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INVENTIONS PATENTED.

No. 12,802. Improvements in the Manufacture of Matches. (*Perfectionnements dans la fabrication des allumettes.*)

Louis Wagner, Mulheim-on the-Rhine, Germany, 14th May, 1881, for 5 years.

Claim.—1st. A match composition, or composition for tipping match splints, consisting of colla-gelatine, leiocome, kali-chloricum, plumbum hyposulphurosum, stibium crudum pulvis, plumbum hyperoxydatum, carbo-ligni pulveratus, vitrum pulvis, saltpetre, sulphur and water. 2nd. The process of obtaining plumbum hyposulphuresum, consisting in mixing together solutions of plumbum nitricum and natrum hyposulphuresum, and washing and drying the precipitate resulting from the mixture of said solutions. 3rd. A match tipped with a composition containing, as one of the principal ingredients, plumbum hyposulphurosum free from plumbum aceticum.

No. 12,803. Improvements on Belt Fasteners.

(*Perfectionn ements aux joints des courroies.*)

Peter Thacher, Cleveland, Ohio, U.S., 14th May, 1881; for 5 years.

Claim.—A plate with a series of teeth, each of which is elliptical in cross section at its base and gradually to its point, the latter being made with flat sides, and teeth being arranged on the plate so that the widest portion of the teeth shall be at right angles to the length of the belt.

No. 12,804. Improvements on Devices for Feeding Steam Boilers. (*Perfectionnements aux appareils à alimenter les chaudières à vapeur.*)

Hans Amundsen and Ole Amundsen, Little Falls, Wis., U. S., 14th May, 1881; for 5 years.

Claim.—1st. In a low water indicator for boilers, a wheel H having hollow arms through which the steam escapes and which, in revolving, operates the wheels L N and lever P. 2nd. The combination of the lever G and float B with the rod R provided with the valve W and rack *u*, whereby it is made to control both the indicator and supply of feed water. 3rd. A float for steam boilers provided with a tube which is open at its upper and lower ends, and has its lower end extending down to or near the bottom of the float, in combination with the removable strainer, which is applied to the upper end of the pipe and provided with the springs *a* for holding it in position.

No. 12,805. Improvements in the Manufacture of Glucose. (*Perfectionnements dans la fabrication de la glucose.*)

Clinton Furbish, Brooklyn, N.Y., U.S., 14th May, 1881; for 5 years.

Claim.—The process of producing glucose, or a saccharine solution from corn, practically free from oily and unconverted starchy matters, consisting of the following operations, viz.: First, separating the hulls and heart from the harder and stareby matters of the corn, second, subjecting the starchy matters so separated with water to the effect of steam under pressure, third, transforming the mass so produced into glucose or a saccharine solution.

No. 12,806. Improvements in Capstans.

(*Perfectionnements aux cabestans.*)

Elouild Duplessis, St. John, Que., 14th May, 1881; for 5 years.

Claim.—1st. The combination, with the operating sweep, of mechanism whereby it may be made, without reversing its action, to draw alternately on one of the ropes connected thereto, independently of the other. 2nd. The combination, with the actuating bar or sweep, of devices whereby such is caused at will to engage with and rotate either the drum proper, or an outer ring carried on spindle of same. 3rd. The combination, with the sweep, of the sliding bar turning spindles I I1, and causing pawls K K1 to engage alternately with projections *d* and projections *f*.

No. 12,807. Improvements on Faucets. (*Perfectionnements aux robinets.*)

Theodore F. Conklin and Augustus E. Ruggles, Fond-du-Lac, Wis., 14th May 1881; for 5 years.

Claim.—1st. In combination with a faucet body, a section of cork or other elastic impervious material, compressed therein, and a gate or spigot adapted to open or close the bore of the faucet by its adjustment within a slit formed in the section of cork. 2nd. In combination with a faucet body of wood or metal provided with the tube *y z*, the slit and bored section of cork B, or other elastic impervious material, adapted to be compressed into the aperture B1 of said faucet body, and the gate or spigot A having bore *a* and flange *f*.

No. 12,808. Improvements on Nut Locks.

(*Perfectionnements aux arrête-écrous.*)

Peter McGregor and Alexander McLean, Ottawa, Ont., 14th May, 1881; for 5 years.

Claim.—In combination with the rails A A, bolts C, nuts D, fish plate B and the plate B1 having projections or cavities F locking the nuts by its endwise movement, the washer E having a free end to spring into abutting engagement with the end of cavity F, when the plate is driven forward to prevent a backward movement of the plate.

No. 12,809. Improvements on Apparatus for Heating Buildings by means of Hot Water. (*Perfectionnements aux calorifères à eau chaude.*)

Charles C. Longard, Halifax, N.S., 14th May, 1881; for 5 years.

Claim.—1st. The inner cylindrical ring B combined with the outer cylindrical ring A and forming a second or double boiler. 2nd. The combination of the inner cylindrical ring B, and the posts or waterways D D cast therein. 3rd. The combination of the two hollow concentric cast iron cylindrical rings A B and the radiating pipes or waterways C C and the ports D D, the position and purposes of the said rings, radial pipes and ports. 4th. The binding together of the sections of the boiler by connecting rods passing through and enclosed in lugs E E cast in the outer side of the exterior ring A.

No. 12,810. Improvements on Fruit Driers.

(*Perfectionnements aux séchoirs à fruits.*)

George C. DeLametter, North Wolcott, N. Y., U. S., 14th May, 1881; for 5 years.

Claim.—1st. The inclined flues or trunks *a b c* placed one above the other and connected at opposite ends, to form a continuous passage provided with removable trays *e* and outlet pipes *g* and fitted with heater B. 2nd. The lower box A containing heater B, combined with the series of inclined flues placed one above the other and connected together and with box A.

No. 12,811. Improvements on Wooden Pumps. (*Perfectionnements aux pompes en bois.*)

Charles Powell, Toronto, Ont., 14th May, 1881; for 5 years.

Claim.—1st. In a pump in which the plunger or piston is operated by a rod passing up through and moving within the pump barrel, the combination of a vessel or chamber placed within the pump barrel, and open at its bottom end, forming an air vessel for equalizing the flow of water forced up the barrel of the pump by the action of the plunger. 2nd. In a pump in which the plunger or piston is operated by a rod situated within the barrel, the combination of an air vessel or chamber placed within the pump barrel, and provided with a drop pipe or inner casing, extending from the top of the chamber to its bottom, forming a passage way for the pump rod through the air vessel. 3rd. A pump having a handle operating the plunger rod, a spindle forming the pivotal point for the said lever, and supported by a rod

pivoted on the body of the pump in combination with an oblique brace, extending from or near the spindle, upon which the handle is pivoted, to a point outside the body of the pump, at which point the said brace is also pivoted. 4th. In a pump having a spout with ears or projecting pins on either side of its mouth, the combination of a bale pivoted to a hose coupling and having curved ends which, when fitted over the ears on the spout, and the bale rolled upon its pivot, draw the coupling against the mouth of the pump to form a water tight connection between them. 5th. In a pump provided with a spout for the discharge of the water, the combination of spurs or pins situated in either side of the mouth, for the purpose of connecting the hose coupling.

No. 12,812. Improvements in Nut Locks.

(*Perfectionnements aux arrête-écrous.*)

William A. Ducker, Burgoyne, Ont., 14th May, 1881; for 5 years.

Claim.—1st. The mortise C with bevelled shoulder N to be used in combination with the key D and washer E. 2nd. The key D to be used in combination with the mortise C and washer E. 3rd. The washer E having holes K punched through it, and its edges turned down to prevent its turning with the nut, to be used in combination with the key D and mortise C.

No. 12,813. Process and Compound Preparation of Groats.

(*Procédé et préparation composée à gruaux.*)

Matthew Tindale, Saint Sophia, Que., 17th May, 1881, (Extension of Patent No. 6,140.)

No. 12,814. Improvements on Joints for Sectional Boilers.

(*Perfectionnements aux joints des chaudierès en sections.*)

John G. Smith, Montreal, Que., 17th May, 1881; for 5 years.

Claim.—1st. The combination of the sections A of a sectional boiler provided with grooves B and rib C and with a paste or granulated packing D. 2nd. The combination of the sections A of a sectional boiler provided with grooves B, and with a paste or granulated packing D.

No. 12,815. Improvements in Fire Boxes for Cooking Ranges, Stoves, &c.

(*Perfectionnements aux boîtes à feu des lantiers, poêles de cuisine, &c.*

George R. Prowse, Montreal, Que., 17th May, 1881; for 5 years.

Claim.—1st. The combination of the grate D constructed to be moved backward and forward with the end inclines C. 2nd. The combination of the grate D provided with axis E E and hinged handle I, with the bolt K and inclined ends C.

No. 12,816. Improvements on Felt Boots.

(*Perfectionnements aux bottes de feutre,*)

Abel S. Kennedy, Cobourg, Ont., 17th May, 1881; for 5 years.

Claim.—1st. The covering of the felt sock or boot, with a crimped leather front C and a leather back D. 2nd. The covering of the felt sock or boot with a leather vamp G having a tongue K which is stitched to the leather L which connected with the leather back D covers the felt leg in full or in part. 3rd The covering of the felt sock or boot with leather fixings A A attached by a seam or stitched to the leather H H and elastic web N.

No. 12,817. Flour and Grocery Bag.

(*Sac pour la farine et les épiceries.*)

Alfred Adams, Chagrin Falls, (Assignee of Thomas Phillips, Akeron), and Ulysses L. Marvin, (Administrator of the estate of the said Thomas Phillips,) Akeron, Ohio, U. S., 17th May, 1881; (Extension of Patent No. 6,240.)

No. 12,818. Flour and Grocery Bag.

(*Sac pour la farine et les épiceries.*)

Alfred Adams, Chagrin Falls (Assignee of Thomas Phillips, Akeron), and Ulysses L. Marvin, (Administrator of the estate of the said Thomas Phillips,) Akeron, Ohio, U.S., 18th May, 1881; (Extension of Patent No. 6,240.)

No. 12,819. Improvements on Stump Extractors.

(*Perfectionnements aux arrache-souches.*)

William Armstrong, De Pere, Wis., U. S., 18th May, 1881; (Extension of Patent No. 11,295)

No. 12,820. Improvements on Stump Extractors.

(*Perfectionnements aux arrache-souches.*)

William Armstrong, De Pere, Wis., U. S., 19th May, 1881; (Extension of Patent No. 11,295.)

No. 12,821. Improvements in the Treatment of Hair.

(*Perfectionnements dans le traitement du poil.*)

Gideon Hamilton, Brooklyn, N.Y., U S., 10th May, 1881; for 5 years.

Claim.—1st. The process of treating animal hair with a solution of caustic soda or of caustic potash, or of caustic lime, and washing out such solution. 2nd. The process of treating animal hair with a solution of caustic soda, or of caustic potash or of caustic lime, washing out such solution in water, and then subjecting the washed fibre to an acidulated bath. 3rd. The process of treating animal hair, by boiling it in an acid solution, and then immersing it in an alkaline solution. 4th. A new product in animal hair possessing the properties requisite for felting, carding, spinning or weaving, and for forming into bats or wadding, and for matresses and upholstery, these properties being imparted to the said raw material by treating it as described.

No. 12,822. Improvements on Bronze Monuments.

(*Perfectionnements aux monuments en bronze.*)

Osborne J. Willard, Mayville, N.Y., U.S., 19th May, 1881; for 5 years.

Claim.—1st. The method of securing adjoining metal plates together, consisting in providing such plates, near their meeting edges, with alternate hooks *d d* and rectangular projections *e e*, or projections of either of the shapes *h i k l m n o* over and around which the molten metal *f* is poured. 2nd. In combination with a shaft or double front monument, the movable tablet *p* secured to the monument plate *g* by means of screw bolts *q q* having the heads q_1 q_1 cast on their outer ends, and having their inner ends screwed into metal nuts *r r*, which are cast into the metal plates *g g* on their insides. 3rd. In a shaft or double front metal monument the inwardly projecting base flanges *s s*.

No. 12,823. Improvements on Washing Machines.

(*Perfectionnements aux machines à laver.*)

Anthony W. Burke, Stayner, Ont., 19th May, 1881, for 5 years.

Claim.—1st. A washing machine in which a convex rubber is pivoted within an open chamber, having a concave corrugated bottom, the combination of a flattened surface centrally located on the bottom of the box, and projecting above or below the corrugations for the purpose of causing the clothes to turn over when acted upon by the action of the rubber. 2nd. An open chamber having a concaved corrugated bottom, the combination of a rubber having transverse bars longitudinally grooved and bevelled on their edges to form projecting angles. 3rd. A convex rubber pivoted within an open chamber, having a concaved corrugated bottom, the combination of dash boards located at either end of the chamber, and separated from the corrugations by an inclined board. 4th. An open chamber having a concaved corrugated bottom, a convex rubber composed of transverse bars connected together at their ends by a plate provided with a pivot, in combination with vertical metallic guides, provided with grooved wooden caps, for the purpose of permitting the free vertical movement of the rubber, without allowing it to jump out of place.

No. 12,824. Improvement on Hand Ratchet Drills.

(*Perfectionnement des drilles à levier.*)

Isaac N. Cherry and Robert N. Cherry, Jersey, N.J., U.S., 19th May, 1881; for 5 years.

Claim.—1st. The combination, with a hand ratchet drill stock, of the feed works, consisting of the eccentric sleeve, the sleeve h^2 carrying the disk E with the pawls *o* o_1, the ratchet wheel D and the screw C. 2nd. The combination, with a ratchet drill stock, of the eccentric sleeve *h*, the concentric sleeve h^2 to which are pivoted the pawls *o* o_1, one or both, the ratchet wheel D with which said pawls engage, and the screw C. 3rd. The combination, with a ratchet drill stock, of the eccentric sleeves *h* h_1, the concentric sleeve h^2 to which are pivoted pawls *o* o_1, one or both, the ratchet wheel D with which said pawls engage, and the screw C. 4th. The combination, with a hand ratchet drill stock, of the screw C, the ratchet wheel D, the eccentric sleeve, sleeve h^2, the disk E, carrying pawls *o* o_1, springs *p* p_1 and the cap F having the recesses *q* q_1 constructed and arranged so that the shifting of the said cap on its seat will put on or take off the feed. 5th. The combination, with a hand ratchet drill stock, of the handle B, a suitable ratchet wheel or wheels, the swinging pawls *e* e_1, the spring *f* f_1 made of a single piece of metal, and the abutments *g* g_1 between the plates *c d*.

No. 12,825. Improvements in Show Boxes.

(*Perfectionnements aux montres.*)

Morris H. Pulaski, Philadelphia, Pa., U.S., 19th May, 1881; for 5 years.

Claim.—A box for packing laces, having a lid, a portion of which is adapted to exhibit an uncut sample of the contents upon the outside of the box and provided with a supplemental lid.

No. 12,826. Improvements in Dynamo Magneto-Electric Machines.

(*Perfectionnements aux machines magneto-électriques.*)

Paget Higgs, New York, U. S., 19th May, 1881; for 15 years.

Claim.—1st. A ring armature composed of movable sections. 2nd. The removable sections or spools E with their projecting ends *e* mounted on the shaft C. 3rd. A rotating armature, having its coils of two or more wires of different qualities. 4th. A ring-shaped armature having its coils in removable sections of two or more wires of the same quality, but connected to separate commutators, or collectors, so arranged as to constitute two or more distinct circuits. 5th. The ring-shaped armature, composed of removable sections insulated electrically from each other for the purpose of preventing secondary currents in the armatures. 6th. The arrangement of multiple exciting magnets, that is to say, magnets having two or more cores and helices, provided with a common pole piece, when arranged to be worked wholly or partially by a shunt circuit. 7th. The arrangement of the pole pieces at right angles to the cores or connecting pieces, whereby each pole is brought to bear on two armatures. 8th. Machines having ring armatures, the construction of the inducing semi-tubular pole pieces, so as to surround or nearly surround, the entire circumference of the ring in the deduction normal to the plane in which it rotates. 9th. A commutator provided with the adjustable connecting pieces 11 and set screws L. 10th. The arrangement of the two circuits or section of wire upon an armature connected with the two separate commutators, or collectors, one arranged to deliver a constant current, and the other an alternating current. 11th. A magneto-electric machine, in which the coils of the series of magnets are arranged and constructed, so as to be connected up in different ways for intensity or quantity. 12th. The arrangement of parallel multiple exciting magnets, wound with relatively fine or long wire. 13th. The coils of the exciting magnets, when made of finer wires than those of the armature. 14th. The arrangement of the circuits of a magneto-electric machine for converting mechanical power into an electric current, whereby a contrary electric force of the outer circuit, is caused to aid in magnetizing the exciting magnets by the shunt circuit. 15th. The division of the exciting

coils of a magneto-electric machine, by placing the coils of part of the magnets in a shunt circuit, and the remainder in the main circuit, either in receiving or transmitting machines. 16th. The means of adjusting the relative electro-magnetic force of the shunt and main circuit, that is to say, 1st. by arranging the exciting coils in either the shunt or main circuit, so as to be connected up for either quantity or intensity; 2nd. by varying the relative number of the coils in the shunt and main circuits; 3rd. by removable sections of the armatures, and 4th. by the use of different commutators for different sections of the armature coils, that is to say; by any or all of these means. 17th. The main circuit of the armature coils, combined with a shunt circuit passing through any or all of the magnet coils when the relative resistance of the shunt and main circuit can be adjusted. 18th. The movable brush or other means of breaking the circuit of the armatures when combined with the shunt circuit in the magnet coils for the purpose of an electrical break. 19th. The conducting wire composed of an alloy of steel and aluminum, with and without additional silver. 20th. The heat radiators introduced in the circuit in places of great resistance. 21st. The earth plates 32 or coils 33 provided with discharging points.

No. 12,827. Perpetual Tension Propelling Belt. (*Courroie de mise en mouvement à tension perpétuelle.*)

Alonzo S. Gear, New York, U. S., 19th May, 1881; for 5 years.

Claim.—1st. The described belt or cord, made from suitably coiled wire. 2nd. As a new article of manufacture, the belt or cord consisting of coiled wire provided with suitable end connections.

No. 12,828. Improvements on Fire Extinguishers. (*Perfectionnements aux extincteurs d'incendies.*)

John B. Logan and Abner Greenleaf, Baltimore, Md., U. S., 19th May 1881; for 5 years.

Claim.—1st. The combination of the platform *e* supported upon journals *d* and carrying a fire extinguishing apparatus with the spindles *f*, clamps or jaws *g* and adjusting screw *i*. 2nd. A pipe N supported in a sleeve *l* and capable of revolution therein, in combination with the non-rotating connection in conducting the water to said pipe from the engine or hydrants. 3rd. A pipe N supported in a sleeve C and capable of rotation therein, in combination with the gear *o* and worm *p*. 4th. The pipe N in combination with the brace *t* and one or more arms *r r*¹ forming the truss T. 5th. A pipe N receiving water under pressure at its base and delivering it at an elevation, said pipe being movable upon a vertical axis the combination with said pipe of a truss T attached thereto, upon the side toward which the water is delivered and rotating therewith. 6th. The combination of the flexible section X with the curved and concave formers 5 or 6. 7th. A rigid pipe having a flexible section X, the combination, with said section, of supporting devices adapted to pursue a true curve in said section, when the same is drawn down. 8th. In combination with the tube N having a flexible or adjustable section X, nozzle *y* and valve or stop cock 10, the cord z with its stop or check 16, and appropriate guides or pulleys.

No. 12,829. Improvements on Steam Hammers. (*Perfectionnements aux marteaux à vapeur.*)

James Watt, Watertown, Mass., U. S., 19th May, 1881; for 5 years.

Claim.—1st. In a steam hammer, a valve stem, adapted to be struck and moved by a tappet arm, and mechanism between it and the piston to give the said tappet arm a reciprocatory motion, the said tappet arm being provided with varying surfaces to engage the valve stem at an earlier or later period of the stroke of the piston and a shifting handle under control of the operator, to enable the faces to engage the valve stem at an earlier or later period of the stroke of the piston, and a shifting handle under control of the operator, to enable the tappet arm to be moved to bring the proper portion of its surface in position to engage the valve stem to give the desired length of stroke. 2nd. In a steam hammer, the valve and valve seat provided with exhaust and induction ports, when the bridge between the exhaust port and induction port, leading to the lower part of the cylinder is made wider than the bridge between the exhaust port and induction port leading to the upper part of the cylinder, to cause the said induction port leading to the lower part of the cylinder to be opened when the hammer in its down stroke meets a piece of material of maximum thickness, and to prevent the exhaust port from being uncovered when the hammer is working on material of minimum thickness to, thereby, enable the hammer to be used on material of different thicknesses without adjustment. 3rd. In a steam tilt hammer, the hammer arm socket provided with a curved guiding shoulder for the piston rod head, and a pin secured to the hammer arm socket combined with the piston rod head, provided with a plane surface to rest against, and be guided by the said gulding shoulder and adapted to engage to said pin and move it and the hammer arm, and at the same time, allow free transverse movement of the pin in the said piston rod head. 4th. The hammer arm and its connected curved guiding surface combined with the piston rod head, and the pin O, having free transverse movement therein, and connected with the hammer arm at a distance of about one-half the average amplitude of vibration of the said pin below the axis of the hammer arm to, thereby, reduce the transverse movement of the pin in the piston rod head to a minimum. 5th. The valve and valve stem, slotted longitudinally and a tappet arm and its shifting lever, the end of the tappet arm entering the slot in the valve stem and being of different widths at different distances from its extremity, combined with a pin carried by the hammer arm to enter a slot in the said tappet arm, and impart to it a reciprocatory motion.

No. 12,830. Improvements in Automatic Telegraphy. (*Perfectionnements dans la télégraphie automatique.*)

William A. Leggo, New York, U. S., 19th May, 1881; for 5 years.

Claim.—1st. The method of automatic transmission, which consists in causing the ordinary manipulations of a key to be recorded in insulating and conducting spaces, upon a suitable surface, and then using the record so made to automatically control the transmitting circuit. 2nd. The combination, with one transmitting surface, of two sets of gearing, one adapted to give the surface a much greater speed of movement than the other, and means for changing from one to the other. 3rd. In combination, in an apparatus for preparing messages for telegraphic transmission, a conducting surface, a pen adapted to normally ink the surface thereof, and devices arranged to lift the pen from the surface when it is desired to indicate thereon signals for transmission.

No. 12,831. Improvements in Anti-Friction Axle Boxes. (*Perfectionnements aux boites des roues à anti-friction.*)

William Miller, Fort Wayne, Ind., U. S., 19th May, 1881; for 5 years.

Claim.—1st. The axle thimble A having grooves *a* provided with ridges a_1 a_1 and flanged shoulder C, and half-collar *c*, provided with bearings for the journals of the anti friction rollers B. 2nd. The combination, with the thimble A having oil cup G and groove *g*, shoulders C E, collar *c*, ribs *b* and grooves *a* of the anti-friction rollers B, and the sleeve D having shoulders *d d*. 3rd. The combination, with the grooved thimble A and anti friction rollers B, of the recessed and shouldered sleeve D secured by the notched pin F.

No. 12,832. Improvements on Telegraphy. (*Perfectionnements dans la télégraphie.*)

Orazio Lugo, New York, U.S.A., 19th May, 1881; for 15 years.

Claim.—A compound electric conductor consisting of two or more parallel insulated conductors constituting a helix and united in pairs at their extremities, to complete one or more metallic circuits, with parallel insulated conductors disposed symmetrically about the longitudinal axis of the helix, also united in pairs at their extremities to complete an additional independent metallic circuit.

No. 12,833. Improvements in Bailing Presses. (*Perfectionnements aux presses d'empaquetage.*)

Elouild Duplessis, St. John, Que., 18th May, 1881; for 5 years.

Claim.—1st. A horizontal press completely open on the top and with movable cover. 2nd. In combination with the press framed as described, the cover P made in two parts. 3rd. In a horizontal hay press, the combination, with the follower, of the toggle composed of the lever E and arms and leaders H carried on spindle I, the whole being operated positively in either direction by ropes N O. 4th. The pivot spindle or fulcrum I, carried in bearing K, holding the ends of side braces L. 5th. The combination, with the horizontal press, of a smaller press box, slipped therein and operated by the same mechanism. 6th. The press-box S, with movable cover held in place by vertical stays butting against clamp O. 7th. The braces G G serving to hold the follower block C in a square and upright position, when moving either forward or backward. 8th. The combination, with the lever E and the truss E¹, of the shoe F carrying sheave *f* and having attached to it end of operating rope.

No. 12,834. Improvements on Shingle Machines. (*Perfectionnements aux machines à bardeau.*)

François X. Bertrand, St. Hyacinthe, Que., 19th May, 1881; for 5 years.

Claim.—La roue D munie de la roue ou roulette E tournant sur son essieu F et fixé par vis ou ses equivalents à la dite roue D, et les equivalents de la dite roue D, ceux de la dite roue ou roulette E tournant sur un essieu F ou leurs equivalents. La combinaison de la dite roue D avec la roue ou roulette E sur son essieu, ou leurs equivalents. La combinaison de la dite roue D avec la roue ou roulette E sur son essieu F avec le dit excentrique ou came C, ou leurs equivalents, et la combinaison de la dite roue D avec la roue ou roulette E sur son essieu F avec le dit excentrique ou came C, et du dit excentrique avec le traineau *n n* B *n n* ou leurs equivalents.

No. 12,835. Improvements on Feed Water Heaters. (*Perfectionnements aux chauffeurs de l'eau d'alimentation.*)

George S. Strong, Philadelphia, Pa., U.S A., 13th May, 1881; for 5 years.

Claim.—1st. A feed water heater in which are combined the following elements, namely: first, a chamber containing steam heated tubes; second, a filtering medium suitably confined, and third, mechanism whereby the feed water is forced into the lower portion of the said heating chamber upward through the same and through the said filtering medium. 2nd. The combination, in a feed water heater, of a heating chamber containing steam heated tubes, a filtering partition, and a chamber above the same, with a pipe forming a communication between the top of this upper chamber and the lower portion of the lower chamber, and with mechanism whereby a continuous circulation of water from the upper chamber to the lower chamber is maintained through the said pipe. 3rd. The combination, in a heater, of the pipe H communicating with the top of the said heater, the injector chest I communicating with the said pipe, and with the heating chamber, and the nozzle K communicating with the feed pipe. 4th. The combination of a live steam heater with feed water apparatus heated by exhaust steam. 5th. The combination, in a feed water heating apparatus, of a filter with a live steam heater. 6th. The combination, in a feed water heater, of a system of pipes heated by exhaust steam, a filter and a live steam heater interposed between the said pipes and filter. 7th. The combination, in a feed water heater, of the outer shell or casing A, and the external and internal tubes, with a base cast in one piece and inclosing the inlet chamber E and outlet chamber F. 8th. The combination of a steam boiler, a feed water heater having a filter, a valved blow off pipe, and a pipe Y affording communication between the interior of the heater and the steam space of the boiler, whereby live steam may be caused to flow backwards through the filter for cleansing the latter.

No. 12,836. Improvements on Flexible Iron Harrows. (*Perfectionnements aux herses en fer flexible.*)

Edward Pinder, Orono, Ont., 19th May, 1881; for 5 years.

Claim.—1st. An iron harrow composed of frame sections A F hinged

together and separated laterally by bars C. 2nd. The bent frame sections A F, carrying one or more teeth and connected by bars C, loose at their joints. 3rd. The hinged bent sections A F having teeth B G integrally united to the sections.

No. 12,837. Improvements on the Preparation of Liniments. (*Perfectionnements dans la preparation des liniments.*)

Joslah C. Gilman, Messina, N.Y., U.S., 19th May, 1881; for 5 years.

Claim.—1st. Dissolving the yolk of hard boiled eggs to an oily consistency by heat. 2nd. A liniment prepared by dissolving the yolk of cooked eggs by heat.

No. 12,838. Improvements in Grates for Steam Boilers and other Furnaces. (*Perfectionnements dans les grilles de foyers des chaudierès à vapeur et autres.*)

Antoine Desgouttes, Paris, France, 19th May, 1881; for 15 years.

Résumé.—Un système de grille bombée à barreaux cintrés, ou droits, pour foyers de chaudierès à vapeur fixes locomotives, locomobiles, etc., et également applicable à tous genres de foyers industriels et autres, que tous moyens convenables pour obtenir la convexité de la partie supérieure de la grille dans le but indiqué, aussi l'adaption au dessous de la partie centrale de la grille d'un obturateur plein destiné à empêcher le passage de l'air dans cette partie de l'appareil sur laquelle s'effectue le chargement du combustible.

No. 12,839. Improvements on Coal Oil Stoves and Lamps. (*Perfectionnements aux poêles et aux lampes à pétrole.*)

James Iredale, Toronto, Ont., 19th May, 1881; for 5 years.

Claim.—The cold air passages which run through the tank and between the wicks, as causing an increased draught for the flame and completecombustion of the oil, and also as keeping the oil and wicks, frame work, &c., from becoming heated.

No. 12,840. Machine for Jointing Tight Barrels. (*Machine à monter les barils étanches.*)

Robert O. Dobbin, Berlin, Ont., 19th May, 1881; for 5 years.

Claim.—1st. The carriage consisting of the frame M E J, the movable shoe N, the eccentrics or cams G, the collars under bearing blocks *q* and screws *r*, and the tubes K, with spiral springs and screws L, whereby the staves are bent into shape, and held while being jointed. 2nd. The combination, with the shaft F, the carriage frame M E J, and the movable shoe N, of the eccentrics G connected with the said shaft by keys and grooves, whereby the said shoe is forced down to bind and hold the stave by the revolution of the said shaft. 3rd. The combination, with the carriage frame M E J, the shaft F and the eccentrics G, of the collars, the bearing blocks *q* and the screws *r*, whereby the reaction of the cams G, is transmitted to the carriage frame to relieve the shaft from pressure. 4th. The combination, with the carriage frame M E J and the movable shoe N, of the tubes K with springs and the screws L, whereby the movable shoe is raised when the cams G are withdrawn. 5th. The combination, with the shoe J attached to E, and the frame *a a*, of the projection *s* and the two parallel guides H H1 placed upon the opposite sides of, and equally distant from the saw, whereby the proper bevel will be given to the edges of the staves. 6th. The combination, with the parallel guides H H1, of the right and left nuts or right and left screws R, and the bevel gearing, whereby the guides can be adjusted and, at the sametime, kept equally distant from the saw. 7th. The combination, with the adjustable guides H H1, of gauge rings I and pins T, whereby the said pins can serve as stops in adjusting the said guides.

No. 12,841. Improvements on Machines for Excavating Snow or Earth. (*Perfectionnements aux machines a énlever la neige et la terre.*)

William H. Knight, Quebec, Que., 19th May, 1881; for 5 years.

Claim.—1st. The combination, with the carriage A, of the pivoted frame J, the chain wheels K M, the endless chain of buckets P having dropbacks Q, and the inclined plates T, whereby snow or earth can be broken up at the front and discharged at the sides of the carriage. 2nd. The buckets P constructed with hinged backs Q, whereby the contents of the buckets can be readily discharged. 3rd. The combination, with the buckets P and drop back Q, of the spring latches R and the trip plates V, whereby the drop back Q will be released automatically to discharge the contents of the buckets. 4th. The combination, with the elevator frame J, of the inclined plates T, the swivelled screw C and the nut bar *d*, whereby the inclined plates can be adjusted to any requisite height. 5th. The combination, with the inclined discharge plates T, of the adjustable plates Z, whereby the contents of the buckets can be discharged at either or both sides of the carriage. 6th. The combination, with the driver wheel shaft C, of the hinged frame *m* and the rotary brushes *q*, whereby the rails of the track upon which it runs may be kept clean in front of the drive wheels. 7th. The combination, with the carriage A, having flanges *r s* of the adjustable hinged plates W X having flanges W V, whereby the said hinged plates can be adjusted for use as a snow plough.

No. 12,842. Improvements on Pulleys. (*Perfectionnements aux poulies.*)

Jerome B. Stockham, Jackson, Mich., U. S., 19th May, 1881; for 5 years.

Claim.—1st. A pulley made in a single piece and having a hole through its centre much larger than the shaft to which the pulley is to be attached, in combination with a box or bearing made in halves, and which box or bearing is made adjustable. 2nd. The combination of a shaft having an opening B through its centre, with a box or bearing made in two parts, and slotted so that either one or both can be moved inward, toward or outward from the shaft, and the set screws for holding each part in position. 3rd. The combination of a pulley having an opening through its centre larger than the shaft, to which it is to be attached, an adjustable box or bearing made in two parts, and provided with set screws for holding the parts to the side of the pulleys and the set screws for moving the parts of the box or bearing inward.

No. 12,843. Improvements on Cot Bedsteads. (*Perfectionnements aux lits d'enfants.*)

David R. Nichols, Brockville, Ont., 19th May, 1881; for 5 years.

Claim.—1st. The bedstead frame A consisting of the side rails C C, hinged legs E, pins *e* and latches *h*, end rails D D, hinged at *d* and pivoted to the end of the side rails C C, whereby said end rails can be folded and turned within the side rails C C. 2nd. The pillow B consisting of flexible material *b*, arms *n n*, legs *p p* pivoted thereto, curved downward and outward and having catches *t t*.

No. 12,844. Improvements on Force Pumps. (*Perfectionnements aux pompes foulantes.*)

William S. Hickson and Moses A Payne, St. Thomas, Ont., 19th May, 1881; for 5 years.

Claim.—1st. The combination of the tube B, flop valve H, valve seats *a a1* and rod *r*. 2nd. The combination and arrangement of the cylinders A A1, tube B, check valves H1 H2, flop valve H, valve seats *a a1*, rod *r* piston heads C C1, rods E E1, lever D and upright F.

No. 12,845. Improvements on Machines for Separating Precious Metals from their Ores. (*Perfectionnements aux machines à separer les métaux précieux de leurs minerais.*)

Giles Hall and George W. Dauch, East St. Louis, Ill., U. S., 19th May, 1881; for 5 years.

Claim.—1st. The combination, in a machine for separating precious metals from ores by means of a forced blast, of a series of pans provided with pockets for containing chemicals and irritating plates, whereby the ores are intimately mixed with the chemicals by means of a forced blast or pressure of air. 2nd. In combination with the oscillating casing provided with a series of pockets and inclined plates the hopper and agitating shaft and arms, with mechanism for operating the same by the movement of the casing. 3rd. In combination with the feed hopper and casing, the throttle valve and its tension adjusting mechanism. 4th. In combination with the removable pan, the supporting cleats and the reeded pins and nuts for securing the pans alternately to opposite ends of the casing. 5th. In combination with the casing and the pans located therein, the doors arranged alternately at opposite ends of the casing, whereby provision is made for the insertion of the pans, and for closing the casing to make the same air tight. 6th. In combination with the casing, the pans provided with pockets and irritating plates, and the mechanism for oscillating the casing, the bumpers for relieving the casing of excessive shock. 7th. In combination with the casing and the pans, the drawer located below the eduction passage of the casing, and apertures in said casing, whereby chemicals accidentally dislodged from the pockets may be collected and saved. 8th. The combination of the hopper and its adjustable feed shaft and actuating mechanism, the casing provided with a series of pans provided with pockets and irritating plates, and the mechanism for oscillating the casing, the alternating doors and their air-tight covers, and the bumpers against which the casing abuts as it oscillates.

No. 12,846. Improvements on Window Cleaning Chairs. (*Perfectionnements aux chaises pour laver les fenêtres*)

Anna Dormitzer, wife of Henry Dormitzer, New York, U. S, 21st May, 1881; for 5 years.

Claim.—1st. A window cleaning chair with platform A, swinging step frame D, supporting fixed step E and adjustable auxiliary step F, screw actuated clamping device G and pivoted rear supports P. 2nd. The combination, with the platform A and step frame D, of the clamping device G consisting of clamping bar G1 swinging on rods *h*, thumb screw H, journalled in hanger *m1* and carrying traveling nut H1, provided with bars *n n* and connected with block G1, whereby said chair may be secured in position. 3rd. The clamping device G consisting of the bar G1 with attached serrated angle rods *h* having caps *h2*, springs *m*, and screw H provided with nut H1 having bars *n n*. 4th. The combination, with the platform A and clamping device G, of the slotted plates K, whereby the said device may be adjusted. 5th. The combination, with the platform A, of the pivoted toothed bars P and dogs S, whereby additional security and stability is given to the chair when in use. 6th. The combination, with the platform A and swinging steps D, of the studded springs T and socketed plates *t*, whereby the chair is held open or closed, as may be desired.

No. 12,847. Fire Escape. (*Sauveteur d'incendie.*)

William Irwin, Scugog, Ont., 21st May, 1881; for 5 years.

Claim.—1st. The turntable B in combination with the derrick C. 2nd. The ladder hinged on turntable B, in combination with winch H and hoisting chain G, for elevating or lowering the ladder I. 3rd. The combination of the elevator buckets or boxes X attached to endless chains K running over sprocket wheels, at head and foot of ladder I, worked by brake winch L.

No. 12,848. Improvements on Fifth Wheels for Vehicles. (*Perfectionnements aux ronds d'avant train des voitures.*)

Albert S. Weaver, Aylmer, Ont., 21st May, 1881; for 5 years.

Claim.—1st. The coring out of the lugs D in such a way as to receive the adjustable dips C from the inside, as to the flanges K raised on each side of the adjustable clips C, running down each side of the bed piece E, thereby making the whole combination more easily taken apart and adjusted, and more substantial than when inserted through the cored lugs and bed piece as formerly done.

No. 12,849. Fork and Band Cutter. (*Fourche coupe-lien.*)

Arthur J. Bowslaugh, Grimsby, Ont., 21st May, 1881; for 5 years.

Claim.—The combination of the knife C C and fork A A A.

No. 12,850. Improvements on Permutation Padlocks. (*Perfectionnements aux cadenas à combinaisons.*)

Chapin C. Cook and Jasper N. Green, Santa Cruz, Cal., U. S., 21st May, 1881; for 5 years.

Claim.—1st. In a padlock, the combination of the removable plate L provided with lip M, and hasp P provided with projections N O, with lock case A. 2nd. A permutation padlock consisting of the slotted disks D E F, dials B operated by the knob, and spindle C, lever G provided with dog I and projection G1, spring J for operating lever G, hasp P provided with projections N O, removable plate L having lip M, and case A.

No. 12,851. Improvements on Air Brakes. (*Perfectionnements aux freins à air.*)

Lawrence Glenn, Ottamwa, Iowa, U. S., 21st May, 1881; for 5 years.

Claim.—The lever *d* pivoted in the centre, in the hanger *b* and provided, near one end, with the slot *x*, and rod *l*, with forked end *m* pivoted near one end of said lever, the spring *h* surrounding the rod *l*, guide *o*, through which said rod passes, the air cylinder *f*, piston and piston rod *g*, and forked head *i* pivoted near the other end of the lever in the slot *x*.

No. 12,852. Improvements in Automatic Telegraphy. (*Perfectionnements dans la télégraphie automatique.*)

William A. Leggo, New York, U.S., 21st May, 1881; for 5 years.

Claim.—Telegraphy wherein the receiving message is recorded by electro-chemical decomposition, at the point of a stylus, the receiving medium for the electro-chemical record prepared with silver.

No. 12,853. Improvements in Harrows. (*Perfectionnements dans les herses.*)

Abraham C. Scarr, Maryborough, Ont., 21st May, 1881; for 5 years.

Claim.—1st. The horizontally oscillating motion of the harrows about a central point fixed in the carriage of the implement. 2nd. The arrangement of the bevel gear wheels C G, slip clutch D, foot lever E, cross shaft F, crank H and connecting rod I with the vibrating lever J and harrow K. 3rd. The harrow K, made in four parts or sections, these sections being united in pairs by the hinges *h*.

No. 12,854. Improvements on Compositions for Roofs of Buildings, Ships' Bottoms, &c. (*Perfectionnements aux composés à toitures, fonds de navires, &c.*)

Dorwin D. Pennoyer and Caleb F, Whitcher, Dover, N. H., U.S., 21st May 1881; for 5 years.

Claim.—The composition for roofs, etc., consisting of coal tar, india rubber dissolved in naphtha, asphaltum or black varnish, bright varnish and muriatic acid mixed together and used with or without sand or gravel.

No. 12,855. Improvements in Waggon Tongue (Pole) Supports. (*Perfectionnements aux tuteurs des timons des voitures.*)

William S. Haggard, La Fayette, Ind., U. S., 21st May, 1881; for 5 years.

Claim.—The combination, with the front portion of a waggon running gear, of the two part tongue support H H1, said part H being provided with staples, whereby it is connected with the part H1, and said part H1 being provided with notches as shown, whereby the support is rendered detachable and adjustable.

No. 12,856. Improvements in the Manufacture of Boots and Shoes. (*Perfectionnements dans la fabrication des chaussures.*)

Guillaume Boivin, Montreal, Que., 31st May, 1881; for 5 years.

Claim.—1st. Forming the uppers of shoes or boots, by cramping upon shoe lasts, a flat piece of leather without previously cutting in it any opening, so that no seam on the top, sides or back of the shoe is required. 2nd. Cutting in the upper the span *a* necessary for the opening of the shoe, so as to obtain the strengthening around the opening a_1 by turning it down, inside or outside.

No. 12,857. Improvements in Machines for Sharpening Mower Knives. (*Perfectionnements aux machines à rémouler les couteaux des faucheuses.*)

Alexander Cameron, London, Ont., 21st May, 1881; for 5 years.

Claim.—1st. The three cog wheels D D_1 D_2. 2nd. The knife holder H provided with eccentric lever J and clamp K. 3rd. The combination of the slotted standard G, pitman F, and cog wheels D D_1 D_2. 4th. The combination of the slotted standard G, rod *d* and knife holder H. 5th. The combination of the frame A, stone C, cog wheels D D_1 D_2, pitman F, slotted standard G and knife holder H.

No. 12,858. Improvements on Skates. (*Perfectionnements aux patins.*)

Robert H. Bishop and Henry F. Hailes, London, Eng., 21st May, 1881; for 5 years.

Claim.—1st. A skate constructed with a fixed sole plate provided with a toe piece or strap and an adjustable gripping piece D, in combination with a sliding heel plate E, constructed and mounted as described, the said heel plate E being operated by a cam headed locking lever F, or its equivalent, whereby the front of the boot of the skater may be forcibly thrust into the grip of the toe strap, or its equivalent, the heel of the boot being at the same moment securely held between the gripping pieces *e*1 *e*1 D. 2nd. In a skate constructed and fixed to the boot in the manner specified, the lever arms G G to which the edges of the toe piece or strap are attached, the said lever arms being drawn together by the forward movement of the sliding heel plate E, whereby additional tension is imparted to the said toe piece or strap in the act of applying the skate, and the said toe piece or strap is tightened up or contracted in proportion to the varying breadth of the boot. 3rd. In a skate, a lever arm or arms for the purpose of imparting to a strap or straps for holding the skate firmly in place, a differential tension proportioned to the varying breadth of the boot to which the said skate is applied.

No. 12,859. Improvements on Brush Grain Cleaners. (*Perfectionnements aux nettoyeurs a brosse de grains.*)

Louis Gathmann, Chicago, Ill., U.S., 21st June, 1881; for 5 years.

Claim.—1st. A brush and an opposing face, the said brush having its filaments set inclined backward with reference to the direction of its relative motion. 2nd. The combination of two opposing brushes having the filaments in both brushes inclined backward, with reference to the several directions of their relative movement. 3rd. A grain cleaner provided with two opposing brushes, having vertical faces and both brushes having their filaments set at a backward incline as described, the filaments of the stationary brush constructed to have or to assume a greater incline than those of the runner, in the operation of the machine. 4th. A brush grain cleaner provided with a brush consisting essentially of a broad compact mass of filaments clamped together by a surrounding band, so as to be substantially close and compact in the face thereof. 5th. In disc brushes which receive the grain centrally between them, the furrows or depressions *f* in the working face of one or both brushes and extending outward from the central part of the brush to or towards the periphery. 6th. The brush or brushes constructed to have or to assume in operation an uneven surface, whereby the outward movement of the grain under centrifugal impulse is made indirect or irregular. 7th. In a double brush grain cleaner, the brush faces provided with alternate grooves and ridges, ridge of one brush corresponding with, and being arranged opposite the grooves of the opposing brush. 8th. The scouring or brush chamber G into which the grain and impurities pass from the brushes, and the fan chamber I, from which the grain is to be exoluded, the apertured diaphragm E arranged as specified.

