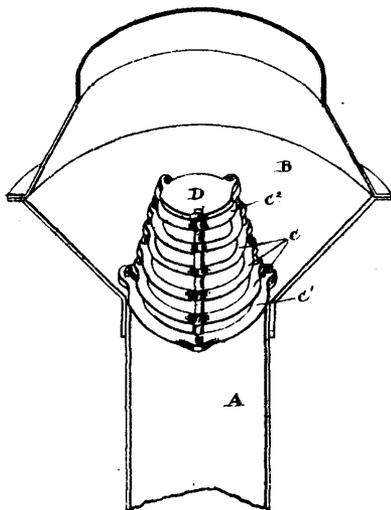
17015 Fall's Starch Drying House.



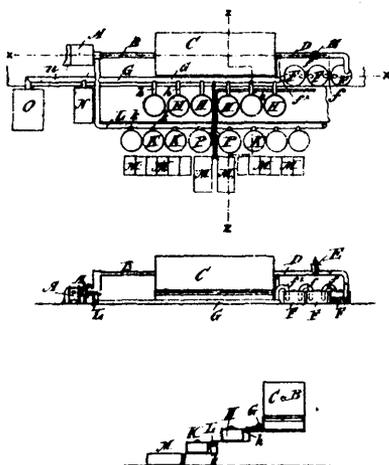
17016 Grove's Process for reducing Crude and Inferior Oils.



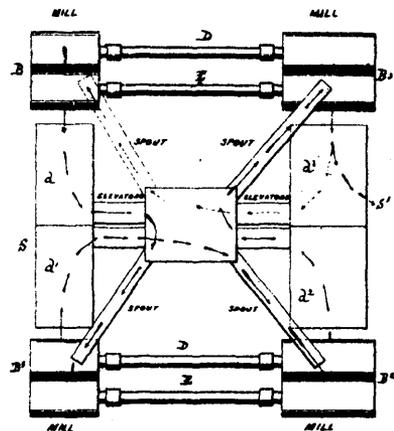
17017 Brisbol's Improvements in Wire Stretchers.



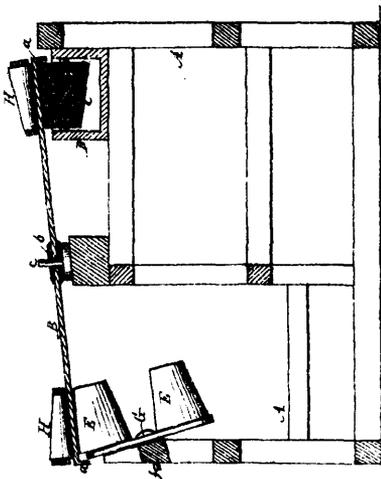
17018 Patterson's Improvements in Spark-Arresters.



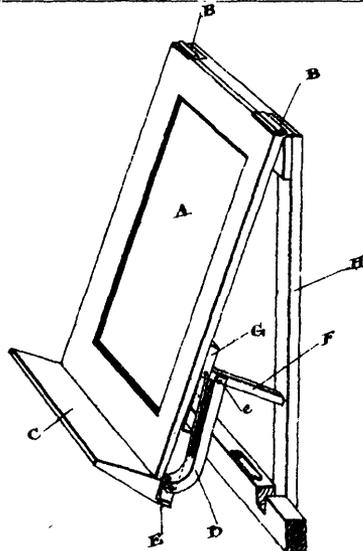
17019 Thomson's Process for Treating Copper Pyrites.



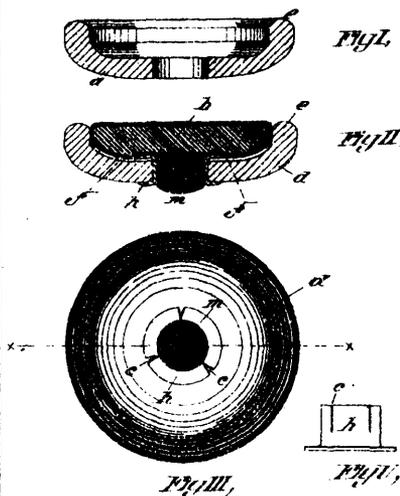
17020 Gray's Grain Gradual Reduction Machine.



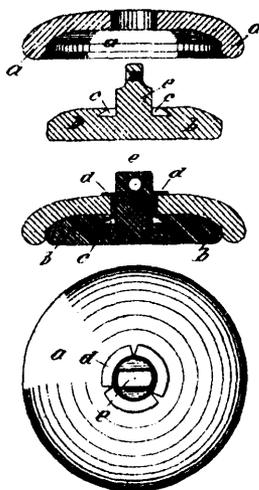
17021 Johnson's Apparatus for making Paper Vessels.



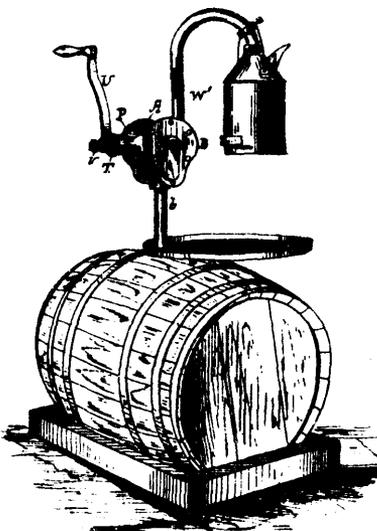
17022 Heintzman's Music Desk for Upright Planos.



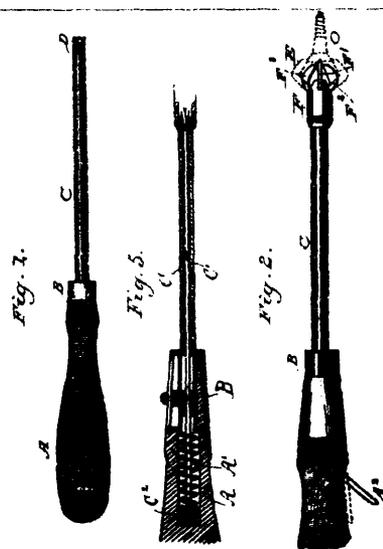
16023 Newell's Improvements in Buttons



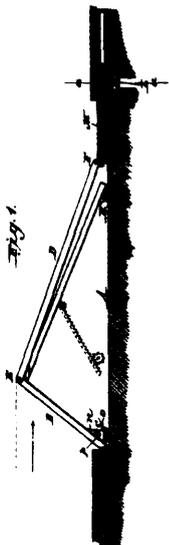
16024 Newell's Improvements in Buttons.



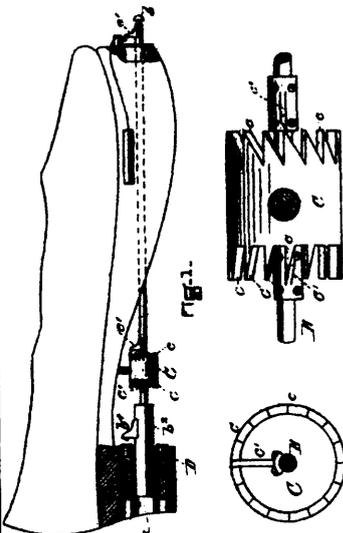
17025 Marchand's Improvements in Measuring Pumps.



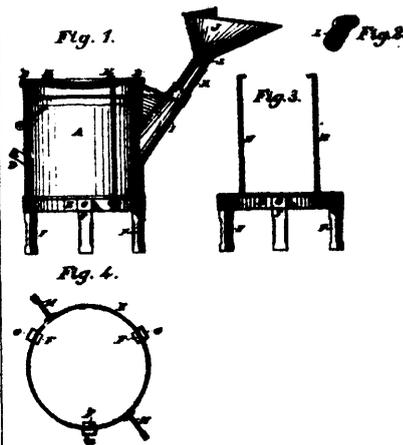
17026 Thomas' Screw-Driver and Screw-Adjuster



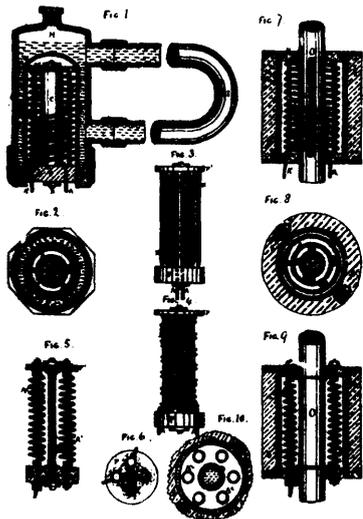
17027 DuBois' Improvements in Movable Dams.



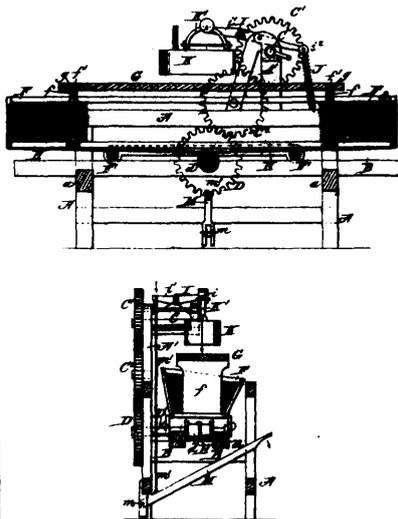
17028 Cassidy's Improvements in Clogs or Shoes.



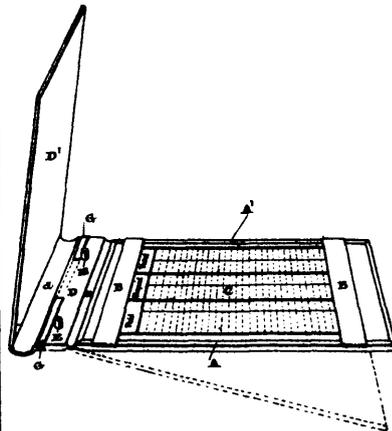
17029 Woodward's Combined Milk Bucket and Stool.



