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INVENTIONS PATENTED.

No. 13,503. Improvements on Reaping Machines. (*Perfectionnements aux moissonneuses.*)

John Harris, Brantford, Ont., 1st October, 1881; for 5 years.

Claim.—1st. A reaping machine in which the rake head spindle is driven by a sprocket wheel, capable of easy removal, so that it can be replaced by a larger or smaller one. 2nd. A rake head spindle A held in double bearings and having at one end a pinion C, meshing with the rake wheel D, in combination with the detachable sprocket wheel E. 3rd. A chain F passing over a pinion on the main driving spindle G, and connecting it to detachable sprocket wheel E on the rake head spindle A, in combination with the spring belt tightener H. 4th. A reaping machine in which the throat is made adjustable upon the rake head. 5th. The casting J in which the throat I is formed, and an extension of the track L, in combination with the bolt K passing through an oblong slot in the said casting. 6th. A crank lever O connected to the tripping block N, by the rod P, and to a foot lever within reach of the driver, by the rods and lever marked Q, in combination with an arm Qi attached to the crank lever O and overlapping the face of the rake wheel D. 7th. A pin or pins R on the rake wheel D, in combination with the arm Qi, on the crank lever O, for operating the tripping block N. 8th. A reaping machine having an adjustable rake head or jack. 9th. The rake head or jack B, held to the bracket S by a bolt T passing through a slot or elongated hole. 10th. The wrought or malleable iron arch S securely bolted to the frame of the machine and braced by the rod U, in combination with the rake head or jack B, made adjustable on the said arch.

No. 13,504. Improvements on Refrigerator Cars. (*Perfectionnements aux chars frigorifiques.*)

Charleton B. Hotchins, Ann Arbor, Mich., U. S., 1st., October, 1881; for 5 years.

Claim.—1st. A freight car wherein the floor is curved from the centre downwards towards each end, and wherein the floor, walls and roof are constructed as described, the side walls and roofs having the same curvature and in the same direction as the floor, and supported upon a base or sill frame. 2nd. In combination with a car body wherein the floor is curved from the centre downwards towards each end, and wherein the floor walls and roof are constructed as described, the side walls and roof conforming to the curvature of the floor, and supported upon a base or sill frame which is trussed, an inner shell entirely separated from said car body, and not attached or secured thereto except by an intermediate filling of any suitable non-conducting material. 3rd. In combination with a car body, with an inner shell supported as described, a corrugated iron floor, the curvature of which conforms to the curvature of the roof and floor of said car body, with corrugations running lengthwise of said body, supported upon lateral timbers, which are in turn supported by the side walls of the inner shell and provided with a drip pipe or pipes. 4th. In combination with a car body and inner shell, inwardly and outwardly opening doors secured together by the means described. 5th. A refrigerator constructed with curved joint side walls curved bottom and top, and with an inner shell of like curvature, and separated from the body by packing, in combination with an ice chamber in the top of the shell, with a slate covering of the floor and walls of the shell. 6th. A refrigerator car provided with an ice chamber, and with steam pipe or pipes, by means of which the temperature of the car may be kept at any desired degree.

No. 13,505. Apparatus for Checking the Waste of Water. (*Appareil pour contrôler la déperdition de l'eau.*)

Ellen C. Furny, St. Louis, Mo., U. S., 1st October, 1881; for 5 years.

Claim.—1st. A checking valve or stopping piston actuated by water admitted through a contracted orifice, adapted to close, or nearly close, the induction port after the passage of a certain amount of water, by the difference in pressure on its opposite sides, in combination with a passage from the induction to the eduction pipes, or ducts, and a valve or equivalent device for partially resisting the flow of water through said passage. 2nd. A checking valve adapted to close, or nearly close the eduction opening while permitting a small leak or passage of water to connect the water chambers or ducts, on the opposite sides of the valve, when the valve is in its closed position. 3rd. The combination of case A, ports B and C, cylinder valve F, having an orifice *g* in its bottom, and valve H *h* for closing, or nearly the discharge pipe C. 4th. The combination of case A, induction port or pipe B, eduction port or pipe C, with gravitating valves F and H *h*, the latter sliding within the former, and the former in communication with the induction opening through a small orifice *g*, in free communication with the eduction opening except when said opening is closed or partly closed by valve H *h*. 5th. The combination of case A, induction and eduction pipes or ducts B and C, with valves F and H *h*, operating to close, or nearly close said ports. 6th. The combination of case A, valves F and H *h*, induction and eduction passages or pipes B and C, small passage *g* and small leak passage *c* or *a*. 7th. The combination, with the piston valve H *h* having water passages *b*, of the gravitating disk valve I.

No. 13,506. Improvements on Plumb Levels. (*Perfectionnements aux niveaux à plomb.*)

William L. Eveland, Port Stanley, Ont., 1st October, 1881; for 5 years.

Claim.—1st. The combination of an extensible reach carriage frame, a frame carrying a plummet, a level pointer operated by said plummet, and a scale or scales indicating the position of the plummet or that of the level pointer. 2nd. The combination of the lower extension bar A mounted on wheels B, upper extension bar C mounted on wheels T, secured slidingly to bar D, by the key E, a frame K carrying a plummet L, and level indicator or pointer M, and scale arcs I I, or a dial face. 3rd. The combination of the bar D having sliding motion endwise on bars A and C, frame K provided with dial face, and carrying plummet L, and pointers S connected by cog rocker Q, and pinion R.

No. 13,507. Improvements on Visual Indicators. (*Perfectionnements aux indicateurs visuels.*)

Chester H. Pond, New York, N. Y., U. S., 1st October, 1881; for 5 years.

Claim.—1st. The art or method of operating an electro-visual indicator, or the first indicating system thereof, which consists in successively and rapidly closing and breaking its actuating circuit until the total number of such closures and breaks taken together corresponds to the position in a series of characters, of the character which is to be displayed, and then ceasing or pausing such manipulation. 2nd. The art, method or system of transmitting compound numerical signals, which consists in, first, alternately closing and breaking the circuit at successive short and equal intervals, until the number of such breaks and closures taken together represent the single numeral which is to be transmitted; second, prolonging or continuing the condition of the circuit, whether open or closed, by which the transmission of said group of signals is complete for an interval exceeding the interval between the signals of the group; third, restoring the circuit, if it be in the opposite of its normal condition, to the normal condition, and, fourth, performing the necessary manipulations of the circuit, to transmit the second single numeral of the compound numerical signal. 3rd. An automatic signal transmitter constructed so as to transmit groups of simple signals by alternately breaking and closing the circuit at short and equal intervals, and to separate said groups by prolonging the terminal signal of each group, whether said signal was produced by opening or by closing the circuit. 4th. A visual indicator adapted to display one character of a series through an opening in a fixed screen, the character displayed being determined by the number of breaks and closures in the circuit which controls its operation, and the preceding characters of the series being moved past the opening so rapidly as to

be indistinguishable or illegible. 5th. A visual indicator consisting of a series of characters, a movable part, the extent of whose uninterrupted movement, when released, determines which character of the series is displayed or pointed out, in combination with an electro-magnetically actuated stop device adapted to control the extent of movement of said part, whereby the character displayed depends upon the number of times the operating circuit is broken and closed. 6th. The combination of an electrically actuated escapement with a non-intermittently moving part whose movement is controlled by the escapement, and the extent of whose movement determines which figure or character of a series is to be indicated. 7th. An electro-visual indicator consisting of an intermittently moving part whose movement is controlled by an electro-magnetic escapement, in combination with a non-intermittently moving part, the extent of whose movement is determined by the extent of movement of the first named part, and which itself determines which character of a series is to be indicated. 8th. The combination of a part D capable of successive short progressive movements, an electro-magnetic escapement E capable of controlling the number of such movements, and a part A capable of continuous movement from its starting to its stoppage, and adapted to be stopped at any one of a series of points by the action of the part A and the extent of its movement determining which character of a series shall be indicated. 9th. The combination of a moving part A bearing a series of pins or stops *e e* arranged successively in advance of one another, and each moving in a separate path, with an electrically controlled tooth or stop D adapted to move across the paths of the said pins, and by stopping in the path of either to arrest the movement of the part A at the corresponding point in its revolutions. 10th. The combination of magnet *F*, armature *G*, pallet *J*, rack *d* having teeth *e e* and connected with stop *D* and wheel *o* or its equivalent A, bearing a series of pins or stops *e e*. 11th. The combination, with electrically controlled stop *D* and wheel A, bearing pins or stops *e e*, of a locking device or brake for said wheel adapted to engage and hold it, and adapted to be operated by the striking of a pin against the stop *D*. 12th. The combination of electrically actuated stop *D*, wheel A bearing pins *e e*, rod *T* and locking lever or brake lever *L*. 13th. The combination of electrically actuated stop *D*, wheel A, pins *e e* thereon, pinion *b* and toothed weight *B* meshing with said pinion, whereby said wheel is given a tendency to revolve. 14th. The combination, with the rack *d* bearing stop *D*, wheel A bearing pins *e e*, pinion *b* and toothed weight *B*, of restoring mechanism consisting of lifting toe *d* borne by rod *M*, and a lifting device to lift both said rod and weight. 15th. The combination of the wheel A, means for releasing it, means for rotating it, and means for stopping it, lever *T* bearing the friction brake *K*, drop *J*, inclined or wedging surface *l* and means for releasing said drop by the stoppage of the wheel. 16th. One indicating system consisting of a non-intermittently moving part, so arranged relatively to a series of characters that the extent of its movement from its normal position determines which of said characters is displayed, an intermittently moving part, the number of whose advances determines the extent of movement of the first named part, and an escapement whose operation controls the movement of said intermittently moving part, in combination with a second like indicating system, with one electro-magnet adapted to operate the escapement of either system and normally in operative connection with that of the first system only, and with means actuated automatically by the stoppage of the movement of the non-intermittently moving part of the first system, for bringing said magnet into operative connection with the escapement of the second system. 17th. An indicating system consisting of a pallet *J*, rack *d* having teeth *e e*, intermittently moving stop *D* and non-intermittently moving part A having a series of pins *e e*, in combination with second like system, with means for vibrating the pallets of both systems simultaneously with means for holding the rack of the second system up out of engagement with its pallet during the operation of the first system, and with means for automatically dropping it into said pallet upon the completion of the operation of the first system. 18th. The combination of two electrically actuated indicator systems, each adapted to advance one character for each break or closure of their actuating circuit, the first system only being in operative connection with said circuit, with means for bringing the second system into connection therewith upon the completion of the operation of the first system, and with means for preventing the act of effecting this connection from prematurely starting the second system in case the circuit, at the time said connection is made, is in the condition (either open or closed) pre-arranged to effect the starting thereof. 19th. An indicating system consisting of a character displaying mechanism, whose movement is controlled by a pallet *J* and rack *d* having teeth *e e*, in combination with a second like system whose rack *d* is formed with an additional tooth *e* and is normally sustained with said tooth above its pallet, with means for vibrating said pallets and with means for dropping the said rack into connection with its pallet, upon the completion of the operation of the first system. 20th. The combination, with the brake lever *L* inclined surface *l* and drop *J*, of restoring device consisting of lifting rod *M* having means or cam surface *q*. 21st. An automatic transmitter for electrical indicators constructed so as to transmit groups of simple signals by a circuitly breaking and closing the circuit at short intervals, and to separate said groups by prolonging the terminal signal of each group, whether said signal was produced by opening or by closing the circuit, and adapted to transmit always one signal answering to the number of character peculiar to itself, and to effect a greater or less number of circuit manipulations under the control of the operator, so as to transmit any desired character of a series. 22nd. The combination of wheel R, tooth or stop *n* in connection therewith, and a stop or stops *u* adapted to be placed in the path of said tooth, and to intercept the same at pre-determined points in its travel, and thereby to stop the wheel R. 23rd. In a transmitter, the combination of circuit manipulating wheel R, means for rotating the same, one revolution in one direction at each operation of the transmitter, a stop or stops *n* in connection therewith, a series of teeth or tops *u u*, each normally held out of the path of the stop *n*, but capable of being manually moved into its path so as to intercept it and stop the wheel R, and each adapted to stop the wheel at a different point in its revolution. 24th. The combination of wheel R, stops *n n*, stops *u u*, springs P₁ P₂ and buttons P P.

No. 13,508. Process and Apparatus for the Manufacture of Fertilizers. (*Procédé d'appareil pour la préparation des engrais.*)

William Blumer, Lexington, Mass., U.S., 1st October, 1881; for 5 years.

Claim.—The process of depriving night soil, or other raw fertilizing materials, of their noxious gases and injurious properties and converting them into a dry innocuous fertilizer having all the valuable properties originally contained in the raw material, said process consisting in heating the raw material for the double purpose of desiccating it and expelling its noxious gases and vapours mingling, when required, antiseptic vapour with the desiccated material to destroy any noxious gases and spores of infectious diseases, not removed by desiccation, saving a fixing in the form of crude sulphate of ammonia, the free ammonia necessarily escaping with the gases and vapours during the desiccating operation, and mixing the crude sulphate of ammonia with the desiccated desiccated material to complete the fertilizer, the latter being then ready for transportation and use. 2nd. The process of destroying noxious gases and spores of infectious diseases in desiccated night soil or other fertilizing material, consisting in mingling carbonic acid or other antiseptic vapour with said material while it is in a dry heated condition and contained in a tightly closed receptacle. 3rd. In combination with a receptacle for containing and desiccating night soil or any other material, a stuffing box connected therewith, and a tester *P* adapted to reciprocate in the stuffing box and withdraw a sample of the material for examination. 4th. The combination of a retort having a rotating, stirring or propelling device, a pipe *N* communicating with said retort, which may be made in sections or otherwise, a condensing apparatus to condense steam passing through said pipe, a vacuum pump to draw steam and gases through the condensing apparatus and to force onward the condensed water and gases, an air chamber located between the condenser and the pump, and a kettle or heater connected to the pump to heat the condensed water, and a tank for containing sulphuric acid connected to the kettle or heater. 5th. The combination of the connected retorts A A' made in sections to be fitted together or otherwise, a chamber *F* connected to said retorts either over the top or within the retorts and, if within, perforated with small holes, the pipe *H* communicating with the chamber or pipe *F*, the vacuum pump *K*, the condenser *S*, the pipe *W*, the kettle or heater *x* and the tank *N*. 6th. The retorts A A', the pipe *H*, the condenser *S* and the vacuum pump *K* combined with the stand pipe *b*, the condenser *e d* and the air chamber *a*, whereby the pump *K* is aided in its operation. 7th. The combination of the connected retorts A A', a chamber *F* connected to said retorts, a blower *i* communicating with the pipe or chamber *F*, and the pipe *j* to contain the chemical. 8th. In a stirrer or propeller, the combination of a hexagonal or many sided shaft, a series of collars, each having correspondingly-shaped socket *E* to fit on said shaft, and two or more many sided orifices *E* and arms *E* having many sided lugs *E* adapted to fit the orifices *E*. 9th. In combination with the pipe *J* and receptacles *Q*, the retort *J* and pipe *J*, whereby the desiccated material is subjected to antiseptic vapour.

No. 13,509. Method of Making Sulphuric Acid from Pyrites. (*Méthode pour faire l'acide sulfurique avec des pyrites.*)

Henry Wurtz, New York, N.Y., U.S., 1st October, 1881; for 15 years.

Claim.—1st. The consolidation of all varieties of granular sulphurets into cakes, lumps or blocks, by mixing therewith metallic iron in comminuted or divided form, and causing this iron to rust and form hydrated oxide or a basic salt in the interstices of the mass, by admixture with a saline solution. 2nd. The combined process of preparing metallic sulphurets for the operation of desulphurization and burning out of the sulphur therefrom by crushing to granular condition, removing the gangue and impurities by means of a current of air or water, or otherwise, and then reconnecting the purified granules together into masses by the rusting of comminuted metallic iron mingled therewith. 3rd. In accelerating and intensifying the rusting and cementing action of metallic iron when mingled with other materials by the process of alternately moistening the mixture with water and drying either spontaneously or by a gentle heat. 4th. As an article of commerce of new composition of matter, a consolidated product, made by mingling together granulated metallic sulphurets with granulated metallic iron and causing the latter to rust by the action of a saline solution, either with or without the addition thereto of asbestos or of mica. 5th. Increasing the cohesion and intractability of caked masses of granulated sulphurets, and of the cinders or residues left after burning the same by mingling therewith asbestos or other fibrous refractory mineral substance. 6th. Increasing the cohesion and intractability of caked masses of granulated sulphurets and of the cinders or residues left after burning the same, by mingling therewith common mica or other refractory foctiated or micaceous mineral substance in their scales. 7th. The use of metallic iron in the form of iron sponge produced by reducing to metallic form granulated or powdered iron oxide, or ore, or pyrites cinders by exposure to heat in admixture with carbon or a combustible gas, for cementing together granular materials by the rusting action thereon of a saline solution.

No. 13,510. Improvements on Gate Locks.

(*Perfectionnements aux fermetures des barrières.*)

George A. Schram, St. Thomas, Ont., 1st October, 1881; for 5 years.

Claim.—The circular faced casting A, having edge *b* and guard wire D attached to gate port E, and in combination therewith, the casting B, also circular and provided with lugs C C' for locking the two castings together, and confining or releasing the gate F.

No. 13,511. Improvements on Grain Forks.

(*Perfectionnements aux fourches à grain.*)

Vincent B. Southard, Fenelon, Ont., 1st October, 1881; for 5 years.

Claim.—1st. The combination of the handle A, bow B and cross bar C. 2nd. The tines D.

No. 13,512. Edge Trimming Machine for Boots and Shoes. (*Machine à polir la tranche des semelles de chaussures.*)

Charles H. Helms, Poughkeepsie, N.Y., U.S., 1st October, 1881; for 5 years.

Claim.—1st. The combination of the feed wheel, the presser mounted on an oblique shaft, and drawn up toward the feed wheel by a spring, and the knife and means for revolving the feed wheel and the presser. 2nd. The combination of the feed wheel, the presser mounted on an oblique shaft, the spring which acts on the frame or arm supporting this oblique shaft, the platform extending from said arm, and the knife secured to said platform. 3rd. The combination of the feed wheel, the presser made in the form of a hollow truncated cone, mechanism for drawing the presser up against the feed wheel, the knife M and the projection *n* extending from said knife, into the hollow part of the presser. 4th. The combination of the feed wheel, the presser mechanism for drawing the presser up toward the feed wheel, the trimming knife M and the secondary knife L. 5th. The feed wheel N constructed of a metallic section *i*, and a soft and elastic section *j*.

No. 13,513. Improvements on Window Blinds. (*Perfectionnements aux jalousies*)

William H. Payzant, Canning, N.S., 1st October, 1881; for 5 years.

Claim.—1st. The connecting and securing of the slats A together with rings B B, thereby holding each slat in its proper position, which rings also serve as hinges in raising and lowering, folding and unfolding the blind. 2nd. The combination of slats A, rings B B, cord C, ring D, pulleys E E, fastener F and ring G. 3rd. The combination of slats A, rings B B, cord C, ring D, pulleys E E, fastener F and header H.

No. 13,514. Improvements on Seat Locks.

(*Perfectionnements aux ferrures des sièges.*)

Samuel F. Roop, Middleton, N.S., 1st October, 1881; for 5 years.

Claim.—The bolt and hook with projecting arm, also cap and application of cam.

No. 13,515. Improvements on Lathes for Turning Irregular Forms. (*Perfectionnements aux tours à tourner les objets de forme irrégulière.*)

Alexander Fleck, Ottawa, Ont., 4th October, 1881; (Extension of Patent No. 6,644.)

