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The Canadian Patent Office Record

Vol. XI.—No. 4. APRIL, 1883. { Price in Canada $2.00 per An. / United States - $2.50 "

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INVENTIONS PATENTED.

No. 16,422. Improvements on Die Stocks.

(*Perfectionnement aux filières brisées.*)

William D. Forbes, Bridgeport, Conn., U. S., 1st March, 1883; for 5 years.

Claim.—1st. The combination of a casing adapted to be secured and provided with means for holding a pipe or die, a rotary and traversng ring adapted to carry a die or pipe and guided in the casing, and an elongated pinion whereby said ring is rotated and permitted to slide. 2nd. The combination of a casing adapted to be secured to a bench and provided with means for holding a pipe or die, a rotating and travering ring adapted to carry a die or pipe and guided in the casing, an elongated pinion whereby said ring is rotated and permitted to slide, and a lead screw for traversing the ring as rotated. 3rd. The combination of a casing adapted to be secured to a bench, a ring rotating therein, and having swinging dies, abutments w^1 for the latter, and a movable cover-plate having pins or projections for acting on the dies. 4th. The combination of the pipe-carrier with a pair of sliding griping jaws K, screws *k* for operating the same, ratchet wheels *g* on the screws and a pivoted lever L having pawls for operating said ratchet wheels. 5th. The combination of the casing of the instrument, the ring J and its swivelled nut *s*, and the pin *t* adapted to lock the nut to the ring but permitting the release of the same therefrom.

No. 16,423. Improvements on Life-Preserving chairs. (*Perfectionnements aux fauteuils de sauvetage.*)

Frank G. Johnson, Brooklyn, and John H. Hayward, Northfield, N. Y., U. S., 1st March, 1883; for 5 years.

Claim.—1st. The combination, with a portable folding steamer chair, of the float K L L. 2nd. In a portable folding steamer chair, the combination of the pawl D^1 and ratchet D, with the back C C and legs A^1 A^1, whereby the inclination of the back C C can be varied without changing the pitch of the seat A A of the chair. 3rd. The slotted or elongated hole c^1 in the legs A^1 A^1, in combination with the axle *c* and clamp nuts *w* w^1, whereby the seat of the chair can be raised or lowered without varying the pitch of the seat, or inclination of the back. 4th. The polygonal cam bearing or supports b^{11} b^{11}, in combination with the supporting bar b^1, whereby the pitch of the seat A A of the chair can be varied. 5th. The detachable sliding and rotating arms II, whereby they can be converted intotables, held and operated in the manner described. 6th. The detachable sliding and rotating arms II, in combination with the notched faced washers h^{11} h^{111} and clamps nuts h^1, and bolts h^{1111}. 7th. The rotating arms II, in combination with the sliding bar F F provided with the slotted opening *g* g_1 and clamp nuts and bolts *f f*. 8th. In combination with a portable folding steamer chair, the detachable folding and adjustable hood *m*, attached and arranged as described. 9th. The combination of the folding detachable and adjustable hood *m*, slotted plates *i i* and clamp thumb-nuts and bolts j_1 j_1. 10th. The combination of the independently adjustable back C C with the detachable folding and adjustable hood *m*. 11th. The combination of the adjustable back C C independently of the seat by means of the pawl D^1 and ratchet D, the adjustable seat A A, independently of the back by means of the vertical slots c^1, and axle *c*, and polygonal stops or bearings b^{11} b^{11}, the attachable sliding and rotating arms II by means of the sliding piece F F, the brackets H and H^1, pin *h*, bolt h^1 and notched face washers h^{11} h^{111}.

No. 16,424. Improvements on Barrel-Making Machines. (*Perfectionnements aux machines de tonnellerie.*)

Samuel Wright, Egremont, Eng., 1st March, 1883; for 15 years.

Claim.—1st. In a barrel-forming machine, the combination, with a collapsible form or drum, of a table or guides, and a rope or ropes (or equivalent thereof as a chain or chains) having a drawing or pulling action, and operating to draw or force a set of staves along said table or guides and on to the core barrel or drum. 2nd. The combination, with a collapsible barrel form or drum, of a table or guides and a rope or ropes (or the equivalent thereof) having a drawing or pulling action, and operating not only to draw or force staves along said table or guides and on to the core barrel or drum, but also to partially truss or press the staves when on the barrel form or drum together and towards its axis. 3rd. A table comprising end and intermediate guide-bars, in combination with adjustable top guide-bars. 4th. The combination, with a collapsible barrel form or drum, of top, bottom and end guide-bars, means for adjusting the top guide bars, cutters for shaping the ends of staves, top guide rollers or its equivalent, and a rope or ropes (or the equivalent thereof,) the arrangement being such that the staves, while being drawn towards the collapsible barrel form or drum by a rope or ropes (or the equivalent thereof), are subject to the action of the cutters which shape their ends. 5th. In combination with a collapsible barrel form or drum and encircling guide hoops, the top roller shaft K^2, bevelled rollers K (or their equivalents) central lower guide bar fixed on lower frame j^1 and means for adjusting said guide-bar to suit the curvature the staves are required to take before entering between the collapsible barrel form or drum or its encircling hoops. 6th. The combination, with a collapsible barrel form or drum, of a rope or ropes (or the equivalents thereof) having a drawing or pulling action to feed staves on to said barrel form or drum, and means for automatically regulating the tension of rope or ropes. 7th. The combination, with a collapsible barrel form or drum and a feeding table, of feeding ropes E, winding drum B, guide roller D, shaft D^1, sliding pedestals D^3, fixing D^2, frame () and springs E^1. 8th. The combination, with a collapsible core barrel or drum and guides, of rollers, whereby staves are fed to said core barrel or drum. 9th. The combination, with a barrel form or drum and guides, of upper and lower feed rollers, and means whereby the upper rollers are caused to accommodate staves of slightly different thicknesses. 10th. The combination, with a collapsible barrel form or drum, of guide hoops each made in two parts, one jointed to the other and to the horizontal guide or table along which the staves are fed to the barrel form or drum, said ropes being operated by cranks to open them as and when required. 11th. The combination of guides, adjustable feed rollers, means for cutting the staves to length, grooving and bevelling a collapsible barrel form, and jointed guide hoops encircling same. 12th. A collapsible barrel form or drum comprising segments such as *f f*, made much shorter than the barrels to be formed, said segments being connected by links such as *w* w^1 w^2 to a fixed collar and to a movable collar on a shaft, in such manner that the longitudinal distances apart of the link ends jointed or pivoted to said collars, shall always be greater than the distances apart of the other ends of the same links. 13th. The improved collapsible barrel form or drum comprising segments *f f f*, brackets or fixings c^1, links *w* w^1 w^2, fixed collar X^1, and movable collars X on the shaft A^2. 14th. A collapsible barrel form or drum comprising segments *f f f*, with shanks or stems, and wedges or inclines, movable lengthwise on a shaft for operating said segments. 15th. In a machine for forming casks or barrels, the use of a collapsible core barrel of the modified construction described. 16th. A trussing hoop comprising a pliable hoop or strap, hand lever, links and pin combined. 17th. The method of holding the barrel head in position by the arrangement of cross pieces furnished with teeth or spikes.

No. 16,425. Improvements on Devices for Handling Coal, Ores, etc. (*Perfectionnements aux appareils à manier le charbon, les minerais, etc.*)

Alfred Lawton, Elizabeth, N. J., U.S., 1st March, 1883; for 15 years.

Claim—1st. An endless conveyor composed of a series of pans hinged together (by links and rods) in such a manner that their sides

and ends overlap each other, and that they can be readily disconnected for the purpose of lengthening and shortening the conveyor. 2nd. The combination of an endless conveyor provided with a series of pans hinged by rods and link-eyes and revolving spiders, the conveyor being driven by the arms of the spiders engaging with the link-eyes. 3rd. The combination, in an endless conveyor provided with a series of hinged pans and driven by revolving spindles, of a series of wheels attached to rods beneath the pans and an adjustable lower track. 4th. An upper track provided with angle-iron, as guides for the wheels of an endless conveyor. 5th. An endless conveyor constructed and arranged to be shortened or lengthened at pleasure, in combination with a suitable supporting frame constructed and arranged to be adjusted so as to conform to the varying length of the conveyor. 6th. The combination of an endless conveyor constructed to be lengthened or shortened at pleasure, and an endless elevator, the conveyor being located to deliver material to, or remove it from, the elevator. 6th. The combination of an endless elevator and an endless conveyor, each provided with a separate series of buckets or pans, the construction and arrangement being such that the conveyor is driven by power taken from a spider shaft, or equivalent revolving device of the elevator, and transmitted to the conveyor. 8th. In combination with a boat or barge, and suspended from a frame permanently secured thereto, an endless elevator and endless conveyor, each provided with a separate series of hinged buckets or pans, the conveyor being driven by power transmitted to it from the elevator. 9th. A vertically-adjustable endless elevator mounted upon a turn-table, in combination with an endless conveyor. 10th. A laterally-adjustable endless elevator provided with wheels upon its foot. 11th. In combination with an endless elevator and endless conveyor, a chute having its receiving end located below the top of the elevator and its delivering end over the receiving end of the conveyor, so that the contents of the inverted buckets of the elevator are received upon and transferred by the chute to the pans of the conveyor. 12th. In combination with an endless elevator and endless conveyor, an adjustable chute S1 connected with the delivery end of the conveyor and suspended from the frame of the barge or boat. 13th. In an endless conveyor, in combination with scales for weighing located at the delivery end of the conveyor. 14th. The combination of a shoveller and endless conveyor to deliver the material to a main elevator, and a main elevator laterally adjustable in the direction of the shoveller. 15th. The combination of the shoveller, an endless conveyor located between the shoveller and main elevator, a main elevator and a conveyor to remove the material from the main elevator. 16th. The combination of the receiver J with an endless conveyor and the foot of an endless elevator. 17th. In combination with a wheeled platform, a vertically adjustable elevator and a vertically adjustable conveyor, each provided with an endless series of buckets or pans, and so arranged that the conveyor is driven by power transmitted from the elevator. 18th. The combination of the sword plates 15 with the conveyor frame for adjusting the chute 15t. 19th. A chute 16 provided with a hinged door 18 for varying the delivery length of the chute. 20th. The combination of main and cross conveyors, each provided with a separate series of hinged pans, the arrangement and connection being such that the cross-conveyors are driven by power transmitted from the main conveyor. 21st. The combination of the wheels 30 29 27 and 28.

No. 16,426. Process for the Improvement of Tobacco. (*Procédé de traitement du tabac.*)

Friedrich C. Glaser, (assignee of Oscar Liebrich and Hugo Michaelis,) Berlin, Prussia, 1st March, 1883; for 15 years.

Claim.—1st. The process for the improvement of tobacco by the addition thereto of an extract which is obtained from tobacco by means of volatile substances, solvents of fat, resin and wax and which, for the separation and elimination of the substances containing wax and fat, is heated with alkaline re-acting fluids. 2nd. Obtaining a determined quantity of the nicotine contents in that tobacco improved by such process by previous treatment of the extract with acidified water in order to withdraw the nicotine, or by an addition of that nicotine extracted from the acidified water.

No. 16,427. Improvements on Coal and Ore Chutes. (*Perfectionnements aux auges à charbon et minerai.*)

George H. White, Escanaba, Mich., U. S., 1st March, 1883; for 5 years.

Claim.—1st. The combination, in a coal chute, of a spout *a* and angle plates *d* with the bin *c*, posts *f* and plates *h*. 2nd. The spout *a* having the sides J arranged between plates *d* and plate *h* and pivoted to them. 3rd. The combination of the angle plates *d* with the posts *f*, spout *a* and door *j*, hinged to the plates *d* at *k*, 4th: The combination, with the bin *c* provided with the apron *m* fitted in the bottom of its discharge-opening, of the spout *a* hinged to said bin and adapted to swing under the apron, substantially as and for the purpose specified.

No. 16,428. Improvement on Saw Stretchers. (*Perfectionnements aux machines à dresser les scies.*)

Theodore S. Wilkin, East Saginaw, Mich., 1st March, 1883; for 10 years

Claim.—1st. In a machine for stretching saws, the rolls *c* c^1 operated to press upon a saw when passed between them for the purpose of elongating the part rolled. 2nd. The rolls *c* c^1 journalled in a frame provided with mechanism for operating and applying pressure to the rolls.

No. 16,429. Apparatus for use with Gas Burners, Gas Cooking Ovens and the like. (*Appareils pour servir aux foyers, cuisinières à gaz et autres objets.*)

The Honourable John W. Plunkett, London, Eng., 1st March, 1883; for 5 years.

Claim.—1st. The employment, with gas burners, gas ovens or stoves and the like, of a bar or rod, or piece of metal, or its equivalent (as hereafter stated) which is subjected to the head of the flame and by expanding supports a weighted handle, lever or rod, so as to retain the gas tap open when the flame is burning, but which rod, or equivalent, contracts and alters its position so as to release the said weighted handle, lever or rod which will then automatically close the tap or valve, and cause the supply of gas to be cut off when the flame is extinguished. 2nd. The arrangement and combination of parts constituting the improved appliances for gas burners described and illustrated in Figure 1 of the drawings. 3rd. The combination, with appliances applied to gas burners for acting as claimed by the preceding claiming clauses, of a lever *m* or its equivalent operating substantially as described with reference to Figure 2 of the drawings. 4th. The arrangement and combination of parts constituting the improved appliances for gas ovens or stoves, described and illustrated in Figures 3 and 4 of the drawings.

No. 16,430. Improvements in the Manufacture of Salts Ammonia. (*Perfectionnements dans la fabrication des sels ammoniacs.*)

Thomas Macfarlane, Montreal, Que., 1st March, 1883; for 15 years.

Claim.—1st. The process of manufacturing ammoniacal salts or sulphate of ammonia from gas liquor, by using sulphurous acid. 2nd. The process of converting the sulphuretted hydrogen contained in gas liquors into hypo-sulphurous acid or other non-volatile products by the use of sulphurous acid, and thus preventing nuisance while ammoniacal salts are being manufactured.

No. 16,431. Improvements on Electric Telegraphs. (*Perfectionnements aux télégraphes électriques.*)

John Muirhead, Jr., Westminster, Eng., 1st March, 1883; (Extension of Patent No. 8769.)

No. 16,432. Improvements on Electric Telegraphs. (*Perfectionnements aux télégraphes électriques.*)

John Muirhead, Jr., Westminster, and Herbert A. Taylor, London, Eng., 1st March, 1883; (Extension of Patent No. 8822).

No. 16,433. Improvements in Ice Scrapers. (*Perfectionnements aux brise-glace.*)

Telesphore F. Goulette, Montreal, Que., 1st March, 1883; (Extension of Patent No. 8539.)

No. 16,434. Improvements on Car Brakes. (*Perfectionnements aux freins des chars.*)

The Congdon Car Brake Shoe Company, Chicago, (assignee of George M. Sargent, Evanston,) Ill., U.S., 2nd March, 1883; for 5 years.

Claim.—1st. In a car brake shoe, the combination, with the cast-iron body A, of the embedded pieces B of a different metal, such as wrought iron, steel or malleable cast iron. 2nd. The manufacture of car brake shoes, comprising a cast iron body with transverse pieces B of a different metal such as wrought iron, steel or malleable cast iron embedded in its face; the method of holding the said pieces B in proper position in the mold when the molten iron is run in, which consists in inserting staying pins or nails in the sand at the sides of the pieces B. 3rd. The combination, with the body A of cast iron and pieces B of a different metal such as wrought iron, steel or malleable cast iron embedded in the face of the shoe, of the strengthening flange *r* upon the outer rear edge of the body.

No. 16,435. Improvement in the Manufacture of Paper Pulp and Leather Board from Bark and Other Wood Fibre. (*Perfectionnement dans la fabrication de la pâte à papier et du carton-cuir avec de l'écorce et autre fibre de bois.*)

The Canada Pulp Company, Montreal, Que., (assignee of Stephen M. Allen, Duxbury, Mass., U.S.,) 2nd March, 1883; for 5 years.

Claim.—1st. The method of making pulp from bark, by separating the rough from the fibrous portion, tearing the latter into shreds by a picker, soaking and beating. 2nd. The method of making bark pulp by removing the bark in sheets, separating the rough bark from the fibrous portions by planing and then tearing the fibrous portions to shreds in a picker, soaking them, and beating them into pulp. 3rd. The method of preparing bark pulp or making paper, paper board and like articles, by mixing the bark pulp with or without pulp from solid wood or other material while hot, with asphalt sizing or other sizing. 4th. Paper pulp, paper, paper or leather board or other manufacture of paper containing bark pulp alone, or with other fibre sized with asphalt sizing. 5th. The combination, in paper pulp, paper, paper or leather board and the like, of bark pulp and solid wood pulp. 6th. A paper or leather board of bark pulp and solid wood or other pulp, sized and colored with asphalt sizing or other sizing, and coloring materials.

No. 16,436. Improvements in Apparatus for Reducing Wood and Other Material to Pulp for Paper. (*Perfectionnements aux appareils à réduire le bois et autres matières en pâte à papier.*)

The Canada Pulp Company, Montreal, Que., (assignee of Stephen M. Allen, Duxbury, Mass., U.S.,) 2nd March, 1883; for 5 years.

Claim.—1st. The improvement, in reducing wood and other material to fibre for paper pulp, consisting in crushing or jamming the same between broad faced bars, as described. 2nd. The improvement, in reducing wood and other material to fibre, consisting in crushing the material between metallic bars, plates or other devices, and at the same time tearing or disintegrating the fibre by abrading material, such as natural or artificial stone. 3rd. A pulping engine, having reducing surfaces provided with broad faced bars, for crushing the fibrous material between them. 4th. The combination, in a pulping engine, of bars, blades or other metallic devices, with blocks or pulley pieces of natural or artificial stone. 5th. The combination of the top and bottom plates or their equivalent, provided each with broad faced bars arranged so that the bars on one plate cross those on the other, and means for removing one or both plates. 6th. A series of reducing plates arranged in pairs, in combination with a shaft carrying one plate of each pair and a casing supporting the other plate. 7th. The combination, with the shaft and casing and a series of reducing plates arranged in pairs and attached, one plate of each pair to the shaft, and one to the casing, of means for raising and lowering the shaft and attached plates so as to bring them closer to, or farther from those attached to the casing. 8th. A pulping engine for reducing wood and other material to fibre for making pulp, comprising, in combination a casing, supporting frame, shaft, reducing plates arranged in pairs and attached to said shaft and casing, an inlet for introducing the material into the engine and an outlet for the pulp. 9th. The combination, with each other, of two or more pairs of reducing plates or their equivalents, such as cylinders and concaves provided each with bars, blades or other metallic devices with or without blocks or filling pieces, of abrading material arranged in series with the space between the plates or their equivalents gradually diminishing. 10th. A reducing plate or its equivalent provided with bars, blades or other metallic devices on its surface, and with blocks or filling pieces of abrading material, such as natural or artificial stone, between the bars or blades.

No. 16,437. Improvements on Mining Machines. (*Perfectionnements aux machines à miner.*)

Francis M. Lechner and Joseph A. Jeffrey, Columbus, Ohio, U. S., 2nd March, 1883; (Extension of Patent No. 8492.)

No. 16,438. Improvements on Earth Excavators and Conveyors. (*Perfectionnements aux machines à déblayer.*)

Charles A. Smith, Normalville, Ill., (co-inventor with Fred D. Smith, New Carlisle, Ind.,) U.S., 2nd March, 1883; for 5 years.

Claim.—1st. The combination, in an earth excavator and conveyor of an endless chain F carrying bottomless scoops, shovels or buckets H H, and an independent apron or belt I supported against, or directly underneath and travelling with the said buckets during only a part of their upward travel. 2nd. The combination of an endless chain consisting of centrally open links carrying bottomless buckets H H, the independent endless apron or belt I made shorter than the chain F, the chute E and the wheels B C and D, the wheels B and C carrying the chain F, and the wheels B and D carrying the belt I.

No. 16,439. Improvements on Dynamo-Electric Machines. (*Perfectionnements aux machines électro-dynamiques.*)

George W. Fuller, Norwich, Conn., U.S., 6th March, 1882; for 15 years.

Claim.—1st. A dynamo-electric machine provided with a suitable commutator and suitable electrical connections, two parallel systems of rotating field magnets, a system of circumposed stationary armature coils arranged between the opposed poles of the two systems of field magnets, and loosely encircling segments of a floating armature core in the form of a flattened ring built up of segments of magnetic material joined to segments of non-magnetic material. 2nd. In a dynamo-electric machine, in which the field magnets are rotated and the circumposed armature coils are stationary, an annular armature core independent of the armature coils and suspended in the bight or bights of a cord or cords hung over an elevated pulley, and prevented from lateral swaying by suitably grooved guider rollers acting through two or more of the spaces, between the outer portions of the circumposed stationary coils upon a cord or cords lying against the periphery of the annular core. 3rd. In the dynamo-electric machine in which the field magnets are rotated and the circumposed armature coils are stationary, a stationary commutator cylinder provided with interiorly placed insulated strips suitably connected with the stationary coils, and brushes mounted upon, and rotating with the shaft of the rotating field magnets, but insulated therefrom and electrically connected with the field and working circuits and adapted to bear upon the concave faces of the commutator strips fastened to the interior of the stationary commutator cylinder. 4th. A commutator in which the commutator strips are affixed to the interior of a stationary cylinder surrounding the stub end of the rotating shaft upon which the rotating field magnets are mounted, brush-holders in the form of semi-cylinders partially embracing the stub end of the rotating shaft and respectively fastened to, and electrically connected with two contact wheels suitably insulated from each other the contact wheels being provided with stationary brushes by means of which the electrical impulses induced in the stationary coils and collected by the rotating brushes are conducted to the terminals of the field and working circuits. 5th. The adjustable pulleys L_1 L_2 bearing in opposite directions upon the cords in the bights of which the armature core is suspended, for effecting the lateral adjustment of the armature core. 6th. The frame for supporting the circumposed stationary coils H composed of the plates G *g*, provided with means of adjusting the circumposed coils H relatively to the armature core I.