No. 12,860. Improvements on Steam Boilers. (*Perfectionnements aux chaudières à vapeur.*)

Henry F. King, Corry, Pa., U.S., 23rd May, 1881; (Extension of Patent No. 6,097.)

No. 12,861. Ditch Shovel. (*Pelle à fossoyer.*)

Joseph Monastesse and Lévy Boisseau (Assignee of Louis Guyon) Verchères, Que., 23rd May, 1881; (Extension of Patent No. 6,151.)

No. 12,862. Improvements in Electric Telegraphs. (*Perfectionnements dans les télégraphes électriques.*)

George Allen and James W. Brown, London, Eng., 23rd May, 1881; (Extension of Patent No. 6,156).

No. 12,863. Improvements in Electric Telegraphs. (*Perfectionnements dans les télégraphes électriques.*)

George Allan and James W. Brown, London, Eng., 23rd May, 1881; (Extension of Patent No. 6,156.)

No. 12,864. Improvements on Car Brakes. (*Perfectionnements aux freins des chars.*)

Adélard F. Martel, Montreal, Que., 28th May, 1881; for 5 years.

Claim.—1st. The combination, in a car brake, of the chain J rove through the tension pulleys I, pulley carriers E pivoted under the centre of the car rods H, from the lever D to the pulley carriers E, and attached by chain J to the winch barrel P provided with a friction pulley or wheel K, lever L and sector M. 2nd. In combination with a continuous chain brake W, the bolt O provided with head P_3 having holes O_1 and eye S, the corresponding stationary nut P_1 and lock nut R, the chain S_1 provided with several joints and links S_2 and hook T, in combination with the top *u*.

No. 12,865. Improvements on Tack-Drawers and Tack-Drivers. (*Perfectionnements aux machines à tirer et chasser les broquettes.*)

George J. Capewell, Cheshire, Ct., U.S., 30th May, 1881; for 5 years.

Claim.—1st. The combination of main tube B formed in sections held together by elastic pressure, with plunger A operating in said tube. 2nd. The combination of sectional main tube B, and a sectional feed tube or tubes formed with the same, with elastic bands D D and plunger A. 3rd. The combination, with the plunger A, of main tube B, formed in longitudinal sections, which have overlapping pieces E and elastic bands D. 4th. A pair of plates forming a bifurcated jaw and a second jaw pivoted between said plates and acting in the opposite direction, the said pivoted jaw being provided with a curved extension or tail to serve as a fulcrum. 5th. The combination of a handle A1 with pivoted jaw F and fixed jaw G attached to one end of said handle, the plunger A attached to the other end of said handle, and sectional guide tube B in which said guide tube works.

No. 12,866. Improvements on Carriage Wheel Hubs. (*Perfectionnements aux moyeux des roues des voitures.*)

Louis Bredannaz, Montreal, Que., 30th May, 1881; for 5 years.

Claim.—La combinaison dans les moyeux des roues à disques, de l'application d'une clef pour remplacer l'écrou de fixage des dits disques et, pour cette fin, particulièrement une clef C conique et rivée et telle que placée sur le disque B et d'en mettre autant que le disque le permettra pour en assurer la solidité.

No. 12,867. Improvements on Electric Lamps.

(*Perfectionnements aux lamps électriques.*)

Hiram S. Maxim, Brooklyn, N. Y., U. S., 3 th May, 1881; for 15 years.

Claim.—1st. A gravitating carrier for the upper carbon and a train of gearing controlling its descent, in combination with an electro-magnet and armature lever operating a detent engaging with said gearing and a carrier for the lower carbon suspended from said lever. 2nd. An electro-magnet and mechanism for controlling the feeding of the upper carbon located above the focus, in combination with a carrier for the lower carbon, movable vertically and connected with the armature lever of said electro-magnet. 3rd. An electro-magnet controlling the feeding mechanism in combination with a dash pot or controlling chamber fixed to the armature or cove of the electro-magnet and surrounding its head. 4th. The combination upon a lower carbon carrier and a globe surrounding the focus with their flat supports for said carrier and globe, placed edge to edge upon the same side of the focus and in the same vertical plane with it. 5th. The carbon carrier E in combination with the bar G, the link H and the flexible strip I. 6th. The carbon carrier E in combination with the adjustable spring R, the spring V, rod T and forked head W. 7th. The side pieces *d d*, in combination with the screw *b*, pin Q and jaws *e*. 8th. The combination of the globe B with the support C and the dog *c*.

No. 12,868. Improvements on Commutators of Dynamo-Magneto-Electric Machines. (*Perfectionnements aux commutateurs des machines magneto-electro-dynamiques.*)

Hiram S. Maxim, Brooklyn, N. Y., U. S., 30th May, 1881; for 5 years.

Claim.—1st. A commutator in dynamo-magneto-electric machine having its conducting plates so constructed and arranged as to form a double spiral upon the outside and to be parallel to the axis of the commutator upon the inside. 2nd. A commutator for a dynamo-magneto-electric machine having its conducting plates arranged in the form of a double spiral.

No. 12,869. Improvements on Lifting Jacks.

(*Perfectionnements aux crics.*)

Alvin N. Woodard, Hadley, Mich., U. S., 30th May, 1881; for 5 years.

Claim.—1st. Two sets of ratchet faced dogs, one set actuated by an oscillating lever and adapted to raise the ratchet bar, and the other set acting as a pawl upon the rachet bar to retain it in its elevated position. 2nd. A set of ratchet faced dogs B susceptible of lateral play in the body of the device, in combination with cam bolts *f*, springs c and bell crank lever D by means of which both dogs may be simultaneously operated. 3rd. A set of ratchet faced dogs B^1 susceptible of a lateral and a vertical reciprocating movement in the body of device, in combination with the bolts K by means of which the dogs may be retracted at any point of their vertical movement. 4th. A set of ratchet faced dogs B^2 susceptible of a lateral and a vertical reciprocating movement, in combination with the frame *h*, links I and lever F. 5th. The ratchet bar A provided with a continuous sunken ratchet upon the two opposite faces with a plain margin at each edge, in combination with friction rollers which bear upon the four faces of the rock bar. 6th. The lever E pivotally secured in the frame and having two links *i* stepped in its upper portion and abutting against the frames which carry the dogs, exerting a pushing force upon said dogs, whereby the ratchet bar is raised.

No. 12,870. Improvements in Metal Posts for Wire Fencing. (*Perfectionnements aux pieux métalliques pour les clôtures en fil de fer.*)

Jonathan Hugill, Hamilton, Ont., 30th May, 1881; for 5 years.

Claim.—1st. In a metal fence post, the spiral ribs B. 2nd. A metal fence post constructing the pointed portion of the auger part of the same, of serpentine form with cutting edges *b b*. 3rd. One or more shoulders *d d*. 4th One or more lugs C C. 5th. One or more projections C^1 C^1. 6th. The combination of one or more pins D with one or more flanges *e*. 7th. The combination of a metal post A, flanges *e*, ribs B, shoulders *d*, cutting edges *b b*, lugs C, recess F, projections C^1, tapering pin D to form a post for wire fencing.

No. 12,871. Improvements in the Manufacture of Paper Pulp. (*Perfectionnements dans la fabrication de la pâte à papier.*)

Charles O. Chapin and Henry A. Chapin, Springfield, Mass., U. S., 30th May, 1881; for 5 years.

Claim.—1st. The improvement in the art of making paper pulp from straw, grasses and other stalky or weedy fibrous material, which consists in baking or roasting said materials without moisture, previous to boiling them in chemical solutions or otherwise, for the purpose of disintegrating them. 2nd. The method of destroying the silicious glaze existing upon the surface of straw, grasses and the like stalky or weedy fibrous materials, viz., by roasting or baking the same, without moisture, to prepare them for easy disintegration and manufacture into pulp.

No 12,872. Improvements on Stock Cars. (*Perfectionnements aux chars à bestiaux.*)

Marquis F. Seely, Fremont, Neb., U. S., 30th May, 1881; for 5 years.

Claim.—1st. The combination of the cross bar D removably secured in position to form rigid lateral supports to the several cattle, the aprons or slings E, each extended from one cross-bar to the next adjacent, and mechanism applied to the cross-bars, whereby the slings may be severally raised or lowered. 2nd. The combination of the cross-bars D capable of adjustment, vertically and longitudinally as to the car, with adjusting mechanism attached to one of said bars and aprons or slings connected to the cross-bars, whereby the variable extension of the aprons is regulated and controlled. 3rd. The combination of the adjustable supporting cleats or rails C provided with adjusting means, the adjustable cross-bars D with elevating mechanism and the aprons or slings E. 4th. In combination with the cleats C, the adjustable cross bars D provided with bolts B^1 adapted to enter holes in the cleats to secure the bars in position. 5th. The bars D provided with the metal suspending part D^1 so applied as to permit variation in the length of the bars, in combination with the cleats C or other supports of said bars. 6th. The combination, with the supporting bars D and aprons E suspended therefrom, of the breast and breech straps E^{11}, one or both. 7th. The centre strap or straps E^3 in combination with the main bands E and breast and breech straps E^{11}. 8th. The combination, with the cross-bars D and bands E, of stanchions K adjustably supported in position. 9th. The stanchion K having at its base or lower end two projections or pins *o*, and at the upper end the projections or pin N, in combination with cleat I having notches *n* and loop P. 10th. In combination with the car, the sliding troughs S. 11th. In combination with the sliding troughs S adapted to be connected as shown, the pulley *w* and rope *r*.

No. 12,873. Improvements on Nut Locks.

(*Perfectionnements aux arrête-écrous.*)

Hugh S. Joines and David J. Miller, Santa Fé, N. M., U. S., 30th May, 1881; for 5 years.

Claim.—1st. A nut B having its sides bevelled, or recessed, for the reception of the ends of a locking strip or plate C bearing against the nut. 2nd. The nut B having recessed or bevelled sides, and the locking plate or piece C slotted at c and having inturned flanges or ends *d*. 3rd. The combination of the nut B, locking piece C and irregularly shaped bolt A.

No. 12,874. Improvements on Machines for Crushing and Pulverizing Ores.

(*Perfectionnements aux machines à broyer et pulvériser les minerais.*)

William H. Howland, Oakland, Cal., U. S., 30th May, 1881; for 5 years.

Claim.—1st. The pan A having the annular die T placed on its bottom inside of its rim, said die being rectangular in cross-section, in combination with the muller G with its plane bottom, and one or more circles of rollers or short cylinders K K K. 2nd. The pan A with its sloping cover C in which screens L are arranged, in combination with a series of crushing and grinding rollers or cylinders K which are driven by a muller G inside of said pan. 3rd. The pan A having the water supply pipe *l* of an approximate V-shape with one arm extending above the pan, and the other arm passing up through the bottom of the pan.

No. 12,875. Improvements in Damper Grates for Stoves or Furnaces. (*Perfectionnements aux grilles à régistres pour les poêles ou les foyers.*)

William J. Copp, Hamilton, Ont., 30th May, 1881; for 5 years.

Claim.—1st. The combination of the bars C fixed stationary in the bottom of the grate F in a standing position parallel to the ports or ducts B in the damper plate K, so that said ducts B will be closed when moved against the bars C with the damper K, which is divided into sections in which the level parts *d* and the slanting parts of same *a* form the ducts B between them, in connection with the handle G for shifting the top plate K on its centre E to open or close the ducts B. 2nd. The damper plate K, ducts B and slanting bars C arranged to operate in any other form or shape of grate besides a circular one. 3rd. In grates closing against bars movable, or stationary of any form, round, square or of any shape, also grates with ducts without bars.

No. 12,876. Improvements in Machines for Cutting Cylindrical Forms from Stones, in the Preparation of Stones for Building and other Similar Purposes. (*Perfectionnements aux machines à tailler les forms cylindriques dans la pierre dans la préparation de la pierre à construire et pour autres fins.*)

James Gazely, Watervliet, N. Y., U. S., 30th May, 1881; for 5 years.

Claim.—1st. The combination, with the vertical shaft B, of the cutter head C having a sliding motion on and rotated with said shaft, said cutter head being provided with either segmental or tubular cutters having a vertical adjustment in respect to said cutter head. 2nd. The combination, with the shaft B cutter head C and cutters D, of the adjustable bearers G. 3rd. The combination, with the cutter head C, of segmental cutters provided with curved spring portions at or near the cutting ends of said cutters. 4th. As an improved article of manufacture, a block of natural stone for building, or other purposes, having its outer surfaces wrought into any required shapes, and having a cylindrical opening, formed therein by the removal (as an entirety) of a cylindrical core therefrom. 5th. The cylindrical core J removed as an entirety from the interior portion of a solid natural stone and without injury to the surrounding body of the stone.

No. 12,877. Improvement in Automatic Telegraphy. (*Perfectionnement dans la télégraphic automatique.*)

William A. Leggo, New York, U. S., 30th May, 1881; for 5 years.

Claim.—The method of preventing the clogging of the stylus and of keeping the stylus bright and clean, consisting in charging the body or the surface of the blank with a lubricant.

No. 12,878. Improvements in Telegraph Keys. (*Perfectionnements aux manipulateurs télégraphiques.*)

William A. Leggo, New York, U. S., 30th May, 1881; for 5 years.

Claim.—1st. The combination, in a Morse or lever telegraphic key, or circuit controlling instrument, of a lever or button to be moved by hand, or other equivalent means, a single set of contact points, and means interposed between the two for giving the movable contact a more rapid and a greater motion than that of the lever or button. 2nd. The combination, in a telegraph key, or circuit controlling instrument, of the button, the screw threaded spindle, the moving arm and circuit connections.

No. 12,879. Improvements on Railway Joints.

(*Perfectionnements aux joints des rail.*)

Robert E. Greenwell and James A. Brogan, Osage Mission, Ks., U. S., 30th May, 1881; for 5 years.

Claim.—1st. The combiuation, with the rails and fish plates, of the slotted bolts D D, the key C having its plane coincident with the plane of the axis of the bolt, and the gib E arranged behind the key, and connecting two or more of the separated bolts, so as to prevent the bending of the same from the entrance of the key. 2nd. The combination with the rails and the fish plates having an inclined outer surface, of the slotted bolts D D, the key C having its plane coincident with axis of the bolts, and the gib E passing through and connecting two or more of the slotted bolts, to prevent the binding of the same by the entrance of the key. 3rd. The combination, with the rails and the slotted bolts, of the double inclined fish-plate, the two keys having holes in their adjacent ends and chisel-edges, and gibs arranged behind the keys.

No. 12,880. Improvements on Apparatus for Boiling Beer. (*Perfectionnements aux appareils à bouillir la bière.*)

John Atkinson, Bolton, England, 30th May, 1881; for 5 years.

Claim.—The combination, with a beer boiler, of the false bottom *d*, funnel *b* and deflector C.

No. 12,881. Improvements on the Process of Fusing Iridium. (*Perfectionnements au procédé pour liquéfier l'iridium.*)

John Holland, Cincinnati, Ohio, U.S., 30th May, 1881; for 5 years.

Claim.—1st. The art or process of fusing iridium by subjecting the same to the action of heat and then adding phosphorus. 2nd. The method of fusing and moulding iridium for use in the arts by first raising the metal to a high heat then adding to it phosphorus in about the proportion specified, and finally passing the fused mass into suitably shaped moulds. 3rd. The method of fusing and moulding iridium for use in the arts, by first raising the metal to a high heat, then adding to it phosphorus in about the proportion specified, and, after the metal is cast, releasing the phosphorous by subjecting the metal to heat, in a bath of lime, chalk, or similar absorbent. 4th. As a new article of manufacture, iridium blocks or pieces, cast in sizes and shapes for use in the arts.

No. 12,882. Improvements on Churn Covers.

(*Perfectionnements aux couvercles des barattes.*)

Marvin O. Stoddard, Poultney, Vt., U.S., 30th May, 1881; for 10 years.

Claim.—1st. In combination with the detachable cover of a churn or other receptacle, the stationary plate secured to said cover and provided with uprights, which form the guides for the movable plate and, at the same time, afford a support for the axis of the operating cam located between said guides and hinged upon the axle bolt *c* extending between the guides. 2nd. The combination of the vertically movable plate, hinged axles secured therein, and the locking levers grooved upon their under sides, to fit said axles, the levers being detachable. 3rd. The combination of the adjustable plate carrying the ends of the locking levers, the rimmed cam and the hooks secured to said plate and engaged with the rims upon the cam. 4th. In a cover locking device, the combination, with the adjustable lever carrying plate, of the operating cam axled upon the horizontal bolt *c* which extends between the two uprights and being grooved or furrowed upon its bearing face to prevent slipping. 5th. In combination with the cam which controls the movement of the adjustable lever carrying plate, the handle embracing said cam and adjustable to engage in different notches cut in the edge thereof. 6th. The locking hook or ear connected with the open ring head, and provided with an overhanging flange inclined in the manner set forth. 7th. The combination, with the movable levers, of fulcrums therefor formed on the tangs connected with the cover rim. 8th. In a lever locking device, the combination of the vertically moving central plate, the detachable levers hinged thereto, the operating cam supported upon the axle bolt *c* and the adjustable handle having a common axis with the cam, the several parts being combined to operate as set forth. 9th. A metallic ring head, having stationary catch ears or hooks projecting therefrom, said catch ears or hooks being composed of separate parts and adapted to receive a cover fastening attached to a removable cover. 10th. In combination with the open ring head, the base pieces of the hooks or catch ears secured therein, and the hooks or ears mounted and secured upon the base pieces. 11th. The combination, with the hook having the perforation and projecting side pieces, of the base piece recessed as explained, and carrying the projecting stud by which the two parts are rivetted. 12th. The combination of base pieces *n* having recesses projecting stud and dovetail, the open ring head *c* cast thereon, and the hook or ear piece *o* having projecting side pieces and perforation receiving the stud, the several parts being united.

No. 12,883. Improvements on Machines for Sewing Boots and Shoes. (*Perfectionnements aux machines à coudre les chaussures.*)

Joseph A. Safford, Boston (Assignee of Hannibal Folsom, Stoughton), Mass., U.S., 30th May, 1881; for 5 years.

Claim.—1st. In a sewing machine for stitching welts and soles, the work supporting plate *i* provided with the projecting lip gauges *k l* and arranged relative to the needle. 2nd. The flat work supporting plate *i* provided with the lip gauges *k l* and adjustably secured to the frame of the machine with one of said lip gauges in front of the needle, and the other in rear of the needle. 3rd. A side-notched flat work support having lip gauges to bear against the side of the channel flap or lip, combined with an auxiliary pivoted presser arranged to bear on the welt in front of the awl and needle, and the main presser to bear on the said welt at the rear of the awl and needle.

No. 12,884. Improvements on Car-Couplers.

(*Perfectionnements aux accouplages des chars.*)

William Scott, Faulkner (Malden), Mass., U. S., 30th May, 1881; for 5 years.

Claim.—1st. Car-coupling draw heads, each constructed with an upper and lower jaw D E having an opening between them, and each draw head provided with a swinging link hung thereto, in combination with a suitable shackling pin in each, adapted in itself and the said jaws to hold the shackling link, which is in and between such jaws, against escape. 2nd. The combination of a draw head, having a pin L provided with an inclined front face or rib, with the coupling link H pivoted to, and embracing said draw head and normally supported in an inclined position by lateral supports on the draw head, and adapted to operate in conjunction with a draw head similarly constructed and arranged on an adjoining car. 3rd. The combination of a draw head having a pin L provided with an inclined front face, with a coupling link, which is pivoted to, and embraces and normally is supported in an inclined position, by lateral supports on the draw head, and has its depending front end bevelled and adapted to operate in conjunction with a draw-head similarly constructed and arranged on an adjoining car. 4th. The draw head *a* constructed with jaws D E and link H pivoted to said draw head, and embracing the lower jaw and with a rest on the lower jaw for the link, in combination with the shackling pin L having the forward projecting rib *f* inclined on its under edge. 5th. The draw head constructed with upper and lower jaws D F, the upper projecting beyond the lower link H pivoted to and embracing the lower jaw of said draw head and rest K on lower jaw, in combination with the shackling pin L having the forward projecting rib *f* inclined on the under edge. 6th. The shackling pin L having a rib projection, in combination with the upper and lower coupling jaws arranged in relation to said pin and its projection. 7th. The shoulder or rest M in the upper coupling jaw D for a shackling pin L. 8th. The shoulder or pin M in the upper coupling jaw D, in combination with a shackling pin. 9th. The upper coupling jaw D constructed for the play of the shackling pin through it and provided with recesses or cored out portions *n* to reduce the frictional and contact surfaces between it and the pin. 10th. The upper coupling jaw D constructed on its upper side, to shield the shackling pin and its connecting chain, so that a shackling link can pass without hindrance over the upper side of the coupling jaw. 11th. The raised bearing edge or boss *q*, upon the sides of the draw head, in combination with a shackling link H hung to said draw head. 12th. The draw head A having upper and lower jaws D E, the upper of which is made upwardly flaring as at S.

No. 12,885. Improvements on Hoists.

(*Perfectionnements aux ascenseurs.*)

John Fensom, Toronto, Ont., 30th May, 1881; for 5 years.

Claim—1st. In hoists, the car provided with a counter balance weight adapted to lift the car and an average load, in combination with the check rope, or its equivalent, connected to the brake and to operating machinery in such a manner that, by the movement of the check rope, a given distance, the brake is thrown off, which the continuation of the said movement throws into gear with the hoist auxiliary operating machinery. 2nd. In combination with a hoist provided with an ordinary hand rope, and in which the counterbalance to the car is adapted to lift the car and an average load, an auxiliary motor arranged so that it can be thrown into gear with the hand rope by the check rope after the said check has first thrown off the brake. 3rd. In combination with a hoist provided with an ordinary hand rope, and in which the counter-balance to the car is adapted to lift the car and an average load, friction mechanism operated by the check rope, and arranged to grip the hand rope simultaneously with the starting of an auxiliary motor operated by the said check rope, for the purpose of imparting motion to the friction mechanism subsequent to the releasing of the brake, also operated by the check rope referred to. 4th. The revolving spindle A held in stationary bearings, and having keyed, or otherwise fastened, to it the grooved pulley B situated opposite to the hand rope C, a spur wheel D fastened to the spindle A and meshing with the spur wheel E which is fastened to the pivoted spindle F, the grooved pulley G secured to the spindle F and situated in a position corresponding with the pulley B, in combination with mechanism connected to the check rope H by the movement of which the spindle F is adjusted upon its pivots so as to cause the ground pulleys B E to grasp the rope C on whichever side of the hoist it may be necessary to apply power to the said rope, for the purpose of raising or lowering the car, as the case may be. 5th. In combination with a hoist provided with an ordinary hand rope, and in which the counter balance to the car is adapted to lift the car and an average load, an auxiliary motor so arranged in connection with the hand ropes that it can be applied thereto for the purpose of assisting in either elevating or lowering the load.

No. 12,886. Improvements on Car Axle Oilers.

(*Perfectionnements aux boites à graisse des chars.*)

William H. Burden and Frederick C. Burden, Cleveland, Ohio, U. S., 30th May, 1881; for 5 years.

Claim.—1st. The combination of car axle journal L with the conical wheels F F connected by a hollow square or angular shaft G, the spiral spring or its equivalent C and the chain H. 2nd. The combination of the oil receptacle A with the chain H, the spring C and the rod E, and the conical wheels F F connected by a hollow square or angular shaft G.

No. 12,887. Machines for Making Napped Fabrics. (*Machines pour faire les étoffes à poil ras.*)

Harriet F. Strong, (Assignee of L. W. Whipple,) New York, U. S., 30th May, 1881; (Extension of Patent No. 6,375.)

No. 12,888. Improvements in Dynamo-electric Machines. (*Perfectionnements aux appareils électro-dynamiques.*)

Hans J. Müller, New York, U. S., 31st May, 1881; for 5 years.

Claim.—1st. In combination with two or more commutators, and a series of field magnets, a series of armature coils, which are divided into groups, the coils of each group being connected with each other, and with a separate commutator for the purpose of producing several independent and separate external currents at the same time. 2nd. The combination, with commutators and series of field magnets, of an armature wheel having two or more different series of coils, the coils J_1 of one series having larger iron cores than those of the rest, and being wound with a less length of wire, and such larger cores being connected with a commutator and the magnets, and the other series of coils wound with a greater length of wire, which leads to the outer commutators, the current from the coils having the larger iron cores being used to excite the magnets, and the current from the others exclusively to do work in the external circuit. 3rd. The combination, with a commutator and a series of field magnets concentrically arranged, of an armature wheel having a series of coils, the width of whose cheeks exceeds by about one-eight the distance between such magnets, so that they will overlap the latter, as shown, for the purpose of preventing sparks at the commutator. 4th. In a group of coils of the armature of a dynamo electric machine, the combination, with one or more coils J_2 or J_3, of a coil J_1 having a larger iron core than the other coils, for the purpose of producing more magnetism for exciting the field magnets in these coils J_1 than in the rest. 5th. In the armature of a dynamo-electric machine, the combination of a series of coils, in number equal to a multiple of the number of field magnets of coils which have a larger iron core than the rest of the coils, and are equal in number to the number of field magnets in the machine and for the purpose of exciting the field magnets of the machine with a number of coils not greater than the number of field magnets, so that the other coils can be used independently for work in the external circuit. 6th. The combination of the negative wire with a relay and a resistance, for the purpose of conducting the secondary current through the field magnets in the same direction as the main current and to regulate the permanent charge of the machine. 7th. The rotating armature wheel having open sides and a series of broad spokes arranged radially and severally parallel to its axis, and the broad periphery having opening *i i* between the spokes. 8th. The combination, with the field magnets and two or more commutators, of a series of armature coils formed of wires of different sizes, each one being connected with a separate commutator, whereby several currents of different intensity for external work are generated by the same machine. 9th. The combination, with the field magnets, of an armature wheel, having its coils J_1 J_2 J_3 placed in an inclined position to the radii of said wheel. 10th. The combination, with two or more internal circuits, of two or more switching devices, whereby any desired current can be used for work in the internal and external circuits, whereas the other currents perform work in the external circuits only. 11th. The combination, with two or more internal circuits, and two or more external circuits, of two or more switching devices, whereby any desired current can be switched off altogether, so as not to perform any labour in the internal nor external circuits, thus permitting the machine to be operated with decreased power. 12th. The combination, with two or more internal circuits and two or more external circuits, of two or more switching devices for connecting the armature circuits and magnet circuits, and two or more switching devices for connecting the armature circuits and the external circuits, whereby the current of any desired group of armature coils can be used to charge the magnets only, whereas the other currents are used for work in the external circuits only.

No. 12,889. Improvements on Mining Riffles Stream-Works. (*Perfectionnements aux lavoirs des mines.*)

William H. Howland, Oakland, Cal., U. S., 31st May, 1881; for 5 years.

Claim.—1st. A mining riffle composed of roof shaped gridiron sections placed in contact with each other on the bottom of the sluice. 2nd. A mining riffle composed of roof-shaped sections A, each of which is provided with parallel longitudinal slots *b* and intermediate grooved bars *c* on each side of the apex. 3rd. The riffle sections A having the alternate longitudinal slots *b* and intermediate grooved bars *c* and having the partition *f* said riffle sections being provided with the transverse quick-silver troughs *e*. 4th. A mining riffle composed of a number of roof-shaped gridiron sections A placed in longitudinal rows on the bottom of the sluice or flume, so as to be in contact with each other, the sections in adjoining rows over-lapping each other.

No. 12,890. Improvements on Harvesting Machines. (*Perfectionnements aux moissonneuses.*)

David Maxwell, Paris, Ont., 31st May, 1881; for 15 years.

Claim.—1st. A rake arm for harvesting machines cored throughout its entire length and cast in one piece. 2nd. A rake arm cast in one piece cored throughout its entire length and provided with an offset. 3rd. A rake arm cored throughout its entire length and cast in one piece, in combination with a rolling head rake. 4th. A rake arm cast in one piece, cored throughout its entire length and provided with an offset, in combination with a rolling head rake. 5th. A rake head constructed in two sections, each one of which is independently adjustable on the rake. 6th. In harvesting machine rakes, the combination, with the crown wheel provided with one or more projections, of a vertical post K or its equivalent provided with an off set. 7th. The combination of the crown wheel B provided with the projections B1, the vertical post K, having an over hanging arm or off set, the crank K_3, rod K_4 and counter balanced latch L with the gate J.

No. 12,891. Improvements on Grinding Mills. (*Perfectionnements aux moulins à moudre.*)

William D. Gray, Milwaukee, Wis., U. S., 31st May, 1881; for 5 years.

Claim.—1st. In a roller grinding mill, the combination of a driving belt and the counter-shaft provided with a driving pulley, around which the belt passes, whereby an adjustment, of the counter-shaft is caused to tighten its driving belt. 2nd. The roller driving pulleys located at the top and the counter-shaft pulley at the bottom, in combination with the single driving belt passed beneath the counter-shaft pulley and thence upward and outward over the roller pulleys. 3rd. The combination of the counter-shaft provided with pulleys at its two ends and the rolls independently driven from pulleys upon opposite ends of the counter shaft. 4th. A counter-shaft mounted in the base and connected by belts with each and all the rolls separately, whereby a uniformity of motion is secured, and all the belts are tightened at once. 5th. A counter-shaft connected at its two ends by belts with rolls, in combination with independently and vertically adjustable supports connected by transverse pivots with the boxes sustaining the ends of the counter-shaft. 6th. The combination of the frame, the counter-shaft, the pivoted bearings P, the forked arms R having the bearings therein, and screw Q. 7th. The combination of the stationary roll B, and the adjustable roll C mounted in the upper end of pivoted supports D, the pivots of which are located in advance of the axis of the roll, whereby the roll is caused to fall back by gravity and so remain when released. 8th. The combination of a roll, an upright swinging arm at each end of said roll, an eccentric adjustable pivot located at the lower end of said arm, and devices acting against the upper end of the arm. 9th. The combination of a roll, and upright swinging sustaining arms having their lower ends mounted on vertically adjustable pivots, the latter thus serving both to sustain and to adjust the rolls. 10th. In combination with the movable roller bearing, the rod E, adjustable stop devices to limit the inward movement of the bearing, an outside spring urging the bearing inward and adjusting devices to regulate the tension of the spring. 11th. In combination with the roller bearing, the adjustable rod provided at one end with a stop to limit the inward movement, a spring and means for adjusting the latter and provided at the other end with a stop and holding devices. 12th. In combination with the swinging roll supports D, and the rods E connected thereto, the eccentrices *m*, shafts *n* and rod *p*. 13th. In combination with the movable roll supports D, and the rods E, adjustably connected thereto, a transverse shaft *n* provided with two eccentrics connected to the rods E, at opposite ends of the roll, whereby the roll may be thrown into and out of action instantly without changing the adjusting devices. 14th. The combination of two rolls B C, arranged to rotate at different speeds towards each other, said rolls being provided with spiral ribs or teeth, all lying in one and the same direction, the teeth of the slower roll having upright faces on the rear sides, and the teeth of the faster roll having upright faces on the front side. 15th. In combination with a pair of rolls, two independent scrapers sustained by weighted levers, mounted on a single shaft. 16th. In combination with a roller grinding mill, two independent feed controlling gates operating in connections with one pair of rolls, one gate adapted to be adjusted and fixed to control the rate of feed, and the other adapted to be opened and closed instantly at will, to stop and start the feeding. 17th. In combination with the feeding throat, the external gate provided with the adjusting screw, the internal stop gate and the eccentric for actuating the same. 18th. The combination of the internal gate having arms or studs thereon, the eccentric, the shaft extending through the hopper, and an arm or arms, applied to the outer end of the shaft. 19th. The combination of a feed hopper and two independent adjustable gates applied to its outlet.

No. 12,892. Improvements on Lightning Rods. (*Perfectionnements aux paratonnerres.*)

Thomas C. Hewitt, London, Ont., 1st June, 1881; for 5 years.

Claim.—1st. A tongue A projecting from one section B of a lightning rod, and inserted in corresponding dovetail in the next section, so as to form a lock. 2nd. A flexible lightning conductor composed of outer copper tube C, enclosing one or more galvanized iron wires D.

No. 12,893. Improvements on Harness Hip Straps. (*Perfectionnements aux barres des fesses de harnais.*)

Henry Schlimm, Listowell, Ont., 1st June, 1881; for 5 years.

Claim.—The combination of the metal strip I provided with button head J and stud K, and hip strap H provided with slide M.

No. 12,894. Improvements in the Manufacture of Fluid Extract of Coffee, and in the Apparatus used Therefor. (*Perfectionnements dans la préparation de l'extrait liquide du café et à l'appareil pour cet objet.*)

Ernest C. Saunders, Montreal, Que., 1st June, 1881; for 5 years.

Claim.—1st. The process of manufacturing fluid extract of coffee by successive percolations of coffee, &c., at a temperature not exceeding that of boiling point. 2nd. The closed vessels or percolators G G provided with perforated diaphragms H H1 and outlets set in shafts formed in the vessel A, in which the water is heated to be boiling point.

No. 12,895. Improvements on Saw Teeth. (*Perfectionnements aux dents des scies.*)

John L. Marr and Robert Marr, Woodhouse, Ont., 1st June, 1881; for 5 years.

Claim.—The pentagonal truncated trapezoidal saw tooth with three cutting edges *c c d*, or, in other words, the chisel pointed saw tooth *c c d d*.

No. 12,896. Improvements on Treating Ores. (*Perfectionnements dans le traitement des minerais.*)

Nicolas E. Reynier, Paris, France, 1st June, 1881; for 5 years.

Claim.—Le traitement électro-chimique des minerais ou des masses métalliques en vue de la production économique de l'électricité le tout tel qu'essentiellement caractérisé par les points suivants: 1o. L'application nouvelle d'electrolytes à base de soude ou de potasse caustique dans le traitement électro-chimique sus-indiqué des minerais de cuire de nickel, de cobalt, de plomb, de mercure, d'argent d'or, etc. 2o. La substitution d'un

minerai conducteur riche on enrichè, de zinc ou de plomb, ou zinc on un plomb eux-mêmes dans les couples voltaiques à liqueur alcaline, sodique ou potassique. 3o. Les procédés de regeneration des electrolytes à base de soude on de potasse caustique chargés d'oxyde de zinc, ou d'oxyde de plomb, soit par un courant d'acide carbonique ou de chlore, ou d'hydrogène sulfuré que precipite ces oxydes à l'etat de carbonate, de chlorure, ou de sulfure, soit par un carbonate alcalin qui élimine le metal en reconstituant l'équivalent d'alcali manquant. 4o. Les nouveaux vases poreux multiples communiquants, en papier, tissus, feutres, peaux, membranes, ou autres septumes souples obtenus par des pliages rayonnants et permettant de former des vases poreux, doubles, triples, quadruples, octuples, etc., et susceptibles d'enchevêtrements, étant entendu qu'il sera facultatif de faire varier les dimensions et proportions ainsi que les diverses combinaisons permettant d'appliquer les vases poreux aux différents usages indiqués.

No. 12,879. Improvements on Soaps, Pomades, Cosmetiques, &c. (*Perfectionnements aux savons, pommades, cosmétiques, &c.*)

Frederick J. Cleaver, London, Eng., 1st June, 1881; (Extension of Patent No. 6,658.)

No. 12,898. Improvements on Steam Fire Engines. (*Perfectionnements aux pompes à incendie.*)

Anson G. Ronan, Quebec, Que., 1st June, 1881; for 5 years.

Claim.—1st. A steam fire engine having a pump consisting of casing B provided with suction hose orifice D, air and vacuum chambers G H, cylinder C having fire hose tubes passing through casing B, and the chamber L connecting with water space F by valved apertures M, in combination with plunger P having barrel S working through end of cylinder C forming water space *u* connecting with chamber L by valved openings T. 2nd. A steam fire engine pump having air and vacuum tubes G H joined at top in arched form, and divided by partition I into two compartments. 3rd. The cover 2 hung by arms 4 journalled in eccentric sleeves 5 on bolts 6 to reaches A, and by shaft 3 having eccentric journals and lever 7.

No. 12,899. Improvements on Safety Automatic Railway Switches. (*Perfectionnements aux aiguillères automatiques de sûreté.*)

William T. Martin (Assignee of Orestes Pagan, Philadelphia, Pa., U.S., 6th June, 1881; for 5 years.

Claim.—1st. The combination, with a continuous permanently fastened main track and a stationary or immovable siding, of a movable switch rail separate and detached from said main track and siding and operating to effect the transfer of car wheels from said main track to said siding and vice versa. 2nd. In combination with a main track and siding, both stationary or permanently fixed in position, an extension D of said siding having a tread raised above the plane of said main track and inclining toward either end. 3rd. The movable switch rail E having incline e_3 on its free or movable end, and on the side adjacent to the nearest rail A_1. 4th. In combination with the main track A A_1 and siding B B_1, a movable switch rail E located inside of main track, having an incline e_3, the vertical side of which is a curve or approximate line *e* forming a continuation of the line or curve of the siding. The movable switch rail E whose inner side is curved or bounded by two converging lines, so that at either end it recedes from the adjacent main rail, whereby it is capable of being opened by a car approaching in either direction on the main track, said switch rail being separate from and forming no part of either the main or siding track. 6th. The combination, with the permanent continuous main rail A_1 and stationary siding rail B, of the extension D whose upper surface is above the plane of said main rail and is inclined at either end, and the movable switch rail E having an incline e_3 whose vertical wall *e* is in the same, or approximately the same, line or plane as the siding rail B. 7th. The permanetly fixed siding extension D having two treads d d_1, the former mainly in the same plane as the main rail tread, and the latter elevated there above and having an incline at either end. 8th. The combination, with the movable switch rail E located inside of the main rails and independent thereof, of a movable switch rail F also located inside of the main track and connected to said rail E so as to move therewith. 9th. In combination with movable switch rail E having incline e_3, stationary guide rail I serving to prevent the car wheels moving on said incline, from slipping laterally therefrom. 10th. The combination, with stationary guide rail I and with the permanent and immovable main track and siding, and a separate and detached switch rail E, of movable switch rail F, the former serving as a guard and cover to the latter. 11th. The combination, with the continuous stationary main rails A A_1 and permanently fixed siding, of siding extension D having an upper and lower tread, the former having an incline at either end, movable switch rail E having incline e_3 movable switch rail F connected to rail E by braces G G and stationary guide, and guard rail I. 12th. The frog C having laterally extended base C_1, in combination with movable switch rail F pivoted thereon, and guide rail I bolted thereto. 13th. In combination with a continuous and stationary main track and a siding permanently fixed, a switch adapted to open or set itself right automatically to wheels moving in either direction over the main track, or off the siding to said main track, and when held by a switchman or attendant to effect the transfer of cars, &c., from the main track to the siding. 14th. In combination with a switch rail E, a separable or detachable shoe L fitted in said rail, its upper surface L_1 being inclined and forming a rising tread for the flange of a car wheel.

No. 12,900. Improvements on Churns. (*Perfectionnements aux barattes.*)

James M. Keen, Digby, N.S., 6th June, 1881; for 5 years.

Claim.—1st. The hollow plunger or air pump E having valve F, air holes G, guide spring D, projecting arm K. 2nd. In combination, the churn body A provided with the intermeshing drive or gear wheels L M and pitman H. hollow plunger E, provided with the latterally projecting arm K, valve F, guide spings D, air holes G and cover B recessed at B.

No. 12,901. Improvements on Polarization Galvanic Batteries. (*Perfectionnements aux batteries galvaniques de polarisation.*)

Camille A. Faure, Paris, France, 6th June, 1881; for 5 years.

Résumé.—Les batteries ou piles secondaires perfectionnées permettant d'emmagasiner, sous un faible volume et avec un faible poids, une quantité considérable d'énergie électrique, les dites piles secondaires étant principalement caracterisées par 1o. Le procédé nouveau pour obtenir rapidement et économiquement des électrodes pouvant retenir et conserver une grande quantité d'énergie électrique, procédé consistant à recouvrir l'électrode ou support avec une couche de matière métallique, poreuse ou spongieuse, déposée à toute épaisseur voulue par galvanisation, précipitation chimique ou adhérence. 2o. Des moyens indiqués pour recouvrir les supports en plomb, ou matière convenable d'une couche plus ou moins épaisse à volonté, de matière spongieuse ou poreuse, pouvant conserver l'énergie électrique à la disposition de celui qui veut l'employér. 3o. De l'application nouvelle des garnitures de caoutchouc feutre, et autres matières convenables pour maintenir et conserver contre des lames-supports, l'enduit ou la couche de matières metalliques, telles que le plomb spécialement à l'état spongieux ou poreux ainsi qu'il a été exposé, ces substances métalliques pouvant être mélangées, ou non, avec des matières inertes. 4o. Les dispositions ci-dessus décrites applicables au cas ou les piles secondaires sont faites de lames de plomb simples et formées suivant la méthode de Mr. Gaston Plante. 5o. La disposition de piles en élément combinées, à faces parrallèles formant cloisons étanches entre chaque élément, de manière à constituer des piles ayant autant de couples que le nombre d'éléments moins un. 6. Des dispositions et moyens de construction qui permettent d'emmagasiner la force électrique en grande quantité sous un faible volume pour la transporter partout ou on le jugera convenable et la faculté de l'employer soit ensemble, soit separement.

No. 12,902. Improvements on Buggy Tops. (*Perfectionnements aux soufflets des voitures.*)

Thomas Smith and George J. Carty, London, Ont., 6th June, 1881; for 5 years.

Claim.—The combination of the side rail A provided with ring D and pin K, pointed brace C provided with cap F and slot I jointed brace G provided with cap I and bows B B.

No. 12,903. Improvement in Shovels. (*Perfectionnements dans les pelles.*)

Allen S. Fisher, Clinton, Ont., 6th June, 1881; for 5 years.

Claim.—The combination, with the shovel blade A, of the socket C C_1 fastened to said blade, and slip b b_1 b_{11} secured to raise back part of shovel blade, and of handle *d* passing through clip b b_1 b_{11} and secured thereto, and the end thereof fastened into socket C C_1 by screw or otherwise.

No. 12,904. Improvements on Signal Head Lights. (*Perfectionnements aux lanternes des locomotives.*)

Michael Nicholson, Baltimore, Md., U. S., 6th June, 1881; for 5 years.

Claim.—1st. A signal head light having its front projecting rim provided with colored signal panes located at either side and away from the face of the lantern, and adapted to be cancelled when desired by mechanism. 2nd. A signal head light having lateral openings in its front rim covered by colored glass plates, for the purposes of exhibiting side lights as signals. 3rd. A signal head light adapted to exhibit front and side signals, the latter consisting of glass plates, located opposite openings in the front rim, and away from the face of the lantern. 4th. A signal head light having at either side a side signal located opposite an opening in its front flange, and away from the face of the lantern, the said side signal being adapted to be concealed, when desired, and inclined to the sides of the lantern, whereby it is visible from a point dead a head as well as from the side.

No. 12,905. Improvements on Bark Cutting Machines. (*Perfectionnements aux machines à couper l'écorce.*)

Frank S. Dobson, Clifford and William I. Merritt, Niagara, Ont., 6th June 1881; for 5 years.

Claim.—1st. The combination of a revolving cylinder having longitudinally cutting knives 4, pressure bar G, feed rollers D D and table E mounted on frame A, whereby the back is automatically fed and cut. 2nd. The revolving cylinder composed of disks or rings 14 having an irregular periphery forming depressions for recurring bars C, to which the knives 4 are attached. 3rd. The cylinder mounted on adjustable bearings moving to or from the table E. 4th. The pressure bar G provided with hinged levers H and sliding weight 13, for regulating the pressure. 5th. The pressure bar G having friction roller 12, and mounted between the cylinder and feed rollers D. 6th. The apron I.

No. 12,906. Improvements on Corner Fillings. (*Perfectionnements aux corniéres.*)

Duncan McFee, Montreal, Que., 6th June, 1881; for 5 years.

Claim.—1st. As a new article of manufacture, a corner filling composed of a triangular plate with concave edges, and secured in place by turning in its points or apices.

No. 12,907. Improvements on Hydraulic Air Compressing Apparatus. (*Perfectionnements aux appareils hydrauliques pour comprimer l'air.*)

James M. Bois, Aurora, N. Y., U. S., 6th June, 1881; for 5 years.

