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**INVENTIONS PATENTED.**

**No. 15,043. Improvement on Can Filling Apparatus.** (*Perfectionnement des appareils à remplir les boîtes métalliques.*)

William West. Keene, Ont., 28th June, 1882: for 5 years.

*Claim.*—1st. In a can filling apparatus, and in combination with the vertical fish receiving chute J and the vertically reciprocating plunger I guided as shown, the can E adjustable upon the driving shaft, the vertical rod F, the lever arm G and the connecting rod or link H. 2nd. The horizontal trough L opening into the upper part of the chute J, in combination with the reciprocating carrier K, moving in said trough so as to transfer the fish into the vertical chute. 3rd. In combination with the carrier K moving in the trough L, the lever arm M connected to the carrier by a link and having the fork or notch Mt, in combination with the vertically reciprocating bar N. 4th. The hinged swinging gate T opening or closing the passage between the trough L and the chute J, and having the toothed segment S, in combination with the reciprocating bar N with its rack R engaging said segment. 5th. The cylindrical receiver, having one side open, and the edge forming a knife V so that a supply of fish may be forced through the opening from the chute J and cut off and formed to enter the can by the rotation of the knife. 6th. The cylindrical knife and shaper V turning within the chute J and provided with the notched flange W, in combination with the curved lever Z and rotating gear wheel a. 7th. In combination with the cylindrical knife and shaper V with its notched flange W, curved operating lever Z, the disk i supporting the lever and adjustable upon the gear a by slots and screws f, so as to regulate the movements of the knife. 8th. The cylindrical knife and shaper V with the notched flange, and the curved pivoted lever Z and spring b, rotated by the gear wheel a, in combination with the stationary pin c, whereby the pawl p is disengaged at each semi-revolution of the knife. 9th. In combination with the hollow rotating knife and former V operating within the chute J, the eccentric gears a at meshing with each other, to drive the knife with a variable speed. 10th. In combination with the hollow intermittently rotating cylindrical knife and former V and the eccentric driving gears a at, the piston n reciprocating through the cylindrical knife, and the sleeve upon which the gear a turns and the stem or extension h, operating lever and cam. 11th. The hinged swinging gate T, toothed segment S and vertically moving bar N and rack R, in combination with the latch r and the arm t connected with the plunger.

**No. 15,044. Improvements on Refrigerators.** (*Perfectionnements aux garde-manger.*)

William C. Kewn, Rochester, N. Y., U. S., 4th July, 1882: for 5 years.

*Claim.*—The outer vessel A, inner vessel B, covering cap C and lid E, arranged and constructed so as to surround the whole of the outer surface of inner vessel B with cold water, while allowing of the escape of heated air through apertures d in the cap.

**No. 15,045. Improvements on Couplings for Tubing.** (*Perfectionnements aux jointures des tuyaux.*)

Edmund C. Converse, Pittsburg, Penn., U. S., 4th July, 1882: for 5 years.

*Claim.*—1st. In couplings for tubing, a coupling collar having an inner central ring against which the ends of the tubing bear, an annular recess at each end for the reception of calking material, and a series of wings extending across the mouth of each annular recess to support the tube section. 2nd. In couplings for tubing, a coupling collar B, having a central ring c and an annular calking recess d at each end,

having inwardly flaring sides f. 3rd. In couplings for tubing, a coupling collar B provided with an annular calking recess d at each end, and a series of wings k extending across the mouth of each annular recess. 4th. In couplings for tubing, the combination of a coupling collar having an annular recess at each end, for the reception of calking material, and a series of wings extending across the mouth of each annular recess, with tubing having one or more lugs at each end, adapted to catch under the wings on the collar.

**No. 15,046. Improvements on Lubricators.** (*Perfectionnements aux graisseurs.*)

Omar H. Jewell and George A. Stannard, Chicago, Ill., U. S., 4th July, 1882: for 5 years.

*Claim.*—1st. In a lubricator, the cylindrical base H having vertical oil hole b extending centrally therethrough and through the screw stem a, said base being countersunk on its bottom to form a seat for a conical check valve, and having tubular extension c, bored to form the oil pump cylinder, and provided with perforations dd near its lower end, the rod F with plunger-head f, the check-valve u with spring o, and auxiliary valve p with spring r. 2nd. A lubricator composed of base A having cylinder c with perforations d, screw stem a and perforated diaphragm M of glass tube D, cap C, with stuffing box e and screw plug m of plunger-rod F, and check-valve u with spring o, thimble N, valve casing O, check valve p and spring r. 3rd. A lubricator composed of base A having cylinder c with perforations d, screw stem a and perforated diaphragm M of glass tube D, cap C with stuffing box e, screw plug m and diaphragm L of plunger-rod F, and check valve u with spring o. 4th. In a lubricator, the plunger-rod F passed through a stuffing-box e and having socketed arm G, in combination with the operating-rod I guided in eyes j j' having spring J, screw collar k and arm H that enters the socket in arm G and is adjustably secured by set screw h.

**No. 15,047. Improvements on Aerial Vessels.** (*Perfectionnements aux vaisseaux aériens.*)

Albert L. Blackman, New York, N. Y., U. S., 4th July, 1882: for 5 years.

*Claim.*—1st. A vessel for aerial navigation, consisting of a hull and gas-field subdivided into compartments, the whole constructed within one shell or envelope on one general frame, in the form of a grayling fish, or shuttle, the salmon fish or cylinder carried by an easy incline to a central point forward and by an abrupt curvature to a certain point astern, provided with raising, lowering and propelling screws in the sides, journaled in revolving cylinders u and connecting with actuating machinery through belts p p', or revolving shafts a passing into and within the vessel. 2nd. A vessel for aerial navigation consisting of a hull and gas-field subdivided into compartments by longitudinal and transverse-vertical gas-tight partitions. 3rd. A vessel for aerial navigation having a hull and gas-field within one envelope, the gas-field divided into sections by gas-tight transverse sections. 4th. A vessel for aerial navigation having a hull and gas-field within one envelope, constructed on one general frame of metal in form of a cylinder terminating forward in a long pointed cone and astern in a short curved cone, the hull divided into cabin and other rooms, and the gas-field divided into sections by transverse gas-tight partitions. 5th. A vessel for aerial navigation comprising a hull and gas-field constructed within one envelope of steel, silk, linen, canvas or such thin metal that combines tensile strength and lightness to serve the purpose described. 6th. A vessel for aerial navigation comprising a hull and gas-field constructed within one envelope of silk, linen, canvas, steel or other thin metal in the form of the grayling fish, or salmon fish, a shuttle or a cylinder having a long conic prow forward, and a short conic stem actuated by internally arranged machinery through raising, lowering and propelling side-screws, journaled or revolving cylinders u n. 7th. A vessel for aerial navigation comprising a hull and gas-field, within one general envelope constructed on one general frame of metal, in the form of a shuttle or salmon fish, the hull divided into cabin and other compartments, and the gas-field divided into transverse sections by gas-tight partitions, and having a well or chimney passing out through the top. 8th. A vessel for aerial navigation comprising a hull and gas-field, constructed on one general frame of metal in the form of a grayling, or salmon fish, a shuttle or a cylinder carried by an easy incline to a central point forward and by an abrupt curvature to a central point astern, the whole

enclosed within one envelope of silk, linen, canvas, steel or other suitable thin metal, the hull divided into cabin, engine, store and freight rooms, the gas-field divided either longitudinally into sections and then into chambers by gas-tight partitions, or into chambers by gas-tight transverse partitions, and provided with a shifting, propelling, raising, lowering and steering screw aft, and a shifting, steering, propelling, raising and raising screw forward attached respectively to revolving cylinders  $n^* n^*$ , each coupled by universal joint  $r_1$ , revolving shaft  $q_1$ , and main propelling shaft  $p$ , connected with internally arranged propulsive machinery. 9th. A vessel for aerial navigation, comprising a hull and gas-field constructed on one general frame of metal in the form of the grayling or salmon fishes, a shuttle or a cylinder carried by an easy incline to a central point forward, and by an abrupt curvature, to a central point astern, the whole enclosed within one envelope of silk, linen, canvas, steel or other suitable thin metal, the hull divided into cabin, engine, store, freight and other compartments, the gas-field divided either longitudinally into sections and the sections divided transversely into chambers by gas-tight partitions, or into chambers only, by transverse gas-tight partitions, provided with raising, lowering and propelling screws on the sides, journaled in revolving cylinders  $n n$ , connecting with internally arranged actuating machinery, through endless belts  $p$  or revolving shafts  $o$ , also with a shifting, propelling, raising, lowering, and steering screw aft, and a shifting, steering, propelling, raising and raising screw forward, attached respectively to revolving cylinders  $n^* n^*$  and each coupled by universal joints  $r_1$ , revolving shaft  $q_2$  and main propelling shaft  $p$ , also connected with internally arranged propulsive machinery. 10th. A vessel for aerial navigation constructed and arranged in the manner and form shown, provided with one, two, or more, raising, lowering and propelling screws on the sides, journaled in revolving cylinders  $n n$  connecting with internally arranged actuating machinery, through endless belts  $p$  or revolving shafts  $o$ , also with a shifting, steering, raising, lowering and propelling screw aft, attached to a revolving cylinder  $n^*$  and by a universal joint  $r$  connected with main propelling shaft  $p$ , also actuated by internally arranged propulsive machinery. 11th. A vessel for aerial navigation built on one general frame and under one cover provided with a shifting, lowering, raising, steering and propelling screw aft, a shifting, steering, lowering and raising screw forward, connected by universal joints  $r_1$  to, and propelled by revolving shafts, from the inside of the vessel, which pass out fore and aft, through revolving cylinders, and take bearings in shifting beds, or revolving carriages, located between circular jaws or imbedded in a circular seat in loop, formed on the ends of the cylinders, fore and aft of the vessel. 12th. A vessel for aerial navigation having a gas-field involving the greater part of area of the vessel, divided into compartments by transverse gas-tight metal bulk-heads. 13th. A vessel for aerial navigation, constructed on one general frame of metal, under one cover, made air and gas-tight, and fire and water-proof, provided with rubber packed gas and air tight hinges ranged along gunwales and dome-ridges, and forming a part of the vessel's cover. 14th. In combination, rubber packed gas and air-tight hinges, and metal cover or envelope, for vessels for aerial navigation. 15th. A vessel for aerial navigation constructed on one general frame of metal, and under one cover, or within one envelope of silk, linen, canvas, steel or other suitable thin metal, made air and gas-tight, and fire and water proof, having rubber packed gas-tight hinges therein, and provided with raising, lowering and propelling side screws, journaled in revolving cylinders, and propelled by belting, or by bevel gear machinery, and a propelling, raising, lowering and steering screw aft, secured in journal bearings in revolving carriage, adjusted and secured between circular jaws, or adjusted in a recess in a loop terminating the after-revolving cylinder  $n^*$ , and actuated through a universal joint by a main propelling shaft  $p$  passing from within the vessel. 16th. A vessel for aerial navigation, comprising a hull and gas-field constructed on one general frame, preferably of steel tubing enclosed with sheets of thin steel riveted and brazed together, the whole in the form of a cylinder, with a long entering cone forward and a short abrupt cone aft, the gas-field divided into compartments by transverse metal bulk-heads, the hull divided into decks near the centre of the water. 17th. A vessel for aerial navigation, provided with a fire and wa-er-proof, and gas and air-tight well or chimney passing up and out through the gas-field for the passage of the smoke stack and steam pipes from the furnace and engine below. 18th. A vessel for aerial navigation, constructed as shown, and divided into gas-field and hull, the hull divided into engine, store, freight, and other rooms, and a cabin, and the cabin provided with look-out galleries protruding therefrom. 19th. In combination with the several gas chambers or compartments in vessels for aerial navigation, longitudinal galleries  $n n$ , induct and e-duct gas pipes provided with automatic as well as manual valves and stop cocks, leading from the gas compartments to the gas receiver, gas condensers and gas generators, as well as to a general exhaust pipe leading without the ship, the whole arranged for infusing or exhausting. 20th. A vessel for aerial navigation, provided with dead-eyes for the passage of the anchor cables, doors for freight and passengers, windows for air, light and ventilation, arranged at suitable positions in the hull thereof. 21st. A vessel for aerial navigation, constructed on one frame and within one cover or envelope in the form shown, having a gas-field involving the greater part of the area of the vessel, in combination with store, freight and engine rooms, and cabin having look-out galleries and longitudinal galleries passing fore and aft under the gas-field, also with engines, boilers and other internally arranged propelling machinery. 22nd. A vessel for aerial navigation, constructed on one frame and within one cover or envelope, having a gas-field involving the greater part of the area of the vessel, in combination with a cabin having look-out galleries, and longitudinally arranged internal galleries, with engine, boiler, freight and other store rooms, also with engine, boiler and other internally arranged propulsion machinery for actuating side screws for raising, lowering and propelling, and an after-screw for raising, lowering and propelling the vessel, or propelling only, also with side and aft as well as with forward revolving screws. 23rd. A vessel for aerial navigation, constructed on one frame within one envelope, and divided into hull and gas-field, both divided as shown, and provided with machinery internally arranged for actuating the raising, lowering, propelling and steering screws, in combination with gas generators, also with gas condensers, also with gas reservoirs, supplying the gas-field with gas, for receiving and condensing the gas, when there is too great a supply, and for storing the surplus of gas. 24th. A vessel for aerial navigation, con-

structed on one frame, within one envelope, divided into hull and gas-field, the hull divided into cabin having look-out galleries, as well as longitudinal galleries ranging under the gas-field, engine, store, freight and other rooms, the gas-field divided into sections or chambers by gas-tight positions, the whole arranged as shown, in combination with winches internally arranged for reeling in or passing out the anchor cables. 25th. In vessels for aerial navigation, a pendulum lever governed by a pendent ball attached to, and arranged for automatically revolving side revolving cylinders. 26th. A pendulum lever governed by a pendent ball and carrying lateral arms attached to lever arms, on revolving side cylinders, for automatically revolving said cylinders on their axes, and keeping the vessel on a level keel. 27th. A pendulum lever secured on a rocker shaft, near the side of the vessel for aerial navigation, governed by a pendent ball and carrying lateral arms attached by the ends to lever arms protruding from a keyed-collar, on side revolving cylinders  $n n$ , for automatically keeping aerial vessel on a level keel. 28th. In vessels for aerial navigation, revolving cylinder shafts  $n n$  provided with journal bearings for carrying the journal of a revolving screw in the outer end, a bevelled gear band on the inner end, a keyed-collar or muff  $n^*$  having a projecting arm  $n^*$  and idlers within. 29th. The revolving cylinder shafts  $n n$  provided with journal bearings in the outer end, a keyed-muff  $n^*$  having a projecting lever arm  $n^*$  and a bevel gear band on the inner end, and with idlers within, in combination with bearings in, and a vessel for aerial navigation. 30th. The revolving cylinder shafts  $n n$  provided with journal bearings in the outer end, a bevel gear band on the inner end, idlers within, and a keyed collar or muff having a projecting lever arm, in combination with raising, lowering and propelling screws, having a journal axle at right angles to the diameter of the screw, the axle thereof mounted with a vault  $m_2$  for carrying an endless belt. 31st. The revolving cylinder  $n n$  provided with idlers within, a bevel gear band on the inner end, a muff with a projecting lever arm, intermediate and journal bearings in the outer end, in which are secured the journal axle, of the raising, lowering and propelling side screw, carrying a vault  $m_2$ , in combination with raising, lowering and propelling side screws, the endless belt  $p$ , pulleys  $p^1$  on, and carried by revolving main shaft  $p$  for raising, lowering and propelling aerial vessels. 32nd. In vessels for aerial navigation, revolving cylinder shafts  $n$  provided with a head  $n^1$  containing journal bearings for securing and carrying the journal of the side screws of the outer end, a muff or collar having a projecting lever arm keyed thereon, intermediately, and a bevel gear band secured on the inner end, and provided on the inside with journal bearings for a revolving shaft. 33rd. The revolving cylinder shaft  $n$  having a cross head  $n^1$ , provided with journal bearings at the outer end, a keyed muff or collar  $n^*$  intermediate its length within the vessel, the bevel gear band on the inner end and journal bearings on the inside. 34th. The revolving cylinder shafts  $n$  having journal bearings on the inside, a bevel gear band  $n^2$  on the inner end, a muff or collar with a projecting lever arm  $n^3$  intermediately, and a cross-head  $n^1$  provided with journal bearings for the side screw axle, on the outer end, in combination with revolving, raising, lowering and propelling side screws  $m$ , axle journals  $m^1$  carrying a gear wheel  $m^3$  and with a gear wheel  $o^1$ , shaft  $o$ , gear wheel  $o^3$ , gear wheels  $p^1 p^2$  on the main propelling shaft  $p$ , for raising, lowering and propelling vessels for aerial navigation. 35th. The revolving cylinder shaft  $n$  having journal bearings on the inner side thereof, a bevel gear band on the inner end, a muff or collar having a projecting lever arm, intermediately, and cross-head  $n^1$  provided with journal bearings for the revolving screw axle, at the outer end, carrying therein the axle journal  $m^2$ , of the propelling screws  $m$  provided with bevel gear wheel  $m^3$ , in combination with bevel gear  $o^1$ , revolving shaft  $o$ , bevel gear wheel  $o^3$ , bevel gear wheels  $p^1 p^2$  on main propelling shaft  $p$ , for raising, lowering and propelling aerial vessels. 36th. In vessels for aerial navigation, revolving cylinder shafts  $n^* n^*$  terminating at the outer end in circular jaws, which carry a revolving bed, or a looped yoke recessed for, and carrying a circular revolving carriage, to which an after raising, lowering, propelling and steering screw  $q$ , is journaled. 37th. The revolving cylinder shaft  $n^*$  terminating at the outer end in circular jaws, between which are secured a circular bed, for changing the direction of the after screw, and a bevelled gear band secured on the inner end, and the forward screw, when used, provided with journal bearings and carrying, on the inside, two revolving shafts, one shaft  $p$  for driving the propeller, steering, lowering and raising screws, the other shaft  $p^1$  provided with a pinion at the outer end for gearing with the revolving carriage, and a cogged wheel at the inner end, which latter passes out through a slot in the side of the cylinder, and meshes with a rotating band  $s$  cogged on the inner edge and spurred on the periphery. 38th. In combination, revolving cylinder  $n^*$  passing from within, out through the stem of the vessel, terminating in circular jaws  $q^* q^*$  and having a bevel gear band secured on the inner end, a rotating band  $s$  spurred on the periphery and cogged on the inner edge, a pinion  $p^1$ , revolving shaft  $p^1$ , pinion  $p^2$ , revolving carriage  $q^3$  adjusted between circular jaws  $q^* q^*$  at the outer end, main propelling shaft  $p$ , universal joint  $r_1$ , journal bearings within the cylinder, journal bearings in the carriage  $q^3$ , axle  $r$  and the after raising, lowering, steering and propelling screws. 39th. The revolving cylinder shaft  $n^*$  terminating at the outer end in circular jaws, carrying a circular revolving bed provided with a journal bearing for the after-screw, and a corrugated rack on one edge, provided with an internally adjusted revolving shaft  $p^1$  carrying a pinion at each end, in combination with a rotating sliding band  $s$ , near the inner end of the cylinder, cogged on the inner edge and spurred on the periphery, and with an endless belt  $s^3$  and a corrugated pulley  $s^4$ , for shifting the after, raising, lowering, steering and propelling screws. 40th. The revolving cylinder shaft  $n^*$  terminating in circular jaws  $q^* q^*$  at one end, and having a slot  $n^5$  in the side, near the other, and provided with a rotating band  $s^1$  cogged on the inner edge and spurred on the periphery, in combination with an endless chain belt  $s^3$ , a corrugated pulley wheel  $s^4$  for the purpose of revolving shaft  $p^1$  in its bearings, shaft  $p^1$  carrying a pinion on the inner end, for gearing with band  $s^1$ , and a cogged wheel on the outer end for gearing with the raked band  $q^4$  on the upper edge of the shifting bed or carriage  $q^3$ , for revolving the same on its axis, and thus changing the position of the after-screw. 41st. The revolving cylinder shaft  $n^1$  terminating in circular jaws, at the outer end, for receiving and holding a circular revolving bed, in which the forward steering screw is journaled and secured, provided with a bevelled gear band on the inner end for re-

volving the cylinder on its axis. 42nd. The revolving cylinder shaft  $n^1$  provided with bevel gear band on the inner end, terminating in circular jaws at the outer end, in which the revolving carriage which carries the forward steering screw is journaled and secured, and with internally arranged journal bearings for securing the main revolving shaft  $p$  in place, and with shaft  $p^1$  carrying pinions at each end, for revolving on its axis the carriage  $q^1$  for changing the position of the forward steering screw. 43rd. In combination, revolving cylinder shafts  $n^* n^1$  and circular beds  $q^3$ , the latter having a journal bearing in one side for the axle of the screw, and in the opposite side a slot for the passage of the propelling shaft, and provided with a cogged rack on the upper edge. 44th. In combination, revolving cylinder shafts, having corrugated bands at one end, rotating bands  $r$  sprung on the periphery and cogged on the inner edge, an endless chain belt, a cogged pinion  $p^2$  passing through a slot  $n^3$ , revolving shaft  $p^1$ , circular bed or carriage  $p^1$ , main revolving shaft  $p$ , universal joint  $r^1$  and shifting, raising, lowering, propelling and steering after-screw, for vessels for aerial navigation. 45th. The revolving driving shaft  $p$  broken near the outer ends by universal joints  $r^1$  increased part of its length in a segregated sleeve  $p^*$ , on which is adjusted driving-belt pulleys  $p^3$ , double belt pulleys  $p^4$  governed and secured in place by grip clutches  $p^6$ , through hand levers  $p^8$  and friction shoulders  $p^9$ , in combination with a motive power for handling and propelling vessels for aerial navigation, through externally arranged screws on the sides and stem thereof. 46th. The revolving driving shaft  $p$  broken near the outer ends by universal joint  $r^1$  increased part of its length in a movable segregated sleeve  $p^*$ , in combination with grip clutch  $p^5$ , friction shoulder  $p^9$ , driving belt pulleys  $p^3$  for conveying power thereto, fixed shoulders  $p^9$ , grip clutches  $p^6$  for securing in place the double pulley wheels  $p^4$ , endless belts  $p^{10}$  through which power is communicated to the raising, lowering and propelling side screws. 47th. The revolving driving shaft  $p$ , in combination with revolving cylinders  $n^* n^1$ , universal joint  $r^1$ , shifting bed or carriage  $q^3$  and shifting, raising, lowering, steering and propelling fore and aft, screws  $q$  in vessels for aerial navigation. 48th. The revolving driving shaft  $p$  broken near the outer ends by universal joints  $r^1$ , increased part of its length in a movable segregated sleeve  $p^*$ , in combination with grip clutches  $p^5$ , driving belt pulleys  $p^3$ , double pulley wheels  $p^4$ , friction shoulders  $p^9$ , grip clutches  $p^6$ , hand levers  $p^8$ , revolving cylinders  $n^* n^1$ , shifting bed or revolving carriage  $q^3$ , raising, lowering, propelling and steering screws  $q$ , also with the cogged band  $r$  on the carriage  $q^3$ , pinion  $p^2$ , revolving shaft  $p^1$ , rotating band  $r$  cogged on its inner edge and sprung on its periphery, the endless chain belt  $r^3$  for handling, propelling and changing the course of vessels for aerial navigation. 49th. The revolving driving shaft  $p$ , broken near the outer ends by universal joints  $r^1$  journaled in the revolving cylinders  $n^* n^1$ , and at other points longitudinally within the vessel, increased part of its length in movable segregated sleeve  $p^*$ , in combination with grip clutches  $p^5$ , driving belt pulleys  $p^3$ , fixed friction shoulders, grip clutches  $p^6$ , double belt pulleys  $p^4$ , friction shoulders  $p^9$ , endless belts  $p^{10}$ , vaults  $m^2$ , journal axle  $m^1$ , raising, lowering and propelling side-screws  $m$ , revolving cylinders  $n$  provided with internally arranged idlers, all arranged and designed for handling and propelling vessels for aerial navigation. 50th. The revolving shaft  $p$  provided with driving pulley wheels, double pulley wheels, grip clutches, friction shoulders and hand levers, in combination with endless belts  $p^{10}$ , vaults  $m^2$ , side raising, lowering and propelling screws  $m$ , revolving cylinder  $n$ , collars  $n^3$ , having a projecting lever arm  $n^3$ , lever arms  $n^8$ , pendulum lever  $n^9$  carrying a weighted ball, a rocker shaft  $n^6$  and with bevelled gear band  $n^2$  on the inner end of cylinder  $n$ , for revolving the same and changing the position of the screws  $m$ , for handling and propelling vessels for aerial navigation. 51st. In combination, bevel gear bands  $n^2$  secured on the inner ends of revolving cylinders  $n$ , gear wheels  $n^2 n^1$ , revolving shafts  $n$  for simultaneously revolving on their respective axes, revolving cylinders  $n$  and changing the position of the side screws  $m$ , for raising, lowering and propelling vessels for aerial navigation. 52nd. The revolving cylinder shaft  $n^*$  having a bevel gear band  $n^2$  fixed on the inner end, and terminating at the outer end in a looped yoke  $q^*$  having ways in its periphery, for sliding yoke strap  $t^*$  and carrying a ring, disk or revolving carriage  $q^3$  imbedded therein, in combination with a sliding looped band  $t^*$  secured to a sliding collar  $t$  adjusted thereon, and handled and controlled by a lever  $\beta^3$  through a lever arm  $t^4$ , for changing the direction of flight of the after-screw. 53rd. The revolving cylinder shaft  $n^*$  terminating at the outer end in a looped yoke  $q^*$  having ways in its periphery and a slot on one side, and having a recess, wherein a circular carriage, provided with a sleeve journal bearing  $r$  for securing and carrying the axle of the after-screw, as well as with raked teeth on its periphery, to mesh with similar teeth on loop yoke strap  $t^*$ , formed by the arms extending from a sliding collar  $t$  adjusted on the revolving cylinder and operated by a shaft  $t^4$  governed and actuated by a hand lever  $\beta^3$ , for changing the position of the after-screw from right angles to a position perpendicular to the line of the cylinder. 54th. In combination, the after-screw  $q$ , journal sleeve  $r$ , circular carriage  $q^3$ , provided with raked teeth on the periphery, on one side, carried in a recess, in the looped yoke  $q^*$  terminating the outer end of revolving cylinder  $n^*$ , the sliding yoke  $t^*$  provided with raked teeth on the inner edge of one of the arms thereof, and secured to, and projecting from a sliding collar  $t$  adjusted on the revolving cylinder  $n^*$  and operated by a hand lever  $\beta^3$  through a shaft  $t^4$ , the whole for handling and changing the direction of the raising, lowering, propelling and steering screw aft. 55th. In combination, the after-screw  $q$ , journal axle  $r$ , universal joint  $r^1$ , actuating shaft  $p$ , revolving cylinder  $n^*$  terminating in a loop yoke  $q^*$  having ways in the periphery, and a recess in the interior thereof, the circular carriage  $q^3$  having raked teeth on a segment of its periphery, and a sleeve journal bearing  $r$ , the sliding yoke  $t^*$  carrying raked teeth on the inner edge of one of its arms, secured to a sliding collar  $t$  adjusted on revolving cylinder  $n^*$  and actuated by lever  $\beta^3$  through an arm  $t^4$ , for carrying, rotating and changing the position of the after-screw of vessels for aerial navigation. 56th. In combination, the main actuating shaft  $p$  provided with double crank  $p^5$  secured in journal bearings and extending longitudinally through the vessel, from forward of the cabin to the stern, segregated at intervals, but unifiable by grip clutches  $p^5$ , the shaft  $p$  carrying grip clutches  $p^5$ , bevel gear wheels  $p^1 p^2$ , universal joint  $r^1$ , axle  $r$ , after-screw  $q$ . 57th. In combination, main driving shaft  $p$  having a double crank  $p^5$  secured in suitable bearings longitudinally through the vessel, the bevel gear wheels  $p^1 p^2$  secured thereon, the

bevel gear wheels  $m^2 m^1$  and revolving shaft  $o$ , bevel gear wheel  $m^3$ , axle shaft  $m^1$  journaled in revolving cylinder  $n$  and carrying the side screws, for raising, lowering and propelling vessels for aerial navigation. 58th. In combination, main driving shaft  $p$  having a double crank  $p^5$  therein, secured in bearings longitudinally through the vessel but unifiable by grip clutches  $p^5$  and carrying grip clutches  $p^5$  arranged for throwing into and out of gear the bevel gear wheels  $p^1 p^2$ , bevel gear wheel  $o^2$ , revolving shaft  $o$  journaled in boxings as well at the inner end as within the cylinder  $n$ , through which shaft  $o$  passes from within to the outside of the vessel, bevel gear wheel  $o^1$ , gear wheel  $m^3$ , right angle axle shaft  $m^1$  carrying the side screw  $m$ , journaled in the cross head  $n$  on the outer end and forming part of revolving cylinder  $n$ , for raising, lowering and propelling vessels for aerial navigation. 59th. In combination, the main driving shaft  $p$ , double crank  $p^5$ , bevel gear wheels  $p^1 p^2$ , clutches  $p^5 p^6$ , levers  $p^8$ , cylinder  $n^*$ , universal joint  $r^1$ , revolving carriage  $q^3$ , journal sleeve  $r$ , after-screw  $q$ , sliding loop straps  $t^*$ , sliding collar  $t$ , shaft  $t^4$ , lever  $\beta^3$ , bevel gear wheel  $o^2$ , shaft  $o$ , bevel gear wheel  $o^1$ , bevel gear wheel  $m^3$ , axle shaft  $m^1$ , side screws  $m$ , cross head  $n$ , revolving cylinder shaft  $n$ , collar  $n^3$ , lever arm  $n^3$ , longitudinal lever arms  $n^8$ , pendulum  $n^9$ , weighted ball rocker shaft  $n^6$ , in machinery for propelling and handling vessels for aerial navigation. 60th. In combination, hand wheel  $v^1$ , shaft  $v$ , bevel gear wheel  $v^2$ , bevel gear wheels  $n^2$ , shafts  $u$ , gear wheels  $u^1 u^1$  on shaft  $u$ , bevel gear wheels  $n^2$  secured on the inner ends of revolving shafts  $u$ , revolving shafts  $u$  and raising, lowering and propelling side screws  $m$ , the whole arranged for simultaneously changing the line of flight of the side screws of vessels for aerial navigation. 61st. In combination, hand wheel  $v^1$ , shaft  $v$ , bevel gear wheel  $v^2$ , bevel gear wheel  $v^4$  on and shaft  $v^5$ , bevel gear wheel  $v^6$ , bevel gear wheel  $n^7$ , transverse shaft carrying bevel gear wheel  $n^6$ , bevel gear band  $n^2$  secured on the inner end of cylinder  $n^*$ , revolving cylinder shaft  $n^*$  extending out through the stem of the vessel and terminating in a loop yoke  $q^*$  recessed for carrying a revolving carriage  $q^3$ , journal bearings  $q^2$  or circular jaws  $q^2 q^2$ , circular bed  $q^3$ , after-screw  $q$ , axle  $r$ , universal joint  $r^1$ , main shaft  $p$  and journal bearings for the same, in machinery for handling, steering and propelling vessels for aerial navigation. 62nd. In combination, hand  $v^1$ , shaft  $v$ , bevel gear wheel  $v^2$  thereon, bevel gear wheels  $u^2$  on shaft  $u$  and gearing with gear wheels  $v^2$ , shaft  $u$  secured in suitable bearings longitudinally arranged on the opposite sides of the main shaft  $p$ , bevel gear wheels  $u^1$  on shafts  $u$ , to gear with bevel gear bands  $n^2$  on cylinder  $n$ , raising, lowering and propelling side screws  $m$ , also with grip clutches  $n^*$ , bevel gear wheel  $n^3$  on shaft  $n$ , bevel gear wheel  $n^4$  on shaft  $n^5$  secured in suitable journal bearings, bevel gear wheel  $v^5$ , bevel gear wheels  $n^7$ , transverse shaft secured in suitable bearings, bevel gear wheels  $n^6$  gearing with bevel gear band  $n^2$  on revolving cylinder shaft  $n^*$ , sliding collar  $t$ , loop strap  $t^*$ , revolving carriage  $q^3$ , adjustable after-screw  $q$ , longitudinal shaft  $t^4$ , hand lever  $\beta^3$ , in machinery internally arranged as well as externally adjusted, for simultaneously changing the several screws, both on the sides and the stern, for raising, lowering, propelling and steering vessels for aerial navigation. 63rd. A pendulum attachment consisting of a weighted ball, lever  $n^9$  secured on a rocker shaft  $n^6$  and carrying two lateral levers  $n^8$  secured one above and one below the rocker shaft  $n^6$ , the other ends of which are secured to lever arms  $n^3 n^3$  projecting from and forming a part of the collar or muff  $n^3 n^3$  adjusted on the revolving shafts  $n$ , for carrying the side screws in vessels for aerial navigation, the whole adjusted near the centre on the sides within the vessel. 64th. A pendulum attachment consisting of a pendulum lever  $n^9$ , secured on a rocker shaft  $n^6$  and carrying suspended therefrom a weighted ball, two arms  $n^8 n^8$  secured by one end, each to the pendulum lever  $n^9$ , one above and one below the rocker shaft  $n^6$ , and by the other ends to projecting lever arms  $n^3 n^3$  forming part of collars  $n^3 n^3$  secured on, and in combination with revolving cylinders  $n$ ; the whole arranged and designed for automatically regulating the plane of flight of vessels for aerial navigation. 65th. A pendulum attachment consisting of a lever  $n^9$  suspended from a rocker shaft  $n^6$ , within and near the sides of the vessels carrying a weighted ball depended therefrom, having two branching levers  $n^8 n^8$  secured thereon, one above and one below the rocker shaft  $n^6$ , in combination with lever arms  $n^3 n^3$ , collars  $n^3 n^3$  adjusted on revolving cylinder shafts  $n$ , which carries and changes the position of the side raising, lowering and propelling side screws  $m$ , in vessels for aerial navigation. 66th. In vessels for aerial navigation, gas generators, gas condensers, gas reservoirs for supplying gas to the gas-field, or receiving, securing or condensing any surplus occasioned by going into high altitude. 67th. The adjusting of the after-screw of vessels for aerial navigation, under the stern, below what may be called the stern frame, and sustaining the same in externally arranged bracket bearings.