No. 13,516. Method of Heating and Refrigerating Liquids and Apparatus Therefor. (*Méthode pour réchauffer et refroidir les liquides, et appareil pour cet objet.*)

William Lawrence, London, Eng., 5th October, 1881; (Extension of Patent No. 6,749.)

No. 13,517. Improvements on Spittoons.

(*Perfectionnements aux crachoirs.*)

Jane S. Ste. Marie, (heir of the late P. C. Ste. Marie), Montreal, Que., 11th October, 1881; (Extension of Patent No. 6,640.)

No. 13,518. Improvements on Hay Presses.

(*Perfectionnements aux presses à foin.*)

Greenleaf W. Butcher, Boston, Mass., U. S., 12th October, 1881; for 15 years.

Claim.—1st. The tower structure *a*, the lower part boxed to receive the material intermittently fed, a descending weight *c* suspended from the top of the tower to beat said material while being fed, pressure levers *b* acting in conjunction with said weight to bale the beaten material, and a capstan to intermittently lift and drop said weight and work the levers by means of ropes and pulleys. 2nd. The combination with the tower *a*, of the beating weight *c* and pressure levers *b*, whereby engagement is effected for independent or combined action. 3rd. The weight *c*, having its bottom cut with channels and holes 10, and bed plate *d* provided with corresponding channels and holes. 4th. The outer doors *e* provided with bevelled projections *e*₃. 5th. The capstan *f*, and compressing weight or beater *e*, and its lifting rope *d* loosely connected with the said capstan, and *e* means to automatically engage and disengage the said rope and capstan. 6th. The capstan *f* and shoe *e* mounted loosely in circumferential guides therein, combined with the weight or beater *e*, and its lifting rope *d* attached to said shoe, the engaging device to positively connect said capstan and shoe, and the disengaging device to release the shoe. 7th. The capstan shaft *m* and capstan drum *f* mounted loosely thereon, combined with a second winding drum *l*, also loose on the said shaft, the two drums being provided with clutch projections.

No. 13,519. Improvement in Railway Crossing Gates. (*Perfectionnements aux barrières des traverses de rivières.*)

Pierre Mayrand, Trois-Rivières, Que., 12th October, 1881; for 5 years.

Claim.—1st. In railway crossing gates, the gate posts A B C D formed in two parts, said parts being held to each other by the holding or pivot pins *a* and the stop pins *b*. 2nd. The combination of the posts A B C D with the arches which are composed of the segments *c d*, which are for guiding the loose ends of the bars F, and also for steadying the posts of the gates. 3rd. The arrangement and combination of the gate posts A B C D, the holding or pivot pins *a* and stop pins *b*, with the ropes or chains *e*, pulley *g*, shaft *h*, gears *i j* and *k*, journalled in the hinge post A and outside post G, and the winch *m*.

No. 13,520. Improvements in Valve Gears.

(*Perfectionnements aux garnitures des soupapes.*)

James Bain and William C. Wallace, Hamilton, Ont., 12th October, 1881; for 5 years.

Claim.—1st. The use of two or three cranks or eccentrics F F carried by the eccentric rod G for the purpose of expanding or contracting the cut off plates A A. 2nd. The combination of the one spindle working

inside the other with the eccentrics F F, as the best means of communicating the motion from the fore mentioned eccentrics F F to the cut off plates A A.

No. 13,521. Improvements in Chandeliers.

(*Perfectionnements aux vandeliers.*)

James Chase, Rochester, N. Y., U. S., 12th October, 1881; for 5 years.

Claim.—1st. The combination of the external tube, the sliding internal tube provided with the downwardly and inwardly inclined plane, the wedge bearing against both, the inclined plane and the outer tube, and the spring seated and carried upon the inner tube and connected with the wedge. 2nd. An extension chandelier which unlocks automatically when urged upward, the same embracing the combination of an outer tube, an inner sliding tube with a seat or bearing inclined downward and inward, a wedge seated on said bearing and a spring connection between the inner tube and the wedge, whereby the latter is forced upward as the inner tube is drawn downward, but released as the tube is pushed upward. 3rd. The combination of fixed tube B, inner sliding tube D with the inclined face on one side, wedge *a*, washer *d*, spring S and unlocking device C *à* *à*. 4th. A chandelier provided with an external tube B within which is sliding tube D, the former being made to support a portion of the lamps or burners, and the latter supporting one or more burners required for lowering. 5th. A sectional hub H H, a portion of which is attached to the external tube B, the latter being made to support the fixed arms K and the other portion of said hub being attached to, and made movable with the inner sliding tube D, and also made to support such parts of the chandelier as are required for lowering. 6th. The method of suspending the outer tube B of drop lights, by means of a socket A' fixed to or in the timber or floor above the ceiling, when it is desirable to extend the said tube as high as possible in low rooms, or when the point of suspension is located between joists.

No. 13,522. Improvement on Cheese Vats.

(*Perfectionnements aux éclisses à fromage.*)

Theodore B. Wire, Lenox, Ohio, U. S., 12th October, 1881; for 5 years.

Claim.—1st. In a cheese vat, the combination, with a vertical rotary shaft located at the central portion of the vat, and an agitator, one end of whose shaft is journalled in a bearing secured to said central shaft, of an independent rotary shaft geared to the agitator shaft, said parts being adapted to cause the agitator to revolve about the centre of the vat, and to rotate about its own axis. 2nd. The combination, with a vertical rotary tubular shaft located at the central portion of the vat and an agitator having one end of its shaft journalled in a bearing secured to the upper extremity of said tubular shaft, of an independent rotary shaft inclosed in the tubular shaft and gearing with the agitator shaft, said parts being adapted to cause the agitator to rotate on its axis in the same direction in which it revolves about the centre of the vat. 3rd. The combination, with a driving shaft gearing with a counter shaft, and with the lower extremity of the vertical rotary shaft, and an agitator whose shaft gears with the upper extremity of said vertical shaft, of a tubular shaft inclosing the latter shaft and provided at its upper extremity with a bearing, in which one end of the agitator shaft is journalled. 4th. The combination, with a driving shaft located beneath a vat, and having level gearing with the lower extremity of a vertical rotary shaft, and an agitator, one end of whose shaft gears with the upper extremity of said vertical shaft, of a counter shaft having spur gearing with the driving shaft and having worm gearing with the lower extremity of a tubular shaft inclosing the previously mentioned vertical shaft, and an agitator, one end of whose shaft is journalled in a bearing secured to the upper extremity of said tubular shaft. 5th. The combination, with a vat and an agitator, of a support to which one end of the agitator shaft is pivoted, said agitator being thereby adapted to be raised from the vat in vertical tilting movement. 6th. The combination, with a vat provided with a central opening, and a vertical rotary shaft fitted in the latter, of an agitator having one end of its shaft journalled in a bearing secured to the vertical shaft at a point within the vat opening and a frame supporting said vertical shaft in position in the centre of the opening.

No. 13,523. Improvements on Feed Water Heaters. (*Perfectionnements aux chauffeurs de l'eau d'alimentation.*)

Israel E. Myrick, Cleveland, Ohio, U. S., 12th October, 1881; for 5 years.

Claim.—1st. In a feed water heater, the combination of the pipe E F, disk G, chamber A, filtering chamber C and pump M, with their connections. 2nd. In combination with the exhaust steam pipe B, the water supply pipe E perforated at its inner and entering such exhaust pipe, and the diaphragm G, encircling such water pipe below its perforated end. 3rd. In combination, with the chambers A A, the filter C constructed as described, tank D arranged below the same, and the siphon H H.

No. 13,524. Improvements in Hose Couplings. (*Perfectionnements aux manchons des tuyaux élastiques*)

David B. Kendall, Howland Flat, Cal., U. S., 12th October 1881; for 5 years.

Claim.—1st. The inner pipe A, and the outer fastening device formed of the ring C, strips *a* riveted thereto with their curved heads *b*, grooved on their under surfaces, and the band D for slipping over the fastening device, whereby its heads *b* are made to take firm hold upon the hose and secure the joint over which they fit. 2nd. The elastic strips or arms *a* secured to the rings C, and having its segmental heads *b* and adapted to clasp the meeting ends of two sections of hose, and compress them upon an inner pipe A, by means of the exterior compressing ring D.

No. 13,525. Improvements on Machines for Marking Scale beams. (*Perfectionnements aux machines à graduer les fleaux des balances.*)

E. and T. Fairbanks & Co., (Assignees of Henry Fairbanks and Harolin Padlock,) St. Johnsbury, Vt., U.S., 12th October 1881: for 15 years.

Claim.—1st. The straight reciprocating carriage B and means for holding thereon the article to be impressed, in combination with the small roll *d* and stout roll K. 2nd. The rolls *d* K, carriage B and clamping means J, b, in combination with each other and with the means C D for imparting an equal surface motion, and with spring G and adjusting means F. 3rd. In combination with the roll *d*, carriage B and operating means C D, a series of separately moving punches or dies S adapted to be separately depressed by the roll *d*. 4th. The bearers T, in combination with the separately moving dies S, carriage B, roll *d*, boxes E and springs G. 5th. The hinged die-holder *m m*, in combination with the dies S, and bearers T, and means for depressing the dies separately. 6th. The combination of the hinged die-holders M, separately moving dies S and bearers T, with the carriage B having an offset B', clamping piece J, with the operating means P, and with the roll *b*, spring G and adjusting means E. 7th. The notched surface *b* on the carriage B, in combination with the opposing surface J, and with means for imprinting the several figures.

No. 13,526. Improvements in Metal Fence Posts. (*Perfectionnements aux pieux des clôtures métalliques.*)

Jonathan Hugill and Absalom G. Smith, Hamilton, Ont., 12th October 1881: for 5 years.

Claim.—1st. In a metal fence post, the cylinder B, in combination with the spiral projecting rib E, when the latter is placed upon the outside of the cylinder. 2nd. The cutting edge *d*, in combination with the cylinder B and projecting rib E. 3rd. The strip *r*, opening *b*, hole S, and shoulders *p p*. 4th. The combination of the cylinder B, projecting rib E, the U-shaped portion cutting edge *d*, strip *r*, opening *b* and hole S.

No. 13,527. Improvements in Electrical Regulators. (*Perfectionnements aux régulateurs électriques.*)

John W. Langley, Ann Arbor, Mich., U. S., 12th October, 1881: for 5 years.

Claim.—1st. The combination, with the poles of a dynamo magneto-electric machine, of a magnetic metal piece and mechanism sustaining the same in such relation to the poles of the electro-magnet that an excess of current will cause the poles to attract the magnetic metal piece, and tend to establish magnetic communication between the poles through said magnetic metal piece. 2nd. The combination, with the poles of the electro-magnet of a dynamo or magneto-electric machine, of a magnetic metal piece connected at one end with one of the poles, and mechanism for sustaining the other end of the magnetic metal piece at a distance from the other pole, in such relation thereto that an excess of a current will cause the pole to attract and swing the magnetic metal piece and tend to establish magnetic communication between the poles. 3rd. The combination of the poles P of the electro-magnet of a dynamo or magneto-electric machine, with the movable magnetic piece C, or pieces C C', and dia-magnetic springs E E', or their equivalent. 4th. The combination, with the poles of the electro-magnet of a dynamo or magneto-electric machine, of a magnetic metal piece, connected at one end with one of the poles, and a spring sustaining said magnetic metal piece in such relation to the other pole that an excess of current will cause the pole to attract the same and tend to establish magnetic communication between the poles, through the magnetic metal piece.

No. 13,528. System of Transmission of Movement. (*Système de transmission du mouvement.*)

Antonio Samper, Paris, France, 12th October, 1881: for 5 years.

Claim.—1st. The tension of the ropes by means of the small pulley, the said pulley being provided or not with a weight. 2nd. The arrangement of the rollers, that is to say, the placing of said rollers quite close to the pulleys so as to produce tension. 3rd. The roller of the pulley A applied to each end of the driven rope, so as to maintain the slack of said rope. 4th. The application, as a stretcher for the transmission ropes, of the conductor or guide at D D, which allows of said ropes being slack. 5th. The application of special pulleys for giving to the transmission ropes the required degree of tension. 6th. The application of special pieces to existing pulleys, in order to adapt them to this new system. 7th. The combination of the pulleys which serve to transmit movement, to invert it and to tighten the rope. 8th. The arrangement and application of cones *a*, for stopping the coils and preventing them being unwound. 9th. The application and arrangement of the pieces in the pulleys, in order to stop the slipping and unwinding of the ropes. 10th. The arrangement of the rollers which serve to prevent the ropes from leaving the pulleys and also to give them tension, and transmit movement by means of slack ropes. 11th. The arrangement of the conducting pulleys for transmitting movement in rounding angles D D, or for tightening the ropes by placing them close to the driving or motor pulleys. 12th. The arrangement for changing the speed with which movement is transmitted. 13th. The mode of transmission by means of a rope having free ends. 14th. The application of the different forms of cones according to the different cases in which transmission of movement is to be effected, and the nature of the ropes, cables, cords, etc., employed.

No. 13,529. Improvements on Horse Powers. (*Perfectionnements aux manèges.*)

Charles Sandford and Arthur W. Coe, Madoc, Ont., 12th October, 1881: for 5 years.

Claim.—The combination of the wheels G G' I' J and L with the wheels F and M.

No. 13,530. Improvements in Hay Rakes. (*Perfectionnements aux râteliers de foin.*)

William J. Lane, Milbrook, N. Y., U.S., 12th October, 1881: for 5 years.

Claim.—1st. In a horse hay rake, the bands *d d* having their free ends drawn together by means of levers D D mounted thereon, when applied in the relation specified to the head A, in combination with the hubs *c c* and mechanism which will, when brought into use, cause the levers D D to tighten the bands *d d* about the hubs *c c*. 2nd. The pulleys *a a* when applied to the head, in combination with the chain F for conveying power from the foot of the operator to the levers D D. 3rd. The discharge lever H so formed as to be connected from one side of its fulcrum with the discharging mechanism for locking the wheels and teeth together, and at the opposite side of said fulcrum formed so as to receive when the teeth are elevated, the trust of the foot lever I for the purpose of wholly or partially releasing the connection between the discharging mechanism and the wheels. 4th. The adjustable lever bracket J in combination with the foot lever I and lever connection *o*, for the purpose of adjusting and limiting the downward movement of the teeth.

No. 13,531. Improvements on Effecting the Protection of Iron and Steel Surfaces, and in Furnaces Therefor. (*Perfectionnements dans la manière d'effectuer la protection des surfaces de fer et d'acier, et dans les fourneaux pour cet objet.*)

George Bower and Anthony S. Bower, Saint Neots, Eng., 12th October, 1881: for 5 years.

Claim.—1st. The general arrangement and combination of parts constituting a furnace for performing the operations set forth, the furnace being so constructed that combustion is perfected before the products therefrom are admitted to the chamber containing the articles to be coated and that a continuous regeneration takes place. 2nd. The production of a protective coating upon iron and steel surfaces by passing, over and among the articles to be coated, the products obtained by the combustion of solid or liquid hydro-carbons, such products of combustion being rendered oxidizing or deoxidizing at will, according to the quantity of air allowed to mingle with the said gases.

No. 13,532. Improvements on Stools or Chairs. (*Perfectionnements aux bancs ou chaises.*)

John M. J. Wernert, Paw Paw, Mich., U. S., 12th October, 1881: for 5 years.

Claim.—1st. In a revolving stool or chair, the slotted cylinder E, vertical rod F provided with eccentric lugs, grooved socket G, annular plate H, bent rod I and spring K. 2nd. The slotted cylinder E, vertical rod F provided with eccentric lugs *c d* and socket G provided with annular grooves *b*. 3rd. In combination with the legs A, standard B and seat C of the stool or chair, the slotted cylinder E, vertical rod F provided with lugs, grooved socket G, angular plate H, rod I and spring K.

No. 13,533. Improvements on Stove Pipe Cleaners. (*Perfectionnements aux appareils pour nettoyer les tuyaux de poêles.*)

Edgar H. Chadwick, Louisville, Ky., U. S., 12th October, 1881: for 5 years.

Claim.—The combination in a stove pipe, of a horizontal section of pipe provided outside of the chimney with an aperture *a* provided for the insertion and withdrawal of a brush or scraper, and with means for closing said aperture, an elbow provided with a hole *c* and an inclosed wire or its equivalent extending through said hole *c* for drawing said brush or scraper through said horizontal section of pipe, to clean the latter.

No. 13,534. Improvements on Car-Couplings. (*Perfectionnements aux accouplages des chars.*)

Edward W. Grant, Ipsilanti, Mich., U.S., 13th October, 1881: for 15 years.

Claim.—1st. The combination, in a car-coupler, of a draw-head with a pivoted latch bifurcated at its front end and pivoted to the link pin and provided, at its rear end, with a projection for engagement with a catch. 2nd. The combination, in a car coupler, of a drawhead with a pivoted weighted catch, a pivotal latch for engagement therewith, and the link pin pivoted to the latch. 3rd. The combination of the pivoted latch B having the link pin pivoted at its front end, and its rear end provided with a projection, the weighted catch C with its head adapted to rest under the projection on the latch, when the pin is down. 4th. The combination of draw-head A, pivoted latch B, pivoted and weighted catch C, pin *b* and link.

No. 13,535. Low Pressure Steam Heating Apparatus. (*Calorifère à vapeur à basse pression.*)

Enoch B. Butterworth, Ottawa, Ont., 12th October, 1881: for 5 years.

Claim.—1st. In combination with the case or ash chamber *a*, the steam drum and the vertical tubes B B', and the return couplings provided with downwardly extending necks secured to the flange *a*. 2nd. In combination with the exterior body having the door in its side, the steam drum, the pairs of short connected tubes above the door, the series of short connected tubes below the door, the transverse connection between said short tubes, and the vertical tubes extending from said connection to the steam drum. 3rd. In combination with the exterior body or shell D and the pipes B B' sustaining the steam drum, the base or ash pit A provided with internal flanges or ears *a* adapted and arranged to sustain both the outside body and the vertical tubes. 4th. In a steam boiler, the combination of the steam drum and the series of depending water tubes B B' coupled together at their ends in pairs by return bends, the upper ends of the tubes B' extending above the tubes B. 5th. In a steam boiler, the combination of a base frame, a grate therein, an inclosing body or shell mounted, upon the base, a steam drum in the upper part of said body, and water tubes coupled together in pairs at their lower ends, arranged in a circular series around the grate and extending from the steam drum to a support upon

the base frame, whereby they are caused to sustain the steam drum. 6th. The combination, with a steam boiler or furnace having a side opening, of an upright external magazine constructed and applied as described, whereby its attachment and removal are permitted at will, thus converting the apparatus into a magazine or non-magazine furnace as required. 7th. In combination with a boiler or furnace having an opening in its side, an external upright detachable magazine provided with lips or flanges to interlock with the door frame or opening, whereby the attachment and removal of the magazine at will are permitted.

No. 13,536. Improvements on Feather Renovators. (*Perfectionnements aux appareils à rafraîchir la plume.*)

Nathan P. Chaney, Potsdam, N. Y., U. S., 12th October, 1881: (Extension of Patent No. 6,683.)

No. 13,537. Improvements on Grate Bars. (*Perfectionnements aux barres des grilles.*)

William U. Fairbairn, Boston, Mass., U. S., 13th October, 1881: for 5 years.