No. 16,440. Improvements on Dynamo-Electric Machines. (*Perfectionnements aux machines électro-dynamiques.*)

George W. Fuller, Norwich, Conn., U.S., 6th March, 1883; for 15 years.

Claim.—1st. A system of rotating field magnets and a rotating armature core and stationary armature coils loosely surrounding the said armature core, and a commutator in two parts which are electrically connected respectively with the opposite ends of the circuit, which includes the coils of the field magnets, in combination with two commutator brushes which are electrically connected respectively with the opposite ends of a circuit including any desired number of the stationary armature coils, for the purpose of exciting the field magnets by a current derived from the said armature coils and thus rendering the machine self-charging. 2nd. In combination with suitably excited field magnets and an armature core which are rotated, and armature coils which are stationary, a commutator in two parts which are electrically connected respectively with the opposite ends of a circuit including any desired number of the said stationary armature coils, and two brushes electrically connected respectively with the opposite ends of an outside or working circuit. 3rd. The commutator M electrically connected with the circuit, which includes the coils of the rotating field magnets, and with a circuit which includes any desired number of the stationary armature coils C, loosely surrounding the rotating armature core L, in combination with the commutator R and contact wheels S *s* electrically connected by means of the brushes S_1 *s*1 with an outside circuit, and the brushes *m*4 and *m*5 electrically connected with a circuit not employed to charge the field.

No. 16,441. Improvement on Post-Hole Diggers. (*Perfectionnement des machines à percer les trous des pieux.*)

James A. Fleming, Denver, Col., U.S., 6th March, 1883; for 15 years.

Claim.—1st. A post hole digger provided with a jarring device or knocker on, or forming part of the handle by means of which it may be driven into the earth. 2nd. A post hole digger provided with a jarring device or knocker, and upper and lower knocking heads by means of which it may be driven into the earth and loosened therefrom.

No. 16,442. Improvements on Tubular Lanterns. (*Perfectionnements aux lanternes tubulaires.*)

Robert P. Butchart, Owen Sound, Ont., 6th March, 1883; for 5 years.

Claim.—1st. The sectional separable tubes E G E_1 G_1 having a sliding or telescopic connection and provided with a locking connection. 2nd. The combination of the upper and lower sections, the upper section supporting the globe D pendently and the lower section, the lamp portion, both sections connected by tubes E E_1 G G_1 sliding telescopically, and the conjoined sections of the tubes locked adjustably by a suitable fastening.

No. 16,443. Improvements in Stoves. (*Perfectionnements dans les poêles.*)

John W. Elliott, Toronto, Ont., 6th March, 1883; (Extension of Patent No. 8504.)

No, 16,444. Method of Securing Railway Ties to the Rails. (*Manière d'assujétir les traverses aux rails.*)

George L. Putnam, Mount Vernon, N.Y., U.S., 6th March, 1883; for 5 years.

Claim.—1st. A metallic fastening for railway ties consisting of spikes or bolts, which may be forced up through the tie and secured to the rail, by either of the methods herein described. 2nd. A metallic tie for railway use of the shape herein shown, in combination with a fastening as herein described, to hold the rail in position. 3rd. A fastening for railway ties, consisting of the slotted plate D placed either above or below the tie and spikes A, in combination with the tie B and rail E.

No. 16,445. Improvements on Stone and Root Diggers. (*Perfectionnements aux arrache-pierres et arrache-souches.*)

Manlius Holbrook, Eaton, Que., 6th March, 1883; for 5 years.

Claim.—The beam A with the iron plates E and F for strengthening it, also the iron claws B and the handles C and swivel H.

No. 16,446. Improvements in Spring Motors. (*Perfectionnements aux moteurs à ressort.*)

Amos Burkholder and David J. Burkholder, Barton, Ont., 6th March, 1883; for 5 years.

Claim.—The combination of wheel C, spring D, shaft B, wheel J, ratchet wheel E, pawl F, spring G, pin H, shaft B, cog wheel J, pinion K, shaft L, wheel M, pinion N, shaft B, cog wheel V, pinion W, cog wheels Y and A_1, fan C_{11}, shafts O X and B_1, clutch device S T, spring U, holes *b* in wheel M, lever R and bolt Q.

No. 16,447. Improvements on Spark-Arresters. (*Perfectionnements aux arrête-flammèches.*)

David Groesbeck, Joseph A. Sterling, Charles A. Ball, New York, N.Y., and Daniel P. Wright, Norwood, Mass., U.S., 7th March, 1883; for 5 years.

Claim.—The combination, with the smoke box of a locomotive boiler, of the spark deflecting partition *p*, extending out from the flue sheet over the flues and over the floor of the smoke box, with the water tank *h* depending below the floor of the smoke box in front of said partition, and the downwardly turned hood or end *r* of said partition, discharging over the water of said tank and made adjustable vertically to, or from the water level. 2nd. The combination, with the smoke-ox of a locomotive boiler and with a vertically adjustable spark-de-

flector or conductor therein, of the screw-rod s connecting to said partition and extending through the smoke-box with the external adjusting nut S_{11}. 3rd. The combination, with the smoke-box of a locomotive boiler and with a water chamber in its front portion, of a converging spark conductor converging or inclining on all sides, extending out from the tube sheet over the tubes and discharging downwardly, at its narrow or converging end, into said water chamber, its discharging end or mouth having an area equal to the combined area of the tubes or nearly so, and placed at a distance above the water level equal to the said area, and at a similar distance from the front end of the smoke-box. 4th. The combination, with the smoke-box in a locomotive boiler, of a pendent or depressed water tank in the front portion thereof, and a spark deflector or conductor discharging into the same from the flues with a dam at or near the wall of said tank, rising above the base of the smoke-arch and above the lower flues. 5th. The combination, with a spark-arrester, with a spark-extinguishing chamber or water-box, and a spark-conductor or deflector discharging into the same, of overhanging splash guards projecting from the sides of the water-box above the water level. 6th. The combination, with a water-box or extinguishing chamber and a spark-conductor discharging into the same, of overhanging splash guards projecting from the sides of the water-box above the water, and with the mouth of the spark conductor discharging directly down between said guards. 7th. The combination of an extinguishing chamber or water-box, depending from the front of the smoke-arch and provided at its base with a discharging mouth, and a movable dumping door arranged to cover or uncover the same and hinged at or near the back edge of the mouth and arranged to swing downwardly and backwardly therefrom with a motive device for operating the same. 8th. In combination with a water chamber provided with a discharging orifice at its base, a movable dumping door arranged to cover and uncover the same and pivotally connected at, or near its middle to its hinging or operating supports. 9th. The combination, with an extinguishing chamber or water-box open at the base and terminating with narrow edges, of a dumping door arranged to cover and uncover said open base, and provided with elastic margins to seat directly against the narrow edges of the open base. 10th. The combination of an extinguishing chamber or water-box open at the base, and a movable dumping door arranged to cover and uncover said base, with the perimeter or margins of said open base bevelled to a cutting edge, to seat against the face of the dumping door. 11th. The combination, with a spark receiving and extinguishing water-box having a dumping door at the base, of a water supply pipe extending into said box around the sides thereof and provided with a series of jets discharging downwardly around the sides of the box. 12th. The combination, with a locomotive engine or boiler, of a spark-arrester provided with a spark-extinguishing water box having a dumping door at the base, a steam motor operatively connected with said door, and valves and connections controlling a supply of steam from the boiler to said motor, whereby the said dumping door may be opened or closed by manipulating the steam valve of said motor. 13th. The combination, with a locomotive boiler or engine, of a spark arrester provided with an extinguishing water chamber having a dumping door at the base, a cylinder having a movable piston operatively connected with said dumping door and connections from each end of said cylinder to a supply of motive fluid, and a valve for controlling the flow of the same, whereby the manipulation of said valve will admit the pressure of the motive fluid on either side of said piston, and thus forcibly close or open the dumping door. 14th. The combination, in a locomotive engine, with a spark-arrester on the front end provided with a spark-extinguishing water-box, of a movable arm or sound, movable from the water line down in the water of the box, with a manipulating device extending therefrom to the cab. 15th. The combination, in a locomotive engine, with a spark extinguishing water-chamber, of a float movable up or down in said water chamber and a manipulating device extending therefrom to the cab. 16th. The combination, with a spark arrester, with a spark receiving water-chamber and a dumping door at the base of the same, of a raking or poking device attached to said door and rising through the water-box, whereby the dumping motion of the door will move said raking device and break up and discharge compacted coals or cinders. 17th. The combination, with a spark-extinguishing water-box and means to recharge the same with water, of an overflow valve opening from the interior of the box at, or somewhat above its normal water line and arranged to yield and open freely to pressure from within, but to close to pressure from without, whereby the overflow of excessive water is permitted but inflow of air prevented.

No. 16,448. Improvements on Ice Floors for Cold Storage Houses. (*Perfectionnements aux plafonds à glace pour les bâtiments d'emmagasinage.*)

Homer C. Cain, Cleveland, Ohio, U.S., 7th March, 1883; for 5 years.

Claim.—1st. An ice-floor for cold storage-houses consisting of plates of metal secured at one edge, at or near the lower edge of one joist, and extending diagonally across to the top of the next joist to which its opposite edge is secured. 2nd. An ice floor for cold storage houses consisting of plates of metal secured at one edge, at or near the lower edge of one joist, and then extending diagonally up and over the top of the next one, and then downwardly and secured at or near the lower edge of the latter. 3rd. An ice floor for cold storage-houses consisting of plates of metal secured at or near the lower edge of one joist, and then extending diagonally up and over the next one, and down again till at or near the lower edge of this joist where they are turned up to form a trough. 4th. The combination of the joist provided with metal bars on the upper edge, and the metal plates.

No. 16,449. Improvement on Wire Barbing Machines. (*Perfectionnement des machines à barbeler le fil de fer.*)

David G. Wells, Joliet, Ill., U.S., 7th March, 1883; for 5 years.

Claim.—1st. The combination, with the means for advancing the fence wires, means for guiding the fence wires to the coiler and barb wire feeding mechanism, of a barb coiler constructed and arranged to let the barb pass through it after being coiled. 2nd. The combination, with mechanisms for feeding and guiding the fence wires and barb wires, and means for twisting the fence wires after being barbed, of the barb coiler provided with coiling-pins b^7 and a central aperture b^{15} of size to allow the barb to pass through the same, and a tube B^5 provided with interior guides b^{17} to receive the barb points from the coiling-pins. 3rd. The combination, with the reciprocating carriage and a barb coiler mounted thereon, of grooved stationary arms C^3, bars C^1 pivoted to the carriage, levers C^2 pivoted to the said bars and engage with the arms C^3, and means for gripping the barb wires by the vibratory movement of the levers C^2, whereby the barb wires are fed inward.

No. 16,450. Improvement in Rivetting.

(*Perfectionnement dans la rivure.*)

James H. Clinch, Pittsburgh, Penn., U. S., 7th March, 1883; for 15 years.

Claim.—1st, In combination with a holding-on sledge for rivetting purposes, a movable carriage having an adjustable rest for supporting the sledge. 2nd. The combination, with a holding-on sledge for rivetting purposes, of a movable carriage having a rest for supporting the sledge. 3rd. The combination, with a movable carriage, a holding-on sledge having a cavity in the face thereof.

No. 16,451. Improvements on Cultivators.

(*Perfectionnements aux cultivateurs.*)

Arthur S. Core, Rochester, N. Y., U.S., 7th March, 1883; for 5 years.

Claim.—A cultivator tooth formed with a point d and lateral blades c extending obliquely at each side and back of a central ridge g of the tooth, the lower or cutting edges of said blades being inclined obliquely outward and upward, for the purpose of giving a shearing cut to the same, and the plane of either blade passing in rear of the next blade above.

No. 16,452. Improvements on Marine Boilers. (*Perfectionnements aux chaudières marines.*)

Ferdinand Funke, Evansville, Ind., U.S., 7th March, 1883; for 5 years.

Claim.—1st. A set or series of boilers A B C and D connected on top by a common steam drum E placed transversely across the boilers, and each boiler provided with a separate mud drum or sediment collector G arranged below, and parallel to its appropriate boiler connected thereto by short pipes g g. 2nd. The combination of a series of boilers, each provided with its separate mud drum G having blow-off valve h and connected with a common steam drum E, by pipes e, provided with cut-off valves f, with shutters K adapted to shut off the draft from each boiler separately.

No. 16,453. Improvements on Garment Clasps. (*Perfectionnements aux agrafes des vêtements.*)

Lyman D. Minor, New York, N.Y., U.S., 7th March, 1883; for 5 years.

Claim.—A garment clasp comprising two clamping jaws pivoted together, each jaw having a rear edge to be engaged by the retaining fabric, one jaw being formed with a hinge joint in rear of its pivot.

No. 16,454. Improvements on Clothes Dryers. (*Perfectionnements aux séchoirs à linge.*)

Wilson Vanderlip, Liberty, Ill., U.S., 7th March, 1883; for 5 years.

Claim.—A folding clothes drier composed of the supporting standards A A_1, the secondary frames C C D D and the top frames H H, the latter having the extra rounds g h i j k and l.

No. 16,455. Improvements on Dynamo-Electric Machines. (*Perfectionnements aux machines électro-dynamiques.*)

George W. Fuller, Norwich, Ct., U.S., 7th March, 1883; for 15 years.

Claim.—1st. A dynamo-electric machine in which the field magnets are rotated and the armature coils are stationary, a suitable supported and centralized armature core independent of the armature coils, and one or more driving wheels having a prescribed speed of rotation relatively to the speed of rotation of the field magnets, for mechanically rotating the armature core. 2nd. A dynamo-electric machine employing a floating armature core independent of the armature coils, two or more adjustable rollers for supporting the floating core and centralizing it relatively to the spaces within the armature coils. 3rd. Mechanism for driving the armature core consisting of one or more suitably supported shafts, such shafts or each of such shafts, if there be more than one, being provided with two wheels, the one engaging the periphery of one of the rotating magnet disks and being driven thereby, and the other engaging the periphery of the armature core and imparting motion thereto. 4th. The mechanism for adjusting the rollers which support and centralize the armature core, consisting of the cradles SS_1 provided with adjustable fulcra upon which they respectively rock, and acting upon one side of the fulcra respectively through the push bars r_2 upon the arms r_1 and also acting upon the other sides of their fulcra respectively upon the feet Q_3 q_3 affixed to the boxes Q_1 q_1. 5th. The mechanism for equalizing the work of the rollers which support or drive the armature core, consisting of the cradles SS_1 provided with adjustable fulcra upon which they respectively rock each cradle upon the inner side of its fulcrum, giving support to the box R_1 of the central roller R, the two cradles acting respectively upon the outer sides of their fulcra to support the boxes Q_1 q_1 of the side rollers Q q, and the guides for guiding the movements of the boxes Q_1 R_1 and q_1 in paths converging towards the centre of the armature.

No. 16,456. Improvements on Dynamo-Electric Machines. (*Perfectionnements aux machines électro-dynamiques.*)

George W. Fuller, Norwich, Ct., U. S., 7th March, 1883; for 15 years.

Claim.—1st. In a dynamo-electric machine having stationary field magnets and a cylindrical armature, a rotating system of induction bars arranged in the form of a cylindrical cage and loosely surrounding a stationary cylindrical iron core. 2nd. A cylindrical armature provided with longitudinally circumposed groups of induction bars *a*, a series of nests of insulated connecting rings at each end of the armature for effecting the appropriate electrical connections of the induction bars with each other. 3rd. A cylindrical armature having a stationary iron core and provided with a rotating system of induction bars or coils, appropriately connected with each other and with the commutator strips, and supported upon the peripheries of two or more wheels independent of the said iron core and having a common axis of rotation. 4th. The system of brushes, the brushes of one system bearing upon, and forming an electrical connection with all the commutator strips upon one side of the neutral plane, and the brushes of the other system bearing upon, and forming an electrical connection with all the commutator strips upon the opposite side of the neutral plane, in combination with rotating induction coils or bars connected with each other and with the commutator, whereby all the strips upon one side of the neutral plane are of one polarity, and all the strips upon the other side of the neutral plane are of the opposite polarity. 5th. The devices for effecting the lubrication of the portions of the revolving shaft H within the loose sleeve *h* and *h*1, each of the said devices consisting of, firstly, the oil-supply hole *s*1 extending through the upper part of the sleeve, secondly, the oil cavity S formed in the exterior surface of the sleeve, and containing, thirdly, a strip of fibrous material, and fourthly, the enlarged part of the shaft which the sleeve surrounds.

No. 16,457. Improvements on Dynamo-Electric Machines. (*Perfectionnements aux machines électro-dynamiques.*)

George W. Fuller, Norwich, Ct., U.S., 7th March, 1883; for 15 years.

Claim.—1st. The combination of the field magnets with armature coils, the convolutions of which loosely surround an annular core of magnetic material, all the parts of which core sustain unchanging polar relation to the field magnets. 2nd. The combination of armature coils with rotating field magnets and an armature core capable of rotation independently of the said armature coils. 3rd. The combination of systems of rotating field magnets and stationary armature coils with an annular armature core adapted to rotate independently of the coils which surround it, and having formed upon its face or faces transverse polar prominences. 4th. In an alternating current dynamo-electric machine, three systems of field magnets supported respectively in three circles upon the interior of a rotating shell and forming a series or radially arranged groups, each composed of three magnets, the three magnets of each group being of like polarity to each other, but of opposite polarity to that of the adjoining groups, and presenting their poles in close proximity to, and parallel with the three sides respectively of triangular coils transversely surrounding an endless or annular core, and supported upon a stationary frame and connected with one or more operative circuits, in combination with contact makers and brushes electrically connected with the coils of the field magnets for conducting a current from an outside source to excite the field magnets. 5th. The combination, with the described systems of rotating field magnets and stationary armature coils, of an annular armature core so supported or suspended as to be free to rotate and having formed upon its faces transverse polar prominences. 6th. The combination, with parallel systems of rotating field magnets and with stationary armature coils, of the floating armature core L supported upon, and centralized by the interiorly placed friction rollers K K K journalled in the stationary armature frame suitably connected to, and held in position by the front standard A1 of the machine. 7th. The stationary armature coils G affixed to the rings H and *h* of the stationary armature frame secured to, or forming a part of the central hub H2. 8th. The field circuit wires O and O1 connected respectively with the rotating parts of two contact makers connected with an outside circuit, for supplying the current to charge the rotating field magnets.

No. 16,458. Improvements on Heating Stoves. (*Perfectionnements aux poêles de chauffage.*

Edgar W. Anthony, Boston, Mass., U. S., 7th March, 1883; for 5 years.

Claim.—1st. In a heating or other stove, the combination of the combustion chamber, the down flues GG1, the flue plates *g g*1 *g*2, the base flue G2 and the uptake G3. 2nd. The combination of the combustion chamber, the down flues G G1, the base flue G2 and the uptake G3. 3rd. The combination of the air-heating chamber F, the inlet *f*, and its outlets. 4th. The combination of the combustion chamber, the down flues G G1, the base flue G2, the uptake G3 and the air-heating chamber F and its inlets and outlets. 5th. The combination of the combustion chamber, the down flues G G1, the base flue G2, the flue plates *g g*1 *g*2, the uptake G3, the air-heating chamber F, the inlet *f* thereto and its outlets. 6th. The combination of the combustion chamber, the down-flues G G1, the base flue G2 and uptake, and the flue plate *g*4 shaped substantially as described, whereby each of the down flues G G1 is separated into two passages for a portion of its length. 7th. The combination of the combustion chamber, the down-flues G G1, the base flues G2 and the uptake G3, with the air-heating chamber F above the base flue and shaped at the sides in relation to the down flues. 8th. The combination of the chamber F, the grate shaft or shafts adapted to project within a box in said chamber and the removable panel or door K. 9th. The combination of the chamber F, the chamber H and the holes or perforations connecting said chambers with each other and with the combustion chamber. 10th. The base-plate having the flue plates *g g*1 *g*2 cast therewith and of a shape substantially as represented. 11th. The combination of the door or cover *e* provided with the packing *e*5 indestructible, or substantially indestructible by heat, and the seat *e*6. 12th. The combination of the cover or door *e*, the packing *e*5, the seat or frame against which the cover or door is adapted to close, and means for forcing the cover or door to the seat or frame. 13th. The combination of the panel or door K and the link *k* pivoted to the panel and to the frame of the stove. 14th. The combination of the panel or door K, link *k* pivoted as described, and the catch *k*4 and latch *k*3. 15th. The combination of the panel or door K, the latch *k*3 projecting inwardly therefrom, and catch *k*4. 16th. The combination of the cover *e* and the link *e*8 pivoted at one end to the top plate of the stove, and at or near the other end to the top of the cover. 17th. The combination of the cover *e*, link *e*8 and locking bar *e*10. 18th. The combination of the cover *e* and packing *e*5 with raised seat *e*6. 19th. A heating or other stove, the combination of the ash-pit, the perforated plate *o*3, uptake G3 and damper *o*4. 20th. A heating stove having an air-heating chamber in the base section, upon the sides and bottom of the stove, arranged in relation to the ash-pit, combustion chamber and down and base flues, provided with one or more air-inlets through the base, and the opening at the rear into the pipe *m*. 21st. A heating stove comprising two sections, the base section of which has an air-heating chamber arranged in relation to the ash-pit, combustion chamber and down and base flues, which chamber is provided with one or more inlets through the base of the stove, and the opening *m* at the rear into the pipe M, and the upper section of which has a single wall.

