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INVENTIONS PATENTED.

No. 15,401. Improvements in Harness. (*Perfectionnements dans les harnais.*)

Josiah B. Dewey, Colborne, and David H. Minaker, Cobourg, Ont., (Assignees of Ambrose B. Coleman, Lyndeville, N. Y., U. S.), 1st September 1882; (Extension of patent No. 7866.)

No. 15,402. Improvements in Hoisting Machines. (*Perfectionnements aux monte-charges.*)

Thomas Mann, Portland, Oregon, U. S., 1st September 1882; (Extension of patent No. 7853.)

No. 15,403 Method of Manufacturing Grape Sugar and Compounds Containing Grape Sugar, and Apparatus therefor. (*Methode en appareil de fabrication du sucre de raisin et des composés contenant du sucre de raisin.*)

William T. Jebb, (assignee of Thomas A. Jebb), Buffalo, N. Y., U. S., 1st September 1882; for 5 years.

Claim.—1st. The method of manufacturing hard and dry grape sugar, which consists in mixing a suitable quantity of dry grape sugar scraped, ground, or otherwise pulverized with liquid grape sugar. 2nd. The method of manufacturing hard and dry grape sugar, which consists in, first, agitating and cooling the liquid sugar, then, delivering the cool semi-liquid sugar into suitable pans or moulds and finally, exposing the sugar to an artificial air current. 3rd. The method of manufacturing saccharine compounds, which consists in mixing grape sugar with cane sugar, or beet sugar, before the grape sugar has become hard or set. 4th. The process of manufacturing saccharine compounds, which consists in mixing grape sugar with cane sugar or beet sugar, before the grape sugar has become hard or set, and, then, forming the mixture into blocks or other solid forms. 5th. The process of manufacturing saccharine compounds, which consists in mixing grape sugar with cane sugar or beet sugar, then, forming the mixture into blocks or other solid forms then, grinding, scraping, or otherwise pulverizing said compound and, then, mixing a further quantity of cane sugar or beet sugar with the ground, scraped, or pulverized sugar. 6th. The process of manufacturing saccharine compounds, which consists in mixing dry grape sugar, scraped, ground, powdered or otherwise reduced, and cane sugar or beet sugar with liquid grape sugar. 7th. The process of manufacturing hard and dry grape sugar which consists in mixing cane sugar, or beet sugar with the liquid grape sugar, then delivering the liquid or semi-liquid mixture into moulds or pans and, then, subjecting the sugar to the action of an artificial air current. 8th. In an apparatus for manufacturing saccharine compounds, the combination of a mixing vessel A in which the grape sugar is prepared for its solidification, a receptacle containing dry pulverized sugar and provided with means, whereby said sugar can be introduced into the mixing vessel A, moulds d in which the sugar is permitted to become hard, a reducing machine, whereby the solid grape sugar is reduced to the proper degree of fineness, a receptacle N containing cane or beet sugar, and a mixing machine M, whereby the cane or beet sugar and the comminuted grape sugar are intimately mixed. 9th. The combination of a reducing machine, whereby the block grape sugar is reduced to the proper degree of fineness, with a receptacle N containing cane or beet sugar, and a mixing machine M, whereby the cane or beet sugar and the comminuted grape sugar

are intimately mixed. 10th. The combination of a scraping or shaving machine G, whereby the solid grape sugar is reduced to shavings, and a mill I, whereby the shavings are further reduced to the desired degree of fineness. 11th. The combination of a reducing machine, whereby the block grape sugar is reduced to the proper degree of fineness, a separating machine, whereby the coarse material, which has not been reduced to the proper degree of fineness, is separated from the fine material, a receptacle K in which the fine material is collected, a receptacle N containing cane or beet sugar, and a mixing machine M, whereby the cane or beet sugar and the comminuted grape sugar are intimately mixed.

No. 15,404. Improvements on Portable Houses. (*Perfectionnements aux maisons portatives.*)

James Rielly, Sherbrooke, Que., 1st September 1882; (Extension of patent No. 14,733.)

No. 15,405. Improvements on Portable Houses. (*Perfectionnements aux maisons portatives.*)

James Rielly, Sherbrooke, Que., 2nd September 1882; (Extension of patent No. 14,733.)

No. 15,406. Improvements on Gang Ploughs. (*Perfectionnements aux charrues à socs multiples.*)

William H. Rowe, Little Britain, Ont., 2nd September 1882; for 5 years.

Claim.—The combination of the movable ploughs G with the plough bar E, brace bar d and brace c.

No. 15,407 Improvements on Lubricating Compounds. (*Perfectionnements aux composés lubrifiants.*)

George H. Merrill, Boston, Mass., U. S., 2nd September 1882; for 5 years.

Claim.—An improved lubricating compound, composed of tallow, resin, petroleum, tar, graphite, lime and water.

No. 15,408. Improvements on Barbed Fences. (*Perfectionnements aux clôtures barbelées.*)

Melyville S. Chapman, Elkhart, Ind., U. S., 2nd September 1882; for 5 years.

Claim.—The combination, with the upright posts A having shaped notches in one side of the rails F fitting in said notches and provided at their extreme edges with metallic barbs.

No. 15,409. Improvement in Treating Copper. (*Perfectionnements dans le traitement du cuivre.*)

Annie Getchell, Boston, Mass., U. S., 2nd September 1882; for 5 years.

Claim.—1st. The process for treating copper by adding to the same, when brought to a suitable heat, a composition composed of potash (or soda) alum, bone dust or other phosphate, and zinc or tin. 2nd. The metal having the qualities of density, hardness, toughness and lubricity, it consisting of copper and other material.

No. 15,410. Improvements on Machines for Coiling Wire. (*Perfectionnements aux machines de rouler le fil de fer.*)

George Gale, Waterville, Que., 2nd September 1882; for 5 years.

Claim.—1st. The combination, with a shaft F and a tool carrier, of a tapered spindle whose smaller diameter is toward the shaft F.

2nd. The combination of the tapered spindle, spiral faced die and tool carrier. 3rd. The combination of the tapered spindle and spiral faced die, having a conical central eye and means for adjusting the same. 4th. The combination of the tapering spindle *a*, die *c*, tool carrier *E*, and pulley *j* supported upon said tool carrier. 5th. The combination, with the tapered spindle and spiral faced die, of the tool carrier, provided with an adjustable plate having a grooved pulley. 6th. The combination, with the tapered spindle spiral faced die and tool carrier, of a plate *H* having a lateral movement on said tool carrier and provided with a grooved pulley capable of movement in a horizontal plane. 7th. The combination, with the tapered spindle, spiral faced die and tool carrier, of a plate *H* adjustably secured to said tool carrier and provided with a grooved pulley, capable of vertical movement on said plate. 8. The combination, with the tapered spindle, spiral faced die and tool carrier, of the plate *H* having the depending slotted arm *h*, adjusting screw *D*, the screw rod *J* with its nut, and pulley *j*.

No. 15,411 Improvements on Tables for Sewing Machines. (*Perfectionnements aux tables des machines à coudre.*)

The Gerald Sewing Machine Cabinet Company, New York, (assignee of Amos Fitz Gerald, Fairfield, Me.) U. S., 4th September 1882; for 5 years.

Claim.—1st. The combination, with a table or stand having a rail-like top portion, of a revolving top portion carrying a machine and pivoted within the rail-like top portion, a cover for the revolving top portion hinged to the same, a stop for supporting the cover, when the revolving portion is turned, to bring the machine right side up, a wheel for transmitting motion to the machine, whereby it will guide the cover to the stop when the revolving portion is turned, to bring the machine right side up, and a catch for retaining the revolving portion in position. 2nd. The combination, with a table or stand having a rail-like top portion, and a revolving portion pivoted within the same, of a machine or other article, fitted in an opening in the revolving portion and hinges, and a catch for securing the machine to said portion, so that it may be dropped through the opening, to enable the revolving portion to be turned and to carry it through the rail-like portion. 3rd. The combination, with a table having a rail-like top portion, of a revolving top portion, pivoted within the same, carrying a machine and provided with two openings through which a driving belt may pass and which form between them a bar on which the belt is supported, when thrown off the machine, and a cover hinged to said revolving portion and adapted to conceal it, the said revolving portion having a groove in its under surface for receiving the belt, when the said revolving portion is inverted. 4th. The combination, with a table having a rail-like top portion, and a revolving top portion provided with two openings for the passage of a driving belt, forming between them an intermediate bar on which the belt may be supported, when not in use, of a machine, or other article, fitted in an opening in the revolving portion, and hinges and a catch for securing the machine to said portion, so that it may be dropped down through the opening to enable the revolving portion to be turned to carry the machine through said rail-like portion, and a hinged cover for concealing the revolving portion when inverted, the said revolving portion having a groove in its under surface, in which the belt is received, when said portion is inverted. 5th. The combination, with a table or stand having a revolving top portion carrying a machine, of an oil-drip cup, which turns or revolves with said top portion, and has its edges reverted or turned inwards, so that, when turned upside down, its reverted or turned in edges will catch and retain the oil contained within it.

No. 15,412. Improvements on Vehicle Wheels. (*Perfectionnements aux roues des voitures.*)

Daniel Johnson, Combermere, Ont., 5th September 1882; for 5 years.

Claim.—1st. A carriage wheel having solid or tubular arms, or spokes *S* of steel, having a right handed screw at one end, and a left handed screw at the other, to screw respectively into the felloes and hub and being provided with a square *r* or other convenience, for the spanner. 2nd. A metallic hub *H* boxed with brass babbitt, or other anti-friction metal, to fit and run easy upon the axle *a* into which the arms or spokes *S* are screwed, in combination with the spokes *S* and felloes *F*.

No. 15,413. Improvements in Shingle Machines. (*Perfectionnements aux machines à bardeau.*)

Joseph A. Mumford, Avondale, N. S., 5th September 1882; (Extension of patent No. 7917.)

No. 15,414. Improvements in the Manufacture and Preparation of Plates for Electric Accumulators. (*Perfectionnements dans la fabrication et la préparation des plaques pour les accumulateurs électriques.*)

Thomas S. Sarney, Camberwell, and John M. Alprovidge, Herne Hill, Eng., 7th September 1882; for 5 years.

Claim.—The manufacture and preparation of electric accumulator or secondary battery plates.

No. 15,415. Improvements on Gate Hangings. (*Perfectionnements aux pentures des barrières.*)

Frederick J. Sheldon, Longwood, Wis., U. S., 7th September 1882; for 5 years.

Claim.—In a swinging gate, the bracket *b* constructed with arms *b3*, cross bar *b2* and having the chain *b1* secured to lugs *b4*, operating in combination with the post.

No. 15,416. Lever Collar Block Press.

(*Presse à levier pour former les coliers.*)

Edward L. Brazenor, Hamilton, Ont., 7th September, 1882; for 5 years.

Claim.—1st. The press plate *D* with the rim clamps *C* hinged to it underneath, in connection with the lever *B*, staple *G* and collar block *I*. 2nd. The eccentric shaped lever *B* with its curved point *L*, in connection with the staple *G*, press plate *D* and slot *E*.

No. 15,417. Improvements on Moulding Machines. (*Perfectionnements des machines de moulage.*)

William H. Law, Peterborough, Ont., 7th September, 1882; for 5 years.

Claim.—1st. A table designed to support one or more moulding flasks, in combination with a cross-head or beam, located above the table and so arranged that the beam and table may be adjusted towards each other for the purpose of compressing sand in the flask resting on the table. 2nd. In a table designed to support one or more moulding flasks and provided with downwardly projecting sleeves to fit over hollow columns situated at either end of the table, in combination with tubular pitman rods, located within the hollow columns, the top end pressing against the underside of the table and the other end resting on the spherical ends of the cranks attached to or forming part of a shaft passing through the hollow columns and provided with a handle or lever. 3rd. In a machine designed to compress sand in a moulding flask between the table supporting the flask and a cross-head located above it, the combination of rods pivoted on the shaft and arranged to support the cross-head in such a manner, that it may be swung clear off the table when not required for use.

No. 15,418. Improvements on Hydrants.

(*Perfectionnements aux bornes-fontaines.*)

William H. Law, Peterborough, Ont., 7th September, 1882; for 5 years.

Claim.—1st. A water hydrant provided with a cut-off valve operated by a spindle, a valve seat located at a point between the water main and main cut-off valve, in combination with an auxiliary valve held to the said seat by a spiral spring and operated by the spindle of the main cut-off valve. 2nd. In a water hydrant provided with a cut-off valve operated by a spindle, the combination of a valve seat formed for the cut-off valve, at the end of a tube suspended with, and from, the top of the outer jacket of the hydrant, so that the valve seat and valve may be removed without disturbing the joints at the base of the hydrant. 3rd. In a water hydrant provided with a cut-off valve operated by a spindle, the combination of a stuffing box designed to form the nut of the spindle and to close an aperture made in the top of the hydrant, sufficiently large to permit the removal of the valve and spindle.

No. 15,419. Improvements on Lager Beer Refrigerators. (*Perfectionnements aux réfrigérants à lager bière.*)

John Alexander, Toronto, Ont., 7th September, 1882; for 5 years.

Claim.—1st. A lager beer refrigerator in which the keg, when placed in position, is provided with a faucet extending through the outer panel of the refrigerator, a double door hinged on either side of the aperture through which the keg is inserted and having the centre edge of the door recessed on either side of the faucet. 2nd. In a lager beer refrigerator in which the ice chamber is placed above the chamber containing the keg or kegs and the floor, or supporting, joists of the latter chamber is flush with the bottom of the aperture through which the keg is inserted, the combination of a vertically hinged door, having a notch or hole cut through it, for the passage of the faucet in the keg.

No. 15,420. Fire-Box. (*Boîte à feu.*)

Cyrus K. Vilas, Alstead, N. H., U. S., 7th September, 1882; for 5 years.

Claim.—The combination, with the spherical or globe-shaped fire-box or chamber, adapted to revolve and having the slotted or apertured covers, of the stove or heater, provided in its bottom with an opening having the upper bevelled edge.

No. 15,421. Improvements on Gang Saws. (*Perfectionnements aux scies verticales alternatives.*)

Sanford Adams and Sanford Adams, jr., Rome, N.Y., U. S., 8th September, 1882; for 5 years.

Claim.—The combination, in a sawing machine, of a gang of saws, with a plate *f* adjustable lengthwise of, and parallel with the table and provided with the fingers or projections *l*, which extend in between the saws, so as to form a support for the lumber.

No. 15,422. Improvements on Wire Coiling Machines. (*Perfectionnements aux machines à rouler le fil de fer.*)

La Fayette Wildermuth, Columbus, Ohio, U. S., 8th September, 1882; for 5 years.

Claim.—1st. The wire coiling mandrel *C1* provided with the hook *c* cast thereon, or made part thereof, ledge *d1* and guide *e*, whereby the wire is held firmly on the mandrel during the coiling operation. 2nd. The wire coiling mandrel *C*, abutment *d1*, segmental guide *e*, all cast thereon or made part thereof, whereby the wire clasp and loop is raised over on to the smaller part of the mandrel by the turning of the mandrel forward, without being bent or injured. 3rd. The mandrel *C* provided at its rear, or spring-finishing end, with a spring

hook D, whereby the wire is securely held on the mandrel after the coil is formed. 4th. The post A' provided with the plate D' having formed therein the straight groove l and curved grooves 33, whereby the connecting portion of the double springs and the arm of the single spring are formed, having two semi-circles joined by a straight central section. 5th. The combination of the wire coiling mandrel provided with the hook c' guide d and the spring hook D, with the cutting device and with the guide and holder G'.

No. 15,423. Improvements in Wire Rope Attachments. (*Perfectionnements des crochets de câbles en fil de fer.*)

William P. Healey, Somerville, Mass., U.S., 8th September, 1882; for 5 years.

Claim.—1st. The combination of the nicked and socketed connection with the wire rope and with the holding metal, cast into the mouth of the socket, and within and about the rope. 2nd. The combination of the sister hook B provided with the bolt secured to it, with the socketed connection A having the eye a, with the sister hook C having the eye g.

No. 15,424. Machine for Cutting Railroad Rails for Frogs and Switches.

(*Machine pour couper les rails des chemins de fer pour les rails de croisement et les aiguilles.*)

Frederic C. Weir, Cincinnati, Ohio, U.S., 8th September, 1882; for 5 years.

Claim.—1st. The combination of a circular saw or cutting disk, a reciprocating rail-holding table and devices for adjusting said table more or less, out of a horizontal plane and securing it in adjusted position. 2nd. The combination of a circular saw, or cutting disk, a reciprocating rail-holding table, devices for adjusting the table more or less, out of a horizontal plane, and other devices for adjusting said table horizontally on a vertical axis. 3rd. The combination with the rail-holding table H having the oblique slots O O, and the graduations along said slots, of the adjustable clamps N N, whereby the rails are held centrally upon the table. 4th. The carriage H pivoted by the pivots I to the reciprocating carriage and rendered adjustable out of a horizontal plane by means of bolts I' working in slots i'. 5th. The combination, with the table H and stocks F' F' to which it is pivoted, of the graduations j' on the table and the pointer J on one of the stocks. 6th. The combination, with the bed E provided with slots G and index finger K, of the bolt g and the plate F having the graduated scale at its end. 7th. The adjustable clamp S having its forward end raised, so as to rest upon the flanges of the rail and slotted at M to accommodate the web of the rail. 8th. In the rail cutting and tapering machine, the iron clamp a and clamp-block b secured to the rail at the terminal point of the kerf, for preventing the saw from running off at the end of the taper. 9th. In combination with the overhanging circular saw D and horizontally moving table H, the cross-cut bunk P and saddle S, and clamps R R for cross-cutting railroad rails.

No. 15,425. Improvements on Metallic Barbed Fences. (*Perfectionnements aux clôtures métalliques barbelées*)

Thomas C. Hewitt, London, Ont., 8th September, 1882; for 5 years.

Claim.—The metallic fence strip A twisted spirally before being erected and at the same time that barbs B are formed thereon, and allowing said barbs to project from the surface on all sides.

No. 15,426. Improvements on Bed Bottoms.

(*Perfectionnements aux sommiers des lits.*)

Jesse Bowen, Lancaster, Ohio, U.S., 8th September, 1882; (Re-issue of Patent No. 12,639.)

Claim.—1st. A spring consisting of a flexible slat, having bridges I I arranged upon its under side and upon opposite sides of its centre, and compressed springs i i arranged intermediate of said bridges and connected together and to slats near its end. 2nd. In a spring bed bottom, the combination of a series of flexible slats each having bridges I I arranged upon its under side and upon opposite sides of its centre, and compressed springs i i arranged intermediate of said bridges and connected together by rods f and to the slats, near their ends, by rods d d, and the transverse central suspended supporting bar G. 3rd. A series of flexible slats, having their ends placed over cross bars B and held down by cross bars D and each flexible slat provided with bridges I I, intermediate compressed springs i i, double hook h h', central connecting rod f and end connecting rods d d. 4th. A series of flexible slats, having their ends placed over cross bars B and held down by cross bars D, and each flexible slat provided with bridges I I, intermediate compressed springs i i, double hook h h', central connecting rods, f and end connecting rods d d, in combination with the transverse central suspended supporting bar G. 5th. In a series of flexible slats, having their ends placed over cross bars B and held down by cross bars D and each slat provided with bridges I I, intermediate compressed springs i i, double hooks h h', central connecting rod f, and end connecting rods d d, and devices for regulating the tension of the springs. 6th. A series of flexible slats and each slat provided with bridges I I, intermediate compressed springs i i, double hooks h h', central connecting rod f and end connecting rods d d, in combination with the transverse central suspended supporting bar G.

No. 15,427. Improvements on Knitting Machines. (*Perfectionnements aux machines à tricoter.*)

The Universal Knitting Machine Company, (Assignee of George Bickell, jr.) Toronto, Ont., 8th September, 1882; for 15 years.