Claim.—1st. A furnace composed of hollow grate bars, the cavities whereof communicate with the ash pit, of their full size at their ends, and with the spaces between the grate bars, at their rear ends, by perforations through the walls of said cavities. 2nd. A grate bar having a fire supporting surface, a web and an air passage on the web extending from the front end of the bar, and opening at or near the back end thereof, whereby air may be conducted from the front end of the bar to one or more openings at or near its back ends. 3rd. A hollow grate bar, perforated at the rear end, upon its sides, for the delivery of air among the products of combustion, and at the other end for the receipt of air. 4th. A hollow grate bar, the cavity whereof communicates with the ash pit only at its ends. 5th. A removable grate bar, having end projections adapted to rest upon the grate bar supports, and a web containing a passage open at or near the front end of the bar, and at or near the rear end thereof. 6th. A hollow grate bar having the exit or exits from its cavity protected by a hood or hoods. 7th. A grate bar having a passage in its web through which air may be drawn, and means for checking or retarding the flow of air in said passage.

No. 13,538. Improvements on Machines for Hulling Buck Wheat. (*Perfectionnements aux machines à épluc er le sarrasin.*)

Giles S. Cranson, Silver Creek, N. Y., U. S., 13th October, 1881: for 5 years.

Claim.—1st. The combination, with the hulling mechanism, of a sieve or sieves adapted to separate the hulled material into three products, viz.: flour and large fragments of meats which pass separately through the screen and hulls or shucks which pass over the tail of the screen, and a suction air trunk into which only the large fragments of meats are delivered from the screen, and in which these meats fall through an ascending air current, whereby the light impurities, such as fragments of skins and hulls, are separated from the heavier fragments of meats. 2nd. The combination, with a pair of preliminary hulling rollers adapted to hull the large kernels, and a pair of subsequent hulling rollers adapted to hull the remaining unhulled kernels, of a sieve arranged below the preliminary rollers and adapted to effect a separation of the hulled material from the unhulled kernels, and having its tail arranged above the subsequent hulling rollers, so as to deliver the unhulled kernels between the same. 3rd. The combination of a pair of preliminary hulling rollers adapted to hull the large kernels, a sieve whereby the unhulled kernels are separated from the hulled material, a pair of secondary hulling rollers adapted to hull the unhulled kernels of the first hulling operation, and a sieve whereby the hulls are finally separated from the meats and flour. 4th. The combination of a pair of preliminary hulling rollers adapted to hull the large kernels, a sieve whereby the unhulled kernels are separated from the hulled material, a pair of subsequent hulling rollers adapted to hull the remaining unhulled kernels, a sieve whereby the shucks, meats and flour are separated from each other, and an air trunk in which the meats are subjected to an ascending air current and deprived of the light impurities. 5th. The combination, with the preliminary hulling rollers B B' and the subsequent hulling rollers D D', of the preliminary sieve I interposed between the preliminary and subsequent hulling rollers, and the principal sieve H arranged below the sieve I and receiving all of the hulled material from the sieve I and the rollers D D'. 6th. The combination, with the preliminary hulling rollers B B' and the subsequent hulling rollers D D', of the shaking shoe F and the preliminary sieve I supported thereon, the shoe F being provided with two perforated plates h h' whereby the shucks, meats and flour are separated each from the other. 7th. The combination, with the feed hopper, of the adjustable front board P provided with spring q bearing against g', and screw bolt n. 8th. The combination, with the feed hopper, of the adjustable front board P and the hinged rear board S resting against the cam wheel T. 9th. The combination, with the feed hopper, of the hinged rear board S resting against the cam wheel T and the stationary board U, whereby the board S is relieved from the weight of the grain. 10th. The combination, with the feed hopper, of the adjustable front board P, hinged rear board S resting against the cam wheel T, and the stationary board U.

No. 13,539. Machine for Closing the Mouth of Bags. (*Machîne pour fermer la gueule des sacs.*)

Orville R. Van Vechten, Brooklyn, N. Y., U. S., 13th October, 1881: for 5 years.

Claim.—1st. A bag mouth closing apparatus consisting of the combination, with a clamping frame adapted to receive and hold the plies of the mouth end of a filled bag, and to sustain and guide a sewing machine, of a sewing machine adapted to travel on said frame along the bag mouth and unite the same by sewing. 2nd. The combination with a bag holding clamping frame of the rack bar it supports, the travelling sewing machine and its driving pinion or equivalent gearing ad-

apted to be set into operation to actuate the sewing mechanism by the travelling movement of the sewing machine with respect to said clamping frame. 3rd. The combination with a work holding device acting to sustain the work stationary, and a sewing machine constructed to travel bodily with respect to the work holding device of the sewing needle 40 and mechanisms producing its walking movements. 4th. The combination, with a work holding device acting to sustain the work stationary, and a sewing machine constructed to travel bodily with respect to the work holding device, of the sewing needle 40 mechanisms producing the walking movements, and a work plate having an elongated needle slot. 5th. The combination, with the bag holding clamping frame and a sewing machine guided thereby over the work to be sewed, of a mechanism automatically acting to suspend the sewing operation and to arrest the needle free from the work. 6th. The combination, with the bag holding clamping frame and a sewing machine guided thereby over the work to be sewed, of a mechanism to sever the sewing thread, at the termination of the foremost travel of the machine.

No. 13,540. Improvements in Rock Drills.

(*Perfectionnements aux for ls c o m us.*)

Sylvannus Hussey, Gowanda, and George B. L. Wilson, Buffalo, N. Y., U. S., 13th October, 1881: for 5 years.

Claim.—1st. The frame for the working parts, composed of the main frame A having the segmental ways or guide a² formed therein, the swinging frame B provided with arms b¹ and cross bar b², the latter swinging in the ways a². 2nd. In connection with the operating shaft d and devices for turning it, the cat-head consisting of the two disks d¹ d² with two or more loose friction rollers e, e', and wheels c, c' working therein, in combination with the levers f, f', and shaft h. 3rd. The combination, with the drill bar, of a casing H enclosing the gripping mechanism, a frame I which carries the gripping mechanism and which has a limited vertical movement in the casing H, a spring l which tends to hold the frame I in its highest position, and mechanism whereby the gripping mechanism is released before the upward stroke of the drill bar begins, whereby the frame I is raised in the casing and the gripping mechanism caused to seize the drill bar at a higher point at every upward stroke of the drill bar. 4th. The combination with the drill bar, of the movable sleeve L, casing H provided with shoulder j, frame I carrying the eccentrics h, and a spring l interposed between the sleeve L and the frame I. 5th. The combination, with the drill bar of the movable sleeve L, casing H having a shoulder j, frame I carrying the eccentrics h, provided with arms h¹ h², a spring l interposed between the sleeve L and frame I, and the head N having a recess n. 6th. The combination, with the drill bar, of the clamping devices h¹ h² and a sleeve L having its upper end constructed to close the clamping devices, and having its lower end provided with an extensible portion M. 7th. The combination, with the drill bar, of the sleeve L provided at its lower end with a screw thread m, a screw sleeve M applied thereto, and a jam nut m'. 8th. The combination, with the base A and main frame B mounted thereon, of the drill frame C hung in the frame B and adapted to swing in a vertical plane, and an adjustable foot or rest Q secured to the lower part of the swinging frame C, whereby the latter is supported on the ground when adjusted at various angles. 9th. The combination, with the swinging drill frame C, of an adjustable foot or rest composed of a stationary sleeve R, a tube S made adjustable in the sleeve R and provided with a threaded portion V, and a rod or bar T having a screw thread u engaging with the threaded portion V of the tube S. 10th. The combination, with the side levers a¹ a² and the shaft d, of the rods or links g and wrist pins g' secured to the head N. 11th. The devices for rotating the drill bar, consisting of the ratchet toothed ring section J¹, the surrounding spring, ratchet ring J², pin g and slotted standing guide z secured to the base K and in combination with lever l and sleeve L.

No. 13,541. Improvements on Ships' Berths or Live Stock Pens. (*Perfectionnements aux lits de bord ou stalles à bestiaux.*)

Summer Shaw, Boston, Mass., U. S., 13th October, 1881: for 5 years.

Claim.—1st. A ship's berth or live stock pen a on board of ship suspended from the frame b, or part of ship, by means of the inclined chains, ropes or rods c c c c. 2nd. In ship's berth or live stock pen, the chains, ropes or rods c c c c attached in their lower and upper ends respectively, to independent points of the berth and upper support, the pulleys c c c c and rope or chain d supported at the ends and passing by said pulleys. 3rd. In combination with a ship's berth or live stock pen, the supporting chain, ropes or rods c c c c the pulleys c c c c and rope or chain d supported at the ends and passing by said pulleys.

No. 13,542. Improvements in Continuous Underground Pipes. (*Perfectionnements aux tuyaux souterrains continus.*)

Calvin Detrick, Philadelphia, Penn., U. S., 13th October, 1881: for 5 years.

Claim.—1st. The method of forming continuous seamless pipe, which consists, first, in excavating the required depth, shape and extent, and in the required direction, a trench or channel in the ground in which it is desired that a pipe should be laid; second, in progressively laying, constructing or otherwise forming within said trench a walled layer or trough of artificial stone or kindred hard material; third, in progressively placing in proper position and relation, in said trough, one or a series of hollow formers of paper, sheet metal or other suitable fabric; fourth, in surrounding said hollow former or formers placed within the trough, with a continuous mass of plastic fluid, semi-fluid, or kindred material, adapted to solidify about the formers and to retain them rigidly and in an insulated condition in position; fifth, in super-imposing upon said mass of plastic material enveloping the formers, or covering of artificial stone, or any hard material adapted to complete the enclosure and afford protection to the hardened plastic mass enveloping the formers. 2nd. A continuous seamless pipe formed of a walled layer or trough of artificial stone or kindred material, in which trough is contained a continuous mass, layer, stratum, or bed of hardened plastic fluid, semi-fluid, or kindred material, in

which mass is inclosed one or a series of hollow suitably-shaped tubes of sheet metal, paper, or the like, and which is covered by a layer or other covering of artificial stone or kindred material which completes the enclosure of the mass. 3rd. A continuous seamless pipe formed of a walled layer or trough of artificial stone or kindred material, which contains a continuous mass, layer stratum, or bed of hardened plastic fluid, semi-fluid or kindred material, which mass encloses one or a series of hollow suitably-shaped tubes or sheet metal, paper, or the like, and also encloses one or a series of connecting wires imbedded in such position and relation therein as it is desired that said wire should assume, and which is covered by a layer or other covering of artificial stone or kindred material, which completes the enclosure of the mass.

No. 13,543. Improvements on Hand Trucks.

(*Perfectionnements aux camion à bras*)

Noble J. Waterman, Detroit, Mich., (Assignee of William May, Birmingham, N. Y.) U. S., 13th October, 1881; for 5 years.

Claim.—1st. The combination, with the frame A, of the hinged double hook G. 2nd. The combination, with the rigid toe H, of a hinged double hook G. 3rd. A hand truck consisting of the frame A, the sliding rotating hook E, the double hook hinged on cross plate G, the toe H and wheels B. 4th. The combination, with a cross plate G and fixed double hook supporting toe H, of the hinged double hook G.

No. 13,544. Improvements on Electric Batteries.

(*Perfectionnements aux batteries électriques*)

Julius M. Stebbins, New York, U. S., 13th October, 1881; for 5 years.

Claim.—1st. A battery inner cell having a contracted upper portion enclosed by a porous wall, and an enlarged lower non-porous reservoir in communication with said upper portion. 2nd. The combination, with the outer cell and the inner cell composed of the enlarged lower reservoir, and the upper contracted porous cup having its bottom opening into said lower reservoir, of the battery plates arranged in close proximity to each other, and to the walls of said porous cup. 3rd. The combination, with a battery porous cup, of an adjustable non-porous sheath. 4th. A two fluid electric battery having an outer non-porous cup, an inner cup having its lower portion non-porous and its upper portion porous, the battery plates or elements arranged adjacent to the upper porous portion of the inner cup, and the exciting fluids properly filling said cups, respectively.

No. 13,545. Improvements on Spring Tooth Harrows.

(*Perfectionnements aux herse à dents élastiques*)

Charles La Dow, Albany, N. Y., U. S., 13th October, 1881; for 5 years.

Claim.—1st. The combination of the two frames hinged together, vibratory spring teeth attached to each frame, and mechanism for supporting and balancing each frame and adjusting the penetration and vibration of the spring teeth. 2nd. The combination of the tooth supporting bars, cross bars maintaining the tooth bars at suitable distances apart, spring teeth mounted on the tooth bars at their point of vertical attachment to the cross bars and mechanism independent of the teeth in regulating their penetration and vibration without altering their position on the frames. 3rd. The combination of the frames hinged together, spring teeth thereon, mechanism for regulating the vibration of the teeth and the distance between the frames and the ground, and a draft bar connected to each section. 4th. The combination of a frame, spring teeth thereon and runners for adjusting and balancing the frame, each runner having screw threaded shanks passing through a stationary nut arranged to hold the runner from veering in opposite directions.

No. 13,546. Improvements on Smoothing Irons.

(*Perfectionnements aux crs à repasser*)

Wendelin Sauer, Guelph, Ont., 13th October, 1881; for 5 years.

Claim.—A smoothing iron having a hollow body A and a hinged top B, a grate E fitted within the body A and supported on feet b, in combination with the damper F arranged to admit cold air below the grate E, and the perforations d arranged around and a little above the grate E, for permitting the escape of the heated gases.

No. 13,547. Improvements on Window Blinds.

(*Perfectionnements aux persiennes*)

Alexander C. Gibson and William W. Gibson, Toronto, Ont., 13th October, 1881; for 5 years.

Claim.—1st. The roller B having notches J, in combination with a blind hung therefrom by means of chains C. 2nd. The chains C in combination with the slats D. 3rd. The staples F and rings E, in combination with slats D and chains C. 4th. The staples F stamped from steel metal having two pointed and bent ends a, tongue b, perforation d and connected by bar portion c, the ends and tongue bent to form prongs.

No. 13,548. Electro-Galvanic Battery for Medical Purposes.

(*Batterie électro-galvanique pour des fins médicales*)

Joseph M. Downing, Bristol, Pa., U. S., 13th October, 1881; for 5 years.

Claim.—An electro-galvanic medical battery composed of a copper ring surrounding a central zinc disc, said copper ring having radial arms, the spaces between which are filled up with zinc annular sections, and the whole enclosed within a horse-shoe rim.

No. 13,549. Pulverizing Machine.

(*Machine à broyer*)

Richard Cook, Sheffield, Eng., 19th October, 1881; for 5 years.

Claim.—The steel or other hard metal ring E made either in separate segments or in one piece, and either adjustable or unadjustable in the case, the said ring when made in segments being surrounded by a

metal hoop F. 2nd. The driver or propeller consisting of the two plates or arms H H, between whose ends the rollers or balls G G are placed, by which the latter are carried around, in combination with the central piece L, to which the said plates or arms are secured in such a manner that they may be readily detached therefrom. 3rd. The curved blades or fans J arranged upon the driving arms in such a manner that they agitate the pulverized material and project the same against the sieves K, and also create a current of air for cooling the same. 4th. The stirrers or fans J for agitating the material and creating a powerful current of air for cooling the same. 5th. In a machine for pulverizing or crushing ores or similar substances, in the presence of water or other liquid, by means of rotating rollers or balls, the upper chamber N provided with a number of apertures N one above another, in combination with a spout or curved pipe N₁ and with stopper N₂ for the apertures required to be closed. 6th. The combination of the arms or carriers H with the spindle G₁ carrying inclined blades instead of the rollers or balls, to adapt a pulverizing machine, when supplied with mercury, to be used as an amalgamator for mining purposes. 7th. The curved drivers or carriers H so arranged upon the driving shaft D that the two rollers G of each set are caused to rotate in different vertical planes. 8th. The fans or blades P P₁ P₂ for cooling the material being ground or pulverized, and for moving it forward and out of the machine.

No. 13,550. Improvements on Plough Beams.

(*Perfectionnements aux axes des charrues*)

Absalom Merner, Waterloo, Ont., 19th October, 1881; for 5 years.

Claim.—1st. A plough beam composed of a flat horizontal bar A supported by bars D D bolted at the ends to intervening blocks E F bolted to bar A. 2nd. The head g of the standard I provided with a slot and secured to bar A by bolts h h, whereby a pivoted adjustment is obtained.

No. 13,551. Improvements on Grave Fences.

(*Perfectionnements aux clôtures tumulaires*)

Jesse Kinney, Detroit, Mich., U. S., 19th October, 1881; for 5 years.

Claim.—1st. The combination, with a cemetery fence, of yielding canopy frames sprung into position, and their opposite ends secured to the corners of the fence. 2nd. A hollow fence post provided with a flower vase at its upper end, and an inverted mouth piece at its lower end, in combination with a wick located within the hollow fence post, and adapted to supply moisture from the ground to the flower vase, by capillary action.

No. 13,552. Improvements on Cake and Confectionary Machines.

(*Perfectionnements aux machines des pâtisseries-confiseurs*)

James H. Mitchell, Philadelphia, Pa., U. S., 19th October, 1881; for 5 years.

Claim.—1st. In a cake and confectionary machine, the combination with a material box of a pan supporting table, and mechanism for vertically moving one towards and away from the other, whereby, when the machine is in operation, the material flows from the nozzles upon the pan, and when the deposit is made, the connection between the deposit and box breaks. 2nd. The pan conveyor G, in combination with the latchet D and operating mechanism, said ratchet having differential teeth. 3rd. The base of the material box, in combination with pendant stops R which are longer than the nozzles. 4th. The feeding chamber having a cylinder or roller eccentrically mounted and provided with movable feeding wings. 5th. The press chamber having a rising and falling nozzle plate frame with depressing spring, in combination with the rising and falling table. 6th. The yoke frame with nozzle plate chamber with rim and springs. 7th. Two interchangeable hoppers with feeding devices and discharge outlets, one for shaping cakes, &c., and the other for ornamenting the same, both connected to the frame and disconnected from each other, and having their feeding devices adapted to be operated by the same means as the machine. 8th. A hopper with a feeding device and discharge nozzles, in combination with a secondary hopper having a feeding device and discharge nozzles, both connected to the frame of the machine, whereby either may be brought into service. 9th. The hopper, in combination with the arms V having supporting feet.

No. 13,553. Improvements in Pipe Clamps for Oil Wells.

(*Perfectionnements aux mordaches à tuyaux pour les puits d'huile*)

Claude Héme, South Bay City, Mich., U. S., 19th October, 1881; for 5 years.

Claim.—1st. The combination of the base A and connecting bars C, with the standards b and projecting guides c. 2nd. The lever guides f secured at their ends to the base A and intermediately spanning over the axles of the friction wheel e. 3rd. The use of two wheels in each of the outer ends of the lifting levers F, and having the lever guides f passing between said wheels, so as to guide the wheels in their travelling on the base.

No. 13,554. Improvements on Carriage Baths.

(*Perfectionnements aux baignoires à voitures*)

Claudius Tidey, Norwich, Ont., 19th October, 1881; for 5 years.

Claim.—The abluent or bath A made semi-circular and of the diameter and width required, and having recesses C E on each side for the hub to revolve in, and straps or strings H to attach abluent to wheel while placing the wheel in position.

No. 13,555. Improvements on Car Wheels.

(*Perfectionnements aux roues des chars*)

James Rigby, Montreal, Que., 19th October, 1881; for 5 years.

Claim.—1st. In a car wheel having a vulcanized fibre tire, the combination of the body portion A, the fibre tire rings B made in sections b with the securing bolts D. 2nd. In combination with the body portion, the fibre rings made in sections, the intermediate metal rings, and the securing bolts.

No. 13,556. Improvements on Force Pumps.*(Perfectionnements aux moulins à vent.)*

Samuel Paradis, Ottumwa, Iowa, U.S., 19th October, 1881: for 5 years.

