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INVENTIONS PATENTED.

No. 3369. HARRY R. BARNES, Rock Stream, N. Y., U. S., 27th April, 1874, for 5 years: "Improvement on Hoes." (Perfectionnement des houes.)

Claim.—The single bladed hoe, having teeth on its cutting edge, struck up or corrugated, as described, when said teeth are turned or deflected inward from the blade of the hoe so as to stand at an angle thereto, and but slightly inclined from the surface of the soil, and be thereby self entering at the drawing movement, and when said teeth have their edges made plain and straight from point to base for the purpose of grinding as described.

No. 3370. ASHLEY D. COLE, Toronto, Ont., 27th April, 1874, for 5 years: "Improvements in Turbine Water Wheels." (Perfectionnements aux turbines hydrauliques.)

Claim.—1st. The hinged gates C, placed within the water passages b, and connected to and worked from the moveable ring D, or its equivalent, by the links G, arranged and operated as described. 2nd. The hinged gate C, in combination with the socket c, as described.

No. 3371. WILLIAM ELLWOOD, (Assignee of W. Bowden,) Hamburg, N. Y., U. S., 27th April, 1874, for 5 years: "A Tyre Upsetter." (Machine à refouler les bandages de roues.)

Claim.—1st. The shaft E, with the double eccentric e, e, r, d, s, E₁, and couplings E₂, in combination with the peculiarly shaped sliding block B, arranged and operating as described; 2nd. The sliding reciprocating blocks B, heads B₁, with broad bevel faces b, pins h, and toothed cam wedges H, and toothed adjustable clamps F, in combination with the hinged lever c, bar f, spring D, and cleats d, arranged as described; 3rd. The saddle C, bolted to the frame A, in combination with the sliding blocks B; 4th. The peculiar shape of the frame A, with grooves a, in combination with the whole of the mentioned working parts as described.

No. 3372. DANIEL PERRIN, McGregor, Iowa, U. S., 27th April, 1874, for 5 years: "Improvement on Cutters for Tonguing and Grooving Lumber." (Perfectionnements des fers de bouevts.)

Claim.—The cutter C, made of equal breadth width and half the depth or thickness of the cutters A, B, to adapt them to be used in pairs as described.

No. 3373. JONATHAN HALL, Keene, N. H., U. S., 27th April, 1874, for 15 years: "Improvement on Steam Boilers." (Perfectionnement des chaudières à vapeur.)

Claim.—A feed water distributing and blowing off pipe A, with slots or perforations U, in the under side arranged along the bot-

tom of the boiler, and provided with an outside feed water connection, C, D, blowing off G, and cock E, as specified.

No. 3374. GEORGE BRADFORD, Toronto, Ont., 27th April, 1874, for 5 years: "Improvements in Oil Bearings." (Perfectionnements aux coussinets à huile.)

Claim.—1st. Fastening a collar D, at that point where the bearing is formed on the shaft B; 2nd. A reservoir C, containing a liquid lubricant in combination with a collar D, and saddle F, arranged and operating as specified.

No. 3375. WILLIAM G. RAWBONE, Toronto, Ont., 27th April, 1874, for 5 years: "Breech Loading Cartridge Creaser." (Suage à cartouche de chargement par la culasse.)

Claim.—1st. The fixed or adjustable rammer head D, attached to the stem or leg a, in combination with and hinged to the upper leg a, having attached to its front end the fixed or adjustable creaser bit C, the whole forming the creaser A, arranged and operating as described. 2nd. The fixed or adjustable socket head D₁, attached to the stem or leg a₁, in combination with and hinged to the upper leg a₁ having attached to its front end the fixed or adjustable creaser bit C, the whole forming the creaser A, arranged and operating as described.

No. 3376. JAMES M. DICK, Buffalo, N. Y., U. S., 27th April, 1874, for 5 years: "Improvements on Wool Drying Machines." (Perfectionnements aux machines à sécher la laine.)

Claim.—1st. The combination of the feeding and expressing rollers J, guide plate O, and the air blast generator C; 2nd. The combination of the expressing rollers J, grated surface P, and the air blast generator C; 3rd. The combination of the air-blast generator C, revolving picker F, and the grated surface P; 4th. The combination of the air-blast generator C, with the adjustable spout or tube R; 5th. The combination of the receptacle or wool box S, having the grates T, and U, with the air-blast generator C.

No. 3377. JAMES GOODWIN, Lennoxville, Que., 29th April, 1874, for 10 years: "Invalid Bedstead." (Couchette d'invalid.)

Claim.—1st. The combination of a tick stretching frame D, and elevating posts C, applied to a bedstead and operating as set forth; 2nd. The frame D, constructed with head and foot frames E, F, hinged thereto and capable of being elevated and depressed inclinedly as set forth; 3rd. The combination of the shaft a, arms b, connecting rod c, pulley d, and e, and cords e applied to a bedstead as set forth, for operating a seat attached to the rod c, in the manner described.

No. 3378. JAMES GOODWIN, Lennoxville, Que., 29th April, 1874, for 10 years: "Improvements on Churns." (Perfectionnements aux barattes.)

Claim.—1st. The combination of the rotary shaft B, sleeve C, and cog-gears E, F, I, J, and K, for revolving the dasher heads in opposite directions; 2nd. Dasher heads having the cruciform pieces K₁, and perforated da h boards L₁, the arms M, set inclinedly in the cross-pieces K₁, for the purpose set forth.

No. 3379. EDWARD BAINES, Toronto, Ont., 30th April, 1874, for 5 years: "Improvements on Valve Motion for Steam Hammers." (Perfec-

tionnements au mouvement des soupapes pour les marteaux à vapeur.)

Claim.—1st. The combination of the slotted link L, with the blocks H, and I, and arm V; 2nd. The general arrangement and combination of the levers A, and B, quadrant E, shafts C and D, arms F, and G, rods J, and K, blocks H, and I, arms M, shaft N, and link I, with the tappet block S, arm O, rod Q, and valve spindle P, as described.

No. 3380. DANIEL JUDD, Insdale, N. Y., U. S., 30th April, 1874, for 5 years: "Machine for Excavating Earth." (Machine à creuser la terre.)

Claim.—1st. The combination of the excavator scoops S, with the bars A, truss T, strain-rod R, and tension board d, constructed and arranged in the manner described; 2nd. The combination of the suspending chains C, arms M, and scoop S, as described; 3rd. The combination of the scoop S, arms M, chains C, and A, and the windlass mechanism consisting of the shaft r, provided with the pulley grooves v, v, and spur wheel W, pinion q, lever y, pawl u, and crank c, as described; 4th. The brackets K, K, constructed to serve as stops to the scoop in its rotation, in combination with the lever-latch i, stop p, and spring i, as described.

No. 3381. JOSEPH S. GARNER, Galena, Ill., U. S., 30th April, 1874, for 5 years: "Improvements in Washboards." (Perfectionnements aux planches à savonner.)

Claim.—The rollers H, H, with axles i, i, in combination with form A, bearings j, j, and cross bars b, and c, top piece d, and back-board e, as set forth.

No. 3382. JAMES SANDERSON, JR., Lindsay, Ont., 30th April, 1874, for 5 years: "Improvements on Washing Machines." (Perfectionnements aux machines à laver.)

Claim.—The arrangement of the perforated ribs F, and G, radially and segmentally secured to the revolving rubber-board E, in combination with a fixed board A, having radial graduated ribs as described.

No. 3383. THOMAS FETHERSTON, Fitzroy, Ont., 30th April, 1874, for 5 years: "Improvements on Window Blinds." (Perfectionnements aux jalousies.)

Claim.—1st. The slats A, held suspended together by the buttons C, entering holes in the flexible band B, in the manner set forth; 2nd. Suspending the blind by double or triple grooved pulleys F, F, and cords E, arranged as described, and collecting the pulleys F, F, by a cord G, passing over pulleys H, H, and operating the same by the cord J, passing over one of the grooves of the pulley in the manner set forth; 3rd. The staples L, applied to the ends of the slats to receive cords K, passing over pulleys M, N, both cords uniting and operating both ends of the slats simultaneously, for lifting the blind as set forth.

No. 3384. WILLIAM GOWEN, Wausau, Wis., U. S., 30th April, 1874, for 5 years: "Improvements on Table Castors." (Perfectionnements des porte-huiliers.)

Claim.—A table castor or cruet frame, having an enlarged annular plate D, attached to or forming an integral part of the rotary plate C, for receiving plates, bowls and other table appurtenances as set forth.

No. 3385. JAMES OLIVER, South Bend, Ind., U. S., 30th April 1874, for 5 years: "Chilled Plough." (Charrue coulée en coquille.)

Claim.—The standard B, extended forward as shown at a, the mould-board and land side extending forward even with the standard forming a uniform curve which forms a seat for the coulter L, the part C being supported by the standard as set forth.

No. 3386. JOHN WOOD, and ROBERT WOOD, Leith, Scot., 30th April, 1874, for 5 years: "Apparatus for Straining Pulp." (Appareil à épurer la pâte à papier.)

Claim.—The novel combination of the strainer casing 6, with the internal perforated tube 16, having in connection with it the pump 7, and its actuating gear as described.

No. 3387. HENRY M. BAKER, WILLIAM F. STONE and JAMES H. VERMILYA, Washington, D. C., U. S., 30th April, 1874, (Extension of Patent No. 3054), for 5 years: "Sewing Machine." (Machine à coudre.)

Claim.—1st. The combination in a sewing machine of a bent driving shaft, or its equivalent, and a vibrating arm attached

thereto as a means of operating the shuttle carrier; 2nd. The combination of the cam upon the driving shaft and the levers I, and J, constructed and operating conjointly as described as a means of operating the feed of a sewing machine; 3rd. The adjustable fulcrum L, or its equivalent by means of which the length and the rise of the feed can be regulated simultaneously; 4th. In combination with a straight driving shaft in a sewing machine, an angularly bored cylindrical sleeve or its equivalent; 5th. The combination of the needle-bar, a slotted cam, attached thereto and a cam guide, the whole being arranged as described, so that the needle bar may be operated near to that side of the needle head which is next to the operator; 6th. The combination of the needle bar and the driving shaft of a sewing machine by means of a cam formed and arranged as described so that the power of the driving shaft will be thrown directly upon the needle-bar at the time when the needle is entering the goods.

No. 3388. DAVID F. JONES, Gananoque, Ont., (Assignee of John L. Shaw), 30th April, 1874, for 5 years: "Improvement on Shovel Handles." (Perfectionnement des manches de pelles.)

Claim.—A combined shovel handle and tamping bar constructed by attaching to an ordinary wooden shovel handle, the metallic hand piece or cylinder C, when constructed and operating as set forth.

No. 3389. JOHN A. KLEY, Chicago, Ill., U. S., 30th April, 1874, for 15 years: "Improvements on Chemical Fire Extinguishers." (Perfectionnements aux extincteurs chimiques d'incendie.)

Claim.—1st. The cylinder h, in combination with the stopper i, and spring K; 2nd. The combination of the plate D, with the collar E, and cap F, for suspending the bottle and compressing the packing; 3rd. The combination of the collar a, and pin or stop b, with the stem c, for preventing irregular discharges of the extinguisher; 4th. The combination of the bottle e, provided with an indentation q, with the arms B, pivoted plate K, and screw stem c; 5th. The combination and arrangement of the case A, collar s, plate D, cap F, and collar a, and pin b, with the stem c, and acid bottle C, as specified.

No. 3390. PETER MALLABY, Weston, Ont., 30th April, 1874, for 5 years: "Improvements in Cultivators." (Perfectionnements aux cultivateurs.)

Claim.—1st. A cultivator consisting of three or more detachable hinge sections A, A¹, A¹¹, constructed and arranged as described. 2nd. The peculiarly shaped bulls D, in combination with the chisel pointed teeth E, arranged as described; 3rd. Attaching the handles F, to the sections A, A¹¹, as described.

No. 3391. PETER K. DEDERICK, Albany, N. Y., U. S., 1st May, 1874, for 5 years: "Improvements on Hay Presses." (Perfectionnements aux presses à foin.)

Claim.—The method of double gearing the follower by the wheels H, on independent shafts and the pin I, passing through said wheels and the connecting rod in the manner described, in the driving pulleys connected to the driving shaft by friction devices; in a feeder W, working on a rock-lever X, in combination with a continuously operating press as described, the method of operating the feed, by a tappet on the connecting rod C, a connecting rod a, and a stud b, on said rod d, as specified; the feeder W, as air chamber or conduit in combination with the pressing chamber and screen bottom as described; the perforated or screen bottom j, in combination with the press chamber as specified; the combination of the adjusting mechanism with the sides K, of the press box arranged to be adjusted toward or from each other as specified, in the contracting hopper e, as described.

No. 3392. ALFRED SWINGLE and FRANK A. HUNTINGTON, San Francisco, Cal., U. S., 1st May, 1874, for 5 years: "Improvement on Fire Arms." (Perfectionnement des armes à feu.)

Claim.—1st. The breech piece B, with its U shaped extension or bed piece D, having the grooves or ways a, a, in combination with the barrel A, with its lug b, and projections or guides d; 2nd. The sliding barrel A, having its re-enforce, or enlargement I, bevelled at Z, in combination with the guard and guard plate lever F, F¹, with its recess H, having an inclined edge Z'; 3rd. The sliding barrel A, with its hollow case or cap E, in combination with the locking guard, and guard plate lever F, F¹, when the two provide a joint at j, by which the initiatory and final closing movement of the barrel against the breech is accomplished in the manner specified; 4th. In combination with the sliding barrel A, with its lug b, the vibrating lever j, with its saddle or semi-circular clasp ring K, or equivalent device as described; 5th. The annular groove W, around the breech pin, in combination with the annular flange upon the extremity of the barrel for the purpose specified; 6th.