Claim.—1st. An eccentric parallel motion, or regulator A1 for regulating the stitch, as attached to cam cylinder A and composed of the following parts: upright arm a, centre stud a', arms a² a², short arms a³ a³, eccentric cams f f'. 2nd. An automatic reversible cam e for opening and closing the race-way of the needles. 3rd. A latch b for securing the gate B in position. 4th. A spring c placed on the under edge of cam cylinder A for securing the regulator A1 in any required position. 5th. A hinged feed post D placed on upper edge cam cylinder A, constructed to fold backwards and with a spring d for pressing forward the upper portion to its normal position. 6th. A stationary fender G attached to dial cap G1 constructed so as to obviate its being removed at the termination, from time to time, of the ribbing process. 7th. A forked bracket arm H1 or dial post as constructed with two arms, which slide into the sockets in bracket H attached to cam cylinder A, for supporting spool carrier H2 for up and down stripe. 8th. A spool carrier, so constructed as to set into dial post by means of two arms, also to support the ordinary yarn carrier, while the machine is at work in the process of striping, in combination with tension and take up attachment S. 9th. A combined yarn fender I and feeder i, for up and down work.

No. 15,428. Improvements on Locomotive Ash Pans. (*Perfectionnement aux cendriers des locomotives.*)

James Ritchie and William H. D. Newth, Detroit, Mich., U.S., 8th September, 1882; for 5 years.

Claim.—In a locomotive ash pan having front and rear draft doors, the rear door being slotted, the combination of said slotted rear door A c with the rods C, the slats B having central journals b and forwardly projecting lugs e, and the pins d.

No. 15,429. Improvements on Rope Serving Machines. (*Perfectionnements aux machines à fourrer les câbles.*)

John H. Nute and Alexander F. Downie, New Glasgow, N.S., 8th September, 1882; for 5 years.

Claim.—The combination of the tubular stem 1, hub 7 and rectangular spool frame 15, all subdivided to admit the rope. 2nd. The two part stem 1 hinged together and provided with handle 4 and driving wheel 5, in combination with a two part hub 7 provided with a halved gear wheel 8 and rotating on the end of the stem to carry the spool frame 15. 3rd. The two part hollow hub 7 having a halved gear wheel 8 and a rock shaft 10 provided with feeding hook 9, in combination with a two part hollow stem 1 and a spool frame 15 carrying a tension bar 24 and a spool provided with a brake tension. 4th. The two part spool frame 15 having removable connection with hub 7 and provided with tension bar 24, spool 19 and a brake tension. 5th. The two part hollow hub 7 provided with an index or scale and feed hook 9 on a diametrical rock shaft 10 provided with a pointer 13 for indicating and adjusting the feed, in combination with a subdivided hollow stem 1 and subdivided spool frame 15. 6th. The spool frame 15 provided with a removable two part portion 16, carrying a removable bushing 17 having a bore adapted to suit the size of the rope to be served. 7th. The two part stem 1 provided with a removable bushing 27 to suit the size of the rope to be served.

No. 15,430. Improvements on Car Heaters.

(*Perfectionnements aux calorifères des cars.*)

Blanchard Chamberlain, Joseph H. Wilson, Robert Lamb, Harry E. Palmer and George H. Palmer, Bellefontaine, Ohio, U.S., 8th September, 1882; for 5 years.

Claim.—1st. The combination of the fire chamber 1, casings 2 4 and a coil 11 passing through the annular flue chamber between the fire chamber 1 and casing 2, for the purpose of heating air. 2nd. The combination, of the fire chamber 1, inner and outer casings 2 and 4 forming a hot air chamber between them and the hood 13 forming the entrance to the discharge pipe 12 and placed over the top 3 of the casing 2, so as to compel the discharged air to pass in contact with the said top 3. 3rd. In a railway car heater, the safety shuttle 22 beneath the grate, adapted to close automatically in event of the upsetting of the car. 4th. The combination, with a stove or furnace, of the weighted pivoted door 22 and automatic catches 23 to lock the same in close position in event of upsetting. 5th. The combination of the air-tight heater 1 2 3 4, outlet 12, check valve 14 and safety valve 16.

No. 15,431. Improvements on Conveyors for Flour Mills. (*Perfectionnements aux conduits des moulins à blé.*)

The George T. Smith Middlings Purifier Company, (Assignee of John M. Finch,) Jackson, Mich., U.S., 9th September, 1882; for 5 years.

Claim.—1st. In a flour dressing machine, a receptacle having an opening in the bottom for the passage of the material, in combination with horizontally sliding cut-offs supported upon the receptacle and independently of the conveyor casing and adapted to be removed from the machine and reversed. 2nd. The combination, with the two conveyers and the hopper above said conveyers, of the horizontally sliding cut-offs provided with inclined bottoms and supported above the hopper, and adapted to be removed from the machine and reversed. 3rd. In the conveyor, a hopper arranged above the conveyor, horizontally sliding removable and reversible cut-offs between the conveyor and the bottom of the hopper, in combination with movable stops adapted to engage with the ends of cut-offs. 4th. The combination, with the conveyers, a hopper above the conveyers and the horizontally sliding cut-offs of the movable doors adapted to permit an examination of the material and the removal of the cut-offs. 5th. The combination, with the two conveyers and the hopper above said conveyers, of reversible cut-offs adapted to be removed from the machine and replaced in a reversed position.

No. 15,432. Improvements on Whiffletree Clips. (*Perfectionnements aux crochets des palonniers.*)

Hamilton McCoy, Indianapolis, Ind., U. S., 9th September, 1882; for 5 years.

Claim.—1st. A clip for single-trees and double-trees, the ends of which terminate in ring-parts C1 C2, each of which is provided with an opening and a projection, the projection on each fitting into the opening on the other, thereby forming a lock ring. 2nd. In a clip C for single and double trees, consisting of a band for encircling the tree, having at one end the split ring part C1 with an opening on one side between the ends *a1 a2* to receive the part *a2* of the other ring-part, and a part *c1* to fit between the ends *a3 a4* of said other part, and at its other end the ring-part C2 similarly formed to interlock with the part C1.

No. 15,433. Improvements in Car Seats. (*Perfectionnements aux sièges des chars.*)

Edwin L. Bushnell, Poughkeepsie, N. Y., U. S., 9th September, 1882; for 5 years.

Claim.—1st. The combination of the base frame A elevated only at the ends *b*, with the main springs B having ears thereon, the secondary springs C having the angular ends, the elastic wires or rods D and the connections uniting the springs and wires with each other and with the end rails. 2nd. In a car, or other seat, the combination of the spiral springs B with the longitudinal wires or rods D secured to the upper outer edge of said springs, and the smaller secondary springs having angular ends secured to the wire. 3rd. The improved bed or couch for railway cars, or other purposes, composed of two, or more independent sections arranged side by side, each section composed of a base frame elevated at the ends, only in the manner described, the series of large and small spiral springs mounted on said frame, the flexible connections between the upper ends of the larger springs and the longitudinal wires attached to the edges of the springs, said wires and flexible connections being both attached to the raised ends of the frame.

No. 15,434. Improvements on Horse Rakes. (*Perfectionnements aux râtaux à cheval.*)

Ashbel A. Noyes, Steamboat Rock, Iowa, U. S., 9th September, 1882; for 5 years.

Claim.—1st. The rear guide, caster-wheels E each having a shank *e* passing directly up through the outer end of the beam F, which is fixed to the pole B near the seat C, and the double levers D D1 connected with the heads of said shanks and operated by means of the handle *d* pivoted to the pole B. 2nd. The rake A pivoted to the end of the pole B, and having on each side of its head the frame M fixed to the parallel bars *a1 a2* of said rake, and carrying the wheel or roller L, which does not project above said bars, so as to interfere with the hay, and only sufficiently far below to give a bearing for the rake, when it is moving on the ground. 3rd. A casting F having lugs *f* and foot rest *f1*. 4th. In combination with beam F and seat C, of the foot rest *f1*. 5th. The lever D operating the caster-wheels, pivoted at wheel *a1* in frame B1. 6th. A horse hay rake in which two caster-wheels are used for guiding, when said wheels are operated, in the manner described.

No. 15,435. Improvements on Heating Stoves. (*Perfectionnements aux calorifères.*)

George G. Thomas, Philadelphia, Pa., U. S., 9th September, 1882; for 5 years.

Claim.—1st. The combination of the combustion chamber F and the heating chamber M in the rear of the same, with a magazine and a partition J separating the said chambers, both magazine and partition being exposed at the front to the products of combustion, and at the rear to the air to be heated. 2nd. The combination of the combustion chamber F, hot air chamber M, partition J and magazine G, separating two chambers and the ascending and descending flues *a1 a2* in the rear of said chamber M. 3rd. The combination of the combustion chamber F, the hot air chamber M, the partition J and magazine G, separating the two chambers with the ascending and descending flues *a1 a2* in the chamber M, and the connecting flues *a2 a3* in the hollow base of the stove. 4th. The combination of the combustion chamber F and the heating chamber M in the rear of the same, with the magazine G and partition J separating the said chambers, said magazine projecting partly into the combustion chamber and partly into the heating chamber. 5th. The combination of the stove having the heating chamber M and rear and base flues, with the partition *g* and door *i* forming an oven *h* in the said chamber M. 6th. The combination of the stove having the heating chamber M and rear and base flues, with the door *i* and the partition *g* having a damper *k*.

No. 15,436. Improvements on "Maunder's Ontario Harrow," (*Perfectionnements à la herse de Maunder dite "Ontario."*)

Joseph Maunder and Enoch Rogers, Little Britain, Ont., 9th September, 1882; for 5 years.

Claim.—1st. The combination of the tooth-bar A, brace B, clip D and tooth *f*. 2nd. The combination of tooth-bar A, clip C and tooth *f*.

No. 15,437. Improvements on Dumping Cars. (*Perfectionnements aux wagons à bascule.*)

Thomas P. Cordray, Massillon, Ohio, U. S., 9th September, 1882; for 5 years.

Claim.—1st. The combination of the frame D carrying the upper plate of a turn-table, flat plates G secured against the outer sides of said frame, and each one having one end provided with a perforation and bent upward between the side pieces of the car, for the purpose of lowering the car body relatively to the trucks, and a bolt H passing through said perforation and through said side pieces. 2nd. The combination of turn-table frame D with car body hinged eccentrically

thereto, pin L and car truck frame A with continuous draw bar and bumper M passing through the truck frame and king bolt *a*.

No. 15,438. Improvements on Apparatus for Stowing Cargoes. (*Perfectionnements aux appareils pour arrimer les cargaisons.*)

Mary C. Walsh, (Assignee of Maurice J. Walsh,) New York, N. Y., U. S., 9th September, 1882; for 5 years.

Claim.—1st. The combination, with a jack or other article and its supply-pipe, of a waste-pipe extending from said jack and surrounding the supply-pipe. 2nd. The combination with a dock or other article, of a line supply-pipe extending along the same, for supplying a motive, or heating agent to a series of jacks, or other articles, a line waste-pipe also extending along the dock, for receiving the exhaust and flexible hose connections. 3rd. The combination, with a dock or other article, of a line supply and a line waste-pipe extending along the same, a series of couplings connected to said waste-pipe, flexible supply-pipes extending through said couplings and flexible exhaust pipes. 4th. The combination, with a dock or other article, of line supply and waste-pipes extending along the same, a pump for supplying a motive agent to said supply-pipe, an accumulator for maintaining a uniform pressure in said supply-pipe, and a series of jacks connected with said supply and waste-pipes by flexible hose connections. 5th. The combination, with a dock or other article, of line supply and waste-pipes extending along the same, and a pump connected with said waste-pipe for exhausting the motive or heating agent therefrom. 6th. The combination, with a jack and its supply and exhaust pipes, the exhaust pipe surrounding the supply-pipe of the valve C, for controlling the operation of the jack.

No. 15,439. Improvements on Jacks. (*Perfectionnements aux Crics.*)

Mary C. Walsh, (Assignee of Maurice J. Walsh,) New York, N. Y., U. S., 9th September, 1882; for 5 years.

Claim.—1st. The combination of a jack-cylinder, a piston and rod fitted thereto and adapted to be reciprocated therein, for extending or contracting the jack and two claws, arms or pressers, adapted to embrace the material to be compressed or moved, and be drawn together by the operation of the jack. 2nd. The combination, in a jack, of a cylinder, two pistons fitted thereto, two piston-rods working through opposite ends of said cylinder, passages or ports, for supplying a motive agent to the two ends of said cylinder upon the outside of said pistons, and other passages or ports, for supplying a motive agent to said cylinder upon the inner sides of said pistons.

No. 15,440. Improvements on Flexible Pipes. (*Perfectionnements aux tuyaux élastiques.*)

Mary C. Walsh, (Assignee of Maurice J. Walsh,) New York, N. Y., U. S., 9th September, 1882; for 5 years.

Claim.—A flexible hose, or pipe, composed of a layer of India rubber, leather, or like material, spirally wound layers of a stout woven fabric such as duck, surrounding said layer of India rubber, leather, or like material, a second layer of India rubber, leather, or like material, inclosing the said spirally wound layers, superposed layers of the stout woven fabric, or other suitable material, and an external wrapping of flexible wire, preferably copper wire, serving to strengthen and protect the hose or pipes.

No. 15,441. Devices for Preventing the Accumulation of Frost and Steam Upon Store Windows. (*Appareils pour empêcher l'accumulation du givre et de la vapeur dans les vitrines des magasins.*)

Charles S. Anthony and Jacob Manheim, Taunton, Mass., U. S., 9th September, 1882; (Extension of Patent No. 7,885.)

No. 15,442. Railway Journal Box. (*Boîte à graisse d'essieu de chemin de fer.*)

William E. Wilcox and Lorenzo A. Kelsey, Cleveland, Ohio, U. S., 9th September, 1882; (Extension of Patent No. 7,900.)

No. 15,443. Improvements on Hand Corn-Planters. (*Perfectionnements aux semoirs à bras pour le blé-d'inde.*)

Theodore Horton, Bluffton, Ind., U. S., 11th Sept., 1882; for 5 years.

Claim.—1st. The frame G composed of the gateway and the off-set *g2*, in combination with the dropping wheel, the perforated bracket, the passage leading therefrom to the bottom of the staff, the cut off valve L and means for actuating the dropping wheel. 2nd. The combination of the frame G with the gateway *g* formed thereon, the dropping wheel turning about a pivot on the bracket J, the pawls K L, the cut off valve L and the lever E connected to the spring point plate D and to the finger-lever. 3rd. The frame G cast entire and consisting of the gateway *g*, the off-set *g2*, the lugs *e* and lugs *f*.

No. 15,444. Improvements on Hand Corn-Planters. (*Perfectionnements aux semoirs à bras pour le blé-d'inde.*)

Theodore Horton, Bluffton, Ind., U. S., 11th September, 1882; for 5 years.

Claim.—A hand corn-planter having the following elements: The two hand-staffs A A1 pivoted together, the penetrating blades *a a1*, the handles on said staffs, a spring interposed between the staffs, a hooked spring pawl *d* pivoted to the staff A1, a retaining spring or pawl *e* attached to the staff A, the ratchet dropping wheel E, the perforated bracket F, the cast metal frame D, the gateway, its cut-off, the hopper box and the tube G fixed to the staff A.

No. 15,445. Pipe Junction and Boundary Line Indicator. (*Indicateur de raccordement de tuyaux et de borne.*)

Samuel North, Hamilton, Ont., 11th September, 1882; for 5 years.

Claim.—1st. A metallic rod B, the same being provided with plates C at intervals apart, for marking the number of feet the pipe junction is below the surface of the earth, and also provided with a disk D at the top, on which may be indicated what kind and size of a pipe junction is beneath. 2nd. The modified forms of indicators.

No. 15,446. Improvements on Whiffletree Clips. (*Perfectionnements aux crochets des palonniers.*)

Hamilton McCoy, Indianapolis, Ind., U.S., 11th September, 1882; for 5 years.

Claim.—1st. The band B having the enlarged ends $b_2 b_2$, a ring or hook formed in piece with said band and a bolt D for connecting the two ends $b_1 b_2$ together. 2nd. The band B having at one end the part b_1 and the ring C or its equivalent, a hook C₁, and, at the other end, the lug b_2 combined with the bolt D.

No. 15,447. Improvements on Selecting Devices. (*Perfectionnements aux machines à trier.*)

James E. Munsen, New York, N. Y., U. S., 11th September, 1882; for 5 years.

Claim.—1st. In combination, the movable plates B, C, D, E, having perforations, or suitable conducting plugs, so that each change of position shall present a different opening, or a different continuous conductor through, or across the entire series of plates. 2nd. The movable plates B, C, &c., having perforations or suitable conducting plugs, in combination with each other and with means B₁ C₁, &c., for returning each to a uniform position when released. 3rd. The movable plates B, C, &c., having perforations or suitable conducting plugs, in combination with each other and with means B₁ C₁, &c., for returning them to a uniform position when released, and with means B₂ C₂, &c., for conveniently actuating them. 4th. The casing A, movable cards or plates B C, &c., springs B₁ C₁, &c., levers B₂ C₂, &c., keys B₃ C₃, &c., and springs P, in combination with each other and with the carriage M having a set of yielding pins, or feelers m and with a series of sensitive devices v . 5th. The movable cards, or plates B C, &c., having perforations, or suitable conducting plugs, so as to present a continuous hole, or conducting line, clear through, or across the entire series of plates, only when one predetermined number of such cards is depressed simultaneously.

No. 15,448. Improvements in Treating Metals, &c. (*Perfectionnements dans le traitement des métaux, &c.*)

Henry R. Cassel, New York, U. S., 11th September, 1882; for 5 years.

Claim.—1st. The improved process of treating metals, &c., by subjecting the same to the combined action of dialysis and electrolysis. 2nd. An apparatus for treating or separating metals and other substances by the combined action of dialysis and electrolysis consisting of an electrolytic bath a provided with dialysing cells or partitions $d d$ vertically arranged to separate the anodes $b b$ and cathodes $c c$, and their solutions. 3rd. In a dialysing and electrolysis apparatus, in combination, the tank a in which is formed or placed a solution to be treated, the anodes $b b$ suspended therein, the cathode dialysing cells $d d$, the cathodes $c c$ suspended in the cathode cells, and the false bottom filter l .

No. 15,449. Improvements on Two-Wheeled Vehicles. (*Perfectionnements aux voitures à deux roues.*)

Oliver Hebert, Oswego, Ill., U. S., 11th September, 1882; for 5 years.

Claim.—1st. The shafts A A, with their curved ends A₁ A₁, in combination with seat D and axle C. 2nd. The combination of a bent wooden shaft A with the tightening wire L, provided with nuts at each end. 3rd. The combination and arrangement of the foot rest with the ends of the shafts A A, and plate e affixed to cross bars E E. 4th. The foot rest string piece I I with slats $i i$ and rod M, in combination with the spring wires N and O suspended from plate e on top of the cross bars.

No. 15,450. Improvements in Spoke Sockets to connect the Fellies and Spokes of Carriage Wheels together. (*Perfectionnements aux tenons des rais pour assembler les jantes et les rais des roues de voitures.*)

Edward Badlam, Oswegatchie, N. Y., U. S., 11th September, 1882; for 5 years.

Claim.—The combination, in a vehicle wheel, of the tapering and tenoned spoke B shouldered at C, felly A bored through to receive the tenon a of the spoke socket c , cast with the wings E and tapering thimble D, elastic packings E and F, and wedge G.

No. 15,451. Improvements on Spring Bed Bottoms. (*Perfectionnements aux sommiers élastiques.*)

Jesse Bowen, Lancaster, Ohio, U. S., 11th September, 1882; for 5 years.