Claim.—1st. In a double-acting force pump, the reciprocating double plunger valve G attached directly to the operating rod, in combination with plunger piston F and imparting motion to said plunger. 2nd. The cylinder A having slot E, and plunger piston F provided with two valve seats and having slots e, in combination with the reciprocating double plunger valve G attached directly to the operating rod by arms H and imparting motion to plunger F.

No. 13,557. Improvements in Horse Shoes.*(Perfectionnements aux fers à cheval.)*

John P. Rothwell, Lytham, Eng., 19th October, 1881: for 5 years.

Claim.—1st. In forming perforations in the wall of the hoof A to receive straps or clips C, which consolidate the shoe to the hoof. 2nd. The combination of the shoe e with the wearing shoe g and hoof A. 3rd. The combination, with the shoe e, of calks or elevations I.

No. 13,558. Improvements on Hoop Machines.*(Perfectionnements aux machines à cerceaux.)*

Crowell M. Clancy, Wallaceburg, Ont., 19th October, 1881: for 5 years.

Claim.—In combination with a rotating centre head, two sliding wedge blocks, acting independently of each other.

No. 13,559. Improvements on Windmills.*(Perfectionnements des moulins à vent.)*

Henry N. Baker, Binghampton, N.Y., 19th October, 1881: for 5 years.

Claim.—1st. In combination with the wings D, the oscillating frame A, driving shaft C working on and in a line with the axis of the frame A, and arms f f. 2nd. In combination with frame A, the swinging governor E, adjusting lever B attached to the journal of frame A, for controlling the side movements of the wings D and starting and stopping the device, shaft C and stops g i k.

No. 13,560. Improvements on Brick Kilns*(Perfectionnements aux fours à brique.)*

Stephen J. Plant, York, Ont., 19th October, 1881: for 5 years.

Claim.—The combination of two or more down draught brick kilns provided with bottom flues C leading into the main flue D, each kiln having a hole in its crown connecting with a top flue J common to all the kilns, both the bottom and top flues being provided with regulating dampers or valves.

No. 13,561. Improvements on Shovel Ploughs.*(Perfectionnements aux charrius-hérouses.)*

George S. Agoe, Mint Hill, Mo., U.S., 19th October, 1881: for 5 years.

Claim.—1st. The curved iron beam, the bar or foot attached to the end of the beam, the shovel welded to the end of the foot, the shovel supporting arm, the adjustable handles and the handle braces. 2nd. The combination, with the iron beam A having slotted rear end, of the foot B bolted to the beam A, the shovel D welded along the central line of its lower part to the bevelled forward end of the foot B, and the arm E attached to the plow beam A to receive the upper end of the shovel, whereby the shovel is made to work at a uniform depth in the ground, and can be readily guided and controlled. 3rd. The shovel D, welded along the central line of its lower part to the bevelled forward end of the bar or foot B.

No. 13,562. Improvements on Pipe Wrenches.*(Perfectionnements aux clés à tuyaux.)*

John F. Phillips, Georgetown, Col., U.S., 19th October, 1881: for 5 years.

Claim.—The combination of the clamping plate C made unjointed, or in one piece, with both ends D D, shouldered and hooped with the lever A having a recess B at its head, open at the top, in which recess the clamping plate is pivoted.

No. 13,563. Improvements on Telescopic Ladders.*(Perfectionnements aux échelles à rallonge.)*

Ferdinand W. Hofele, Brooklyn, N. Y., U. S., 19th October, 1881: for 5 years.

Claim.—1st. The combination, in a fire escape, of a truck and two or more continuous four way ladders, each consisting of four posts A A A, all connected together by rungs B having shoulders C on the inner sides of the posts, and nuts D on the outer ends, whereby the four posts are strongly braced together. 2nd. The four way ladder consisting of four posts A, oblong in cross section and having an angle iron F on each post, said angle irons being arranged in pairs, and facing each other on or near the middle of one of the broad sides of the posts, and being adapted to guide an interior ladder section, diagonal braces secured to said angle irons and uniting rungs connecting the posts at such distance from the angle irons as to leave a space between the braces and rungs for the housing of the hose. 3rd. The combination, with the ladder, of the angle irons F and diagonal braces E. 4th. The combination, with the truck and ladder of a fire escape, of the fixed uprights V, swinging posts X and a fastening C. 5th. The combination, with the truck and ladder of a fire escape, of the uprights V, swinging posts X, hook e, pin r, rope and pulleys z. 6th. The combination, with the truck and fire escape, of the ladder A pivoted thereto, the uprights V, swinging posts X, ropes or chains Z z and drums Y Y. 7th. The combination with the posts of a ladder, of a series of rungs and a series of diagonal braces, whereby the ladder is stiffened, and a space formed to hold and protect the hose pipes. 8th. The combination, with a truck and ladder of a fire escape, of the swivelled bear-

ings R', and levelling screws S. 9th. The combination, with a truck and ladder of the bosses T, screws S, swivelled bearings R, shaft Q and bearing plates R. 10th. The combination of the brace O, clamp u, screw t having a pulley head, with the rope w. 11th. The combination, with the brace O, of the fixed clamp u, sliding clamp w, eye z and rope w. 12th. The combination, with the ladder A, of the strap P, ball P, block Q and hemisphere S, having a pin screwed into the ball P and a lug pivoted to the head of the brace O. 13th. The combination, with a vertical ladder, of the horizontal extension ladder e, check post f, extension rail h and chain g. 14th. The combination, with a vertical ladder, of the horizontal extension ladder e, having stop g, pivoted and notched check post f, extension rail h having slides l and shoulders f', chains g, eye i, ball k and hook j. 15th. A ladder provided with a folding platform, and extension rail having slides l, both being hinged on rungs of the ladder. 16th. The combination, with a ladder, of the folding platform, formed of two ladder sections e e and adapted to fold up against the sides of the main ladder, and arranged on opposite sides of the ladder to counterbalance each other. 17th. The combination, with the ladder e, of the pivoted hook u, spring n and cords o o. 18th. The combination, with a ladder having two or more sets of rungs, of a ladder provided with a single set of rungs, and having hinged thereto a folding platform e, which closes up automatically, parallel with the single ladder, as said single ladder descends within the outer ladder. 19th. The combination, with a truck and swinging ladder, of a series of adjusting screws L attached directly to the foot of the ladder, and adapted to bear on the ground, whereby the pressure on the bearings R is relieved, and the weight of the ladder and its load is removed from the truck. 20th. In combination with an extension ladder, a series of pipes united together by T-couplings e₃ and supports for said couplings, each of said supports consists of a ring d supported by pivots in another ring p, having bearings at right angles to the pivots of the ring d, and mounted in the ladder posts. 21st. The combination, with a ladder, of a pipe supporter hung on pivots on the ladder. 22nd. The combination, with an extension ladder, of the plates supported on three rungs of said ladder, and a pulley mounted on one of said rungs. 23rd. The combination of the diagonal braces with the angular posts of a double or four fold ladder.

No. 13,564. Improvements on Screw Threading Machines.*(Perfectionnements aux fileuses à vis.)*

Samuel L. Worsley, Buffalo, N. Y., U. S., 19th October, 1881: for 5 years.

Claim.—The combination of the change gearing shaft and its cams, the ratchet wheel, variable vibrating pawl, and adjustable crank pin. The combination of the clutch shifting pins, shifting cam, pin cams, cam shaft, of the change gearing ratchet wheel, vibrating pawl and adjustable crank pin. The combination of the jaws, for holding the bolt blank stationary, the revolving sliding mandrel, the bolt holder, the bolt mover, the transfer fingers and the variable pawl change gearing. The combination of the transfer fingers, finger cam, finger cam shaft, driving hub and clutch, with the variable pawl change gearing. The combination of the bolt mover, bolt mover cam, cam shaft driving hub and clutch, with the variable pawl change gearing. The combination of the bolt holder, the bolt mover, the stops for checking the descent of the bolts in the bolt holder, and the transfer fingers which take the bolt from the bolt mover. The combination of the gripping jaws for holding the blank stationary, the bolt holder, the bolt mover, the transfer fingers arranged to move both endwise and sidewise toward and from the gripping jaws, and the variable pawl change gearing. The combination of the bolt holder, the bolt mover and the shoulder guard whose lower edge operates on the shoulder of the bolt while in the bolt mover. The combination of the bolt holder, the shoulder guard and the transfer fingers. The combination of the bolt holder and bolt mover, with a shoulder guard whose edge operates on the shoulder of the blank while in the bolt mover, and whose side is arranged in the proper position to operate on the inner side of the head of the bolt, and prevent excessive longitudinal movement of the bolt. The combination of the bolt mover, the shoulder guard the transfer fingers and the gripping jaws to which the bolt is presented by the transfer fingers. The combination of the die-holder, the revolving sliding mandrel, the leading cam, the slotted rocking cam, which enables the speed with which the die is advanced to be varied, and the variable pawl change gearing. The combination of the conoidal screw die, with a die chuck, consisting of the screwed sleeve, and screwed gland operating in connection with the mandrel head.

No. 13,565. Improvements on Machines for Feeding Screw Blanks.*(Perfectionnements aux machines à alimenter les fileuses à vis.)*

Samuel L. Worsley, Buffalo, N. Y., U. S., 19th October, 1881: for 5 years.

Claim.—The combination of the blank holder, the travelling clamps, which both move and support the blanks and the movable cut off for the blank-holder. The combination of the blank-holder, the travelling clamps, which both move and support the blanks, the movable cut off, and the gripping jaws to which the blank is presented by the travelling clamps. The combination of the travelling clamps which both move and support the blanks, the movable cut off and the blank pusher. The combination of the blank-holder, the travelling clamps, which both move and support the blanks, the cut off, the blank pusher and the gripping jaws. The combination of the travelling clamps which both move and support the blanks, the cut off and the blank pusher, with a single revolving cam. The combination of the travelling clamps which both move and support the blanks, the cut off and a fixed cam which effects the opening of the movable clamp during its travel. The combination of the blank pusher, the guide thereof, the springs and the impellers. The combination of the blank magazine with the projection, whereby the blank head is operated upon, and the blank caused to turn axially while in passage through such blank magazine. The combination of the blank magazine with the projection, whereby the blank shoulder is operated upon, and the blank caused to turn axially while in passage through such blank magazine.

No. 13,566. Improvements on Axle Boxes for Railway and Other Waggon. (*Perfectionnements aux boîtes à graiss: pour les wag n des chemins de fer et autres.*)

Louis H. Tourville, St. Henri, Que., 19th October, 1881: for 5 years.

Résumé.—1o. Le rouleau B en combinaison avec les rainures G G, le support K K' L. Cet les ressorts M M. 2o. La planchette O O composée du collet P, des ressorts Q T, des tiges R R, des montants O O et de la couverture St. 3o. Le collet P, les tiges R R et le ressort Q, en combinaison avec le rouleau B.

No. 13,567. Improvements in Horse Shoe Nail Forging Machines. (*Perfectionnements aux machines à forger le clou à cheval.*)

Charles R. Ellacott, Montreal, Que., 19th October, 1881: for 10 years.

Claim.—1st. The supplementary cam K mounted on shaft E and operating through rock shaft A to keep roller on arm C always in close contact with periphery of cam D. 2nd. In combination with the supplementary cam K and rock shaft A, the arm H provided with roller h. 3rd. In combination with the cutter shaft M, the supplementary cam K having mounted on its side segment or cam K1.

No. 13,568. Improvements on Gate Hangings.

(*Perfectionnements dans la pose des barrières.*)

John C. Baumgartner, Fraser, Mich., U. S., 19th October, 1881: for 5 years.

Claim.—In combination with a gate adapted to be half opened longitudinally, and then swung laterally in either direction, the posts B B, cross bar h, block C having the longitudinal recess h, ears m m' and pin e, and the cap D provided with the jaws o o', recess d, central orifice S and roller E journaled in said jaws.

No. 13,569. Improvements in Casting Wheels with Wrought Iron Spokes. (*Perfectionnements dans le coulage des roues avec des rais en fer forgé.*)

James Burns, Hamilton, Ont., 19th October, 1881: for 5 years.

Claim.—1st. The shouldering screwing and riveting of the arms in rim previous to casting hub. 2nd. The casting of hub in metal moulds in such a manner that the inner ends of arms will be firmly embedded in hub.

No. 13,570. Improvements in Water Engines.

(*Perfectionnements aux machines hydrauliques.*)

John Laurie, (Assignee of George Wells,) Montreal, Que., 19th October, 1881: for 5 years.

Claim.—1st. In combination with the cock having ports d₂ e₂ f₂, and stopper g₂ having ports h₂ i₂, pipes k₂ l₂, tank m₂, discharge pipe n₂ connecting the passage k₂ and tank m₂. 2nd. The reversing cock e₂ with pipes k₂ l₂, tank m₂ and pipe n₂, in combination with gear wheel e₂, shaft r₂, drum s₂, cable u₂ and cage a₃. 3rd. The water engine provided with reversing cock e₂ and air vessel k₃. 4th. In the cock e₂, the combination of the shell a₃, stopper g₂, washer d₃, cover b₃, gland f₃ and washer g₃.

No. 13,571. Roll. (*Rouleau.*)

George H. P. Flagg, (Assignee of Frederick W. Coy.) Boston, Mass., U. S., 19th October, 1881: for 15 years.

Claim.—The improved roll composed of the series of felt disks C C and the series of toothed clamping disks B B' B₂, and means for clamping the disks combined together.

No. 13,572. Abrasive Wheel (*Tambour rubéfiant.*)

George H. P. Flagg, (Assignee of George A. Fullerton and Frederick W. Coy.) Boston, Mass., U. S., 19th October, 1881: for 5 years.

Claim.—1st. The combination, with the heel or roll, of a flexible supporting band over which the abrasive strip is stretched, and between which and the wheel one end of the abrasive strip is secured. 2nd. In combination with wheel A and band B, the eccentric button a₂, its shaft a₂ and means for turning and lowering the shaft a₂, in order to strain the band around the wheel and to force the end of the band close against the wheel.

No. 13,573. Improvements on Pianofortes.

(*Perfectionnements aux fortes-pianos.*)

Albert K. Hebard, Cambridge, Mass., U. S., 19th October, 1881: for 5 years.

Claim.—1st. A double strand piano string tension device consisting of the block e with side projections l l formed with holes m to receive the ends of the strings, which are passed through the said holes and wound round the projections, and a screw bolt passed through the block and through the vertical flange upon the frame covering the wrest block. 2nd. The method of bringing the strands of a double stand piano string to union, the same consisting in looping the bend of the string at the junction of the two strands around its hitch pin and turning said pin as required.

No. 13,574. Improvements on Railway Brakes. (*Perfectionnements au frein des railroads.*)

Watson P. Widdifield and Anson T. Button, Uxbridge, Ont., 19th October, 1881: for 5 years.

Claim.—1st. In an apparatus for applying the brakes of railroad cars in which the power is derived from a friction pulley applied to

one of the revolving axles, a cranked lever pivoted at a point near the axle and supporting on its crank the axle of the friction pulley, to which axle the brake chain is attached, in combination with a spindle passing through and attached to the lever, and provided with a pulley around which the continuous chain passes, after passing over stationary pulleys situated above it, so that the tightening of the continuous chain will raise the spindle a given height, but no higher. 2nd. A cranked lever carrying, at one end, the shaft of the adjustable friction pulley and having, at its other end, the vertical spindle G supported by the continuous chain I, in combination with the spring K arranged to form a flexible connection between the spindle and lever. 3rd. The pivoted lever J carrying the adjustable friction pulley and operated by the continuous chain I, in combination with the spring M arranged to assist in throwing down the lever E. 4th. An unadjustable friction pulley operating against the revolving axle of the car for tightening the ordinary brake chain, a shaft formed in two parts C and C₁, each part carried in independent bearings, the former having keyed to it the friction pulley B and the latter part the brace chain O, in combination with the flexible joint N arranged to connect the two parts together. 5th. A friction pulley A composed of compressed paper and made in segments to fit the car axle, which is provided with a fixed ring R, in combination with an adjustable ring S operated by the screws P screwed through the ring U. 6th. In combination with the chain I the arms o or bars P pivoted on the ends of the cars and so arranged that the end of one bar fits into a hole in the other. 7th. In combination with the chain I, the link b arranged to connect the said chain with a fixed bar W.

No. 13,575. Illuminating Gas Apparatus.

(*Appareil à gaz d'éclairage.*)

Arthur Wittamer, Antwerp, Belgium, 19th October, 1881: for 5 years.

Claim.—1st. The apparatus, for automatically producing illuminating gas, consisting of the pump and carburetter, with or without the purifier, and regulating apparatus. 2nd. The apparatus E for purifying the air prior to its admission into the carburetter. 3rd. The carburetter, consisting of the cylinders A B C and provided with the tubes h from which the air escapes in the form of exceedingly small or fine jets. 4th. The combination, with the said carburetter, of the perforated plates f for arresting or obstructing the flow of the air through the liquid contained in the said carburetter, and consequently causing a prolonged contact of the air with such liquid. 5th. The combination, with the cylinder C, of the horizontal plates P and the metal bands or strips interposed between the said plates. 6th. The pump so constructed as to dispense with the necessity of employing counterweights, and adapted to be readily started, and to force air into the purifier and carburetter under high pressure. 7th. The regulating apparatus or thermometer applied to the bath or vessel containing the carburetting liquid, for automatically regulating the temperature of the latter.

No. 13,576. Improvements on Feed Water Heaters for Locomotives. (*Perfectionnements aux chauffeurs de l'eau d'alimentation des locomotives.*)

George S. Strong, Philadelphia, Penn., U. S., 19th October, 1881: for 5 years.

Claim.—1st. The combination of the body or barrel of a locomotive boiler, with the saddle-shaped feed water heater having internal pipes or tubes, for the conveyance of steam through the heater. 2nd. The saddle-shaped casing, its boxes G G and curved tubes with inlets and outlets for exhaust steam and feed water. 3rd. The combination of the heater, its tubes H and boxes G G, with the nozzle E having a chamber m communicating with the other box. 4th. The nozzle E having a chamber m for the direct passage of a portion of the exhaust steam to the smoke box, a chamber n for the passage of another portion of the exhaust steam to the heater, and a third passage m' for receiving the spent exhaust steam from the heater and directing it to the smoke box. 5th. The combination of the heater and the two receivers f f, one for each leg of the heater, with the waste pipes h h and discharge cock t. 6th. The combination of the saddle-shaped heater with the chamber I, steam heating coil J and filter K. 7th. The combination of the feed pipes k k', the valve chest L, the nozzle r and chamber o, with the steam heating coil J and the waste pipe S communicating with the said chamber o. 8th. The combination of the heater, the feed pipe M, the discharge pipes k k', the live steam pipe K and the check valve e.

No. 13,577. Improvements on Telegraphs.

(*Perfectionnements aux télégraphes.*)

Thomas A. Edison, Menlo Park, N. J., and Patrick Keuny, New York, U. S., 19th October, 1881: for 5 years.

