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CONTENTS.

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. 17,408. Dynamo and Magneto Electric Machine. (*Machine electro dynamique et magnétique.*)

William Hochhausen, New-York, N. Y., U. S., 26th July, 1883; 15 years.

Claim.—1st. The combination, with an adjustable commutator, on a dynamo electric machine, of an electric motor geared to said commutator and reversing appliances for automatically reversing the direction of movement of said motor simultaneously, with any change in the normal strength of the current of said machine. 2nd. The combination, with an adjustable commutator and a rotary electric motor geared thereto, of a circuit controller for controlling the direction of the current flowing through said motor, and an armature which actuates the circuit controller and is energized or controlled directly or indirectly by variations in the electro magnetic action of currents supplied from the machine. 3rd. The combination, with an adjustable commutator, of an electric motor geared thereto and placed in a branch of the main current, and means for automatically reversing the direction of movement of said motor upon a variation in the current flowing in the circuit supplied by the machine. 4th. The combination, with *an adjustable frame or support for the commutator brushes*, of a segmental gear formed upon or attached to said frame and actuating devices gearing with said rack and reversed in accordance with variations in the current flowing in the circuit supplied by the machine. 5th. The combination, with an adjustable commutator on a dynamo electric machine, of a rotary motor geared thereto and means for reversing said motor controlled by an armature that is supported by the field magnet and arranged to be actuated by the magnetic attraction thereof. 6th. The combination, with an adjustable commutator on a dynamo electric machine, of a rotary motor, a reducing gear interposed between the motor and the commutator, and means for reversing the motor automatically as the currents in the main circuit rise or fall above the normal. 7th. The combination, with an adjustable commutator, of the rotary motor placed in a bridge between two branches, each containing a resistance and means for admitting the current to one or the other terminal of the motor or to both simultaneously, as and for the purpose described. 8th. The combination of the adjustable commutator, the rotary motor geared thereto, the bibranched circuit, each branch containing an arificial resistance, the motor terminals connected to the two branches and a circuit closer for admitting the circuit to one or the other of the branches as described. 9th. The combination, with the electric motor of the rocking lever carrying two insulated contacts, one connected to one and the other to the other terminal of the motor, and a rocking circuit closer working upon said lever, in the manner described, so as to close one or the other circuit or both simultaneously. 10th. The combination of the circuit closing lever r, the double contact lever q q^2, whose contacts are insulated from one another and arranged one above the other, and the electric motor and artificial resistances, connected as described. 11th. The combination with the commutator brush support F, of the rack a, the electric motor and the gear b d c. 12th. The combination with the rotary motor and the adjustable commutator, of reversing devices for said motor, and an armature for actuating said circuit reversing devices supported on the field magnet frame. 13th. The combination with the *adjustable commutator*, of the rotary motor supported from the field of force magnet. 14th. The combination with the adjustable commutator, of the rotary actuating electromotor, the pole pieces g g, for said motor connected to the pole pieces of the machine, and the non-magnetic connecting pieces g g^2, in which the motor shaft is pivoted. 15th. The combination of armature N, circuit closer r, double insulated contacts t t^2, each connected with the continuation of the circuit through a separate branch containing an artificial resistance and an electric motor in a bridge between said branches, at a point between the resistance and the circuit closer. 16th. The combination of circuit closer r, armature N, compound contact lever q q^2, contact t t^2, resistances R R2 and electric motor connected as described. 17th. The combination, with the adjustable commutator on a dynamo machine, of an actuating electric motor whose pole pieces are magnetized from the field magnets of said machine. 18th. The combination with the revolving armature or armature shaft, on a dynamo electric machine, of an adjustable commutator and intermediate reversing mechanism for reversing the movement of the commutator brushes, or equivalent part of the commutator, according to the increase or decrease in the strength of the current on the circuit supplied by the machine. 19th. The combination with a dynamo *electric machine, of regulating* devices, whereby the electro motive force of the current supplied by the machine may be changed, means for imparting movement to said devices from the armature shaft, a reversing mechanism and devices for operating said mechanism, according to the increase or decrease of the strength of the current on the circuit supplied by the machine. 20th. The combination with the armature shaft, of adjustable commutator brushes connected therewith, intermediate reversing mechanism, two electro magnets acting in opposite directions on said reversing mechanism, so that when one prevails the commutator brushes may be moved in one direction and vice versa, when the other prevails, and means for energizing one or the other of said magnets simultaneously with the rise or fall of the normal current strength. 21st. The combination with the armature shaft, of adjustable commutator brushes connected therewith, intermediate reversing mechanism, electro magnets for operating the same and a circuit closer for controlling the circuits of said electro magnets, operated by an armature within the attraction influence of a magnet that is in the current of the machine or is suitably connected with said circuit, so as to be affected by the fluctuations of current strength therein. 22nd. The combination with the regulating appliances for a dynamo electric machine, of a suitable actuator and intermediate reversing mechanism, two electro magnets H H2 acting on said reversing appliances in opposite direction, and circuit closing devices for admitting current to one or the other of said electro magnets singly according to changes in the current strenght above or below normal. 23rd. The combination with a reciprocating frame or lever G, for controlling the reverse movements of the regulating appliances on a dynamo electric machine, of two magnet poles arranged to move said lever in opposite directions and means for restoring and holding said lever in a central or intermediate position, when the attraction of neither magnet pole prevails. 24th. The combination with the adjustable regulating devices for regulating the electro motive force of a dynamo electric machine, of a reversing mechanism, two electro magnets acting thereon in opposite directions and circuit closing devices for closing a circuit through one or both electro magnets according as the current strength is above or below normal or at normal. 25th. The combination with the armature shaft, of two discs or wheels h h^2, a wheel f through which movement may be communicated to the regulating devices for changing the electro motive force of the machine, and means for bringing said wheel into contact with one or the other of said discs or wheels h h^2, according as the current strength rises or falls above normal. 26th. The combination of the armature shaft having the two discs wheels or surfaces h h^2, the adjustable commutator brushes or other device for regulating the electro motive force of the machine, the intermediate actuating mechanism wheel f forming a portion of the same and mounted on a swinging lever, and two electro magnets acting on said lever in opposite directions, as and for the purposes described. 27th. The combination with the armature shaft, of the adjustable commutator or other device by the adjustment of which the electro motive force of the machine may be regulated, the intermediate actuating mechanism, the frame or support G carrying wheel f or other device whereby the mechanism may be run in either direction from the shaft and two electro magnets H H2 arranged to actuate the frame G in opposite directions, substantially as and for the purpose described. 28th. The combination of the armature shaft having driving surfaces h h^1, the adjustable commutator or its equivalent, the intermediate actuating mechanism provided with the movable driving wheel f, the two electro magnets controlling the position of said wheel, and suitable means whereby a current may be admitted to both or one of said magnets according as the current strength is at normal or above or below normal. 29th. The combination of the armature shaft having driving surfaces h h,

of the wheel *f* mounted on swinging frame G, magnets H H2, brush support A having rack *a*, and the intermediate driving mechanism between said rack and wheel *f*. 30th. The combination of support G, wheel *f*, gear *f' d c*, horizontal shaft *C*, pinion *b* and rack *a*. 31st. The combination with the field magnet coils, in a dynamo electric machine, of means for automatically varying the number of said coils through which an exciting current flows in accordance with variations in the current supplied by the machine. 32nd. The combination with the field magnet, in a dynamo electric machine, of means for automatically including a greater or a less number of said coils in circuit in accordance with an increase or decrease in the resistance of the working circuit. 33rd. In a dynamo electric machine, the combination with the field magnet coils, of a series of loop connection as described, a circuit closer for connecting and disconnecting or otherwise controlling the passage of current through said coils in succession, and means for automatically shifting said circuit closer in one direction or the other according as the resistance in the main or working circuit increases or diminishes. 34th. The combination with a series of loop connections from the field coils, in a dynamo electric machine, of a circuit closer and breaker, a motor operating the same and automatic reversing devices for causing said circuit closer to move in one direction or the other, so as to vary the number of field coils through which the exciting current shall flow. 35th. The combination with the field magnet coils, in a dynamo electric machine, of a circuit closer and loop connections from the coils, whereby an exciting current may be caused to flow through a greater or less number of said coils, an electric motor for operating said circuit closer and means for automatically reversing said motor, in accordance with a rise or fall of the current generated by the machine. 36th. The combination with the field magnet coils of a circuit closer and connections, whereby a greater or less number of said coils may be included in circuit, a rotary electric motor for operating said circuit closer and devices whereby the direction of the current through said motor may be automatically reversed, in accordance with variations in the working resistance. 37th. The combination with the field magnet coils, of a circuit closer and connections whereby a greater or less number of coils may be included in the circuit, an actuating electric motor for said circuit closer in a bridge wire between two branches, each including a resistance, and a circuit closer for admitting the current to one or the other branch, singly or both together. 38th. The combination with the rotary electric motor, of the contact arm secured to the shaft thereof and means for automatically reversing said motor as the main current strength rises or falls above or below normal. 39th. The combination with the two field magnets, of the two intermediate series of insulated contacts forming the terminals of loops from the magnet coils, and a circuit closer for connecting said insulated contacts in succession as described.

No. 17,409. Combined Grain Scales, Bagger and Register. (*Balance à grain, empocheur et registre combiné.*)

Charles J. Leach and Allen Olds, Hartford, Mich., U. S., August 4th, 1883; 5 years.

Claim—1st. The herein described apparatus for automatically weighing, bagging and registering grain, consisting of the platform *a* provided with the balance rod or beam blocks *c* and bag holders as described, and connected to the hopper D by the uprights a^1, the scale mechanism connecting with the weight F and registering devices by means of the rod G and cam H, all substantially as and for the purpose specified. 2nd. The hopper D provided with rod *h*, valve *i*, lug *k*, pawl *l* and ratchets *m* and *o*, arm E, carrying weight F and cam H, in combination with rod G, arm B2, balance rod or beam B, blocks *c* and platform A, all substantially as and for the purpose specified. 3rd. The hopper D provided with rod *h*, valve *i*, arm E, carrying the weight F and registering mechanism, in combination with the scale and bag holding mechanism, substantially as and for the purpose specified.

No. 17,410. Furnace for Brazing and Welding Flue Tubes. (*Fournaise à souder les tubes.*)

Richard H. Brown, Omaha, Neb., U. S., August 4th, 1883; 15 years.

Claim.—1st. The furnace for brazing end welding consisting of the body A having side apertures *g* and top and bottoms *h h*, the fuel-reservoir *f*, blast pipe *b* and blast door *c*, constructed and arranged substantially as shown and described. 2nd. The standard *m* standing beside the furnace, the sleeve *t* sliding thereon, the support *k* on an arm projecting from said sleeve and the post *i* removably secured in support *k*, in combination with a furnace provided with a hole in its bottoms to receive said post, and a hole in the top to receive the work, as and for the purpose specified. 3rd. The hollow extension *o*, in combination with the adjustable support *k*, substantially as shown and described.

No. 17,411. Grapple. (*Grappin.*)

John W. Raymond, Lowville, Penn., U. S., August 4th, 1883; 5 years.

Claim.—1st. In a grapple or implement having arms pivoted to each other, the brace C attached at each end to one of the arms and extending over the adjacent arm and uniting pivot, substantially as shown. 2nd. In combination with the arms A and A^1, the brace C provided with a raised central portion *a* and ends *b b* bent so as to embrace one of the arms, and pivot B extending through each arm and the plate *a* and secured thereto, as described and for the purpose set forth.

No. 17,412. Process for Extracting Precious Metals from their Ores. (*Procédé pour extraire les metaux précieux de leurs minerais.*)

Alfred K. Huntington and Walter E. Kock, London, Eng., August 4th, 1883; 5 years.

Claim.—The described process for extracting precious metal from ore by calcining the ore and then subjecting the calcined ore to heat and agitation in a deoxydating atmosphere in the presence of melted metal such as lead, zinc or their equivalents.

No. 17,413. Candles for giving Light. (*Chandelles à lumière.*)

George H. Kirk, Philadelphia, Pa., U. S., August 4th, 1883; 5 years.

Claim.—As a new article of manufacture, a candle provided at the end with a combustible material which will kindle by friction and ignite the wick of said candle.

No. 17,414. Art of Constructing Sheet Metal Cans. (*Art de construire les boites metalliques.*)

Francis A. Walsh, Chicago, Ill., U. S., 4th Agust, 1883; 5 years.

Claim—1st. A sheet-metal can body *a* provided at its end or ends with a seamless collar, substantially as specified. 2nd. In a sheet-metal can, the combination of the body *a*, thin or soft fixed cover *b* provided with counters sink c, the wall of which is parallel to and fits within the body of the can, sheet-metal annular ring K having its inner opening m^1 smaller than the opening of the countersunk wall *l*, and the slip covers *l j*, substantially as specified. 3rd. The art of forming a seam for sheet-metal cans which consists in forming a head with a wall *c* and flange *d* and placing said head within a flangeless can-body, turning said flange *d* down against the body of the can and then turning the wall *c* and can body down against the can body, which when thus completed forms the usual double seam, substantially as specified. 4th. A sheet-metal can provided with a head or end consisting of a ring or band *c* provided with flanges *f* and *g* and a disk *h* united to the flange *g* and the flange *f* to the can body as specified. 5th. A sheet-metal can provided with a cover *b* of which the countersink *c* fits within the body of the can *a*, and a ring K formed of the parts *l m d* fitting upon the cover *b* and within the countersink *c*, and whereof the said parts are united, substantially as specified. 6th. The art of forming a seam for joining the ends and body of sheet-metal vessels which consists in placing within the body an end provided with a wall *c*, so that either the wall *c* or can body *a* shall project so as to form a part C^2 and then turning said part C^2 down over the other in one or more turns substantially as specified. 7th. A can body *a* and end *b* with wall *c* united by forming a part C^2, which shall turn over and reach to about the centre of the wall C and is then turned from the lower edge of C^2 with the can body, so as to form an angle with the can body substantially as specified.

No. 17,415. Cant Hook Levers. (*Leviers de renards.*)

Albert Sanford, Oshkosh, Wis., U. S., 4th August 1883; 5 years.

Claim.—1st. In a hand lever the hinged arm *f*, substantially as specified. 2nd. In a cant hook lever, the combination of the arm *f* with the curved and chisel-ended spike *n*, substantially as shown and described. 3rd. In a cant hook lever, the combination of the arm *f* with the hook *d* and the horns *e*, substantially as shown and for the purpose set forth. 4th. In a lever, the combination of the curved and chisel-ended spike *n* with the socket *b*, as shown and described. 5th. In a lever, the combination of the socket *b* with the horns *e*, substantially as shown and described. 6th. In a lever, the combination of the retaining ribs *o* with the clasp ring *g* or the socket *b* and the arm *b*, substantially as set forth.

No. 17,416. Button Setting Instrument. (*Instrument à poser les boutons.*)

George H. Alton, Lynn, Mass., U. S., 4th August, 1883; 5 years.

Claim.—1st. A button setting implement composed of two members, one of the said members being provided with a tack holding device and the other with a pivoted anvil piece having at its upper side or face an opening or passage to receive the point of the tack without bending it, and a clinching surface to operate upon the point of the tack and clinch it about a button shank, the said opening or passage and the said clinching surface being at opposite sides of the centre of rotation or pivot of the said anvil piece, and the latter being arranged to rotate in the plane of the face of the jaw supporting it, all substantially as described. 2nd. In a button setting implement, the combination of one member or jaw provided with a tack holding device, of the co-operating member provided with a pivoted anvil piece having a tack-receiving opening *n* and a clinching surface *p* at its upper side and a holding device *o*, whereby the said anvil piece is retained in proper position with relation to the tack held by the other member of the implement, substantially as described. 3rd. In a button setting implement, the combination of one member or jaw provided with a tack holding device, of the co-operating member provided with a pivoted anvil piece having a tack receiving opening *n* and a clinching surface *p* at its upper side, and having a post provided with a thumb nut by which the said anvil piece may be turned, and a locking device to hold the said anvil piece in place, all substantially as shown and described.

No. 17,417. Two Wheeled Vehicle. (*Voiture à deux roues.*)

Frederick J. H. Axford, Cornwallis, N. S., 4th August, 1883; 5 years.

Claim.—1st. In a two-wheeled vehicle, the body and seats balanced or in equipoise on the spring X (or openings) supported on the axle A parallel with the axle (or with the wheels) and independently of the shafts H by boxes G, substantially as described and for the purpose hereinbefore set forth. 2nd. In a two-wheeled vehicle, the body and seat balanced on the spring X (or springs) supported on the axle parallel with said axle (or wheels) and independently of the shafts by boxes G, and the front of the body supported on an arm C (or arms) projecting from the axle A and being independent of the shafts, substantially as described and for the purpose set forth. 3rd, In a two-wheeled vehicle having the body supportedin the axle independently

of the shafts by the boxes G and the arm C, the said arm connected to the axle by a clip B having a slack joint allowing vertical play and the body connected to said arm by support D having slack joints also allowing vertical play, substantially as described and for the purpose set forth. 4th. The seat Q balanced in equipoise in pivots P fore and off in a frame U, which frame is also balanced over the axle on supporting pivots P and stayed at the front by a strap Z, and at the back and sides by springs V, substantially as described and for the purpose set forth. 5th. The combination, in a two-wheeled vehicle, of the body L supported on the axle A independently of the shafts H by the spring X and boxes G and arm C, and a seat Q balanced over the axle A on pivots P and having stays allowing it to vibrate on said pivots, substantially as described and for the purpose set forth.

No. 17,418. Reinforcing Plate for Saw Handle. (*Plaque à renfort pour poigné de scie.*)

William H. Hankin, jr., Brooklyn, N. Y., U. S., 4th August, 1883; 5 years.

Claim.—1st. The combination with a saw blade and a handle, of a re-inforcing plate provided with a groove to receive the tail of the blade and applied to the bridge of the handle, substantially as described. 2nd. A re-inforcing plate for saw handles consisting of a head K, arms or wings *e e*, an intermediate groove and a bridge *f*, substantially as described.

No. 17,419. Pump. (*Pompe.*)

Mott B. Brooks, Brockville, Ont., 4th August, 1883; 5 years.

Claim.—1st. The combination of a hollow plunger head F with valves G G and inlets J J, substantially as and for the purpose set forth. 2nd. The combination of a movable cylinder A provided with openings K K in the side valve seat E with openings L L and R R combined with ring valve D having openings L L, substantially and for the purpose set forth.

No. 17,420. Process of Manufacturing Artificial Butter. (*Precédé pour manufacture le beurre artificiel.*)

John Hobbs, Boston, Mass., U. S., 4th August, 1883; 5 years.

Claim.—1st. The herein described process for the manufacture of artificial butter which consists in discharging the emulsion in small particles or streams into ice-cold water, substantially as set forth. 2nd. The process for the manufacture of artificial butter which consists in reducing the emulsion made by churning together oleomargarine and milk to spray or small streams and discharging it into ice-cold water entirely free from ice, substantially as and for the purpose specified. 3rd. The herein described process for the manufacture of artificial butter which consists in discharging the butter emulsion in small particles or streams into ice-cold water free from ice, then removing the solidified emulsion or butter from the water and placing it upon an inclined surface to drain, substantially as and for the purpose specified.

No. 17,421. Low Water Alarm for Steam Boilers. (*Alarme d'eau basse pour les bouilloires.*)

Frederick W. Menze, Bay City, Mich., U.S., 4th August, 1883; 5 years.

Claim.—1st. The combination with a pipe carrying a steam whistle at its upper end, of a cock casing on the lower end, a cock plug in the said casing, an arm or lever secured to the said plug and a float on the end of the arm or lever, substantially as shown and described. 2nd. The combination with the pipe A provided with a steam whistle at its upper end, of the cock casing B provided with an aperture F, the cock plug C, the arm or lever D and the float E on the end of the same, substantially as shown and described.

No. 17,422. Grain Thrasher and Separator. (*Batteuse-vanneuse.*)

William E. Craig, Sarnia, Ont., 4th August, 1883; 5 years.

Claim.—1st. A straw agitating device consisting of a series of broad, arms or cams placed in the spaces between the slats of the straw deck secured to one or more rocking shafts journalled below the slats of the side bars of the straw deck and receiving a suitable rocking motion, so as to cause the said arms or cams to swing up and down in the spaces between the slats and to beat against and lift the straw after being discharged from the cylinder and when passing along the straw deck. 2nd. The combination of the kickers K secured to the rocking shafts C C1 journalled below the slats B and to the side bars of the straw deck, said shafts C C1 being provided with arms or lever D to one of which is pivoted the pitman E connecting with the crank shaft G, the said shafts C C1 being connected by link rods F pivoted to the arms E to cause the kickers K to swing vertically in the spaces between the slats B forming the straw deck, all substantially as described and for the purpose set forth.

No. 17,423. Machine for Peeling and Slicing Potatoes, Fruit and Vegetables. (*Machine à peler et trancher les patates, fruits et légumes.*)

William Addison, Hamilton, Ont., 4th August, 1883; 5 years.

Claim.—A combined peeling and slicing knife for potatoes, fruits or vegetables having a hollow handle A with the blade B at one end and the scoop edges D1 and D2, the core point C and paring blade E at the other end, as set forth and described.

No. 17,424. Appliances for Portable or Traction Engines. (*Appareil pour engins portatifs ou à traction.*)

John E. Birch, Winnipeg, Man., 4th August, 1883; 5 years.

Claim.—1st. A complete endless adjustable track A B C, substantially as and for the purposes set forth. 2nd. The combination therewith and application of cogged wheels H and I to fly and driving wheels with chain K to ordinary portable engines converting same thereby into traction engines, substantially as and for the purpose set forth. 3rd. Distributing wheels L L with regulators N N T O, substantially as and for the purpose set forth. 4th. The supporting frame D D with stays F F and friction wheels E E, substantially as and for the purpose set forth.

No. 17,425. Method of Preserving Ensilage in Silos. (*Conservation des céréales dans les fosses.*)

Samuel M. Colcord, Dover, Mass., U. S., 4th August, 1883; 5 years.

Claim.—1st. The combination with a silo, of one or more pipes or passages arranged with the same and adapted to receive and collect either air, gases, water or juices from the ensilage and provided with an outlet pipe or passage, whereby the air, gases, water or juices are withdrawn from the ensilage in the silo and discharged into the surrounding atmosphere, and means afforded for introducing chemical antiseptic solutions into the ensilage, and also for ascertaining the temperature of the latter, substantially as and for the purpose set forth. 2nd. The combination with a silo of one or more frames A, each composed of a series of pipes connected together by suitable couplings and provided with an outlet or discharge pipe *g* or *m*, substantially as and for the purpose described. 3rd. The combination with a silo of the frame A placed within the same same and composed of a series of perforated pipes connected together by suitable couplings, a horizontal drip pipe *b* connected therewith and having at its outer end an outlet controlled by a plug or faucet, and the vertical pipe *g* connected with the drip pipe, all constructed to operate substantially as and for the purpose set forth. 4th. The combination with a silo of the frame A composed, of a series of pipes *a a1* having their ends 10 adapted to slide telescopically within their couplings to facilitate, their separation therefrom, and held in position by pegs or pins *e* substantially as and for the purpose described. 6th. The herein described method of preserving ensilage in silos, the same consisting in withdrawing or removing therefrom the atmospheric air and gases together with water juices, etc., by means of pipes or passages arranged within the silo and adapted to receive and collect the air, gases, water and juices and discharge the same into the surrounding atmosphere, substantially as set forth.

No. 17,426. Car Axle Box. (*Boîte à essieu de char.*)

James A. Hamilton, (assignee of George W. Sweeney,) New York, N. Y., U.S., August 4th, 1883; 5 years.

Claim.—1st. A dust-shield for a car-axle box composed of the supporting frame G provided with a flexible diaphragm F having an opening to receive the journal of the axle, in combination with the rigid ring I secured to the diaphragm at a distance from the opening to leave an inward-projecting flexible flange, which flange is capable of conforming itself to axles of varying size, substantially as described. 2nd. A dust-shield for car axle boxes composed of the supporting-frame G provided with the flexible diaphragm F having an opening and composed of two thicknesses, in combination with the rigid ring I secured between the two thicknesses at a distance from the opening to leave an inward projecting double flange *u*, substantially as described. 3rd. A dust shield for car-axle boxes composed of the supporting-frame G provided with the flexible diaphragm F having an opening and composed of two thicknesses, in combination with the rigid ring I secured between the two thicknesses at a distance from the opening to have an inward projecting flexible flange *u* and the flange J of felt or equivalent material secured to the rigid ring between the two thicknesses of the diaphragm and flush with the edge of the opening in the same, substantially as described. 4th. A dust-shield for car axle boxes composed of the supporting-frame G provided with the flexible diaphragm F composed of two thicknesses and provided with an opening to receive the axle and journal, in combination with the rigid ring I secured between the two thicknesses of the diaphragm by two annular lines of stitches, and located at a distance from the journal opening to form an inward-projecting flexible flange *u*, substantially as described. 5th. The combination, with the flexible and expansible diaphragm having a journal opening, of the diaphragm-supporting frame, divided vertically into two sections which are connected together by telescopic tubes to render the frame adjustable in width, substantially as described. 6th. The combination with the flexible and expansible diaphragm having a journal-opening, of the diaphragm supporting frame divided vertically into two sections, the telescopic tubes connecting the frame-sections with each other, and the spiral springs arranged in said tubes to act on both frame sections, substantially as and for the purpose described. 7th. The combination with an axle-box and the journal of a car-axle, of the journal cap Q1 provided with an attached case Q, within the axle box and the coiled spring located in the case to act on the end of the journal, substantially as described. 8th. The combination with an axle-box and the journal of a car-axle, of the journal cap Q1 provided with a case Q within the axle-box, an independent washer P arranged to bear against the end of the journal, and the coiled spring O located within the case and having one end bearing on the washer and the other against the case, substantially as described. 9th. The combination with a car axle box and car-axle journal, of the washer bearing on the end of the axle, the spring bearing on the washer, the spring casing attached to the cap of the journal and provided at its open end with a recess to receive the washer, and the screw-bolt having its head sunken into the face of the washer and extending through the closed end of the spring-casing where it is provided with a nut, substantially as and for the purpose described. 10th. The combination of the axle-box and the detachable oil-receptacle having its top wall provided with perforations with the wick-tubes T, arranged in said perforations and having lateral flanges at their upper ends which rest on the top wall of the oil receptacle, substantially as described. 11th. The combination of the axle-box and the detachable oil-receptacle having its top wall perforated with the wick-tubes T supported at their upper ends in said perforations, and having at their lower ends the inwardly-projecting flanges

T1 and the coiled springs having their lower ends supported by said flanges, substantially as described. 12th. The combination with a car-axle box having its side walls provided with vertical passages, of the detachable bottom to such box, the spiral springs arranged in said passages and the screw-bolts extending downward through said springs with their heads resting thereon and through the bottom of the box where they are provided with nuts which are fitted to recesses on the box bottom, substantially as and for the purpose described.

No. 17,427. Devices for Attaching Pumps to Oil and Other Cans. (*Moyen d'ajuster les pompes aux bidons à l'huile et autres.*)

William G. Holden and Elijah H. Wheeler, Corpus Christi, Texas, U.S., August 4th, 1883; 5 years.

Claim.—1st. The cylinder having a spring coiled around its body and secured at the top and bottom ends to the cylinder, the central coils of the spring being capable of movement, whereby the cylinder is adapted to be screwed into an opening, substantially as and for the purpose set forth. 2nd. The combination with the can or other receptacle having a circular opening slit in its edge, the said edge being turned up at one side, the slit to form a guide flange which gradually tapers to a point opposite the slit, of the cylinder having a spring coiled around its body and secured thereto at its top and bottom ends substantially as set forth.

No. 17,428. Electro Magnetic Motor.

(*Moteur électro magnétique.*)

John P. Culley, St. John, N.B., William R. Culley, Vanceboro, Me., U.S., James R. Culley, Burton on Trent, Eng., Tom. R. Culley, Lancaster, N.B., and Mary A. Culley, Ashby de La Zouche, Eng., (assignees of Edward Toynbee, London, Eng.,) August 4th, 1883; 5 years.

Claim.—1st. An electro magnetic motor in which any number (from two upwards) of rings of armature magnets a a_1 a_2 a_3, etc., are placed at intervals on a suitable axis, in combination with a corresponding number of rings of field magnets A A_1 A_2 A_3, etc., the whole being so arranged that when the magnets of any one of the rings of armature magnets are opposite the magnets of its corresponding ring of field magnets, the magnets of all the other rings of armature magnets are in different intermediate positions between the poles of their respective rings of field magnets, substantially as described and shown in the drawings. 2nd. The arrangement and connection of the different commutators B B_1 B_2 B_3, etc., of the whole of the rings of armature magnets a a_1 a_2 a_3, etc., so that when the magnets of any one ring of armature magnets are opposite the magnets of the corresponding ring of field magnets A A_1 A_2 A_3, etc., the current is entirely diverted from the commutator of such ring and is directed equally through the commutators of the other ring or rings in which the armature magnets are in different intermediate positions between the magnets of their respective rings of field magnets, substantially as described and shown in the drawings. 3rd. The employment and arrangement of additional field magnets F and G, in combination with the ordinary field magnets A, so as to surround the poles of the armature magnets with field magnet poles on all sides with the exception of their line of rotation, whereby the whole or nearly all of the magnetic lines of force are intercepted and utilized, substantially as described and shown in the drawings.

No. 17,429. Weighing Waggons.

(*Voiture à peser.*)

D. J. and L. D. Norris, Odell, Neb., U.S., August 10th, 1883; 5 years.

Claim.—1st. The platform D provided with weighing levers and a weigh-beam and said weighing levers suspended by cranked rods Q and a bed-frame A on the running-gear of a wagon, substantially as specified. 2nd. The cranked rods Q having knife edge cranks P and eccentric extension U, in combination with a wagon-bed A, weighing levers G, links O, leg-rests E and platform D, substantially as specified. 3rd. The weighing-levers G suspended in leg rests E by pivots F and pins N, and connected to pivots I of the lever J to be suspended on said pins N and on the upper sides of pivots I when disarranged for weighing, substantially as specified. 4th. The cranked rods Q having cranks R and the pins V and W, in combination with cranks P, eccentric projection U, weighing levers G, platform D and bed-frame A, substantially as specified. 5th. The combination with weighing platform D and weighing apparatus arranged for application to a wagon, as described, of sides and ends j k hinged to said platform for use as a wagon-box and for extending the platform, substantially as and for the purpose specified.

No. 17,430. Pistons for Steam Engines.

(*Pistons pour engins à vapeur.*)

George W. Williams, Winona, Minn., U. S., August 10th, 1883; 5 years.

Claim.—In a piston packing expander, the combination with the threaded stem B and the sleeve nut A, of the springs C D, the sleeve nut F, jam nut G and the chord spring or equalizer E, substantially as specified.

No. 17,431. Smoke Consumer. (*Fumivore.*)

Abraham M. Wayne, Quincy, Ill., U.S., August 10th, 1883; 5 years.

Claim.—1st. In a stove or furnace, the combination with the fire-pot A of the sieve R surrounding it, the hot air chamber E on the fire-pot and the flues m, substantially as shown and described and for the purpose set forth. 2nd. In a stove or furnace, the combination with the fire pot A, of the centrally apertured plate F, the sides H, the funnel shaped top I and the flues m, substantially as shown and described and for the purpose set forth. 3rd. In a stove or furnace, the combination with the fire-pot A, of the centrally apertured plate F, the sides H, the funnel-shaped top I, having its inner lower edges overlapping the edges of the aperture G in the plate F and the flues m, substantially as shown and described and for the purpose set forth. 4th. In a stove or furnace, the combination with the fire pot A, of the deflector I and the fuel chute L below this deflector, substantially as shown and described and for the purpose set forth. 5th. In a stove or furnace, the combination with the fire pot A, of the centrally apertured plate F, the sides H, the funnel shaped deflector I, the flues M, the hollow base B, the dome N, the chimney pipe Q and the flues P, substantially as shown and described and for the purpose set forth. 6th. In a stove or furnace, the combination with the fire pot A, of the apertured plate F, the sides H, the funnel-shaped deflector I, the flues M and P, the dome N, the hollow base B, the chimney pipe Q and the cylindrical sieve or net-work K surrounding the fire-pot A, substantially as shown and described and for the purpose set forth. 7th. In a stove or furnace, the combination with the fire-pot A, of the apertured plate F, the sides H, the funnel-shaped deflector I, the flues M P, the hollow base B, the dome N, the chimney pipe Q and the closed ash-pit C in the base B, substantially as shown and described and for the purpose set forth. 8th. In a stove or furnace, the combination with the fire-pot A, of the apertured plate F, the sides H, the funnel shaped deflector I, the flues M and P, the dome N, the hollow base B, the chimney-pipe Q, the pipe R and the damper-valve S, substantially as shown and described and for the purpose set forth.

No. 17,432. Machine for Bunching Match Sticks. (*Machine à mettre en paquet les bois d'allumettes.*)

William H. H. Sisum, Brookiyn, N. Y., U. S., August 10th 1883; 5 years.