Claim.—1st. The combination of the mortised side rails $a a$, mortised and tenoned foot rail B and tenoned head rail B₁ detachably connected together, detachable cross-bar E, supporting bar G and the separate

and detachable flexible slats having elastic supporting devices. 2nd. The combination, with the mortised wooden end rail B₁, of the flexible wooden slats D having their under sides, at the point where they play in the mortises of said end rail, lined with sheet metal. 3rd. The flexible slats having bridges F F formed from a single piece of wire with standards $f f$ contracted near their lower ends, to form shoulders $f_1 f_1$, in combination with the double hooks, springs and connecting rods. 4th. The combination, with a series of flexible slats, each having bridges F F connected to its under side, and upon opposite sides of its centre compressed springs arranged intermediate of said bridges and connected together, and to near the ends of the slat, of the suspended and vertically adjustable transverse supporting bar G. 5th. The spring bed bottom consisting of the mortised side rails, tenoned end rail B and mortised and tenoned end rail B₁, detachable cross bar E and transverse suspended supporting bar G, the independently flexible slats having elastic supporting devices and the pivoted legs J.

No. 15,452. Improvements on Cultivators and Sowers. (*Perfectionnements aux cultivateurs et aux semoirs.*)

Wareham S. Wisner, Brantford, Ont., (assignee of Richard B. Sheldon, Shortsville, N. Y., U. S.), 11th September, 1882; (Ext. of pat. No. 15,038.)

No. 15,453. Improvements on Car Couplings. (*Perfectionnements aux accouplages des chars.*)

Horatio G. H. Reed, Milwaukee, Wis., U. S., 12th September, 1882; for 5 years.

Claim.—1st. The combination of the pawl C adapted to slide in a curved way with a dog hinged to it and adapted to slide up and down in inclined pockets, in the pin guide above the curved way, and to suspend it (the pawl C) in position to carry its lower end or point under the pinhole and out of contact with the bottom of the throat of the draw-head, but in position to be tripped from beneath the pin by an entering link. 2nd. The sliding block and a dog hinged to it, both working in suitable guides in combination with a pin having wings adapted to rest on flanges of the dog which, when the link is beneath the pawl will prevent the pin from falling through the link. 3rd. The combination of the pin having a short bolt in its lower end, with the draw-head having the vertical recess e and heart shaped recess E $e_1 e_2$.

No. 15,454. Improvement on Chalk-Holders. (*Perfectionnement des porte craie.*)

Ayell N. Rouech, Bay City, Mich., U. S., 12th September, 1882; for 5 years.

Claim.—1st. The serrated ring G having flange H, combined with the cup D and means for elevating the chalk at will, the said ring serving to round the chalk. 2nd. The combination of the frames A B C, cup D, screw rod E and chalk block F, with the serrated ring G H for rounding the chalk and the key I i i' for operating the same.

No. 15,455. Improvements on Pulverizing Machines. (*Perfectionnements aux machines à déchiqueter.*)

Moses Golding, Trenton, N. J., U. S., 12th September, 1882; for 5 years.

Claim.—A pulverizing or abrading machine in which two or more hollow cylinders, or receptacles for containing the material to be pulverized, or abraded, and having no communication with each other, are combined with two journals having a common axis around which the cylinders can be rotated without turning on their own axis.

No. 15,456. Improvement on Leaching Apparatus. (*Perfectionnements des appareils à lessiver.*)

Stephen Strunz, Pittsburgh, Pa., U. S., 12th September, 1882; for 5 years.

Claim.—A filter composed of a suitable tank having a series of perforated plates, which separate the lower and upper portions of said tank, a sheet of muslin or equivalent material laid upon said plates forming a basis for a layer of sand, and a second series of perforated plates for covering the sand.

No. 15,457. Improvement on Rakes. (*Perfectionnements des râteliers.*)

Olof Bergstrom, Finsbyttan, Sweden, 12th September, 1882; for 5 years.

Claim.—1st. In a rake constructed with a metal plate provided with apertures through which the teeth are passed, the outer longitudinal edge of this plate being bent over the upper transverse pieces of the teeth. 2nd. The combination, with the plate A bent to form a hollow bead E, at the outer longitudinal edge, of the teeth B passed through apertures in the plate A. 3rd. The combination, with the plate A bent to form a hollow bead E at the outer longitudinal edge, of the teeth B passed through apertures in the plate A and of the fling pieces D. 4th. The combination, with the plate A and teeth B, of the socket F formed of two U-shaped bent strips G and a bent strip J, all these parts being riveted to the plate A.

No. 15,458. Improvements in Veneering. (*Perfectionnements dans le placage.*)

Benjamin Morton and Arthur Tilley, Toronto, Ont., 12th September, 1882; for 5 years.

Claim.—1st. In a slab of artificial stone or other material suitable for forming veneer, a V-shaped groove made in the edge of the slab to

receive a sheet metal clip, in combination with a V-shaped projection formed on a similar slab and designed to fit into the said groove. 2nd. In veneering composed of slabs of artificial stone or other suitable material and having a groove cut in the edge of one slab to receive a projection formed on the edge of the next slab, a strip of felt or other suitable material placed in the joint between the slabs, in combination with a metal clip placed within the groove and provided with a nail or spike.

No. 15,459 Improvements on Road Scrapers. (*Perfectionnements aux grattoirs des chemins.*)

George Gregory and George Austin, Skaneteles, N. Y., U. S., 12th September, 1882; for 5 years.

Claim.—1st. The combination with the scraper-plate and draft pole, of brace rods attached to the scraper plate, and having hooks at the ends, and of loops or sockets attached to the sides of the draft-pole. 2nd. The combination, with the scraper-plate A and the draft pole D, of the brace rods G attached to the scraper-plate A and provided with hooks J at the ends, and of the plates K attached to the sides of the pole D and forming loops or sockets L at the ends. 3rd. The combination, with the scraper-plate A and the draft pole D, of the brace-rods G attached to the scraper-plate A and provided with hooks J at the ends, and of the plates K attached to the sides of the pole D and forming loops or sockets L at the ends, the front loops or sockets L of one plate K being on the same transverse line with the rear loop or socket L of the opposite plate K.

No. 15,460. Improvements in Boots and Shoes. (*Perfectionnements dans les chaussures.*)

Fabien Rivard, Montreal, Que., 12th September, 1882; for 5 years.

Claim.—1st. In a boot or shoe, the combination, with the quarters A A' or upper, of the closing piece D, all secured to each other. 2nd. The combination of the hooks B B', fitting into plates C C' and provided with lugs B', fitting into catches F.

No. 15,461. Improvements on Fanning Mills. (*Perfectionnements aux tarares-cribleurs.*)

John Costin, Brantford, Ont., 12th September, 1882; for 5 years.

Claim.—1st. The combination of upright shaft G with bell cranks H R and bell crank X connected by rod Y to bell crank R, in connection with same S and lever T, to transmit a lateral shake to screen frame L. 2nd. The combination of spout M with box N, to carry off the seed or best grain from screen L.

No. 15,462. Improvements in Taking-up the Wear in Axle Boxes. (*Perfectionnements aux essieux.*)

Eméri Brulé, Neillsville, Wis., U. S., 12th September, 1882; for 5 years.

Claim.—The method of taking up the wear of axle-journal boxes, which consists in removing from the journal sleeve D and turning off the end of the same to reduce its length, then re-applying said sleeve and screwing up the outer, or flanged nut E.

No. 15,463. Improvements in Check Reins. (*Perfectionnements aux fausses-rènes.*)

Harry T. Harding, Maitland, N. S., 12th September, 1882; for 5 years.

Claim.—In a check rein, the combination, with the overdraw straps *f f'* extended down along the side of the horses neck and having, at their depending ends, eyes, loops, or ring *e*, and the driving reins *i* passed through the hame, rings or eyes *j*, of the short strap A connected to the back saddle water hook *c* and having the branch straps *b* extended up to the eyes, loops, or rings *e*, of the overdraw straps *f* and down through the same and connected to the driving reins *i* at a point between the hame rings or eyes *j* and the bridle bit.

No. 15,464. Improvements on Window and Door Screens. (*Perfectionnements aux écrans des fenêtres et des portes.*)

The Otter Sweeper Company, Otterville, Ont., (assignee of Wallace H. Dodge, of Mishawaka, Ind., U. S.), 13th September, 1882; for 5 years.

Claim.—The combination of the two halves with each other, by means of the extended arms E E E E, the metal slides or sockets B B B B, the adjusting slit C C and the tightening screw or bolt and washer D.

No. 15,465. Improvements in Devices for, and Method of Attaching Buttons. (*Perfectionnements dans la manière de poser les boutons et aux appareils pour cet objet.*)

Wm. A. Boland, Jackson, Mich., U. S., (assignee of Frank H. Farnsworth and Arthur J. Barnes, Detroit, Mich., U. S.) 13th September, 1882; for 5 years.

Claim.—1st. The jaw A the button-holder to press upon and hold the button in place, and the anvil having the clinching surface *a* 2 combined with the face *z* to act upon the head of the tack, or fastening and force its point against the clinching surface and through the eye of the button-shank. 2nd. The jaw A having the recess *a*, the anvil D having the lips *e* 1 and clinching surface, and the button-holding spring *b* combined with jaw B pivoted at C to jaw A. 3rd. The

jaws A B, the anvil having the clinching surface and the button-holder *b* combined with the tack-holder *g* notched to receive the shank of the tack or fastening. 4th. The combination, with the material S, of a button held thereon, at its outer face, by a headed tack or fastening inserted through the said material from its inner side, and then through the eye of the shank of the button, the point of the tack or fastening being clinched through and about the eye of the button shank. 5th. The mode of attaching buttons to garments by a single-pointed malleable tack, consisting in passing the shank of the tack through the garment, and then turning or clinching its end through and around the eye of the button by pressing the point against a clinching portion of the device which holds the button while the clinching is being performed.

No. 15,466. Improvements in Apparatus for Causing more Perfect Combustion in Furnaces. (*Perfectionnements aux appareils à créer une meilleure combustion dans les fourneaux.*)

William A. Campbell and George H. Patterson, (assignees of Charles McWilliam and Emile Loiseau.) Montreal, Que., 13th September, 1882; for 15 years.

Claim.—1st. The combination of a blast, with the products of combustion and air intermingled therewith and applied to the furnace. 2nd. The combination of the chamber D, passages H, opening A M L and nozzles K provided with a blast. 3rd. The combination of the chambers B', chamber D, passages H, openings M L and nozzles K provided with a blast.

No. 15,467. Improvement on Machines for Shredding Sugar Cane. (*Perfectionnement des machines à écaffer la canne à sucre.*)

George A. Bazé, Havana, Cuba, Benjamin Odio and Felipe Perozo, New York, U. S., 13th September, 1882; for 5 years.

Claim.—1st. In a cylinder containing fixed adjustable blades, a revolving drum provided with curved blades and a hopper containing an inclined grating through which the revolving blades project. 2nd. The combination, with the revolving curved knives *b b* of the inclined grating N.

No. 15,468. Improvements on Piano-Fortes. (*Perfectionnements aux pianos.*)

George W. Dettman, Bowmanville, Ont., 14th September, 1882; for 5 years.

Claim.—1st. In an ordinary piano-forte, the blocks C₁ and C₂, in combination with the jack B and knuckle C. 2nd. The hammer extension F and back check E, in combination with the hammer D and block C₁ and C₂.

No. 15,469. Improvements in Hoisting Machines. (*Perfectionnements aux monte-charges.*)

Archibald Dobbie, Thorold, Ont., 14th September, 1882; for 5 years.

Claim.—1st. The combination with the drum G provided with a gear wheel L, of a vertical driving shaft *b* provided with the gear wheel F and mechanism, whereby the driving shaft and the gear wheel attached thereto can be raised and lowered, thereby throwing the gear wheel in and out of gear. 2nd. The combination, with a drum G provided with a bevel gear wheel L, of a movable shaft *b* provided with a bevel gear wheel F and inclined annular faces *l* formed on said gear wheels around the teeth thereof, whereby the faces of the teeth of one wheel are prevented from bearing against the opposite wheel. 3rd. The combination, with a drum G provided with a gear wheel L, of a vertical driving shaft *b* provided with a gear wheel F, a movable bridge tree E in which the lower end of the driving shaft is supported, and mechanism whereby said bridge-tree can be raised and lowered. 4th. The combination, with a drum G provided with a gear wheel L, of a vertical movable shaft *b* provided with a gear wheel F, a movable bridge-tree E supporting the low end of said vertical shaft and bolt *a*, and elbow lever O, whereby said bridge-tree can be raised and lowered.

No. 15,470. Improvements in Salt Dryers. (*Perfectionnements aux séchoirs de saunerie.*)

The North American Chemical Company, Montreal, Que., (assignee of George Rice, Goderich, Ont., 15th September, 1882; for 5 years.

Claim.—1st. In a drying apparatus, the combination, with a revolving inclined cylinder, of internal compartments arranged round the periphery. 2nd. The combination, with the shaft A, of arms C and boards D and F, all contained within the cylinder. 3rd. The combination, with a revolving drying cylinder provided with the internal compartments of fixed feed and glass pipes set at opposite ends of cylinder. 4th. In combination with a revolving cylinder furnished with internal compartments, of slats M mounted on the shaft A.

No. 15,471. Device for Restraining Vicious Animals. (*Appareil pour contenir les animaux vicieux.*)

Henry M. Harvey, Melbourne, and John M. Scribner, Campbellford, Ont., 15th September, 1882; for 5 years.

Claim.—The combination of the sills A A' provided with openings *a a*, swell blinds B B, provided with openings *b b* and ventilating apertures G G, throat latch strap C, nose strap D provided with eyelet holes *i i*, lace F and crown strap E.

No. 15,472. Improvements on Extension Ladders and Fire-Escapes. (*Perfectionnements aux échelles à rallonge et aux sauveteurs.*)

John Davy, Springfield, Ont., 15th September, 1882; for 5 years.

Claim.—The combination of the frame work CCC, also the adjustable braces D D with the iron foot and guide K K, and the adjustable catch e.

No. 15,473. Improvements on Sheet Iron Bending Machines. (*Perfectionnements aux machines à plier la tôle.*)

Chester Roach, Minneapolis, Minn., 15th September, 1882; for 5 years.

Claim.—1st. In a sheet metal folding machine, the longitudinally ribbed roller B in combination with the roller C provided with the longitudinally holding lip *a*. 2nd. In a sheet metal bending or folding machine, the roller C having the recesses *e* and *f* in combination with a removable lip *d*. 3rd. The roller C provided with a segmental cog *h* in combination with the roller B carrying the tung *b* and the adjustable segmental cog *g* provided with collar and set screw. 4th. The rollers B and C in combination with the hub N and bar N passing through said hub, and set screw *m*, whereby the leverage of the handle may be adjusted.

No. 15,474. Improvements on Fruit Evaporators. (*Perfectionnements aux séchoirs à fruits.*)

Hiram Grover, Nunda, N.Y., 15th September 1882; for 5 years.

Claim.—The casing A having bottom D provided with dampers F, thimble O provided with damper P, damper Q and slanting tube K, in combination with the damper L operated by the adjustable and expandable rod M so as to regulate automatically the amount of heat entering the casing.

No. 15,475. Improvement in Cigar Protectors. (*Perfectionnement des protecteurs de cigares.*)

Levi Abrahams, Montreal, Que., 16th September, 1882; for 5 years.

Claim.—1st. The combination, with a cigar, of a disk, or other protective covering, placed on the end of same. 2nd. The combination, with a cigar, of a disk provided with points projecting therefrom into the end of said cigar.

No. 14,476. Improvements on Fruit Dryers. (*Perfectionnements aux séchoirs à fruits.*)

Alonzo R. Gayhart, Chicago, Ill., U.S., 16th September, 1882; for 5 years.

Claim.—1st. The reservoir A, the flues B inclined in different directions, and the pipe-supports C arranged in different vertical lines and serving as steam connections for the flues B. 2nd. The reservoir A, connected water-warming reservoir *a*, flues B inclined in different directions and the pipe supports C arranged in different vertical lines and serving as steam connections for the flues.

No. 15,477. Improvements on Metallic Coal Oil Barrels. (*Perfectionnement des barils métalliques à pétrole.*)

James W. Cuthbertson and James D. Anderson, Bothwell, Ont., 18th September 1882; for 5 years.

Claim.—The combination of the side sections A₁ A₁, tube braces B B, concave ends C C provided with flange *a* and address holder E, band D, ring F, packing H, and bung G provided with flanges *a* *b* *a*.

No. 15,478. Improvements on Dumping Waggon. (*Perfectionnements aux wagons à bascule.*)

Henry Leggett, Renfrew, Ont., 18th September, 1882; (Extension of patent No. 7969.)

No. 15,479. Improvements on Tea or Coffee Percolators. (*Perfectionnements aux cafetières ou théières.*)

John C. Mackey, Hamilton, Ont., 18th September 1882; for 5 years.

Claim.—1st. The cylinder D with hook I attached, the inner and outer rings for holding the cloth strainers, which form the top and bottom covers. 2nd. The projecting ring on the top cover for holding the water when poured upon the percolator.

No. 15,480. Improvements on Railway Cars. (*Perfectionnements aux chars des chemins de fer.*)

Dennis F. Van Liew, Aurora, Ill. (Assignee of Azro B. Allen, Farmington, Iowa), U.S., 18th September, 1882; for 5 years.

Claim.—1st. The slats *a* arranged edge to edge and provided with perforations at right angles to their length and thickness arranged to form a continuous passage, in combination with the flexible bands *b* extending through the passage. 2nd. The hinged catch D in combination with the flexible sliding door.

No. 15,481. Improvements on Nursing Corsets. (*Perfectionnements aux corsets des nourrices.*)

Charles N. Chadwick, Brooklyn, N. Y., U.S., 18th September, 1882; for 5 years.

Claim.—1st. A corset having busks extending from the top to the bottom secured in the front meeting edges, the front edge of the breast portions of the corset detached from the busk sections and provided with a stay in those detached edges and pivoted at the lower end to the body of the corset in rear of the busk, with a connection from the upper end of the busk section, across over the breast to the body of the corset. 2nd. A corset having the front edge of the breast portion detached from the body of the corset, so as to turn away, combined with a connection from the front edge of the corset across over the breast.

No. 15,482. Improvements on Stoves and Fire-Places. (*Perfectionnements à u x poêles et aux foyers.*)

James B. Petter, Yeoville, Eng., 18th September, 1882; for 5 years.

Claim.—The improved arrangement and construction of stoves for burning fuel gas or oil of nautilus, or shell shape form, such as *a*, combined with a flue, or flues, such as *b* *b* *1* or *c* *c*.

No. 15,483. Improvements on Car Couplings. (*Perfectionnements aux accouplages des chars.*)

Jean B. Parent, Quebec, Que., 18th September, 1882; for 5 years.

Résumé.—1e. La combinaison et la forme de la pièce principale A avec l'anneau oval C. 2e. La combinaison des poulies E E avec la corde F et l'anneau G.

No. 15,484. Improvements on car Couplings. (*Perfectionnements aux accouplages des chars.*)

Pierre E. Mignault, Actonvale, Que., 19th September, 1882; for 5 years.

Claim.—The draw-head provided with the internal shoulder, to limit the entrance of the link, and with the flaring mouth, terminating in a throat adapted to closely embrace the end of the link and keep the same in a horizontal position, in combination with the hook having its nose arranged to enter the recess in the bottom of the head, and the external spring acting to depress the hook.

No. 15,485. Improvements on Churn Powers. (*Perfectionnements aux moteurs des barattes.*)

Alfred J. Morrow, Bosanquet, Ont., 19th September, 1882; for 5 years.