Claim.—1st. The combination, with the syphon, reservoir and main supply reservoir, of separate and independent gates in the main supply reser-

voir, separate and independent floats and float spindles in the syphon reservoirs, levers each having one of the main supply reservoir gates connected therewith, at one end, and the float spindle with its opposite end, and an oscillating beam having its opposite end connected with said levers, whereby the gates are opened successfully in an automatic manner, to supply water to the syphon reservoirs. 2nd. The combination, with the separate and independent syphon reservoirs, and flumes, of the main supply reservoir, adjustable flume gates and automatically actuated gates governing the supply of water to the flumes. 3rd. The combination, with two syphon reservoirs and devices for automatically supplying the water thereto, each one of said reservoirs having a short leg of a syphon inserted therein, of two combined air and water tanks, each furnished with a series of water discharge valves, which are actuated solely by the decrease of pressure in the tank, and one or more air supply valves of a compressed air tank, into which air is alternately forced from the two combined air and water tanks, and check valves to prevent the back flow of air. 4th. The combination, with the syphon, syphon reservoir, combined air and water tanks and compressed air tank, of a valve provided with a float, said valve located in the compressed air tank, and serving to automatically discharge water from the tank. 5th. The combination, with a reservoir A, flumes G G1, adjustable gates c and reservoir E E1, of the gates B B1, oscillating beam B^2, levers C C_1, floats D D1 and arms or tappets b^1 b_1.

No. 12,908. Improvements in Grates for Stoves and Ranges. (*Perfectionnements aux grilles pour les poêles et les landiers.*)

William Clendinneng, (Assignee of William Rodden,) Montreal, Que., 6th June, 1881; for 5 years.

Claim.—1st. In a cooking stove or range, the grate frame A, formed with teeth or projections around its inside edges. 2nd. The grate B supported by an automatic catch. 3rd. The grate B, having journals B^2 B_3 moving in hangers or eyes, cast on, or attached to the grate frame A, in combination with the projection *d*, indent d^1, and automatic catch D. 4th. In a stove or range, provided with a combined shaking and dumping grate, the sliding stop G.

No. 12,909. Improvements in the Manufacture of Boots and Shoes. (*Perfectionnements dans la confection des chaussures.*)

Guillaume Boivin and Simeon Steoben, Montreal, Que., 6th June, 1881; for 15 years.

Résumé.—1o. Une chaussure dont le pied est formé d'un seul morceau *a h*, taillé et employé généralement tel que décrit. 2o. Le quartier *q* en combinaison avec le pied *a h*, généralement tel que décrit. 3o. La combinaison des pieces *j j*1 avec le pied A A_1 *h*, qui sont des modifications du système essentiel et fondamental reclamé en premier lieu.

No. 12,910. Improvements on means for Watering Stock in Cars. (*Perfectionnements dans les moyens d'abreuver les bestiaux dans les chars.*)

John R. McPherson, Seabright, N. J., U. S., 6th June, 1881; for 15 years.

Claim.—1st. A system of pipes or tubes arranged alongside the track, connected to one or more elevated reservoirs, or other pressure force, and provided with hydrants or plugs, to which hose, or flexible tubes, having couplings for attaching them to fixed or turning perforated distributing pipes arranged on the walls of the cars, are connected. 2nd. As an improvement in means for supplying water to live stock, in transit in cars, a pipe or pipes C, arranged along the track, connected with an elevated tank A and having hydrants or plugs D, provided with one or more hose E fitted with couplings, and adapted to be coupled with distributing pipes of the car, whereby to effect a direct coupling of the distributing pipes of one or more cars of the train with the elevated track tank. 3rd. The means for showering and cooling the stock consisting of the perforated distributing pipes c c upon the walls of the car, and adapted to be turned in their bearings, and upon their water supplying connections, whereby to bring their perforations in positions to direct the water downward into troughs, or in positions to direct the water, from both sides of the car, in a shower over and upon the stock. 4th. The perforated water distributing pipes *c* of a stock car adapted to be turned in their bearings, and upon their water supply connections, and provided with perforations arranged to project the water in alternate cross showers, so that the streams will pass each other from opposite sides of the car, when said pipes are turned in their bearings for such purpose 5th. As an improvement in means for supplying water to live stock, in transit in cars, the separate perforated distributing pipes c c1 of each car having their ends projecting beyond the ends of the car, and provided with means, whereby to adapt to be coupled with each other, throughout the train, by separate flexible couplings, and for connection with hose of hydrants or plugs along the track. 6th. The separate water distributing pipes c c1 adapted to be coupled with each other throughout the train, by flexible couplings *d*, and to be coupled with hose by hydrants along the track, the said separate distributing pipes having flexible or jointed sections c^2 crossing the doorways, and adapted to be connected with, and disconnected at one end only from the continuous piping of the train, and to be turned out of the way upon its connected end. 7th. The method for supplying water to live stock, in transit in cars, consisting in connecting the continuous perforated distributing pipes mounted on bearings on the walls of the cars, with flexible pipes having couplings connected to hydrants or plugs placed at suitable intervals, one or more pipes arranged along the track, and communicating with a stationary elevated tank or other pressure force.

No. 12,911. Improvements on Soap. (*Perfectionnements dans le savon.*)

Henry De Lewis, Halifax, N. S., 6th June, 1881; (Extension of Patent No. 6,235.)

No. 12,912. Improvements on Process of Casting Parallel Chills. (*Perfectionnements aux procédé de coulage des coquilles parallèles.*)

Henry A. Howe, Detroit, Mich., U. S., 7th June, 1881; for 5 years.

Claim.—1st. A coating of metallic drills consisting of petroleum, or oleaginous matter covered with a layer of plumbago. 2nd. A chill with parallel sides coated with petroleum, or oleaginous matter, and a superposed layer of plumbago.

No. 12,913. Improvements on Draught Equalizers. (*Perfectionnements aux régulateurs de la tire.*)

Morris W. Tuckler, Sumnert, Mich., U. S., 7th June, 1881; for 5 years.

Claim.—1st. The combination, with a draft bar provided with an arch and a clevis having a pulley fitted therein, of a bolt and slot fastening device adapted to secure the clevis in lateral adjustment to the arch, the chain which passes between the horses being passed about said pulley, and the waggon chain being attached to the stem of the clevis. 2nd. The combination, with a draft equalizer, the combination, with draft bar having upturned extremities provided with upper and lower chain fastening devices, of a central upright and formed on the draft bar, and a clevis having a pulley fitted therein said clevis being adapted to be secured to the upper or lower side of the arch crown. 3rd. In combination with the clevis C1 and the arch C, the pulley E and thimble E1 together with the swivel bolt and nut. 4th. The bolt J, with the square neck, in combination with the square openings K and the nut F, the nut provided with ears F_1. 5th. The combination, with a two part draft bar, of an arch uniting the two parts and adapted to be secured to them at different points in their length, whereby said part may be adjusted to or from the arch. 6th. The combination with a two part draft bar, of an upright arch and a depending arch respectively uniting said two bars of the draft bar.

No. 12,914. Improvements on Force Pumps. (*Perfectionnements aux pompes foulantes.*)

Hiram E. Bush, Hamilton, Ont., 7th June, 1881; for 5years

Claim.—1st. In combination with a single cylinder double-acting force pump A, the double valve F constructed as shown and secured to the bottom of the valve chamber D by rivets *h h*. 2nd. In combination with a single double acting force pump cylinder A, the side pipe C, curved or bent at the bottom *b*. 3rd. In combination with a double-acting force pump cylinder A, the cylinder head J perforated with small holes *c c c*, etc. 4th. In combination with a double-acting force pump cylinder A, the bottom K, constructed with small holes *c*, etc., as the top J, or fine grating I.

No. 12,915. Improvements on Submarine Gold Mining Apparatus. (*Perfectionnements aux appareils sous-marins à miner l'or.*)

Moses C. Ireland, James Pierce, Ralph Borthwick, Edwin T. Jones and John Wilson, Victoria, B.C., 7th June, 1881; for 5 years.

Claim.—Connected scows A A, a derrick built thereon, a caisson intervening the scows and hung from the derrick by a hoisting tackle, winding on a windlass, whereby the caisson is raised and lowered, a pump filling the caisson with compressed air, and a pump supplying water to a sluice box within the caisson, for separating the gold.

No. 12,916. Improvements on Excavating Machines. (*Perfectionnements aux machines à creuser.*)

Thomas Dill, Toronto, Ont., 7th June, 1881; for 5 years.

Claim.—1st. The application of a trunnioned steam cylinder c_1 on the back of the shovel handle b^1 of an excavating machine, for forcing the shovel B into the earth, or withdrawing the same, as required, so that at all times a full shovel will be lifted. 2nd. The application of a shoe H placed on the mast E of the derrick or crane of an excavating machine, and preferably on the foot thereof, with screw attachment h_1 for raising and lowering the jib thereof as required, to permit of the excavator passing under bridges, and through tunnels without disconnecting the jib. 3rd. The swinging of the jib from side to side by direct pressure on the piston d_4, of circular steam motor D, made specially for this purpose, and actuating the crane by means of large sheaves and wire rope. 4th. The application of hydraulic jacks g^1, operated by direct steam pressure for raising to the level, and steadying when at work the forward end of the car. 5th. The application of steam motors with large sheaves and wire rope, and with or without friction pulleys for raising and lowering the shovel B, and for holding it in any position required. 6th. The application of direct steam pressure to the several parts of the excavator, so as to dispense with the complicated intermediate gearing usually applied for this purpose: 1st. Hoisting and lowering the shovel B, by means of steam motors; 2nd. Forcing the shovel B into the earth, and filling the same by means of a trunnioned steam cylinder c_1; 3rd. Swinging the jib from side to side by means of steam motors; 4th. Raising and steadying the forward end of the machine when at work, by means of hydraulic jacks.

No. 12,917. Rat Trap. (*Ratière.*)

Edward J. Major, (Co-inventor with David Angle), and Patrick T. Gibb, Montreal, Que., 7th June, 1881; for 5 years.

Claim.—1st. In a wire spring rat trap, the combination with the wire spring and operating lever, of a staple with rounded end, for raising spring and holding it in place. 2nd. The combination of the spring D, pivoted lever E, staple F and intermediate link or staple G.

No. 12,918. Improvements on Amalgamators. (*Perfectionnements aux amalgamateurs.*)

Pierce B. Wilson, Baltimore, Md., U.S., 7th June, 1881; for 5 years.

Claim.—In combination with a centrifugal machine, of an amalgamated or mercury coated plate interposed between the revoluble basket, and the outercasing of the machine.

No. 12,919. Improvements on Spring Waggon Gears. (*Perfectionnements aux trains des wagons à ressorts.*)

Jeremiah P. Johnson and Benjamin J. Thorne, Toronto, Ont., 7th June, 1881; for 5 years.

Claim.—1st. The brace B placed at right angles with the axle, provided with suitable connecting rods C E forming a complete truss work, for the purpose of holding and supporting the springs, which are placed parallel with the axle, and work free and clear from all complicated fixtures.

No. 12,920. Improvement in Lamp Chimney Cleaners. (*Perfectionnement des nettoyeurs des cheminées de lampes.*)

Charles W. Ferguson, Jamesville, Wis., U.S., 7th June, 1881; for 5 years.

Claim. 1st. The curved spring padded hoop A moulded to conform to the shape of the lamp chimney and of one piece. 2nd. The neck extension E of the spring hoop. 3rd. In a lamp chimney cleaner of one piece of strap metal padded as set forth, the interior return c of the neck extension E, whereby an inducing and bracing spring is obtained. 4th. In a lamp chimney cleaner of one piece of strap metal padded as set forth, the single spring hoop A having the neck extension E, and the lower depression F adapted, by moulding and fastening to the sloping handle B, to give angle of contraction meeting, and reinforce *d d*.

No. 12,921. Improvements on Sluice Gates for Mill Dams, &c. (*Perfectionnements aux portes des écluses de moulins, &c.*)

Maggie Tainter, Jeremiah B. Tainter, Menomee, and James Downing, Tiffany, (Assignees of Thomas Parker, Menomee,) Wis., U. S., 7th June, 1881; for 15 years.

Claim.—1st. A sluice way gate provided with a segmental or curved surface, and adapted to be connected to a central shaft D, forming a fulcrum thereto. 2nd. A sluice-way gate provided with a segmental or curved surface, which is eccentric to the fulcrum upon which the gate is made to swing. 3rd. The back stays c^1 c^2 c^3 of the segmental gate B placed at unequal distances apart and arranged nearer together at the lower portion of the gate. 4th. The combination of the gate B, adjustable packing strips F and levers H *h h*. 5th. The combination of the segmental gate B, shaft D and windlass K.

No. 12,922. Improvement in Underground Telegraph Lines. (*Perfectionnement aux lignes télégraphiques souterraines.*)

The Canadian Telephone Company, Montreal, Que., (Assignee of William W. Jacques, Boston, Mass., U.S.), 7th June, 1881; for 5 years.

Claim.—1st. A compound for insulating telegraph wires composed of beeswax and venice turpentine. 2nd. The combination of an electrical conducting wire and an insulating compound composed of beeswax and venice turpentine surrounding the wire.

No. 12,923. Improvements in Grain Driers and Coolers. (*Perfectionnements aux séchoirs et refratchissoirs à grain.*)

Frederic H. C. May, (Co-inventor with Michael J. Stark), Buffalo, N.Y., U.S., 7th June, 1881; for 5 years.

Claim.—1st. A drier or cooler for grain, &c., having a series of vibrating pans provided with means for operating them, said pans having a terrace-like surface over which the substances to be operated upon are passed, formed by slats having upwardly pointing ledges underlapping the next succeeding slat, and a blowing engine having pipes terminating within the parts below the terrace like surface G for producing an air blast through the chamber in said pans. 2nd. A series of vibratory pans composed of the bottom plate E, end plates F F^1 and the sides, said pans being provided with a series of narrow slats G having upturned longitudinal edges H, the slats being constructed to overlap the upturned part. 3rd. The combination, with the pans A having the horizontal pipes V, with downwardly bent branches V^1 and flanges V^2, of the supply pipes T having branches with horizontal flanges W, resting loosely upon one another, to allow of the vibration of the pans. 4th. In combination with the uprights I having cross pieces L with upwardly pointed projections M, the plates N having the inverted V-shaped sockets on one end, and projections on the other end, and the pans A, provided with inverted V-shaped sockets P. 5th. A series of vibratory pans arranged in pairs with the terrace like surface G inclining in opposite directions, the pairs being operated as described, each pair in the same direction and supported by means of the cross pieces L, having projections M, plates N, with V-shaped sockets O, and plates F forming the end plate of the pans.

No. 12,924. Improvements in Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Lebbeus B. Miller and Philip Diehl, Elizabeth, N. J., U. S., 9th June, 1881; for 5 years.

Claim.—1st. A shuttle driver for sewing machines, having the horns b^1 b^2 adapted to engage with the rear and forward portions of the bobbin case of the shuttle, said horn b^2, being extended forward in the direction of the beak of the shuttle to a point in advance of the tip of said beak. 2nd. A shuttle driver for sewing machines, having the horns b^1 b^2 adapted to engage with the rear and forward portions of the bobbin case of the shuttle, said horn b^2 being extended forward in the direction of the beak of the shuttle to a point in advance of the tip of said beak, and provided with the slot b^5. 3rd The combination, with the main driving shaft and connecting rod of the driving rock shaft I provided with the cam C, the lifting rock shaft E provided with arm C^3 and forked arm C1, and the feed bar K. 4th. The combination, with the driving shaft C having the cam *d* and the feed bar K, of the feed rock shaft F having arms *e e* and forked connecting piece J, and an intermediate adjustable device to which said connecting piece J is connected near its forked end, whereby during the rotation of the driving shaft, a compound vibratory and longitudinally reciprocating movement is imparted to said connecting piece J, and the said movements varied for the purpose of varying the feed.

No. 12,925. Improvements on Hydrocarbon Furnaces. (*Perfectionnements aux foyers à hydrocarbures.*)

Joshua W. Houchin and Joshua R. Houchin, Brooklyn, N. Y., U. S., 9th June, 1881; for 5 years.

Claim.—1st. The combination of one or more liquid vapourizing nozzles M entering the lower part of the kindling box, with a superjacent air nozzle N, arranged to intercept the vapours as they pass from the kindling box into the body of the furnace. 2nd. The combination of one or more vapourizing nozzles M, having air valves *m* and feed pipes *o*, conveying liquid fuel to the mouth of said nozzle or nozzles, with a superjacent adjustable nozzle N arranged to direct a sheet jet of blast over the fire bridge into the body of the furnace. 3rd. The combination of one or more liquid vapourizing nozzles M with a separate air blast nozzle N, arranged to act upon the vapours as they enter the body of the furnace. 4th. The combination with a hydrocarbon furnace, the air blast nozzle N, extending about the full interior width of the furnace and provided with an adjustable valve P, to regulate the thickness of the jet and discharge opening without affecting its width. 5th. The blast heating flue G interposed in the escape flue E between the furnace proper and the chimney, in combination with the air pipes *i* K L, and their inlet and outlet pipes J *l*.

No. 12,926. Machine for Blackenning and Burnishing the Edges of Outside Seam Stays for Boots and Shoes. (*Machine pour noircir et brunisser la tranche des bandes de-cuir qui couvrent les coutures des chaussures.*)

Frederick W. Nichols and Henry P. Lancaster, Lynn, Mass., U. S., 9th June, 1881; for 5 years.

Claim.—1st. The apparatus for holding and rotating stay coils, consisting of the shaft *b*, bearings *c c*, pulley *d*, face plate *a* with its radial slots *f f f*, movable blocks *f f f*, clutches *f f f*, springs *g g g*, K K K, clutch levers *h h h* and clamping ring *i*. 2nd. In combination, the rotary and laterally adjustable brush *n*, its shaft *l* with central perforation *l*, pulley *o*, heater *t*, hood *s* and central conveying tube *s*. 3rd. In combination with the rotary and laterally adjustable brush *n*, its perforated shaft *l* and heating device *s s t*, the rotary shaft *b* with its face plate *a*, and clutch *f f g h i k*. 4th. The method of blackening and burnishing the faces of stay coils, consisting of securing them upon a rotary face plate, applying a suitable ink or blacking thereto, and finishing by means of a quickly rotating brush that is adjusted to bear against the stay coil, and supplied with heat during the manipulation.

No. 12,927. Improvements on Measuring Machines. (*Perfectionnements aux machines à mésurer.*)

William A. Sawyer, Danversport, Mass., U.S., 9th June, 1881; for 5 years.

Claim.—1st. The combination of a series of independent measuring wheels, a feed cylinder or roller fitted for rotation by hand or power, weighted slide bars fitted for movement by the measuring wheels a pressure bar sustaining the slide bars and a gauge sustaining the pressure bar. 2nd. The combination of cylinder *b*, wheels *f* formed with grooved hubs f^2, bar *h*, friction rollers *l*, scale beam *m* and weighted rods *n*. 3rd. The treadle *p*, provided with arms *p* and cross bar *q*, in combination with the weighted slides *n*. 4th. The measuring wheels *f*, provided with elastic tires f^1 and grooved hubs f^2, in combination with feed roller *b* and slide rods *n*. 5th. The adjustable feed roller b^1, in combination with the series of measuring wheels *f* and table *a*.

No. 12,928. Improvements in Refrigerators. (*Perfectionnements aux garde-manger.*)

John Alexander, Toronto, Ont., 9th June, 1881; for 5 years.

Claim.—In a refrigerator having cold air passages, for conducting the cold air from the ice chamber to the cooling chamber, and separate air passages for reconducting it into the ice chamber, the combination of a vertical ventilating flue leading from a point, at or near the bottom of the cooling chamber, to a point outside the refrigerator, at or near its top.

No. 12,929. Improvements on Buckles. (*Perfectionnements aux boucles.*)

Warren T. Reaser, Madison, Wis., U. S., 9th June, 1881; for 5 years.

Claim.—The buckle having a central cross bar C provided with an upwardly projecting stud E, having a slot *e* in its end, and a reversed tongue B pivoted to one of the end bars of the buckle frame with its free end fitting in said slotted stud.

No. 12,930. Improvement in Dairy Bureaux. (*Perfectionnement aux garde-lait.*)

Charles A. Mosher, Sharon, Vt, and George A. Mosher, Troy, N.Y., U.S., 9th June, 1881; for 5 years.

Claim.—1st. In an enclosure for regulating the temperature of substances, a series of draw pans arranged one above another and making close connection at the side walls, and constructed to break joints at the end walls of the enclosure to form a continuous air flue under, around one end of, and over each pan, and in combination, an egress opening J, refrigerating chamber L, flue O and ingress opening I. 2nd. In combination, a series of draw pans, arranged one above another and making close connection at

the side walls, and constructed to break joints at the ends, to form a continuous flue passage under, around one end of, and over each pan, the ingress opening I, heating chamber N and egress opening J. 3rd, In the combination and arrangement of a draw pan enclosure K, ice chamber L and cold air flue O N, so as to form beneath and adjoining the ice box, and surround on four sides, the refrigerating chamber M, (provided with a door opening exteriorly) the contents of which chamber are cut off from atmospheric connection with any of the compartments or enclosures surrounding it. 4th. In an enclosure for regulating the temperature of milk for dairy purposes, and in combination, a movable pan A, pan carrying frame D P Q provided at their ends D, with plate gears *d* attached to the upper surfaces thereof, and the superimposed engaging pinions C within the inclosure, and connected by a crank shaft F, for the purpose of moving the pans out and in the inclosure with a steady uniform motion, and preventing them from tipping or falling when moved without the inclosure, the pan frames being supported by suitable cleats and not by the plate gears. 5th. In combination, two or more draw pans A, corresponding aperatures in one of the vertical walls of the inclosure, for the passage out and in of pans, pan carrying frames D, provided with front and rear sides or doors Q and P, adapted to close said apertures, plate gears *d*, and engaging pinions C, connected by a crank shaft F, and refrigerating chamber L, with flue O, for the purpose of moving the pans out of the inclosure, and at the same time preventing the escape from the inclosure, while one or more of the pans are out of the cold air currents, coming from the refrigerating chamber, when so combined. 6th. In an inclosure K, for regulating the temperature of milk for dairy purposes, a pan A, adapted to be moved out and in the inclosure upon a carrying frame provided at its ends D with plate gears *d*, and engaging pinions C connected by a crank shaft F, in combination with sliding strips *s* which support the frame and plate gears, for the purpose of easily and steadily moving the pan wholly out and in the inclosure, and at the same time maintaining the pan, in a horizontal position when out of the inclosure. 7th. In a draw pan inclosure or bureau K, for regulating the temperature of substances, a pan A provided with a carrying frame having end pieces D with notches *n* in their lower sides, in combination with sliding strips *s* provided with dogs *o* adapted to fit into said notches *n*, for the purpose of compelling the strips *s* to accompany the pan during the first part of its movement outward, when moved out of the inclosure. 8th. In an inclosure or bureau K, the dogs *o* attached to sliding stripe *s*, in combination with notches *n* in movable frames D, and with notches *m* in stationary cleats E, the dogs fitting and entering said notches alternately. 9th. In an inclosure for regulating the temperature of substances and in combination, a pan A provided with a carrying frame, having notched end pieces D with plate gears *d*, engaging pinions C and crank shaft F, stationary notched supports E, sliding strips *s* provided with dogs *o*, and stops *p* tipped by stationary cleats *t*. 10th. A sliding frame V, provided with slats W, crank shaft Y, connecting rod *b*, in combination with ventilating openings *x*, in the side or sides of an inclosure K containing pans A, arranged one above the other, with an air space between, and the pans adapted to be moved out and in the inclosure.

No. 12,931. Improvements in Hay Presses.

(*Perfectionnements aux presses à foin.*)

Elouild Duplessis, St. John, Que., 10th June, 1881; for 5 years.

Claim.—1st. The shoe E with shoulders E^1 E_1, in combination with the main toggle lever and brace, and pendants connecting these and serving to form a double truss. 2nd. In a vertical hay press, the toggle lever formed with a brace joined to it at the head, and connected at its outer end by a cross piece or pieces. 3rd. A toggle lever having the outer gear teeth in its head with their outer faces bevelled or curved. 4th. In a vertical hay press, the expansion panel N of the bale chamber arranged to yield at its lower side. 5th. The top bars or clamps C, operated by toggle lever R S and having Clips Q Q running on ridges or rods formed on angle plates P P.

No. 12,932. Improvements on Sap Evaporators. (*Perfectionnements aux évaporateurs à sève.*)

George Cutter, Sutton, Que., 10th June, 1881; for 5 years.

Claim—1st. In combination with a furnace block A having a smoke chamber F and chimney E, over the front wall, the evaporating pan G having internal smoke flues O, passing through the bottom of the pan near the end farthest from the fire, and connecting with smoke chamber F through the front end of the pan. 2nd. An evaporating pan composed of transverse section I and longitudinal sections M, the latter containing smoke flues O. 3rd. In a removable evaporating pan G, provided with internal smoke pipes O passing through the bottom and end of the pan combined with a furnace block A, of which the pan forms the top, having the smoke stack located in front of the fire chamber.

No. 12,933. Improvements in Hydrocarbon Furnaces. (*Perfectionnements aux foyers à hydrocarbures.*)

Joshua W. Houchin and Joshua R. Houchin, Brooklon, N. Y., U. S., 10th June, 1881; for 5 years.

Claim.—1st. In a boiler furnace provided with one or more chambers having attached to them a series of perforated distributing pipes arranged in a plane parallel with the grate surface, the combination of the series of separate gas jet tubes D having air channels *d*, the grate plate C having perforations *c*, and the series of air valves E having their seats in the perforations *c*, the tubes D being placed on the grate plate C side by side, one above each perforation of the distributing pipes, with their air channels *d*, one above each channel *c* and its subjacent valve E. 2nd. In the boiler furnace, the combination of the gas chamber N and the steam chamber O, provided with their respective perforated distributing pipes *n o* arranged alternately in the same plane parallel with the grate surface, with a series of gas jet tubes placed above each pair *o n* of the said gas and steam pipes, and provided with valved air channels adjacent to said perforations and pair of pipes, for the purpose of commingling the gases at or about the points of ignition. 3rd. A fire grate for gaseous fuel consisting of the combination of the perforated plate C, the pipes *b* (or *n o*, the gas jet tubes D, having air channels *d* and the fire clay filling G. 4th. The combination, with the perforated grate plate C, tubes D and pipes *b*, or *n o*, of the series of air valves E attached to a common supporting bar H operated by suitable levers *i* I K, to raise and lower the said valves uniformly and simultaneously. 5th. The combination of the side bars H of the lateral series of valves E having their bell cranks I secured upon the rock shaft J, and operated by the lever K, with the intermediate bars H of the central series of valves E having their bell cranks I fitted to turn loosely upon the said shaft J, and operated by the lever M, for the purpose of regulating the air supply to the sides and to the middle part of the furnace, separately or simultaneously. 6th. The gas jet tubes D having rectangular base flanges *d*1 of uniform size, to adapt them to being brought in proper position relatively to the gas and air openings in the pipes *b* and grate plate C, by simply placing them side by side. 7th. The tubes D provided with rectangular base flanges *d*1 having shoulders *d*2 of equal height, at opposite sides of the tube, in combination with the bars F, bolts *f* and grate plate C, for securing the tubes D to the said plate C.

No. 12,934. Improvement on Mechanism for Operating Valves. (*Perfectionnement dans le mécanisme des soupapes.*)

The Hancock Inspirator Company, (Assignee of William R. Park), Boston, Mass. U. S., 10th June, 1881; for 5 years.

Claim.—1st. The combination, with the valve stem F provided with a screw thread I, of the nut K, sleeve N and lever M. 2nd. The combination of the adjustable pin P, lever M, slotted arm O and valve stem F. 3rd. The combination, with a valve stem and nut operating one or more valves, of an actuating lever and sleeve and an adjustable pin.

No. 12,935. Improvements on Middlings Purifiers. (*Perfectionnements aux épurateurs des gruaux.*)

John Stevens and John R. Davies, jr., Neenah, Wis., (Assignee of Wm. Doulon, Minneapolis, Min.), U.S., 10th June, 1881; for 5 years.

Claim.—1st. The combination of a hopper provided with a discharging mechanism, and a float connected with said discharging mechanism, and suspended within said hopper, and adapted to vary its position with the varying quantity of material in the hopper, for the purpose of regulating the feed in accordance with the supply to the hopper. 2nd. The combination, with middlings purifiers and similar machines, of a V-shaped float A, having an exit slot *e* in its lower edge, and so connected to the feeding apparatus that an increased flow of chop or middlings into the machine will depress the float and raise the exit slide. 3rd. The combination and arrangement of the float A, spring *d*, arms B B, segments a_1 a_2, racks b_1 b_2 and slide *c*.

No. 12,936. Improvements on Devices for Swaging Screw Threads on Eye Bolts. (*Perfectionnements aux machines à fileter les boulons à goupille.*)

Thomas Burke, Portsmouth, Va., U·S., 10th June 1881; for 5 years.

Claim.—Jointly with the dies, the groove *g*, the open under box or sleeve L and the broad plain and parallel faced side walls or branches *b*, in virtue of which obstruction of the dies by scale is prevented, the hammer die is accurately guided in its movements.

No. 12,937. Improvements on Railway Cars. (*Perfectionnements aux chars des railroutes.*)

Jacob Johnson, Newburyport, Mass., U.S., 10th June, 1881; for 5 years.

Claim.—1st. The combination, with the car body and two main seats A A^1 thereof, of the two movable auxiliary seats in manner as represented and provided with means of supporting them in position. 2nd. The combination of the main seat A and its supporting frame E with the auxiliary seat F adapted to the said frame, so as to be supported thereby and be capable of being turned into it beneath the main seat or out of such frame, into or about into level with such main seat. 3rd. The combination of the two next contiguous main seats A A^1 and their supporting main frames E E_1 with two auxiliary seats F F connected with and adapted to the said frames, so as to be capable of being moved into such and underneath the seats, or out of such frames and into, or about into level with and between the said seats, and close together. 4th. The combination, with the main seat A and its supporting frame E and the ledge or shaft *b*, of bearing at the side of the car, the auxiliary seat F adapted to the frame, so as to be capable of being turned into and out of such frame, and moved laterally on and off the ledge or bearing. 5th. The combination of the connection links I with the seat supporting frame E and the back G, and its radial arms H, such arms being adapted to the links, and the latter to the frame, essentially in manner as explained. 6th. The combination of the leg C and its carrier *d*, connected with each other and one of the auxiliary seats with the main and auxiliary seats A A^1 F F^1 combined, and to operate with the seat frames E E_1. 7th. The curtain supporter consisting of the two main sections K L and the hanger M, provided with hooks and connected as set forth. 8th. The curtain supporter, the hooked hanger M in combination with two sections K L as composed, not only of two or more rods linked together, but of a covering sleeve to each connection or joint, such sleeve being to slide on the rods, and on and off their connections or joint link R.

No. 12,938. Improvements on Hydro-Carbon Furnaces. (*Perfectionnements aux foyers à hydro-carbures.*)

Joshua W. Houchin and Joshua R. Houchin, Brooklyn, N. Y., U. S., 10th June, 1881; for 5 years.

Claim.—1st. The combination, with a furnace A, of one or more revolving fans I discharging into the said furnace, and one or more pipes R supplying liquid hydro-carbon to or into the outlet of the said fan or fans. 2nd. The air flue F continuous from the front of the boiler to the rear of, and in proximity to the furnace, in combination with the laterally opposite fans I secured upon a common shaft J revolving in the said flue F, and having their outlets N into the furnace, the liquid fuel supply pipes P R discharging at or into the outlets N of the said fans I, and the inclined fire bridge O. 3rd. The valve E arranged upon the inlet drum D, in front of the boiler, in combination with the flue F, fan I, pipes R and furnace A.

No. 12,939. Improvements on Pumps.

(*Perfectionnements aux pompes.*)

John T. Coleman, Toronto, Ont., 10th June, 1881 ; for 5 years.

Claim.—1st. A pump having a stuffing box within its head, a sleeve passing through and fitting within the said stuffing box, in combination with the pump rod passing freely through the sleeve and provided with a cap arranged to hermetically seal the end of the sleeve, where the two are held together by an adjustable coupling. 2nd. A pump in which the pump rod passes freely through a sleeve filled within a stuffing box, the arms F hinged to the end of the sleeve D, and connected together by the pivoted coupling G having rounded ends in combination with a cap E having carved lips H to receive the rounded ends of the coupling G, when used to connect the sleeve and the pump rod.

No. 12,940. Improvements in Indexes. (*Perfectionnements aux index.*)

George G. Carver and Henry Faxon, jr., Boston, (Assignees of Elroy N Heath, Wakefield,) Mass., U. S., 10th June, 1881 ; for 5 years.

Claim.—In combination with an index table having the vertical vowel columns and horizontal terminal letter columns, and reference numbers, an index book whose pages are divided into five folios each, numbered in a uniform manner, according to a decimal arrangement, and provided with a numerical side index.

No. 12,941. Improvements on Sand Bands.

(*Perfectionnements aux boîtes des roues.*)

Frederic M. Hurtle, Dowagiac, Mich., U. S., 10th June, 1881 ; for 5 years.

Claim.—1st. The combination of the flaring hub flange E, the flaring sand band G and the removable head J made in separate twin parts. 2nd. The combination of the annular hub disk D having thereon the interior outwardly flaring flange E and the exterior flange F, the broad outwardly flaring axle band G, adapted to extend between the flanges E F, and the removable head J consisting of separate twin parts. 3rd. The combination of the annular outwardly flaring hub flange E, the outwardly flaring axle band G having, in its smaller end, the inwardly projecting flange or rim H, having therein the notches I I, and the cap or head J consisting of the twin parts *a a*, each having thereon the flange or projection *a*l and the offsetts or lugs *b b*.

No. 12,942. Improvements in Steam and Hot Water Boilers. (*Perfectionnements aux chaudières à vapeur et de chauffage.*)

William R. Parks, Palmer, Mass., U. S., 10th June, 1881 ; for 5 years.

Claim.—1st. The steam and water box A, the tubes *a* attached to the box A and connected in pairs at their outer ends, and the bridge wall plate C. 2nd. The tube *a* attached to the water and steam box A and connected in pairs, at their outer ends, and adapted to be set and supported within a suitable furnace.

No. 12,943. Improvements on Catches for Holding Open Sashes, &c. (*Perfectionnements aux arrête-croisées, &c.*)

Alphonse Montant, New York, U. S., 10th June, 1881 ; for 5 years.

Claim.—1st. The combination of the springless automatic shifting weight-stop, the rest with which it engages when raised, and the restorer, by which the position of the said stop upon its pivot is changed previous to a second engagement with said rest. 2nd. The combination of the said springless automatic shifting weight-stop, the rest therefor, the restorer, the hook at the end of the said stop, and hold fast with which said hook engages when its lower position. 3rd. The combination of the said springless automatic shifting weight-stop, the rest therefor, the restorer, and the guard strip, which prevents accidental displacement of said stop.

No. 12,944. Improvements on Reversible Garments. (*Perfectionnements aux hardes reversibles.*)

Hyman Marks, Baltimore, Md., U. S., 10th June, 1881 ; for 5 years.

Claim —1st. A garment made of reversible cloth and adapted to be turned inside out, folding on its edges. 2nd. A garment made of reversible cloth provided with a whole or partial lining, and arranged to be turned inside out, folding on its edges. 3rd. A reversible garment having a whole or partial lining adapted to receive filling or padding. 4th. A reversible garment, the sides of which differ in cut or style. 5th. A reversible coat, having a lining provided with detached sleeve linings. 6th. A reversible coat, having a partial lining which conceals the buttons of the inside face.

No. 12,945. Improvements in Telephones. (*Perfectionnements dans les téléphones.*)

Charles Livermore, (Assignee of Robert M. Lockwood and William Van O. Lockwood,) New York, U. S., 10th June, 1881 ; for 5 years.

Claim.—1st. The magnetic coil or helix formed from a single main wire, in combination with a second wire introduced into the body of said coil, and connected with the main wire. 2nd. The combination of the magnet or core, the single main wire wound thereon and forming the coil, and the second wire introduced into the body of the coil, and connected with the main wire. 3rd. The fixed metal cylinder or base supporting the microphone and enclosing the coil. 4th. The dome or mouth-piece to the transmitter, made in the form of a hollow hemisphere, or approximating thereto, forming a cover for the transmitter. 5th. The dome or hemispherical cover or mouth piece to the transmitter, made adjustable or susceptible of being rotated on its base or support. 6th. The transmitter composed of two or more plates, or buttons of carbon, or equivalent conducting material resting in contact, and imbedded in a non-resonant material, one or more of said buttons being provided with a central perforation, and another with a central pin or spur passing through said perforation, through which connection is made with the coil, wound and operating as described. 7th. The fixed cylindrical metal stand supporting the microphone and enclosing the coil, in combination with the hollow dome covering the transmitter. 8th. The fixed hollow metal stand or base supporting the microphone and enclosing the coils, in combination with a wire or conductor, connecting said fixed base with the ground.

No. 12,946. Improvements in Nailing Machines. (*Perfectionnements aux machines à clouer.*)

Valaneey E. Fuller, Hamilton, (Assignee of Charles F. Brandon, Toronto,) Ont., 11th June, 1881 ; (Extension of Patent No. 6,211.)

No. 12,947. Improvement on Hat or Bonnet Frames. (*Perfectionnement des capades des chapeaux.*)

Edward Whitehouse, Brooklyn, N. Y., U. S., 11th June, 1881 ; for 5 years.

Claim.—As a new article of manufacture, a bonnet frame, or hat frame made of grass cloth.

No. 12,948. Shingle Machine. (*Machine à bardeau.*)

Albert Barter, New Richmond, Que., 11th June, 1881 ; for 5 years.

Claim.—The combination of the split ters, shavers and trimmers, also the axles which run the same.

No. 12,949. Improvements in Bridges. (*Perfectionnements dans les ponts.*)

John Dennis, Toronto, Ont., 11th June, 1881 ; for 5 years.

Claim.—1st. In a highway bridge with its top or flooring arranged to slant towards either side of the bridge, the tongue and groove sheeting running from a centre stringer G, to the outside of the bridge, and covered with a composition of tar and pitch, in combination with the upper flooring H secured in the centre by the cap I, and on the outside by strips K, fitting into grooves in the planks, forming the upper flooring, and secured by the standards B1 and bolts M. 2nd. In a highway bridge, in which the planking is held in position without nails, the combination of a metal apron L, placed on the outer joint for the purpose of protecting it from water, which might otherwise find its way between it. 3rd. In a highway bridge built on the truss principle, the combination of notched blocks E placed between the cords, immediately over the pier or abutment, for the purpose of strengthening the truss.

No. 12,950. Improvements on Animal Traps.

(*Perfectionnements aux pièges.*)

George W. Roberson and Ira B. Roberson, Salem, N. Y., U. S., 11th June 1881 ; for 5 years.

Claim.—1st. An animal trap having slots or perforations, through each jaw, from face to back. 2nd. The gripping sections of a spring trap formed of the combination of a separate outer jaw, provided with external spaced teeth, to alternately lap the teeth of the opposite jaw, and an inner jaw united to the first, by intermediate braces, and also at each end to form a partitioned crescent opening between them.

No. 12,951. Improvements in the Process of Manufacturing Dextrine, Glucose, Sugar and Sacharine Solutions, and Spirituous and Fermented Liquors Therefrom. (*Perfectionnements dans le procédé de fabrication de la dextrine, glycose, du sucre et des solutions saccharines, et des liqueurs spiritueuses et fermentées qui en proviennent.*)

James A. Holt, Toronto, Ont., 11th June, 1881 ; for 5 years.

Claim—1st. In the manufacture of dextrine, glucose, sugar and sacharine solutions and spirituous or fermented liquors therefrom, from Indian corn, or other amylaceous substances, the process of straining or filtering the mash by passing it through suitable strainers, bag or suction filters, filter presses, centrifugal machines, or other similar device, for the purpose of separating and removing the impurities and unconvertible matter, previous to the addition of the converting medium. 2nd. The process of straining and filtering the mash by passing it through suitable strainers, bag or suction filters, filter presses, centrifugal machines, or other similar devices, for the purpose of separating and removing the impurities and unconvertible matter after the addition of the converting medium, but previous to conversion into dextrine, glucose, etc. 3rd. The use, in the manufacture of dextrine, glucose, sugar and sacharine solutions, and spirituous or fermented liquors therefrom, of a starchy mass (made from maize or other grain with water) that has been purified, strained, filtered, or had its impurities and unconvertible matter separated or removed by means of a centrifugal machine or other suitable apparatus, either before or after the addition of the converting medium. 4th. The use of strainers, filters, centrifugal machines or other similar devices, between the processes of mashing and converting into dextrine, glucose, etc. 5th. The process of mashing previous to conversion under a pressure greater than that of the atmosphere, by which a portion of the steam is allowed to escape, so as to carry with it the oily and fatty matters and purify the mash. 6th. The use of a closed vessel, tank or tub, capable of withstanding the requisite pressure, with or without stirrers, and provided with a pipe to supply steam, also an opening to allow a portion of it to escape. 7th. The combination of the dry reduction or comminution of the corn or other grain, and separation by means of sifting, winnowing, bolting or other similar device, of the bulk of the fibre, gluten, albumen and oily matters, the disintegration of the starchy matters with water either in a closed tank, by steam pressure, (with or without the escape of a portion of the steam) or in an ordinary mash tub, and the separation or removing of the remainder of the impurities and unconvertible matter from the mash, by passing it through suitable strainers, bag or suction filters, filter presses, or other similar devices, before its conversion into dextrine, glucose, sugar and sacharine

solutions, and spirituous or fermented liquors therefrom, either by the acid or diastase process. 8th. The process of manufacturing dextrine, glucose, etc., which consists in subjecting the maize (whole or comminuted, and bolted or unbolted with or without the oil being extracted), with water to the action of steam under pressure (with or without allowing a portion of the steam to escape), until it is thoroughly disintegrated, then separating the impurities and unconvertible matter, by passing it through suitable strainers, bag or suction filters, filter presses, centrifugal machines, or other suitable device, and then converting it into dextrine, glucose, sugar, and sacharine solutions, and spirituous or fermented liquors therefrom, either by the acid or diastase process. 9th. As a new article of manufacture, the described depurated glucose. 10th. The process of straining or filtering the gummy mass, by passing it through suitable strainers, bag or suction filters, filter presses, centrifugal machines, or other similar devices, for the purpose of separating and removing the impurities and unconvertible matter, after it has been wholly or partially converted into dextrine (with or without the aid of acid or diastase), but prior to its conversion into glucose, sugar, or sacharine solutions. 11th. The use, in the manufacture of glucose, sugar or sacharine solutions, and spirituous or fermented liquors therefrom, of a gummy mass made from maize or other amylaceous substances, by the aid of water and heat, that has been purified, strained, filtered, or had its impurities and unconvertible matter separated or removed, by means of a centrifugal machine or other suitable apparatus, after it was wholly or partially converted into dextrine (either with or without the aid of acid or diastase), but previous to its conversion into glucose, sugar or sacharine solutions. 12th. The combination of the dry reduction or comminution of the corn or other grain, the separation, by means of sifting, winnowing, bolting, or other similar device, of the bulk of the fibre, gluten, albuminous and oily matters, the disintegration of the starchy matters with water and heat, either in a closed tank, by steam or pressure, (with or without the escape of a portion of the steam, or the aid of stirrers) or in an ordinary mash tub, the separation of the removal of the remainder of the impurities and unconvertible matters from the gummy mass, by passing it through suitable strainers, bag or suction filters, filter presses, centrifugal machines, or other similar apparatus, either before or after it has been partially or wholly converted into dextrine, with or without the aid of acid or diastase, and its subsequent conversion into glucose, sugar or sacharine solutions. 13th. Subjecting the maize, etc., (whole or comminuted, and bolted or unbolted, with or without the oil being extracted) with water to the action of the steam under pressure (with or without allowing a portion of it to escape, or the aid of stirrers) until it is thoroughly disintegrated, and is partially or wholly converted into dextrine, with or without the aid of acid or diastase, then separating or removing the remainder of the impurities and unconvertible matters from the gummy mass, by passing it through suitable strainers, bag or suction filters, filter presses, centrifugal machines, or other similar apparatus, and converting it into glucose, sugar or sacharine solutions, either by the acid or diastase process.

No. 12,952. Improvements on Mowing Machines. (*Perfectionnements aux faucheuses.*)

John Watson, Ayr, Ont., 11th June, 1881; for 5 years.