Claim.—1st. The combination with a hopper having its front or back or both, provided with a pivoted section or sections, and a roller arranged therein for carrying the match sticks from the hopper, of means for imparting a positive and constant vibration or swinging motion to the section or sections, in a direction transverse to the length of said roller, substantially as specified. 2nd. The combination with a hopper having opposite sides provided with pivoted sections, a roller arranged in the hopper for carrying the match sticks from the hopper and means for imparting a positive rotary motion to the roller, independently of the weight of the contents of the hopper, of means connecting the pivoted sections so that they will move in unison, and devices for imparting a positive and constant vibrating or swinging movement to said sections, substantially as specified. 3rd. The combination with a hopper having opposite sides provided with pivoted sections, of means connecting them and means acting on one of the pivoted sections to vibrate both, substantially as specified. 4th. In a machine for bunching match sticks, the combination of a hopper in which the match sticks are placed, and a roller having a notched or fluted periphery and journalled in slotted bearings so that it can rise bodily when necessary, substantially as specified. 5th. In a machine for bunching match sticks, the combination of a hopper, in which match sticks are placed, a roller having a notch or fluted periphery journalled in the hopper, and means for alternately rotating the roller in reverse directions, substantially as specified. 6th. In a machine for bunching match sticks, the combination of a hopper wherein the match sticks are placed, a roller E for carrying the match sticks from the hopper, a roller I arranged at the point where the match sticks leave the hopper, means for rotating it at a high rate of speed, a roller A_1 having a fluted or notched periphery journalled in the sides of the hopper rearward of the roller E, and means for turning it to cause it to straighten the match sticks, substantially as specified. 7th. The combination with the hopper A, of the two rollers E F, both having notch peripheries, mechanism for rotating said rollers in reverse directions and at uniform speed, so that their notches will come opposite each other, and the guards and strippers H extending close to the notched flanges f of the roller F and thence in a reverse direction beyond the bottoms of notches in the roller E, which are adjacent to the roller F, substantially as specified. 8th. The combination with the hopper A, of the roller E having a notched periphery and grooves d, the roller F having a cylindrical body and notched flanges f which are opposite the grooves d, the webs J_1 L_1, mechanism for rotating said rollers in reverse directions and at a uniform speed, so that the notches will come opposite each other and the guards and strippers H extending around the lower part of the flanges f and the upper part of the roller E and entering the grooves d, substantially as specified. 9th. In a machine for bunching match sticks, the combination of a hopper in which the match sticks are placed, a roller having a notched periphery rotating continuously in the hopper and a second roller having a notched periphery rotating continuously and at a uniform speed in the reverse direction to the first mentioned roller, and arranged beyond the face of the first mentioned roller and outside the hopper, substantially as specified. 10th. In a machine for bunching match sticks, the combination of a hopper in which the match sticks are placed, a roller having a notched periphery rotating in the hopper, a second roller having a notched periphery arranged beyond the face of the first mentioned roller and rotating in a reverse direction thereto outside the hopper, guards extending around the lower portion of the outside roller and reverted so as to conform to the periphery of the other roller and serve to transfer the match sticks from one roller to the other, substantially as specified. 11th. In a machine for bunching match sticks, the combination with a roller on to which match sticks are delivered, of two webs or bands between which the match sticks are delivered off, a roller on to which the webs or bands with the match sticks are wound, and a pinion or wheel mounted on the shaft of the last named roller and secured by a friction clamp, so that it may slip on the shaft when necessary, substantially as specified. 12th. In a machine for bunching match sticks, the combination of the shaft K_4, the pinion K_3, the shaft M and wheel M_1, the standard K_1 carrying the shaft K_4 and projecting from a cylindric base-piece which surrounds the shaft M, and bearings j projecting from the frame of the machine around the shaft M, and entering and supporting the said cylindric base-piece, substantially as specified. 13th. In a machine for bunching match sticks, the combination of a hopper in which the match sticks are placed, a roller having notches and circumferential grooves in its periphery, and stop-plates extending from the hopper into the air-

cumferential grooves, substantially as specified. 14th. In a machine for bunching match sticks, the combination of a hopper in which the match sticks are placed, a roller having a notched periphery for carrying the notch sticks from the hopper, and a roller also arranged in the hopper and serving to force the match sticks towards the first said roller substantially as specified. 15th. In a machine for bunching match sticks, the combination with a hopper in which the match sticks are placed, a roller having a notched periphery rotating in the hopper and fingers normally extending into circumferential grooves in the roller and adapted to be raised to preclude the entrance of match sticks into the notches of the roller, substantially as specified.

No. 17,433. Hanging or Sliding Doors.

(*Portes pendues ou à glissoires.*)

William H. Wilder, Caledonia, N. Y., U. S., August 10th, 1883; 5 years.

Claim.—1st. In combination with a hanging door and with a travelling carriage and stationary bed for the same, the cap-piece I I', whereby lateral and vertical displacement of the door is obviated and running off the carriage from its track is prevented, these parts being arranged substantially as and for the purpose set forth. 2nd. In a hanging door, one or more free and unattached carriages F, each made with a series of cylindrical rollers adapted to run upon the surface of a beam or batten, and also made of a length equal to the breadth of the door, and whereby when the door has been shifted to the end of its route of travel and the carriage arrested in its travel, one or more of the rollers shall be left some distance from the door to take up its weight when the door reaches it or them on its return movement.

No. 17,434. Ice Tongs. (*Pinces à glace.*)

Thomas Baxter, Hamilton, Ont., 10th August, 1883; 5 years.

Claim,—A pair of ice tongs made of one piece of wire preferably of steel, round or square, formed with a circular spring *b b*, side pieces *c c* to form handles, the double curved cross legs *h h*, the same terminating in inward points *f f* at right angles thereto, the device so constructed that by inward pressure on the side piece *c c* the points *f f* are opened or separated to grasp a block of ice, etc., and spring towards one another upon pressure being removed from the parts *c c*, the whole being constructed and arranged substantially as and for the purpose specified.

No. 17,435. Fire Escape. (*Sauveteur d'incendie.*)

Charles I. Pittman, Annapolis, N. S., August 10th, 1883; 5 years.

Claim.—1st. In a fire escape, the brake block *d* having the sling *e* suspended from it, in combination with friction block *c* having the rope *a* rove through it, substantially as described. 2nd. In a fire escape consisting of rope *a*, friction block *c*, sling *e* and brake block *d*, the sling rope extending up through block *c* and also up and down through block *d* and attached to block *c*, substantially as described. 3rd. The cushion spring *g*, in combination with friction block *c*, sling rope *e* and brake block *d*, said springs being arranged between blocks *c d* and the sling rope, substantially as described. 4th. The combination of guide *h* and shield *k* with rope *a*, sling rope *e*, friction block *c* and brake block *d*, substantially as described. 5th. The combination of sack *f* attached to sling rope *e*, substantially as described.

No. 17,436. Apparatus and Appliances for Producing Intense White Light.

(*Appareil pour produire une lumière blanche intense.*)

Charles Clamond, Paris, France, August 10th, 1883; 15 years.

Claim.—1st. The construction of lamp, substantially as described with reference to Figs. 1 and 2. 2nd. The modified construction of lamp substantially as described with reference to Figs. 5 6 7 and 8. 3rd. The described process for preparing the magnesian network.

No. 17,437. Pumping Engine.

(*Engin hydraulique.*)

Edwin H. Martin, Cleveland, Ohio, U.S., August 10th 1883; 5 years.

Claim.—1st. A double pumping engine consisting essentially of two steam cylinders G, each provided with operating parts connected to shaft A carrying pinion E, in combination with two water cylinders M, each provided with operating parts connected to shaft B carrying spur-wheel F, said water cylinders being located one beneath each steam cylinder, substantially as and for the purpose set forth. 2nd. A double pumping engine constructed with two steam pistons H, each connected by its pitman L to its appropriate crank *a* of driving shaft A carrying pinion E, in combination with two water pistons N, each connected by its pitman P to its appropriate crank *b* of shaft B located below and to the rear of said driving shaft and carrying spur-wheel F, the two water cylinders M being located one beneath each of the two steam cylinders G, substantially as and for the purpose set forth.

No. 17,438. Mowers, (*Moissonneuses.*)

Henry A. Howe, Albion, N.Y., U. S., August 10th, 1883; 15 years.

Claim.—1st. In a mower, a combined main shoe and draw-bar in one piece curving upwardly and inwardly to the pole, in combination with devices for securing it adjustably thereto, substantially as and for the purposes described. 2nd. In a mower and as a means for adjustably attaching the forward end of the combined shoe and draw-bar thereto, a slotted guide bracket secured to the pole, substantially as in the manner described. 3rd. In a mower, the connection between the forward end of the combined draw-bar and shoe with the guide bracket, either by a rolling joint consisting of a rounded neck passing through the slot in the guide bracket and held therein by a screw nut with a spherical washer, or by a ball and socket joint, substantially in the manner described. 4th. In a front cut mower, the method of bracing the finger bar laterally to the frame of the machine to the exclusion of any brace running backward from the shoe to the axle or frame, substantially as and for the purposes specified. 5th. In a mower, a shove-bar connected at the inner end to the frame of the machine and at the other end by means of a spherical joint to an upright secured on top of the shoe, substantially in the manner and for the purposes set forth. 6th. In a mower, a shove-bar extending in the same general direction with the pitman, and directly in front of the same so as to act as a guard for the same, both when on and out of operation, substantially in the manner described. 7th. In a mower, the tilting lever and its locking device, in combination with the rod bent lever U, link T, collar *m* and shoe J for effecting the tilting of the finger-bar, substantially in the manner described. 8th. In a mower, the lifting lever and its locking device, in combination with the lifting chain pulleys *o* and *r*, overhanging chain guide *t* and curved upright X, all combined and operating substantially in the manner and for the purpose described. 9th. In a mower, the combination of the finger-bar I with the combined shoe and draw-bar J and its connection with the pole and the shove-bar W, forming the combined means for keeping the finger bar in line and conveying the draft thereto, substantially in the manner described.

No. 17,439. Manufacture of Boots and Shoes and Machinery Therefor. (*Manufacture des chaussures et mécanisme pour icelle.*)

Henry E. Randall, Northampton, Eng., August 10th, 1883; 5 years.

Claim—1st. Forming the india rubber outer soles and heels of lawn tennis, boating, cricketing and other boots and shoes with a flange around the same to allow of the soles and heels being stitched or sewn to the boot or shoe, substantially as and for the purposes described and represented in Fgures 1 2 and 3 of the accompanying drawing. 2nd. The manfacture and use of boots and shoes having an india rubber outer sole stitched or sewn thereto, substantially as described 3rd. The use, in combination with an ordinary boot-stitching machine, of foot presses constructed with either one or two prongs to allow of "fair stitching" an india rubber outer sole, such as that described, to a boot or shoe, substantially as before described and represented in Figures 4 5 6 and 7 of the accompanying drawing.

No. 17,440. Cigarette Machine. (*Machine à cigarette.*)

Henri E. Casgrain, Quebec, Que., August 10th, 1883; 5 years.

Claim.—1st. In a cigarette machine, the combination of two hollow cylinders united by a band which rolls around them, one of the cylinders being provided with a crank handle and the other with a spring for rotating it, substantially as shown and described and for the purpose set forth. 2nd. A cigarette machine formed with two cylinders journaled in frames hinged to each other, to which cylinders a band is attached, substantially as shown and described and for the purpose set forth. 3rd. In a cigarette machine, the combination with two frames hinged to each other, of cylinders journaled in the frames and of a band attached to the two cylinders, one of the said cylinders being provided with a crank for turning it and the other being provided with a spring for rotating it, substantially as shown and described and for the purpose set forth. 4th. In a cigarette machine, the combination with a longitudinally slotted cylinder, of a band K having a transverse loop J at each end and a rod L passed into the said loop J and through the slot *a* of the cylinder, substantially as shown and described and for the purpose set forth. 5th. In a cigarette machine, the combination with the cylinders A B, of the band K attached to the same, the crank handle E on the cylinder B, the crank arm G on the shaft of the cylinder A, devices for locking the arm G in position and of the spring F acting on the cylinder A, substantially as shown and described and for the purpose set forth. 6th. In a cigarette machine, the combination with the cylinders A B, of the band K attached to the same, of the frames D D in which the cylinders are journaled, which frames are hinged to each other at the bottom in such a manner that the cylinders can be swung from each other until the bottoms of the frames are in contact, substantially as shown and described and for the purpose set forth.

No. 17,441. Machinery and Apparatus for Feeding Wool and other Fibrous substances to Carding Engines.

(*Mecanisme et appareil à fournir la laine et autres substances fibreuses aux engins à carder.*)

Thomas E. Ainley, Golcar, Eng., August 10th, 1883; 5 years.

Claim.—1st. The use and employment of the reciprocating bars 17 and 18, for the purpose substantially as shown and described. 2nd. The combination of the reciprocating bars with the vibrating comb 21, for the purposes substantially as shown and described. 3rd. The construction of the parts 38 and 40 and 41 relieved and set in motion by the cam 34 for stopping the supply of fibre to the pan. 4th. The combination of the sliding cross shaft 45, strap shifter 28 operated by cam 34 for restorting the apparatus for supplying fibre to the pan. 5th. The employment of a rack 50 and pinion 48 for ensuring the depression of the scale pan upon the lever 25.

No. 17,442. Elevator Shafts. (*Châssis d'élévateur.*)

Samuel W. Willard, West de Père, Wis., U. S., August 10th, 1883; 5 years.

Claim.—1st. In an elevator shaft, a trap door for closing its upper end weighted as described, in combination with a catch adapted to secure it when closed and means for tripping said catch from any convenient point in the building as set forth. 2nd. The combination of the trap door and connections with doors L¹ and catches M whereby as the trap door opens it releases the doors S¹ and permits them to open also as set forth. 3rd. The combination of trap-door C having arm *b* with the catch and device for tripping it as set forth. 4th. The trippers P P¹ depending from the trap-door C, in combination with the capped rods N, latches *o*, bracket O and catches M, as set forth.

No. 17,443. Car Coupling. (*Attelage de wagon*)

John Waterson, Rivière du Loup, Que., August 10th, 1883; 5 years.

Claim.—1st. The combination of a draw-head having an internal swell, a link having a tilting adjustment within the draw-head swell D, a draft pin held in a slanting position by a notch extended from the pin hole and endwise resisting the overbalance of the link, whereby the link is held in position for coupling, substantially as set forth. 2nd. The combination with a draw-head having an internal swell D, slanting notch F extended from the pin hole and notch G therein, of the pin C bearing in notch F and line B resting on swell D, whereby the link is retained by an adjusted position by pressure against the end of the pin which offers resistance by frictional contact in the notch, as set forth. 3rd. The draw-head A having a raised portion or swell D for seating the link to tilt and a notch G to seat the end of the pin in an inclined position forwardly to be unseated by impact of the cars in coupling and a notch F for retaining the pin C inclinedly, as set forth for the purpose described.

No. 17,444. Quilting Frame. (*Métier à piquer.*)

Henry T. Davis, Saint Louis, Mo., U. S., August 10th, 1883; 5 years.

Claim.—A quilting attachment for sewing machines consisting of rail B, rollers B_1, rail H, rib H_1, rollers D I D_1, end pieces E E and quilt securing devices J as set forth.

No. 17,445. Lantern. (*Lantern*)

Thomas McDonard, (Assignee of Charles A. Oswald,) Toronto, Ont., 10th August, 1883; 5 years.

Claim.—1st. The two inclined grooves or slots A A, in combination with the inner cylinder B. 2nd. The two locks C C attached to the inner cylinder or globe holder B, in combination with the self-adjusting band D with the catches E E located around the neck of the glass globe H below the rib h^1, as shown and described. 3th. The self-adjusting spring band D with the catches E E, as shown and described. 4th. The vertical sliding bolt F, in combination with the sliding stud G to keep the globe in its positive or normal position, as shown and described.

No. 17,446. Nut Lock for Screws.

(*Noix de sûreté pour vis.*)

Benjamin S. Crocker, William H. Hill, Topeka, Kansas, and Alexander Munroe, Laurence, Kansas, U. S., August 10th, 1883; 15 years.

Claim.—The combination of a bolt having intersecting right and left hand thread A and B with the nuts C D having corresponding threads, one nut being provided with projections and the other with corresponding depressions on their meeting faces, as and for the purpose described.

No. 17,447. Grinding Mill. (*Moulin à moudre.*)

George K. Smith, Freeport, Ill., U. S.. August 10th, 1883; 5 years.

Claim—1st. In a grinding mill, the combination of a master wheel formed with a central opening, a pair of grinding burrs, one stationary and one movable, having their axis coincident with the axis of the master wheel and adapted to discharge their product through the central opening therein, and suitable gearing adapted to impart the motion of the master wheel to said movable burr, substantially as and for the purpose set forth. 2nd. In a grinding mill, the combination of a master wheel having a central opening for the reception of the grinding burrs, a pair of grinding burrs, one stationary and one movable arranged within said opening, and suitable gearing for imparting the motion of the master wheel to said movable burr, substantially as shown and described and for the purpose set forth. 3rd. In a grinding mill, the combination of the master wheel having its shaft centrally chambered for the reception of the grinding burrs, a pair of grinding burrs, one stationary the other movable, arranged in said central chamber, and suitable gearing for communicating the motion of the master wheel to said movable burr, substantially as and for the purpose set forth. 4th. In a grinding mill, the combination of a centrally chambered master wheel and a pair of grinding burrs, one stationary and one movable, arranged in said central chamber with suitable gearing connecting said master wheel and movable burr and adapted to drive said burr at a speed different from that of the master wheel. 5th. In a grinding mill constructed as shown, the combination of the frame B, arms C and pan D formed in a single piece, the master wheel G resting thereon and the plate F adapted to secure the master wheel in its bearings, and at the same time to support the stationary burr of the mill, substantially as shown and described. 6th. In a grinding mill, the combination of a rigid stationary frame cast in a single piece, a train of gear wheels mounted on shafts journaled in said frame, suitable grinding mechanism attached to said frame, a shaft journaled in said frame and adapted to transmit power to machinery independent of the grinding mechanism, and means substantially as shown connecting said train of gearing with said grinding mechanism and said power transmitting shaft, whereby power applied to said train of gearing may actuate said grinding mechanism and independent machinery. 7th. In a grinding mill, the combination of suitable grinding mechanism, a train of gearing connected with said grinding mechanism and adapted to operate the same, a power transmitting shaft connected with said train of gearing and adapted to transmit the motion thereof to machinery other than said grinding mechanism, and means substantially as shown whereby said grinding mechanism and power transmitting shaft may be thrown out of engagement with said train of gearing, substantially as and for the purpose set forth. 8th. The combination of the master wheel G, pinion L, spur wheel K provided with beveled teeth N, the shaft P adapted to be connected with and propel machinery other than the grinding mechanism, and the beveled gear O mounted on said shaft and secured thereon by means permitting its engagement with, or disengagement from said bevelled teeth N, substantially as shown and described and for the purpose set forth. 9th. The combination of the master wheel G, pinion L, spur gear K, pinion M, mounted on the shaft J_1, lever *e* supporting said shaft and removable pin *m* supporting said lever and adapted by its withdrawal to throw said pinion M out of engagement with the spur gear K, substantially as shown and described and for the purpose set forth. 10th. The combination of the rotating burr R_1 having a square socket in its lower face and the shaft J_1, whose squared end enters said socket, the opposing surfaces of the shaft and burr being convex, as shown and described, together with means for raising and lowering and for rotating said shaft. 11th. The combination of the stationary and movable burrs R_1 R, shaft J_1 adapted to rotate said movable burr, lever *e* sustaining said shaft, means for raising and lowering one end of said lever to regulate the space between said burrs and the wooden pivot M in sustaining the other end of said lever and adapted to resist the ordinary pressure thereon, but to break and release the same upon the introduction between the burrs of any body calculated to injure their grinding faces.

No. 17,448. Fountain or Reservoir Pen.

(*Plume-fontaine.*)

Alonzo T. Cross, Providance, R. I., U. S., August 10th, 1883; 5 years.

Claim.—1st. In a fountain pen in which the column of ink in the reservoir is supported by atmospheric pressure, an ink delivering tube of small diameter in combination with an inclosed tube clearing spindle, provided with means extending through an enclosing tube to the upper portion of the ink reservoir for drawing the spindle upward or backward against the downward action of a spring, substantially as described. 2nd. In a fountain pen in which the column of ink in the reservoir is supported by atmospheric pressure, the combination of an air supplying tube with a sliding extension forced downward to its stop by means of a spring, and provided with means passing through the air tube to the upper portion of the reservoir for its retraction, substantially as set forth and for the purpose specified. 3rd. In a fountain pen in which the column of ink in the reservoir is supported by atmospheric pressure and provided with an ink delivering tube of small diameter, the combination of a tube clearing spindle with the vent plug by means of a loose swivelled connection passing through the air supplying tube, substantially as described. 4th. In a fountain pen in which the column of ink in the reservoir is supported by atmospheric pressure, a point section provided with a hollow screw at its upper end to form an adjustable seat for a spindle carrying guide pressed downward by means of a spring, substantially as described.

No. 17,449. Combined Portable Working Car and Swinging Derrick. (*Wagon de construction et grue mobile.*)

Thomas Dark, Buffalo, N. Y., U. S., August 10th, 1883; 5 years.

Claim.—1st. The combination of a working car A (comprising usually an engine and derrick) with a portable rail-road track E, the working car or cars running on said road, the latter moving forward or backward with the car when desired by the rollers *c c* running in suitable journals *b b* and on a removable plank road F G, all arranged and operating substantially in the manner and for the purpose specified. 2nd. The derrick C, its mast *c* having a longitudinally attached toothed gear or bevelled wheel *f* which meshes into and is operated by suitable toothed or gear wheels, suitably arranged in connection therewith and operated by a crank or from the engine, substantially as and for the purpose specified.

No. 17,450. Gas Furnase for Metallurgic and other purposes. (*Fourneau à gaz pour projets metallurgiques et autres.*)

Henry F. Hayden, Washington, D. C., U. S., August 10th, 1883; 5 years.

Claim.—1st. The combination with a working hearth or crucible, of a gas-generator located over the same and an interposed mixing chamber, substantially as and for the purpose specified. 2nd. The combination of a working hearth, a gas-generator located over the same and an interposed mixing chamber having a contracted throat at its juncture with the working chamber, substantially as and for the purposes specified. 3rd. The combination of a working chamber, a gas-generator, an interposed mixing chamber and a series of feed chutes arranged at or near the juncture of the mixing and working chambers, substantially as and for the purposes specified. 4th. A gas furnace having a working chamber below with waste product flues leading therefrom, an air chamber above, a gas generator suspended in the air chamber, and an interposed mixing chamber provided with zig-zag projections to insure the intermingling of the gas and air, substantially as and for the purpose specified. 5th. A mixing chamber for gas furnaces having a series of detachable overlapping bricks, of refractory material having free ends arranged in and projecting from its side walls, substantially as and for the purpose specified. 6th. A hot blast oven divided into two compartments by a vertical wall, said compartments communicating above and below an auxiliary furnace, and two waste product flues communicating with said blast oven and a hot air pipe and superheater arranged in said oven, substantially as and for the purpose specified. 7th. In a gas furnace for metallurgic and like purposes, a stack having a crucible or hearth, an air chamber arranged over the same, a generator suspended in the air chamber and an interposed mixing chamber, in combination with a hot blast oven having a hot air pipe which communicates with the air chamber over the crucible, a steam superheater which communicates with the generator and a flue which connects with the waste product flue leading from the crucible or hearth together with an oil supply pipe leading to the generator, substantially as and for the purpose specified. 8th. In a furnace the combination with the working hearth or crucible, of an air chamber located above the same, a generator suspended therein and an air supply pipe communicating with the air chamber and provided with a valve stand or exit pipe, substantially as and for the purpose specified. 9th. The combination of a crucible or hearth, an air chamber located over the same, a generator suspended in the air chamber and provided at its lower extremity with a nozzle or burner, an interposed mixing chamber having detachable projecting fire brick and a door located in the side wall of the air chamber at its

juncture with the mixing chamber and opposite the burner, substantially as and for the purpose specified.

No. 17,451. Middlings Purifier. (*Epurateurs des gruaux.*)

Milford Harmon, Jackson, Mich., U. S., August 10th, 1883; 5 years.

Claim—1st. A pitman which consist of a single member attached at one end directly to the crank pin another portion of which is attached directly to the part to be reciprocated, said parts being connected by means of an elastic longitudinally extensible device, substantially as set forth. 2nd. A pitman for imparting a reciprocating motion having the portion F and the coil I formed integrally, substantially as set forth. 3rd. In a shaker frame, the combination with the cloth bar and a supporting bolt, of a supporting rib provided with slots, substantially as set forth. 4th. In a shaker frame, the combination of the supporting rib and the cloth bar having a supporting bolt passing through it perpendicularly, and an adjusting bolt passing through it horizontally into the side rail of the shaker frame, substantially as set forth. 5th. In a shaker frame, the combination of the side bar A, rib *b*, bolts and nuts *f g h o*, substantially as set forth. 6th. The combination with the shaker frame of the inwardly projecting rib *b*, the cloth bar *e*, the bolts *h* and thumb nuts *o*, the bolts being arranged in the described relation to the rib *b* and the cloth bar, whereby said bolts and nuts are adapted to draw the cloth bar toward the shaker frame and also to press the upper edge of the cloth bar into close contact with the lower face of the rib *b*, substantially as set forth.

No. 17,452. Process of Lasting Boots and Shoes. (*Procédé pour enformer les chaussures.*)

Gilbert Hawkes, Lynn, Mass., U. S., August 10th, 1883; 5 years.

Claim.—That improvement in the art of lasting boots and shoes which consists in turning the edge of the upper over upon the inner sole, then applying a fabric coated with a fusible cement adhesive from the action of heat and attaching the fabric to the inturned edge and to the inner sole by applying heat, while the parts are under pressure, all substantially as set forth.

No. 17,452. Stump Extractor. (*Arrache-souche.*)

William Smith, Tomah, Wis., U. S., August 10th, 1883; 5 years.

Claim.—1st. The combination with the frame adapted to rest upon the ground and to be attached to a suitable stump or stake of the flanged drum mounted thereon on a vertical pin or pivot, the operating lever and the chain secured to the drum at one end, the said chain passing under suitable pulleys and being secured to the trees to be uprooted and to the stump to be extracted, substantially as specified. 2nd. In a stump extractor, the cruciform frame having a slotted rear and a vertical forward extension provided with a pulley under which the draft chain may pass and a vertical pin for the winding drum, substantially as specified.

No. 17,454. Lock Nut. (*Noix de sûreté.*)

Eugene W. Nichols, Toronto, Ont., August 10th, 1883; 5 years.

Claim.—The nut D having one or more grooves *d* cut in its surface and arranged to screw against a plate B having one or more grooves *a* cut in its surface, in combination with a wire E arranged to fit into the grooves *d* and *a*, substantially as and for the purpose specified.

No. 17,455. Drawing Apparatus. (*Appareil pour dessiner.*)

William S. Worden, Kearney, Neb., U. S., August 10th, 1883; 5 years.

Claim.—1st. The combination, in a perspectivedrawing apparatus with the front frame carrying a glass plate and perforated drawing sheet, of the rear frame or rest, substantially as and for the purpose set forth. 2nd. The combination, in a perspective drawing apparatus, of the front frame having its side pieces provided with spring catches, a glass plate, a perforated drawing sheet placed in rear of the glass plate, the rearward connecting bars or pieces and the rear frame or forehead rest, substantially as and for the purpose set forth. 3rd. The combination, in a perspective drawing apparatus, of the rectangular front frame having the side pieces grooved and provided with spring catches and provided at its four corners with convergent rearward extending rods or pieces and the rear rectangular frame or rest, substantially as and for the purpose set forth.

No. 17,456. Punching and Rivetting Anvil for Coopers' use. (*Enclume à percer et à river pour l'usage des tonnelliers.*)

John C Rothbarth, Buffalo, N. Y., U. S., August 10th, 1883; 5 years.

Claim.—In combination with the anvil A and die B having the punch hole *c* therein, the slotted hoop gage D and punch guide C having the recessed end or jaws *f*, all held together by screws *e e* or other suitable means and all arranged and operating substantially as and for the purpose specifiek.

No. 17,457. Boot. (*Botte.*)

Thomas H. Buckingham, San Francisco, Cal., U. S., August 10th, 1883; 5 years.

Claim.—1st. A boot the upper and leg of which consists of a main portion A, fashioned or cut as shown, and suitably crimped and a gore or gores let into the top of the main portion to complete the leg, substantially as described. 2nd. A boot, the upper and leg of which consists of a main portion A, fashioned or cut as shown, suitably crimped and stitched down the back and a gore B let into the top of the main portion A in front to complete the leg, substantially as described. 3rd. A boot, the upper and leg of which consists of a main portion A, fashioned or cut as shown suitably crimped and stitched down the back at seam *c*, a gore or gores B let into the top of the main portion A to complete the leg and a back seam stay E covering and securing seam *c*, substantially as described. 4th. A boot, the upper and leg of which consists of a main portion A, fashioned or cut as shown, and suitably crimped, a gore or gores B let into the top of portion A to complete the leg, and a combined counter protector and side lining C stitched inside of said main portion, substantially as and for the purpose described. 5th. A boot, the upper and leg of which consists of a main portion A, fashioned or cut as shown, suitably crimped and stitched down the back at seam *c*, a gore or gores B let into the top of the main portion to complete the leg, the combined counter protector and side lining C having a cut away rear edge *m* for securing a portion in seam c and allowing the rest free for the insertion of the stiffener, and the back seam stay E, covering seam *c* and catching up the rear edge of the counter protector and side lining, substantially as described. 6th. A boot, the upper and leg of which consists of a main portion A, fashioned or cut as shown, suitably crimped and stitched down the back, and gores B let into the top of portion A at each side to complete the leg, substantially as described.

No. 17,458. Telegraph and Telephone Protector. (*Protecteur de télégraphe et de téléphone.*)

Charles C. Drake, Trenton, N. J., U. S., August 10th, 1883; 5 years.

Claim.—1st. Means for protecting telegraphic, telephonic and signalling instruments from injury from abnormally powerful currents of electricity, such means consisting of the armature D, the connecting wire K, screw K I, post L, wire L^2 and wire A^6, in combination with the contact screw G electrically connected with the screw H^1, the magnet M M, screw H^1, wire H^2, screw C and post C^2 and wire A^1, all substantially as described. 2nd. A device for protecting telephonic, telegraphic and signalling instruments from injury from abnormally powerful currents of electricity, consisting of the armature D provided with the spring E, the connecting wire K, screw K^1, post L, wire L^2 and connections, in combination with the contact screw G electrically connected with the screw H^1, the screw H^1, wire H^2, screw C and post C^2 and wire A^1, all substantially as described.

No. 17,459. Horse Shoe. (*Fer à cheval.*)

Arnold C. Hawes, Norton, Ct., U. S., August 10th, 1883; 5 years.

Claim.—1st. A two part horse shoe made with hollow spaces in its interior, substantially as and for the purpose set forth. 2nd. A horse shoe made in two parts each of which has two or more depressions or panels surrounded by raised beads and having cross pieces which register with each other, whereby hollow spaces are formed in the interior of the shoe. 3rd. In a duplex horse shoe, a base plate having internally screw threaded lugs or bosses projecting above its surface, in combination with a top plate having depressions and countersunk holes registering with the bosses, substantially as described. 4th. In a horse shoe, the base plate A having depressions B B and bosses C C, in combination with plate A^1 having depressions B^1 B^1 and screw holes *c c* which register with the bosses, substantially as and for the purposes set forth.

No. 17,460. Mouth Piece for Speaking Tubes. (*Embouchure de cordons acoustiques.*

Max Heidelmeier, Chicago, Ill., U. S., August 10th, 1883; 5 years.

Claim.—1st. The combination with the call whistle of a speaking tube, of the bulging tubular part *a* and a^1 located in front of the whistle, substantially as and for the purpose specified. 2nd. The combination with the call whistle of a speaking tube, of the bulging tubular part *a* and a^1 located in front of the whistle, and the funnel shaped part E located behind the whistle, substantially as and for the purpose specified.

No. 17,461. Machine for Sawing Siding or Clapboards. (*Machine à scier les lambrissages à clin.*)

Horace Taber, Maniotee, Mich., U. S., August 10th, 1883; 5 years.

Claim.—1st. A head block having curved bed, in combination with a knee or jack head having a face pointing to the center of a circle of which the curve of the bed of the head block is an arc and a setting device, whereby the cant or quarter is presented to the saw F in such a position that the cuts made thereby will lead to a common center for producing sidings or clap boards as set forth. 2nd. The combination of a head block having a curved bed and a jack or knee having a curved base arranged radially to the curved bed, substantially as and for the purpose specified. 3rd. A head block having a curved bed and knee or jack head adapted thereto for supporting a cant and carrying it about a fixed center, in combination with the saw F arranged to produce a radial cut as shown, and one or more edging saws P P mounted on a separate arbor and at an angle to the saw F, substantially as shown and described. 4th. In a clap board machine, the combination of a carriage so constructed, substantially as described, as to move the log or cant about a center and present it to the saw in such manner as to produce radial cuts therein, a slicing saw and two edging saws arranged at right angles to the slicing saw, whereby the wedged shaped board is freed from the heart and sap edges simultaneously and while rigidly attached to the cant, substantially as specified. 5th. As an improvement in the art of forming siding, the method described consisting in severing a wedge shaped longitudinal section from a cant by a radial cut and simultaneously freeing the wedge shaped section from the heart and sap edges by two longitudinal cuts made parallel to each other and to the axis of the cant during the time the wedge shaped section is held by the cant, substantially as specified.

No. 17,462. Trimmer Attachment for Sewing Machines. (*Appareil à garnir pour les moulins à coudre.*)

George Davidson, Paris, Ont., August 10th, 1883; 5 years.

Claim.—1st. In a trimmer attachment for a sewing machine, a circular cutter A, constructed as described, the periphery thereof forming either a full circle or a part or parts of a circle, as and for purposes set forth. 2nd. In a trimmer attachment for a sewing machine, the lower knife B constructed with a heel or upward projection on the back end of its cutting edge to prevent the circular cutter from riding on the cutting edge of the lower knife, the aforesaid heel allowing the circular cutter to rise high enough for the work to pass under the same when feeding. 3rd. The cutter A in combination with the lower knife B and eccentric C and secured in their respective operating positions for the purposes set forth. 4th. The cutter B in combination with the cutter A and with or without the blower D when so required.

No. 17,563. Fire Pot for Boilers. (*Pot à feu pour les chaudières à vapeur.*)

Edward P. Bates, Syracuse, N. Y., U. S., August 10th, 1883; 5 years.