The latch plate *g*, having the oval finger hole *z*: 7th. The finger button *o*, in combination with a suitable device for arresting the cartridge in the magazine tub; 8th. In combination with the hammer *b*, the pin *e*, with its head *e*, in combination with the recesses *f*, *h*, arranged to be depressed at the instant of cooking the gun; 9th. The hammer *b*, with its locking pin *e*, and the recesses *f*, *h*, the S shaped bar or lever *g*, having one end provided with a trigger set while the other end is formed into a wedge and employed to lift the head *e*.

No. 3393. THOMAS H. COBLEY, Turin, Italy, 1st May, 1874, for 15 years: "Process for Treating Copper Pyrites, Copper Blends and other Sulphuretted Copper Ores which contain Iron." (Procédé de traitement des pyrites et de la blende de cuivre et autres minerais de cuivre sulfurés contenant du fer.)

Claim.—1st. The several alternative processes described in the first part of the specification but not the separate steps thereof except in combination, as a process for treating copper ores and except the separate steps hereinafter specially claimed; 2nd. The formation of poly-sulphide of calcium by exposing lime, carbonate of lime or limestone to the fumes of the roasting sulphuretted ores, and by calcining the compounds of lime or calcium hereinafter mentioned with pyrites ore, all as described; 3rd. The formation of bi-sulphide of magnesium, as described, and the use of the same as a source of sulphuretted hydrogen for the purpose of precipitating copper and the precipitation of copper by adding a solution of bi-sulphide of magnesium to the solution to be precipitated, both as described; 4th. The formation of the sesqui sulphide of aluminium and its use as a source of sulphuretted hydrogen as described; 5th. The generation of sulphuretted hydrogen for the precipitation of copper by bringing a saturated solution of sulphate of magnesia into contact with a saturated solution of poly-sulphide of calcium and the conversion of the monosulphide of magnesium thereby produced into the soluble bisulphide by the use of a dilute solution of poly-sulphide of calcium as described; 6th. The use of the calci-hydrate of lime in reducing sulphuretted ores of copper poor in sulphur in the manner described in the second part of this specification and also the method of procuring sulphuretted hydrogen and poly-sulphide of calcium directly from the mass in the process of calcining such ores of copper with lime as described.

No. 3394. DANIEL W. DAKE, Beloit, Wis., U. S., 1st May, 1874, for 15 years: "Machine for Working Butter." (Machine à apprêter le beurre.)

Claim.—1st. The endless and corrugated apron C; 2nd. The arrangement of the endless and corrugated apron C, the adjustable and corrugated roller D, and the adjustable roller B, having all its parts constructed and arranged for joint operation, as set forth in the drawing.

No. 3395. DANIEL W. DAKE, Beloit, Wis., U. S., 1st May, 1874, for 15 years: "Process for Preparing a Colouring Matter for Butter." (Procédé pour préparer une matière colorante pour le beurre.)

Claim.—1st. The method or process described of preparing a colouring matter for butter consisting of melted butter, the colouring matter of annatto and curcuma combined as set forth; 2nd. A new composition of matter for colouring butter, in melted butter, the colouring matter of annatto and curcuma prepared and combined as described, having all the constituent ingredients prepared as set forth.

No. 3396. JOSEPH T. FEWKES, Philadelphia, Penn., U. S., 1st May, 1874, for 5 years: "Improvements on Anchors." (Perfectionnements aux ancres.)

Claim.—1st. The angular shank A, made of a single unyielding bar bent at its middle portions to form crown and bearing for the fluke shaft or bar, its two ends converging to the eye piece and fastened thereto as described; 2nd. In combination with the angular bent shank A, the studs or braces G, G, located between the bends A, A'; 3rd. In combination with the shank A, constructed as described and the fluke shaft or bar C, having its bearing in the crown thereof, the chains K, K, and shackle L, the pin I, of the latter being of less strength than the chains, as set forth; 4th. In combination with a shank A, and journalled fluke bar C, a bearing of brass or other non-corrosive material, as described.

No. 3397. HENRY WHITESIDE, Jr., Ottawa, Ont., 1st May, 1874, for 5 years: "Improvements on Spring Beds." (Perfectionnements aux lits à ressorts.)

Claim.—1st. The boards A, A, in combination with blocks; 2nd. The perforated blocks B, B, with thumb screw; 3rd. The thumb screws F, F, in combination with blocks, slats and boards; 4th. The flexible X shape band E, to prevent side or end motion, the whole arranged together for the purpose set forth.

No. 3398. LEANDER W. BOYNTON, Hartford, Ct., U. S., 1st May, 1874, (Extension of Patent No. 193, N. B.): "Machine for Pointing and Counting Skewers." (Machine à empointer et compter les broches.)

Claim.—1st. The cutters K, and K', Figs. 3 or 4, in combination with the concave bed piece D, cap piece G, G, and cylinders I, I, constructed, combined and operated as described; 2nd. The grooved cylinder B, having any desired number of grooves thereon for the purpose of counting and in connection with the cylinders I, I, of delivering the sticks to the cutters constructed and operating as described.

No. 3399. JULIUS P. BELLINGTON, Dundas, Ont., 4th May, 1874, for 5 years: "Improvements on Farmer's Horse Power." (Perfectionnement au manège dit "de Farmer.")

Claim.—The introduction of two ball pinions B, B, thereby making it a double pinion horse power, in substituting (instead of the spur wheels) the bevel wheels C, C, and bevel pinion D, also in the manner of arranging the shafts E, E, and F, in said horse power.

No. 3400. GEORGE BOLTON, Arnprior, Ont., 4th May, 1874, for 5 years: "Improvements on Farm Gates." (Perfectionnements aux barrières de fermes.)

Claim.—The arrangement of the pivot post A, boxed into the weight box C, and the shifting block B, as set forth.

No. 3401. ALFRED MARGRETT and CHARLES H. MOFFATT, Orillia, Ont., 4th May, 1874, for 5 years: "Machine for opening and Securing Window Sashes." (Machine pour ouvrir et arrêter les croisées.)

Claim.—The bolt A, combined with the handles B, and C, J, operated by a spiral spring placed in the chamber G, and connection of bolt A, to lock notch H, Fig. 1, also to catches F, F, F, as set forth.

No. 3402. HENRI H. D'ABRIGEON, Montreal, Que., 4th May, 1874, for 5 years: "Apparatus for Equilibrating Millstones." (Appareil à équilibrer les meules de moulins.)

Claim.—The three or more equilibrators *b*, supported by the bearers *b*, in the boxes B, adjustable at will so as to bring the centre of gravity of a mill stone upon the line of rotation, the whole constructed and operated as set forth.

No. 3403. WILLIAM TODD, Portland, Me., U. S., 4th May, 1874, for 5 years: "Improvements on Self-Locking Car-Couplings." (Perfectionnements aux attelages de wagons automatiques.)

Claim.—1st. In a car coupling constructed and adapted for carrying in one or both drawheads a spare link. 2nd. The recess *p*, in combination with the latch *z*, lip *q*, or its equivalent and spur *s*, upon the link *b*, whereby the link is retained within the drawhead; 3rd. The addition to a coupling link of the spur *s*, or its equivalent for retaining the link within the drawhead; 4th. The construction of the link chamber and the latch as described in combination with the spur *s*, or its equivalent, whereby the link is retained within the chamber, in the manner and operating as set forth.

No. 3404. JAMES CARPENTER, Southampton, Eng., 4th May, 1874, for 5 years: "Improvements on Apparatus for Supporting, Lowering, Attaching and Detaching Ships-Boats." (Perfectionnements aux appareils à suspendre, abaisser, attacher et détacher les canots des navires.)

Claim.—1st. The moveable davits *a*, *a*, turning upon centres *b*, *c*, *c*, *c*, in combination with the self-adjusting bars *v*, *v*, *u*, *u*, forming a cradle for the ships boat; 2nd. The combination of the moveable davits *a*, *a*, and the self-adjusting cradle *v*, *v*, *u*, *u*, with the shaft *e*, revolving in bearings *d*, *d*, on the davits and carrying the ropes *h*, *h*, to which the ships boat is suspended, and with the rope *k*, *k*, and the barrel and shaft *l*, *m*, by which the shaft *e*, is made to revolve; 3rd. The combination of the moveable davits *a*, *a*, with the toothed sector and screw *r*, *s*; 4th. The moveable jaws D, D', D', and levers and rods E, E', E', and locking levers and catches F, in combination with the conical catches attached to the suspending ropes *h*, *h*; 5th. The combination with the moveable davits *a*, *a*, and the shafts *b*, and *c*, of the brakes *o*, *o*, and the moveable lever G, H, I.

No. 3105. THOMAS J. WHITEHEAD, South Paris, Me., U. S., 4th May, 1874, for 5 years: "Combined Cooking Stove and Hot Air Furnace." (Poêle de cuisine et calorifère combinés.)

Claim.—A cooking apparatus arranged within a double walled casing which is provided with jointed doors, a lid, pipes, and dampers, in the manner specified.

No. 3103. SAMUEL TAYLOR, Greenbush, and JOSIAH C. FAWLE, Bangor, Me., U. S., 4th May, 1874, for 5 years: "Improvements on Gauges for Edgers." (Perfectionnements aux jauges des tables de scies rondes.)

Claim.—The bed or frame a, provided with lips, b, b, c, operating as described in combination with the table of an edge or circular saw.

No. 3107. ORLANDO THOWLESS, Guelph, Ont., 4th May, 1874, for 5 years: "Window Sash Fastener." (Arrête-croisée.)

Claim.—1st. The combination of the block A, pin C, screw D, and ring E, or their equivalent as set forth; 2nd. The combination with the block A, the pin C, the screw D, and ring E, of the plate F, and stop G, or their equivalents as set forth,

No. 3108. WILLIAM A. HAWTHORN and EDGAR E. SCOTT, Carson City, Nev., U. S., 4th May 1874, for 5 years: "Window-Fastener." (Arrête-croisée.)

Claim.—In combination with the rod D, notched as shown, the bar H, with its thumb piece and shoulder and the spring I, for the purpose of locking the sash at any point, as described.

No. 3109. ALEXANDER CRUMBIE, Brooklyn, N. Y., 4th May 1874, for 10 years: "Baker's Oven." (Four de boulangerie.)

Claim.—1st. A Baker's Oven heated by the direct introduction within the baking chamber of the heated air of gases from the furnace, the arrangement of said chamber of draught pipes or flues having the openings for distribution of the heated air arranged along their bottoms or under surfaces; 2nd. The combination of upper and lower hot air distributing pipes within the baking chamber having the distributing apertures in their bottoms and dampers for controlling said apertures; 3rd. The combination with the baking chamber S, and its furnace U, of the upper and lower hot air distributing pipes E, G, provided with lower distributing openings o, the dampers K, the up-draught flue F, the horizontal flue H, the apertures d, c, and the dampers L, J, the whole being arranged as specified; 4th. The combination with the endless chain of pendant breadholders o, and their carrying pulleys M, M, of the friction clutch U, the loose driving pulley V, the screw Q, on the shaft R, the worm wheel T, the weighted lever W, with its toe r, clutch operating connection m, and the notched disc X, as set forth.

No. 3210. WILLIAM MANSON, San Francisco, Cal., U. S., 4th May, 1874, for 5 years: "Atmospheric Power Hammer." (Marteau à Machine atmosphérique.)

Claim.—1st. An atmospheric engine consisting of the operating cylinder D, with its piston N, in combination with the condensing cylinder C, of larger diameter and having the condensing piston E, the two cylinders being connected by port O, O, both above and below the pistons and having the supply port and valve I, as described; 3rd. In combination with the compressing cylinder C, the tube P, with its cock H, for connecting the chambers above and below the piston E, in order to regulate the amount of compression as specified; 3rd. The reciprocating piston N, of the cylinder D, operated by atmospheric pressure applied alternately above and below it by means of a condensing piston E, which moves in a separate cylinder and alternately forces and compresses the air in its cylinder above and below the piston N, as described.

No. 3411. DANIEL W. DAKE, Beloit, Wis., U. S., 7th May, 1874, for 15 years: "Apparatus for Working Butter." (Appareil à apprêter le beurre.)

Claim.—1st. The frames E, provided with blades or knives and a wire-cloth sieve; 2nd. The combination and arrangement of the hopper A, (or a similar device) presser B, crank C, frames E, provided with blades or knives or wire-cloth sieve F, F, and impellers I, and H, in connection with a vat or other receptacle to receive the butter pressed from the hopper, having all its parts constructed and arranged for joint operations as set forth in the drawings.

No. 3412. ROBERT D. EWING, Toronto, Ont., 7th May, 1874, for 5 years: "Improvement in Furnaces." (Perfectionnement dans les fourneaux.)

Claim.—Introducing an air blast in conjunction with a jet of

steam beneath the grate bars of a furnace for the purpose of improving the combustion of slack coal as described.

No. 3413. HIRAM B. MORRISON, LeRoy, N. Y., U. S., 7th May, 1874, for 5 years: "Improvement on Breast Collars for Harness." (Perfectionnement des bricoles de harnais.)

Claim.—The combination of the two clamping plates C, D, situated on opposite sides of a breast collar and united by a screw or equivalent when the same forms a portable attachment and is otherwise constructed and arranged as described.

No. 3414. OAKLEY B. FULLER, Newark, N. J., U. S., 9th May, 1874, for 5 years: "Improvements in Dough Machines." (Perfectionnements aux machines de pâtisseries.)

Claim.—1st. The combination of corrugated rollers and curved cheeks in a machine for forcing dough, arranged and operated as described; 2nd. The combination of corrugated rollers and curved cheeks with a slot for forming a sheet of dough, whether the slot be adjustable or not in its opening; 3rd. The hopper E, E, constructed larger at the bottom, in combination with the rollers B, B, as described; 4th. The case constructed in two parts L, L, and M, M, and provided with a hopper E, E, made larger at the bottom.

No. 3415. JACOB S. ARMSTRONG and JOHN G. ARMSTRONG, Ottawa, Ont., 11th May, 1874, for 5 years: "Spring Seat for Waggon and Cars." (Siège à ressorts de voitures de chemins de fer et autres.)