Claim.—1st. The combination, with a shoe B secured to the finger bar and pivoted to the outer end of the coupling bar, of locking lever E pivoted to the coupling bar, toothed locking mechanism, lever H and chain G, whereby the finger bar can be locked vertically, or at any desired angle, and lifted by the locking lever. 2nd. The shoe B pivoted on the pin D to the coupling bar A and provided with a toothed sector C, in combination with the pawl F pivoted to the coupling bar A and operated by the lever E. 3rd. The toothed sector C on the shoe B, pawl F and lever E on the coupling bar A, in combination with the chain G, hand lever H and notched sector I.

No. 12,953. Improvements on Method and Means for Clasping Belts. (*Perfectionnements dans la méthode et les moyens d'agrafer les courroies.*)

William M. Whiting, Elizabeth, N. J., U. S., 11th June, 1881; for 5 years.

Claim.—1st. The method of uniting the ends of round belts by inserting the ends of the belt within a tubular clasp, and compressing peripheral grooves into the tube near the ends, to clamp and hold the belt. 2nd. Compressing the belt near each end, and forming peripheral recesses and then inserting or enclosing the ends of the belt in a clasp and compressing the tube into the recesses. 3rd. A clasp for connecting the ends of round belts, formed of a tube with flaring or bell mouthed ends. 4th. The belt clasp having bell-mouthed ends and inwardly projecting ribs that grasp the material of the belt near the ends. 5th. The pincers for applying the clasp, formed with recesses and inwardly projecting ribs near the ends of the recesses. 6th. The pincers for applying the clasp, formed with the short semi-elliptical recesses *b b* and semi-elliptical recesses *d d*, the said recesses being formed with inwardly projecting ribs.

No. 12,954. Improvements in Side Bars for Locomotives. (*Perfectionnements aux barres d'excentrique des locomotives.*)

John R. Fish, Grand Rapids, Mich., U.S., 11th June, 1881; for 5 years.

Claim.—1st. A side bar for connecting the driving wheels of a locomotive, with a strip of wood attached longitudinally to the top and bottom edges of the side bar. 2nd. The combination, with the locomotive side bar B, of the wooden strips A A attached longitudinally to the bar B, and of the clevices C, transverse plate D and nuts E. 3rd. The side bar proper, longitudinal wooden strips and devices for holding the strips to the side bar.

No. 12,955. Improvements on Mill Feed. (*Perfectionnements dans l'alimentation des moulins.*)

Frank W. Kepner and Ebenezer C. Blake, Houlton, Me., U. S., 11th June, 1881; for 5 years.

Claim.—1st. The combination, with the spindle B, of an elongated or elliptical collar A mounted thereon, and of a cup C, with an elliptical recess on the underside. 2nd. The combination, with the tube D and funnel E, of the adjustable bridge F supporting the tube and funnel of the recessed cup C loosely mounted on the spindle B. 3rd. The cup C constructed with a concave upper surface, and an elliptical or like recess in the under side.

No. 12,956. Improvements on Velocipedes. (*Perfectionnements aux velocipèdes.*)

John Hopwood, Heaton Norris, Eng., 11th June, 1881; for 5 years.

Claim.—1st. The general construction and arrangement of the velocipede or pedomotive machine to carry three persons, also the peculiar construction and arrangement of the curved perch or back bone, whereby a bearing is obtained both at the top and bottom of the front fork, and thus great stability is insured, and a good lock of the front wheel for steering obtained. 2nd. The application of the connecting rods and slides to such a machine. 3rd. The arrangement whereby one or both passengers are enabled to assist the driver in propelling the machine, when required.

No. 12,957. Improvements on Explosives. (*Perfectiounements aux composés explosibles.*)

William R. Quinan, San Francisco, Cal., U. S., 11th June, 1881; for 15 years.

Claim.—A high explosive composed of nitro-glycerine, nitro-cellulose, chlorate or nitrate of potash, or their equivalent oxydizing agent.

No. 12,958. Improvements on Fabric Hose. (*Perfectionnements aux boyaux en tissus.*)

Seth W. Baker, Providence, R.I., U.S., 11th June 1881; for 15 years.

Claim.—1st. A rubber lined tubular woven fabric consisting of three or more plies having a portion of the warps of the inner and of the outer plies interwoven with the adjacent or intermediate ply or plies, the remaining portions of the warp of the outer and of the inner plies passing nearly straight over and under the weft or filling of said plies, whereby the outer and inner surfaces are closely woven, and a tubular fabric formed without seam or joint. 2nd. A rubber lined tubular woven fabric composed of three or more plies, wherein the warp of the outer ply is of strong thick thread, and the warp of the inner ply of fine thread, one half of the warp of the outer ply and one half of the warp of the inner ply together with a continuous weft, constituting the main portion of the outer and inner surface of the fabric, while the remaining portion of the warp of the outer and inner plies is laid diagonally and interwoven with the intermediate ply or plies by the continuous weft, which latter is laid helically and extends through all the plies. 3rd. A rubber lined tubular woven fabric composed of three or more plies, wherein a continuous weft or filling is laid successively through the several plies of the fabric, said weft passing from the outer to the inner ply, in helical form, and then outwardly to the outer ply, thereby forming a continuous helical filling which extends the entire length of the fabric. 4th. A rubber lined tubular woven fabric made up of three or more plies, wherein one half of the warp of the outer ply and one half of the warp of the inner ply are laid alternately over and under the continuous weft, while the remaining portions of the warp of said plies are interwoven with the intermediate ply or plies by said weft, which latter is laid helically between the successive plies of the fabric, the entire warp and weft of said fabric being woven together, whereby the fabric, in its normal condition, is of oval or flattened form in cross section.

No. 12,959. Improvements in Rotary Engines. (*Perfectionnements aux machines rotatoires.*)

Henry Thibalt and Thomas Hawkins, San Francisco, Cal., U. S., 11th June, 1881; for 5 years.

Claim.—A rotary engine having the drum B with its radial sliding pistons moving within the case A, the steam channels within the case, having the independent ports F Q, whereby steam is admitted to both sides of the pistons to balance them, when they are moving out and in. 2nd. The broad elastic plate D with its projecting rib or abutment E, said plate D exerting a constant pressure to form a tight joint between the case and the drum, and preventing noise and wear as the pistons pass. 3rd. The double coil spring or cushion J beneath the pistons having the crossed arms extending to the pistons to press them outward. 4th. The pistons consisting of the frames or ribs G forming a close fit within their channels in the drum, and the panels or body H. 5th. The pistons formed of the panels H and the ribs or frame G, said ribs having the transverse slots I to admit steam to balance the pistons, and conteract atmospheric pressure. 6th. In combination with the pistons G H, the spring packing edge plates L. 7th. The packing, for the joint between the drum and the case, consisting of the hemp or other soft packing N fitting the angular or V-shaped channel, and the ring M to hold it in place, in combination with the set or adjusting screws at P. 8th. The hemp or other soft packing N with its compression ring M and set screw, in combination with the flat faced ring O and its adjusting screw. 9th. The case A having the drum with its sliding pistons rotating within it, in combination with the rotary cut off valve perforated or slotted, and moving upon a seat having a slot or opening through which steam may pass, as each opening in the valve passes it. 10th. The rotary cut-off valve slotted and moving upon a seat having a corresponding opening, in combination with the shafts and bevel gears, by which the movements of the valve are controlled. 11th. The pin *h* upon the main shaft adapted to enter a segmental slot in the gear wheel *g*, which is loosely fitted upon the shaft, said pin driving it from either end, and thus adjusting the cut off to operate when the engine is running in either direction. 12th. The engine A having the cut off valve T, in combination with the supplemental steam pipe *i* with its valve, said pipe leading directly to the engine, independent of the cut off.

No. 12,960. Improvements on Shoes. (*Perfectionnements aux souliers.*)

Timothy A. Collins, Watertown, N.Y., U.S., 11th June, 1881; for 5 years.

Claim.—The combination, with the quarters of a shoe-upper A, of the elastic packing B inserted upon the seam, and adapted to completely pack the space between the upper and the back of the ankle, and fastened to the thinly skived piece of leather or other suitable material C fastened to the quarters, upon each side of the seam.

No. 15,961. Car Wheel. (*Roue de char.*)

Adolphus Davis, Montreal, Que., 11th June, 1881; for 5 years.

Claim.—A car wheel composed of the following elements, *viz.*: a hub and tire, each having a projecting flange, or shoulder formed on it, respectively on the outer and inner periphery, and plates secured on each side of such flanges by bolts or rivets and forming the web. 2nd. In a plate car wheel, the connecting plates or web formed with edges cut obliquely at an angle corresponding to that of the rebate faces of the tire and hub

No. 12,962. Improvements on Road Scrapers.

(*Perfectionnements aux éboueurs.*)

William J. Johnson, Harwich, Ont., 11th June, 1881; for 5 years.

Claim.—The combination of plate C and curved bail B with any common form of road scraper, for the purpose of causing it to leave its load freely, and for rendering the operation of working the scraper easy.

No. 12,963. Improvements on Wheels. (*Perfectionnements aux roues.*)

Oliver H. Burdett and Ira C. Dickerson, New Athens, Ohio, U. S., 11th June, 1881; for 5 years.

Claim.—1st. A truss wheel constructed with an open or skeleton rim held to the hub by truss rods and nuts. 2nd. The combination, with the rim A and hub D, of the bevel headed and screw-tipped truss rods or spokes F and nuts *d*, whereby the said rim and hub are held together. 3rd. The combination, with the open faced or skeleton rim composed of bands A B and cleats C, of the annularly flanged hub D, screw tipped truss rods or spokes F provided with bevelled heads *c* and nuts *d*. 4th. As a means of holding the rim to the hub, the truss rods or spokes F F.

No. 12,964. Improvements in Carburetters.

(*Perfectionnements aux carburateurs.*)

Ira W. Shaler, Brooklyn, N.Y., U.S., 11th June, 1881; for 5 years.

Claim.—1st. A packing for carburetters formed of granulated wood. 2nd. The combination of a wire gauze cone F, perforated metal plate E, packing *a*, drip cock C, chambers D J, standard B, bracket G and opening H.

No. 12,965. Improvements in Fuel. (*Perfectionnements dans le combustible.*)

William C, Siffken, Victoria, B.C., 12th June, 1881; for 5 years.

Claim.—Fuel made by a combination of coal slack, or fine screenings, clay, saw dust and water, pressed into hard cakes of various forms and sizes, and the ready combustion of such cakes of fuel and diminution of smoke by conical perforations pierced through them.

No. 12,966. Improvements on Cheese Safes.

(*Perfectionnements aux garde-fromage.*)

William H. Gordon, Detroit, Mich., U.S., 12th June, 1881; for 5 years.

Claim.—A close cheese safe, three sides of which are formed of glass or other suitable material, while one side is open and provided with a sliding door composed of slats united edge to edge by a facing of fabric.

No. 12,967. Improvements on Electric Lamps. (*Perfectionnements aux lampes électriques.*)

Joseph V. Nichols, Brooklyn, N.Y., U.S., 12th June, 1881; for 15 years.

Claim.—1st. The combination of a glass globe enclosing an incandescent conductor in a vacuum with conducting wires connected with said conductor and metallo-vitreous cement interposed between the glass of the globe and the conducting wires, and united to both by fusion. 2nd. In a glass globe inclosing the incandescent or light giving part in vacuum, in combination with conducting wires of copper or other metal of high conductivity and metallo-vitreous cement interposed betwe en the glass of the globe and the conducting wires, and united to both by fusion

No. 12,968. Improvements on Grain Gleaners.

(*Perfectionnements aux glaneuses.*)

William Hewitt, London, Ont., 12th June, 1881; for 5 years.

Claim.—1st. In combination with the teeth C of a gleaner arranged near the ground and directed forward, a gathering mechanism constructed, arranged and actuated to take into the grain at a point in advance of the teeth points, and to travel backward to and along the teeth. 2nd. In a wheeled grain gleaner having the teeth C, the gathering mechanism described, which consists essentially of the front and rear sprockets E_4 E_4, the chain or chains E_5, and the rake E E_1 having the arm E_2 laterally retained at a point E_7 outside the orbits of the chain E_5, said gathering mechanism being arranged to carry the grain backward upon said teeth C, and combined with suitable actuating mechanism. 3rd. In combination with the gatherer E E_1 having an orbital and vibrating movement, and with the teeth C, the lifting arm D arranged to raise beneath the gavel delivered by the fingers E_3, at the rear extremity of the orbital movement of said fingers. 4th. In combination with a gatherer, arranged as described, to draw forward from beneath the gravel in delivering the same to the binder, a stripper A_8 and a lifter D. 5th. The compressing arm D_3 pivoted as shown and provided with the lever arm d_1 combined with the lifter D and link d_2. 6th. In combination, the shaft D_2 bearing the lifters D, and the segmental gear wheel D_7 having the long terminatooth or lug d_7, the segmental gear D_6, having cam face d_6 and notches d_4 d_5, the spar D_4, rigid with D_6, the sprockets E_4 of the gathering mechanism, and the common driving spur E_4 of said gathe ering mechanism and of the spur D_4. 7th. The combination, in a gleaner, of a tongue G pivoted to the frame to vibrate horisontally, and a hand lever connected with said tongue, wherby the operator may sway the frame without changing the course of the team. 8th. In combination with the tongue pivoted to the frame to vibrate horizontally, and the lever G connected with the tongue, the guide H_3 having the notch h_3 whereby the frame may be swayed at pleasure, with reference to the tongue and team and may also be set in line with the tongue. 9th. In the binde's platform J pivotally suspended from the gleaner frame to swing backward and forward.

No. 12,969. Improvements on Dynamo-Electric Machines. (*Perfectionnements aux machines electro-dynamiques.*)

Hiram S. Maxim, Brooklyn, N.Y., U.S., 12th June, 1881; for 15 years.

Claim.—1st. The combination of an armature with one or more wings or fans for drawing air into it. 2nd. The combination of wings or fans M M with an armature provid d with air-passages and having radial extensions between the coils. 3rd. The combination of the radial-arme l plate L L with the removable hub D and its commutator bars. 4th. The combination of the radial arms L L with the commutator bars carried by the hub D and the washer K and nut J. 5th. The combination of the brush holders E E with the arms F F and boxing. 6th. The combination of the radial arms L L with the removable hub D and the brushes E E.

No. 12,970. Improvements on Dynamo-Magneto-Electric Machines. (*Perfectionnements aux machines magneto-électro-dynamiques.*)

Hiram S. Maxim, Brooklyn, N.Y., U.S., 12th June, 1881; for 15 years.

Claim.—The combination of the hinged spring arm B with the brush D carried in a longitudinal groove or chamber in said arm, and held by a clamp near the outer extremity of said brush.

No. 12,971. Improvements on Carburetters.

(*Perfectionnements aux carburateurs.*)

William McKenzie and James H. Masson, Detroit, Mich., U. S., 12th July, 1881; for 10 years.

Claim.—1st. A series of independent carburetting cells inclosed within a common shell, each shell being provided with a separate air inlet pipe opening at the outer end into a common chamber, into which air is forced. 2nd. The combination, with a series of independent carburetting chambers, each inclosed within a common shell and each provided with a separate air inlet pipe connecting at its outer end with a common air chamber, of a series of gas outlet pipes, one communicating with each chamber.

No. 12,972. Improvements on Governors.

(*Perfectionnements aux gouverneurs.*)

Henry E. Plant. London, Ont., 12th June, 1881; for 5 years.

Claim.—1st. A horizontal gearless governor. 2nd. The horizontal arm J. 3rd. The horizontal arm J and spindle C working through the centre of it. 4th. The arms G G. 5th. The pulley K provided with groove S and arms G G. 6th. The segment N. 7th. The combination of crank-shaped forging M and segment N. 8th. The combination of crank-shaped forging M and idler pulley O. 9th. The combination of crank-shaped forging M, feather key *e*, upright L provided with groove *d*, coil spring *b* and segment N.

No. 12,973. Gas Apparatus. (*Appareil à gaz.*)

Edward B. Reynolds, Cleveland, Ohio, U.S., 12th June, 1881; for 5 years.

Claim.—In an apparatus for obtaining an illuminating and heating gas, the packing composed of a pasty mass of charcoal and gasoline, and a tightly compressed mass of cotton or other fibrous material.

No. 12,974. Improvements on Bridge Trusses. (*Perfectionnements aux armatures des ponts.*)

Edwin Thacher, Pittsburgh, Pa., U.S., 12th June, 1881; for 5 years.

Claim.—1st. A bridge truss, consisting of a primary triangulrr truss composed of top and bottom chords and a web of struts and ties arranged in the form of triangles, free to change figure from the effects of temperature, the centre ties ext nding each over a greater number of panels than any strut, over not less than two, and over a number not exceeding the number in half span less one, the panel points intermediate between the tops of the centre ties, and not at joints of the primary truss being supported by vertical suspenders, or by pairs of suspenders inclined from the top of the centre strut and from the outermost limits of suspension, said inclined suspenders being also connected with each other, but having no fixed connection with the bottom chord nor with the centre ties at intermediate points of intersection. 2nd. Inclined suspenders, in combination with a triangular truss having a bottom chord always in tension, which supports the weight of that chord without having any fixed connectien with it, by means of a stirrup attached to the pin above.

No 12,975. Improvements on Gas Regulators. (*Perfectionnements aux régulateurs à gaz.*)

Henry Bricker, Toronto, Ont., 12th June, 1881, for 5 years.

Claim.—1st. The combination of the hemispherical sections A B forming the shell, the lower one having valve chamber D and the upper one tubular portion R and both havin; flanges *a b* at the line of equator, for uniting the sections by screws *c*. 2nd. The combination, with the sections A B, the former having tubular portion R and the latter flange *d*, of the diaphragm H and ring L, diaphragm I and ring N, valve spindle G having air passage J, and a valve F. 3rd. The combination of the receiving chamber R and lower and upper air chambers Q P connected by an air passage J in spindle G.

No. 12,976. Improvements on Automatic Scales. (*Perfectionnements aux balances automatiques.*)

Bernhard C. Meyer, Bethalto, Ill., U.S., 12th June, 1881; for 5 years.

Claim.—1st. The combination of a vibrating beam, two trucks movable thereon, weighing hoppers supported by said trucks, a stationary supply hopper having two outlets, weighted gates for closing said outlets, and projecting devices extending from said trucks for engaging with and opening said gates as the trucks move inward. 2nd. The combination of a vibrating beam, two trucks movable thereon, hoppers pivoted in said trucks, and stops for said trucks adapted to be adjusted along said beam for balancing it. 3rd. The combination of the vibrating beam, the trucks movable thereon, the hoppers pivoted in said trucks and the adjustable stops for limiting the length of vibration of said beam. 4th. The combination of the vibrating beam, the trucks movable thereon, the weighing hoppers pivoted in said truck and provided with delivery outlets, the hinged gates for said outlets, the pivoted latch-dogs for holding said gates closed, and cross-bars or abutments for disengaging said latch-dogs. 5 h. The combination of the vibrating beam A, the frame B, the trucks E movable upon said beam, the hoppers F pivoted in said trucks, and the stationary supply hopper G supported at the top of said frame and having two outlets *f*. 6th. The combination of the movable truck E, the pivoted weighing hopper F provided with an outlet, the hinged gate J and the bar M provided with the adjustable bolt or screw J for bearing upon said gate.

No. 12,977. Improvements in Mowing Machines. (*Perfectionnements aux faucheuses.*)

Charles W. Cheney, Athol, Mass., U. S., 12th June, 1881; for 5 years.

Claim.—1st. The combination of the shaft G its three arms *x y z*, the connection rods E F and the two cam wheels K K¹ with the axle L, the pivoted bar H and the two cutters C D, all being applied to and arranged with the frame A. 2nd. The frame A, axle L, two adjustable cams K K¹, ratchet wheels N, supporting wheels M, pawl O, pivoted bar H and its operative lever and its catch plate *r*, shaft G, three arms *x y z*, connection rods E F, the two cutters C D and the cutter bar B, the latter being hinged to the bracket S.

No. 12,978. Improvements on Carriage Springs. (*Perfectionnements aux ressorts des voitures.*)

Corydon Norton, Albion, Pa., U.S., 12th June, 1881; for 5 years.

Claim.—1st. A quarto or semi-elliptical spring having at its outer ends upon its upper side a c spring. 2nd. A quarto or semi-elliptical spring having at its outer a C spring formed of the same piece of metal. 3rd. A quarto or semi-elliptical spring having a c-spring formed of the same piece of metal, bent back upon it at its outer end and bound thereto at a point back of the loop. 4th. The combination, with the spring C D formed of one piece of metal, of the clip or clam c. 5th. A carriage spring consisting of the springs C D E, clip c and crank connection F.

No. 12,979. Medicinal Compound. (*Composé médicinal.*)

Antoine Racicot, Montreal, Que., 15th June, 1881; for 5 years.

Claim.—A medical compound composed of powdered capsicum, proof spirit, rectified spirit, english camphor, powdered cloves, powdered white pepper, powdered cinnamon, poplar buds, dried leaves of winter green, prickly ash berries, powdered jamaica ginger, powdered nutmeg, powdered english valerian roots, powdered poke roots, caraway seeds, cochineal, cajuputoil and orange peel.

No. 12,980. Medical Preparation. (*Préparation médicale.*)

Antoine Racicot, Montreal, Que., 15th June, 1881; for 5 years.

Claim.—A medical compound composed of powdered jalap, mandrake, aloe camboge, rhubarb, A. Racicot's royal drops, the baic tincture, Canada balsam, balsam copavia, croton oil, male fern oil, oil of peppermint; gum arabic, decoction and powdered senna.

No. 12,981. Medicinal Compound. (*Composé médicinal.*)

Antoine Racicot, Montreal, Que., 15th June, 1881; for 5 years.

Claim.—A medical compound composed of peroxide of iron, hydrochloric acid, rectified spirit, powdered capsicum, proof spirit, prickly ash berries, english gum-camphor, cajuput oil, sulphuric ether, gum opium and peppermint oil, the whole macerated and mixed together.

No. 12,982. Anti-Venereal Oil. (*Huile pour les maladies vénériennes.*)

Antoine Racicot, Montreal, Que., 15th June, 1881; for 5 years.

Claim.—A medical compound of quaic-resin, balsam tolu, and oil of peppermint, macerated in rectified spirit, and to which is added balsam fir, balsam copavia, oil of turpentine, oil of cubeb and cochineal.

No. 12,983. Improvements on Fish-Hooks. (*Perfectionnements aux hameçons.*)

William E. Tate and Thompson Smith, Parrsboro, N. S., 15th June, 1881; for 5 years.

Claim.—The gaff hook with its peculiar combination of form A C D and attachment E, or otherwise attached.

No. 12,984. Improvements on Hospital Cots and Stretchers. (*Perfectionnements aux civières-lits d'hopitaux.*)

Reynolds T. White, Boston, and Mary A. Wildes, Cambridge, Mass., U.S., 15th June, 1881; for 5 years.

Claim.—1st. The combination of the frames A B pivoted together at or near their forward ends, and an adjustable supporting brace D at their rear ends. 2nd. The combination of the folding frames A B, the hinged support E and the adjustable supporting brace D. 3rd. An adjustable folding cot, consisting of the frames A B, and the adjustable heat rest C provided with the sacking F F¹ attached as described, the supporting brace D and support E.

No. 12,985. Medical Compound to be used as a Blood Purifier. (*Composé médicinal pour être employé comme dépuratif.*)

Sarah M. King, Hamilton, Ont., 15th June, 1881; for 5 years.

Claim.—A medical compound composed of hops, mandrake root, bucha leaves, dandelion root, elecampane, rock candy, turkey rhubarb, cayenne pepper and holland gin.

No. 12,986. Shaft Coupling. (*Embrayage des arbres de couche.*)

Adolphus Davis, Montreal, Que., 15th June, 1881; for 5 years.

Claim.—A shaft coupling composed of two thimbles, the inner one with parallel inner and tapering outer surfaces, and cut so as to be capable of compression, and the outer one with tapering inner surface driven on and compressing the inner thimble, so as to clasp the shafting.

No. 12,987. Improvements on Car Axle Boxes. (*Perfectionnements aux boites à graisse des chars.*)

William G. Raoul, Macon, Ga., U.S., 15th June, 1881; for 5 years.

Claim.—1st. In a car axle box, a lid hinged at the end of the box and forming a bearing to receive the end thrust of the axle, combined with a stirrup pivoted to the box and adapted to be turned or fitted over the closed lid. 2nd. The combination, with the axle A, of the bottom pivoted cover D provided with the projecting boss D¹ arranged to abut against the end of the journal of said axle. 3rd. The combination, with the bottom hinged cover D having sloping ribs *d* in the outside, of the stirrup E pivoted on the sides of box B to lugs *f* approximately in a horizontal plane passing through the axis of the journal.

No. 12,988. Improvements in Implements for Cleaning Hollow Ware. (*Perfectionnements dans les appareils à nettoyer les objects creux.*)

Gilbert Brewster and Thomas A. Blackadar, Harvey, N. B., 15th June, 1881; for 5 years.

Claim.—1st. A cleaning apparatus consisting of an axis A having in it the air passage *c* and a compressible and inflatable bag B. 2nd. The combination of the axis A, bag B, air passage *c* and valve C.

No. 12,989. Improvements on the Mariner's Compass. (*Perfectionnements aux boussoles marines.*)

Charles G. Burke, New York, N.Y., U.S., 15th June, 1881; for 5 years.

Claim.—The phonetic circle C in figure A, and the peculiar arrangement of the minerals which mark its divisions, to be used in combination with the markings of a mariner's compass.

No. 12,990. Improvements on Corsets. (*Perfectionnements aux corsets.*)

Max Adler, New Haven, Ct., U.S., 15th June, 1881; for 5 years.

Claim.—A corset having the hip section provided with a vertical central stay, and a series of bones or stays running from the rear of said vertical stay curved backward and downward, and a like series from the front of said stay curved forward and downward to or toward the lower edge of the corset.

No. 12,991. Improvements on Buggy Gearing. (*Perfectionnements aux trains des voitures.*)

William Bambridge, Oshawa, Ont., 15th June, 1881; for 5 years.

Claim.—1st. The combination of the side bars A A with the head block B B and bed piece C C, together with the improved circle D D with malleable lips E E E.

No. 12,992. Improvements on Direct Acting Pumping Engines. (*Pefectionnements aux machines d'épuisement à action directe.*)

Edward G. Shortt, Carthage, N.Y., U.S., 15th June 1881; for 15 years.

Claim.—1st. The main steam valve constructed with a hollow stem, a piston at its lower end, combined with the valve chest having ports, and a chamber *b* for the valve piston, with mechanism for regulating the admission of steam to, and its exhaust from said valve. 2nd. The main valve having a hollow stem and a piston at its lower end, combined with the valve chest, and mechanism whereby steam is applied to both sides of the piston on the upward stroke, and raised by the different areas of steam pressure, and mechanism for exhausting the steam from the lower side of the piston, for moving the valve on the down stroke. 3rd. The combination, with the pump proper, of the steam cylinder and piston, a steam valve for regulating the flow of steam to the cylinder, and a rod or stem attached directly to the piston and provided with passage ways for controlling the flow of steam to and from the steam valve, for giving it its necessary movements. 4th. The steam cylinder having a head with a central tapering boss, with ports in the same, combined with a piston having a corresponding recess. 5th. The combination, with a steam cylinder and a water cylinder, of a plunger having its end which acts in the water cylinder, formed of a metal shell filled with wood, or other non-conducting material, to prevent condensation of steam and lighten the plunger. 6th. The combination, with a steam cylinder and piston, of a separate cylinder head having steam ports therein, and a valve chest and gear arranged upon the top of the cylinder head, the valve chest, cylinder head and cylinder flange being bolted together. 7th. The steam and water pistons made in one, combined with the steam and water cylinders having a vent passage between the two connected with the suction side of the pump. 8th. The combination of the cylinder C having the water valve chambers *u u¹* formed at its lower edges, the water valves

arranged therein, and the detachable base B having passages a a_1 a^2 a_3 a^4 a_5 a^6. 9th. The cylinder C formed with valve chambers u u_1 combined with the valves w w_1, detachable caps u^2 and bails r, and set screws q for holding the same. 10th. The combination, with the valve G having tube e and its chest having chamber b, of the bushing c having opening d^2 connected with a supply port d d_1 and the rod f_2 made hollow and having opening l g, and connected with the piston for the purpose of supplying steam to the main valve. 11th. The combination, with the valve G having tube e and its chest having chamber b, of the brushing c having opening d_3 connected with the exhaust port d_4, and the rod f_2 having a flattened end and adapted to connect the chamber b with the port d_4, for exhausting steam from the main valve, and bringing it down. 12th. The combination, with the main valve G having central tube e, of the hollow stem f_2 having an upper end h_1 and the plug e^2 arranged to fit alternately into the end of the tube e. 13th. The combination with the bushing c having a recess in its upper end, of the main valve G having its central tube e extending below its piston, and adapted to fit in this recess to form a cushion, and having also an independent downwardly opening port and valve i_1.

No. 12,993. Improvements on Hot Air Engines. (*Perfectionnements aux machines à air chaud.*)

James A. Woodbury, Joshua Merrill, George Patten and Edward F. Woodbury, Boston, Mass., U. S., 15th June, 1881; for 5 years.

Claim.—1st. In an air engine, a heater composed of a series of tubes set in the cylinder head in a position to be acted upon by the hot gases from the furnace, or other means of applying heat, and through which air may be circulated by the movements of the reverser piston. 2nd. In an air engine to be operated by alternately heating and cooling the same body of air, a cooler composed of a series of tubes set in the cylinder head, and through which air may be circulated by the movements of the reverser piston, in combination with an enclosing casing surrounding said tubes, and adapted to be filled with water. 3rd. A heater and cooler, each composed of a series of tubes set in the cylinder heads, in combidation with a reverser piston, adapted to move the air through said tubes. 4th. A heater or cooler, one or both composed of a series of U-shaped tubes, or their equivalents, both ends of each of which are set in, and communicate through the cylinder head or heads. 5th. The combination of the cylinders N P arranged one within the other, with an annular space between them, and having their ends closed by suitable heads, a heater or cooler, one or both composed of a series of U-shaped tubes or their equivalent, set in said head or heads, when one end of each of such tubes communicates with the interior of the cylinder P, and the other end of each of said tubes communicates with the annular space between said cylinders, and a reverser piston adapted to move the air alternately in opposite directions through said tubes. 6th. The cylinder N closed at its two ends by the heads O Q, in combination with the inner cylinder P resting upon the head O and pressed thereto by a spring or elastic material m placed between its upper end and the head Q. 7th. In combination with the cylinder N closed at its ends by the heads O Q, the cylinder P made slightly shorter than the cylinder N and placed therein and concentric therewith, and a packing of rubber or other suitable elastic material placed between the upper end of said cylinder P and the underside of the plate or head Q and resting in an annular groove formed in the upper end of said cylinder P. 8th. In combination with a working cylinder and a reverser composed of two cylinders placed one within the other, with an annular space between them, the short pipe p p_1 projecting from the side of the inner cylinder, and bridging the annular space between the cylinders, and a pipe leading therefrom to the working cylinder. 9th. The combination of a working cylinder and a reverser cylinder connected by a pipe for the passage of air from one to the other, a throttle valve placed in said pipe, and a governor connected to, and adapted to move said throttle valve, to control the speed of the engine. 10th. In combination with a working cylinder and a reverser cylinder connected by an air passage, a throttle valve placed in said passage, a governor connected with, and adapted to operate said throttle, and a hand lever adapted to close said throttle against the resistance of the governor. 11th. Two working cylinders and two reversers arranged in pairs, two throttle valves placed upon the same shaft, and a governor connected to and adapted to partially rotate said shaft, and thus open or close both of said throttle valves at the same time. 12th. Connecting the top and bottom, or space above and below the piston of each working cylinder, with a pipe or passage way in which is placed a throttle valve actuated by a governor, and a valve or cock worked or set by hand. 13th. In combination with a working cylinder chambered at its lower end, the shield f fitted to said cylinder with an annular space between it and the chambered portion of the said cylinder, and supported upon the cylinder head G. 14th. The combination of the working cylinder D or D_1 chambered and provided with the head G, the shield or inner cylinder f fitted thereto with an annular space between it and the chambered portion of the cylinder, and the spring g_1. 15th. The combination of a working cylinder, a long piston adapted to be worked under pressure, upon both sides thereof, and packing rings secured to and moving with said piston and adapted to resist said pressure in both directions. 16th. The regenerator plates b_2 provided with slightly projecting vertical ribs or corrugations with broad plane surfaces between them when used in combination with the cylinders N P and air heating and cooling devices. 17th. In combination with the cylinders N P, the regenerator plates b_2 secured to the exterior cylinder P. 18th. The combination of a single acting working cylinder provided with a piston, and containing air under pressure, upon both sides of said piston, a reverser cylinder, means of applying heat to the lower end of the reverser, and means of conveying air from the heated end of the reverser to one end of the working cylinder, while the air in the other end of the working cylinder remains at its normal temperature. 19th. The combination of a working cylinder provided with a piston and adapted to contain air under pressure upon both sides of said piston, and to be worked by alternately heating and cooling the air upon one side of said piston, while the air upon the other side of said piston remains at its normal temperature, a reverser cylinder, and a furnace or other means of applying heat to the working cylinder and reverser. 20th. The combination of a working cylinder provided with a long piston adapted to be worked by alternately heating and cooling the air upon one side of said piston, while the air upon the other side of said piston remains at its normal temperature, a reverser cylinder and a furnace or other means of applying heat to the working cylinder and reverser. 21st. The combination of a reverser cylinder, a pump for forcing air into said cylinders under pressure, and a furnace or other means of applying heat to one end of said cylinders, while the air in the other end of the working cylinder remains at or near its normal temperature. 22nd. In combination with a reverser cylinder provided with a heater and a regenerator, a pipe or passage leading from the heated portion of the reverser cylinder to the working cylinder. 23rd. The use of nickel in the construction of the heating apparatus of air engines. 24th. The outer casing of the reverser or working cylinder furnace made in two, or more parts, divided in such a manner that one portion may be removed to give access to the heater, and allow it to be removed without disturbing the other parts of the engine. 25th. In combination with a regenerator of an air engine, a water space surrounding a portion of the upper part of said regenerator. 26th. In combination with a reverser cylinder provided with a heater and a regenerator, a pipe or passage leading from the heated end of said cylinder to the working cylinder, and a pump adapted to force air into said reverser cylinder under pressure. 27th. In combination with a reverser cylinder provided with a regenerator and a refrigerator, a heater provided with a series of passages leading from the heated end of the reverser cylinder to the regenerator, and adapted to sub-divide the column of air moved by the reverser piston into a series of smaller columns. 28th. The combination of two reverser cylinders, each provided with a furnace, or other means of applying heat thereto, and two single acting working cylinders. 29th. The combination of two single acting working cylinders, having the spaces above their pistons connected by a pipe or passage, two reverser cylinders having direct communications with the space beneath the working pistons, and a furnace or other means of applying heat to the reversers or working cylinders. 30th. The combination of two working cylinders and two reverser cylinders, with a furnace or other means of applying heat to all of said cylinders. 31st. In combination with two working cylinders provided with pistons, and adapted to be charged with compressed air upon both sides of said pistons, and to be operated by alternately heating and cooling the compressed air upon one side only of each of said pistons, a pipe or passage connecting the chambers in the cool ends of said cylinders. 32nd. In combination, in an air engine, of two working cylinders provided with pistons connected to opposite ends of a vibrating beam, and two reverser pistons adapted to alternately change the air from a heating chamber to a cooling chamber, and vice versa. 33rd. In combination with the reverser cylinders N_1 and the annular heater N_2, the inner cylinder P_1 extending nearly to the bottom of the annular space, between the inner and outer walls of said heater. 34th. The combination of the reverser cylinders N_1 P_1, the annular heater N^3 and the corrugated plates u. 35th. The combination of the working cylinder D, the annular heater D_5, the deflector shield f and the corrugated plates or rings u. 36th. The combination of one reverser and one single acting working cylinder similar to those of the engine shown in the drawings i e with two reversers and two single acting working cylinders. 37th. The combination of two reverser cylinders and a double acting working cylinder provided with a long piston, with a furnace, or other means of applying heat to each of said cylinders. 38th. A double-acting working cylinder operated by hot air upon each side of the piston, a water space in close proximity to the packing of the piston rod. 39th. In combination with a double acting working cylinder, of a hot air engine provided with a long piston, a packing for said piston located at or near the centre of the length of said cylinder. 40th. In combination with a double acting working cylinder provided with a piston actuated by hot air applied to each end thereof, a packing for said piston located at or near the centre of the length of said cylinder, and an annular water space upon each side of said packing. 41st. The combination, with a double acting working cylinder provided with a long piston, and two reverser cylinders, of a pipe or passage leading from the hot end of one of said reverser cylinders to the lower end of the working cylinder, and a pipe or passage leading from the hot end of the reverser cylinder to the upper end of the working cylinder. 42nd. The combination of two reverser cylinders and two double acting working cylinders each of such double acting working cylinders being constructed in a similar manner to those of the modification represented at Figs 23 and 24.

No. 12,994. Improvements in the Manufacture of Metallic Alloys. (*Perfectionnements dans la préparation des alliages métalliques*)

George A. Dick, London, and Charles A. Dick, Lee, Eng., 15th June, 1881; for 5 years.

Claim.—1st. The manufacture of the fusible alloy or compound composed of iron or steel, tin and phosphorus. 2nd. The manufacture of the fusible alloy or compound composed of iron or steel, tin, lead and phosphorus.

No. 12,995. Improvements on Spring Beds. (*Perfectionnements aux sommiers élastiques.*)

William B. Crich, Clinton, Ont., 15th June, 1881; for 5 years.

Claim.—1st. A spring bed bottom having supports or rests A A (for the spring) made of hoop or band iron stretched longitudinally and crosswise of the frame composed of end rails B B and side rails D D, the ends of which supports are fastened to the end rails B B and side rails D D. 2nd. The side rails of frame D stiffened by hoop or band iron E E fastened thereto longitudinally. 3rd. In combination with bottom frame d d_1 and top frame e e_1 the insertion of coil springs g g g attaching one end of the bottom frame to one end of the top frame. 4th. In combination with bottom frame B B D D prepared with supports or rests A A attached to upper frame e e_1 by coil springs g g g having cone-shaped springs fastened on the supports A A and having the upper or wide ends of the cone-shaped springs secured to upper frame e e_1 by hooks of hoop iron, or otherwise, and having the springs fastened to each other.

No. 12,996. Improvements on Draw Bars for Railway Cars. (*Perfectionnements aux ressorts de traction pour les chars de chemins de fer.*)

Charles C. Davison, Moncton, N. B., 15th June, 1881; for 5 years.

Claim.—1st. A draw bar composed of the cast head a, side stirrups b, spring seat c, bolts d and f and springs s and t. 2nd. The combination of the draw bar with the car by means of the block B or other equivalent device.

No. 12,997. Improvements on Car Couplings.

(*Perfectionnements aux accouplages des chars.*)

Charles C. Davison, Moncton, N. B., 15th June, 1881; for 5 years.

Claim.—1st. The connection with the double spring stirrup draw bar, or with an ordinary draw bar fitted for the purpose, of a cross bolt *b* and tumbling hook *c*. 2nd. The peculiar combination of the lever *e* with the cross bar and crank *d* or an equivlent mechanical device, to be operated by the chain or lever *l*.

No. 12,998. Improvements on Paper Pulp and Machine for the Same. (*Perfectionnements à la pâte à papier et machine pour cet objet.*)

Philip H. Holmes, Gardiner, Me., U. S., 15th June, 1881; for 5 years.

Claim.—1st. As a new article of manufacture in dry wood fibre, the fibre of each grade being practically uniform in length and size, and severed transversely to its length. 2nd. Cutting the fibre from a revolving block of wood, by means of stationary knives or cutters arranged to operate in line with the grain of the wood or the length of the fibre. 3rd. The combination, with suitable devices for holding and revolving a block of wood, of a series of knives, cutters or chisels arranged to cut the fibre from the block. 4th. In combination with suitable devices for holding and revolving a block of wood of two series of knives, cutters or chisels arranged to cut the fibre from opposite sides of the block, the cutters of one series intersecting those of the other. 5th. In combination with suitable devices for holding and revolving a block of wood, of one or more series of knives, cutters, or chisels arranged to cut the fibres from the block, in the line of their length, and mechanism for automatically feeding said cutters against the block of wood.

No. 12,999. Improvements in Sewing Machines. (*Perfectionnements aux machines à coudre.*)

Nathan Hayden and Richard Rainforth, Chicago, Ill., U. S., 15th June, 1881; for 5 years.

Claim.—1st. In two-needle sewing machines, the needle bar *a* fitted with the spring tongue *c* for receiving the second needle, and the clamping collar or shackle *e* for clamping both needles. 2nd. In combination with the needle bar *a*, the slotted tubes *f*, spring *g*, carriers *h* and adjustable screw *i* serving as regulators for the slack thread, automatically. 3rd. The double tension device C consisting of the plate *k*, spindle *l l*, studs *m m*, collars *n*, spring *o*, set screw n_1. 4th. The presser foot *p* formed by the intermediate prong p_1 in the needle slot. 5th. The throat plate *q* provided with the elongated slot *r*.

No. 13,000. Horse Shoe Nail Machine. (*Machine à clou à cheval.*)

John A. Coleman, Providence, R. I., U. S., 15th June, 1881; for 15 years.

Claim.—1st. A machine in which a main rotating shaft A_1 mounted in bearings at the upper part of a framing A, carries cams A_6 A_7 connected to the feed gear eccentrics A_5 A_{12} connected to the punches crank A_9 connected to the rolls, and eccentries A_8 A_{10} A_{11} connected to the gear which transfers the blanks from one part of the machine to the next. 2nd. The combination of the cams A_6 A_7, the lever B! and slide B_2, the rods *a* a_1, lever a_2 and its cam face a_3 constituting the feed apparatus. 3rd. The combination of the eccentric A_8, fork lever C_5 and rod C_4, cam slotted plate C_3, spring frame C and holders c_1 c_2, for transferring the punched blanks from the die to the upper rolls. 4th. The combination of the eccentrics A_{10} All, their rods E_5 E_6, the arms E_2 E_3, the cam slotted plates E_1 E_2, the slide rods e_4 e_6, with spring holders *e* for transferring the blanks from the first pair of rolls to the second pair and from the second pair to the grippers. 5th. The combination of the arm E_7 and its spring pawl, with the spring slide F_2 and rod Fl, the lever F and the grippers for holding the nails g^1 g^2 at the finishing dies. 6th. The method of transferring a pair of punched blanks handed from a die to squeezing rolls by causing them to turn through an arc of 90° in opposite directions, and then to advance to the gap of the rolls.

No. 13,001. Improvements on Butt Hinges.

(*Perfectionnements aux fiches à vase.*)

Alva Warden, Ypsilanti, Mich., U. S., 15th June, 1881; for 5 years.

Claim.—The leaves A B, ears *a* a_1, barrel C, pintles D F, spring E, nut H and screws G I, the pintle F and nut H having conical surfaces *h j* to correspond with the double inclined inner surface of the ear *a*l.

No. 13,002. Improvements on Heating Furnaces. (*Perfectionnements aux calorifères.*)

Clark B. Gregory, Beverly, N.J., U.S., 15th June, 1881; for 5 years.