Claim.—1st. In a steam boiler, the combination of a water chamber, a fire-pot, flues extending from the upper part of the fire-pot through the water chamber and serving to conduct heat and to carry the waste products of combustion from the fire pot, an outer casing surrounding the fire pot and water chamber and a number of coal feeders extending downwardly at angles from the exterior of the casing to opposite portions of the fire pot so as to deliver fuel around the fire pot, the wall of the fire pot being closed entirely around except when the coal feeders open into it, substantially as specified. 2nd. In a steam boiler, the combination of a water chamber, a fire-pot, flues extending from the upper part of the fire pot through the water chamber and and serving to conduct heat and to carry the waste products of combustion from the fire-pot, an outer casing surrounding the fire-pot and water chamber, a number of coal feeders extending downwardly at angles from the exterior of the casing to opposite portions of the fire-pot, so as to deliver fuel around the fire-pot, the wall of the fire-pot being closed entirely around except where the coal feeders open into it and an automatic draft regulator for controlling the admission of air, substantially as specified. 3rd. In a steam boiler, the combination of the water chamber C, the fire pot A, flues B leading from the upper part of the fire pot through the water chamber, a number of coal feeders N extending laterally at inclines to opposite parts of the fire pot and serving to supply coal around the outer part of the fire-pot and a branch feeder O extending traversely to one of the feeders N and adjacent to another of said feeders, substantially as specified.

No. 17,464. Cross Cut Saw Handle.

(*Poigné de scie de travers.*)

Jerome C. Dietrich, Galt, Ont., August 10th, 1883; 5 years.

Claim.—As an improved cross-cut-saw handle, the shank A attached to and extending behind the end of the saw B and having on its end a cross-cupped socket C, in combination with the handle D having one or more holes pierced through it and arranged to be held in the cupped-socket, substantially as specified.

No. 17,465. Oatmeal and Grain Reduction Mill. (*Moulin à moudre le grain.*)

William Hutchison, Ottawa, Ont., August 10th, 1883; 5 years.

Claim.—1st. The combination in a feed hopper of two oppositely placed vertically grooved plates or sides C C_1, reciprocating horizontally by an endwise movement, said plates or sides converging downwardly and inwardly, as set forth for the purpose described. 2nd. The combination in a mill of two laterally adjustable reciprocating hopper plates or sides C C_1 vertically grooved and operated endwise by pitmans or other means, substantially as set forth for the purpose described. 3rd. The combination in a feed hopper of two opposite sides C C_1 converging downwardly and inwardly, the ends closed by a flexible material D, substantially as set forth for the purpose described. 4th. The combination with the feed hopper of a mill, of two parallel rolls B B_1 having longitudinally cutting edges L_1 and geared to rotate intersectingly to cut groats or grain falling interveningly thereon as set forth. 5th. The combination of the reciprocating hopper-plates c c_1 vertically grooved and operated endwise on horizontal bearings F by pitmans or other suitable means, and rolls B B_1 having in their periphery longitudinally cutting edges L_1 interveningly receiving the discharge from the hopper whereby the groats or grain from the hopper will fall endwise therefrom and be cut transversely by the rolls as set forth.

No. 17,466. Mould for Moulding or Shaping Bulbs of Incandescent Electric Lamps. (*Moule à mouler ou à former les spheres des lampes électriques incandescentes.*)

Alfred Swan, Borough of Gateshead, Eng., August 10th, 1883; 5 years.

Claim.—1st. The mould for moulding or shaping bulbs for incandescent electric lamps or other articles of glass, the said mould being constructed with a bottom part in one piece and with an inclined upper surface and with separate top parts similarly inclined on their under surface, substantially as described and illustrated in the accompanying drawings. 2nd. In moulds for moulding or shaping bulbs for incandescent electric lamps or other articles of glass, the combination of a bottom part in one piece with divided top parts capable of being closed over the bottom part to complete the mould and opened out therefrom to release the moulded article, substantially as described with reference to the accompanying drawings.

No. 17,467. Manufacture of Incandescent Electric Lamps. (*Manufacture des lampes incandescentes.*)

Alfred Swan, Borough of Gateshead, Eng., August 10th, 1883; 5 years.

Claim.—1st. The improvements in incandescent electric lamps consisting in passing an electric current through the terminal wires whilst the glass or the like is being pressed or formed around them, substantially as described. 2nd. In the manufacture of incandescent electric lamps, the employment of moulds for forming the glass portions through which the terminal wires pass, the said moulds being formed or provided with insulating material to direct an electrical current through the wires whilst the glass is being pressed or formed around them, substantially as described with reference to the accompanying drawings.

No. 17,468. Holder for Incandescent Electric Lamps. (*Soutien pour lampes électriques incandescentes.*)

Alfred Swan, Gateshead, Eng., August 10th, 1883; 5 years.

Claim.—1st. The holder for incandescent electric lamps consisting of a part A which directly holds the bulb together with a part B which holds the part A, the said parts A and B being provided with fastening devices so that the bulb can be removed from the part A, or the part A and the bulb be removed together from the part B, substantially as described and illustrated in the drawings. 2nd. In incandescent electric lamp holders, the combination of the jaws a $a2$, push piece d and springs or spring (e or $e2$) for attaching the bulb to and releasing it from the holder, substantially as described and illustrated in the drawings. 3rd. In incandescent electric lamp holders, the combination of a recessed part B, springs b and the part A with shoulders or ledges $a5$ for attaching the part A to the part B and for readily detaching the same, substantially as described and illustrated in the accompanying drawings.

No. 17,469. Mowing Machine. (*Faucheuse.*)

Charles C. Carlyle, Bass River, N. B., August 11th, 1883; 5 years.

Claim.—1st. A mowing machine having a suspended cutter-bar adapted to be actuated in the same vertical plane as the axle of the driving-wheels, as and for the purposes set forth. 2nd. The combination with the driving-wheels A of the tubular axle B, actuating-rod J and serpentine grooved cam-wheel H and actuating means therefor, substantially as described as and for the purposes set forth. 3rd. The combination with the driving-wheels A of the tubular axle B having the horizontal actuating-rod J, the driving shaft D having pinions E geared with the said driving-wheels A and provided with the serpentine grooved cam-wheel H and pivoted actuating lever L connected with the cutter-bar P, substantiailly as described as and for the purposes set forth.

No. 17,470. Buckle. (*Boucle.*)

James A. Park and Charles J. Davis, Lansing, Mich., U. S., August 11th, 1883; 5 years.

Claim—1st. In a buckle, the combination of an outer and an inner frame pivotally secured together, one of said frames being provided with a tongue bar and tongue while the other frame is formed with a cross bar provided with a stud to engage a strap, substantially as set forth. 2nd. In a buckle, the combination with an inner frame having a downwardly turned end loop and a tongue bar of an outer frame pivotally secured to one end of said inner frame and having a central cross bar provided with a stud and an upwardly turned end loop adapted to receive the downwardly turned loop of the inner frame, substantially as set forth. 3rd. In a buckle, the combination with an outer and an inner frame, said frames being pivoted or hinged together at one end and provided at the other end with oppositely turned loops, one of which projects through the other, of a stud tongue bar and tongue substantially as set forth. 4th. In a buckle, the combination with two frames pivotally secured together at one end, their opposite ends interlocking to form respectively a loop below the stud-bar, and a tuck loop, of a stud bar and a tongue bar provided with an opening to receive the stud and with a pivoted tongue, substantially as set forth.

No. 17,471. Process and Apparatus for Purifying and Maturing Liquors. (*Procédé et appareil à purifier et vieillir les boissons.*)

The Cushing Process Company, Boston, assignee of Ira B. Cushing, Brookline, Mass., U.S., August 11th, 1883; 5 years.

Claim.—1st. The tank A provided with a condenser and an exit pipe and means, as shown and described, for temporarily shutting off communication between the tank and condenser, in combination with the auxiliary tank L with its connecting pipes g h and discharge pipe m provided with suitable valves and means as shown for heating the contents of the tank whereby the ethylic alcohol and water carried over into the tank L are caused to return to the tank A, substantially as and for the purpose set forth. 2nd. The process of separating or eliminating the aldehyde from the spirits being treated and returning to the spirit tank, any ethylic alcohol which may have passed off with the aldehyde, the same consisting in first discharging the alcoholic vapors from the spirit tank into an auxiliary tank containing water or other liquid, and allowing the aldehyde to be forced with the air through the liquid and escape into the air through a suitable discharge aperture, and then applying heat to the liquid contents of the auxiliary tank without removing it therefrom and returning the vapors containing the ethylic alcohol to the spirit tank while the spirits therein a[illegible]being treated, substantially as described. 3rd. In an apparatus for [illegible]ving and maturing liquors or distilled spirits, the combination wit[illegible]he auxiliary tank L and the spirit tank A, of the connecting or return pipe g provided with a condenser 25.26., and steam pipe n, all constructed and arranged to operate substantialiy as and for the purpose set forth.

No. 17,472. Car Platform. (*Plate-forme de wagon.*)

The Cowell Platform and Coupling Company, (assignee of Rensselaer A. Cowell,) Cleveland, Ohio, U.S., August 11th, 1883; 5 years.

Claim—1st. In combination with a yielding platform C and an adjusting bar F of a pivoted bar G and the wedge-shaped piece H for

operating the same, substantially as set forth. 2nd. In combination with a yielding platform C, adjusting bar F and pivoted bar G of the wedge-shaped piece H provided with flat portions *b*, substantially as and for the purpose shown and described. 3rd. In combination with a yielding platform provided with an adjusting-bar, of a wedge and suitable mechanism for operating the same, whereby the tension of the springs is adjusted and controlled, substantially as and for the purpose described.

No. 17,473. Art of Making Textile Imitations of Persian Lamb Peltries.

(*Art de faire des imitations de pelleteries de moutons de Perse.*)

Louis Pelland, Berthier, Que., August 11th, 1883; 5 years.

Claim.—1st. The described method or mode of producing imitations of Persian lamb peltries containing in sewing a thread or strand of wool into a ground or backing of canvas so as to form a series of loops resembling the peltry curls. 2nd. In the manufacture of imitations of Persian lamb peltries, the forming of two or more of the loops to resemble the curl of Persian lamb wool from one and the same strand or thread as described. 3rd. The combination and arrangement of the canvas *a* with the strand or thread of wool *b* stitched or served into the canvas, substantially as described.

No. 17,474. Match Dipping Machine.

(*Machine à plonger les allumettes.*)

Thomas A. Cook, Ottawa, Ont., and Felix Labelle, Hull, Que., August 11th, 1883; 5 years.

Claim.—1st. In a match machine, the combination of a furnace and a naked or exposed drying plate heated thereby, a second furnace provided with a sulphur pan, a third furnace provided with a composition pan and mechanism for delivering the composition, and means substantially as described, adapted to convey the match trays over the drying plate, the sulphur pan and the composition pan successively, whereby the splints may be successively dried, dipped in sulphur and dipped in the igniting compound and the heat graduated in each of the furnaces independently of the others as required. 2nd The combination of a frame A, furnaces F F_2 F_3, hot plate H, sulphur pan S, composition trough C, roller R, cylinder R_1, apron *e*, sets of pulleys P^1 P^2 P_3, spur wheels and carriers W_1 W_2 W_3 W_4 w^1 w^2, endless bands or chains E^1 E^2 E_3, steam jet J and fan F with tubes and distributer T. 3rd. In combination with a match dipping machine, a steam heated cylinder R^1 and roller R upon which is mounted an endless apron *e* dipping into the composition and secured to an endless chain E by which the apron is kept off the surface of the cylinder and roller, the cylinder and roller suitably journalled in the composition trough. 4th. In combination with the composition-applying mechanism of a match dipping machine, a steam jet J for the purpose of keeping moist those parts not immersed in the composition during the time the machine is stopped. 5th. In combination with the match dipping machine, a fan F, tubing *t* and perforated distributer T for the purpose of playing upon and cooling the match splints after being dipped in sulphur. 6th. In a match machine, the combination of a tray or vat to receive the composition and endless apron acting therein and a hollow steam-heated roll sustaining an apron as described. 7th. The combination of the following elements, a drying furnace, a composition pan, an air delivery device, a composition furnace provided with delivery mechanism and conveyers, substantially as described, for automatically delivering the match frame to said mechanism in the order named. 8th. In a match machine, the combination of a drying furnace, a sulphur pan and composition pan with the three pairs of endless belts, and the intervening plates *b* whereby the matches are presented to the three furnaces in succession. 9th. In combination with the sulphur pan, the composition pan and the mechanism for transferring the splints from one to the other, the air blast mechanism arranged to deliver a blast upon the matches between the two pans, all substantially as described and shown and for the purpose set forth.

No. 17,475. Telephone Transmitters.

(*Transmetteur téléphonique.*)

James A. Lakin, Westfield, Mass., U. S., August, 11th 1883; 5 years.

Claim.—1st. The combination, in a telephone transmitter, of a diaphragm secured therein and included in a battery circuit, an adjusting spring fixed at one end, a contact spring secured to and adapted to be moved by said adjusting spring and with one or more electrodes interposed between the free end of said contact spring and the diaphragm, and an adjusting screw to be turned against said adjusting spring to adjust the contact pressure between the free end of said contact spring and the diaphragm or the interposed electrodes, substantially as described. 2nd. The combination, in a telephone transmitter, of an adiusting spring fixed at one end, a contact spring secured to said adjusting spring and with its free end extending to a point in rear of said diaphragm, and operated in its movements by that of said adjusting spring, and an adjusting screw to be turned with more or less force against the free end of the adjusting spring to move the free end of the contact spring, substantially as described. 3rd. The combination, in a telephone transmitter, of a diaphragm secured therein and provided with a carbon button, the adjusting spring 6 fixed at one end, the contact spring 5 secured to and adapted to be moved by the adjusting spring and provided with a carbon button, a platinum point or electrode secured in one of said buttons to make contact against the other button and an adjusting screw adapted to be turned against said adjusting spring to adjust the pressure of said platinum point or electrode against the opposite button, substantially as described.

No. 17,476. Thill Coupling.

(*Armon de limenière.*)

Jerome C. Dietrich, Galt, Ont., August 11th, 1883; 5 years.

Claim.—1st. In a thill-coupling in which the thill has a hooked end to fit over the bolt passing through the draw jack, the combination of a looped spring plate designed to fit between the jaws of the draw-jack behind the thill, the loop in the plate being curved to extend over the top of the thill, substantially as shown and described. 2nd. In a thill coupling in which the hooked end of the thill is held in position by a looped spring plate fitted between the jaws of the draw-jack behind the thill, a pin or projection formed either on the draw-jack or plate, in combination with a hole or indentation to fit over the said projection when the spring plate has been pressed home, substantially as and for the purpose specified. 3rd. In a thill coupling in which the hooked end of the thill is held in position by a plate fitted between the jaws of the draw-jack behind the thill, the combination of an enlarged end formed substantially as described on the hook of the thill so that it cannot be lifted out of the jack until the plate has first been removed substantially as and for the purpose specified.

No. 17,477. Fire Back for Stoves and Ranges. (*Dos de poêles et de landiers.*)

George A. Way, Middleville, Mich., U. S., August 11th, 1883; 5 years.

Claim.—1st. The system of grooves cast in the rear face of the fire-back to facilitate its adjustment to fire boxes of different depths, substantially as set forth. 2nd. The centre piece A provided with longitudinal lugs constructed to form a dove-tail recess wholly outside the main body of said centre piece, in combination with a side piece having a dove-tail shaped tongue to fit into said recess having one of its surfaces in line with the portion of said plate that comes in contact with the back of the center piece. 3rd. The centre piece A provided with longitudinal lugs *a a* and *b b* constructed to form recesses outside the main body of the center piece and arranged on different horizontal planes, in combination, with two side pieces B and D having dove-tail shaped tongues C E adapted to fit said recess, all constructed, arranged and operating substantially as shown and described.

No. 17,478. Nut Lock for Fish Plates.

(*Noix de sureté pour les éclisses.*)

James Wilkes, Winnipeg, Man., August 11th, 1883; 5 years.

Claim.—1st. The combination with the plate A having apertures B and a tongue E, of the locking plate G provided with prongs H and a tongue M, substantially as shown and described and for the purpose set forth. 2nd. The combination with the plate A having apertures B and a tongue E pressed out of the plane of the plate and having a recess F in its upper end, of the locking plate G provided with prongs H and a tongue M, substantially as shown and described and for the purpose set forth. 3rd. The combination with the plate A having apertures B C and a tongue E, of the locking plate G having prongs H R, and a tongue M pressed out of the plane of the plate G, substantially as shown and described and for the purpose set forth. 4th. The combination with the plate A having apertures B C and a tongue E, of the locking plate G having prongs H R and a tongue M pressed out of the plane of the plate G and provided with a recess N, substantially as shown and described and for the purpose set forth.

No. 17,479. Attachments to Automatic Gates. (*Barrière automatique.*)

John F. Lukens, West Mansfield, Ohio, U. S., August 11th, 1883; 5 years.

Claim.—1st. The combination with a gate having a lower hinge of any suitable kind, of an upper hinge consisting of a hinge-strap and of a rod bent to form a double crank and a lever arm, the crank passing through the hinge-strap and attached to the hinge post above and below the double crank while the lever arm is extended above the post and provided with pulley-cords or wires, whereby the gate may be opened or closed from a distance, substantially as described. 2nd. In combination with the elongated perpendicular slot I, the gate arranged to tilt backward raising the latch H until it swings free of the post, substantially as set forth. 3rd. The combination, with the double crank shown, of the hinge G, eye-seat D and hook-bearing E as and for the purpose specified.

No. 17,480. Apparatus for Preserving Alimentary Substances. (*Appareil pour conserver les substances alimentaires.*)

Carl M. Pielsticker, London, Eng., August 11th, 1883; 5 years.

Claim.—1st. The composition and use of an antiseptic salt for preserving alimentary substances, containing Boracic Acid, Phosphate of Soda, and Formiate of Soda in such proportions as to render the Boracic Acid completely soluble and to produce a practically tasteless salt, preferably composed as hereinbefore described. 2nd. The process of preserving alimentary substances by first treating them with an antiseptic, as described in claim 1, and subsequently placing them in air-tight chambers or vessels in which the atmospheric air has been removed and replaced by a mixture of carbonic acid and carbonic oxide gases in certain definite proportions, or from which the mixture of these gases has been subsequently removed and replaced by a partial vacuum or by keeping a constant current of mixture of these gases in certain definite proportions passing through the preserving chambers, substantially as described. 3rd. The combination and use of a gas producer having openings for the admission of atmospheric air near the top of a cylinder for the purpose of oxidizing the vapours of carbonic oxide produced from the combustion of coke to a certain definite extent into carbonic acid gas and of so producing a mixture of carbonic acid and carbonic oxide gas in certain definite proportions, substantially as hereinbefore described.

No. 17,481. Stove Board. (*Sous-poêle.*)

William P. Cole, Montreal, Que., August 13th, 1883; 5 years.

Claim.—As an improved article of manufacture, a stove-board constructed of a base or foundation A of wood, mill or straw-board, or textile fabric having a covering B of asbestos applied in a sheet or in a plastic state and secured adhesively by cement.

No. 17,482. Coal Oil Stove. (*Poêle à pétrole.*)

Thomas G. Watson, Paris, Ont., August 11th, 1883: 5 years.

Claim.—1st. In a coal-oil stove, an oil reservoir detachably held within a light metal base and having fixed on its top a metal tray extending around the wick ducts, in combination with a detachable metal frame provided with legs resting on the flange of the tray and supporting the perforated plate placed below the top of the wick ducts, substantially as and for the purpose specified. 2nd. In a coal-oil stove, in which the reservoir and lamp are detachably supported within a light metal base, an annular casing for carrying the cooking utensil hinged to a bracket attached to the base, in combination with a chamber projecting below the bottom of the annular casing and having holes made through its bottom immediately above and corresponding with the shape of the wick ducts, the said chamber resting on the tray and forming a chimney for the lamp, substantially as and for the purpose specified. 3rd. In a coal-oil stove, in which the cooking utensil is supported over the lamp on an annular casing, the combination of a perforated disc placed within the annular casing between the lamp and bottom of the utensil held above it, substantially as and for the purpose specified. 4th. In a coal-oil stove, in which the cooking utensil is supported over the lamp on an annular casing, which casing is provided with a draft flue leading up a chimney, the combination of a perforated or open shelf supported over the mouth of the chimney, substantially as and for the purpose specified.

No. 17,483. Mechanism used for Transporting Goods and Passengers by the aid of Electricity. (*Mecanisme servant à transporter les marchandises et passagers au moyen de l'électricité.*)

Fleeming Jenkin, Edinburgh, Scotland, August 13th, 1883: 15 years.

Claim.—1st. My system of telpherage, in which a single conductor divided into sections and with connections controlled by the passing trains drives a series of vehicles or of trains by electro motors upon them which are are electrically connected in series through the conductor. 2nd. My system of telpherage, in which two conductors divided into sections and with connections from one to the other controlled by the passing trains drive a series of vehicles or of trains by electro motors upon them which are electrically connected in series through the conductors. 3rd. The use in telpherage, of insulated wires or ropes to sustain the vehicles and simultaneously convey the electric current to electro motors upon the vehicles. 4th. The use, in telpherage, of governing apparatus upon the vehicles which cuts out the electro motor when a certain speed is reached and at a higher speed applies a brake. 5th. My system of electrical propulsion, in which the electro motors of the several trains or vehicles upon the line are caused to receive the current in series, each spanning a gap in an otherwise continuous conductor. 6th. My system of automatically blocking trains or vehicles electrically propelled in series by maintaining continuity in that part of the conductor in which a gap is required to render the current effective in propelling the train or vehicle. 7th. My combination of apparatus for propelling trains and vehicles in series by electricity consisting of apparatus at a station maintaining a uniform current, a conducting system by which the said current passes to and through the trains or vehicles upon the line in series and governing apparatus upon each train or vehicle regulating according to speed, the quantity of current taken from the conductor and passed through the propelling electro motor.

No. 17,484. Rotary Engine. (*Engin rotatoire.*)

Leander J. Wing, Lexington, Mass., U.S., August 13th, 1883; 5 years.

Claim.—1st. In a rotary engine, the combination with a revolving piston of a rotary disk abutment arranged at right angles, and suitable mechanism for imparting a continuous rotary motion thereto, substantially as shown and described and for the purpose set forth. 2nd. In a rotary engine, the combination with a rotary piston disk, of a rotary abutment disk, arranged at right angles to the rotary piston disk, and suitable mechanism for imparting a continuous rotary motion thereto, and having the periphery of the said abutment disk arranged to snugly fit against the periphery of the piston disk, substantially as shown and described and for the purposes set forth. 3rd. In a rotary engine, the combination with a rotary piston disk having a concave periphery, of a rotary disk abutment arranged at right angles to the piston disk, and provided with a concave periphery and suitable mechanism for imparting a continuous rotary motion thereto, substantially as shown and described and for the purposes set forth. 4th. In a rotary engine, the combination with a revolving piston and tapered piston extensions, of a rotary disk abutment arranged at right angles to the piston disk, substantially as shown and described and for the purposes set forth. 5th. In a rotary engine, the combination with a self adjusting revolving piston, of a rotary disk abutment arranged to revolve at right angles to the line of movement of said piston, substantially as shown and described and for the purposes set forth. 6th. In a rotary engine, the combination with the cylinder provided with an annular bore made circular in cross section, of a rotary disk abutment arranged to rotate at right angles to the annular bore and to open and close the same, and with suitable mechanism for transmitting a continuous rotary motion thereto, substantially as shown and described and for the purpose set forth. 7th. In a rotary engine the combination with a rotary piston disk, of a rotary disk abutment arranged at right angles to the piston disk and cylinders extensions located at opposite sides of said abutment, and extending towards the centre of the cylinder, substantially as shown and described and for the purpose set forth. 8th. In a rotary, the combination with a cylinder and revolving piston, of a revolving disk abutment arranged at right angles to the revolving piston and cylinder extensions provided with self adjusting packing rings, substantially as shown and described and for the purposes set forth. 9th. In a rotary engine, the combination with a cylinder and revolving piston and piston disk, of a rotary disk abutment arranged at right angles to the revolving piston and cylinder extensions provided with self adjusting packing for packing the sides of the abutment and piston disk, substantially as shown and described and for the purpose set forth. 10th. In a rotary engine the combination with a rotary piston disk provided with piston extensions and self adjustable piston located between the adjacent ends of said extensions, of a rotary disk abutment arranged at right angles to the rotary piston, and provided with an irregularly curved cut away portion for the passage of said piston and piston extensions, substantially as shown and described and for the purposes set forth. 11th. In a rotary engine, the combination with a revolving piston, of a rotary disk abutment mounted on a shaft and arranged at right angles to the revolving piston, and devices for imparting vertical adjustment to said shaft and rotary disk abutment, substantially as shown and described and for the purposes set forth. 12th. In a rotary engine, the combination with a revolving piston, of a rotary disk abutment mounted on a shaft and devices for imparting longitudinal adjustment to said shaft, substantially as shown and described and for the purposes set forth. 13th. In a rotary engine, the combination with a revolving piston, of a rotary disk abutment mounted on a shaft, and bearings for receiving the end thrust of said shaft, substantially as shown and described and for the purposes set forth. 14th. In a rotary engine, the combination with a rotary piston disk, of a piston provided with an expansible packing ring formed with a projection which fits into a recess in the piston disk, substantially as shown and described and for the purposes set forth. 15th. In a rotary engine, the combination with a rotary piston disk, of a piston connected therewith, said piston being provided with an expansible packing ring, constructed with a projection that is split by a vertical and horizontal wall, substantially as shown and described end for the purposes set forth. 16th. In a rotary engine, the combination with the revolving piston disk, of a self adjusting piston and devices for counteracting the effect of centrifugal force exerted on the piston, substantially as shown and described and for the purposes set forth. 17th. In a rotary engine, the combination with a rotary piston disk, of a piston, a weight lever and connecting links for counterbalancing the piston substantially as shown and described and for the purposes set forth. 18th. In a rotary engine, the combination with a rotary piston disk and a hollow piston extension, of a weight located in the hollow piston extension and links, and a lever for connecting the piston and weight, substantially as shown and described and for the purposes set forth. 19th. In a rotary engine, the combination with a rotary piston disk and lever provided with an adjustable fulcrum located within a slot or opening in said piston disk, of a piston connected by a rod to one end of said lever and a weight connected by a rod to the other end of said lever, substantially as shown and described and for the purposes set forth. 20th. In a rotary engine, the combination with a rotating piston disk and a piston provided with expansible rings, of devices connected with the inner expansible ring for counterbalancing the action of centrifugal force of the piston, substantially as shown and described and for the purposes set forth. 21st. In a rotary engine, the combination with the driving shaft and rotary piston disk having conical recesses in the ends of its hubs, of split conical rings and bolts for securing the piston disk to the shaft, substantially as shown and described, and for the purposes set forth. 22nd. In a rotary engine, the combination with the main driving shaft and the shaft, carrying the rotating abutment arranged at right angles with the revolving piston, of intermediate gearing for transmitting a positive motion to the rotary abutment shaft from the main driving shaft, substantially as shown and described and for the purposes set forth. 23rd. In a rotary engine, one section of the cylinder having the projections E_3 cast solid therewith, said projections being constructed to receive the bearings of the rotary disk abutment at right angles with the revolving piston, substantially as shown and described and for the purposes set forth. 24th. The combination with the packing rings of the cylinder extensions, of devices for regulating the inward pressure on said packing rings, substantially as shown and described and for the purposes set forth. 25th. The combination with the packing rings of the cylinder extensions, of the springs I_3 and adjustable wedges L_5 substantially as shown and described and for the purposes set forth. 26th. The combination with the packing rings of the cylinder extensions, of the block L^4, springs L_3, wedges L^5 and set screws L_2, substantially as shown and described and for the purposes set forth. 27th. The rotary abutment disk, cut away on one side for the passage of the piston and cored out on its opposite side to balance the disk, substantially as shown and described and for the purposes set forth. 28th. In a rotary engine, the combination with the annular cylinder and revolving abutment, of pockets secured to the opposite sides of the abutment chamber, substantially as shown and described and for the purposes set forth. 29th. In a rotary engine, the combination with the annular cylinder and revolving abutment, of a cop secured to the top of the abutment chamber and adapted to form on either side surfaces suitable for the securing of the stuffing boxes of the abutment shaft thereto, substantially as shown and described and for the purposes set forth. 30th. In a rotary engine, the combination with the main shaft, of standard for supporting the same, said standards formed in two parts, the upper portions constituting the lower half of the shaft bearings and provided with outwardly projecting ears or flanges for the removable attachment of the cops of the journal boxes, and secured to the lower section of the standard in a manner to prevent any longitudinal displacement, the upper portion of the standards made both vertically and laterally adjustable, substantially as shown and described and for the purposes set forth. 31st. The standards formed of upper and lower sections, the latter provided at its lower end with a perforated supporting flange and at its upper end with a supporting bracket and wedges interposed between said sections of the standard and set screws for varying the adjustment of said wedges, and thereby raising or lowering the upper section of the standards, substantially as shown and described and for the purposes set forth. 32nd. The combination with the upper and lower sections of the main shaft, standards of wedges provided with elongated slots, bolts inserted through said slots for securing said sections together and set screws for varying the adjustment of said wedges, substantially as shown and described and for the purposes set forth. 33rd. A cylinder for rotary engines consisting of two sections having one or more abutment recesses located at right angles to the bore and flanges between the hub and abutment recesses for the insertion of bolts for fastening the sections together, substantially as shown and described and for the purposes set forth. 34th. A cylinder for rotary engines con-

sisting of two sections, each provided with a semi circular bore for the piston and a connecting chamber for the piston disk, and furnished with abutment flanges in one or both sides and with flanges between the hub and abutment flanges through which are inserted bolts for securing the sections together, substantially as shown and described and for the purposes set forth. 35th. A cylinder for rotary engines consisting of two sections, each provided with a semi circular bore for the piston, a packing ring groove located on the inside of the bore and with flanges between the hub and bore for the insertion of bolts for securing the sections together, substantially as shown and described and for the purposes set forth. 36th. A cylinder for rotary engines consisting of sections provided with inter-locking lugs, substantially as shown and described and for the purposes set forth. 37th. A cylinder for rotary engines consiating of two sections provided with lugs or projections in their hub portions constructed to inter-lock and to allow the sections to be inter-changeable, substantially as shown and described and for the purposes set forth. 38th. A cylinder for rotary engines constructed in sections and provided with an annular bore for the piston and intervening space for the piston disk, the end of the section being grooved around the bore, said groove extending to the opposed sides of the space for the piston disk and provided with a series of pockets for the reception of springs for keeping the packing rings pressed outwardly against the revolving abutment, substantially as shown and described and for the purposes set forth. 39th. The combination with a rotary cut off valve, of a rotary valve seated upon the cut off valve, the adjacent faces of the two valves being constructed to form intervening steam spaces for balancing the rotary valve, substantially as shown and described and for the purpuoses set forth. 40th. The combination with a rotary valve provided with a steam space between its lower face and seat of a rotary governor valve seated on the rotary valve, the adjacent faces of the two valves being constructed to provide an intervening steam space, substantially as shown and described and for the purooses set forth. 41th. The combination with a rotary valve, of a rotary governor valve seated on the rotary valve, the adjacent faces of the two valves being recessed or grooved to provide an intervening steam space, and suitable devices for automatically actuating the governor valve, substantially as shown and described and for the purposes set forth. 42nd. The combination with a steam balanced rotary valve, of a steam balanced cut off valve, serving as a seat for the rotary valve and a steam balanced governor valve, seated on the upper face of the rotary valve, substantially as shown and described and for the purposes set forth. 43rd. The combination with the head of the valve cylinder having ports formed therein communicating with a steam pipe or passage leading to the engine cylinders, of a cut off valve seated on the inner face of the valve cylinder head, said cut off being constructed with outwardly projecting flanges or ribs which encircle the cut off valve and the parts formed therein, substantially as shown and described and for the purposes set forth. 44th. The valve cylinder head constructed with a steam passage cast on the outer portion of the oead, the ends of the steam passage extending through and forming steam ports on opposite side thereof, substantially as shown and described and for the purposes set forth. 45th. The cut off valve constructed with steam recesses or cavities on opposite sides of the ports and of substantially the same size and form as said ports, substantially as shown and described and for the purposes set forth. 46th. The combination with the rotary valve provided with through ports, of the cut off valves constructed with ports and with steam cavities or recesses on opposite sides of said ports, the construction being substantially as disclosed, whereby the rotary valve is balanced and steam cut off at any point of its rotation, substantially as shown and described, and for the purooses set forth. 47th. The combination with the rotary valve provided with radial grooves or steam passages and an inter steam chamber connecting said grooves or passages, of a governor valve provided with radial recesses or grooves closed at opposite ends, substantially as shown and described and for the purposes set forth. 48th. The combination with the rotary valve provided with a number of holes for the passage of steam through the valve and an annular groove on the opposite side with which said holes communicate, of the rotary governor valve having a grooved or recessed portion formed therein that registers with said annular groove, substantially as shown and described and for the purposes set forth. 49th. The combination with the governor valve of a worm gear connected therewith by pins and a worm engaging said gear, substantially as shown and described and for the purposes set forth. 50th. The combination with the governor valve provided with a hub, a worm gear mounted on said hub and attached to the governor valve by pins and a worm for actuating the valve, substantially as shown and described and for the purposes set forth. 51st. The combination with the governor valve provided with a hub, a step secured to the head of the valve cylinder and provided with a recess for receiving the hub of the valve, substantially as shown and described and for the purposes set forth. 52nd. The combination with the rotary valve having radial bearing surfaces on the back of the valve surrounding the ports therein, of a governor valve provided with radial grooves of less width than the width of the bearing surfaces at the ends of the steam ports in the rotary valve, substantially as shown and described and for the purposes set forth. 53rd. A rotary valve constructed with outwardly projecting flanges around its central openings and around its ports and on each end of the ports to form steam cavities or recesses on opposite sides of the ports and a steam chamber in the central portion of the valve, substantially as shown and described and for the purposes set forth. 54th. The combination with a rotary valve having a recess formed in its periphery, of a link and yoke secured within said recess by a screw and a rod secured to the yoke, substantially as shown and described and for the purposes set forth. 55th. The combination with the rotary valve and revolving shaft connected therewith by spline and feather, of the cut off valve and arbor or pivot extending through the cut off and entering the end of said shaft, substantially as shown and described and for the purposes set forth.