No. 16,459. Improvements on Telephones. (*Perfectionnements aux téléphones.*)

Harry T. Johnson, Scio, N.Y., U.S., 7th March, 1883; for 5 years.

Claim.—1st. The combination, with cords or wires C stretched across the diaphragm *a*, of the button *b* and studs E. 2nd. The combination, with the base *i* provided with diaphragm *h*, of the diaphragm *a* of less diameter than the diaphragm *h* rigidly secured at its centre to the said diaphragm, and provided with the ring *g* secured to its edge and bearing upon the diaphragm *h*. 3rd. The combination, with base *x* provided with the diaphragm *h*, of the diaphragm *a* provided with ring *g*, the mouth-piece *o* and the adjusting screws *q*. 4th. The combination, with the base *i* provided with the diaphragm *h*, the mouth-piece *o*, the diaphragm *a* provided with the ring *g* and interposed between the mouth-piece and the diaphragm of the base, of the adjusting screws *q* and the springs *s*.

No. 16,460. Improvements on Apparatus for Fastening Buttons. (*Perfectionnements aux appareils à assujétir les boutons.*)

William A. Boland, Boston, (Assignee of Louis Goddu, Winchester,) Mass., U.S., 7th March, 1883; for 5 years.

Claim.—1st. The member *a* having near one end a seat for the button and notches as at *a*2 to receive the button shank, and provided with a projection 2 having a clinching surface. 2nd. The member *b* provided with a seat, for the head of the tack or fastening, combined with a clamp connected with member *b* and adapted to rest upon the underside of the head of the tack or fastening, and keep it firmly in position on the said seat in all positions of the jaws. 3rd. The member *a* provided with the seat for the bottom and the clinching surface 2, and the button-holder *a* combined with the member *b* and adapted to bear against the under side of, and hold the head of the tack, while being inserted into and through the material and being clinched on the clinching surface. 4th. The member *b* having at its front end the seat provided with a wall 10, to gauge the position of the head of the tack or fastening, combined with a forked spring to straddle the central shank of the tack or fastening and bear against the under side of its head.

No. 16,461. Improvements on Tubular Lanterns. (*Perfectionnements aux lanternes tubulaires.*)

George A. Kennedy, Coaticook, Que., 7th March, 1883; for 5 years.

Claim.—1st. The adjustable handle, or bail Q sliding in tubes P secured to the tubes D of the lantern. 2nd. The springs N pendant from the head or cap E of the lantern, and clasping a bead O on the globe M to hold the same suspendedly. 3rd. The tubes D separable at their vertical sections and connected by a socket joint. 4th. The oil gauge tube X attached to the orifice of the feed inlet W and extending downwardly to near the bottom of the oil reservoir. 5th. The burner R, cap S and perforated plate T integrally connected. 6th. The combination of the oil reservoir A having a perforated tube V attached to the collar B and extending down into the reservoir, and a burner R provided with a tube U to sleeve within the perforated tube. 7th. The wire guard frame constructed of upper and lower sections hinged together, the upper section secured to cap E and tubes D near the bottom of the globe and the lower section fixed to top of oil reservoir, both sections having horizontal wires at their meeting edges and both sections hinged together, to tilt with the globe. 8th. The catch I hinged to top of oil reservoir, and the upper end bent to spring over the meeting wires of the guard sections to keep the globe over the burner. 9th. The plate J sliding on the vertical wires of the guard frame and closing downwardly to lock the catch I. 10. The combination of a reflector L provided with a stem, and a slide J provided with a socket tube K to receive the stem of the reflector for its support.

No. 16,462. Temporary Binder for Pamphlets. (*Reliure mobile des brochures.*)

Charles S. Cooke, New York, N. Y., U. S., 7th March, 1883; for 5 years.

Claim.—1st. In a temporary binder for pamphlets and similar articles, the hooks *b b* placed at the top and bottom of the back of the binder, in combination with the continuous cord D. 2nd. In combi-

nation with the covers A A and back B, the plate C provided with a series of hooks *b b* and continuous cord D. 3rd. The combination, with the plate C provided with hooks *b b* and continuous cord D, and the bar F.

No. 16,463. Improvements in the manufacture of Paper Pulp. (*Perfectionnements dans la fabrication de la pâte à papier.*)

The Canada Pulp Company, Montreal, Que., (assignee of Stephen M. Allen, Duxbury, Mass., U. S.,) 7th March, 1883; for 5 years.

Claim.—1st. The improvement in making paper pulp consisting in grinding, or reducing to pulp, wood and rags, or similar material, simultaneously in the same machine. 2nd. The method of preparing wood pulp so that it may be run off directly into paper by grinding wood and rags together and introducing sizing or colouring matter, or both, into the pulp in the grinding apparatus. 3rd. The improvement in making wood pulp, consisting in reducing the wood to pulp by grinding it, introducing sizing between and around the fibre, as it is reduced or disintegrated, and carrying off the pulp with a stream of water. 4th. The combination, with a grinding cylinder, of hoppers arranged as near as may be tangential to the periphery of the cylinder on opposite sides of the centre, so that one side of the cylinder revolves against, and on the other with the pressure of the stock. 5th. The combination, with one or more grinders, of three or more hoppers arranged side by side. 6th. The combination, with one or more grinders and two or more hoppers, of feed mechanism and a feed shaft or shafts, common to the several hoppers. 7th. The combination of one or more grinders, two or more hoppers, a feed shaft or shafts, common to said hoppers, and a spiked feeder. 8th. The combination, with the feed shaft of a grinder for reducing wood or other stock to paper pulp, of a set of cone gears and means for changing at will the speed conveyed to the feed shaft through said gears. 9th. The combination of a pit, one or more grinders revolving in or above the same, two or more hoppers for each grinder, and one or more pipes or troughs for introducing water or other fluid. 10th. The combination, with two or more grinding cylinders, of a hopper between each adjacent pair of grinding cylinders, and one or more additional hoppers for the several cylinders. 11th. The combination, with a grinding cylinder, of a hopper having a straight position as near as may be tangential to the periphery of the cylinder and terminating in a tapering pocket. 12th. In a machine for reducing stock to pulp comprising, in combination, a pit, one or more grinding cylinders, two or more hoppers to each cylinder, a spiked feeder and a pipe, or pipes, for introducing water or other fluid. 13th. A pulp of wood and rag fibre ground or reduced to pulp by the same grinder or reducing surfaces, said pulp being distinguishable by the character of the felting and interlacing of the fibres.

No. 16,464. Improvement in Fog Alarms. (*Perfectionnement des signaux de brume.*)

Noah S. Woodward, (assignee of Robert Booth and Lewis Smith,) Sherbrooke, Que., 7th March, 1883; (extension of Patent No. 8499.)

No. 16,465. Improvements on Sheathing and Roofing for Railway Cars. (*Perfectionnements dans le soufflage et la toiture des chars de chemin de fer.*)

Robert Fulton and Alexander De Lano, Detroit, Mich., U. S., 8th March, 1883; for 5 years.

Claim.—1st. Fire and weather proof sheathing made from pulp treated with the herein solutions of alum, soap, glue and gum arabic before the same is finished into sheets. 2nd. The process of rendering pulp boards, fire and weather proof, which consists in soaking the finished board in the solutions of alum, soap, glue and gum arabic, and in then drying the same in any desired shape for use.

No. 16,466. Improvements in Medicinal Compounds. (*Perfectionnements dans les compositions medécinales.*)

William R. Mead, Owossa, Mich., U. S., 8th March, 1882; for 5 years.

Claim.—A medicinal compound for the treatment of epilepsy composed of tincture of nux vomica, bromide of ammonia, bromide of potash, bicarbonate of potash, tincture of columbo.

No. 16,467. Improvements on Grain Binders. (*Perfectionnements aux lieuses à grain.*)

Fred A. Dennett, Milwaukee, Wis., U. S., 8th March, 1883; for 5 years.

Claim.—1st. A detachable cord, placing and guiding eye-bar provided with supports on the frame for its ends into which it is adapted to be thrust from the end of the binder. 2nd. The detachable cord placing and guiding eye-bar having spring take-up *g*. 3rd. The casting H having arm H1, in combination with the packer and needle. 4th. The combination of casting H, arm E and spring F, with the detachable cord placing and guiding eye-bar.

No. 16,468. Improvement on Air Cushions for Boot and Shoe Soles. (*Perfectionnement des coussins hermétiques pour les semelles des chaussures.*)

George F. Butterfield, Stoneham, Mass., U. S., 8th March, 1883; for 5 years.

Claim.—1st. An elastic outer sole, tap sole or heel for boots and shoes formed hollow or with a closed air space within it. 2nd. A boot or shoe provided with a hollow imperforate rubber outer sole, tap sole or heel retaining a fixed amount of air within its cavity.

No. 16,469. Improvement on Washing Machines. (*Perfectionnements des machines à laver.*)

Mark C. Cummings, Des Moines, Iowa, U. S., 8th March, 1883; for 5 years.

Claim.—In combination, with a washing machine tub composed of semi-circular wooden side pieces A, wooden end pieces B and a sheet metal bottom C, the fixed re-enforcing pieces *d*, the detachable washboard surface composed of series of wooden bars 1 2 3 4 and the adjustable and detaching keying-pieces *g*.

No. 16,470. Improvements on Steam Pumps. (*Perfectionnements aux pompes à vapeur.*)

George W. Johnson, Yarmouth, N. S., 8th march, 1883; for 5 years.

Claim.—1st. The auxiliary valve J in combination with valve stem I, lever H and tappet roller G, or any other suitable mechanical device for operating the same. 2nd. The auxiliary valve J in combination with steam ports *s s*1 and exhaust ports R R1, block K, piston L L1, valve M and graduated cushioning ports T T1. 3rd. The graduated cushioning ports T T1, in combination with valve M, piston L L1, auxiliary valve J, ports R R1 and S S1 and lever H or their equivalents. 4th. Oil holes V V1 in combination with piston L L1.

No. 16,471. Improvements on Malt Drying Apparatus. (*Perfectionnements aux appareils de séchage du malt.*)

Gottlieb F. Burkhardt, Boston, Mass., U. S., 8th March, 1883; for 5 years.

Claim.—1st. The combination of the deflectors O O, inclined plates P P and Q Q and troughs S S having the screw conveyers. 2nd. The combination of the deflectors O O, inclined plates P P and Q Q, troughs S S and the perforated drying floor D having pivoted or hinged sections. 3rd. In an apparatus for drying malt and in combination with the deflectors O O and inclined plates P P and Q Q, a furnace embodying a combination of these elements, namely; a combustion chamber F, one or more flues I having vertical tubes *a*, top plate H, one or more plates L, one or more openings M. 4th. In an apparatus for curing malt, a furnace embodying these elements, namely: a combustion chamber F, one or more flues I having vertical tubes *a*, top plate H, one or more plates L, one or more openings M and double walls G J and K.

No. 16,472. Improvements on Pumps. (*Perfectionnements aux pompes.*)

Jay W. Powers, Winnetka, Ill., U. S., 8th March, 1883; for 5 years.

Claim.—1st. A hydraulic or pneumatic pump adapted to first admit the fluid to one end of the cylinder, then transfer it to the other end, and finally to discharge it. 2nd. A pump cylinder having a piston head provided with a hollow chambered rod communicating with opposite ends of the cylinder and having ports opening into the cylinder upon each side of the piston, in combination with an operating piston rod provided with one or more heads located within the chambered rod and adapted to have a short motion in either direction, independent of that of the piston head, whereby the ports in the hollow rods are opened and closed. 3rd. A piston head having a hollow chambered rod provided with ports openings upon opposite sides of the piston head, and inlet and outlet openings at opposite ends, in combination with a second piston rod placed within the first and provided with suitable heads, and adapted to be moved in either direction a sufficient distance to open and close the inlet and outlet ports alternately. 4th. The cylinder A having stuffing boxes *a a*, piston head B provided with a hollow rod C extending through both ends of the cylinder and formed with the chamber *c* and ports *b b*1, in combination with the auxiliary rod D having heads D1 enclosed within the chamber *c* and adapted to move a short distance in either direction, independent of the main piston head B.

No. 16,473. Improvements on Vehicle Top Trimming. (*Perfectionnements à la garniture des couvertures de voitures.*)

Robert Butterworth and Reuben S. Bolles, Nashville, Tenn., U. S., 8th March, 1883; for 5 years.

Claim.—1st. A strip of leather or other material D or D1, secured to the top of a vehicle at the front or rear. 2nd. The combination of the strip D, roof piece B, facing *a*, welt *b* and the bow A of a vehicle top. 3rd. The improvement in the trimming of vehicle tops consisting in securing to the bows at front and rear, a strip of leather or other material, whereby a hood is formed in line with the top or roof piece.

No. 16,474. Improvements on Gloves. (*Perfectionnements aux gants.*)

Remus D. Burr, Kingsborough, N. Y., U. S., 8th March, 1883; for 5 years.

Claim—1st. In a glove or gauntlet, the combination of a palm-section having the inner portion of the first and third fingers integral therewith, and the separate inside portions of the second and little fingers seamed at their bases to the palm section. 2nd. In a glove or gauntlet, the combination of a palm-section having the inner and side portions of the first and third fingers integral therewith, and the separate inside and side portions of the second and little fingers seamed at their bases to the palm-section. 3rd. In a glove, gauntlet or mitten, the combination of a palm-section having a thumb opening provided with a curved open slot at its upper end, and also with an inward angular projection adjacent to said slot, with a thumb-section provided with an angular projection and a concaved edge. 4th. In a glove or gauntlet having inside finger and side sections seamed to the palm-section at their bases, the reversely curved

or concaved coincident edge b_2, whereby, when said edges are stitched together, thes eam is relieved from strain at the ends or corners thereof. 5th. In a glove or gauntlet, the combination of a back finger piece extended and forming a portion of the back of the hand, when the longitudinal finger seams are located at the rear side of the fingers. 6th. In a glove or mitten having the slit or opening of the wrist in the back, the combination of a flap and continuous wrist band, to form the overlapping portion for said opening. 7th. A glove or mitten having two side openings at the wrist, and a back wrist piece overlapping said openings and secured by suitable fastenings to a front wrist piece.

No. 16,475. Improvements in Coat Hooks.

(*Perfectionnements aux patères.*)

Robert Onderdonk, New York, N. Y., U. S., 8th March, 1883 : for 5 years.

Claim.—The combination, with a main outer slotted or recessed hook, of an inner hook or bolt pivoted thereto, to close and fold therein and be guarded thereby.

No. 16,476. Improvements in Hand Lozenge Cutters. (*Perfectionnements aux emporte-pièces à main des confiseurs.*)

Charles H. Hall and Rufus P. Pattison, Chicago, Ill., U. S., 8th March, 1883; for 5 years.

Claim.—1st. The combination, with the plate A provided with the handles B^1 $B2$, of the series of cutters a, the pistons B having the stems a_1, and the plate C provided with the handles D D_1. 2nd. The combination, with the cutter and clearing plate D^2, of the gauge points F F^1. 3rd. The combination, with the cutter plate A and the series of cutters a, of the clearing plate D_2, the gauge-points F F^1, the rods d^4 d^5, adjusting nuts f and the springs f^1. 4th. In a hand lozenge cutter consisting essentially of the plates A and C, having suitable operating handles of the series of cutters a, the embossing and expelling pistons B provided with the stems a^1, the adjusting nuts a^2 a^3, the springs b, the connecting bolts b_1 $b2$ and the springs d^2 d^3.

No. 16,477. Improvements on Harrows.

(*Perfectionnements aux herses.*)

Lafayette J. Stanton, Frank D. Pierce and Ida Stanton, Millbrook Mich., U.S., 8th March, 1883; for 5 years.

Claim.—The spring harrow-tooth B provided with the spring support C having flanges c^1 c^1 adapted to clasp the tooth, said tooth and support being made in one piece.

No. 16,478. Improvements in Grain Binders.

(*Perfectionnements aux lieuses à grain*)

The Minneapolis Harvester Works, (assignee of Daniel Strunk), Minneapolis, Minn., U.S., 9th March, 1883; for 5 years.

Claim.—1st. A combined bundle compressor and discharger, in combination with mechanism whereby the compressor and discharger is, first, moved forward to compress the bundle during the operation of tying and is then carried below and back of and discharges the bundle. 2nd. The compressor arm P, in combination with a shaft provided with a crank on which the compressor is mounted, the pinion P_1 cut on one side of the shaft, and the pin p_5 on the shaft. 3rd. The crank shaft p_1, in combination with the compressor P, pinion P_1 cut away, arm p^6 on the end of the shaft, and pinion E_1 provided with a crank pin e_1. 4th. An elastic gathering and packing arm or arms, in combination with a tripping mechanism connected therewith, and a suitable resistant against which the bundle is formed by the packers, whereby the yielding of the said gathering and packing mechanism under the accumulation of grain to form the bundle will operate the trip and automatically set the binding mechanism in motion. 5th. The packer arms N mounted on cranks n, in combination with the rock shaft o to which the lower ends of the packer arms are connected for operating the trip. 6th. The packer arm or arms, in combination with a rock shaft, a trip mechanism arranged to be operated by the oscillation of the rock shaft, and a link or links connecting the packer arm or arms to the rock shaft, whereby the yielding of the packer arms to the resistance of the grain, as it is packed into the receptacle, will rock the shaft to operate the trip. 7th. The packer arms N, in combination with the rock shaft o provided with the crank arms O and o_1, the clutch on the main pinion shaft and the trip toggle on the clutch. 8th. The rock shaft o provided with the crank arm o_1, in combination with the slotted guide R and spring r_1, and packing arms connected to the rock shaft, whereby elasticity is given to the packer arms and rock shaft. 9th. The packer arms N, in combination with the crank shaft n_1, loose pinion N^1 provided with a clutch to connect with the shaft, the crank lever Q and revolving cam q. 10th. The compressor arm P, in combination with the yielding packer arms N, and mechanism which holds the compressor in a fixed position, while the bundle is gathered and formed. 11th. The spring clutch S, in combination with the sliding holder S^1 both mounted on the main shaft, the toggle T mounted on and carried by the said holder and the cam U on the main gear wheel. 12th. The spring clutch S, in combination with the toggle T provided with the pin t^3, cam u, hooked crank arm o^1, rock shaft o and packer arms N. 13th. In a grain binder, a spring holder composed of two plates, notched as described in combination with a reciprocating plate arranged between the former and provided with two sets of prongs, one set between the plates and the other set outside of the front plate, the latter being provided with cutting edges, the whole arranged and operating to seize and cut the string and hold the end on one side of the plate openings, and release the band end on the other side by the reciprocation of the middle plate in one direction only. 14th. The front plate H_1, in combination with the back plate H_2, which are provided with the recesses h_4 h_3 respectively, the one in the front plate being wider than that in the back plate, and the sliding plate J provided with prongs i i^1 and cutting edges on the former. 15th. A string holder and the bell crank lever H on which it is mounted, in combination with the wheel E provided with a pin working in a slot, in the end of the crank arm, whereby the holder is moved to and from the tyer. 16th. The sliding rod connected to the pivoted member of the tyer and provided with pin f^4, in combination with the spring f^6 and adjustable collar f_5, with a series of notches varying in depth, whereby the tension of the spring may be adjusted. 17th. A rotating tying hook, in combination with a reciprocating string guide arranged to stand with its opening at one side of the hook to receive the string while the hook is at rest, and mechanism whereby the guide is first moved slightly toward and over the hook just before the latter begins to rotate, in which position it is held while the loop is formed, then is moved away from the hook to strip the loop and then is moved back to its first position of rest. 18th. The rotary tyer in combination with the reciprocating forked guide G, lever g^1 and rotating cam G_1. 19th. The rotating tyer, in combination with the reciprocating forked guide and the vibrating band placer. 20th. The rocking band placer V, bent as specified and having its shaft inclined horizontally to the plane of movement of the binding arm, in combination with mechanism whereby the shaft is worked to place the band. 21st. The rocking band placer V, bent as specified, and having its shaft inclined horizontally to the plane of the movement of the binding arm, in combination with the spring v_1, lever W connected to a crank arm on the placer shaft, and pin w_1 on a rotating shaft, whereby the placer is operated. 22nd. The take-up M, in combination with the rock shaft M^1 provided with the crank arm m_1, pivoted lever m^3 and cam m_4. 23rd. The spring tension plates K_2, in combination with a rock shaft L provided with pins l arranged in different sides of the rock shaft, and mechanism for oscillating said shaft and arranged to operate, to release the tension next the spool first, and then the tension next the binding arm. 24th. The spring tension plates, in combination with the rock shaft provided with pins and a slotted crank arm l_1, and take-up arm M and connecting bar L. 25th. The take-up arm M, in combination with the two separate tension devices k k_2 and mechanism arranged to release the tension devices alternately.

No. 16,479. Improvements on Horse Rakes.

(*Perfectionnements aux râteaux à cheval.*)

The Massey Manufacturing Company, (Assignee of William J. Clokey,) Toronto, Ont., 9th March, 1883; for 5 years.