Claim.—1st. The compensating rods E, the lock piece H, constructed and operated as described; 2nd. The seat A, the spiral spring G, the strip C, the compensating rods E, the spring board B, the lock piece H, the clasp G, and hooked plate I, constructed as described.

No. 3416. EDWARD W. CALLEY, St. Mary's, Ont., 11th May, 1874, for 5 years: "Improvement in Lamp Burners." (Perfectionnements des becs de lampes.)

Claim.—The construction and arrangement of the copper heater D, in the lamp burner and its combination with the lamp burner as set forth.

No. 3417. THOMAS S. BAYLES, Hamilton, Ont., 11th May, 1874, for 5 years: "Improvements in Horse Shoes." (Perfectionnements aux fers à chevaux.)

Claim.—The holders E, and D, attached to the shoe, together with the steel wedges F, fitted in them to form the wearing parts of the shoe, and which wedges can be taken out and replaced as required; together with the combination and arrangement of the several parts, all operating as set forth.

No. 3418. ISAAC BROWN, Baltimore, Ind., U. S., 11th May, 1874, for 5 years: "Steam Circular Saw Mill." (Moulin à scies circulaires à vapeur.)

Claim.—The combination of a steam cylinder H, detached piston, rod I, cross-head G, and forked connecting rod F, as described.

No. 3419. ABRAHAM MYERS, Salem, Oregon, U. S., 11th May, 1874, for 5 years: "Improvement in Metallic Cases for Turbine Wheels." (Perfectionnement des biefs métalliques de turbines.)

Claim.—1st. A portable metallic case for a turbine, running upon a horizontal shaft combining in its construction water induction and education openings, a head piece and bridges with adjustable bearings and a downward bent draught tube, as set forth; 2nd. The downward bent draught tube enlarged at the portion surrounding the internal blades, as set forth; 3rd. In combination with the horizontal shaft the internally placed bearings I, I, having openings between the adjustable followers for the passage of the outflowing current of water as set forth; 4th. In combination with bearings F, E, and I, H, fitted with adjustable followers, the adjustable step J, as set forth.

No. 3420. WILLIAM S. HUNTER, Stanstead, Que., 11th May, 1874, for 5 years: "Improvements on Wooden Soles for Boots and Shoes." (Perfectionnements aux semelles de chaussures en bois.)

Claim.—1st. A wooden sole for boots and shoes jointed transversely, hinged together, and having a rubber strip C, or flexible material interposed in the joint as described; 2nd. A wooden sole,

constructed as set forth, having a rabbeted edge D, to receive the upper nailed thereto, as described.

No. 3421. HENRY L. GOOCH, East-Machias, Me., U. S., 11th May 1874, for 15 years: "Shingle Machine." (Machine à bardeau.)

Claim.—1st. The combination of a vertically revolving circular saw and swinging carriage for holding the bolt; 2nd. The eccentric gear wheels *a*, interposed between the swinging carriage B, and the power for operating the same for the purpose of giving to said carriage an alternate fast and slow motion; 3rd. The combination with the moveable clutch *h*, of the pin *i*, and stop K; 4th. The combination of the rollers I, I, in the swinging carriage B, the double spur wheels *m*, *m*, pawl *n*, *n*, lever *k*, with roller *x*, and the inclined groove *y*, all as set forth.

No. 3422. CHARLES H. SMITH, Faribault, Min., U. S., 11th May, 1874, for 5 years: "Improvements on Machines for Sawing Wood." (Perfectionnements aux machines à scier le bois.)

Claim.—1st. The knives *h*, in combination with the saws E; 2nd. The combination of the chutes T, with the saws E, and elevator S; 3rd. The combination of the wood rake M, endless carrier saws E, and elevator S, with the moveable platform A as specified.

No. 3423. MOSES C. CLARK, Ingersoll, Ont., 11th May, 1874, for 5 years. "Improvements on Bed-Springs." (Perfectionnements aux ressorts de lit.)

Claim.—The double coiled spring A, A, of a tapering shape formed of one continuous wire in combination with the staple C, as set forth.

No. 3424. JAMES L. GREGORY, St. Louis, Mo., U. S., Assignee of WILLIAM REDHEFFER, 11th May, 1874, for 5 years: "Improvements on Egg Beaters." (Perfectionnements aux fouets à œufs.)

Claim.—The reciprocating egg beater composed of the covered receiver, and the beater consisting of several hollow perforated frustrums of cones as described.

No. 3425. SETH B. SCOTT, Montreal, Que., 11th May, 1874, for 5 years: "Improvements on Variable Speed Motions." (Perfectionnements aux mouvements variables de vitesse.)

Claim.—1st. The discs *c*, and *e*, in combination with the pulleys *f*; 2nd. The pulley or pulleys *f*, arranged as described in combination with lever or treadle *l*; 3rd. The pulley or pulleys *f*, and discs arranged as described in combination with brake *n*.

No. 3426. FRANCIS W. BECKWITH, and PATRICK KYLE, Merrickville, Ont., 11th May, 1874, for 5 years: "Improvements on Washing Machines." (Perfectionnements aux machines à laver.)

Claim.—1st. The caps E, E, pivoted concentrically to the end frame A, and receiving the ends of the rollers D, D, and their axial pins and connected together by the spring H; 2nd. The combination of the end of the frame A, having vertical slots F₁, and caps E, E, having elongated holes F₁, F₁, for receiving the axial pins of the rollers D, D, to allow the caps by the pressure of the spring H, to have a concentric movement; 3rd. The caps E, E, provided with fender arms I, as described.

No. 3427. FREDERICK DANGERFIELD, Merrickville, Ont., 11th May, 1874, for 5 years: "Improvements on Washing Machines." (Perfectionnements aux machines à laver.)

Claim.—The application of the pins E, and springs D, the ends of the springs forming the bearings for supporting the journals of the rollers B, B, as set forth.

No. 3428. ARTHUR CARLETON and WILLIAM F. NUFER, Whitenall, Mich., U. S., 11th May, 1874, for 5 years: "Improvements in Clothes Racks." (Perfectionnements aux Porte-manteaux.)

Claim.—A clothes rack composed of parts A, D, H, J, L, and O, as set forth.

No. 3429. AUSTIN BERRY, Shefford, Que., 11th May, 1874, for 5 years: "Machine for Milking Cows." (Machine à traire les vaches.)

Claim.—The tank or reservoir A, the stop cock B, the metallic tube C, and catch spring D, and the combination for working the same in the manner set forth.

No. 3430. GEORGE WESTINGHOUSE, Jr., Pittsburgh, Penn., U. S., 11th May, 1874, for 15 years: "Machine for Checking, Retarding and Stopping Railway Locomotives." (Frein de locomotive de chemin de fer.)

Claim.—1st. A segmental lever *c*, having an eccentric face, in combination with the brake block shoe or dog to which it is pivoted; 2nd. The segmental levers *c*, having in their working faces the eccentricity desired for giving the required motion to the brake shoes, and in combination therewith, and in each other, as set forth; 3rd. One or more segmental levers *c*, with suitable connections to and in combination with a brake cylinder *b*, as set forth.

No. 3431. WILLIAM GREEN, Hyde, Eng., 12th May, 1874, for 5 years: "Improvements in Automatic Couplings for Railway and other Carriages." (Perfectionnements aux attelages automatiques des voitures de chemins de fer et autres.)

Claim.—Arranging a hook B, in the form of an arm or lever that is constructed to turn upon a fulcrum fixed to the spring draw bar A, or end of railway or other carriage, and taking a line of movement parallel or nearly so with the horizon, that is to say, the bend of the hook B, and the inboard thereof are lateral or sideways, such hook being held in position by means of a spring E, or weight thus forming an automatic coupling that has for its apparatus at one end a counterpart of that which is at the other end of the vehicle in a manner described.

No. 3432. GUSTAVE A. DANET and XAVIER C. E. FEULLANT, Paris, Frce., 12th May, 1874, for 5 years: "Improvements in the Process of Preserving Animal and Vegetable Substances." (Perfectionnements dans le procédé de conservation des substances animales et végétales.)

Claim.—The improved process of preserving animal and vegetable substances or matters by the employment of slight desiccation combined with water tight receptacles filled with an atmosphere of sulphurous acid and air purified by fire as described.

No. 3433. JOSEPH P. WOODBURY, Boston, Mass., U. S., 12th May 1874, for 5 years: "Improvements on Planing Machines." (Perfectionnements aux machines à raboter.)

Claim.—1st. The combination of a rotary cutter and a yielding pressure bar or bars as described; 2nd. The combination of a solid bed and a yielding pressure bar or bars for the purpose of holding down the material while being acted on by the cutters; 3rd. The combination of a solid bed, a rotary cutter and a yielding pressure bar or bars; 4th. The combination of the two pressure bars one of which is supported upon arms and the other upon springs as described.

No. 3434. GEORGE SELFRIDGE, St. John, N. B., 13th May, 1874, for 5 years: "Improvements on Harness." (Perfectionnements aux harnais.)

Claim.—The span B, B, with ring A, on one end for body or breeching to be sewed into, and ring D, in the other end to be sewed into breeching body, C, the metallic plate with two raised loops and centre pin to retain the hip strap, hinge E, connecting plate C, with span B, B, as set forth.

No. 3435. GEORGE FORSYTH, Seaforth, Ont., 13th May, 1874, for 5 years: "Manufacture of Portable Wire Fences." (Fabrication des clôtures mobiles en fil mé allique.)

Claim.—The arrangement of the panels A, the upper brace G, the lower brace D, and the post or stake E, and the mode of setting up the fence as set forth.

No. 3436. DARERICK ALLARD, St. Albans, Vt., U. S., 12th May, 1874, for 5 years: "Improvements on Locomotive Smoke Stacks." (Perfectionnements aux cheminées de locomotives.)

Claim.—1st. The combination of the enlarged extension *b*, inverted cone *d*, and *g*, and frustrums *c*, *i*, and *l*, all working together as described; 2nd. The enlarged extension *b*, inverted cone *d*, cones *c*, and *g*, frustrums *c*, and *i*, in combination with perforated pipe *n*, all working together as described; 3rd. The combination of the enlarged extension *b*, inverted cones *d*, and *c*, cone *g*, and frustrums *f* cones *i*, and *c*, all working together as described; and 4th. The enlarged extension *b*, inverted cones *d*, and *c*, cone *g*, and frustrums of cones *i*, and *c*, in combination with perforated pipe *n*, all working as described.

No. 3437. JOHN H. ZIEGLER and BENJAMIN ZIEGLER, Berlin, Ont., 13th May, 1874, for 5 years: "Improvements in the Construction of Vehicles." (Perfectionnements dans la fabrication des voitures.)

Claim.—The improvement in the construction of the spring reach C, in combination with a crotch D, in the mode of attachment of the crotch D, D, to the said axle C, by means of ties F, F.

No. 3438. DAVID BRADFORD, Hamilton Ont., 13th May, 1874, for 5 years: "Improvements in Car-Couplings." (Perfectionnements aux atelages des wagons.)

Claim.—The partial revolving coupling bar D, with a row head D, secured to and in combination with the moveable buffer, B, and also provided with projection e, and spring H; 2nd. The combined moveable buffer B, with recess g and drawhead B, operated, constructed and arranged as specified; 3rd. The arrangement of the spring E, secured to the bottom of the car operating in combination with the projection c, of the coupling bar D, as specified; 4th. The moveable buffer and draw head B, B, operate I by the horizontal lever K, and upright one L, as specified.

No. 3439. SAMUEL WRIGHT, Hillsborough, Mo., U. S., 13th May, 1874, for 5 years: "Self-Adjusting Step-Ladder." (Une échelle automatique à queue.)

Claim.—A step-ladder having its braceless secured to it by means of joints, so as to allow each leg a limited, free, and independent movement as set forth.

No. 3440. LEWIS POND, Foxborough, Mass., U. S., 13th May, 1874, for 5 years: "Hose-Coupling Spanner." (Clé d'assemblage des tuyaux élastiques.)

Claim.—1st. In the hose coupling spanner, constructed as described and shown, viz. of two crossed levers A, B, pivoted together and provided not only with hooks c, c, and eyes a, a, disposed as explained, but with the finger opening f, between the longer arms, instead of a hole a, in each of the shorter arms, such arms may be furnished with a stud or projection to enter a corresponding hole in the coupling, provided such coupling has holes instead of studs to operate with a spanner.

No. 3441. WILLIAM J. SHILLING, Brooklyn, N. Y., U. S., 13th May, 1874, for 5 years: "Improvements in Locks." (Perfectionnements aux serrures.)

Claim.—The circular lock casing A, with the flange c, screw threads d, and cut h, in combination with the mechanism of a lock as set forth.

No. 3442. CHARLES W. WOODFORD, Montreal, Que., 13th May, 1874, for 5 years: "Manufacture of Horse Shoe Nails." (Fabrication des clous à cheval.)

Claim.—A new article of manufacture in a horse shoe nail having the black scale removed from the point end A, while it is retained in the head B, and body to that end as described.

No. 3443. GEORGE STACY, London, Eng., 13th May, 1874, for 5 years: "Revolving Hammer." (Marteau tournant.)

Claim.—1st. The hammer stock or hammer E, carried by a rotating shaft or boss C, and controlled in its centrifugal motion by a stop d, whereby the action of the hammer stock or hammer is gauged or limited; also the application of such combination with or without the addition of cutters, steel blocks or grooved surfaces to the hammers or hammer stocks to the purposes set forth; 2nd. The self-adjusting wedge or key fastening as described with reference to figure 3, and its application to hammer stocks.

No. 3444. PERLEY M. THOMPSON, Ascot, Que. (Assignee of Albert M. Putnam,) 15th May, 1874, for 5 years: "Improvements on Pumps." (Perfectionnements aux pompes.)