No. 17,485. Perpetual Calendars.

(Calendrier perpetuel.)

William F. Piercy, New Tacomo, W. T., U. S., August 13th, 1883; 5 years.

Claim.—1st. The combination of the three circular plates A B C pivoted in the center and provided with indicative terms and sectional lines to correspond, as described. 2nd. The plate C having slits D D and indicative terms, as shown in Fig. 2, in combination with the center plate B having figures and marks to show month of the year, number of days in the month, length of day time, length of night time, time of sun rise and time of sun set, substantially, as described. 3rd. The plate A with notch E bearing days of the week, as shown in Fig. 1, in combination with the center plate B having the days of the month arranged in circular series and adapted to show through the notch E in weekly sections, as described.

No. 17,486. Wheelbarrow. *(Brouette.)*

John Bean, Springfield, Ohio, U. S., August 13th, 1883; 5 years.

Claim.—1st. In a wheel barrow, the combination of a beam with a coupling, a supporting leg and an interposed pointed disk or bottom adapted to indent the beam when the leg is screwed well into the coupling, substantially as set forth. 2nd. In a wheelbarrow, a coupling provided with an upwardly extending projection adapted to receive the head board standard and an inwardly projecting lug adapted to be connected with the bottom-board, said lug being integral therewith, as shown and set forth. 3rd. In a wheel barrow, the side boards of the body adapted to extend down against the outside of the beams and provided with elastic clips adapted to embrace the inner sides of the beams, whereby the boards are secured in position against lateral displacement, substantially as set forth. 4th. In a wheel barrow, the combination with the beams and supporting legs of the V-shaped brace secured to the latter and adapted to prevent lateral shift and the diagonal braces secured to the forward end of the beams and passing through the legs, said diagonal braces being adapted to adjust the journals by means of tightening nuts substantially as set forth. 5th. In a wheelbarrow, the combination of the beam, the head-board brace and U-shaped journal having arm adapted to extend through the beam and brace and provided with nut, substantially as shown. 6th. In a wheel barrow, the combination of the couplings, the head- board standards suitably braced with the grooved head-board and lateral binding rod, substantially as described.

No. 17,487. Amalgamating Apparatus.

(Appareil à amalgamer.)

Alfred K. Huntington and Walter E. Koch, London, Eng., August 13th, 1883; 5 years.

Claim.—1st. In amalgamating apparatus consisting of a pan or vessel in which a vertical pipe revolves, the radial tapered branch pipes K, each made with a slit *k* opening from the branch in a direction opposite to that in which it revolves, in combination with the ejecting blade and rake M, substantially as herein described. 2nd. In amalgamating apparatus consisting of a pan or vessel in which a vertical pipe revolves, the radial tapered branch pipes K each made with a slit *k* opening from the branch in a direction opposite to that in which it revolves, in combination with the curved blade and rake P and slit *e*, substantially as herein described.

No. 17,488. Trip Mechanism for Harvester Rakes. *(Mecanisme à renverser les rateaux des moissonneuses.)*

William F. Burditt, St. John, N. B., August 13th, 1883; 5 years.

Claim.—1st. In a trip mechanism for harvester rakes, the combination with a rake cam and a rake head provided with a peripheral screw, of a counting slide, a regulating slide, a switch, a switch latch, means for connecting the switch latch and counting slide and means for adjusting the regulating slide, substantially as shown and described. 2nd. In a trip messenger for harvester rakes, the combination with the rake cam B, the switch C and its latch U, of the rake head G provided with the screw threads N, the toothed counting slide O the regulating slide W, the arm S, the connecting rod T and means, substantially as shown and described, for operating the regulating slide and the switch latch as set forth. 3rd. In a trip mechanism for harvester rakes the combination with the screw threads N and the switch latch U of the counting slide O having a number of teeth corresponding with the screw threads and a blank section below the lowest tooth, substantially as shown and described, whereby the slide is raised by the screw and then pushed back to trip the switch latch as set forth. 4th. In a trip mechanism for harveter rakes, the combination with the rake cam B, the switch C and its spring latch U, of the rake head G, the screw N, the toothed counting slide O, the regulating slide W, the arm S, the link T, the hand lever *e* and intermediate mechanism for operating the regulating slide and latch from said hand lever, substantially as shown and described. 5th. In a trip mechanism for harvester rakes, the combination with frame R, the slotted frame R1, the rods P Q and the counting slide pivoted to the rod P, of the regulating slide W sliding on the rod P and having rack teeth, the pinion X and means for operating said pinion, substantially as shown and described. 6th. In a trip mechanism for harvester rakes, the combination with the regulating slide W having rack teeth, the adjusting lever *c*, its pawl *e* and the locking bar *d*, of the pinion X, the rack bar Z and the bar *a*, substantially as shown and described, whereby the said adjusting lever, its pawl and lock bar are placed at a distance from the said regulating slide, as set forth. 7th. In a trip mechanism for harvester rakes, the combination with the counting slide O, the arm S, the connecting rod T and switch latch U, of the adjusting lever *c*, the pawl *e* having arm *f* and the connecting chain *g*, substantially as shown and described, whereby the switch latch and connecting slide can be drawn back to allow the latter to be adjusted, as set forth.

No. 17,489. Coal, Iron Ore and Merchandise Derrick. *(Grue à charbon, fer et marchandises.)*

William E. Ludlow, Sandusky, Ohio, U. S., August 13th, 1883; 5 years.

Claim.—1st. In a coal, iron ore and merchandise derrick, a drop catch having means, substantially as described, for raising and lowering it.

2nd. In a coal, iron ore and merchandise derrick, a drop catch consisting of two clips and a catch bar pivoted to one of said clips and adapted to be raised against or lowered from the other clip, for the purpose set forth. 3rd. In a coal, iron ore and merchandise derrick, the combination of a catch having a drop bar and a rod having a dog for raising said drop bar. 4th. The combination of a catch having a drop bar, a rod having a dog for raising said drop bar and a crank arm at one end, and a operating lever having a rod attached to one end of the crank arm, substantially as described. 5th. In a coal, iron ore and merchandise derrick, the combination of a boom having a runway between its beams, a carrier adapted to run from end to end of said runway and having a latch and a catch attached to said beam and adapted to be stretched from across the space between the beams to stop and hold the carrier by its latch, or to be dropped and allow the carrier to pass, for the purpose set forth. 6th. The combination of a boom having catches arranged at different points between the uprights of the derrick, a carrier moving on the boom runways between the uprights and adapted to latch upon the catches, and means substantially as shown for operating the carrier. 7th. The combination of a boom having drop catches, a carrier having latches at each end and means for drawing such carrier upon the boom. 8th. In a coal, iron ore and merchandise derrick and adjustable rod formed in sections detachably fixed to and adapted to move upon each other, and having hooks at its upper and lower ends, for the purpose set forth. 9th. In a coal, iron ore and merchandise derrick, a rod formed of sections N N1, sleeves *n n*, set screw *n1 n1*, eye *n2* and hooks *n3*, substantially as described.

No. 17,490. Mop Wringer. (*Essoreuse à torchon.*)

Nora McCarthy, (assignee of John McCarthy, Syracuse, N. Y., U. S., August, 13th, 1883; 5 years.

Claim.—1st. In combination with a pail, two mop griping bars secured across the top of the pail confined at one end and having their opposite ends adapted to approach and recede one from the other, substantially as and for the purpose set forth. 2nd. The comination with a pail, of a bar secured stationary across the top of the pail, a vibratory bar at the side of the stationary bar and a locking device for adjustably confining the vibratory bar, substantially as set forth. 3rd. The combination with a pail, of a bar fixed across the top thereof, a horizontally vibratory bar hinged in the stationary bar and a ratchet for engaging the free end of the vibratory bar, substantially as shown and described. 4th. The combination with a pail, of the ratchet plate *r* provided with the eye *e*, the stationary bar *a* having the end *b* projecting through said eye and the bar *a1* hinged to the opposite end of the bar *a*, substantially as described and shown for the purpose set forth.

No. 17,491. Compound for Testing Woolen Fabrics. (*Composé pour éprouver les étoffes laineuses.*)

Ronald McD. Stephen, James A. Ogilvy, jr., Robert Mellis and John P. Stephen, Montreal, Que., August 13th, 1883; 5 years.

Claim.—The compound for testing animal and vegetable matter contained in woolen and other fabrics composed of soda hydrate or caustic soda dissolved in water, substantially in the manner described.

No. 17,492. Spark Preventive and Smoke Consuming Device. (*Arrête flammèches et fumivore.*)

The Norwood Spark Preventive and Smoke consuming Company, Camden, N. J., (assignee of Horace W. Norwood, Philadelphia, Pa., U. S., August 13th, 1883; 5 years.

Claim.—1st. In effecting a draft in furnaces by injecting a blast of air or air and steam thereinto, the method of producing an even draft and dividing back draft through the furnace doors when opened, which consists of injecting or feeding a current of air or air and steam into a receptacle within the ash pan or fire box and then dividing such current into two parts, one of which passes to the furnace and the other is conducted to the smoke stack, as set forth. 2nd. In combination with a closed ash pan, of an injector H and pipe I leading to a stack or chimney, substantially as shown and described. 3rd. The combination of a closed ash pan, an injector, a cut-off and a pipe leading from said pan to a stack or chimney, substantially as shown and described. 4th. The combination of a stack or chimney, a furnace box, a closed ash pan, a pipe connection between said stack and pan, an injector and steam connection therefor, substantially as shown and described. 5th. The combination of closed ash pan E, pipes *e* and F having slots or perforations *e1* and *f*, handle or operating mechanism *f1*, injector H, pipes *h5* I and stack or chimney D, substantially as shown and described. 6th. The combination of closed pan E, injection H, pipe I, valve or cut-off F, stack D and regulator L, substantially as shown and described. 7th. In combination with the exhaust parts of a locomotive engine, the straight or telescoping pipe K, substantially as shown and described. 8th. A regulator for locomotive engines composed of semi-circular plates *l l* and toggles *l2 l2*, in combination with lever *l3* and bar U, substantially as shown and described. 9th. In producing a draft for furnaces by injecting a blast of air or air and steam into the ash pan thereof, the method of preventing back draft or the emission of the products of combustion through the opened furnace doors which consists of either manually or automatically cutting off the supply of steam to the injector and stopping its operation before or coincident with the opening of the furnace doors, substantially as set forth. 10th. A furnace provided with injecting appliances for supplying air or air and steam to its ash pan, in combination with mechanism interposed between the furnace door and the cut-off of the injecting appliance, substantially as shown and described. 11th. The injecting device herein shown and described and for the purpose set forth.

No. 17,493. Portable Steps or Self Supporting Ladders. (*Echelle brisée.*)

Charles A. Jones, Bodmin, Eng., August 15th, 1883; 5 years.

Claim.—1st. The portable steps or self-supporting ladders consisting of two principles connected as to their upper ends by a sliding joint and controlled as to their lower ends by a stretcher, which operates both as a tie and a strut when the apparatus is extended for use and as a strut when the same is closed and stood erect, substantially as herein described. 2nd. The combination with one another and with the stop piece E of the guide C, pin D and stop piece E1, substantially as and for the purposes specified.

No. 17,494. Isometers or Dynamic Sectors. (*Isomètre où secteur dynamique.*)

Henry Glover, Brooklyn, N. Y., U. S., August 15th, 1883; 15 years.

Claim.—1st. The combination with the fixed needle and a vernier scale, each of whose units is 1-32 of the circle upon which it is formed and is subdivided into tenths of a free swing needle mounted on a support that is provided with a vernier subdivided into elevenths of the unit for the vernier scale. 2nd. The combination, substantially as described, of a fixed magnetic needle, a free swinging needle mounted over or under the same and upon a support that swings on a centre coinciding with the fixed needle, and means for measuring the relative angle of the fixed and free needle after adjustment. 3rd. The combination of a fixed magnetic bar or needle and a free swinging needle mounted on a support adjustable in the azimuth plane of nautical and swinging instruments, as and for the purpose described. 4th. The combination, substantially as described, of a fixed needle and a free pivoted needle, proportioned as described.

No. 17,495, Metal Truck Wheels. (*Roues métalliques pour chariots.*)

Harrison G. Taylor, Toronto, Ont,, August 15th, 1883; 5 years.

Claim.—1st. A steel tire having an internally projecting flange formed immediately below the inner edge of the outer flange, in combination with a series of bolt holes made through the inner flange, substantially as and for the purpose specified. 2nd. A steel tire having an internally projecting flange with a series of bolt holes pierced through it, in combination with a metal centre pressed tightly into the tire and having bolt holes pierced through it to correspond with the bolt holes in the flange, the tire and centre being held rigidly together by bolt sor rivets passing through the said holes, substantially as and for the purpose specified. 3rd. As an improved truck wheel, a cast-metal centre A having cored passages B leading from its periphery to its inner core C, substantially as and for the purpose specified. 4th. As an improved truck wheel, a cast-metal centre A having a series of bolt holes pierced through it near its outer rim, in combination with a series of cored passages leading from its periphery to its inner core C and located between the bolt holes, so as to form open spaces within the rim between the metal through which the holes are pierced. 5th. As an improved truck wheel, a steel tire having an internally projecting flange, in combination with a cast-metal centre having cored passages leading from its periphery to its inner core, the said centre being turned and fitted tightly into the tire to which it is securely fastened by bolts or rivets passing through centre and flange of the tire, substantially as and for the purpose specified.

No. 17,496. Mining Machine. (*Machine à miner.*)

David Blain, Toronto, Ont., August 15th, 1883; 5 years.

Claim.—1st. The combination with the scow and cylinder extending downwardly therefrom and means substantially as described, for elevating the lighter parts of earth and other particles to the upper end of said cylinder, of a receptacle located at the lower end of the cylinder to catch and hold the heavier particles as set forth. 2nd. The combination, with the scow and cylinder extending downwardly therefrom and a screw O working in said cylinder, of a receptacle located at the lower end of the cylinder to catch and hold the heavier particles, as set forth. 3rd. The combination with the cylinder B, screw C arranged in said cylinder and plow shaped receivee G of the receptacle I located at the lower end of the cylinder and the scow A communicating with said cylinder by a passage *a*, substantially as described. 4th. The combination with the cylinder B, screw C and plow shaped receiver G provided with a grated front G1, of the receptacle I located at the lower end of the cylinder and the scow A communicating with the said cylinder by a passage *a*, substantially as described. 0th. In a deep water mining machine, a brush constructed and arranged to sweep the bed of a river, substantially as and for the purpose set forth. 6th. In a deep water mining machine, a brush constructed and arranged to sweep the bed of a river or other body of water for agitating the lighter parts of earth and other particles, in combination with suitable means for elevating said particles, substantially as described. 7th. A brush K secured to the lower end of a rotary shaft extending down through a pipe L, in combination with said shaft and pipe up through which latter the agitated particles are elevated as set forth. 8th. The combination with the adjustable and extensible cylinder B provided with a plow shaped nose G having a grated front G1 and the agitating and elevating screw C of the brush K, pipe L and means for elevating the particles up through said pipe into the scow, substantially as set forth.

No. 17,497. Pump. (*Pompe.*)

John A. Watkins, Georgetown, Ont., August 15th, 1883; 5 years.

Claim.—In a piston-pump a water passage I, leading from the suction post C to the pump barrel B, at a point above the piston A, in combination with the water passage L leading from the pump barrel, at a point below the piston A, to the discharge port E at a point above the valves F, substantially as and for the purpose specified.

No. 17,498. Ruling Machine. (*Machine à ligner le papier.*)

Edward W. Blackhall, Toronto, Ont., August 15th, 1883; 5years.

Claim.—1st. In a ruling machine, having a guide board to direct the paper into the machine, the combination of an adjustuble piece H connected to the guide board G by the adjusting screws I and having

a cover J arranged, substantially as and for the purpose specified. 2nd. In a ruling machine provided with conveying cords F arranged to carry the paper over the pen rollers D, the combination of the stop piece K operated by automatic mechanism, in such a manner that each sheet of paper is stopped before passing below the pen roller till the proper moment arrives for it to pass below the roller, substantially as and for the purpose specified. 3rd. In a ruling machine, provided with conveying cords F arranged to carry the paper over the pen roller D, the stop plate K attached to the rod L having an arm L_1 connected to the vertical rod M_1 by the chain M and to the main frame of the machine by the spiral spring P, in combination with the cam O keyed to the spindle Q and operating substantially as and for the purpose specified. 4th. In a ruling machine, the spindle Q supported in bearings in an adjustable frame and having keyed to it a nest of graduated sized spur wheels Q, in combination with a spindle R supported in suitable bearing and having keyed to it, the spur wheel R_1 meshing with the spur wheels Q_1, and the friction pulley R_2 which rests on she feeding roller C for the purpose of driving a rotary movement therefrom, substantially as and for the purpose specified. 5th. In a ruling machine provided with conveying cords for carrying the paper below the pen clamp, an arm S resting in a groove in the pen roller D and attached to the rod T which is pivoted on the back of the pen clamp U and is provided with a downwardly projecting arm V, in combination with the rod V_1 and supporting block V_2 for operating the pen clamp U, substantially as and for the purpose specified. 6th. In a ruling machine having a pen clamp provided with a vertical arm connected to the pivoted arm X_1 by a cord or wire, the combination, of cam blocks arranged in the periphery of the cam head X_2, substantially as and for the purpose specified. 7th. In a ruling machine, a clamp plate Y connected to the rod Y_2, carried in bearings on the back of the clamp plate and having a projecting arm Y_3 connected by the wire Y_4 to the pivoted arm X_1, in combination with cam blocks arranged in the periphery of the cam head X_2, which cam head is keyed to the spindle O, substantially as and for the purpose specified. 8th. In a ruling machine the pivoted pen clamp U having a rail *g* with an adjustable weight arranged upon it to counterbalance the weight of the pen clamp in combination with the fingers j_2 resting in grooves in the roller D and arranged to tilt the pen clamp, substantially as and for the purposes specified. 9th. In a ruling machine, having a pivoted pen clamp U, the extension fingers *l* resting in grooves in the roller D and supporting one end of the bell crank *m*, which is held down by the spring *n*, in combination with the projection piece K arranged to tilt the clamp U, substantially as and for the purpose specified. 10th. In a ruling machine, a receiving box composed of board *t*, in combination with a rectangular adjusting frame made of the bars *r y* and *z*, substantially as and for the purpose specified.

No. 17,499. Device for keeping the Frost and Snow from Road Beds of Railways. (*Mode de garantir les railroutes de la gelée et de la neige.*)

Thomas Patterson, Stratford, Ont., August 15th, 1883; 5 years.

Claim.—A pipe or duct placed below the road bed of a railway and supplied with steam from a boiler situated near the track for the purpose of heating the road bed, and whereby preventing the hardening of the road bed by frost or the accumulation of snow on the said bed, substantially as and for the purpose specified.

No. 17,500. Dynamo Electric Machine.

(*Machine dynamo-électrique.*)

Lord Elphinstone, Musselburgh, Scotland and C. W. Vincent, Halloway, Eng., August 15th 1883; 15 years.

Claim.—1st. The manufacture of armature hanks of dynamo electric machines, by winding them upon a rotating former and moulding the same by heat and pressure in the manner and for the purpose above set forth. 2nd. In a dynamo electric machine in which the field magnets are set around and concentric with the armature, a diamagnetic drum fitted to receive hanks which extend beyond the ends of the field magnets and have their ends secured to the periphery of the drum in the manner and for the purpose above described. 3rd. The construction of rotating commutator as described with reference to Figures 9 and 10 consisting of a series of parallel bars set radially around an insulating cylinder and held in place by a flange and cap plate bearing on their ends. 4th. The means above described, with reference to Figures 11, 12 and 13, grouping the currents derived from armature coils consisting of removable grouping pieces fitted to one end of the commutator and serving to maximize the sparking and the friction put upon the commutator by the brushes or rubbers.

No. 17,501. Fifth Wheel for Vehicles.

(*Rond d'avant train pour voitures.*)

William G. Lockhart and Thomas Symons, Bowmanville, Ont., August 15th, 1883; 5 years.

Claim.—1st. A fifth wheel in which the top plate is the head block is adjustable to the lower plate on the axle bed by means of ear pieces which form parts of the top plate and the drop reach irons passing through the same and simultaneously with the adjustment of the reach irons to the axle, the wheel plates are adjusted to each other as set forth. 2nd. In combination with the top plate A provided with the ear pieces A_1 A_1, and the lower plate B, the drop reach irons D D for taking up the slack between the plates from long use and wear, substantially as set forth. 3rd. In combination with the top plate A provided with ear pieces A_1 A_1, the lower plate B, king bolt C, drop reach irons D D and axle E, substantially as and operating as set forth.

No. 17,502. Store Shelving. (*Tablettes de magasin.*)

William L. Riffe, (assignee of Thomas A. Harris), Calisburg, Texas, U. S., August 15th, 1883; 5 years.

Claim.—The combination, with the herein described store shelving, of a covering Q of sheet metal, substantially as herein shown and described and for the purpose set forth.

No. 17,503. Apparatus for Sulphurizing and Phosphorizing Friction Matches.

(*Appareil à souffrer et phosphoriser les allumettes chimiques.*)

Ezra B. Eddy (assignee of George H. Millen, Joseph H. Mantion, and Felix Labelle), Hull, Que., and Thomas A. Cook, Ottawa, Ont., August 15th, 1883; 5 years.

Claim.—1st. In a machine or apparatus for sulphurizing and phosphorizing match-splints, the combination of an endless apron or chain 6 having tranverse channels to pinch the splints, hopper 14 to feed the splints to the apron or chain, furnace 22 having chambers 24 to dry the ends of the splints and pans 23 to contain the sulphur, arms 26 to cant the apron to depress the ends of the splints into the sulphur, blast pipes 27 to cool the sulpurized ends of the splints, pan 29 to contain the phosphor, flanged cylinder 30 and rollers 39 to transfer the phosphorous to the ends of the splints, blast pipes 27 to cool the phosphorized ends and a saw 43 to cut the splints transversely at the middle, the whole operating continuously, as set forth. 2nd. In a match machine, an endless apron 6 composed of a metal band having threaded thereon blocks uniformly notched in their tops to adapt the same to receive and hold the splints, substantially as and for the purpose set forth. 3rd. The flexible apron or chain 6 composed of pointed section forming channels to seize and relinquish the splints, in combination with drums 5 5, arms 26, hopper 14 and furnace 22 having pans 23, as and for the purpose described. 4th. The flanged roller 19 at the outlet of the hopper 14, in combination with an endless apron or chain pinching the splints as set forth for the purpose described.

No. 17,504. Hame Tug. (*Mancelle de collier.*)

Morgan E. Lasher, Champaign, Ill., U. S., August 16th, 1883; 15 years.

Claim.—1st. A hame tug consisting of a series of detachable metal links provided with end attaching devices, all constructed and adapted to operate substantially as set forth. 2nd. The combination of the detachable hinged sections or link D with the looped buckle B and the hinged plate F constructed and adapted to operate substantially in the manner and for the purpose described. 3rd. For a hame tug, a number of hinged metal links, each link having a perforation *a* and recess *e*, a pintle *c* and a hook *v* constructed and adapted to operate substantially as described. 4th. The combination, with a brace of the frame J, its hooked lug J_1, the hinged locking device G *g* and perforated hame tug sections D, all constructed and adapted to operate substantially in the manner and for the purpose described. 5th. The combination with a hame tug composed of detachable flexible metal sections of a hooked brace fastener and a locking device therefore, substantially in the manner and for the purpose described. 6th. The guard *n* on the frame J, in combination with hinged lever G locking tongue *g* and hooked lug J_1, substantially as described.

No. 17,505. Pontoon. (*Ponton.*)

Alfred H. Williams, Clapham Road, Eng., August 16th, 1883; 5 years.

Claim.—1st. A pontoon composed of two flanged sections or portions of like size and shaped substantially as described and as shown, whereby they will nest or pack closely in any number as described for purposes of storage and transport and one of said sections or portions provided with fastening contrivances to take over the other section or portion, whereby the sections or portions may be secured together when the pontoon is set or built up as set forth. 2nd. The combination to form a pontoon of the section A provided with a flange *a* and section A_1 provided w th a flange *a*, a packing *b* retained in place by the reflexed edge of the flange and fastening contrivances *c*, substantially as set forth. 3rd. A pontoon constructed of two flanged sections or portions A and A_1 provided with a suitable packing between the flanges and with fastening contrivances *c* and handles *d*, substantially as set forth. 4th. The construction of pontoon, as described and shewn in Fig. 8, having a flat lid or cover and fastening contrivances for securing the same in place as set forth. 5th. The construction of pontoons in the manner substantially as herein described under the third system or arrangement and for the purposes set forth.

No. 17,506. Cant Hook. (*Renard.*)

Bowden S. McLean, Ottawa, Ont., August 16th, 1883; 5 years.

Claim.—The combination with the pole A, of the slotted lug D having a notched bearing H at one end, and a hook F fulcrumed therein by bolt G, said hook rounded and notched to form a shoulder I, as and for the purpose set forth.

No. 17,507. Cuspidor. (*Crachoir.*)

Jean A. Mathieu, Detroit, Mich., U. S., August 16th, 1883; 5 years.

Claim.—1st. A cuspidor having over its top a grating or netting adapted to partially conceal its contents, substantially as shown and described. 2nd. A cuspidor in whose mouth is suspended a receptacle for an absorbent or disinfectant, substantially as herein shown and described. 3rd. The combination of the cuspidor A, grating B having bars *b b* and cup F suspended from grating B, substantially as shown and described. 4th. The combination of the cuspidor A, cup F suspended in the mouth thereof, and disinfectant G, as and for the purposes set forth.

No. 17,508. Life Preserver Holder. (*Bâti à contenir les appareils de sauvetage.*)

William P. Gray, Ainsworth, W. T., U. S., August 18th, 1883; 5 years.

Claim.—The combination with gates D, beams and a number of bolts E having a horizontal projection at the upper end and passing through vertical holes in the gates D and beam B, of a spring held slide bar G having at intervals a cam projection H for each bolt, and arranged to work under the upper end bend of hook, whereby the bolts may be simultaneously lifted out of the gates, as described.

2nd. A bolt E having a head formed by two right angle bends at the upper end, and a friction roll F journalled in the parallel bearings thus formed therein, in combination with the beams B and sliding cam bar, whereby said bolts may be readily lifted without unncessary friction, as described. 3rd. The combination with the beams B, of the swinging gates or frames D, the bolts E and the bar G, provided with cam projections H, substantially as shown and described for the purpose set forth. 4th. The combination with the beams B of the swinging gates of the frame D, the bolts E, the bar G provided with cam projections H and the cord or wire L for moving the bar G to withdraw the bolts, substantially as herein shown and described and for the purpose set forth. 5th. The combination with the beams, of the swinging gates or frames D, the bolts E, the anti-friction rollers F thereon and the bar G provided with cam projections H, substantially as shown and described and for the purpose set forth.

No. 17,509. Manufacture of Shirts.

(*Fabrication des chemises.*)

David Hawkins, Hamilton, Ont., August 16th, 1883; 5 years.

Claim.—In the manufacture of shirts, the strip B cut as shown at Fig. 2 wider at one end than the other and provided with the slit *g* and point *h* and stitched on each side of the back opening C and sleeve openings D, substantially as and for the purpose specified.

No. 17,510. Apparatus for effecting Illumination by means of Liquid Hydrocarbons. (*Appareil à produire l'illumination au moyen de l'hydrocarbone liquide.*)

Julius Pintsch, Berlin, Germany, August 16th, 1883; 5 years.

Claim.—1st. The combination of a reservoir containing compressed air or gas, a pressure regulator and a reservoir containing liquid hydrocarbon, arranged and operating substantially as described. 2nd. A burner for combustion of liquid hydrocarbon without a wick constructed and operating substantially as described with reference to Figs. 1, 7 and 8 of the accompanying drawings.

No. 17,511. Vehicle Pole. (*Timon de voiture.*)

Frederick W. Bishop, West Haven, Conn., U. S., August 16th, 1883; 5 years.

Claim.—The combination with the shackle iron, of the metal block having the concave projecting seats and the transverse recess and the eyebolts as a means for securing the shackle iron to the block to admit of its adjustability, substantially as set forth.

No. 17,512. Chin Rest for Violins.

(*Porte menton pour violins.*)

George T. Lawrence, Greenfield, Mass., U. S., August 16th, 1883; 5 years.

Claim.—1st. A chin rest for violins, formed, substantially as described, with a lower cushioned bearing, an upright portion provided with an opening to fit over the button g^1, a curved portion provided for the chin and terminating to form the bearing part *a*, as and for the purpose set forth. 2nd. The combination with the rest described of the supporting or holding hook *e*, as and for the purpose set forth.

No. 17,513. Machine for Making Cordage, Webbing, &c., (*Machine à fabriquer les cordages, sangles &c.*)

James P. Tolman, Newton, Mass., U. S., August 16th, 1883; 5 years.

Claim.—1st. The combination, with the revolving platform A having a circular recess or guide-path E, of a traveller carrier-gear G applied thereto and a switch lever and spring for the purpose of automatically guiding the travellers alternately into and out of the recess or guide-path E, substantially as set forth. 2nd. The combination, with the revolving platform A having a circular recess or guide-path E and a traveller carrier-gear G applied thereto, of the springs *b c* and the switch-levers B C arranged upon opposite sides of the entrance to the recess or guide-path E to operate reversely for the purpose of automatically guiding the travellers alternately into and out of the said recess or guide-path, whereby the machine is adapted to be run in either direction without adjustment, substantially as described. 3rd. The combination, with the revolving platform A having a series of circular recesses or guide-paths E, of the travellers carrier-gear G applied thereto, and a series of switch-levers and operating springs for the purpose of automatically guiding the the travellers alternately into and out of the recess or guide-paths E, substantially as set forth. 4th. The combination, with the rotating platform A with its circular recess or guide-path E and switch lever or levers, and spring or springs, of the stops *m n* adapted to limit the range of motion of the switch-lever or levers in opposite directions, substantially in the manner and for the purpose set forth.

No. 17,514 Window Shades. (*Rideau de fenêtre.*)

Walter J. Cox, Wichita, Texas, U. S., August 16th, 1883; 5 years.

Claim.—1st. A window curtain adapted to be raised from the bottom or lowered from the top by means of its cords wound in spiral grooves in conoidal pulleys and actuated by a crank, substantially as shown and described. 2nd. The combination of the pulley B, conoidal pulleys B, secured to a curtain roll A, crank b^1 and curtain cords E, substantially as shown and for the purpose described. 3rd. The combination of the curtain rolls A having octagonal projections or shoulders *d* and spring A, substantially as shown and described.

No. 17,515. Tubular Axle. (*Essieu tubulaire.*)

Charles E. Milburn, Toledo, Ohio, U. S., Harford Ashley, and Henry F. Mitchell, Thurlow, and Henry Caniff, Belleville, Ont., August 18th, 1883; 5 years.

Claim.—A hollow axle A in combination with the tube B, substantially as and for the purpose set forth.

No. 17,516. Car Couplings. (*Attelages des wagons.*)

The Cowell Platform and Coupling Company, (Assignee of Newell P. Cowell, Cleveland, Ohio, U. S.,) August 18th, 1883; 5 years.

Claim.—1st. The combination, with a draw-bar, of a coupling-head pivoted to the end thereof and provided with an angular face *e* and with the straight faces *d* and c^2, and the spring actuated top interposed between the draw bar and coupling head and adapted to operate substantially as described. 2nd. The combination with the draw head B and coupling head C pivoted in the head of the draw head, of the sliding stop E located in a recess formed between the coupler and draw head, said stop being constructed with a forwardly projecting arm at its lower end and a rearwardly projecting arm at its upper end, and a spring located between a seat on the draw head and the rearwardly projecting arm of the sliding stop, substantially as set forth.

No. 17,517. Apparatus for Re-heating Exhaust Steam, Heating Air and Superheating Live Steam. (*Appareil à rechauffer la vapeur épuisée, à chauffer l'air et à surchauffer la vapeur vive.*

Levi Hussey and George W. Donaldson, New-York, U.S., August 18th, 1883; 5 years.

Claim.—1st. The combination with a steam boiler, of a flue or flues above the boiler, a heating device within or around said flue or flues, a valve exhaust steam pipe, a pipe connecting said exhaust steam pipe with the reheating device, a valve live steam pipe connecting the reheating device with the steam boiler, and a pipe that conducts the reheated exhaust steam or the superheated live steam from said heating device to the place of use, substantially as set forth. 2nd. The combination of a steam boiler, a draft flue or flues above the boiler, an exhaust steam reheating device within or around said flue or flues, a valve exhaust steam pipe leading from the engine to the reheating device, a conducting pipe that connects the opposite end of the heating device to the place of use, and is provided with a pressure relief valve and discharge pipe, substantially as described. 3rd. The combination, of a steam boiler, a flue or flues above the boiler, an exhaust steam reheating device within or around the flue or flues, a valved air conduction pipe connected to the lower part of the heating device and a valved eduction pipe connected to the upper part of the opposite end of the same, substantially as set forth. 4th, The combination of a steam boiler furnace, with a flue or flues above the boiler, an exhaust steam reheating device within or around said flue or flues, a valved exhaust steam pipe connected to one end of the reheating device, a valved live steam pipe connecting the reheating device, a valved live steam pipe connecting the reheating device with the steam boiler, a pipe that conducts the reheated exhaust steam or surperheated live steam from said reheating device to the place of use and valved air induction and eduction pipes connected to opposite ends of the reheating device, substantially as specified.

No. 17,518. Method of Producing Golden Sulphuret of Antimony. (*Mode de produire le souffre doré d'antimoine.*)

The Brunswick Antimony Company, New Brunswick, (assignee of Charles E. Parsons), Medford, Mass, U. S., August 18th, 1883; 5 years.

Claim.—1st. The improved process of producing golden sulphuret of antimony by dissolving native sulphide of antimony and free sulphur separately in saturated solutions of caustic alkali, and afterwards adding the same together and treating the mixture with acid, substantially as described.