Claim.—1st. In a horse rake in which the wheels revolve in a stationary axle, the combination of a friction band passing around or partially around the hub of the wheel and with its ends fastened to a lever fulcrumed upon the hub of the wheel and connected to the rake teeth in such a manner that, when the lever and friction band are caused to grasp the hub and revolve with it, a corresponding movement is imparted to the rake teeth. 2nd. In a horse rake in which the wheels revolve on a stationary axle, brackets fastened to the axle and forming sockets for the reception of the shafts, in combination with a curved slot formed in the bottom of the bracket, to allow the free movement of the bar to which the rake teeth are secured. 3rd. In a horse rake in which the rake teeth are fastened to the axle, a quadrant or bracket S secured to the axle and connected to the pivoted lever T by the bar U, so as to form a toggle joint between the quadrant and fulcrum of the lever, in combination with a winged roller arranged to brake the toggle joint. 4th. In a horse rake in which the wheels revolve on a stationary axle to which the rake teeth are attached, a lever fulcrumed on the hub of the wheel and loosely connected to a bracket fastened to the axle, in combination with a friction band passing around or partially around the hub of the wheel. 5th. In a metal wheel in which the spokes are made in pairs, one bar forming every two spokes, both ends of the bar being rivetted to the tire, the combination of a stationary and a loose hub having a series of hooks around each, upon which the spokes are hooked.

No. 16,480. Improvements on Stock Cars.

(*Perfectionnements aux chars à bestiaux.*)

Chester Kellogg and Frank W. Cornell, (Assignees of Horace S. Wolfe,) Kalamazoo, Mich., U.S., 9th March, 1883 : for 5 years.

Claim.—1st. A stock car provided with sectional water and feed troughs, the troughs secured to a bar having the end grooves, in combination with a car having the semi-circular projections and rods between which the ends of the trough bar are movably located. 2nd. The grain chambers occupying the limited space provided with the obliquely angled beams serving to brace the structure and guide the grain to the mouth of the feed spouts. 3rd. The double rafteos in the roof, constituting inclosures for the water pipes. 4th. Measuring grain spouts provided with slides adapted to open and close the measures, and with means for operating said slides, the combination of said parts with a spring connected with the car and slides, and adapted to automatically adjust and to hold the gates. 5th. In a stock car provided with measuring grain spouts and gates adapted for opening and closing the measures, a spout provided with a partition between the slides and having either end located closely to said slides, yet detached therefrom, said spout also provided with a base having the hollow channels on each inclined side and the thin partition terminating the converging inclines and located as described. 6th. The gate provided with the rest plate at the base of the hinging eye, the hinging rod, the support plate secured to the car in positiou to co-act with said rest plate in supporting the gate, and the channel and button secured to the opposite side of the car to guide and receive the gate.

No. 16,481. Improvement in Machinery for Sawing Barrel Hoops. (*Perfectionnement des machines à scier les cercles des barils.*)

Robert Williams, Boston, Mass., U.S., 9th March, 1883; for 5 years.

Claim.—1st. The combination of the fixed hoop bearing or roller f with one of the band saw wheels B C and the hoop guide mechanism L, and its sustaining arm I supported by a pendulous arm F G, so as to enable the saw and such hoop guide mechanism to vibrate bodily. 2nd. The combination of the spring S and the fixed hoop bearing or

roller *f* with one of the band saw wheels B C and the hoop guide mechanism L, and its sustaining arm I supported by a pendulous arm F G, so as to enable the saw and such hoop guide mechanism to vibrate bodily. 3rd. The combination of a vibratory arm F and slide G and their adjusting mechanism (viz: the screw H and lugs *a b*) with the band saw and its two supporting wheels, such arm being pivoted to the driving shaft of such saw. 4th. One of the band saw wheels B C and the hoop guide mechanism L supported by a pendulous arm F G, so as to enable the saw and such hoop guide mechanism to vibrate bodily.

No. 16,482. Improvements on Lawn Mowers.

(*Perfectionnements aux faucheuses à bras.*)

William J. Lloyd, William W. Supplee and Coates Walton, (assignees of John Brann,) Philadelphia, Pa., U. S., 9th March, 1883; (extension of patent No. 8676.)

No. 16,483. Improvement on Bracket Pieces for Screen Frames.

(*Perfectionnement des goussets de consoles pour les châssis d'écrans.*)

Edward N. Porter, Morrisville, and Lorenzo G. Burnham, Burlington, Vt., U.S., 9th March, 1883; (extension of patent No. 13,305.)

No. 16,484. Improvement on Bracket Pieces for Screen Frames.

(*Perfectionnement des goussets de consoles pour les chassis d'écrans.*)

Edward N. Porter, Morrisville, and Lorenzo G. Burnham, Burlington, Vt., U.S., 10th March, 1883; (extension of patent No. 13,305.)

No. 16,485. Improvements in Flying Machines.

(*Perfectionnements aux machines volantes.*)

James J. Pennington, Henryville, Tenn., U. S., 10th March, 1883; (extension of patent No. 8661.)

No. 16,486. Apparatus for Heating Freight Cars.

(*Appareil de chauffage des chars à marchandises.*)

The American Freight Car Heating Company, Portland, Me., (assignee of William E. Eastman, Boston, Mass.,) U.S., 10th March, 1883; for 5 years.

Claim.—1st. In a wickless heater, an automatic governor and a fuel reservoir connected with each other by a fuel supply pipe, the said automatic governor being so located as to be beyond the reach of the fire in the heater. 2nd. In a wickless heater, an automatic governor and a fuel reservoir connected with each other by a fuel supply pipe, the said automatic governor being so located as to be beyond the reach of the fire in the heater, in combination with the hot air flues formed by the flooring, the ceiling and the sills of the car. 3rd. An automatic governer consisting essentially of an unequal expansion pair or combination, and a valve enclosed within a hermetically closed valve chest, in combination with an elevated reservoir containing liquid fuel which flows therefrom at a rate determined by the temperature of the aforesaid governor. 4th. An automatic governor operating by unequal expansion and contraction of certain of its parts, so located with reference to a heater and a fuel reservoir (to neither of which it is connected except by a fuel supply pipe) as to be beyond the reach of the fire in the heater and subject to currents of air at atmospheric temperature. 5th. The unequal expansion pair, the members of which are attached to each other and the whole to the valve chest and operating the piston, in combination with an elastic diaphragm, a valve and a stove or heater for burning liquid fuel. 6th. A heater or stove for burning liquid fuel without a wick, in combination with an automatic governor which controls the supply of fuel by the operation of an unequal expansion pair, or combination, upon a valve through the medium of an elastic diaphragm. 7th. A wickless stove or heater for burning liquid fuel and not vapour attached to a movable vehicle, the absence of wick preventing derangement by jarring, in combination with an automatic governor consisting essentially of an unequal expansion pair or combination, operating a valve within a hermetically closed valve chest through the medium of an elastic diaphragm. 8th. An automatic governor consisting essentially of an unequal expansion, pair or combination, and a valve located within a hermetically closed valve-chest, motion being communicated from said unequal expansion pair to said valve through the medium of an intervening elastic diaphragm, which is attached to neither the valve or expansion pair. 9th. A wickless stove or heater burning liquid fuel and not vapour attached to a movable vehicle, the absence of wick preventing derangement by jarring, in combination with an automatic governor consisting essentially of an unequal expansion pair or combination, and a valve within a hermetically closed valve chest connected with an elevated reservoir containing liquid fuel, which flows therefrom at a rate determined by the temperature of the aforesaid governor. 10th. In a heater or stove for burning liquid fuel without a wick, in combination, an automatic governor consisting essentially of an unequal expansion pair, or combination, and a valve within a hermetically closed valve chest connected with an elevated reservoir containing liquid fuel, which flows therefrom at a rate determined by the temperature of the aforesaid governor. 11th. A heater or stove for burning liquid fuel without a wick, in combination with an automatic governor consisting essentially of an unequal expansion pair, or combination, and a valve within a hermetically closed valve chest connected with an elevated reservoir containing liquid fuel, which flows therefrom at a rate determined by the aforesaid governor, and the hot air flues formed by the sills, the floor and the ceiling of a car. 12th. The oil pan from the surface of which the fuel is burned, in combination with a valve within a hermetically closed valve chest operated by an unequal expansion pair or combination. 13th. In combination with a heater and automatic governor, the smoke flues arranged with openings 2 2 for ease in cleaning the same. 14th. In combination with the hot air flues, a heater so constructed as to burn liquid fuel without a wick. 15th. In combination with a heater for burning liquid fuel and an automatic governor, a fuel reservoir provided with a gauge glass.

No. 16,487. Improvements in Candle Apparatus.

(*Perfectionnements aux appareils à bougies.*)

Auguste F. Collette, St. Luc, and Jacob C. Ulric, Chambly, Que., 10th March, 1883; (extension of Patent No. 9679.)

No. 16,488. Improvements on Spring Beds.

(*Perfectionnements aux sommiers élastiques.*)

Oscar J. Mitchell, (assignee of Philip Midge,) Ingersoll, Ont., 12th March, 1883; (extension of patent No. 8540.)

No. 16,489. Improvements in Compounds for Preserving Eggs.

(*Perfectionnements aux compositions pour conserver les œufs.*)

Grovenor A. Curtice, Hopkinton, N. H., U.S., 12th March, 1883; (extension of patent No. 16,131.)

No. 16,490. Improvements in Compounds for Preserving Eggs.

(*Perfectionnements aux compositions pour conserver les œufs.*)

Grovenor A. Curtice, Hopkinton, N.H., U.S., 12th March, 1883; (extension of patent No. 16,131.)

No. 16,491. Improvements on Bread Raising Ovens.

(*Perfectionnements aux fourneaux à faire lever le pain.*)

Lewis B. Morgan and John E. Wayt, West Liberty, Ohio, U. S., 12th March, 1883; for 5 years.

Claim.—The combination of the oven A B C having the sliding shelf D, with the heating pan or vessel F having the movable lid J, the inside shoulders or brackets H and the removable circular body or disk I.

No. 16,492. Improvements on Seed Drill Distributors.

(*Perfectionnements aux distributeurs des semoirs en ligne.*)

John Bartlett, Oshawa, Ont., 12th March, 1883; (reissue of patent No 16,087.)

Claim.—1st. In a seed and grain distributor, the combination, with the seed cup K, of the annular vertically distributing wheel N provided with flange M and the retaining ring O. 2nd. The combination of a vertical laterally movable interior actuating gauge disk Q with the annular vertically distributing wheel N having flange M, the cut off slide *b* and rotating retaining collar *V*. 3rd. The combination of a rotating retaining collar V with the cut-off slide *b* provided with forked portion C, and the vertical laterally movable interior actuating gauge disk Q. 4th. The combination, with the cut-off slide *b* and the seed cup K, of a gauge slide *e* arranged in a recess of the cup K and below the slide *b*. 5th. The combination, with the disk Q and the slotted seed cup K having a recess below the cut-off slide *b*, of the handle slotted gauge slide *e* and the screw *f* working through cup and slide *e* into slide *b*, to adapt the machine to drill seeds of different sizes and kinds without change of speed.

No. 16,493. Improvements in Car Stoves.

(*Perfectionnements aux poêles des chars.*)

Frederic G. Kay, (in trust for Abram Reese, Frederic G. Kay and James J. Kay,) Allegheny, Pa., U. S., 12th March, 1883; for 5 years.

Claim.—1st. In a railway car, the combination of a stove, a reservoir containing a liquid above the level of the stove, a spring-opened valve closing said reservoir, and a flexible cord connected to said valve at one end, and at the other to platform timbers of the car, whereby collapse of the platform relaxes the cord and opens the valve. 2nd. The combination of a stove, a reservoir containing liquid above the level of the stove, a spring-opened valve closing said reservoir, a flexible cord connected to the said valve, and a tripping device under the car connected to said cord and adapted to be operated to relax the cord by impact of the rail, as described. 3rd. The combination of stove A, air-chamber G, reservoir H, spring closing valve *b*, frame e, levers *h*, and flexible cord *i*. 4th. The combination, with stove A, of the reservoir H, chamber G and plate J having divergent perforations increasing in size from the centre or middle thereof outwardly, 5th. The combination, with valve *b*, of the cord *i*, bracket *q*, keeper *s* having pin *t*, trigger *o* and hanger *m*. 6th. The combination, with the oblong stove A, water reservoir and air chamber, of the double inclined and perforated deflector T. 7th. The combination, with the oblong stove A, water reservoir and air chamber, of the double inclined and perforated deflector T and divergently perforated stove top.

No. 16,494. Improvement in Cooking Stoves.

(*Perfectionnement des pòèles de cuisine.*)

William J. Copp, Hamilton, Ont., 12th March, 1883; (extension of patent No. 8562.)

No. 16,495. Improvements on Window Sash Regulators. (*Perfectionnements aux régulateurs des croisées.*)

William Thompson, Toronto, (assignee of Francis Munn, Strathroy,) Ont., 12th March, 1883; (extension of patent No. 8544.)

No. 16,496. Improvements on Machines for Barbing Fence Wire. (*Perfectionnements aux machines à barbeler le fil de fer des clôtures.*)

Wellington P. Chisholm, Chicago, Ill., (assignee of Noble G. Ross, Jasper, Mo.,) U. S., 12th March, 1883; for 5 years.

Claim.—1st. The combination of the flyer, the carriage and its guides, the twisting head mounted in said carriage, the shafts F1, the shaft I provided with a crank G2, gear connecting said shafts with each other, gear connecting the shaft F1 with the flyer, a pitman connecting the crank with the carriage and devices for feeding, coiling and severing the barb wires. 2nd. The combination, with the reciprocating and rotating twisting head provided with passages for the fence and barb wires, of means for feeding the barb wires, barb benders or coilers and barb wire cutters constructed to vibrate transversely to the axis of the twisting head, and means for vibrating said benders and coilers. 3rd. The combination, with the reciprocating and rotating twisting head provided with passages for the fence and barb wires, of means for feeding the barb wires, vibrating barb-benders and barb-cutters, arms C10 connected with said benders and cutters, a link C11 connecting said arms, an arm C9 also connected with the cutters and benders, and a cam F3 engaging said arm. 4th. In combination with the pivoted tool-holders C8 with the arm C9 and with cam F3, springs C14 arranged to act in opposition to the cam. 5th. The combination, with the reciprocating carriage, of the rotating head and vibrating coilers and cutters mounted thereon together with means for vibrating the coilers and cutters.

No. 16,497. Improvements in Iron Fences. (*Perfectionnements aux clôtures en fer.*)

Benjamin G. Devoe and William L. Walker, Trenton, Ohio, U.S., 13th March, 1883; for 5 years.

Claim—1st. A clamp for connecting the rail picket and post together in two vertically divisible sections with self-connecting devides at one end, and a hook on the front section at the other end, for catching over the side bar of the ornament of the picket, whereby the latter is held in connection with the rail to the post when bolted together. 2nd. A fence picket constructed with a wrought iron rod and malleable ornaments thereon, an ornament having a separable spear-head with a hole in the base end for the picket rod and having a key seat or groove cast in one side of said hole, for the insertion of a tang formed upon the top of the ornament, and extending above the latter whereby the head is firmly fastened upon the picket and prevented from turning. 3rd. In iron fences having wrought rods and malleable ornaments, a clamp for connecting the rail and end picket with the post in two sections having self-connecting devices at the post end and a hook at the opposite or rail end, cast upon the front plate for connecting with the ornament of the picket, whereby said ornament is clamped to the rail, prevented from lateral displacement and, at the same time, allowed sufficient movement to incline the picket when adjusting it to the grade. 4th. The buckle clamp C having its sections *k* and *k1* self-connecting at the post end by means of the loop *r1* and hole *h*, and having an inwardly bent hook *d1* on the rail end of plate K for catching over the bar *a1* of ornament *a*, securing it to the rail and preventing the picket from lateral displacement or the rail from being withdrawn from its fastenings. 5th. A clamp for connecting the ornaments of an iron fence having a bearing hook provided with an angle on the underside of the same where it rests upon the rail having parallel sides and lateral lugs extending from either side of its frame bars, the upper arms or lugs extending from the front, and the lower or longer lugs extending from the rear side of said frame bars, and diverging from their point of union with the body of the clamp to their ends, so as to straddle the side bar of the ornament frames and hold it tightly, when connected together. 6th. In iron fences constructed with wrought rods and malleable ornaments, a bracket or supporting ornament for a picket, having its bearing hook formed with an angle on the under side of the same where it rests upon the rail, to allow the lower end of the picket to be swung to the right or left, to suit the inclination of the rail. 7th. In iron fences constructed with wrought rods and malleable ornaments, a clamp or clip for connecting said ornaments having a single bearing hook vertically central therewith, extending rearward from the top end and having an angle on its under side for a bearing upon the top of the rail, to allow it to be placed in its position from the front of the rail, and to adapt it in connection with the pickets to be inclined either to the right or left, to suit the rail when the latter is inclined. 8th. A clamp or clip for connecting the pickets of iron fences having a hook extending from the rear side at the top end, vertically central with the body thereof, said hooks being formed with an angle on its under side and having lateral extending limbs or lugs from either side for clamping the picket ornament on both its front and rear sides, whereby it may be more securely fastened and greater strength given to the connections and allowed to be inclined in either direction to suit any inclination of the rail. 9th. The clamp or clip *b* having parallel sides, the hook *i* with an angle *c* on its under side, the lateral limbs *d* extending from the front sides near the middle line thereof and the lateral limbs *e* extending from its rear sides at the lower end and connected centrally forming the angle *c11*, said limbs *e* being extended beyond the limbs *d* for catching under the side bar of the ornament frame, in guiding the latter into its place between the lugs *d* and *e*, and to prevent the clamp from tilting during the operation of connecting the pickets therewith. 10th. A clamp or clip, for connecting the ornaments of pickets in iron fences with the rail, having a single bearing hook and having front and rear lugs extending from its side bars and diverging laterally from each other, each pair of lugs connected across the body of the clamp, for the purpose of strengthening the same and with reference to the front upper limbs for connecting the lines of ornamentation at the middle of the ornament and clamp. 11th. A foot plate H for line posts divided vertically and longitudinally in the centre, and having the sockets *t t* for inserting the pickets therein, and the oblong transverse holes S11 for adjusting the post upon its base P when attaching it thereto. 12th. A buckle clamp G in two sections 1 and 2, for connecting the top end of the brace to the post in an iron fence having self-connecting devices *r* and *h* at one end, and an incline hole J formed by a groove cast in the inside surface of each section at the opposite end, for securing the upper end of the brace-rod *g* and connecting the same with the post bar, when clamped in place and secured by the bolt 4.

No. 16,498. Process for Dressing and Dyeing Furs, Wool, Hair, Peltry and Raw Hides. (*Procédé pour préparer, passer et teindre les fourrures, laines, poils, pelleteries et peaux vertes.*)

Pacifique M. Daignault, Montreal, Que., 14th March, 1883; for 5 years.

Résumé.—1o. Une liqueur pour tanner composée d'une demi-livre de sumach, deux livres d'alum, une demi-livre de nitrate de potasse, un quart de livre de borax et deux gallons d'eau. 2o. Une teinture noire composée de huit livres de bois de campêche, quatre livres de fusain, deux livres et un quart de noix de galles, une livre et trois quarts de vert-de-gris, six livres de sumach, onze livres de couperose, deux livres de teinture de fer et un demiard d'acide nitrasellumach. 3o. Un mordant composée de trois livres de carbonate d'ammoniaque, deux livres et demie de litharge, deux onces d'antimoine et neuf livres de chaux dans de l'eau.

No. 16,499. Improvement in Secondary Batteries. (*Perfectionnement des batteries secondaires.*)

John S. Sellon and Ernest Volckmar, London, Eng., 15th March, 1883; for 5 years.

Claim.—1st. Constructing the plates of secondary batteries or apparatus for storing or conserving electricity with numerous and closely arranged cells or hollows and for giving the advantage described. 2nd. The improvements, in the construction of secondary batteries or apparatus, for effecting electrical storage, consisting in the employment, in the plates thereof, of lead (preferably pure lead) mechanically or chemically divided, for filling the cells in the plates exclusively in the interior. 3rd. The used, in the construction of secondary batteries, of perforated plates or sheets roughened, serrated or indented composed of lead, platinum or carbon upon, in or against which plates spongy or finely divided lead or oxides, or other salts, or compounds of lead, or other suitable substances or compounds, are or may be held or retained. 4th. The use, in secondary batteries or magazines for storing elecritcity, of plates, elements or supports constructed or composed of alloys of lead with antimony. 5th. The employment of plates or elements composed of perforated strips, tubes, pieces or woven fabrics of lead or of the above alloy, either separately or combined, and affixed to, supported by, or strung upon rods, bars or pieces of carbon, lead or other suitable metal. 6th; The construction of terminal plates, supports, retainers or frames employed in secondary batteries, or a material or materials not readily subjected to the destructive influence of oxidation. 7th. Forming plates or retainers, for secondary batteries with interstices or perforations, or spaces which key-lock, or firmly retain in position the material with which the plates are packed.

No. 16,500. Machine for Feeding Paper to Printing Presses. (*Machine à servir le papier aux presses d'imprimerie.*)

Charles Ellery, Albany, N.Y., U.S., 15th March, 1883; for 5 years.