Claim.—1st. The combination and arrangement of the connecting rod a, arm b, shaft c, with packing d, and brake f, when used in connection with the pump body A; 2nd. The projection B, from the back portion of the pump body, A, forming a chamber L, inside to receive the shaft c, at a distance back from the centre of the diameter of the pump body A, giving length of arms in such a way as to enable the connecting rod A, to be operated in a direct manner in the centre of the pump body A, over the valves; 3rd. The semi-globular shaped cap or cover C, forming a concave air chamber inside from two to four inches deep; 4th. The brass valve seat K, inserted in the opening through the centre of the hose of the pump; 5th. The combination D, projecting on the upper surface of the spout E, to which hose or pipe may be attached to convey the water to the upper storeys of a building.

No. 3445. PETER A. RILEY, Boston, Mass., U. S., 18th May, 1874, for 5 years: "Apparatus for Supplying Water Closets with Water." (Appareil à fournir l'eau aux cabinets d'aisances.)

Claim.—The hydraulic apparatus as described consisting of the primary and auxiliary receivers A, B, the intervening disc or sump C, the valves D, I, valve opening a, a, stems E, K, float I, levers L, F, inlets O, N, and duct T, all arranged and combined in the manner specified; in the cup H, either open at top or provided with a foraminous cover d, as set forth in combination with and applied to such apparatus as specified.

No. 3446. SIMON W. FRANCE, Hamilton, Ont., 19th May, 1874, for 5 years: "Improvement in Feed Water Heater for Steam Boilers." (Perfectionnement des chauffeuses d'eau d'alimentation des chaudières à vapeur.)

Claim.—1st. The water jacket, surrounding a portion of the smoke escape flue, with the cross tubes e, e, passing through said flue, in combination with the steam tube a, a, and h, h, or other equivalent means for conveying exhaust steam through said water jacket to aid in heating water therein so that the feed water shall be heated by the combined action of the smoke and heated air in escaping from the furnace, and the exhaust steam from the engine as described; 2nd. The mode of passing the water up through the heater as described; 3rd. The perforated steam pipes for the purposes described; 4th. The spiral arrangement of the cross-tubes e, e, so as to offer less obstruction to the draught; 5th. The return check valve in combination with the heater; 6th. The pipes u, u, and cone t, in combination with the water jacket for the purpose described.

No. 3447. PHILIP MUTTER, GEORGE BLACK and WALTER W. SIMS, Hamilton, Ont., 19th May, 1874, for 5 years: "Improvements in Clothes Pins." (Perfectionnements aux épingles à linge.)

Claim.—A clothes pin a, of galvanized tinned or plated wire in combination with the head b, as described and shown in figures 1, 2, 3 and 4.

No. 3448. SIMON W. FRANCE, Hamilton, Ont., 19th May, 1874, for 5 years: "Cooking Stove Boiler Attachment." (Disposition des rocles à cuisine pour les bouilloires.)

Claim.—1st. The extension attachment to a cooking stove, for supporting a boiler or hot water reservoir, provided with the channel K, K, damper e, and escape flue P, all constructed, combined and arranged to operate as described; 2nd. In combination with said channel K, K, damper e, and escape flue P, the partitions or deflectors G, G, as set forth.

No. 3449. THOMAS MILLER, New York, U. S., 19th May, 1874, for 5 years: "Fire Extinguishing System of Water Pipes and Escape." (Système de tuyaux hydrauliques extincteurs d'incendie et appareil de sauvetage.)

Claim.—1st. The application to the vertical water supply pipe or pipes D, of pins or bars J, to facilitate personal ascent or descent. 2nd. In providing the standing pipes D, with branches F, having valves operated by rods I, arranged to be accessible for operation at a convenient height from the ground; 3rd. The valve rods V, and N, arranged to operate valves as shown for the inlet and outlet of water to the pipe D; 4th. The climbing pins N, valves, and rods I, branches F, and rods V, and N, arranged and applied to a pipe or pipes D, as set forth.

No. 3450. ASBURY R. WILLIAMS and JOEL S. EDWARDS, Marshalltown, Iowa, U. S., 19th May, 1874, for 5 years: "Improvements in Kilns for Burning or Drying Bricks, Tiles and Earthenware and Mode of Setting the Material to be Burned or Dried." (Perfectionnements aux fourneaux à cuire ou sécher les briques, les tuiles, et la poterie et manière de placer les objets à être cuits ou séchés.)

Claim.—1st. The manner of constructing the front wall of the kiln in buttressed sections to support the arched roof combined with the grate furnaces projected on the face of the kiln with diminishing hot air chamber above the fire-bed opening all the way up inside as described; 2nd. The mode of setting the material to be burned or dried for the purpose of controlling the draught and distributing the heat as described; 3rd. The damper openings into horizontal flues; 4th. The damper opening in the partition wall and the damper flues from one double kiln to another; 5th. The horizontal flues at rear of kiln conducting to the chimney; 6th. The damper arrangements for closing the openings from one flue to the other and from the flues to the chimney; 7th. The mode of constructing the end of the kiln by which the same is as far as practicable and economical made permanent.

No. 3451. JOSEPH F. BALDWIN, Boston, and CYRUS H. HARDY, Hingham, Mass., U. S., 19th May, 1874, for 5 years: "Improvements on Planes." (Perfectionnements aux rabots.)

Claim.—1st. A plane formed with a perforated metallic bottom substantially as specified, 2nd. A metallic wedge *p*, countersunk on its bottom and curved at its rear to form a central tongue *p*, having a screw *q*, in combination with a plane iron and lugs *o*; 3rd. A travelling plate *r* or carriage *l*, formed with an aperture to receive a stud or screw head of a plane iron, and having a depending yoke or bifurcated flange *h*, in combination with a grooved screw-cap *n*, operating on an inclined screw stem; 4th. In a plane, an adjustable block *h*, bevelled downward on its front and formed with a central boss to support a plane iron, and hold a screw stem. 5th. An open metallic bottom of a plane in combination with a plane iron connecting with a plate or carriage *l*, engaging with sons to be adjusted by a grooved screw cap travelling on a screw stem.

No. 3452. JOSEPH F. BALDWIN, Boston, and CYRUS H. HARDY, Hingham, Mass., U. S., 19th May, 1874, for 5 years: "Improvements on Planes." (Perfectionnements aux rabots.)

Claim.—1st. A curved shield or hand guard and rest arranged to hold or allow the release or adjustment of a plane iron in a metallic plane; 2nd. A screw rod or stem supported in a plane and provided with a screw cap or nut formed with a groove to receive a bifurcated flange or plate depending from the bottom of the plane iron; 3rd. A curved shield or hand guard and rest *m* having forward projecting sides or prongs *m*11, bevelled to receive and hold a wedge block *m*111, in combination with the iron of a plane. 4th. A metallic plane having its iron formed with an upper or reverse bevel; 5th. A curved shield or hand guard and rest *m*, formed with a wedge plate *m*1, having a screw socket to receive a screw *q*, in combination with lugs *l*, iron *d*, formed with bifurcated plate or flange *e*, and screw rod *g*, having a screw nut or cap *f*, formed with a groove *f*1, and operating as specified.

No. 3453. CHARLES L. MOREHOUSE and ROBERT FITZGERALD, Cleveland, Ohio, U. S., 19th May, 1874, for 5 years: "Lubricating Grease Compound." (Composition de graisse à lubrifier.)

Claim.—A compound for axle grease consisting of the following ingredients, viz: paraffine oil, resin oil, white lime putty scoria, and combined with resin varnish the whole mixed in the proportions specified.

No. 3454. DANA BICKFORD, New York, U. S., 19th May, 1874, for 5 years: "Knitting Machine." (Machine à tricoter.)

Claim.—1st. A rotary knitting machine, combined with a driving handle and resting on a bed in its frame, whereby the machine may be operated without the use of gearing, and having a shifting thread guide which automatically upon reversing the machine properly changes its position relatively to the needle operating cams; 2nd. A rotary knitting machine constructed with a driving gearing and with a driving handle and bed rests as described; whereby it may be driven at option either by the handle or by the gearing and by hand or any other motive power; 3rd. The combination with the rotary cylinder, or bobbin or spool frame or stand as described, so that such frame and shall revolve coincidentally with it and with the thread guide, and upon reversing properly shift its position with the thread guide whether it be attached to the cylinder or to the ring or to the thread guide; 4th. The arrangement of the adjustable cam switches on the inner side of the cam grooves as described, whereby whilst serving to perform the ordinary duty of switches, they also serve, when both are at their lowest points to prevent the formation of switches although the machine be driven, and permit the operator to make a variety of fancy work, and when the rear one only is driven it serves to prevent the flying up of the latch and the throwing off of the switch as set forth; 5th. The combination with a rotary knitting machine, of a registering scale or dial as described, to indicate the number of courses knitted; 6th. The combination with a knitting machine of either of the constructions of switches and switch levers, or the cam pieces, as severally illustrated in figures 4 to 13 inclusive or their mechanical equivalents allowing the machine to be revolved and to knit in either direction; 7th. The adjustable or removable cam plate as shown in figures 12 and 13 for supporting the needle actuating devices; 8th. The combination with a rotary knitting machine of a removable needle cylinder, adapted for its ready removal and the ready substitution of another, having the same or a lesser diameter and having a greater or lesser number of needle grooves; 9th. The adjustable take up consisting of the spring wire *u*, and the nut and screw or their equivalents; 10th. The moulding the different parts of a knitting machine in permanent moulds so that each part can be readily duplicated, so as to dispense with the large amount of labour and cost and the use of expensive machinery in their manufacture as heretofore.

No. 3455. CHARLES F. WILSON and SAM. H. MILLER, Brooklyn, N. Y., U. S., 19th May, 1874, for 15 years: "Improvement on Dies for Cutting and Cupping Sheet Metal." (Perfectionnement des étampes pour couper et mouler les plaques de métal.)

Claim.—1st. The combination with the female cutting die B, male cupping die *d*, and the female cupping die A, constructed to also form a male cutter of the spring borne clamping ring or follower C, wholly within the space separating the dies B, and *d*, for operating as specified; 2nd. The arrangement of spring A, external to the dies, and the device supported by said spring, and which supports the follower C, within the die as described, whether said device be posts or any equivalent thereof.

No. 3456. JOHNSON BRIGGS and WILLIAM S. FINCH, Toronto, Ont., 19th May, 1874, for 15 years: "Spring Bottoms for Seats and Beds." (Fonds à ressorts pour les sièges et les lits.)

Claim.—The combination with the frame A, bars B, D, and slats E, of elliptical springs C, applied and used for seat and bed-bottoms, as set forth.

No. 3457. JOHNSON BRIGGS and WILLIAM S. FINCH, Toronto, Ont., 19th May, 1874, for 15 years: "System of Ventilation for Cars and Buildings." (Système de ventilation des wagons et bâtiments.)

Claim.—The trunk tubes B, provided with dampers E, and air catchers F, furnished with a covering of metallic or textile mesh work, and connecting with a series of branch pipes C, having suitable registers D, the whole arranged and applied to a car, building, &c., in the manner set forth.

No. 3458. GEORGE G. MAY, Troy, Vt., U. S., 19th May, 1874, for 5 years: "Milk Pan." (Boîte à lait.)

Claim.—1st. The milk pan A, and water pan B, both having outwardly splayed sides fitting tightly together within each other to be capable of removal; 2nd. The border rail F, in combination with the transverse bar or bars D, for supporting the pan A; 3rd. The telescopic connection of the outlet H, by the tube of the pan A, fitting to set over the top of the tube of the pan B, as set forth.

No. 3459. SAMUEL H. NEWCOMB, Port Williams N. S., 19th May, 1874, for 5 years: "Table and Stool Folding Standard." (Pied de guéridon et de banc brisé.)

Claim.—1st. The legs A, hinged together, one secured to the standard B, radially and folding laterally together and around the standard cruciformly, to form a stand for a piano stool, table or other analogous article of furniture; 2nd. The brackets H, hinged together, one secured to the post G, radially and folding laterally together and around the post cruciformly for supporting a table top J; 3rd. The combination with the folding legs and brackets of the standard B, and post G, having a socket tube F, telescoping over a pintle L, formed on the standard B, for the attachment of a revolving table top, or stool seat as set forth.

No. 3460. JOHN B. SMITH, Sunapee, N. H., U. S., and JACOB D. SLEEPER, Coaticook, Que., 19th May, 1874, for 5 years: "Machine for Making Clothes Pins." (Machine à faire les épingles à linge.)

Claim.—1st. The combination of the shaping knife A, swinging knife-bed H, the adjustable lifting and lowering rod H1, lever I, and cam F, with a suitable frame A; 2nd. The combination of the automatically swinging knife bed H, chamber-cutter J, and rider gauge K; 3rd. The automatic uncentering hammer 5, and its operating connections G, G1, G2; 4th. In a clothes pin machine the automatically-oscillating feed-table L, in combination with the spindles C, C1; 5th. The endless feed belt L1, in combination with the oscillating table L, ratchet-wheel M, counter-balanced pawl I, and frame L, all constructed, arranged and operating as described; 6th. The shaping knife A, oscillating spindle C, movable stop J, J1, uncentering hammer 5, endless feed belt L1, oscillating feed table L, all combined and automatically operated as described.

No. 3461. FREDERICK E. SMITH, Montpelier, Vt., U. S., 19th May, 1874, for 5 years: "Improvements on Washing Machines." (Perfectionnements aux machines à laver.)

Claim.—1st. The c'ent M, attached to the bottom of a tub and provided with the button T, and pin U; 2nd. The c'lest M, provided with the button T, and pin U, in combination with the end piece F, provided with the c'eat L; 3rd. The c'eat C, secured to the side of a tub, and having a recess for the reception of the pin P, upon the side of the end piece F, in combination with the c'eat M, button T and pin U, for securing the machine removably in a tub; 4th. The band roller C, with flanges as described; 5th. The band, belt or apron D, in combination with two rollers B, B, and rol C; 6th. The combination of the gudgeons G, G, holder K, and spiral spring I, for obtaining a variable pressure on the roller A; 7th. The combination of the clutch-head R, having a diagonal slot receiving the gudgeons G, G, elastic ring S, and pin Q, for exerting a variable pressure of the roller A, as set forth.