Claim.—1st. The method of producing fac-similes by electricity, consisting in controlling an electric current by the depressions formed by marking upon paper or other suitable material. 2nd. A fac-simile telegraph having transmitting and receiving instruments, the transmitting circuit being controlled by the depressions produced by marking upon paper or other suitable material. 3rd. In fac-simile telegraphs, the combination of the transmitting and receiving instruments, of a transmitting style having circuit connections, and contact in circuit controlled by the uneven surface of the prepared message. 4th. The synchronously revolving cylinders, one carrying the message prepared by depressed lines, and the other a chemically prepared recording paper, in combination with the transmitting and receiving styles having a movement at right angles to the cylinder, the said transmitting style having contacts in circuit controlled by the uneven surface of the message. 5th. The combination, with the synchronously revolving cylinder of movable contacts, operated by the machines, for breaking the circuit when the styles are passing the secured edges of the paper. 6th. The two revolving cylinders, one of which has a slightly greater speed than the other, in combination with a device for checking the cylinder having the faster movement. 7th. The two cylinders having slightly different speeds of revolution, in combination with a latch, operated by an electro-magnet for checking the cylinder having the faster move-

ment. 8th. The combination of the two machines having cylinders revolving at slightly different speeds, with a device for checking the faster cylinder, and contacts made simultaneously by the two machines, for operating the checking device by completing the circuit through the same. 9th. The combination of the two machines having cylinders revolving at slightly different speeds, of a checking device for the faster cylinder, operated by an electro-magnet in the circuit of a local battery, and contacts made simultaneously by the two machines and completing the main circuit through an electro-magnet controlling said local circuit. 10th. The combination of the cylinders and the electro-magnetic checking device controlled by the main circuit of sounders for indicating the synchronism of the cylinders. 11th. The combination of the cylinders and the electro-magnetic checking device, of sounders for indicating the synchronism of the cylinders, signalling keys placed between the sounders and line in shunts around the machines and switches for throwing in and out the machines and keys alternately, whereby the sounders will be operated by the machines or keys according to the position of the switches. 12th. The combination of the two machines having cylinders revolving at different speeds, and an electro-magnetic checking device for one of them, with a pivoted lever on each machine, connected to lines and to contacts between which said lever plays, one connected through the style circuit to battery or ground, and the other through the relay and sounder circuit, such lever being moved once during each revolution of each cylinder to break the style circuit and make the relay and sounder circuit. 13th. The combination, with the synchronously revolving cylinders and the transmitting and receiving styles, of the compensation circuit for neutralizing the effect of the static charge. 14th. The combination, with the synchronously revolving cylinders and the transmitting and receiving styles, of cams revolving with the cylinders, pivoted levers worked by said cams, and connected to line and making contacts for completing the style, the sounder and the compensation circuits. 15th. The combination, with the revolving cylinders, of the revolving cams, and the style carriage controlled by escapements worked by said cams. 16th. The combination of the electro-motors with weighted centrifugal arms, carried by universal rocking joints and connecting the motors with the driven mechanism. 17th. The combination of the horizontal electro-motors with the weighted centrifugal arms, carried by universal rocking joints, and the slotted cranks.

No. 13,578. Improvements on Car-Couplings

(*Perfectionnements aux accouplages des chars.*)

Alexander Porteous and William Murehey, Galt, Ont., 19th October, 1881; for 5 years.

Claim.—1st. In combination with a draw-bar, a lock having one end weighted in excess of the opposite end, whereby the link will be supported horizontally in the mouth of the draw-bar, when the coupling pin is inserted. 2nd. A draw-link for car-couplers, constructed with one end having a solid portion. 3rd. The combination of a draw-bar having a step in the hole for the coupling pin, a pin adjustable by such step in an inclined position for coupling, and a link having one end heavier than the other.

No. 13,579. Improvements on Sleds.

(*Perfectionnements aux traîneaux.*)

James T. Gurney and Seth Whittier, Boston, Mass., U.S., 19th October, 1881; for 5 years.

Claim.—1st. The combination, with the top cross piece A, the runner and the runner frame provided with the inner and the outer trunnions or pivots, of the brace B secured to the central part of the cross piece A and adapted to support said cross piece and also to support the inner trunnion of the runner. 2nd. The combination, with the rave or top piece H, the bottom I and the cross parts A, B, of the knee G when situated entirely below the rave H and provided with the laterally extending trunnions J below the rave, for pivoting the runner. 3rd. The combination of the cross piece A, the strengthening bar B attached to the inner side of the bar A, the perforated plate D and the runner having the knee G.

No. 13,580. Improvements on Electro-Magnets and on Revolving Armatures for Electro-Dynamic Machines, and Means for Making the Same.

(*Perfectionnements aux électro-aimants et aux armatures à révolution pour les machines électro-dynamiques, et moyens de les confectionner.*)

Charles Dion, New York, N.Y., U.S., 19th October, 1881; for 5 years.

Claim.—1st. The process of making the revolving armatures of electro-dynamic machines by winding the flattened wire edgewise longitudinally upon the longitudinally divided core, and then uniting the dividing edges of the core in contact with each other to give the hollow or tubular form to the armature. 2nd. The armature composed of a tubular core and the flattened wire wound longitudinally upon the walls of the said core, the wire being edgewise with reference to the inner and outer surfaces of said walls upon which it rests. 3rd. In an armature, etc., a flattened wire coated with a compound of gelatine and bichromate of potash hardened by exposure to the light, the said flattened wire being wound longitudinally upon the walls of the core with the coils lying edgewise with reference to the inner and outer surfaces of the said walls. 4th. The method of forming the coils of armatures, electro-magnets, etc., by subjecting the ribbon wire to the action of conical rolls, the axes of which are substantially at right angles to each other, so that a differential drawing and compressing movement is exerted upon the ribbon wire to curve the same at the requisite parts. 5th. The method of forming oblong coils of flattened wire for the armatures of electro-dynamic machines, etc., by subjecting the ribbon wire alternately to the action of coincident conical rolls to form the bends at the ends of the coils, and of parallel feed rollers to form the straight portions of the coils. 6th. In an apparatus for forming the coils in the armatures of electro-dynamic machines, etc., the combination of the conical rolls B' C' constructed with recessed portions r and pro-

vided with mechanism for giving movement in unison simultaneously to the two rolls. 7th. In an apparatus for forming the coils in the armatures of electro-dynamic machines, etc., the combination of the recessed conical rolls B' C', the guide K and the recessed parallel rollers H H', the whole combined and arranged for joint use and operation. 8th. In an apparatus for forming the coils in the armatures of electro-dynamic machines, etc., the combination of the yoke D carrying the shaft of the conical roll C', with the bearings on the frame E which support the shaft of the conical roll B, whereby provision is made for adjusting the conical faces of the two rolls with reference to each other. 9th. The process of forming bends in flattened wire for winding electro-magnets, armatures of electro-dynamic machines, etc., which consists in subjecting the flattened or ribbon wire to pressure differing in degree at the opposite edges of said wire.

No. 13,581. Hand Drag Saw.

(*Scie à bras traînante.*)

John Gives, Shakespeare, Ont., 19th October, 1881; (Extension of Patent No. 6,715.)

No. 13,582. Churn Power.

(*Moteur de ba. utte.*)

Valentine H. Tisdale, Hamilton, Ont., 19th October, 1881; (Extension of Patent No. 6,686.)

No. 13,583. Improvements on Sewing Machines.

(*Perfectionnement aux machines à coudre.*)

Frank G. Altmann and Fred Pommer, Edina, Mo., U. S., 20th October, 1881; for 5 years.

Claim.—1st. A threading tube through which the thread passes continuously during the operation of the machine. 2nd. A threading tube capable of being moved vertically and diagonally, or by circular motion, toward or from the eye of the needle. 3rd. The combination, with the needle bar, of brackets attached thereto and having bearings for a curved spring steel bar or rod carrying at its lower end a needle threader, which by raising or lowering the said rod in its bearings is carried from or toward the eye of the needle. 4th. An adjustable threading tube carrier secured to the needle bar of a sewing machine. 5th. The combination of the needle bar, the adjustable threaded tube carrier, and a spring lever or catch for retaining the latter in the position to which it may be adjusted in relation to the needle bar. 6th. The needle threader consisting of a suitably shaped block having a vertical groove and a conical opening, the small end of which terminates in said groove. 7th. The combination of the frame A provided with bearings E, and a needle bar having brackets F G H relatively to said needle bar, a vertically movable curved steel bar or rod D carrying at its lower end a needle threader, and means for securing said bar or rod D in an elevated position.

No. 13,584. Improvements on Fire-Extinguishers.

(*Perfectionnements aux extincteurs d'incendie.*)

Albert M. Burritt, Waterbury, Ct., U.S., 20th October, 1881; for 15 years.

Claim.—1st. The combination of a water distributor, and water-way of a fire-extinguisher with a collar screwed into the water-way, and a plug secured into said collar, by a connection fusible at a low degree of heat. 2nd. The combination of a distributor and a water-way of a fire-extinguisher, with a flanged collar screwed into the water-way, a plug secured in said collar by a fusible connection, and a channel leading from the water-way below the collar to a point beneath the flange of the collar. 3rd. A fire-extinguisher consisting of a perforated distributor and water-way connected thereto, combined with a socket between the distributor and water-way arranged to receive the detachable plug, and the said water-way constructed to form a chamber around said socket. 4th. The combination of a perforated distributor connecting with water-way, with a metal plug of semi-spherical or spherical shape secured in the water-way, at the entrance to the distributor, by a fusible connection. 5th. The combination, with a distributor of a fire-extinguisher, of a cap attached thereto by a device which will permit the disconnection of the cap, when the pressure of the water comes upon the inside of the cap. 6th. The combination of the plug C, constructed to fit the seat in the water-way, and secured thereto by a fusible connection, with the headed spindle attached to the said plug and supported in the water-way to arrest the outward or opening movement of the plug. 7th. The combination of the plug C constructed to fit the seat in the water-way and secured thereto, by a fusible connection, with the headed spindle attached to the said plug, and supported in the water-way to arrest the outward or opening movement of the plug, the said plug secured to the spindle by a screw thread, whereby the plug may be drawn upon its.

No. 13,585. Method of, and apparatus for Controlling the Accuracy of Sighting in Rifle Practice.

(*Méthode et appareil pour contrôler la précision de l'ajustage dans l'exercice du tir.*)

Richard Morris, Lewisham, Eng., 20th October, 1881; for 5 years.

Claim.—1st. Fitting to the rifle an inner barrel for firing with very small cartridges and firing with such rifle with inner barrel, at a screen or target placed at a short distance from the men, which screen is marked with bulls eyes, and with horizontal and vertical division lines for indicating the points at which the bullets should pass through with correct sighting and aiming. 2nd. The combination, with rifles or small arms, of an inner barrel E, screwed into a breech stock B and secured by a screw nut G. 3rd. In combination with the barrel E, and breech block B, the slides I acted upon by the extractor of the rifle, for removing the case of the small cartridge. 4th. A target or screen for controlling rifle practice marked with bulls eyes, and with horizontal division lines for indicating the points at which bullets should hit the screen for certain degrees of elevation in sighting. 5th. An inner barrel for small arms constructed of a rear part E of copper

tubing with smooth bore combined with a front part E¹ of rifled steel, the rifling bands being made to project inwards from the base of the copper tube.

No. 13,586. Improvements on Telephones.

(*Perfectionnements aux téléphones.*)

Webster Gillett, Ypsilanti, Mich., U. S., 20th October, 1881: for 5 years.

Claim.—1st. A vibrating plate D, or magnetic cylinder J having a helix M and a core H having a helix O, arranged within the said cylinder J, whereby a large amount of magnetic surface is presented to the vibrating plate. 2nd. The combination, with the central core H, having helix O, and exterior cylinder J having helix M, of the connecting pin K, the vibrating plate D and the adjustable case A B. 3rd. The case constructed as described, formed in two parts B A screwed the one upon the other and provided with a jam nut G, whereby the said case can be lengthened and shortened. 4th. The combination, with the adjustable case A B having jam nut G, cap C and mouth piece P, of the vibrating plate D, the cylinder J having helix M, the central core H having helix O and connecting pin K, and the binding posts Q R.

No. 13,587. Improvements in Sewing Machines.

(*Perfectionnements dans les machines à coudre.*)

Alfred A. Choquette, Milwaukee, Wis., U. S., 20th October, 1881: for 5 years.

Claim.—1st. In that class of sewing machines provided with a reciprocating shuttle, a needle plate provided with two slots for the reception of two full series of feed teeth and a triangular-shaped intermediate bar connected at its respective ends with the needle plate, at the centre of which bar is formed an eyelet. 2nd. The combination of the shank N, angular brackets O and series of feed teeth M L, said series L being supported at its respective ends, by angular brackets O, and adapted to be operated upon the right hand or inward side of the needle. 3rd. The combination of the feed device consisting in shank N, brackets O, series of feed teeth M and L, with the needle plate E provided with slots I and J, and angular-shaped intermediate bar H connected at its respective ends with the needle plate and provided with eyelet K.

No. 13,588. Improvements in Bedsteads.

(*Perfectionnements aux bois des lits.*)

Edward Julien and Benjamin Baker, Montreal, Que., 20th October, 1881: for 5 years.

Claim.—1st. The combination of the base A, back B, bedstead L, springs O, counter of balance S, cornice F, casing G, doors D and sub-doors E. 2nd. The combination of the base A, back B, hinged bedstead L, having doors O¹, cornice F, and doors D having sub-doors E. 3rd. The combination of the base H, back B, hinged bedstead L, having door O, cornice F, doors D having cupboard A¹ and pocket D, towel rack E¹, looking glass F¹, clothes pins V and curtain W, sub-doors E having clothes pins T and curtain-holders S.

No. 13,589. Improvements on Plaiting Machines.

(*Perfectionnements aux machines à plisser.*)

William H. Bramhall, Brooklyn, N. Y., (Assignee of Leonard B. Berrien, Galesbury, Ill.), U. S., 20th October, 1881: for 5 years.

Claim.—1st. The combination of two feed rollers D D, two plaiting blades G G and two levers, one for operating each blade independently of the other, in combination with mechanism whereby the feed rollers shall be actuated by either lever when vibrated. 2nd. The combination of a pair of feed rolls, a plaiting blade free to reciprocate in respect thereto, a hand lever connected to said blade, so as to reciprocate the same without passing it upon the fabric, a supplementary hand lever connected to the blade so as to reciprocate it and cause it to press upon the fabric, and means whereby the movement of either lever is caused to operate the feed rolls. 3rd. The combination of a pair of feed rolls, a plaiting blade hung to a crank shaft free to vibrate, a hand lever connected to said crank shaft and serving to vibrate the same, and a supplementary lever hung to the main lever and having an arm connected to an arm on the plaiting blade. 4th. The combination of the upper roller D having journals adapted to bearings in plates a¹, secured to the standards B B¹ of the base of the machine, with the lower roller D, the elastic arms E E pivoted to the frame of the machine, and the adjusting screws h h. 5th. The combination of the feed roller D and its two ratchet wheels K K¹, and the lower roller D¹ geared to the upper roller, with the two crank shafts F F¹, one carrying a pawl adapted to the other ratchet wheel.

No. 13,590. Improvements on Screw-jacks.

(*Perfectionnements aux crics.*)

Godfroid Chapeau, Montreal, and Joseph Desantels, St. Vincent de Paul, Que., 20th October 1881: for 5 years.

Claim.—1st. Le bâti B avec les coulisses C C, les projections G O Q. 2nd. La crémallière A avec les projections P P en combinaison avec la pièce L, le ressort, N et le levier D R. 3rd. La combinaison de la crémallière A avec le bâti B, les pièces F F et le levier D R.

No. 13,591. Improvements on Railway Cars.

(*Perfectionnements aux chars des chemins de fer.*)

James W. Chisholm, (Assignee of William H. H. Sisum), Brooklyn, N. Y., U. S., 20th October, 1881: for 5 years.

Claim.—1st. The combination, with a pair of car wheels, an axle and its frame, of pairs of links by which the frame is suspended upon the axle boxes or other points fixed relatively to the length of the axle, and provision afforded for the transverse movement of said wheels and axle independently of said frame, and other pairs of links by which the car body is suspended from said frame and provision afforded for

the transverse movement of said frame, independently of said car body. 2nd. The combination, with a pair of car wheels, an axle and its frame, of a car or truck body, and connection between said body and frame, which permit the axle and frame in passing a curve to be moved in a direction lengthwise of the axle and lateral to the car or truck body, and also radiated relatively to the track by the momentum and gravity of the car. 3rd. The combination, with a pair of car wheels, an axle and its frame, of a car or truck body having a fixed pivotal connection with said frame, upon one side of said axle, and suspended by links from said frame upon the opposite side of said axle. 4th. The combination, with a pair of car wheels, an axle and an axle frame, and link whereby said frame is suspended from the axle boxes or other points fixed relatively to the length of the axle, of a car or truck body having a fixed pivotal connection with said frame upon one side of said axle. 5th. The combination, with a pair of car wheels, an axle, an axle frame and pairs of links, whereby said frame is suspended from the axle boxes, or other points fixed relatively to the length of the axle, of a car or truck body having a fixed pivotal connection with said frame, upon one side of the axle, and suspended by links from said frame upon the other side of the axle. 6th. The combination, with a car or truck body, of three pairs of wheels, three axles, and their three frames, pairs of links, whereby each frame is suspended from the axle box or other points fixed relatively to the length of the axle, pairs of links, whereby the said car or truck body is suspended from the frame of the middle axle upon each side of said axle, other links whereby said car or truck body is suspended from each end frame upon one side of its axle, and a fixed pivotal connection between the car or truck body and the opposite side of each end frame. 7th. The combination of the axle C, the laws d d, the yoke x, adjustable vertically between said laws, the axle box e and the links a, pivoted at their upper ends to the axle box, and at their lower ends to said yoke. 8th. The combination of the car body A, the two axle frames D D and their axles and wheels, and the connecting pivot F, the said pivot being fixed relatively to the car body, and forming the only pivotal connection between the said frames themselves, and between said frames and the car body.

No. 13,592. Improvements in Electric Lamps.

(*Perfectionnements aux lampes électriques.*)

Joseph Best and Joshua A. Bell, Montreal, Que., 20th October, 1881: for 5 years.

Claim.—1st. The carbons carried on horizontal rock shafts connected so as to be worked simultaneously, in combination with a friction sector mounted upon one of said rock shafts and with means for actuating it. 2nd. The combination of an electro-magnet and an armature lever provided with a fulcrum support, with a friction sector or disc mounted on a rock shaft and connected so as to automatically separate the carbons. 3rd. The device for adjusting the armature lever H consisting of screwed pin or spindle M passing up through box A provided with jam nut L, forked lower end M¹ and pin N. 4th. The carbon-holder made of angular section and provided with a loose angular plate.

No. 13,593. Improvements on Machines for Dressing Millstones.

(*Perfectionnements aux machines à rabotter les meules.*)

Abram L. Teetor, Hagerstown, Ind., U. S., 24th October, 1881: for 5 years.

Claim.—1st. The combination, with a reciprocating rod, of a clamp connected therewith and adapted to be automatically moved to and fro on said rod. 2nd. The combination, with a reciprocating rod, of a friction clamp engaging therewith and adapted to be automatically moved to and fro on said rod. 3rd. The combination, with a reciprocating rod, of an adjustable friction clamp engaging therewith and adapted to be automatically moved in either direction on said rod. 4th. The combination, with a reciprocating cross head or carriage having a reciprocating rod mounted therein, of a clamp engaging said rod and adapted to be automatically moved thereon in either direction. 5th. The combination, with a reciprocating rod and a head for carrying a stone dressing tool or device, of a clamp connected with said head and engaging with the reciprocating rod and adapted to be automatically moved on said rod in either direction. 6th. The combination, with a reciprocating and tilting cross head or carriage having a reciprocating rod mounted thereon, of a head for carrying a stone dressing tool or device, and a clamp connecting said head with the reciprocating rod, said clamp being constructed and arranged to be automatically moved on said rod in either direction. 7th. The combination, with a reciprocating rod and a clamp engaging therewith, said clamps adapted to be automatically moved in either direction on said rod, of a device for regulating the extent of movement of said reciprocating rod. 8th. The combination, with a reciprocating cross head or carriage, a smooth rod mounted on said carriage, a head for carrying the stone dressing tool or device, and a clamp connecting the head and rod, of a double cam-shaped lever connected with said rod and a device for actuating said lever, and thereby reciprocating the rod. 9th. The combination of the cross head provided with the arcs or projections through which passes a smooth rod, a mechanism for reciprocating this rod backward and forward as the cross head is moved backward and forward in its frame, and a head carrying the stone dressing device or tool, which is connected to, and operated by the smooth rod. 10th. The head R provided with the friction clamps, which can be inclined from side to side, in combination with the adjusting lever provided with the spring V. 11th. The combination, with the rod and double cam-shaped lever, of the pivoted lever provided with a friction roller, the parts being arranged to impart greater or less motion to the rod, as may be desired.