No. 17,519. Plow. (*Charrue.*)

The South Bend Iron Works, (assignee of Charles Anderson), South Bend, Ind., U. S., August 18th, 1883; 5 years.

Claim.—1st. A reversible wing for plows, consisting essentially of two working faces placed back to back and crossing each other diagonally. 2nd. A reversible wing for plows, consisting essentially of two working faces placed back to back and crossing each other diagonally and defined apart by ledges. 3rd. A reversible wing for plows, consisting essentially of two working faces placed back to back and crossing each other diagonally, the rear face of the outer end of each working face being provided with bearing to support the wing on the plow. 4th. A reversible wing for plows, consisting essentially of two working-faces triangular in general outline and conformed in facial contour to the lines of the mold board, said faces being placed back to back and crossing each other diagonally. 5th. The combination with a plow, of a reversible wing consisting essentially of two working faces placed back to back and provided with bearings, the bearings of one face resting upon the standard of the plow and that of the other face on a support located under the mould board, substantially as set forth. 6th. The combination with a plough provided with a mould board, the lower portion of which is cut away as described, of a reversible wing having working faces of triangular outline placed back to back, said wing being adjusted to the mould board in the manner shown, substantially as set forth. 6th. The combination with a plow provided with a mould board, the lower portion of which is cut away to expose the standard of the plow and with a brace, the same being interposed between the land side and the mould board, of a reversible wing having two working faces of triangular outline and placed back to back and provided with bearings, the bearing of one face resting upon the exposed portion of the standard and that of the other face upon the said brace, substantially as set forth. 8th. The combination with a plough provided with a mould board the lower portion of which is cut away as described and with a reversible point, the rear portion of which is cut away flush with the standard, of a reversible wing consisting essentially of two working faces placed back to back and provided with bearings, the bearings of one face resting on the exposed portion of the standard and the rear of the reversible point and that of the other face on a support located beneath the mould boards, substantially as set forth. 9th. The combination with a plough provided with a mould board, the lower portion of which is

cut away to expose the standard, the edge of the same being flanged, of a reversible wing consisting essentially of two working faces placed back to back and defined apart on ledges as described, the ledge of the face not in action having bearing in the flange of the standard, substantially as set forth.

No. 17,520. Grain Binder. (*Lieuse à grain.*)

Marsena McG. Hooton, Chicago, Ill., Mark Young, Fairfax County, Va., and John G. Elliott, Chicago, Ill., U. S., August 18th, 1883; 5 years.

Claim.—1st. The combination of the grain table and two or more endless chains with rake teeth pivoted to the links thereof, said teeth being arranged in parallel rows at a right angle to their line of travel, substantially as described. 2nd. The combination of an endless chain or chains with rake teeth pivoted to one or more links thereof, the said teeth being provided with an angular bend or heel which when in engagement with a suitable bearing surface maintains the teeth in an upright position at a right angle to the chain, substantially as described. 3rd. The combination with an endless chain or chains and rake teeth pivoted thereto, of grooved guides for said chains, substantially as set forth. 4th. The combination with an endless chain or chains and rake teeth provided with heels and pivoted to said chains, of grooved guides confining said chains and affording a bearing for the heels of said teeth, substantially as described. 5th. The combination with an endless chain or chains, the rake teeth provided with heels and pivoted to said chains, of sprocket wheels and sheaves having peripheral grooves receiving said heels, substantially as described. 6th. The tooth E constructed as described, in combination with the link *c* having flanges *d d* between which the tooth is pivoted, said flanges extending both above and below the body of the link and serving to strengthen the same and also to support the tooth laterally, substantially as described. 7th. The combination with the link c of the tooth E pivoted to said link as described and having its shorter arm curved so as to fit the bar of the adjoining link when the tooth is in raised position. 7th. A twisting pinion having curved projecting hooks on opposite sides and radial slots or grooves at the bases of the hooks for receiving and holding the wires while the twist is being made, substantially as described.

No. 17,521. Cultivator. (*Cultivateur.*)

John McCallum, North Dorchester, Ont., August 20th, 1883; 5 years.

Claim.—1st. In a cultivator, the two side bars A A formed of a single bar of iron bent and welded so as to form a continuous slot or channel *a* for the attachment and adjustment of the standards C, substantially as shown and described. 2nd. In combination with the side bars A and central bar B of the frame of a cultivator, the bent or curved standards C attached by bolts and nuts *b c* to the bars and having reversible mould boards F and breakers G. as shown and described. 3rd. In combination with the side bars A and centre bar B, the cross bar E and bolts and nuts *d* for expanding or contracting the side of frame, substantially as shewn and specified.

No. 17,522. Pneumatic Clothes Washer.

(*Laveuse pneumatique.*)

Noah B. Elliott, Holden, Mo., U. S., August 26th, 1883; 5 years.

Claim.—A pneumatic clothes washer, constructed substantially as herein shown and described and consisting of the pan A having tube B, conical brace C, tube G having opening in its upper part, the intermediate rim I having openings in its upper part, the wire braces K, the handle E F and the hollow plug L having spring pressed valve N M, as set forth.

No. 17,523. Steam Engine. (*Engin à vapeur.*)

Frederick McMellon, Boston, Mass., U.S., August 20th, 1883; 5 years.

Claim.—1st. In a steam and air engine the pump M provided with the pipes Q R and adapted to pump either air or water, the boiler A and an engine for operating said pump, the shaft H, gear I, shaft K, gear J and relief valve *m*, all constructed, combined and arranged to operate substantially as set forth. 2nd, In a steam and air engine a boiler generating steam and engine connected to said boiler by an induction pipe, a pump adapted to force either air or water into the boiler, a pipe for connecting the pump and boiler and suitable mechanism for connecting the engine and pump, in combination with the branch pipe 14 provided with the stop cock 25 and the pipe R provided with the stop cock 7, all arranged to operate substantially as and for the purpose specified.

No. 17,524. Iron Harrow. (*Herse en fer.*)

Austin Callander, Clinton, Ohio, Ont., August 20th, 1883; 5 years.

Claim.—In combination with iron bars and harrow teeth lock brace F prepared with slots for receiving one, two or more bars, including bulls and for fastening the same in position by means of pins *b1 b1* and having hole *a* running at right angles with slots for receiving and holding tooth K which is fastened thereto by means of nut *i*, as and for the purpose set forth and described.

No. 17,525. Apparatus for Grappling and Hoisting Stone, etc. (*Appareil à accrocher et élever la pierre, etc.*)

Roy Stone, New York, U.S., August 20th, 1883; 5 years.

Claim.—1st. The combination with the mast of the lazy arms mechanism for raising and lowering the outer end of the said lazy arms, and mechanism for drawing the ends of the arms toward each other or the reverse and extending or contracting such arms, substantially as set forth. 2nd. The vertical mast slotted longitudinally, in combination with the arms K pivoted at the mast, the grapple arm M pivoted to the end of the arm K and the arms L N forming parallel motion bars and mechanism to act upon the arms K and L to swing the lazy arms and move the end of the grapple arms outward or inward, upward or downward ssubstantially as set forth. 3rd. The combination with the pivoted mast of the lazy arms, the platform, the truck, the screw for raising, the mast, the drum, ropes or chains, pulleys and means for holding and revolving the respective drums whereby the lazy tongs can be swing around to any position and extended or centracted, raised or lowered, substantially as set forth. 4th. The combination with the mast and lazy arms of a grapple at the end of the lazy arms, springs for closing the claws of the grapple and the drums *p l* and *t l*, and ropes or chains 20 and 21 for opening the grapple, substantially as set forth. 5th. The combination with the grapple claws *q2*, stem *p* and ball and socket joint of the cross-bolt *a4* to which the stem is connected, the skirt or pulley frame and pulleys, the ropes or chains 21 and the ropes or chains from the pulley frame to the respective claws, substantially as set forth. 6th. The combination with the joint crown stem and ball and socket joint of the claws *q2* having ribs on the back edges, the extension braces and their joints passing in between the ribs and the springs surrounding the extension braces, substantially as set forth. 7th. The combination with the claws and joint crown in a grapple of the arms *e* passing in between the ribs at the back of the claws and a joint pin and stop toe for such arms and the sliding pulley frame and ropes or chains passing from such arms and over the pulleys, substantially as set forth. 8th. The combination with the joint crown, in a grapple, of claws having hook joints at the upper ends, whereby the claws can be disconnected without removing the pivot, substantially as set forth. 9th. The combination with the grapple claws having hooked joints of the joint crown having radial slots for said joint hooks, slot in the faces of such radial slots and joint pins or pivots held at their ends in such slots, substantially as set forth. 10th. The combination, in a grapple, of a series of radial claws, a crown or head, to which they are hinged springs for closing the saws, chains for opening the same and pulleys for such chains, substantially as set forth. 11th. The combination with the hinged claws and their head of a ball and socket joint, a rod connected to the same and mechanism for opening and closing the claws, substantially as set forth. 12th. The combination in a grapple, of hinged claws, a ball and socket joint, a coupling and the actuating rod substantially as set forth, whereby the claws are retained in their proper relation to the rod sucstantially as set forth. 13th. The combination with the claws and their crown joints of two part braces extending from the backs of the claws to the outside of the socket or cup, substantially as set forth. 14th. The combination with the claws, their crown joints and stem of two part braces hinged at their ends and helical springs around such braces substantially as set forth, 15th. The combination with the stem, the claws and their crown joint of double chains to each pair of opposite claws, the sheaves and mechanism for moving the frame, substantially as set forth. 16th. The combinatiou with the car, mast and hoisting apparatus of the tubes *o4 o5*, nut *o6*, the brace tubes *o8 o9* connected with the tubes *o4* and mast respectively and means for clamping the tubes *o8 o9*, as set forth. 17th. The combination with the car mast and hoisting apparatus of the tubes L6 pivoted at the top of the mast, the tubes L7 fitted to slide within the tube L6, screws rods at the outer ends of the tubes L7 and clamping L9 also upon said tubes L7, as set forth.

No. 17,526. Button Fastenings.

(*Attache-bouton.*)

Anna McKevit, Chicago, Ill., U.S., August 20th, 1883; 5 years.

Claim.—1st. The combination in a separable button of the button portion carrying a permanent shank having a centrally located collar, the extremity of the shank beyond the collar being screw threaded with the portion intermediate of the centrally located collar, and the back of the button or the collar adjacent thereto, plane surfaced, the under button or nut having a screw threaded opening for connecting with the shank as described. 2nd. The combination in a separable button portion carrying a permanent shank having a centrally located collar, the extremity of the shank beyond the collar being screw threaded with the portion intermediate of the collar and back of the button or the collar adjacent thereto, plane surfaced, the button, a nut having a screw threaded opening for connecting with the shank, said collar having a concave or convex seat adapted to the seat on said under button, substantially as described. 3rd. The combination of a button, body or head, a screw threaded stem, a collar recessed upon one side and a tubular fastening device, substantially as described. 4th. The double pointed centrally flanged, in combination with a button and a clamping nut, substantially as described. 5th. The combination of the button body A, the double pointed screw F having thereon the central flange or collar *f1* and a collar or off set *a1* and the clamping nut D1, substantially as described.

No. 17,527. Machine for Crimping Hair.

(*Fer à crêper.*)

Jane A. Clother, Cumberland, Wis., U. S., August 20th, 1883; 5 years.

Claim.—1st. In combination with the straight jaw B, the jaw C having the curved plate *c3* and the curve *c2*, its tines being in substantially the same plane with its stem as set forth. 2nd. The straight jaw B having the slot *b2*, in combination with the curved jaw C passing through such slot, as set forth. 3rd. The straight jaw B having the tines *b*, slot *b2* and handle *b3*, in combination with the curved jaw C passing through the slot *b2* and having the tines c and removable handle D as set forth.

No. 17,528. Process of Annealing Chilled and Other Iron Castings. (*Procédé pour adoucir les moulages en fer.*)

Edwin Jenking and Alexander Law, Melbourne, and William Price, Carlton, Colony of Victoria, August 20th, 1883; 5 years.

Claim.—The sudden immersion of such castings when at a dull red heat in a liquid and preferably in a liquid consisting of treacle and water of a specific gravity of 1.005, substantially as and for the purposes described and explained.

No. 17,529. Snow Plough. (*Charrue à neige.*)

Pierre Brunet, Toronto, Ont., August 20th, 1883; 5 years.

Claim.—1st. A hollow bifurcated chamber or tank A shaped substantially as shown and having flues D and E arranged within it as described in combination with the furnace C, substantially as and for the purpose specified. 2nd. In a snow plow arranged to carry a steam heating apparatus substantially as described, the combination of two steam pipes F arranged to direct steam into the rails, substantially as and for the purpose specified.

No. 17,530. Pad to Protect the Corners of the Frames of Slates, etc. (*Coussinet pour protéger les coins des cadres d'ardoises, etc.*)

Philip Wardell, Toronto, Ont., August 20th, 1883; 5 years.

Claim.—1st. In combination with the frame of a slate or other similar article, a pad of rubber or other pliable material fitted on the corners of the frame for the purpose specified. 2nd. The arms A connected to or forming part of the centre B, in combination with the corners of the frame C, the arms A being bent around the said corners as shown and held in position by tacks, the heads of which are driven in below the surface of the said arms, substantially as and for the purpose specified.

No. 17,531. Butter Tray. (*Beurrier.*)

William R. Wilcox and Norman E. Brown, St. Joseph, Mich., U. S., Augnst 20th, 1883; 5 years.

Claim —1st. A butter-tray having at each end of the body portion the interrupted transverse scoring, consisting of the independent score-sections between the body portion and end laps, the middle score-section being set back from the lateral score-sections, a distance equal to the thickness of the stock, substantially as specified. 2nd. A grocer's tray having the interrupted score and the lateral end laps folded upon each other and upon the middle lap, and secured together by the bent wire *k* forming a triple-fold connected and braced handle portion, substantially as specified.

No. 17,532. Fastening for Boots and Shoes. (*Attache pour chaussures.*)

Robert Church, St. Lambert, Que., August 21st, 1883; 5 years.

Claim.—As a boot or shoe fastening, a bar or yoke attached to the quarter of the boot and secured when the boot is on at two or more points on the flap, substantially as set forth.

No. 17,533. Combined Envelope and Letter Sheet. (*Envelope et feuille de papier à lettre combinés.*)

Leo Ehrlich, St. Louis, Mo., U.S., August 21st, 1883; 5 years.

Claim.—1st. A sheet of paper having gummed sealing flaps B C extending half the length and breadth of the sheet, which is made to fold to one fourth its size, and having the outer layers a^3 a^2 made of smaller area than the layer a^1, substantially as described and for the purpose set forth. 2nd. A sheet of paper having gummed sealing flaps B C extending the length and breadth of the letter when folded, and one of them provided with an embossed revenue or other stamp, in combination with the successively receding edges of the successive folded layers, substantially as described and for the purpose set forth.

No. 17,534. Horse Collar. (*Collier à cheval.*)

Thomas S. Grubbs and Samuel E. Pennington, North Lewisburg, Ohio, U.S., August 21st, 1883; 5 years.

Claim.—1st. In combination with a horse collar, one or more adjustable blocks, a sheath and fastening means, substantially as described. 2nd. In combination with a horse collar, an adjustable bl ck, a sheath, the staples or loops and fastening-strap arranged at the bottom of the collar, substantially as described.

No. 17,535. Sole Fastening for Boots and Shoes. (*Attache semelles pour chaussures.*)

Stillman W. Robinson and Orlando E. Lewis, Columbus, Ohio, U. S., August 21st, 1883; 5 years.

Claim.—An improved sole-fastening consisting of a nail, fluted longitudinally and provided with circumferential ribs, all substantially as and for the purpose stated.

No. 17,536. Dumping Boat. (*Marie-salope.*)

The Barney Dumping Boat Company, (assignee of Nathan Barney), Bergen Point, N. J., U. S., August 22nd, 1883; 5 years.

Claim.—1st. The combination, with the hinged floats or pontoons, of the sliding bars connected with said floats or pontoons, and means for clamping said bars together or against the walls of their slideway, for the purpose of holding the floats or pontoons and controlling their movements, as described. 2nd. The combination, with the two hinged floats or pontoons, of the sliding bars connected with them and provided with interlocking shoulders and means for clamping said bars, as described. 3rd. The combination, with the two hinged floats or pontoons, of two or more pairs of sliding bars connected with them, and means for clamping and releasing the several pairs of bars simultaneously, as and for the purpose described. 4th. The combination with the two hinged floats or pontoons, geared together at their ends by intermeshing sectors, of the sliding bars connected with said floats or pontoon, and means for clamping said bars, as and for the purpose described.

No. 17,537. Device for Unwinding Thread from a Spool. (*Appareil à dévider le fil de sur un rouleau.*)

Thomas R. Nichols, Lynn, Mass., U. S., August 22nd, 1883; 5 years.

Claim.—1st. The combination of the spool C, tubular journal B, tubular spindle D, and the separate thread unwinder A, the said thread unwinder while in use revolving on the tubular journal and the thread while being unwound from th spool going directly down through the said journal and spindle and all being arranged and adapted in manner to operate, substantially as set forth. 2nd. The tubular spindle provided with the tubular socket piece arranged aside of and projecting below it, substantially as shown and described. 3rd. The combination, of the cloth or felt disc and its sustaining disc with the spindle spool and the thread unwinder, arranged and adapted to operate substantially as represented. 4th. The combination of the cloth or felt disc and its sustaining disc and their spring with the spindle spool and thread unwinder, arranged and adapted to operate substantially as set forth.

No. 17,538. Treatment of Gold and Silver Ores. (*Traitement des minerais d'or et d'argent.*)

William J. Tanner, London, Eng., August 22nd, 1883; 15 years.

Claim.—1st. The herein described method of treating gold and silver ores by the combined action of electricity and water for the purpose of effecting wholly or partially the disintegration of the same, substantially as set forth. 2nd. The construction and use of apparatus, such as herein described and illustrated in figure 1 of the drawings for the purpose of effecting the disintegration of gold and silver from their ores, in the manner above indicated. 3rd. The construction and use of apparatus, such as herein described and illustrated in figure 2 of the drawings for the purpose of effecting the disintegration of gold and silver from their ores, in the manner above indicated. 4th. The construction and use of apparatus, such as herein described and illustrated in figure 3 of the drawings for the purpose of effecting the disintegration of gold and silver from their ores in the manner above indicated. 5th. The construction and use of apparatus such as herein described and illustrated in figures 4, 5 and 6 of the drawings for the purpose of effecting the disintegration of gold and silver from their ores, in the manner above indicated.

No. 17,539. Process and Apparatus for Generating High Pressure Gas or Gaseous Vapors. (*Procédé et appareil à produire le gaz à haute pression ou vapeurs gazeuses.*)

William F. Browne, New York, N. Y., U. S., August 22nd, 1883; 5 years.

Claim—1st. The process of generating gas which consists in forcing powdered carbonaceous material and water together into and through heating conduits. 2nd. The process of generating gas, which consists in forcing together powered fuel carbonaceous material, liquid hydrocarbon and water into and through heated conduits. 3rd. The process of generating gas, which consists in forcing steam or gaseous vapor under pressure through a hydro-carbon liquid, then mixing the carbureted steam or vapor with the products of combustion from a furnace and then forcing the resulting mixture into and through generating and fixing conduits. 4th. In combination with the generating apparatus, a connected pump, a water pipe, a pipe for carbonaceous material and an oil supply pipe 5th. The oil supply pipe and the pipe for supplying powdered carbonaceous material connected with each other, in combination with the pump, the generating coils and suitable connections, for the purpose described. 6th. The carbureter and a steam pipe opening therein, a pipe connected with the stack for conveying products of combustion and connected with the carbureter by an injecting device, in combination with the fixing coils of the generator. 7th. A fixed submerged high pressure gas holder provided with a body of water in its lower portion connected by a suitable pipe with an equalizing body of water above it for keeping the gas under pressure and forcing it into the mains, and said holder having induction and eduction gas pipes, for the purpose described. 8th. A fixed submerged high-pressure holder connected with a suitable water supply above it, in combination with a high-pressure gas generator and an equalizing and regulating valve.

No. 17,540. Welts and Welt Guides for Sewing Machines. (*Trépointes et guide-trépointe pour moulins à coudre.*)

Charles L. Higgins, Montreal, Que., (assignee of Charles Turner), Lynn, Mass., U. S., August 22nd, 1883; 5 years.

Claim.—1st. The welt *z* arranged and combined with the piece *x y*, substantially in the manner as set forth, such welt being folded and placed between the said piece and connected thereto by a row of stitches extending through them, the said pieces and the two laps of the welt, substantially as described. 2nd. The combination with the upper and lower work guides, of the intermediate tubular welt guide projecting partly into the space intervening between the work guides, substantially as described. 3rd. The spring yielding upper and lower guides B C, the latter having a vertical outer end adapted to project into a slot in the cloth-plate, in combination with the intermediate tubular welt guide D, under arrangement and for operation, as set forth. 4th. The welt guide attachment for sewing-machines comprising the spring arm or bed plate A, in combination with the upper and lower welt guides B C, and the intermediate welt guide D, projecting partly into the space intervening between the work guides arranged for joint operation, as set forth. 5th. A presser-foot for sewing machines, constructed substantially as described and having in its bottom face a longitudinal groove adapted to receive the projecting edge of a welt, substantially as and for the purpose stated.

No. 17,541. Adjustable Stove Pipe.

(Tuyau de poêle ajustable.)

Delos A. Smith, Locke, Mich., U. S., August 23rd, 1883; 5 years.

Claim.—1st. The combination, with the pipe sections A A1 having perforations *a a1*, of the double spring C having re-enforced piece *c* and provided with bevel pins B B1 engaging the perforations *a*, whereby the sections of the pipe are automatically locked together, as shown and described. 2nd. In combination with the pipes A A1 having perforations *a a a1 a1*, the double spring C, provided with the re-enforcing piece *c* secured at its centre to the outer pipe A, both ends adapted to engage by their pins B B1 the perforations, whereby the sections are locked together, as shown and described.

No. 17,542. Waterproofing Compound.

(Composé imperméable à l'eau.)

Theodore Hunt, St. Louis, Mo., U. S., August 23rd, 1883; 5 years.

Claim.—1st. The described compound or liquid for water proofing, rendering non-absorbent and preserving from the destroying effects of the atmosphere stone, brick and other walls of buildings, which said compound consists of kerosene oil, naphtha or any other hydrocarbon, paraffine, japan or benzine driers and naphtalene, in about the proportions set forth. 2nd. The method of waterproofing, rendering nonabsorbent and preserving stone, brick and other walls of buildings by means of the described liquid compound of hydro-carbon, paraffine, japan or benzine driers and naphthalalene, applied substantially as set forth.

No. 17,543. Watch Case. *(Boîte de montre.)*

Robert J. Quigley, Toronto, Ont., August 23rd 1883; 5 years.

Claim.—1st, As an improved joint for the bezel and back of a watch case, a lug or projection fixed to the bezel or back and pivoted upon a pin inserted in the centre, the pivot point in the lug being outside of the point where the lug is connected to the bezel, so that the face of the bezel or back over the joint will be lifted clear of the centre, substantially as and for the purpose specified. 2nd. A lug or projection fixed to the bezel or back and pivoted upon a pin within the recess of the centre, the lug being curved so as to clear the edge of the centre and bring the pivot point outside of the point where the lug is connected to the bezel or back and the body of the lug inside of the said point, substantially as and for the purpose specified. 3rd. As an improved joint for the bezel and back of a watch case, a pin inserted in the centre at right angles to its face and forming the pivots for both the bezel and back, in combination with two lugs, one attached to the bezel and the other to the back the said lugs, being shaped so as to form a crank between their pivot and rigid connections. substantially as and for the purpose specified. 4th. In a recessed or hollow centre of a watch case in which the back and bezel are both pivoted on the same pin passing through lugs fixed respectively to the back and bezel, the combination of blocks soldered or otherwise fastened within the recess on the outside of said lugs for the purpose of forming invisible bearings or supports for the ends of the pivot pins, substantially as and for the purpose specified.

No. 17,544. Piano Stools and other Seats.

(Tabourets de piano et autre sièges.)

George W. Rich, Chicago, Ill., U. S., August 23rd 1883; 5 years.

Claim.—1st. In a piano-stool or seat, the screw-threaded thimble or cap B of larger circumference than and secured to the upper part of standard *a*, and the internally screw-threaded sleeve D secured at its upper end to the seat C and adapted to revolve exteriorly of said cap B, and the base A, substantially as and for the purpose specified. 2nd. In combination with the externally screw-threaded thimble or cap B, of greater circumference than and secured upon the upper portion of the standard *a*, of base A, the internally screw-threaded sleeve D having flanges *d* at its upper end and being secured to seat C and adapted to revolve upon the cap B and cover the screw-thread thereon, all substantially as and for the purpose set forth.

No. 17,545. Cinder Sifter. *(Crible à cendre.)*

Joseph A. Donovan, Toronto, Ont., August 23rd, 1883; 5 years.

Claim.—1st. A cinder sifter having a revolving perforated or wire gauze cylinder provided with a detachable cover, in combination with a box having one or more drawers arranged below the cylinder, substantially as and for the purpose specified. 2nd. In a cylindrical cinder sifter pivoted within a closed box, a movable segment formed by the bars *e* connected together and projecting beyond the cross bars *f*, in combination with the eye bolts *g* and pivoted curved fingers *h*, substantially as and for the purpose specified.

No. 17,546. Apparatus or means of Desiccating Textile or various other Fabrics. *(Appareil à dessécher les tissus et divers autre fabrications.)*

Ralph S. Jennings, Baltimore, Md., U. S., August 23rd, 1883; 5 years.

Claim.—1st. The combination of one or more rotary fans C and stationary perforated pipes F arranged essentially as described, in a room R with one or more induction air blowers D and one or more eduction air blowers F, provided with conduits leading from them to the pipe or pipes and fan or fans all being for use with frames, racks, or suitable appliances arranged in such room and for supporting goods to be dried, substantially as set forth. 2nd. The combination, of one or more rotary fans C and stationary perforated pipes F, arranged essentially as described, in a room R with one or more induction air blowers D, one or more eduction air blowers G, and one or more condensers H, all being substantially arranged and adapted as and for use, as set forth. 3rd. The combination, of the partitions E, arranged substantially as described, with one or more rotary fans C in a room R with such fans and with the perforated pipes F and air induction and eduction blowers D G, all being adapted and to operate essentially, as and for the purpose set forth.

No. 17,547. Foot Rest for Rocking Chairs.

(Support de pieds pour chaises berçantes.)

Friedrick Hunger and Solomon Schmuck, Cleveland, Ohio, U. S. August 23rd, 1883; 5 years.

Claim.—The combination with the rockers A B and pivoted foot-board C, of the adjustable arm D E, the arm D being secured to the foot-board and the arm being pivotally secured to a rocking-chair, substantially as set forth.

No. 17,548. Self Binding Harvester.

(Moissonneuse-engerbeuse.)

David M. Osborne, (assignee of Cyrenus Wheeler, jr.,) Auburn, N. Y., U.S., August 23rd, 1883; 5 years.

Claim.—1st. The knotter-spindle provided with three rigid fingers one of said fingers being made in the form of an inclined spiral wing, substantially as described. 2nd. The knotter-spindle having the convex-faced top or head and provided with three rigid fingers, one of said fingers being made in the form of an inclined or spiral wing, substantially as described. 3rd. The knotter-spindle provided with the convex-faced head, the straight radial finger inclined upward, from its base, and the inclined spiral wing arranged and operating substantially as described. 4th. The knotter-spindle provided with the rigid inclined and tapering finger, and a second finger curved on its outer edge, in the arc of a circle of which the axis of the spindle is the center and terminating at its outer end with its lower face in the same plane with the lower face of the point of the straight inclined finger, substantially as and for the purpose described. 5th. A hollow knotter-spindle having a fixed projecting finger at one end, inclined upward and outward from its axis, in combination with an internal spindle having two rigid fingers operating in connection with said hollow spindle and its finger, substantially as described. 6th. A hollow knotter-spindle having a rigid laterally-projecting finger at one end, inclined upward and outward from its axis, and provided at its outer end with a short lug or tooth, substantially as described. 7th. In combination with the binder-arm, the knotter-carrying arm and the cord-holder, the knotter-spindles arranged in a vertical plane passing transversely through the knotter-carrying arm and at an inclination to a vertical plane passing longitudinally through said arm, substantially as and for the purpose described. 8th. The combination of the hollow knotter-spindle, the two fingered spindle rotated therein, mechanism for giving to the former two motions independent of the latter, and mechanism for giving to the latter one motion independent of the former, substantially as described. 9th. In combination with the knotter-spindle, the pivoted cord-guide, the straight reciprocating rack for operating one of the spindles, and the camway on said rack for raising the cord-guide, substantially as described. 10th. In combination with the knotter-carrying arm, the knotter-spindles, the pivoted cord-holder, the independently-reciprocating racks for operating said spindles and a cam way or track on one of said racks for raising and depressing the cord-holder, substantially as described. 11th. In combination with the double knotter-spindle and its pinions, the straight independently-reciprocating racks for operating the same all carried on a swinging arm, friction-rollers on said racks and fixed cam ways on the binder frame for operating the same, substantially as described. 12th. In combination with the knotter-carrying arm, the knotter spindles and the reciprocating racks having friction rollers, the fixed separate cam ways arranged in a horizontal plane below the knotter-carrying arm, said cam ways having vertical walls for receiving and guiding the friction-rollers, substantially as described. 13th. The combination, with the knotter-carrying arm, of the knotter-spindles arranged one wtthin the other and having separate actuating-pinions, the straight independently reciprocating racks for actuating said pinions, and mechanism for operating the same, said racks being arranged on a line divergent from the center-line of the knotter-carrying arm, substantially as described. 14th. In combination with knotter-carrying arm and its knotter-spindles, the vertically-vibrating cord-holder connected with said arm by a horizontal pivot, and a reciprocating rack provided with a cam way for vibrating said cord-holder, substantially as described. 15th. The combination, with the swinging arm carrying the band-secuirng mechanism, of the inclined knotter-spindles and the horizontally pivoted vertically-oscillating cord-holder, arranged and operating, substantially as described. 16th. In a cord-holder, the movable jaw having a wedge-shaped extension on its end, in combination with a fixed jaw having an inclined bearing to receive said extension, substantially as described. 17th. The pivoted cord-finger, inclined double-spindled rotating knotter and a horizontally-pivoted vertically oscillating cord-holder and supported upon a horizontally oscillating arm, and means for operating them, all arranged and combined for joint operation, substantially as described. 18th. The pivoted cord-finger having a short lever at the lower end of its pivot provided with a friction-roller, in combination with a fixed cam-track having vertical side-walls, substantially as and for the purpose described. 19th. In combination with the binder-arm, the knotter and the cord-holder, the cord-guide pivoted to the knotter-stand on the inner side of said knotter and holder, and the reciprocating rack on the outer side of the same provided with a cam for operating the cord-guide, substantially as described. 20th. In combination with the cord-guide pivoted as stated and the reciprocating rack provided with a cam for operating said guide, a spring for keeping the foot of the guide in proper working relation to the cam, substantially as described. 21st. The branched and pivoted vertically-oscillating cord-holder, the movable jaw and cutter, the connecting link and pivoted lever, in combination with a pivoted switch on the horizontal binder frame, substantially as described. 22nd. The combination of the vertically-oscillating cam-holder, its movable jaw and cutter, the pivoted switch, the horizontal binder-frame, the spring for holding the switch in working position and the adjustable connecting link having a long loop or eye, substantially as and for the purpose set forth. 23rd. Inclined rotating knotter-spindles having rigid fingers, two reciprocating racks, a pivoted vertically-oscillating cord-holder and a pivoted cord-finger all supported on a horizontally-oscillating arm and moving with it, a vertically-oscillating and horizontally-swinging binder-arm and operating mechanism, the whole arranged and combined substantially as and for the purpose set forth. 24th. Inclined

rotating knotter-spindles having rigid fingers on their upper ends and pinions on their lower ends, straight reciprocating racks, a pivoted finger and a vertically oscillating cord-holder all supported and carried on a horizontally oscillating arm, in combination with fixed cam-ways supported on the binder-frame and connecting devices, substantially as described. 25th. The inclined knotter-spindles having rigid projecting fingers on one end and pinions on the other, a pivoted cord-finger and pivoted cord-guide connected with and supported by the removable knotter-stand, substantially as and for the purpose set forth. 26th. The rotating gear-wheel supported in bearings on the binder-frame, the lever pivoted at one end thereto and at its other end to the lower end of a vertical rock-shaft, a binder-arm hinged to the upper end of said rock-shaft, a pitman connecting said binder-arm with the pivoted lever, the rigid arm connected with and projecting from the rack-shaft in the same vertical plane with the binder-arm, the inclined rotating knotter-spindles having rigid fingers, the straight reciprocating racks, the vertically-oscillating cord-holder, said knotter-spindles, racks and cord-holder being carried by said horizontal arm, the fixed cam ways supported below said arm and parallel to it, and intermediate operating mechanism, the whole being arranged and combined for joint operation, substantially as described. 27th. The horizontally-oscillating knotter arm, the inclined rotating knotter-spindles having rigid projecting fingers, a pivoted cord-finger and pivoted cord-guide mounted on a removable stand, the cord-holder, the vertically-oscillating and horizontally swinging binder-arm, the oscillating take-up carried thereby and intermediate operating mechanism arranged and combined for joint operation, in the manner and for the purpose described. 28th. A binder-frame arranged outside of and below the discharging ends of the elevator aprons of a harvester, a vertical rock-shaft supported in bearing on said frame a vertically-oscillating binder-arm hinged to the top of said rock-shaft, a lever hinged at one end to the lower end of said rock-shaft, its other end being pivoted to a rotary gear wheel supported on said binder frame and deriving its motion from the main driving-wheel of the harvester, a pitman connecting the lever with the binder-arm, a horizontal arm rigidly connected by one of its ends to the rock-shaft between the lever and the binder-arm and projecting from said rock-shaft at right angles thereto and in the same vertical plane with the binder-arm, inclined knotter-shafts having rigid fingers at one end and separate pinions at the other, straight reciprocating racks gearing with said pinions and having each a downwardly-projecting roller, said knotter-shafts and racks being supported on said rigid horizontal arm, a fixed cam-way for each roller supported on the binder-frame below said horizontal arm and a slotted grain receiving table arranged above said arm, the whole combined and arranged for joint operation, substantially as and for the purpose described. 29th. The pivoted cord-finger, in combination with its cam way having different inclines for giving four separate movements to said finger; first to bring the cord to the knotter fingers; second to move back to give room for the crossed cords on the knotter fingers; third a forward movement to push off the loop and complete the knot; and fourth a backward movement to permit the opening knotter-fingers to discharge the knot, substantially as described.