### No 15,048. Improvements on File Cutting Machines. (*Perfectionnements aux machines à tailler les limes.*)

Frederick Outram, Montreal, Que., 5th July, 1882; for 5 years.

*Claim.*—1st. In a file cutting machine, the combination, with a horizontal bed, of a ram and chisel carried obliquely in a permanently fixed guide standard. 2nd. The combination, with the cam shaft F and standard A, of the collar F firmly mounted on said cam shaft, and carrying the cam K on its outer face. 3rd. The cam K, formed by driving two round pins together, and afterwards cutting parts of same away to attain the desired contour. 4th. The ram G and chisel holder, constructed in one piece, and having formed thereon, groove or socket I. 5th. The sliding carrier B formed semi-circular and provided with one or more feathers  $b$ , in combination with a similarly grooved bed block. 6th. The combination, with the sliding carrier B and bed block A, of air passages  $b^1 b^1$  arranged at the junction of said parts.

### No. 15,049. Improvements on Wagon Wheels. (*Perfectionnements aux roues des wagons.*)

William Downham, St. Johns, Mich., U.S., 5th July, 1882; for 5 years.

*Claim.*—1st. The combination of the felly piece D having slots  $h$  i

and ends chambered out and fitting over sections of the felly, the plate *a*, the follower *E* and the screw *f* with the felly of a wheel. 2nd. The combination, with the spokes and felly, of the ferrule *H* having threaded extension *h*, the screw cap *J* and the clip *L* having stud *h* and enlargement, with the socket *l*.

### No. 15,050. Improvements on Sewer Traps.

(*Perfectionnements aux trappes des puits.*)

Thomas Guérin, San Francisco, Cal., U.S., 5th July, 1882; (Extension of Patent No. 7046.)

### No. 15,051. Improvements on Machines for Casting Printer's Leads.

(*Perfectionnements aux machines pour couler les blancs et les interlignes.*)

Lyman B. Benton, Milwaukee, Wis., U. S., 5th July, 1882; for 5 years.

*Claim.*—1st. The mould segment *C* having a concave shape when cold, whereby it becomes plane when heated in use. 2nd. The combination of mould segments *B* and *C* with the heaters *D D*. 3rd. The combination of the mould segments *B* and *C* with the heaters *D D* and the jointed smoking jet or torch *I*. 4th. In combination with a mould for casting printers' leads, a heater composed of separate burners *D D D* constructed so as to be capable of being extinguished separately, and arranged in such position relatively to each other, and to the mould, as to permit the heating of a portion only, of the mould segment whenever desired.

### No. 15,052. Improvements on Carpet Sweepers.

(*Perfectionnements aux balayuses des tapis.*)

Charles L. Travis, Minneapolis, Minn., U. S., 5th July, 1882; for 5 years.

*Claim.*—1st. In a carpet sweeper, the combination of the traveling body *a* rotary brush therein, dust collecting pans hinged to the body at one end, and arranged to swing downward endwise therefrom. 2nd. The combination, of the travelling body, the rotary brush and the dust collecting pans hinged at one end to the body and provided with a fastening device adapted to be disengaged by the foot. 3rd. In combination with the travelling body *A*, the brush *C* therein, the dust collecting pans sustained by means of the wire frame hinged at one end to the body, and provided at the opposite end with the extension *p*. 4th. In a portable carpet sweeper, the combination, with the body and the rotary brush, of the two traction rolls, both connected to the brush, having the enlarged ends covered with elastic material. 5th. The combination of the body, the non-rotating journals, and the rotary brush supported as shown, with an annular space *e* around the journals. 6th. In combination with the body and the rotary brush, the wire sustaining frame *O* and dust pans *E* attached thereto, and provided with the lips *a* constructed and arranged to engage over the edges of the body with a yielding pressure. 7th. In combination with the body and the rotary brush, the tubular journals *b* surrounded by the annular space *e*, and the driving shaft extended through said journals and seated rigidly in the roll.

### No. 15,053. Improvements in Compound Saw Dressing Tools.

(*Perfectionnements aux outils combinés pour affûter les scies.*)

George Walsh, Brockwayville, Penn., U. S., 5th July, 1882; for 5 years.

*Claim.*—1st. The tooth setting notch *a* of the form described. 2nd. The point or projection *B* jointly with the screw *C*. 3rd. The file *D* and the device for clamping it jointly with screw *C*. 4th. The series of graduated projections or shoulders *F* on the flat side of the bar. 5th. The offset or shoulder *H* on the end of the bars, for the purpose and to be used in the manner described.

### No. 15,054. Improvements in Saw Jointers.

(*Perfectionnements aux appareils pour affûter les scies.*)

George Walsh, Brockwayville, Penn., U. S., 5th July, 1882; for 5 years.

*Claim.*—1st. The contrivance of the T-shaped frame *D K* together with the frame on the top of it constructed of the pieces *L L* and *M*, for holding a file in place over the teeth at right angles to the side of the saw. 2nd. The contrivance of the T-shaped frame *D K* jointly with the frame *L L M M* on the top of it, and with the slide *I* holding the file. 3rd. The contrivance of the rabbeted slide *I* jointly with the gripping devices *F G*, for holding the file and guiding it across the frame.

### No. 15,055. Improvement in Vehicle Springs.

(*Perfectionnements aux ressorts des voitures.*)

Phaon J. Kerry, Frankfort, Ind., U. S., 5th July, 1882; for 5 years.

*Claim.*—1st. The transverse lever springs *G* connected to the side bars and to the ends of longitudinal springs *E* secured to bearings on the body of the vehicle. 2nd. The combination, with the side bars and the longitudinal springs *E* secured to the central portion of the body of the vehicle, of the transverse springs *G* pivoted to the body and connecting the ends of the longitudinal spring to the side bars. 3rd. The combination, with the side bars and body, of the longitudinal springs *E*, longitudinal bearing *D* and the transverse lever springs *G*.

### No. 15,056. Improvement in Ball and Socket Joints.

(*Perfectionnement des joints à rotule.*)

Otis C. White, Hopkinton, Mass., U.S., 5th July, 1882; for 5 years.

*Claim.*—1st. The combination of the ball, made contractile or in sections, with a contractile socket piece, provided with means of clamping or contracting it upon the ball. 2nd. The ball contractile, or made in sections, and perforated diametrically, in combination with the slide rod extended through the ball, and with the contractile socket piece provided with means of contracting, or clamping it on the ball. 3rd. The ball socket provided with annular or belt-shaped bearings to rest against the ball, and with an intervening annular space to be out of contact with the ball. 4th. The ball contractile, or made in sections, and perforated diametrically, to receive the slide rod, in combination with the socket piece socketed to receive the ball, and having to the socket, flaring mouths.

### No. 15,057. Improvements on Electric Cables.

(*Perfectionnements aux câbles électriques.*)

Patrick B. Delany, New York, N. Y., U. S., 5th July, 1882; for 15 years.

*Claim.*—1st. An electric cable composed of one or more conducting wires, and a series of contiguous perforated insulating buttons, having radially sloping surfaces and strung upon said wire or wires. 2nd. An electric cable composed of an assemblage of conducting wires, and a series of contiguous perforated insulating buttons, having radially sloping surfaces and strung upon said wires, which pass through their perforations, said perforations being at a proper distance apart and from the perimeters of the buttons, to keep the wires from contact with each other and outside objects. 3rd. An electric cable composed of one or more conducting wires, and a series of contiguous non-combustible perforated insulating buttons strung upon said wire or wires. 4th. In an electric cable, the combination, with a series of contiguous perforated insulating buttons, having radially sloping surfaces and a conducting wire or wires arranged through the perforations of said buttons, of an inclosing sheath surrounding said buttons. 5th. An elastic cable composed of one or more conducting wires, and a series of loose perforated insulating buttons strung upon said wires, the adjacent surfaces of said buttons diverging radially from each other, and arranged to turn upon each other when the cable is bent. 6th. An electric cable composed of one or more conducting wires and a series of loose perforated non-combustible buttons strung upon said wire or wires. 7th. The combination, with a cable composed of one or more electrical conducting wires run through perforations, in a series of insulating buttons strung upon said wire or wires, of a strain or supporting rope, connected with and arranged to bear the entire weight of the said cable. 8th. An electric cable composed of the central supporting and strengthening rope or cable, the perforated buttons of insulating material, tapering from centre to periphery and strung upon said rope or cable, and the conducting wires arranged through the perforations of said buttons. 9th. The combination, with the central rope and the buttons, of suitable sleeves for separating or limiting the movement of the buttons. 10th. The combination, with a cable composed of the central rope, tapering buttons and conducting wires, of an inclosing pipe. 11th. The combination, with an electric cable composed of one or more wires, a series of insulating buttons strung upon said wire or wires, and an inclosing sheathing or tube, of a supporting, or strain rope, wire or cable connected with said sheathing, and arranged to be suspended from suitable supports.

### No. 15,058. Improvements on Iron Fences, Gates and Gate Latches.

(*Perfectionnements aux clôtures, barrières et loquets, en fer.*)

Samuel W. Martin, Springfield, Ohio, U. S., 5th July, 1882; for 5 years.

*Claim.*—1st. As an improvement in the construction of gates and fences, the combination of the vertical standards, the horizontal rails and the couplings, the latter arranged to sustain the rails upon the standards, and secured by screwing the rails into them against the standards. 2nd. In combination with the vertically adjustable gate frame *C*, the threaded horizontal bar *B* and the threaded coupling or socket *C* having the hinged arm formed thereon, whereby the vertical adjustment of the gate frame with reference to the hinge, is permitted. 3rd. The improved fence consisting of the vertical posts, the couplings mounted thereon, and the horizontal rails screwed at one end into a coupling against the posts and seated at the opposite end loosely, in a coupling upon a second post. 4th. A fence panel consisting of a post, two or more couplings or collars mounted thereon, and provided with threaded openings in one side, and unthreaded openings on the opposite side, and fence rails screwed into the threaded side of said couplings against the post. 5th. In combination with the rail supporting coupling provided with an ear or socket, *f*, and a rosette provided with a lip seated in said socket. 6th. The rosette for sustaining the pickets of an iron fence constructed with the lip at one side, the slot in the opposite side, and the hook or arm upon the back. 7th. As a new article of manufacture, a latch operating device consisting of a forked frame, provided with central bearing, and a hand piece adapted for application thereto. 8th. The combination of the gate provided with sockets, with the latch spring, the forked or U-shaped latch frame provided with inside trunnions, and the hand piece applied to and securing the ends of the frame.

### No. 15,059. Improvements on Wire Fences.

(*Perfectionnements aux clôtures en fil métallique.*)

Abner Wesson, Memphis, Tenn., U. S., 6th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the metal posts having slits and tongues, and the wires *B*, of the soft metal piece *c*, which are wrapped around the wires and secured in place by the clamping action of the aforesaid tongues.

**No. 15,060. Improvements on Lanterns.***(Perfectionnements aux lanternes.)*

Charles F. Anderson, Bay, Mich., U. S., 6th July, 1882; for 5 years.

*Claim.*—1st. The combination of the triangular bottom pieces D D with the rotating pieces H H, springs V V, and bail a. 2nd. The combination of the bail  $\rho$  with the top guides J J, and the bottom guides F F and copper washers I. L. 3rd. The combination of the bevelled bottom band  $\nu$ , guides J J and F F with frame A. 4th. The combination of tube L with mica disk m, and cap Q with mica disk S, and knob R with frame A.

**No. 15,061. Improvements in Life Preservers.** *(Perfectionnements aux appareils de sauvetage.)*

Benjamin J. Willard, Portland, Me., U. S., 6th July, 1882; for 5 years.

*Claim.*—The life preserving belt or bag A, having walls C, inflating cock B, neck string a, body strings b, folds c and air passages d, the said bag or belt being shaped as described.

**No. 15,062. Improvements on Stove Platforms.** *(Perfectionnements aux sous-poêles.)*

Edwin W. L. Rice, Aurora, Ill., U. S., 6th July, 1882; for 15 years.

*Claim.*—1st. The combination, in a platform for stoves, of a wooden base or bed, a central metal plate and a set of inlaid tiles. 2nd. The combination, with a set or system of tiles, of a flanged exterior band or binding, and a flanged metallic centre piece, the band and centre piece serving to hold the tiles in place. 3rd. A base board constructed with a raised centre piece or block, combined with a metal cap secured thereto, and having a flange or flanges projecting beyond such block.

**No. 15,063. Improvements on Platform Rocking Chairs.** *Perfectionnements aux chaises à bascule.)*

Jacob Biersdorf and William I. Bunker, Chicago, Ill., U. S., 6th July, 1882; for 5 years.

*Claim.*—The combination, with the base rails A A' and rockers B B' resting upon such base rails, of the broad stiff spiral springs C C' connected rigidly with such base rails and rockers, and being both deflected and extended when the chair is rocked, such spring being oppositely coiled and controlling, wholly, the movement and position of the rockers on the base rails.

**No. 15,064. Improvements on Reversible Cloaks.** *(Perfectionnements aux paletots reversibles.)*

Hermann F. Bindseil and Leopold Weil, New York, N. Y., U. S., 8th July, 1882; for 5 years.

*Claim.*—1st. A reversible cloak composed of a silk covering, an intermediate layer of waterproof material, and of a lining of fur, quilted or other fabric, said layers or parts being connected at the sides, but the silk covering disconnected from the lining and waterproof material at the lower end, whereby the cloak may be reversed, so as to bring the silk covering or the waterproof material to the outside. 2nd. A reversible cloak consisting of a silk or other covering, an intermediate waterproof layer and a lining of fur, quilted or other fabric which are connected at the sides, but open at the upper and lower ends, said ends being provided with means for attaching the silk covering to either side of the connected lining and waterproof layer after reversing the cloak. 3rd. The combination, in a reversible cloak, of a silk covering, an intermediate layer of waterproof material, a lining of fur, quilted or other fabric, the layer or parts being connected at the sides, but open at the upper and lower edges, for being reversed, and provided with a double trimming along the side.

**No. 15,065. Improvements on Fruit Evaporators.** *(Perfectionnements aux séchoirs à fruits.)*

John A. Bartholomew and Henry Bartholomew, Vanessa, Ont., (Assignees of Oscar F. Tiffany, Rochester, N. Y., U. S.) 8th July, 1882; for 5 years.

*Claim.*—1st. The frame B with the ends projecting through side of case A, also slides G in case A. 2nd. The blocks on the under corners of trays C, also setting the trays alternately at each end of case A. 3rd. The combination of levers D with ropes E, and pulleys F attached to lower frame B. 4th. The combination of swinging clutches H with lower frame B and trays C.

**No. 15,066. Improvements on Gates.***(Perfectionnements aux barrières.)*

Lysander Flagg, Riverside, R. I., (Assignee of James E. G. Maddox, Cincinnati, Ohio, and George P. Humphries, Alexandria, Ky.) U. S., 8th July, 1882; for 5 years.

*Claim.*—1st. In a gate or grating, a series of upright and a series of cross and connecting braces pivoted to the upright at suitable central points, and having upper and lower sliding points of connections with the upright combined with an upper and a lower series of knuckles, for strengthening the top and bottom portions of the area of the gate or grating. 2nd. In a grate or grating, a series of uprights and a series of cross and connecting braces pivoted to the upright at suitable central points and having upper and lower sliding points of connection with the uprights combined with an upper and lower series of knuckles and a series of jointed and pivoted braces united in pairs by a vertical brace or hand hold.

**No. 15,067. Improvements on Fire-Proof Boxes, Safes and Material.** *(Perfectionnements aux coffres-forts et aux matériaux réfractaires.)*

John H. Nolan and Moody Merrill, Boston, Mass., U. S., 8th July, 1881; for 5 years.

*Claim.*—1st. A fire-proof box. 2nd. A fire-proof box consisting of a metal shell and metal stiffening and lining protecting plates or edges packed with fire-proof material. 3rd. A method of forming a sheet metal box cover. 4th. A sheet metal box cover formed from a metal blank. 5th. A fire-proof safe consisting essentially of a metal shell enclosing alternate layers of fire-proof material and carbonizable lining. 6th. A fire-proof box having provision for expansion of the fire-proof material about the sides of the door, or the door jamb and cover. 7th. A fire-proof safe having both sides of its door, and the door jamb formed of two metal plates, between which is interposed fire-proof non-conducting material, whereby the transmission of heat by metallic contact from the exterior of safes to the interior is prevented. 8th. A safe having attached to the inner plate of the door, a frame and boxes adapted to slide in the frame. 9th. The fire-proof material consisting of a layer or mass of a heat resisting nature, enveloped or lined wholly or in part by a heat resisting layer or material, such as specified, adapted to become carbonized, at a high temperature without losing its cohesion and to protect the first named layer.

**No. 15,068. Improvements in Knob Spindle Fastenings.** *(Perfectionnements aux ajustages des axes de boutons de portes.)*

Francis Lattimer, Richmond, Alvin C. Van Meter, Hiram Hyde, William H. Bates, William McCully, Alexander L. McKenzie and John Ahern, Truro, N. S., 8th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the block B and the spindle F, of the knobs E having extended shanks D provided with ring grooves F, and the slotted plates G, whereby the knobs are securely fastened in place. 2nd. The combination, with the slotted plates G and the lock B, having narrow face plates H, of the under second plate I whereby the outer ends of the slotted plates are covered and the said slotted plates secured in place. 3rd. In a mortise lock, the knobs C made with extended shanks D having ring grooves F around their ends, to adapt the knobs to be secured in place by slotted plates. 4th. The adjustable extended shank D, whereby the said extended shank, being regulated to the thickness of any door, is kept from turning and becoming loose by the square knob spindle C passing into the square aperture in the bolt L.

**No. 15,069. Improvements on Secondary Cells and Batteries or Apparatus for Storing Electricity.** *(Perfectionnements aux piles secondaires et aux batteries accumulateurs, ou appareils à emmagasiner l'électricité.)*

Joseph W. Swan, Newcastle-on-Tyne, Eng., 8th July, 1882; for 5 years.

*Claim.*—1st. The preparation of lead plates for use in secondary voltaic cells by the combined action of acetic acid, carbonic acid and atmospheric air, and the subsequent reduction of the carbonate of lead formed to metallic lead. 2nd. The protecting portions of the plates by the application of paint or varnish, or other suitable resist.

**No. 15,070. Improvements on Adjustable Blanket Fasteners.** *(Perfectionnements aux garnitures mobiles des couvertes.)*

Ehmer E. Brown and George E. Bird, Portland, Me., U. S., 8th July, 1882; for 5 years.

*Claim.*—1st. In a fastener for horse blankets consisting of rings, or their equivalents, attached to the side of the blanket and straps with hooks at each end thereof, said straps extending from said rings to corresponding rings upon the opposite side of the blanket. 2nd. Two or more transverse straps provided with end attaching devices and a longitudinal strap connected to said straps, the whole adapted to be applied underneath the belly of the animal and to be attached to each side of the blanket. 3rd. The combination, with a horse blanket provided with suitable side receiving attachments, of the transverse straps connected by a longitudinal strap, the transverse straps being provided with suitable end attaching devices adapted to cooperate with the receiving attachments of the blanket. 4th. The adjustable transverse straps, the adjustable longitudinal strap provided with end loops through which the transverse straps may slide, and the end attaching devices adapted to cooperate with suitable receiving devices upon the sides of the blanket. 5th. The combination, in a fastener for horse blankets, of the rings f, transverse straps d d with hooks h h and strap e.

**No. 15,071. Improvements on Vats for Heating and Saturating Hoops or Wood.** *(Perfectionnements aux cuves de chauffage pour les cercles et le bois.)*

David H. Burrill and Walter W. Whitman, Little Falls, N. Y., U. S., 8th July, 1882; for 15 years.

*Claim.*—1st. The apparatus for heating and saturating barrel hoops, planks and other timber consisting of the vat A provided with receptacle D, partition E, pipe F and covers C C'. 2nd. In a water vat for heating and saturating hoops, planks and other timber, the combination, with the vat A having partition E, of the detachable receptacle D secured to said vat, for the purpose of affording space to pack a column of material. 3rd. In a water vat for heating and saturating hoops or other similar material, the combination, with the vat A, receptacle D and partition C, of the water and steam pipe F.

**No. 15,072. Improvements on Commutators for Dynamo-Electric Machines.***(Perfectionnements aux commutateurs des machines électro-dynamiques.)*

Elihu Thomson, New Britain, Ct., U.S., 8th July, 1882; for 5 years.

*Claim.*—1st. In a commutator composed of three or more segmental blocks, each block covering an angle equal to the angular distance of the commutator brushes apart, whereby the armature wire terminals are put into connection with both commutator brushes, when at or near the neutral point. 2nd. In a three branched armature coil system, the free terminals of which are connected singly to three segments of a commutator ring, each segment covering an angle of one hundred and eighty degrees and provided with a pair of commutator brushes, resting on diametrically opposite portions of said commutator ring. 3rd. A system of armature coil terminals connected successively to segments of the commutator, and adapted to be put successively into connection with both commutator brushes, when at or near the neutral point of neutral polarity.

**No. 15,073. Improvements on Apparatus for Rectifying Petroleum.***(Perfectionnements aux appareils de raffinage du pétrole.)*

Louis Daul, Buffalo, N.Y., U.S., 8th July, 1882; for 5 years.

*Claim.*—1st. In combination with still A and rectifier B, the separating chamber D provided with openings *aaa* and *fff*, the steam pipe *b* and discharge pipe *c*. 2nd. In combination with the main portion or walls, the perforated plates *ccc*, pipes *d* and cup *di*, the coils or worms *ggg* situated just beneath plates *ccc* and the hot water tank G, and pipe connecting the worms with such tanks. 3rd. The purifier C provided with pipes *puu* and perforated plate *u*, in combination with the steam generator and connecting pipe *a*, distillation chamber and a pipe connecting the still and purifier, said connecting pipe entering the purifier above the pipe *p* and below the perforated plate.

**No. 15,074. Improvements on Clover Hurlers.***(Perfectionnements aux égrenoirs de trèfle.)*

Alpheus R. Appleman, Washington, D. C. (assignee of Abraham Miller, Hagerstown, Md.) U.S., 8th July, 1882; (extension of patent No. 7616.)

**No. 15,075. Improvements on Sewing Machines.***(Perfectionnements aux machines à coudre.)*

John M. Fair, Buffalo, N.Y., (assignee of David Leib, Columbus, Ohio.) U.S., 8th July, 1882; (extension of patent No. 11,441.)

**No. 15,076. Machine for making Horse Shoe Nails.***(Machine à faire le clou à cheval.)*

Joseph M. Laughlin, Boston, (assignee of James D. Sumner, of Lexington,) Mass., U.S., 8th July, 1882; (extension of patent No. 7633.)

**No. 15,077. Improvements on Curtain Rollers.***(Perfectionnements aux bâtons des rideaux.)*

Walter B. Noyes, Saginaw, Mich., U.S., 10th July, 1882; for 5 years.

*Claim.*—1st. A curtain roller designed to be operated by means of a side cord and adapted to have an adjustment independent of that secured by the parts operated by said cord. 2nd. The combination, with the curtain roller A and spool B, of the plugs *e d*, springs *f*, flange plate C and screw D. 3rd. The combination, with the recessed roller A, flanged spool B, plug *d*, screw D, spring *f* and flange plate C provided with the hollow hub *h*, the dog G and slotted stud E, of the bracket F. 4th. The combination, with the roller A, of the block H and pin J.

**No. 15,078. Improvements on Fastenings for Laces, Cords, etc.***(Perfectionnements aux crochets pour la dentelle, la corde, etc.)*

Thomas Green, Northampton, Eng., 10th July, 1882; for 5 years.

*Claim.*—1st. The combination of the inner folded end *a* with the outer fold *d* and fixing part *b*, so that the lace or cord is held by the combined spring action of the parts *a* and *b*. 2nd. The several construction of grips with double spring action.

**No. 15,079. Improvements on Appliances for Cleansing Elastic tubes used with feed bottles.***(Perfectionnements aux appareils à nettoyer les tubes élastiques des biberons.)*

Thomas Marshall, London, Eng., 10th July, 1882; for 5 years.

*Claim.*—1st. The appliance shown at figures 1 and 7 for cleansing, by a scraping action, the interior surface of elastic tubes used with babies' feeding bottles. 2nd. The modified form of apparatus or appliance shown at figures 2, 3, 4, 5, 6, of the drawings, with or without sponge.

**No. 15,080. Improvements on Carpet Fasteners.***(Perfectionnements aux moyens d'assujétir les tapis.)*

Seth J. Spittler, Greenville, Mich., U.S., 10th July, 1882; for 5 years.

*Claim.*—In a device for securing or laying carpets composed of a supplemental moulding C provided with studs D and hooks E, the latter of which engage with the carpet while the former engage with loops upon the base board.

**No. 15,081. Improvements on Stockings.***(Perfectionnements aux bas.)*

Robert M. Appleton, Lake Village, N. H., U.S., 10th July, 1882; for 5 years.

*Claim.*—1st. A stocking composed of one continuous thread, knit mainly in plain stitch and provided at the heel with one or more tapering elastic gussets knit in tuck stitch. 2nd. A stocking composed of one continuous thread knit mainly in plain stitch and provided, at the calf of the leg, with one or more tapering elastic gussets knit in tuck stitch. 3rd. A stocking composed of one continuous thread, knit mainly in plain stitch and provided at the heel and calf of the leg with tapering elastic gussets knit in tuck stitch.

**No. 15,082. Improvements in Engraving Machines.***(Perfectionnements aux machines à graver.)*

John Earle, Darby, Penn., U.S., 10th July, 1882; for 15 years.

*Claim.*—1st. The double central bar D or its equivalent, for retaining the diamond tracing point E constantly in line with the pivot centres E<sup>1</sup> E<sup>2</sup>. 2nd. The combination, with the double bar D and diamond tracing point E, of the graduated disk E<sup>3</sup> having a hand for ascertaining the exact position of the diamond point. 3rd. The combination of the bracket E<sup>4</sup>, arms D<sup>5</sup> D<sup>6</sup>, graduated arms D<sup>7</sup> D<sup>8</sup> and double bar D having tracing points E<sup>9</sup> and graduated disk E<sup>10</sup>. 4th. The combination, with the carriage B and circular bed C, of the slide C<sup>1</sup> having spring bracket C<sup>2</sup> and worm *d*. 5th. The combination, with the circular bed C, of the adjustable straight edged bar C<sup>4</sup>, and the slide C<sup>1</sup> having spring bracket C<sup>2</sup> and worm *d*. 6th. The combination of the table F and circular bed C having a central line H extending longitudinally through said table and bed, for adjusting the positions of the tracing points. 7th. The combination, with the slotted table F, of the straight edged bar F<sup>2</sup> arranged at right angles with the movements of the carriage B. 8th. The combination, with the table F, of the straight edged bar F<sup>3</sup> and clamp F<sup>4</sup> for holding the strip F<sup>5</sup>. 9th. The slotted table F having clamps F<sup>6</sup> F<sup>7</sup>, straight edged bar F<sup>2</sup>, sliding clamp F<sup>5</sup> and rubber springs F<sup>8</sup>. 10th. The combination of a reciprocating carriage, a circular bed supported thereon, a slotted table, adjustable straight edged bars arranged at right angles with the line of the movement of the carriage, a bracket supporting a series of pantograph arms, a double bar adapted to be adjusted on the graduated arms of the pantograph frame, tracing and engraving points suspended from said double bar, and a graduated disk for regulating the position of the diamond engraving point.

**No. 15,083. Improvements on Thrashing Machines.***(Perfectionnements aux batteuses.)*

Maddison Griffin, Vienna, Ont., 10th July, 1882; for 5 years.

*Claim.*—1st. The bars F F formed of the strips *aaa*. 2nd. The combination of the bars C C, supports G G and bars F F formed of the strips *aaa*. 3rd. The combination of the bar C C, shafts A A, provided with double cranks *r* and *rs*, and bars F F formed of the strips *aaa*. 4th. The combination of the shafts A A, provided with the double cranks *r* and *rs*, bars C C, connecting rod E, bars F F and spreader L provided with teeth *ee*. 5th. The combination of the shaft A, cog wheels I I, shaft J, cranks *rs*, rods O O, bearing J<sup>1</sup>, riddle K and hangers *b b*.

**No. 15,084. Improvements on Automatic Printing Presses.***(Perfectionnements aux presses automatiques d'imprimerie.)*

William Heckert, Yonkers, N. Y., U.S., 10th July, 1882; for 5 years.

*Claim.*—1st. A printing press having gears *bb c c*, shafts *d d*, miter gears *ee*, shafts *ff*, gears *gg*, in combination with rotating ink arms *h h*. 2nd. In a printing press the oscillating combined type bed and inking cylinder with connections *5 5*, ink arms *8 8* and rollers *9 9*, *10 10*. 3rd. The connections *5 5*, shaft *f f*, gears *ee*, shafts *d d*, in combination with the bevel gears *b b* placed eccentrically to the main shaft D on the wrist studs *4 4*. 4th. The stud *4*, crank *s*, connections *t t*, levers *r r* and pawls *10 11* and *15*, in combination with ratchet wheels *12* and *16*.

**No. 15,085. Improvements on Millstone Staffs.***(Perfectionnements aux règles d'épave des meules.)*

William Lehmann, Milwaukee, Wis., U.S., 11th July, 1882; for 5 years.

*Claim.*—1st. The combination, in a bosom staff for dressing mill stones, of the members A and B and hinged to, and adapted with relation to, each other. 2nd. The combination of member A and plate I, with member B and plate H. 3rd. The plate H hinged to member B and attached adjustably to member A, in combination with the adjusting mechanism. 4th. In combination with the members A and B, the adjusting screw *k* extending completely through the member A. 5th. The combination of the members A and B, and the adjustable guide arms D D C C.

**No. 15,086. Mode and Means for Securing Shifting Bulk Cargo.***(Mode et moyens d'empêcher les cargaisons en grenier de se déplacer.)*

Edgar H. Farrar, New Orleans, La., U.S., 11th July, 1882; for 5 years.

*Claim.*—1st. The method of packing and preventing the shifting of

bulks of grain, guano, or other substance, in a ship consisting in pressing and holding the grain or other articles in successive layers, by stretching flexible diaphragms upon the layers as they are formed. 2nd. The combination, with a ship, of the flexible flaps or semi-diaphragms connected with the sides of the ship's hold, and means for drawing said diaphragms together, so as to form a series of horizontal partitions for pressing upon and holding down the grain, or other articles to be transported. 3rd. The combination of the horizontal rows of hooks secured to the inner side of the vessel, with the flexible diaphragms adapted to be connected with said hooks. 4th. The combination, with the flaps arranged for forming horizontal partitions in the ship's hold, of the side curtains adapted to prevent the passage of grain between the outer edges of the flaps and the side of the vessel. 5th. The combination, with the flaps or semi-diaphragms arranged for forming horizontal partitions in the ship's hold, of the strips adapted to close the space between the inner opening edges of the semi-diaphragms. 6th. The combination, with the semi-diaphragms arranged for forming horizontal partitions in a ship's hold, of the head and foot strips N. 7th. The combination, with the flaps or semi-diaphragms D adapted to be connected to the side of the ship's hold and having the stiffening rod *ds*, of the sheave E, the pulleys upon the stanchions and the tightening rope passing over the sheaves and pulleys and up through the decks. 8th. The combination, with the flexible flaps and the tightening rope arranged to tighten the flaps within a ship's hold, of the clamp for securing the rope after it has been tightened. 9th. The combination, with the metal strips secured to the sides of the hold of a vessel and provided with hooks, of the flexible semi-diaphragms adapted to engage with said hooks, and devices for drawing the inner edges of said diaphragm together.