Claim.—Frame A, walking beam B, rod E, pitman F, shaft G, balance wheel H, pinion I, spur wheel J and crank K, in combination with the dash C of a churn D.

No. 15,486. Improvements on Tamping and Firing Devices for Torpedoes. (*Perfectionnements aux appareils à mettre le bourrage et le feu aux torpilles.*)

James E. Gallaher, Olean, N. Y., U. S., 19th September, 1882; for 5 years.

Claim.—The shell J of fragile and insoluble material, filled with sand and provided with the solid head K, whereby the sand, liberated by the destruction of shell J through contact with head H, is retained in a compact mass above the exploding torpedo.

No. 15,487. Improvements on Animal Powers. (*Perfectionnements aux manèges.*)

John Tackaberry, Allision, Ont., 19th September, 1882; for 5 years.

Claim.—1st. The rock bar B mounted on base A and carrying the driving gear and platform and provided with arm D, in combination with post Q secured to base A for adjusting the inclination of the platform. 2nd. The combination of the rock bar B carrying a post C having a reduced portion, and platform F having spokes E supported between the crown wheel D, and plate G bolted together, said reduced portion of the post passing through a central hole in the crown wheel and plate, for axially supporting the platform.

No. 15,488. Improvements in Turbine Wheels. (*Perfectionnements aux roues turbines.*)

James L. Rodgers, Springfield, Ohio, U.S., 19th September, 1882; for 5 years.

Claim.—In a turbine wheel, the double buckets having the lower and partition walls inclined at the same angle and parallel, or nearly so, and provided only with the central discharge.

No. 15,489. Improvements on Saw Log Sleighs. (*Perfectionnements aux tréneaux à billots.*)

John M. Stanley and Gédéon Desjardins, Pembroke, Ont., 19th September, 1882; for 5 years.

Claim.—1st. The combination of the blocks *b*, reves *b* *1*, straight plain beam B secured by bolts C having the nuts countersunk in the reves, sand-board S secured by bolts C and having hole *t* and pin *t*, also plate *p*, rocker R² with plate *p* *1* and ring bolt K with key *k*. 2nd. The combination of the tongue T, roller *r* with countersunk bar *d*, and braces E secured to the roller by bolts C₂ having their heads countersunk into the braces at the roller *r*.

No. 15,490. Improvements on buggy springs.
(*Perfectionnements aux ressorts des voitures.*)

George Pennoyer, Chicago, Ill., U. S., 19th September, 1882; for 5 years.

Claim.—1st. In a buggy spring, the rear end of which having the sweep below the line of suspension, and the sweep at the centre above the line of suspension substantially equal, and the sweep at the front end of spring, substantially one half the sweep at rear end and centre. 2nd. In a buggy spring made in two sections, which, when placed in position in the buggy, has the sweep at the rear end below the line of suspension, and the sweep at the centre above the line of suspension substantially equal and the sweep at the front end of the spring, substantially one half the sweep at rear end and centre. 3rd. The combination of the two sections N and O of the spring, the block I and strap K, with the body of the buggy. 4th. The combination of the spring with a side bar buggy.

No. 15,491. Improvements on Automatic Saw-Sharpener. (*Perfectionnements aux affuteurs mécaniques des scies.*)

William H. Halladay, Chicago, Ill., U. S., 19th September, 1882; for 5 years.

Claim.—1st. The oscillating grinding wheel support V V W at, in combination with the adjustable rotating cam K. 2nd. The feed disk J combined with a feed bar N M, feed head A, feed head centre r, post c and adjusting set screws O P p. 3rd. The saw support 3 provided with the hub u and nut 6, in combination with the screw rods 2 t and set screws 7. 4th. The support X for resisting the force of the emery wheel H. 5th. The friction clamp c c consisting of levers embracing both sides of the saw, in combination with the tightening screw c. 6th. The gear lever L in combination with the shaft S, pulley R, screw b and shaft h for putting the shaft h out of gear, for adjusting the feeding devices and saw support.

No. 15,492. Improvements in Machines for Making Counters for Boots and Shoes. (*Perfectionnements aux machines à contreforts des chaussures.*)

Louis Côté, St. Hyacinthe, Que., 19th September, 1882; for 15 years.

Claim.—1st. In a counter forming machine, for shaping heel stiffenings, in combination with the former B or male mould, the two-part female mould, or lateral jaws D D with their advancing and receding motion, the adjusting screw M and the heel-jaw or third-part female mould K, the upper jaw or crimping mould I with its pivot hinge g, also their side sections operated upon by slides, levers and cams, or the equivalents, for all these parts. 2nd. In combination with the former B and the two part female mould D D, the lateral slides C C and retaining springs N N, the arms or levers E E with their side springs Y Y, cylindrical heads F F, inserted friction rollers G G and adjustable screws H H or their equivalents operated upon by the cams Q Q. 3rd. In combination with the former B, the upper jaw or crimping mould I with its pivot hinge a, the flat spring v, the slides J h, the connecting rods u v and friction roller W, the cams P and S and flexible shaft T or their equivalents, operated upon by the cog wheels O O and pulley R. 4th. In combination with the metal table plate A, the perforated counter-drop d, the rectangular guide bars j j grooved or tongued to receive the slides J h. 5th. In combination with the pulley K and the clutches Z Z, the treadle T and the gearing and foot apparatus connected with the frame, the flexible shaft T and the small cog wheels o o or their equivalents.

No. 15,493. Improvements in Steam Boilers.
(*Perfectionnements aux chaudières à vapeur.*)

George Hill, Liverpool, Eng., 19th September, 1882; for 5 years.

Claim.—1st. A vertical cylindrical shell with internal combustion chamber above the furnace from the tube plates, on opposite sides of which tubes project beyond the cylindrical shell, into other tube plates placed in short horizontal cylinders projecting from the vertical shell and carried by it. 2nd. A steam boiler not requiring brickwork, or masonry, consisting of a vertical shell with two horizontal tubular projections carried by the vertical shell without other support. 3rd. The combination of the furnace D with the combustion chamber E above it, both being surrounded on all sides by water space, and the tube plates on opposite sides of the combustion chamber connected by tubes to other tube plates forming part of smoke boxes C placed beyond the vertical shell of the boiler. 4th. The combination of the central furnace A with combustion chamber above tubes F extending from it into barrels in opposite directions, and the smoke boxes C with independent chimney flues H. 5th. The method of obtaining more perfect combustion in steam boilers consisting in placing a combustion chamber immediately above the furnace, from which combustion chamber the tubes proceed, and bringing into that combustion chamber, in a direction contrary to the course of the product of combustion, one or more currents of air by means of a tube or tubes G which meeting the products of imperfect combustion cause eddies, and mixing with the products of imperfect combustion, consume the latter. 6th. The combination of the combustion chamber E having two tube plates forming its opposite sides, with the air tubes g parallel or nearly so to the fire tubes leading from said tube plates.

No. 15,494. Improvements in Combined Smoothing, Fluting and Polishing Machines. (*Perfectionnements aux machines à repasser, tuyauteur et polir, combinées.*)

August F. Zimmerling, Milwaukee, Wis., U. S., 19th September, 1882; for 5 years.

Claim.—1st. In a combined smoothing, fluting and polishing device, the hollow iron A having two smooth flat surfaces a a, a corrugated

surface a' and a polishing surface a₂ with rounded rear edge a₁, in combination with the bent pipe U u, valve W w and burner V v. 2nd. In a combined smoothing, fluting and polishing device, the combination of the bent pipe U screw-threaded at its upper inner end, with the valve W having an exterior handle and screw threaded at its lower end and provided with the V-shaped groove v, formed in opposite sides of the screw threaded portion and deepest at the base. 3rd. The hollow iron A having the four surfaces a a a₁ and a₂ a₃, air-holes a₄, hub B with grooves b b, and flange C, handle D, bent and recessed shank E with thimble e, pivoted spring catch F f, spring g, shank F having thimble f and headed bolts r r, slotted plate S, reservoir T, bent pipe U u, valve W w and burner V v.

No. 15,495. Improvements on Corset Stays.
(*Perfectionnements aux baleines de corsets.*)

Morris P. Bray, New Haven, Ct., U. S., 19th September, 1882; for 5 years.

Claim.—1st. The stay for corsets, consisting of the body cut from reed, bamboo, or similar material, preserving the natural surface of the material upon one side, the said body inclosed with a fabric covering. 2nd. The stay for corsets, consisting of two strips cut from the outside of reed, bamboo, or like material, the flat sides together, and secured so as to present the natural surface on the outside. 3rd. The stay for corsets, consisting of two strips cut from the outside of reed, bamboo, or like material, the flat sides together and secured so as to present the natural surface on the outside, the two inclosed by a covering.

No. 15,496. Improvements on Middlings Purifiers. (*Perfectionnements aux épurateurs des graux.*)

Hiram J. Livergood, Brantford, Ont., 19th September, 1882; for 5 years.

Claim.—1st. The combination of air chamber C, rotating shafts 3 and 4 running in combined box and bracket Q, pulleys or wheels mounted on said shafts, endless belt D D with buckets W mounted on said belts, and feed roller F. 2nd. The combination of fan B, separating chamber S, inclined series of slats G G G, inclined boards H H H, endless belts D D and buckets W, and the check boards T T T. 3rd. The combination of fan B, separating chamber S, inclined series of slats G G G and inclined boards H H H, forming V-shaped hoppers P P P, in connection with said slats, the series of slats G G G being less inclined from the perpendicular than the boards H H H. 4th. The combination of hoppers P P P, fan B, chamber S, endless chains or belts D D and buckets W, and idle pulleys I I upon which the belt is arranged, to give it a zigzag course corresponding to the hoppers P P P. 5th. The combination of air chamber S, endless belts D D and buckets W, hoppers P P having one side formed of slats, perforated deck J and suction fan B. 6th. The combination of fan B, belts and buckets D D W W, air chamber S, hoppers P P, perforated deck J and valves V V V, for regulating the upward currents of air. 7th. The combination of the interchangeable sieves or sections, on the rotary reel K for the purpose of separating middlings, or flour. 8th. In a middlings purifying machine, the combination of an adjustable eccentric, for the purpose of giving the sieve a greater or less throw.

No. 15,497. Improvements on Tire Upsetting Machines. (*Perfectionnements aux machines à refouler les bandages des roues.*)

Alexander Womack and James M. Martin, Emmetville, Idaho, U. S., 19th September, 1882; for 5 years.

Claim.—1st. The combination of the slotted head A, sliding cross head H, cams or dogs F J and levers G K for operating said cams or dogs simultaneously, with the forked lever M and connecting rods O. 2nd. The combination of the slotted head A having cross piece D, sliding cross head H and the shafts E I having toothed dogs or cams F J, and levers G K, the latter K being provided with eyes L through which the levers G pass.

No. 15,498. Improvements in Baling Presses. (*Perfectionnements aux presses d'emballage.*)

Nathan W. Herring, Millport, Pa., and Fred. B. Keeney, Warsaw, N. Y., U. S., 19th September, 1882; for 5 years.

Claim.—1st. The combination, with drums I, chains or ropes i and the follower B D, of the pivoted levers K provided with slots m and rods M attached to the follower with their upper ends and having, at their opposite ends, a sliding connection with the slotted portions of the levers K. 2nd. The combination, with the press box A provided with timbers f₁ f₂, of the door E and combined hinges and bolts f₃, whereby the door is attached to the timbers f₁ f₂. 3rd. The combination, with the press box H provided with timbers f₄, of the locking timbers p provided with tenons p₂ and straps or balls p₃. 4th. The combination, with the press box A, of the supporting frame C composed of horizontal timbers c c, arranged one above the other and supported on legs e, drums I journaled between the contiguous faces of the timbers c c, and guide rollers J supported in the legs e, below the drums I. 5th. The combination of the press box A, follower D, actuating levers K and connecting rods M, of the side pieces P secured to the press box near its upper end, and transverse bolts p connecting the side pieces P on the outer sides of the connecting rods M.

No. 15,499. Improvements in Journal Bearings. (*Perfectionnements aux coussinets des tourillons.*)

George J. Shimer, Freemansburg, and Samuel J. Shimer, Milton, Penn., U. S., 19th September, 1882; for 5 years.

Claim.—1st. The process or method of producing a yielding journal

No. 15,512. Improvements in the Manufacture of Hinges, and Apparatus Therefor. (*Perfectionnements dans la fabrication des pentures, et appareils pour cet objet.*)

Etienne Salomon and Edmond Armant, Montreal, Que., 22nd September, 1882; for 5 years.

Claim.—1st. The method for making hinges which consists essentially in the following steps, first, gripping the blanks for each hinge between jaws so that said blanks will hold between them and their pivot pin, second, bending the ends of said blanks partly round said pin by one blow of a former, an anvil surface being situated at back of said pin, and, third, feeding blanks and pin so connected away from said anvil surface and forcing the metal of such blanks completely around said pin by a second blow of former. 2nd. In a machine for making hinges, a pair of gripping jaws arranged to receive and hold a pair of blanks with their pin between them, in combination with a punch or former. 3rd. In a machine for making hinges, the gripping jaws B B having between them the division, or guide plate F, in combination with means for opening, closing and sliding said jaws forward and backward. 4th. The device for throwing a clutch in and out of gear which consists of the collar O having cam groove O therein, and pin S released from contact therewith through a system of levers, in combination with shaft O1 and spring O3.

No. 15,513. Improvements on Car Door Locks. (*Perfectionnements aux serrures des portes de chars.*)

Joseph H. Fisher, Deerfield, Ill., U. S., 23rd September, 1882; for 5 years.

Claim.—1st. The lock button F, combined with a lock seat E which is inclined to the plane on which the door moves, so that the button may be turned against the edge of the door to fasten it and turned back on said inclined seat, so as to lie out of the path of the door sliding open. 2nd. The combination of the inclined seat E, button F G I and edge plate M, with holes H through the plate and button to receive a lock.

No. 15,514. Improvements on Ice Cutting Machines. (*Perfectionnements aux machines à couper la glace.*)

Chauncey A. Sager, Valparaiso, Ind., U. S., 23rd September, 1882; for 5 years.

Claim.—1st. In a suitable frame mounted on wheels and carrying a vertically swinging arm having a longitudinally cutting saw attached and operated by suitable mechanism and carrying a laterally swinging frame depending from a vertically adjustable frame and supporting a longitudinally moving revolving shaft with a cross-cut saw keyed thereon, said saw and shaft being operated by suitable mechanism for cross-cutting the ice while the machine is being propelled forward. 2nd. The combination with the vertically adjustable frame H, swinging frame I and shaft I₁, and cross-cut saw I₁, of the springs O, whereby the said shaft with its saw is made to move longitudinally. 3rd. The combination, with the swinging frame I, shaft I₁ and pulley I₃, of the bent finger R whereby said pulley is held in position when the shaft moves longitudinally. 4th. The combination, with the swinging frame I, shaft and cross-cut saw I₁ I₂, of the shaft P and shoe Q, whereby said saw and shaft are held in position for cross-cutting the ice, while the machine is being propelled forward. 5th. The combination, with the frame A supported on traction axle and wheels B B' and guiding axle and flanged wheels C C₁, of the swinging arm G carrying shaft G₁ and circular saw G₃ operated by suitable mechanism, vertically adjustable frame H, swinging frame I carrying shaft I₁ and circular cross-cut saw I₂, springs O, shaft P₁ and shoe Q.

No. 15,515. Improvements in Farm Gates. (*Perfectionnements dans les barrières.*)

Joseph E. Stong, Newtonbrook, Ont., 23rd September, 1882; (Extension of patent No. 7957).

No. 15,516. Improvements in Treating Metals, &c. (*Perfectionnements dans le traitement des métaux, etc.*)

Henry R. Cassel, New York, U. S., 25th September, 1882; (Extension of patent No. 15,448.)

No. 15,517. Improvements in Treating Metals, &c. (*Perfectionnements dans le traitement des métaux, etc.*)

Henry R. Cassel, New York, U. S., 25th September, 1882; (Extension of patent No. 15,448.)

No. 15,518. Improvements in Wringing Machines. (*Perfectionnements aux essoreuses.*)

The Hamilton Industrial Works Company, (Assignee of John Kinleyside and John C. Schonmaker,) Hamilton, Ont., 25th September, 1882; (Extension of patent No. 7991.)

No. 15,519. Improvements on Floating Elevators. (*Perfectionnements aux élévateurs flottants.*)

James Nolan, Scranton, Pa., U. S., 25th September, 1882; for 5 years.

Claim.—1st. The combination, with the elevator leg Q having the spout Q₁, of means for raising and lowering said leg, and the hopper H having the adjustable spout I, said hopper H being suspended

within suitable guides and provided with means for raising and lowering. 2nd. In elevators for transferring coal, etc., two hoppers suspended within a frame constructed with capability of being raised and lowered, both hoppers being provided with spouts and the upper one constructed to discharge into the lower hopper, the lower hopper being provided with a scale beam arrangement. 3rd. In floating elevators for transferring coal, the combination, with the engine shaft, of a main shaft coupled to said engine shaft by a sliding coupling, said shaft being provided with the pulleys X X₁, the friction pulley Y Y₁ upon the shaft Z, pinions 1 and 2, spur wheels 3 and 5, intermediate wheel 6 and the winding drums 4 and 7. 4th. In floating elevators for transferring coal, etc., the combination, with the guide posts F F₁, F₁₁ and F₁₁₁, of the cage L, the hoppers G and H, the block and tackle M and the hoisting device consisting of the winding-drum 7, and the mechanism for operating said winding drum.

No. 15,520. Transportable Engine for Drawing up Timber. (*Machine portative pour tirer le bois de construction.*)

Christen Sörensen, Sundsvall, Sweden, 25th September, 1882; for 5 years.

Claim.—1st. The apparatus for drawing up timber. 2nd. The combination of the hexagonal chain wheels *ll* and *ee* with the chain-cables *f* provided with lifting hooks *h*. 3rd. The combination of the hexagonal chain wheels *ee* and *pp* with the chain cables *g* provided with the lowering hooks *i*.

No. 15,521. Improvements in the Process of Marbling, as Applied to Book Binding and General Ornamentation. (*Perfectionnements dans le procédé pour marbrer, applicable à la relieure et l'ornementation général.*)

William B. Blackhall, Toronto, Ont., 25th September, 1882; for 5 years.

Claim.—The process of marbling or decorating the edges of books, the leaves of the same, or the edges or sides of other objects, by means of a mixture of glue and glycerine to which is added divers aniline or other suitable colours as may be required, the whole being placed upon and operated by a roller.

No. 15,522. Improvements on Radiating Flues. (*Perfectionnements aux tuyaux des cheminées rayonnants.*)

Frederic B. Nichols and Cathart Thomson, Halifax, N. S., 25th September, 1882; for 5 years.

Claim.—1st. The door or lid A immediately over the opening into the draft distributor N surmounting a thin flat-flue and door K, in combination with dampers *i* and *e* so arranged as to completely isolate the draft distributors M and N and thin flat flue *g* from the flue B, for the purpose of cleaning the thin flat flues and draft distributors, while combustion is going on in the stove or furnace, to which the said parts are attached. 2nd. The draft distributor M commencing at its base, or horizontal juncture, with the lower main flue *d* in a short parallelogram of internal capacity, equal to, or slightly exceeding a horizontal section of the thin flat flue that surmounts it and from said base contracting on the narrow side till it joins the thin flat flue and on the longer side rapidly expanding to its juncture with the thin flat flue where it exactly fits and becomes a continuous section of the said thin flat flue *g* likewise the draft distributor N which is the exact counterpart of M but inverted so as to fit the top of thin flat flue *g* and connect with main flue *h*. 3rd. The combination of the draft distributors M and N with a thin flue *g* and main flues *d* and *h*.