No. 13,594. Improvements on Force Pumps.

(*Perfectionnements aux pompes foulantes.*)

William A. Bickford, Hamilton, Ont., 24th October, 1881: for 5 years.

Claim.—1st. The lugs B on cylinder A, for securing the cylinder to the pump tube C by rods D with nutted ends. 2nd. The chamber D¹, formed in the top heading of the cylinder, and having a valve E hung therein vertically. 3rd. The stirrup casting K having screw L and an annular collar, to which the hose is connected and applied to the spout of the pump.

No. 13,595. Improvements on the Production of Autographic Transfers for Lithographic and Zincographic Printing, and on the Reproduction of Printed Matter by Lithography and Zincography. (*Perfectionnements dans la production des calques autographiques pour des impressions lithographiques et zincographiques, et dans la reproduction, par la lithographie et la zincographie, des matières imprimées.*)

Jean J. Maigne, Lilas near Paris, France, 24th October, 1881; for 5 years.

Claim.—1st. The improved autographic transfer process consisting essentially in the use of the inks or crayons of the composition specified, moistening the paper with the mixture of acidulated water and alcohols, or their congeners, and inking up the writing or drawing. 2nd. The improved process of transferring printed matter for reproduction by lithography or zincography consisting essentially in moistening the paper with the mixture of acidulated water or alcohols, or their congeners, and then inking up the print.

No. 13,596. Improvements in Umbrellas. (*Perfectionnements dans les parapluies.*)

Henry A. Davis, London, Eng., 24th October, 1881; for 5 years.

Claim.—1st. A rib holder provided with a series of grooves or recesses *c* to receive the ends, or end portion of the ribs. 2nd. The combination with the said rib holder, of the ring or tube *g*. 3rd. The rib holder *b* provided with the sockets *b'* for the reception of the two parts of the stick, the groove *b''* and the recesses *e*. 4th. The umbrella stick formed in two parts *a'* and attached to the rib holder *b* in such a manner that the solid portion *b'* of the latter, in which the recesses for the rib joints are formed, is between the said parts of the stick. 5th. The combination, with the rib holder *b* provided with the groove *b''* and having the grooves or recesses *e*, of the silk or other cover *d* and the ribs *c* secured in the said grooves and bent.

No. 13,597. Improvements on Fair Leaders for the Ropes and Chains of Vessels. (*Perfectionnements aux conduits pour les cables et les chaînes des vaisseaux.*)

John W. Sharrett, Portsmouth, Va., U. S., 24th October, 1881; for 5 years.

Claim.—1st. The fair leading rolls *B* supported upon axial bearings in a relation to each other, whereby a portion of the periphery of one of the rolls will overlap, or be overlapped by a portion of the periphery of an adjoining roll. 2nd. The fair leading rolls *B* formed with a concavity *e* and a sloping annular face *e'*, in combination with circularly formed or curved back *B'* provided with axial bearings *b*, whereby, when a series of rolls *B'* are in working position upon said bearings, a portion of one of the rolls will overlap, or be overlapped by a portion of an adjoining roll.

No. 13,598. Apparatus for Imparting Motion to Carriages, Vessels and Other Bodies. (*Appareil pour donner le mouvement aux voitures, vaisseaux et autres objets.*)

Gustaf Liedman and Carl Beger, Berlin, Germany, 24th October, 1881; for 5 years.

Claim.—The apparatus for the transmission of motion to carriages, boats, vessels and machinery from a rocking seat *B* and lever *a* to the wheel axle *C* consisting essentially of the bosses *g g*, discs *h h*, pawls *i i* and the cords, bands or chains *b b m m*.

No. 13,599. Improvements on Fences. (*Perfectionnements aux clôtures.*)

William Lea, Walford, Ont., 25th October, 1881; for 5 years.

Claim.—The application and combination of the wire guys *E* with the pins *F* and the connecting pins *C*, for the purpose of joining and supporting the sections of fence *A* when placed in a furrow, with an even base prepared for the fence to rest upon.

No. 13,600. Improvements on Shutters. (*Perfectionnements aux stores.*)

Fred H. Moore, Holbrook, Mass., U. S., 26th October, 1881; for 5 years.

Claim.—The part *c* having the pintle *e* and toothed caps *i*, combined with the part *g* having the rearward projection *n* and ear *m*, the worm *K* and its shaft *l* supported in, and by such projection and ear, and in operative connection with the cap *i* and the socket *f* to receive the pintle *e*.

No. 13,601. Improvements in Tricycles. (*Perfectionnements aux vélocipèdes.*)

Samuel N. Silver, Auburn, Me., U. S., 26th October, 1881; for 5 years.

Claim.—1st. The combination, with the axle *B* and wheels *C*, of the springs *J*, the loose disks *G*, the rigidly mounted disk *H*, the arms *F*, the pawls *F'*, the clutches *G'*, the springs *K* and the foot levers *E*. 2nd. The combination, with the axle *B* and wheels *C*, of the disks *G* and *H*, the arms *F*, the pawls *F'*, the clutches *G'*, the foot levers *E*, the springs *J* and the cam block *N*. 3rd. The combination, with the axle *B* and wheels *C*, of the disks *G* and *H*, the arms *F*, the pawls *F'*, the clutches *G'*, the foot levers *E*, the cam block *N*, the check block *M* and the springs *J*. 4th. The combination, with the lever *E* provided with the ball *O*, of the treadle shoe *O* having a socket in the underside, and of the stirrup *O'*. 5th. The combination, with the frame *A*, the axle *B*

and wheels *C*, of the guide or steering wheel *Q*, the arm *Q'* of the guide wheel shaft *Q'*, the rod *R*, the squared rod *S* provided with a crank at its lower end, and the rod *T* provided with a handle *T'* at its upper end, and an eye at its lower angular end. 6th. The combination, with the rods *S* and the sliding rods *T* *T'* having angular lower ends, and provided with handles *T'* *T'* at their upper ends, of the springs *V* *V'*. 7th. The combination, with the frame *A*, the axle *B* and the wheels *C*, of the pivoted break bar and shoes *W* *W'*, the connecting rod *X*, the rod *Si* and of the rod *Tu* provided with a handle *Tu'*. 8th. The combination, with the axle *B*, of the disk *H*, rigidly mounted thereon and provided with a rim *H'*, the disks *G* loosely mounted on the axle and provided with pivoted clutch dogs *G'* and with notches *d* in the edge, the arms *F* loosely mounted on the axle, the pawls *F'* pivoted to the arms *F*, the connecting rod *E*, the foot levers *E* and the springs *J* *K*.

No. 13,602. Improvements on Shoe Button Fasteners. (*Perfectionnements aux queues des boutons de chaussures.*)

Alexander G. Wilkins, Cooperstown, Penn., U. S., 26th October, 1881; for 5 years.

Claim.—The flat spiral coiled wire *A* provided at its inner end with the loop *B* to engage the button eye and at its outer end free and adapted to be inserted through the leather and lining and then back through the lining only, and screwed in until the main portion of the coil lies between the leather and the lining.

No. 13,603. Improvements on Mechanical Musical Instruments. (*Perfectionnements aux instruments de musique mécaniques.*)

Frank Stone, Worcester, Mass., U. S., 26th October, 1881; for 10 years.

Claim.—1st. In a mechanical musical instrument adapted to be operated by a travelling perforated music sheet, the lever or finger *I* composed of the upright wire *I*, and foot piece *I'* pivoted or fulcrumed at or near its heel, and provided with the rider head *m* having front under curve *i* and offset *e*, said finger being arranged in relation to the direction of the movement of the music sheet. 2nd. A mechanical musical instrument provided with the wind chest, reeds and reed cells having inlet passages, the hinged rolling or clapper valves, in combination with said inlet passages, and a series of actuating fingers controlled by the music sheet for operating said valves. 3rd. The combination, with the air inlet passage *c* and actuating finger or lever *I*, of a valve hinged to its seat, to have a rolling or swinging action, and connected to said actuating finger by a flexible attachment. 4th. The combination of the rolling or hinged valves for closing the air inlets, the actuating fingers governed by the travelling music sheet and arranged to have a swinging movement greater than the swing of the valves, and the flexible attachments or bands connecting said valves with said fingers, and adapted to buckle or stand slack when the valves are closed. 5th. The combination of the actuating levers *I* pivoted in the bar *L*, the swinging bar *R* with its backward extended ends *R'* fulcrumed on the side frames, and the rock shaft *J* provided with crank arms *J'* for engaging the arms *R* and operating said bar, for simultaneously raising the series of levers from the music sheet. 6th. The combination, with the presser roll *F*, of the spring levers *H* fulcrumed as at *h*, and the crank arms *J'* for actuating said levers to apply or relieve pressure on the roll bearings. 7th. The combination of the stationary table or music sheet bed *D*, the feed and presser rolls *E* *F*, the pressure spring levers *H*, the valve actuating levers *I*, the swinging bar *R* fulcrumed at the sides *R'*, and the rock shaft *J*, with crank arms *J'* operating in connection with both the spring levers and swinging bar, for simultaneously relieving said presser roll and raising said actuating levers from the music sheet. 8th. The combination, with the presser roll mounted in movable bearings, of the bar *Fz* connecting said bearings and having its central part suspended or supported at a fixed position and at such a height that said bar will be deflected when the roll is pressed down upon the music sheet. 9th. The feeder board *S* provided with the air passages *S'* *Sz*, in combination with the bellows *T* and compound feeders *V* located above and below said board. 10th. The combination, with the actuating levers *I*, of the buffers *L'* and springs *P* arranged on the support bar *L*.

No. 13,604. Improvements on Electric Lamps. (*Perfectionnements aux lampes électriques.*)

Hiram S. Maxim, Brooklyn, N. Y., U. S., 26th October, 1881; for 5 years.

Claim.—1st. The combination of a transparent globe enclosing the light giving part of the lamp in a vacuum, with a stopper fitted to the mouth of said globe, with a ground joint, and carrying the conducting wires sealed directly into the material of which said stopper is composed. 2nd. A transparent globe enclosing the light giving part of the lamp in a vacuum, in combination with a stopper fitted to the mouth of said globe, with a ground joint and gum, or wax applied as a supplemental seal outside of, and above said joint. 3rd. A globe enclosing the light giving part of the lamp in a vacuum, in combination with a tapering stopper fitted to the mouth of said globe, with a ground joint, conducting wires sealed into the material of said stopper, and a supplemental seal applied outside of, and above said joint. 4th. A continuous incandescent conductor enclosed in a transparent vacuum globe, in combination with conducting wires leading to said conductor, each of which is divided into two or more branches. 5th. A transparent vacuum globe enclosing the light giving part of the lamp, in combination with an exhausting tube, and a valve fitted with ground joints, and a supplemental seal applied outside of, and above said joints.

No. 13,605. Water Heater. (*Chaudière à eau.*)

Kenneth McDonald, Portland, Me., U. S., 26th October, 1881; for 5 years.

Claim.—1st. A water heater having the outer shell *C* and inner shell *D*, enclosing between them the reservoir *F*, this reservoir being provided with the pipes *g g*, in combination with the unfired fire box. 2nd. The combination of the base *A*, rocking cross bar *I* provided with

the central eye L, the gate J having the vertically perforated pivot K, and cog N. 3rd. A cylindrical water heater consisting of the outer shell C, inner shell D and reservoir F.

No. 13,606. Improvements on Telephones. (*Perfectionnements aux téléphones.*)

Webster Gillett, Brooklyn, N. Y., U. S., 26th October, 1881; for 5 years.

Claim.—1st. In speaking telephones, an adjustable cylinder, containing a low variable conducting medium, combined with separate and independent devices for obtaining an adjustment in respect to the position of the diaphragm, and means for securing an accurate and sensitive adjustment of contact between the powdered conducting medium within the cylinder and adjacent electrical connections. 2nd. An adjustable cylinder F, for containing the powdered conducting medium N, in combination with diaphragm B, its vibratory arm O, compression screw R and its metallic pin S, said arm and pin being arranged opposite to each other with powdered conducting medium between them, whereby a variation in electrical resistance is effected.

No. 13,607. Improvements on Sleighs. (*Perfectionnements aux traîneaux.*)

Benjamin F. Sweet, Fond du Lac, Wis., U. S., 26th October, 1881; (Extension of Patent No. 6,710.)

No. 13,608. Improvements on Sleighs. (*Perfectionnements aux traîneaux.*)

Benjamin F. Sweet, Fond du Lac, Wis., U. S., 27th October, 1881; (Extension of Patent No. 6,710.)

No. 13,609. Horse Shoe Nail Machine. (*Machine à clou à cheval.*)

Joseph Varney, Montreal, Que., 27th October, 1881; (Extension of Patent No. 6,598.)

No. 13,610. Improvements in Heaters (*Perfectionnements dans les calorifères.*)

Daniel L. Lamson, Fryeburgh, Me., U. S., 27th October, 1881; for 5 years.

Claim.—1st. The combination of the coal burning chamber A and wood burning chamber C connected by flues D E G H. 2nd. A wood burning chamber and a coal burning chamber arranged one above the other, the radiating space O between them, to permit free radiation from the bottom of the one and the top of the other.

No. 13,611. Improvements on Horse Shoe Nail Plates. (*Perfectionnements aux carreaux à clou à cheval.*)

Joseph M. Laughlin, Boston, Mass., U. S., 28th October, 1881; (Extension of Patent No. 6,719.)

No. 13,612. Improvements on Corsets. (*Perfectionnements aux corssets.*)

Electa A. Waterhouse, Chatham, Ont., 29th October, 1881; (Extension of Patent No. 6,724.)

No. 13,613. Improvements in Sewing Machines. (*Perfectionnements aux machines à coudre.*)

William Muir, Montreal, Que., (Assignee of David M. Smyth, Lynn, Mass., U. S.) 29th October, 1881; (Extension of Patent No. 6,708.)

No. 13,614. Improvements on Machines for Trimming the Edges of the Soles of Boots and Shoes. (*Perfectionnements aux machines à polir les tranches des semelles de chaussures.*)

John W. Dodge, Malden, Daniel C. Knowlton and John Hitchcock, Boston, Mass., U. S., 31st October, 1881; for 15 years.

Claim.—1st. The jack carrier consisting of the shaft *a*, sliding frame *f*, gear *c* and rack *d*, the whole combination operating to move the shaft sidewise, when the shoe is turned. 2nd. The combination, in the edge trimming tool, connecting rod *b*, carriage *g* and rack and pinion being controlled by the clutch mechanism, and in gear with the rack on the carriage. 3rd. In combination, shaft *a*, sliding frame *f*, gear *c*, rack *d*, shaft *e*, clutch *g*, pinion *h*, carriage *g* provided with its rack, and rod *b*. 4th. In an edge plane, the combination of stock *n* carrying knife *a*, and the adjustable stop *p* carrying rand guide *o*, and gauge *q*, the rand guide being adjustable on stock *p*. 5th. In an edge plane, the gauge *o*, narrower than the edge to be trimmed, and bottom gauge *q*, both arranged on a slide, whereby the gauge *o* is moved by the action of the bottom guard away from the rand guide, when the tool passes from the thin edge at the shank of the sole to the thicker edge of the fore part. 6th. A boot or shoe jack having the shaft *s* passing through the body and encircled by the springs *r*, in combination with the pinion *u* and the rack *t* of the heel piece. 7th. In combination with a boot or shoe jack or holder, the shaft *v* having a reel *w*, and

ratchet *r* attached to its outer end, and the pinion *u* attached to the inner end, and the heel piece *s* having a rack, so that the foot of the jack or holder may be made to accommodate the length of the boot or shoe. 8th. In combination, the shaft *x* in a jack or holder for boots or shoes, and the spiral spring *y* by means of which the shaft may be revolved, so as to loosen the foot of the holder from the boot or shoe. 9th. The shaft *x* encircled by the spiral spring *y* in the body of the jack, in combination with the pinion *u* and ratchet *r*.

No. 13,615. Improvements on Car-Couplings. (*Perfectionnements aux accouplages des chars.*)

John H. Blanchard, Boston, and Henry E. Waite, Newton, Mass., U. S., 31st October, 1881; for 5 years.

Claim.—1st. The combination, with the draw-head A having a slot or groove *a* and recess *a* on its lower surface, of the detachable draw-bar B having enlarged head or shoulder *b* and secured by pins *b* *b* *1*. 2nd. The combination, with the recessed draw-heads A having pivoted coupling hooks or links D and catches E, of the levers F G adapted to simultaneously raise the coupling hook of each draw-head. 3rd. The combination, with the draw-head and coupling hook, of the pin *e*. 4th. The combination, with the draw-heads A having recess C *C*, lugs *c* *c* and bevelled catch E, of the coupling hooks or links D having slots *d* and bevelled ends provided with projections *d* and adapted to be operated by the levers F G. 5th. The combination, with a draw-head having recess C provided with a pivoted coupling hook or link, and a lever G bearing on the rear end of said hook, of a draw-head having recess C *i* provided with a catch E adapted to engage with the slotted coupling hook of the opposite draw-head and having a ledge C₂ and lever F arranged beneath the hooked end of said coupling link. 6th. The combination of the recessed draw heads A, tongue or bar B, slotted hooks D, catches E, levers F G H *1* and chains *f* *g* *i*. 7th. The combination of the draw heads A having open top recesses C *C* *1*, bevelled catch E and lugs *c* *c* *1*, the levers F G pivoted in said lugs, the slotted coupling hooks D pivoted in the recess C, with a lever F resting below the bevelled end of each, and lever G bearing down upon the rear end, and the lever handle H provided with chains or cords *f* *g* *i* connecting said handle with the levers F G and with the lever H *1* at the top of the car, whereby both coupling hooks may be simultaneously operated from the top or side of each car.

No. 13,616. Improvements on Gates. (*Perfectionnements aux barrières.*)

William Malloy, (Assignee of Alfred F. Wright), Toronto, Ont., 31st October, 1881; for 5 years;

Claim.—1st. The saddle brace composed of the following parts, the upper angular bar *b* with upright piece *d* on face of instile, the horizontal pieces *d* *d* to which these are secured, the under angular bar *c* and the pieces *d* *d* to which it is secured, the key *c* and the bolts *n* *n* *n*. 2nd. The upright centre brace *e* composed of the parts *s* *s* *s* *s* *s* of two thicknesses, the caps and keys *f* *f* *f*, cap *k* *k* and the bolts *o* *o* *p* *p* *r* *r* *g*. 3rd. The combination of the saddle brace, centre brace and the rods *l* *l*, and plate at apex of the instile *a*, outstile *t* and bars *h* *h* *h* *i* *i*.

No. 13,617. Improvements on Range Stoves.

(*Perfectionnements aux landiers de cuisine.*)

Joseph Roy, Montreal, Que., 31st October, 1881; for 5 years.