**No. 15,087. Improvements on Hydraulic Elevators.** (*Perfectionnements aux élévateurs hydrauliques.*)

Eli Thayer, Worcester, Mass., U. S., 11th July, 1882; for 5 years.

*Claim.*—1st. In a hydraulic sectional elevator, the combination, with a bottom cap having a tubular projection, of a diaphragm or cap having a corresponding projection, the construction being such, that the water pressure may be delivered through the tubular projection, or projections, to the upper sections, and the movement be arrested in descent also by a partially confined water column. 2nd. In combination with the base collar of one section, the stop ring and chamber containing the partially confined water volume of another section.

**No. 15,088. Improvements in Method of Engraving Script.** (*Perfectionnements dans la méthode de graver l'écriture.*)

John Earle, Darby, Penn., U. S., 11th July, 1882; for 5 years.

*Claim.*—1st. The described method of classifying and arranging script letters for engraving the same in the formation of words consisting in dividing the letters into classes according to the similarity of their form, providing said letter with varying hair lines and drawing perpendicular lines from a uniform position in relation to the letter and its hair line, whereby the letters may be uniformly merged and spaced in the formation of words and sentences, by means of a suitable engraving apparatus. 2nd. The engraved scale containing in a condensed form all the spacing lines of capitals, small letters and numerals, whereby the proper letters and spacing can be laid out upon a continuous band, strip or ribbon of any suitable material.

**No. 15,089. Improvements on Nailing Machines.** (*Perfectionnements aux machines à clou.*)

Albion Knowlton, Boston, Mass., U. S., 11th July, 1882; for 5 years.

*Claim.* 1st. The vertically reciprocating feed bar and pivoted spring dog carried by the same and adapted to act in conjunction with a fixed jaw on said feed bar as described, in combination with the tapered slide bar for arresting the upward movement of said feed bar. 2nd. The combination of the rotary feed wheel and the reciprocating cutter and carrier arranged to play backward and forward through said wheel. 3rd. The rotary feed wheel in combination with the reciprocating cutter and carrier, the stationary wire guide tube with its lower end acting as a fixed blade in conjunction with the carrier and the driver, and passage through which the same moves. 4th. The vibrating feed bar and wire grasping mechanism carried by the same, in combination with the rotary wiper, cam or stud, the reacting spring and the tapered slide bar.

**No. 15,090. Improvements on Cooking Stoves and Ranges.** (*Perfectionnements aux fourneaux et aux landiers de cuisine.*)

Morenus A. Nicholson, Richmond, Ohio, U. S., 11th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the smoke and distributing chamber F G T, of the partitioned hot air chamber M, arranged directly beneath the oven. 2nd. The combination, with the oven D, and the smoke chamber F G, of the air heating chamber M, and the air distributing chamber T, the inlet pipe D, the connecting pipes S and the plate W having perforated off-sets U, whereby cold air is heated and introduced into the oven. 3rd. The plate U, interposed between the oven D and the air distributing chamber T, and provided with upward off-sets U having perforated sides, whereby the heated air is introduced into the oven. 4th. The combination, with plate U provided with upward off-sets U having perforated sides, of the perforated plate V, whereby the heated air is distributed through the oven.

**No. 15,091. Improvements in Brick Machines.** (*Perfectionnements aux machines à briques.*)

Philip H. Kells, Abram Kells and Jacob M. Kells, Adrian, Mich., U. S., 11th July, 1882; for 5 years.

*Claim.*—1st. In a horizontal brick or tile machine, the grinding shaft provided with a flanged collar, in combination with the friction wheels and their bearings. 2nd. The shaft C having spiral levers N and annular flange, the tab B, master wheel C and washer S combined with the bearings R, and friction wheels C. 3rd. In a brick machine, the lower semi-cylindrical casting having end bearings for the operating shaft, a diaphragm for dividing the mud box and to form a recess for receiving mechanism for modifying friction and bearings for the attachment of a die plate. 4th. The lower semi-cylindrical casting B having bearings for the shaft G and die plate E, and the diaphragms I cast in one piece and adapted to serve with operating mechanism, a die plate and semi-cylindrical cap K.

**No. 15,092. Fire-proof Solution and Roofing Compound.** (*Solution et composé à toiture réfractaires.*)

Frederick W. Boxer, Quebec, Robert J. Boxer, Sydney S. Boxer and Arthur S. Boxer, Montreal, Que., (Assignees of Frederick N. Boxer, Montreal.) Que., 11th July, 1882; for 5 years.

*Claim.*—1st. A solution or composition of matter composed of silicate of soda, or soluble, or water glass, potash, lime, or alum and borax in solution, and intermixed with the blood of cattle, and also chloride of calcium for the purpose of rendering unflammable all substances coated or intermixed therewith. 2nd. The application of the solution, in combination with paper, cotton, cloth, lime and hydraulic cements for making unflammable coverings for roofs or casings to woodwork or for other similar purposes.

**No. 15,093. Improvements on Process for Cooling Beer.** (*Perfectionnements aux procédés pour rafraîchir la bière.*)

David W. Davis, Detroit, Mich., U. S., 11th July, 1882; for 5 years.

*Claim.*—The process of cooling beer by forcing salted ice water into and through a coil of cooling pipes, upon which the beer drips, and then returning the salted ice water back into the tank from which it was taken.

**No. 15,094. Improvements in Railway Signal Apparatus.** (*Perfectionnements aux appareils à signaux de chemins de fer.*)

Evan Dunlap, Chester, Penn., U. S., 11th July 1882; for 5 years.

*Claim.*—1st. In a railroad signal, the combination, with the main rails A and switch B, of the post H having rod I provided with arms J K, springs L and connecting cord or chain E connecting the switch rails with the arms J. 2nd. The combination of the main line rails A, switch B, post H, pivoted rod I having arms J K, spring L and cord or chain E with mechanism for adjusting the switch and the sounding mechanism arranged in a railroad cab. 3rd. In a railroad signal, the combination of rails A, switch B, bar D, T-lever D, cables E, rod I provided with arms J K, and car M provided with signalling mechanism and adapted to be put in action by arm K when switch is open.

**No. 15,095. Improvements on Artificial Stone.** (*Perfectionnements à la pierre artificielle.*)

David G. Weems, Baltimore, Md., U. S., 12th July, 1882; for 5 years.

*Claim.*—1st. A building block made hollow and provided with an air vent. 2nd. A building block consisting of a hollow shell of a suitable plastic composition open on one side and having a lateral perforation. 3rd. The composition for building blocks consisting of cement and sand moistened with a solution containing alum, borax, litharge, and Venice turpentine. 4th. The method of surface graining artificial stone, consisting in moistening a web of raw silk in colouring matter, pulling the wet strands apart, and placing them on the porous face of the stone, and removing the strands when the colour is absorbed, whereby their colour is imparted to the block in veins. 5th. The method of hardening and surface finishing an artificial building block consisting in saturating its surface with the composite and finally sanding.

**No. 15,096. Improvements on Freight Cars.** (*Perfectionnements aux voitures à marchandises.*)

Jérémie Daigneau, St. Hyacinthe, Que., 12th July, 1882; for 5 years.

*Claim.*—1st. The combination of inclosing or side lining placed edge on edge, or overlapping with upright presser posts pivoted, jointed, hung or wedged to a skeleton framing and the car platform, and rebated corner posts to secure the ends of the lining. 2nd. The combination of a skeleton framing having plain or notched uprights or posts with pivoted, hung, jointed or wedged presser posts and the platform of the car. 3rd. Plain or notched rafters, notched or plain pressers parallel to the slopes of the rafters and secured thereto by bearing hooks, rings, screws or similar devices, in combination with a skeleton framing. 4th. Plain or notched rafters, stationary or movable notched or plain top presser bars attached to the rafters, boards or planks held tightly between the rafters and pressers, in combination with a skeleton framing attached to the car platform. 5th. The construction of rafters R<sub>2</sub> having notches *n* in a groove. 6th. The construction of rafters R<sub>2</sub> having single or double rebates, provided with notches *n* and points or teeth *e*, in combination with presser bars.

**No. 15,097. Improvements on Fence Posts.** (*Perfectionnements aux pieux des clôtures.*)

Cyrus Kinney, Windsor, Ont., 12th July, 1882; for 5 years.

*Claim.*—1st. A metallic fence post P adapted to be driven in the ground, in combination with the inverted cap C constructed and employed to compact the earth about the foot of said post. 2nd. In com-



bination with the metallic post P, the ring R and securing wedge B provided with a notch or recess N as a means for adjustably securing the fence wire W or other material used for panels to each post. 3rd. A fence wherein the wires W or other material used for panels are adjustably secured to metallic posts P, by means of wedges B provided with notches or recesses N and rings R.

**No. 15,098. Improvements on Cigar Bunching Machines.** (*Perfectionnements aux machines à lier les cigares.*)

Alexander Gordon, Detroit, Mich., U.S., 12th July, 1882; for 5 years.

*Claim.*—1st. In a machine for bunching cigars, a hopper provided with an intermittently reciprocating horizontal knife, a trough having adjustable ends and pivoted doors, a reciprocating table and a bunching cloth, the whole combined with, and operating from a common power automatically. 2nd. The combination of the following devices, an automatic dropper delivering a measured supply of filler, a bunching cloth wound and unwound upon a roll, a bunching roll and a reciprocating table, the motion of all these parts being positively connected together. 3rd. A trough provided with adjustable ends and, having doors provided with mechanism for opening them automatically and intermittently. 4th. The combination of the bunching cloth P, reciprocating table F, rolls T J O, well R and operating mechanism. 5th. The combination of the reciprocating table F, rack N, gears L M, rolls T J O and cloth P. 6th. The combination of the shaft f, knuckle g, projection h, catch i, arm l, levers d d' and hinged doors b b' when combined. 7th. The adjustable catch i combined with the knuckle g, shaft f and connecting with the doors b b', whereby the said knuckles may be thrown in or out of operation as may be desired. 8th. The combination of the hopper bars T T' having crank arms as shown, with the hoppers standards u u, pulleys v v and trough. 9th. The combination of the knife R with the trough having adjustable ends and automatically opening and closing hinged doors adapted to operate alternately. 10th. The combination of the knife R, cloth P, trough having automatically opening and closing doors, the rolls T J O, gears L M, table F and operating mechanism. 11th. In a cigar bunching machine, the trough having adjustable ends a and automatically opening and closing doors b provided with interchangeable linings b', of various thickness, adapted to produce bunches of different sizes. 12th. The roller J journaled eccentrically in boxes X and set screws s, combined with the cloth P and reciprocating table F and adapted to be adjusted and secured in any desired location.

**No. 15,099. Improvements on Broad Cast Seed Sowers.** (*Perfectionnements aux semoirs à la volée.*)

John Diekieson, Summerside, P. E. I., 13th July, 1882; for 5 years.

*Claim.*—1st. In combination with the hopper E, the agitator shaft F, carrying radial arms G provided with brushes H, and means for imparting a rocking motion to said shaft. 2nd. The radial arms G constructed in two sections and clamped together by screws I, for securing the arms to the shaft and holding the brush material co-relatively. 3rd. The combination, with the hopper shaft F provided with a crank arm, of the pitman K, disk wheel L, shaft N and cog pinion M meshing with the cog wheel T of the wheel B to rock shaft F. 4th. The bracket O secured to the axle A and carrying the shaft N of cog pinion M, and disk L. 5th. The scattering box S removably attached below the hopper E. 6th. The scattering box S having a converging inclined bottom with opening V, and internally tapering shelves T and longitudinally below the same an angle faced bar W.

**No. 15,100. Improvements on Sprocket Wheels.** (*Perfectionnements aux hérissons.*)

Francis M. Lechner, Columbus, Ohio, U.S., 13th July, 1882; for 5 years.

*Claim.*—1st. In a sprocket wheel, a tooth movable relative to said wheel and adjustable thereon. 2nd. The combination, with the rim provided with perforations, of the teeth having shanks or stems adapted to be inserted into said perforations, and clamping devices for securing them in place. 3rd. The combination, with the longitudinally adjustable teeth, of set screws for preventing a longitudinal movement of the teeth and set screws for producing a longitudinal adjustment of the teeth. 4th. The combination, with a perforated rim and with lugs or flanges inside of said rim, of the sprocket teeth having the parts C seated in the perforations in the rim and the adjustable devices mounted in the inner lugs or flanges. 5th. The adjustable sprocket tooth having the chain engaging part B, the laterally extending projections B<sub>2</sub>, and the shank portion formed independently of the wheel and the other teeth.

**No. 15,101. Improvement in Bed Springs.** (*Perfectionnement des ressorts des lits.*)

Andreas Haller, Delaware, Ont., 12th July, 1882; for 5 years.

*Claim.*—The combination of the coil springs CC, bridge pieces B B, hooks H H and slats S S.

**No. 15,102. Improvements in Darning Lasts.** (*Perfectionnements aux formes à repriser.*)

George A. Cochrane, New York, N. Y., U.S., 12th July, 1882; for 5 years.

*Claim.*—1st. A darning last having a groove formed around its body, in combination with an elastic band, or equivalent means for securing the fabric to said last. 2nd. In combination with a darning last, a band or equivalent means for holding the fabric rigidly thereon. 3rd. A darning last having an indented side. 4th. A last provided with means for securing thereto the article to be mended, and having indented side. 5th. A last of hollow or circumferential form, provided with a groove and band for holding thereon the article operated upon. 6th. A last of elongated form with tapered ends, provided

with grooves and bands for attaching thereto the article to be mended. 7th. A darning last of conoidal or ovoidal form provided with a peripheral groove at, or near, its greatest diameter, in combination with an elastic band, cylindrical in cross section. 8th. A darning last of substantially conoidal form with broad base, and sides composed of lines curving from base to vertex.

**No. 15,103. Improvements on Lamp Wicks.** (*Perfectionnements aux mèches des lampes.*)

Gebhard Beck, Waco, Texas, U.S., 12th July, 1882; for 5 years.

*Claim.*—A lamp wick composed of one or more layers of mineral wool enclosed in a textile material, the whole being sewed together by a series of parallel longitudinal stitches.

**No. 15,104. Improvements on Stove Boards.** (*Perfectionnement aux sous-poêles.*)

George F. Sterne, Guelph, Ont., 12th July, 1882; for 5 years.

*Claim.*—1st. The combination of rollers or wheels under a stove board, to facilitate the moving and setting the stove in the position required. 2nd. The combination of case B with roller, or wheels C, and frame D.

**No. 15,105. Improvements on Fire Boxes of Steam Boilers.** (*Perfectionnements aux boîtes à feu des chaudières à vapeur.*)

Robert L. Walker, Boston, Mass., U.S., 12th July, 1882; for 5 years.

*Claim.*—1st. In combination, the two fire boxes D D<sub>1</sub>, the combustion chamber E and the fire bricks C C<sub>1</sub>. 2nd. In combination with the fire box divided longitudinally by the water leg B, the damper F supported on the inclined pipes d d', arranged and adapted to brace and insure circulation in the water leg B. 3rd. The combination, with a water leg for dividing a fire box longitudinally, of the pipe or hollow block which constitutes a medium for connecting the interior of the water leg with the hollow shaft of a damper provided with interior water ways. 4th. The damper having interior water ways, and a shaft with hollow ends that communicate with these water ways, provided at one end of its shaft with means for a water tight connection to the pipe or block on the water leg, and at the other end of its shaft with means for receiving the thrust of a spring, and for a water tight connection to the interior of the boiler. 5th. A fire box divided into two parts by a longitudinal water leg, and having both parts covered with fire brick, a series of corrugations on the under side of the cover and across the path of the products of combustion.

**No. 15,106. Combined Dash and Foot Rails.** (*Barre de garde-crotte et appui-pieds combinés.*)

Frank C. Ayer, Columbus, Ohio, U.S., 12th July, 1882; for 5 years.

*Claim.*—1st. The combination of the dash frame with dash feet constructed and applied to connect said dash frame to the vehicle body and to the foot rail. 2nd. A dash attachment for vehicles, composed of the feet having each a dash clamping part a, a body fastening part a' and an elevated c for the foot rail d. 3rd. The dash attaching device, composed of the dash feet bent or raised at each end, the foot rail having a middle support, and the clamping screw bolt. 4th. As a new manufacture, a foot rail including provision by which it is attached to and forms a support for the dash frame of the vehicle.

**No. 15,107. Improvements in Check Books.** (*Perfectionnements aux livrets de contrôle.*)

Harman R. Butterfield, Toronto, Ont., 12th July, 1882; for 5 years.

*Claim.*—1st. The type as described in combination with counter check books and other duplicating fly leaf books. 2nd. The membrane hinge for a black leaf in a counter check book, the whole bound by an elastic band to the end or sides of the lower cover. 3rd. A counter check book provided with a hinged black leaf, the totalling sheets prepared for entering to.

**No. 15,108. Improvements on Netting Machines.** (*Perfectionnements aux machines à filets.*)

Edward Keeler, Boston, (assignee of Albert T. Anderson, Chelsea,) Mass., U.S., 12th July, 1882; (extension of patent No. 12,614.)

**No. 15,109. Improvements on Netting Machines.** (*Perfectionnements aux machines à filets.*)

Edward Keeler, Boston, (assignee of Albert T. Anderson, Chelsea,) Mass., U.S., 13th July, 1882; (extension of patent No. 12,614.)

**No. 15,110. Apparatus and Process for the Separation and Treatment of Oils.** (*Appareil et procédé de séparation et de traitement des huiles.*)

Herman Frasch, Philadelphia, Penn., U.S., 13th July, 1882; (extension of patent No. 7691.)

**No. 15,111. Apparatus and Process for the Separation and Treatment of Oils.** (*Appareil et procédé de séparation et de traitement des huiles.*)

Herman Frasch, Philadelphia, Penn., U.S., 14th July, 1882; (extension of patent No. 7691.)

**No. 15,112. Improvements in Stone Walling.** (*Perfectionnements dans la maçonnerie en pierre.*)

John Heard, Strathroy, Ont., 14th July, 1882; (extension of patent No. 7642.)

**No. 15,113. Improvements on Gates.** (*Perfectionnements aux barrières.*)

Lysander Flagg, Riverside, (assignee of Henry A. Stearns, Lincoln,) R. L., U. S., 15th July, 1882; (extension of patent No. 8016.)

**No. 15,114. Improvements in Wringing Machines.** (*Perfectionnements aux essoreuses.*)

James S. Fox, Oshawa, Ont., 15th July, 1882; (extension of patent No. 7658.)

**No. 15,115. Improvement in Reflector Attachments.** (*Perfectionnement des dispositions aux réflecteurs.*)

William Wheeler, Concord, Mass., U. S., 15th July, 1882; for 5 years.

*Claim.*—1st. The two light reflecting sections A B hinged to each other, and provided with ears and clamps for holding insulating tubes, and confining them to rods. 2nd. A reflector provided with laterally projecting ears and with clamps hinged thereto and furnished with screws. 3rd. The light reflector supporter, or attachment, having recessed plate, and hinged clamp and its set screw, and provided with an insulator, all combined. 4th. The light reflector, supported as set forth, having wings, each being provided with an opening *g* and an elastic tongue *h*. 5th. The light reflector A provided with the clasps *c c*, in combination with the supporter and insulator carrier, having its wings provided with openings *g* and elastic tongues *h* to engage with such clasps.

**No. 15,116. Improvements on Drag Scrapers.** (*Perfectionnements aux grattoirs.*)

James Cosgrove, Samuel F. Welch and Charles H. Smith, Mount Pleasant, Iowa, U. S., 15th July, 1882; for 5 years.

*Claim.*—1st. A scraper box formed of a blank of suitable material, and made with curved surfaces at the juncture of its bottom, with its back and sides, and the ends of the back constructed to overlap the rear ends of the sides. 2nd. A scraper box formed of a blank cut and the ends of its rear portions *b* and bent sides *S*, in combination with the bolts or rivets *l l r r*, plates or clips *L* and *q q* and the handles *D D*. 3rd. In combination with the scraper box, the plate *C* having the runners *c c*.

**No. 15,117. Improvement in Lightning Rods.** (*Perfectionnement des paratonnerres.*)

James H. Schoonmaker, Henderson D. Morse and Nathaniel C. Gault, Winona, Min., U. S., 15th July, 1882; for 5 years.

*Claim.*—In a lightning rod, the combination, with a straight hollow zinc core covered with sheet copper, of a series of twisted encircling tubes of zinc covered with sheet copper.

**No. 15,118. Improvements in Tills.** (*Perfectionnements dans les caisses des comptoirs.*)

Browns W. Webb, London, Eng., 15th July, 1882; for 5 years.

*Claim.*—1st. The dial-rim provided with the piece of insulating material, in combination with the handle and the pointer or index. 2nd. The combination, with the arbor upon which the handle is mounted, of the spring surrounding the boss of the said handle, and the stop consisting of the pin and the arm, or bracket. 3rd. The dial arbor provided with a ratchet-wheel *e* 2, in combination with the spring pawl on the loose boss or sleeve of the handle. 4th. The combination, with the arbor operated by the handles, of the ratchet wheel *g* fixed on the said arbor, and the pawl *h* with or without the arm *a* adapted to make contact with a piece *n*. 5th. A wheel provided with a pivoted tooth which projects beyond the toothed, or other periphery of the said wheel and is provided with a tail to be acted on by a spring and is arranged in combination with a top. 6th. The combination, with the series of shafts or arbors carrying the ratchet wheels *g*, of the main wheels provided with the spring teeth. 7th. The combination, with the aforesaid series of dials, of the series of wheels provided with spring teeth, so arranged and operating that the indexes of the different dials of the series are caused by the manipulation of the handle or handles, to cooperate to register on the said dials the amounts paid. 8th. The combination, with the rim *b* connected with one terminal of a battery, and the contact piece *n* connected with the other terminal of the said battery, of the piece *a* adapted to close the circuit on the movement of the handle *d* and sound a bell included within the said circuit. 9th. The combination, with the pivoted inclined plate provided with the locking device, of the lever *J* adapted to be operated by a push-knob, or by other suitable means, the chain or cord *L*, the retracting spring *K*, the contact spring *J* 2 and the electric bell and battery. 10th. The combination, with the bent lever *M* pivoted upon the pin *M* carried by the inclined plate, and the spring *P* attached to the said plate, of the stop *O* fixed to the box or case and adapted to engage with the said bent lever and thereby retain the said plate in its closed position. 11th. The apparatus consisting of the parts constructed, combined and arranged as illustrated in figures 1 to 7 or in figures 8 and 9 of the drawings.

**No. 15,119. Improvements in Balanced Slide Valves.** (*Perfectionnements aux tiroirs de vapeur équilibrés.*)

Henry H. Beach, Litchfield, Ill., U. S., 15th July, 1882; for 10 years.

*Claim.*—1st. The combination of flanges on the valve, bearing on wheels or rollers, running on a hanger-rail attached to a piston or plunger, working in a cavity of the steam chest top, the rail being provided with end bearings in the steam chest, to prevent its vibration in the direction of the movement of the valve. 2nd. The combination of the valve *B*, flanges *d*, rail *F*, piston *G* and steam chest, with the rollers *E* connected in pairs by shafts passing through slots *J* in the vertical web of the hanger-rail *F*.

**No. 15,120. Improvements on Bed Bottoms.** (*Perfectionnements aux sommiers élastiques.*)

Charles J. Manley, (assignee of Alfred S. Burnham,) Parkersburg, Iowa, U. S., 15th July, 1882; for 5 years.

*Claim.*—1st. In an extension bed bottom, the sectional sliding bars *N* forming the side rails, the transverse slats *S*, slotted at *b* and carrying the bed springs, and the series of cross levers *d* pivoted at their centres to each other, and at their ends to the slots of the slats. 2nd. The combination, with the recessed case *A* having the mattress roller *C* and bottom *H*, of the foot board *K*, sectional sliding side rails *L*, the slotted slats *S*, the series of cross levers *d* pivoted to each other and to the slats, and the mattress or mattress cloth.

**No. 15,121. Improvements on Mortise Door Locks and Latches.** (*Perfectionnements aux serrures cachées et aux loquets.*)

Levi B. Spenser, Kingston, (assignee of George Adams, Thp King-ston,) Ont., 15th July, 1882; for 5 years.

*Claim.*—The lever *A* and spring *D*, in combination with a spring bolt *B* for holding the bolt retracted, and subsequently releasing the same by contact with the striking plate *C*.

**No. 15,122. Improvements on Cabinet Organs.** (*Perfectionnements aux harmoniums.*)

Orison C. Whitney, Cleveland, Ohio, U. S., 15th July, 1882; for 5 years.

*Claim.*—1st. The lid *B* provided with ears *b b* arranged and adapted to slide in the grooves *a*, having notches *a* in the frame work of the case, to afford a covering for the pedal opening. 2nd. The sliding bar *h* arranged between strip *t* having the short shaft *v* carrying the grooved wheel *w* journaled between said strips, said wheel connected to the lid *B* by cord or chain *r*, and the shaft *v* connected by cord or chain *s* to the rear end of the sliding bar *h*, said wheel *w* and shaft *v* journaled between said strips *t*, the spring *S* 2 bearing on said bar, all for the purpose of raising and lowering the lid *B*. 3rd. The tilting frame consisting of the two uprights *d d* connected by bar *f* and pivoted to blocks *d* 1 *d* 1 on the board *d* 1 and provided with the short arms *e e*, to which the fall board *D* is attached by the ears *e e* having buttons *e* 2. 4th. The music rest *G* hinged to the front of lid *H*, the said rest *G* forming a covering to the front opening, and the lid *H*, a cover on the top of the music receptacle.

**No. 15,123. Improvements on Hame Fasteners.** (*Perfectionnements aux attaches des attelles.*)

William W. Bell, Valley Springs, Dak., U. S., 15th July, 1882; for 5 years.

*Claim.*—1st. A casing *A* 1 *A* 2, a bar *B* 1 pivoted at one end in said casing and provided with a hook *g* at the other end, and a bar *B* 2 adjustably pivoted in said casing at one end, and provided with a hook *g* 1 at the other end, said hooks *g* 1 *g* 1 adapted to engage with the hames *g* 2 *g* 2. 2nd. The combination of the casing *A* 1 *A* 2 having the slots *i* 1 and notches *i* 2, the bar *B* 2 having the hook *h* 4 upon one end and pins *m* upon the other, said pins adapted to fit into said notches. 3rd. The combination of the casing *A* 1 *A* 2 having the spring dog *h* 1, the bar *B* 1 pivoted at one end in said casing and provided with a hook *g* 1 and catch *e* 1, said catch adapted to be held by said spring dog. 4th. The combination of the casing *A* 1 *A* 2, blocks *b* 1, ribs *b* 2, grooves *e*, dog *h* 1, catch *e* 1 and arm *B* 1. 5th. The casing *A* 1 *A* 2 having the ribs *A* 3, in combination with the two bars *B* 1 *B* 2, slots *i* 1 and notches *i* 2. 6th. The combination of the casing *A* 1 *A* 2, bars *B* 1 *B* 2, having the hooks *g* 1 *g* 1, catch *e* 1 and pins *m*, the dog *h* 1, spring *D*, slots *i* 1 and notches *i* 2. 7th. The combination of the casing *A* 1 *A* 2 having the slots *i* 1 and notches *i* 2, the bar *B* 2 having the hook *h* 4 upon one end, and pins *m* upon the other, said pins adapted to fit into said notches, and the spring *D*.

**No. 15,124. Improvements on Running Gears of Vehicles.** (*Perfectionnements aux trains des voitures.*)

James L. Clark and Herbert M. Clark, Oshkosh, Wis., (assignees of Buren M. Soule, Cedar Rapids, Iowa,) U. S., 15th July, 1882; for 15 years.

*Claim.*—1st. The combination of the semi-elliptical spring *A* with socket ends, the horizontal springs *B* *B* and the semi-elliptical spring *C* constituting a rectangular spring frame. 2nd. The combination, with the side bars *D* *D*, of the rectangular spring frames composed of the curved springs *A* with scroll and socket ends, the horizontal springs *B* *B* and the semi-elliptical springs *C* arranged in sets on the bolster and rear axle of the running gear. 3rd. A semi-circular plate *F* attached to the under side of the front axle and passing through a loop or straps attached to the under side of the reach. 4th. The combination, with the front axle of the lower section of the fifth wheel, and the semi-circular plate *F* secured to said axle by means of clip bolts.

**No. 15,125. Improvements in Machines for Thrashing.** (*Perfectionnements aux batteuses à grains.*)

Richard Mowry, Ashburnham, (co-inventor with William Forsyth, Ashburnham, and George McCannon, Otonabee,) Ont., 15th July, 1882; (extension of patent No. 7648.)

**No. 15,126. Improvements in Bed Bottoms.***(Perfectionnements aux sommiers des lits.)*

Orilla L. Hatch, (representative of William B. Hatch.) Elmira, N. Y., U. S., 15th July, 1882; (extension of patent No. 7667.)

**No. 15,127. Improvements on Horse Rakes.***(Perfectionnements aux râtaux à cheval.)*

William H. Field, Port Chester, (assignee of James E. Wisner, Friendship.) N. Y., U. S., 15th July, 1882; (extension of patent No. 7671.)

**No. 15,128. Improvements on Horse Rakes.***(Perfectionnements aux râtaux à cheval.)*

William H. Field, Port Chester, (assignee of James E. Wisner, Friendship.) N. Y., U. S., 17th July, 1882; (extension of patent No. 7671.)

**No. 15,129. Improvements on Safety Elevators for Hatchways.** *(Perfectionnements aux monte-charges pour les écoutilles.)*

Peter J. Singer, (assignee of John B. Atwater.) Chicago, Ill., U. S., 17th July, 1882; for 5 years.

*Claim.*—1st. An elevator provided with one or more belts as D, separate from the cab, and having doorways through them, and with mechanical appliances, whereby the belts are successively operated and caused to open and close the doorways from a hatchway to landings, and from landings to a hatchway, in either the ascent or descent of the cab or platform B, of the elevator. 2nd. The combination of the belt D having doorways through it, and provided with an interlocking slot G, a hatchway A provided with unlocking stops I, and a cab or platform provided with interlocking bars H having joints c. 3rd. The combination of the interlocking bars H composed of parts *d1 d2* jointed at *e*, and springs *d* with a platform or cab B. 4th. The combination of the unlocking inclined stops I pivoted to the boarding or framing of the hatchway A and spring *g1*.

**No. 15,130. Improvements in Blanket Fasteners.** *(Perfectionnements aux garnitures des couvertes.)*

Oscar Sweet, Benson, N. Y., U. S., 19th July, 1882; for 5 years.

*Claim.*—1st. The combination, with a blanket, of a fastening device consisting essentially of a gravity-bolt supported in a bearing fastened to one edge of the blanket, the shank of said bolt being greater in width than in thickness, and a hook attached to the other edge of the blanket, said hook being provided with a transverse opening and having a narrow slot leading thereto, adapted to receive the shank of the bolt when presented edgewise and allow the bolt to enter the opening. 2nd. A fastening device for blankets, consisting essentially of a rotary bolt provided with a weighted arm, a bearing for supporting one end of the bolt, the said bolt being provided with a shank made flat in cross-section and of greater width than thickness, and a hook provided with a narrow slot leading to a transverse opening and adapted to receive and secure the flattened shank of the gravity-bolt.

**No. 15,131. Improvements on Revolving Book Cases.** *(Perfectionnements aux bois tournants des bibliothèques.)*

Duncan M. Schell Syracuse, N. Y., U. S., 19th July, 1882; for 5 years.

*Claim.*—1st. A take-down revolving book case having a vertical central supporting rod B detachably connected to a base A, a tube or sleeve D surrounding said rod and suspended from the upper end thereof, and provided at its base with an external collar *r*, a bottom shelf S having a central aperture fitted to slide over the tube D, said shelves S resting on the collar *r*, superstructured shelves *S1 S2 S3 S4*, having a central aperture by which they slide over the tube D, and detachable spindles *f f* interposed between the respective shelves and supporting the same.