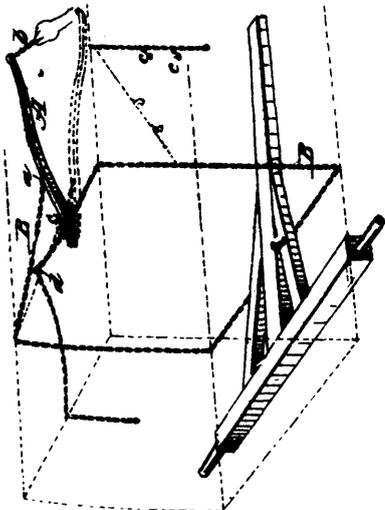
17030 Rose's Electric Heating Apparatus.



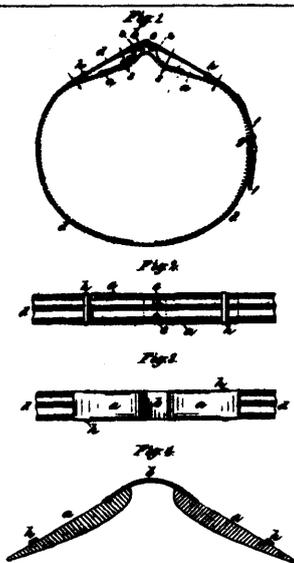
17031 Cottingham's Improvements in Ironing Machines.



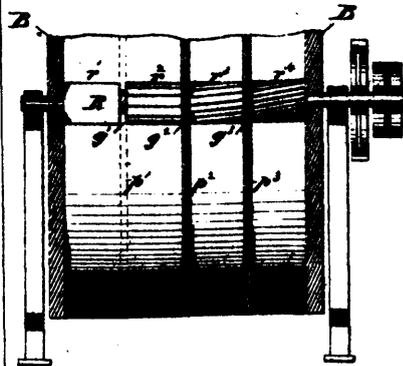
17032 Powley's Black Leaf Memorandum Book.



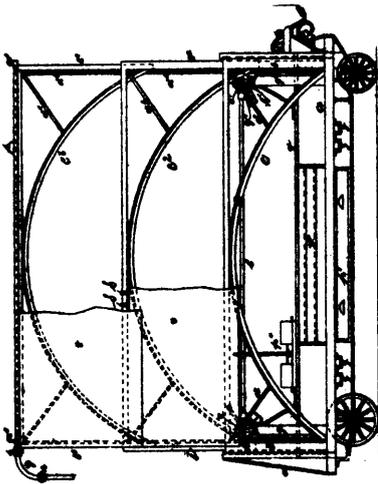
17033 Carlsen's Binding Pole and Chain.



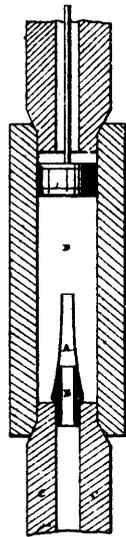
17034 Dowlin's Improvements in Surcingles.



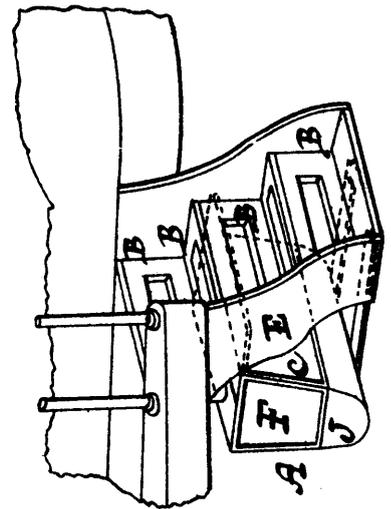
17035 Goldie and McCulloch's Improvements in Roller Mills.



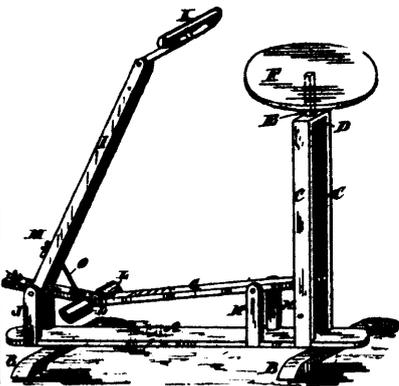
17036 Richard's Portable Combined Fire-Arrester and Fire-Escape.



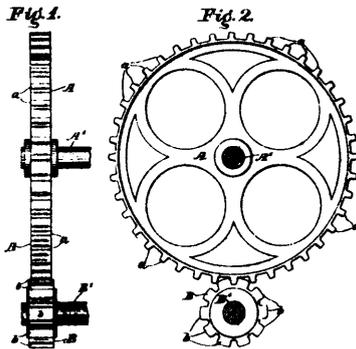
17037 Irving's Improvements in Pumps.



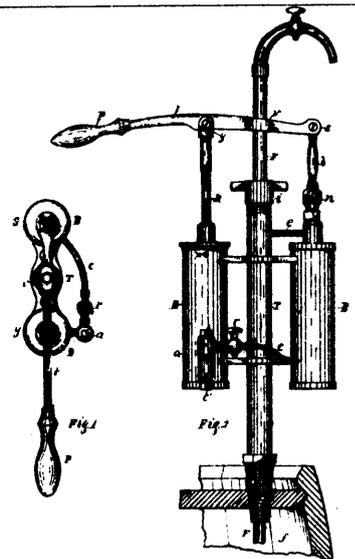
17038 Hunt's Device for Lighting the Steps of Cars.



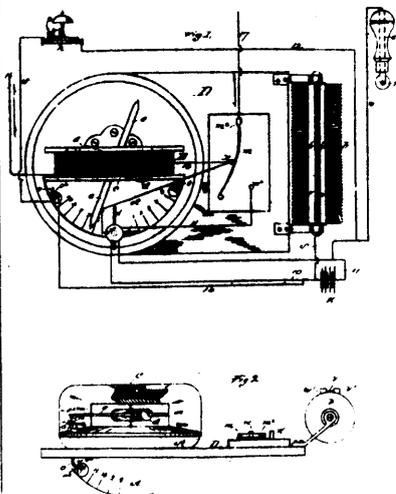
17039 Bates' Improvements in Manual Powers.



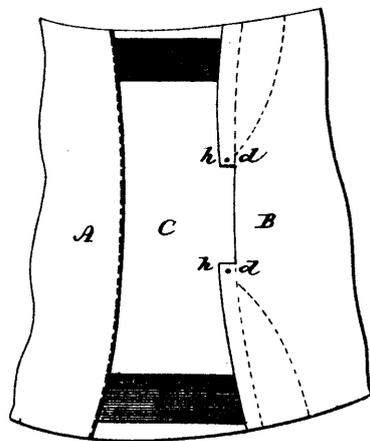
17040 Gilliland's Improvements in Gearing.



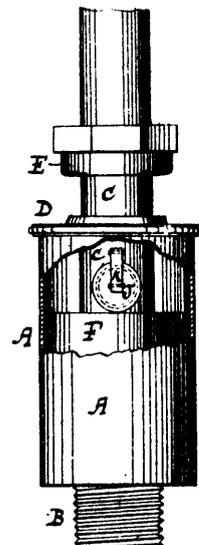
17041 Lillienfeld's Improvements in Force Pumps.



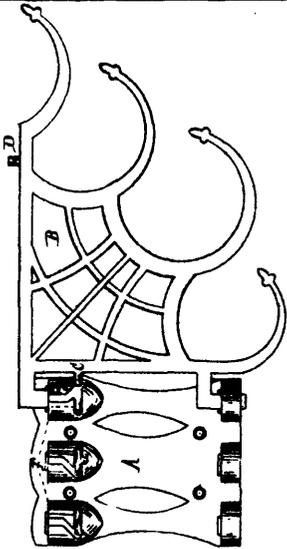
17042 Southworth's Electrical Signalling Apparatus.



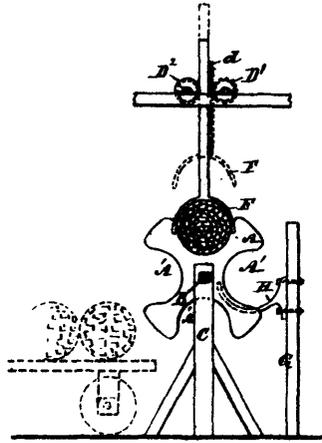
17043 Chadwick's Improvements in Corsets.



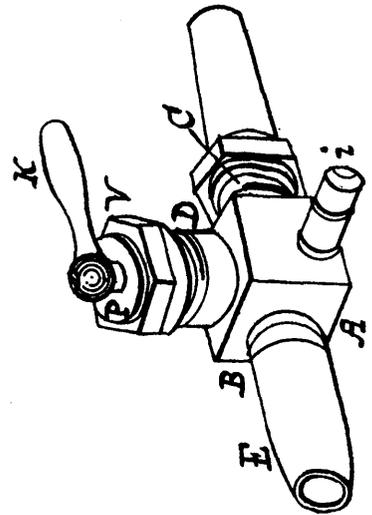
17044 Pietsch's Improvements in Stench Traps.



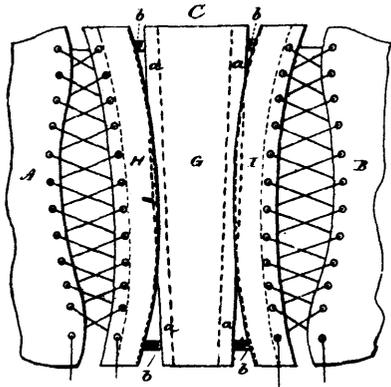
17045 Baer's Improvements in Brackets.