No. 3462. STEPHEN C. GARDNER, Mansfield, Ct., U. S., 19th May, 1874, for 5 years: "Vehicle Wheel." (Roue de voiture.)

Claim.—1st. The combination with the tire A, and wooden or other material folio d, of an inner tire b, having threaded or plain sockets at intervals around it and a series of spokes B, and three ed or plain, and screwed or driven into said sockets as described; 2nd. The combination with spokes B, of sleeve E, caps E', and a hub consisting of three sections D, relatively grooved on their opposite faces, as specified.

No. 3463. ROBERT L. WALKER, Boston, Mass., U. S., 19th May, 1874, for 5 years: "Railway Car Window." (Store de voiture de chemin de fer.)

Claim.—The combination of the sash D, with the springs S, attached to its face and running grooves G, against the corrugated surface of the fillet E, said springs operating by their reaction to press the sash tightly against the window casing and to hold the sash at whatever height in the casing it may be placed, all in the manner described; the interposed double faced corrugated fillet E, in combination with the springs S, the slotted sash C, and window sash D, constructed and arranged to operate as set forth.

No. 3464. THOMAS H. CARRUTHERS, Cincinnati, Ohio., U. S., 19th May, 1874, for 5 years: "Horse Shoe Bar." (Blanc de fer à cheval.)

Claim.—1st. A horse shoe bar formed upon its outer edge with a sloping curve d, for the reception of the nail crease as specified; 2nd. A horse shoe bar formed at its outer edge with a guiding crease e, for facilitating the accurate formation of the nail crease as specified.

No. 3465. ADRIAN O. ABBOTT, Adrian, Mich., U. S., 19th May, 1874, for 5 years: "Hub Borer." (Machine à percer les moyeux.)

Claim.—1st. The fixed bearing A, consisting of a large narrow ring so that a portion of the hub shall project therethrough to facilitate centering the wheel, and that a steady support shall be formed close to the spokes of the wheel for the wheel carrier to revolve on; 2nd. The feeding nut L, constructed with the swivel socket and flange q, p, in combination with the guide box d, having the cylindrical grooved neck r, to receive the same as described; 3rd. In the arm M, m, and radial slot m, in combination with the swivelled feeding nut L, as means for revolving the same, as set forth; 4th. The knife or cutter P, constructed with the outwardly curved main blade h, and straight terminal blade or lip q, as described for cutting end enlargements in the hub bore as set forth; 5th. The knife or cutter L, constructed with the outwardly curved main blade h, and straight terminal blade q, in combination with the non-rotary cutter shaft H, adapted to be fed longitudinally and laterally as described; 6th. The three equidistant screws v, for truing the wheel as described; 7 h. The combination of the foundation ring E, the face ring F, carrying the attaching grips v, e, and the three equidistant right and left adjusting screws v, with their nuts x, for supporting and truing the wheel in the manner set forth.

No. 3466. GEORGE C. BOVEY, Chillicothe, Ohio, U. S., 19th May, 1874, for 5 years: "Brick Machine." (Machine à brique.)

Claim.—1st. A brick machine consisting of the frame A, A, guiding grooves B, B, 1, 2, 3, 4, 2', 3', 4', vertically acting plungers C, c, reciprocating carriage E, E', E', V, with its moulds D, flanges G, G', racks g, g', shafts H, H', H', hopper I, pressure rollers L, and driving pinions h, h', h', when arranged to operate with reference to one another as described; 2nd. The pivoted and loaded belt crank M, m, for the purpose of maintaining the inclined and oblique self sharpening knife m, in contact with the face of the moulds, for the object explained; 3rd. The provision in a brick machine of the pressure roller J, having radial channels whose inner surfaces slope towards the axis of said roller as shown at j', j', j', j', for the purpose described.

No. 3467. ISAAC A. SINGER, New York, U. S., 19th May, 1874, for 5 years: "Chest Protector." (Plastron hygiénique.)

Claim.—A chest protector made up of two or more thicknesses of cloth or other suitable material and provided with buttons and button holes or equivalent devices for uniting said thicknesses together as set forth.

No. 3468. JOHN W. McGLASHAN, Montreal, Que., 19th May, 1874, for 5 years: "Apparatus for Manufacturing Drain Pipes from Cement, Clay, &c." (Appareil de fabrication des tuyaux de drainage en ciment, terre, &c.)

Claim.—1st. The trough C, and shaft d, in combination with mixing blades s, and K; 2nd. The hinged bar p, with roller q, and hook or catch r, combined as set forth; 3rd. The tamping bar V, discs x, cam sleeve s, and wedges i, all combined and working together as described; 4th. The tamping bar V, with projections a, and carriage b, combined as set forth; 5th. The bar V, with sliding carriage b, crank t, o, c, either rigidly secured by nut d, or actuated by spring e, 6th. The table n, interchangeable plates O, cranks or cams u, and t, and mould f, combined as described; 7th. The mould f, constructed with lugs h, and i', and pins l, combined as set forth; 8th. The mould f, base plate h, and removable core g, combined as described; 9th. The cranks or cams t, and u, cranks a', and b', connecting rod c', combined and working together as described.

No. 3469. DANIEL ASHWORTH, Wappinger's Falls, N. Y., U. S., 19th May, 1874, for 5 years: "Hose and Pipe Coupling." (Assemblage de tuyaux élastiques et autres.)

Claim.—1st. The combination of the discs D, each having one or more hook-shaped lugs C, notches D, and inclined surfaces E; 2nd. The abutments e, on the inclined surfaces E, as described; 3rd. The two internally flanged gaskets I, in combination with each other and with the discs B, of the coupling as shown and described.

No. 3470. JOHN MCGUIRL and HUGH MCGUIRL, Merrickville, Ont., 19th May, 1874, for 5 years: "Chill-mould for Casting Plough-points." (Coquille pour couler les socs des charrues.)

Claim.—1st. A metallic mould for casting plough points composed of two parts A, B, hinged together and combinedly closing to form a cavity of the desired shape of casting to receive the molten metal as set forth.

No. 3471. MATHIAS MOORE, Sarnia, Ont., 19th May, 1874, for 5 years: "Apparatus for Preserving Fruits, Vegetables, Fish or Meats in Sealed Cans or Jars." (Appareil de conservation des fruits, légumes, viandes et du poisson dans des boîtes ou pots étanches.)

Claim.—1st. In a machine for preserving articles in cans, the tray or carrier B, in combination with the chamber C, constructed and operating as described; 2nd. The tray or carrier B, chamber C, and tramway F, in combination with the chamber D; 3rd. The vertically sliding table or platform B¹, and cold water bath B²; 4th. The combination of the bent lever b, pivoted to arms y, and b¹, with the table or platform B¹; 5th. The combination of the tray or carrier B, the steam or hot air chamber C, and D, tramway F, cold water bath B², and a reciprocating or sliding platform or table B; 6th. The combination of the fixed or standing table or platform B¹, sliding table or platform B¹, with a cold water bath B², as described.

No. 3472. WILLIAM H. BECKWITH, Ottawa, Ont., 26th May, 1874, for 5 years: "Heating, Cooking and Ventilating Apparatus." (Appareil de chauffage, de cuisine et de ventilation.)

Claim.—1st. The fuel box E, having an endless apron or carriage F, for receiving long or short lengths of wood for feeding the fire chamber A; 2nd. In combination with a fire chamber and chimney, the air tube H, air chamber, provided with registers J, passage K, and ash pit L, arranged as set forth; 3rd. The cylindrical revolvingovens O, operating as described; 4th. In combination with the smoke flues Q, Q, the intermediate air flue P, having inlet operations R, and outlets V, as set forth.

No. 3473. SILAS S. PUTNAM, Boston, Mass., U. S., 28th May, 1874, for 5 years: "Machine for Making Wrought Nails." (Machine à faire ie clou forgé.)

Claim.—1st. The combination of the hammers with a mechanism for varying the number of their blows as described; 2nd. The combination of the hammers with the arm *a*, and a mechanism for moving the same laterally at the required time as set forth; 3rd. The hammers operated by the cam wheel *E*, in combination with a mechanism for cutting off the finished nail as described; 4th. The combination of the hammers with the arm *a*, and mechanism for operating the same and a mechanism for varying the number of blows of the said hammers as described; 5th. The adjustable outer lever *I*, with its outer *L*, in combination with the outer lever *H*, with its outer *K*, operating as set forth; 6th. The combination of the hammers with the mechanism for varying the number of their blows, the arm *a*, and mechanism for operating the same and the cutters as described; 7th. The hammers, when constructed with projections extending in front of and beyond the plates *d*, in the manner set forth.

No. 3474. THOMAS FOLEY, Brantford, Ont., 28th May, 1874, for 5 years: "Apparatus and Process for Manufacturing Extract for Tanning and other purposes from Hemlock, Oak and Substances Containing Tannin." (Appareil et procédé de fabrication pour le tannage et autres fins, de l'extrait d'écorce de pruche, chêne et autre, et des substances contenant du tannin.)

Claim.—1st. The manufacture of extract for tanning and other purposes, the process of evaporating the ooze or liquor obtained from hemlock, oak, or other bark, or substances containing tannin by steam heat without the aid of a vacuum or vacuum pumps in the manner set forth; 2nd. In combination with the cylindrical evaporating vessel *A*, and its internal and external devices, as described, the dome *B*, pipe *C*, circular heating pipes *L*, and *M*, shaft *N*, arms or agitators *O*, air pipe *S*, and funnel tubes *K*, arranged and operating separately or combinedly.

No. 3475. STEPHEN P. LEAKE, London, Ont., 28th May, 1874, for 5 years: "Improvements on Bedsteads." (Perfectionnements aux couchettes.)

Claim.—1st. Connecting the head and foot rails *B*, *B*, to the posts *A*, by the rails *B*, *B*, receiving the ends of the posts, and the lower rails *C*, having dowel pins *D*, entering the posts *A*, laterally as set forth; 2nd. Connecting the side rails *E*, to the posts *A*, by the rails entering a mortise in the posts and receiving the dowel pins *D*, laterally as set forth; 3rd. The diagonal brace *slat G* applied as set forth; 4th. Securing the slats *I*, to the rails *F*, by pins *H*, as set forth, or by notches as described.

No. 3476. EDWARD P. MORONG, Boston, Mass., U. S., 28th May, 1874, for 5 years: "Method of Laying and Preserving Wood Pavements." (Art de poser et préserver le pavage en bois.)

Claim.—The laying of wood pavement, the treatment of the wood with antiseptic applied to the sand form on which the ends of the blocks rest in the manner described.

No. 3477. EDWARD MYERS, New York, U. S., 28th May, 1874, for 15 years: "Improvements on Rotary Pumps." (Perfectionnements aux pompes rotatives.)

Claim.—An improved rotary pump formed by the combination with each other of the cylinder *A*, provided with ports *E*, and having circular cavities *D*, formed in its heads concentric with respect to each other, eccentric with respect to the heads of the cylinder, and tangent to the inner surface of the cylinder between its ports, the hollow cylinder or drum *F*, the slotted cylinder or bearing *C*, the piston *H*, whether made with or without a flange or fluke and the shaft *B*, as described.

No. 3478. MATTHEW WAINMAN, South Orillia, Ont., 28th May, 1874, for 5 years: "Churning Machine." (Machine à baratter.)

Claim.—A churning machine having a lever beam *G* oscillating for the working of churn dashers by means of a pitman *F*, connected to a crank disc *D*, driven by the pinion *B*, by application of belt *C*, *C*, working over drive wheel *A*, said drive wheel being driven by hand power by using cranks *H*, *H*, by which means two persons can be employed in operating the machine if needed.

No. 3479. JOHN W. ELLIOT, Toronto, Ont., 28th May, 1874, for 5 years: "Improvements in Heating Stoves." (Perfectionnements aux poêles de chauffage.)

Claim.—1st. A four way draught passage *E*, with a valve *G*, and radiating pipe *F*, in combination with a stove *A*, *A*, *A*, *A*; 2nd. The mica *B*, having a knob *B*, riveted thereon in combination with the vertical ribs *b*, and horizontal ribs *b*, 3rd. The combination of the base *A*, ash pan chamber *E*, grate *D*, fire pot *A*, dome or top *A*, coal reservoir or feeder *A*, cast and fitted together as specified.

No. 3480. JOSEPH TAYLOR, Hamilton, Ont., 28th May, 1874, for 5 years: "Improvements on Railway Freight Cars." (Perfectionnements aux wagons à fret de railroutes.)

Claim.—1st. A box freight car for railways, having door *E*, arranged at the sides of the car near either end and opposite to each other. 2nd. A box freight car, constructed of a frame work composed of the sill pieces *A*, vertical posts *B*, string pieces *C*, diagonal braces *D*, tension rods *F*, and transverse beams *G*, arranged and combined as described and a door way at each side near the end of the car as set forth.

No. 3491. JOHN A. MOFFAT, Dundas, Ont., 28th May, 1874, for 5 years: "Machine for Stoning Cherries." (Machine à vider les cerises.)

Claim.—A frame *A*, hopper *B*, spring *F*, punches *I*, *I*, strippers *J*, *J*, guards *K*, *K*, rubber plates *M*, *M*, metal plates *N*, *N*, and fastening screw *C*, *D*, plate *L*, handle *H*, all arranged as specified.

No. 3482. WARREN T. KELLOGG, Troy, N. Y., U. S., 28th May, 1874, for 5 years: "Improvements on Portable Forges." (Perfectionnements aux forges portatives.)

Claim.—1st. The shaft *E*, and pulleys *E*, and *F*, in combination with sliding boxes *E*, and spring *I*; 2nd. The combination of the fan *A*, friction pulleys or gears *E*, *E*, *F*, and *G*, with rod *H*, and lever *a*, as set forth.

No. 3483. WILLIAM QUIRK, Mayfield, Cal., U. S., 28th May, 1874, for 5 years: "Tripartite Tie Link for Chains." (Ménille de chaîne tripartite.)