**No. 15,132. Improvement on Snow Ploughs.***(Perfectionnement des charrues à neige.)*

John A. Ayres, Paola, Ks., U. S., 19th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the wide central endless conveyor *d2* and the narrow side endless conveyers *d1 d1*, of the bridges *e1 e2*, constructed with the inclined sides and arranged to overlap the adjacent edges of the three endless conveyers. 2nd. The combination, with the central conveyers *d2* and side conveyers *d1 d1*, of the bridges *e1 e2* provided with front cutting edges *a1*, said bridges being constructed and arranged to overlap the adjacent edges of the three endless conveyers. 3rd. The combination, with the central conveyor *d2*, side conveyers *d1 d1* and bridges *e1 e2*, of the lateral conveyers *D1 D2*.

**No. 15,133. Improvements on Armatures and Commutators for Dynamo-Electric Machines.** *(Perfectionnements aux armatures et aux commutateurs des machines electro-dynamiques.)*

John J. Wright, Parkdale, Ont., 19th July, 1882; for 5 years.

*Claim.*—1st. In a dynamo-electric machine, an armature core constructed of end pieces or disks, of non-conducting material, connected by longitudinal bars of wrought iron, and wound circumferentially with soft iron wire. 2nd. In an armature for dynamo-electric machine, a series of coils wound longitudinally and in pairs, upon a cylinder composed of non-conducting end plates, iron bars and soft iron wire and diametrically across the ends, on either side of a central

space corresponding in width to the shaft or axle of the armature. 3rd. In an armature for dynamo-electric machines, a series of coils wound over and around a cylindrical core, one end of such series being in advance of the other circumferentially, giving a spiral direction to the coils in relation to the axis of the armature. 4th. In a cylindrical armature for dynamo-electric machines, the combination of a series of coils in parallel pairs on either side of the central shaft, and wound spirally from end to end with a commutator having adjustable segments, each being capable of extension over a space equal to 180° or more, of the circumference. 5th. A commutator composed of a central core of non-conducting material with outer segments of metal and divided laterally into two complete rings, having each a similar number of segments, the corresponding segments of each ring being in electrical contact and capable of being moved circumferentially upon each other, for the purpose of varying the working length of each segment, and consequently controlling the electro-motive force of the machine. 6th. A commutator composed of a central core of insulating material, and an outer segmental ring of metal, the insertion of a plug of porcelain or other non-combustible and non-fusible substance under and between the ends of the segments.

**No. 15,134. Improvements on Telephone Exchange Instruments.** *(Perfectionnements aux instruments d'échange téléphoniques.)*

Elihu T. Guimby, Hanover, N. H., U. S., 19th July, 1882; for 5 years.

*Claim.*—1st. The combination of the lines, doubled or crossed upon themselves at an angle, with a set of connections located at the intersection of the lines, whereby any one line may be connected to any other by a single connection, and at one point. 2nd. In telephone exchange instruments, the key *c* consisting of a spring bar, provided with an insulated back *e1* and hung on an insulated pivot *e*, whereby the key is capable of both vertical and horizontal motion, in combination with a key board fitted with switch plates and the pivot of the key. 3rd. In telephone exchange instruments, the key board *f* fitted with the switch plates *l1 to l9* and provided with a key *c* having a back armor extension and fitted for vertical and horizontal movement at its front end. 4th. The combination of the two sets of lines, turned upon themselves, whereby the lines are made to cross each other, and give one point where each line crosses each other line, to permit any two to be connected.

**No. 15,135. Improvements in Wood Plaining Machines.** *(Perfectionnements aux machines à raboter le bois.)*

Wallace S. Holland, Burlington, Vt., U. S., 19th July, 1882; for 5 years.

*Claim.*—1st. The parallel yielding plane stock *E* having plane bit *e*, the yoke *F* pivoted to the plane stock having temper screw *g1* and spring *G*, in combination with the bed plate or platen *D1*. 2nd. The combination of a parallel yielding plane stock *E* having a plane bit *e*, and a parallel yielding edge-plane stock *H* having the edge rounding bit *h*. 3rd. The parallel yielding plane stock *E* as a plane bit-holder, and a presser bar to hold the stuff being planed firmly upon the bed plate, when combined in a single part, and operated by mechanism. 4th. The plane stock *E*, as a plane bit holder, and a presser bar to hold the thin material evenly upon the bed plate.

**No. 15,136. Improvements in Carriages for Railways, Tramways, &c.** *(Perfectionnements aux voitures des chemins de fer, chemins à ornères, &c.)*

William Robinson, Boston, Mass., U. S., 19th July, 1882; for 5 years.

*Claim.*—1st. In a four wheel tramway vehicle, the combination with single swivelling trucks *i.e.* each of which carries two wheels only, of bars *cc* or other connecting devices rigidly secured at their inner ends to the trucks and adapted to be swung horizontally by the draw-bars which are integral with said trucks, or connected with their outer ends, said truck being connected with each other in such a manner that the radiation of one truck communicates exactly similar radiation to the other truck, the relation of the trucks being caused by power applied to said rigid connections. 2nd. In combination with the bar *c* or other connecting device rigidly applied to the truck *C* and extending to the forward end of the car, of the lever *H* pivoted at *o1* having its lower end connected directly or indirectly with said bar and adapted to swing it horizontally, thus radiating the trucks. 3rd. In combination with the trucks *C* and car-body *D*, the springs *g g* applied to the car body or to any rigid connection of the same, and bearing against the trucks or any rigid connection thereof. 4th. In a railway truck, the combination with the main truck and two supplementary trucks pivoted to the main truck, of an eccentric pin or device secured to the car body eccentrically to the swivelling or pivoted point of the car body on the main truck, said pin being adapted to engage directly or indirectly, one or both supplementary trucks for the purpose of radiating the same. 5th. In a railway truck, the combination of the main truck *A*, pivoted at *D* to the car body, with the supplemental trucks *BC* pivoted at *N* and *P* to the main truck and provided with suitable connecting devices, and the eccentric pin *E* adapted to radiate the trucks. 6th. In a railway vehicle, the combination, with the body of such vehicle, main truck, radial supplemental trucks and eccentric pin *E*, of a rocking socket adapted to engage said eccentric pin for the purpose of providing for the necessary relative movement of the pin without danger of injury thereto during the radiation of the trucks. 7th. In a radial car truck consisting of the main truck *A*, and supplemental trucks *BC*, the combination of the following elements, *viz.* an adjustable equalizing bar suspended below the axles, box pedestals secured to the supplemental trucks and embracing the boxes in the usual manner, and the independent saddles *H* sustaining the equalizing bar by means of the stirrups *H1*. 8th. The combination of the axle boxes *F1*, to embrace the equalizing bar *G*, with said bar and the axle boxes *F1* provided with means for sustaining said stirrups. 9th. In combination with the axle boxes *F1*, hangers or stirrups *H1* and equalizing bar *G*, the saddles *H*, adapted to allow lateral and rotary movement upon the boxes, but to prevent longitu-

dinal movement thereon. 10th. In combination with the main truck A and equalizing bar G, the safety straps J. 11th. In combination with the main truck A and equalizing bar G of the guiding bar M\*, said bar being independent of the spring seat, and adapted to prevent longitudinal movement in the equalizing bar. 12th. The combination with the main truck A, supplemental trucks B C, equalizing bar G and springs I, of the spring seats K\* or other mechanical equivalents, said seats being constructed and adapted to receive the upper ends of the springs below the frames of the supplemental trucks without interfering with their movement, thus allowing said frames to freely radiate between the spring seats and the main truck. 13th. The combination, with the main truck A and a supplemental truck C, of one or more safety straps L\*, secured to one truck and extending around a portion of the other truck.

### No. 15,137. Improvements in Interlocking Switches and Signals. (*Perfectionnements aux aiguillères et aux signaux liés.*)

James A. Bonnell, New York, N.Y., U.S., 19th July, 1882; for 5 years.

*Claim.*—1st. A device for interlocking switches and signals, made as described and consisting of a series of hand levers, in combination with a series of levers crossing the guides of the hand-levers provided with pins for locking these hand-levers. 2nd. In a device for interlocking switches and signals, the combination with the hand levers D E F, of the levers G H I and the pins G' H' I' attached to the ends of these levers. 3rd. In a switch operating device, the combination, with the notched guide bar *d* and the hand lever D, of the lever *k*, the rod *m* provided with a button *m'* projecting from the upper end of the lever D, the rod *l* and the spring *h*. 4th. In a switch, the combination with a longitudinally-recessed rail L attached to the outside of the main rail *m* of a detecting bar *n* contained within the recess of this rail *m*. 5th. The combination, with the rail M of the rail L, detecting bar N contained in said rail, the cam K, the lever K and the transmission rod J whereby the proximity of a train prevents the working of the switch. 6th. In a switch, the combination, with the detecting bar N, of the transmission rod J, the signal Q, the hand lever D, the lever G and the pin G', the hand lever E, the lever H and the pin H', and transmission-rods and levers for transmitting the motion of the hand-lever D to the detecting bar N. 7th. In a switch, the combination, with the switch locking bar T provided with spiral or inclined collars *v v'*, of the switch bar R provided with lugs *t t'*, of the signal Q, the hand levers E and F, the levers G H I, the pins I, and transmission rods and levers for transmitting the motion of the hand lever F to the switch locking bar T. 8th. In a switch, the combination, with the switch bar R, of the hand levers D E and F, the levers G H and T, the pins G' H' I' and J, the signal Q and transmission rods and levers for transmitting the motion of the hand lever E, to the switch bar R.

### No. 15,138. Improvements in Automatic Cash Carriers. (*Perfectionnements aux appareils à transmettre la monnaie.*)

William S. Lamson, Lowell, Mass., U.S., 19th July, 1892; for 5 years.

*Claim.*—1st. The combination of oppositely inclined ways D C and a rolling cash carrier or box M M'. 2nd. The combination of oppositely inclined ways D C adapted to the cashier's desk A and counter B of a store and hollow-rolling balls M M' adapted to receive and carry cash on said ways. 3rd. The combination, with the counter B and desk A, of two ways D C connecting the same, each way consisting of a trough. 4th. The combination of the way C C' or D, and strips of elastic material F. 5th. The combination, with the way C C' or D, provided with grooves E E, of strips of elastic material F. 6th. The combination with the ways C C' or D, provided with grooves E E, of strips of leather F. 7th. In combination with the way C C' or D, the guards G H. 8th. The combination of the way D and the elevator L provided with a sloping bottom. 9th. The combination of the way D and the elevator L provided with a sloping bottom, and means for raising said elevator. 10th. The carrier consisting of hemispheres M M', one of said hemispheres M being provided with grooves U U', and the other M' being provided with the central hollow projections Z and the ears U' U'. 11th. The combination of the interlocking hemispheres M M', the springs V V' and the disks W W'.

### No. 15,139. Improvements on Lounges and Sofa Beds. (*Perfectionnements aux causeries et aux lits-canapés.*)

Cornelius Scofield, Bridgeport, Ct., U.S., 19th July, 1882; for 5 years.

*Claim.*—1st. The combination, in a lounge, sofa, or other similar article of furniture, of the folding leg or legs F and brace or braces *g* hinged to the lounge or sofa frame and back, and means for locking the brace or braces to the sofa back, whereby it is held in an upright position without the aid of other supporting devices. 2nd. The leg or legs F and brace or braces *g*, in combination with the back and base of a lounge, sofa, or other article of furniture, and adapted in connection with a suitable locking mechanism, to hold the back in a vertical or substantially vertical position and, when released, to support the same when turned down to a horizontal position. 3rd. The combination of the base A, the back B, and the leg or legs F, and the brace or braces *g* attached to the base and back, and adapted to support the back in an upright position.

### No. 15,140. Improvements on Telegraphic Receiving Instruments. (*Perfectionnements aux récepteurs télégraphiques.*)

Gerritt Smith, Astoria, N.Y., U.S., 19th July, 1882; for 15 years.

*Claim.*—1st. The described method of causing the armature of an electro-magnet to vibrate to and fro between fixed stops, through the instrumentality of a constant mechanical power whose action upon said armature is controlled by electro-magnetism. 2nd. The combination of a rotating cylinder of magnetic metal, a magnetizing coil

acting upon said cylinder, an armature maintained in permanent magnetic contact with the moving surface of the said cylinder, and capable of receiving motion therefrom by friction, a retractor exerting a constant force upon said armature in a direction opposed to that derived from its frictional contact with the moving cylinder, and fixed stops for limiting the movements of the armature in each direction. 3rd. The combination of a rotating cylinder of magnetic metal, a magnetizing coil acting upon said cylinder, an armature maintained in permanent magnetic contact with the moving surface of said cylinder, and capable of receiving motion therefrom by friction, a retractor exerting a constant force upon said armature in a direction opposed to that derived from the moving cylinder, an electric circuit including said magnetizing helix, and a key or transmitter in said circuit for alternately increasing and decreasing the strength of the current traversing said circuit. 4th. The combination of a rotating cylinder of magnetic metal, a magnetizing coil acting upon said cylinder, an armature maintained in permanent magnetic contact with the moving surface of said cylinder, and capable of receiving motion therefrom by friction, a retractor exerting a constant force upon said armature in a direction opposed to that derived from the movements of said armature. 5th. The combination of a permanent magnet, and two mechanically united polarized armatures, which latter are maintained in permanent frictional contact with a moving surface of magnetic metal, and receive unlike polarity by induction from the respective poles of the permanent magnet. 6th. The combination of two mechanically united polarized armatures having unlike polarity maintained in permanent frictional contact with a surface of magnetic metal moving in opposite directions at their respective points of contact therewith, and a magnetizing coil which acts to induce magnetic polarity in or upon said surface. 7th. The combination of a permanent magnet, and two mechanically united polarized armatures, which latter are maintained in permanent frictional contact with a surface of magnetic metal moving in opposite directions, at their respective points of contact therewith, and a magnetizing coil which acts to induce magnetic polarity in, or upon said surface. 8th. The combination of two mechanically united polarized armatures having unlike polarity, maintained in permanent frictional contact with a surface of magnetic metal moving in opposite directions at their respective points of contact therewith, a magnetizing coil which acts to induce magnetic polarity in, or upon said surface, an arm rigidly attached to both said armatures, and stops for limiting the movement of said arm and armatures, in each direction. 9th. The combination with a moving surface of magnetic metal, of an armature or armatures, in frictional contact therewith, and an axis for said armature or armatures, movable in slotted bearings.

### No. 15,141. Improvements on Lever Lifting Jacks. (*Perfectionnements aux crics à levier.*)

John Stewart, New Glasgow, N.S., 19th July, 1882; for 5 years.

*Claim.*—1st. The combination of the base A, having stud post B, vertical bar D having sleeve C sliding on post B and lever F having a bent end fulcrumed at the angle to the foot of bar D, whereby the depression of the lever lifts the bar by sleeve C sliding on the post B, and said bar be supported endwise by alignment with the bent arm of the lever. 2nd. In combination with the lever A, post B, sleeve C and lever E, the notched bar D provided with a bracket arm F.

### No. 15,142. Improvements on Telegraph and Railway Signals. (*Perfectionnements aux signaux télégraphiques et des chemins de fer.*)

John S. Trites, Moncton, N. B., 19th July, 1882; for 5 years.

*Claim.*—The combination of the weight J, pulley L and chain or cord K, and their connection to the arm E and spindle F which gives the balance motion as set forth.

### No. 15,143. Improvements on Snath Fasteners. (*Perfectionnements aux manches des faux,*)

August J. Schultze, and Solomon Levy, Galveston, Texas, U.S., 21st July, 1882; for 15 years.

*Claim.*—1st. In a device for attaching scythe blades to handles, the plate A having bracket B, and studs D D, in combination with a hinged adjustable plate F having means for attaching the blade thereto. 2nd. The combination of the plate A, the hinged plate F, having slots H I J and hooked bolts K M, and mechanism for adjusting the two plates in relation to each other. 3rd. The combination of the plate A having teeth T, brackets S connected by cross piece U and set screw V, with the hinged plate F having slots H I J, hooked bolts K M and hinged segmental rack Q provided upon its inner side with teeth or recesses W.

### No. 15,144. Improvements in Rotary Cutters. (*Perfectionnements aux lames rotatoires.*)

Etienne Salomon and Edmond Armand, Montreal, Que., 21st July, 1882; for 5 years.

*Claim.*—1st. A rotary cutter revolving upon projections from the cutter stock, said projections being sunk in the sides of the cutter. 2nd. The combination, with a rotary cutter having countersunk axes, of a gear wheel and shaft for rotating the same. 3rd. The combination, with the cutter stock A, having removable piece B fastened thereto by screws B' and C' and provided with eyes or lugs *a b*, of the rotating cutter F revolved through toothed wheel E by shaft D. 4th. In combination with the rotary cutter F carried and revolved as described, of the brush G.

**No. 15,145. Improvements on Boot and Shoe  
Burnishing machines.** (*Perfection-  
nements aux machines à polir les chaussures.*)

Caleb J. Blakeley, Jamesville, Wis., U. S., 21st July, 1882; for 5 years.

*Claim.*—1st. In combination with the tool holder, a burnishing tool adapted to be secured therein in any desired inclination. 2nd. In combination with the tool holder, a burnisher provided with a shank by means of which it is secured in any desired inclination. 3rd. In combination with the tool holder provided with the arm J<sub>1</sub>, a burnishing tool provided with a shank adapted to fit between the said arms and be secured therein by bolt or nut. 4th. In combination with the tool holder J and a slide, a pitman and cam shaft adapted to give a reciprocating motion to the slide. 5th. In combination with the tool holder J having the arms J<sub>1</sub> between which the burnishing tool is clamped at any suitable inclination by suitable bolt and nut and a reciprocating slide to which the said tool holder is secured, a pitman connecting said slide with a suitable cam or crank to give the desired motion to the slide, the driving shaft and a brush secured on the said driving shaft. 6th. The combination, with the slide having suitable grooves and tenons for holding the same in position therein, of the slide bearing having the adjustable bearing piece Q, the pitman I, and means for imparting a reciprocating motion to the tool holder. 7th. The combination, with the base A, standard O and slide bearing N, of the slide M, tool holder pitman I and means for imparting a reciprocating motion to the said tool holder. 8th. The combination, with the shaft D, wheel G having a T-shaped groove therein, the pin H and the sleeve L having the collar O therein, of the pitman I slide M and tool holder J. 9th. The combination, with the base A, standards B, two-part bearings C and caps *a*, of the shaft D, brush F<sub>1</sub>, wheel G, pin H, pitman I, slide *m* and tool holder J. 10th. The combination, with the base A, standards B, two-part bearings C and *a*, of the shaft D adapted to be revolved in the said two-part bearings. 11th. The combination, with the wheel G and crank pin H, of the pitman I, the split collar or ring *f* and the screw *g*. 12th. The combination, with the burnisher attachment U adapted to be screwed at any desired inclination in the tool holder J, of the burnisher so secured in the said attachment as to have a partial rotary movement therein. 13th. The combination with the shank burnisher attachment U and the screw *p*, of the shank burnisher having the out away portion *r* and the spring W. 14th. The combination with the opening tapering base having a driving shaft suitably journaled therein, the latter being provided with a belt wheel and a drive pulley, of a second shaft suitably journaled on the top of the said base and provided with a drive pulley and a brush, and at its opposite ends with disks having removable crank pins by means of which the length of the stroke of the burnishing tools is increased or diminished. 15th. The combination, with the tool holder provided with arms J, one of the said arms being provided with a spring clamp of a gas or other heating pipe removably held in the said spring clamp and adapted to convey the gas or other heating agent into close contact with the burnishing tools. 16th. The combination with the frame or base of the machine and reciprocating slide or tool-holder, of a pivoted rest provided with a loop in which the operator's hand rests while holding the shoe. 17th. The combination, with the reciprocating tool holder of a double reversible edge setter and means for heating the said setter. 18th. The combination, with the reciprocating tool holder, of a double reversible tool holder, the working ends of which are adapted to partly revolve on the shank so as to enable the said working ends to follow the curves of the boot or shoe. 19th. In an edge setting attachment, the combination with the socketed holder provided on its outer edge within a groove of the headed shank provided with lugs, a spring for holding the lugs in the grooves and a double ended setting tool, the shank of which passes transversely through the headed shank. 20th. The combination, with socketed holder provided on its outer edge with a groove or grooves, headed shank portion of which passes through the socket in the holder, a spring encircling the said shank, a nut for securing the parts in position and affording a bearing for one end of the spring and a lug or lugs adapted to fit in the groove or grooves before mentioned and hold the edge setting tool firmly in position, of a double reversible edge setting tool, the working ends of which are adapted to partly rotate so as to enable it to accommodate itself to the curves of the shoe. 21st. In combination with a headed shank adapted to be rotated and means for holding the same in locked adjustment, of a double edge setter the body portion of which is rigidly secured in the head portion of the above mentioned shank while the operative or working ends thereof are adapted to partly rotate so as to accommodate themselves to the curvature of the shoe. 22nd. In a double edge setter, the combination, with the shank thereof rigidly secured in a pivoted holder and provided with flexible arms each having a curved outer end, or fingers, and a transverse oblong slot, of the working or operative ends thereof, pivotally secured on the said shank and provided with outwardly extending lugs and adapted to rest in the said oblong slots and hold the same in position and limit the extent of movement of the said working ends, and rings adapted to be moved on said flexible arm and lock them down in position. 23rd. The combination with the flexible gas pipes T and the main or supply pipe T<sub>2</sub>, of the reciprocating tool holders and movable spring clamps for holding the free ends of the pipes T. 24th. The combination, with a suitable base having a hand rest pivotally secured thereto in any desired manner, of a slide bearing and a reciprocating slide provided with tool holding arms between which the tools are adjustably secured. 25th. The combination with the stand ends B, having a slide bearing secured thereon, the said latter being provided with the adjustable piece Q for taking up the wear of the reciprocating slide secured in the said bearing and provided with tool holding arms and a hand rest. 26th. The combination, with the slide bearing, of the reciprocating slide provided with tool-holding arms, the spring clamp for holding the gas pipe and the hand rest. 27th. The combination, with the base or support A, and the reciprocating slides, the latter being provided with tool-holding arms having spring clamps adjustably secured thereon, of a T-shaped pipe secured to the said base, and a flexible pipe connected therewith and adapted to convey the gas to the tools secured to the said slides.

**No. 15,146. Improvements in Electric Gas  
Lighters.** (*Perfectionnements aux allu-  
meuses électriques à gaz.*)

Wilson D. Schooley, Richmond, Ind., U. S., 21st July, 1882; for 5 years.

*Claim.*—1st. The combination, with the gas tube M of the valve F carried by the arm *f*, having cam *f*, the lever G arranged to act upon the cam of said arm, the armature arranged to actuate said levers, and the magnets arranged to control said armature. 2nd. An apparatus for turning on and off the supply of gas to a burner, the casing having two or more compartments one of which is a gas chamber connected with a burner and divided from the other chamber by a gas tight partition or division, in combination with a gas supply passage opening into said gas chamber or gas valve, located in said passage, an armature arranged also in said gas chamber to operate said valve, and an electro-magnet arranged in another chamber separated from the gas chamber, and having its poles or cores projecting into the gas chamber through the partition, for operating said armature. 3rd. The casing having two or more compartments, the upper of which is divided from the rest by a gas tight partition and the upper compartment containing the gas valve and the lower compartment containing an electro-magnet for operating said valve, the bottom plate of said lower compartment having the core or cores of the electro-magnet secured thereto. 4th. The casing having two or more chambers including the parts of the apparatus and composed of the separate sections combined with a gas-tight partition. 5th. The combination with the casing having the bottom B supporting the binding posts, of the cap plate R, having passages for said posts. 6th. The combination, with the gas tube M, of the valve F carried by arm *f*, the lever G arranged to act upon said arm the adjustable armature arranged to actuate said lever, and the magnets arranged to control said armature.

**No. 15,147. Improvements in Folding Beds.**

(*Perfectionnements aux lits pliants.*)

Ethelbert S. Griffith, Toledo, Ohio, U. S., 21st July, 1882; for 5 years.

*Claim.*—1st. The side rails permanently pivoted to transverse jointed truss supports, whereby the said rails are adapted to be folded into contact or nearly so. 2nd. The supports arranged as a jointed truss and also the upper ends of said supports pivoted to the said rails, whereby they are adapted to fold into substantial parallelism with the said rails when the said rails are brought together, or nearly so. 3rd. The supports arranged as a jointed truss, said supports being pivoted to the side rails whereby the said supports are adapted to be folded into substantial parallelism with the side rails when said rails are in folded position. 4th. The combination of jointed stays pivoted to trussed supports. 5th. The combination of side rail cleats and a flexible covering, whereby the said covering is adapted to be fastened to the side rails throughout its entire length.

**No. 15,148. Improvement in Lamp Fillers.**

(*Perfectionnement des alimentateurs des lampes*)

James W. Cuthbertson, Bothwell, Ont., 21st July, 1882; for 5 years.

*Claim.*—The combination of the cam A, shoulder C, force pump B, stouider D, brace F, extension tube J and stopper S.

**No. 15,149. Improvements on Machines for  
Paring and Coring Apples.** (*Per-  
fectionnements aux machines à peler etvider  
les pommes.*)

Albert J. Rice, Sodus, N. Y., U. S., 21st July, 1882; for 5 years.

*Claim.*—1st. The combination, with the fork D, of the reciprocating coring tube *p* and the doffer L. 2nd. The combination of the fork D, reciprocating corer *p*, doffer L, racks *h* and *g*, and pinion O. 3rd. In combination with the knife and knife head of an apple paring machine, the reversible guard *i* having wearing surfaces on opposite sides thereof. 4th. The combination, with the fork D and suitable paring mechanism, of the reciprocating corer *p* and doffer L, and mechanism for operating the corer and doffer from the paring mechanism. 5th. The combination, in an apple paring mechanism, of the rotating turntable G provided with the rollers G<sub>1</sub> and *h*, and the cam bar N adapted to receive a reciprocating motion from the roller, and suitable connecting mechanism for operating the corer and doffer from the turntable. 6th. The combination, with an apple paring mechanism, of the corer *p*, doffer L, link K, lever J, cam bar N and suitable mechanism for actuating the cam bar N from the paring mechanism. 7th. The combination of the turntable G provided with rollers *g*<sub>1</sub> and *h*, and flange *h*, the cam bar N having arms W and T. 8th. The combination in the knife head of an apple paring mechanism, of the reversible guard *i* provided with grooves on two of its opposite sides and secured in place in the head by means of the rib W and screw or bolt K. 9th. The combination, in a power attachment for apple parers, of the main wheel C provided with the notch or depression *b* in its outer edge, the friction disk W and lever S, roller *a* and suitable connecting mechanism between the disks and the lever.

**No. 15,150. Improvements on Churns.**

(*Perfectionnements aux barattes.*)

Anthony W. Burke, Stayner, Ont., 21st July, 1882; for 5 years.

*Claim.*—In an upright square churn having a thermometer, the combination of the inner cover D, bottom *a*<sub>1</sub> and the dash B provided with valvular dash plates having knobs *b*<sub>1</sub>, side bar *b*<sub>2</sub>, and chute bars *b*<sub>3</sub>.

**No. 15,151. Improvements on Car Brakes.***(Perfectionnements aux freins des chars.)*

Aldis H. Marden, Cambridge, Mass., U. S., 21st July, 1882; for 5 years.

*Claim.*—The iron cross beam A, in combination with the heads B B and clamp C.**No. 15,152. Improvements on Brick Kilns.***(Perfectionnements aux fours à brique.)*

Stephen J. Plant, York, Ont., 22nd July, 1882; (Extension of Patent No. 13,560.)

**No. 15,153. Improvements on Brick Kilns.***(Perfectionnements aux fours à brique.)*

Stephen J. Plant, York, Ont., 22nd July, 1882; (Extension of Patent No. 13,560.)

**No. 15,154. Improvements in the Manufacture of Napped Hats.***(Perfectionnements dans la fabrication des chapeaux à poil ras.)*

William A. Baglin, Brooklyn, N. Y., and George Yule, Newark, N. J. U. S., 22nd July, 1882; for 5 years.

*Claim.*—1st. The process for making bats consisting in forming the bat upon a cone at several successive operations, the material of the bat being deposited upon different parts of the cone at different times in figures of predetermined shape. 2nd. The process for removing a bat from the forming cone consisting in the application of steam or air pressure to the interior of the forming cone. 3rd. The method for securing or uniting a nap bat to a body felt consisting: first, in forming the nap-bat upon an exhausted cone of suitable shape to fit the body felt; second, in applying the body felt to the nap-bat while upon the forming cone and pressing them both together; third, in removing the body felt and nap-bat from the cone together, and fourth, in sticking and scalding the same together in the usual manner. 4th. The process for preparing hat body felts for union with nap bats formed in one piece consisting in shrinking the felts to an approximately uniform size and blocking them to secure an approximately uniform shape. 5th. As a new article of manufacture, a nap-bat formed in one piece of suitable shape to fit the body felt to which it is to be applied, and adapted to be stuck thereto and scalded without any clipping or fitting. 6th. As a new article of manufacture, the annular conical nap-bat formed in one piece and adapted to be stuck to the brim of a hat without clipping and tearing. 7th. As a new article of manufacture, a nap-bat consisting of material of different colours deposited in different parts of the bat in distinct locations, patterns or figures. 8th. The carrier for hat bodies consisting of a hollow cone A provided with means as flange *a* for supporting it, and a finger ring at the apex or equivalent device for carrying it. 9th. In combination with the conical carrier A, the presser B constructed and operated to press the hat body to the shape of the carrier. 10th. In combination with the forming cone D, a guard cone as E, for covering the tip of the cone D when depositing for upon its lower parts. 11th. The guard cone L perforated only at certain points in figures of ornamental shape and operated in combination with the forming cone D, by placing the guard cone inside the latter. 12th. The process for forming and sticking napping bats consisting of forming the napping bat within a hollow cone and in sticking the hat body to the napping bat while in the cone. 13th. The combination, in a hardening and sticking machine, of a cone for supporting the bat, a rubber or rubbers, and mechanism for traversing the cone and rubbers in relation to one another, for operating upon all sides of the cone successively. 14th. In combination with a hollow forming cone, a rubbing cone having a yielding surface adapted to conform to the hat body inside the forming cone, and vibrated or rotated within the hat body while in the cone. 15th. The method for applying napping bats to both sides of a hat body brim consisting in forming the body felt upon or in a suitable cone, applying the hat body to the same and in forming a brim bat upon or in a suitable cone and applying such brim-bat to the brim of the hat body while in contact with the body bat upon or in the cone where it was formed. 16th. The method for forming a combined brim-back and body bat consisting in depositing both at once upon a suitably-shaped perforated surface the body bat being shaped to exactly fit the hat body, and the brim-bat being exactly shaped to fit the brim and adapted to place upon the hat body, when in contact with the body-bat, upon its forming cone. 17th. As a new article of manufacture, a napping bat made in one piece and formed in one piece and formed of suitable shape to fit the body and both sides of the brim of a hat. 18th. A perforated cone for forming a nap-bat having one part thereof adapted to form a bat fitted to the body of a hat, and one part thereof adapted to form a bat fitted to one side of the brim of the hat. 19th. The method for sticking napping bats to hat bodies consisting in pressing the same together between flat surfaces, one or both of which has a vibrating rubbing or equivalent movement. 20th. The method for sticking napped bats to hat bodies consisting in supporting the nap-bat and hat body together in a dry condition upon a cone and subjecting them to the action of rubbers. 21st. The method for sticking nap bats to hat bodies upon a cone consisting in confining the same between the cone and a flexible shield or covering and subjecting the shield to the action of rubbers. 22nd. The method for sticking nap bats to hat bodies consisting in supporting the nap-bat and hat body together upon a cone, and subjecting them to the action of suitable rubbers. 23rd. The method for sticking nap-bats to hat bodies consisting in supporting the nap-bat and hat body together upon a cone, introducing the heat and moisture of steam within the cone, and subjecting the nap bat and hat body to the action of rubbers. 24th. The method for sticking nap-bats to hat bodies, consisting in applying the hat-body to the nap-bat, and subjecting them both simultaneously to the operation of dry heat and suitable rubbers.

**No. 15,155. Improvements on Metallic Packing for Valve or other rods.***(Perfectionnements aux garnitures métalliques pour les tiges des soupapes et autres.)*

Edwin P. Monroe, New York, N. Y., U. S., 22nd July, 1882; for 15 years.