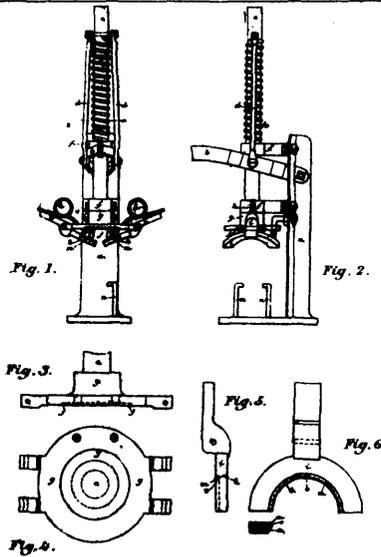
17046 Dexter & Rathbun's Lath Bundling Machine.



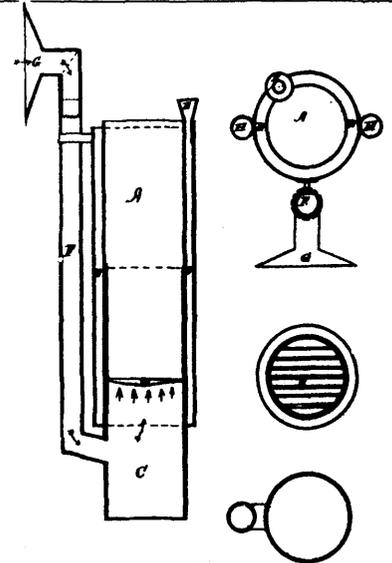
17047 Lamping's Improvements in Stop and Waste-Cocks.



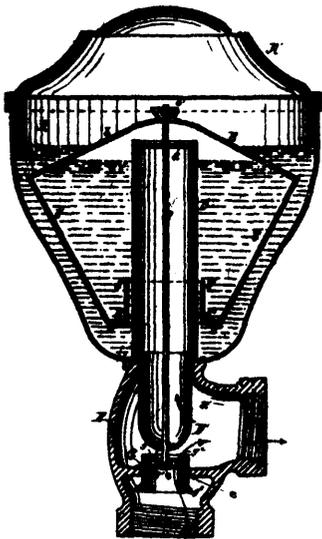
17048 Strouse's Improvements in Corsets.



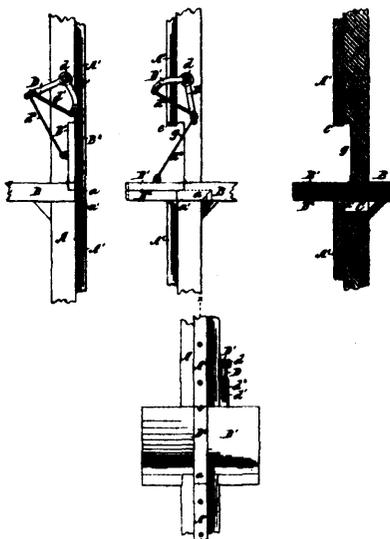
17049 Marsh's Machine for Heading Cans.



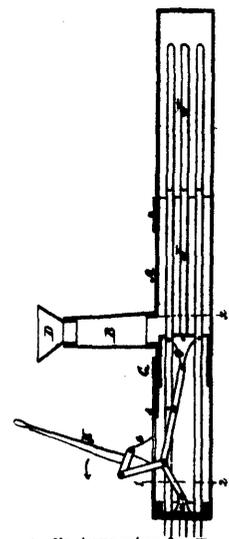
17050 Payzant's Machine for Extracting Fish Oil.



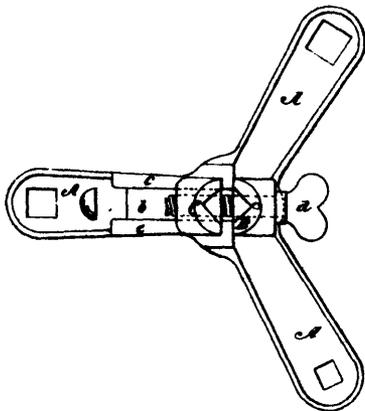
17051 Sleeman's Improvements in Gas Regulators.



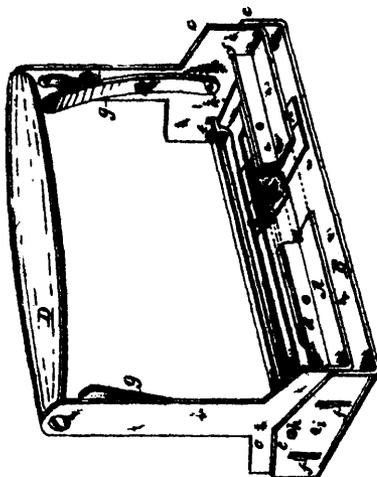
17062 Miller's Improvements in Hoists.



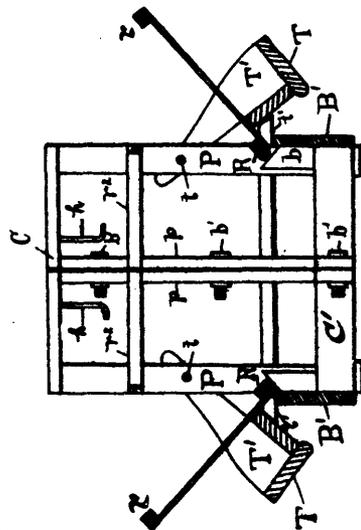
17063 Campbell's Apparatus for Forming Continuous Pipes or Tubes of Concrete or like Material.



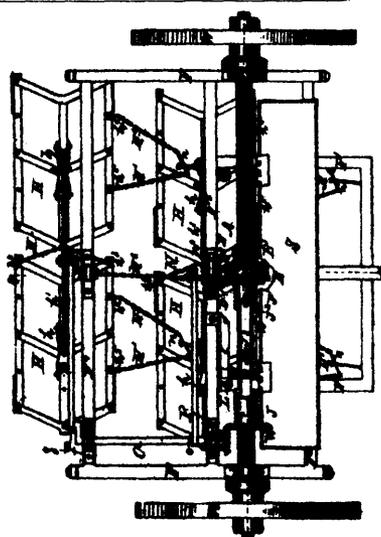
17054 Giles' Improvement in Wrenches.



17055 Bennett's Improvement in Stencil Holders.



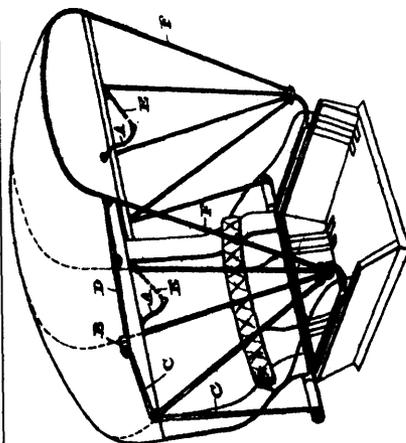
17056 Yost's Combined Sheep Rack and Trough.



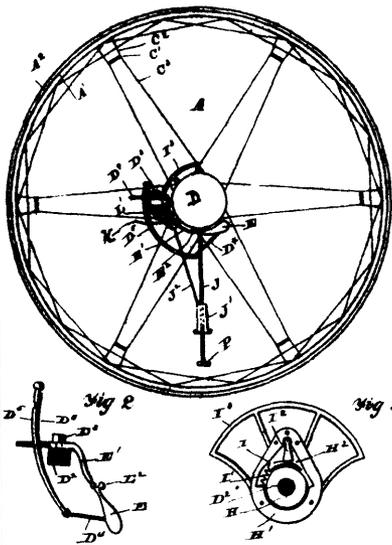
17057 Scarr & Smith's Combined Harrow and Seeder.



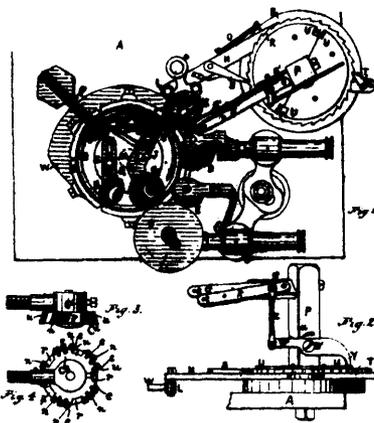
17059 Conboy's Improvements in Carriage Tops.



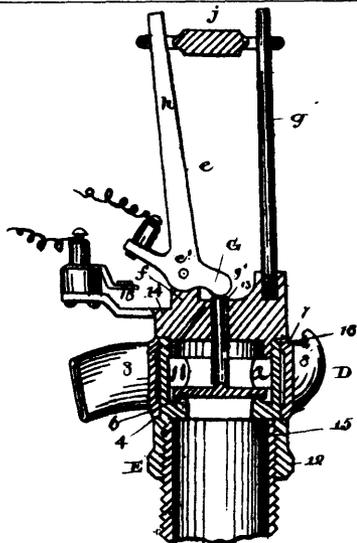
10760 Conboy's Improvements in Buggy Tops.