Claim.—1st. A range stove composed of two divisions, each division having a furnace arranged back to back with cooking sections on opposite sides, having smoke flues horizontal and downward connecting a section of one division with a section of the other division, whereby one or both furnaces will heat all the sections of the range. 2nd. A range composed of two furnaces arranged back to back, and four cooking sections, having an intervening horizontal and downward flue common to one side of the furnace, and an intervening horizontal and downward flue common to the other side of the furnace, whereby one half of the range can be used with one furnace independently of the other half. 3rd. A range composed of two divisions, each division composed of sections arranged on both sides of two furnaces placed back to back, with smoke flues lateral from the furnaces, and thence downward and horizontally through opposite sections to an exit, in the bottom of one section. 4th. A range composed of two furnaces and four cooking sections having horizontal and downward discharging smoke ducts, and two exit smoke passages connected with underground smoke ducts, and a chimney. 5th. A range having pot holes at top composed of sections, consisting of double ovens, a single oven, a hot water circulating boiler and two furnaces, arranged to form a rectangular block. 6th. A range composed of sections placed rectangularly, having two furnaces arranged back to back, and intervening the sections, which are subdivided by a space in which are flues, serving two of the sections with smoke exit in the bottom of the range. 7th. A range having horizontally hinged oven doors, provided with quadrants and weights for supporting the doors flatwise and closing them vertically.

No. 13,618. Improvements on Envelopes.

(*Perfectionnements aux enveloppes.*)

Gustave F. Tassé, Montreal, Que., 31st October, 1881; for 5 years.

Résumé.—1o. Des enveloppes ordinaires employées soit pour la correspondance ou autre chose, les perforations de forme quelconque, pratiquées sur toutes, ou sur une seule des parties des enveloppes, en rapport avec les parties gouennées ou collées. 2o. Une enveloppe de la forme A B C D E F G, la languette A collée sur les deux côtés, en combinaison avec l'ouverture C et les perforations E E.

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- No. 13,619. C. A. Lake, Lynn, Mass., "Button hole cutting machine," Nov. 4th, 1881.
- No. 13,620. A. K. Hebard, Cambridge, Mass., "Upright Piano-forte Action," Nov. 4th, 1881.
- No. 13,621. M. C. Armour, Chicago, Ill., "Stove," Nov. 4th, 1881.
- No. 13,622. S. S. Putnam, Boston, Mass., Nov. 4th, 1881.
- No. 13,623. R. H. Earle, St. Johns, Nfld., "Apparatus in Lowering and Raising Apparatus for Vessels," Nov. 4th, 1881.
- No. 13,624. H. B. Sheridan, Cleveland, Ohio, "Electrical Lamps," Nov. 4th, 1881.
- No. 13,625. H. A. Stone, Brooklyn, N. Y., "Cigar and Cigarette Holders," Nov. 4th, 1881.
- No. 13,626. J. McDougall, Montreal, Que., "Paint Mills," Nov. 4th, 1881.
- No. 13,627. J. T. Lloyd, Boston, Mass., "Stove Eduet," Nov. 4th, 1881.
- No. 13,628. B. D. Marks, Louisville, Ky., "Wood Bottle Wrapper," Nov. 4th, 1881.
- No. 13,629. W. S. Hutchinson, Chicago, Ill., "Steam Boiler," (Extension of Patent No. 6,721,) Nov. 4th, 1881.
- No. 13,630. T. Hoyt, (Assignee of E. Hoyt,) Stamford, Conn., "Chain Pump Bucket," (Extension of Patent No. 6,813,) Nov. 4th, 1881.
- No. 13,631. J. S. Bogle, T. L. Ludlow and Rodgers, Springfield, Ohio, "Spring Hoe," (Extension of Patent No. 6,808,) Nov. 4th, 1881.
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- No. 13,637. J. Rigby, Montreal, Que., "Car Wheels," Nov. 8th, 1881.
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- No. 13,639. E. A. Bailey, St. Charles, Missouri, "Boots," Nov. 8th, 1881.
- No. 13,640. A. D. Roth, Blackheath, Kent, Eng., "Sea Safe," Nov. 8th, 1881.
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- No. 13,642. E. Kemper, Thornville, Ohio, "Hand Seeders," Nov. 9th, 1881.
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- No. 13,644. P. Herdic, Philadelphia, Penn., "Vehicles," Nov. 9th, 1881.
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- No. 13,647. T. Liddon, Yorkville, Ont., "Clothes Dryer," Nov. 9th, 1881.
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- No. 13,651. A. Walrath, A. C. Bronson and V. E. Fuller, Amsterdam, N. Y., "Broom Machine," (Extension of Patent No. 6,742,) Nov. 9th, 1881.
- No. 13,652. J. McBride, Strathroy, Ont., "Spring Coupling and Support," (Extension of Patent No. 6,752,) Nov. 9th, 1881.
- No. 13,653. E. Reynolds, Milwaukee, Wis., "Roll Grooving Machine," Nov. 9th, 1881.
- No. 13,654. J. W. Fowler and D. E. Lewis, Brooklyn, N. Y., "Registering Apparatus," Nov. 9th, 1881.
- No. 13,655. S. Kinney and C. Spearin, Chicago, Ill., "Saw Swage," Nov. 10th, 1881.
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- No. 13,657. J. Richardson, Ancaster, Ont., "Thill Coupling," Nov. 10th, 1881.
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- No. 13,660. D. E. Clarke, Wellington, Ont., "Fences," Nov. 10th, 1881.
- No. 13,661. J. Tredale, Toronto, Ont., "Coal Oil or Gas Stove," Nov. 10th, 1881.
- No. 13,662. J. Shinn and A. F. Fuller, Philadelphia, Penn., "Flax Breaker and Scutcher," Nov. 10th, 1881.
- No. 13,663. E. Ziegler and B. H. Ziegler, Berlin, Ont., "Perambulators," Nov. 10th, 1881.
- No. 13,664. J. H. Thorp, Baltimore, Maryland, "Artificial Stone," Nov. 10th, 1881.
- No. 13,665. H. Kingsford, Halifax, N. S., "Electric Alarm Grapnel," Nov. 10th, 1881.
- No. 13,666. J. Stover, Glasgow, Scotland, "Pulverizing Interaction Process for Gases and Liquids," Nov. 10th, 1881.
- No. 13,667. R. Prud'homme, St. Thomas d'Alfred, Ont., "Pomades," Nov. 10th, 1881.
- No. 13,668. S. R. Divine, Lock Scheldrake, N. Y., "Explosive Compounds," Nov. 10th, 1881.
- No. 13,669. S. R. Divine, Lock Scheldrake, N. Y., "Blasting Process," Nov. 10th, 1881.
- No. 13,670. F. A. Hubel, Detroit, Mich., "Capsule Cutting Machine," (Extension of Patent No. 9,626,) Nov. 10th, 1881.
- No. 13,671. F. A. Hubel, Detroit, Mich., "Capsule Cutting Machine," (Extension of Patent No. 9,626,) Nov. 11th, 1881.
- No. 13,672. R. Bustin, St. John, N. B., "Fire Escape," Nov. 11th, 1881.
- No. 13,673. J. Cussons, Glen Allen, Virginia, "Calendars," Nov. 11th, 1881.
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- No. 13,681. W. De Lany, Cobourg, Ont., "Lamp Post," (Extension of Patent No. 6,761,) Nov. 11th, 1881.
- No. 13,682. J. J. Webster, Magog, Que., "Pulverizer and Grinder," (Extension of Patent No. 1,224,) Nov. 11th, 1881.
- No. 13,683. A. Nobel, Paris, France, "Blasting Gelatine," (Extension of Patent No. 6,969,) Nov. 11th, 1881.
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- No. 13,685. W. G. Rawbone et al., Toronto, Ont., "Impts on Skates," Nov. 11th, 1881.
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- No. 13,692. F. A. North, Easton, Mich., "Feed Rack," Nov. 12th, 1881.
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- No. 13,695. D. O. Francke, Roodal, Sweden, "Pulp," Nov. 12th, 1881.
- No. 13,696. J. Montgomery, Chicago, Ill., "Stock Car," Nov. 12th, 1881.
- No. 13,697. S. A. Bennis, Springfield, Mass., "Car Axle Box," Nov. 13th, 1881.
- No. 13,698. D. N. Webster, Geneva, Ohio, "Wood Bending Machine," Nov. 13th, 1881.
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- No. 13,700. P. B. Shaw, Williamsport, Penn., (Assignee of J. Hill-aforesaid,) "Car Starter," Nov. 13th, 1881.
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- No. 13,702. P. C. Hudson, Fort Dodge, Iowa, "Press," Nov. 13th, 1881.
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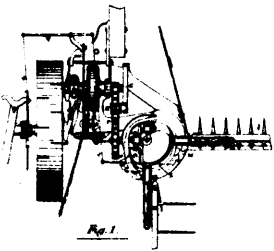
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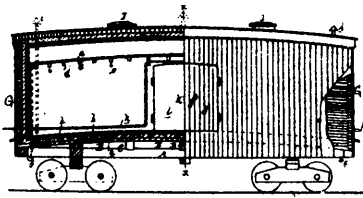
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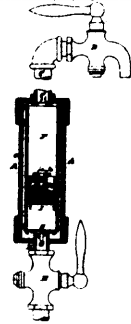
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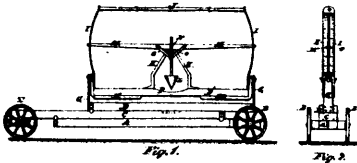
13503 Harris's Improvements on Reaping Machines.



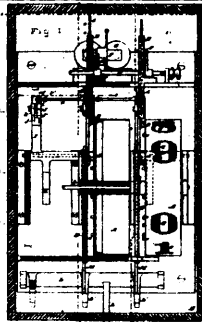
13504 Hutchins's Improvements on Refrigerator Cars.



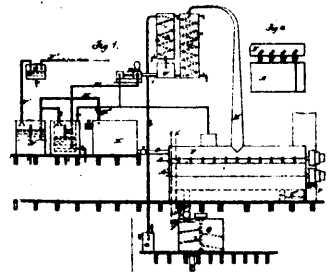
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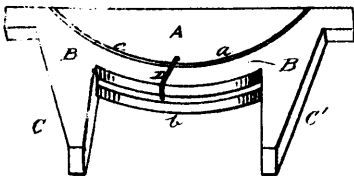
13506 Eveland's Improvements on Plumb Levels.



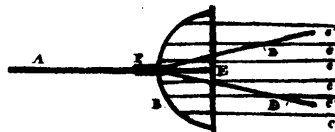
13507 Pond's Improvements on Visual Indicators.



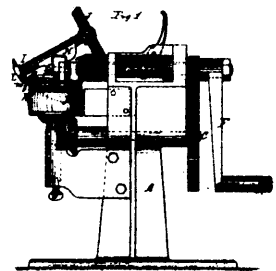
13508 Plumer's Process and Apparatus for the Manufacture of Fertilizers.



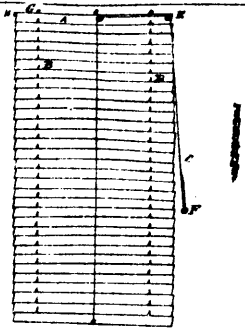
13510 Schram's Improvements on Gate Locks.



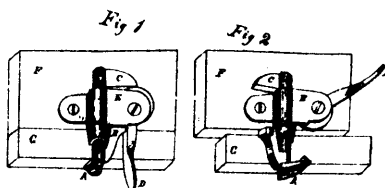
13511 Southard's Improvements on Grain Forks.



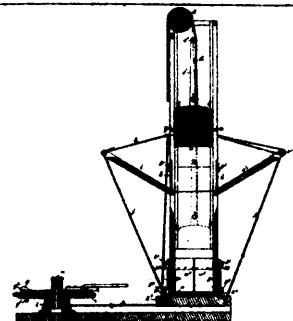
13512 Helms's Edge Trimming Machine for Boots and Shoes.



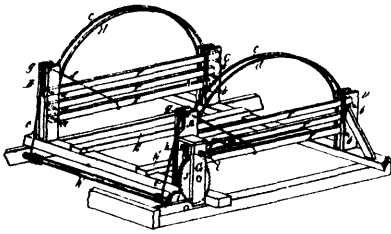
13513 Payzant's Improvements on Window Blinds.



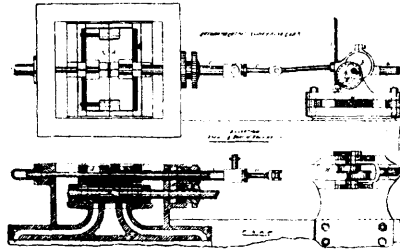
13514 Roop's Improvements on Seat Locks.



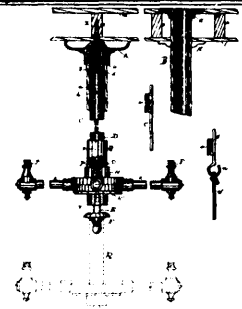
13515 Batchelder's Improvements on Hay Presses.



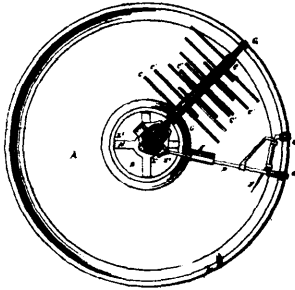
13519 Mayrand's Improvements in Railway Crossing Gates.



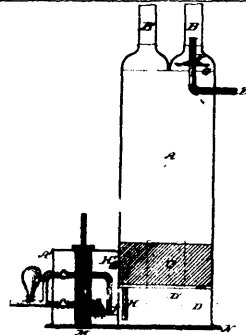
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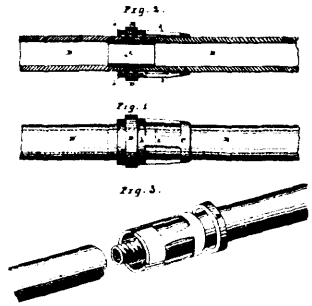
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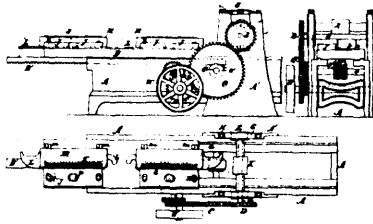
13522 Wire's Improvements on Cheese Vats.



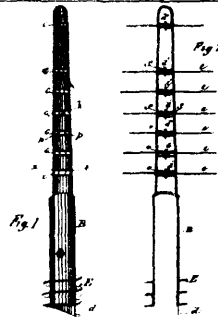
13523 Myrick's Improvements on Feed Water Heaters.



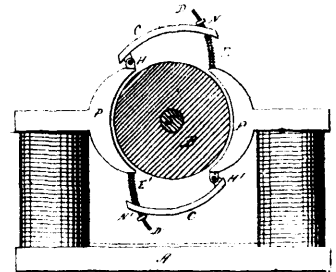
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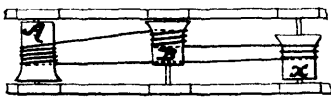
13525 E. & T. Fairbanks & Co.'s Improvements on Machines for Marking Scale Beams.



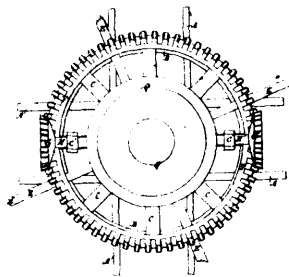
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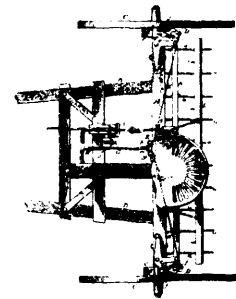
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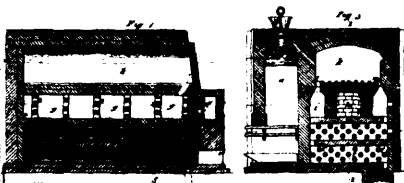
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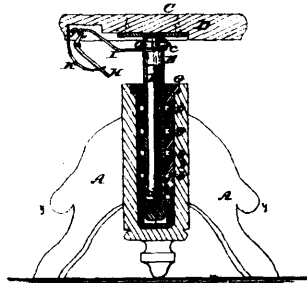
13529 Sanford's Improvements on Horse Powers.



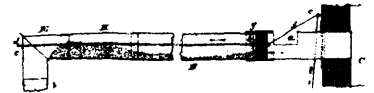
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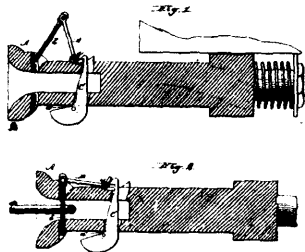
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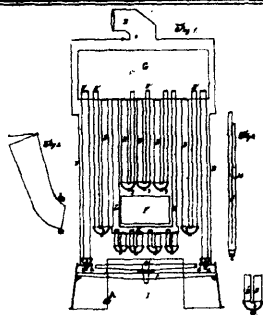
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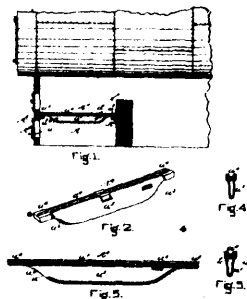
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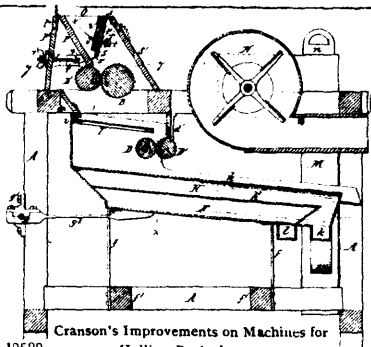
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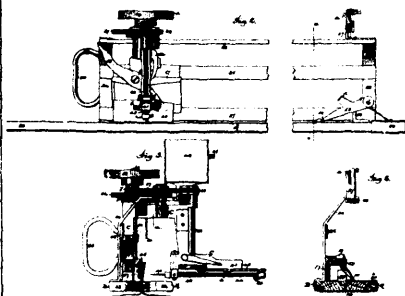
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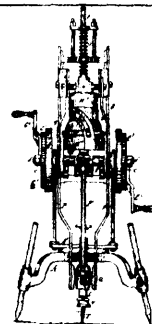
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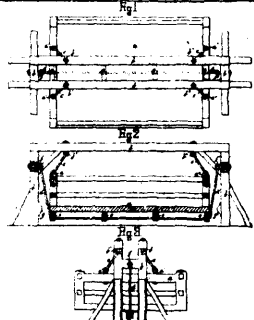
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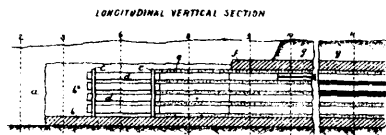
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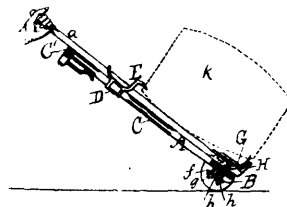
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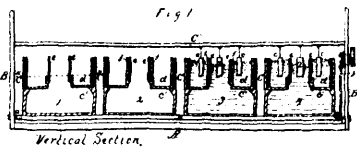
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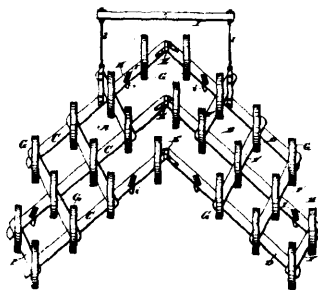
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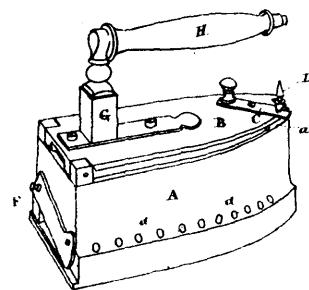
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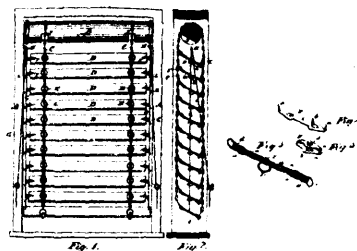
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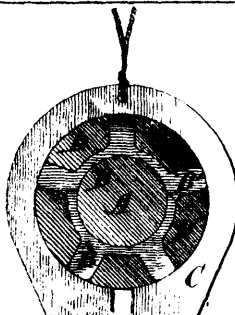
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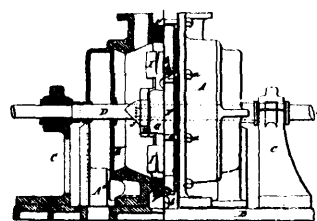
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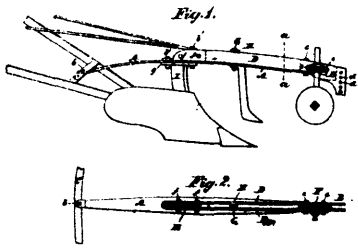
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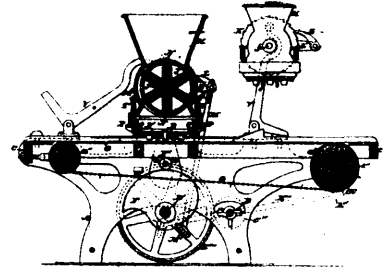
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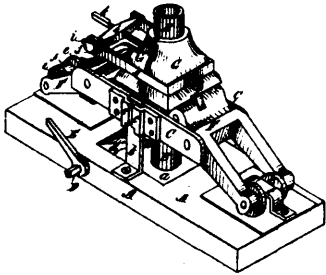
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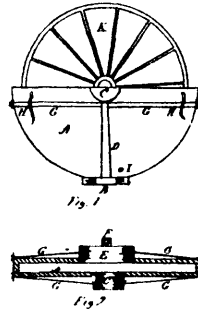
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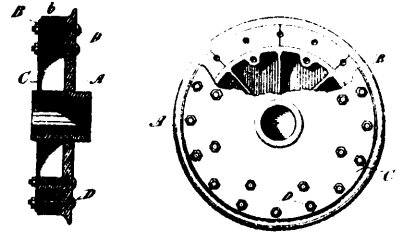
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13553 Hème's Improvements in Pipe Clamps for Oil Wells.