Claim.—1st. The U shaped rods *A*, *B*, having the extremities of one arm linked or hooked together, while the extremities of the opposite arm are arranged to buckle or interlock together as described; 2nd. The U shaped rods *A*, *B*, and permanent connecting link *c*, when the long-arms of said rods *A*, *B*, are provided with interlocking devices, and bent inwards towards link *c*, as described; 3rd. A flexible chain or link connector consisting of three parts *A*, *B*, *c*, when so constructed as to form a link of the chain which it connects as described.

No. 3484. JOHN BENNETT, Belleville, Ont., 23th May, 1874, for 5 years: "Fanning Mill and Separator." (Tarrare-Séparateur.)

Claim.—1st. An adjustable screen capable of being worked at different angles without a groove in the stee of a fanning mill or separator as set forth; 2nd. The combination of the pivot irons *A*, *A*, cams *D*, *D*, and ratchet iron *G*, as specified.

No. 3485. WILLIAM W. ALLMAND, East Boston Mass., U. S., 28th May, 1874, for 5 years: "Valve Re-Fitting Machine." (Machine à réparer les soupapes.)

Claim.—1st. The bearing strips *c*, fitted into the conical recess *C*, of the head *C*, and arranged within the same at points equidistant from each other and from the outer *D*, as specified; 2nd. The frame *A*, head *C*, and *C*, tail stock *H*, centres *G*, and *I*, bar *K*, provided with the square end *K*, and the ratchet *L*, *L*, and *I*, when constructed and combined to operate as set forth; 3rd. The improved machine described as a whole when its several parts are constructed and combined to operate as described.

No. 3486. CONVERSE COLE, Meriden, N. H., U. S., 28th May, 1874, for 5 years: "Washing Machine." (Machine à laver.)

Claim.—In combination with the guard plate C, made of thin plates of non-corrosive metal, the rolls C, the canvass belt J, cleats H, I, standard D, springs E, fluted cylinder A, and bed rolls B, all constructed and arranged as set forth, using this combination with or without guard plates C, and with or without canvass belt J.

No. 3487. JOHN T. COCKING, Penzance, Eng., 28th May, 1874, for 5 years: "Manufacture of Stays." (Fabrication des corsets.)

Claim.—1st. The manufacture of stays and corsets from wool or such like fibre wound into a mould and after being felted together proofed or stiffened by a proofing solution applied to it as described; 2nd. The manufacture of stays or corsets and other articles of wearing apparel from felted fabrics composed of woollen or other such like fibre of various colours blended together in the manner described; 3rd. The manufacture of stays or corsets from wool or such like fibre wound into a mould felted, proofed and subsequently stretched on an expansible mould as described; 4th. The manufacture of felted and proofed stays or corsets of greater substance at those parts which require to be made stronger than the others as described; 5th. The combined arrangement of forming machine as described and shown at figures 1, 2, and 3, sheet 1; 6th. The combined arrangements of hardening machine as described and shown at figures 1, 2 and 3, sheet 2; 7th. The combined arrangement of steam chest A, expansible mould b, wedge c, and side plates d, employed for stretching the partly formed stays or corsets as described and illustrated at figures 1, 2 and 3, sheet 3; 8th. The apparatus described and shown at figure 4, for piercing the partly formed stays to receive the fasteners such apparatus consisting of a bar f, carrying adjustable cutters g, which can be caused to simultaneously pierce the fabric whilst it is supported on a bed g; 9th. The arrangement of apparatus as described and shown at figure 7, for completing the doubling over of the edges of two halves of the stays, such apparatus consisting of the hollow heated bed g, hinged cover z, lever and catch d, and e, and screw f, or mechanical equivalent for the same.

No. 3488. GEORGE A. TORRENCE, Philadelphia, Penn., U. S., 28th May, 1874, for 5 years: "Life Saving Mattress." (Matelas de sauvetage.)

Claim.—1st. A new article of manufacture in a mattress having cork ends b, with centre a, constructed as shown in figures 1 and 2; 2nd. The mattress constructed as described with transverse or longitudinal divisions f, as shown in figures 3 and 4; 3rd. The mattress constructed in any of the modes described, having the straps d, e, tufted thereto as set forth.

No. 3489. PHILIP CADELL, Victoria, B. C., 28th May, 1874, for 5 years: "Machinery and Apparatus for the Extraction of Gold from Auriferous Gravel." (Appareil et mécanisme pour l'extract'on de l'or du gravier aurifère.)

Claim.—The combination of one or more continuous rotatory power sifters J, (driven with any suitable motive power) with the American sluice or flume N, (the sluice or flume being the well known apparatus used for the extraction of gold from auriferous gravel materials in America) as set forth.

No. 3490. JOHN B. WILLS, Montreal, Que., 28th May, 1874, for 5 years: "Horse Shoe Nail Machine." (Machine à clou de cheval.)

Claim.—1st. The cam r, with double projections a1, and b1 and double depressions c1, and d1, in combination with the projection o, and arm l, operating the feeder slide d; 2nd. The combination of the rocking cutter bar e, with two trips c1, and d1; 3rd. The combination of the shaft k, and lever l, with the drum t, having two projections m1, and n1; 4th. The novel combination in a nail cutting machine o, constructed as described of cam r, two trips c1, and d1, and drum t, having two projections m1, and n1, as set forth.

No. 3491. WILLIAM W. ALLMAND, East-Boston, Mass., U. S., 28th May, 1874, for 5 years: "Valve-Seat Refitting Machine." (Machine à réparer les sièges de soupapes.)

Claim.—1st. In combination with the frame A, the swivelled or pivoted head C, provided with the threaded step c1, c2, and central opening c3; 2nd. The frame A, feed-screw B, head C, c1, c2, and c3, and the mandrel D, constructed and combined to operate as shown; 3rd. The frame A, feed screw B, head C, c1, c2, and c3, mandrel D, cutter E, and ratchet-lever F, said parts being constructed as shown and combined to operate in the manner set forth; 4th. The plug a1, cutter d1, screw c1, all working together as set forth.

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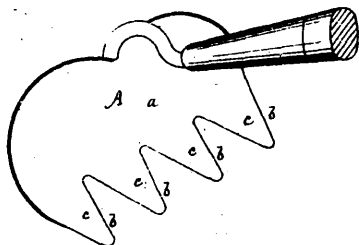
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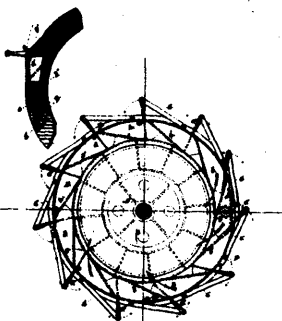
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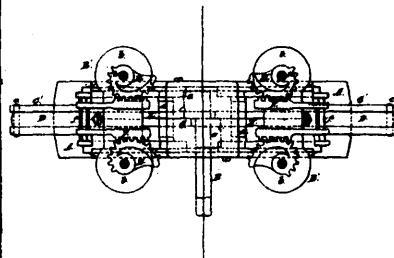
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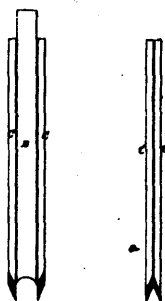
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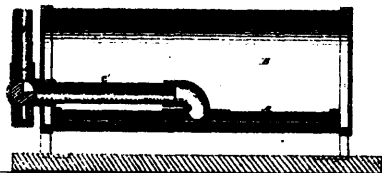
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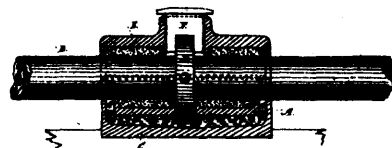
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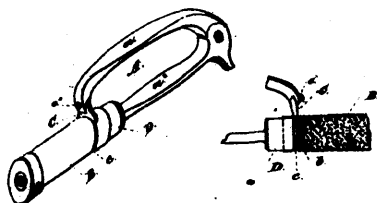
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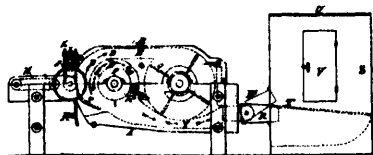
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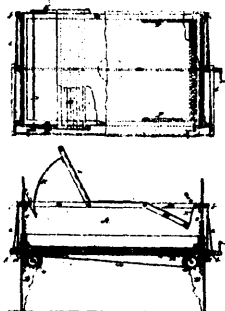
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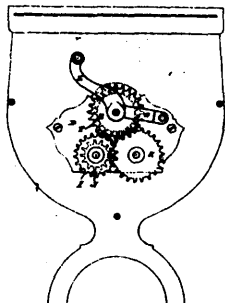
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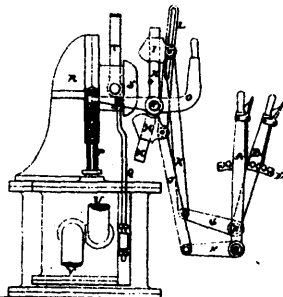
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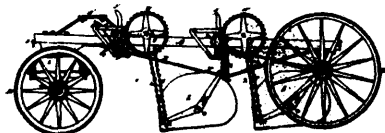
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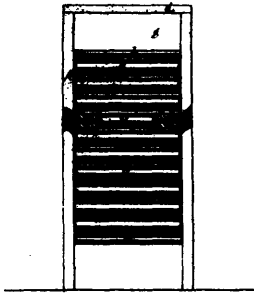
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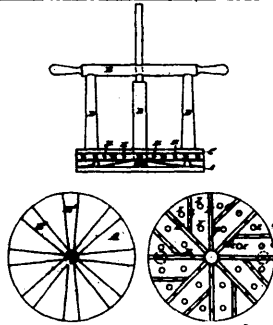
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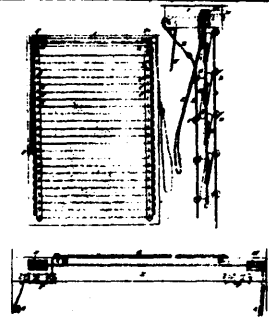
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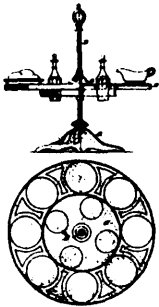
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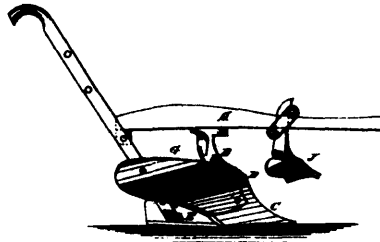
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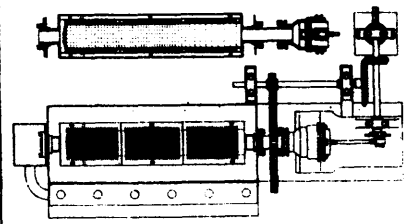
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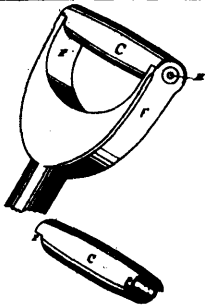
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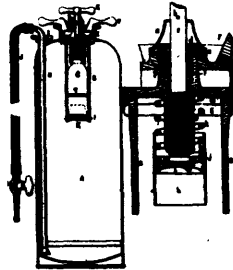
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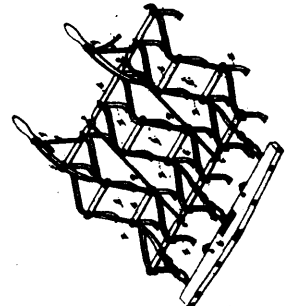
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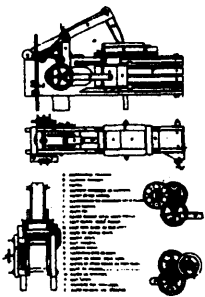
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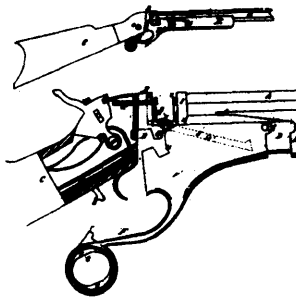
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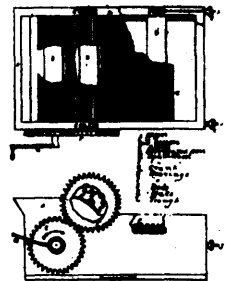
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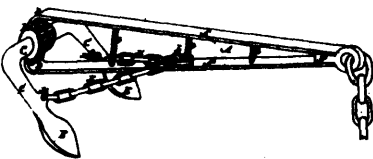
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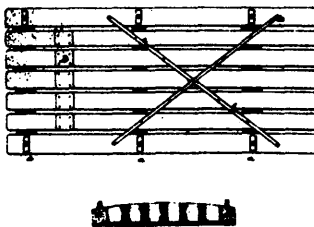
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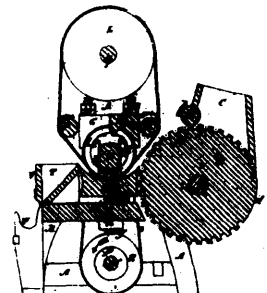
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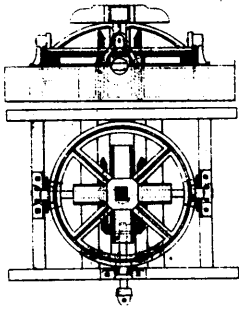
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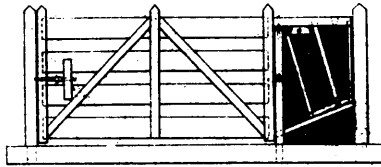
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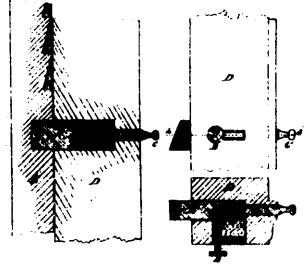
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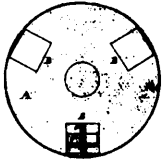
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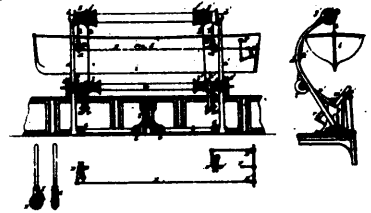
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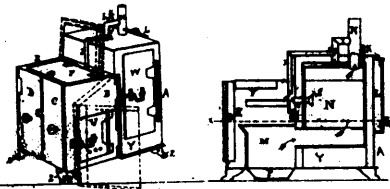
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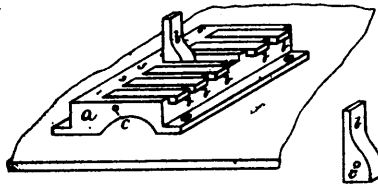
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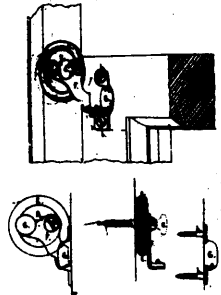
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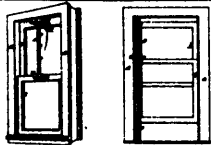
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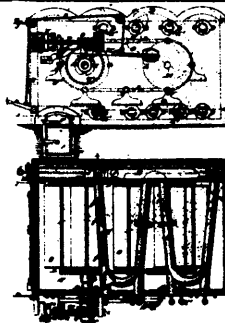
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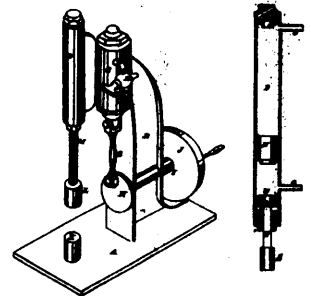
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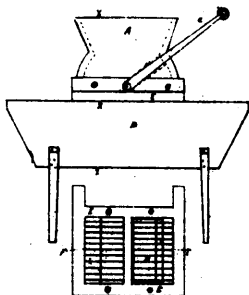
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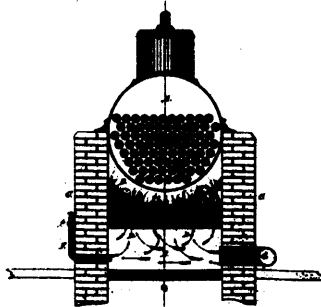
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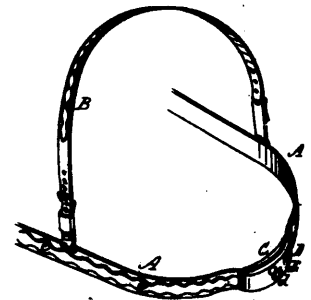
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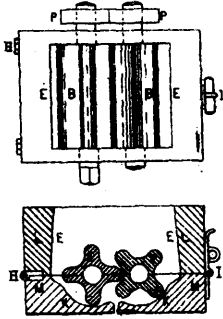
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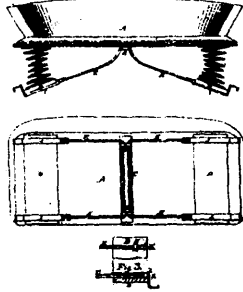
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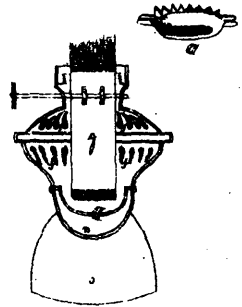
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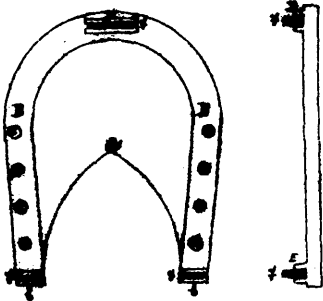
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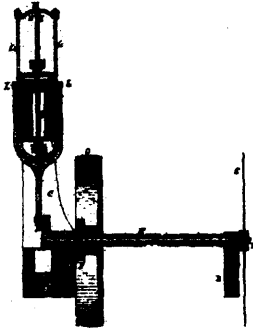
3415 Armstrong & Armstrong's Spring Seat for Waggons and Cars.