Claim.—1st. The combination, with a paper-lifting mechanism, wherein the paper is held in place on the exhaustible lifters by means of atmospheric pressure, of the described mechanism for feeding forward to the impression mechanism of a printing press, the sheets raised by the lifting mechanism, the said feeding mechanism consisting of feeding tapes arranged in relation to each other and to the paper-lifters and impression mechanism. 2nd. The combination, with the exhaustible lifters *f*, exhausting pump J and the intermediate pipes for connecting the said lifters and pump, of the feeding tapes Q and R arranged in relation to the lifters *f* and impression cylinder B. 3rd. The combination, with the cross-head F provided with exhaustible lifters *f* constructed and connected to said cross-head and with the exhausting pump J, of the levers H and cams I, whereby an up-and-down movement only is imparted to said cross-head, for the purpose of lifting the sheets of paper to the feeding tapes. 4th. The combination, with an exhausting pump J, of a cross-head F provided with a series of exhaustible lifters *f* connected by means of flexible pipes *f1* to the transverse tube *f2*, each of said lifters being provided with an independent stop cock *f3* for the purpose of throwing any number of said lifters out of service. 5th. The combination, with the exhaustible lifters *f*, of the feeding table E adapted by means of adjustable stops *g* to adjust inwardly and outwardly in respect to said lifters, for the purpose of increasing and diminishing the margins on the printed sheets. 6th. The combination of the exhaustible lifters *f* as described, of a vacuum regulating valve. 7th. The paper separators described and consisting of a sliding block M provided with a pointed knife M1 and adapted to operate as set forth, for the purpose of separating the sheets of paper in the manner specified. 8th. The combination, with the paper-lifting mechanism, of a paper separator composed of a vertically sliding-block provided with a knife or other sharp pointed instrument adapted to slit the front edge of the topmost sheet of paper, for the purpose of separating the lifted sheet from the pile.

No. 16,501. Composition of Matter for Staining Brick Buidings. (*Composition pour donner le coloris aux bâtiments en briques.*)

Thomas Castle, Montreal, Que., 15th March, 1883; for 5 years.

Claim.—A compound of Cookson's best Venetian red, colcothar, wheaten flour paste, English soft soap, silicate of soda mixed with petroleum, white vitriol dissolved in water, bullocks' blood and brewers' sour beer.

No. 16,502. Improvements on Vehicle Wheels. (*Perfectionnements aux roues des voitures.*)

Peter Gendron, Toledo, Ohio, U. S., 15th March, 1883; for 5 years.

Claim.—1st. In a wheel hub, the flange A provided with curved concave grooves or channels adapted to received the bend of a wire, which forms two spokes, and provided with projecting parts between the groove and with a collar E, in combination with the bent wire spokes, the flanges B adapted to pass around the collar and having a recess to receive the projecting parts between the spoke grooves, and suitable devices for securing the two flanges together. 2nd. In a vehicle wheel, the two part hub, one part of which is provided with a centre wall upon which the other part is sleeved and secured thereto by rivetting or peening the outer edge of the centre wall. 3rd. In a wheel hub, the flange A having curved channels *a*, and a collar E and *h*, in combination, the bent spokes and the flanges B adapted to pass around the said collar *h* and having an annular depression *f*. 4th. The combination with the rim G, spokes D and two hubs, of the cylinder C, means for keeping hub from turning on said cylinder and nuts F F screwing on the same to separate the hubs.

No. 16,503. Improvements in Steam Boiler and other Furnaces. (*Perfectionnements aux foyers des chaudières à vapeur et autres.*)

Orel D. Orvis, New York, N.Y., U.S., 15th March, 1883; for 5 years.

Claim.—1st. The combination, with the inlet pipes D D1, the air supply pipes and the intermediate vacuum chamber connecting said pipes, of a casing or pipe projecting into the ash-pit and forming an air-chamber into which the inlet pipe projects as described. 2nd. The combination, with a furnace, of a vacuum chamber, two steam jets projecting into the same, and two inlet pipes opening into, and at different angles to the furnace, and two or more air supply pipes. 3rd. As a means for heating the air to be supplied to a jet apparatus for furnaces, the combination of a metal pipe arranged to lie close to and under the fire grates, its inner end being closed and its outer end open and arranged to project through the furnace-front, and the air-pipe or pipes arranged to extend into said exterior pipe nearly to its closed end, and to nearly fill said pipe, whereby the air passing through the space between the interior and exterior pipes may be better heated. 4th. The combination, with a furnace, of a jet apparatus comprising a vacuum box or chamber provided with a steam inlet and nipple, a discharge nozzle arranged opposite the nipple and opening into the furnace, an air supply pipe and a receiving chamber or pipe arranged below the furnace grate and receiving the air supply pipe, said receiving pipe having its inner end closed and its outer open end projecting through the furnace-wall, whereby the induced current of air is heated. 5th. The combination, with the furnace, of the two jet apparatus, each comprising two steam jets, two air pipes, and two discharge nozzles opening into the furnace, and said jet apparatus arranged at the sides of the furnace in front, with two of their discharge nozzles arranged so as to cause the jets to intersect about at the point *x*, and two directed back as shown and as for the purpose described. 6th. The combination, with a furnace, of two jet apparatus each comprising two jets, two air pipes and two discharge nozzles opening into the furnace, said jet apparatus being arranged at the sides of the furnace in front, with two of their discharge nozzles arranged so as to cause the jets to intersect at about the point *x*, and two directed back, and an intermediate jet apparatus, comprising also two steam jets, two air-pipes, and two discharge nozzles, the latter arranged so as to cause the jets to diverge and cross the converging jet from the other jet apparatus specified. 7th. The box A provided with a hinged cover with nipples *b b*, with screw plugs *c c*, with apertures to receive the ends of the nozzles D fixed in the furnace front, and with set screws *e* to secure said box to the protruding ends of said nozzles.

No. 16,504. Improvements in Fire-Escapes. (*Perfectionnements aux appareils de sauvetage.*)

Charles A. Gregory, Montreal, Que., 15th March, 1883; for 5 years.

Claim.—1st. In a fire-escape, the combination, with a ladder fixed to the wall of the building, of a supplementary ladder held up against said fixed ladder by means of a catch and lowered by releasing said catch. 2nd. In a fire-escape, the combination, with the fixed ladder A and adjustable ladder B of the catch E and rod D. 3rd. In a fire-escape, the combination, with the fixed ladder A and the adjustable ladder B, of the catch E, rod D and box C.

No. 16,505. Process for Treating Flax or Jute, or the Tow of either, to Produce a Bat therefrom. (*Procédé de traitement du lin ou du chanvre, ou de leurs étoupes, pour en tirer de la bourre.*)

Moses B. Perine, Conistogo, Ont., and Frank B. Howard, Etchemin, Que., 15th March, 1883; for 5 years.

Claim.—1st. The improved manufacture of flax or jute, or the tow of either of them, which consists in treating it by picking, dusting, combing and carding it with the machinery named, and distributing it upon a roller. 2nd. A bat produced from flax or jute, or the tow of either of them.

No. 16,506. Improvements on Fire-Escapes. (*Perfectionnements aux appareils de sauvetage.*)

Thomas J. Vinton, Holly, Mich., U.S., 15th March, 1883; for 5 years.

Claim.—1st. The truck A provided with the sliding handles B fitted in grooves in the truck, and the pivoted stay bar *n*, in combination with the operating hoisting apparatus. 2nd. The rod C removably attached to the truck A, in combination with the transverse beam I and the crane d_1 d_2 d_3 d_4. 3rd. The combination of the crane consisting of the vertical beam *d*, horizontal beams d_1 d_2 d_3 and angular brace d_4, with the pulleys *e* E e_1, pivoted arm F, its brake f_1 and pulley *f*, the drum crank *h* and brake G. 4th, The combination of the crane consisting of the vertical beam *d*, the horizontal beams d_1 d_2 d_3 and brace d_4, and provided with pulleys *e* E e_1, vertical arm F, brake f_1 and pulley *f*, and drum H, crank *h*, brake rod h_1 and brake G, with the rod C, transverse beam I and truck A. 5th. The crane provided with the braces consisting of the rods K pivoted thereto at their upper ends and having their lower ends removably secured to the truck the the rods K being held in position by the transverse bar *l l*, in combination with the supporting rod C and truck A. 6th. The combination of the truck A having the removable lid a_1, the sliding handles B and the pivoted stay bar *n*, the supporting rod C upon which is pivoted the transverse beam I and crane consisting of the vertical beam *d*, the horizontal beams d_1 d_2 d_3, the said horizontal beam d_1 being provided with the pulleys *e* E e_1, the pivoted arm F being formed into a brake f_1 at its upper end, bearing against the pulley E and having the pulley *f* at its lower end, the brace d_4 having pivoted thereto, the brake G bearing against the underside of the pulley E and provided with the handle g_1, the beam d_2 having mounted thereon the drum provided with the endless chain D and the crank *h*, the chain being adapted to receive suitable adjustable and detachable belts Q, the crane being braced in proper position by means of the rods K pivoted thereto at their upper ends, and having their lower ends removably attached to the truck A and held in position by means of the transverse bars *l l*.

No. 16,507. Improvements on Hoop Cutting Machines. (*Perfectionnements aux machines à tailler les cercles.*)

Gilbert S. Foster and Abner C. Holt, Concord, R. I., U.S., 15th March, 1883; for 5 years.

Claim.—1st. The combination, with the upright adjustable gauge B, of the circular cutters A A_1 having their edges bevelled or inclined. 2nd. The upright adjustable gauge B, in combination with the screw threaded arbors *f* f_1 carrying circular cutters A A_1 secured thereon by sleeves *n* n_1 and screw nuts *a*.

No. 16,508. Improvement in Hay Unloaders. (*Perfectionnement des monte-foin.*)

Charles R. Irvine, Deseronto, Ont., 17th March, 1883; for 5 years.

Claim.—1st. The combination of ropes *d* fastening to an unlocking device E in the centre, under the centre of the whole load or half-load, when the whole load is divided vertically or horizontally through the centre, each rope forming as it were the radius of a circle with rings *f* on the outer ends. 2nd. The combination of lifter ropes *j* connected to the centre *h*, with hooks *g*. 3rd. The combination, in a hay and grain unloader, of the ropes *d* having rings or bottom ends *f*, an unlocking device fitted to them under the load or half load. 4th. The combination, in a locking device, of the guard Q, locking bar *i* provided with holes *j* and lugs K, with latch M, cord *r*, springs *n*, eye bolt *p* and unlocking bar *l*.

No. 16,509. Improvements on Wooden Casks. (*Perfectionnements aux futailles.*)

Zephaniah S. Lawrence, West Shefford, Que., 17th March, 1883; for 5 years.

Claim.—The body of a wooden cask made from flexible lumber of veneer composed of two or more layers, the outer one having the grain vertical and the inner one having the grain horizontal, and the whole inserted in a compressed and rigid condition within hoops, thereby placed under tension.

No. 16,510. Gang Circular Saw Mill. (*Scierie à lames circulaires en groupes.*)

John G. Winter, Detroit, Mich., U. S., 17th March, 1883; for 5 years.

Claim.—1st. The saw guides supported by a swinging frame and operating upon the saws in a position vertical, or nearly so, to the axis of the saws, said swinging frame consisting of a bar H and side bars G, the bar H being provided with trunnions *e e* to move in guide slots *d* in the supporting frame, and the side bars G pivoted to said supporting frame. 2nd. The combination, with the bar H, of the jaws J pivoted thereto and having inclined adjoining fans, and the wedge bolt L *h* for expanding the upper ends and contracting the lower ends of said jaws. 3rd. The combination, with the bar H, of the pivoted jaws J having recesses *g* in their adjoining faces, the bolt L having wedge head *h*, the nut *k* acting against the upper ends of the jaws, and a spring between said jaws below their pivotal points. 4th. In a saw mill, the feed rollers L_1 L_{11} L_{111} and the retaining rolls U U, both the feed and the retaining rolls being provided with pinions on their ends, in combination with the connected shafts M V, at right angles to each other and provided with worms *o* o_1 o_{11} *u u* for operating the feed and retaining rolls. 5th. The combination, with a gang circular saw mill, of the sliding frames T, the rollers U, the springs X and the cam lever W.

No. 16,511. Machine for Forming Barbs on Flat Strips of Metal. (*Machine à former les barbes sur les barres métalliques plates.*)

William Hewitt, London, Ont., 17th March, 1883; for 5 years.

Claim.—1st. The combination of the frame A, shaft C, revolving in an adjustable boxing B_1 and pivoted boxing B_2, and cutting wheel E, with a lever K_1 pivoted on upright K_2, weight K_3 and forked arm K. 2nd. The combination of the jaws J J pivoted on pivot bolts *e e*, cross bar J_1 J_6 provided with slots J_{10}, straps J_2 J_2 pivoted on pivot bolts e_2 e_2, arm J_3 pivoted on pivot bolt e_1, rod J_4, spring J_5, end brace J_7 provided with slot J_8, support J_9, bolt and washer J_{11} and bed J_{12}. 3rd. The cutter H constructed rounding at *a* and *b*. 4th. The combination of the frame A, shaft *C* C_1, cutting wheels E E, cutter H and cutter H_1, constructed rounding at *a* and *b*, projecting die E_2 and counter die E_3. 5th. The combination of the eccentric clamp I, bearings I_1 I_1, handle I_2 and shoulder I_3.

No. 16,512. Faucet Attachments or Cask Stoppers. (*Pose des robinets ou bouchons de futailles.*)

William W. Jackson, Chicago, Ill., U. S., 17th March, 1883; for 5 years.

Claim.—1st. The combination, with the bushing, of a valve screw-threaded and adjusted in the same, and provided with internal lugs adapted to be engaged by a suitable wrench for adjusting the valve. 2nd. The combination, with the bushing and the valve screw-threaded and adjustable in said bushing and provided with a projecting flange having an annular groove, of a packing arranged in said groove intermediate said flange and the inner end of the bushing. 3rd. The combination, with the bushing of the valve, screw-threaded and adjustable in the same and provided with posts arranged next its cap or closed end, and with radial lugs intermediate said ports. 4th. The combination, with the internally screw-threaded bushing, the valve adjustable in the same and internally screw-threaded, of a faucet working in and adapted to adjust said valve. 5th. A bushing externally screw-threaded and provided on its inner face towards its outer end with a polygonal face forming a bearing for a suitable wrench for tightening the bushing in the cask.

No. 16,513. Improvements in Churns.

(*Perfectionnements dans les barattes.*)

William E. Parmenter, Hamilton, Ont., 17th March, 1883; for 5 years.

Claim.—1st. The combination of the body A of a churn with the rockers E E. 2nd. The combination, with the rockers E of a churn, of the bed frame F. 3rd. The central bearing G and pin H. 4th. The combination of the churn body A, strips D, legs *e*, rockers E, central bearings G, pin H, bed frame F, strainer *m*. 5th. The guards *h* on the inside of the cover C, to protect the ventilating holes *c*.

No. 16,514. Improvements on Dust Collectors for Flour Mills. (*Perfectionnement aux appareils à recueillir la poussière dans les moulins à blé.*)

Faustin Prinz, Milwaukee, Wis., U.S., 17th March, 1883; for 5 years.

Claim.—1st. A dust collecting medium formed into separate compartments, in combination with a device for isolating a portion of said compartments from the others and permitting air to pass into said isolated portions through the end next to said device, and means for inducing an air current through said isolated and other compartments. 2nd. A dust collecting medium formed into separate compartments, in combination with a device for isolating a portion of said compartments from the others, and means for inducing an air current through the isolated portion from one end, and through the other portion from the opposite end. 3rd. A dust collecting medium formed into separate compartments, in combination with means for inducing an air current through a portion of said compartments from one end, and then through another portion from the opposite end. 4th. A dust collecting medium formed into separate compartments, in combination with a device for isolating a portion of said compartments from the others, means for admitting an air current into said isolated portion, and means for purifying the air before its admission into the isolated portion. 5th. The combination of a dust collecting medium formed into separate compartments, a device for isolating a portion of said compartments from the others, means for admitting a current of air to such isolated portion, means for purifying the air before its admission into said isolated portion, and mechanism for jarring the isolated portion. 6th. A dust collecting medium formed into separate compartments, in combination with a tube connecting a portion of said compartments with the outside air. 7th. A dust collecting medium formed into separate compartments, in combination with a tube connecting a portion of said compartments with the outside air, and a screen for purifying the air before its admission into said tube. 8th. A dust collecting balloon having separate compartments composed of dust collecting material, in combination with casing A^1, hoods A_2 A_3 and tube V^1 V_2 having the slot *z*. 9th. The combination of a dust collecting medium formed into separate compartments, a device for isolating a portion of said compartments from the others, and means for automatically adjusting said device. 10th. A dust collecting balloon having separate compartments composed of dust collecting material, in combination with A_2 A_3, back draft tube V_1 V_2, flexible packing Y and means for regulating the tension of said tube. 11th. The dust collecting balloon frame consisting of heads C_1 C_2 C_4, supporting rings B_1 B_2, outer ribs a_1, inner ribs a_2, in combination with supporting hoops d_1 d_2. 12th. The combination of the pocket D supporting ribs therefor, a strip b_4 for strengthening the material of the pocket, and means for securing the strip to the supporting rib. 13th. The dust collecting medium D, in combination with inner supporting ribs a_2 and rib a_1 bevelled on its inner and outer edges, the medium being secured to the outer bevelled edge. 14th. The combination of pocket D, heads C_3 C_4 and blocks E, the ends of the pocket being turned and secured to the heads by the blocks. 15th. The combination of pocket D, the strip b_4 in its fold, ribs a, a_2 and blocks E, the ends of pocket D being turned and secured to the heads by the blocks. 16th. The combination of heads C_2 C_3, ribs a_1 a^2, cloth sections D having their ends fastened together, clamping and strengthening strips b_4 and the securing blocks E. 17th. The combination of the conveyor F_1 having the adjustable crank arm T, shaft G having the knocker K and belt crank H fast thereon, spring *n*, bell crank I having the dogs v^3 v^4, shaft L having the arm M, and ratchet wheel N provided with pins *t*, connecting rod R, plate P and a dust collecting balloon provided with pins *w*. 18th. The dust collecting balloon consisting of heads C_1 C_2 C_3 C_4, ribs a_1 a^2, cloth sections D and supporting rings B_1 B^2, in combination with the casing A^1 and division plate F^2, whereby air currents are prevented from passing backward and forward beneath the balloon. 19th. A dust collecting medium formed into separate compartments, in combination with means for inducing a current of dust laden air against one side of the collecting medium, and means for admitting an induced current of air against the opposite side of the same section of the medium, whereby the dust collected on the medium from the first air current is detached therefrom by the second current. 20th. The combination, with a revolving balloon and a case enclosing the same, of a ring or bearing interposed between the casing and the heads of the balloon. 21st. The combination of a balloon with means for revolving the same and imparting a series of blows to the balloon, between each partial revolution thereof while at rest. 22nd. The combination of a dust collecting medium, a shut-off for isolating one portion of the medium from the other portion, and means for admitting an air current to the isolated portion, to form a back draft to aid in clearing the isolated portion from dust. 23rd. The combination of a dust collecting medium, a shut-off for isolating one portion of the medium from the other portion, means for jarring the isolated portion, and means for admitting an air current to the isolated and jarred portion to form a back draft, to aid in clearing the isolated portion from dust. 24th. The combination, with a dust collecting balloon having a series of compartments, of a shut-off for shutting off a portion of the balloon from the other portion, and means for imparting a series of blows to the shut-off portion while shut off. 25th. The dust collecting balloon consisting of the heads C_3 C_4, ribs a_1 a_2 and cloth D, and provided with the bearing rings B_1 B_2, in combination with the casing A_1 and means for inducing a current of air to pass through said balloon. 26th. The combination, with a dust collecting balloon having a series of compartments, of a shut-off for shutting off a portion of the balloon from the other portions, and means for agitating said shut-off portions while shut off in the direction parallel with the tension of the dust collecting msdium.

No. 16,515. Art of Treating and Curing Diphtheria and Other Throat Diseases. (*Art de traiter et de guérir la diphtérie et autres maladies de la gorge.*)

Narcisse Lacerte, Lévis, Qué., 17th March, 1883; for 5 years.

Résumé.—La composition formant un composé medécinal pour le traitement de la diphthérie et des autres maladies mentionnées dans la spécification et devant être administré d'après la description donnée et formé des ingrédients mentionnés dans la formule et dans les proportions demandées, savoir: acide carbolique, une demi-once, créosote, un demi-drachme, l'huile d'encolyptus, un demi-drachme, eau de chaux, quarante-cinq onces, esprit de vin, quinze onces, sucre, quinze onces, ou son équivalent de miel.

No. 16,516. Improvements in Preserving Ensilage in Silos. (*Perfectionnements dans la conservation des céréales dans les fosses.*)

Charles H. Roberts, Lloyd, N. Y., U. S., 17th March 1883; for 5 years.

Claim.—In a silo, the combination, with the walls, doors and covers of the ensilage receptacle, of one or more sheets or strips of water and air proof fabric, to prevent access of air or the evaporation of the moisture of the ensilage and thereby preserve the same from decomposition.

No. 16,517. Improvements in Temporary Binders. (*Perfectionnements dans la reliure mobile.*)

Arthur L. Pratt, Kalamazoo, Mich., U. S., 17th March, 1883; for 5 years.

Claim.—The combination of a removable cover, a series of independent packages composed of blank leaves and stubs, and index leaves interposed between the packages, said packages having transverse lines of perforations separating the stubs from the other parts of the leaves, and the whole detachably secured together by a fabric or wire cord, or its equivalent, passing through holes in the cover, index leaves and stubs.