*Claim.*—1st. The packing ring or rings having a cylindrical inner surface to fit to the rod to be packed, and a spherical or zone shaped outer bearing surface contained within a suitable receptacle to support the said ring or rings in operative position, the said spherical bearing surface permitting the said packing ring or rings to rock and move freely and be self-adjusting to the movement and wear of the rod. 2nd. A packing for valve or other rods, the packing ring and the packing receptacle having a curved bearing surface between them, whereby the said ring is permitted to rock freely and universally in the receptacle according to the requirements of the rod, and also to be compressed by movement in a longitudinal direction over the rod to compensate for wear. 3rd. In a packing ring having a zone-shaped or spherical external bearing surface and the receptacle therefore combined with a spring to press the said ring into the receptacle, to thereby wedge it in close contact with the rod passing through said ring. 4th. The combination of the rod, the packing ring and the packing ring receptacle with the stuffing box cover the packing ring receptacle having a bearing on the stuffing box cover and being free to slide laterally on said bearing, to follow any lateral motion of the rod and packing. 5th. The combination of the valve box or chamber A, rod B, support C, coiled spring F, follower G, packing rings H I, packing ring receptacle J, covers M O and bolts Q. 6th. The combination of the valve box or chamber A, rod B, support C and lining D. 7th. The combination of the packing receptacle and the stuffing box cover having bearing surfaces in juxtaposition, so as to allow of the sliding of the former upon the latter, and a ring of babbitt or anti-frictional metal inserted between said bearing surfaces. 8th. In a metallic packing for valve or other rods, the combination with the packing rings of a tapering coiled metallic spring having at each end two or more of its coils or turns brought into contact, to form abutments or bearings. 9th. In a metallic packing for valve or other rods, the combination of the packing rings and the tapering coiled spring and the follower interposed between said spring and rings. 10th. In a metallic packing for valve or other rods, the stuffing box cover M provided with the brass lining P. 11th. In a metallic packing for valve or other rods, the combination of the stuffing box cover and the sheet metal jacket or envelope.

**No. 15,156. Improvements in Pulley Blocks.***(Perfectionnements aux chapes des moufles.)*

Joseph W. Norcross, Lockport, N. Y., U. S., 22nd July, 1882; for 5 years.

*Claim.*—1st. The combination of the wooden sides or cheeks, the metallic frames or straps secured to the outer surfaces of said cheeks, the lugs extending from the outside frames or straps beyond the inner edges of the cheeks, the inside metallic straps extending through the lugs, the cap provided with slots to catch over the ends of the inside straps and the key for locking the parts together. 2nd. The combination of the wooden sides or cheeks, the outside metallic frames or straps, the lugs extending from the outside frames or straps beyond the inner edges of the cheeks, the inside metallic straps extending through the lugs, the cap provided with slots to catch over the ends of the inside straps, the tapering pin *b* provided with grooves to engage with the edges of the holes or slots in the inside straps; and the key *i* for locking the parts together. 3rd. The combination of the metallic frames or sides, the inside straps the lugs *b b* projecting from said frames or sides extending through said lugs, the hubs or bearings formed on the frames or sides extending inward towards the inside straps, the centre pin which forms the axle of the sheave, and the key or keys for locking the block together.

**No. 15,157. Improvements in the Manufacture of Gas.***(Perfectionnements dans la production du gaz.)*

Samuel W. Serrell, (in trust for Myron H. Strong, Sidney Cornell, Henry M. Pierson and Walter E. Lawton,) Plainfield, N. J., U. S., 22nd July, 1882; (extension of patent No. 7677.)

**No. 15,158. Improvements on Mechanical Forges.***(Perfectionnements aux forges mécaniques.)*

Peter Learn, Bertie, Ont., (assignee of Charles Hammelmann, Buffalo, N. Y., U. S., 22nd July, 1882; (extension of patent No. 8405.)

**No. 15,159. Improvements on Mechanical Forges.***(Perfectionnements aux forges mécaniques.)*

Peter Learn, Bertie, Ont., (assignee of Charles Hammelmann, Buffalo, N. Y., U. S., 24th July, 1882; (extension of patent No. 8405.)

**No. 15,160. Improvements on Coating Metallic Articles with Vulcanized Rubber.***(Perfectionnements dans le procédé pour enduire les objets métalliques de caoutchouc vulcanisé.)*

William Garrity, Malden, and Nicholas Avery, Boston, Mass., N. S., 24th July, 1882; for 5 years.

*Claim.*—1st. The process of coating metallic articles with vulcanized rubber, the same consisting in first coating the metallic article with muriate of tin, then applying thereto a layer of a composition

formed of litharge, sulphur and rubber cement which will unite with the muriate of tin at the vulcanizing heat, and finally applying the vulcanizable rubber compound and vulcanizing the same. 2nd. As a new article of manufacture, a wringer roll or other metallic article coated with rubber formed by, first, coating the metallic surface with muriate of tin, over which is placed a layer of a composition formed of litharge, sulphur and rubber cement, and then applying thereto the desired quantity of vulcanizable rubber compound and vulcanizing the same. 3rd. In a wringer roll or other metallic article coated with vulcanized rubber, the combination with a metallic surface coated with muriate of tin of a composition formed of litharge, sulphur and rubber cement, united therewith by the action of the heat to which the article is subjected in the vulcanizing process, and a covering or coating of rubber compound vulcanized thereon. 4th. In the process of coating metallic articles with vulcanized rubber, the employment of a composition formed of litharge, sulphur and rubber cement for firmly uniting the vulcanizable rubber compound to a metallic surface previously coated with muriate of tin, when the article is subjected to heat in the vulcanizing process.

**No. 15,161. Improvements on Electric Signalling Apparatus.** (*Perfectionnements aux appareils électriques à signaux.*)

Oscar Gassett, Boston, Mass., U.S., 24th July, 1882; for 15 years

*Claim.*—1st. The combination of a series of normally closed railway signalling circuits, each of said circuits including a battery, an electro-magnet and a section of insulated railway track, forming part of said circuit between the battery and the electro-magnet, with circuit breakers placed in each alternate circuit of the series, and not in the intermediate circuits, each of which circuit breakers is controlled by an electro-magnet included in the adjacent intermediate circuit. 2nd. The combination of a series of normally closed railway signalling circuits, a circuit breaker placed in each alternate circuit of the series, which is controlled by an electro-magnet included in the adjacent intermediate circuit, and a series of electro-magnets for actuating signals, each of which is under the control of the successive signalling circuits. 3rd. The combination of a secondary circuit for actuating an electro-magnet controlling the movements of a signal, two independent circuit breakers placed in said secondary circuit, and two independent primary signalling circuits respectively controlling the action of the said circuit breaker, primary circuits are themselves actuated successively by a train while traversing the signal section protected by said signal. 4th. The combination of two independent primary signalling circuits which are acted upon successively by a train, while traversing a signal section, two independent circuit breakers controlled respectively by the said primary circuits, when so acted upon by the train, an electro-magnet for actuating a signal which is included in a secondary circuit under the control of both of said circuit breakers, and an electro-magnet for actuating the signal of an adjoining signal section, which is included in a secondary circuit under the control of one of said circuit breakers, but not under the control of the other.

**No. 15,162. Improvements on Roller Skates and Casters.** (*Perfectionnements aux patins à roulettes et aux roulettes des meubles.*)

James K. Ross, Springfield, Ohio, U.S., 24th July, 1882; for 5 years.

*Claim.*—1st. The cushion K provided with recesses, in combination with plate H provided with projections S, flange m and foot plate, the cushion supporting the latter. 2nd. The cushion K provided with recesses, in combination with plate H provided with projections S, and spider L provided with projections n and the foot plate. 3rd. The cushion K provided with recesses, in combination with plate H provided with projections S, and spider L provided with projections n and flange t. 4th. The cushion K provided with recesses, in combination with plate H provided with projections S, and spider L provided with projections n and flange t. 5th. The cushion K provided with recesses, in combination with plate H, projections S and flange m, and spider L provided with projections n and flange t. 6th. The combination of the cushion K and roller gear plate H, cushion K and foot plate, and central connecting rod W, the orifices in the cushion and plate H being made of greater diameter than that of the rod. 7th. The combination of the cushion K and roller gear plate H, cushion K, spider L, foot plate and central connecting rod W, the orifices in plates L and H, and in cushion K, being of greater diameter than of the central connecting rod. 8th. In combination with the rollers B, axle C, yoke E adapted to receive a roller and provided with a supporting plate, the cushion K and foot plate and connecting devices, and devices for preventing undue rotation of the roller gear. 9th. In combination with the rollers B, axle C, yoke E adapted to receive a roller and provided with a supporting plate H, of the cushion K provided with recesses, and the foot plate, and projections entering said recesses. 10th. In combination, roller or rollers B, axle C, yoke E, plate H, having projections S and flange m, cushion K formed with recesses O, foot plate A and central connecting rod W, the orifices of plate H and cushion K being of greater diameter than that of rod W. 11th. In combination, the roller or rollers B, axle C, yoke E, plate H having projections S and flange m, cushion K formed with recesses O, plate H provided with recesses o, foot plate A and central connecting rod W, the orifices of plate H and cushion K being of greater diameter than that of rod W. 12th. The combination of the disk 2, rod 3 shouldered at 4, and annular plate 7 having its orifice enlarged outwardly, and the elastic resilient disk 6. 13th. The combination of the disk 2, rod 3 shouldered at 4, extension 5 and annular plate 7 having its orifice enlarged outwardly and the elastic resilient disk 6. 14th. The combination of disk 2, washer 9, shank 3, disk 6, washer 9 and plate 7 screwed together. 15th. The combination of the disk 2, washer 9, shank 3, disk 6, washer 9 and plate 7 screwed into shank 3. 16th. The combination of the shank and disk 6, compressed between compressing plates or disks, or washers having peripheral rounded or curved edges. 17th. An elastic wheel or roller for skates consisting of the metal disks 15 16, the former being provided with the hollow tube 17, and the latter with central opening 18

and the rubber disk 14, said rubber disk being of less diameter than the metal disks before the latter are secured together, and compressed between said metal disks in the manufacture of the roller, to such an extent as to cause the rubber to project beyond the metal disks, when the roller is completed. 18th. The process of manufacturing rollers for skates and the like, consisting of the following steps, first, the employment of two metal disks, one or both being provided with a central tube and a tubular section of rubber, said section being longer than the width of the finished roller, and of less diameter than the metal disks, second, compressing said rubber section between the metal disks until the rubber projects beyond the metal disks, third, filling the central tube with molten metal which is allowed to harden to hold the metal disks together, and lastly, boring the centre of the roller for reception of the axle.

**No. 15,163. Improvements in Shaking Cottonnements dans la manière de secouer le coton des chapeaux en poil.)**

William A. Baglin, Brooklyn, N. Y., and George Yule, Newark, N.J., U.S., 24th July, 1882; for 5 years.

*Claim.*—1st. The improved method of removing the cotton from the fur of napped hats, by shaking the hat bodies in hot water. 2nd. The combination of a tank of hot water, a vibrating shaft or bar carrying a series of clamps for holding the hat bodies, and mechanism for shaking the shaft and clamps. 3rd. The combination, in a hat shaking clamp, of a pair of jaws pivoted together and provided with a spring for automatically closing, and a handle for voluntarily opening the jaws. 4th. The combination, with a hot water tank, of a series of clamps secured to a shaft arranged to vibrate and to turn, for lifting the hat bodies from the water, and a movable plank arranged to slide under and support the hats when thus lifted. 5th. The combination, with a series of clamps arranged to operate as described, of a series of connected wedges, cams or equivalent devices for opening or closing the jaws of the clamps simultaneously. 6th. In combination with a shaft mounted upon a hot water tank, and carrying a series of clamps, an adjustable crank as E and suitable connection to vibrate the shaft radially or longitudinally, by the rotations of the crank.

**No. 15,164. Improvements in Racks for Storing and Ageing Whiskey.** (*Perfectionnements aux chantiers pour emmagasiner et vieillir l'eau-de-vie.*)

Claude M. Johnson, Lexington, Ky., U.S., 24th July, 1882; for 5 years.

*Claim.*—1st. The barrel rack D having rockers D<sub>1</sub> in combination with the rack frame A B C provided with rocker beds E. 2nd. The barrel rack D having rockers D<sub>1</sub> in combination with the rack frame A B C provided with rocker beds E and rocker guides F. 3rd. In combination with the series of rockers D<sub>1</sub>, the transverse rocker shaft G supported in bearings at each end of the rack frame. 4th. In combination with two or more rocker frames D, of shafts G cranks H connected with the latter, and extending in opposite directions, pitman I and crank wheel J, whereby each alternate frame will rock in a direction opposite to the other. 5th. The combination, with a stationary supporting frame, of two or more rocker frames D, constructed to hold two or more tiers of barrels, and arranged one above the other, and crank and pitman connections, whereby each alternate frame will rock in a direction opposite to the other.

**No. 15,165. Improvements in Sewing Machines.** (*Perfectionnements aux machines à coudre.*)

Ewald Bruneker, Cologno-on-the-Rhine, Prussia, 24th July, 1882; for 15 years.

*Claim.*—1st. In a double lock stitch sewing machine, the rotating shuttle A containing the under thread spool C together with a suitable tension device, and provided with a hook o, in combination with a bed or bearing D, and a driver which causes the rotation of the shuttle. 2nd. The combination, with the shuttle A rotating within the bed or bearing D, of the tongue r. 3rd. The tension device for the upper thread consisting of the clamping plates r s, screw bolts n o, springing plate q and adjusting screw p.

**No. 15,166. Improvements in Regulators for Electric Currents.** (*Perfectionnements aux régulateurs des courants électriques.*)

Elihu Thomson, New Britain, Ct., U.S., 24th July, 1882; for 5 years.

*Claim.*—1st. In a current regulator, an electro-magnetic device constructed to have a uniform available attraction in various positions of its range with a constant current, in combination with a weight adjustment, or electrical adjustment V, or both, and a dash pot check D. 2nd. The combination, with moving commutator brushes, of a regulator electro-magnet constructed to have a practically constant available attraction within its range of movement with a constant current, an adjustment W therefore, and a dash pot check. 3rd. The combination, in a regulator magnet, of a movable armature A mounted on suitable pivots and perforated with a regulator coil R surrounding a bar provided with a tapered paraboloidal, or equivalent shaped pole. 4th. A regulator consisting of the frame U, coil R, pole P and armature A mounted upon said frame U, dash pot D and adjustment W or electrical adjustment V, or both, in combination with a movable current changer, or commutator. 5th. In a controlling electro-magnetic contact maker and breaker included in the circuit to be regulated, a short resistance G around said contacts, and a regulator coil R connected around said contacts. 6th. In a circuit controller magnet, an iron piece C hung upon an adjustable spring S, J, and its contact q and stop r, and resistance G around said contact q. 7th. The combination with a regulator magnet coil R, of a pair of shunting contacts controlled by a sensitive electro-magnet and a spark absorbing device. 8th. The combination of the following elements in a current regulator, viz: a regulator magnet constructed to have a uniform

available attraction with a constant current, a controller magnet placed in the circuit, constructed to open and close a set of contacts completing a shunt around said regulator magnet, a spark absorbing device, for absorbing the energy that would otherwise injure said contacts, and a shifting current changer or commutator attached to the movable portion of said regulator magnet.

**No. 15,167. Improvement in Mechanisms for Signalling.** (*Perfectionnement des appareils à signaux.*)

Ambrose Webster and Edgar F. Webster, Waltham, Mass., U.S., 25th July, 1882; for 5 years.

*Claim.*—1st. The combination of the series of variable gears *f*, and the operative gears *cd* and *h* and the supporting arms of the said gears *h*, with the series of star wheels A B C, etc., and the sliding arm T and gear P combined with the slide bar N. 2nd. The combination of the tooth *e* and the notched bar M with the slide bar N, and the series of arms *g* provided with the actuating gears *h*, of the series of variable gears. 3rd. The combination of one or more sectors I and levers W with the series of star wheels A B C, etc., the notched bar M and the slide bar N provided with the tooth *e*, the said slide bar and star wheels being provided with operating gears *cd* and *h*. 4th. The combination of the dial, its pointer and the vertical shaft of the latter and its pinion, with the slide bar N provided with the toothed rack and the sliding arm and gear, to operate with the star wheels and their actuating gears. 5th. The combination of the shaft *z* and the cam Y thereof, with the levers W applied to the sectors Y and to the notched bar M. 6th. The combination of the stationary cam X, with the machine frame and with the sliding arm T, its splined shaft and the whistle operating arm projecting from such shaft. 7th. The combination of the two shafts *b c*, their connection gears *cd*, the series of star wheels A B C, etc., the separate trains of gears *f* and *h*, the gear supporting arms *g*, the slide N, gear P, splined shaft R, arm T and the splined shaft S provided with the arm U.

**No. 15,168. Improvements in Wheel Hubs.** (*Perfectionnements aux moyeux des roues.*)

Jules Lajeunesse and Edmond Armand, Montreal, Que., 25th July, 1882; for 5 years.

*Claim.*—1st. The hub consisting essentially of the wooden inner hub A having mortises B B and with circumferential metallic band *c* provided with mortises *c c*, one for each of the mortises B B, but larger than the same, so as to form ledges *aa* on the wooden hub at each mortise for the spokes to bear upon. 2nd. The combination with the metallic band C provided with the mortises *c c* having bevelled sides, of the spokes D constructed with bevelled shoulders *d d*.

**No. 15,169. Improvements on Transom Lifters.** (*Perfectionnements aux bascules des vasistas de portes.*)

Ivlie E. Dayton, (Assignee of Francis V. Phillips), Chicago, Ill., U.S., 25th July, 1882; for 5 years.

*Claim.*—1st. In a transom lifter, the combination, with the rod guide G having the flanges *f* and notches *n*, of the slide I provided with the finger hold F and the spring catch J J. 2nd. In combination with the guides G G, the rod L having its ends curved at *l*, and the slide H or I provided with a correspondingly curved aperture *h<sup>2</sup>* to receive the rod. 3rd. In a transom lifter, the combination, with the rod L confined at its lower end, of the arm R connected with the rod L and provided with the fixed screw R.

**No. 15,170. Improvements on Wheel Barrows.** (*Perfectionnements aux brouettes.*)

Thomas Brewer, Toronto, Ont., 25th July, 1882; for 5 years.

*Claim.*—In a wheel barrow provided with an ordinary central front wheel B, the combination of back wheels F journalled upon the cross axle *c* and arranged to carry the back portion of the wheel barrow.

**No. 15,171. Improvements on Corsets and Shoulder Braces.** (*Perfectionnements aux corsets et aux bretelles.*)

Catharine A. Williamson, St. Louis, Mo., U.S., 25th July, 1882; for 5 years.

*Claim.*—1st. The combination of the corset parts A A, the lacings B B, the flat elastic stays E E and the elastic connection C. 2nd. The combination of the corset parts A A, the lacings B B, the flat elastic stays C E, the elastic connection C and the inelastic connection D. 3rd. The combination of the corset parts A A, lacings B B, stays E E, elastic connection C, inelastic connection D and the arm pieces F F. 4th. As a new manufacture, the corset and shoulder brace stay. 5th. In a corset and shoulder brace stay having the openings *e<sup>2</sup>* elongated and extended. 6th. A corset and shoulder brace stay having its upper end broadened and curved.

**No. 15,172. Improvements on Belt Replacing Devices.** (*Perfectionnements aux appareils à remplacer les courroies.*)

George P. McConnell and Louis P. Snider, Cincinnati, Ohio, U.S., 25th July, 1882; for 5 years.

*Claim.*—In a tooth or finger C having one or more out turned portions or lips *c* and projecting rigidly from the rim of a belt pulley. 2nd. In a tooth or finger projecting from the rim of the pulley, spiral, straight, round or flaring, cast in wheel, bolted or otherwise affixed.

**No. 15,173. Improvements on Elevators.**

(*Perfectionnements aux ascenseurs.*)

George C. Tewksbury, Newark, N. J., U.S., 25th July, 1882; for 5 years.

*Claim.*—1st. In combination with an elevator, a shifting device adapted to change the direction of the box or to arrest the same, and an automatic stop mechanism adapted to be set for any given station or floor, and to be acted on by the box to arrest the same when it reaches that point. 2nd. The combination of the pivoted lever J, the pulley E F G and intermediate belt shifting devices, the revolvable and vertically sliding rod K having suitable clutch pins *a* arranged at different points on the rod, to project radially therefrom, the handles *f* secured to the rod K, and the intermediate gearing mechanism. 3rd. The combination of the lever J pivoted with the pulleys E F G and intermediate belt shifting devices, the revolvable sliding rod K having clutch pins *a*, arranged at different points on the rod to project therefrom in either direction, the lever handle *f* fulcrumed, the indicator O for determining the relative position of the clutch pins *a*, and the intermediate gearing mechanism whereby the rod K may be turned. 4th. The combination of the revolvable vertically sliding rod K provided with clutch pins *a*, gear wheels *b* and suitable disks *c*, said pins, gears and disks being arranged upon the rod at different points with the pins *a* projecting therefrom in different directions the handle *f* having toothed plates on one end to mesh with the gears on the rod, and suitable indicating mechanism for locating the relative position of the clutch pins *a*. 5th. The combination of the elevator car, the detachable block 12, the lever pivoted to the detachable block and provided with projecting tongues, and mechanism for pushing forward the lever so as to keep the tongues in position. 6th. The combination, with the movable lever on the elevator box, of the stud pin 15 attached to the wall of the building adapted to automatically engage with the tongue 14 on the lever when the box is moved so as to throw the tongue 14 on the lever out of engagement with clutch on the rod *k*. 7th. The indicator O which consists of a semi-cylindrical case having two systems of vertical slots, one on each side of a central horizontal opening with the said horizontal slot, all in combination with the handle *f*. 8th. The electric signal for elevators consisting of the plate 29 carried by the elevator car, the springs 7 8 27 28, the battery and the connecting wires.

**No. 15,174. Improvements on Sawing Machines.** (*Perfectionnements aux scieries.*)

David Jesseman and Dorion G. Jesseman, (Assignees of Charles Jesseman,) Lisbon, N. H., U.S., 25th July, 1882; for 5 years.

*Claim.*—The combination of the balance wheel G provided with a series of pivoted holes *h* arranged in it, the driving gear H, pin or stud *b*, slide F, slotted part E, slide bar A, guides B B D and saw connecting rod C.

**No. 15,175. Improvement in Paint Compounds.** (*Perfectionnement dans les couleurs.*)

Anthony W. Burke, Stayner, Ont., 25th July, 1882; for 5 years.

*Claim.*—A liquid paint composed of petroleum oil, linseed oil, lime water, Canada balsam, resin, beeswax, japan, sulphate of zinc, soluble glass, rock salt alum, water lime, kaolin, asbestos and whiting the whole compound as and in about the proportionate quantities specified, with or without the addition of coloured pigments or petroleum gas tar in the variable quantity.

**No. 15,176. Improvements in Boots and Shoes.** (*Perfectionnements dans les chaussures.*)

Solomon K. Hindley, Worcester, (Assignee of Charles W. Shippee, Milford,) Mass., U.S., 25th July, 1882; for 5 years.

*Claim.*—A boot or shoe having the insole extended between the upper or vamp and the outer sole to their edges and secured to the said upper or vamp by a row of stitching or fastenings going through it and such insole, and also by a second row of stitches or fastenings aside of the first row and going through the upper or vamp, insole and outer sole.

**No. 15,177. Improvement in Barrel Covers.** (*Perfectionnement des fonds de barils.*)

Francis M. James and Joseph W. Fearn, Big Rapids, Mich., U.S., 25th July, 1882; for 5 years.

*Claim.*—In combination with a barrel cover, the hook *e* and the eccentric C, the edge of which is spirally grooved.

**No. 15,178. Improvements in Reel Rakes for Harvesters.** (*Perfectionnements aux râteliers des moissonneuses.*)

William H. Knapp, Gatesburg, Mich., U.S., 25th July, 1882; for 5 years.

*Claim.*—1st. The band wheels carrying a chain or band with the rakes secured thereto, in combination with means adapted for grinding and supporting said rakes and throwing them into the grain, and carrying them back to and past the cutter bar in the parallel position. 2nd. The band wheels carrying a band or chain rakes, a cam guide or supporting way and means for operating said wheels and rakes to effect the object stated. 3rd. The band carrying the rakes and provided with the draw-bar and rake support, in combination with means for tripping the rakes. 4th. In a reaper reel and rake, the wheel and chain carrying rakes, in combination with means for guiding, supporting, turning, and tripping said rakes and throwing them into the grain in the parallel position to the cutter bar. 5th. The wheels and chain, or band carrying the rakes, a guide or way, adapted for guiding and supporting said rakes in transit around the



wheels, and having the depression and other specified means or equivalents for tripping the rakes, all in combination with the platforms of a grain reaper. 6th. The combination, with the band wheels, of a band rake and a suitable draw-bar, and a rake support having the friction wheels of a cam guide grasped by said friction wheels. 7th. The combination with the rakes provided with the spring actuated lock, of the cam plate for unlocking said lock provided with the yielding gate. 8th. The combination, with the band wheels located at an angle above a horizontal plane and bearing a rake carrying band, of a rake, or rakes, and means for guiding and supporting them in their transit.

### No. 15,179. Improvements on Windmills.

(*Perfectionnements aux moulins à vent.*)

Frederick J. Lee and George W. Mallory, Mallorytown, Ont., Assignees of James L. Simons, Potsdam, N. Y., U. S., 25th July, 1882; for 5 years.

*Claim.*—1st. The frame D having the perforated cross and bottom bars S St, in combination with the tube E and tower F, the tube E passing through the cross bars and down into the tower. 2nd. The frame D having cross bar St with counter bore S<sub>4</sub> and tower F having cross brace G with hole C in combination with the tube E one of the ends of which rests on the brace, the other in the counter bore. 3rd. In combination with the frame D, the vane K having a rising hinged movement and provided with a lever O having a weight R, and a rod P connecting one end of the lever with the frame. 4th. In combination with the frame D having the incline plane T, the vane K having a vertical cross bar M attached fixedly and thereby hung to frame D hingedly, said cross bar provided with a projection, or friction roller bearing on said inclined plane, and a lever O carrying an adjustable weight R operated by the horizontal and vertical movement of the vane, whereby the vane, after yielding, to the force of the wind, is returned to its normal position by the weighted lever. 5th. In combination with the vane K having a rising hinged attachment to the frame D and counterbalanced by a weighted lever O, the wind board x. 6th. In combination with the vane K counterbalanced by the weighted lever O, the cord a for arbitrarily adjusting the wheel edge-wise to the wind.

### No. 15,180. Improvements on Hose Pipes.

(*Perfectionnements aux tuyaux élastiques.*)

Thomas S. Nowell, Boston, Mass., (Assignee of Benjamin Holland Jr., Newport, R. I.) U. S., 25th July, 1882; for 5 years.

*Claim.*—1st. In combination with a hose or other pipe of the T-shaped section E provided with a screw thread, for securing it to the hose or other pipe, and an inwardly projecting annular lip or flange in each end the two curved branch elbow pipes G G, the axial pivot bolt g and the clamping nut i. 2nd. The combination of the pipe or coupling section A with the T-section E, the frusto-conical coupling rings C and D, the two curved branch elbow pipes G G, the pivotal bolt g and the clamping ring nut i. 3rd. The combination of the pipe or coupling section A with the frusto-conical rings C and D, the T-shaped pipe section E, the hollow frusto-conical valve F, the two curved elbow pipes G G, the clamping pivot bolt g and the ring nut i. 4th. The combination of the pipe or coupling A, the T-shaped pipe section E provided with the circumferential slot J, the frusto-conical valve F, curved elbow pipes G G, the ring nut i, the screw-handle K and thumb nut m. 5th. In combination with a hose pipe or butt of the hook-shaped horns B<sub>1</sub> attached permanently thereto. 6th. In combination with a hose pipe or butt, the swivelling ring B provided with one or more hook-shaped horns B<sub>1</sub>. 7th. The combination of the pipe or coupling section A with the swivelling ring B, provided with one or more hook-shaped horns B<sub>1</sub>, the frusto-conical coupling rings C and D, the T-shaped pipe section E, the curved elbow pipe G G, the pivot bolt g and the ring nut i. 8th. The combination of the pipe or coupling section A with the swivelling ring B, provided with one or more hook-shaped horns B<sub>1</sub>, the frusto-conical C and D, the T-shaped pipe section E provided with the slot J, the frusto-conical valves F, the two curved elbow branch pipes G G, the pivoted binding bolt g, the ring i, the valve screw handle K and the thumb nut m.

### No. 15,181. Improvements on Hydraulic Packing Rings. (*Perfectionnements aux boucles-garnitures hydrauliques.*)

Thomas A. Nowell, Boston Mass., (Assignee of Benjamin Holland, jr. Newport, R. I.) U. S., 25th July, 1882; for 5 years.

*Claim.*—1st. As a means for packing joints water-tight, the combination of a cupped ring of leather or other flexible material, and a metal ring placed within said cup and provided with the annular grooves b<sub>1</sub> b<sub>2</sub> and the orifices e and e'. 2nd. As a means of packing joints to render them water tight, the combination of the cupped packing ring a and the metal ring provided with the annular grooves b<sub>1</sub> b<sub>2</sub> and the orifices e e', and divided upon one side.

### No. 15,182. Improvement in Glass Chimneys, Globes and Tubes. (*Perfectionnement des cheminées, globes et tubes en verre.*)

Francis M. James and Joseph W. Fearn, Big Rapids, Mich., U. S., 25th July, 1882; for 5 years.

*Claim.*—1st. A lamp chimney or the like having a vertical lap joint a extending from top to bottom thereof. 2nd. The process of forming lamp chimneys and the like, by first forming the chimney into two parts in moulds, reheating one edge of each of the parts and sticking the heated edges together.

### No. 15,183. Improvements in electric lamps.

(*Perfectionnements aux lampes électriques.*)

Elihu Thomson, New Britain, Ct., U. S., 25th July, 1882; for 5 years.

*Claim.*—1st. In an electric arc lamp, an electro-magnet having

paraboloidal poles and an armature less in thickness than the extent of the tapered portion of said projection or poles. 2nd. The combination, with the regulating mechanism, of an electro-magnet having a paraboloidal pole and perforated armature encircling said pole and adapted to move between the extremity of the polar projection and the body of the core. 3rd. The combination, with the regulating mechanism of an electric lamp, of an electro-magnet having a tapered pole and an armature provided with an opening whose inner edges are rounded. 4th. The combination, of the three armed lever L<sub>e</sub>, clutch C, toe t, stop V, spring m and perforated armatures A A. 5th. In combination with the coil D or direct magnet coil, an adjustable shunting resistance Z. 6th. As a safety cut-out device in an electric circuit with electric lamps or other resistances, two surfaces of metal attached to the terminals of the lamp and between which is inserted a thin film of insulator capable of being pierced on a break occurring in said lamp. 7th. In an electric lamp or other resistance in a circuit, two metal surfaces sprung together and with a very thin film of insulation interposed, whereby the current is transmitted by disruption, when an abnormally high resistance forms. 8th. A safety cut-off for electric lamps consisting of a spring surface G attached to one terminal of the lamp, and a fixed surface F attached to the other terminal and interposed thin film of paper, shellac, gelatine or the like. 9th. A renewable film of insulating substance interposed between the terminals of an electro-receptive device, perforable by the current, on the establishment of a very high resistance between said terminals. 10th. In an electric lamp, a safety magnet coil and suitable mechanism for approaching the carbons adapted to be thrown into operation by the movement of contacts therefor, in combination with the lamp regulating mechanism attached to, or in combination with said contacts. 11th. In an electric lamp, a carbon propelling sleeve T and spring Z<sub>2</sub>, held in elastic condition by a catch or detent adapted to be released therefrom, and a movable armature in operative combination with said detent, which armature is attracted towards its magnet when energized and said detent thereby released. 12th. The combination, with the feed regulating mechanism of an electric lamp, of a set of contacts q adapted to be close upon a movement of the regulating armatures to a position further than that in normal action of feeding the carbon, and which contacts complete a circuit through a safety magnet device for forcing the approach of the carbons.

### No. 15,184. Improvements on Snow-Ploughs.

(*Perfectionnements aux charrues à neige.*)

Hosen T. Stock, Toledo, Ohio, U. S., 26th July, 1882; for 10 years.

*Claim.*—1st. The arrangement of the exhaust fan A, with reference to toothed cylinder D, inlet B, outlet G G and discharge pipe C. 2nd. The combination of fan A with steam pipes or pipes p, 3rd. The combination of fan A and steam pipe or pipes p, with the air and snow passage B A G G C. 4th. The combination of fan A, steam pipe or pipes p, inlet B b b, pipe C and toothed skeleton cylinder D. 5th. The combination of fan A, steam pipe or pipes p, inlet B b b, pipe c and adjustable guide or mould board H. 6th. The double fan A having central opening or inlet B, and outlets G G converging into one discharge pipe.

### No. 15,185. Improvements on Car Door Fasteners. (*Perfectionnements aux fermetures des portes de chars.*)

James W. Krepps, New York, U. S., 26th July, 1882; for 5 years.