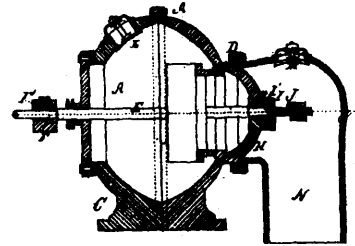
3416 Calley's Improvement in Lamp Burners.



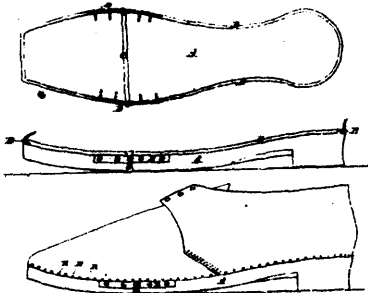
3417 Bayles' Improvements in Horse Shoes.



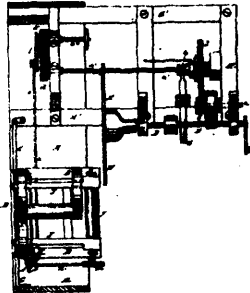
3418 Brown's Steam Circular Saw Mill.



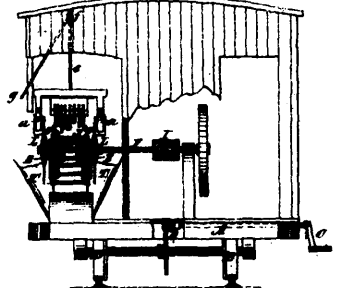
3419 Myers' Improvement in Metallic Cases for Turbine Wheels.



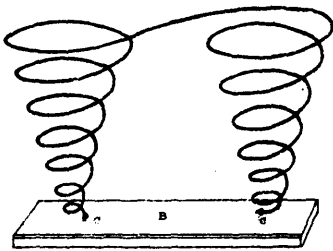
3420 Hunter's Improvements on Wooden Soles for Boots and Shoes.



3421 Gooch's Shingle Machine.



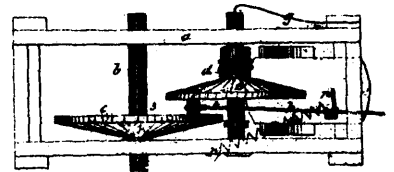
3422 Smith's Improvements on Machines for Sawing Wood.



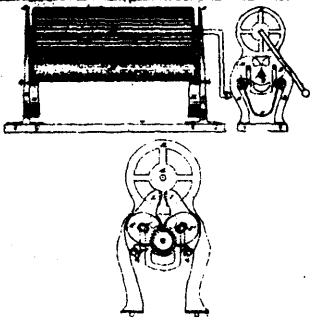
3423 Clark's Improvements on Bed-Springs.



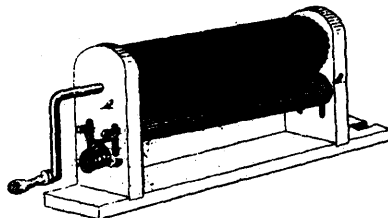
3424 Redheffer's Improvements on Egg Beaters.



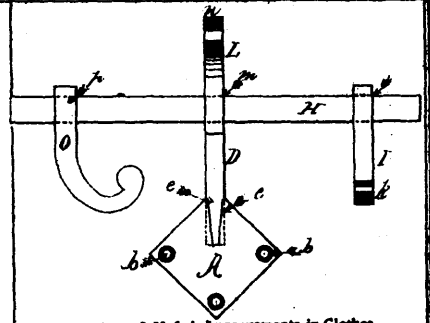
3425 Scott's Improvements on Variable Speed Motion.



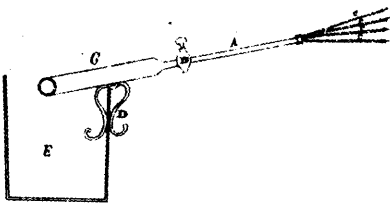
3426 Beckwith & Kyle's Improvements on Washing Machines.



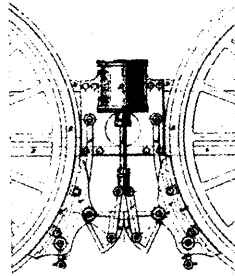
3427 Dangerfield's Improvements on Washing Machines.



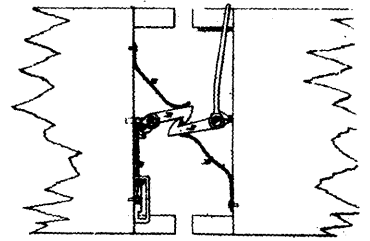
3428 Carleton & Nuffer's Improvements in Clothes Racks.



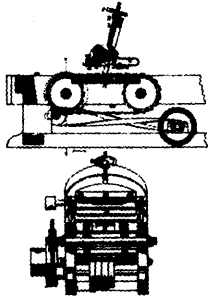
3429 Berry's Machine for Milking Cows.



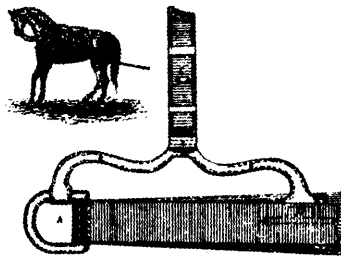
3430 Westinghouse's Machine for Checking, Retarding and Stopping Railway Locomotives.



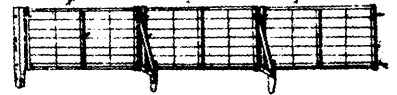
3431 Green's Improvements in Automatic Couplings for Railway and other Carriages.



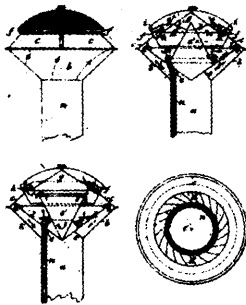
3433 Woodbury's Improvements on Planing Machines.



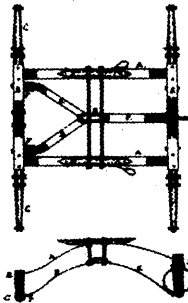
3434 Selfridge's Improvements on Harness.



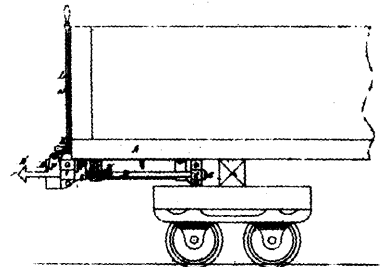
3435 Forsyth's Manufacture of Portable Wire Fences.



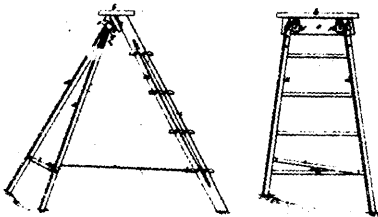
3436 Allard's Improvements on Locomotive Smoke Stacks.



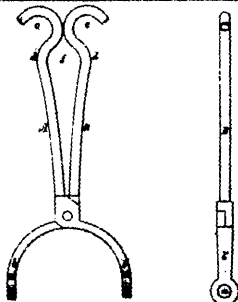
3437 Ziegler & Ziegler's Improvements in the Construction of Vehicles.



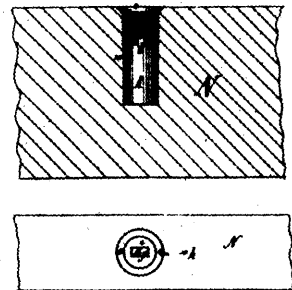
3438 Bradford's Improvements in Car-Couplings.



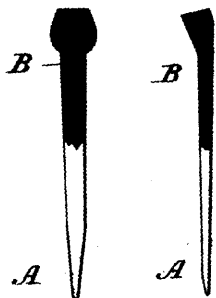
3439 Wright's Self-Adjusting Step-Ladder.



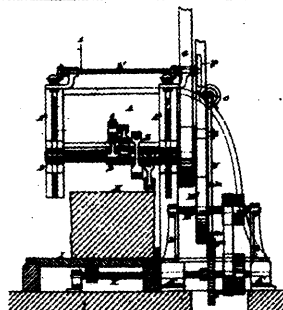
3440 Pond's Hose-Coupling Spanner.



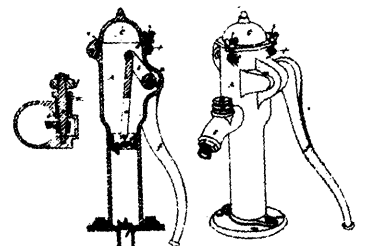
3441 Shilling's Improvements in Locks.



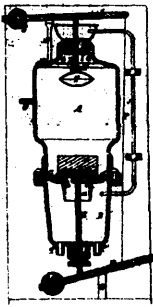
3442 Woodford's Manufacture of Horse Shoe Nails.



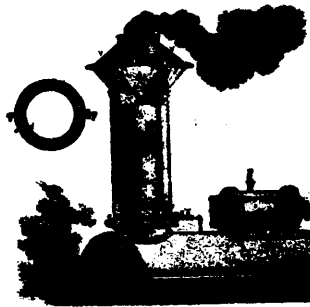
3443 Stacy's Revolving Hammer.



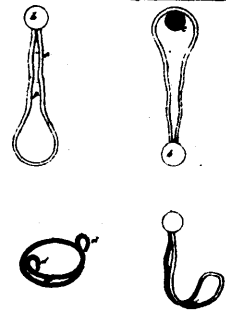
3444 Putnam's Improvements on Pumps.



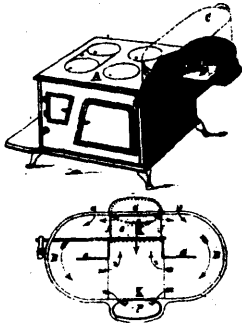
3445 Riley's Apparatus for Supplying Water Closets with Water.



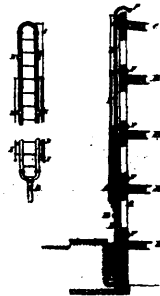
3446 France's Improvement in Food Water Heater for Steam Boilers.