No. 16,518. Apparatus for Hoisting Earth Excavated in Trenches. (*Appareil pour enlever le sol des fouilles.*)

Howard A. Carson, Boston, Mass., U.S., 17th March, 1883; (extension of patent No. 11,186.)

No. 16,519. Apparatus for Hoisting Earth Excavated in Trenches. (*Appareil pour enlever le sol des fouilles.*)

Howard A. Carson, Boston, Mass., U. S., 19th March, 1883; (extension of patent No. 11,186.)

No. 16,520. Improvements on Circular Brushes. (*Perfectionnements aux brosses circulaires.*)

Benjamin F. Quimby, Boston, Mass., U. S., 19th March, 1883; for 5 years.

Claim.—A stock, or holder of a circular brush composed of two main or side portions *i k* provided with central openings and united by a central tubular portion *h* formed integral with, or separate from

one of the side portions, in combination with a series of bunches of bristles or their substitutes interposed between the two side portions and secured in place by wire or cord and glue, or other adhesive substance, directly upon the central tubular portion *h*, the said two portions of the holder being without screw threads and their union consequently accomplished without screwing them together, and the employment of notched washers being dispensed with, the said holder being constructed substantially as described. The method of making a circular brush for removing the unequalities in the surface of metallic or other articles consisting, first, in bending or looping the bunches of bristles or their substitutes at their centres by passing them through perforations in a plate A and through tubes B inserted in said perforations, then removing the bunches from the plate with their tubes B surrounding them, then stringing the bunches on a wire or cord and arranging them radially upon and around a central tubular portion of the holder D and securing them thereto by wire or cord and glue, or other adhesive substance, next slipping the portion *k* of the holder over the tubular portion *h*, then removing the tubes B which confine the bunches, then spreading the ends of the bristles or their substitutes, so as to form a continuous brush having no intervals at its periphery, and finally applying pressure to securely unite the whole.

No. 16,521. Method of Steering Tow-Boats and Tows. (*Méthode de gouverner les remorqueurs et les remorques.*)

Donald A. McDonald, La Crosse, Wis., U.S., 17th March, 1883; for 5 years.

Claim.—1st. The method of guiding water craft propelled by a boat in rear thereof, consisting in shifting or moving the point of bearing of the propelling boat to one or the other side of the medial line of the propelled craft and turning the propelling boat about its approximate centre. 2nd. In combination with a raft, float or other craft, a propelling boat bearing against the rear of the craft and connected therewith, whereby the bearing point of the propelling boat may be moved either side of the normal bearing point, and the propelling boat turned about its approximate centre. 3rd. In combination with a raft, float or other craft, a propelling boat connected therewith and adapted to swing or turn about its approximate centre, a capstan or winding drum mounted upon the propelling boat, and a cable or hawser wound upon said capstan and having its ends secured to the propelled craft at opposite sides of the centre, whereby the point of application of the propelling power may be shifted to one or the other side of the medial line of the propelled craft. 4th. In combination with craft B, boat A, cables C, capstan G and hawser H, whereby the operation of the windlass is caused to shift the point of bearing to one side of the medial line of the propelled craft. 5th. A boat for propelling and guiding crafts, floats and other craft provided with one or more vertical rollers at its bow, whereby the bow is adapted to move freely along the stern of the craft, in combination with mechanism for shifting the bow of the boat. 6th. In combination with a boat having eyes or bearings *c c d* on its stern or bow, an elongated shaft or axle E and a roller *b* removable from said shaft, whereby it is adapted to be placed at different heights.

No. 16,522. Improvement on Folding Barrels. (*Perfectionnement des barils brisés.*)

Armistead Barksdale, Statesville, N. C., U.S., 19th March, 1883; for 5 years.

Claim.—1st. The body of the folding barrel composed of stave sections and bands, which are connected by links C and D, the width of one of which equals the thickness of the staves, and devices for fastening the free ends of the bands. 2nd. The improved folding barrel consisting of the sections composed of staves attached to bands, which are hinged together, and the removable heads F, the hoops G secured to the heads, and the detachable bolts provided with thumb nuts for securing said heads detachably to the body of the barrel.

No. 16,523. Apparatus for Lighting Platforms and Steps of Railway Cars. (*Appareil pour éclairer les plateformes et les marche-pieds des chars de chemin de fer.*)

William E. Chamberlain and Edgar G. Windsor, Providence, R. I., U. S., 19th March, 1883; for 15 years.

Claim.—The combination of a car hood, a lamp mounted centrally therein, and an inclined reflector surrounding said lamp, having its angles of reflection arranged with special reference to lighting an area extending beyond the end of the platform and the steps thereof.

No. 16,524. Method of Annealing and Tempering Glass, &c., and Apparatus therefor, (*Méthode de recuire et tremper le verre, etc., et appareil pour cet objet.*)

Joseph H. Campbell, New York, N. Y., U S., 19th March, 1883; for 5 years.

Claim.—1st. The method of annealing and tempering glass and other articles, the same consisting in subjecting such articles to the action of gases heated and in motion, whereby the crystals are formed or are arranged in the line of direction of the travelling currents of the heated gases. 2nd. The method of annealing and tempering glass, &c., the same consisting in submitting the articles to be annealed or tempered to the action of heated gases in motion, until the proper degree of heat has been attained and then to the action of said heated gases under the regulated pressure until the desired molecular rearrangement, crystallization, or polarization has taken place, and finally cooling such articles by subjecting them to the action of carbonic acid gas and nitrogen gas. 3rd. The method of annealing and tempering glass, &c., the same consisting in submitting the articles to be annealed or tempered to the action of heated carbonic oxide gas and nitrogen gas in motion. 4th. The method of annealing and tempering glass, &c., the same consisting in generating the gases for annealing or tempering articles in a furnace, and conveying the same direct in a heated condition to the annealing or tempering chamber. 5th. The furnace B, ash pit B^1, pipes C and sleeves C^1, in combination with the chamber A, pipe K, pressure blower or pump E and gasometer H, whereby the articles in the chamber A are annealed or tempered under pressure of the heated gases. 6th. The furnace B and ash-pit B^1, in combination with the pipes D D^1, pressure blower or pump E, valves K^1 K^{11} and chamber A, whereby the articles are annealed or tempered under pressure of the heated gases. 7th. The gasometer H, pipe L and valve L^1, in combination with the annealing or tempering chamber A and pipes *m m*, whereby the cooling gases from the gasometer are admitted to the annealing or tempering chamber and the articles cooled rapidly or slowly as may be desired. 8th. The method of cooling annealed or tempered articles by convection.

No. 16,525. Improvement on Fasteners. (*Perfectionnement des agrafes de hardes.*)

Edwin J. Kraetzer, Boston, Mass., U. S., 19th March, 1883: for 5 years.

Claim.—1st. The improved fastener, the same consisting of the plate D provided with the spring shanks *d d* and balls *m m*, and the plate C provided with the neck *a* and ball *x*. 2nd. In a fastener, a catch proper having two springs enlarged or terminating in balls at their outer ends, said springs acting to force the balls or enlarged portions towards each other or into contact, and adapted to be attached to a glove or other article of wearing apparel, and a button proper having a ball provided with a neck or means for attaching it to a glove or other article of wearing apparel, said neck being adapted to pass between the balls or enlarged ends of said springs; and, thereby, enable the button proper and catch proper to be interlocked.

No. 16,526. Improvement on Dredge Dippers. (*Perfectionnement des louchets de dragueurs.*)

Ralph R. Osgood, Troy, N. Y., U.S., 19th March, 1883; for 5 years.

Claim.—1st. In a dipper of the character set forth, the door or bottom composed of two independently hinged sections made to swing or open in the same direction, the hinges for the front section being located on opposite sides of the dipper. 2nd. In a dipper of the character set forth, the door or bottom composed of two hinged sections, one supported in place by a suitable latch, the free end of the other supported upon the latched section, and the latched section hinged upon opposite sides of the dipper. 3rd. In combination with a dipper of the character set forth, the two part or bottom, one section of which is arranged to swing inwardly as well as outwardly, and the other section hinged upon opposite walls of the dipper. 4th. In combination with the dipper door or bottom, the latch, the operating lever, and the adjustable coupling bar uniting the two. 5th. In combination with the dipper having flaring side walls and side bars or braces for connecting it with the handle, the hinge strap provided with raised seat and perforated for the reception of the bolt, the same being arranged so as to allow the hinge arms to swing outside of the side bars or braces. 6th. In combination with the dipper, the hinged door composed of two parts, one part hinged upon the rear of the dipper shell, and the other part hinged upon opposite sides of said shell, at points removed from the bottom and back.

No. 16,527. Improvements on Car-Couplings. (*Perfectionnements aux accouplages des chars.*)

Edward J. Burns, Dayton, Ohio, U.S., 19th March, 1883; for 5 years.

Claim.—1st. A detent inclined slightly inwardly from a vertical line and held against draught by the side projections of the draw-bar and the housing. 2nd. The link C with notch in top of its projection, in combination with the detent B and draw-bar.

No. 16,528. Improvements in Glass Vessels. (*Perfectionnements aux vaisseaux en verre.*)

Daniel W. Norris, Elgin, Ill., U.S., 19th March, 1883; (Extension of Patent No. 10,492.

No. 16,529. Process for Manufacturing Gas. (*Procédé de fabrication du gaz.*)

Thomas B. Fogarty, Brooklyn, N. Y., U. S., 19th March, 1883; for 5 years.

Claim.—1st. The process of generating and purifying heating or illuminating gas consisting, as a whole, in the combination of the several co-ordinate steps as follows: *First*, in injecting or forcing air and steam into and through incandescent carbon contained in a furnace or retort, thereby causing the air and steam to combine with the carbon and to produce carbonic oxide and carbonic acid, the hydrogen of the decomposed steam and the nitrogen of the air being at the same time set free; *Second*, the separation of the nitrogen from the gas by converting it into ammonia, said conversion being effected by causing the nitrogen to combine with carbon and alkali, so as to form cyanogen, or compounds thereof, by means of steam, the product being ammonia, oxides of carbon and alkali, and subsequently removing the ammonia; *Third*, decomposing the carbonic oxide in the gas and converting it into carbonic acid by means of highly heated or incandescent steam, the product of said decomposition being carbonic acid and free hydrogen gas; *Fourth*, the removal of the carbonic acid from the gas by means of the previously formed ammonia; *Fifth*, the conversion of the ammonia and carbonic acid of the gas into carbonic and other commercial salts. 2nd. In the process of manufacturing and purifying heating or illuminating gas, the combination of the several co-ordinate steps: *First*, injecting or forcing air and steam

into and through incandescent carbon contained in a furnace or retort, thereby causing the air and steam to combine with the carbon and to produce carbonic oxide and carbonic acid, the hydrogen of the decomposed steam and the nitrogen of the air being at the same time set free; *Second*, the separation of the nitrogen from the gas by converting it into ammonia, said conversion being effected by causing the nitrogen to combine with carbon and alkali, so as to form cyanogen or compounds thereof, and subsequently decomposing such cyanogen or its compounds by means of steam, the product being ammonia, oxides of carbon and alkali, and subsequently removing the ammonia; *Third*, decomposing the carbonic oxide in the gas and converting it into carbonic acid by means of highly heated or incandescent steam, the product of said decomposition being carbonic acid and free hydrogen gas; *Fourth*. The removal of the carbonic acid from the gas by means of the ammonia previously formed. 3rd. In the process of manufacturing heating or illuminating gas through the decomposition of steam and air by incandescent carbon in combination therewith, the further process of separating the resulting nitrogen from the crude gas consisting in introducing said gas into a retort or series of retorts containing carbon and alkali, or any suitable form, compound or combination thereof, in an incandescent state, and causing said nitrogen or a part thereof, in the presence of said alkali and carbon, to combine therewith and form cyanogen or compounds thereof, and consequently decomposing such cyanogen or its compounds by means of steam, thereby forming ammonia. 4th. In the process of manufacturing nitrogenized water gas, in combination therewith, the further process of separating the nitrogen and carbonic oxide therein contained, consisting in, *First*, the introduction of the crude gas into a retort, or series of retorts containing carbon and alkali in an incandescent state and causing said gas to combine therewith to form cyanogen, or compounds thereof, and subsequently decomposing such cyanogen or its compounds, by means of steam, the products of said decomposition being ammonia, oxides of carbon and alkali; *Second*, the removal of the ammonia from the gas by means of suitable scrubbers; *Third*, The removal of the carbonic oxide from the gas by causing it to be decomposed by highly heated or incandescent steam, the result of such decomposition being carbonic acid and free hydrogen. 5th. In a process for manufacturing gas through the decomposition of steam and air by incandescent carbon, and for purifying the resulting crudeg as from nitrogen by converting it into ammonia, the sub-process of decomposing the steam contained in the crude gas by passing said crude gas throngh a highly heated retort, flue or superheater, thereby heating the steam to incandescence, and causing the carbonic oxide contained in the gas itself to decompose said steam with the production of carbonic acid and free hydrogen, such decomposition being effected before the conversion of the nitrogen into ammonia. 6th. In a process for manufacturing gas through the decomposition of steam and air by incandescent carbon and for converting the nitrogen of the crude gas into ammonia, by causing it to pass through a suitable retort or furnace containing carbon and alkali in an incandescent state, thereby producing alkaline cyanides and cyanates. and such cyanides and cyanates being themselves decomposed by steam with the production of ammonia, the sub-process of heating the mass of mixed carbon and alkali to incandescence by passing through the furnace or retort containing it a volume of the crude gas in an incandescent state. 7th. In a process for converting the nitrogen contained in crude water gas into ammonia by means of incandescent carbon and alkali, the subprocess of rendering such carbon and alkali incandescent and of converting such nitrogen into ammonia by means of the crude gas itself heated to incandescence, such incandescence being attained by the gas in its passage through a suitable retort flue. or superheater. 8th. In a process for manufacturing water gas in which the gas is purified from carbonic oxide, by causing said carbonic oxide to be decomposed by steam heated to incandescence, with the production of carbonic acid and free hydrogen, the sub-process of removing nitrogen from the gas by causing said gas in a highly heated state to pass through a retort or furnace suitably filled with carbon and alkali and, by contact therewith, to heat such carbon and alkali to incandescence, and to combine with them to form alkaline cyanides and cyanates, which being subsequently decomposed by steam, thereby produce ammonia. 9th. In a process for manufacturing water gas in which the gas is purified from nitrogen and carbonic oxide by converting the former into ammonia, and the latter into carbonic acid, the sub-process of converting the nitrogen into ammonia by causing the gas containing it to pass, in a state of incandescence, through a suitable retort or furnace suitably filled with carbon and alkali and, by contact therewith, to heat such carbon and alkali to incandescence and to combine with them to form alkaline cyanides and cyanates, which being subsequently decomposed by steam thereby produce ammonia. 10th. In a process for manufacturing gas through the decomposition of steam and air by incandescent carbon, and for purifying such gas from nitrogen by converting said nitrogen into cyanogen or alkaline cyanides or cyanates, the sub-process of combining highly heated nitrogen with incandescent carbon and alkali, and of producing cyanogen and alkaline cyanides and cyanates in an upper chamber J^1 of a double-chambered furnace E. 11th. In a process for manufacturing through the decomposition of steam and air by incandescent carbon, and for purifying such gas from nitrogen by converting it into cyanogen or alkaline cyanides and cyanates, the sub-process of decomposing such cyanogen and its gaseous compounds in the upper chamber J^1 of a furnace E, and the solid compounds of cyanogen in a lower chamber J^1. 12th. The process of manufacturing gas from steam and air decomposed by incandescent carbon, in combination therewith, the sub-process of purifying such gas from its nitrogen and carbo nic oxide consisting in, first, converting the nitrogen into ammonia and separating the same from the gas, and then decomposing the carbonic oxide into carbonic acid, in contact with highly heated or incandescent steam. 13th. The process of manufacturing gas from steam and air decomposed by incandescent carbon, in combination therewith, the sub-process of purifying such gas from its nitrogen and carbonic oxide consisting in converting the nitrogen into ammonia and the carbonic oxide into carbonic acids, then combining the ammonia and carbonic acid, thereby producing carbonates of ammonia, and subsequently decomposing said carbonates by means of chloride of sodium, thereby producing chloride of ammonia and carbonates of soda. 14th. In an apparatus for the manufacture of gas through the decomposition of steam and air by incandescent carbon, the furnace E suitably divided into the chambers J^1 and I^1.

No. 16,530. Improvements on Knitting Machines. (*Perfectionnements aux métiers à tricoter.*)

Patrick G. Close, Toronto, (assignee of Charles H. Carter, Colborne,) Ont., 19th March, 1882; for 15 years.

Claim—1st. The combination, with the bed 1, of the forked lever 12, vertical lever 17 having a cam slot, and cam 15 on thumb piece 14, to lift and fall the needle cylinder 10 having trunnions 13 to lengthen and shorten the stitches. 2nd. In combination with the needle cylinder 10, the dial plate 18 secured to bed 1, and pointer 17 operated by the vertical movement of the cylinder, to indicate the length of the stitch. 3rd. The combination, with the bed 1, of the radially journalled cam shaft 20, vertical lever 22 having a cam slot engaging with the cam and pivoted to inside of cylinder 11, and stop 23 on the underside of the ribbing dial 14 to adjust the rotary set of the same. 4th. In combination with cams 30 32 34^1 35 and 35', the spring cams 31 31^1 bearing on a spring or springs resisting the downward thrust of the needles. 5th. The bridge 45 having a locking connection with the cam cylinder 4, to remove the ribbing dial and ribbing cam-holder from the machine by disconnection of the bridge. 6th. The combination of the ribbing dial and the ribbing cam-holder having stem 41 provided with screw 44, passing through bridge 45, and nut 46 to lift and depress the dial and cam holder by the adjustment of said screw, to lengthen and shorten the stitches. 7th. The combination of the ribbing dial and the ribbing cam-holder having a vertical adjustment to increase or diminish the length of the stitch, and a set adjustment coinciding with the cam cylinder, as indicated by pointer 17 and dial plate 18, by means of spring 48 engaging with a peripherally notched nut 46, to effect uniformity in the length of stitch of the cylinder and ribbing needles. 8th. The combination, with the ribbing cam-holder, of cams 50, spring cams 51 51^1, cam 53 and central cam 54, the cams having a reverse or right and left movement, to produce flat ribbed work by the reciprocation of the cam cylinder. 9th. In combination with the cams 50, cams 51 51^1 and cam 54 on the underside of the ribbing cam-holder, the radially sliding cam 54, lever 55 and clamp screw 56, to throw the ribbing needles out of work, with the cylinder needles. 10th. The feeder 60 constructed of an S-shaped form at top, and having a central slot 64 vertically through both curves, and a diagonal passage 65 from the side to admit the yarn to the slot, from which it is fed to the needles from a central hole at the end of the slot in the feeder. 11th. The gate 70, provided with spring 73 for opening the gate automatically, and spring catch 74 to yield to the gate in closing and reacting to lock the gate closed, in combination with cam cylinder 4. 12th. The combination of bed 1 provided with dial plate 6 and carrying, within a boxing 8, a worm wheel and ratchet mechanism, the driving wheel 2 having cogs corresponding in number to the cogs in cam cylinder 4 and provided with cam 9 to intermittently move the said mechanism, to record the number of rows of stitches. 13th. The combination of bed 1 having dial 6 and mechanism according the number of rows of stitches, cam cylinder 4, cylinder 10 having vertical adjustment, ribbing cylinder adjustable circumferentially, ribbing dial and ribbing cam-holder having vertical adjustment by nut 46, and the removable bridge 45 supporting said ribbing dial and cam-holder rotatively. 14th. A feeding attachment to knitting machine for producing goods striped longitudinally consisting of frame 80, cog wheel 82 provided with cams 83 83, lever 84, bar 85 and feed slides 86 87, connected by plate 88 pivoted to the frame, whereby the yarns are alternately fed to the needles and carried out of work automatically.

No. 16,531. Improvements in Saw Files. (*Perfectionnements aux limes à scies.*)

Eben M. Boynton, New York, N. Y., U.S., 20th March, 1883; (Extension of Patent No. 8549.)

No. 16,532. Improvements on Saw Handles. (*Perfectionnements aux bras des scies.*)

Eben M. Boynton, New York, N. Y., U.S. 20th March, 1883; (Extension of Patent No. 8,571.)

No. 16,533. Improvements on Harvesting Machines. (*Perfectionnements aux moissonneuses.*)

William Russell, Dundas, Ont., 20th March, 1883; (Extension of Patent No. 8,590,)

No. 16,534. Improvements in Spring Bed Bottoms. (*Perfectionnement aux sommiers élastiques.*)

George Keenholts and Addison Keenholts, Buffalo, N. Y., U.S., 20th March 1883; for 5 years.

Claim.—A spring bed-bottom composed of slats A, secured to cross-pieces C C^1, each composed of three sections hinged together at *e*, springs B, arranged in rows parallel with the sides and ends of the bed-bottom and secured with their lower ends to the slats A, and chains *c* connecting the upper free ends of the springs, whereby the bed-bottom, when unfolded, forms an even yielding support for the mattress and folds compactly, the ends of the springs attached to the central section folding into the open ends of the adjacent springs of the outer sections.

No. 16,535. Improvement in Steam Engine Indicators. (*Perfectionnement des indicateurs de machine à vapeur.*)

Gilman W. Brown, West Newbury, Mass., U.S., 20th March, 1883; for 5 years.