17061 Ahlert's Improvements in Velocipedes.



17662 Bradley's Circular Knitting Machine.



17063 Neracher's Fire-Extinguisher and Alarm Apparatus.

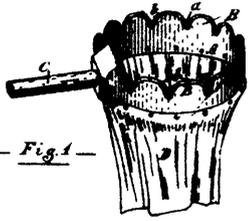


Fig. 1

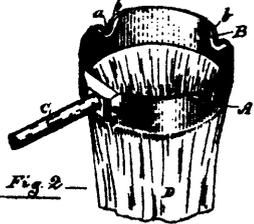
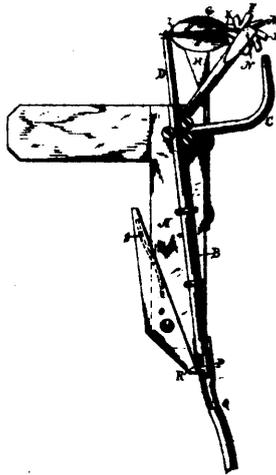


Fig. 2

17064 McKillop's Improvements in Fruit Pickers.



17066 Peeler's Improvements in Pigment Distributors.

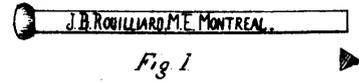


Fig. 1

Fig. 2

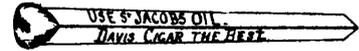


Fig. 3

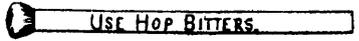


Fig. 4

Fig. 5

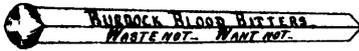


Fig. 6

17067 Rouillard's Safety and Advertising Match.

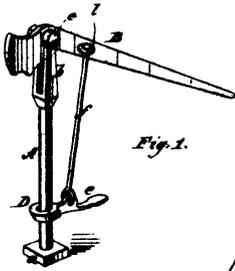


Fig. 1

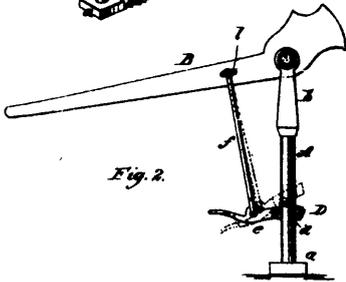
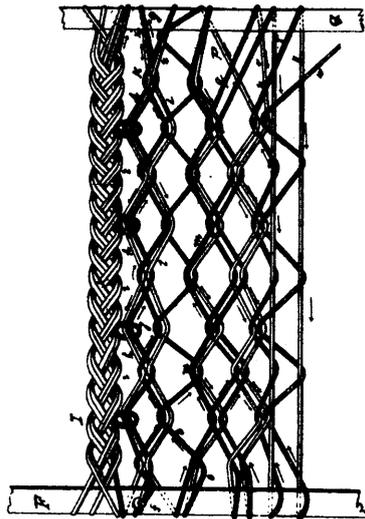
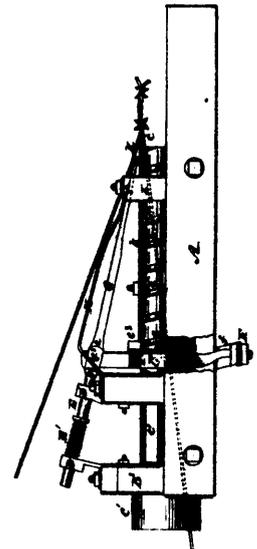


Fig. 2

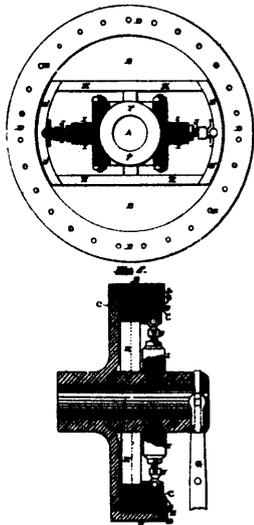
17068 Furman's Improvement in Waggon Jacks.



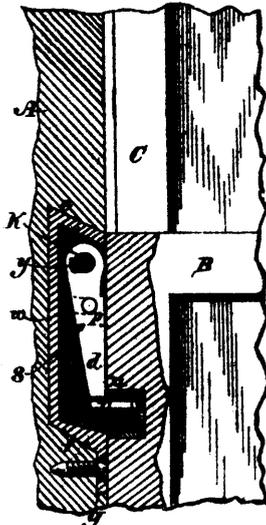
17069 Rood's Improvements in Hammocks.



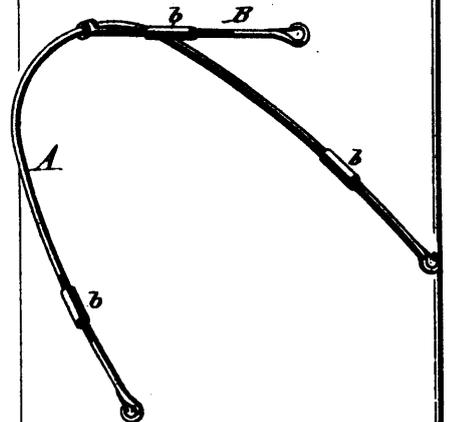
17070 Burrows' Machine for Applying Bars to Fence Wire.



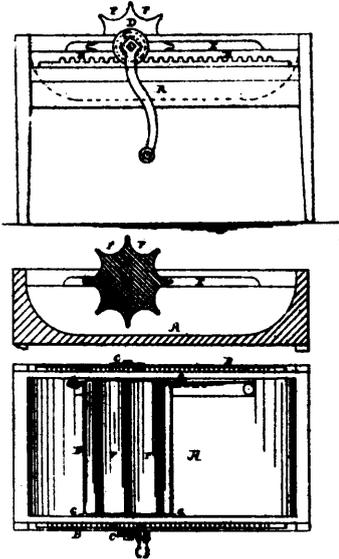
17071 King's Friction Clutch and Loose Pulley



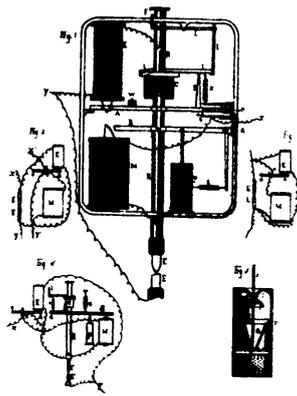
17072 Attwell's Improvements in Sash Fasteners.



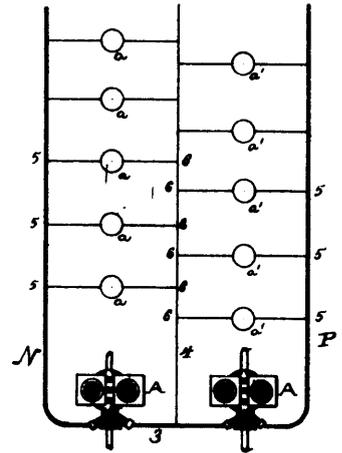
17073 Chute's Improvements in Rein Guards.



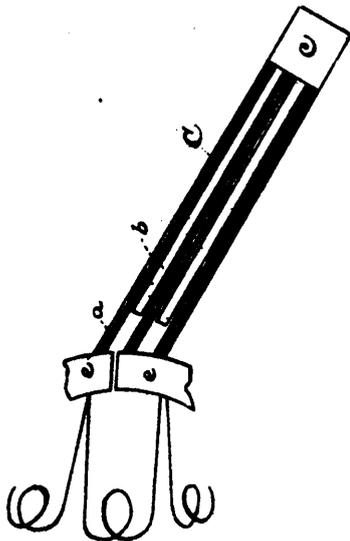
17074 Horn's Improvements in Butter Workers.



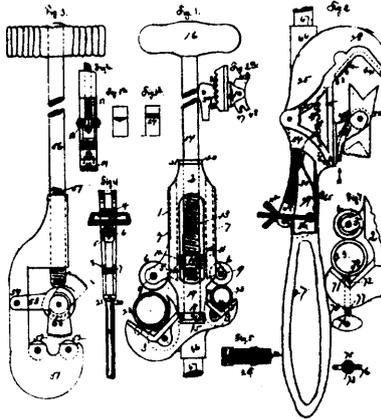
17075 Thomson's Improvements in Electric Arc Lamps.



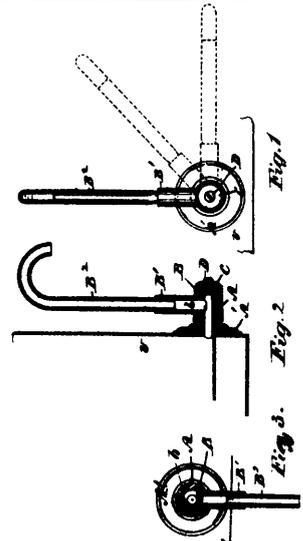
17076 Edison's System of Electrical Distribution.



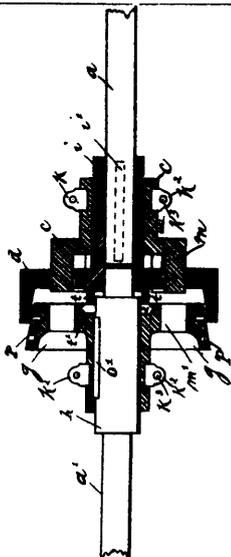
17077 Edison's Improvements in Electrical Generators and Motors.



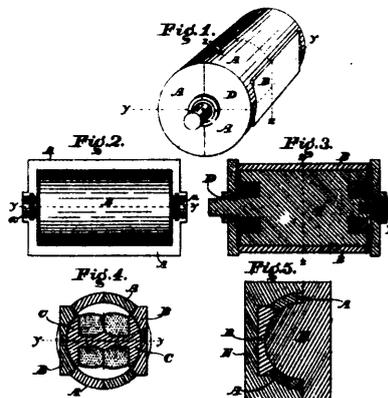
17078 Lancaster's Pipe Cutter, Wrench and Burr Scraper Combined.



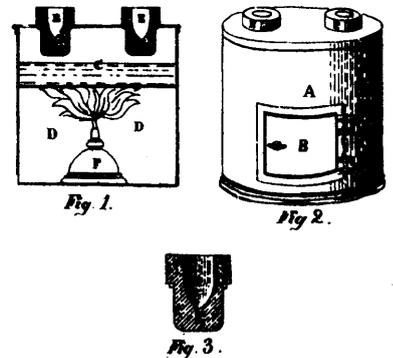
17079 Green's Improvements in Taps and Cocks.



17080 Wilkinson's Improvements in Clutches.



17081 Gilliland's Cylinder for Rotary Armatures.



17083 Meyersahm's Machine for Perfecting Cigars.

FIG. 1.



FIG. 2.



FIG. 3.

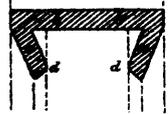


FIG. 4.