*Claim.*—1st. The gravity catches E F, bar G and the notched bolt D, the pivot H, for the catch E, formed on a base plate L located in the recess N made in the wood for the fastener. 2nd. The combination, with catches E F, bar G and catch bolt D, of a case L O P Q having pivot H, for catch E, formed on said case. 3rd. The combination with catch E F, bar G and notched bolt D of the pivot H and the rest R, for the catch E, on base plate L. 4th. The combination, with catches E F, bar G and notched bolt D, of the case L O P Q having notches S and T for bar G. 5th. The combination, with the bar G, catches E F and bolt D, of the staple V and plate W, the said plate being attached to the end of cleat A and provided with slots X and Y, and the staple being attached to bar G and the descriptive relation to plate W. 6th. The combination, with catches E F bar G and catch bolt D, of a base plate supporting pivot H and having depression C between said pivot and the front end of said base plate. 7th. The outlet passage a<sup>2</sup> from the cavity or space under catch E, for the escape of water and dust. 8th. The combination of a button slide or equivalent device b with the bar G by which the lock is opened and closed. 9th. The button b in combination with the bar G and being provided with the hole D, for inserting a seal through it and said bar.

### No. 15,186. Improvements on Machines for Manufacturing Barbed Wire.

(*Perfectionnements aux machines à fabriquer le fil de fer barbelé.*)

Orlando P. Briggs, Chicago, Ill., U. S., 26th July, 1882; for 5 years.

*Claim.*—1st. A machine adapted to space the barbs upon a wire at stated and desired intervals, and to secure such barbs in their relative positions upon said wire by twisting the latter with a wire free from barbs. 2nd. A machine provided with a carrier and bed along which the wire with barbs strung thereon is drawn, said carrier and bed being provided with gates, which afford a free passage for the wire and control the passage of the barbs. 3rd. In combination with the carrier and bed, the gates adapted to give an uninterrupted passage to the wire, and when open to give passage to the desired number of barbs, until said gates are reopened. 4th. In combination with the gates, the bed formed with depressions immediately below said gates. 5th. In combination with the bed, two carriers each provided with its gates, said carriers being placed side by side. 6th. A reciprocating shuttle, carrying point and rear pickers, adapted to separate one barb from a series of barbs strung upon a wire above the shuttle, and deliver such separated barb to the spacing devices. 7th. The front and rear pickers operating in recesses within the shuttle and adapted to adjustments, vertical and horizontal. 8th. The

means for receiving each separate barb from the pickers and delivering the same at stated intervals into recesses, or sprockets in a sprocket wheel. 9th. A sprocket spacing wheel with recesses adapted to receive a separate barb in each recess from the fingers, and provided with a groove in its face to carry the wire. 10th. In combination with the sprocket spacing wheel, a spring adapted to form a twisting kink in the wire, around one edge of the barb. 11th. In combination with the sprocket spacing wheel, the means for delivering a supplemental wire to said sprocket wheel. 12th. In combination with a sprocket spacing wheel, an adjustable guide O. 13th. The sprocket spacing wheels provided with pins, for the purpose of actuating the shuttle and barb stops. 14th. In combination with a sprocket spacing wheel, the disk *p* which forces the wires F to kink on one side of the barb, and the supplemental wire against the opposite sides of the barb, and at the same time preserve the proper tension upon both wires against the action of the twister. 15th. In combination with the sprocket spacing wheel adapted to deliver a barbed and a supplemental wire, a twister by which said wires are twisted together. 16th. In combination with the twister, a breaking device consisting of a lever and band. 17th. In combination with the squirrel wheel, two disks connected together by wings, and provided with an open centre the whole cast in one piece. 18th. In combination with the shaft O, the stationary and loose disks to hold the spools R  $\pi$  in place, the loose disk actuated thereto by means of a wedge roller *u*.

### No. 15,187. Improvements on Lifting Jacks.

(*Perfectionnements aux crics.*)

George A. Harvie, Windsor, N.S., 26th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the casing A, of the rock bar B and lever C having a head segmentally cogged and fulcrumed by pin D, between the sides of the casing, whereby the cogs of the lever will, in lifting, be in direct engagement with the rack bar and, when vertical, the rack bar is free for independent adjustment to suit the height under the body to be lifted. 2nd. In combination with the rack bar B and casing A, the pawl or stop F pivoted to and crossing the head of the casing, for engagement with the teeth of the rack.

### No. 15,188. Improvements in Sectional Boilers.

(*Perfectionnements aux chaudières en sections.*)

Warden King, (assignee of Archibald Spence,) Montreal, Que., 26th July, 1882; for 5 years.

*Claim.*—1st. The novel construction of the sections consisting in the combination of the body *a*, sleeve *b* and diaphragm *d*. 2nd. The novel construction of the sections consisting in the combination of the body *a*, sleeve *b*, flanges *ef* and diaphragm *d*. 3rd. The combination of sections D constructed, built and united together as described.

### No. 15,189. Improvements in Ash Sifters.

(*Perfectionnements aux cribles à centre.*)

Charles G. C. Simpson, Montreal, Que., 26th July, 1882; for 15 years.

*Claim.*—1st. The combination of the chute *b* constructed and arranged in relation to a swinging, or vibrating inclined sieve, with said sieve and with an operating mechanism. 2nd. The combination of the sieve inclined and arranged to swing or vibrate, with a chute *b* constructed and arranged therewith, and with a box A divided into two compartments or chambers, each provided with an outlet. 3rd. The combination of the inclined sieve, having bottom *g* and arranged to swing or vibrate, with a chute arranged in relation thereto, and with a box A provided with two compartments, each having an outlet.

### No. 15,190. Improvements on Knob Attachments.

(*Perfectionnements dans la pose des boutons de portes.*)

Oliver M. Hidden, Detroit, Mich., U.S., 26th July, 1882; for 5 years.

*Claim.*—1st. In a door knob, the serrated spindle A, in combination with the serrated yoke B, and the shank E having a socket adapted to receive the yoke and close the same upon the spindle. 2nd. The combination, with the serrated spindle A, serrated yoke B and the shank E, of the screw F adapted to draw the yoke within the shank.

### No. 15,191. Improvements on Rocking Chairs.

(*Perfectionnements aux chaises à bascule.*)

Sarah A. McCaffrey and Catherine M. Leonard, Boston, Mass., U. S., 26th July, 1882; for 5 years.

*Claim.*—1st. The crib C provided with the auxiliary rocker G, in combination with the chair A. 2nd. The crib D provided with the bracket H, in combination with the chair A.

### No. 15,192. Improvements in Car-Couplings.

(*Perfectionnements aux accouplages des chars.*)

The Atwood Railway Wheel Company, of the State of New York, (assignee of Isaac S. McGiehan, Jersey, N. J., U. S.,) 26th July, 1882; for 5 years.

*Claim.*—1st. The combination of the casing A, having on one side of its outer end a shoulder C with the draw-bar B, the elliptical shaped block, or eccentric D, in connection with the lever E, the handle G, spring F and the shaft O. 2nd. The combination of the casing A having on one side of its outer end a shoulder C, with the draw-bar B having on one end the hook I, and on the other end the arm J extending at right angles from said draw bar, all forming one entire piece, in connection with the spring F and block K.

### No. 15,193. Improvements on Car Couplings.

(*Perfectionnement aux accouplages des chars.*)

Samuel A. V. Hartwell, Valley Centre, Ks., U. S., 26th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the draw-head A provided with the rounded projection F upon the upper side of its lower part, and the link E, of the hinged bar G and means for operating said bar. 2nd. The combination, with the drawhead A, of the hinged bar G, the connecting bar I and the lever K having a cross-bar M attached to its forward end, whereby the coupling link can be guided from the side of the track. 3rd. The combination, with the drawhead A, the hinged bar G, the connecting bar I and the lever K having a cross-bar M attached to its forward end, of the rod or chain N, whereby the coupling can be guided from the top of the car. 4th. The combination, with the drawhead A, the hinged bar G, the connecting bar I and the hinged lever K having cross-bar M, of the swinging notched bar O, whereby the coupling link can be supported with its forward end at any desired elevation. 5th. The combination, with the draw-head A provided with the recess H, in the lower side of its upper part, of the hinged bar G having its forward and bevelled upon the lower side, and means for operating said bar.

### No. 15,194. Improvements on Car Couplers.

(*Perfectionnements aux accouplages des chars.*)

David E. Southwick, Ogdensburgh, N. Y., U.S., 26th July, 1882; for 5 years.

*Claim.*—1st. In combination with the draw-bar A, of the sliding spring frame C. 2nd. The combination of a draw-bar A having a piston B to hold the draw-pin endwise in its hole in the draw-bar, with spring frame C, slidingly attached to the underside of the draw-bar, and a T-shaped link *o* composed of two conjoined loops. 3rd. The cruciform frame F attached to the end of the car to slide vertically, and having a bent arm J looped to encircle the draw-pin, and a cap-frame L covering the head of the pin, and swinging on said arm J, in combination with levers H H and handle G, for lifting said frame and pin combinedly.

### No. 15,195. Improvements in Vehicle Springs.

(*Perfectionnements aux ressorts des voitures.*)

The Spiral Spring Buggy Company, (assignee of George Smith.) Grand Rapids, Mich., U.S., 26th July, 1882; for 5 years.

*Claim.*—1st. The rock-shafts H H provided with inwardly extending arm K K and arranged longitudinally with the body, in combination with the links L L, rod C, spring B and nut D. 2nd. The combination, with the side bars E E, clips F F and arms I I, of the rock shafts H H, arms K K, links L L, spring B, rod C and nut.

### No. 15,196. Improvements on Car Door Locks.

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

James W. Krepps, New York, (assignee of Charles W. Preston, Fort Wayne, Ind.,) U.S., 26th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the sliding door provided with a serrated bolt, of the fast and loose tumblers, the vertically sliding rod working in ways in the lock casing, an extension of the fast tumbler, or a loose block between it and resting on the loose tumbler, and the pivot for the loose tumbler. 2nd. The combination, with the sliding door provided with a serrated bolt, of the fast and loose tumblers, the vertically sliding rod working in ways in the lock casing, an extension of the fast tumbler, or a loose block between it and resting on the loose tumbler, the pivot for the loose tumbler, and the perforated head at the lower end of the vertical rod for a pad-lock, or other hasp to fasten it. 3rd. A lock consisting of tumblers H G, bar E and bolt S, the tumbler H having extension L, behind bar E and acting on tumbler G.

### No. 15,197. Improvements on Organs.

(*Perfectionnements aux orgues.*)

Edman Brown, Bowmanville, Ont., 26th July, 1882; for 5 years.

*Claim.*—An organ in which the notes of the bass, tenor and treble are all operated from the same key board, a series of cut off valves arranged in combination with the main valves of the reeds or pipes, and operated by the movement of the main valve, when opened by levers connected to the key board, the said cut off valves being so connected to the main valves that, when one note is made to speak, those above it are closed when the valves are applied to a sub-base action, or below it, when they are applied to a treble action, thereby enabling the performer to use all the notes in the manual while making the fundamental note speak.

### No. 15,198. Improvements on Corn Shellers.

(*Perfectionnements aux égrenoirs à blé d'inde.*)

Annie T. Kegan, (assignee of Francis T. Mallon,) Pawcatuck, Ct., U.S., 26th July, 1882; for 5 years.

*Claim.*—1st. The combination, with the casing A and the cylinder D provided with teeth set in spiral rows longitudinally thereof, of toothed hooks in the casing, set at a sufficient distance apart to enable the teeth to pass between them, and springs acting upon said hooks to press them inward, independently of each other. 2nd. The combination, with the casing A and cylinder D, of the hooked or curved teeth *c* set in the cylinder, the toothed hooks E pivoted in the casing and set at a sufficient distance apart to enable the teeth *c* to pass between them, and spring E applied to the hooks for passing them inward.

**No. 15,199. Universal Picker (Nipper.)***(Pince universelle.)*

Melchior Brazeau and Alphonse Brazeau, Montreal, Que., 26th July, 1882; for 5 years.

*Claim.*—1o. Un instrument se composant des branches A A E E F F, des viroles G C D, et du capitonnage M M, et d'une mouche H. 2o. Un instrument se composant des pièces décrites en combinaison avec la corde II, les anneaux b b' et J et le bouton K.

**No. 15,200. Improvements on Millstones.***(Perfectionnements aux meules des moulins.)*

Auguste Gardel, Sherbrooke, Que., 26th July, 1882; for 5 years.

*Claim.*—The plate A with the grooves B B, also the rim F and the plate C, all combined.

**No. 15,201. Improvements on Machines for Reducing Grain to Flour.** *(Perfectionnements aux moulins à blé.)*

Edward L. Baker, Red Wing, Min., U. S., 26th July, 1882; for 5 years.

*Claim.*—1st. A mill stone dress composed of two series of furrows, an inner series of furrows arranged tangential to the eye of the draft and a second series of furrows at the skirt, arranged more nearly radial than the inner series, and dressed with the short side of the furrow for the leading edge. 2nd. A disintegrating or granulating mill for breaking grain for after milling, having grinding surfaces formed of dress metal disks, provided with detachable metal segments at their skirts whose faces are arranged in horizontal planes, and are provided with a series of furrows dressed with a shorter bevel for the leading edge, and arranged more nearly radial than the inner series of furrows. 3rd. The combination of the milling disk A recessed at its skirt to receive the segmental sections B, said segmental sections butting against each other at their ends throughout the entire periphery and provided with undercut slots b b opening at their ends into the adjacent slots, and the bolt c having their heads seated in the said undercut slots and fastened on top of the disk by nuts d.

**No. 15,202. Improvement on Wire Stretchers.** *(Perfectionnement des appareils à tendre les fils métalliques.)*

Reuben Elwood, (co-inventor with William C. Watkins,) Sycamore, Ill., U.S., 26th July, 1882; for 5 years.

*Claim.*—1st. In a wire stretching apparatus, the frame provided with the roller B and hooks b and d on the opposite side, in combination with the chain D attached to one of the hooks, and adapted to engage the other, and the wire clamping device attached to the frame between the two hooks. 2nd. The combination, with the frame A having the upwardly projecting shoulder m of the swinging eccentrically pivoted piece F provided with the lip n, for forcing and pressing the fence wire down between the holding faces of the clamping pieces and overlapping the shoulder m. 3rd. In combination with the frame A, roller B and rope e, the wire clamping device E connected with the rope and composed of the piece f having the projecting lip h, and the swinging eccentrically pivoted piece g having the lip i, for forcing or pressing the fence wire down between the holding faces of the clamping pieces and overlapping the lip h.

**No. 15,203. Improvements in Apparatus for Actuating the followers of Wood Pulping Engines.** *(Perfectionnements aux machines à mettre en mouvement les roues motrices des machines à pâte de papier de bois.)*

Walter Jones, Niagara Falls, N. Y., U. S., 31st July, 1882; for 5 years.

*Claim.*—1st. A gear or pulley composed of an outer part or rim and a central or inner part within said rim, and a clutch for locking the two together. 2nd. The combination of a driven wheel or device, and a driving wheel or device, with a clutch for locking said wheels or devices, and means for releasing said clutch automatically at determined intervals on their rotation. 3rd. The combination of the inner wheel with notches on its periphery, with the outer rim and locking pin carried by said rim. 4th. The combination of the inner wheel, the outer rim, locking pin spring and lever. 5th. The combination of a gear or pulley composed of two parts, one within the other, with a spring clutch, a lever for releasing said clutch, and a track or projection in the path of said lever for operating the same. 6th. The combination, with a gear or pulley composed of an outer rim, an inner wheel and clutch for locking them, of a power shaft geared with said rim, a belt pulley fastened to said inner wheel, and mechanism, as indicated, for driving the belt pulley and inner wheel from said shaft, when the aforesaid clutch is released independent of the outer rim.

**No. 15,204. Improvements on Electric Cables.** *(Perfectionnements aux câbles électriques.)*

Patrick M. Delany, New York, N.Y., U.S., 31st July, 1882; for 15 years.

*Claim.*—1st. An electric cable composed of a series of insulated wires in practically the same plane and inclosed by a close fitting flat flexible lead pipe. 2nd. An electric cable composed of a series of insulated wires in practically the same plane inclosed by a flexible lead pipe and separated by walls of a conducting material. 3rd. An electric cable composed of a series of insulated wires in practically the same plane and inclosed in a flexible lead pipe opposite walls of which

extend and meet between the said wires. 4th. An electric cable composed of a series of insulated wires in practically the same plane and enclosed in a flexible lead pipe, portions of the opposite walls of which project toward each other between the said wires. 5th. The method of forming an electric cable by introducing the covered wires into a lead pipe, and then compressing the pipe and forcing opposite portions of the wall thereof between the said wires. 6th. An electric cable composed of a number of insulated wires braided or plaited together, inclosed in a metallic tube and having a conducting substance in the meshers, between the wires and in contact with the tube. 7th. In an electric cable, the combination, with a number of insulated wires in a flat braid or plait and crossing and recessing each other at short intervals, of the flat flexible metallic tube b, inclosing said braid or plait and having its opposite inner surfaces metallically connected through the meshers of said braid or plait.

**No. 15,205. Improvements on Electric Light Regulators.** *(Perfectionnements aux régulateurs de la lumière électrique.)*

The Union Electric Manufacturing Company, (Assignee of Charles D. Haskins.) New York, N. Y., U.S., 31st July, 1882; for 5 years.

*Claim.*—The combination of the movable electrode of an arc lamp, an electro-magnet vitalized by the light producing current, and an intermediate regulating mechanism consisting of a drum mechanically connected with said electrode, and an armature and a clamping lever connected together and pendulously suspended from the axis of said drum, said clamping lever being adapted to act against the inner periphery of said drum.

**No. 15,206. Improvements in Dynamo-Electric Machines.** *(Perfectionnements aux machines électro-dynamiques.)*

Elihu Thomson, New Britain, Ct., U.S., 31st July, 1882; for 5 years.

*Claim.*—1st. The combination of the magnet shells M M with openings O and recessed portions D: D' around the shaft, with a hollow spherical armature revolved between said shells upon the shaft. 2nd. The combination, with the field magnets of a dynamo-electric machine, of a permanently closed band or circuit encircling the same and of good conducting material. 3rd. Openings O in the field magnets approximately equal to half the diameter of the armature. 4th. The construction of a spherical armature core of end plates D D' of iron, iron bands I and pins or projections of good insulating substance radially set in the exterior of the spherical armature core. 5th. The combination, with an armature wound with three coils of a commutator, the segments of which are constructed and mounted with respect to the brushes in the following manner, adjacent segments overlapping or brushes applied to the segments at angles 35° to 45° of revolution of the commutator. 6th. A spherical armature wound with three coils, one half the terminals of which are joined together, and the remaining three terminals carried successively to the commutator segments, three in number, and which segments are constructed to overlap from 35° to 45° in delivering current to the commutator brushes, or practically each segment contracting with brushes during 155° to 165° of revolution on each side of the commutator when revolved. 7th. The combination, with a straight slotted commutator with three segments, of two sets or pairs of brushes permanently displaced angularly from 35° to 45° around the commutator and connected into the circuit. 8th. In a dynamo-electric machine or electric generator combining the following elements, hollow field magnets with openings O, and recesses D: D' enclosing a spherical or similar armature A wound with three coils upon an iron core and a commutator, the segments of which overlap from 35° to 45° or practically cover 155° to 165° of revolution in delivery of current to the commutator brushes, one on each side of said commutator.

**No. 15,207. Improvements on Belt Pulleys.** *(Perfectionnements aux poulies à courroies.)*

Philip Medart, St. Louis, Mo., U.S., 31st July, 1882; for 15 years.

*Claim.*—1st. The improvement in the art of manufacturing belt pulley spiders for composite belt pulleys by centering the pulley centre or spider, and then grinding the same concentrically with the axis of the pulley. 2nd. Centering the pulley centre or spider, boring it, grinding it concentrically with the axis of the pulley, and then securing the rim thereto. 3rd. Grinding the pulley centre or spider concentrically with the axis of the pulley, securing the rim thereto and then grinding the rim. 4th. Centering the pulley centre or spider, boring the hub thereof, grinding the centre or spider concentric with the axis of the pulley, securing the rim thereto, grinding the face of the rim concentric with the axis of the pulley and then grinding or securing the edges of the rim. 5th. Centering the pulley centre or spider upon a chuck or mandrel, and then subjecting it to the various operations in the process of manufacturing without removing it therefrom, whereby all the work is done from a common centre and absolute accuracy ensured. 6th. The belt pulley having the ends of the spider arms ground off concentrically with the axis of the pulley. 7th. A belt pulley in which the rim and the ends of the spider arms are ground off concentrically with the axis of the pulley. 8th. A composite belt pulley having the arm bracket of its spider or centre over which the rim joint is made, formed of a greater length than the other arm brackets of said spider. 8th. A belt pulley having the arm bracket diametrically opposite to that over which the rim joint is made of an approximate length or weight thereto, the balance of the arm brackets being of a lesser length and weight.

**No. 15,208. Improvements in Ditching and Excavating Machines.** *(Perfectionnements aux machines à fossayer et à creuser.)*

Fawcett Plumb, Streaton, Ill., U.S., 31st July, 1882; for 5 years.

*Claim.*—1st. In a ditching machine, the combination, with the main frame of a cutting and excavating wheel mounted in a vertically adjustable swinging frame journaled at one end upon the shaft from which motion is imparted to said wheel, a gear wheel or pinion ar-

ranged to mesh with an internal gear on the cutting and excavating wheel, and a chain for actuating said pinion from the driving shaft. 2nd. In combination with the main frame and a vertically adjustable swinging frame journaled on the engine shaft, a cutting and excavating wheel journaled in said swinging frame and driven by a pinion meshing with an internal gear on said wheel, and an inclined shelf and shield. 3rd. In combination with a vertically adjustable cutting and excavating wheel, an inclined shelf and a vertically adjustable shield. 4th. In combination with a cutting and excavating wheel provided with an internal gear, stationary side disks and a pin on arranged to mesh with said internal gear, the pinion being secured to a shaft supported in brackets attached to a vertically adjustable swinging frame. 5th. In combination with an engine, vertically adjustable cutting and excavating wheel and mechanism for revolving said wheel by the power of the engine, a draft chain adapted to be staked to the ground at one end, and a sprocket wheel connected with a shaft arranged and adapted to be driven by the engine, said draft chain being arranged to engage with said sprocket wheel and thereby adapted to draw forward the machine. 6th. A revolving wheel carrying cutters and scrapers on its periphery and operated by internal gearing, said internal gearing being enclosed by disks of metal or wood, which prevent the ingress of dirt. 7th. In combination with a chain, one end of which is staked in front of the machine, and the other end passing backwards through a ring in the draft pole, and from thence under the machine of a sprocket wheel over which said chain passes, and a receiver to hold the slack chain as the same is wound over the sprocket wheel. 8th. In combination with the draft chain, a chain receiver for receiving the slack portion of the chain. 9th. A ditching machine comprising the following parts, to wit: a vertically adjustable cutting and excavating wheel, a boiler engine and gearing for rotating said wheel, a draft chain adapted to be staked to the ground at one end, and gearing actuated by the engine for winding up the draft chain and rotating the cutting and excavating wheel, simultaneously or independently.

**No. 15,209. Improvements in Anti-Friction Bearings.** (*Perfectionnements aux coussinets à anti-friction.*)

Etienne Salomon and Edmond Armand, Montreal, Que., 31st July, 1882; for 15 years.

*Claim.*—The combination, with a revolving shaft provided with an enlargement or collar and a suitable frame work, of the sleeve C surrounding said shaft and adjustably screwed into said frame work, and the round balls G G arranged between the frictional surfaces of the parts mentioned.

**No. 15,210. Improvements in Machines for Dressing Warp.** (*Perfectionnements aux machines à parer la chaîne.*)

William Titmas, Brantford, Ont., 31st July, 1882; for 5 years.

*Claim.*—The placing of the rollers E F.

**No. 15,211. Improvement on Governors.** (*Perfectionnement des gouverneurs.*)

Junius Judson, Rochester, N. Y., 31st July, 1882; for 5 years.

*Claim.*—1st. The combination of springs connecting the balls and a spring tension device connected with the valve rod by lever work, whereby the action upon the governor is equalized. 2nd. The piston B constructed with heads K K made flat and square on their faces, the upper head being bevelled on the lower edge of its periphery.

**No. 15,212. Improvement on Saw Mills.** (*Perfectionnement des scieries.*)

Constantin A. Hege, Salem, N. C., U. S., 31st July, 1882; for 5 years.

*Claim.*—1st. The combination, with the log beam A and standard Q carrying dial plate B and indicator O, of the shaft T having wheel C and pinion n, pointer wheel N, graduated plate S and suitable connecting levers or rods having pawls, for operating the wheel C in setting the log. 2nd. The combination, with the standard Q and wheel C, of the drop pawls I J and their lifters G H arranged on opposite sides of the pointer wheel wheel N and operated by levers F E, the latter being provided with a connecting rod M, sleeve K and handle L for the purpose of operating the log beam in setting the carriage. 3rd. The combination with the log beam F of the slide rest standard a having slide b, worm d and crank e. 4th. The combination, with the double eccentric 8 and grooved pulley 6 on the shaft of the cone pulley 12, of the yoke 1 having handle 2, and arm 3 carrying pulley 4 arranged for the purpose of controlling the feed of the carriage.

**No. 15,213. Improvements in Regulators for Nursing Bottles.** (*Perfectionnements aux régulateurs des biberons.*)

Willard C. Carpenter, North Stratford, N. H., U. S., 31st July, 1882; for 5 years.

*Claim.*—The combination, with the flexible tube b, of the tube d, transversely apertured plug e having pin s, and the packing rings ff.

**No. 15,214. Improvements on Thill Couplings.** (*Perfectionnements à la pose des limonnières.*)

Oscar Tower, Wilson, N. Y., U. S., 31st July, 1882; for 5 years.

*Claim.*—1st. The combination of the axle A, bearing block B secured to the underside of the axle by means of suitable clips, the coupling iron E having a screwed stem threaded prong which passes through this block and receives a nut F upon its rear end, and a thill iron in front. 2nd. The shoulder d on the coupling bolt E, and the recess b and shoulder b' on the bearing B.

**No. 15,215. Improvements on Drying Kilns.**

(*Perfectionnements aux tourailles.*)

Edward M. Flaherty, New Baltimore, Mich., U. S., 31st July, 1882; for 5 years.

*Claim.*—1st. The combination, with a dry kiln, of the perforated pipes G, the metal sections H arranged above the pipes and in close proximity thereto, and the outlet J, the pipes and metal sections being located below the beams E of the kiln and the outlet above the same. 2nd. A drying kiln provided with one or more tracks adapted to allow cars containing material to be dried, to run into and out of said kiln, in combination with the door C, the hinged doors K at the top of the kiln, the outlets J at the bottom of the kiln, the perforated pipes G under the track or tracks, the metal sections H arranged in close proximity to the pipes G and also under the track or tracks, and means for opening and closing the hinged doors K.

**No. 15,216. Improvements in Grinding wood for Paper Pulp.** (*Perfectionnements dans la trituration du bois pour la pâte à papier.*)

Stephen M. Allen, Duxbury, Mass., U. S., 31st July, 1882; for 5 years.

*Claim.*—1st. In a wood grinder having an abrading surface adapted to reduce wood without destroying its fibre and composed of select granular particles of quartz, emery, corundum or similar material set in and consolidated by rubber or other similar water-proof binding medium. 2nd. Subjecting the wood to the action of an abrading surface composed of granular particles of emery, quartz, corundum or like material embedded in rubber or similar binding medium, and kept wet with water during the grinding operation. 3rd. The manufacture of emery or artificial stone grinders by sharpening the granules of abrading material by treatment with dilute acid, before incorporation with the binding or cementing medium. 4th. The method of sharpening the particles of abrading material in grinders of emery or artificial stone by treating the abrading surface with dilute acid. 5th. The method of making emery or artificial stone grinders by coating the granules with rubber or similar water proof substance, and then incorporating the coated granules with rubber or similar material and consolidating the mass. 6th. An emery or artificial stone grinder having a surface composed of particles of abrading material coated with a film of rubber or water proof resinous material and embedded in the same or similar material.

**No. 15,217. Improvements on Log Decks for Saw Mills.** (*Perfectionnements aux montées des scieries.*)

Peter Musser, Muscatine, Iowa, U. S., 31st July, 1882; for 5 years.

*Claim.*—1st. In an inclined plane or log deck of saw mills, the combination with rotary arms of a suitable stop mechanism to hold said arms but permit of their partial rotation by the weight of the log, when the stop is tripped or leased. 2nd. The combination, with rotating arms, of a stop mechanism consisting of a sliding bar operated by a suitable lever.

**No. 15,218. Improvements in Combined Covers and Blotters.** (*Perfectionnements aux reliures et aux brouillards combinés.*)

Jesse W. Payson, Hyde Park, Mass., and William M. Scribner, Chicago, Ill., U. S., 31st July, 1882; (Ext. of Pat. No. 7705.)

**No. 15,219. Improvements in Saw Handles.** (*Perfectionnements aux bras des scies.*)

The Montreal Saw Works, Montreal, Que., (Assignees of Alexander Sloan, Newark, N. J., U. S.,) 31st July, 1882; for 5 years.

*Claim.*—1st. In combination with a one man cross-cut saw, a handle secured thereon and capable of being detached from and shifted to any part of the blade. 2nd. In a saw handle, the combination of the following elements, a pin secured into the handle and fastened to the saw, and a loose washer clipping the saw and held in place by the handle. 3rd. The combination, with the handle A, of the sleeve B threaded and provided with ribs bb. 4th. The combination, with the handle A and sleeve B, of the pin D with end D1, and pin F securing same to saw. 5th. The combination, with the sleeve B and saw, of the split screwed pin G.

**No. 15,220. Improvements on Pantaloon Waist Band Attachments.** (*Perfectionnements aux renforts des ceintures de pantalons.*)

Alfred Brown and William E. Brown, Ottawa, Ont., 31st July, 1882; for 5 years.

*Claim.*—1st. In an elastic band for removable attachment to the waist band of pantalons composed of the inelastic end sections A A provided with button holes B, and the slanting cut of these sections A A giving length of elastic to the lower part of the band, thus adapting it to the fit of the round of the hips and spread of the seat in sitting or stooping, also the number of alternate sections elastic and inelastic formed and attached to, or included in the waist band of pantalons, whereby the size of the folds is determined. 2nd. The elastic sections E E secured to sections A A and centrally divided by inelastic section E, provided with button hole D to attach it rigidly to the pantalons.

**No. 15,221. Improvements on Self-Acting Elevator Safety Apparatus.** (*Perfectionnements aux appareils de sûreté automatiques des ascenseurs.*)

James McCarroll, New York, N. Y., U. S., 31st July, 1882; for 5 years.

*Claim.*—1st. The combination of latches pivoted upon the sides, of

an elevator shaft or frame and adapted to engage projections or recesses in the elevator, with a spring brought into play by the tension thereon of the main rope under the weight of the elevator suspended therefrom, and with intermediate cords by which the spring, when relieved from tension, will be made to act upon the latches, and throw them into effectual engagement with the elevator to arrest and support it. 2nd. The cam hollow tube and auxiliary chains in their connection with the latches.

**No. 15,222. Improvements in Steam Cylinders and Pistons.** (*Perfectionnements aux cylindres et aux pistons de vapeur.*)

William Hanna, Gilroy, Cal., U.S., 31st July, 1882; for 5 years.

*Claim.*—The combination, with cylinder A and piston rod D, of tube E, piston B, nuts c and springs b.

**No. 15,223. Improvements on Bicycles.**

(*Perfectionnements aux bicycles.*)

William Kamyson, Morristown, Penn., U.S., 31st July, 1882; for 5 years.

*Claim.*—1st. The steering yoke of which is furnished with a steering bar or handle connected to the yoke, whereby it is capable of yielding in the direction of the length of the yoke, when subjected to pressure. 2nd. In a bicycle in which the steering yoke is combined with a steering bar or handle, which rests in or upon the yoke but is not fixed thereto, whereby it is capable of being instantly detached therefrom. 3rd. The combination of the steering yoke of a bicycle, with a yielding or detachable steering bar or handle, capable of being readily locked to, or released from the steering yoke.

**No. 15,224. Improvements on Churns.**

(*Perfectionnements aux barattes.*)

George Morehouse, Aylmer, Que., 31st July, 1882; for 5 years.

*Claim.*—1st. The combination, with the churn B, of the sunken and flanged cover F, disk H, batten I and bar G secured at the ends by thumb screws J, for closing the opening into the churn. 2nd. The spring and swing arms D holding a cork or stopper C, overholds at the upper and lower diagonal corners of the churn whereby the liquid contents can be flowed therefrom without removing the box from the stand. 3rd. In combination with a cube churn, the observing glass E.