No. 15,523. Improvements on Steam Generators and Furnaces. (*Perfectionnements aux générateurs de vapeur et aux foyers.*)

Mauricio M. Monsanto, Benjamin Odio and Felipe Perozo, New York, N. Y., U. S., 25th September, 1882; for 3 years.

Claim.—1st. The combination, with a series of concentric spiral coils vertically arranged with a steam drum located above them, all within an inclosing shell, of an outside stand pipe connected to said steam drum, each coil being connected independently of the others at their tops with said drum and with said stand pipe, below the level of the coils within the shell. 2nd. A series of steam forming coils located within the shell of a boiler, the interior coil having a greater distance than the others between its contiguous turns, and also a steeper pitch, in combination with a drum located above the water coils and connected with all of said coils below the water line. 3rd. In a steam generator or boiler the combination, within an inclosing shell, of a series of vertically arranged coils, the area of the tubes or pipes of each of which increases from below upward. 4th. In a steam generator or boiler, of the character specified, the combination, with the fire box, of a hollow boiler shell containing air passages extending about the same. 5th. In a steam generator or boiler, as a means for ensuring more perfect combustion of the fuel and economizing heat, a boiler shell containing air passages opening at one end to the outer air and at the other end into, or below the fire box. 6th. In a steam generator or boiler, the method of supplying heated air for the combustion of the fuel consisting in causing air of ordinary temperature to pass through the space between the inner and outer shell of the boiler to become heated and thence downward into or beneath the fire box. 7th. In a steam generator or boiler constructed with spiral coils of pipes, a coil supporting plate, said plate being also designed for protecting the lower parts of the said coils from the intense heat of the furnace. 8th. In a circulating coil steam generator, a series of independent coils set within a shell and rising spirally and conically from the coil supporting and fire protecting plate surrounding the grate and covered above by a baffle plate of convex form that is lowest at the centre and highest at its periphery, said coils being independently connected to an outside stand pipe above and below, said stand pipe

forming a steam drum above the coil connections and the water line, and a mud drum below the lower coil connections, the centre of which stand pipe forms a hydrostatic head of water of greater specific gravity than that within the coils, by which a circulation of water is established and maintained in the steam generator.

No. 15,524. Improvements in Spring Mat-trasses. (*Perfectionnements aux sommiers élastiques.*)

Edwin L. Bushnell, Poughkeepsie, N. Y., U. S., 26th September, 1882; (Extension of Patent No. 1716.)

No. 15,525. Improvements in Rotary Harrows. (*Perfectionnements aux herse tour-nantes.*)

Halsey H. Monroe, Thomastown, Me., U. S., 26th September, 1882; for 5 years.

Claim.—1st. A rotary harrow provided with a long seat extending across its centre and from the periphery on one side to the periphery at the other side, so that an attendant seated thereon may, by selecting his position upon said seat regulate at will the eccentric weight upon the arrow to cause its revolution. 2nd. The rotary harrow A provided with the long seat G supported upon the draft beam at its centre, combined with the standards *h h*, wheels F F and track ring E. 3rd. The seat G and foot board I combined with the elbow standards *h i h i* and the rollers F F traveling on the ring E of the rotary harrow A. 4th. The harrow A and long seat G mounted across its centre, combined with the rod K extending lengthwise beneath said seat, to receive the auxiliary adjustable weight. 5th. The revolving harrow A provided with an arm or rod K, combined with the adjustable fan N hung upon said rod to be loaded or unloaded, as occasion may require. 6th. The long seat G of the harrow A combined with adjustable stops H, which may be changed in location. 7th. The long seat G of the harrow A combined with the rod P and the stops H sliding thereon, so as to be adjustable to any point along said seat.

No. 15,526. Improvements in butchering apparatus. (*Perfectionnements aux appareils d'abattoir.*)

George F. Dickinson, Orland, Ind., U. S., 26th September, 1882; for 5 years.

Claim.—The combination of the central standard provided with swivel cap, the lifting lever and its drop rod, the recess K and the table supported therein, the scalding barrel or tank connected with the table and posts provided with the pivotal caps and cross arms.

No. 15,527. Improvements on Fence Posts. (*Perfectionnements aux pieux des clôtures.*)

Aaron K. Stiles, Chicago, Ill., U. S., 26th September, 1882; for 15 years.

Claim.—1st. As a new article of manufacture and commerce, a combination fence post, the upper and exposed portion of which is iron, and the foot of which is cemented and immovably secured to the iron part. 2nd. A combination fence post with its iron part provided with means of securing the wires which form the panels of the fence thereto.

No. 15,528. Improvements in Ball Valves. (*Perfectionnements aux soupapes à boulet.*)

Alexander G. Alexander, Detroit, Mich., U. S., 26th September, 1882; for 5 years.

Claim.—A ball valve in which the valve stem is substantially the same in diameter as the outlet pipe.

No. 15,529. Improvements on Shoes. (*Perfectionnements aux souliers.*)

Joseph L. Joyce, New Haven, Ct., U. S., 26th September, 1882; for 5 years.

Claim.—1st. A shoe provided with a side opening having the two parts or flaps B C separated at the foxing line and adapted to be opened respectively to the front and rear with a tongue inside. 2nd. A shoe provided with a side opening having the two parts or flaps B C separated at the foxing line and adapted to be opened respectively to the front and rear, with a tongue piece *h* extending up between the two flaps and connected, at its front and rear edges, to the respective edges of the said flaps and so as to fold inside the flaps. 3rd. The improvement in shoe uppers, by leaving the two parts disconnected at the foxing, each side of the side opening, combined with a lacing attached to one part, with a stud or eye *n* below the point of attachment and between the two parts around or through which the lacing is passed before being inter-laced above.

No. 15,530. Improvements on Worm Rail Fences. (*Perfectionnements aux clôtures en zig-zag.*)

George A. Horn, Newark, N. Y., U. S., 26th September, 1882; for 5 years.

Claim.—1st. The method of constructing a worm rail fence by securing one end of a piece of wire or cable, to the top rail of a panel near the point of intersection of said rail and the top rail of the adjacent panel, then carrying said wire or cable down under the end of one of the lower rails of said panels bringing it upward and attaching it to the top rail of said adjacent panel, while lying in an inclined position and finally raising the free end of said inclined rail to its place upon the fence, so that it will act as a lever in straining said wire, or cable. 2nd. In a worm rail fence of common construction having the two ends of a piece of wire or cable secured to the respective top rails o

adjacent panels, near the point of intersection of said rails, said wire or cable extending under the ends of the rails of said panels, the rails of the fence contained within the circuit of the wire being held firmly together by the same.

No. 15,531. Improvements on Wood Turn-ing and Gauge Tools. (*Perfection-nements aux outils et porte-outils à tourner le bois.*)

Stephen Washburn, Berlin, Ont., 26th September, 1882; for 5 years.

Claim.—1st. The combination of bar B with chisel, or cutter E; E, and kept in position by bolts C D. 2nd. The combination of block H with bar B and chisel or cutter E.

No. 15,532. Improvements on Water Ele-vators. (*Perfectionnements aux éleveurs d'eau.*)

Lucius C. Warner, (assignee of Henry Dickinson), Lowell, Ind., U. S., 27th September, 1882; for 5 years.

Claim.—The casing A, cast spout C and uniformly tapering sheet-metal receiver-funnel B.

No. 15,533. Improvements on Grain Separ-ators. (*Perfectionnements aux séparateurs des grains.*)

Charles E. McNeal and Albert H. Spaulding, Silver Creek, N. Y., U. S., 27th September, 1882; for 5 years.

Claim.—1st. The combination of the travelling belt F₁ and its supports *f f l*, with a screen A, a plate or rack H and means for vibrating the screen between the belt and rack. 2nd. The travelling belt F₁, adjustable plate or rack G, the bars G² and the bolts, or screws G³, in combination with the vibrating screen and a stationary rack H arranged below it. 3rd. The combination of the vibrating screen and a rack arranged below it, having a series of transverse bars *i* and series of thin longitudinal strips *j*, for the support of, and for limiting the distance between the transverse bars *i* and the screen. 4th. The combination of a grain-screen H and a movable endless belt F on rollers *f f l* arranged in boxes N, in a frame supported by the caps P P₁ and provided with the adjusting screws O M, whereby the belt and its supporting-rollers may receive both a horizontal and vertical adjustment.

No. 15,534. Improvements on Steel Scrapers for Grading Farm or Road Works. (*Perfectionnements aux grattoirs en acier pour le dressement des plateformes.*)

George Wilkinson, Aurora, Ont., 27th September, 1882; for 5 years.

Claim.—1st. The construction of a steel scraper, from a plate of steel cut to the pattern, the seams B being firmly held together by rivets passing through the base of the sockets and the sides of the scraper. 2nd. The construction of the iron handles to be attached to the scraper in place of the sockets C and wooden handles. 3rd. The construction and use of the runner *d*.

No. 15,535. Improvements on Furnace Grates. (*Perfectionnements aux grilles des fourneaux.*)

Frederick Sturdy, Kingston, Ont., 27th September, 1882; for 5 years.

Claim.—The combination of rock shafts F F with the cams E.

No. 15,536. Improvements on Faucets. (*Perfectionnements aux robinets.*)

Julius Winkler, Hamilton, Ont., 27th September, 1882; for 5 years.

Claim.—1st. The combination of key B, groove L, vent tube D, valve M and vent holes F F F. 2nd. The combination of inlet G, tube for liquids H, key B and outlet for liquids I.

No. 15,537. Improvements on Wash Boards. (*Perfectionnements aux planches à savonner.*)

Adelbert W. Geisel, St. Louis, Mo., U. S., 27th September, 1882; for 5 years.

Claim.—1st. The metal face D having the series of circular concavities *d*, and the bristles or brushes *e* arranged in said concavities. 2nd. The zinc or metal face D having the series of concavities *d* arranged in staggering rows, the bristles or brushes *e* and fastening wire *f*.

No. 15,538. Improvements on Tension Eveners for Silk Doubling Machines. (*Perfectionnements aux élicteurs à tension pour les machines à retordre la soie.*)

Orlo Atwood, London, Ct., U. S., 27th September, 1882; for 5 years.

Claim.—1st. In a doubling machine, an evener consisting of a rod or bearer, on one side of which the strands are to pass and a lever having two eyes for the strands and pivoted between said eyes on the opposite side of said rod or bearer. 2nd. In an evener consisting of rods, or bearers, on one side of which the strands are to pass and a lever having two eyes for the strands and pivoted between its eyes on the opposite side of, and opposite the space between said rods, or bearers.

No. 15,539. Improvements on Electric Generators. (*Perfectionnements aux générateurs électriques*)

James J. Wood, Brooklyn, N. Y., U. S., 27th September, 1882; for 5 years.

Claim.—1st. The combination, in an electric generator, with an armature and commutator of the gramme type, of movable brushes adjustable around the commutator and a manipulating, or adjusting device for moving the same with fixed definite points for graduation and engagement, corresponding to fixed definite changes in the position of the brushes and in current strength suited to definite numbers of lamps, or their equivalents. 2nd. The combination, in an electric generator of the gramme type, of a regulating device for manually shifting the position of the commutator brushes, provided with fixed definite points of graduation or engagement, to which the brushes may be adjusted, representing definite changes of current, corresponding to varying numbers of lights or other definite changes of duty. 3rd. In an electric generator of the gramme type, adapted to maintain a series of distinct electric lamps and constructed with movable brushes adjustable around the commutator, with a manual means for adjusting and holding the same, having its range of adjustment graduated into definite determined intervals corresponding exactly to a variation of current suited to varying numbers of lamps, whereby the operator can adjust the machine to different indicated stages, suited to any number of lights within the scope of the generator, without requiring skill or calculation. 4th. In an electric generator of substantially the described kind, the combination, with movable brushes adjustable around the commutator, of a hand wheel, or lever, operatively engaged with the movable brushes, or brush-holder, and a series of definite points of engagement, along its range of motion into which said lever may be moved and held, to set and hold the brushes at different definite positions. 5th. The combination in an electric generator, with a movable brush-holder arranged within the frame work of the machine, of a manipulating or operating device, operatively engaged with the brush-holder with its manipulating, or grasping portion arranged on the exterior of the machine, and a catch or retaining device, for holding the said manipulator in the different positions to which it may be set. 6th. The combination, in an electric generator, of the movable toothed brush-holder *i*, pinion *l*, shaft *K* and hand wheel *n*, with a catch to hold said hand wheel in different positions. 7th. In an electric generator, the hand wheel *n* provided with engaging points or notches on its rim, and a fixed spring bolt or catch to engage therewith, in combination with a movable brush-holder and an operative connection between the same and the hand-wheel.

No. 15,540. Improvements on Electrical Armatures. (*Perfectionnements aux armures électriques*.)

James J. Wood, Brooklyn, N. Y., U. S., 27th September, 1882; for 5 years.

Claim.—1st. In an annular or gramme armature, formed with radial plates or bars embedded between its coils embracing the core and secured to or engaged with the driving hub, or shaft. 2nd. The combination, with an annular armature and its driving hub, of plates, or projections, extending radially from the armature and engaging with the hub. 3rd. In an annular armature formed with one or more radial plates, or projections, introduced or embedded between its coils or sections, in combination with a central hub formed with corresponding slots to engage therewith. 4th. In an annular or Gramme armature, constructed with a plate, or plates *g* introduced, or embedded radially between its coils and encircling the core thereof, with a prolongation extending therefrom and adapted to engage with the driving hub. 5th. In a Gramme or annular armature, constructed with one or more plates, or projections extending radially therefrom, in combination with a driving hub adapted to enter the armature from one end and provided with one, or more peripheral slots or recesses, to engage said projections and a projecting peripheral flange or shoulder on one end whereby the armature may be easily slid into or off from the hub, yet obtains a positive driving connection therewith when placed thereon.

No. 15,541. Improvements on Commutator Couplings for Electrical Armatures. (*Perfectionnements aux accouplages des commutateurs pour les armures électriques*.)

James J. Wood, Brooklyn, N. Y., U. S., 27th September, 1882; for 5 years.

Claim.—1st. The combination, with an electrical armature, coil and commutator segment, of the clamp block *f*, cap *h* and clamp-screw *K*. 2nd. In combination with electrical armature, coils and commutator segments, the clamp-block *f*, cap *h* and clamp-screw *K*, with the ends of the armature coils placed between the block and cap and on either side of the clamp screw. 3rd. The combination, with an armature coil and commutator segment, of the clamp head *f* and cap *h*, with a clamp screw *K* connecting the two and marginal lips *i* on the face of one part, with the ends of the armature coils placed between the cap and block, and between the lips and the side of the screw. 4th. The combination, with the segment of a commutator and the strip *e* projecting therefrom, of the block *f* with the cap *h* mounted upon the end of said block, and clamp screw *k* passing through the cap into the block, forming between them a clamping socket to receive the ends of the armature wires.

No. 15,542. Improvements on Shipping Boxes for Burial Cases. (*Perfectionnements aux chemises des cercueils*.)

William H. Harrison, (assignee of Gardner W. Dow), Marseilles, Ill., U. S., 27th September, 1882; for 5 years.

Claim.—1st. In a shipping-box for burial-cases provided with the bottom *A* consisting of the hinged sections *a* and *a'* in combination

with means for detachably affixing the burial case to the section *a*. 2nd. A shipping box provided with a bottom in two sections, one hinged upon the other, in combination with a burial-case arranged therein, so that about one fourth of its length shall be opposite the fixed section and detachably fastened to the swinging section, for the purpose of using the weight of the burial-case to facilitate the closing of the box and to keep it closed, when the box is set on end.

No. 15,543. Improvements on Machine Guns. (*Perfectionnements aux canons à répétition*.)

William Gardner, Hartford, Ct., U. S., 27th September, 1882; for 5 years.

Claim.—1st. The combination, with the breech-cover provided with apertures *a*₃ and bed plate provided with apertures corresponding in number to those in the cover, but located in different vertical planes, said apertures being bevelled, whereby the cartridge takes an inclined course in its passage from the apertures in the bed plate, of a slide *g* provided with apertures, through which the cartridges are fed, said slide being cut away on its underside, adjacent to its apertures, whereby the cartridges are retained in place for firing, when the slide is in position for feeding another round of cartridges to the upper surface of the bed plate. 2nd. The combination, with the plungers *c* U, shaped extensions *a*₁ of the crank pins located within the extensions *c*₁, said crank pins being cut away as at 1 2 3 4 5. 3rd. The combination, with the cams *d*₁ *d*₂ of lever *h* and slide *g*. 4th. The combination, with the slide *g* provided with the bevelled or inclined surfaces *g*₁, in combination with the extractors *k* and bolts connected with the extractors. 5th. The bell crank levers *l*, whose arms *l*₁ are of different lengths, in combination with the disks *d*₃ having the releasing points 11 12 13 14 15 in different positions, whereby to provide for the simultaneous or alternate firing of the barrels, or for firing the barrels in pairs or otherwise.

No. 15,544. Improvements on Electric Lamps. (*Perfectionnements aux lampes électriques*.)

Paul Jablochhoff, Paris, France, 27th September, 1882; (Extension of patent No. 7963.)

No. 15,545. Improvements on Electric Lamps. (*Perfectionnements aux lampes électriques*.)

Paul Jablochhoff, Paris, France, 28th September, 1882; (Extension of patent No. 7963.)

No. 15,546. Improvements on Trace Hooks. (*Perfectionnements aux crochets des traits*.)

William K. Rairigh, St. Petersburg, Pa., U. S., 28th September, 1882; for 5 years.

Claim.—1st. The main part *A* and the jaw *B* hinged thereto, in combination with the spring *b* placed upon the screw *c*, for holding the jaw closed. 2nd. The hook cast with the recess *a*₁, in combination with the rubber jacking *a*, whereby the hook is made noiseless. 3rd. The main part *A* of the hook formed with the tang *D*, having the holes *g* and *h*, in combination with the clamp plates *E* *F*, they being formed with the projection *e* and screw-tapped projection *e*₁, the latter being formed with the screw threaded stud *j*. 4th. The main part *A* of the hook formed with the recess *a* and projection *i*, in combination with the jaw *B* formed with the slotted rim *f*, for holding the spring *b*. 5th. The combination, with the main part *A* of the hook, of the hinged jaw *B*, formed with the shoulder *l*, for entirely closing the opening in the main part *A*. 6th. The main part *A* formed with the hook *k*¹ and lip *o*₁, in combination with the jaw *B*, formed with the hook *k* and cut away as at *o*₁. 7th. The combination, with the main part *A* formed with the hook *k*¹ and lip *o*₁, of the jaw *B*, formed with the shoulder *l*, hook *k*, and cut away as at *o*. 8th. The combination, with the tug *C* of the main part *A* and the hinged jaw *B*, arranged so that their broadest sides are parallel with the sides of the tug of the hook, arranged with its broadest sides at right angles to the sides of the tug.

No. 15,547. Improvements on Railway Brakes. (*Perfectionnements aux freins des railroutes*.)

Albert F. Gue and Georges F. Field, Boston, Mass., U. S., 28th September, 1882; (Extension of patent No. 7956.)

No. 15,548. Machine for Making Barbed Fence Wire. (*Machine pour faire le fil de fer pour les clôtures barbelées*.)

The Washburn and Moen Manufacturing Company, Worcester, Mass., (assignee of Henry W. Putnam, of Bennington, Vt.,) U.S., 29th September, 1882; (Extension of patent No. 7830.)

No. 15,549. Improvements in the Manufacture of Boot and Shoe Heels. (*Perfectionnements dans la confection des talons de chaussures*.)

John Kelsey, Montreal, Que., 30th September, 1882; (extension of patent No. 14,095.)

No. 15,550. Improvements in the Manufacture of Boot and Shoe Heels. (*Perfectionnements dans la confection des talons de chaussures*.)