Claim.—1st. The combination of the combustion chamber J having grate and contracted outlet, the fuel reservoir F, the inclined passage I connecting said fuel reservoir and the combustion chambers, and the casing of the furnace having an air heating chamber or chambers communicating with the contracted outlet of the combustion chamber. 2nd. The combination of the reservoir F with a furnace having outer casing, lining and grate, constructed and combined so as to form a combustion chamber J with contracted vertical outlet H and inclined passage G, connecting the reservoir and combustion chamber and air heating chamber terminating in opposite horizontal passages *w* communicating with the vertical outlet *x*. 3rd. The combination of the casing of the furnace and its lining blocks *f* with the transverse slabs *g h i*, forming the contracted outlet *x* of the combustion chamber J, and the passages *w w* communicating therewith. 4th. The combination of the front plate D having a valved opening *e* and box F inclosing chamber *d*, the hollow side walls inclosing chamber *a*, the hollow rear wall enclosing a chamber *b*, and the transverse chamber P, said chambers communicating with each other and with the contracted outlet *x* of the combustion chamber. 5th. The combination of the plate *n*, the grate M and the intervening grate bar N. 6th. The combination of the inclined and grate plate *n*, the inclined plate *m* arranged in respect to said plate *n* so as to form an intervening space, and the front plate D having an air opening *s* located adjacent to the upper ends of the said plates *m n*, whereby a current of cold air is caused to pass downwards through the space between them and away from the front plate. 7th. The combination of the combustion chamber J the fuel reservoir F the inclined passage G connecting the two, the plate *n* forming the bottom of said passage, and the front plate D having an opening S at the top of said plate *n*. 8th. The combination of the side walls G having chambers *a*, with the transverse slats *g h*, and the cover plate *t* forming the transverse air chamber P. 9th. The combination of the front plate D having an opening *s*, the plate *m*, and the plate *n* adjustable in respect to said plate *m* so as to vary the effective grate surface. 10th. The combination of the transverse air chamber P with the hollow walls of the furnace containing chambers communicating therewith, and the top plate of the furnace arranged in respect to the casing of the air chamber, whereby a space *z* is formed above the same. 11th. The combination of the hollow side walls containing air chambers, the transverse air chamber P having a detachable top plate *t* and the top plate of the furnace, having a movable section *s*.

No. 13,003. Fruit Drier. (*Séchoir à fruits.*)

Edgar Ker, Pelham, Ont., 15th June, 1881; for 5 years.

Claim.—The arrangement of the drawers A A A in a box-shaped case with an open bottom, having regulating slides, and juice catcher D allowing the passage of heated air.

No. 13,004. Improvements on Smoke Consumers for Steam Boilers. (*Perfectionnements aux appareils fumivores pour les chaudières à vapeur..*)

James Elliot, Montreal, Que., 15th June, 1881; (Extension of Patent No. 12,750.)

No. 13,005. Improvements on Smoke Consumers for Steam Boilers (*Perfectionnements aux appareil fumivores pour les chaudières à vapeur.*)

James Elliot, Montreal, Que., 16th June, 1881; (Extension of Patent No. 12,750.)

No. 13,006. Improvements on Telephone Circuits. (*Perfectionnements aux circuits des téléphones.*)

The Canadian Telephone Company, Montreal, Que., (Assignee of Thomas A. Watson, Boston, Mass., U.S.,) 16th June, 1881; for 5 years.

Claim.—1st. The arrangement of metallic and grounded circuits constituting a continuous line of communication, containing metallic return wires in the portions exposed to disturbance from neighbouring wires, and grounded wires with an earth return in parts not exposed to such disturbance. 2nd. In a telephone exchange system, grounded subscribers circuits centering in different offices and trunk lines connecting the said offices, consisting of direct and return wires forming a complete metallic circuit, to obviate the effects of induction in the said trunk lines, combined with induction coils at one or both extremities of the trunk lines, to enable the subscribers on the grounded circuits centering in different offices, to communicate with one another through the said trunk line.

No. 13,007. Improvements on Telephone Signal Apparatus. (*Perfectionnements aux appareils téléphoniques à signaux.*)

The Canadian Telephone Company, Montreal, Que., (Assignee of Thomas A. Watson, Boston, Mass., U.S.), 16th June, 1881; for 5 years.

Claim.—1st. In a telephone signal apparatus, a permanent magnet and armature therefor, to generate magneto-electric currents to operate signals at other connected points or stations, and a vibrating tongue of iron, to actuate the bell hammer of a receiving signal operated by electric currents from other connected points or stations, the said tongue being arranged in connection with the said generator magnet, to be properly polarized thereby. 2nd. The main generator, magnet and signal operating electro-magnet, and its armature supported on the said main magnet and polarized thereby.

No. 13,008. Improvements on Machines for Dressing Barrel Hoops, &c. (*Perfectionnements aux machines à tailler les cercles des barils, &c.*)

Lowell M. Palmer, New York, (Assignee of James Naylor, jr., Rochester, N.Y.), U.S., 16th June, 1881; for 5 years.

Claim.—1st. The smooth unyielding feed rollers and cutter head provided with cutters which conform in shape to the outside of a barrel hoop, in combination with the table provided with the angular recesses. 2nd. The smooth unyielding feed and pressure rollers set rigidly, the lower ones coinciding with the angular recess of the table, the upper ones being straight, in combination with the table, press bars and cutter head. 3rd. The feed and pressure rollers H_1 H_1 set out of square with a line of passage of the hoop blanks, the front rollers H H being straight, in combination with the shoulders of the table *h h h* and the shoulders h_1 h_1 *h* in advance of the front rollers. 4th. The press bars *o o* being solid, one with the other, and adjustable by the same means as is the table immediately under the same in combination with the cutter head, for the ready adjustment of the blank to the action of the cutters. 5th. The table held in position by supports, and capable of being instantly dumped and replaced, and independent of its vertical adjustment to the cutter head, in combination with the press bars *o o*. 6th. The combination of rigid feed rollers, shoulders *h h h* and h_1 h_1 *h*, table I, press bars *o o* and cutters coinciding with the outside shape of a barrel hoop.

No. 13,009. Improvements in Stove Cover Lifters. (*Perfectionnements aux leviers des couvercles de poêles.*)

Lewis P. Harder and Henry Snellgrove, Hoosick Falls, N.Y., U.S., 16th June, 1881; for 5 years.

Claim.—The combination of the two pieces A A^1 hinged together at C, the two parts forming the handle and bearings of a stove cover lifter, and the spring B within the handle to expand the same.

No. 13,010. Improvements in Wheel Felloes.

(*Perfectionnements aux jantes des roues.*)

Louis Bredannaz, Montreal, Que., 16th June, 1881 ; for 5 years.

Résumé.—En combinaison avec les bandages de roues, à triple méplats, la nouvelle tubulure C telle que faite et composée de la nerouve c, tout tel que decrit.

No. 13,011. Improvements on Modes and Apparatus for Manufacturing Stiffeners for Corsets, &c. (*Perfectionnements aux méthodes et appareils pour confectionner les contreforts des corsets, &c.*)

James A. House, Bridgeport, Ct., U.S., 16th June, 1881 ; for 5 years.

Claim.—1st. The improved stiffening ribs and blades for corsets and other articles consisting of tampico fibre connected together in the peculiar manner set forth. 2nd. The method and means of manufacturing stiffeners for corsets and other articles. 3rd. The mode of forming straight ribs by bundling together a series of fibres and confining them by external binding threads. 4th. A stiffening rib consisting of fibres bound by threads wrapped in opposite directions. 5th. The improvement in the manufacture of stiffening ribs, the same consisting in wrapping a bundle of parallel fibres with threads carried simultaneously in opposite directions. 6th. The combination, with the hollow spindles carrying bobbins X X^1 and driven in opposite directions, of guides for carrying both threads to the end of the outer spindle. 7th. The combination, with the hollow spindles carrying bobbins and devices for driving them in opposite directions, of feed rolls. 8th. The combination of the hollow spindle *a* carrying the bobbins and revolving in opposite directions, the feed rolls H H and appliances for adjusting the same to and from each other. 9th. The mode of forming strips from cords, bundles or ribs of stiff material, the same consisting in forming the bundles or cords into continuous strips, bringing the same parallel to each other, and then uniting them by passing threads across and between the bundles and interlocking the same. 10th. The combination, in a machine for forming strips from cords, ribs or bundles of stiff material, of devices for bringing a series of bundles or ribs side by side and feeding them forward, and appliances whereby binding threads are carried across and between the ribs and interlocked. 11th. The combination, in a machine for uniting ribs or bundles of fibres, of a channelled plate feeding appliances, a shuttle and devices for reciprocating the same, a series of needles and appliances whereby they are reciprocated between the channels. 12th. The combination, with the frame A provided with a shuttle race to receive the shuttle B, of an arm or frame carrying a series of needles, a channelled plate *d* through which to pass a series of ribs, feed rollers E E^1, a thread carrier C and appliances for reciprocating the needle carrier and thread carrier, and for operating the feed devices. 13th. The combination with the feed rolls, of the adjustable blocks *n n*.

No. 13,012. Improvements in Spring Hinges.

(*Perfectionnements aux pentures à ressorts.*)

Daniel W. Housley, Grove City, and George C. Whipple, Chicago, Ill,, U.S., 16th June, 1881 ; for 5 years.

Claim.—1st. The combination with a coiled spring G, of a hinge composed of three leaves connected to unfold and to fold upon each other, said spring being connected with the middle leaf or leaves, and swinging out therewith laterally into a lengthwise oblique position from the jamb connected end, and adapted for use with a door opening in either direction. 2nd. The combination of a double acting spring hinge composed of three leaves, connected to unfold and to fold upon each other, a coiled spring G connected at both ends and swinging out laterally at one or either end, with the alternate unfolding of the middle leaf or leaves and an adjustable plug D locking by the pin F with an eye on the middle leaf and connecting one end of said spring with said eyed-leaf. 3rd. A double acting door spring hinge, composed of two separate hinges of three leaves each, connected to unfold and to fold upon each other, with a coiled spring G connected at each end and swinging out laterally at either end with the alternate unfolding of said leaves, and the loose pintles K L connecting said middle leaves with the outside leaves of each of the two hinges at the top and at the bottom of the door, whereby the door may be opened to the right or to the left without bringing into action the function of the spring, yet maintaining its connections. 4th. The combination of two separate hinges of three leaves, each connected to unfold and to fold upon each other, the coiled swing spring G connected at each end with the middle leaves of each hinge, the loose pintles K L connecting said middle leaves with the outside leaves, and the adjustable plug D locking by the pin F with an eye on one of said middle leaves, and connecting one end of said spring with said eyed middle leaf, all constructed and adapted for use with a door opening in either direction.

No. 13,013. Improvement in Alphabet and System of Writing in Cipher. (*Perfectionnements dans l'alphabet et le système d'écrire en chiffres.*)

Charles G. Burke, New York, U.S.. 20th June, 1881 ; for 5 years.

Claim.—1st. An alphabet consisting of four characters, differing in form or color, three horizontal parallel lines and the spaces between, above and below said lines and the spaces together representing the vowel sounds, and forming the sounding scale. 2nd. In combination with the alphabet, the dial A graduated into the three lines *f g h* and the six pointed indicator D. 3rd. In combination with said alphabet, the dial A with the several lines, circles and markings, together with the indicator B having six pointers with their several markings, and termed together a Kosmograph. 4th. The phonetic code, the code for colored lights, the code for flashes of light, differing in duration, and the code for the use of motions in differing directions, all and severally in combination with said alphabet.

No. 13,014. Improvements on Magneto-Electric Machines. (*Perfectionnements aux machines magneto-électriques.*)

The European Electric Company, (Assignee of C. A. Hussey), New York, N.Y., U.S., 20th June, 1881 ; for 5 years.

Claim.—1st. A continuous or endless permanent magnet of internally circular or analogous form, provided with poles or consequent points. 2nd. A continuous or endless permanent magnet having projections extending radially inwards. 3rd. A continuous or endless permanent magnet having radial projections and arc-shaped extensions. 4th. A permanent magnet composed of a number of continuous or endless sections of internally circular or analogous form. 5th. A permanent magnet composed of a number of continuous or endless sections of internally circular or analogous form, and a brass case or shell enclosing side sections and maintaining them in position. 6th. The process of centering the magnets or magnet sections in their case. 7th. The process of magnetizing continuous or endless magnets. 8th. The combination of a permanent magnet of internally circular or analogous form, and an armature arranged within the same and adapted to rotate before the poles or consequent points and entire length of said magnet. 9th. The combinatoin of a permanent magnet of internally circular or analogous form, and an armature wound longitudinally with wire and arranged within the magnet, so as to be adapted to rotate before its poles or consequent points and entire length. 11th. The combination of a permanent magnet, having projections extending radially inwards and comprising a portion or portions wound with wire, and the diaphragm of a telephone.

No. 13,015. Improvements on the Preservation of Human Bodies. (*Perfectionnements dans la conservation des corps humains.*)

Joseph Bélanger, (Assignee of Peter Jarrait), Detroit, Mich., U.S.; for 5 years.

Claim.—The combination, with the lower half B of the case provided with brackets *a* and drip pipe *h*, of the metallic suspensory shelf D without openings, and having handle *e*, and the upper half A of the case provided with ice receptacle E having cover F, and discharge pipe *i* with a free open space between the upper ice receptacle and corps, whereby the cold air can freely descend uninterrupted from the upper ice receptacle upon the corpse.

No. 13,016. Improvements on Clutches for Rolls, Shafts, Pinions, &c. (*Perfectionnements aux endentures des rouleaux, arbres de couche, pignons, &c.*)

Uri Haskins, Pittsburg, Penn., and Azel W. Gibbs, Hartford, Ct., U.S., 20th June, 1881 ; for 5 years.

Claim.—1st. The combination of the sliding clutch and a cam for disconnecting the clutch from the shaft which is driven thereby. 2nd. The combination of a clutch with a sliding fractional bearing mounted upon a shaft, and having a counterpart or seat on the other shaft, so as to form a friction coupling.

No. 13,017. Improvements in Locomotive Engines. (*Perfectionnements aux machines locomotives.*)

Ephraim Shay, Haring, Mich., U.S., 20th June, 1881 ; for 5 years.

Claim.—1st. A bogie locomotive with the bogie wheels driven by direct connection with the crank shaft of the engine. 2nd. In a locomotive in which the power of the engine is applied directly to the bogie wheels, the combination, with the bogie wheels and with the engine, of connecting driving shaft that accommodate themselves both horizontally and vertically to the motion of the bogies 3rd. As a means for transporting power from a locomotive engine to the locomotive drivers, the double crank shaft F^1, bevelled gear wheel F, shaft connection lines G and bogie axle gear wheels E E. 4th. The combination, with the piston rod and connection B^1 B^2 and axles D D, of the crank shaft F^1, bevel gears F F, shaft sections *b c d f*, universal coupling joints K, coupling sleeves L, pinions I M and bevel gear wheels E E. 5th. The construction of the shaft connecting lines G for transmitting motion from the engine to the drivers of a locomotive, the shaft section *b* carrying the pinion I, universal joint K, coupling shaft sections *b c*, shaft sections *c d* coupled by sleeve L, the section *d* being longitudinally movable in said sleeve L, universal joint K, coupling shaft sections *d f* and shaft section *f* carrying pinions M M.

No. 13,018. Improvements on Car Wheels.

(*Perfectionnements aux roues des chars.*)

Enoch L. Taylor, Philadelphia, Penn., U.S., 20th June, 1881 ; for 5 years.

Claim.—1st. A car wheel in the web pattern in which the hub, the back and the flange of tread are made in one piece, in combination with a face plate and an elastic filling. 2nd. A car wheel in which the outer annular and flanged portion is combined with, and arranged to turn on a central portion having a flange on the same side of the wheel as the flange of the annular portion of the same. 3rd. A car wheel in which an annular portion and its thread of vulcanized rubber, compressed fibre, or other equivalent, is combined with a central portion on which the annular portion can turn. 4th. The combination of the recessed annular portion of the wheel with the tread, the face plate and the fastening rolls having nuts sunk into the recessed annular portion of the wheel. 5th. A car wheel having one or more annular brake flanges, as shown at L to be acted on by a short single or double brake bar carrying two or four brake shoes. 6th. A car wheel in which a hollow webbed hub between the walls of which is fitted a filling of wood, paper, fibre, or other suitable material. 7th. The combination, with the sectional wheel consisting of an inner and outer portion, of an oil box, and a curved feeding and discharging tube arranged therein.

No. 13,019. Improvements on Washing and Wringing Machines. (*Perfectionnements aux laveuses-essoreuses.*)

John H. Cahoon, Keenansville, Ont., 20th June, 1881 ; for 5 years.

Claim.—1st. The bars D having the sides of different widths and bevels

and set within the box with the narrow side facing the centre. 2nd. In a washing machine, the cord *l* interposed between the bottom and sides to prevent lockage. 3rd. The castings H having tang *c*, groove *d* and arms *a* having tangs *b* and partly inserted into the sides of box A. 4th. The circular castings J having flanges *m* fastened to the sides of the rubber F and receiving the ends of the rubbing bars G. 5th. The plate gudgeons Q having prongs *m*1. 6th. The end pieces Q of the rubber. 7th. The side castings K of the wringer having flanges *f g h* for fastening the same to the tub. and a groove *e* for receiving a drip board L. 8th. The wringer frame composed of the side casting K1 recessed to receive the sliding piece O and spring P for carrping the rods M N.

No. 13,020. Improvements on Collars and Cuffs. (*Perfectionnements aux faux-cols et aux poignets des chemises.*)

George K. Snow, Watertown, Mass., U.S., 20th June, 1881; for 5 years.

Claim.—1st. A collar or cuff embossed to form an offset along a curved line to determine the fold, said offset connecting the two parts occupying different planes. 2nd. A collar or cuff, the turn over portion of which occupies a position relative to the band portion with its upper face in a line, or nearly so, with the under face of the said band portion. 3rd. A reversible collar or cuff having both sides furnished alike, and embossed to throw the turn over portion into a different plane from the other portion. said two portions being connected by inclined offsets extending from end to end, or nearly so, along a curved line and forming the angles *e g* and rounded corners *f h*.

No. 13,021. Improvements in Overalls. (*Perfectionnements aux pantalons de voyage.*)

George P. Evans and Henry J. Miller, Fort Wayne, Ind., U. S., 20th June, 1881; for 5 years.

Claim.—Overalls provided with a crotch piece A of an elongated diamond shape, made in one piece, and inserted centrally in the crotch between the fly and seat, and arranged centrally between the legs. with its long axis in line with, and extending down each leg, and its attaching seams formed in line with the legs and lines of strain.

No. 13,022. Improvements on Shovel Blades of Pulp. (*Perfectionnements aux châsses des pelles en pâte à papier.*)

William H. Murphy, Syracuse, N Y., U.S., 20th June, 1881; for 5 years.

Claim.—1st.—A shovel blade manufactued of compressed paper pulp, as a new article of manufacture. 2nd. As a new manufacture, a paper pulp shovel blade, in combination with a handle and plates or straps for securing the same.

No. 13,023. Improvements on Wire Tighteners. (*Perfectionnements aux serre-fils métalliques.*)

Robert Lang, Hensall, Ont., 20th June, 1881; for 5 years.

Claim.—The combination of the frame work A, shaft B, reels C C, ratchet H, dog K and eccentric clamps F F1 F2.

No. 13,024. Improvements on Foot Power Mechanism. (*Perfectionnements aux mécanismes des moteurs à marche.*)

Charles E, Mayo and William L. Perry, Lowell, Mass., U. S., 20th June, 1881; for 5 years.

Claim.—1st, The combination of clutch pulley B, shaft *a*, pulleys *d e*, straps *h*1 *h*2 *g*, shaft *b*, treadle *f* and spring *m* for operation as a foot power machine. 2nd. The shaft *a* and clutch pulley B formed with tangential grooves *i* and fitted with pins or rollers R, in combination with a treadle, pulleys and belts fitted for giving an intermittent rotation to the clutch. 3rd. The treadle *f*, straps *g*, pulley *e* and spriag *m*, in combination with shaft *b*, pulley *d* and connections to a clutch pulley and a separate shaft.

No. 13,025. Improvements on Thill Holders. (*Perfectionnements aux bracelets des harnais.*)

Peter Grant, Marquette, Mich., U.S., 20th June, 1881; for 5 years.

Claim.—In section A having inner side flanges, an enlarged recessed head *a*1 and carrying a buckle or lug D, a section B hinged to the section A, near the head *a*1, and having inner side flanges and a lug D, and a leather packing F bent to fit within the sections, with its ends within the hollow head *a*1.

No. 13,026. Improvements on Skates. (*Perfectionnements aux patins.*)

Charles Raymond, Guelph, Ont., 20th June 1881: for 5 years.

Claim.—1st. A skate in which the blade is hinged to a lug on the bottom of the skate body, and the front and heel clamps operated by an adjustable plate attached to a bar connected to, and so arranged with the hinge, that the spring or closing of it imparts a longitudinal movement to the said bar, a spring thumb latch L pivoted on one side of the slotted lug J and made to fit into a cross slot *a* in the said lug, for the purpose of engaging with a notch made in the skate standard K, as the said standard enters the vertical slot in the lug, in combination with the lug *o* cast on the bottom of the skate body near the toe, and having a slot to receive the front standard N, for the purpose of securely holding the blade of the skate to its body. 2nd. In a skate in which the front and heel clamps are adjusted by the movement of the hinge connecting the body and blade of the skate, the combination of a curved thumb latch L pivoted on one side of the lug J and actuated by a curved spring M rivetted on the opposite side of the lug.

No. 13,027. Improvements in Composition for Cleaning Marble and other Stones. (*Perfectionnements aux composés pour nettoyer le marbre et autres pierres.*)

George P. Cole, Johnstown, N.Y., U.S., 20th June, 1881; for 5 years.

Claim.—A composition of lime, whiting, sal soda, soft soap, fine salt, emery dust, fish oil and water.

No. 13,028. Improvements in Sliding Door Hangers. (*Perfectionnements aux pentures des portes en coulisses.*)

George R. Kidder, Armada, Mich., U.S., 20th June, 1881; for 5 years.

Claim.—1st. In combination, the hanger F, bearing wheel C, track B, door A, bracket E and arm G. 2nd. The combination, in a sliding door hanger, of the hanger F having a vertical bearing wheel C with either flat, grooved or flanged face, with the bracket E having an arm or stud G at its upper end. 3rd. In combination with a sliding door and hanger, the bracket E secured to the inside of the door, and having on its upper end, the arm G.

No. 13,029. Improvements on Cutter Bars for Harvesters. (*Perfectionnements aux porte-lames des moissonneuses.*)

John Montross, Canastota, N.Y., U.S., 20th June, 1881; (Extension of Patent No. 12,074.)

No. 13,030. Improvements on Cutter Bars for Harvesters. (*Perfectionnement aux porte-lames des moissonneuses.*)

John Montross, Canastota, N.Y., U.S., 21st June, 1881; (Extension of Patent No. 12,074.)

No. 12,031. Improvements on Car Heating Apparatus. (*Perfectionnements aux appareils pour chauffer les chars.*)

James W. Graydon, Washington, D.C., U.S., 22nd June, 1881; for 15 years.

Claim.—1st. The method of warming cars by means of a forced circulation of water or steam, through suitable continuous pipes extending through each car, and communicating with one common source of supply. 2nd. The method of warming two or more cars by means of water or steam, obtained from a boiler or heater forced rearwards through pipes arranged within one side of each car and forward through similar pipes, within the opposite side of the same, the circulation being an obstructed one from one car to another. 3rd. The method of warming cars by means of heated water or steam, caused to pass from a boiler or heater through pipes located in the cars, and to return again to such boiler or heater, such circulation being produced and maintained by means of a pump.

No. 13,032. Improvements on Grinding Mills. (*Perfectionnements aux moulins à moudre.*)

James Higginbottom, Liverpool, Eng., 27th June, 1881; for 5 years.

Claim.—1st. As a new article of manufacture, a grinding or granulating mill in which both grinding surfaces have the same axis, and are dressed with spiral ribs, and grooves pointing in the same direction when the two surfaces are in position. 2nd. The dressing of grinding surfaces of mills in which both surfaces are normal to the same axis with grooves and ridges, whether curved, angular or straight, cut on each grinding surface obliquely to the radius and approximately parallel to those opposite to them on the other grinding surface, when the two faces are in position. 3rd. The method of grinding or granulating grain, by passing it between two grinding surfaces normal to the same axis upon which the ridges and grooves are arranged obliquely to the radius, those on both stones pointing in the same direction, so that when the mill is in operation the ridges on the two faces shall pass over each other, at a comparatively small angle with each other, and thus in great measure prevent the shearing and comminuting of the bran and germ of the wheet or other grain operated upon. 4th. In mills in which both grinding surfaces have the same axis, dressing the surfaces with grooves and ridges, the latter sloping with a gradual slope on the advancing side of the ridge, and the ridges of the running face crossing those on the other face at a comparatively small angle, the meeting or advancing surfaces of the ridges being in each case sloping, instead of sharp and abrupt. 5th. The various shapes of dress.

No. 13,033. Improvements on Combined Mowers and Reapers. (*Perfectionnements aux faucheuses-moissonneuses.*)

George O. Proper, Auburn, N. Y., U. S., 27th June, 1881; for 5 years.

Claim.—The combination of the endless apron N, rollers O P, the latter provided with a clutch Q, sliding pinion S having clutch R, horizontal rack bar U having vertical rack W, cog wheel X, pinion Z, rack A1, connecting rod C1, lever D1 and a pawl and ratchet for preventing reverse motion of the roller P.

No. 13,034. Improvements on Electric Circuits. (*Perfectionnements aux circuits électriques.*)

Orazio Lugo, New York, N. Y., U. S., 27th June, 1881; for 15 years.

Claim.—1st. The electric conductor composed of two or more solenoids connected together in series, and having the helical conductor of each solenoid joined to the axial conductor of the next solenoid in series, in each direction and vice versa. 2nd. The electric conductor composed of a series of solenoids in which each terminal of the series has one end of its axial conductor joined to its own helical conductor, and the other end to the helical conductor of the next solenoid in the series. 3rd. An electric circuit composed of a direct and a return conductor in the form of a compound solenoid constructed so that each conductor becomes alternately the helical and axial conductor thereof.

No. 13,035. Improvements on Machines for Cutting Hoops. (*Perfectionnements aux machines à tailler les cercles.*)

John B. Pike, Harwick, Ont., 27th June, 1881; for 5 years.

Claim.—The oscillating knife C in connection with the stationary table B on which the plank is placed to be cut, for the purpose of cutting bevelled hoops.

No. 13,036. Improvements on Creamers. (*Perfectionnements aux garde-lait.*)

George Burroughs, Fallowfield, Ont., 27th June, 1881; for 5 years.

Claim.—The truncated cone diaphram C placed inclinedly within a close bottomed cam A having a cover B, faucet D and observing glass E.

No. 13,037. Improvements on Musical Instruments. (*Perfectionnements aux instruments de musique.*)

Walter F. Abbot, Montreal, Que., and Moses Harris, New York, N. Y. (Assignees of George B. Kelly and Mason J. Matthews, Boston, Mass., U. S.,) 30th June, 1881; (Re-issue of Patent No. 10,320.)

Claim.—1st. In combination with the driving shaft of the feed rolls of a mechanical musical instrument A in which a strip of perforated paper, or other flexible material, is used, one or more pitman rods connected to said shaft, and the shaft J connected to the bellows by cranks J_1 J_2 J_3 and links m m_1 m_2. 2nd. In combination with a mechanical musical instrument in which a strip of perforated paper, or other flexible material is used, the rollers L M mounted and adapted to be revolved in suitable bearings in the supplementary or removable frame C. 3rd. In a mechanical musical instrument, a strip of paper having perforations arranged to represent a quadrille or other piece of dancing music, and adapted to control the passage of wind through the reeds, and having marked or pointed thereon the calls or figures belonging to said quadrille or other dancing music at the proper place for the same to be called. 4th. A strip of paper having perforations arranged so as to represent a quadrille or other piece of dancing music and adapted to control the passage of wind through the reeds, having marked or pointed thereon the calls or figures belonging to said quadrille or dancing music, at the proper place for the same to be called, and marks or lines formed thereon to indicate to the operator the proper time to give the calls. 5th. In combination with a mechanical musical instrument in which a strip of perforated material is used, the rollers L M mounted and adapted to be revolved in suitable bearings. 6th. The combination, with a mechanical musical instrument, of a music sheet controlling its operations, and a music carrying roller, and a music take up roller arranged opposite each other, and means through which said take up roller is operated from the driving shaft of said musical instrument.

No. 13,038. Improvements on Musical Instruments. (*Perfectionnements aux instruments de musique.*)

Walter F. Abbot, Montreal, Que., and Moses Harris, New York, N. Y., (Assignees of Mason J. Matthews, Boston, Mass.,) U. S., 30th June, 1881; (Re-issue of Patent No. 10,082.)

Claim.—1st. The combination of the reed chamber G situated as described and having reeds provided therewith as described, with band B having perforations C, and wind chest A having opening *b* and wind moving device. 2nd. The combination of reed chamber G situated above the perforated band B. 3rd. The combination of a perforated band B with a reed chest, and reeds G situated above said band, and wind chest A having passage *b* connecting with perforations in said band B. 4th. The combination, with a wind chest provided upon its upper side with a wind passage communicating therewith, of a driving shaft or feed roll mounted upon the upper side of said wind chest, suitable wind moving bellows placed beneath said wind chest, and a sheet or band of perforated paper passing over said wind chest and wind moving bellows, the detachable frame F, the secondary feed roll H having its bearings on said frame, the reed board G provided with trunnion pins u u fitted to, and resting in the slots u_1 in the side rails of the frame F, and the springs v v. 5th. In a mechanical musical instrument, the rocker shaft q provided at each end with a hook hasp q_1, and at or near the middle of its length with the operating lever or handle q^2, all formed from a single piece of wire.

No. 13,039. Improvements on Fanning Mills. (*Perfectionnements aux tarares-cribleurs.*)

Anthony Kline, Harriston, Ont., 30th June, 1881; for 5 years.

Claim.—1st. A combined wire cloth and zinc riddle composed of two or more sheets of wire cloth O, placed above one or more sheets of perforated zinc P contained within a single frame Q. 2nd. The combination, with a vibrating screen I, of a pendulum J pivoted in the shoe E in such a manner that the rocking movement of the pendulum, caused by the vibrating movement of the shoe, imparts a vertical shake to the screen. 3rd. In a fanning mill in which the riddle and screen shoes vibrate together, the combination of the leather hangers M connecting the sides of the two shoes in such a manner that lateral vibration of the lower shoe is permitted without end movement. 4th. In a fanning mill in which the shoes derive a lateral vibratory movement from a vertical rocker *n*, a bottom frame separated from the main frame of the machine, for the purpose of permitting the extension of the bottom screen. 5th. In a fanning mill in which the shoes derive a lateral vibratory movement from a vertical rocker, brackets extending from the uprights A for the purpose of supporting the rocker, so that the shaking rod from the fanning mill shaft to the rocker shall be parallel with the centre line of the machine.

No. 13,040. Improvements on Water Closets. (*Perfectionnements aux latrines à l'eau.*)

David S. Keith, Toronto, Ont., 30th June, 1881; for 5 years.

Claim.—1st. The valve composed of the combination of the canting spindle valve H H, guides T T, spring I, spindle C, stuffing box G G G, jacket J J with outlet K. 2nd. The valve in combination with the floating ball A and hinged lever B B B. 3rd. The valve in combination with the knob *v* and the spring V. 4th. The valve inverted composed of the combination of the canting spindle valve H H having inserted in its seat a rubber washer, the guides T T, stuffing box G G G, spindle *c*, knob *v*, spring V, spring I, jacket J J with outlet L. 5th. The combination of the cistern N, bell trap overflow Q and valve apartment inside of safe *x*, and ventilators R S with the tube O from cistern N to basin P, and the said basin P, the safe *x*, cistern N, overflow Q, tube O and basin P, all being in one piece and separate compartments. 6th. The use of the valve operated by a ball, for filling wash basins, water closets, baths and such like purposes. 7th. The application of such valve without the ball and operated by the knob *v* and spring V to sinks, wash basins and other similar purposes. 8th. The joint formed by the combination of the porcelain plunger Y with the rubber ring V, said ring being set in a porcelain seat. 9th. The combination of the bell trap overflow J with the plunger Y.

No. 13,041. Improvements on Submerged Pumps. (*Perfectionnements aux pompes submergées.*)

Loran L. Walley, Scotch Village, N. S., 30th June, 1881; for 5 years.

Claim.—1st. In combination with the cylinder A and chamber D at its side and connected by passage *d*, the shell E enclosing the top of said cylinder and chamber, and receiving the well tubes, and divided by partitions *h h* forming a valve chamber having ports *i i* and provided with an oscillating valve G. 2nd. The shell E secured over the top of cylinder A, and chamber D having inlet valves *g g*, valve chamber J and oscillating valve G closing the ports *i i* alternately. 3rd. The shell E having an oscillating valve G in a chamber J, connecting with the well tube F and inlet valves *g g* to the cylinder A and chamber D, and a plunger within the cylinder. 4th. The valve *g g* and G arranged in the same plane and in alignment with each other.

No. 13,042. Improvements on Churns. (*Perfectionnements aux barattes.*)

Stephen B. Rathbun, Carleton, Mich., U. S., 30th June, 1881; for 5 years.

Claim.—1st. In combination with a churn body having an air inlet at or near the centre, and one or more outlets at or near the circumference, a rotary vertical beater consisting of a central spindle, vertical rods and hinged vertical blades. 2nd. The churn consisting of the body provided with internal ribs, and with air inlets and outlets located at the centre and circumference respectively, and the beater E having vertical rods and hinged blades, the latter adapted to produce a current of air through the body when the beater is turned forward, and to gather the butter particles when the motion is reversed.

No. 13,043. Improvements in Stack Protectors. (*Perfectionnements aux protecteurs des meules de foin.*)

Job Slock and Wouter Slock, Kalamazoo, Mich., U. S., 30th June, 1881; for 5 years.

Claim.—1st. The vertical hollow pipe with its pulleys, chain, crank and hood. 2nd. In a stack protecting device, the lower joint bearing pulley and having the pipes detachably connected therewith, located vertically above and below, and horizontally from it, the cap at the apex of the vertical pipe with its pulley, the hood, chain and crank device. 3rd. The vertical and horizontal pipes with hood and chain, and the crank shaft, ratchet and brake. 4th. The conical hood composed of the seamed parts detachably connected by bolts, and the collar detachably bolted on top of said hood. 5th. The hood composed of seamed parts combined with the collar having the corrugated flange integral therewith and secured to the hood.

No. 13,044. Improvements on Veber Meter. (*Perfectionnements au compteur Veber.*)

Thomas A. Edison, Menlo Park, N.Y., U. S., 30th June, 1881; for 15 years.

Claim.—1st. In a Veber meter, the combination of a floating electrolytic cell, means actuated thereby for causing the recomposition of the water decomposed therein, and means for registering the rise and fall of the floating cell. 2nd. The method of measuring an electric current, which consists in causing a definite proportion of the current to pass through a floating electrolytic cell arranged to rise as the fluid therein is decomposed, and then, upon the decomposition of a predetermined amount of fluid, causing the recomposition of the gases, and consequent fall of the cell, and registering the occurrence of this sequence of operations. 3rd. The Veber meter consisting of a cell, a spring suspended electrode, and an index and scale. 4th. The combination, in a Veber meter, of a cell, a spring suspended electrode therein, and means controlled thereby for reverting the circuit through the cell, to cause such electrode to become alternately a node and cathode. 5th. The combination, in a Veber meter, of a cell, a spring suspended electrode therein and means controlled thereby, for registering the rise and fall of such electrode in the cell. 6th. The combination, with a suspended plate in a plating cell, of means for registering the accurateness of maximum and minimum deposition thereon, and means for measuring the fractional depositions between the maximum and minimum. 7th. The combination of the spring suspended plate, an arm projecting therefrom, a counter balanced yoke or Y and two contacts, the arm of the plate controlling the movement of the yoke. 8th. The combination, with an electric circuit containing translating devices, of an electric motor having a definite loading, and apparatus for registering the work done. 9th. The combination of an electric circuit, an electro-motor, a fan driven thereby, and a registering apparatus. 10th. The combination of an electric circuit, an electro-motor, a fan or blades driven thereby, a vessel or tank in which the fan or blades are placed, and registering apparatus. 11th The combination of an electric circuit, an electro-motor, a fan or blades, a vessel or tank filled with liquid, in which the blades or fan are placed, and registering apparatus. 12th. An electric meter consisting of a motor having a definite work to perform, or loading to overcome, and registering devices.

No. 13,045. Improvements in the Manufacture of Iron and Steel. (*Perfectionnements dans la fabrication du fer et de l'acier.*)

Frederika C. L. Lindberg, (Administratrix of the goods, etc., of the late Leonard M. Lindberg,) Kohlsoa, Sweden, 30th June, 1881; for 5 years.

Claim.—1st. The method of converting crude or pig iron into steel or

malleable iron, and this without any admixture or manipulation, save and except where, for some special reason, such admixture or manipulation may be desirable. 2nd. The combination of air and gas channels with reference to H I K and to H¹ I¹ K¹. 3rd. The combination of gas and air channels with reference to H I K. 4th. The combination of air tube N with channels M H I K. 5th. The combination of air tubes or channels H with channels I K. 6th. The combination of air tubes or channels H with channels I K.

No. 13,046. Improvements on Lantern Hangers. (*Perfectionnements aux porte-lanternes.*)

Edwin Lufkin and Edmund H. Neally, Monroe, Me., U.S., 30th June 1881 ; for 5 years.

Claim.—1st. A lantern holder of a wire frame provided with a spring arm for holding it to the dash board, and hooks for supporting and holding a lantern and provided with a reflector. 2nd. In a lantern hanger for carriages or waggons, the combination, with the spring arm A, of the wire frame C, the arms E E and hooked wires G.

No. 13,047. Improvements on Overalls. (*Perfectionnements aux pantalons de voyage.*)

Jacob Lowenstein and Joseph Van Baalen, Detroit, Mich., U.S., 30th June, 1881 ; for 5 year.

Claim.—1st. As a means of staying the inner leg and seat seams, and flies of overalls in the stay, composed of the gores A A¹ and stay B constructed and stitched together. 2nd. As a new article of manufacture, overalls or pantaloons wherein the inner leg, seams, seat seams and flies are made firm and prevented from ripping or tearing, by the overlapping gores A A¹ and stay B.

No. 13,048. Improvements on Chair Rockers. (*Perfectionnements aux bascules des chaises.*)

Edward W. Andrews and William W. Petherick, Detroit, Mich., U.S., 30th June, 1881 ; for 5 years.

Claim.—1st. An adjustable rocker for chairs provided with a rigid clamp C and an adjustable clamp C¹ for removably securing the rockers to the leg of an ordinary chair. 2nd. An adjustable rocker for chairs provided with clamps C C¹ and a roller O in the rear end of each rocker. 3rd. As a new article of manufacture, an adjustable rocker provided with clamps C C¹ constructed and adapted to be removably attached to the legs of an ordinary chair.

No. 13,049. Improvements on Telephones. (*Perfectionnements aux téléphones.*)

John Goodman, Louisville, Ky., U.S., 30th June, 1881 ; for 5 years.

Claim.—1st. The means and devices described whereby sounds articulate, or otherwise, are produced or reproduced. 2nd. In a telephone receiver, the combination, with a conductor or helix, and a diaphragm or resonator, of one or more vibratory magnets parallel with the helix and tending to assume a position at right angles thereto, when a current of electricity is passed through said helix. 3rd. The combination, with a diaphragm or resonator, and a helix or conductor, of a vibratory magnet parallel with said conductor and tending to assume an angular relation thereto under the influence of the current of elastic connections designed to hold the magnet in a position approximating parallelism with said conductor. 4th. The combination, with the helices or conductors and the vibratory magnets, arranged parallel therewith, of the resonator or diaphragm connected mechanically with the magnets, and the spring or elastic device bending to hold the magnets parallel with the conductors and in strained connection with the resonator. 5th. The combination of a diaphragm or resonator with a magnet so situated with reference to a conductor of electricity or helix that, when a current is passed through the latter, the magnet will end to assume a position at right angles therewith, and mechanical conuection between the resonator and the magnet having no other elastic support than such as is derived from the resonator. 6th. The combination, with the helices and conductors and the magnets, of two diaphragms or resonators, arranged one at each end of the instrument, and connected mechanically with the magnet or magnets, and with each other.

No. 13,050. Improvements on Fog Horns. (*Perfectionnements aux signaux de brume.*)

Richard Chester, Chicago, Ill., U.S., 30th June, 1881 ; for 5 years.

Claim.—1st. The trumpet A supported by and projecting into the cylindrical C, in combination with the chamber C, cylinder F to which the said chamber is secured, piston H, air ducts *e e*¹ connecting the chamber with the cylinder, ingress valves G G¹ and puppet valve D. 2nd. The combination of the trumpet A provided with a conical sound disperser *a*¹, bell *a* and spoon-shaped mouth piece B projecting into the air chamber C and provided with a vibrating reed B¹. 3rd. The combination of the trumpet A, air chamber C and cylinder F, all rigidly connected together, with the piston H, handle I and mounting pivot N upon which the whole instrument is supported and may be turned to point in any direction desired.

No. 13,051. Improvements in Trimmings. (*Perfectionnements aux garnitures des vêtements.*)

Jacob Steiger, Herisau, Switzerland, 30th June, 1881 ; for 5 years.

Claim.—1st. A trimming of combined embroidery and lace joined together edge to edge, wherein the lower portion of the strip of embroidery is formed light and open, and its lower edge is worked with a stitch no heavier than that employed in its pattern, and the upper edge of the strip of lace is formed with its threads close together, whereby the two edges are rendered like each other, and the line of their union is concealed. 2nd. A trimming consisting of a strip of embroidery having a scalloped lower edge and a strip of lace whose upper edge is formed with scallops, the reverse of, and conforming to the scalloped edge of the embroidery, the two being joined together dge to edge.

No. 13,052. Improvements on Starch Drying Houses. (*Perfectionnements aux sécheries à empois.*)

George E. Full, Charlottetown, P.E.I. 30th June, 1881 : for 5 years.

Claim.—1st. A starch drying house with hinged or pivoted drying frames. 2nd. The combination, with a series of hinged or pivoted starch drying frames, of a rod or chain connecting these swinging frames, for the purpose of adjusting the inclination of these frames. 3rd. The combination, with the steam heating pipe K, of the standard E at each side of the steam pipes, and the swinging drying frames pivoted to these standards. 4th. The combination, with the steam heating pipes K², of the drying frames C² pivoted thereon. 5th. The combination, with the steam heating pipes K², of blocks N mounted thereon, and of the drying frame C² resting on these blocks. 6th. The combination, with the steam heating pipes K², of the blocks N mounted thereon, the drying frames C² resting on these blocks and the projecting strip P.

No. 13,053. Process of Enamelling iron Ware. (*Procédé d'émaillage des objets en fer.*)

Frederick G. Niedringham, and William F. Niedringham, Saint Louis, Mo., U. S., 2nd July, 1881 ; (Extension of Patent Mo. 6,308.)

No. 13,054. Process of Enamelling Iron Ware. (*Procédé d'émaillage des objets en fer.*)

Frederick G. Niedringham and William F. Niedringham, Saint Louis, Mo., U. S., 3rd July, 1881 ; (Extension of Patent No. 6,308.)

No. 13,055. Improvements on Turbine Water Wheel. (*Perfectionnements aux turbines hydrauliques.*)

Isaac Sherck, George E. Raymond, Fremont, Ohio, and William F. Jobbins, New York, N. Y., U. S., 4th July 1881 ; for 5 years.

Claim.—1st. In a turbine water wheel, buckets having pockets located at the junction of their vertical and rearwardly inclined portions, whereby the water is chambered in its concussion. 2nd. The combination, with the wheel case and gate ring, of wooden bearing attached to the gate ring and adapted to rear against the upper ring of the wheel case. 3th. The combination, with the wheel case and gate ring, of radially adjustable wooden bearing attached to the gate ring and adapted to bear against the upper ring of the wheel case. 4th The combination, with a wheel case, of a gate ring provided with slotted wooden bearings and screws inserted through said bearings for securing the same in any desired adjustment. 5th The combination, with a wheel case and gate, of vertically adjustable bearings located in the horizontal flange of the wheel case, and adapted to support the gate. 6th. The combination with a wheel case and gate bearings located in the horizontal flange of the wheel case, and pointed screws for imparting vertical adjustment to said bearings. 7th. The combination, with a wheel case and gate ring, of gate wings pivoted to upright pivots attached to the wheel case, said gate wings provided with a bearing at one end, on the periphery of the wheel case, and at its opposite end of the edge of the gate wing. 8th. The combination, with a wheel case and gate, the latter having notches or depressions in the edge of its lower ring, of pivoted gate wings, each provided with an arm that engages the notched edge of the gate ring. 9th. The combination, with a gate having upwardly bevelled upper and lower rings, of gate wings pivoted to the wheel case and adapted to be automatically opened and closed. 10th. The combination with a gate and wheel case, of gate wings pivoted on their rear sides and near their forward ends to upright pivots attached to the wheel case. 11th. A turbine water wheel provided with a globe case constructed to form a continuous circular passage completely around the wheels. 12th. The wheel case having chambers formed at the entrance of the ports. 13th. The combination, with a globe case having a flat flange on its under side, of a wheel case provided with a horizontal flange and pivoted lugs, for securing the wheel case in place. 14th. The combination, with a globe case having a ledge on its upper side, of a casing ring and hooked bolts for securing the casing ring to the case. 15th. The combination, with a globe case having a casing ring secured thereto, of a crown plate removably secured to said casing ring. 16th. The combination, with a casing ring, of a crown plate and perforated lugs attached to the ring and overlapping the plate, and screws for securing the parts together. 17th. The combination, with the gates, of a gate rack provided with pins which extend through elongated slots in the casing and enter holes in the gate ring, and sliding plates located beneath said elongated slots. 18th. The combination with the gate rack downwardly projecting pins or lugs and slides, of keepers attached to the under side of the casing ring, and adapted to retain the slides in place. 19th. The combination, with the gate, of a counterweight connected therewith, and serving to prevent the accidental closing of the gate. 20th. The combination, with the gate rack of a worm shaft, worm gear, and counterweight lever 21st. The combination, with the gate wings, of adjustable wooden blocks.