No. 17,549. Water Wheel. (*Turbine.*)

Calvin J. Weld and George W. Hooker, Brattleboro, Vt., U. S., August 23rd, 1883; 5 years.

Claim.—1st. A water-way having the enlargement B, in combination with the gate C, substantially as shown. 2nd. A curved or spiral curb or water-box, in combination with a water-wheel, substantially as described. 3rd. A water wheel provided with a series of internal buckets H and discharge R with a series of gates, each one of which is provided with a regulator of its own, substantially as set forth. 4th. The combination, in a water-wheel, of a series of gates for regulating the discharge of water from the periphery of the wheel, each gate being provided with an adjustable regulator of its own, substantially as specified. 5th. In the combination of a spiral curb or water-box, the water-wheel having internal buckets, the gates arranged in the discharge K and the automatic regulators connected to the gates, substantially as shown.

No. 17,550. Lifting Jack. (*Cric.*)

Ward Sprague and Justus L. Bulkley, Sandy Creek, N. Y., U. S., August 23rd, 1883; 5 years.

Claim.—1st. The combination of the lock-bar D, pivoted between the standards B, with the lever C, pivoted between the standards B, and provided with a series of graduated steps c_1, and a notch 2, substantially as set forth. 2nd. In a lifting jack, the escapement lever E pivoted to the under side of the lever C, and the lock-bar D, substantially as shown and described. 3rd. The combination of the lever C, pivoted between the standards B provided with a series of graduated steps c_1, a notch c_2 and having pivoted to its under side the escapement lever E, with the lock-bar D pivoted between the standards B and adapted to enter the notch c_2, substantially as shown and described.

No. 17,551. Method of Coating Walls with Flock. (*Manière de couvrir les murs de tontisse.*)

John H. and Charles E. Campbell, New York, N. Y., U. S., August 23rd, 1883; 5 years.

Claim.—The method of covering walls with flock or other suitable material which consists first: in sizing the wall, then varnishing the same after the size is dry and finally applying a layer of flocks by means of a strong air current, substantially as and for the purpose set forth.

No. 17,552. Window Sash Balances.

(*Contre-poids de chassis à coulisse.*)

Edwin Bradshaw, Toronto, Ont., August 28th, 1883; 15 years.

Claim.—1st. The combination of the slides (A B C D) and the position of the pulleys (E E and F F) also rubber stops (G G), working of the cords N N in the grooves (O O) together with the guards (K L M), substantially as and for the purpose set forth. 2nd. The combination, with the slides (A B C D) and the position of the pulleys (E E and F F) also rubber stops (G G) working of the cords (N N) in the grooves (O O) together with the guards (K L M) in bottom sash (H), substantially as and for the purpose set forth.

No. 17,553. Camp Stove. (*Poêle de camp.*)

Pierre Latour, Ottawa, Ont., August 28th, 1883: 5 years.

Claim—1st. In a camp stove, the bottom A, top B, and sides C made in two parts which are connected with each other by hinges, substantially as shown and described. 2nd. In a camp stove, the combination of the bottom A made in two parts hinged together with the locking-bar *d* pivoted to the bottom A so as to cover the hinged junction of its two parts and at the same time to keep the sides in place, as specified. 3rd. In a camp stove, the combination of the bottom A having the flanges *b b*, and the sides C having the flanges *c c* with the locking bar *d* pivoted to the bottom A, substantially as and for the purpose set forth. 4th. The combination of the bottom A and sides C with the top B having the trough *g* formed of its margins, substantially as and for the purpose set forth. 5th. In a camp stove, the folding oven composed of the top *h*, door *i* in two leaves and close side *j* made in two parts, substantially as and for the purpose specified. 6th. A camp stove provided with an oven which when removed from the fire box leaves it complete and suitable for heating purposes, as shown and specified.

No 17,554. Method or Process of Preparing Paper for Copying Purposes.

(*Procédé pour préparer le papier à copier.*)

Morgan W. Brown, Brooklyn, N.Y., U.S., August 28th, 1883; 5 years.

Claim—1st. The method or process for treating paper for copying purposes so as to render it permanently moist, by moistening or saturating such paper with a solution of chloride of magnesium, substantially as set forth and specified. 2nd. As a new manufacture, paper impregnated with chloride of magnesium, for the purpose set forth.

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

34. J. T. BARNARD, (assignee), 2nd 5 years of No. 9096, from 6th day of August, 1883. Improvements on Emery or Corundum wheels, 2nd August, 1883.

35. R. BRAYTON, D. JUNE and O. S. FRENCH, 2nd 5 years of No, 9206, from 24th day of Septemher, 1883. Improvement on the Art or Process of Coating Steam Boiler Tubes, 4th August, 1883.

36. A. J. MERSHON, 2nd 5 years of No. 9146, from 30th day of August, 1883. Improvements on Rock Drilling Machines, 4th August, 1883.

37. R. BAYERS, 2nd and 3rd 5 years of No. 9092, from 6th day of August, 1883. Improvements on Radiators for Warming Buildings by Hot Water, 4th August, 1883.

38. P. PIERCE, 2nd 5 years of No. 9095, from 6th day of August. 1883. Improvements in Metallic Shingles, 6th August, 1883.

39. O. TOWER, 2nd and 3rd 5 years of No. 15,214, from 31st day of July, 1887. Improvements on Thill Couplings, 11th August, 1883.

40. A. H. DIXON, 3rd 5 years of No. 2647, from 13th day of August, 1883. Improvements on Show Cards, 13th August, 1883.

41. A. M. S. GOLDSCHMIDT, 2nd 5 years of No. 9364, from 19th day of November, 1883. Improvements on Fluting and Plaiting Machines, 13th August, 1883.

42. W. AIKIN and W. W. DRUMMOND, 2nd and 3rd 5 years of No. 9208, from 24th day of September, 1883. Improvements on Machines for Molding in Sand for Castings, 18th August, 1883.

43. W. AIKIN and W. W. DRUMMOND, 2nd and 3rd 5 years of No. 9209, from 24th day of September, 1883. Improvements on Machines for Molding in Sand for Castings, 18th August, 1883.

44. THE MOLECULAR TELEPHONE COMPANY, (assignee,) 2nd and 3rd 5 years of No. 11,590, from 2nd day of August, 1885. Improvements in Transmitters for Telephones or Vocal Sound Telegraphs, 20th August, 1883.

45. THE MOLECULAR TELEPHONE COMPANY, (assignee,) 2nd and 3rd 5 years of No. 14,353, from 7th day of March, 1887. Improvements in Transmitters for Telephones, 20th Angust, 1883.

46. THE MOLECULAR TELEPHONE COMPANY, (assignee,) 2nd and 3rd 5 years of No. 11,576, from 30th day of July, 1885. Improvements in Telephone Receivers, 20th August, 1883.

47. THE MOLECULAR TELEPHONE COMPANY, (assignee), 2nd and 3rd 5 years of No. 14,354, from 7th day of March, 1885. Improvements in Telephone Receivers, 20th August, 1883.

48. C. F. LIVERMORE, 2nd and 3rd 5 years of No. 12,945, from 10th day of June, 1886. Improvement in Telephones or Vocal Sound Telegraphs, 20th August, 1883.

49. E. N. PORTER and L. G, BURNHAM, 2nd 5 years of No. 9,140, from 30th day of August, 1883. Improvements in a Vice for Holding Picture Frame Mouldings, 20th August, 1883.

50. L. W. POND, 2nd 5 years of No. 9127, from 30th day of August, 1883. Improvements on Rafting Booms, 20th August, 1883.

51. J. E. BAKER, (assignee,) 2nd 5 years of No. 9138, from 30th day of August, 1883. Improvements in Machines for Paring, Coring and Slicing Apples, 20th August, 1883.

52. T. SILLS, 2nd 5 years of No. 9120, from 21st day of August, 1883. Improvements in Grain Doors, 21st August, 1883.

53. W. L. TUCKER, 2nd 5 years of No. 9338, from 11th day of November, 1883. Improvements in Hernial Trusses, 21st August, 1883.

54. C. SEMPER and C. FAHLBERG, 2nd and 3rd 5 years of No. 13,919, from 2nd day of January, 1887. Improvements on Methods of Removing Iron from Ferruginous Afuminous Solutions, etc., 22nd August, 1883.

55. J. GRAHAM and D. COREY, 2nd and 3rd 5 years of No. 9621, from 21st day of January, 1884. Improvements on Journal Bearings, 22nd August, 1883.

56. G. A. MASSON, J. S. HEATH and G. W. W. BILLINGS, 2nd 5 years of No. 12,349, (Re-issue of No. 9163,) from 7th day of September, 1883. Improvements in Combined Seeding Machines, 28th August, 1883.

57. A. D. TINGLEY, (assignee,) 2nd 5 years of No. 9154, from 31st day of August, 1883. Improvements on Hand Stamps, 28th August, 1883.

58. D. CONBOY, 2nd 5 years of No. 9185, from 23rd day of September. 1883. Improvements in Carriages, 28th August, 1883.

59. R. CLARK, 2nd 5 years of No. 9156, from 31st day of August, 1883. Improvements on Double or Two Horse Carts, 28th August, 1883.

60. J. CANAN, 2nd and 3rd 5 years of No. 9440, from 5th day of December, 1883. Improvements in the Construction of Dredging Machine Shovels, 29th August, 1883.

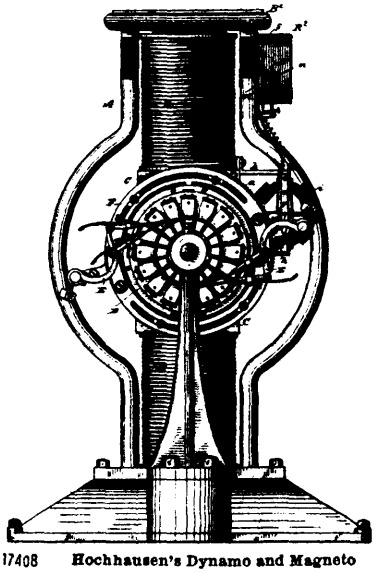
61. G. J. CLINE, 2nd 5 years of No. 9151, from 30th day of August, 1883. Improvements on Churns, 30th August, 1883.

THE

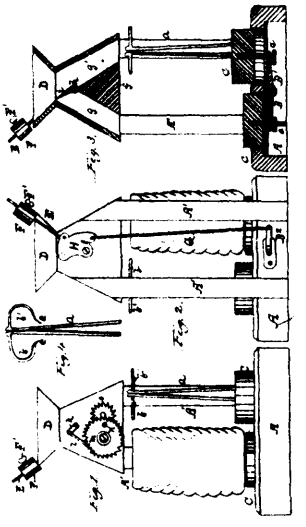
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

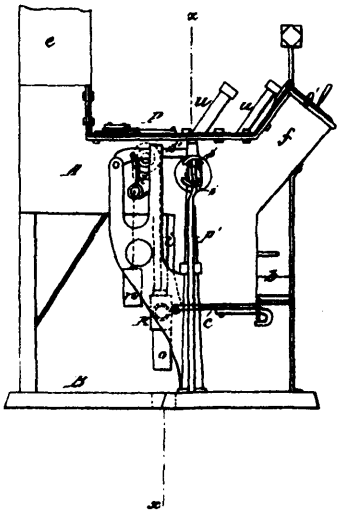
Vol. XI. SEPTEMBER, 1883. No. 9.



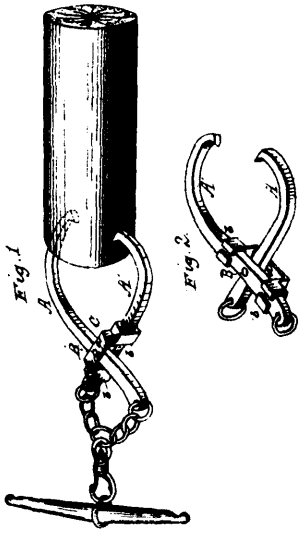
17408 Hochhausen's Dynamo and Magneto Electric Machine.



17409 Leach and Old's Combined Grain Scale, Bagger and Register.

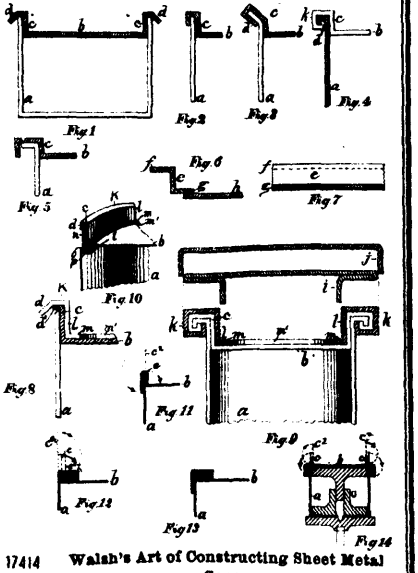


17410 Brown's Brazing and Welding Furnace.

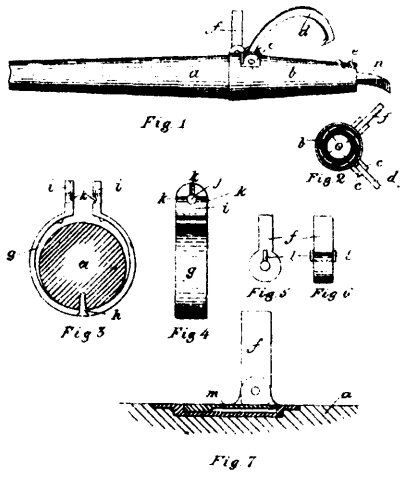


17411 Raymond's Grapple.

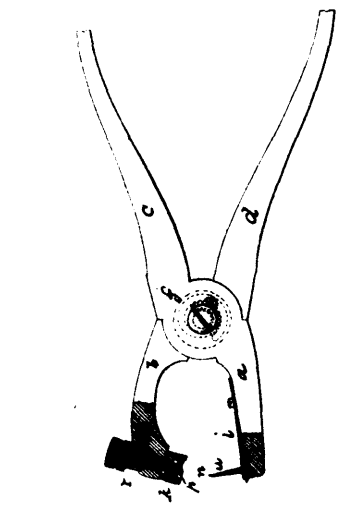
17413 Kirk's Candle.



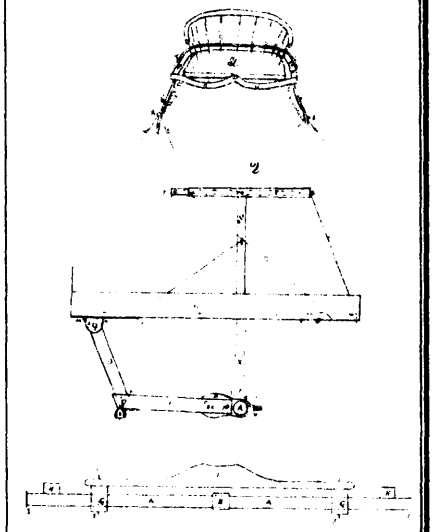
17414 Walsh's Art of Constructing Sheet Metal Cans.



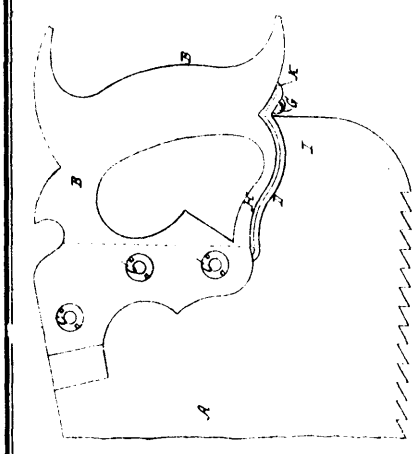
17415 **Sanford's Cant Hook Lever.**



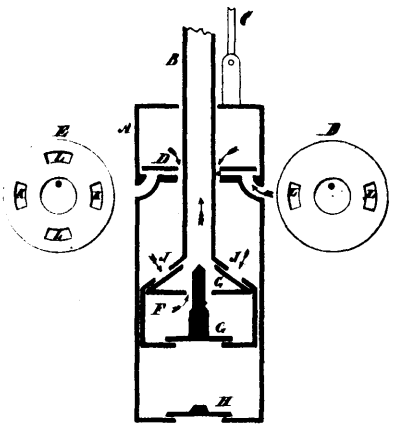
17416 **Alton's Button Setting Instrument.**



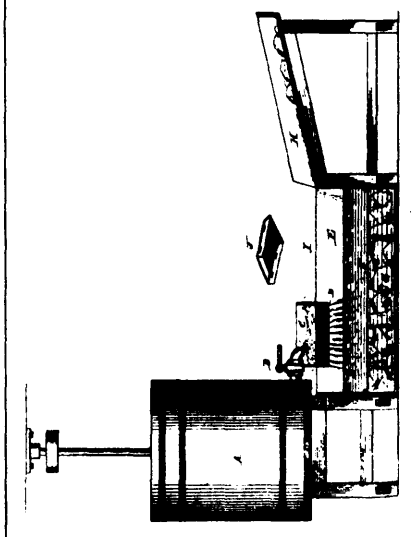
17417 **Axford's Two-wheeled Vehicle.**



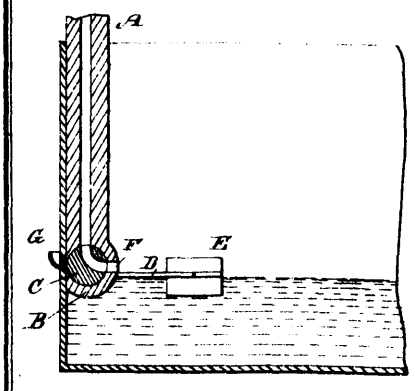
17518 **Hankin's Reinforcing Plate for Saw Handles.**



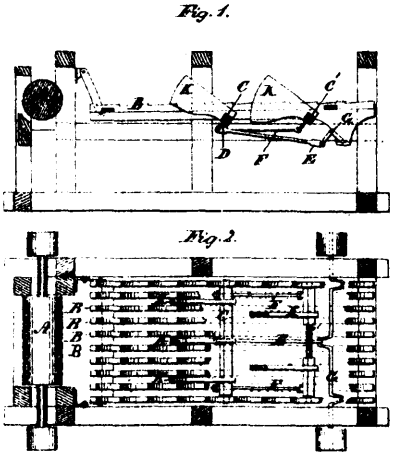
17419 **Brook's Pump.**



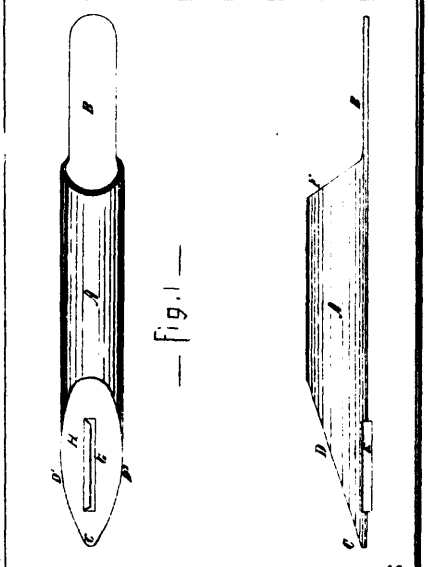
17420 **Hebb's Process of Manufacturing Artificial Butter.**



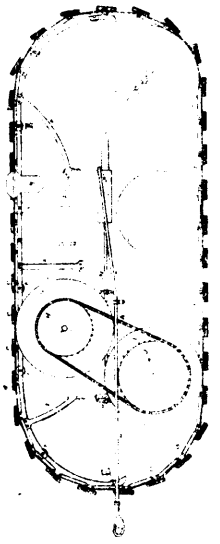
17421 **Menze's Low Water Alarm.**



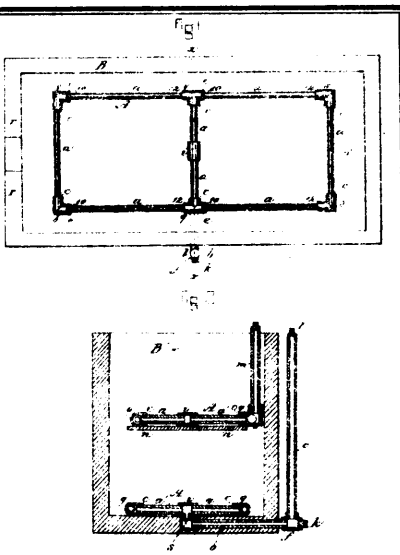
17422 **Craig's Grain Thrasher and Separator.**



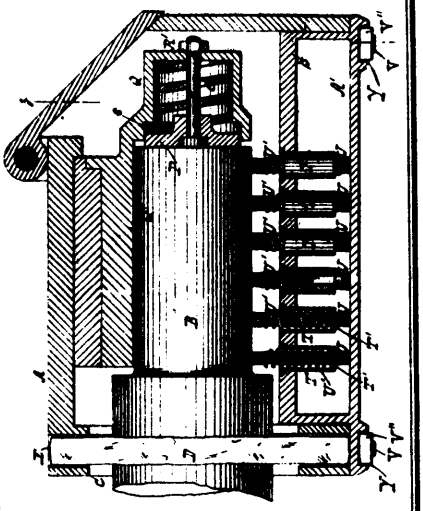
17423 **Addison's Machine for Peeling Potatoes &c.**



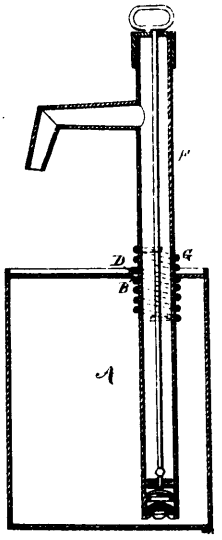
17424 Birch's Traction Engine.



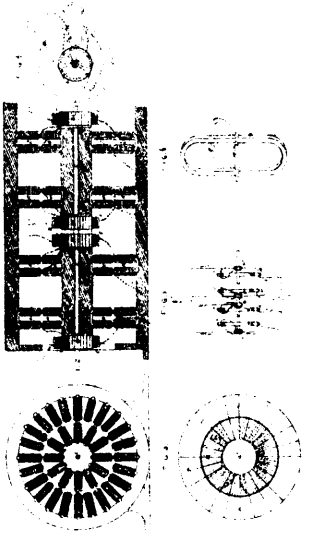
17425 Colcord's Method of Preserving Ensilage in Silos.



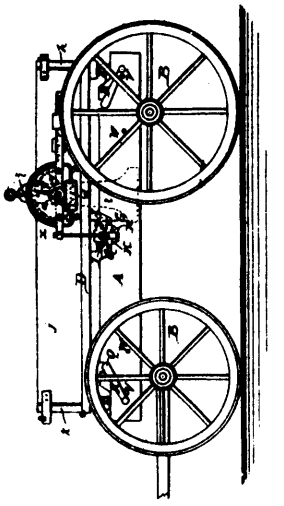
17426 Sweeney's Car Axle Box.



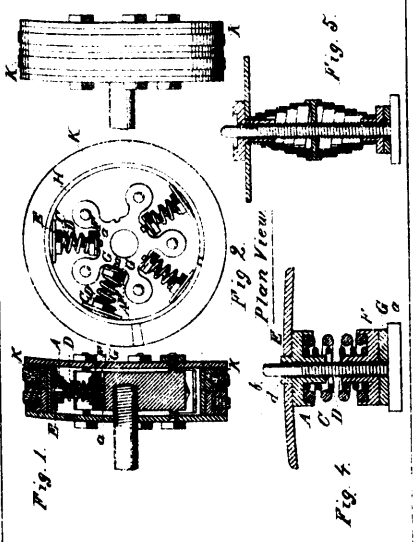
17427 Holden's Device for Attaching Pumps to Cans.



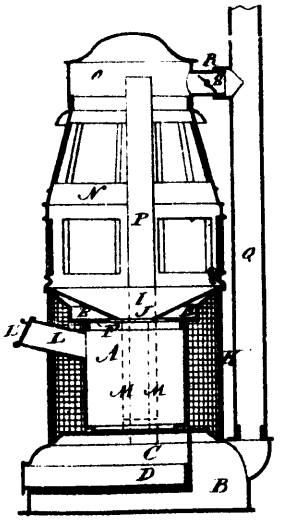
17428 Toynbee's Electro Magnetic Motor.



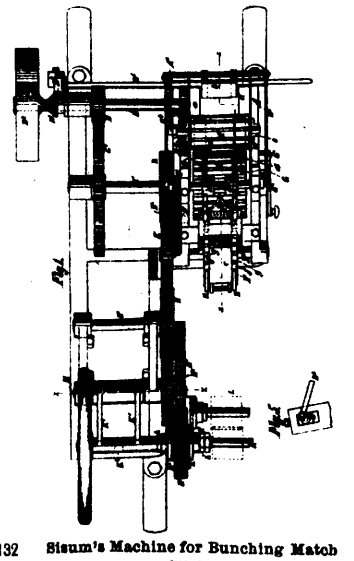
17429 Norris' Weighing Waggon.



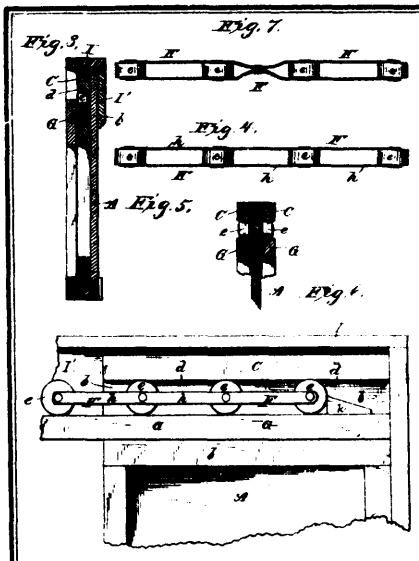
17330 Williams' Piston for Steam Engines.



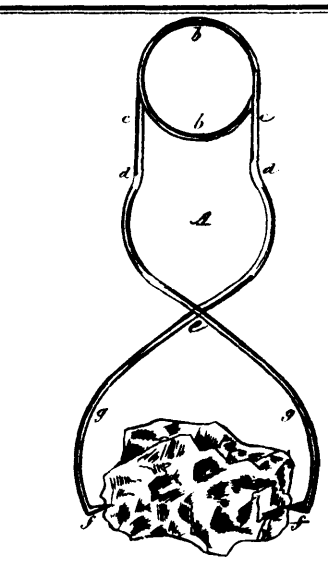
17431 Wayne's Smoke Consumer.



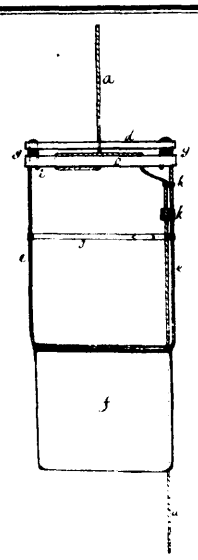
17432 Sisum's Machine for Bunching Match Sticks.



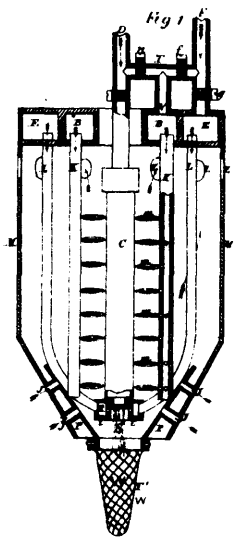
17433 **Wilder's Hanging or Sliding Doors.**



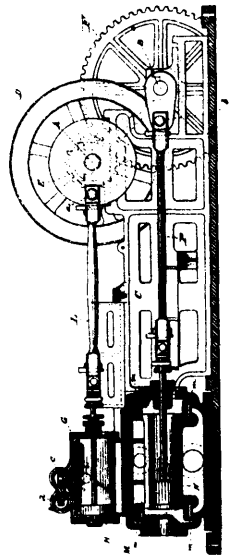
17434 **Baxter's Ice Tongs.**



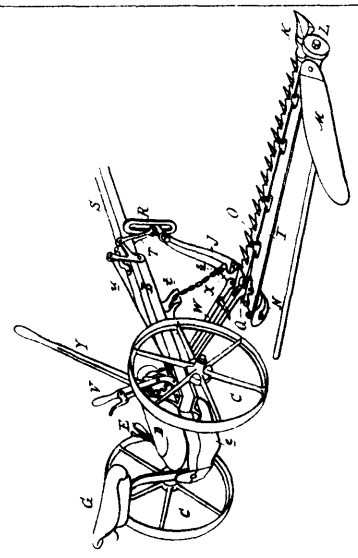
17435 **Pitman's Fire-Escape.**



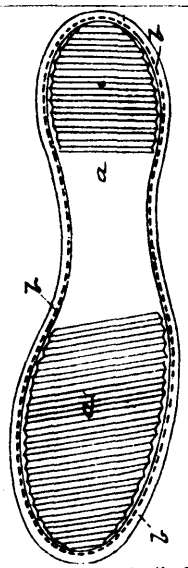
17436 **Clamond's Apparatus for Producing Intense White Light.**



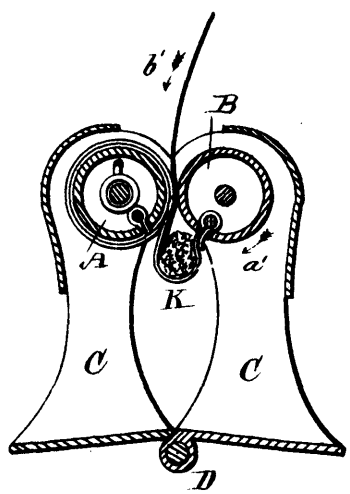
17437 **Martin's Pumping Engine.**



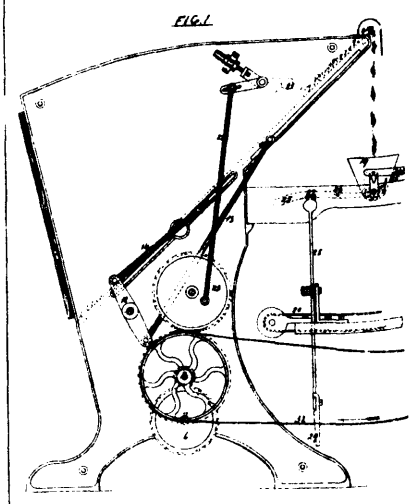
17438 **Howe's Mower.**



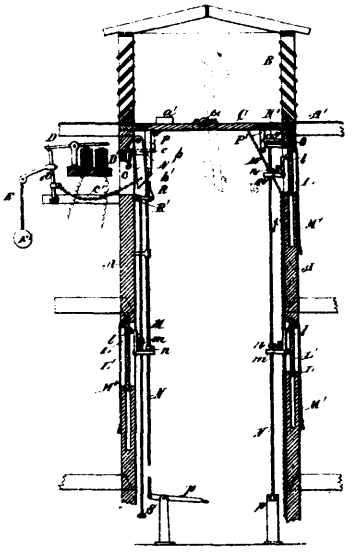
17439 **Randall's Machinery for the Manufacture of Boots and Shoes.**



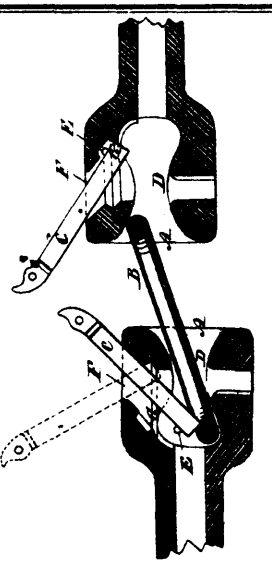
17440 **Cargrain's Cigarette Machine.**



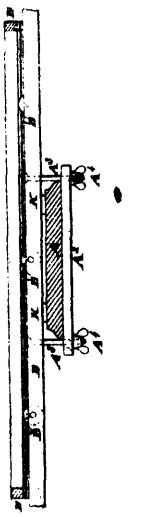
17441 **Ainley's Wool Feeding Machinery for Carding Engines.**



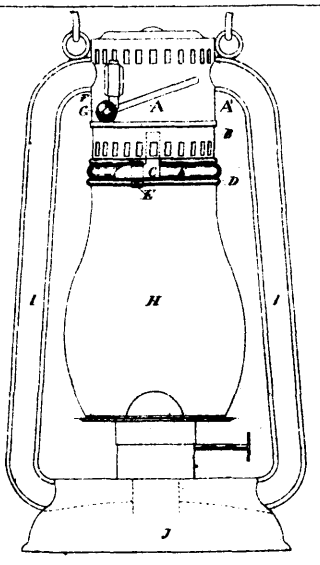
17442 **Willard's Elevator Shafts.**



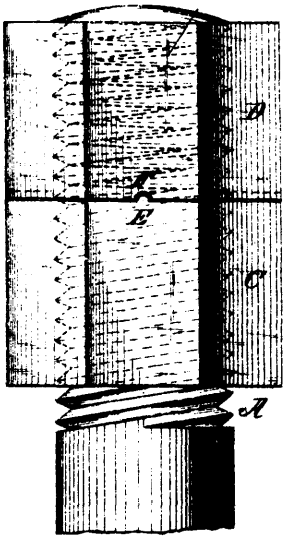
17443 **Watersons's Car Coupling.**



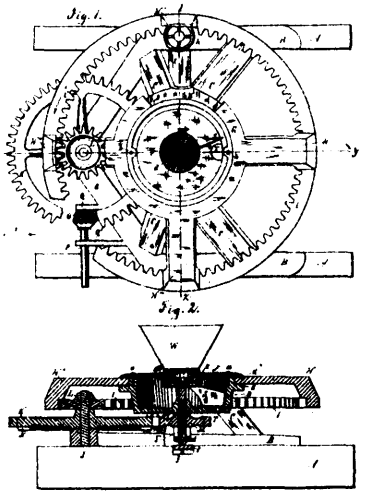
19444 **Davis' Quilting Frames.**



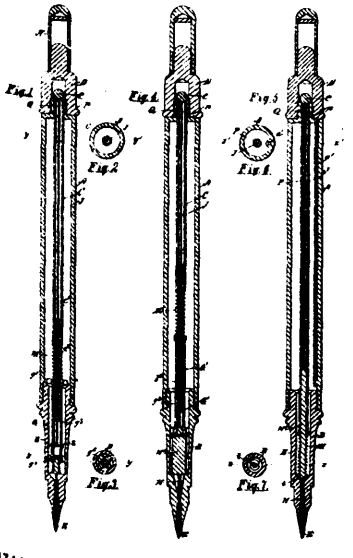
17445 **Oswald's Lantern.**



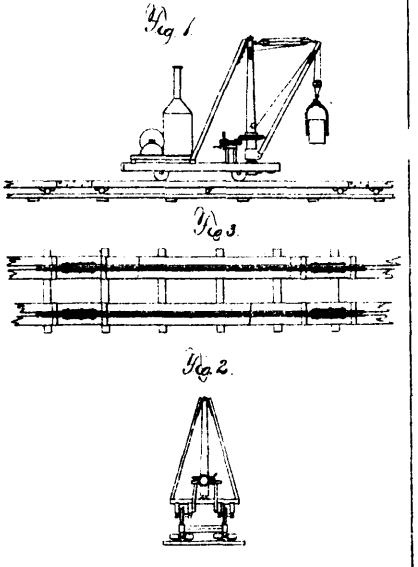
17446 **Crocker's Lock Nut for Screws.**



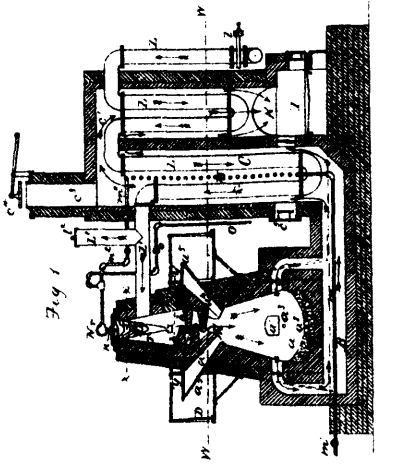
17447 **Smith's Grinding Mill.**



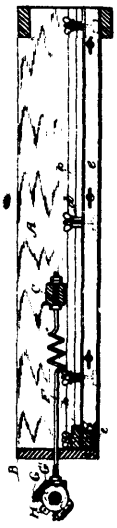
17448 **Cross' Fountain Pen.**



17449 **Dark's Working Car and Derrick.**



17450 **Hayden's Gas Furnace.**

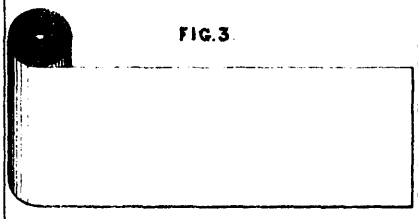


17451 Harmon's Middlings Purifier.

FIG. 1.