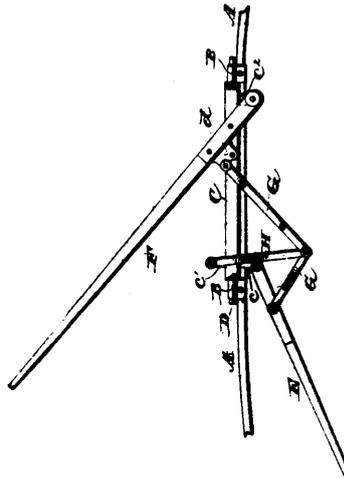
FIG. 5.



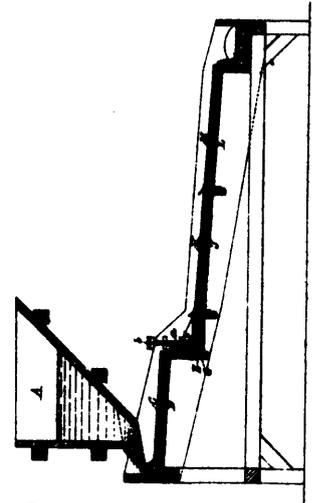
FIG. 6.



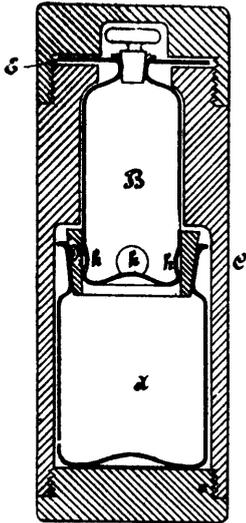
17084 Carmont's Improvements in Wheel Tires.



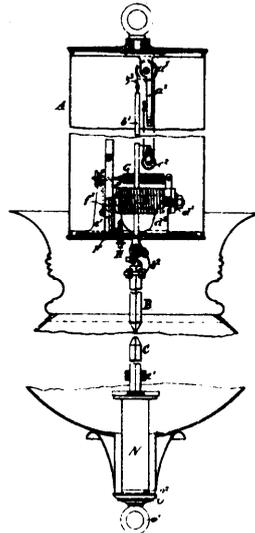
17085 Cassaday & Smith's Improvements in Rowing Oars.



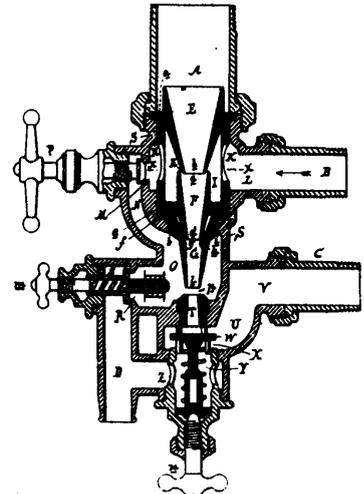
17087 Tanner's Apparatus for Washing and Separating Gold and Silver from their Ores.



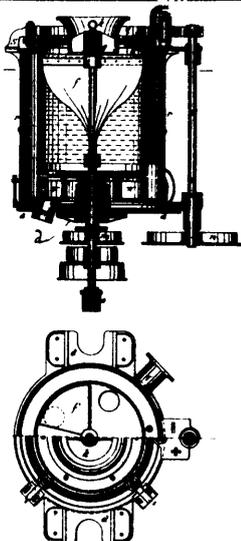
17088 Hellhoff's Explosive Matter and Method for Using it.



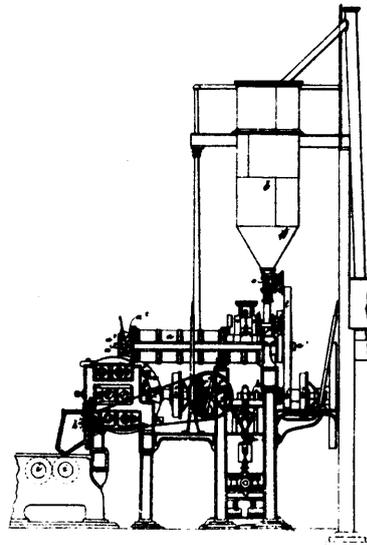
17089 Gulcher's Improvements in Electric Lamps.



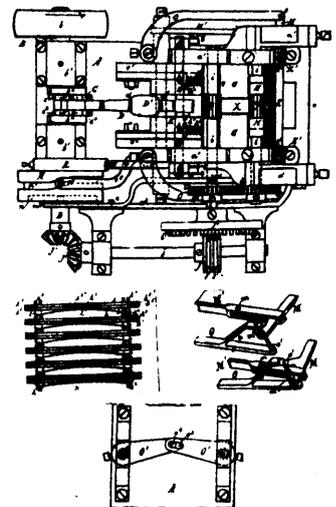
17091 Murdock's Improvements in Injectors.



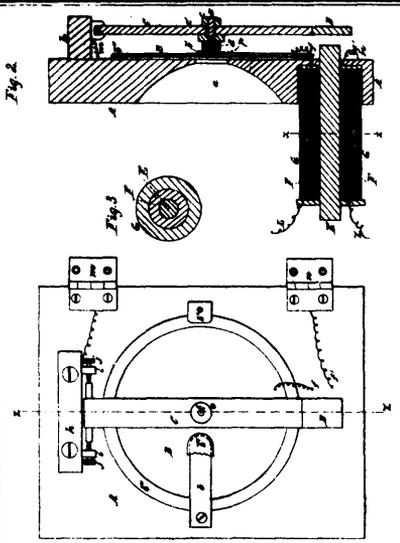
17092 Kaiser's Sorting Machine for Wood Pulp, &c.



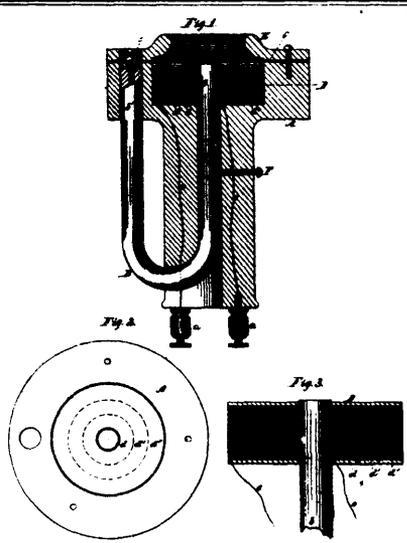
17093 Nairn's Machinery for the Manufacture of Linoleum, &c.



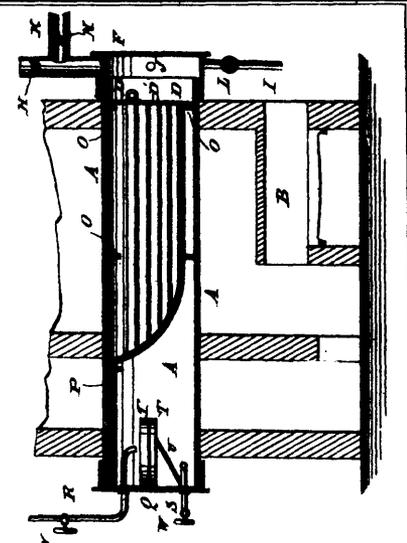
17094 Steber's Improvements in Match Machines.



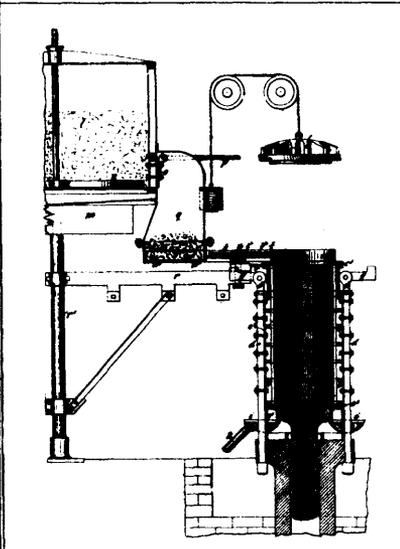
17095 Baxter's Telephonic Transmitter.



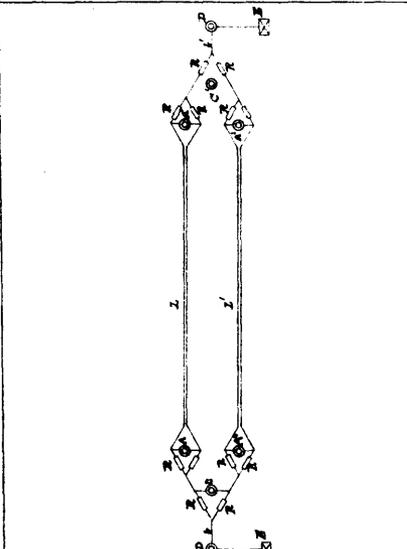
17096 Baxter's Telephonic Receiver.



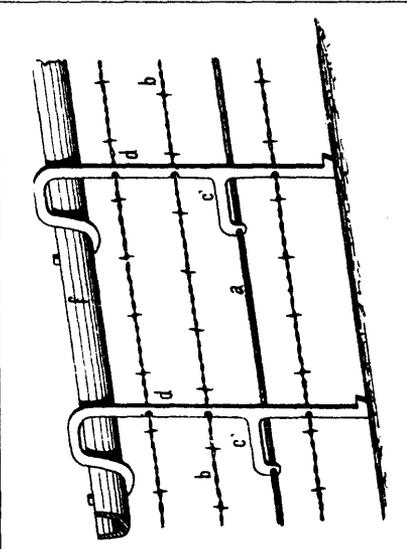
17097 Gross' Improvement in Gas Retorts.