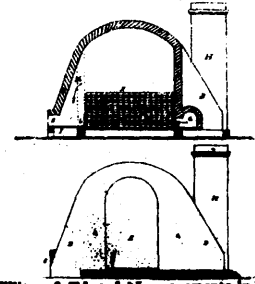
3447 Mutter, Black & Sims' Improvements in Clothes Pins.



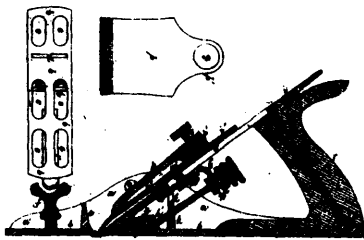
3448 France's Cooking Stove Boiler Attachment.



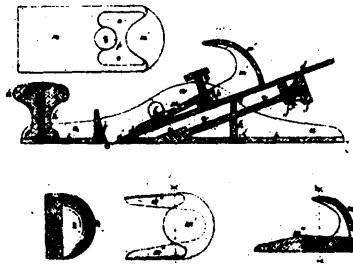
3449 Miller's Fire Extinguishing System of Water Pipes and Escape.



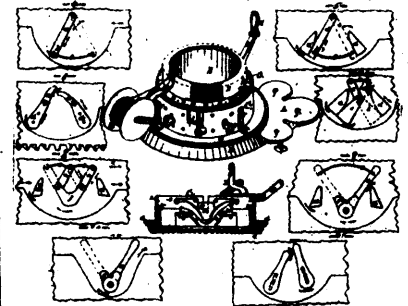
3450 Williams & Edwards' Improvements in Kilns for Burning or Drying Bricks, Tiles and Earthenware and Mode of Setting the Material to be Burned or Dried.



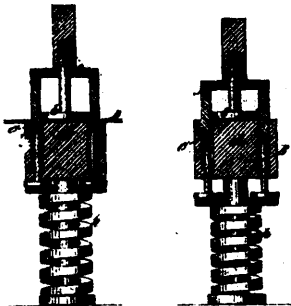
3451 Baldwin & Hardy's Improvements on Planes.



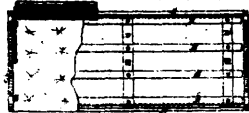
3452 Baldwin & Hardy's Improvements on Planes.



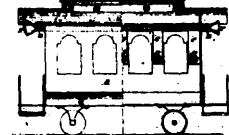
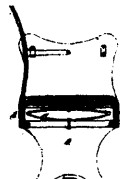
3454 Dickford's Knitting Machine.



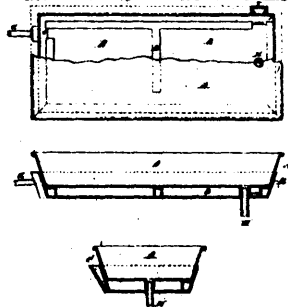
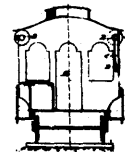
3455 Wilson & Miller's Improvement on Dies for Cutting and Capping Sheet Metal.



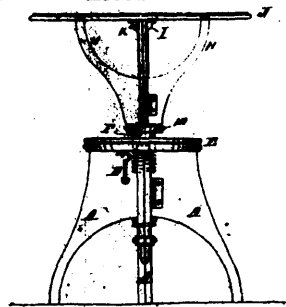
3456 Briggs & Finch's Spring Bottoms for Seats and Beds.



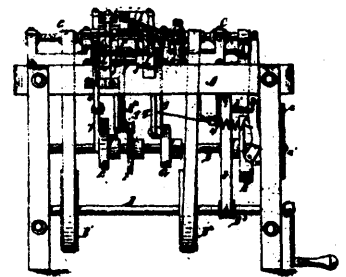
3457 Briggs & Finch's System of Ventilation for Cars and Buildings.



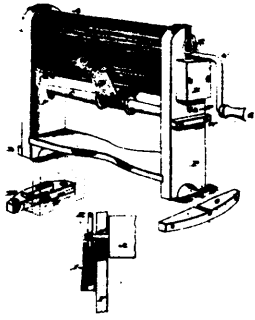
3458 May's Milk Pan.



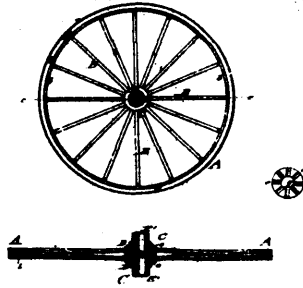
3459 Newcomb's Table and Stool Folding Standard.



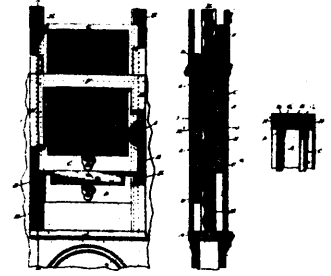
3460 Smith's Machine for Making Clothes Pins.



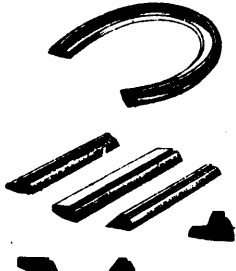
3461 Smith's Improvements on Washing Machines.



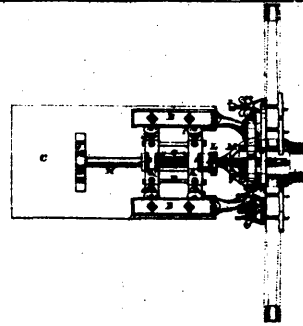
3462 Gardner's Vehicle Wheel.



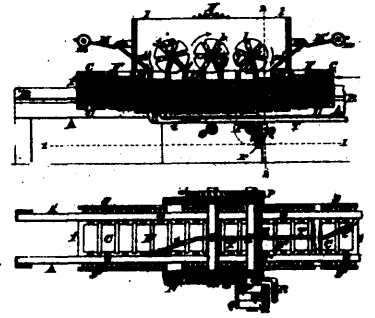
3463 Walker's Railway Car Window.



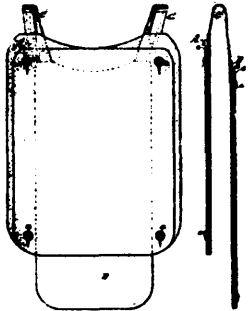
3464 Carruthers' Horse Shoe Bar.



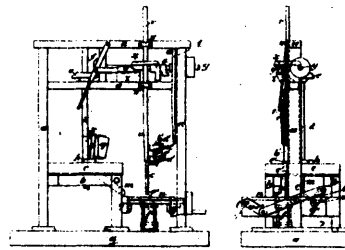
3465 Abbott's Hub Borer.



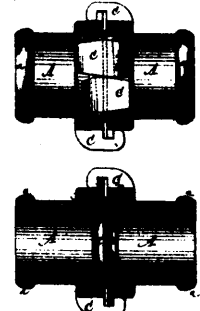
3466 Bovey's Brick Machine.



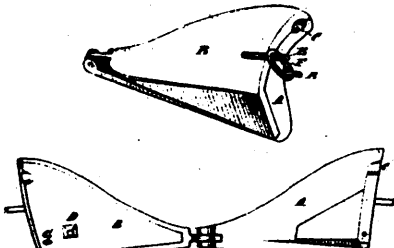
3467 Singer's Chest Protector.



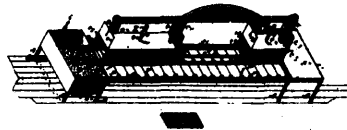
3468 McGlashan's Apparatus for Manufacturing Drain Pipes from Cement, Clay, &c.



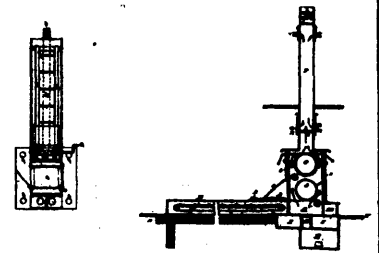
3469 Ashworth's Hose and Pipe Coupling.



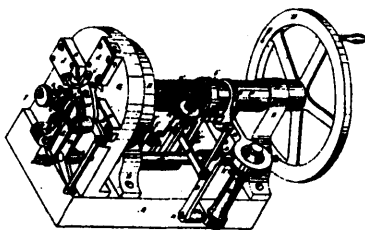
3470 McGill & McGill's Chill-mould for Casting Plough-points.



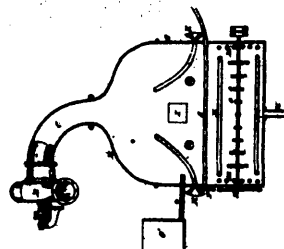
3471 Moore's Apparatus for Preserving Fruits, Vegetables, Fish or Meats in Sealed Cases or Jars.



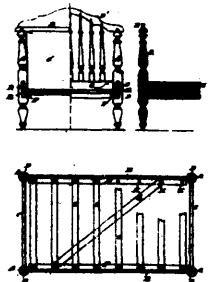
3472 Beckwith's Heating, Cooking and Ventilating Apparatus.



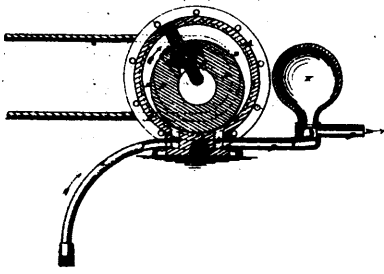
3473 Fetzner's Machine for Making Wrought Nails.



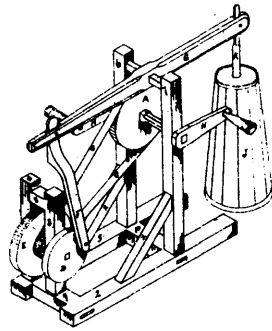
3474 Foley's Apparatus and Process for Manufacturing Extract for Tanning and other purposes from Hemlock, Oak and Substances containing Tannin.



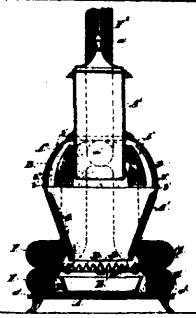
3475 Leake's Improvements on Beds.



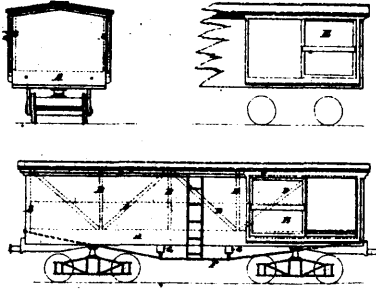
3477 Myers' Improvements on Rotary Pumps.



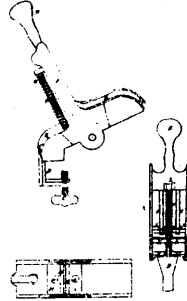
3478 Wainman' Churning Machine.



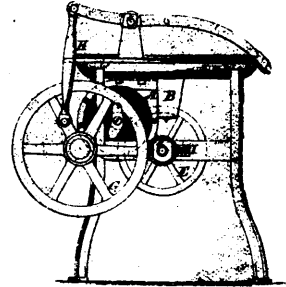
3479 Elliott's Improvements in Heating Stoves.



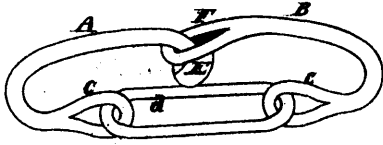
3480 Taylor's Improvements on Railway Freight Cars.



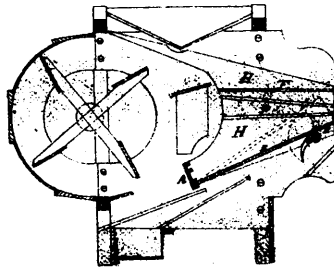
3481 Moffat's Machine for Stoning Cherries.



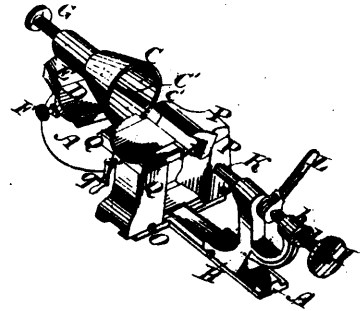
3482 Kellogg's Improvements on Portable Forges.



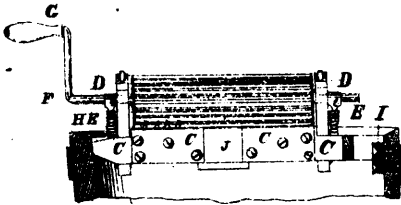
3483 Quinlan's Tripartite Tie Link for Chains.



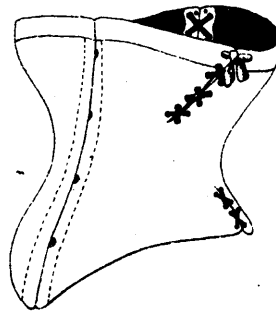
3484 Bennett's Fanning Mill and Separator.



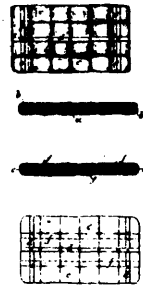
3485 Allmand's Valve Refitting Machine.



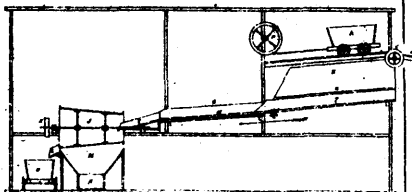
3486 Cole's Washing Machine.



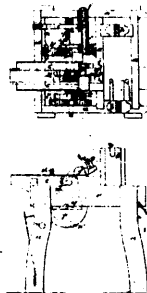
3487 Cocking's Manufacture of Stays.



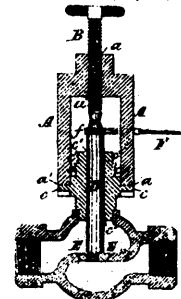
3488 Torrence's Life Saving Mattress.



3489 Codell's Machinery and Apparatus for the Extraction of Gold from Auriferous Gravel.



3490 Wills' Horse Shoe Nail Machine.



3491 Allmand's Valve-Seat Refitting Machine.