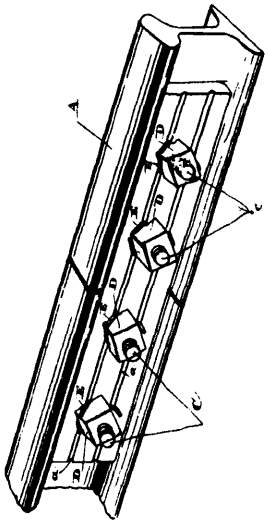
FIG. 2.

FIG. 3.

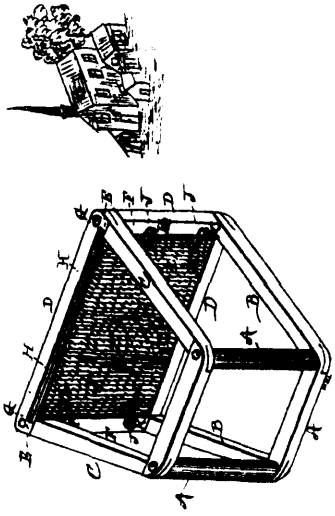


17452 Hawke's Process of Lasting Boots and Shoes.

17453 Smith's Stump Extractor.



17454 Nichols' Nut Lock.



17455. Worden's Drawing Apparatus.

Fig. 1.

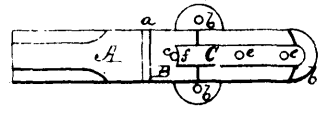


Fig. 2.

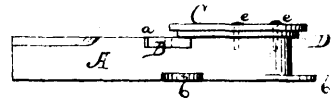
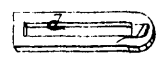
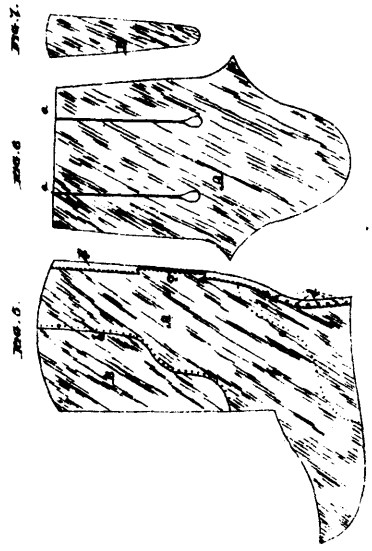


Fig. 3.



17456 Rothbarth's Punching and Rivetting Anvil.



17457 Buckingham's Boots.

FIG. 1.

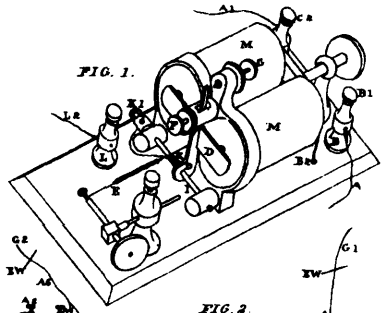
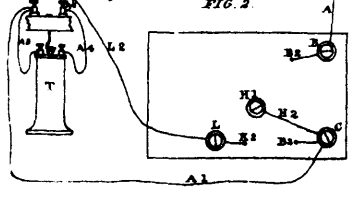


FIG. 2.



17458 Drake's Telegraph and Telephone Protector.

Fig. 5

Fig. 3

Fig. 1

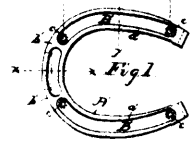
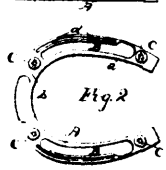
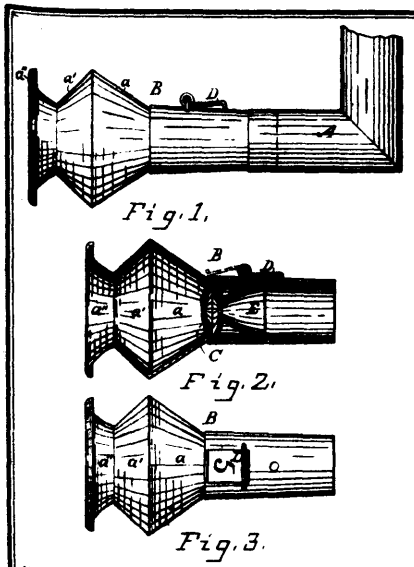


Fig. 4

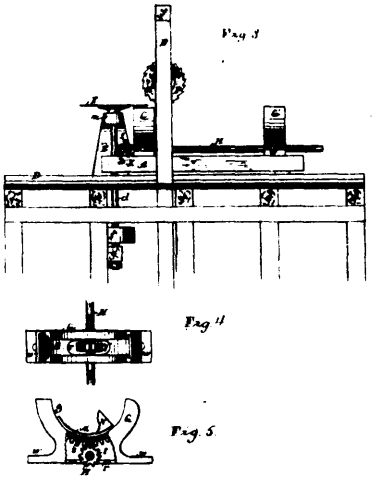
Fig. 2



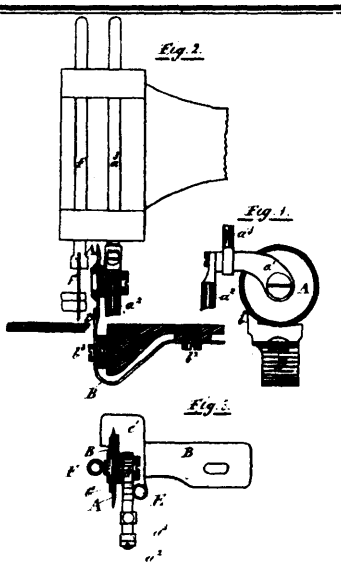
17459 Hawes' Horse Shoe.



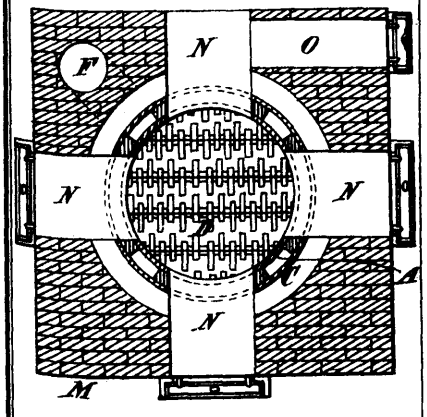
17460 Hiedelmeier's Mouth Pieces for Speaking Tubes.



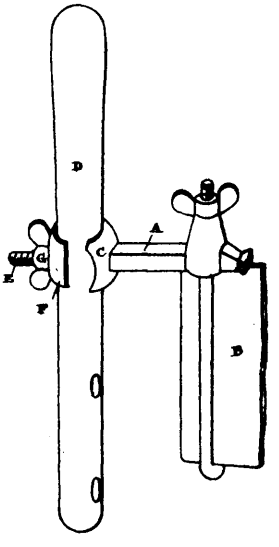
17461 Taber's Machine for Sawing Clapboards.



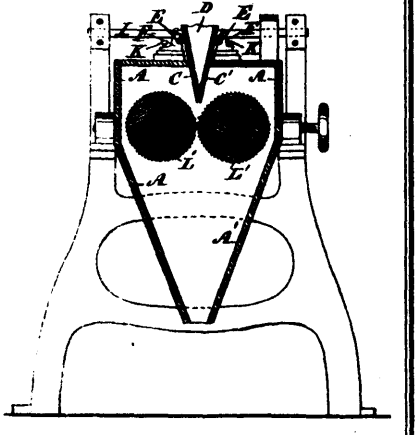
17462 Davidson's Sewing Machine.



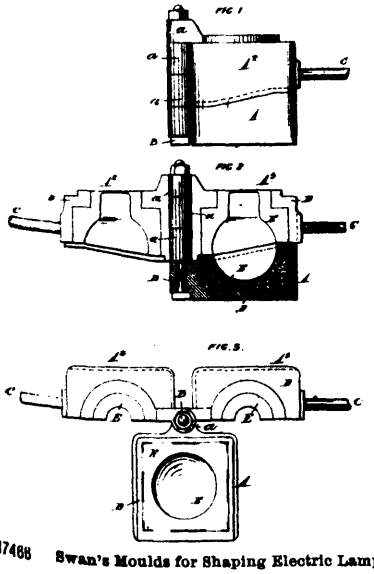
17463 Bates' Fire-Pot for Boilers.



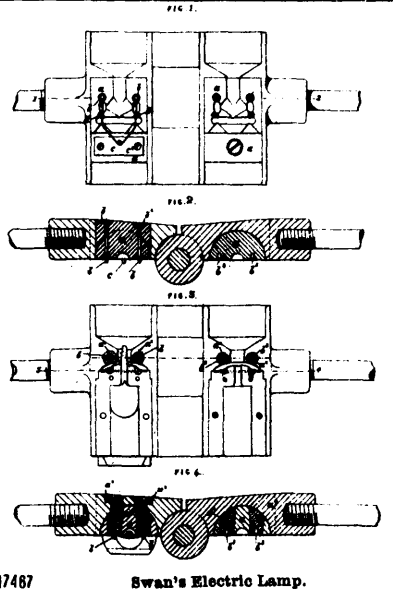
17464 Dietrich's Cross Cut Saw Handle.



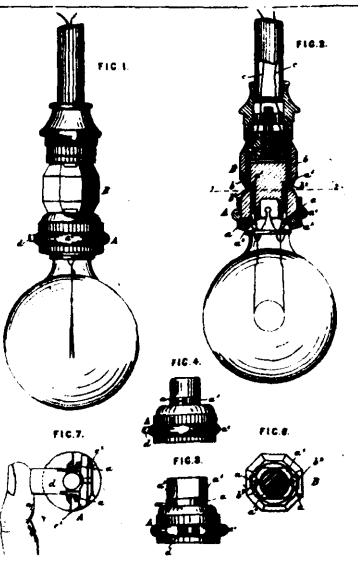
17465 Hutchison's Grain Reduction Mill.



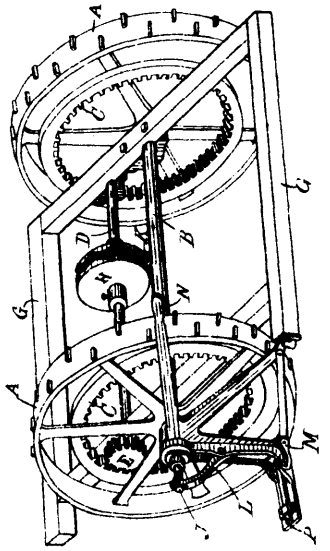
17466 Swan's Moulds for Shaping Electric Lamp Bulbs.



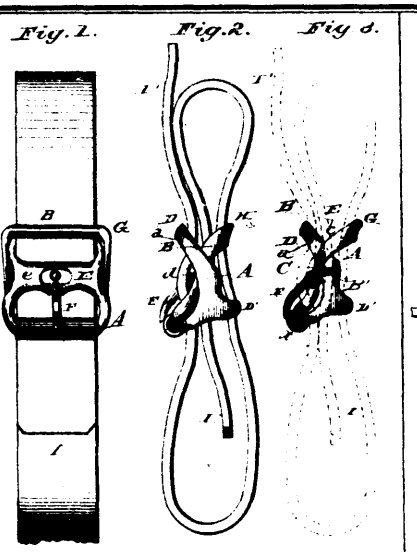
17467 Swan's Electric Lamp.



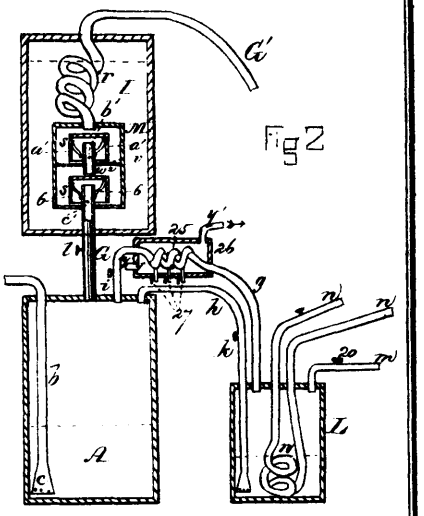
17468 Swan's Holder for Electric Lamps.



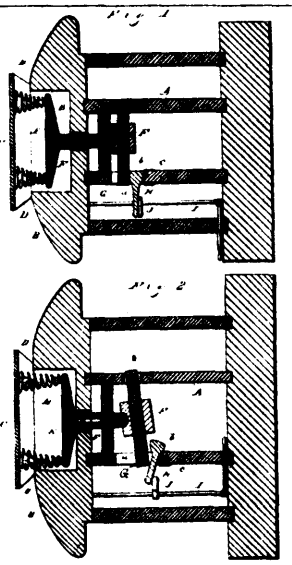
17469 Carlyle's Mowing Machine.



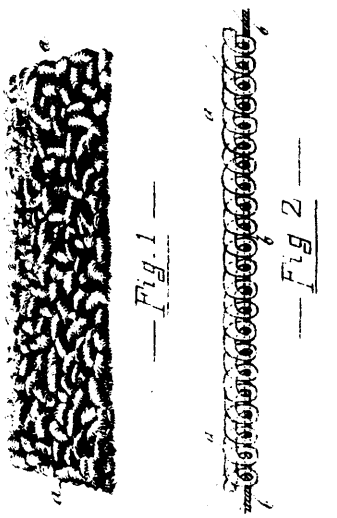
17470 Park's Buckle.



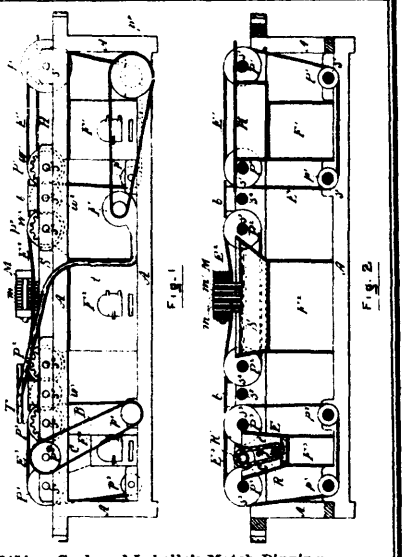
17471 Cushing's Apparatus for Purifying and Maturing Liquors.



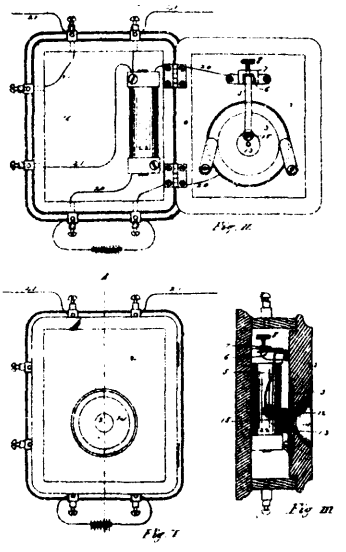
17472 Cowell's Car Platform.



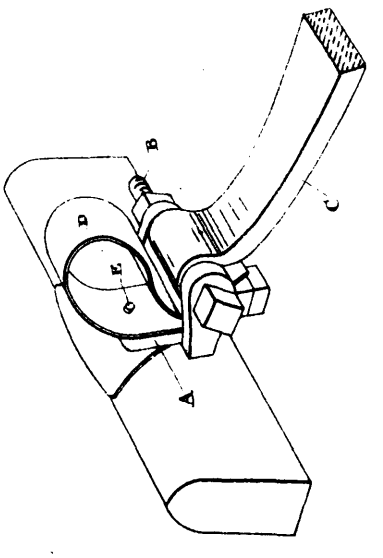
17473 Pelland's Art for Making Textile Imitations of Persian Lamb Peltries.



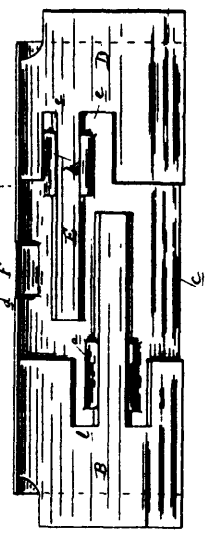
17474 Cook and Labelle's Match Dipping Machine.



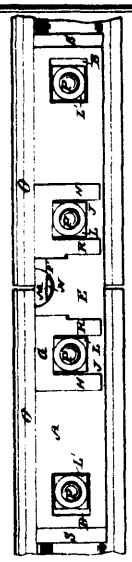
17475 Lakin's Telephone Transmitter.



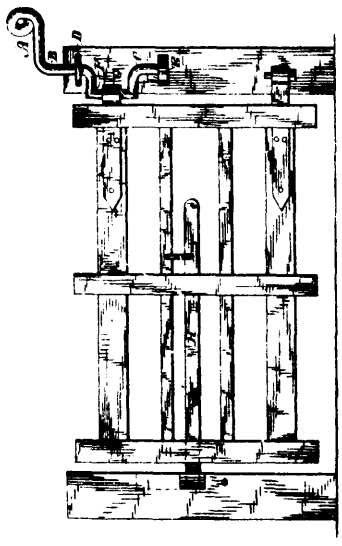
17476 Dietrich's Thill Coupling.



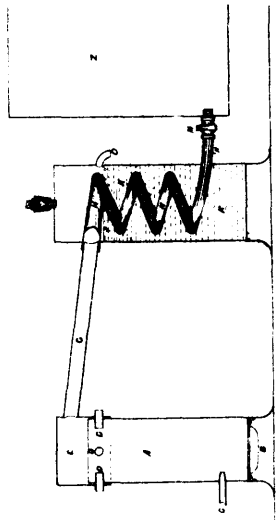
17477 Way's Fire Back for Stoves and Ranges.



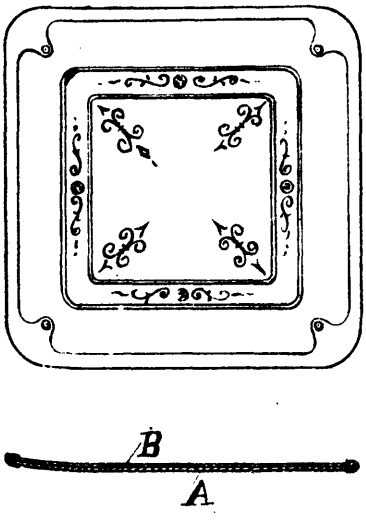
17478 Wilkes' Nut Lock.



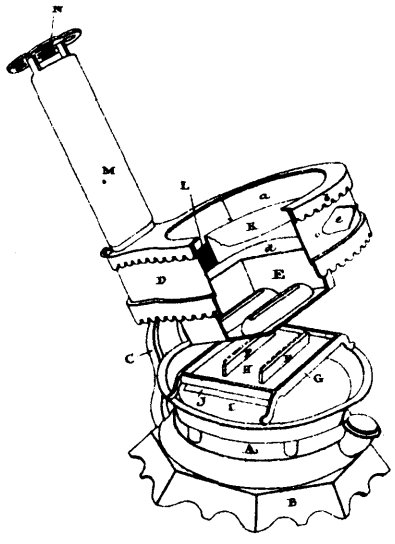
17479 Luken's Gate Attachments.



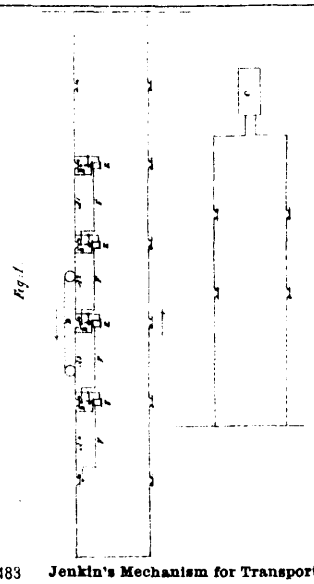
17480 Pielsticker's Apparatus for Preserving Alimentary Substances.



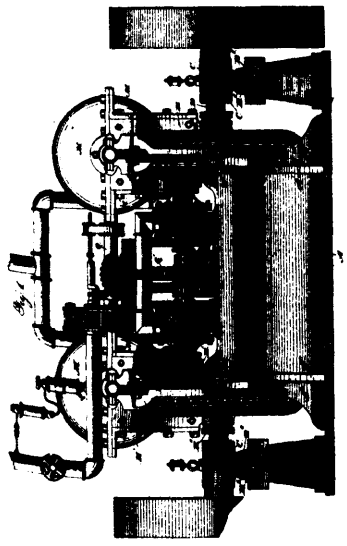
17481 Cole's Stove Board.



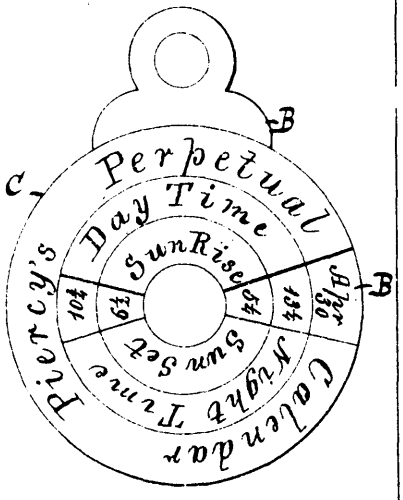
17482 Watson's Coal Oil Stove.



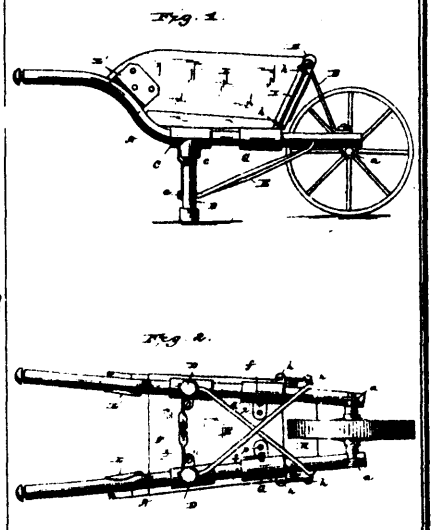
17483 Jenkin's Mechanism for Transporting Goods and Passengers.



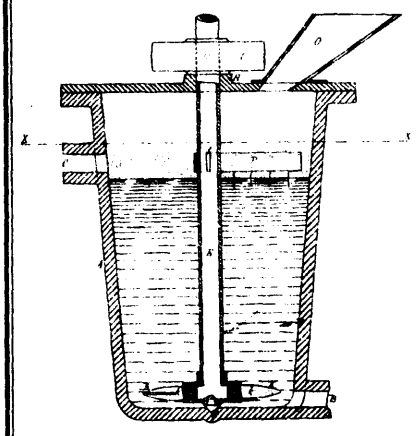
17484 Wing's Rotary Engine.



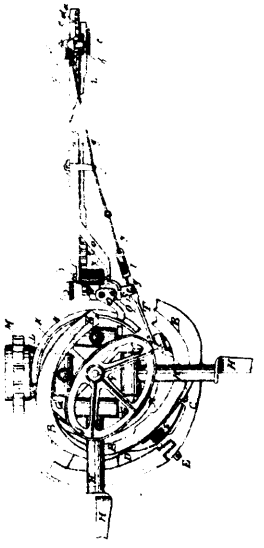
17485 Piercy's Perpetual Calendars.



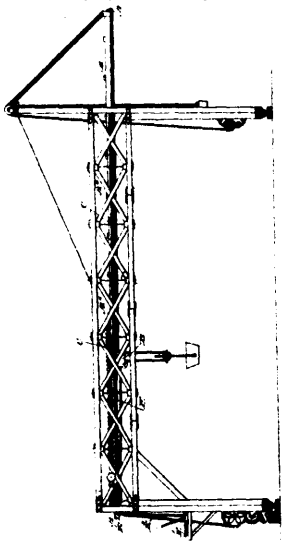
17486 Bean's Wheelbarrow.



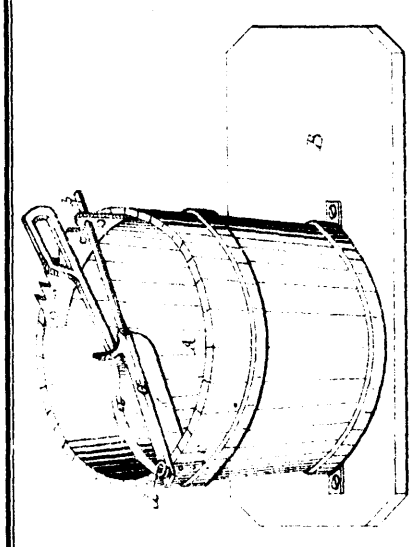
17487 Huntington and Koch's Amalgamating Apparatus.



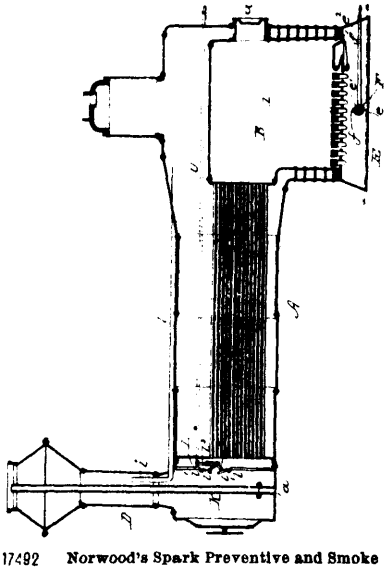
17488 Burditt's Harvester Rake.



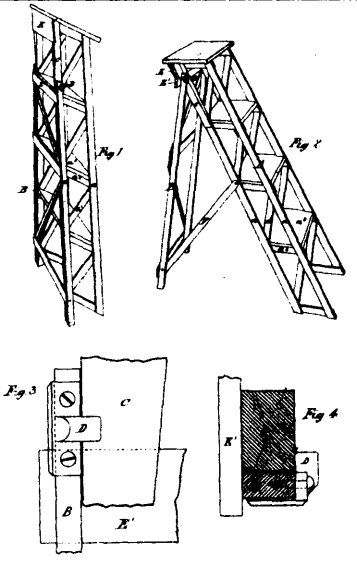
17489 Ludlow's Derrick.



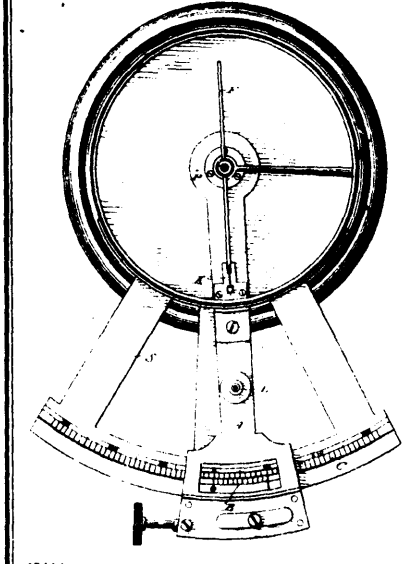
17490 McCarthy's Mop Wringer.



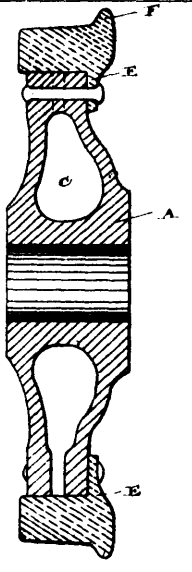
17492 Norwood's Spark Preventive and Smoke Consuming Device.



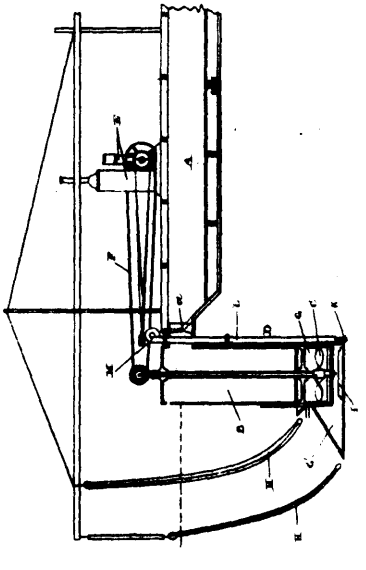
17493 Jones' Steps or Self-Supporting Ladder.



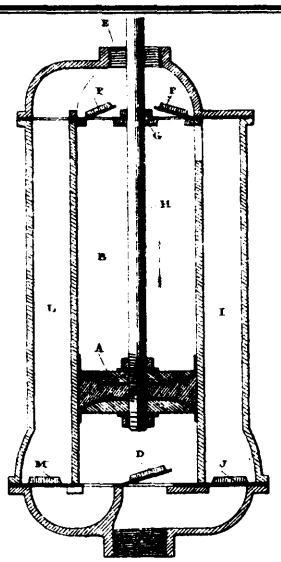
17494 Glover's Isometer.



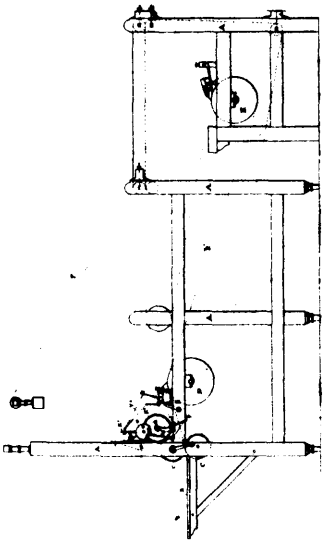
17495 Taylor's Metal Truck Wheel.



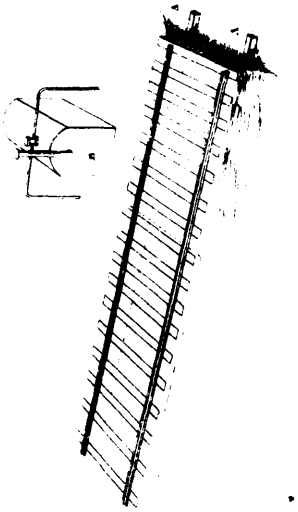
17496 Blain's Mining Machine.



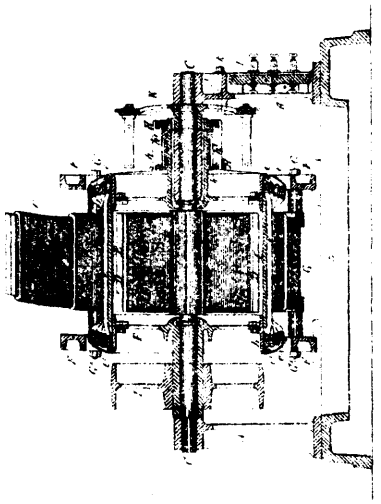
17497 Watkin's Pump.



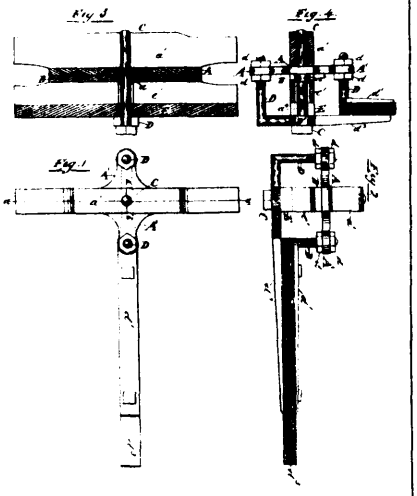
17498 Blackhall's Ruling Machine.