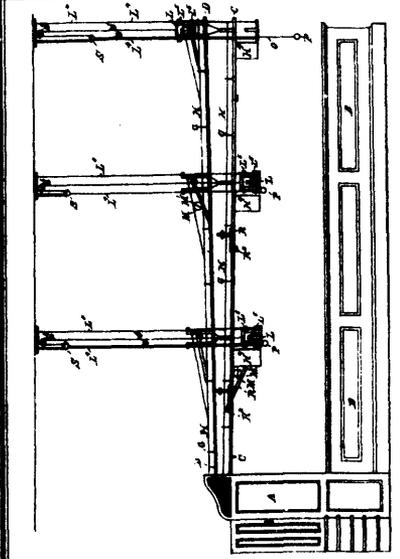
17098 Bushell and Haydon's Improvements in Oil Presses.



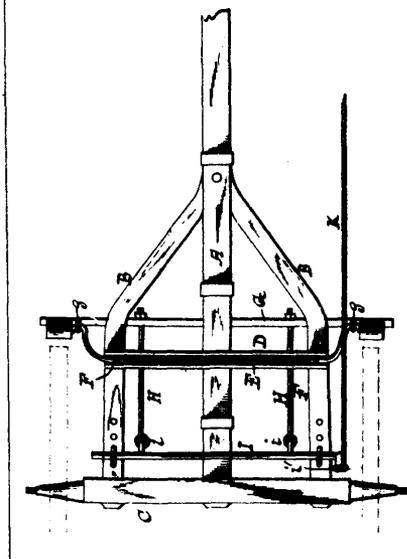
17099 Jacob's Improvements in Electrical Conductors.



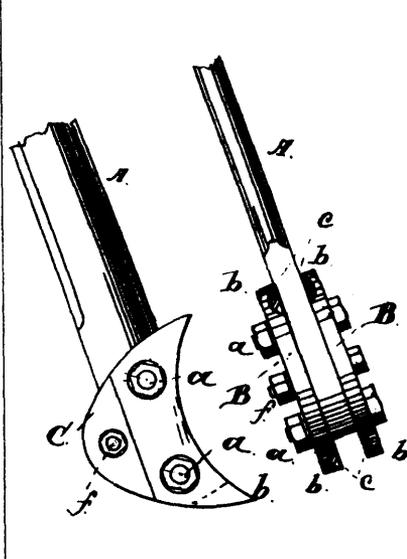
17100 Pieper's Barbed Wire Fence.



17101 Lamson's Automatic Cash Carrier.



17102 Welch's Improvements in Vehicle Brakes.



17103 Lakey's Improvements in Claw Bars.

INDEX OF INVENTIONS.

Alarm apparatus, W. Neracher.....	17,003
" and regulator, J. S. Clarke.....	16,993
Armatures, cylinder for, J. F. Gilliland.....	17,031
Bags, mail, W. Haron.....	17,002
Balls, spoon, W. T. J. Lowe.....	16,998
Band machine, bale, G. Nicholson.....	16,975
Beds, sofa, H. F. Hover.....	16,910
Board, sounding, F. Pitt.....	16,944
Boilers, steam, H. Stollwörck.....	16,903
Bolts, flour, H. A. Graeter.....	16,897
Books, memorandum, G. Powley.....	17,032
" " The Grip Printing and Publishing Co.....	16,930
Boxes, car axle, E. Whiting.....	16,947
Brackets, G. W. Baor.....	17,045
Brakes, vehicle, B. E. Welch.....	17,102
Brick machines, E. F. Andrews.....	16,902
Brine rail-lug apparatus, G. H. Smith.....	16,990
Bucket and stool, A. Woodward.....	17,029
Bulky and loose material, The Smith Consolidation Co.....	16,977
Bundling machine, lath, J. W. Dester et al.....	17,046
Burr scraper, J. H. Lancaster.....	17,078
Busks, corset, A. E. Mann.....	16,900
Butter workers, C. C. Horn.....	17,074
Buttons, N. C. Newell.....	17,023
Canning meat, etc., T. Levi.....	16,995
Cans, machine for heading, G. A. Marsh.....	17,049
" oil, X. St. Pierre.....	16,987
Car steps, lighting, G. W. Hunt.....	17,038
Carding machine, The Whitehead and Atherton Machine Co.....	16,972
Carriage tops, H. F. Coombs.....	16,964
Carrier, hay, E. Harrington.....	17,005
Cars, grain, T. T. Prosser.....	16,907 16,908 16,928
" stock, M. G. Gilbert.....	17,003
Cases, watch, E. A. Mickle.....	16,893
Cash carriers, The Lamson Cash Railway Co.....	17,101
Cement, hydraulic, W. McKay.....	17,053
" roofing, W. L. Malby.....	17,012
Chain and pole, binding, F. M. Carsen.....	17,033
Chairs, hammock, C. Moore et al.....	16,980
Cigars, machine for perfecting, A. Meyersahm.....	17,083
Claw bars, J. H. Lakey.....	17,103
Cleaners, grain, C. R. Wild.....	16,974
Clogs or shoes, J. Cassidy.....	17,028
Clothes, wire, The E. T. Barnum Wire and Iron Works.....	16,987
Clutch, friction, The Vulcan Iron Works Co.....	17,071
Clutches, E. Wilkinson.....	17,080
Cocks and taps, J. Green.....	17,079
" stop, J. H. Blessing.....	16,903
" and waste, J. F. Lamping.....	17,047
Colouring matter, H. W. Vaughan.....	16,890
Condenser, The Whitehead and Atherton Machine Co.....	16,971
Conductors, electrical, T. Jacob.....	17,099
Consolidating machine, The Smith Consolidation Co.....	16,977
Cooking stoves, E. Julien.....	16,966
" and drying, grain, S. E. Worrel.....	16,917
Corsets, C. N. Chadwick.....	17,043
" J. Strouse.....	17,048
Couplings, car, C. B. and J. Tucker.....	16,888
" " C. H. Pelton et al.....	16,884
" " F. Thörten.....	16,948
" " H. Keller.....	16,896
" " L. Hatfield.....	16,982
" " L. N. Bedford.....	16,953
Cups, oil, The Ruggles Duplex Oil Cup Co.....	16,976
Cutter, pipe, J. H. Lancaster.....	17,078
Cylinder for armatures, J. F. Gilliland.....	17,081
Cylinders, engine, H. D. Garrett.....	16,905
Dams, movable, J. DuBois.....	17,027
Desk, music, T. A. Heintzman.....	17,022
Distributors, pigment, L. Walkrip.....	17,066
Doubletrees, E. How.....	17,013
Drilling machines, C. C. Taft.....	16,985
Drivers, screw, M. B. Crawford.....	16,886
Dryers, fruit, C. B. Irish.....	16,924
Drying and cooling, grain, S. E. Worrel.....	16,917
" house, starch, G. E. Full.....	17,015
Dust guard, J. H. Reynolds.....	16,957
Dye stuffs, H. W. Vaughan.....	16,891
Eggs, process for preserving, F. W. Storms.....	17,090
Electric distribution, E. Thomson.....	16,911

Electrical conductors, F. Jacobs.....	17,000
" distribution, T. A. Edlson.....	17,076
" generators, T. A. Edlson.....	17,077
Elevator, hay, E. Harrington.....	17,008
Elevators, L. D. Hawkins.....	16,935
Engines, hydraulic, W. Donaldson.....	16,992
" rotary, S. D. Jones.....	16,991
" steam, J. S. Parmenter.....	16,926
Evaporating apparatus, T. P. Taber.....	16,991
Evaporators, fruit, C. B. Irish.....	16,924
Explosive matter, A. Hellhoff et al.....	17,088
Extractors, spike, A. B. Prout.....	16,887
Fasteners, sash, E. B. Attwell.....	17,072
" window, W. R. Miller et al.....	16,934
Fastenings, door, J. Scanlan.....	16,988
Faucets, C. Whittaker.....	17,006
" J. Howes.....	16,961
Feed mechanism, F. J. Reamy.....	16,996
Feeding apparatus, horse, J. P. Milbourne.....	16,934
Fence, barbed wire, C. Pieper.....	17,100
" wire, machine for applying barbs to, Worcester Barb Fence Co.....	17,070
Fibrous material, H. W. Vaughan.....	16,890
Filing machine, saw, A. B. Fisher.....	16,909
Fire damp indicating device, I. Kitsee.....	16,940
Fire escape, S. Richards.....	17,036
" extinguisher, W. Neracher.....	16,063
Forks, pitch, F. L. Brandon.....	16,921
Frogs, railway, D. C. Pierce.....	17,000
Fruits, process for preserving, F. W. Storms.....	17,090
Furnace, smoke consuming, I. Beasley.....	17,010
" smelting, B. Bayliss.....	16,929
Gas retorts, M. Gross.....	17,097
Gearing, J. F. Gilliland.....	17,040
Generators, electrical, T. A. Edlson.....	17,077
Gold, washing and separating machine, W. J. Tanner.....	17,087
Graders, grain, C. R. Wild.....	16,974
Grain reduction machine, W. D. Gray.....	17,020
Grinders, sickle, W. S. Ingraham.....	16,885
Grinding mills, J. M. Collier.....	16,918
Guard, dust, J. H. Reynolds.....	16,957
Guards, rein, C. R. Chute.....	17,073
Hammocks, C. Moore et al.....	16,980
" V. P. Travers.....	17,069
Hampers for horses, C. Whittaker.....	17,004
Harness pads, P. H. Case.....	16,949
Harrow and seeder, A. C. Scarr et al.....	17,057
Harrow, J. D. Privett et al.....	16,970
Harvesters, D. Patterson.....	16,920
" J. H. Blain et al.....	16,936
" J. Keys.....	16,945
Heading machine, can, G. A. Marsh.....	17,049
Heater, feed water, R. W. Jones.....	16,883
Heating apparatus, electric, O. Rose.....	17,030
" stoves, E. Julien.....	16,966
Hinges strap, W. M. Kurtz et al.....	16,932
Holts, C. H. Miller.....	17,052
Horse shoes, R. G. Wilcox.....	16,910
Hubs, vehicle, F. M. Hurlie.....	16,967
Indicating device, fire damp, I. Kitsee.....	16,940
Injectors, H. B. Murdock.....	17,091
Ink printing, J. B. Grant et al.....	17,065
Ironing machines, G. W. Cottingham.....	17,031
Jacks, wagon, A. B. Furman et al.....	17,068
" A. N. Woodard.....	17,009
Kettles and pots, D. Snyder.....	16,901
Knitting machines, J. Bradley.....	16,941
Lamps electric, E. Thomson.....	17,075
" R. J. Gillicher.....	17,083
" hydro-carbon, J. R. Burchfield.....	16,989
Leather, manufacture of, J. Shaw.....	17,086
Lightning device, G. W. Hunt.....	17,038
Lining vessels, compound for, E. G. Frisble.....	16,942
Linoleum, manufacture of, M. B. Nairn.....	17,093
Locks, N. J. Colé et al.....	16,927
Loose and bulky material, The Smith Consolidation Co.....	16,977
Lubricators, axle, W. G. Mitchell.....	17,001
Magnetism, mode of applying, W. Malloy.....	17,005
Match, advertising, J. B. Rouillard.....	17,067
" machines, B. T. Steber.....	17,094
" H. Westlake et al.....	16,978
Mills, grinding, J. M. Collier.....	16,918
" roller, J. Goldie et al.....	17,085
" testing roller, W. D. Gray.....	16,950
Motors, electrical, T. A. Edlson.....	17,077
Mowing machines, J. Savoie.....	16,895
Neck ties, J. M. Jack et al.....	16,981