**No. 15,225. Improvements on Plugs for Electrical Switch Boards.** (*Perfectionnements aux bouchons des tables-commutateurs électriques.*)

Aarry W. Leland, South Framingham, Mass., U.S., 31st July, 1882; for 5 years.

*Claim.*—1st. In a switch board plug supporting a back contact, a terminal or anvil and a spring key, said parts being connected respectively with the operator's telephone, with a generator or battery and with one of the metal plates of the plug, whereby the operator is enabled to manipulate the key and make and break the usual connections with the same hand that holds the plug. 2nd. A switch board plug supporting one or more back contacts, one or more terminals or anvils and one or more spring keys, said parts being connected respectively with the operator's telephone, a battery or generator and one or both of the metal plates of the plug, whereby the operator is enabled to make and break the usual connections with the same hand that holds the plug, and when two back contacts, spring keys and terminals are provided, the operator is enabled to connect both of the metal plates of the plug with a generator or battery, and thereby send currents to both parts of a line circuit into, which the plug is inserted.

**No. 15,226. Improvements on Car Heaters.**

(*Perfectionnements aux calorifères des chars.*)

Ira A. Salmon, Boston, Mass., U.S., 31st July, 1882; for 5 years.

*Claim.*—1st. The heater constructed as shown and to operate as described. 2nd. In a heater, the water and overflow chambers connected water conducting and heating tubes condensing drum and pipes to join it with the heater, combined with the door, its draft slide to automatically control the movements of the draft slide as the pressure of the steam in the heater varies. 3rd. The water chamber pipes G, overflow and steam chamber, fire pot and extension of the fire pot to form flue P, combined with the damper and uptake and cover. 4th. The jacket, fire pot, overflow and steam chamber tubes and water chamber combined with the ash space, in connection with the space between the fire pot and the jacket. 5th. The jacket, fire pot, ash space, grate and ash pit combined with the door opening through the ash space into the fire pot at the top of the grate.

**No. 15,227. Improvements on Drive Chains.**

(*Perfectionnements aux chaînes sans fin.*)

Francis M. Lechner, Columbus, Ohio., U.S., 31st July, 1882; for 5 years.

*Claim.*—1st. A chain link, the side bars of which are detachable connected together at one end by lateral projections which are formed integrally with the side bars and which engage directly with each other, to form a hinge having an axis perpendicular to the side bars, and locking devices connected permanently with, and carried by the side bars, and arranged to be carried into and out of engagement by the side bars when they move around said axis, in combination with an anti-friction roller adjusted to be mounted on the hinge connection between the side bars provided as aforesaid. 2nd. A chain link constructed with the side bar A, the side bar A' and the end bar B, formed integrally with the side bar A' and perpendicular thereto, means formed integrally with the side bar A for detachably connecting said end bar to side bar A and arranged to move into and out of engagement with end bar B on straight lines, and locking devices connected permanently with the side bars and carried into and out of

engagement, when the side bars are rocked relatively to each other in different but parallel planes, whereby the link is adapted to have an anti-friction roller passed longitudinally on the said end bar B, and to lock said roller in position when the side bars are oscillated. 3rd. The side bar A with the end bar B and projection A, in combination with the side bar A' having the laterally projecting bar B' provided with the socket b, slot D and the stop d'. 4th. The side bar A' with the socketed or hollow end bar B, provided with a slot D, and with the recess d communicating with the slot D and with the socket, in combination with the side bar A having the end bar B and the projection E adapted to pass through the slot D into the recess d'. 5th. The side bar A' having at one end the eye F, and at the other end the laterally projecting end bar B', formed integrally with the side bar A' and provided with a socket formed on straight lines transverse to the side bar, in combination with the opposite side bar A having the eye F at one end, and the laterally projecting bar B' at the other end, formed on straight lines transverse to the side bar, and adapted to slide longitudinally into the end bar B', and means for locking the two side bars together when they are in the same plane.

**No. 15,228. Improvements on Harness Loops.** (*Perfectionnements aux passants des harnais.*)

Andrew J. Dennis, Nicholasville, Ky., U.S., 31st July, 1882; for 5 years.

*Claim.*—In a harness loop for attachment to a saddle strap having the upper slot c, the lower slot c', and tongue F rivetted to said loop or to the back band and adapted to pass through the upper slot, through a link of the chain, within said loop and out through the lower slot.

**No. 15,229. Improvements on Water Elevators.** (*Perfectionnements aux patenôtres.*)

John H. Beers and Joseph Ridge, Chicago, Ill., U.S., 31st of July, 1882; for 5 years.

*Claim.*—The combination of buckets A A having contracted lower parts or bottoms, their outer faces being inclined while their inner faces are parallel with the chain to which they are attached, the chain d, a windlass over which the chain passes and the wheel B suspended by the chain.

**No. 15,230. Improvements on Tools for Dressing Cylinders.** (*Perfectionnements aux outils pour parer les cylindres.*)

Joseph N. Smith, Brooklyn, N. Y., U.S., 31st July, 1882; for 5 years.

*Claim.*—1st. A tool for dressing cylinders comprising a frame to support the mechanism, a fixed axial screw, a tubular shaft mounted rotatively in the frame and bearing a nut which screws on to the said axial screw, a milling wheel or cutter mounted on an arm fixed to the tubular shaft, a toothed wheel mounted on the axial screw and arranged to slide longitudinally thereon, pinion mounted on the cutter bearing arm and arranged to mesh with the sliding toothed wheel on the axial screw, and a train of gears arranged between said pinion and the milling wheel, whereby the latter is rotated. 2nd. In a tool for dressing cylinder comprising a frame to support the mechanism, a tubular shaft F mounted rotatively in said frame, an axial screw spindle G capable of being clamped fast to the frame and having a male screw to engage a female screw in the shaft F, a cutter M, a pinion t and an intermediate train of gears mounted on an arm or plate on the shaft F, and a toothed wheel K mounted to slide on the axial spindle and to mesh with the pinion t, whereby rotation of the shaft F imparts axial rotation to the milling wheel and causes it to move in a spiral orbit. 3rd. The combination of the axial screw spindle, the tube H provided with a hand wheel, a clamp to fix said tube H to the fixed frame of the tool, a tubular shaft F mounted rotatively in the frame and provided with a longitudinal groove m, a worm wheel on said shaft mounted rotatively in keepers on the frame and provided with a spline to engage the groove m in the shaft, a worm h to drive said worm wheel, an axial spindle G fixed in the tube H and provided with a male screw to engage a female screw in the shaft F, a toothed wheel K mounted in keepers on the shaft F and provided with a spline s to engage a longitudinal groove in the axial spindle, a cutter M, adjustable pinion t and an intermediate train of gears mounted on an arm attached to the shaft F. 4th. The combination, with the supporting legs of the frame, and the adjusting screws mounted rotatively therein, of the frame provided with guides arranged to slide in keepers on the supporting legs, and provided with nuts to engage the adjusting screws on said legs, whereby the axis of the frame may be properly adjusted to the axis of the cylinder. 5th. The frame for supporting the operative mechanism of the tool having three or more arms mounted adjustably in keepers on the supporting legs, the said legs, the worm wheel D, tubular shaft F, tube H provided with a suitable clamping flange, axial screw spindle G, the worm h, toothed wheel K, plate J, pinion t, milling wheel M, and the intermediate train of gears to drive said wheel. 6th. The milling wheel mounted rotatively on a plate or arm, mounted on and arranged to turn on the same axis with the driving gear wheel v, the said wheel mounted on an arm or plate fixed to the shaft F, the wheel K and the intermediate train of gears all combined and arranged to operate as described. 7th. The combination, with the plate J, of the plate L mounted thereon and provided with a curved rake L' and the pinion Z. 8th. The combination of the pinion t, arbor r, screw-threaded sleeve r' mounted rotatively between shoulders formed on or fixed to said arbor, and the rocket z. 9th. The combination to form a clamping device consisting of the jaw r, the sliding jaw and the pin provided with an eccentric, which has a bearing in the sliding jaw. 10th. The combination of sliding bed upon which the driving worm is mounted, the said worm, the worm wheel, means for adjusting the sliding bed to and from the worm wheel, the jaw r fixed on said sliding bed and the clamping flange on the hand wheel, the said jaw being arranged to stand out of contact with the clamping flange, when the worm is engaged with the worm wheel. 11th. The combination, with the clamping flange q, of the sliding bed d, the clamping jaw r' mounted thereon, the sliding jaw r' and mechanism for actuating the sliding jaw and the sliding bed.

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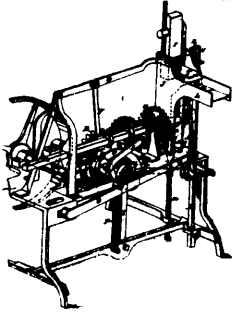
- No. 15,326. M. B. Sherwood, Buffalo, N. Y., "Phosphorescent Compositions," 17th August, 1882.
- No. 15,327. A. Fales, Denver, Colorado. "Variable Bench Plane," 17th August, 1882.
- No. 15,328. F. O. Tucker, Hartford, Conn., "Stop Motion for Looms," 17th August, 1882.
- No. 15,329. L. Hay, Ottawa, Ont., "Improvements in stock Cars," 17th August, 1882.
- No. 15,330. E. P. Monroe, New York, N. Y., "Metallic Packing and Support for Valve Rods," 17th August, 1882.
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- No. 15,333. F. Van Rysselberghe, Schaarbeck, Belgium, "Preventing Induction in Telephones," 17th August, 1882.
- No. 15,334. W. K. Parsons, Morrisburg, Ont., "Jointer and Sharpener for Circular Saws," 17th August, 1882.
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- No. 15,336. D. M. Kirkpatrick, Kansas, Miss., "Improvements in Sleicks," 17th August, 1882.
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- No. 15,338. R. J. Hoffman, Binghamton, N. Y., "Lubricators," 22nd August, 1882.
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- No. 15,346. F. A. Boeder and A. Springer, Cincinnati, Ohio, "Torsional Balances," 22nd August, 1882.
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- No. 15,348. D. N. Baldwin, Albert, N. B., Assignee, "Carpet Fastener," 22nd August, 1882.
- No. 15,349. G. W. Hunter, Yo. Simile Valley, Cal., "Harness and Trace Coupling, Neck Yokes and Pole Clips," 22nd August, 1882.
- No. 15,350. H. F. Gray, Columbus Ohio, "Clothes Racks," 22nd August, 1882.
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- No. 15,352. P. Lord, J. B. Vinet and A. S. Vinet, Montreal, Que., "Car Brake," 22nd August, 1882.
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- No. 15,359. C. Roehl and C. F. Klenze, Davenport, Iowa, "Adjustable Horse Collars," 23rd August, 1882.
- No. 15,360. W. W. Kitchen, Grimsby, Ont., "Churns," 23rd August, 1882.
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- No. 15,368. S. L. Marsden, New Haven, Conn., "Stone and Ore Crusher," 25th August, 1882.
- No. 15,369. The Garrettson Ruffer Company, Okaloosa, Iowa, Assignee, "Ruffer and Shirring Attachment," 25th August, 1882.
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- No. 15,372. W. O. Callender, London, Eng., "Manufacture of Waterproof Articles," 26th August, 1882.
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- No. 15,383. F. T. Howard, Providence, R. I., "Protectors for Telegraphic Instruments," (Ext. of Patent No. 14,908), 28th August, 1882.
- No. 15,384. F. T. Howard, Providence, R. I., "Protectors for Telegraphic Instruments," (Ext. of Patent No. 14,908), 28th August, 1882.
- No. 15,385. F. X. Rousseau, Montreal, Que., "Trap and Ventilator," (Ext. of Patent No. 7805), 29th August, 1882.
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- No. 15,387. J. B. Low and F. S. Low, Pulaski, N. Y., "Railway Train Signal," 29th August, 1882.
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- No. 15,389. W. F. Condon, East Saginaw, Mich., "Extinguishing Stove or Heaters and Ventilators," 30th August, 1882.
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- No. 15,398. F. Rathbone, Albany, N. Y., Assignee, "Coal Stove," 31st August, 1882.
- No. 15,399. W. M. Thomas and S. W. Skinner, Cincinnati, Ohio, "Electric Arc Lamps," 31st August, 1882.
- No. 15,400. A. R. Reese, Phillipsburg, N. J., and J. J. Detwiler, Easton, Penn., "Machines for Quarrying Slate and other Rocks," 31st August, 1882.
- No. 15,401. J. B. Dewey, Colborne, Ind., D. H. Minaker, Cobourg, Ont., Assignees, "Improvement in Harness," 1st Sept. 1882.

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 ILLUSTRATIONS.

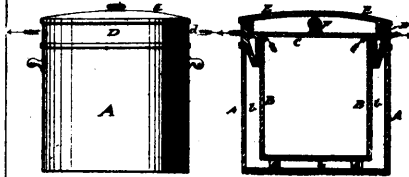
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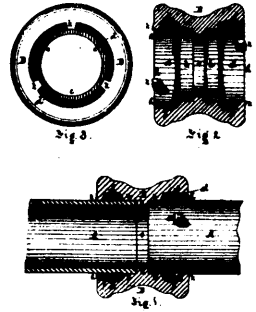
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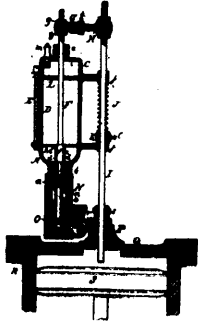
15048 West's Improvements on Can Filling Apparatus.



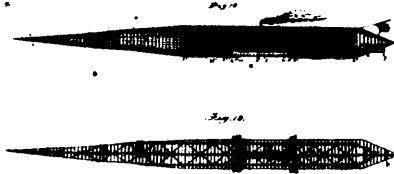
15044 Kewen's Improvements on Refrigerators.



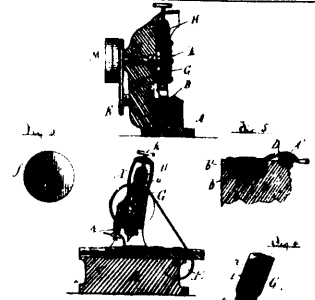
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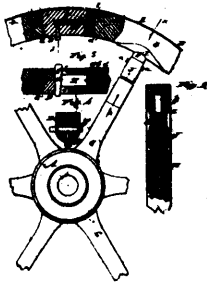
15046 Jewell's Improvements on Lubricators.



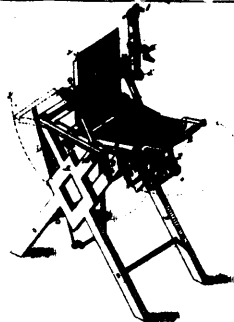
15047 Blackburn's Improvements on Aerial Vessels.



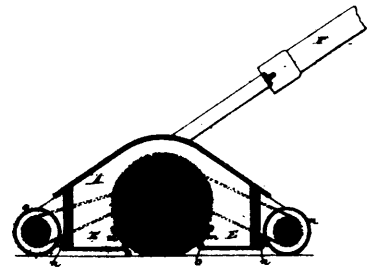
15048 Outram's Improvements on File Cutting Machines.



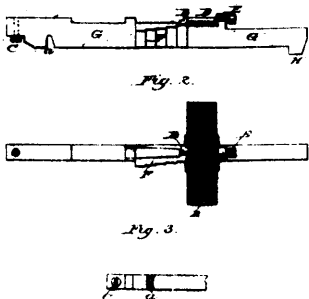
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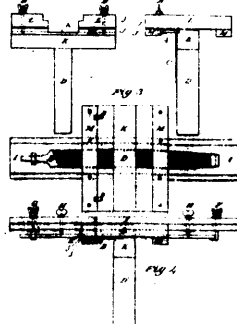
15051 Benton's Improvements on Machines for Casting Printer's Leads.



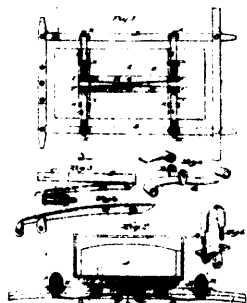
15062 Travis's Improvements on Carpet Sweepers.



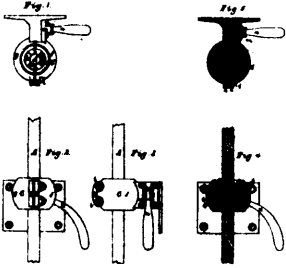
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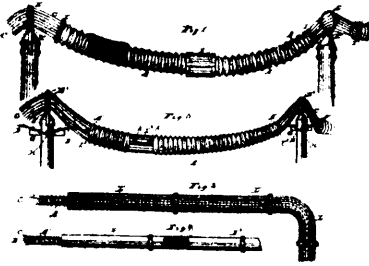
15054 Walsh's Improvements in Saw Jointers.



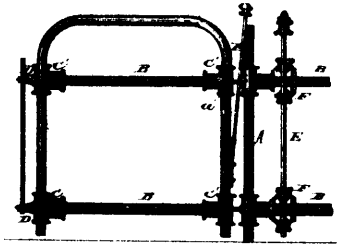
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15058 White's Improvements in Ball and Socket Joints.



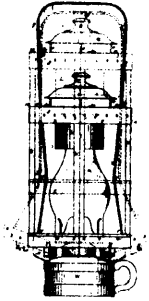
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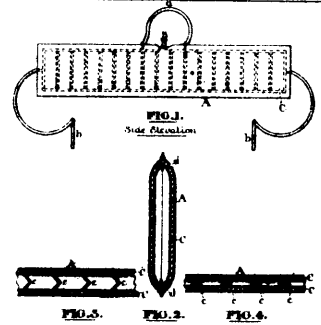
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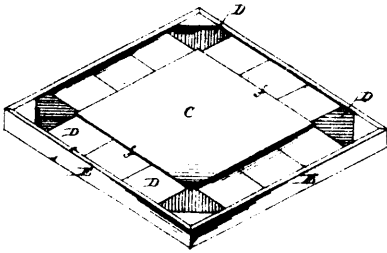
15059 Wesson's Improvements on Wire Fences.



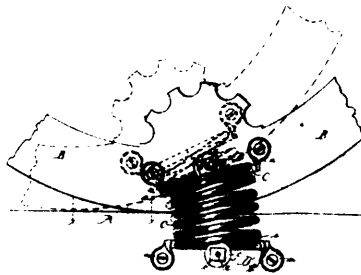
15060 Anderson's Improvements on Lanterns.



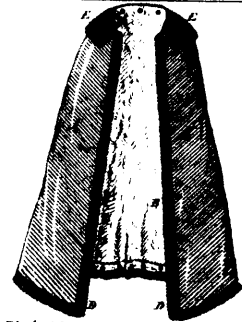
15061 Willard's Improvements in Life Preservers.



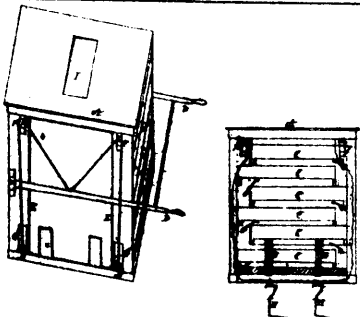
15062 Rice's Improvements on Stove Platforms.



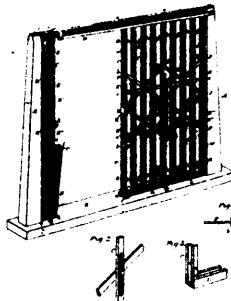
15063 Biersdorf & Bunker's Improvements on Platform Rocking Chairs.



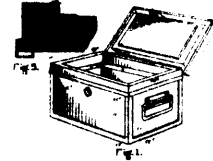
15064 Bindseil's Improvements on Reversible Cloaks.



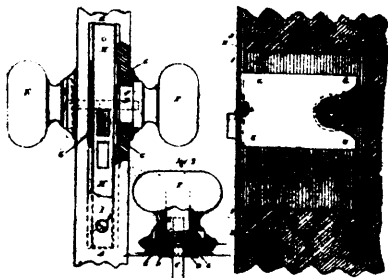
15065 Tiffany's Improvements on Fruit Evaporators.



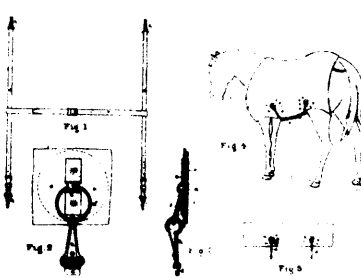
15066 Maddox & Humphries' Improvements on Gates.



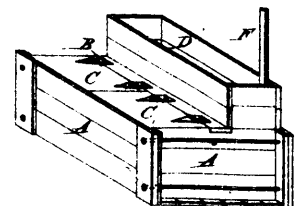
15067 Nolan's Improvements on Fire-Proof Boxes, Safes and Material.



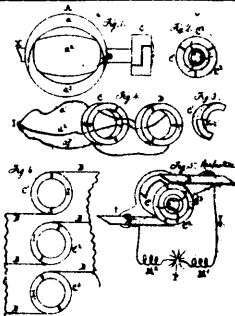
15068 Lattimer's Improvements in Knob Spindle Fastenings.



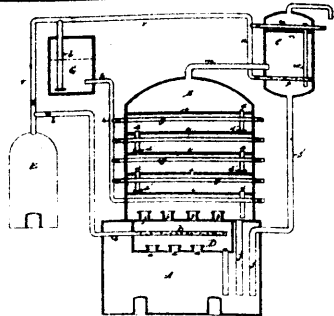
15070 Brown's Improvements on Adjustable Blanket Fasteners.



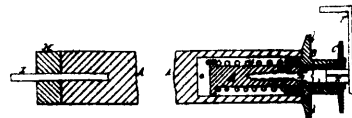
15071 Burrill's Improvements on Vats for Heating and Saturating Hoops.



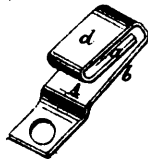
15072 Thomson's Improvements on Commutators for Dynamo-Electric Machines.



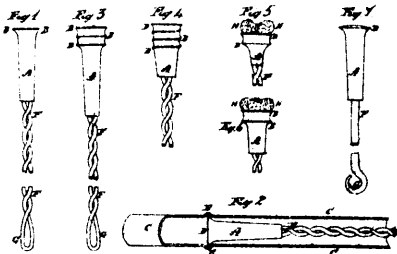
15073 Daul's Improvements on Apparatus for Rectifying Petroleum.



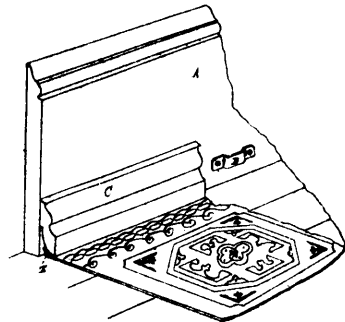
15077 Noyes's Improvements on Curtain Rollers.



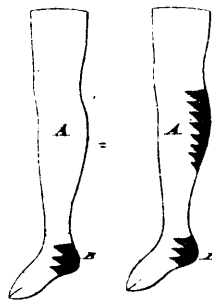
15078 Green's Improvements on Fastenings for Laces, Cords, &c.



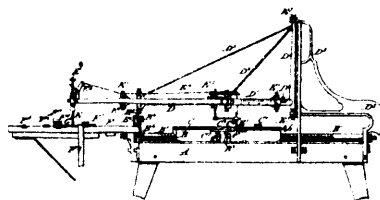
15079 Marshall's Improvements on Appliances for Cleansing Elastic Tubes used with Food Bottles.



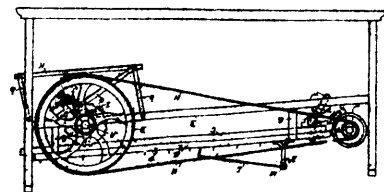
15080 Spittler's Improvements on Carpet Fasteners.



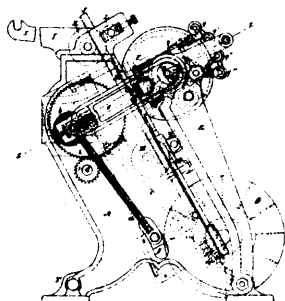
15081 Appleton's Improvements on Stockings.



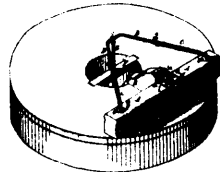
15082 Earle's Improvements in Engraving Machines.



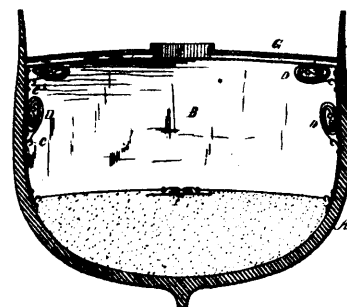
15083 Griffin's Improvements on Thrashing Machines.



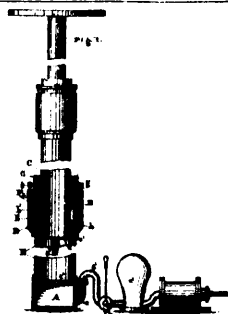
15084 Heckert's Improvements on Automatic Printing Presses.



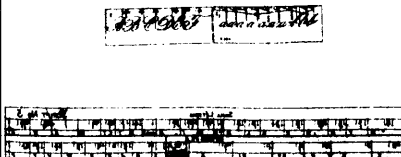
15085 Lehmann's Improvements on Millstone Shafts.



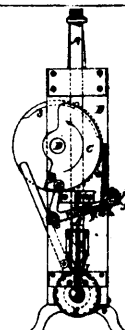
15086 Farrar's Mode and Means for Securing Shifting Bulk Cargo.



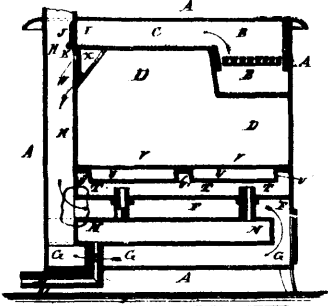
15087 Thayer's Improvements on Hydraulic Elevators.



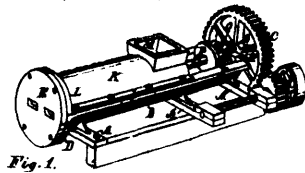
15088 Earle's Improvements in Method of Engraving Script.



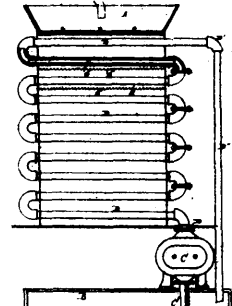
15089 Knowlton's Improvements on Nailing Machines.



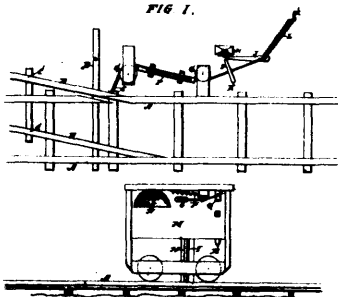
15090 Nicholson's Improvements on Cooking Stoves.



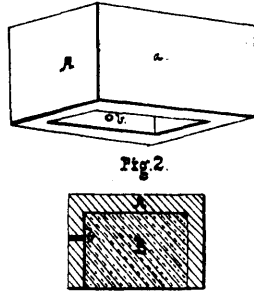
15091 Kells' Improvements in Brick Machines.



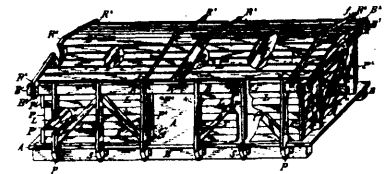
15093 Davis' Improvements on Process for Cooling Beer.



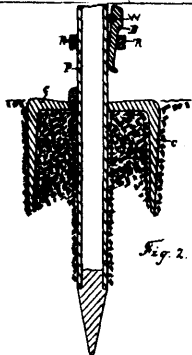
15094 Dunlap's Improvements in Railway Signal Apparatus.



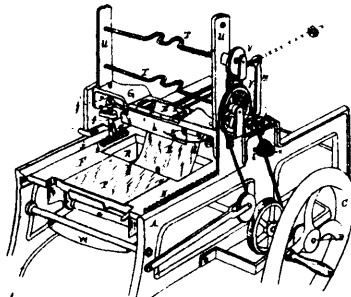
15095 Weems' Improvements on Artificial Stone.



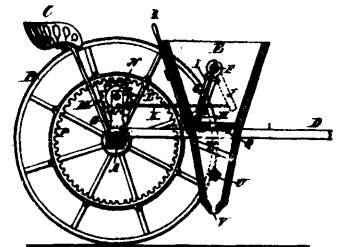
15096 Daigneau's Improvements on Freight Cars.



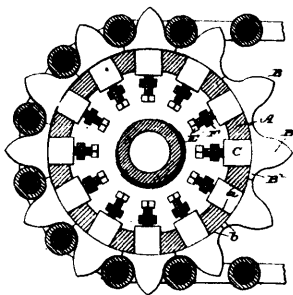
15097 Kinney's Improvements on Fence Posts.



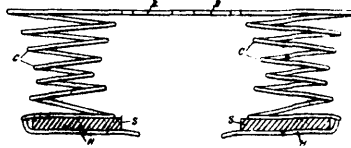
15098 Gordon's Improvements on Cigar Bunching Machines.



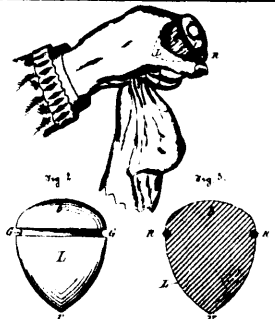
15099 Dickieson's Improvements on Broad Cast Sowers.



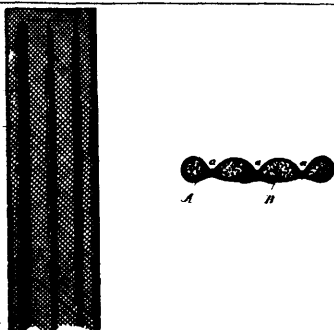
15100 Lechner's Improvements on Sprocket Wheels.



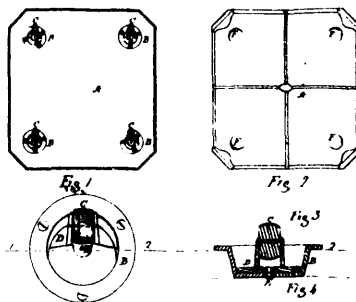
15101 Haller's Improvement in Bed Springs.



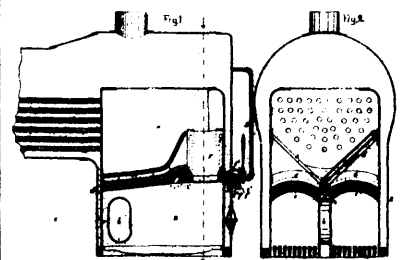
15102 Cochrane's Improvements in Darning Lasts.



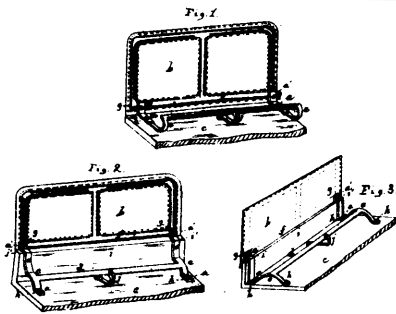
15103 Beck's Improvements on Lamp Wicks.



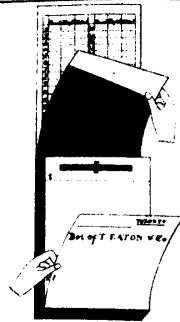
15104 Sterne's Improvements on Stove Boards.



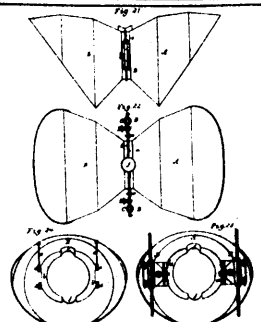
15105 Walker's Improvements on Fire Boxes of Steam Boilers.



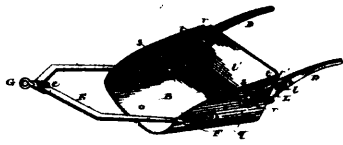
15106 Ayer's Combined Dash and Foot Rails.



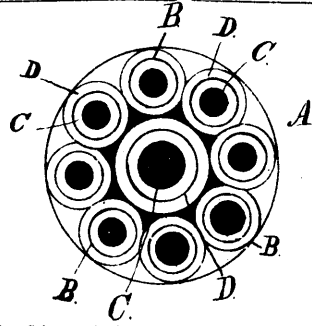
15107 Butterfield's Improvements in Check Books.



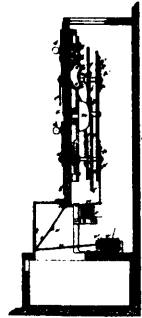
15115 Wheeler's Improvements in Reflector Attachments.