Claim.—1st. The wire spring, as composed of the median straight portion *a* and the two spirals *b b*^{1} extended therefrom, and arranged with each other substantially as represented. 2nd. The nut D, as having in each of its wings holes and the spring-coils extended into

and through such holes, and wherewithin such, surrounded entirely by the metal or material of the wing. 3rd. The piston head B provided with the tubular and slotted shank *e*, in combination with the piston rod screwed into the said shank and with the spring A, as composed of the median portion *a* and the two spirals *b b*1, arranged therewith and with each other, the said median portion *a*, being arranged within and across the said shank. 4th. The spring constructed of the medium portion and the two spirals, and provided with the ball. 5th, The combination of the spring made and provided with the ball, with the piston head and rod connected and socketed to receive the ball. 6th, The piston head provided with the adjustable step or socket screw *d*, in combination with the piston rod C, socketed at its lower end, and with the spring A provided with ball *c* and composed of the medium part *a* and the two spirals *b b*.

No. 16,536. Improvements on Cooking Vessels. (*Perfectionnements aux ustensiles de cuisine.*)

August W. Obermann, Chicago, Ill., U.S., 20th March, 1882; for 5 years.

Claim.—1st. A cooking vessel A, having a lip B, provided with a strainer C, in combination with the cover H, having the flap E projecting therefrom, whereby the lip can be opened and closed by twisting the cover on the vessel without removing it therefrom. 2nd. A cooking vessel having pivoted handles F with toes *h*, that will grasp and hold the cover D. 3rd. A cooking vessel A, having lip B, provided with strainer C and with pivotal handles F having toe projections *h*, in combination with cover H having flap E.

No. 16,537. Improvements on Grain Drills. (*Perfectionnements aux semoirs en ligne.*)

Thomas D. Galloway, Oshawa, Ont., 20th March, 1883; for 5 years.

Claim.—1st. The seed distributors having internally a disk-wheel mounted adjustably on a shaft passing through the distributors and meshing with a cog pinion having a fast and loose connection with a shaft outside the distributors, whereby one or more distributors can be stopped while the others continue to work. 2nd. In a grain drill, and in combination with cog wheels 5 mounted on shaft 6, carrying pinions 25 meshing with cogs on the distributor wheels, the disk 9 sleeved on hub 2 and carrying a loose cog rim 8 having a pin connection with a vertical slot in the hub, and a means for moving and holding the same in and out of gear with cog wheel 5, whereby the rim 8 rotates in unison with the hub, while the disk remains fixedly. 3rd. In a grain drill, and in combination with a cog wheel on a shaft carrying piinions meshing with a cog wheel within the distributors, a disk 9 sleeved eccentrically to the wheel hub, and carrying the cog rim 8 loose thereon, said cog rim having a pin connection with the end of the hub, for rotating the same independently of the disk, and a rod or bar 12, pivoted at one end of said disk, and to a lever 13 fulcrumed to bracket 15 secured to frame 1, said levers connected by shaft 14 to suspend the drill teeth 16 by chains 15, whereby the raising of the shaft lifts the teeth simultaneously and moves rod 12 endwise to throw the gear-wheel 8 out of mesh with wheel 5, and thus stop the feed mechanism. 4th. The cleaner wheels 26 mounted to rotate between the drill teeth, for removing accumulated rubbish.

No. 16,538. Improvements in Furnace Grates. (*Perfectionnements aux grilles des fourneaux.*)

Thomas B. Howe and Arthur H. Lee, (assignees of Bernhard S. Niebell,) Scranton, Penn., U. S., 20th March, 1883; for 5 years.

Claim.—1st. A furnace grate having stationary grate bars and alternating rocking sections arranged in the spaces between the stationary bars, and so as to break joints with each other. 2nd. The combination, with the stationary grate bars, of rockers whose upper faces lie normally flush with the upper faces of the stationary bars, mounted upon removable cross-rods or bolts passed transversely through perforations in the stationary bars. 3rd. The combination, with the stationary grate bars, of the pivoted rockers having the knife edges on their under sides.

No. 16,539. Improvement on Lifting Jacks. (*Perfectionnement des crics.*)

Charles S. Harmon, Chicago, Ill., (co-inventor with Thomas J. Jenne, Alexandria, Va.,) U.S., 20th March, 1883; for 5 years.

Claim.—1st. A removable stop for the sliding pawl. 2nd. A lifting jack comprising a standard A, lifting bar B, pivoted lever D, friction pawls E and E1 and clevis F, constructed and operating substantially as described, a removable stop at the rear of the said standard below the upper pawl, 3rd. The combination of the standard A having its upper part forked and provided with a plate *v* recessed as shown at *u*, and having notches *t*, lifting bar B sliding vertically in guides on the said standard collar C, journalled to the top of the standard and surrounding the bar B, lever D, having the trunnions of the collar O for a fulcrum, friction pawls E and E1 upon the bar B, clevis F connecting the short arm of the lever with the upper pawl, and bar G adapted to fit the notches *t*.

No. 16,540. Improvements on Railroad Ties. (*Perfectionnements aux traverses des chemins de fer.*)

Philip Pendleton, Berkeley Springs, W. V., and James W. Denver, Wilmington, Ohio, U.S., 20th March, 1883; for 5 years.

Claim.—The combination and arrangement of the tie-bar A, removable boxes B B, blocks E. binding plates P P, bolts o and rails D.

No. 16,541. Improvements in Steam Engine Indicators. (*Perfectionnements aux indicateurs des machines à vapeur.*)

George H. Crosby, Somerville, Mass., U.S., 20th March, 1883; for 5 years.

Claim.—The combination, with the post H and the marker lever E, and the piston-rod and cylinder-sleeve, connecting links C and F, of the link D as jointed to the post H and to the link C and with such post arranged under the lever E.

No. 16,542. Improvement in Steam Engine Indicators. (*Perfectionnements dans les indicateurs des machines à vapeur.*)

George H. Crosby, Somerville, Mass., U. S., 20th March, 1883; for 5 years.

Claim—1st. The indicator-cylinder provided with the annular chamber *h* arranged therein, and to open at its lower part into the bore of the cylinder. 2nd. The post E and its projection *f*, slotted as described, arranged and combined as set forth, with the marker-lever E1 connected with the piston by the lever C, having its shorter arm jointed to said post by a link D.

No. 16,543. Improvements on Automatic Advertising Devices. (*Perfectionnements aux appareils automatiques de publicité.*)

William Akin, New York, N. Y., U.S., 20th March, 1883; for 5 years.

Claim.—1st. An automatic advertising device, consisting of the case B, the two clock-works *h* and *m*, the drum E carrying weighted advertising sheets D and provided with a wheel *i* having projecting pins *j*, the hinged bar *l* having pin *k*, the adjustable connecting rod *p*, the hinged lever *q* having pawl tooth *s*, and the ratchet wheel *t*. 2nd. The combination, with the clock work *h* and the clock-work *m* and drum E carrying advertising sheets D, of the wheel *i* having a zig-zag circular row of projecting pins *j*, the hinged bar *l* having projecting pin *k*, the connecting rod *p*, the hinged lever *q* having pawl tooth *s*, and the ratchet wheel *t*, whereby the drum E will be automatically stopped to display an advertisement, and released to change the advertisements. 3rd. The combination, with the hinged lever *l* having a tooth or pin *k* engaging a zig-zag circular row of pins *j* on a wheel *i*, of the rod *p* hooked into one end of the lever *l*, the lever *q* having the spring arm *q*1, the tooth *s*1, ratchet wheel *t* and the hub *m*1 of the large wheel of the clock-work *m*, said hub having the segmental flange *g*.

No. 16,544. Improvements in the Manufacture of Friction Matches. (*Perfectionnements dans la fabrication des allumettes chimiques.*)

Halsey H. Baker, Plainfield, N. J., U.S., 20th March, 1882; for 5 years.

Claim.—1st. The match splint formed with the cavity in its end, for the reception of the explosive compound. 2nd. A match having the explosive compound inserted in a cavity, in the end of the splint.

No. 16,545. Improvements in Lubricators. (*Perfectionnements aux graisseurs.*)

Allen W. Swift, Elmira, N.Y., U.S., 20th March, 1883; for 5 years.

Claim.—1st. A drip-tube of a lubricator having its end highly polished to present a bright surface and extended in close proximity to the transparent portion of the oil cylinder. 2nd. A drift-tube of a lubricator having a plate with a polished surface at its end, and extending in close proximity to the transparent portion of the oil cylinder.

No. 16,546. Improvements in Medicinal Compounds. (*Perfectionnement dans les compositions medécinales.*)

John Rosco, Montreal, Que., and Frederick Rosco, Ottawa, Ont., 20th March, 1882; for 5 years.

Claim—A medicinal compound composed of a decoction of senna leaves, mandrake root and Epsom salts mixed with high wines, Canada balsam, and powdered rhubarb root previously incorporated in about the portions stated.

No. 16,547. Improvement in Overcoats. (*Perfectionnement dans les paletots.*)

Samuel O. Shorey, Montreal, Que., 20th March, 1882; for 5 years.

Claim.—An overcoat made up of two thicknesses of textile material, cut to form and seamed together in the ordinary manner, and an interposed covering of rubber cloth, cut to shape, and stitched to either, or both, of the textile fabrics.

No. 16,548. Improvements on Harvesters. (*Perfectionnements aux moissonneuses.*)

John J. Dewey, Lake City, Minn., U. S., 20th March, 1883; (Extension of Patent No. 8,555.)

No. 16,549. Improvements on Vehicles. (*Perfectionnements aux voitures.*)

Abel A. Crosby, (assignee of Sebastian Gilzinger,) Rondout, N. Y., U.S., 20th March, 1883; (Extension of Patent No. 8,576.)

No. 16,550. Improvements on Vehicles.

(*Perfectionnements aux voitures.*)

Abel A. Crosby, (assignee of Sebastian Gilzinger,) Rondout, N. Y., U.S., 21st March, 1883; (Extension of Patent No. 8,576).

No. 16,551. Machine for Unloading Coal and Iron Ore. (*Machine à décharger le charbon et le minerai de fer.*)

William E. Ludlow, (assignee of Andrew Backet,) Sandusky, Ohio, U.S., 21st March, 1883; for 5 years.

Claim.—1st. In a derrick, the combination, with an adjustable boom, of the frame work having wheels mounted upon tracks along which it can be moved, and of a shaft extending the whole length of the wharf parallel to the rails and having a friction roller keyed thereon to impart motion to a friction-pulley upon the frame-work, which pulley operates the bucket lifting mechanism. 2nd. In a derrick mounted upon rails, the combination, with a shaft journalled in the frame of the derrick and having a frictional roller keyed thereto, of a friction roller held below the friction-roller on the derrick by arms and attached by a feather or key to a revolving shaft, which runs parallel to the rails and has a longitudinal key-way in which the key or feather upon the friction roller slides when the derrick has been moved upon the rails. 3rd. In a derrick adapted to be moved upon a track, the combination, with a friction roller having eccentric bearings, of a brake-block, of a friction pulley mounted upon a revolving shaft having a longitudinal key-way and in contact on each side with arms attached to the derrick-frame, immediately below the friction-roller journalled therein, and of a device for suspending the friction-roller between, and to place it in contact either with the revolving pulley or the brake-block. 4th. The combination, with the frame-work of a derrick having rollers and windlasses, of a boom adapted to be moved upon said rollers, and of guy-ropes passing over the top of the frame-work and attached by one end to the outer end of the boom, and by the other to said windlasses, which tighten the guys when the boom has been adjusted. 5th. In a derrick, an adjustable boom having a movable stop and seated upon rollers journalled in the frame work through which the boom projects, in combination with guy-ropes attached to the outer end of the boom and to the frame-work and provided with windlasses, whereby the guy-ropes can be tightened after the boom has been adjusted, and a traversing catch which travels upon the boom and carries a bucket provided with a trigger, which strikes the movable stop and tilts the bucket. 6th. In a derrick, a traversing catch consisting of a frame-work suspending from a traversing rod by means of wheels and having a hook at one end and a sheave at the other, to support a moving pulley by a lifting cable attached to the hook and passing over the sheave, and a passage between the hook and sheave to admit the shank of a movable pulley, of a hook journalled in the frame-work above the passage and operated by a rod having a crank at one end and a spring at the other, and of a lever-latch pivoted upon the frame-work and having one end immediately over said passage, and the other provided with a latch or hook, which catches upon a stop on the beam, when the spring upon the inner end is free to play.

No. 16,552. Machine for Sand-Papering Wheel Rims, Fellies, etc. (*Machine pour appliquer le papier de verre aux bords, jantes des roues, etc.*)

George A. Brown, Benjamin Holt and Ames F. Holt, Concord, N. H., U.S., 21st March, 1883; for 5 years.

Claim.—1st. The combination, with the bed or table and a guide or guides, and feed mechanism for the material to be operated on, of the sand-papering-belt, the carrying pulleys and the pressure roller adjustable to and from the table, and adapted to be canted or tilted in the direction of its length, under the arrangement and for operation, substantially as described. 2nd. The combination, with the bed or table and a guide or guides, and feed mechanism for the material to be operated upon, of the two sand-papering-belts, one above and the other below the table, the carrying pulleys, the feed-rollers driven by bevel gears and belt to driving shaft, and the pressure-rollers, one or both, adjustable to and from the table and adapted to be tilted or canted in the direction of their length.

No. 16,553. Improvements on Secondary Cells and Batteries, or Apparatus for Storing Electricity. (*Perfectionnements aux cellules et aux batteries secondaires, ou appareils pour emmagasiner l'électricité.*)

Joseph W. Swan, Newcastle on Tyne, Eng., 21st March, 1883; for 5 years.

Claim.—Constructing the plates of secondary batteries or apparatus for storing, or conserving electricity, or electro chemical energy, with cells, corrugations, grooves, or interstices.

No. 16,554. Improvements in Combined Tram and T-Rails. (*Perfectionnements aux ornières et aux rails en T combinés.*)

Tom L. Johnson, Indianapolis, Ind., U. S., 21st March, 1883; for 5 years.

Claim.—1st. The combined tram and T-rail in which the head B, is constructed of a proper width, to prevent the car-wheels from coming in contact with the paving, and inclined from near its inner to its outer side so that the weight of the car shall be at all times upon that portion of said head, which is nearly directly above the web of said rail. 2nd. A combined tram and T-rail having the head B located with reference to the centre line of the web reinforced as at C, and proportioned with reference to the flange A and the remaining parts of the rail, whereby the metal is distributed in the several parts so as to equalize contraction therein during the process of cooling. 3rd. The combined tram and T-rail described, the width of whose head is proportioned and the lower part of its head curved and offset, so as to allow the superincumbent pressure of ordinary adjacent street traffic to force the surrounding ballast into and against, instead of from the rail, and to solidify and retain the ballast forced against and held by said rail, thus preserving the adjacent road-bed and maintaining an accurate gauge of track. 4th. The web E located relatively to the flange A and head B, so that a large part of the flange A is thrown above the pitch line of the bottom roll used in its manufacture, whereby, in rolling, increased facility and economy of manufacture are secured. 5th. The web E located relatively to the flange A and head B offset at C, whereby a maximum capacity of outside pocket is secured with a minimum quantity of metal, consistent with the proper stability of the rail. 6th. A combined tram and T-rail having a reverse-bevelled or arched head B, the outer bevel of which is prolonged and terminates in a rapidly descending curve by which conformation the extreme point of said curve is thrown below the grade of the surrounding street and the setting of the street provided for, and whereby great facility is afforded for vehicles to mount over and run across said rails, and wear and tear of road-bed or ballast adjacent thereto, obviated or greatly diminished.

No. 16,555. Combined Air Buffer and Draw-Bar for Cars. (*Tampon atmosphérique et barre de traction de railroute combinés.*)

Wesley Crouch and William H. Bowman, Rochester, N. Y., U. S., 21st March, 1883; for 15 years.

Claim.—1st. A pneumatic buffer and draw-bar, the combination of an air cylinder and a piston fitting within the cylinder, and connected with a buffer or draw-bar, said cylinder being provided with a passage opening at one end into the cylinder close to the cylinder head, and at the other end at a distance from the head slightly greater than the thickness of the piston, whereby the air, between the piston and the cylinder head, is subjected to compression until the piston reaches a point between the two openings of the passage, and is then permitted suddenly to pass to the other side of the piston. 2nd. In combination with a car-buffer, a piston connected therewith and arranged to move within an air-tight cylinder, whereby the elasticity of the compressed air on one side of the piston and the force or effect of the partial vacuum on the opposite side are both utilized to take up the concussion of the buffer. 3rd. In a pneumatic car buffer and draw-bar, the combination of the cylinder filled with air, and a piston fitting closely within the cylinder and attached to the buffer or draw-bar, the cylinder or the piston being provided with a small passage through which the air can slowly pass from one to the other side of the piston, but so small as to have no appreciable effect upon the compression of the air, whereby the sudden movement of the piston is caused to compress the air, but a very slow and gradual movement is permitted without compressing the air. 4th. In combination with a draw-bar or buffer, provided with a piston, a cylinder containing said piston, a passage through which air may slowly pass from one side of the piston to the other, and a spring applied to the draw-bar, and arranged to return the piston to the middle of the cylinder after being forced from said portion. 5th. The combined draw-bar and buffer consisting of a draw head A, draw-bar or piston rod B provided with collar C and piston E, cylinder H provided with ports *m m*, and channel P, beam or support D and spring J. 6th. In combination with the cylinder having the oil hole *n* and plug I, the piston E provided with groove L. 7th. In a car buffer, the combination of an air cylinder, a piston arranged to move within said cylinder, and a collar applied to the piston rod and arranged to come into contact with a stop outside of the cylinder, whereby the piston is prevented from coming into contact with the cylinder head.

No. 16,556. Improvements on Faucets.

(*Perfectionnements aux robinets.*)

James McGinley, Chicago, Ill., U.S., 24th March, 1883; for 15 years.

Claim.—1st. A faucet provided with a rubber sponge ball, vulcanized on the outside and inside, whereby the water is let on and shut off. 2nd. The stem or spindle having a threaded end, whereby the valve may be adjusted, as described, whereby a valve collar is dispensed with. 3rd. A faucet made in separable pieces, whereby the inside may be examined and cleaned. 4th. The spindle S provided with lug *a* and collar *d*, in combination with piece D provided with slots a^1 a^1 whereby the spindle is locked. 5th. The combination of the pieces D and C forming the chamber B^1. 6th. The rubber sponge ball B vulcanized on the outside and inside. 7th. The combination of the removable piece C, provided with spout b^1 and lug *c*, in combination with piece A provided with openings c^1 c^1 and groove c^2. 8th. The combination of the washer *e*, with pieces C and A. 9th. The combination of the spindle S provided with threaded end and washer nut V with vulcanized rubber valve E. 10th. The adjustable spindle S provided with handle H having screw *f*, lug *a*, and collar *d*, vulcanized rubber valve E, and having its end threaded and provided with washer nut V. 11th. The combination of the piece D provided with slots a^1, piece C provided with lugs *c* and spout b^1, the chamber B^1, the vulcanized rubber sponge ball B, the piece A provided with openings c^1 and cam groove c^2, the washer *e*, the spindle S having threaded end and washer nut V and provided with lug *a*, collar d^1 and vulcanized rubber valve E, and handle H having screw *f*, and the valve seat *b*. 12th. The combined metal nut and washer V all in one piece. 13th. The combined metal nut and flange X all in one piece, whereby the faucet may be readily secured. 14th. The spindle S provided with collar *d*, in combination with the vulcanized rubber sponge ball B, whereby the valve is opened and closed.

No. 16,557. Improvement on Rotary Engines. (*Perfectionnement des machines rotatoires.*)

Isaac N. Forbes, (of Lawrence Co., Dak.,) New York, N. Y., U. S., 27th March, 1883; for 5 years.

Claim.—1st. A double non-reversible trochilic or rotary engine constructed with two piston wheels on one shaft, each having two piston teeth with the teeth on one wheel opposite the spaces between the teeth of the other wheel, and two cut-off valves at opposite side in each cylinder, with exhaust ports at opposite sides of cylinder from each other, and automatic cut-off gear. 2nd. A centre head with four valve stem bearings, two on each side, and valve packing rings, and with adjustable abutment roller bearings and their automatic or screw followers, in combination with two toothed piston wheels and abutment rollers. 3rd. The end heads having two valve stem bearings in each head with valve packing rings, springs, etc., for forming steamtight joints, endwise and prevent end binding, and adjustable abutment roller journal bearings with their automatic or adjustable followers, in combination with abutment rollers, two toothed piston wheels and condensed water channels and cylinder cocks. 4th. In a trochilic or rotary engine, piston wheel provided with surface pieces 81, piston teeth 3 and packing strips 5 with springs, in combination with the packing strips 5 and springs, packing pieces 175. 5th. In a trochilic or rotary engine, the combination of one or more toothed piston wheels, two or more recessed abutment rollers for each of said piston wheels, straight toothed gear wheels connecting the shafts of the piston wheel and abutment rollers at one end thereof, and helical gear wheels connecting said shafts at the other end thereof, to prevent lost motion and permit the tightening of all the gear wheels by longitudinal adjustment of the helical gears. 6th. The adjustable bearing segments 48 for the main shaft bearing, and housing or casing 49 in which they fit, and a ring 51 having inclines corresponding with the inclines of the backs of the bearing segments to fit and adjust the same with screw thread 51a therein, fitting the screw thread of the bearing casing or housing, and a tooth gear upon the outer surface of the ring with pinion 55h, hollow shaft 55, pin 56, spring 61, gear or ring 59 having serrated face with corresponding serrated ring 58 and rivet 57, etc. 7th. The combination of an end head of a trochilic or rotary engine and adjustable main shaft bearing therein, removable or movable housing or casing. 8th. Four fold cut-off balanced valves with connected ducts crossing each other through the valves, permitting steam to pass freely to the four opposite recesses in the valves and thus counter-balance the pressure thereon. 9th. A removable convex and concaved end of a centre head, for the purpose of inserting the main shaft bearing. 10th. Adjustable segment bearings with one or more inclined backs thereon, and housing or casing having mortises corresponding with the projections of the segment backs, and encircling ring or rings fitted as described, tooth gear thereon and pinion with its adjuncts to hold all in position. 11th. The combination of a toothed piston wheel, recessed abutment rollers, tappets, valve levers and stops. 12th. The combination of a centre projection in the end heads, with the central projections in the centre heads and cylinders, piston wheelsand main shaft bearings in each of the cylinder heads. 13th. The centre head of a rotary engine, movable pieces 12c having flanges with bolts 12v for securing it in place, and provided with tongues and grooves, followers 40, spring 41 and 42a, spring catch 43a and hollow cap nut 43. 14th. The combination of automatically adjustable bearing segments with the abutment roller journals in the heads. 15th. A central main shaft provided with a tapered portion for securing a piston wheel having stops therein and corresponding recesses in the wheel, a thread and nut and concaved ends of piston wheels.