No. 13,056. Improvements on Sewing Books and in Machinery Therefor. (*Perfectionnements dans le brochage des livres et dans les machines pour cet objet.*)

David M. Smith, Hartford, Ct., U.S., 5th July, 1881 ; for 15 years.

Claim.—1st. The combination, with the sheet holding arms, in a hook sewing machine, of the fingers *c c* for supporting the sheet, and mechanism for withdrawing the fingers and allowing the sheet to drop upon the sheet holding arm 2nd. The combination, with the sheet supporting fingers *c c*, of the adjustable gauges *d d* and mechanism for moving the fingers, and for conveying the sheet to the sewing mechanism. 3rd. The combination, in a feeding mechanism for book sewing machines, of the fingers *c c*, gauges *d d*, levers *f f h*, links *gg*, spring K¹, cam plate *m*, latch bar *l*¹² and lifter. 4th. The combination with the feed table, of the lip *t* at the edge thereof. 5th. The combination of pairs of curved needles acting in opposite directions, with a looper that takes the loop from one needle and delivers it over the other needle. 6th. The looper having a shank, in combination with a rock shaft through which the shank passes, and mechanism for rocking the shaft and for partially turning the looper and its shank. 7th. The combination of two semi-circular needles acting in opposite directions,

one looper to take the loops from one needle and delivers them over the other needle, and mechanism for pulling up the loops of thread around the needle successively. 8th. The sliding bar p and thread guides o o_1, in combination with the double hooks r, the rock shaft b, the looper a_2 and the pair of needles acting in opposite directions, and mechanism for actuating the parts. 9th The combination, with the needles l l_1, of the looper n_3, shuttle a_3, and mechanism for moving the looper. 10th. The combination of the semi-circular needles l l_1, shuttle v_3, shuttle holder looper n_3, slotted shank e_3, crank i_3 and rock shaft h_3. 11th. The combination with the needles l l_1, shuttle and looper and actuating mechanism, of the stationary pin v_8 to deliver the loops from the looper. 12th. The combination, with the sewing mechanism, of an inclined feeding table, a moving sheet holder and mechanism for raising the same and the sheet to the sewing mechanism. 13th. The combination, with the book sewing mechanism, of the inclined feeding table, the sheet holder and pusher v_2 and the stationary incline w_3 and mechanism for moving the sheet holder. 14 h. The combination, with the inclined feeding table and sewing mechanism, of the sheet holder, means for moving the same, rock shaft m_5, fingers l_5 and means for moving the same. 15th. The combination of a feeding table, a moving sheet holder, sewing mechanism and an atmospheric sheet separator. 16th. A holder for folded book sheets, in combination with bearings for the ends of the sheet holders to slide upon, and means for liberating the sheet holders successively, at the ends of the bearings, so that said sheet holders may fall away or be removed from the sheet. 17th. The combination, with book sewing mechanism, of sheet holders and end bearing for the same, and fingers for sustaining the sheet holders while the sewing is being performed, and for liberating the said sheet holder and allowing for its removal. 18th. A sheet holder for a sewing machine having a groove for the needles in each of its edges, and adapted to be supported at its ends 19th. The combination, with the sheet holders and bearings for the ends, of a stationary incline, to move the sheets endwise of the holders into the proper position for sewing. 20th. The combination of a sewing mechanism, of two diagonal and alternately reciprocating eye pointed needles, and an intermediate reciprocating looper taking the loops of needle thread from the needles in succession, and delivering one loop around the next. 21st. The combination with the diagonal reciprocating eye pointed needles and intermediate looper, of a bed or support capable of vertical adjustment or motion.

No. 13,057. Improvements on Systems of Electric Lighting, &c. (*Perfectionnements aux systèmes d'éclairage électrique, &c.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 5th July, 1881; for 15 years.

Claim.—1st. The improved method described of forming carbon in definite shape, consisting in depositing the carbon upon a metallic blank, and then removing the metallic portion. 2nd. A method of forming carbon articles of a definite desired shape consisting in cutting or shaping the articles from paper, and then carbonizing the shaped paper. 3rd. The method of removing hydrogen from carbon, consisting in passing a stream of chlorine, or equivalent gas, through the flask containing the carbons heated to a high temperature. 4th. The method of treating carbon conductors for electric lamps, consisting in enclosing the conductor in a glass case or globe, exhausting the air therefrom, heating the conductor by an electric current, and the hermetically sealing the glass case or globe. 5th. The method of treating carbon conductors for electric lamps, consisting in closing the conductor in a glass globe, or exhausting the air therefrom, heating the conductor by an electric current to a higher degree than that at which it is intended, to ordinarily raise the conductor in use, and then hermetically sealing the glass case or globe. 6th. The method of removing the occluded gases or vapours from the incandescent conductor of an electric lamp consisting in heating the same in vacuum, in the presence of a material which will absorb the gases or vapours thereby eliminated. 7th. The method of removing occluded gases or vapours from the enlarged ends and clamps of the incandescent conductor of an electric lamp, consisting in heating such parts by external heat focussed or centered thereon, in the presence of a material which will absorb the gases or vapours thereby eliminated. 8th. The combination of an incandescing electric lamp, means for producing a vacuum within its enclosing globe, means for concentrating external heat upon the incandescent conductor, and means for absorbing any gases or vapours given off by the incandescent conductor. 9th. The method of treating carbonized conductors for incandescent electric lamps, consisting in subjecting the shaped carbonized conductors to the actions of high heat, and a carbon vapour in a closed flask wherein the vapour has free access to every portion of the carbonized conductors. 10th. The process of building up or strengthening a defective point in an incandescing conductor for electric lamps, consisting in heating that point to a high temperature by concentrating thereon the heat from an external source, and at the same time allowing a carbon vapour to enter the globe, and deposit additional carbon on the heated point. 11th. The combination, with the carbon filament and its enclosing globe, of a chamber containing a solid carbon compound volatizable at low heat, and means for concentrating or focussing a high degree of heat upon any portion of the filament. 12th. An electric lamp consisting essentially of a carbon filament, enclosing globe and conducting wires, provided with a solid carbon compound volatizable at a low heat. 13th. The method of treating filamentary carbons, consisting in heating a portion desired to be enlarged while in an atmosphere of hydro-carbon. 14th. The combination of a source of heat L, a retort or vessel containing hydro-carbon, the lamp enclosing globe H and pipe P provided with means for regulating the flow from R to H. 15th. The process of enlarging and increasing the electrical conductivity of the clamped ends of the incandescing conductors of electric lamps, which consists in passing over these ends a current of hydro-carbon vapour, while they are at a high temperature and separated from the rest of the carbon. 16th. A flask or mould divided by a partition into two parts, one of which is provided with inlet and outlet pipes for the passage of hydro-carbon vapour. 17th. A carbon for the incandescing conductor of an electric lamp having plated ends for clamping. 18th. The hollow mould or flask of an interior shape corresponding to the carbon to be treated, and provided with means for passing therethrough a stream of vapour. 19th. The combination, with a hollow mould or flask for holding carbons to be treated, of circuit connections for heating the mould or flask by electrical incandescence. 20th. The method of uniting the carbon filament and conducting wires thereto, in an electric lamp, consisting in first uniting them mechanically in any ordinary manner, and then securing the union by electroplating thereon. 21st. The combination of a carbon filament, the conducting wires leading thereto, and an electro-plated union or joint. 22nd. An incandescent electric lamp in which the union of the incandescing carbon conductor, and the conducting wires leading thereto, is secured and perfected by an electro-plated union or joint. 23rd. An electro-plated cell provided with a perforated bottom for receiving the support of the article to be plated, so that the joint of the plating may be controlled. 24th. The combination, with a multiple arc or derived circuit, of two or more incandescent electric lamps arranged in series therein, the density and electrical conductivity of the carbons of the lamps being increased proportionately. 25th. The method of arranging a series of incandescent lamps in a multiple arc or derived circuit, consisting in increasing the density and electrical conductivity of the individual carbons, approximately in the proportion to the number to be placed in the one circuit. 26th. The combination, with one derived circuit, of two or more lamps, each of a fractional resistance of the resistance of the standard lamp, but with approximately the same radiating surface. 27th. The combination, with a main circuit, of several multiple arc or derived circuit, some containing a standard lamp, and some containing a series of lamps, two, three, or more, the electrical conductivity and density of the carbon, in any one derived circuit, in the latter instance increasing as the number of lamps used in such circuit increases. 28th. The combination, with one derived circuit and one circuit controller, of two or more lamps, each of a fractional resistance of a standard lamp, but with approximately the same radiating surface. 29th. An incandescing conductor for electric lamps made of compressed graphitic carbon. 30th. An electric lamp formed of a straight flexible high resistance filament enclosed in an hermetically sealed glass globe. 31st. The combination, with the carbon supporting bulb, of a glass arm rising above the bulb, and supporting one end of a straight carbon, and the conductor leading thereto. 32nd. The combination, with the glass enclosing globe and incandescing conductor of an electric lamp, of a support hermetically sealed to the globe, and supporting the carbons at a distance above the point of sealing. 33rd. The combination, with the conductors of an incandescing electric lamp, of a glass support to which the conductors are sealed at two or more points, one near the clamps, and one where the conductors enter the enclosing globe, so that the latter point is removed a little distance from the former. 34th. The electric lamp consisting of an hermetically sealed sphere, an incandescing conductor and protruding conductors. 35th. The combination, with the incandescing conductor of an electric lamp, and the key for controlling the circuits thereof, of an adjustable resistance cut in or out of circuit, in any desired proportion by the key. 36th. A carbon resistance made as described and provided with a series of metallic contracts, in combination with a key having an arm for compelling circuits at any desired contact. 37th. The combination with the incandescing loop of an electric lamp, of a support arranged to maintain the loop in its normal position. 38th. The supporting neck in which the wires leading to the loop are secured, provided with an arm for maintaining the loop in its normal position. 39th. The central tube, conductor or support for the incandescing conductor, formed with a chamber at its base and fitted to receive tightly therein the neck of the enclosing globe. 40th. In an incandescing lamp, the combination of the chambered central tube or support, and the enclosing globe, ground or adapted to fit tightly. 41st. The combination, in an incandescing lamp, of the chambered central tube, or support, adapted to hold a liquid seal, the enclosing globe having a neck fitted to the chamber, and a packing for securing the liquid seal.

No. 13,058. Improvements on Box Joint Fasteners. (*Perfectionnements aux goussets des joints de boîtes.*)

Benjamin Z. Taylor, (Assignee of Henry H. Brown,) Decatur, Ill., U.S., 6th July, 1881; for 5 years.

Claim.—The combination with the two parts to be united of a sheet metal strips having one slotted end resting on one part, and a driven end embedded in the other parts, and with a taper fastener embedded in the first part, and bearing against the outer end of the slot.

No. 13,059. Improvements on Folding Settees. (*Perfectionnements aux causeuses pliantes.*)

Reynolds T. White, Boston, and Mary A. Wildes, Cambridge, Mass., U.S., 6th July, 1881; for 5 years.

Claim.—1st. The combination of the seat B, hinged back A, slotted arm d, support c and socket E. 2nd. The combination, with the seat B of the folding legs or supports c provided with the bolt j, and the hinged braces D provided with the socket i, the supports c resting upon the braces D. 3rd. The hinged brace E attached to the cross bar F of the legs C C and extending to the rear of the settee. 4th. A folding settee composed of the seat B, folding back A, arm and its support C, the folding legs C C supported upon the hinged braces D, and the brace E.

No. 13,060. Improvements on Air Compressing Engines. (*Perfectionnements aux machines à comprimer l'air.*)

Henry C. Sergeant, New York, N.Y. U.S., 6th July, 1881; for 5 years.

Claim.—1st. In an air compressor, the positively moved valve E_5 for controlling the admission of air to the compressing cylinder, whereby it is made to act as an induction valve only. 2nd. The water chamber E in which a constant, but varying pressure of water is maintained. 3rd. The combination of a compressing cylinder, a positively moved air induction valve and two puppet delivery valves, which are operated by escaping air, the induction valve being arranged upon the side of the cylinder, and the eduction valves upon the top thereof, as a consequence of which the chest or chamber E is kept constantly filled with water under pressure, and thus the valve E_5 kept to its seat and lubricated. 4th. The combination of a water reservoir containing the air induction passage E_3 the air passages E_1 E_2 and the air induction valve E_5. 5th. The combination of the chambers E G and the pipe H, the arrangement of the parts being such as described, whereby the chamber E is kept filled with water under pressure.

No. 13,061. Process of, and Apparatus for the Teatment of Ores. (*Procédé et appareil pour le traitement des minerais.*)

Thomas G. Walker, Morristown, N.J., U.S., 9th July, 1881; for 5 years.

Claim.—The process of treating finely pulverized ore while the same is

suspended in a jet of steam, which process consists in conveying the ore in a continuous stream through a pipe exposed to external heat, by means and in the presence of a mixed current of steam and oxygen, said current also serving to retain the moving particles of ore in suspension within said pipe. 2nd. In an apparatus for treating ores, the combination of the ptpe D having three inlets, one for steam, one for oxygen and one for ore, and an outlet for steam, air and ore with the heating furnace, through which said pipe is passed, but with which its contents do not communicate.

No. 23,062. Improvements on Locks and Dams. (*Perfectionnements aux écluses et aux digues.*)

John DuBois, DuBois, Penn., U.S., 9th July, 1881; for 5 years.

Claim.—1st. The method of building and placing locks and dams consisting in the following steps, viz: constructing a raft of timber, building upon said raft, while it is floating, a base or foundation structure adopted to float, removing the raft from beneath the base, building the superstructure upon the floating base and finally sinking the completed structure, as a whole, to its place. 2nd. The method of constructing dams and locks consisting in first providing a temporary float in the water, next building upon said float a base or foundation for the dam or lock, adapted to float, next removing the temporary float, and finally building permanently upon the floating base, the main superstructure. 3rd. The process of constructing the gate or dam, consisting in first forming a raft of timber with cross bars thereon, placing the angle irons and bolts upon the said bars, placing the flooring and timbers above the angle irons, fastening the angle bars and parts above them together, and then withdrawing the raft, timbers and cross bars. 4th. The flexible gate or dam consisting of two sections, hinged at their distant and lapped loosely at their adjacent ends, and a third section, hinged to one of the main sections and overlying the other. 5th. In combination with two hinged co-operating sections of a flexible gate or dam, a third section or apron hinged to the upper main section, and overlying the lower main section. 6th. A flexible water gate or dam adapted to rise and fall, consisting of a single leaf or section on the up stream side, and two lapped sections or leaves on the down stream side 7th. The combination of two leaves or sections hinged at their adjacent ends, and a third section having one end hinged to one of the main sections, and its opposite end secured by a sliding joint or connection. 8th. The combination of the sections *a b* hinged at their ends and lapped one upon the other, and the apron *c* hinged to section *a* and connected to the base or foundation by a sliding joint. 9th. A flexible rising and falling gate, two gate sections or leaves, hinged at their outer ends and lapped at their inner ends, and a connection to prevent the sections *r* from rising so far as to separate. 10th. In combination with the apron *c*, the T-shaped heads and slotted plates connecting the apron with the base of the lock. 11th. In combination with the flexible buoyant gate or dam, positively acting means to depress the same beneath the water level. 12th. The combination of the flexible buoyant gate, means for depressing the same beneath the water, and the water wheel for operating said mechanism, arranged to be operated by the passing water. 13th. The combination of the gate or dam, the flumes K L, passage M and gates or wickets O P. 14th. In combination with a flexible gate or dam, means for conducting and maintaining water thereunder, and an elevated overflow or discharge to limit the water pressure beneath the dam. 15th. The combination of a jointed or flexible gate elevated by the admission of water thereunder, and a vertically adjustable outlet to limit the head of the water passing beneath the dam. 16th. In combination with the flexible dam, the flume K and wickets F, the discharge or overflow chamber H arranged in connection with the flume. 17th. In combination with the dam C and flume K, and means for retaining a head of water through the flume and beneath the dam, the overflow chamber H provided with removable wards J. 18th. The flexible dam or gate having each of its leaves or sides composed of two or more sections arranged side by side, with a packing between. 19th. In combination with the dam sections arranged edge to edge, the packing strip inserted in a groove in one edge, and urged outward by springs. 20th. A flexible dam or gate consisting of co-operating leaves or sides, each leaf composed of a series of sections, the sections of one leaf arranged to overlap or break joint with the sections of the other leaf.

No. 13,063. Safety Attachment to Railway Frogs. (*Disposition aux rails de croisement pour prévenir les accidents.*)

Elford S. Eveleigh, Hamilton, Ont., 9th July, 1881; for 5 years.

Claim.—1st. The box A, spring cover E placed in the fork of the rails for protection against accident. 2nd. The box A provided with springs D, cover E, grooves H, rubber balls F, blocks B or depression C, slots I. 3rd. The manner of securing the box A and cover E to the rails by means of bolts J J, passing through slots I in cover, and secured by nuts on the outside of rails, or rods passing through loops L, on the ends of cover E, thence through the rails or the equivalent devices.

No. 13,064. Improvements on Machines for Killing Potato Bugs. (*Perfectionnements aux machines à détruire les chrysomèles.*)

George Eadie, Oakland, Ont., 9th July, 1881; for 5 years.

Claim.—The combination of rollers H I and wheel K, and flights M N driven by gearing.

No. 13,065. Improvements in Hay Presses. (*Perfectionnements aux presses à foin.*)

Elouild Duplessis, St. Johns, Que., 9th July, 1881; for 5 years.

Claim.—1st. In combination with a vertical hay press, latches or stops placed in the sides allowing the follower free upward movement, but stopping its descent. 2nd. In combination with the sides of a hay press, the latches C hinged at their lower ends to suitable seats, in their normal position, inclined inwards, and drawn out by means of levers operated by a handle.

No. 13,066. Improvements on Spring Beds. (*Perfectionnements aux sommiers élastiques.*)

Joshua Kaiser, Toronto, Ont., 9th July, 1881; for 5 years.

Claim.—In a spring bed composed of cone shaped spiral springs supported in an inverted position on a slat frame, with their bases or larger ends connected together by links or otherwise, the combination of a band iron frame interwoven through the springs and forming a flexible frame bracing the springs, to sustain them in an upright position without interfering with their flexibility.

No. 13,067. Improvements on Thrashers and Separators. (*Perfectionnements aux batteuses-vanneuses.*)

The McDonald Manufacturing Company, (Assignee of Christian Tostenson,) Fond du Lac, Wis., U. S., 9th July, 1881; for 5 years.

Claim.—1st. A feeder's platform for thrashing machines composed of the longitudinal section *b*, and the longitudinal adjustable section b^1 extending beyond one end of the section *b* forming a band cutters platform, at either end of the machine. 2nd. The combination of the section *b* sells a^1 a^1 provided with the pins 3 3, and the section b^1 extending beyond one end of the section *b* and having the hooks 1 1 and perforated plates or eyes 2 2 on its under side. 3rd. In a combined thrasher and separator, the inclined sieve or open iron floor E having the rows of inclined fingers *e*, in combination with the cylinders C D concave and grate, endless rake or carrier F *f*, endless carriers G^1 G^2, inclined grain floors F^1 G_3 and separating shoe. 4th. In an endless rake or straw carrier, the combination, with the rake heads, of the links f^2 and metallic boxes or sockets having the open portion g^1 and extension *g*, for the reception of the ends of the rake heads. 5th. In an endless rake or straw carrier, the combination of the metallic boxes or sockets G having the open portion g^1, extension *g* and partition g_3, and the rake heads having their ends formed to fit in said boxes or sockets. 6th. The combination, with thrashing and straw conveying mechanism, of the sections H H^1 composing the separating shoe, having vibrating or shaking movements at right angles to each other. 7th. The combination of the devided and suspended sections H H_1 forming the separating shoe, and operating mechanism, whereby the section H is adapted to receive a longitudinal vibrating movement or end shake, and a rising and a falling movement at the head or front end thereof, and the section H^1, a transverse vibrating or side shake movement. 8th. The combination of the section H having the screens *h* h^1, the section H^1 having the transverse discharge spouts l l^1 and intermediate inclined screen l_3 and operating mechanism, whereby the section H is adapted to receive a longitudinal vibrating or end shake movement, and a rising and falling movement, at the head or front end thereof, and the section H^1, a transverse vibrating or side shake movement. 9th. The combination, with the longitudinally vibrating section H, of the separating shoe having a rising and falling movement at the head or front end thereof, the screen *h* mounted therein, having the oblong openings h^4 with lips h^2 curved upward and toward the tail or rear end of the screen, and the fan and adjustable wind boards for regulating or equalizing the blast through the screen. 10th. The combination, with the sections composing the separating shoe, of the operating mechanism consisting of the double levers *j j*, rods *k* k^1, vibrating shaft K having the cranks *k* *k* k^2, connecting rod m^1, vertical double crank rod m^2, rod m^5, the pitman *n* and revolving eccentric or crank wheel n^1. 11th. The return or tailings elevator having longitudinal central board r_3 and an endless linked chain passing around said board, whereby the spaces between the links of the chain and the upper surface of said board from cups or buckets for conveying the tailings, etc., to the upper end of the elevator.

No. 13,068. Improvements in Velocipedes. (*Perfectionnements aux vélocipèdes.*)

Edouard C. F. Otto, London, Eng., 9th July, 1881; for 5 years.

Claim.—1st. In a one wheeled velocipede with riders seat arranged above the wheel, the fork C having lower continuations C^1 with treadle or pedal spindles which receive revolving motion without slips from the wheel, by means of band or other gearing. 2nd. The fork C having lower continuations C^1 and a back prolongation C^2 for a castor or hind wheel. 3rd The handle H having a tooth *h* gearing with a notch in the seat spring G for the purpose of steering the velocipede. 4th. The steering handle H having a tooth *h* gearing with a notch in the seat spring G, in conjunction with the lateral prolongations of the spindle I^1 on the pivoted hind wheel fork K having spring connections L M N and in combination with the cords or wires O O, the ends of which are wound on the handle H in opposite directions for steering by the hind wheel. 5th. The bands R R made of steel or other strong hard flexible metal, and having notches, perforations, indentations or projections, on the face or edge and working in combination with pulleys having corresponding projections or depressions, for the purpose of communicating motion without slip in velocipedes.

No. 13,069. Improvements on Paper Bags. (*Perfectionnements aux sacs en papier.*)

Lorenzo D. Benner, Galesbury, Ill., U. S., 9th July, 1881; for 5 years.

Claim.—1st. A paper bag consisting of a sheet of paper of tube form, closed at one end by corner folds pasted to the sides of the body portion. 2nd. A square bottom bag in which tongues constituting prolongations of the side portions are folded over and across, transversely, the bottom portion. 3rd. A square bottom bag in which prolongations of the side portions are folded down and secured to the bottom, and in which the sides consist each of one thickness of paper throughout. 4th. A paper bag consisting of a sheet of paper folded into a tube, with projecting side tongues folded down upon and transversely across the bottom. 5th. The combination, with the body and side portions, of a lip A, constituting an extension of one side of the body, folded over and secured to the other side.

No. 13,070. Improvements in Baling Presses. (*Perfectionnements aux presses d'empaquetage.*)

Moses Loeser, Buffalo, N. Y., U. S., 9th July, 1881; for 5 years.

Claim.—1st. The combination, with the press case A and the follower E, of two lifting levers H arranged within the press frame under the follower, and pivoted with their outer ends to the press frame, links I connecting the inner ends of the lifting levers H with the outer ends of the follower, and chains *m*, running from the inner ends of the lifting levers outward to the hoisting mechanism, the parts being so arranged that the lifting levers swing inward and the links outward, when the follower is lowered, and

that both the lifting levers and links rest under the follower when the latter is in its lowest position. 2nd. The combination, with the press case *a* and follower E, of two lifting levers H H pivoted with their outer ends in the lower part of the press frame, links I connecting the inner ends of the lifting levers with the outer ends of the follower, and chain *m* running from the inner ends of the lifting levers outward, pulleys *j j*1 arranged in the ends of the follower, a stationary counter pulley K and the chain drum *l*. 3rd. The follower E provided on its lower side with two longitudinal pieces F F, plates *f f* and space block *f*1. 4th. The combination, with the press case A, of the follower E provided on its lower side with two longitudinal pieces F F terminating within the press case, and plates *f f* extending through the vertical slots *g* of the press case, and carrying the pulleys *j j*1 between their projecting ends. 5th. The combination, with the press case A, of the follower E provided on the underside with longitudinal pieces F F, plates *f f* and space block *f*1 of the lifting levers H H adapted to lay in the channel between the plates *f f*1, and the links I I adapted to lay in the recesses *i* in the pieces F, when the follower is in its lowest position.

No. 13,071. Improvements in the Manufacture of Cigars. (*Perfectionnements dans la fabrication des cigares.*)

Samuel Roman, Montreal, Que., 9th July, 1881; for 5 years.

Claim.—1st. In combination with the lower mould plate of a cigar bunching apparatus, a lining formed of a continuous strip of suitable substance and fitting into the moulds. 2nd. In combination with the lower mould plate of a cigar bunching apparatus, a lining made up of separate pieces and fitting into the moulds.

No. 13,072. Improvements on Machines for Making Wire Tubes. (*Perfectionnements aux machines à faire les tubes en fil de fer.*)

William C. Edge, Newark, N. J., U. S., 9th July, 1881; for 5 years.

Claim.—1st. In a machine for crimping wire, the combination of the toothed crimping wheel *f* with the toothed transmitting wheel *g* and other crimping wheel *h*, the wheels *g* and *h* being placed face to face, but with their teeth somewhat out of line. 2nd. The combination of the crimping wheel *f* with the toothed wheel *g* and crimping wheel *h*, and with the adjusting screw or screws *i*. 3rd. The combination of the wheel G, sliding blocks *m*, springs *n* and cam edge *o*, with the spring bolt *r*, the wheel G having a ribbed or toothed face for actuating said bolt. 4th. In a machine for making wire fabrics, the combination of a reciprocating bolt *r* with rotating and reciprocating blocks *m*, for compressing the crimps of the wire in a continuous operation. 5th. The combination of the rotating cylinder I carrying projecting rods *a*2 and the roughened cylinder *b*2 with the expansion ring R, and with the loop expanders J and their carrying cam L, and ring V. 6th. The combination of the stationary collar *d*2, loop inserting cam *J*2 and loop-bending cam *h*2, with the rotating cylinder I and with a series of rotating and reciprocating expanding tools J1 arranged in a circle, and with mechanism for moving said tools *j* backward and forward in rotation. 7th. In a machine for making wire fabrics, the rotating and reciprocating expanding tools J combined with the cylinder I which receives the finished wire fabric, and with mechanism for gradually screwing the said fabric outwards. 8th. In a machine for making wire cylinders, the combination of apparatus for crimping the wire, and for compressing the crimps with apparatus for inserting the crimps into meshes of finished wire fabric, and for gradually feeding the finished wire fabric by screw motion all in one continuous operation.

No. 13,073. Improvements in the Art of Drying Fruit, &c. (*Perfectionnements dans l'art de sécher les fruits, &c.*)

John Williams, Kalamazoo, Mich., U. S., 9th July, 1881; for 10 years.

Claim.—1st. In the process of preserving and drying fruit and vegetables by dry artificial heat, the step of arresting asctous fermentation and thus preserving the substances by subjecting them, at the beginning of the process, for a short time, to preserving heat. 2nd. The process of preserving and drying fruit and vegetables which consists of the following steps, viz: first, subjecting the substances to a hot preserving atmosphere to arrest fermentation and decomposition, and secondly, passing them from said preserving atmosphere through air which first gradually decreases in temperature, and then gradually increases in temperature.

No. 13,074. Improvements on Kitchen Implements. (*Perfectionnements aux outils de cuisine.*

John W. Ross, Santa Clara, Cal., U. S., 9th July, 1881; for 5 years.

Claim.—The levers A B formed and united with the jaws D E, and the hook F.

No. 13,075. Improvements on Steam Engines. (*Perfectionnements aux machines à vapeur.*)

Chester R. Turner, Detroit, Mich., U. S., 9th July, 1881; for 5 years.

Claim.—1st. A two cylinder engine wherein the smaller cylinder performs the functions of a steam chest to the larger, the smaller cylinder being provided with a steam chest through which the steam for both cylinders is admitted. 2nd. A two cylinder engine wherein the piston of the smaller cylinder operates as a valve to control the steam passages of the larger cylinder. 3rd. In a two cylinder engine provided with a steam chest and exhaust passage common to both cylinders. 4th. A two cylinder engine wherein the piston valve of the smaller cylinder is connected with the main shaft and adapted to assist the larger cylinder, to freely pass the centres.

No. 13,076. Improvements in End-Gates for Waggons. (*Perfectionnements aux panneaux des wagons.*)

William Emery, Concordia, Ks., U.S., 9th July, 1881; for 5 years.

Claim.—1st. An end gate for waggons having a slotted sliding and locking plate bolted thereto, and adapted to be withdrawn by horizontal movement. 2nd. The brace bolts C having projections *b*1, bar B and brace D combined with an end-gate having a horizontally sliding plate and recesses *e*2 *e*3. 3rd. The combination of the lock lever G hinged at *g*, having slot *g*1 and hook *h*2, with the arms F, sliding plate E2 provided with slots *e*, recesses *e*2 *e*3, perforated ear *h* and projections *b*1. 4th. The duplex bars F pivoted to the sliding plate E2 at *f*, and to the lever G at *f*1, combined with said lever and plate, and adapted to rest upon a plane within the plane of the hinge, when the lever is closed.

No. 13,077. Machine for Registering the Measurement of Grain in Thrashing Machines. (*Mésureur-compteur pour les machines à battre les grains.*)

Wesley Strenger, Port Dover, Ont., 9th July, 1881; for 5 years.

Claim.—1st. The horizontally eccentric disk or cam *c* revolving on friction wheels, in combination with the triple platform B B B and vertical shafts F J, and slide collar J. 2nd. The dial plates *o o* gratuated on the face and ratcheted on the back moved by the pawl L and held secure by the click spring N, in combination with the cam, platform and shaft.

Patents issued up to 26th August, 1881, Claims and Drawings of which will appear in a subsequent number of the Patent Record.

No. 13,078. A. Lutterell, Kincardine, Ont., "Egg Beater," patented July 9th, 1881.

No. 13,079. W. S. Fletcher, St. Catharines, Ont., "Traction Engine," patented July 9th, 1881.

No. 13,080. A. Atwood, Brooklyn, N.Y., "Railway Wheel," (Extension of Patent No. 6,263), patented July 9th, 1881.

No. 13,081. B. L. Olds, St Albans, Vt., "Horse Power Link," (Extension of Patent No. 6,288), patented July 9th, 1881.

No. 13,082. James Dunn, Port Hope, Ont., (Extension of Patent No. 12,622), "Eave Trough Former," patented July 9th, 1881.

No. 13,083. James Dunn, Port Hope, Ont., (Extension of Patent No. 12,-622), patented July 11th, 1881.

No. 13,084. S. H. Moore and E. Y. Moore, Chicago, Ill., "Barn Door Hanger," patented July 11th, 1881.

No. 13,085. L. B. Bailey, London, Ont., "Lubricator," patented July 11th, 1881.

No. 13,086. F. Anderson and T. M. Foote, Brooklyn, N.Y., U.S., "Paper Perforator for Telegraph Purposes."

No. 13,087. J. T. Hancock, Boston, Mass., "Valve," patented July 12th, 1881.

No. 13,088. R. Austin, Toronto, Ont., "Paint Can," patented July 12th, 1881.

No. 13,089. James Naylor, Rochester, N.Y., U.S., "Machine for Pointing and Lapping Hoops," patented July 12th, 1881.

No. 13,090. J. Hyslop, jr., Abington, Mass., U. S., "Method of Finishing the Heads of Tacks," patented July 12th, 1881.

No. 13,091. R. J. Wilson, Ridgetown, Ont., (Assignee of E. M. Hamilton, "Moulds for making Pipes from Mortar," patented July 12th, 1881.

No. 13,092. T. Adams, Philadelphia, Pa., U. S., "Apparatus for Laying Railway Track," patented July 12th, 1881.

No. 13,093. C. H. Shipper, Wickford, R. I., U. S., "Car-Coupling and Draw-Bar Attachment," patented July 12th, 1881.

No. 13,094. D. F. Babb and M. J. Wyle, Kingsville, Ont., "Washing Machine," patented July 12th, 1881.

No. 13,095. D. W. Northrup, Utica, N.Y., U.S., "Manufacture of Caps," patented July 13th, 1881.

No. 13,096. D. R. Pratt, New York, N. Y., U. S., "Tension Wire Spring," patented July 12th, 1881.

No. 13,097. A. Walbrath, Fort Plain, N.Y., U. S., "Broom Corn Sizing Machine," (Extension of Patent No. 6,321), patented July 13th, 1881.

No. 13,098. W. G. Petry, P.Q., "Percolator," (Extension of Patent No. 10,092), patented July 13th, 1881.

No. 13,099. W. G. Petry, Quebec, P.Q., "Percolator," (Extension of Patent No. 10,962), patented July 14th, 1881.

No. 13,100. J. Kinney, London, Ont., "Tubular Railway and Wire Rope Fence," patented July, 14th 1881.

No. 13,101. J. W. Paterson, Montreal, Que., "Saturation for Felt Roofing," patented July 16th, 1881.

No. 13,102. D. Drawbaugh, Eberly's Mills, Penn., U. S., "Rotary Measuring Faucet," patented July 16th, 1881.

No. 13,103. J. M. King, Walnut Station, Minn., U. S., "Cockle Mill," patented July 16th, 1881.

No. 13,104. J. A. Bousack, Bousack, Vir., U. S., "Cigarette Machine," patented July 16th, 1881.

No. 13,105. H. Turner, Montreal, Que., "Pantaloon Suspender," patented July 16th, 1881.

No. 13,106. M. B. Brooks, Brockville, Ont., "Force Pump," patented July 16th, 1881.

No. 13,107. A. N. Mathews, J. N. Winslow and T. E. Clarey, "Steam Piston Packing," patented July 16th, 1881.

No. 13,108. The N. S. Vedder Pattern Works and Bascon Galbraith & Co., (Assignees of R. G. Galbraith, Troy, N. Y., U.S., "Cooking Stove or Ranges," patented July 16th, 1881.

No. 13,109. Paul Crippen, Bronson, Mich., U. S., "Water Proof Compound," patented July 16th, 1881.

No. 13,110. J. B. Robertson, Toronto, Ont., "Tinners Fire Pot," patented July 16th, 1881.

No. 13,111. M. Kimball, Montreal, Que., "Refrigerating Room," patented July 16th, 1881.

No. 13,112. E. E. Gilbert, Montreal, Que., "Sub-Aqueous Drill Platform," (Extension of Patent No. 6,595), patented July 16th, 1881.

No. 13,113. C. Brewster, Montreal, Que., "Skate Attachment," (Extension of Patent No. 6,327), patented July 16th, 1881.

No. 13,114. J. Mills, Hamilton, Ont., "Harvester," (Extension of Patent No. 6,314), patented July 17th, 1881.

No. 13,115. H. S. Maxim, Brooklyn, N.Y., U.S., "Dynamo-Electric Machine," patented July 16th, 1881.

No. 13,116. H. S. Maxim, Brooklyn, N.Y., U.S., "Dynamo-Electric Machine," patented July 18th, 1881.

No. 13,117. H. S. Maxim, Brooklyn, N. Y., U. S., "Electric Lamp," patented July 18th, 1881.

No. 13,118. H. S. Maxim, Brooklyn, N. Y., U. S., "Electric Lamp," patented July 18th, 1881.

No. 13,119. H S. Maxim, Brooklyn, N. Y., U. S., "Electric Lamp," patented July 18th, 1881.

No. 13,120. H. S. Maxim, Brooklyn, N.Y., "Manufacturing Carbon Conductors," patented July 18th, 1881.

No. 13,121. H. S. Maxim, Brooklyn, N. Y., U.S., "Process of Removing Air from Electric Lamps," patented July 18th, 1881.

No. 13,122. E. Weston, Newark, N. J., U. S., "Electric Arc Lamp," patented July 18th, 1881.

No. 13,123. E. Weston, Newark, N.J., U.S., "Electric Lamp," patented July 18th, 1881.

No. 13,124. E. Weston, Newark, N.J., U.S., "Dynamo-Electric Machine," patented July 18th, 1881.

No. 13,125. E. Weston, Newark, N.J, U.S., "Rotary Armrture for Dynamo-Electric Machine.,' patented July 18th, 1881.

No. 13,126. J. Larsen and Thos. Galloway, Oshawa, Ont., "Larsen Rake," patented July 18th, 1881.

No. 13;127. E. A. McMann, Cleveland, Ohio, U. S., "Sleeping Berth Safeguard," patented July 19th, 1881.

No. 13,128. E. S. Piper, Toronto, Ont., "Tail Lamp," patented July 19th, 1881.

No. 13,129. A. G. Hohenstein, New Haven, Conn., U. S., "Car Coupling," patented July, 1881.

No. 13,130. J. A. Mumford, Avondale, U.S., "Churn Power," patented July 19th, 1881.

No. 13,131. J. Clayton, Brainerd, Minn., U.S., "Colter," patented July 10th, 1881.

No. 13,132. F. S. Dangerfield, Auburn, N. Y., "Metal Safe," patented July 19th. 1881.

No. 13,133. J. A. Burke, R. Buckingham, C. F. Blakely and C. E. Terk, "Side Stick," patented July 19th, 1881.

No. 13,134. J. H. Goodfellow (Assignee of W. T. Green, N. Y.), "Stove Pipe Damper," patented July 19th, 1881.

No. 13,135. H. W. Titus and A. O. Rovenaugh, Jackson, Mich., U.S.A., patented July 19th, 1881.

No. 13,136. R. I. Pettibone, Stillwater, Minn., and J. H. Elward, "Steam Pump," patented July 19th, 1881.

No. 13,137. European Electric Co.'y. (Assignee of C. A. Hussey), "Electric Lamp Regulator," patented July 19th, 1881.

No. 13,138. C. Powell, Toronto, Ont., "Pump," patented July 19th, 1881.

No. 13,139. R. Thomas and A. Ruggles Williams, Stratford, Ont., (Assignees of Orville Cooley), "Gear Trip for Harvesters," (Extension of Patent No. 6,329), patented July 20th, 1881.

No. 13,140. R. Thomson and A. R. Williams, (Assignees of O. Cooley), "Pitman Connection," (Extension of Patent No. 6,330), patented July 20th, 1881.

No. 13,141. R. Thomas and A. R. Williams, Stratford, Ont., (Assignees of O. Cooley), "Tightener, Strapper and Guide for Endless Chains," (Extensionof Patent No. 6,231), patented July 20th, 1881.

No. 13,142. R. Thomson and A. R. Williams, Stratord, Ont., (Assignees of O. Cooley), "Boxes or Bearing," (Extension of Patent No. 6,332), patented July 20th, 1881.

No. 13,143. R. Thomson and A. R. Williams, Stratford, Ont., (Assignees of O. Cooley), "Rake Elbow for Reapers and Harvesters," (Extension of Patent No. 6,333), patented July 20th, 1881.

No. 13,144. R. Thomas and A. R. Williams, Stratford, Ont., (Assignee) of O. Cooley), "Hinged Double Shoe," (Extension of Patent No. 6,334, patented July 20th, 1881.

No. 13,145. G. H. P. Flagg, (Assignee of F. W. Coy,) Boston, Mass., U. S., "Globe Buffer," patented July 21st, 1881.

No. 13,146. James Noxon, Ingersoll, Ont., "Grain Drill Distributor," patented July 21st, 1881.

No. 13,147. A. Kay, Ayr, Ont., "Grain Binder," patented July 21st, 1881.

No. 13,148. F. M. Wright, Palmyra, N. Y., "Churn," patented July 21st, 1881.

No. 13,149. G. A. Cochrane, Liverpool, Eng., "Fruit Saver," patented July 21st, 1881.

No. 13,150. S. R. Thompson and S. W. Johnson, West Medford, Mass., U. S., "Bark Cutting Machine," patented July 21st, 1881.

No. 13,151. W. S. Blaisdell, Randolph, Vt., U. S. A., "Circular Bee Hive," patented July 21st, 1881.

No. 13,152. T. G. Walker, Moorlstown, N. J., U. S., "Oxidizing Process," (Extension of Patent No. 13,061,) patented July 21st, 1881.

No. 13,153. T. G. Walker, Morristown, N. J., U. S., "Oxidizing Process," (Extension of Patent No. 13,061,) patented July 22nd, 1881.

No. 13,154. P. J. Fitzgerald, Sharon Hill, Penn., U. S. A., "Hydro-Carbon Gas Generator," patented July 21st, 1881.

No. 13,155. H. W. Price, Rockford, Ill., "Mitten," patented July 25th, 1881.

No. 13,156. G. W. Kendall, St. Albans, Vt., U. S. A., "Plaiting Machine," patented July 25th, 1881.

No. 13,157. John Foler, Newark, N. J., U. S. A., "Furniture Castor," patented July 25th, 1881.

No. 13,158. Canadian Telephone Company, Montreal, Que., (Assignee of G. L. Anders,) "Telephone Switch," patented July 25th, 1881.

No. 13,159. T. J. Mayall, Reading, Mass., "Telegraph Belt," patented July 25th, 1881.

No. 13,160. T. C. Collins, Toronto, Ont., "Oil Stove," patented July 25th, 1881.

No. 13,161. S. Seigmiller, Godrich, Ont., "Plows," patented July 25th, 1881.

No. 13,162. T. G. F. Dolby, Dulwich, Eng., "Butter Can," patented July 25th, 1881.

No. 13,163. S. G. Thomas, Chelsea, Eng., "Repairing and Lining Bessemer Converters and Furnaces," patented July 25th, 1881.

No. 13,164. C. E. Ball, Philadelphia, Pa., U. S., "Electric Current Generator," patented July 25th, 1881.

No. 13,165. A. A. Knudson and F. L. Kane, Brooklyn, N. Y., "Electrical Conductors," patented July 25th, 1881.

No. 13,166. F. A. Brown and John Leives, Boston, Mass., U. S., "Attraction Liquid Compass Float," patented July 25th, 1881.

No. 13,167. David Johns, Exter, Ont., "Trough and Gutter Former," patented July 25th, 1881.

No. 13,168. G. H. P. Flagg and W. Gordon, Boston, Mass., U. S., "Globe Belt," patented July 25th, 1881.

No. 13,169. R. Cream and G. H. Hastings, Toronto, Ont., "Head Coverings," patented July 25th, 1881.

No. 13,170. I. R. Blunenberg, Washington, D. C., "Hydro-Carbon Generator," patented July 25th, 1881.

No. 13,171. C. A. Dresser, (Assignee of S. D. Keene,) Providence, R. I., U. S., "Art of Cleaning and opening Spinners Staples," patented July 25th, 1881.

No. 13,172. J. R. Hollis, Acadia Mines, N. S., "Churns," patented July 25th, 1881.

No. 13,173. European Electric Company, New York, N. Y., (Assignee of C. H. Hussey,) "Means for Supporting and Protecting Wires," patented July 25th, 1881.

No. 13,174. J. Campbell, Almonte, Ont., "Oscillating Combination Churn," patented July 25th, 1881.