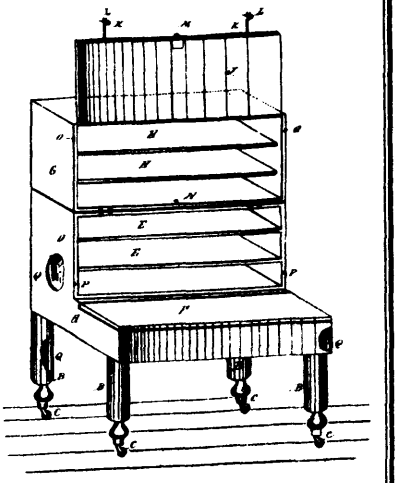
17499 Paterson's Device for Keeping Frost and Snow from Railway Road Beds.



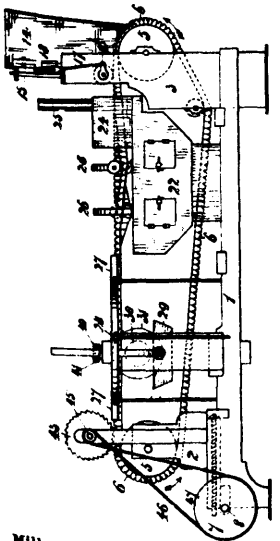
17500 Elphinstone and Vincent's Dynamo Electric Machine.



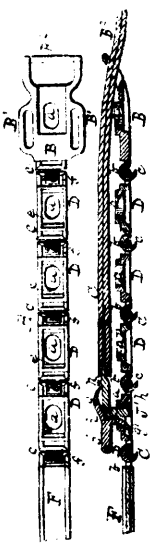
17501 Lockhart's Fifth Wheel for Vehicles.



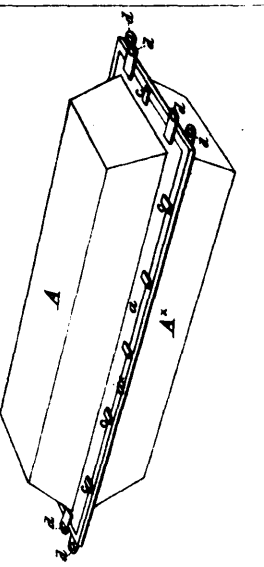
17502 Harris' Store Shelving.



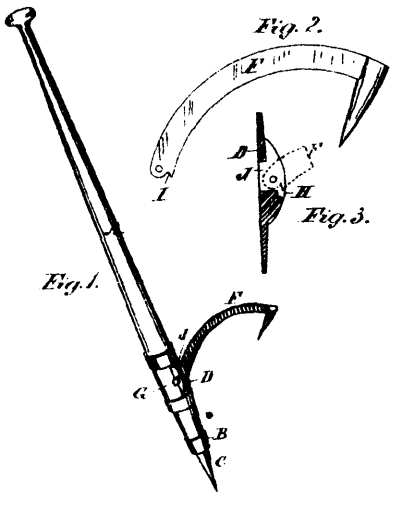
17503 Millen, Mantion, Labelle and Cook's Apparatus for Sulphurizing Friction Matches.



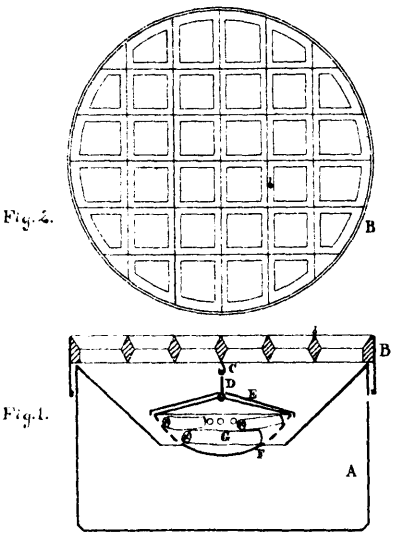
17504 Lasher's Hame Tug.



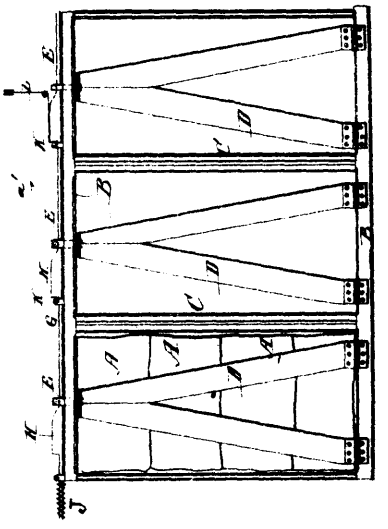
17505 Williams' Pontoon.



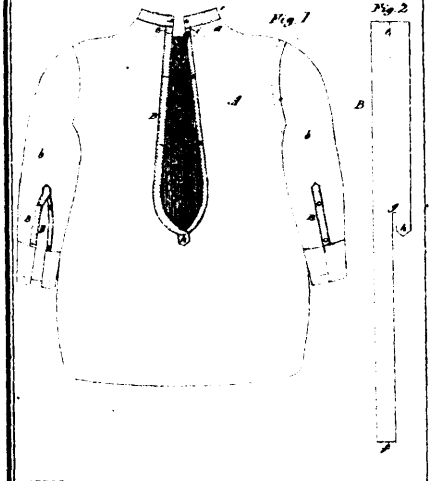
17506 McLean's Cant Hook.



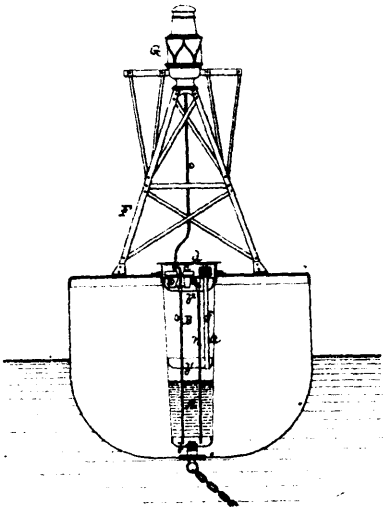
17507 Mathieu's Cuspidor.



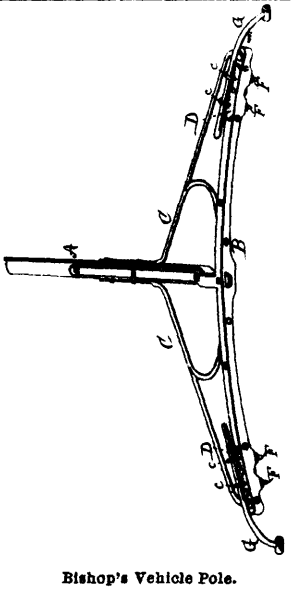
17508 Gray's Life Preserver Holder.



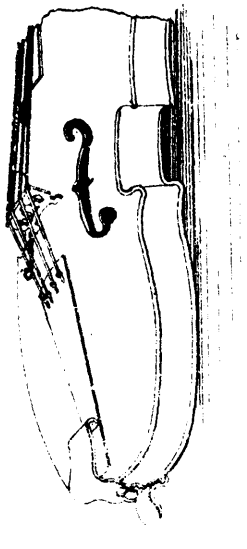
17509 Hawkins' Shirt.



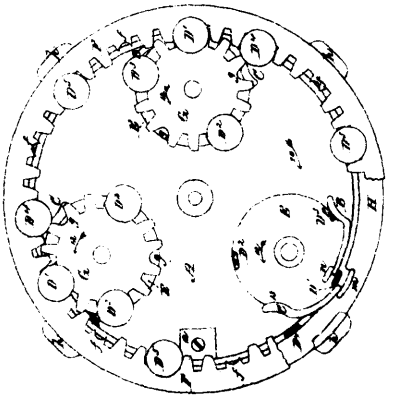
17510 Pintch's Illuminating Apparatus.



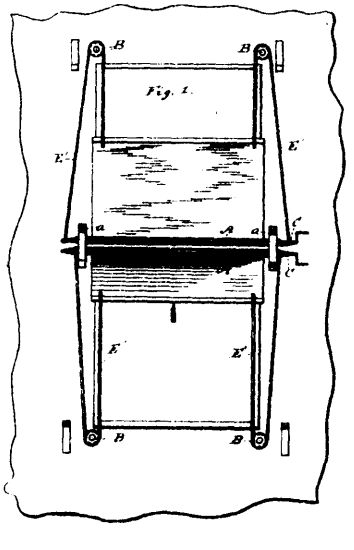
17511 Bishop's Vehicle Pole.



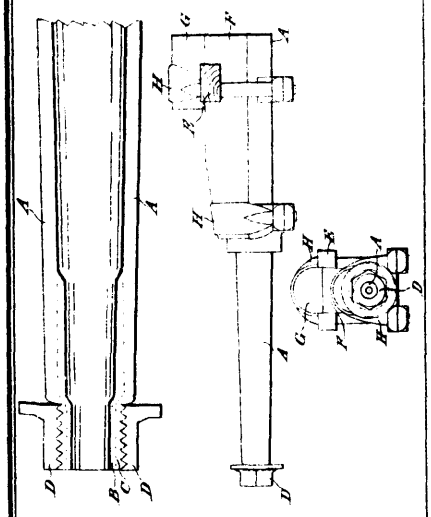
17512 Lawrence's Chin Rest for Violin.



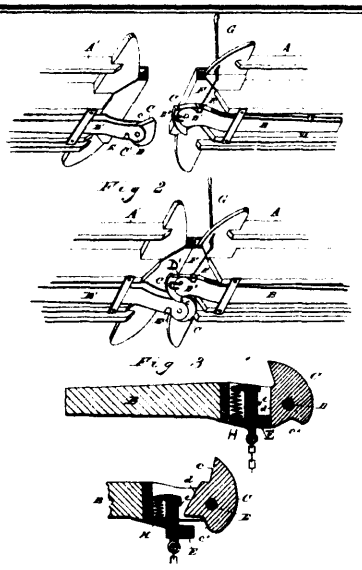
17513 Tolman's Cordage, Webbing &c. Machine.



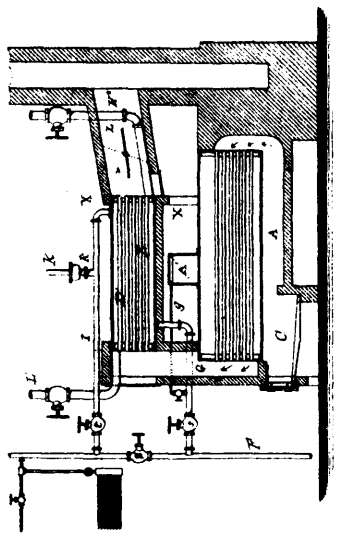
17514 Cox's Window Shade.



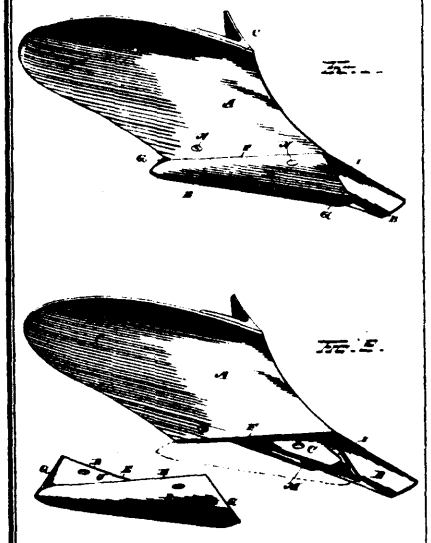
17515 **Milburn's Tubular Axle.**



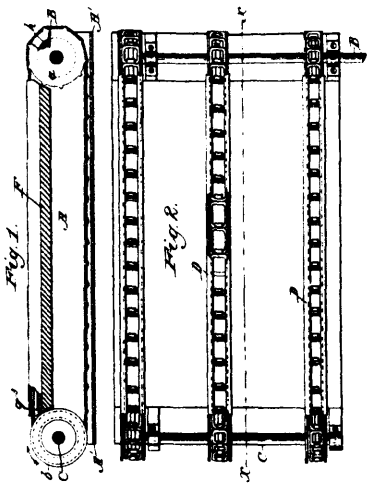
17516 **Cowell's Car Coupling.**



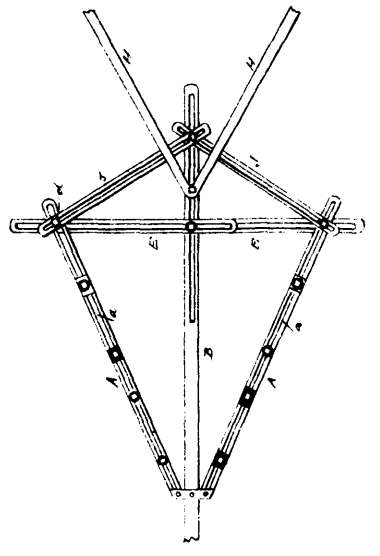
17517 **Hussey's Steam Heating Apparatus.**



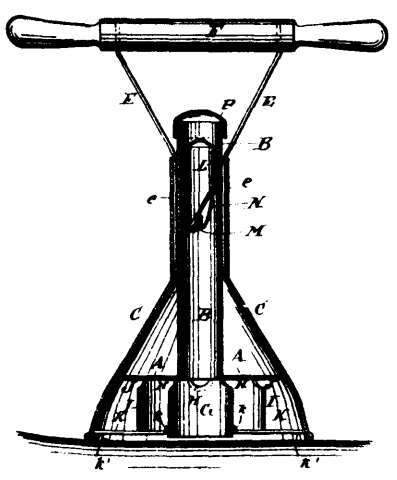
17519 **Anderson's Plough.**



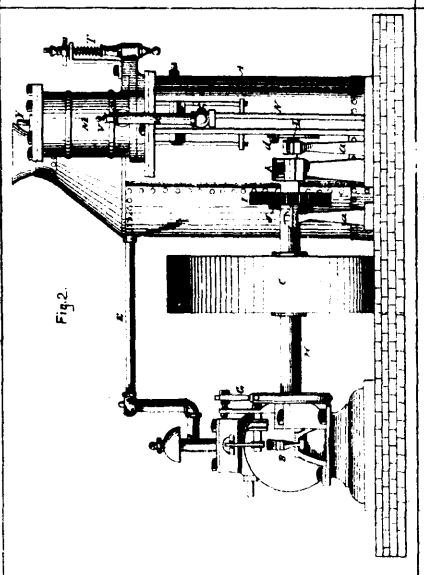
17520 **Hooton's Grain Binder.**



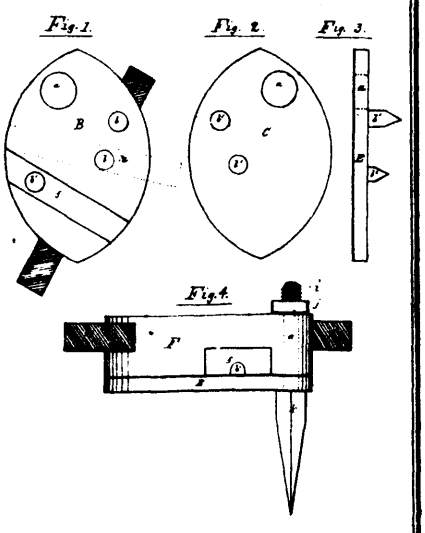
17521 **McCallum's Cultivator.**



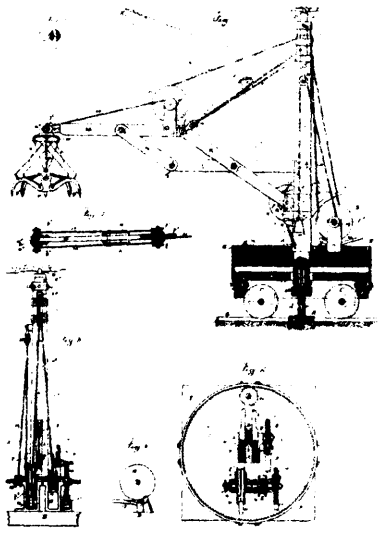
17522 **Elliott's Clothes Washer.**



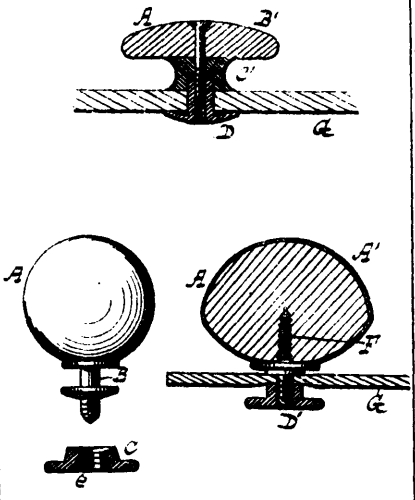
17523 **McMelon's Steam Engine.**



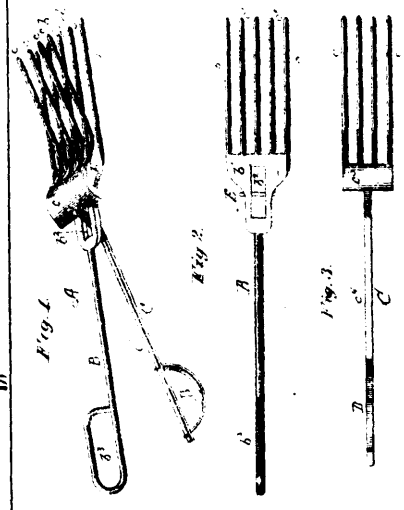
1/524 **Callander's Harrow.**



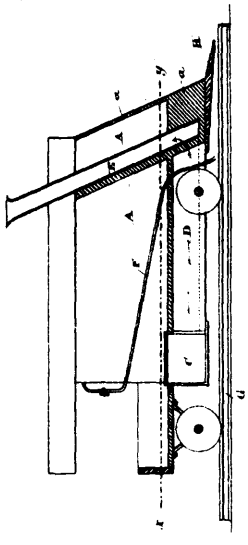
17525 Stone's Grapple and Hoist.



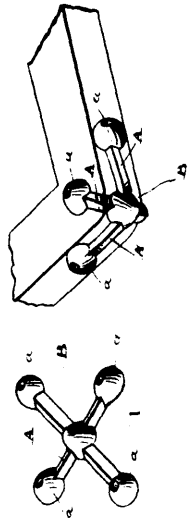
17526 McKevit's Button Fastening.



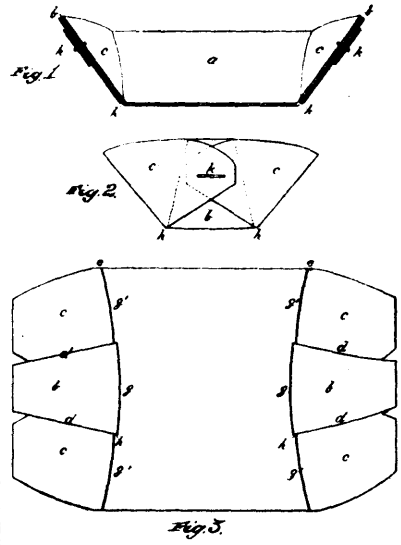
17527 Clother's Hair Crimping Machine.



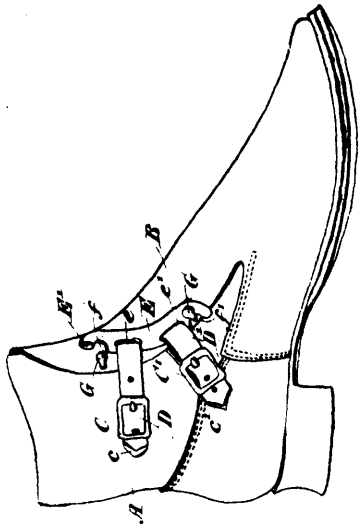
17529 Brunet's Snow Plough.



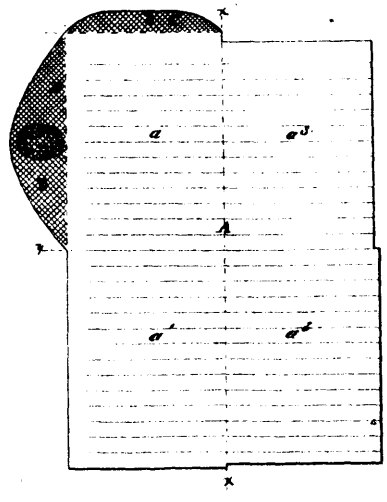
17530 Wardell's Slate Corner Pad.



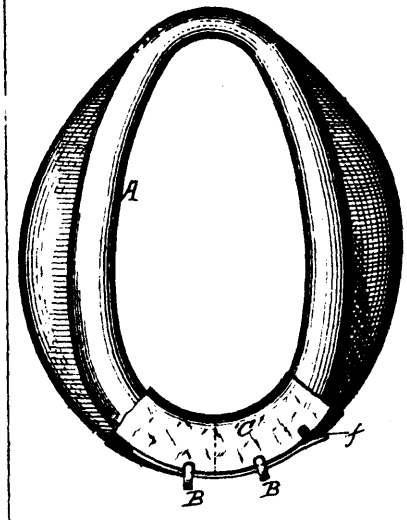
17531 Wilcox and Brown's Butter Tray.



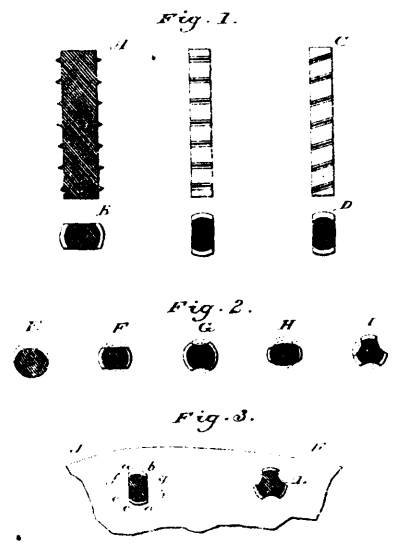
17532 Church's Fastening for Boots and Shoes.



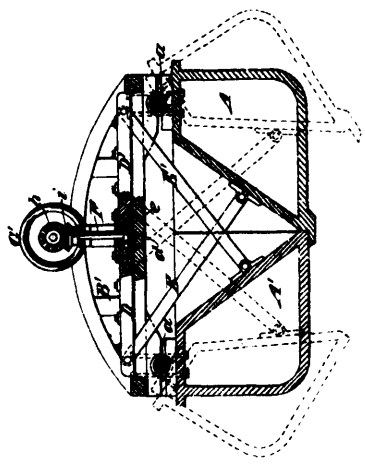
17533 Ehrlich's Combined Envelope and Letter Sheet.



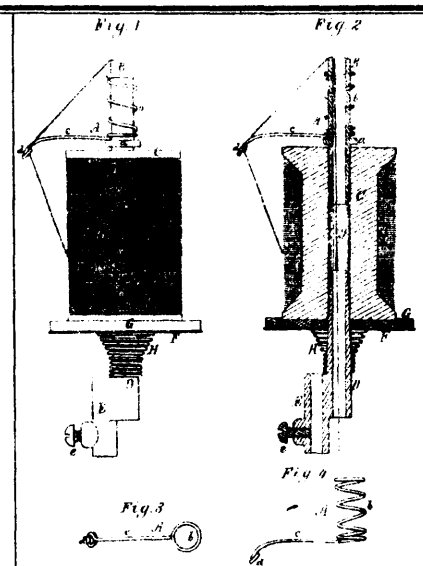
17534 Grubb's Horse Collar.



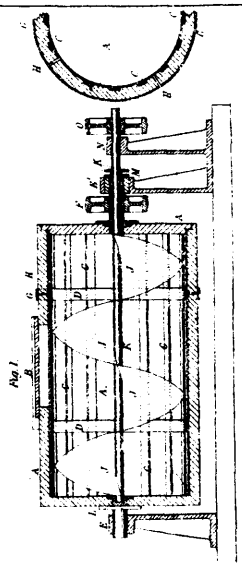
17535 Robinson's Sole Fastenings for Boots and Shoes.



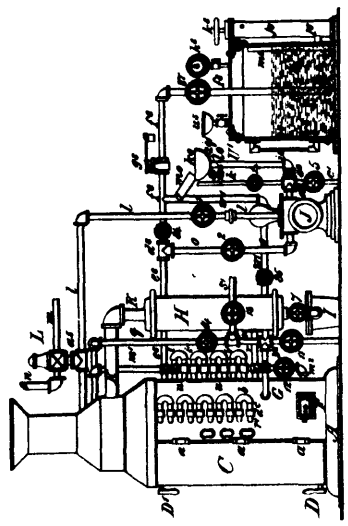
17536 Barney's Dumping Boat.



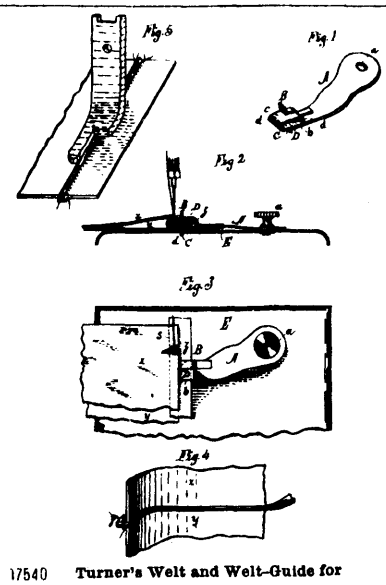
17537 Nichols' Device for Unwinding Thread from Spools.



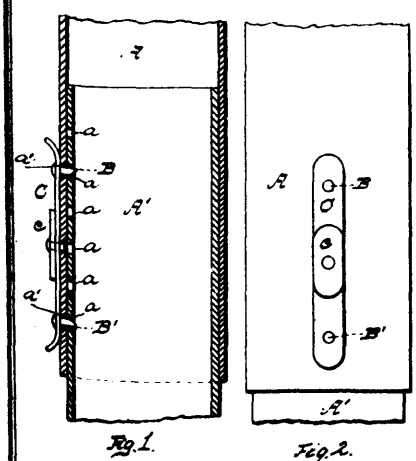
17538 Treatment of Gold and Silver Ores.



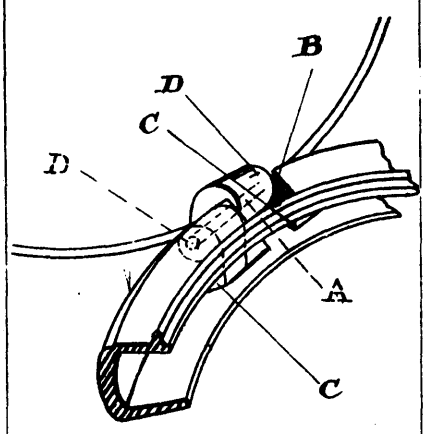
17539 Browne's Apparatus for Generating High Pressure Gas.



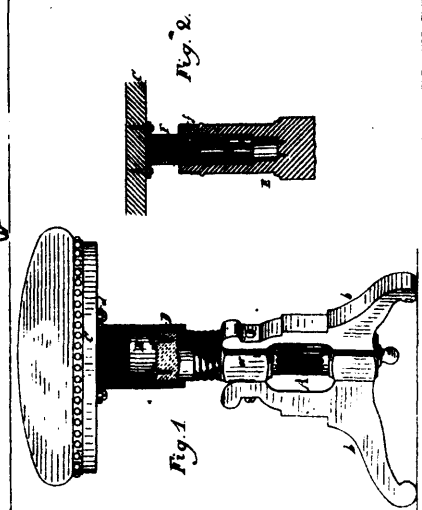
17540 Turner's Welt and Welt-Guide for Sewing Machines.



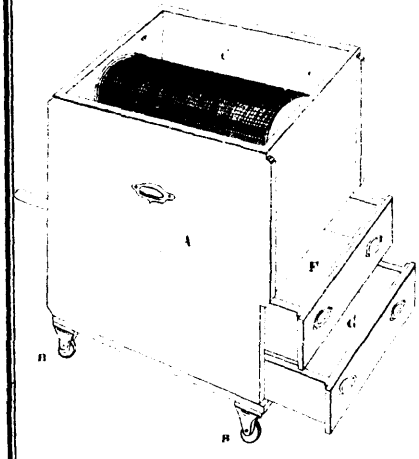
17541 Smith's Stove Pipe.



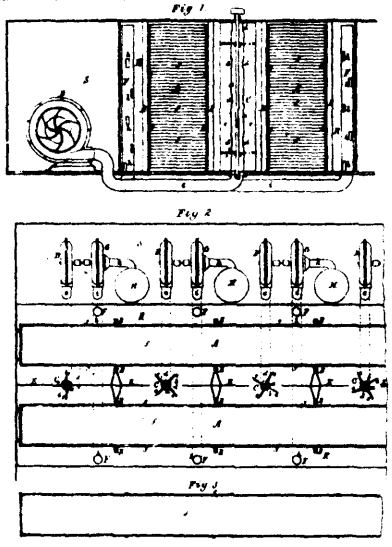
17543 Quigley's Watch Case.



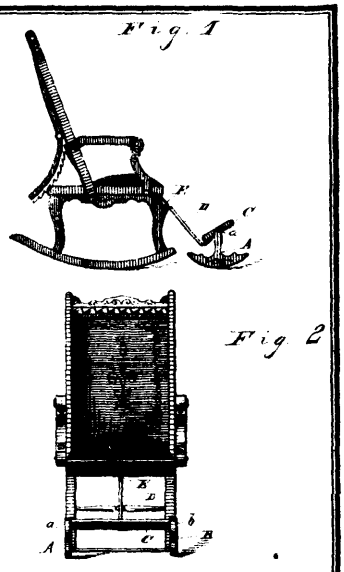
17544 Rich's Piano Stool.



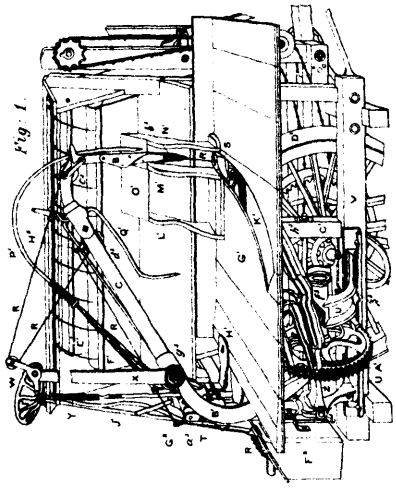
17545 Donovan's Cinder Sifter.



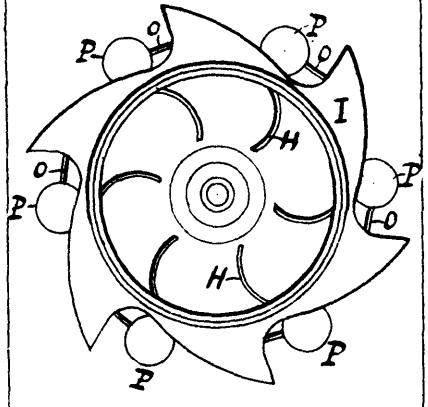
17546 Jenning's Apparatus for Desiccating Textile Fabrics.



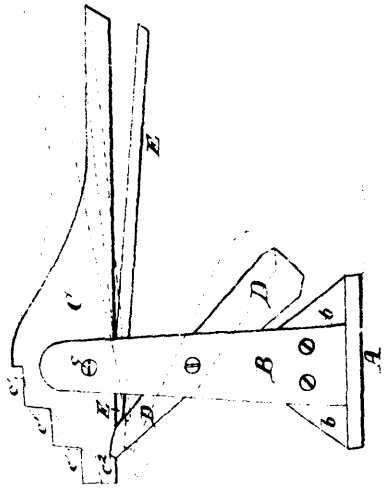
17547 Hunger's Foot Rest for Rocking Chairs.



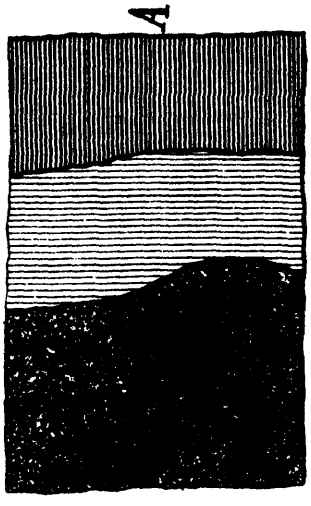
17548 Wheeler's Harvester.



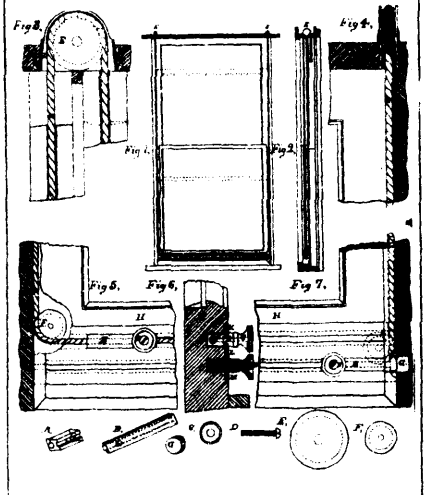
17549 Weld's Water Wheel.



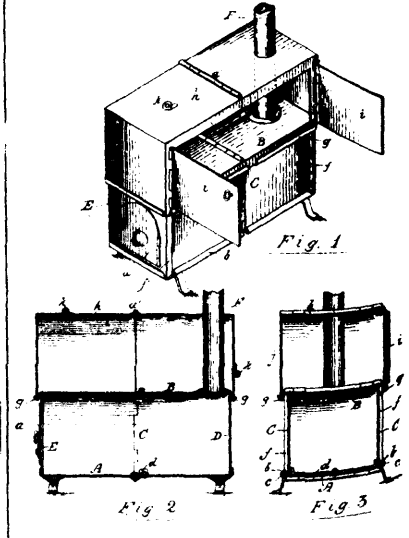
17550 Sprague's Lifting Jack.



17551 Campbell's Method of Coating Walls with Flock.



17552 Bradshaw's Window Sash Balance.



17553 Latour's Camp Stove.