Oars, rowing, W. L. Cassaday et al.....	17,085
Oil cups, The Ruggles Duplex Oil Cup Co.....	16,976
Oil extracting machine, F. Payzant.....	17,050
Oils, process for reducing, W. Groves.....	17,016
Ovens, portable, S. J. McDowell et al.....	16,933
Packages, butter, C. D. Van Allen et al.....	16,938
Packers, flour, J. Handy et al.....	16,890
Pads, harness, P. H. Case.....	16,949
Plano fortes, F. Pitt.....	16,944
Planos, upright, T. A. Helntzman.....	17,022
Pickers, fruit, A. McKillop.....	17,004
Pigment distributors, L. Walkrip.....	17,066
Pinchers and wrench, S. L. Willmer.....	16,889
Pipe cutter, J. H. Lancaster.....	17,073
" forming apparatus, W. M. Campbell.....	17,053
Piston heads, H. D. Garrett.....	16,905
Plauters, corn, R. O. Robinson.....	16,923
Plates, butter, The Smith Mnf'g Co.....	16,968
Pole and chain, binding, H. M. Carlsen.....	17,033
Pots and kettles, D. Snyder.....	16,901
Power, horse, J. A. Rouse.....	16,983
" manual, J. Bates.....	17,039
Preserving process, F. W. Storms.....	17,090
Presser, oil, W. Bushell et al.....	17,098
" veneering, R. Goff.....	16,997
Pulley, loose, The Vulcan Iron Works Co.....	17,071
Pulp machines, R. Cartmell.....	16,955
" sorting machine, N. Kaiser.....	17,092
Pumps, J. G. Irving.....	17,037
" force, D. Johnson et al.....	16,914
" " D. Lillfeldt.....	17,041
" measuring, H. E. Marchand.....	17,025
" rotary, S. D. Jones.....	16,994
Purifier, feed water, R. W. Jones.....	16,883
Pyrites, process for treating copper, G. Thomson.....	17,019
Rack and trough, A. R. Yost et al.....	17,056
Rakes, horse, J. E. Beauchemin.....	16,882
Receiver, telephonic, The Overland Telephone Co.....	17,096
Reels, centrifugal, J. J. A. Waterhouse.....	16,999
Regulator, feed water, J. S. Clarke.....	16,993
Regulator, speed, J. A. Rouse.....	16,983
" gas, N. Sleeman.....	17,051
Rein guards, C. R. Chute.....	17,073
Retorts, gas, M. Gross.....	17,007
Roofing cement, W. L. Maltby.....	17,012
" machines, The Whitehead & Atherton Machine Co.....	16,970
Saddles, riding, J. Bassler.....	16,951
Sash fasteners, E. B. Attwell.....	17,072
Saw machines' drag, G. G. Seeger.....	16,912
Saws, C. H. Douglas, et al.....	16,979
Scraper, burr, J. H. Lancaster.....	17,078
Screw-driver, C. Thomas.....	17,026
" M. B. Crawford.....	16,886
Seeder and harrow, A. C. Scarr et al.....	17,057
Separating machines, T. Hall et al.....	17,007
Separators, grain, C. R. Wild.....	16,974
Sewing machines, J. H. Whitney.....	17,014
" " R. M. Wanzer.....	16,931
Shoes or clogs, J. Cassidy.....	17,028
Shovel, snow, H. W. Staples.....	16,959
Signalling apparatus, H. W. Southworth.....	17,542
Silver washing and separating machine, W. J. Tanner.....	17,087
Sofa beds, H. F. Hover.....	16,919
Sorting machine, pulp, N. Kaiser.....	17,092
Sounding board, F. Pitt.....	16,944
Spark-arresters, T. Patterson.....	17,018
Speculums, oral, J. H. Doyle et al.....	16,982
Spike extractors, A. P. Prout.....	16,887
Splindles for shuttles, W. T. Coggeshall.....	16,956
Spoon balts, W. T. J. Lowe.....	16,998
Springs, vehicle, C. R. and J. C. Wilson.....	16,925
Staple forming machine, W. A. Root.....	17,011
Steam generating stoves, E. Jullen.....	16,966
Stencil holders, C. H. Bennett.....	17,055
Stockings, elastic, D. D. M. Master.....	16,906
Stool and bucket, A. W. downward.....	17,029
Stoves, camp, S. J. McDowell et al.....	16,913
Stoves, E. Jullen.....	16,968
Stretchers, wire, M. Brisebols.....	17,017
Surcingle, M. R. Dowlin.....	17,034
Tanning process, T. P. Tucker.....	17,082
Taps and cocks, J. Green.....	17,079
Telephonic receiver, The Overland Telephone Co.....	17,096
" transmitter, ".....	17,095
Testing roller mills, W. D. Gray.....	16,950
Thrashing machine, F. J. Craig.....	16,943
" " G. W. Sharp.....	16,946

Thrashing machine, T. Hall et al.....	17,007
Tire tighteners, S. Basford.....	16,915
Tires, wheel, W. H. Carnont.....	17,084
Tops, buggy, D. Conboy.....	17,060
" carriage, ".....	17,059
Transmitter, telephonic, The Overland Telephone Co.....	17,095
Traps stench, H. Pietsch.....	17,044
Trough and rack, A. R. Yost et al.....	17,056
Trucks, car, E. Whiting et al.....	16,904
Tube forming apparatus, W. M. Campbell.....	17,053
Tubs, butter, H. F. Coombs.....	16,965
Valves, J. H. Blessing.....	16,922
" check, ".....	16,903
" slide, F. W. Richardson.....	16,939
Vehicles, E. A. Loucks.....	16,960
Velocipedes, W. F., J. P. and J. G. Ahlert.....	17,061
Vessels, compound for lining, E. G. Frisbie.....	16,942
" paper, H. A. Johnson.....	17,021
Watch cases, E. A. Muckle.....	16,893
Wheels, car, N. Washburn.....	16,956
Whippetrees, E. Howe.....	17,013
Windmills, R. O. Robinson.....	16,898
Window fasteners, W. R. Miller et al.....	16,934
Wire, barbed, G. M. Fish.....	16,916
" " J. Carpenter et al.....	16,989
Wire stretchers, M. Brisbols.....	17,017
Workers, butter, C. E. Horn.....	17,074
Wrench, J. H. Lancaster.....	17,078
Wrench and pinchers, S. L. Willmer.....	16,889
Wrenches, J. W. and F. F. Giles.....	17,054
Yokes, W. A. Baker.....	16,894

INDEX TO PATENTEES.

Abell, A., sewing machines.....	16,931
Ahlert, W. F., J. P. and J. G., velocipedes.....	17,061
Anderson, C. H., et al., neck ties.....	16,981
Andrews, E. T., brick machines.....	16,902
Atherton, A. T., condenser.....	16,971
Attwell, E. B., sash fasteners.....	17,072
Baer, G. W., brackets.....	17,045
Baker, W. A., wagon yokes.....	16,894
Barfoot, T., et al., printing ink.....	17,065
Barnum (The E. T.) Wire and Iron Works, wire cloths.....	16,937
Basford, S., tire tighteners.....	16,915
Bassler, J., riding saddles.....	16,951
Bates, J., manual powers.....	17,039
Baxter, M. L., telephonic receiver.....	17,096
" " transmitter.....	17,095
Bayless, B., smelting furnaces.....	16,929
Beasley, I., smoke consuming furnace.....	17,010
Beauchemin, J. E., horse rakes.....	16,882
Bedford, L. N., car-couplings.....	16,953
Bennett, C. H. and J. W., stencil holders.....	17,055
Blain, J. H. and A. L., et al., harvester.....	16,936
Blessing, J. H., valves.....	16,922
" " and cocks.....	16,903
Bradley, J., knitting machines.....	16,941
Brandon, F. L., pitch forks.....	16,921
Brisebols, M., wire stretchers.....	17,017
Burchfield, J. B., hydro-carbon lamps.....	16,989
Burrows, W. T., machine for applying barbs to fence-wire.....	17,070
Bushell, W., et al., oil presses.....	17,098
Campbell, W. M., pipe forming apparatus.....	17,053
Carlsen, H. M., binding pole and chain.....	17,033
Carnont, W. H., wheel tires.....	17,084
Carpenter, J., et al., barbed wire.....	16,969
Carter, J. R., memorandum books.....	16,930
Cartmell, R., pulp machines.....	16,955
Case, P. H., harness pads.....	16,949
Cassady, W. L., et al., rowing oars.....	17,035
Cassidy, J., clogs or shoes.....	17,028
Chadwick, C. N., corsets.....	17,043
Chapin, E. C., et al., saws.....	16,979
Chute, C. R., rein guards.....	17,073
Clarke, J. S., regulator and alarm.....	16,993
Climie, R. A. and J. M., et al., butter packages.....	16,938
Coggeshall, W. T., splindles for shuttles.....	16,956
Coiller, J. M., grinding mills.....	16,918
Combs, H. F., butter tubs.....	16,965
Conboy, D., buggy tops.....	17,060
" " carriage tops.....	17,059
Coombs, H. F., carriage tops.....	16,964
Cornell, W. F., et al., harvesters.....	16,936