No. 13 175. Jasper Bates, Thornbury, Ont., "Manuel Power," (Extension of Patent No. 11,181,) patented July 25th. July, 1881.

No. 13,176. William Monk and H. Monk, Haddon Cove, Que., "Steam Engine," patented July 26th, 1881.

No. 13,177. C. R. Merriam and L. Smith, Dover, Del., U. S., "Soldering Apparatus," patented July 26th, 1881.

No. 13,178. P. W. Gates, Chicago, Ill., U. S. A., "Rock Breaker," patented July 26th, 1881.

No. 13,179. J. L. Dawes, Bergin, N. Y., "Plow Point," (Extension of Patent No. 6,366.) patented July 28th, 1881.

No. 13,180. W. W Thomas, Jersey City, N. Y., "Atomizer for Hydro-Carbons," patented July 28th, 1881.

No. 13,181. Ira de Ver Warner and J. C. Tallman, Bridge Port, Conn., "Corset Stiffener," patented July 28th, July, 1881.

No. 13,182. R. Kirkpatrick, Oshawa, Ont., "Feathering Row Lock," patented July 28th, 1881.

No. 13,183. H. Hervick, Surrey, Eng., "Gloves," patented July 28th 1881.

No. 13,184. M. Van Wormer, Dayton, Ohio, and Simeon Brownell and F. Brownell, Boston, Mass., U. S., "Dump Car," patented July 28th, 1881.

No. 13,185. A. F. Martel, Montreal, Que., and C. A. Martel, "Sleeping Car," patented July 28th, 1881.

No. 13,186. Harrison Bros & Co., (Assignees of Conrad Semper, Philadelphia, Pa., "Manufacture of Sulphate of Aluminia," patented July 28th, 1881.

No. 13,187. F. Walton, Middlesex, Eng., "Manufacture of Hollow Articles," patented July 28th, 1881.

No. 13,188. J. Greenwood, Rochester, N. Y., "Hoop Cutting Machines," patented July 29th, 1881.

No. 13,189. H. W. Hazelton, Brantford, Ont., "Drain Plough," patented July 29th, 1881.

No. 13,190. R. Holgate, Neponsett, Ill., "Gaug Plow," patented July 28th, 1881.

No. 13,191. A. H. Rogers, Springfield, Mass., U. S., "Printing Characters and Composing Devices," patented July 29th, 1881.

No. 13,192. J. H. Pratt, Allentown, N. J., U. S., "Paper Presser for Type Writing," patented July 29th, 1881.

No. 13,193. S. Fairman, Baltimore, Md., U.S., "Car Brake and Coupler," patented July 29th, 1881.

No. 13,194. J. H. Dane, San Franc'sco, Cal., U. S., "Apparatus for Purifying Water for Steam Generators and other Purposes," patented July 29th, 1881.

No. 13,195 S. H. Johnson, New York, N. Y., U. S., "Compositors' Channel Case," patented July 29th, 1881.

No. 13,196. H. F. Gaines, Rouses' Point, N. Y., U. S., "Faucet Bushing," patented August 1st, 1881.

No. 13,197. M. L. Nichols, E. L. Munday and G. Butt, Norwalk, Ohio, U. S., "Musical Reed Instruments," patented August 1st, 1881.

No. 13 198. American Union Telegraph Company, (Assignee of H. Van Stoevenbergh, Elizabeth, N. J., U. S., "Printing Telegraph," patented August 1st, 1881.

No. 13,199. J. M. Fair, Buffalo, N. Y., U. S., (Assignee of N. Meyers,) "Sewing Machine," patented August 1st, 1881.

No. 13,200. John A. Kratre, Buffalo, N. Y., U. S., 'Grain Separator," patented August 1st, 1881.

No. 13,201. R. Johns and J. C. Essick, Pana, Ill., U. S., (Assignees of A. Low, Ohlman, Ill., U. S., "Harrows," patented August 1st, 1881.

No. 13,202. F. B. Whittemore, Toronto, Ont., "Gas Cooking Stove," patented August 1st, 1881.

No. 13,203. W. A. S. Magrath, Yorkville, Ont., "Hand Knitting Machine," patented August 1st, 1881.

No. 13,204. F. Walton, Heatham House, Turckenham, Eng., "Embossing and Colouring Panels, etc.," patented August 1st, 1881.

No. 13,205. P. F. Wells, Millford, Mich., U. S., "Wheel Cultivator," patented August 1st, 1881.

No. 13,206. F. Walton, Heatham House, Tuickenham, Eng., "Oxidized Oil Surfaces for Panels, etc., patented August 1st, 1881.

No. 13,207 J. C. Gilpin, St. Mary's Ont., "Milk Pan," patented August 1st, 1881.

No. 13,208. T. A. Edison, Menlo Park, N. J., U. S., "Measuring Electric Currents," patented August 1st, 1881.

No. 13,209. J E. Dionvielle, Baltimore, Md., U S., "Window Awning," patented August 1st, 1881.

No. 13,210. F. J. Bolton and J. A Wauklyn, Westminster, Eng., "Coal Gas," patented August 1st, 1881.

No. 13,211. H. Williams and J. L. Alberger, Buffalo, N. Y., U. S., "Glucose and Grape Sugar from Grain," patented August 1st, 1881.

No. 13,212. J. R. McLaken, Montreal, Montreal, Que., "Oil Cabinet" (Extention of Patent No. 1,293.) patented August 2nd, 1881.

No. 13,13 213. W. P. Widdifield, Seloam, Ont., "Saw Mill," (Extension of Patent No. 6,386) patented August 4th, 1881.

No. 13,214. E. Benjamin, Chicago, Ill., U. S., "Plaining and Matching Machine," (Extension of Patent No. 6,406,) patented August 4th, 1881.

No. 13,215. E. Benjamin, Chicago, Ill., U. S., "Sawing Machine," (Extension of Patent No. 6,401.) patented August 4th, 1881.

No. 13,216. Joshua Johnston, Lindsay, Ont., "Weather Protector and Adjustable Threshold," (Extension of Patent No. 1,095,) patented August 6th, 1881.

No. 13,217. H. E. Rowe, J. M. Hibsteaberg and C. O. Garrison, East Saginaw, Mich., U. S., "Feather Renovator," patented August 8th, 1881.

No. 13,218. D. S. Mathews, Adrian, Mich., U. S., "Portmanteau and Shawl Strap," (Extension of Patent No. 6,424,) patented August 8th, 1881.

No. 13,219. W. A. Pridgen, Satillo, Miss., U. S., "Hay and Cotton Press," patented August 8th, 1881.

No. 13,220. J. Adams Paris, Ont., "Waggon Axles," patented August 8th, 1881.

No. 13,221. J. B. Timberlake, Jackson, Mich., U. S., "Handles for Dishes," patented August 8th. 1881.

No. 13 222. C. Norton, Albion, Penn., U. S., "Waggon Wheels and Axles," patented August 8th, 1881.

No. 13,223. M. W. Atwood, Clayton, N. Y., U. S., "Boats," patented August 8th, 1881.

No. 13,224. A. F. & C. A. Martel, Montreal, Que., "Railway Switch," patented August 8th, 1881.

No. 13,225. A. W. Eldridge, Big Rapids, Mich., U. S., "Stove Gates and Fire Pots," patented August 8th, 1881.

No. 13,226. J. R., J. D., and C. F. Holcomb, Mallet Creek, Ohio, U. S., "Telephones," patented August 8th, 1881.

No. 13,227. A. C. Rideout, Hillsdale, Mich., U. S., "Heater, Equalizer and Ventilator," patented August 8th, 1881.

No. 13,228. J. Miller, Whitesborough, N. Y., U. S., "Ice Making," patented August 8th, 1881.

No. 13,229. The Guelph Carriage Goods Company, (Assignees of J. B. Armstrong), Guelph, Ont., "Tempering Furnace," (Re-issue of Patent No. 4,034,) patented August 8th, 1881.

No. 13,230. T. H. Norton, Salem, Mass., U. S., "Railway Train Indicator," patented August 8th, 1881.

No. 13,231. S. Babcock, Manistee, Mich., U. S., "Clapboard Sawing Machine," patented August 8th, 1881

No. 13,232. B. Day, West Hoboken, N. J., U. S., "Printing and Shading Mediums," patented August 8th, 1881.

No. 13,233. J. A. Mathieu, New York, N.Y, U.S., "Purifying Products from Distillation of Woods," patented 8th August, 1881.

No. 12,234. N. B. Williams, B. S. Williams, Homer Manvel and Jacob Brower, (Assignees of M. B. Williams and George Turner, Kalamazoo, Mich., U.S.), "Grain Drill," patented 8th August, 1881.

No. 13,235. S. Winslow, Worcester, Mass., U. S., "Roller Skates," patented 8th August, 1881.

No. 13,236. W. S. Ovens, Buffalo, N.Y., U. S., "Fruit Cake Machine," patented 8th August, 1881.

No. 13,237. H. Free and H. Y. Fuller, Lewiston, Me., U. S., "Door Plate and Mail Receiver," patented 8th August, 1881.

No. 13,238. — Fuller. Hamilton, Ont., (Assignee of J. S. McMurray, Toronto, Ont.), "Bail Fastening," (Extension of Patent No. 6,454), patented 11th August, 1881.

No. 13,239. J. B. Robertson, Toronto, Ont., "Ventilator and Chimney Top," (Extension of Patent No 6,440), patented 11th August 1881.

No. 13,240. C. La Dow, Ballston and J. H. Melick, Albany, N.Y., U.S., "Centennial Rake," (Extension of Patent No. 6,438), 11th August, 1881.

No. 13,241. H. Cook, Leadville, Col., U.S., "Stove Pipes," patented 11th August, 1881.

No. 13,242. G. E. Hatch, Meriden, Conn., U.S., "Water Closet Bowls," 11th August, 1881.

No. 13,243. A. Wilcox, Clarence, Iowa, "Clamps for Harrow Frames," 11th August, 1881.

No. 13,244. F. M. Waters and G. H. Earnest, Springfield, Ohio, U. S., "Harvester Sickle Driver," 11th August, 1881.

No. 13,245. S Lightburne, jr., San Francisco, Cal., U.S., "Pipe Couplings," patented 11th August, 1881.

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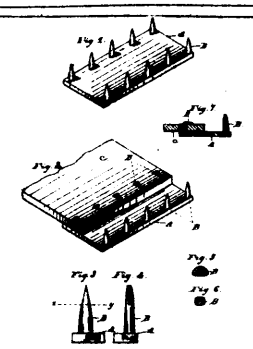

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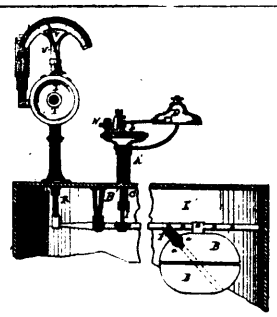

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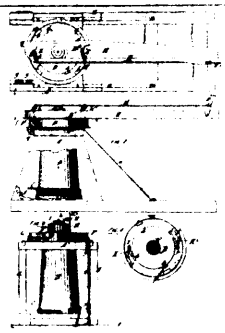

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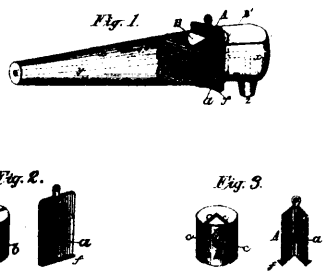

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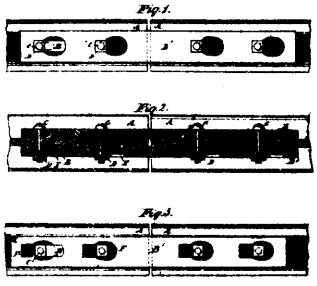

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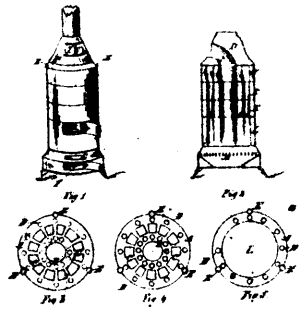

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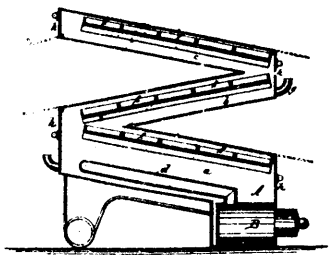

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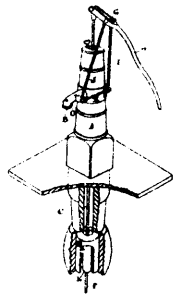

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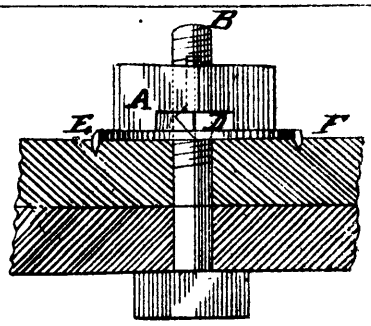

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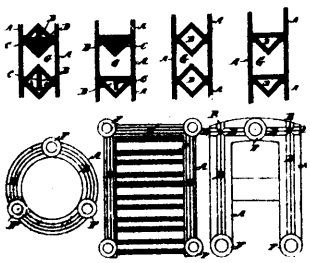

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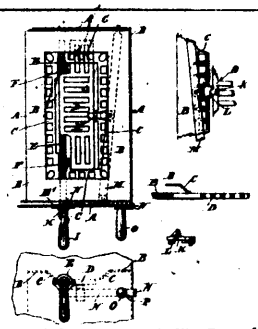

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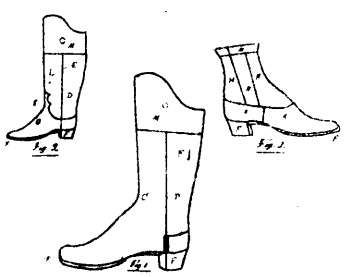

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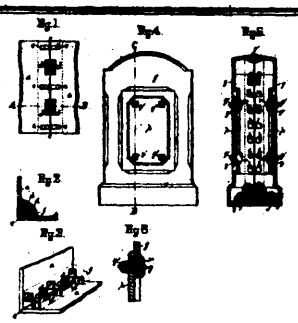
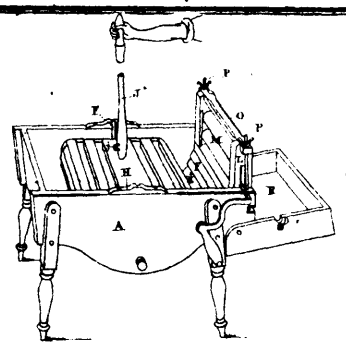
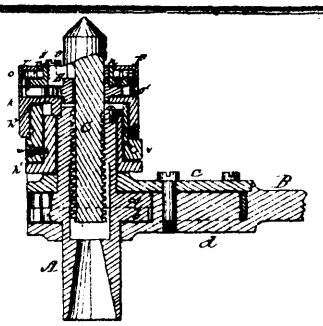


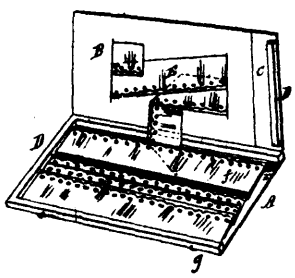
12822 Willard's Improvements on Bronze Monuments.



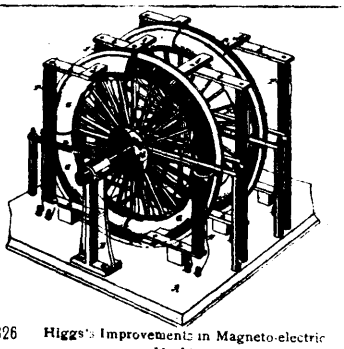
12823 Burke's Improvements on Washing Machines



12824 Cherry's Improvement on Ratchet Drills

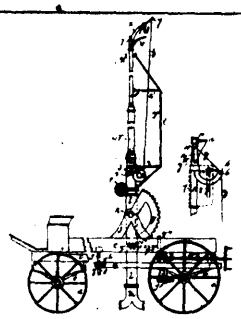


12825 Pulaski's Improvements in Show Boxes.

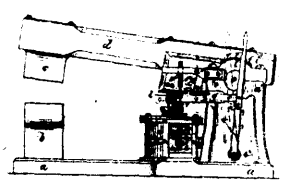


12826 Higgs's Improvements in Magneto-electric Machines.

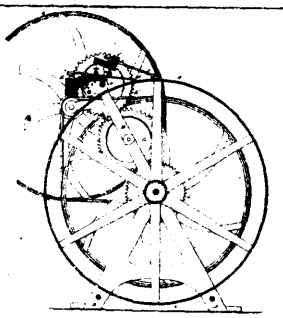
12827 Gear's Perpetual Tension Propelling Belt.



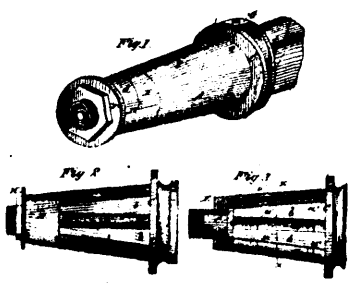
12828 Logan & Greenleaf's Improvements on Fire Extinguishers.



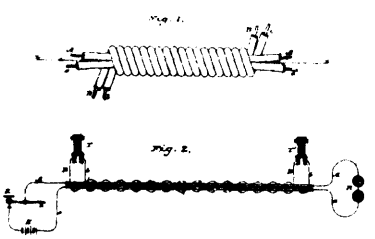
12829 Watt's Improvements on Steam Hammers



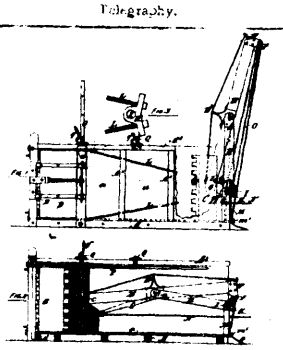
12830 Leggo's Improvements in Automatic Telegraphy.



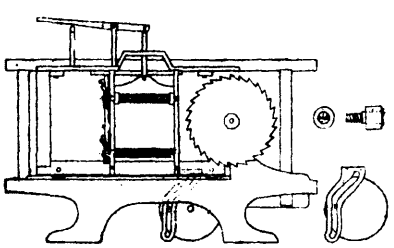
12831 Miller's Improvements in Anti-friction Axle Boxes.



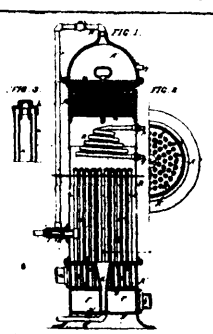
12832 Lugo's Improvements on Telegraphy.



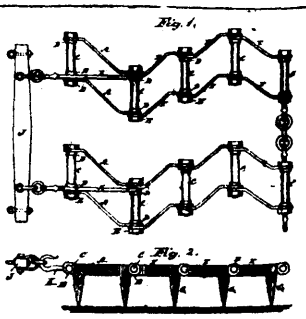
12833 Duplessis's Improvements in Baling Presses.



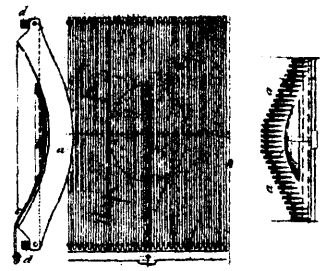
12834 Bertrand's Improvements on Shingle Machines.



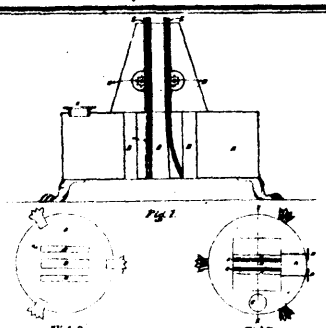
12835 Strong's Improvements on Feed Water Heaters.



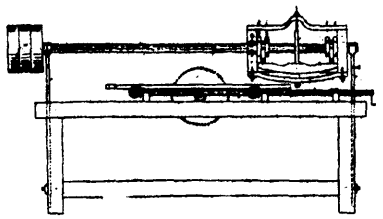
12836 Pinder's Improvements on Flexible Iron Harrows.



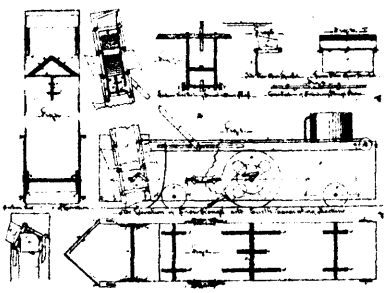
12838 Desgouttes's Improvements in Grates for Steam Boilers and other Furnaces.



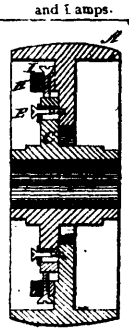
12839 Iredale's Improvements on Coal Oil Stoves and Lamps.



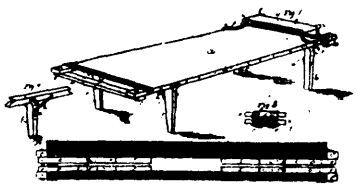
12840 Dobbin's Machine for Jointing Tight Barrels.



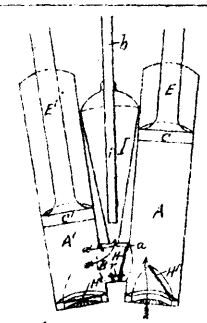
12841 Knight's Improvements on Machines for Excavating Snow or Earth.



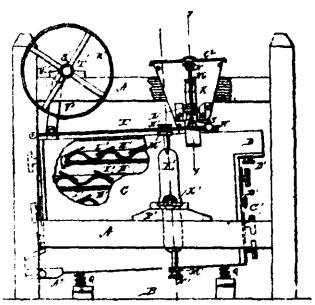
12842 Hockham's Improvements on Pulleys.



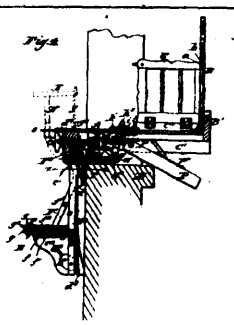
12843 Nichols's Improvements on Cot Bedsteads.



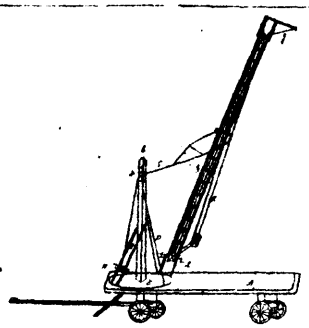
12844 Hickson & Payne's Improvements on Force Pumps.



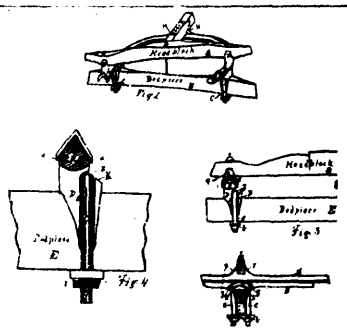
12845 Hall & Dauch's Improvements on Machines for Separating Precious Metals from their Ores.



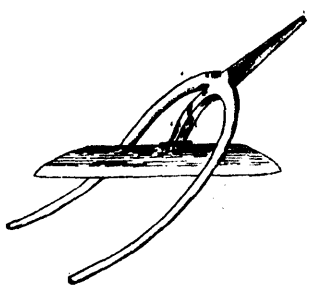
12846 Dormitzer's Improvement on Window Cleaning Chairs.



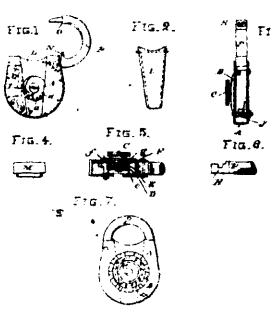
12847 Irwin's Fire-escape.



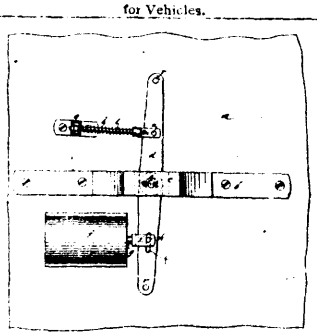
12848 Weaver's Improvements on Fifth Wheels for Vehicles.



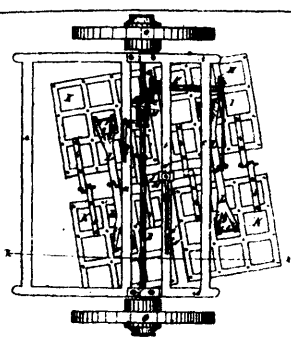
12849 Bowslaugh's Fork and Band Cutter.



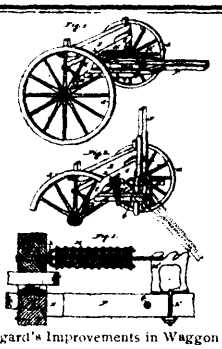
12850 Cook & Green's Improvements on Permutation Padlocks.



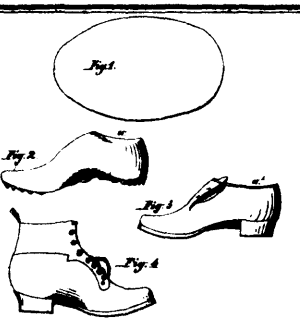
12851 Glenn's Improvements on Air Brakes.



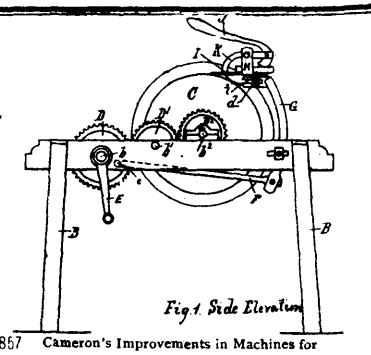
12853 Scarr's Improvements in Harrows.



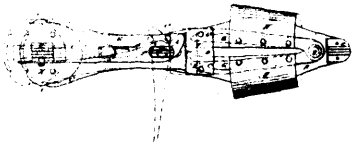
12855 Haggard's Improvements in Waggon Tongue (Pole) Supports.



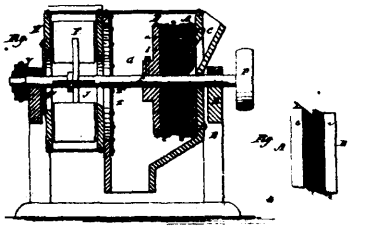
12856 Boivin's Improvements in the Manufacture of Boots and Shoes.



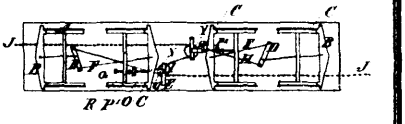
12857 Cameron's Improvements in Machines for Sharpening Mower Knives.



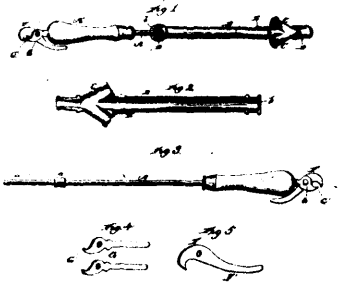
12858 Bishop & Hailes's Improvements on Skates.



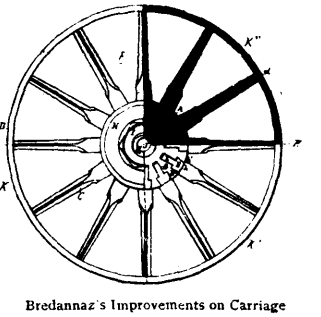
12859 Gathmann's Improvements on Brush Grain Cleaners.



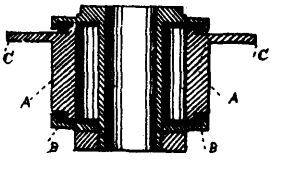
12864 Martel's Improvements on Car Brakes.



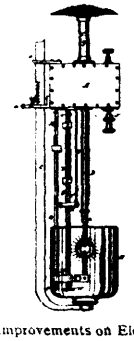
12865 Caldwell's Improvements on Tack-drawers and Tack-drivers.



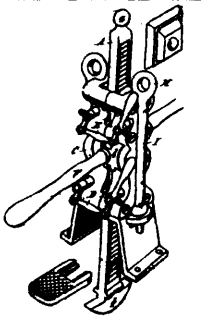
12866 Bredannaz's Improvements on Carriage Wheel Hubs.



12867 Maxim's Improvements on Commutators of Dynamo-magneto-electric Machines.

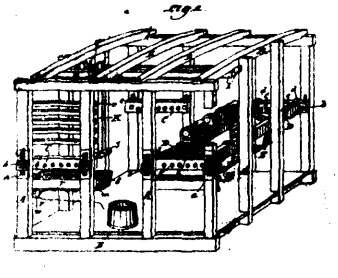


12868 Maxim's Improvements on Electric Lamps.

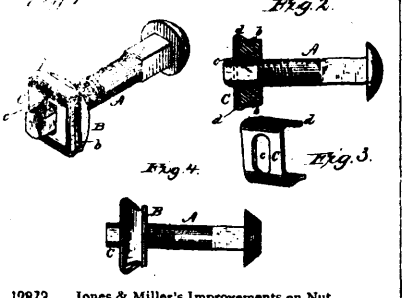


12869 Woodard's Improvements on Lifting Jacks.

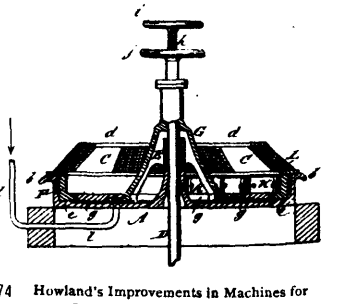
12870 Hugill's Improvements in Metal Posts for Wire Fencing.



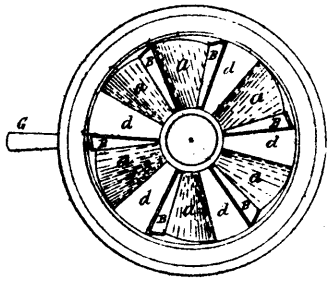
12872 Seely's Improvements on Stock Cars.



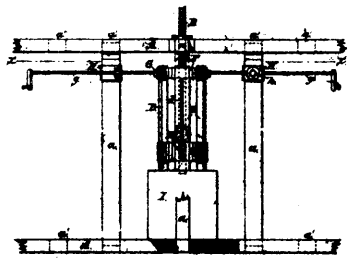
12873 Jones & Miller's Improvements on Nut Locks.



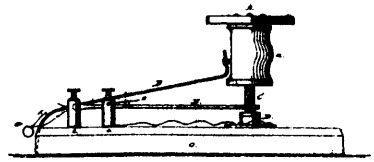
12874 Howland's Improvements in Machines for Crushing and Pulverizing Ores.



12875 Copp's Improvements in Damper Grates for Stoves or Furnaces.

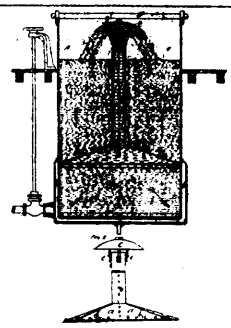


12876 Gazeley's Improvements in Machines for Cutting Cylindrical Forms from Stone, in the Preparation of Stones for Building and other Similar Purposes.

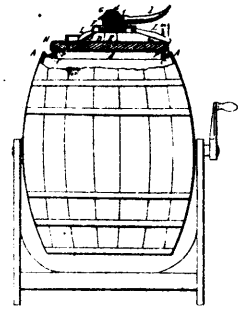


12878 Leggo's Improvements in Telegraph Keys.

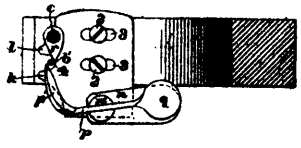
12879 Greenwell & Brogan's Improvements on Railway Joints.



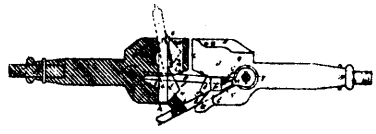
12880 Atkinson's Improvements on Apparatus for Boiling Beer.



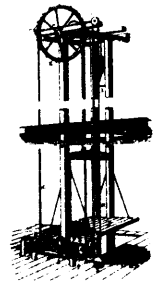
12882 Stoddard's Improvements on Churn Covers.



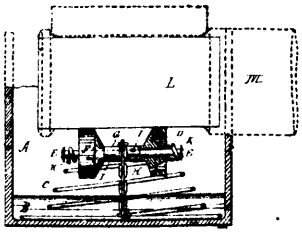
12883 Folsom's Improvements on Machines for Sewing Boots and Shoes.



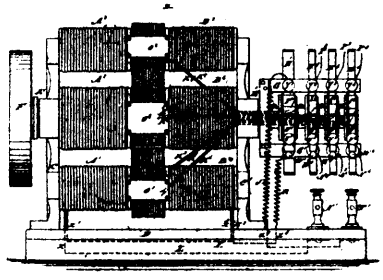
12884 Scott's Improvements on Car-couplings.



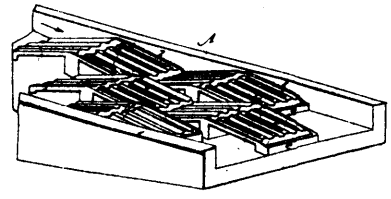
12885 Fenson's Improvements on Hoists.



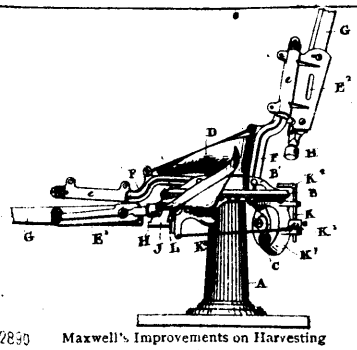
12886 Burden's Improvements on Car Axle Oilers.



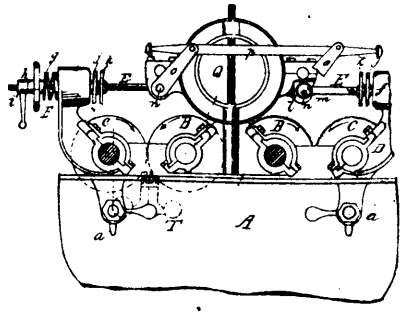
12888 Muller's Improvements in Dynamo-electric Machines.



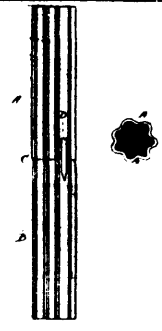
12889 Howland's Improvements on Mining Riffles Stream-works.



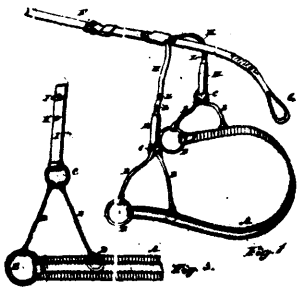
12890 Maxwell's Improvements on Harvesting Machines.



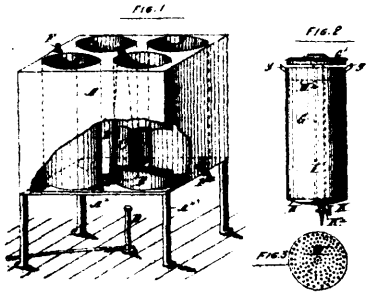
12891 Gray's Improvements on Grinding Mills.



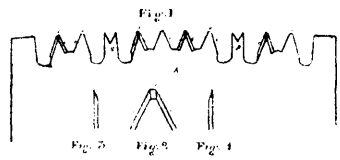
12892 Hewitt's Improvements on Lightning Rods.



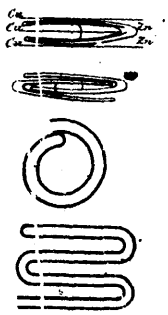
12893 Schlimm's Improvements on Harness Hip Straps.



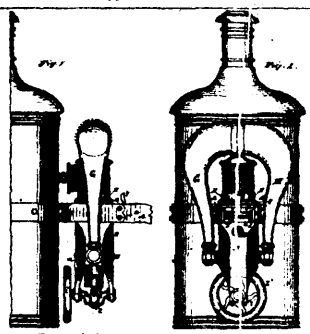
12894 Saunders's Improvements in the Manufacture of Fluid Extract of Coffee and in the Apparatus used therefor.



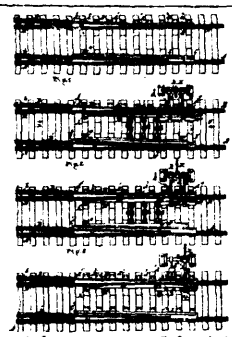
12895 Marr's Improvement on Saw Teeth.



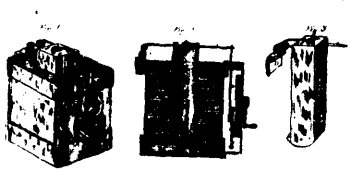
12896 Reynier's Improvements in Treating Ores.



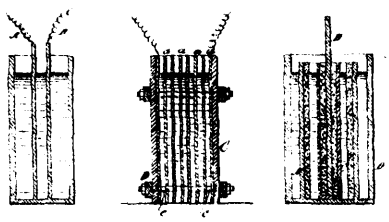
12898 Ronan's Improvements on Steam Fire Engines.



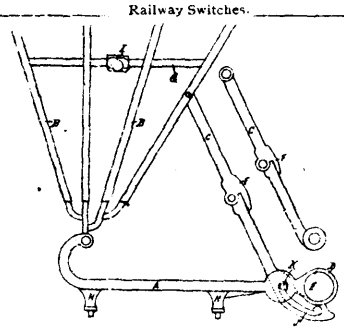
12899 Pagau's Improvements on Safety Automatic Railway Switches.



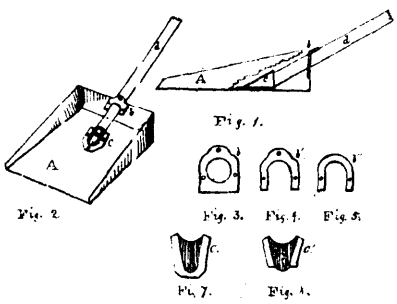
12900 Keen's Improvements on Churns.



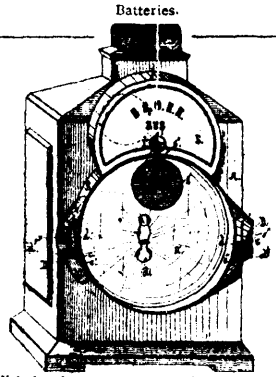
12901 Faure's Improvements on Polarization Galvanic Batteries.



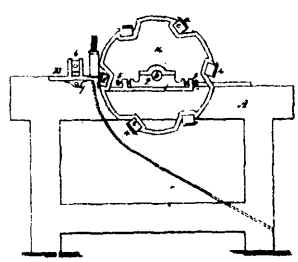
12902 Smith & Carty's Improvements on Buggy Tops.



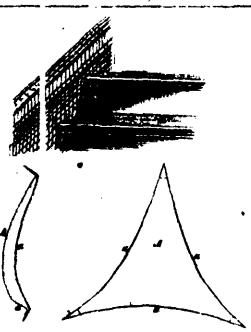
12903 Fisher's Improvements in Shovels.



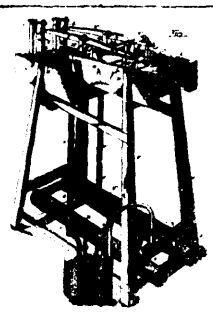
12904 Nicholson's Improvements on Signal Head Lights.



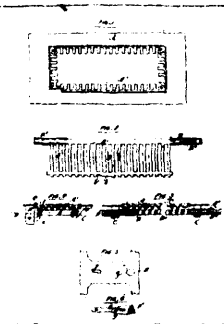
12905 Dobson & Merritt's Improvements on Bark Cutting Machines.



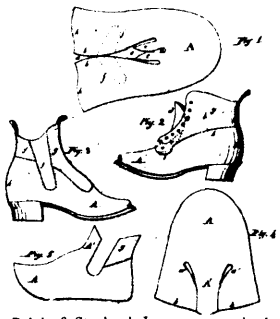
12906 McFee's Improvements in Corner Fillings.



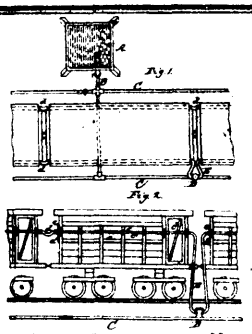
12907 Bois's Improvements on Hydraulic Air Compressing Apparatus.



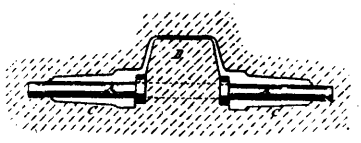
12908 Rodden's Improvements in Grates for Stoves and Ranges.



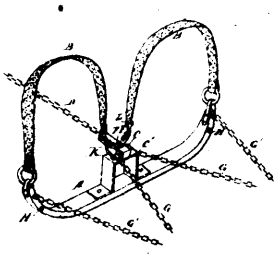
12909 Boivin & Steoben's Improvements in the Manufacture of Boots and Shoes.



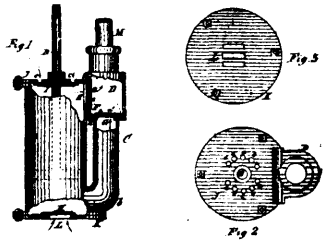
12910 McPherson's Improvements on Means for Watering Stock in Cars.



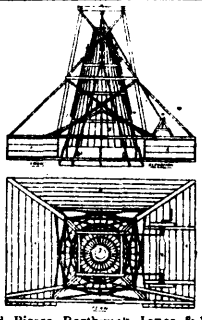
12912 Howe's Improvements on Process of Casting Parallel Chills.



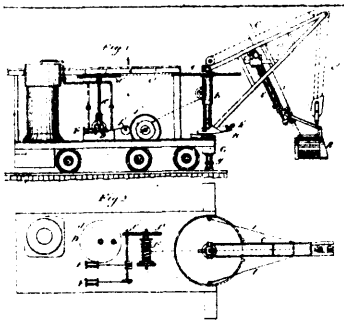
12913 Tuckier's Improvements on Draught Equalizers.



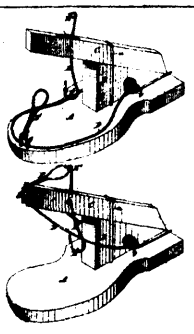
12914 Bush's Improvements on Force Pumps.



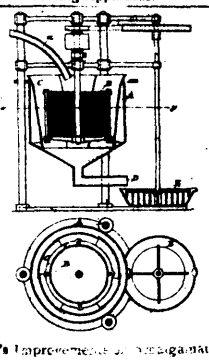
12915 Ireland, Pierce, Borthwick, Jones & Wilson's Improvements on Submarine Gold Mining Apparatus.



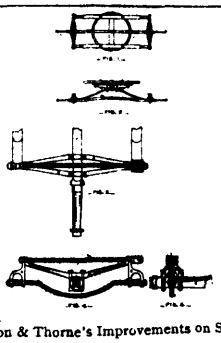
12916 Dill's Improvements on Excavating Machines.



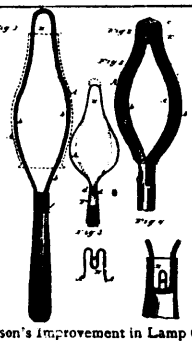
12917 Major & Angle's Rat Trap.



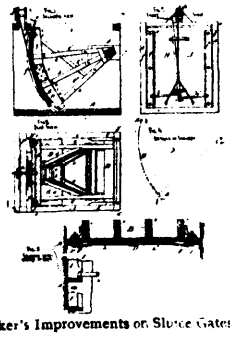
12918 Wilson's Improvements on Amalgamators.



12919 Johnson & Thorne's Improvements on Spring Waggon Gears.

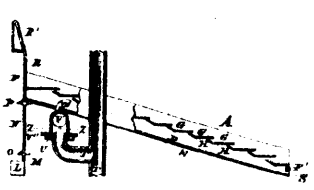


12920 Ferguson's Improvement in Lamp Chimney Cleaners.

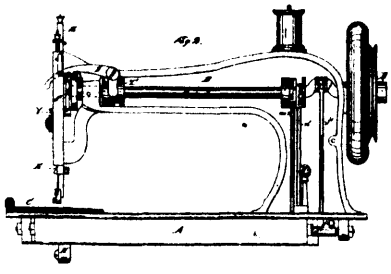


12921 Parker's Improvements on Sluice Gates for Mill Dams, &c.

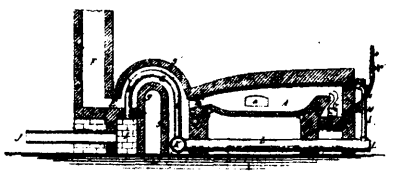
12922 Jacques's Improvements in Underground Telegraph Lines.