John Kelsey, Montreal, Que., 30th September, 1882; (Extension of patent No. 14,095.)

No. 15,551. Improvements on Ore Concentrators and Amalgamators. (*Perfectionnements aux concentrateurs et aux amalgamateurs des minerais.*)

William L. Imlay, Camden, N. J., U. S., 30th September, 1882; for 5 years.

Claim.—1st. In an ore concentrator or amalgamator, the combination, with a table B connected to an eccentric or crank shaft, whereby it is reciprocated longitudinally, of cone pulleys K and K' and a belt shifter M, supported in the frame of said table, whereby the speed of said table may be regulated by means within the machine. 2nd. The combination, within the table B supported on rock arms or vibratory supports E E, of slides F F, having hooks or bearings *f f*, screw spindles G G with pinions and worm shaft H. 3rd. A longitudinally reciprocating table B, a feed hopper P located outside said table, having a delivery spout P' extending to the middle of said table, and one conveyer P₂, whereby a force feed is provided for said table, and ore supplied to said hopper at the side of the machine is delivered over the middle of the table. 4th. In a feed hopper, the combination, and having trunion, or pivot bearings, whereby it is adapted to be rocked or moved out of the way, without being detached from the machine. 5th. A table B designed and adapted to be reciprocated longitudinally and a supplementary table S, supported thereon, and having discharges at opposite ends P and P' for excess of water and for sand, respectively, and a concave bottom with double curves forming a transverse ridge between said ends. 6th. In combination with a water supply pipe T having inclined nozzles or branches *t t*, standards U U for supporting said pipe, having slotted feet *u u* whereby said standards may be adjusted on the frame of the machine, and the position of said nozzles regulated with reference to the table.

No. 15,552. Improvements on electric lamps. (*Perfectionnements aux lampes électriques.*)

James J. Wood, Brooklyn, N. Y., U. S., 30th September, 1882; for 5 years.

Claim.—1st. The combination, in an electric arc lamp, of a safety switch acting when closed to cut the lamp out of circuit, a spring, or equivalent device, acting constantly to close the said switch, a trigger catch or latch, acting to hold said switch open, and an electro-magnet circled in such relation with the arc, that an abnormal length of arc shall cause the armature, or movable part of said magnet to trip the said trigger catch, release the switch and allow it to spring closed, and thereby automatically throw the abnormal lamp out of circuit. 2nd. The combination, in an electric arc lamp, of an electro-magnet, circled in operative relation with the arc and a corresponding armature operatively connected with mechanism, for regulating the positions of the carbon points, with a safety-switch arranged in operative relation with the said armature, constructed to be normally open, but when closed, to cut the lamp out of circuit, an operative connection from the said armature to the said switch having an idle play or movement during the normal feeding movements of said armature, but which connection actuates the switch and closes the same when the said armature moves beyond the limit of its feed motion due to an abnormal length of arc. 3rd. The combination, in an electric arc lamp, of a safety-switch, normally open, but acting when closed to cut the lamp out of circuit, an electro-magnet circled in a shunt from the arc circuit, a corresponding armature operatively connected with mechanism to feed or regulate the position of the carbons, and having a limited idle play in its connection with said mechanism, an operative connection between said armature and safety-switch, whereby the armature becomes independently moved from the regulating mechanism, when the latter is moved to its feeding limit by an abnormal attraction of the shunt magnet due to abnormal arc, and thereby operates the safety-switch to throw the abnormal lamp out of circuit. 4th. The combination, in an electric lamp, of a hand switch adapted for voluntarily circuiting or dis-circuiting the lamp, with a safety-switch adapted to close automatically by the mechanism of the lamp on the formation of abnormal arc or abnormal separation, the said safety-switch being arranged in operative relation with the hand-switch, whereby the closing and opening of the hand-switch automatically sets the safety-switch in its open position. 5th. The hand-switch *p*, formed with a contact face *p₂* on one arm thereof, in combination with a safety-switch hammer *t*, with means for retaining the same in open position, and arranged, when closed, to contact with said face *p₂*, whereby the movement of the hand-switch will move and set the safety-switch.

No. 15,553. Improvements on Electrical Lamps. (*Perfectionnements aux lampes électriques.*)

James J. Wood, Brooklyn, N. Y., U. S., 30th September, 1882; for 5 years.

Claim.—1st. A duplex electric lamp constructed with a single motor or regulating mechanism, and two or more distinct sets of electrodes arranged to go into action successively, and both engaged with the motor mechanism, but in such manner that one only is borne and actuated thereby at the same time together with a device to relieve the pressure of the succeeding electrode from the mechanism while the leading electrodes endure, and with another device, whereby the terminal motion of the leading electrode acts to remove its pressure from the mechanism, and at the same time transfers the pressure of the succeeding electrode thereto. 2nd. A duplex electric arc constructed with two or more distinct sets of successively acting electrodes and a motor or regulating magnet, in constant circuit with the source supplying the arc, and having its actions determined by the condition of the arc, with operative connections between said motor magnet and the duplex electrodes so organized that one only is borne and actuated thereby, and the other relieved and unaffected together with devices whereby the terminal motion of the borne and leading electrode acts to remove its strain from the motor magnet and transfer the strains of the succeeding electrode thereto. 3rd. A duplex electric lamp, constructed with two or more distinct sets of carbon or

illuminating electrodes, and a common motor, or operating device, connected with said electrodes or the holder thereof, by clutches arranged to slip in one direction and bite in the other, and so organized that whichever electrode is borne by the operating device and the other relieved therefrom the clutch of the former makes operative connection with the operative device to control and regulate the motion of the active electrode without affecting the relieved or idle electrode. 4th. A duplex electric lamp constructed with two or more sets of illuminating electrodes, and a common motor or regulating mechanism connected with said electrodes by clutches, which slip in one direction and engage in the other, and have the same direction of action and also a limited play in their connection with the mechanism and so arranged that both electrodes are engaged by the mechanism, yet one is borne and actuated thereby, while the other remains un-borne and unaffected by the motion thereof. 5th. A duplex electric lamp constructed with two or more sets of electrodes and a common motor, or regulating mechanism, equipped with a multiplying wheel or train of wheels, engaged at the terminal end by a detent, or stop, and connected at the initial end with the said duplex electrodes by the intervention of the distinct ratchet clutches, or their equivalents, having the same direction of engagement. 6th. An electric lamp embodying the following features, a motor or regulating magnet in constant circuit with the source supplying the arc and having its actions determined by the condition of said arc, with two or more distinct sets of electrodes arranged to go into successive action as the preceding ones become exhausted, in combination with a latch or catch, to hold the succeeding electrode out of action and relieve the motor mechanism from its pressure and a device whereby the preceding electrode at its terminal motion becomes itself supported apart from the motor mechanism, and acts to trip the said catch to release the succeeding electrode and throw its pressure on the motor mechanism together with connections between the motor mechanism and the electrodes, so organized that the motor mechanism controls the electrode, whose pressure is supported thereby, but does not act upon the one that is relieved therefrom. 7th. The combination, in an electrical lamp, with a magnet in circuit with a source supplying the lamp and arranged to regulate the position of the carbons, and with adjustable retracting spring to antagonize the action of the magnet, of the additional safety or balancing spring *s*. 8th. The combination, with an electric lamp, provided with two elongated carbon-holders and fixed enclosing tubes *h₁ h₂*, of the tip *t* formed with sockets secured to the tops of said tubes, and with a central suspending loop or bridge.

No. 15,554. Improvements on electric lamps. (*Perfectionnements aux lampes électriques.*)

James J. Wood, Brooklyn, N. Y., U. S., 30th September, 1882; for 5 years.

Claim.—1st. The combination, with regulating mechanism equipped with a vibrating wheel train meshing with one carbon-holder, of an independent rotary connection or axis, mounted in fixed bearings and geared with the vibrating train and with the other carbon-holder, whereby the motions imparted by the vibrating wheel train to the first carbon-holder, or *vice versa*, are simultaneously imparted to the second holder in the opposite direction, thereby producing a proper focussing action at the carbon points. 2nd. The combination, with positive and negative carbon-holders, one of which overbalances the other, and with regulating mechanism having a vibrating wheel train geared with one carbon-holder, of an independent rotary axis A geared on one side of its diameter with one carbon-holder, and on the other side of its diameter with the spindle, or axis, of the wheel train which meshes with the other carbon-holder. 3rd. The combination, of the independent rotary spindle B, provided with a pinion A to gear with one carbon-holder, and a wheel or pinion D adapted to gear with the axis of the wheel train which gears with the other carbon-holder, and divided between said wheel and pinion B D by an insulating coupling. 4th. The combination, with regulating mechanism and a retracting spring *l*, of an elbow lever *l* and a fixed standard to which the same is pivoted, one arm of the said lever being connected with the said spring, and the other being bent to overlie the standard with an adjusting screw *l₁*, passing through said bent arm and bearing on the standard.

No. 15,555. Improvements on Whip Cores. (*Perfectionnements aux fils des jouets.*)

Vinal B. Barstow, Westfield, Mass., U. S., 30th September, 1882; for 5 years.

Claim.—A rattan piece having longitudinal saw-kerfs made therein, combined with thin flat raw hide strips glued into said saw-kerfs.

No. 15,556. Improvements on car-couplings. (*Perfectionnements aux accouplages.*)

Samuel A. V. Hartwell, Valley Centre, Ks., U. S., 30th September, 1882; for 5 years.

Claim.—The combination, with the lever K having its rear arm the heavier, of the pivoted trip plate N, having shoulder M, the chain Q and the cross rod S having central crank R, and end cranks T, whereby the link can be readily and accurately adjusted to enter the bumper-head of an approaching car.

No. 15,557. Improvements in Stock Cars. (*Perfectionnements aux chars à bestiaux.*)

George D. Burton, Boston, Mass., U. S., 30th September, 1882; for 5 years.

Claim.—1st. In combination with the body A, the partitions B, dividing the car into compartments, the cattle stanchions C, the raised inclined floors D and the central doorways E. 2nd. The combination, of the car body A with the ridge beam trough or pipe F, the top doors G, the distributing pipes *f f* and the drinking troughs H. 3rd. The combination, of the car body A with the cattle stanchions C, the feed troughs H and the feed-doors A.

No. 15,558. Improvements on Railroad Signals and Gates. (*Perfectionnements aux signaux et aux barrières des railroutes.*)

Beall Hempstead, Little Rock, Ark., U. S., 30th September, 1882; for 5 years.

Claim.—1st. An automatic rail road gate and barrier, the combination with the track A having crossing B and at a distance therefrom a gate C of an angular or horizontal lever D fulcrumed on a tie of the road-bed and actuated by a stationary arm on the front of the locomotive, a flexible chain *d* connecting said lever and gate, connecting rods *g*¹, guides *g*², chain *g*³, vibrating lever *h*, vibrating arm with wire attachment and bell on locomotive, and suitable bell triggers with gong *m*, and barrier G upon the rock shaft *j*¹ and lever *j*. 2nd. The combination with a railway-way barrier adapted to be swung across the track, of a drum *k*, having a ratchet *i* engaged by said barrier, and the head *i* provided with stickers, and a gong *m* arranged in reach of said stickers, whereby, as the barrier is swung, an alarm is struck upon the gong.

No. 15,559. Improvements on Carriages. (*Perfectionnements des voitures.*)

David W. Baird, Geneva, N. Y., U. S., 30th September, 1882; for 5 years.

Claim.—1st. In a low bodied vehicle, the combination, with the bent axles, and springs, arranged longitudinally within the bends of the same, of a waggon body supported on said springs, a reach connecting the lower horizontal portions of the axle, and braces extending upward from the reach to the upper portions of the rear axle

above its bends, whereby the said axle is prevented from swinging, or turning.

No. 15,560. Improvements on Swell Body Cutters. (*Perfectionnements aux traineaux à caisse bombée.*)

Charles R. Wilson, Detroit, Mich., U. S., 30th September, 1882; for 5 years.

Claim.—1st. In a sleigh body, the combination of an arm piece made broader at its forward ends than at the rear or middle portion, said piece extending from the front of the seat around the back and then forward to the front of the seat on the opposite side, a top rail extending around in like manner, and a panel interposed between the two, the said arm piece, top rail and panel passing to the rear of the longitudinal frame pieces, the said arm piece and top rail, each made in one or more pieces. 2nd. In an arm piece made broader at its forward ends than at the rear or middle portion, a top rail and an intermediate panel extending from the sides around the back and outside of the longitudinal frame pieces and forming the back of the sleigh body. 3rd. The top rail C made to extend from the dash around the back, and forward again to the dash, and formed of a continuous length or in two lengths joined at the back. 4th. The arm piece B provided with projections along its lower edge extending forward to the dash.

No. 15,561. Improvements on Shoe Sole Buffers. (*Perfectionnements aux machines à chamoiser les semelles des chaussures.*)

Josiah Winslow Rogers, Salem, Mass., U. S., 30th September 1882; (Extension of patent No. 7964.)

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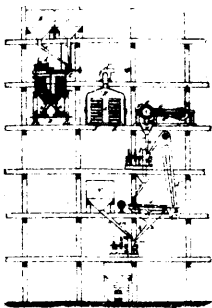
- No. 15,562. W. H. Smith, Chicago, Ill., "Preparing Tan Bark," Oct. 2nd 1882.
- No. 15,563. J. H. Omo, Fayette, Ohio, U. S., "Mop Holders," 2nd Oct. 1882.
- No. 15,564. E. A. Sperry, Cortland, N. Y., U. S., "Dynamo-Electric Armatures," 2nd Oct. 1882.
- No. 15,565. G. S. Dean, San Francisco, Cal., U. S., "Manufacture of Nitro-Dextrine," 2nd Oct. 1882.
- No. 15,566. H. R. Plimpton, Boston, Mass., U. S., "Sofa Beds," 2nd Oct. 1882.
- No. 15,567. E. A. Sperry, Cortland, N. Y., U. S., "Dynamo-Electric Machines," 3rd Oct. 1882.
- No. 15,568. E. Kells and H. L. Church, Cleveland, Ohio, U. S., "Freezing Paraffine," 3rd Oct. 1882.
- No. 15,569. E. D. Parker, Salina, Ka., U. S., "Electric Coupling and Train Telegraph," 3rd Oct. 1882.
- No. 15,570. D. W. Carpenter and Edwin Shaw, Walton, N. S., "Hay Cutter," 3rd Oct. 1882.
- No. 15,571. T. B. Farrington, Minneapolis, Minn., U. S., "Undergarments," 3rd Oct. 1882.
- No. 15,572. B. Chamberlain, J. H. Wilson, R. Lamb, G. H. Palmer and H. E. Palmer, Bellefontaine, Ohio, "Windmill," 3rd Oct. 1882.
- No. 15,573. G. W. Smith, Harlansburg, Penn., "Scaffolds," 3rd Oct. 1882.
- No. 15,574. R. C. Blackall, Albany, N. Y., C. D. Hammond, J. W. Sprong, Shinglerlands, N. Y., and S. Huntington, Albany, N. Y., "Means of Extinguishing Fires," 3rd Oct. 1882.
- No. 15,575. C. C. Post, Burlington, Vt., "Sap Spout Pail Cover and Hanger," (Extension of Patent No. 1729) 3rd Oct. 1882.
- No. 15,576. H. P. Spencer, Detroit, Mich., "Stop Ladders," 4th Oct. 1882.
- No. 15,577. D. F. Holston, Defiance, Ohio, "Hoop Cutting Machine," 3rd Oct. 1882.
- No. 15,578. W. B. Hemming, Waterloo, Ind., J. B. Casbeer and T. G. Matheny, Auburn, Ind., "Pipe Line Valve," 4th Oct. 1882.
- No. 15,579. D. Macmillan, London, Ont., "Paper Bag Machine," (Extension of Patent No. 7978) 5th Oct. 1882.
- No. 15,580. S. Fox, Leeds, Eng., "Steam Boilers," (Extension of Patent No. 8186) 5th Oct. 1882.
- No. 15,581. G. Leve and A. Davis, Montreal, Que., "Sleeping Car," (Extension of Patent No. 8000) 5th Oct. 1882.
- No. 15,582. J. C. F. Pascal, Detroit, Mich., "Sleigh," 5th Oct. 1882.
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- No. 15,584. S. Fox, Leeds, Eng., "Steam Boiler," (Extension of Patent No. 8046) 6th Oct. 1882.
- No. 15,585. A. McCallum, Kars, Ont., and J. E. Cass, l'Original, Ont., "Wagon Rack," (Extension of Patent No. 7987) 6th Oct. 1882.
- No. 15,586. E. J. Major, Montreal, Que., "Fence Post," (Extension of Patent No. 14,916) 7th Oct. 1882.
- No. 15,587. E. J. Major, Montreal, Que., "Fence Post," (Extension of Patent No. 14,916) 7th Oct. 1882.
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- No. 15,602. G. Warm, Toronto, Ont., "Shooting Skiff," (Extension of Patent No. 8,008) 9th Oct. 1882.
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- No. 15,604. C. D. Dewey, Stratford, Ont., assignee, "Rake Cam Supports for Harvesters," (Extension of Patent No. 7989) 9th Oct. 1882.
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- No. 15,606. A. E. Ronif, Montreal, Que., "Sewing Machine Motor," 11th Oct. 1882.
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- No. 15,609. D. Knewlton, Brantford, Ont., "Bed Bottom," 11th Oct. 1882.
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- No. 15,611. N. A. Otto, Dentz, Germany, F. W. and W. J. Crossley, Manchester, Eng., "Gas Motor Engine," (Extension of Patent No. 8023) 11th Oct. 1882.
- No. 15,612. N. A. Otto, Dentz, Germany, T. W. and W. J. Crossley, Manchester, Eng., "Gas Motor Engine," (Ext. of Pat. No. 8023) 12th Oct. 1882.
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- No. 15,626. G. Dalton, Leeds, Eng., "Apparatus for crushing of reducing gold, etc.," 14th Oct. 1882.
- No. 15,627. H. Waterman, Hudson, N. Y., "Locomotive Engines," 14th Oct. 1882.
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- No. 15,637. F. A. Hooker and S. W. Lowell, Charlotte, Mich., 16th Oct. 1882.
- No. 15,638. The Sanford Universal Fibre Company, New York, N. Y., assignee, "Fibre Machine," 16th Oct. 1882.
- No. 15,639. The Sanford Universal Fibre Company, New York, N. Y., assignee, "Fibre Machines," 17th Oct. 1882.
- No. 15,640. I. D. Johnson, Keenett Square, Penn., "Invalid beds," 17th Oct. 1882.
- No. 15,641. J. W. Fisher, New York, and M. W. Hamma, Brooklyn, N. Y., "Cooking Crock," 17th Oct. 1882.
- No. 15,642. T. A. Edison, Menlo Park, N. Y., "Electric Chandelier," 17th Oct. 1882.
- No. 15,643. J. H. Bartlett and P. McIntyre, Ottawa, Ont., "Mail bag fastenings," 17th Oct. 1882.