Côté, N. J., et al.,	10,927
Cottingham, G. W., ironing machines.....	17,081
Cowan, J. P. and F., et al., force pumps.....	10,914
Craig, F. J., thrashing machines.....	10,943
Crawford, M. B., screw drivers.....	10,886
Dean, J. B., et al., wagon jacks.....	17,068
Dester, J. W., et al., lath bundling machine.....	17,046
Donaldson, W., hydraulic engines.....	10,992
Dorenwood, A., match machines.....	10,978
Douglas, C. H., et al., saws.....	10,999
Dowlin, M. R., surclings.....	17,034
Doyle, J. H., et al., oral speculums.....	10,982
Draper, J., et al., barrows.....	10,970
DuBois, J., movable dams.....	17,027
Edison, T. A., electrical distribution.....	17,076
“ “ generators.....	17,077
Elliott, G. M., et al., hammocks.....	10,980
Fish, G. M., barbed wire.....	10,916
Fisher, A. B., saw filing machines.....	10,909
Flitts, L., et al., barbed wire.....	10,969
Frisbie, E. G., compound for lining vessels.....	10,942
Full, G. E., starc' drying house.....	17,015
Furman, A. B., et al., wagon jacks.....	17,068
Garrett, H. D., piston heads.....	10,905
Gilbert, M. H., stock cars.....	17,003
Giles, I. W. and T. F., wrenches.....	17,054
Gilliland, J. F., cylinder for armatures.....	17,081
“ “ gearing.....	17,040
Goff, R., veneering presses.....	10,997
Goldie, J., et al., roller mills.....	17,035
Graeter, H. W., flour-bolts.....	10,897
Grant, J. B., et al., printing ink.....	17,065
Gray, W. D., grain reduction machine.....	17,020
“ “ testing roller mills.....	10,950
Green, J., taps and cocks.....	17,079
Greeson, H., et al., explosive matter.....	17,088
Grip (The) Printing and Publishing Co., memorandum books.....	10,930
Gross, M., gas retorts.....	17,097
Groves, W., process for reducing oils.....	17,016
Gütcher, R. J., electric lamps.....	17,089
Halbmayr, J., et al., explosive matter.....	17,088
Hall, T., et al., thrashing machines.....	17,007
Handy, J., et al., flour packers.....	10,899
Haron, W., mall bags.....	17,002
Harrington, E., hay elevator.....	17,008
Hatfield, L., car-couplings.....	10,958
Hawkins, L. D., elevators.....	10,935
Haydon, W. T., et al., oil presses.....	17,098
Helntzman, T. A., music desk.....	17,022
Hellhoff, A., et al., explosive matter.....	17,088
Holliday, R. A., et al., oral speculums.....	10,982
Hope, O., et al., oral speculums.....	10,982
Horn, C. E., butter workers.....	17,074
Hover, H. F., sofa beds.....	10,919
How, E., double-trees.....	17,013
Howes, J., faucets.....	10,961
Hunt, G. W., lighting device.....	17,038
Hurtle, F. M., vehicle hubs.....	10,967
Ingraham, W. S., sickle grinders.....	10,885
Irish, C. B., fruit evaporators.....	10,924
Irving, J. G., pumps.....	17,037
Jack, J. M., et al., neck ties.....	10,981
Jacob, F., electrical conductors.....	17,099
Johnson, D., et al., force pumps.....	10,914
“ H. A., paper vessels.....	17,021
Jones, R. W., heater and purifier.....	10,883
“ S. D., engines or pumps.....	10,991
Jullen, E., stoves.....	10,966
Kaiser, N., pulp sorting machine.....	17,092
Keller, H., car-couplings.....	10,896
Keys, J., harvesters.....	10,945
King, J., clutch and pulley.....	17,071
Kitsee, I., fire damp indicating device.....	10,940
Knight, J., et al., portable ovens.....	10,933
“ “ camp stoves.....	10,913
Kurtz, W. M., et al., strap hinges.....	10,932
Lakey, J. H., claw bars.....	10,103
Lamping, J. F., stop and waste cocks.....	17,047
Lamson (The) Cash Railway Co., cash carriers.....	17,101
“ W. S., cash carriers.....	17,101
Lancaster, J. H., pipe cutter, etc.....	17,078
Levi, T., canning meat, etc.....	10,995
Littenfeld, D., force pumps.....	17,041
Lord, D. H., et al., flour packers.....	10,899
Loucks, E. A., vehicles.....	10,960
Low, W. T. J., spoon balis.....	10,938
McCulloch, H., roller mills.....	17,035

McDowell, S. J., et al., camp stoves.....	10,918
“ “ portable ovens.....	10,933
McKay, W., hydraulic cement.....	17,058
McKillop, A., fruit pickers.....	17,064
Malloy, W., mode of applying magnetism.....	17,005
Maltby, W. L., roofing cement.....	17,012
Mann, A. E., corset busks.....	10,900
Marchand, H. E., measuring pumps.....	17,025
Marsh, G. A., can heading machine.....	17,049
Martin, D., et al., strap hinges.....	10,932
Master, D. D. M., elastic stockings.....	10,906
Meyersohn, A., machine for perfecting cigars.....	17,083
Milbourne, J. P., cattle feeding apparatus.....	10,984
Miller, C. H., holsts.....	17,052
“ W. R. and A. E., et al., window fasteners.....	10,934
Mills, saw, T. J. Reamy.....	10,996
Mitchell, G. W., axle lubricators.....	17,001
Moore, C. et al., hammocks.....	10,980
Mowry, G. W., preserving process.....	17,090
Muckle, E. A., watch cases.....	10,893
Murdock, H. B., injectors.....	17,091
Nairn, M. B., manufacture of linoleum.....	17,093
Neracher, W., fire extinguisher.....	10,063
Newell, N. C., buttons.....	17,023
Nicholson, G., bale band machine.....	10,975
Norman, A., mode of applying magnetism.....	17,005
Osgood, H. H., et al., harvesters.....	10,936
Overland (The) Telephone Co., telephonic receiver.....	17,096
“ “ “ transmitter.....	17,095
Payzaut, F., oil extracting machine.....	17,050
Parmenter, J. S., steam engines.....	10,926
Patterson, D., harvesters.....	10,920
“ T., spark-arresters.....	17,018
Peeler, A., pigment distributors.....	17,066
Pelton, C. H., et al., car-couplings.....	10,881
Pleper, C., barbed wire fence.....	17,100
Pierce, D. C., railway frogs.....	17,000
Pietsch, H., stench straps.....	17,044
Pitt, F., sounding board.....	10,944
Powley, G., memorandum book.....	17,032
Privett, J. D., et al., harrows.....	10,970
Prosser, T. T., grain cars.....	10,907 10,908 10,928
Prout, A. P., spike extractors.....	10,887
Raine, W., et al., window fasteners.....	10,934
Rathbun, E. W., et al., lath bundling machine.....	17,046
Reynolds, J. H., dust guard.....	10,957
Richards, S., fire escape.....	17,036
Richardson, F. W., slide valves.....	10,939
Robinson, K. O., corn planters.....	10,923
“ “ windmills.....	10,898
Rolland, J. B. L., et al., locks.....	10,927
Rood, A. O., hammocks.....	17,069
Root, W. A., staple forming machines.....	17,011
Rose, O., electric heating apparatus.....	17,030
Rouillard, J. R., advertising match.....	17,067
Rouse, J. A., speed regulator.....	10,983
Ruggles, T. D., oil cups.....	10,976
“ (The) Duplex Oil Cup Co., oil cups.....	10,976
Savoie, J., mowing machines.....	10,895
Saw-mills, T. J. Reamy.....	10,996
Scanlan, J., door fastenings.....	10,988
Searr, A. C., et al., harrow and seeder.....	17,057
Seeger, G. G., drag saw machines.....	10,912
Sharp, G. W., thrashing machines.....	10,946
Shaw, J., manufacture of leather.....	17,086
Sleeman, N., gas regulators.....	17,051
Smith, D. D., et al., harrow and seeder.....	17,057
“ F. D., et al., rowing cars.....	17,085
“ G. H., brine raising apparatus.....	10,990
“ J. M., et al., car trucks.....	10,904
“ J. N., car trucks.....	10,904
“ S. H., butter plates.....	10,968
“ (The) Consolidation Co., consolidating machine.....	10,977
“ T. L., wire cloths.....	10,937
“ (The) Mfg Co., butter plates.....	10,968
“ W. H., consolidating machine.....	10,977
“ W., et al., harvesters.....	10,936
Snyder, D., pots and kettles.....	10,901
Stouthworth, H. W., signalling apparatus.....	17,012
St. Pierre, X., oil cans.....	10,987
Staples, H. W., snow shovels.....	10,959
Stober, B. T., match machines.....	17,094
Stollwerck, H., steam boilers.....	10,963
Storms, F. W., preserving process.....	17,090
Strouse, I., corsets.....	17,048
Taber, F. P., evaporating apparatus.....	10,991
Taft, G. C., drilling machines.....	10,985