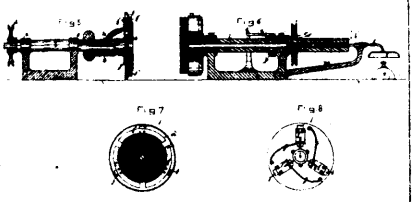
12923 Mey & Stark's Improvements in Grain Driers and Coolers.



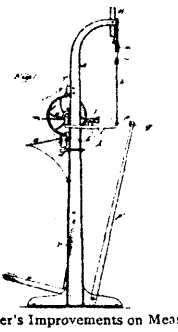
12924 Miller & Diehl's Improvements in Sewing Machines.



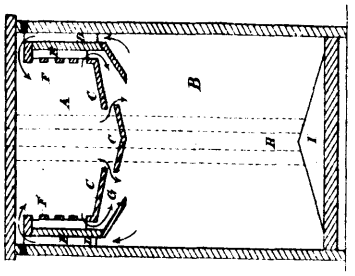
12925 Houchin's Improvement on Hydro-carbon Furnaces.



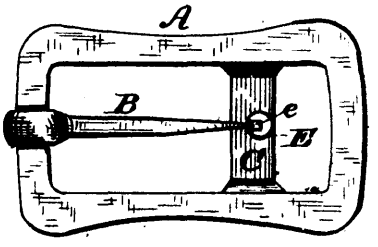
12926 Nichols & Lancaster's Machine for Blackening and Burnishing the Edges of outside Seam Stays for Boots and Shoes.



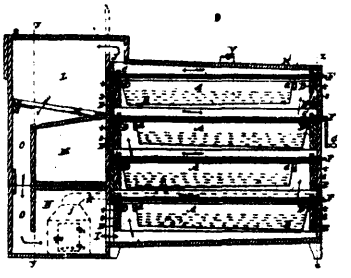
12927 Sawyer's Improvements on Measuring Machines.



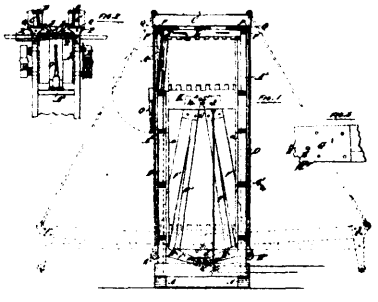
12928 Alexander's Improvements in Refrigerators.



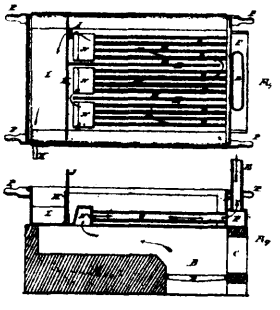
12929 Reaser's Improvements on Buckles.



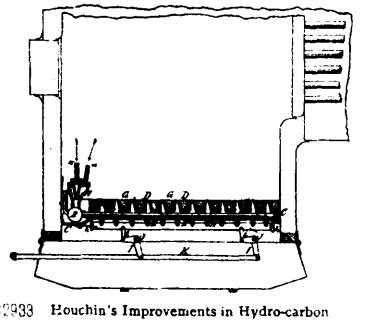
12930 Mosher's Improvement in Dairy Bureaux.



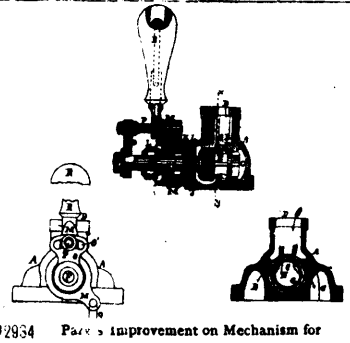
12931 Duplessis's Improvement in Hay Presses



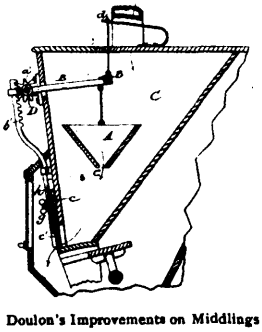
12932 Cutter's Improvements on Sap Evaporators.



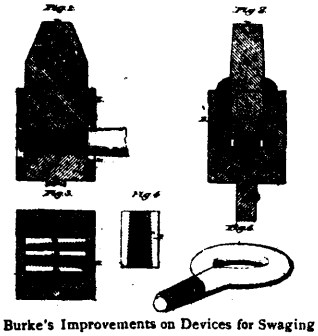
12933 Houchin's Improvements in Hydro-carbon Furnaces.



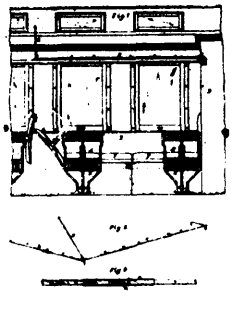
12934 Par[illegible] Improvement on Mechanism for Operating Valves.



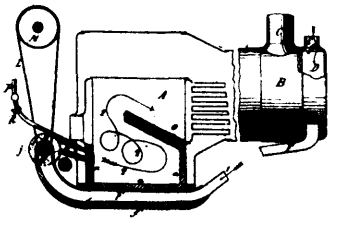
12935 Doulon's Improvements on Middlings Purifiers.



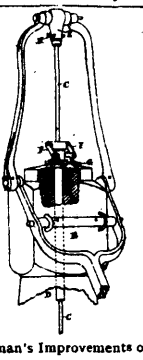
12936 Burke's Improvements on Devices for Swaging Screw Threads on Eye Bolts.



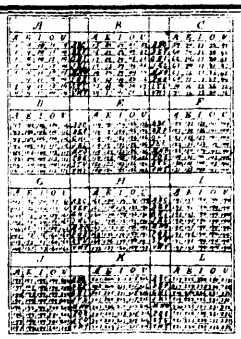
12937 Johnson's Improvements on Railway Cars.



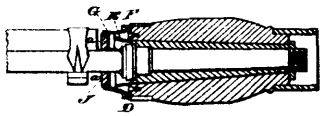
12938 Houchin's Improvements on Hydro-carbon Furnaces.



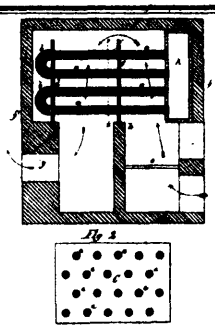
12939 Coleman's Improvements on Pumps



12940 Heath's Improvements in Indexes.



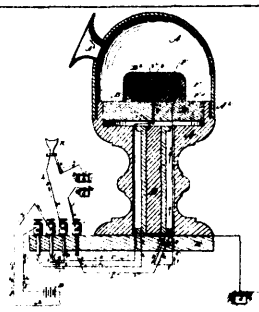
12941 Hurtle's Improvements on Sand Bands.



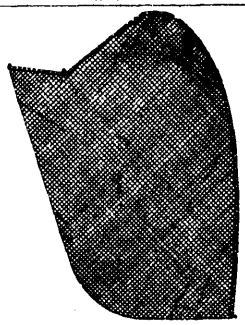
12942 Parks's Improvements in Steam and Hot Water Boilers.

12943 Montant's Improvements on Catches for Holding open Sashes, &c.

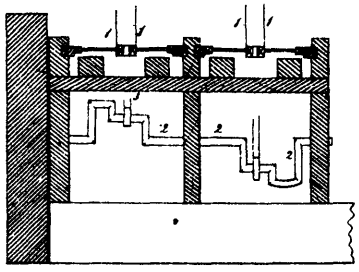
12944 Marks's Improvements on Reversible Garments.



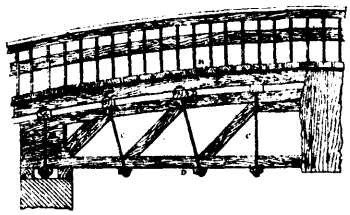
12945 Lockwood's Improvements in Telephones.



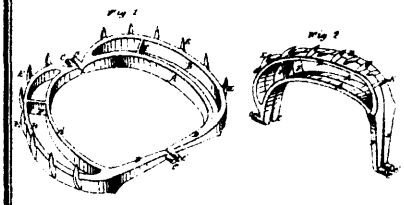
12947 Whitehouse's Improvement on Hat or Bonnet Frames.



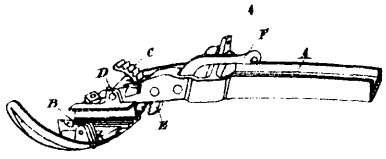
12948 Barter's Shingle Machine.



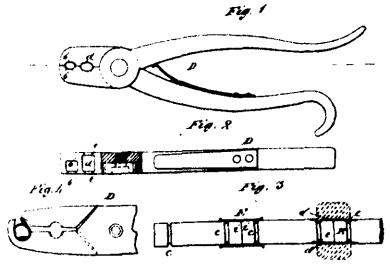
12949 Dennis's Improvements in Bridges.



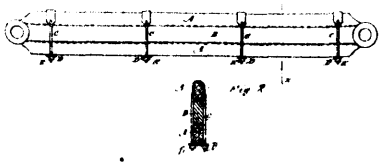
12950 Robertson's Improvements on Animal Traps.



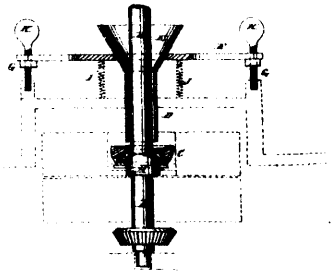
12952 Watson's Improvements on Mowing Machines.



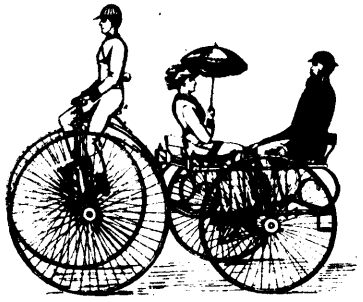
12953 Whiting's Improvements on Method and Means for Clasping Belts.



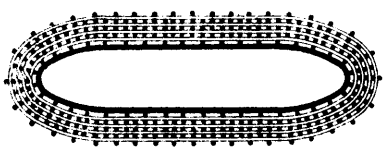
12954 Fish's Improvements in Side Bars for Locomotives.



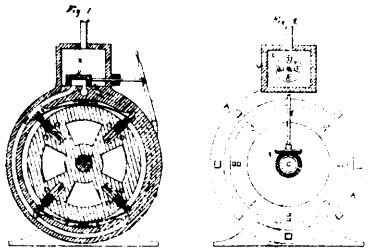
12955 Kepner's Improvements on Mill Feed.



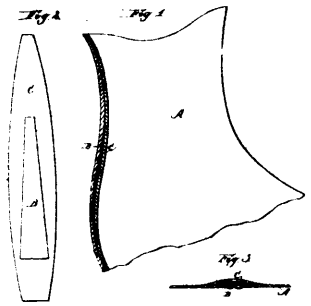
12956 Hopwood's Improvements on Velocipedes.



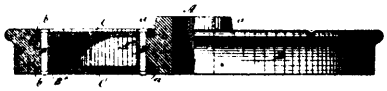
12958 Baker's Improvements in Fabric Hose.



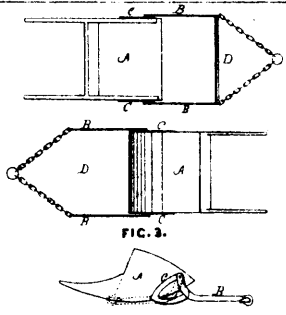
12959 Thibalt & Hawkins's Improvement in Rotary Engines.



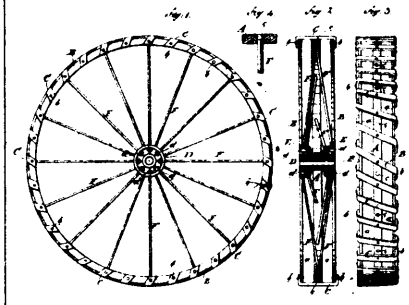
12960 Collins's Improvements on Shoes.



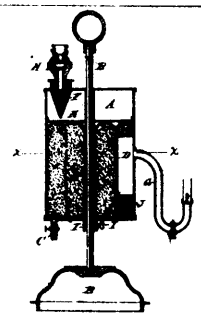
12961 Davis's Car Wheel.



12962 Johnston's Improvements on Road Scrapers.

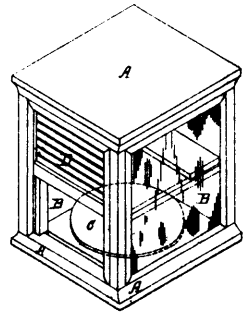


12963 Burdett's Improvements on Wheels.

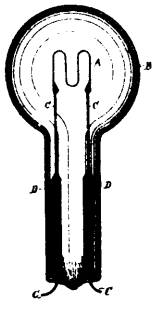


12964 Shaler's Improvements in Carburetters.

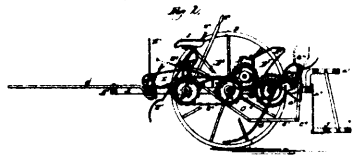
12965 Siffken's Improvements in Fuel.



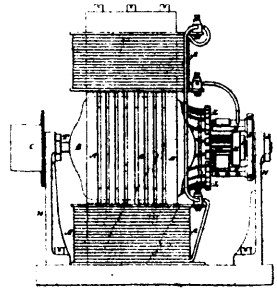
12966 Gordon's Improvements on Cheese Safes.



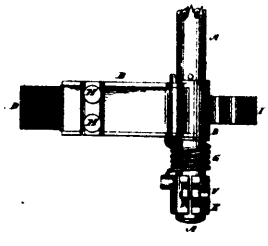
12967 Nichols's Improvements on Electric Lamps.



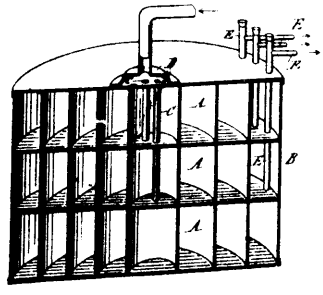
12968 Hewitt's Improvements on Grain Gleaners.



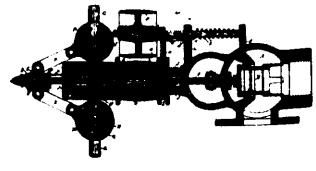
12969 Maxim's Improvements on Dynamo-electric Machines.



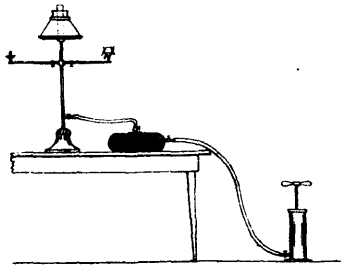
12970 Maxim's Improvements on Dynamo-magneto-electric Machines.



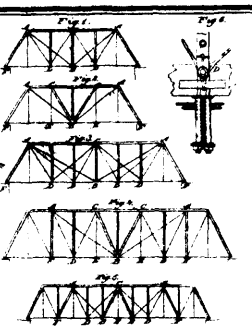
12971 McKenzie & Masson's Improvements on Carburetters.



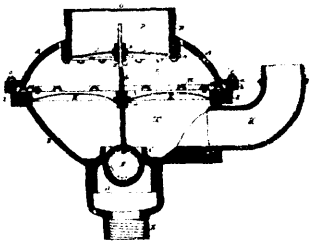
12972 Plant's Improvements on Governors.



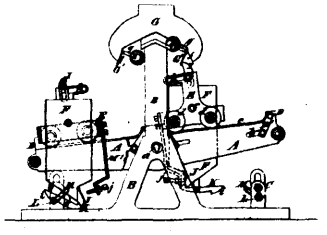
12973 Reynolds's Gas Apparatus.



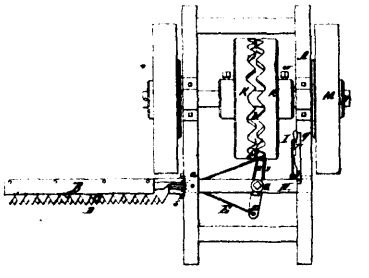
12974 Thacher's Improvements on Bridge Trusses.



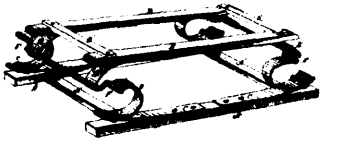
12975 Bricker's Improvements on Gas Regulators.



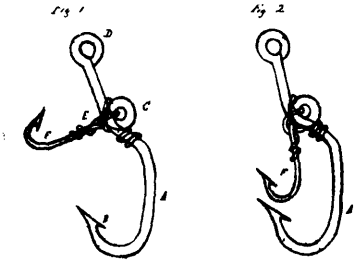
12976 Meyer's Improvements on Automatic Scales.



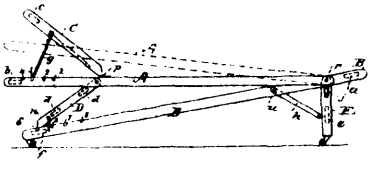
12977 Cheney's Improvement in Mowing Machines.



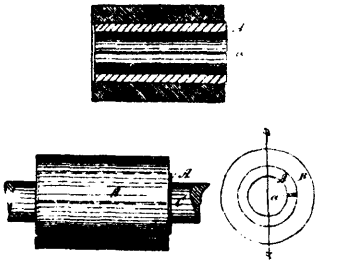
12978 Norton's Improvements on Carriage Springs.



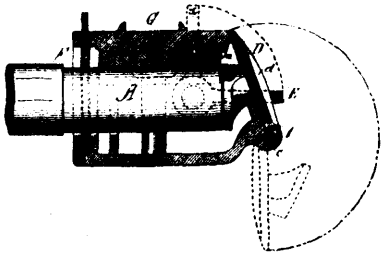
12983 Tate's Improvement on Fish Hooks.



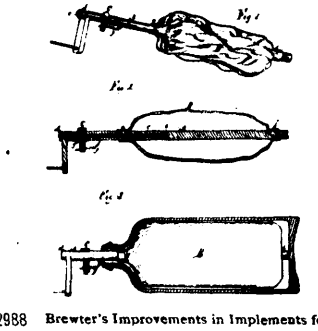
12984 White's Improvements on Hospital Cots and Stretchers.



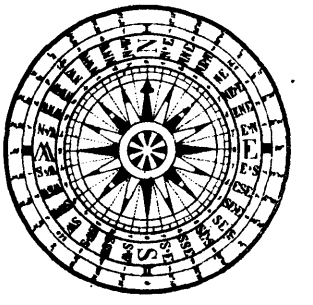
12986 Davis's Shaft Coupling.



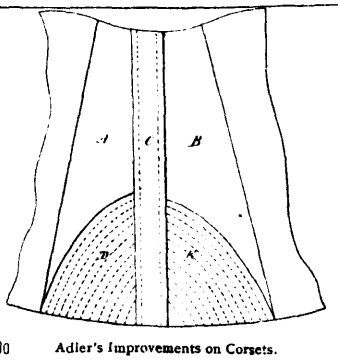
12987 Raoul's Improvements on Car Axle Boxes.



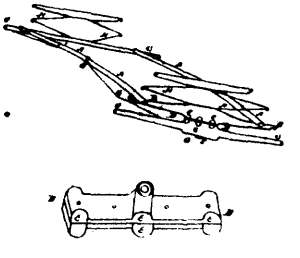
12988 Brewter's Improvements in Implements for Cleaning Hollow Ware.



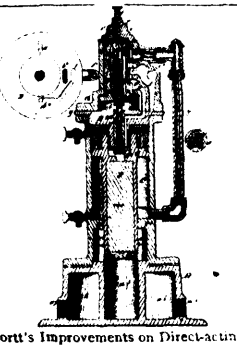
12989 Burke's Improvements on the Mariner's Compass.



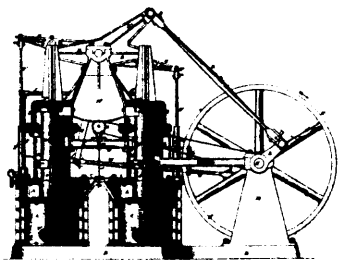
12990 Adler's Improvements on Corsets.



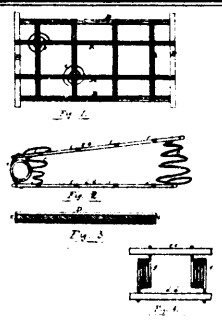
12991 Bambridge's Improvements on Buggy Gearing.



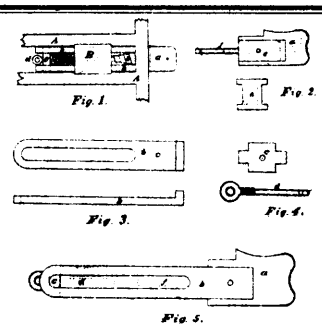
12992 Shortt's Improvements on Direct-acting Pumping Engines.



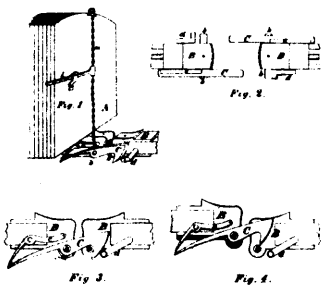
12993 Woodbury, Merrill & Patten's Improvements on Hot Air Engines.



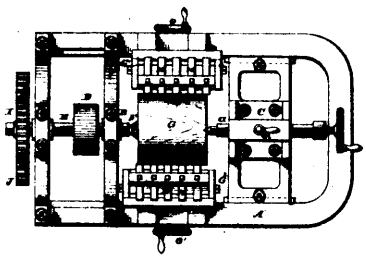
12995 Crich's Improvements on Spring Beds.



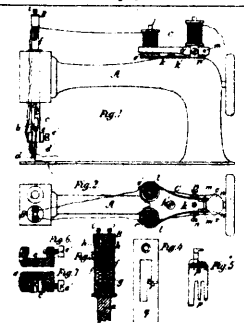
12996 Davison's Improvements on Draw Bars for Railway Cars.



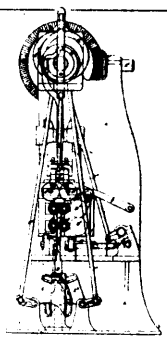
12997 Davison's Improvements on Car Couplings.



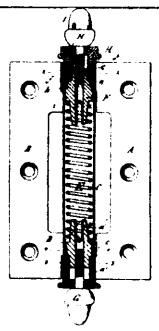
12998 Holmes's Improvements on Paper Pulp and Machine for the same.



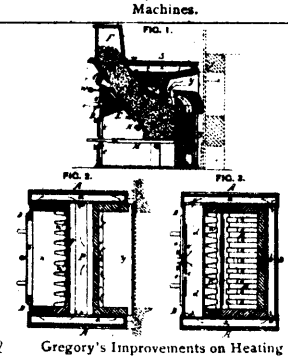
12999 Hayden's Improvements on Sewing Machines.



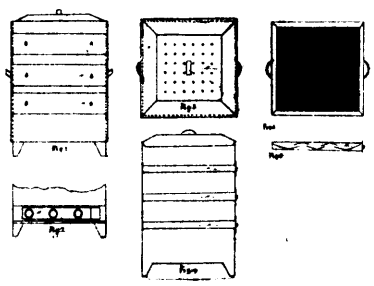
13000 Coleman's Horse Shoe Nail Machine.



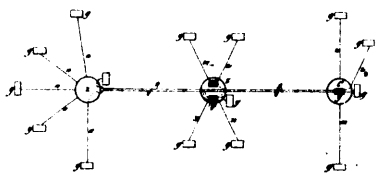
13001 Warden's Improvements on Butt Hinges.



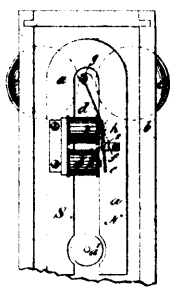
13002 Gregory's Improvements on Heating Furnaces.



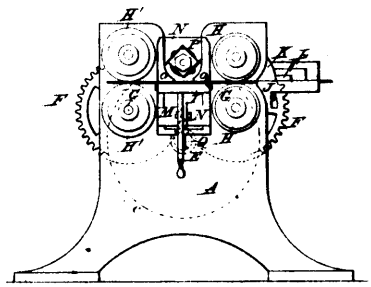
13003 Ker's Fruit Drier.



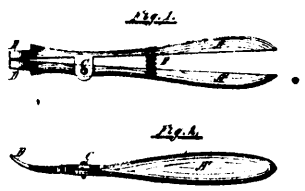
13006 Watson's Improvements on Telephone Circuits.



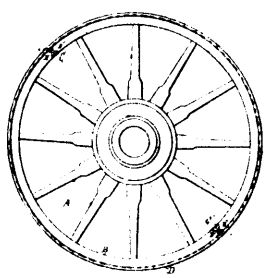
13007 Watson's Improvements on Telephone Signal Apparatus.



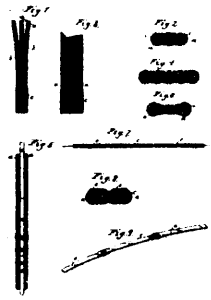
13008 Naylor's Improvements on Machines for Dressing Barrel Hoops, &c.



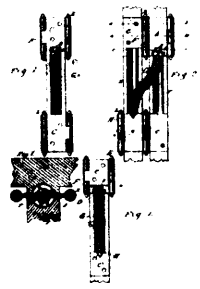
13009 Harder's Improvements in Stove Cover Lifters.



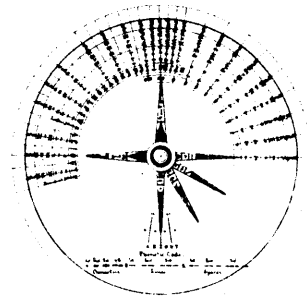
13010 Bredannaz's Improvements in Wheel Felloes.



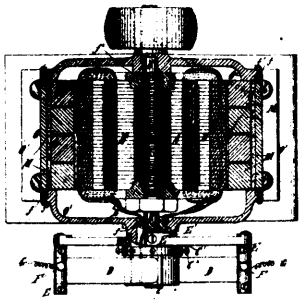
13011 House's Improvements on Modes and Apparatus for Manufacturing Stiffeners for Corsets.



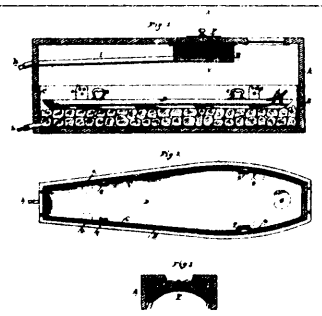
13012 Housley's Improvements in Spring Hinges.



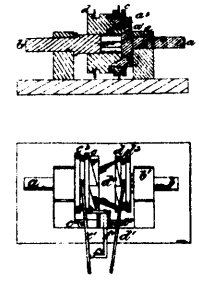
13013 Burke's Improvements in Alphabet and System of Writing in Cipher.



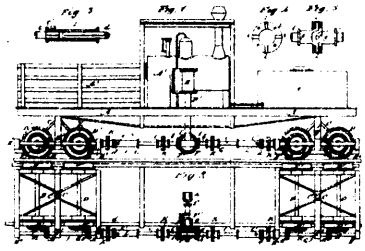
13014 Hussey's Improvements on Magneto-electric Machines.



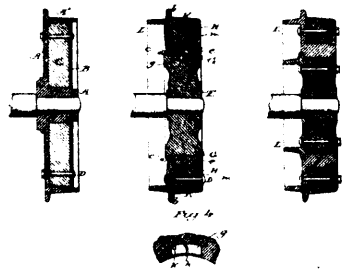
13015 Jarrait's Improvements on the Preservation of Human Bodies.



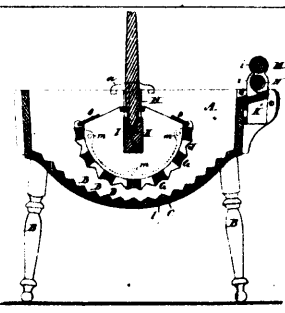
13016 Haskin's Improvements on Clutches for Rolls, Shafts, Pinions, &c.



13017 Shay's Improvements in Locomotive Engines.

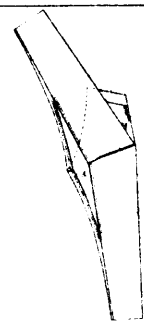


13018 Taylor's Improvements on Car Wheels.

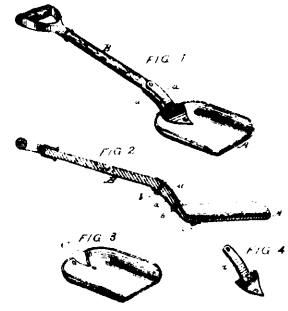


13019 Cahoon's Improvements on Washing and Wringing Machines.

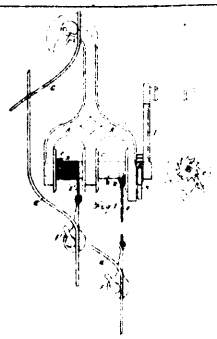
13020 Snow's Improvements on Collars and Cuffs.



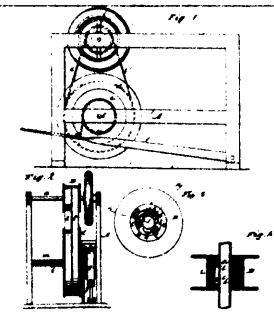
13021 Evans's Improvements in Overalls.



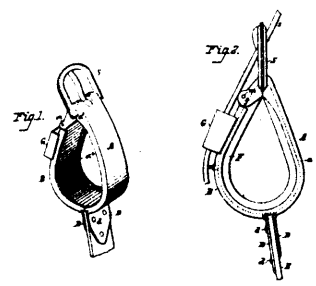
13022 Murphy's Improvements on Shovel Blades of Pulp.



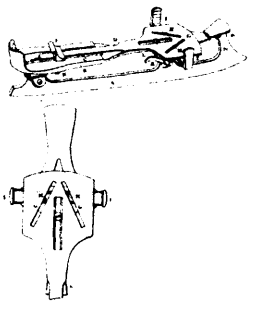
13023 Lang's Improvements on Wire Tighteners.



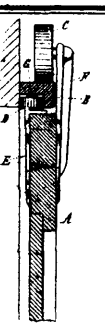
13024 Mayo & Perry's Improvements on Foot Power Mechanism.



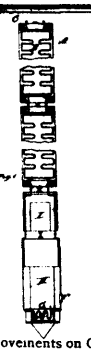
13025 Grant's Improvements on Thill Holders



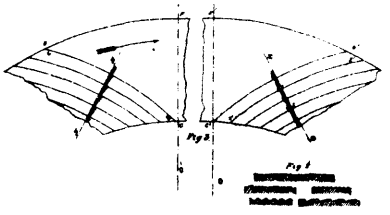
13026 Raymond's Improvement on Skates.



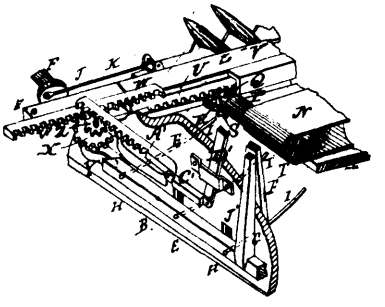
13028 Kidder's Improvements in Sliding Door Hangers.



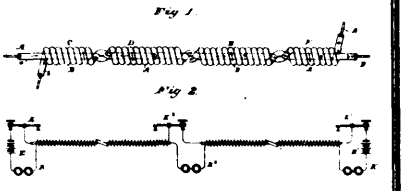
13031 Graydon's Improvements on Car Heating Apparatus.



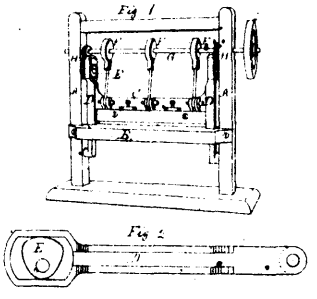
13032 Higginbottom's Improvements on Grinding Mills.



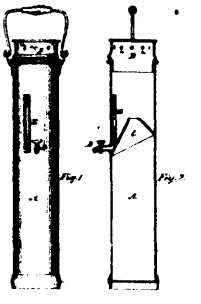
13033 Proper's Improvements on Combined Mowers and Reapers.



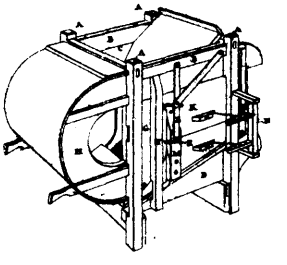
13034 Lugo's Improvements on Electric Circuits.



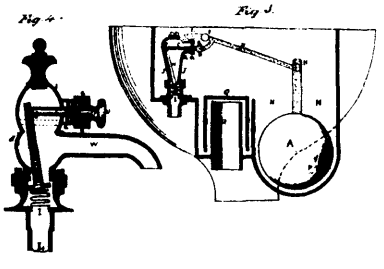
13035 Pike's Improvements on Machines for Cutting Hoops.



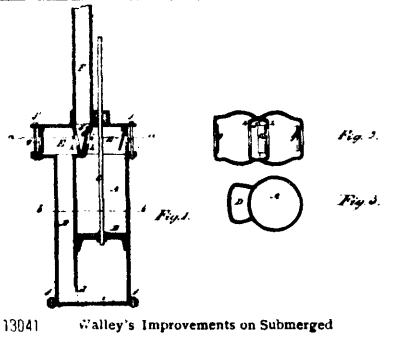
13036 Burroughs's Improvements on Creamers.



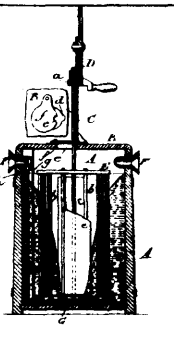
13039 Kline's Improvements on Fanning Mills.



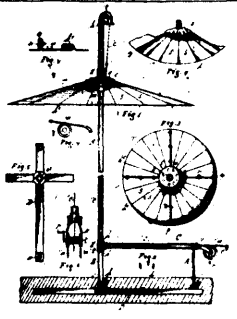
13040 Keith's Improvements on Water Closets.



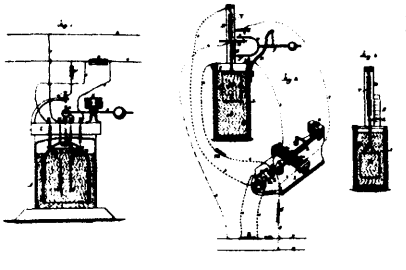
13041 Walley's Improvements on Submerged Pumps.



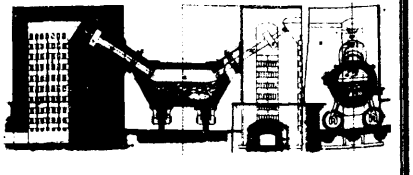
13042 Rathbun's Improvements on Churns.



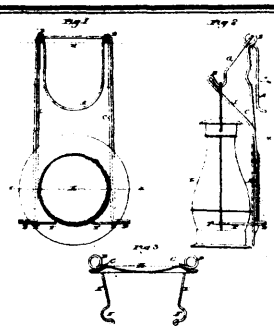
13043 Slock's Improvements in Stack Protectors.



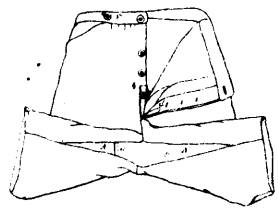
13044 Edison's Improvements on Veber Meter.



13045 Lindberg's Improvements in the Manufacture of Iron and Steel.

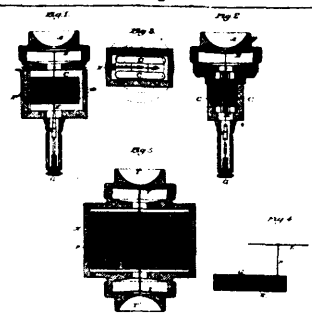


13046 Lufkin & Neally's Improvements on Lantern Hangers.

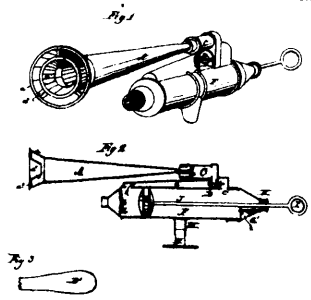


13047 Lowenstein & Van Baalen's Improvements on Overalls.

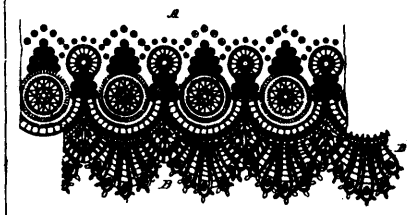
13048 Andrews & Petherick's Improvements on Chair Rockers.



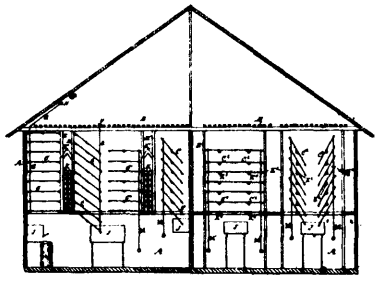
13049 Goodman's Improvements in Telephones.



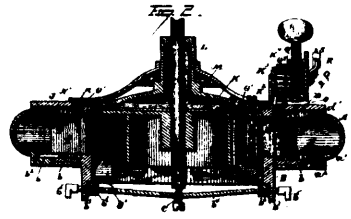
13050 Chester's Improvements on Fog Horns.



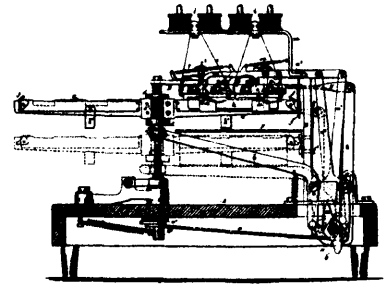
13051 Steiger's Improvements in Trimmings.



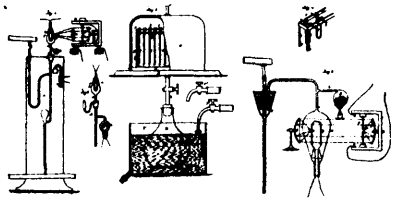
13052 Full's Improvements on Starch's Drying Houses.



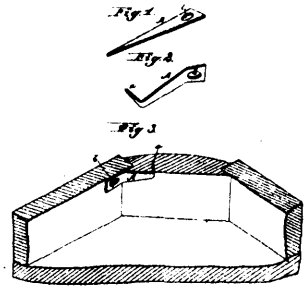
13055 Sherck, Raymond & Jobbins's Improvement on Turbine Water Wheels.



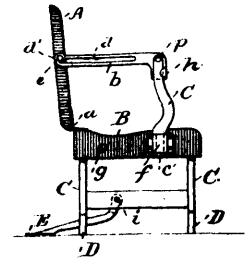
13056 Smyth's Improvements on Sewing Books and in Machinery therefor.



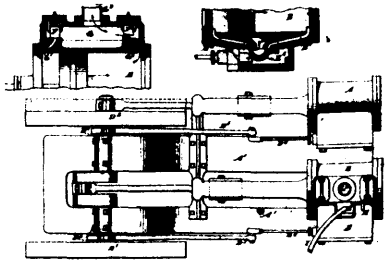
13057 Edison's Improvements on Systems of Electric Lighting, &c.



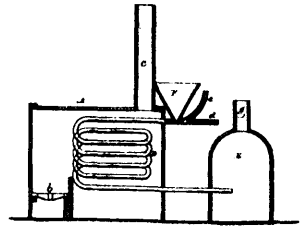
13058 Brown's Improvements on Box Joint Fasteners.



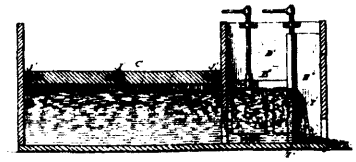
13059 White's Improvements on Folding Settees.



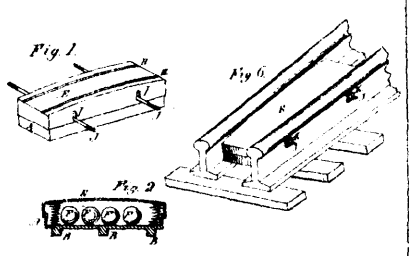
13060 Sergeant's Improvements on Air Compressing Engines.



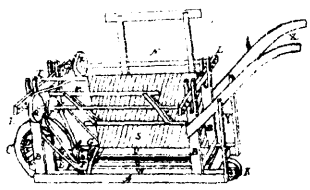
13061 Walker's Process of and Apparatus for, the Treatment of Ores.



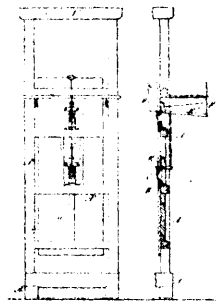
13062 Du Bois's Improvements on Locks and Dams.



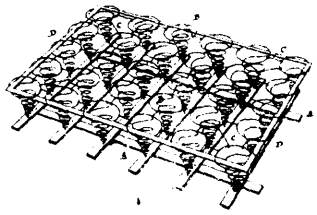
13063 Eveleigh's Safety Attachment to Railway Frogs.



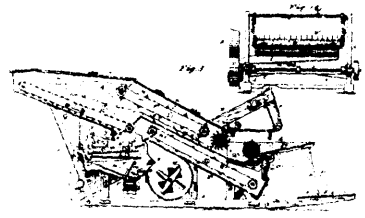
13064 Eadie's Improvements on Machines for Killing Potato Bugs.



13065 Duplessis's Improvements in Hay Presses

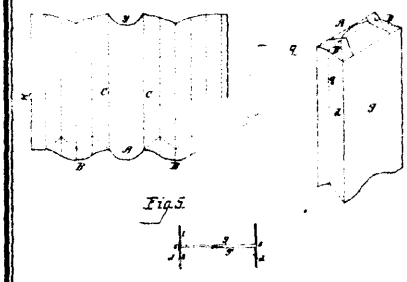


13066 Kaiser's Improvements on Spring Beds.

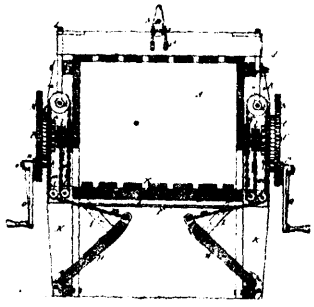


13067 Tostenson's Improvements on Thrashers and Separators.

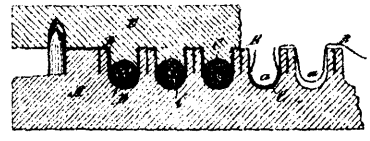
13068 Otto's Improvements on Velocipedes.



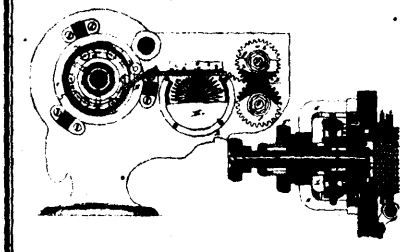
13069 Benner's Improvements on Paper Bags.



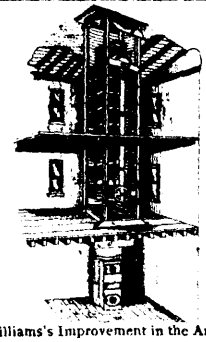
13070 Loeser's Improvements in Baling Presses.



13071 Roman's Improvements in the Manufacture of Cigars.

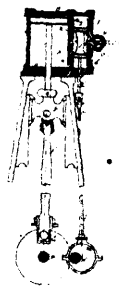


13072 Edge's Improvements on Machines for Making Wire Tubes.

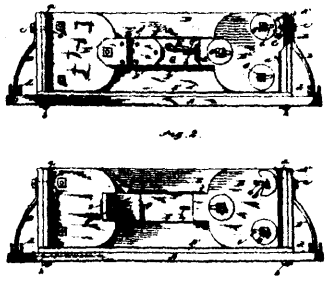


13073 Williams's Improvement in the Art of Drying Fruit, &c.

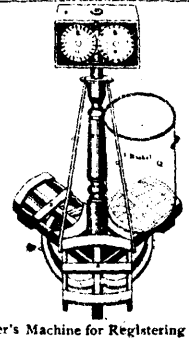
13074 Ross's Improvements on Kitchen Implements.



13075 Turner's Improvements on Steam Engines.



13076 Emery's Improvements in End-gates for Waggons.



13077 Stringer's Machine for Registering the Measurement of Grain in Thrashing Machines.