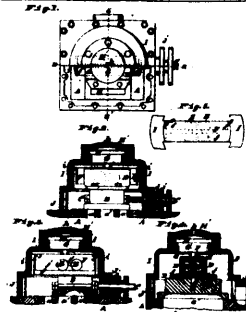
15116 Cosgrove & Welch's Improvements on Drag Scrapers.



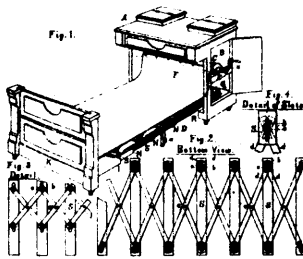
15117 Schoonmaker's Improvement in Lightning Rods.



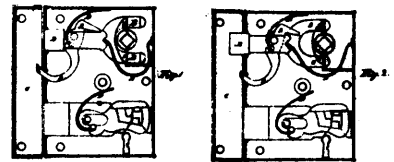
15118 Webb's Improvements in Tills.



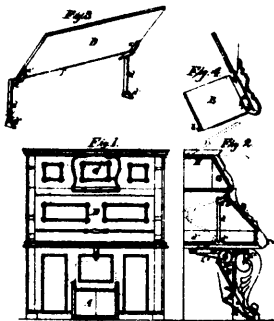
15119 Beach's Improvements in Balanced Slide Valves.



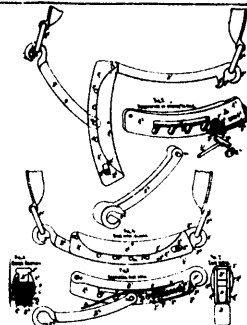
15120 Burnham's Improvements on Bed Bottoms.



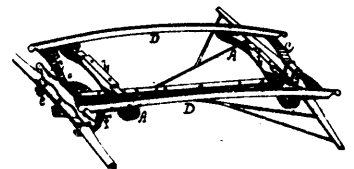
15121 Adams's Improvements on Mortise Door Locks and Latches.



15122 Whitney's Improvements on Cabinet Organs.



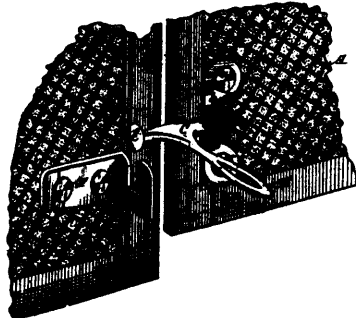
15123 Bell's Improvements on Ham Fasteners.



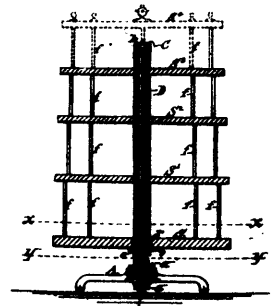
15124 Soule's Improvements on Running Gears of Vehicles.



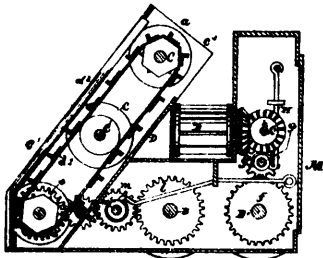
15129 Atwater's Improvements on Safety Elevators for Hatchways.



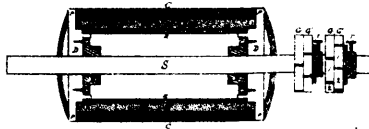
15130 Sweet's Improvements in Blanket Fasteners.



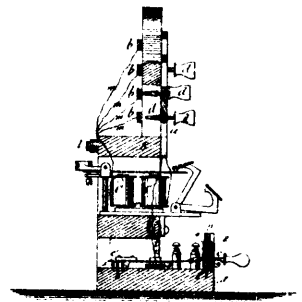
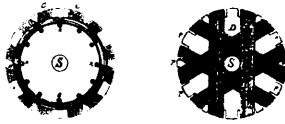
15131 Schell's Improvements on Revolving Book Cases.



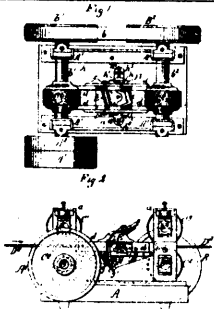
15132 Ayres's Improvements on Snow Ploughs.



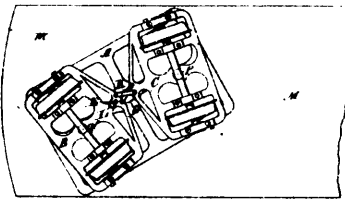
15133 Wright's Improvements on Armatures and Commutators for Dynamo Electric Machines.



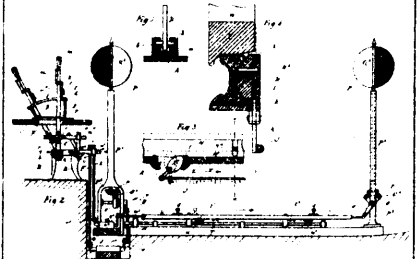
15134 Quimby's Improvements on Telephone Exchange Instruments.



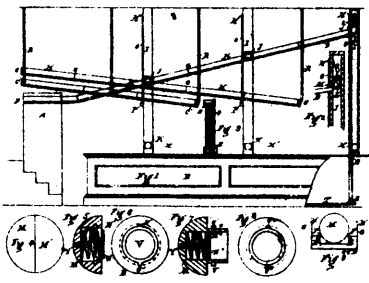
15135 Holland's Improvements in Wood Planing Machines.



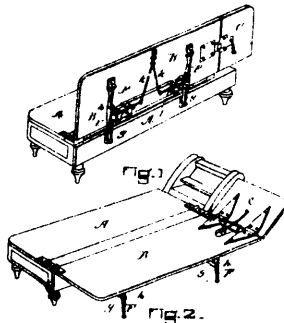
15136 Robinson's Improvements in Carriages for Railways, Tramways, etc.



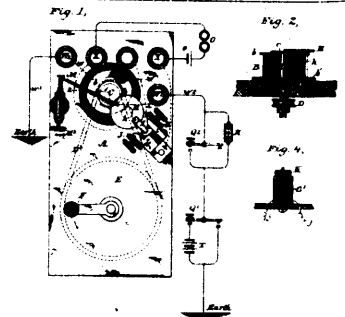
15137 Bonnell's Improvements in Interlocking Switches and Signals.



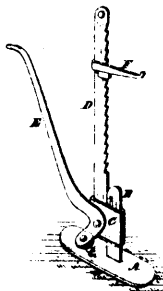
15138 Lamson's Improvements in Automatic Cash Carriers.



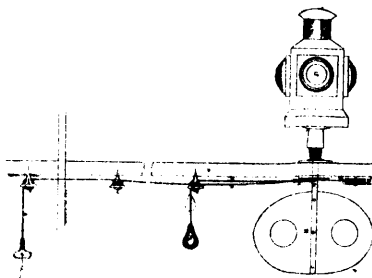
15139 Scofield's Improvements on Sofa Beds.



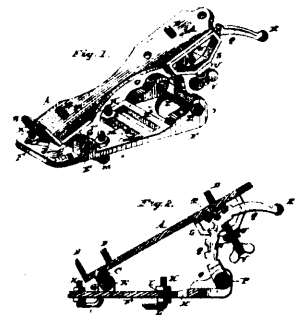
15140 Smith's Improvements on Telegraphic Receiving Instruments.



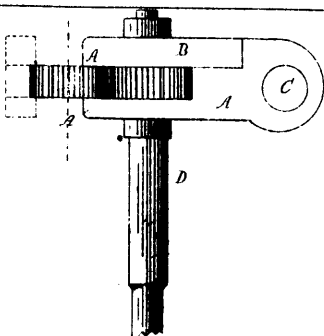
15141 Stewart's Improvements on Lever Lifting Jacks.



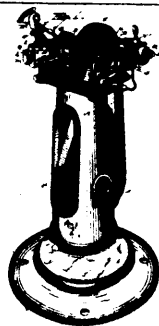
15142 Trites's Improvements on Telegraph and Railway Signals.



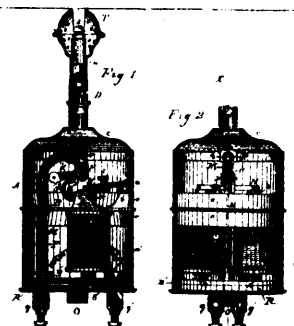
12143 Schultze's Improvements on Snath Fasteners.



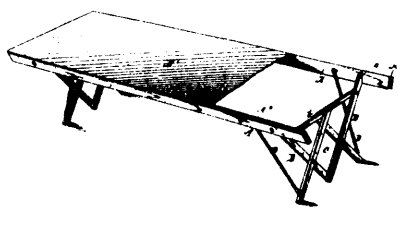
15144 Salomon's Improvements in Rotary Cutters.



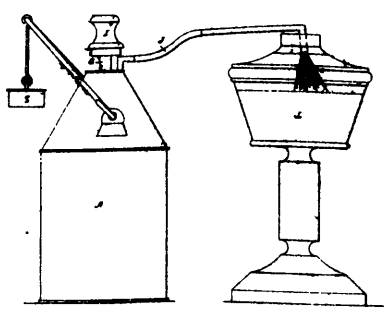
15145 Blakely's Improvement on Boots and Shoes.



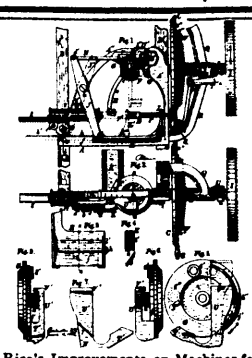
15146 Schooley's Improvement in Electric Gas Lighters.



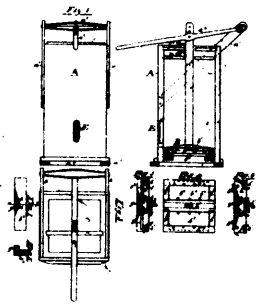
15147 Griffith's Improvements in Folding Beds.



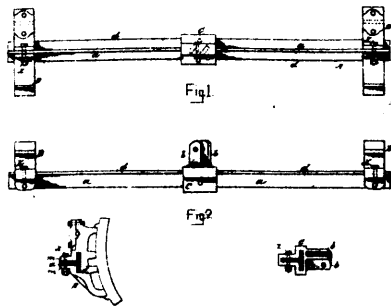
15148 Cuthbertson's Improvements in Lamp Fillers.



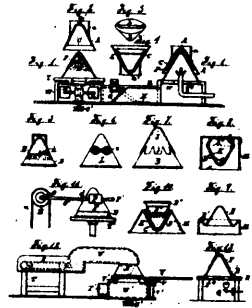
15149 Rice's Improvements on Machines for Paring and Coring Apples.



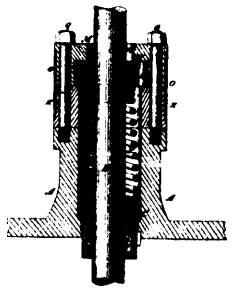
15150 Burke's Improvements on Churns.



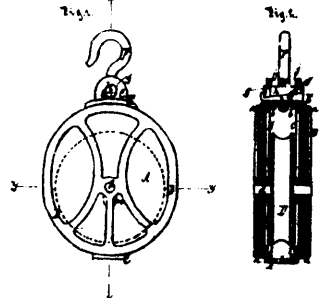
15151 Marden's Improvements on Car Brakes.



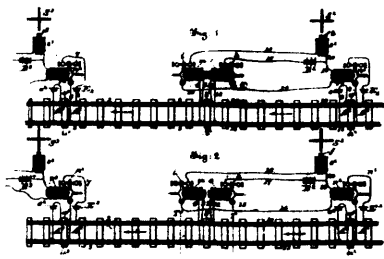
15154 Baglin & Yule's Improvements in the Manufacture of Napped Hats.



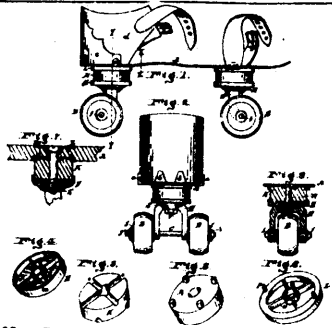
15155 Monroe's Improvements on Metallic Packing for Valve or other Rods.



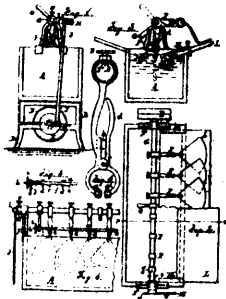
15156 Norcross's Improvements in Pulley Blocks.



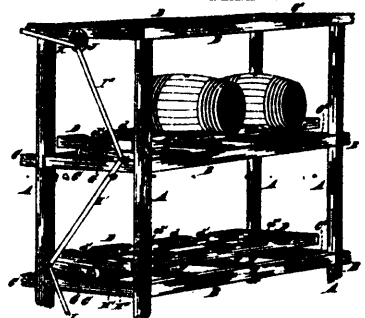
15161 Gassett's Improvements on Electric Signaling Apparatus.



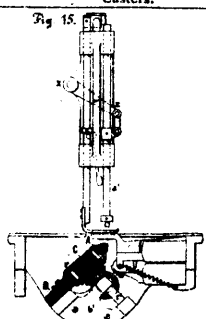
15162 Ross's Improvements on Roller Skates and Casters.



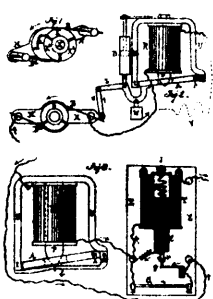
15163 Baglin & Yule's Improvements in Shaking Cotton from Napped Hats.



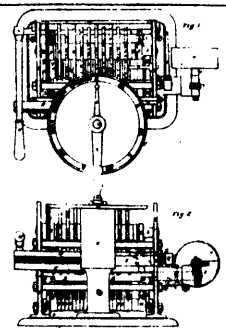
15164 Johnson's Improvements in Racks for Storing and Ageing Whiskey.



15165 Bruncker's Improvements in Sewing Machines.

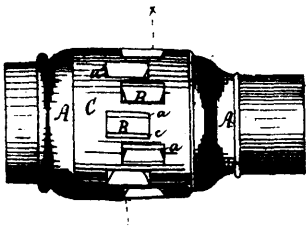


15166 Thomson's Improvements in Regulators for Electric Currents.

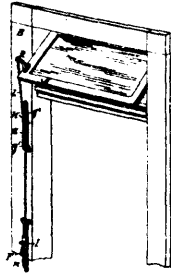


15167 Webster's Improvement in Mechanisms for Signalling.

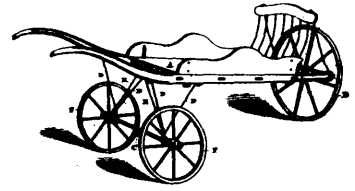




15168 Lajeunesse's Improvements in Wheel Hubs.



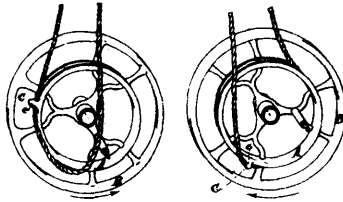
15169 Phillips's Improvement on Transom Lifters.



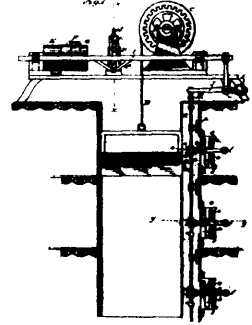
15170 Brewer's Improvements on Wheel Barrows.



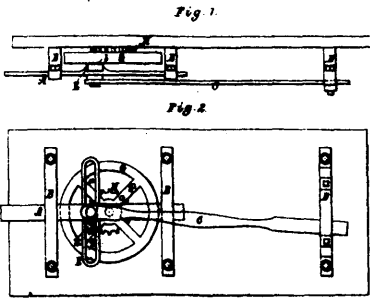
15171 Williamson's Improvements on Corsets and Shoulder Braces.



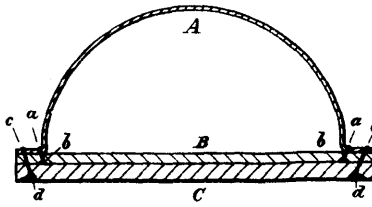
15172 McConnell's Improvements on Belt Replacing Devices



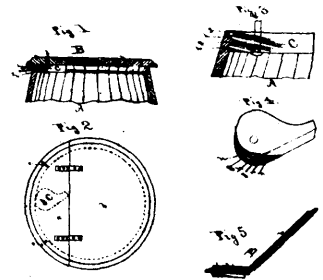
15173 Tewksbury's Improvements in Elevators.



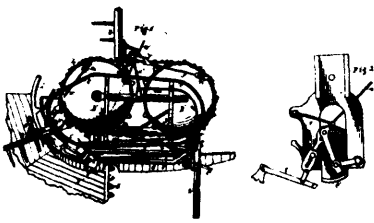
15174 Jesseman's Improvements on Sawing Machines.



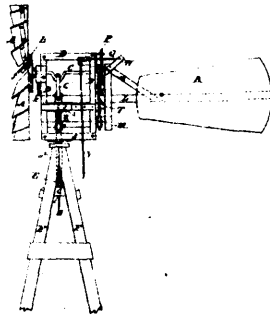
15176 Shippee's Improvements in Boots and Shoes.



15177 James & Fearn's Improvement in Barrel Covers.



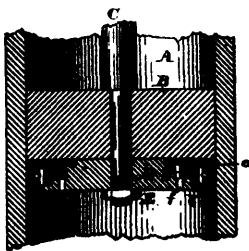
15178 Knapp's Improvements in Reel Rakes for Harvesters.



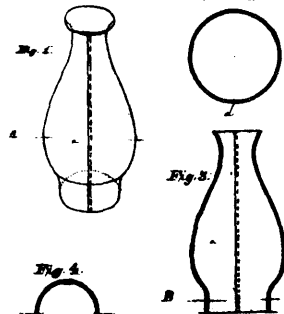
15179 Simons's Improvements on Wind Mills.



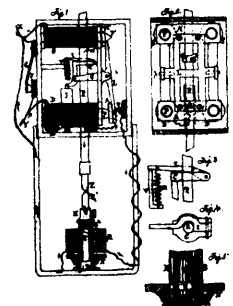
15180 Holland's Improvements on Hose Pipes.



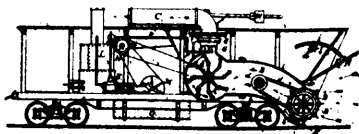
15181 Holland's Improvements on Hydraulic Packing Rings.



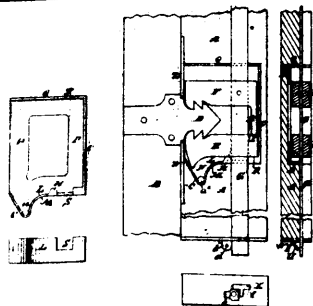
15182 James's Improvements in Glass Chimneys, Globes and Tubes.



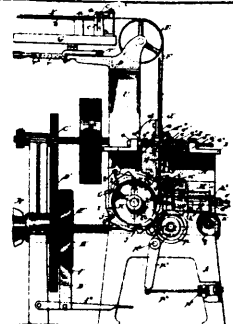
15183 Thomson's Improvements in Electric Lamps.



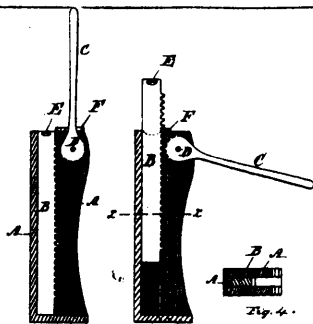
15184 Stock's Improvements on Snow Ploughs.



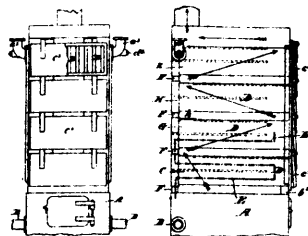
15185 Krepp's Improvements on Car Door Fasteners.



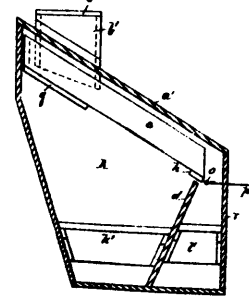
15186 Briggs' Improvements on Machines for Manufacturing Barbed Wire.



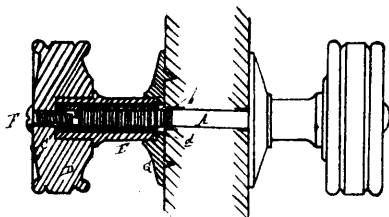
15187 Harvie's Improvements on Lifting Jacks.



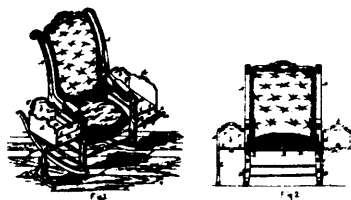
15188 Spence's Improvements in Sectional Boilers.



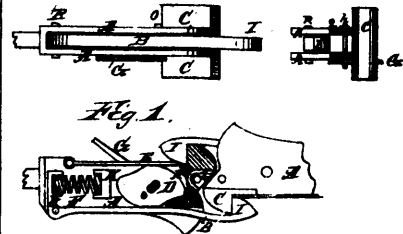
15189 Simpson's Improvements in Ash Sifters.



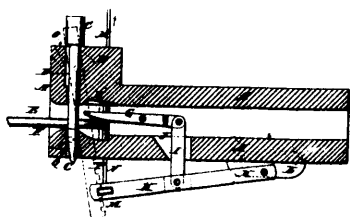
15190 Hidden's Improvement on Knob Attachments.



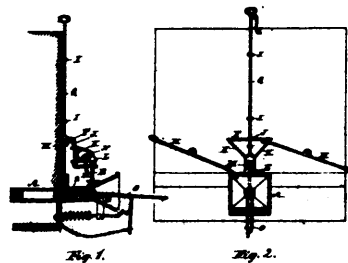
15191 McCaffrey & Leonard's Improvements on Rocking Chairs.



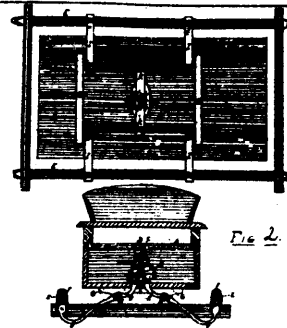
15192 McGiehan's Improvements in Car Couplings.



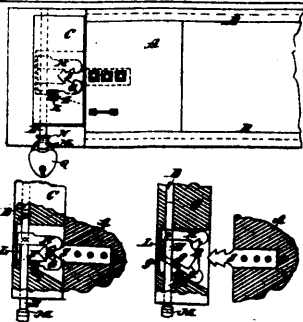
15193 Hartwell's Improvements on Car Couplings.



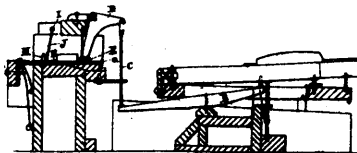
15194 Southwick's Improvements on Car Couplers.



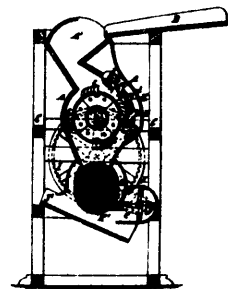
15195 Smith's Improvements in Vehicle Springs.



15196 Preston's Improvements on Car Door Locks.



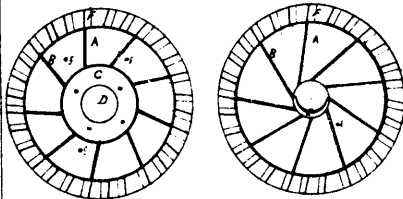
15197 Brown's Improvements on Organs.



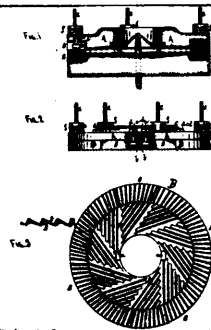
15198 Mallon's Improvements on Corn Shellers.



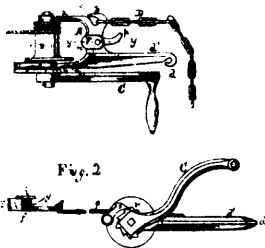
14199 Brazeau's Universal Picker (Nipper.)



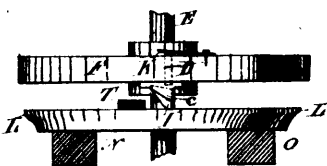
15200 Gardel's Improvements on Millstones.



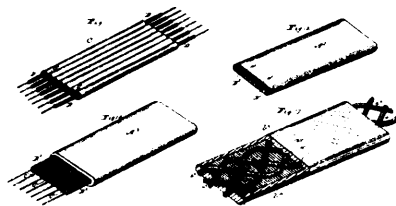
15201 Baker's Improvements on Machines for Reducing Grain to Flour.



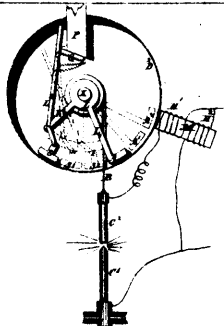
15202 Elwood's Improvement on Wire Stretchers.



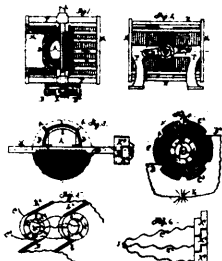
15203 Jones's Improvements in Apparatus for Actuating the Followers of Wood and Pumping Engines.



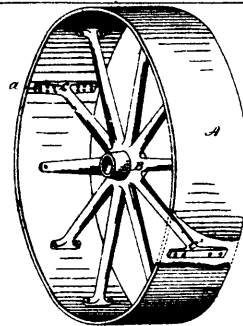
15204 Delaney's Improvements on Electric Cables.



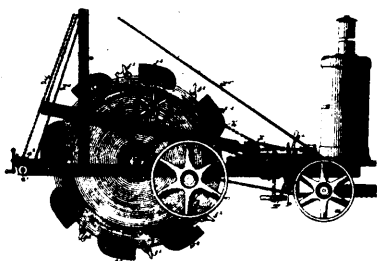
15205 Haskin's Improvements on Electric Light Regulators.



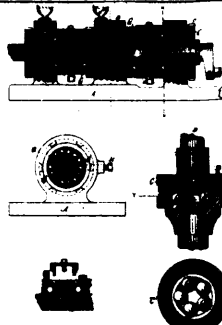
15206 Thomson's Improvements in Dynamo-Electric Machines.



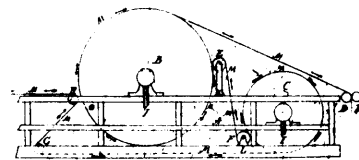
15207 Medart's Improvements on Belt Pulleys.



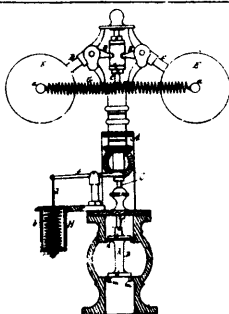
15208 Plumb's Improvements in Ditching and Excavating Machines.



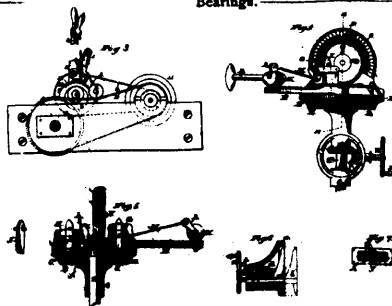
15209 Skisman's Improvements in Anti-Friction Bearings.



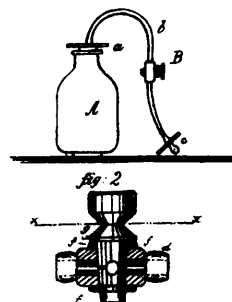
15210 Titmas's Improvements in Machines for Dressing Warp.



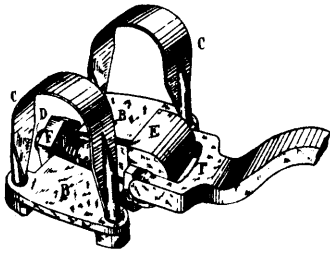
15211 Judson's Improvement on Governors.



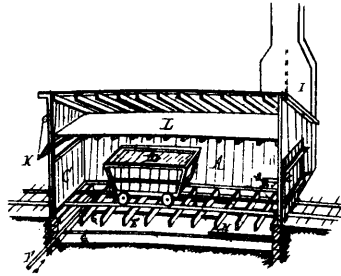
15212 Hege's Improvement on Saw Mills.



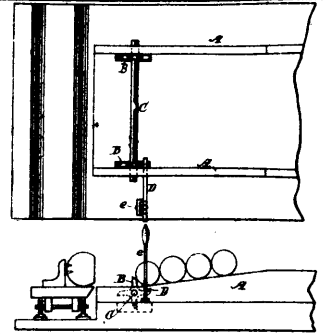
15213 Carpenter's Improvements in Regulators for Nursing Bottles.



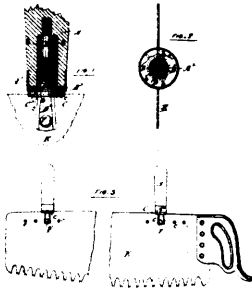
15214 Tower's Improvements on Thill Couplings.



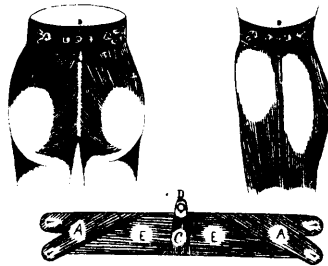
15215 Flaherty's Improvements on Drying Kilns.



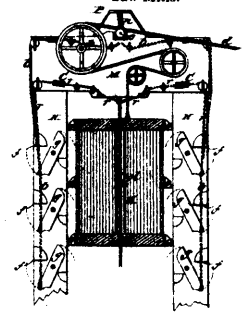
15217 Musser's Improvements on Log Decks for Saw Mills.



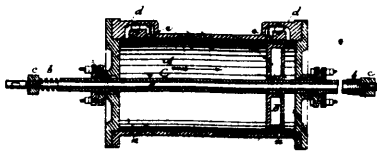
15219 Sloans's Improvements in Saw Handles.



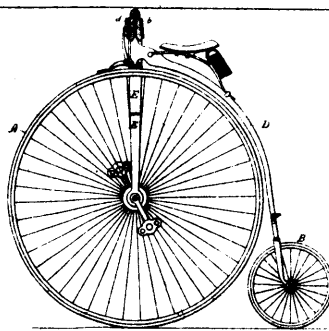
15220 Brown's Improvements on Pantalon Waist Band Attachments.



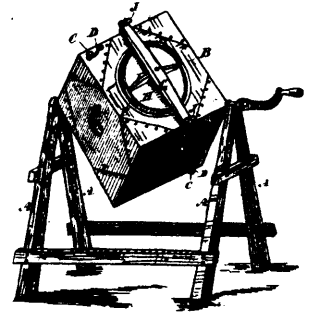
15221 McCarroll's Improvements on Self-Acting Elevator Safety Apparatus.



15222 Hanna's Improvements in Steam Cylinders and Pistons.



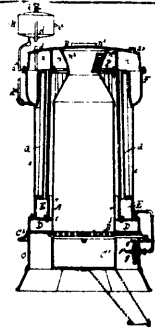
15223 Rennyson's Improvements on Bicycles.



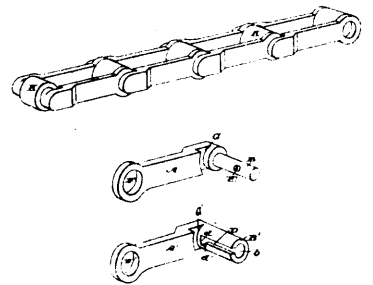
15224 Morehouse's Improvements on Churns.



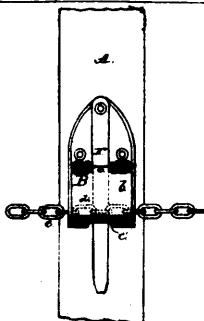
15225 Leland's Improvements on Plugs for Electrical Switch Boards.



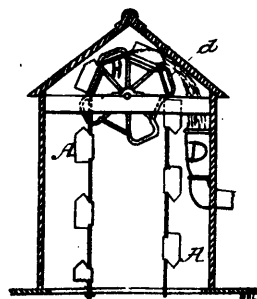
15226 Salmon's Improvements on Car Heaters.



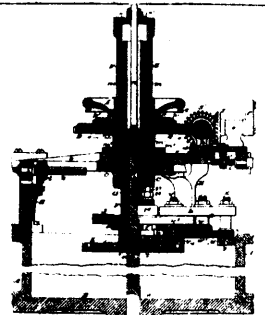
15227 Lechner's Improvements on Drive Chains.



15228 Denais's Improvements on Harness Loops.



15229 Beers & Ridge's Improvements on Water Elevators.



15230 Smith's Improvements on Tools for Dressing Cylinders.