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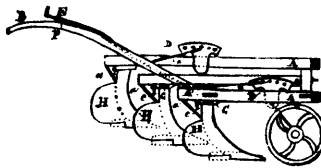
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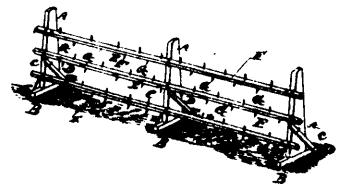
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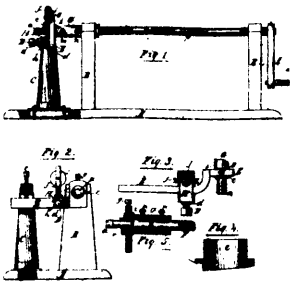
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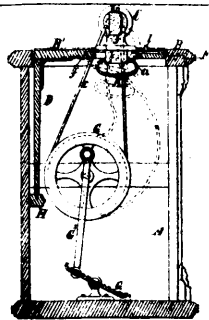
15406 **Rowe's Improvements on Gang Ploughs.**



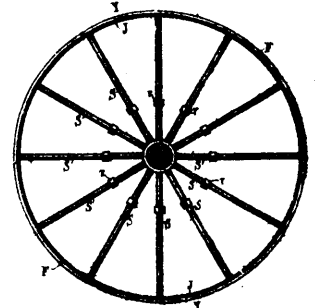
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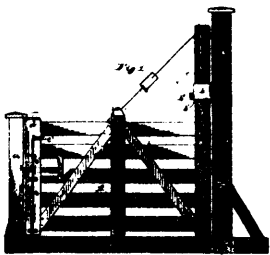
15410 **Gale's Improvements on Machines for Coiling Wire.**



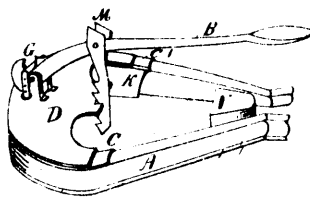
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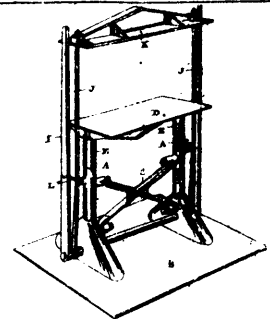
15412 **Johnson's Improvements on Vehicle Wheels.**



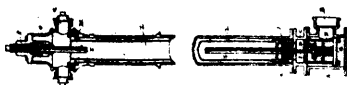
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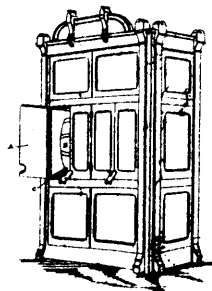
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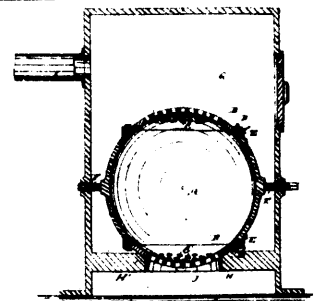
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15418 **Law's Improvements on Hydrants.**



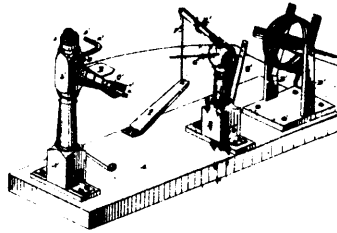
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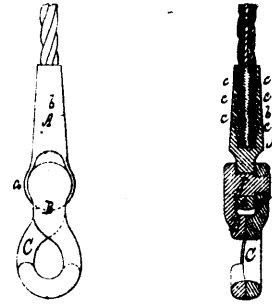
15420 **Vilas' Fire-Box.**



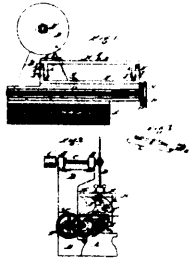
15421 Adams's Improvements on Gang Saws.



15422 Wildermuth's Improvements on Wire Coiling Machines.



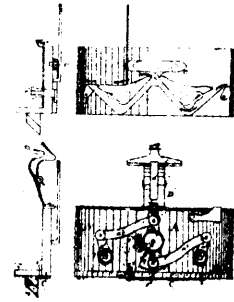
15423 Heeley's Improvement in Wire Rope Attachments.



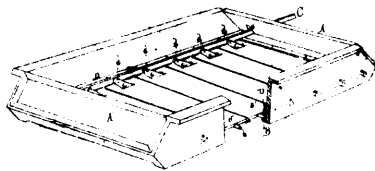
15424 Weir's Machine for Cutting Railroad Rails for Frogs and Switches.



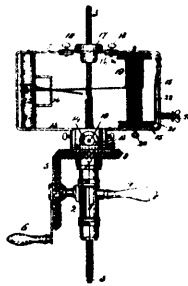
15425 Hewitt's Improvements on Barbed Wire Fences.



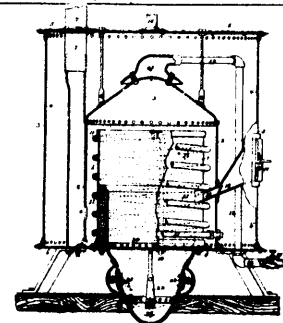
15427 Bickell's Improvements on Knitting Machines.



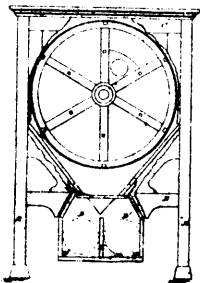
15428 Ritchie's Improvements on Locomotive Ash Pans.



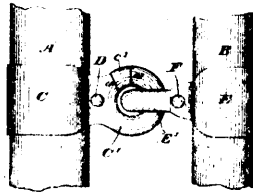
15429 Nute's Improvements on Rope Serving Machines.



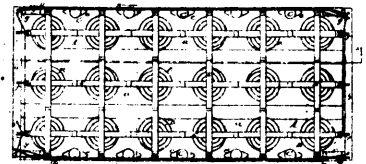
15430 Chamberlain's Improvements on Car Heaters.



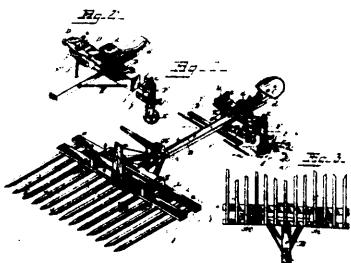
15431 Finch's Improvements on Conveyors for Flour Mills.



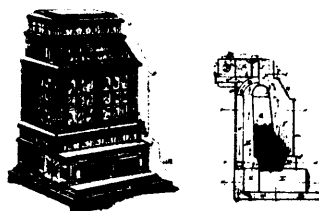
15432 McCoy's Improvements on Whiffletree Clips.



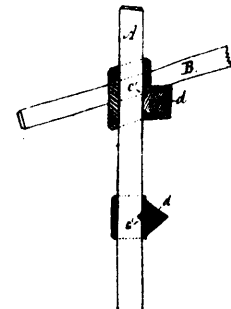
15433 Bushnell's Improvements in Car Seats.



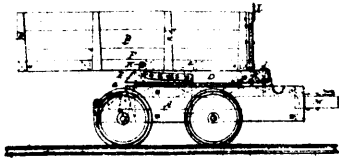
15434 Noyes's Improvements on Horse Rakes.



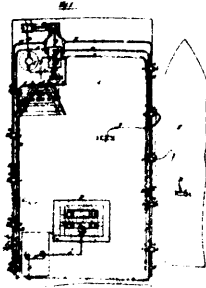
15435 Thomas's Improvements on Heating Stoves.



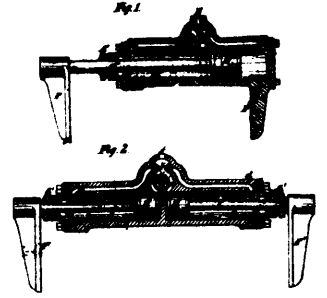
15436 Maunder's Improvements on "Maunder's Ontario Harrow."



15437 Cordrey's Improvements on Dumping Cars.



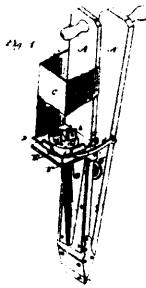
15438 Walsh's Improvements on Apparatus for Stowing Cargoes.



15439 Walsh's Improvements on Jacks.



15440 Walsh's Improvements on Flexible Pipes.



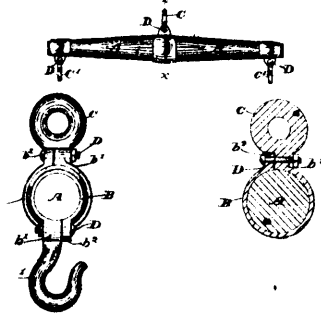
15443 Horton's Improvements on Hand Corn Planters.



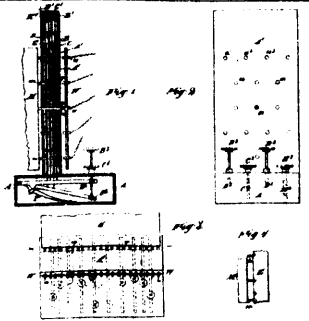
15444 Horton's Improvements on Hand Corn Planters.



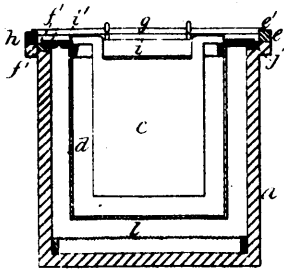
15446 North's Pipe Junction and Boundary Line Indicators.



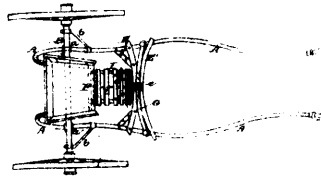
15446 McCoy's Improvements on Whiffletree Clips.



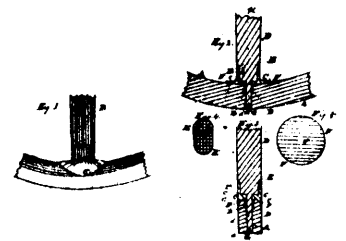
15447 Munsen's Improvements on Selecting Devices.



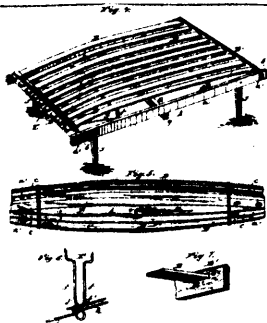
15448 Cassell's Improvements in Treating Metals, &c.



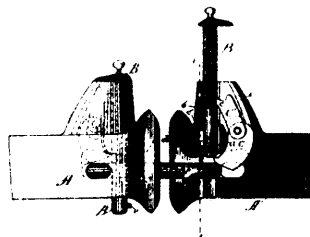
15449 Hebert's Improvements on Two-Wheeled Vehicles.



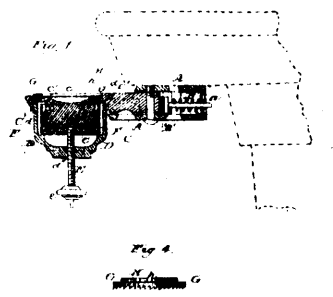
15450 Badlam's Improvements in Spoke Sockets to Cement Fellies and Spokes of Carriage Wheels together.



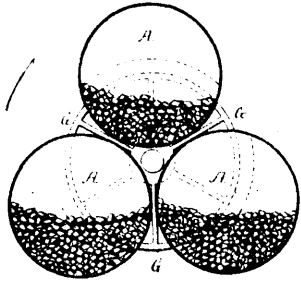
15451 Bowen's Improvements on Spring Bed Bottoms.



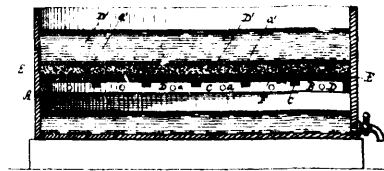
15453 Reed's Improvements on Car Couplings.



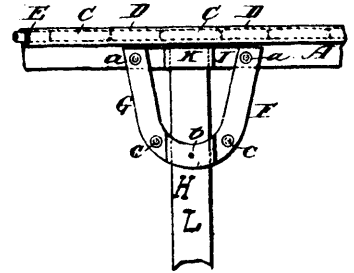
15454 Roueh's Improvement on Chalk Holders.



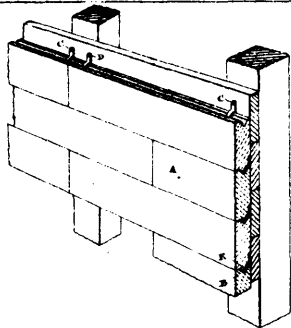
15455 Golding's Improvements on Pulverizing Machines.



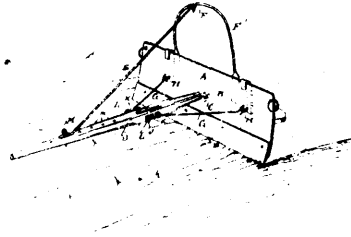
15456 Strunz's Improvement on Leaching Apparatus.



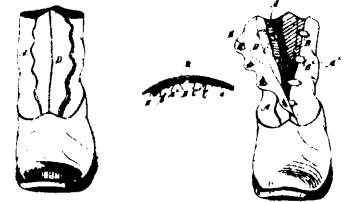
15457 Bergstrom's Improvement on Rakes.



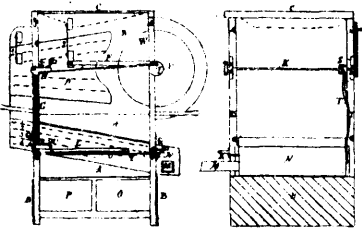
15458 Tilley's Improvements in Veneering.



15459 Gregory & Austin's Improvements on Road Scrapers.



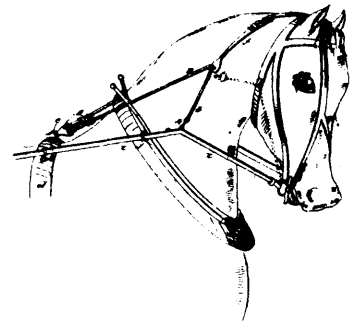
15460 Rivard's Improvements in Boots and Shoes.



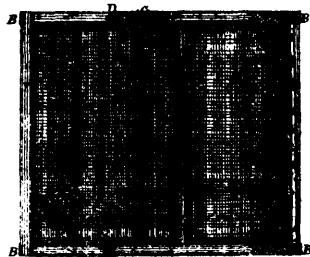
15461 Costin's Improvements on Fanning Mills.



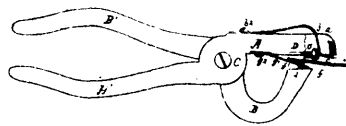
15462 Brulé's Improvements in Taking up the Wear in Axle Boxes.



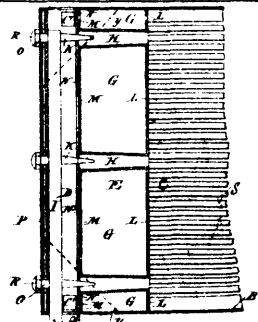
15463 Harding's Improvements on Check Reins.



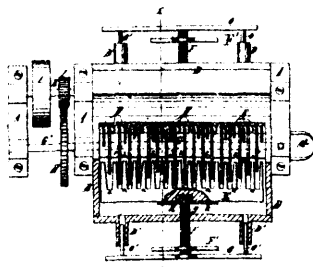
15464 Dodge's Improvements on Window and Door Screens.



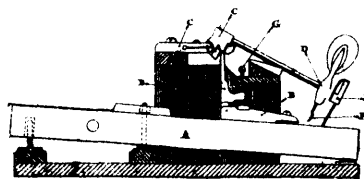
15465 Farnsworth and Barnes's Improvements on Devices for, and Method of Attaching Buttons.



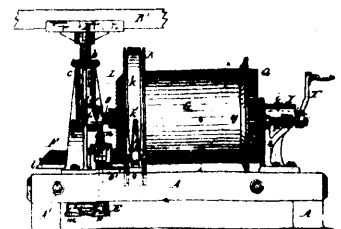
15466 Campbell & Patterson's Improvements in Apparatus for Causing more Perfect Combustion in Furnaces.



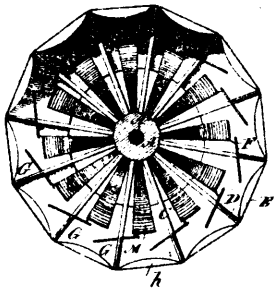
15467 Bazé's Improvements on Machines for Shredding Sugar Cane.



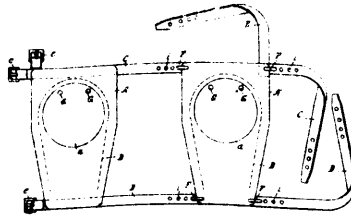
15468 Dettmann's Improvements on Plaho-Portes.



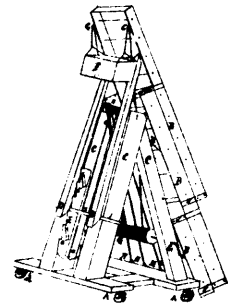
15469 Dobie's Improvements on Hoisting Machines.



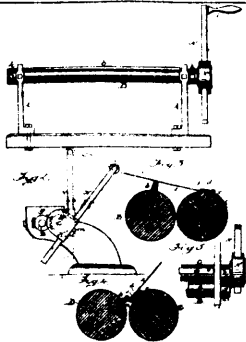
15470 Rice's Improvements in Salt Dryers.



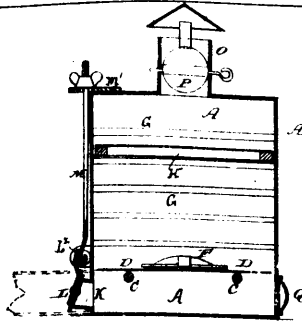
15471 Harvey's Device for Restraining Vicious Animals.



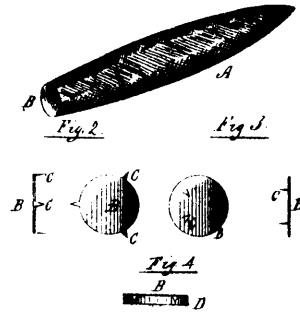
15472 Davy's Improvements on Extension Ladders and Fire Escapes.



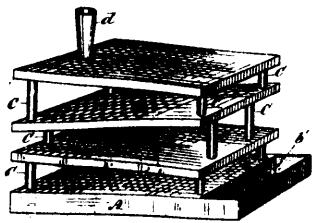
15473 Roach's Improvements on Sheet Iron Bending Machines.



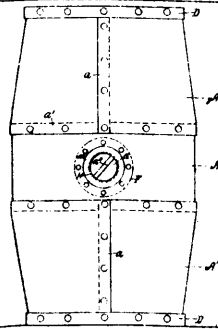
15474 Grover's Improvements on Fruit Evaporators.



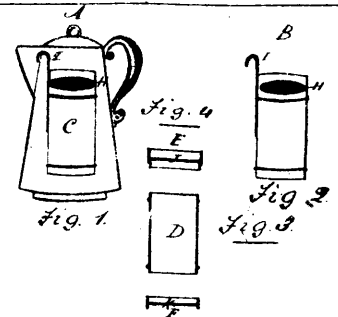
15475 Abraham's Improvement in Cigar Protectors.



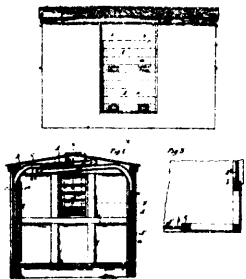
15476 Gayhart's Improvements on Fruit Dryers.



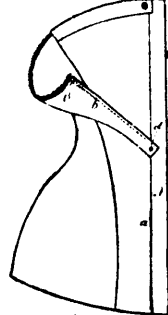
15477 Cutbertson's Improvement on Metallic Coal Oil Barrels.



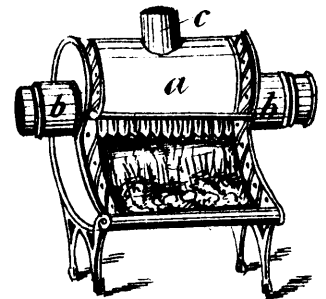
15478 Mackey's Improvements on Tea or Coffee Percolators.



15480 Van Liew's Improvements on Railway Cars.



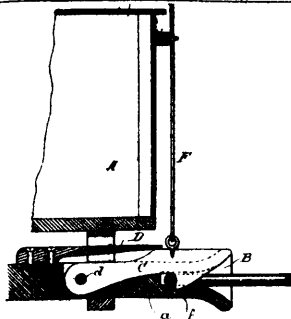
15481 Chadwick's Improvements on Nursing Corsets.