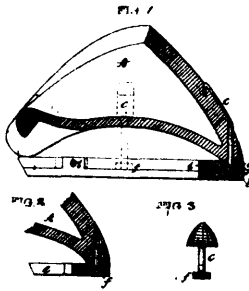
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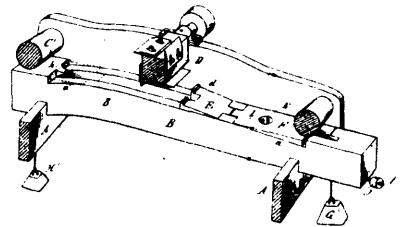
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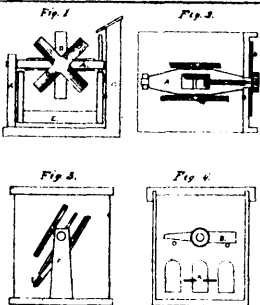
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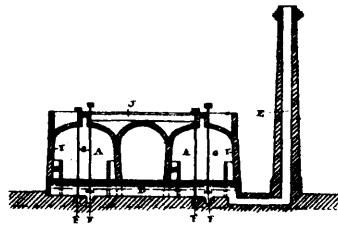
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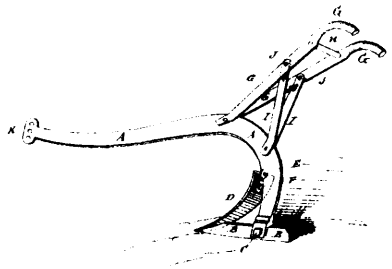
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13559 Baker's Improvement on Windmills.



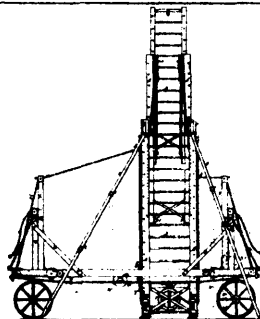
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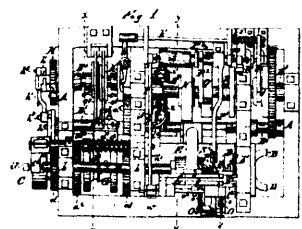
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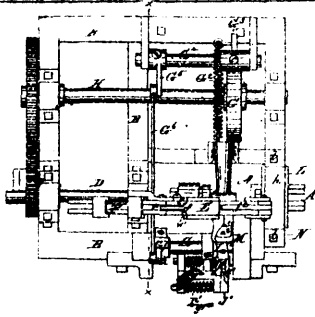
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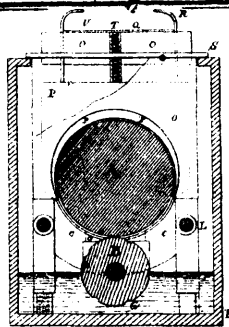
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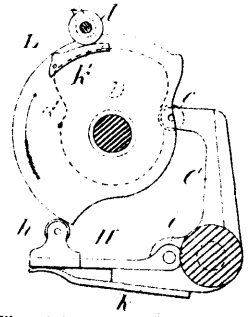
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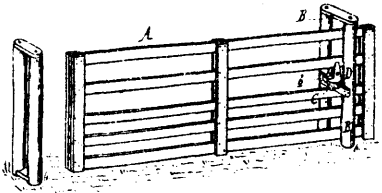
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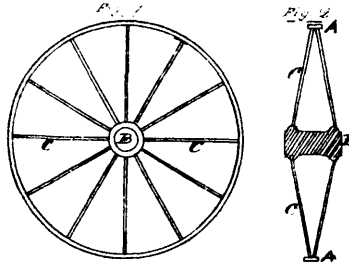
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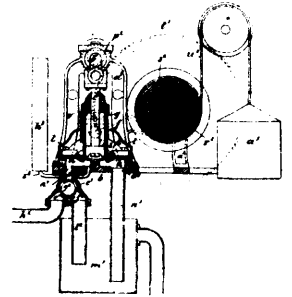
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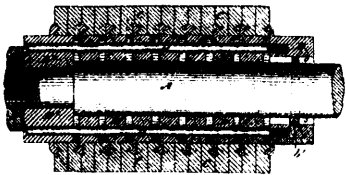
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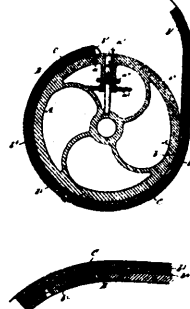
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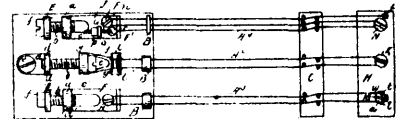
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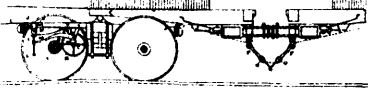
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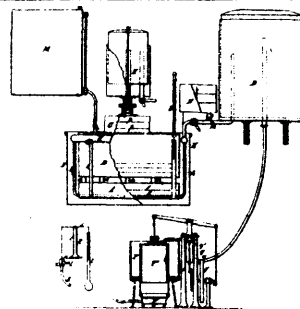
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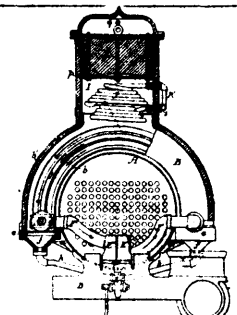
13573 Hebard's Improvements on Piano Fortes.



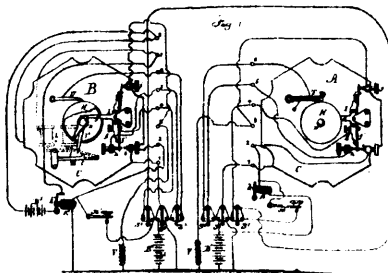
13574 Widdfield & Button's Improvements on Railway Brakes.



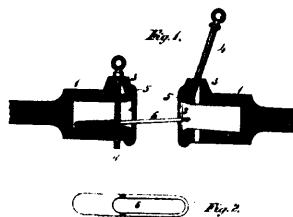
13575 Wittmer's Illuminating Gas Apparatus.



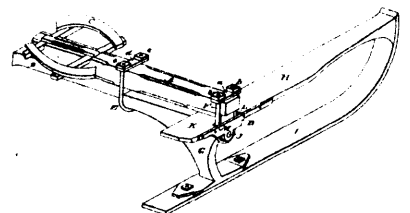
13576 Strong's Improvements on Feed Water Heaters for Locomotives.



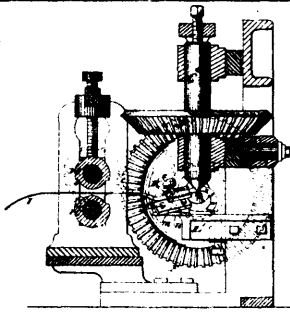
13577 Edison & Kenny's Improvements on Telegraphs.



13578 Porteous & Murchey's Improvements on Car-couplers.



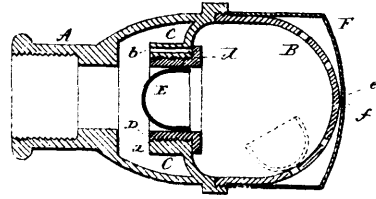
13579 Gurney's Improvements on Sleds.



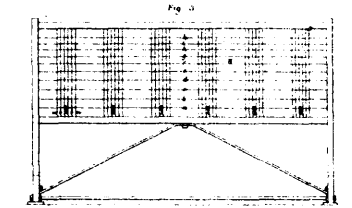
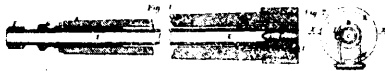
13580 Dion's Improvements on Electro-magnets and on Revolving Armatures for Electro-Dynamic Machines.



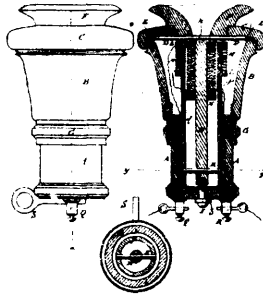
13583 Altman & Pommer's Improvements on Sewing Machines.



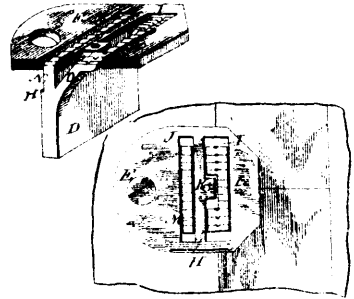
13584 Burritt's Improvements on Fire-extinguishers.



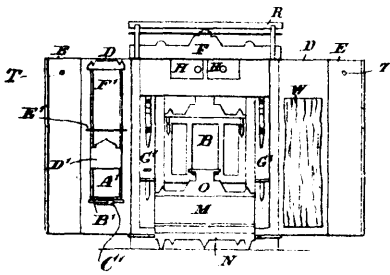
13585 Morris's Method of, and Apparatus for Controlling the Accuracy of Sighting in Rifle Practice.



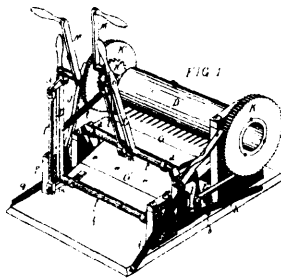
13586 Gillett's Improvements on Telephones.



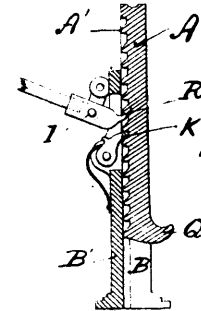
13587 Choquette's Improvements in Sewing Machines.



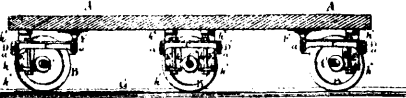
13588 Julien's Improvements in Bedsteads.



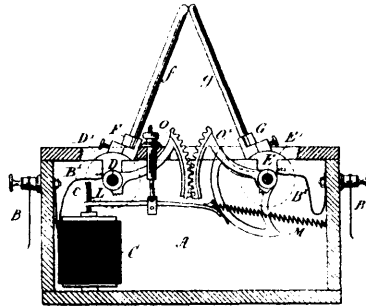
13589 Berrien's Improvements on Plating Machines.



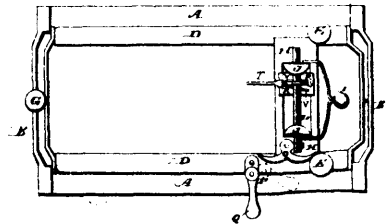
13590 Chapleau's Improvements on Screw-jacks.



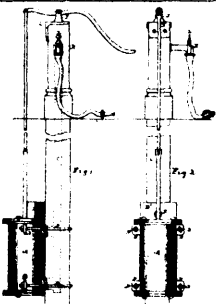
13591 Sisani's Improvements on Railway Cars.



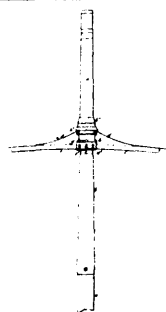
13592 Best's Improvements on Electric Lamps.



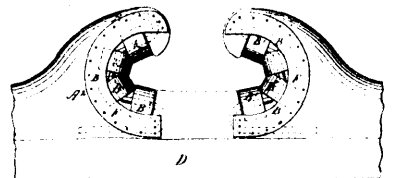
13593 Teetor's Improvements on Machines for Dressing Millstones.



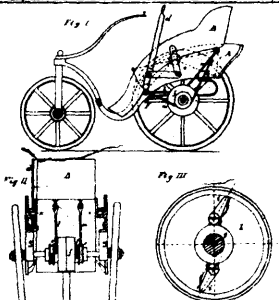
13594 Bickford's Improvements on Force Pumps.



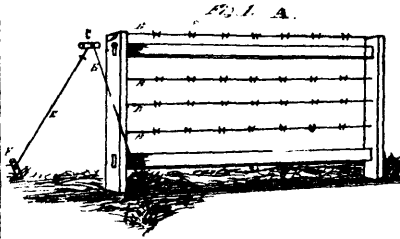
13596 Davis's Improvements in Umbrellas.



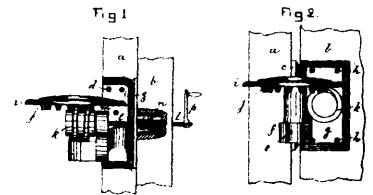
13597 Sharrett's Improvements on Fair Leaders for the Ropes and Chains of Vessels.



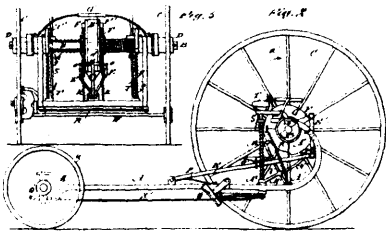
13598 Liedman & Beger's Apparatus for Imparting Motion to Carriages, Vessels, and other Bodies.



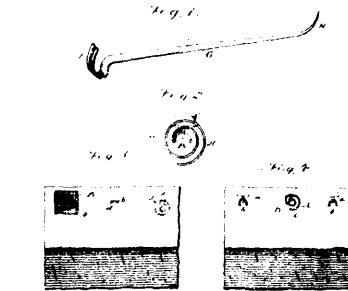
13599 Lea's Improvements on Fences.



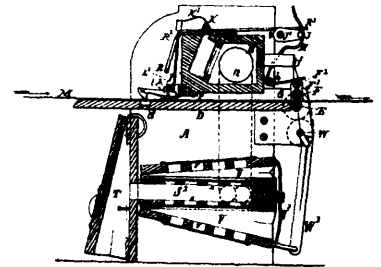
13600 Moore's Improvements on Shutters.



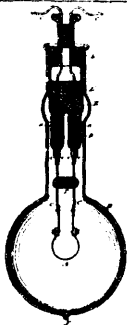
13601 Silver's Improvements on Tricycles.



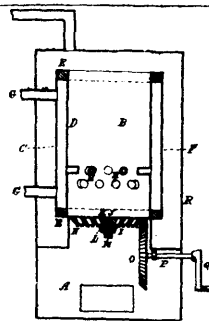
13602 Wilkin's Improvements on Shoe Button Fasteners.



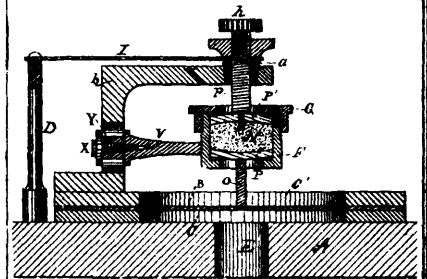
13603 Stone's Improvements on Mechanical Musical Instruments



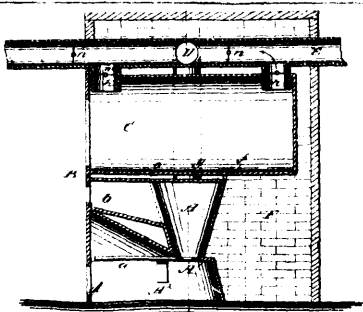
13604 Maxim's Improvements on Electric Lamps.



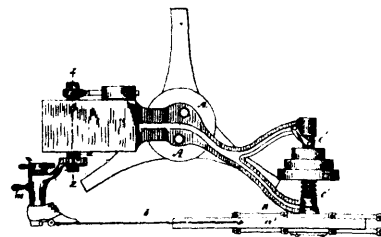
13605 McDonald's Water Heater.



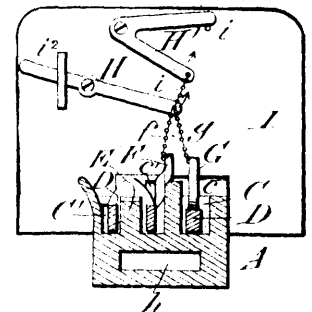
13606 Gillett's Improvements on Telephones.



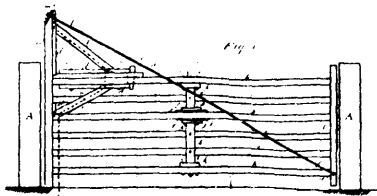
13610 Lamson's Improvements in Heaters.



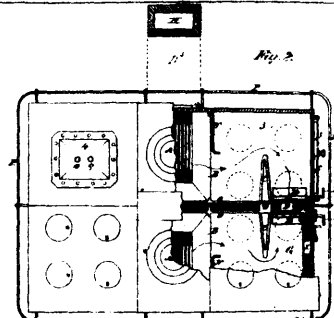
13614 Dodge's Improvements on Machines for Trimming the Edges of the Soles of Boots and Shoes.



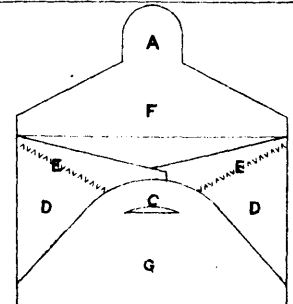
13615 Blanchard's Improvements on Car-couplings.



13616 Wright's Improvements on Gates



13617 Koy's Improvements on Range Stoves.



13618 Tassé's Improvements on Envelopes