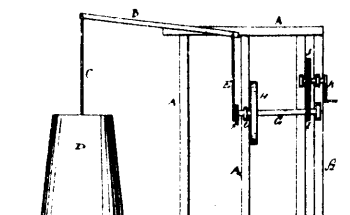
15482 Pester's Improvements on Stoves and Fire-Places.



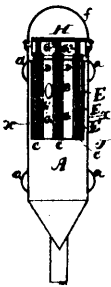
15483 Parent's Improvements on Car Couplings.



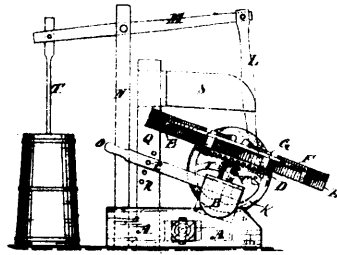
15484 Mignault's Improvements on Car Couplings.



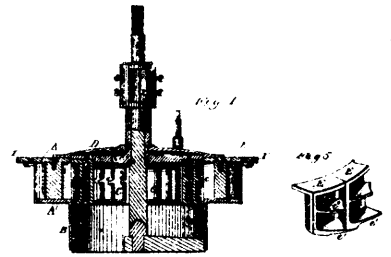
15485 Morrow's Improvements on Churn Powers.



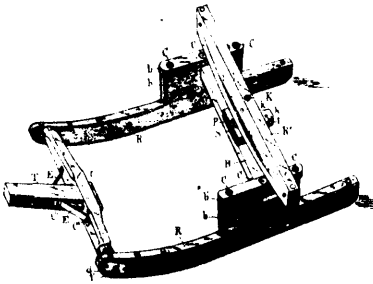
15486 Gallagher's Improvements on Tamping and Firing Devices for Torpedoes.



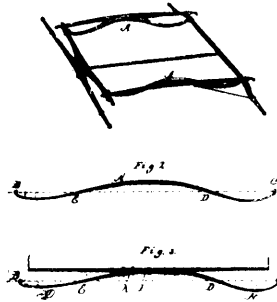
15487 Tackaberry's Improvements on Animal Powers.



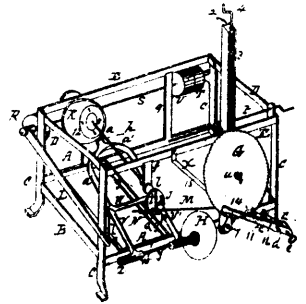
15488 Rodgers's Improvements in Turbine Wheels.



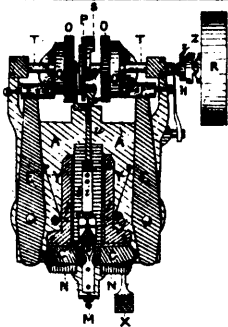
15499 Stanley & Desjardins's Improvements on Saw Log Sleighs.



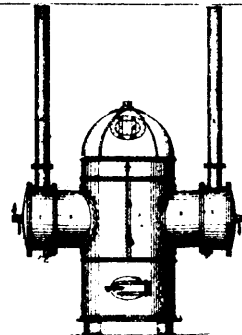
15490 Pennoyer's Improvements on Buggy Springs.



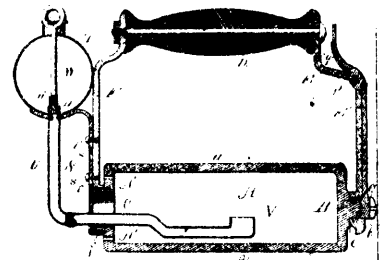
15491 Halladay's Improvements on Automatic Saw Sharpeners.



15492 Côté's Improvements in Machines for Making Counters for Boots and Shoes.



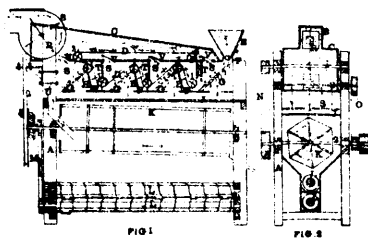
15493 Hill's Improvements on Steam Boilers.



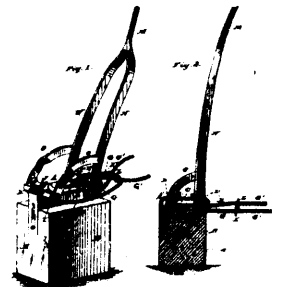
15494 Zimmerling's Improvements on Combined Smoothing, Fluting and Polishing Machines.



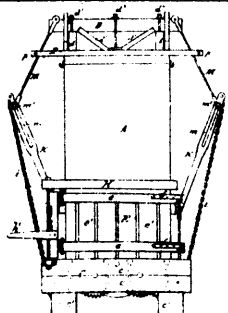
15495 Bray's Improvements on Corset Stays.



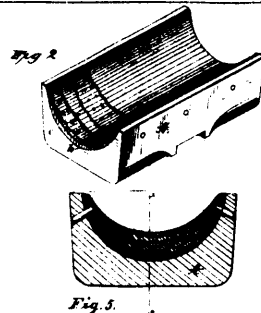
15496 Livergood's Improvements on Middlings Purifiers.



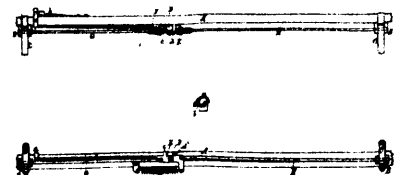
15497 Womack's Improvements on Tire Upsetting Machines.



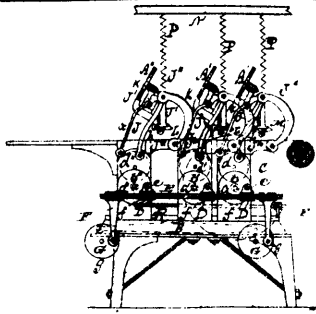
15498 Herring's Improvements on Baling Presses.



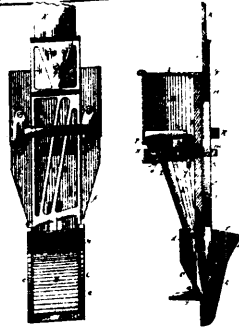
15499 Shimer's Improvements in Journal Bearings.



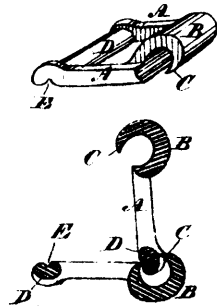
15500 Walker's Improvements in Horse Detachers.



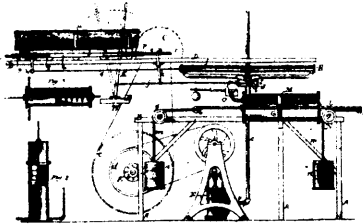
15501 Robbins' Improvements on Chromatic Printing Presses.



15502 Hoag's Improvements on Hand Corn Planters.



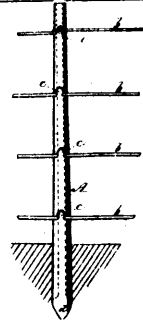
15504 Elward's Improvements on Drive Chains.



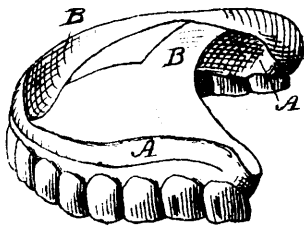
15505 Elward's Improvements on Feed Mechanism for Saw Mills.



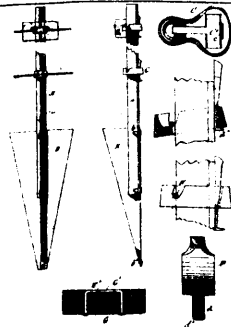
15506 Crandall's Improvements on Barbed Wire Fences.



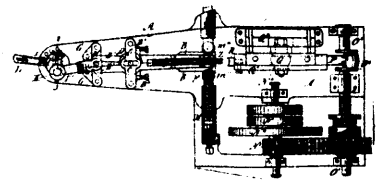
15507 Dow's Improvement on Fence Posts and Fences.



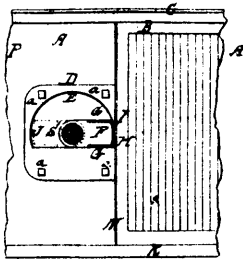
15508 Robinson's Improvements on Dental Plates.



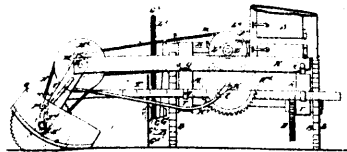
15511 Powell's Improvements in Fence Posts.



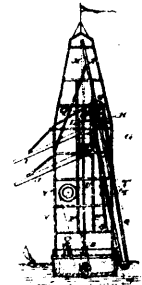
15512 Salomon's Improvements in the Manufacture of Hinges, and Apparatus Therefor.



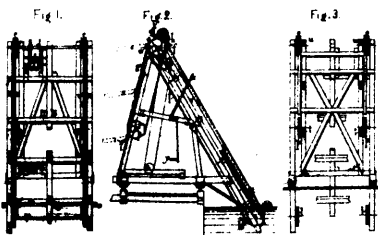
15513 Fisher's Improvements on Car Door Lock;



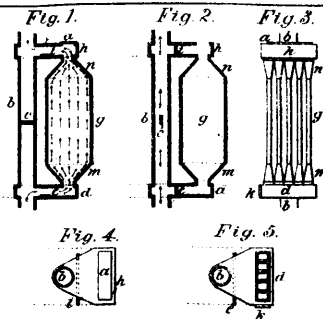
15514 Sager's Improvements on Ice Cutting Machines.



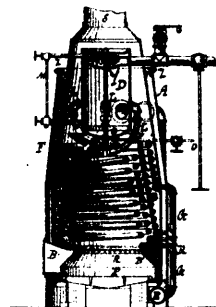
15519 Nolan's Improvements on Floating Elevators.



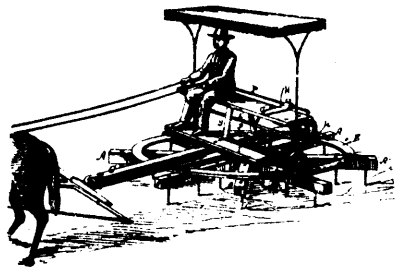
15520 Sorensen's Transportable Engine for Drawing up Timber.



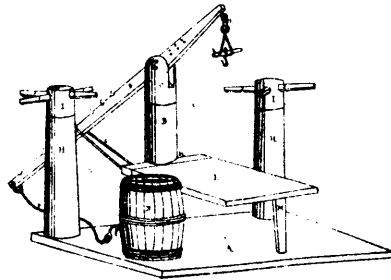
15522 Nichol's Improvements on Radiating Flues.



15523 Monsanto's Improvements on Steam Generators and Furnaces.



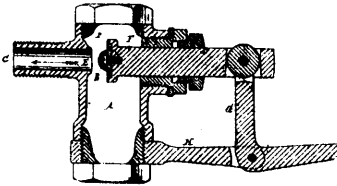
15525 Monroe's Improvements in Rotary Harrows.



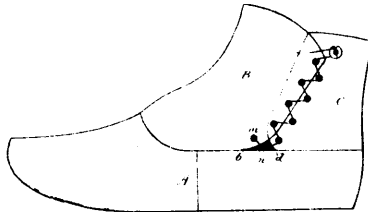
15526 Dickinson's Improvements in Butchering Apparatus.



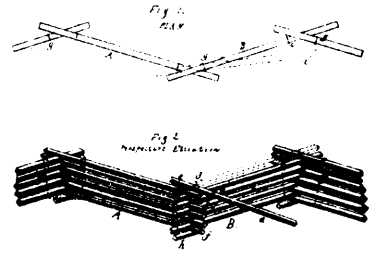
15527 Stiles's Improvements on Fence Posts.



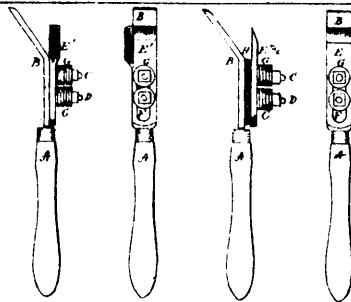
15528 Alexander's Improvements in Ball Valves.



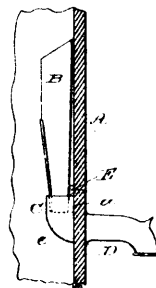
15529 Joyce's Improvements on Shoes.



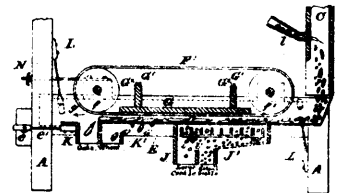
15530 Horn's Improvements on Worm Rail Fences.



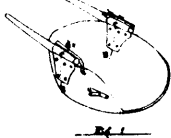
15531 Washburn's Improvements on Wood Turning and Gauge Tools.



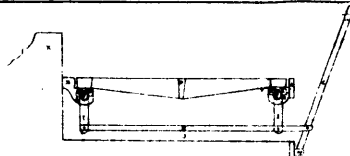
15532 Dickinson's Improvements on Water Elevators.



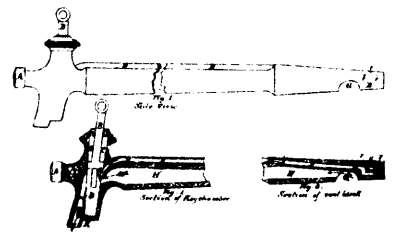
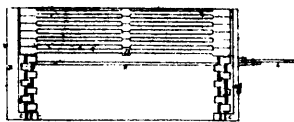
15533 McNeal & Spaulding's Improvements on Grain Separators.



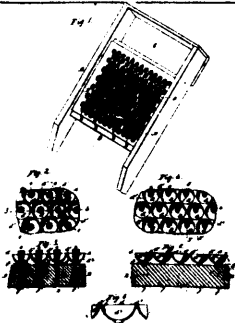
15534 Wilkinson's Improvements on Steel Scrapers for Grading Farm or Road Works.



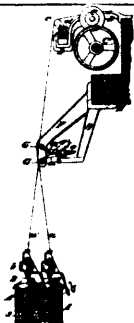
15535 Sturdy's Improvements on Furnace Grates.



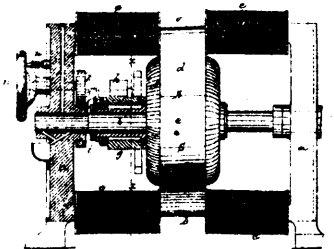
15536 Winckler's Improvements on Faucets



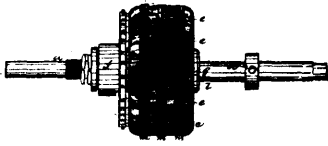
15537 Geisel's Improvements on Wash Boards.



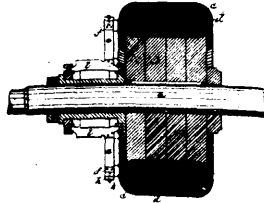
15538 Atwood's Improvements on Tension Eveners for Silk Doubling Machines.



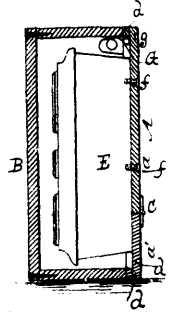
15539 Wood's Improvements on Electric Generators.



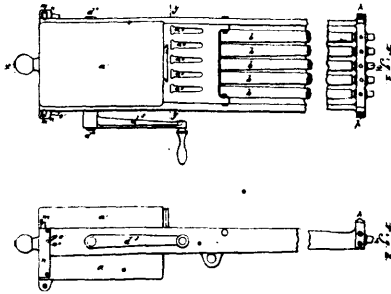
15540 Wood's Improvements on Electric Armatures.



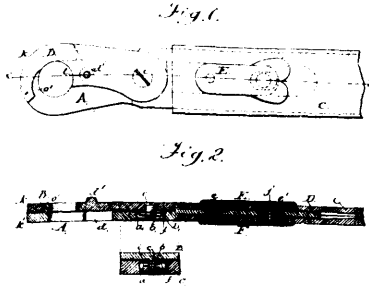
15541 Wood's Improvements on Commutator Couplings for Electrical Purposes.



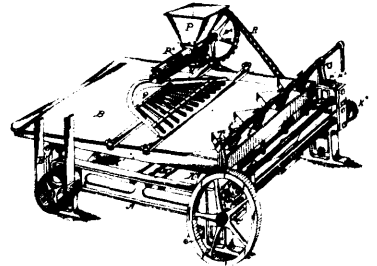
15542 Dow's Improvements on Shipping Boxes for Burial Cases.



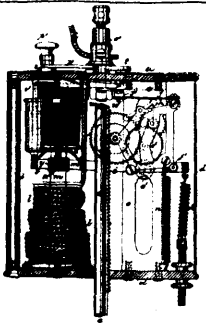
15543 Gardner's Improvements on Machine Guns



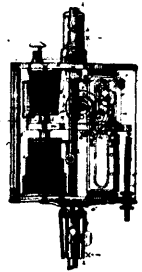
15546 Rairigh's Improvements on Trace Hooks.



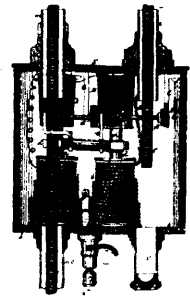
15551 Imlay's Improvements on Ore Concentrators and Amalgamators.



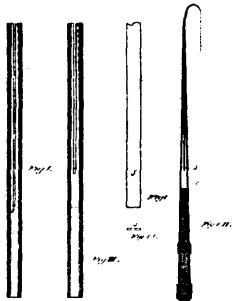
15552 Wood's Improvements on Electric Lamps.



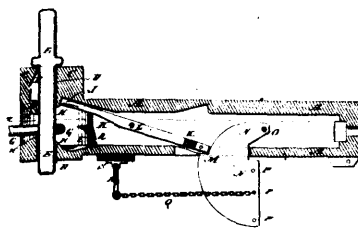
15553 Wood's Improvements on Electric Lamps.



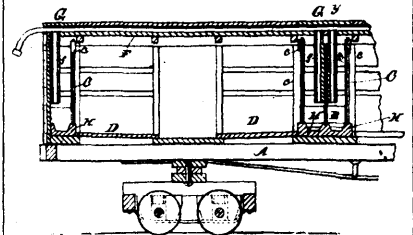
15554 Wood's Improvements on Electric Lamps.



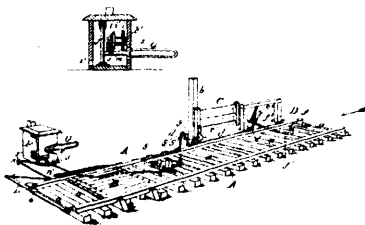
15555 Barstow's Improvements on Whip Cores.



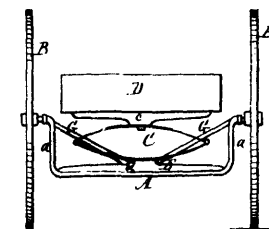
15556 Hartwell's Improvements on Car Couplings.



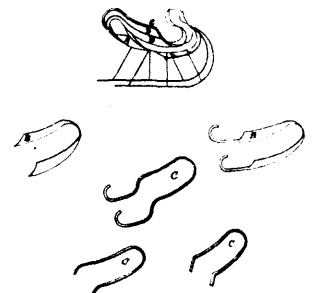
15557 Burton's Improvements in Stock Cars.



15558 Hempstead's Improvements on Railway Signals and Gates.



15559 Baird's Improvements on Carriages.



15560 Wilson's Improvements on Swell Body Gutters.