No. 16,558. Improvement on Rotary Engines. (*Perfectionnement aux machines rotatoires.*)

Isaac N. Forbes, (of Lawrence Co., Dak.,) New York, N. Y., U. S., 27th March, 1883; for 5 years.

Claim.—1st. A rotary piston tooth 3 in combination with packing strips 5, springs and end packing pieces 175, spring 176 and water creases therein. 2nd. A non-reversible valveless trochilic or rotary engine having one or more piston wheels, provided with four or more piston teeth upon each wheel having adjustable packing strips therein, with abutment rollers to each wheel recessed for the passage of the piston teeth geared to rotate in unison with the piston wheel, in combination with the casing containing cylinder or cylinders for piston wheel or wheels, and abutment rollers and adjustable bearings for the abutment rollers. 3rd. A valveless cylinder casing with steam inlet and passages 85, ports 88 86 and exhaust chambers 87, in combination with the toothed piston wheel or wheels and recessed abutment rollers. 4th. A valveless casing in combination with a centre head 12 and end heads 44, piston wheel or wheels, abutment rollers and helical gearing at one end, in combination with straight toothed gearing at the other, or helical gearing at both ends if desired. 5th. A valveless engine casing containing steam passages 85 and exhaust chambers 87, in combination with the end heads 4, piston wheel 2, shaft 1, abutment rollers 6. 6th. In combination with piston wheel for packing piston teeth, radial and end packing pieces 175 for packing piston teeth longitudinally, said end packing pieces being inserted in recesses, in the respective ends of piston teeth, to form tight joints and prevent radial or end binding of piston teeth. 7th. In combination with piston wheel, longitudinal strips 5 set in the face of piston teeth, for packing them radially, and end packing pieces 175 for packing the teeth, in combination with piston wheel, piston teeth of end packing pieces 175 having shouldered stems set in sockets in the end of piston teeth, and spring 176 also contained in said sockets confined therein by the shoulders of the stems of packing pieces, for holding springs in position and packing the ends of piston teeth, in combination with strips 5. 8th. The automatically adjusting piston packing tooth. 9th. The combination of the respective teeth individually or collectively consistent with the construction thereof, of piston wheels, concaved ends and convexed surfaces of heads for extending therein, and adjustable main shaft bearings.

No. 16,559. Improvement on Rotary Engines. (*Perfectionnements des machines rotatoires.*)

Isaac N. Forbes, (of Lawrence Co., Dak.,) New York. N. Y., U. S., 27th March, 1883; for 15 years.

Claim.—1st. A double reversible cut-off trochilic or rotary engine having two piston wheels provided with two piston teeth upon each and secured to a main shaft, two abutment rollers to each piston wheel having recesses for the passage of the piston teeth in their revolutions by the abutment rollers forming steam-tight joints between the surfaces of the piston wheels and abutment rollers, and eight reversible cut-off valves with operating gear, two main casings, three heads and two outside covers for the end heads. 2nd. The combination, with a toothed piston wheel and a cylinder head of the concentric annular surface pieces 142c 142o against which the ends of the piston teeth work, said surface pieces being renewable when worn. 3rd. In a trochilic or rotary engine, a ring 15 having a flange 15c provided with recesses to engage with dogs 104, to assist in limiting the motion or play of the cut-off valves. 4th. In a trochilic or rotary engine, oscillating valves having live-steam passages leading to opposite recesses and passages at right angles therewith, leading to recesses at opposite quarters for exhaust steam and provided with adjustable packing pieces. 5th. In a trochilic or rotary engine, tapered valve stems and frame 13c, ring 106, clutch 27, bolt having lock washer and pins for securing the valve stems to the reversing connections. 6th. In valve stem and bolt and its lock washer, pins for securing the stem in position, sleeve clutches 27 and 27a, rings 106 and 106c, spring 105, segmental gear 13, bolts or pins 107 and valve levers 26 29. 7th. In valve stems and connections with valve levers 26 29, in combination with double-faced tappets 25 secured to the main shaft or gear, and double-faced tappets 28 secured to the abutment rollers, journals or gear. 8th. The combination, with the end head and the valve stem passing through the same, of the packing ring and spring thereof. 9th. The combination, with centre head, of the valve stems and bearings in which they work, and their packing rings and springs. 10th. In a trochilic or rotary engine, in combination with the rings 51 and main shaft bearing in end head of the two pinion bolts 56 and 56a and gear 56b connecting them together, said gear secured to the end of the bearing case or housing concentric with the bearing therein, for operating said pinion bolts simultaneously and thereby adjusting the said ring 51 and bearing. 11th. In a rotary engine, one or more toothed piston wheels with concave end faces, in combination with heads having convex faces between which the said wheels rotate, adjustable bearings within said convex heads, the concavity of the piston wheels giving greater length and consequent area to their piston teeth and the convexity of the heads affording greater length for the bearings. 12th. A reversible valve gear ring 15 concentric with the main shaft or valves with its bearing secured to the surface of the outer head or bearing case therein and arms 14a and toothed segments 14 geared with segment pinions 13, which pinions are secured to the valve stems and toothed arms 16, toothed lever 17, rock shaft 18 and lever 19 and reversing socket lever 22, with a non-conductor handle coil spring 22a, catch 22b and semi-circular rack with recesses 21a 21a 23, in which spring catch 22c may be thrown out of gear by pressure of the hand upon the handle, and moving the lever within one of the recesses for placing the valve, gear valves and engine in any desired position required. 13th. In the centre head of a rotary engine, a movable piece 12c having flanges and boss with bolts 12b for securing it in place, and provided with tongues and grooves, followers 40, springs 41 and 42a, spring catch 43a, and hollow cap nut 43.

No. 16,560. Improvements in Locomotives.

(*Perfectionnements aux locomotives.*)

Isaac N. Forbes, (of Lawrence Co., Dak.,) New York, N. Y., U. S., 27th March, 1883; for 15 years.

Claim.—1st. In combination with the frame, axle, and driving wheels of a locomotive, a toothed piston wheel keyed or fixed on said axle, a cylinder or casing attached to said frame by elastic connections, two abutment rollers running in bearings in said casing, geared to the piston wheel so as to rotate in unison therewith and recessed for the passage of the teeth thereof, and suitable reversing valves. 2nd. In combination with the frame, axle and driving wheels of a locomotive, a toothed piston wheel keyed or fixed on said axle, and a bisected or dividing casing enclosing the same, bisected heads and recessed abutment rollers, operating in unison therewith. 3rd. In a locomotive having a rotary engine with counterbalancing pistons arranged to counteract the pressure of the steam from the inlet and exhaust pipes, on the opposite sides thereof, corresponding in areas to the areas of the respective pipes. 4th. In a locomotive having a rotary engine with counterbalancing pistons, in combination with the piston rods 82 77 and bar 78, and keyed pin and rods 79 and pivot or hinged bolts 79c. 5th. In a locomotive having a rotary engine with bisected bearing housing, in combination with the adjustable segmental main shaft bearing and an adjustable toothed ring and pinion, and operated by means of a worm and gear. 6th. The combination, with the driving axle, toothed piston wheels recessed, abutment rollers and casing, and with the body of a locomotive, of the reversing valves 28 28a, segment and arms 31 32, toothed ring 33 concentric with the axle and having toothed arms with which the toothed valve levers mesh, segment arms 34, rock shaft 35, levers 36 36a and suitable connections to enable the simultaneous operation of the valves from the cab of the locomotive. 7th. The combination, in a locomotive, of two, or more axles and their driving wheels connected by suitable coupling bars or rods, and toothed piston wheels fixed on the respective axles, recessed abutment rollers geared to said piston wheels, casings within which said tooth piston wheels and recessed abutment rollers rotate in unison and suitable reversing valves, the teeth of one of said piston wheels being arranged to pass the abutment rollers and steam inlet ports while those of another or other of the piston wheels are under full steam pressure. 8th. The combination, with the boiler and one of the axles of a locomotive, a piston wheel keyed or fixed on the axle and casing therefor, connected to the frame and having a concave upper surface parallel, or nearly so, with the under surface of the boiler so as to reduce the vertical space occupied by the rotary engine, and bring the boiler or body of the locomotive nearer the track. 9th. In combination with a rotary engine mounted on an axle and secured to the frame of a locomotive, the fender 48 encasing the bottom of the engine cylinder and secured thereto at front and back. 10th. The combination of a driving axle, a toothed piston wheel keyed or fixed thereon, abutment rollers geared to the piston wheel to rotate in unison therewith and recessed for the passage of the teeth thereof, and a casing containing cylinders for the said piston wheel,

and abutment rollers connected to the running gear frame and having steam inlet connections 75, and exhaust connection 80 at front or back of the casing, tangentially, or nearly so, to the piston wheel. 11th. A locomotive with a rotary engine having a bisected casing with projections, for securing suspensions bars 61 by means of claps 62. 12th. In combination with a locomotive, a trochilic engine or engines having piston wheel or wheels and abutment rollers with adjustable bearing pieces for their journals, with automatic followers and springs for securing the surfaces of the abutment rollers to the piston wheels. 13th. The bisected and banded outside end covers for the cylinder heads, for protecting gearing therein and forming oil chambers, in combination with a locomotive rotary engine. 14th. A locomotive having a rotary engine with bisected heads made hollow to form closed chambers for oil or other lubricant. 15th. The combination, in a locomotive, of an axle and its driving wheels, a toothed piston wheel keyed or fixed on said axle, recessed abutment rollers geared to rotate in unison with the piston wheel, and a casing containing cylinders for the said piston wheel, and abutment rollers, supported from the locomotive frame, so as to relieve the axle of the weight of the engine excepting the piston wheel. 16th. The combination, in a locomotive, of an axle and its driving wheels, a toothed piston wheel keyed or fixed on said axle, recessed abutment rollers geared to rotate in unison with the piston wheel, a casing containing cylinders for the said piston wheel and abutment rollers, suspension bars 61 and suitable springs 68 69 73 forming an elastic connection for suspending the engine from the locomotive frame independently of the axle. 17th. The combination, with the frame and one or more axles of a locomotive, and a rotary engine or engines operating directly on such axle or axles, of a torsion shaft or shafts 66 sustaining the position of the engine upon the locomotive frame to keep it from tipping. 18th. The combination, with a locomotive frame, one or more driving axles and a rotary engine or engines operating directly on said axle or axles, of suspension bars 61, hangers 64, arms 65, torsion shaft 66, attachments 67 and one or more springs 68 69 or 73. 19th. The combination of the torsion shafts 66, suitable springs 68 69, ratchet wheels 70 and collars 71, for setting the springs to sustain the weight of engine. 20th. In combination with a driving axle of a locomotive, and a trochilic or rotary engine operating directly thereon, driving wheels formed with concave inner faces and convex outer faces, to afford greater length to the engine and space for the locomotive bearings, between the ends or heads of the engine casing and the inner faces of the said driving wheels when required. 21st. In combination with a locomotive having a trochilic or rotary engine, a hollow wrist pin secured to the wheel and held in position by a countersunk lock bolt. 22nd. In a locomotive provided with a rotary engine, the concave abutment roller pinions, in combination with the main gear wheels and main shafts of a rotary engine and driving wheels. 23rd. The ring 117b containing a recess for the head of the key 117a of the main gear wheel, and a recess for the packing ring forming an oil tight joint for the outer cover of a rotary engine head, in combination with the driving axle of a locomotive. 24th. A locomotive having rotary engine or engines operating directly on one or more of its axles, and one or more live steam pipes extending from the steam dome or domes partially around the exterior of the boiler, between the locomotive axles and connecting with the engine cylinders. 25th. A locomotive having one or more rotary engines provided with a main steam pipe or pipes, which have branch connection with said engines, and boiler pipe connections provided with ball and socket and telescopic joints. 26th. In a locomotive having one or more rotary engines, a main steam pipe or pipes having branch connections with said engines, provided with ball and socket and telescopic joints and secured in position by lock joints and casing. 27th. In a locomotive having one or more rotary engines, the exhaust pipes with branch connections from the engines provided with ball and socket and telescopic joints, connecting with pipes leading to the nozzles in the smoke stack or otherwise. 28th. In combination with a locomotive, one or more rotary engines, cylinder, water cocks 86 86a and suitable shafts 87, gearing 89 90 and connections 92 93 for operating them simultaneously. 29th. In combination with a locomotive having one or more rotary engines, cylinder water cocks, suitable shafts and gearing for operating the same, and sliding couplings 88 to compensate for motions between the body of the locomotive and the running gear. 30th. The combination, with the drlving wheels and axles of a locomotive, of rods coupling the wheels, and trochilic or rotary engines mounted on the axles with their teeth or pistons arranged alternately with respect to the steam ports so as to operate in conjunction as a double engine. 31st. In combination with the wheels of a locomotive and trochilic engine upon their driving axles, the coupling rods provided with tongued or grooved or ribbed ends connected together and to the wrist pin by tongued or grooved or ribbed clampplates and bolts.

No. 16,561. Improvements in Rotary Engines. (*Perfectionnements des machine rotatoires.*)

Isaac N. Forbes, (of Lawrence Co., Dak.,) New York, N. Y., U. S., 27th March, 1883; for 15 years.

Claim.—1st. A reversible trochilic or rotary engine with two piston wheels secured to the main shaft, containing two or more piston teeth placed at opposite sides and at equal distances apart, and secured firmly thereto by bolts or otherwise, and with two abutment rollers to each piston wheel recessed for the passage of the piston teeth by the abutment rollers in their revolutions, the piston wheels and abutment rollers being geared together so that their peripheries shall form steam tight joints and move at the same speed without slip between their peripheries, in combination with the respective piston wheel cylinders, abutment roller cylinders or casings containing induction and exhaust passages and reversible valves. 2nd. A double reversible trochilic or rotary engine with two piston wheel cylinders, two abutment rollers and four reversing valves to each cylinder with centre head and two heads. 3rd. In combination with a toothed piston wheel and abutment rollers. a cylinder or casing having inlet steam passages 11 and 12a, opposite induction and exhaust ports 11 11 and 11a 11a, paired valves 10 10 and 10a 10a and exhaust passages 20. 4th. A single reversible trochilic or rotary engine having one main cylinder or engine casing containing a piston wheel cylinder, two abutment roller casings and four valve seats with suitable induction and eduction steam passages, ports and channels and a pist on wheel, two abutment rollers and four valves. 5th. A trochilic or rotary engine consisting of a main engine casing, a piston wheel, two abutment rollers recessed with four reversing valves geared at one or both ends of the engine with heads and covers for the heads and a main shaft. 6th. Abutment rollers provided with removable surface pieces 6b 6c and 6h, and the respective abutment roller frames upon which they are fitted, in combination with cylinder casing. 7th. A centre head cast hollow consisting of an oil or other lubricant reservoir therein, for a continuance lubrication through ducts of the bearing casing and bearings therein located, and a supply duct and plug 4a in the upper surface of the head for supplying lubricant to the reservoir therein. 8th. Hollow end heads of the engine containing closed chambers for oil or other lubricant from which the engine bearings therein are constantly lubricated, by means of ducts through the respective bearing casings and bearings with inlet ducts and plugs to suit in the upper surfaces of the heads, through which lubricant is supplied to the reservoirs of the heads, in combination with the bearings therein. 9th. An adjustable centre bearing for a main shaft in a centre head composed of adjustable segment bearings, for the purpose of securing a continuous central position of the main shaft at its central bearing and piston wheels thereon to their respective cylinders. 10th. The combination of bearing segments 48 and housing 49 through which the said bearings project radially, the curved wedges or eccentric segments 50 and the toothed ring 51, said wedges or eccentric segments 50 for adjusting or setting up the bearings. 11th. The combination of adjustable main shaft bearing in the centre head and rotary mechanism for adjusting said bearing with adjustable main shaft bearings in the end heads and main shaft of a trochilic or rotary engine. 12th. The combination, with cylinder heads having central projections upon which the respective cylinders are secured in a position concentric with the main shaft and piston wheels in their respective cylinders. 13th. The combination, with segmental bearings 48 with their eccentric backs, housing 49 and guides 49a secured therein. 14th. The combination of a ring 51 having one or more recesses, with corresponding eccentric segment 50 secured to said ring by means of rivets or equivalents as shown at one end, while the other end is held in a recess formed in the back of each eccentric segment, and the ring 51. 15th. The combination of the segmental bearings 48 having eccentric backs and housing 49, and guides 49a, eccentric segments 50, worm toothed ring 51 with worm 53 and shaft 54a. 16th. The combination, with one or more piston wheels, main shaft 1 on which said wheel or wheels are mounted, and bearings for said shaft in cylinder heads, one or more bearings external to the cylinder adjustable vertically and horizontally to set or adjust the outer extension of the main shaft, on a line with the main bearings of the engine proper, and prevent an unequal stress or wear thereon. 17th. In combination with main shaft bearings in the heads, a bearing housing secured to the outside of the cover and having bearing case, and bearing 1a provided with an adjustable bearing piece at its upper side. 18th. In a rotary engine, the combination of a ring with inclines for setting up the adjustable bearing segments of the main bearing in an end head with a hollow bolt 55, spring bolt 56, rivet 57 and plate 59, and ring 58 serrated on their faces. 19th. In rotary engines, the method of adjusting the main shafts by means of a proof templet supported on lugs 71, on the end of the base, and dowel pins 72 for securing its position or hinged to base of engine. 20th. In a rotary engine, adjustable bolts 55 with serrated flange 59 and serrated ring 58, stops 55a, ring 55g for holding the bolts in position, springs 61 to hold the serrated ring in contact, and headed pins 55d, in combination with ring 51 and bearing pieces 48. 21st. A reversing valve gear ring 15, concentric with the main shaft or valves with its bearing secured to the surface of the outer head or bearing case therein, and toothed arms 14 geared with segment pinions 13 which pinions are secured to the valve stems and toothed arms 16, toothed lever 17, rock shaft 18 and suitable operating mechanism. 22nd. A reversing valve gear ring 15, concentric with the main shaft or valves with its bearing secured to the surface of the outer head or bearing case therein, and toothed arms 14 geared with segment pinion 13, which pinions are secured to the valve stems, and toothed arms 16, toothed lever 17, rock shaft 18 and lever 19, and reversing socket lever 22, with a non-conductor handle coil spring 22a, catch 22b and semi-circular rack with recesses 21a 21a 23 in which spring catch 22b may be thrown out of gear by pressure of the hand upon the handle, and moving the lever to either one of the recesses for placing the valve gear, valves and engine in any desired position required. 23rd. A reversing valve gear ring, concentric with the main shaft or valves, with bearing secured to the surface of the outer head or cover, or both, provided with arms connected by suitable mechanism for operating the valves, in combination with the reversing lever and rock shaft 18. 24th. In combination with a rotary engine, a lever 19, socket handle 22, non-conductor handle and spring 22a, spring catch 22b and semi-circular rack 21, with recesses 21a 23. 25th. In combination with piston wheel or wheels and main shaft 1, and main shaft bearings in the heads, adjustable bearings 61 mounted on universal joints consisting of stand 68a, standards 63, sleeves 64, bracket arms 65, adjustable bearing 61 and pivot screws 67. 26th. In a rotary engine, the combination of cylinder heads provided with packing rings and abutment rollers provided with removable plates 9a on their ends to form packing joints between the said packing rings, rollers and surface bearing for the ends of the piston teeth. 27th, In a rotary engine, in combination with the head thereof, a packing ring provided with a recess in its inner surface for the reception of springs 101, with stops 103. 28th. The combination of a toothed piston wheel and recessed abutment rollers geared together, and grooved or creased longitudinally in their peripheries to adapt them to work together steam tight. 29th. The combination of a toothed piston wheel with an abutment roller on opposite sides of said wheel, recessed for the passage of the piston teeth thereof, and helical gears at each end connecting the shaft of piston wheel and abutment rollers.

No. 16,562. Improvement in Fountain-Pen Holders. (*Perfectionnement des porte-plumes fontaines.*)

William W. Stewart, Brooklyn, N.Y., U.S., 27th March, 1883; for 5 years.

Claim—1st. A holder with its interior made of vulcanite or other

material, roughened so as to present capillary surfaces and provided with tubes, or pieces of glazed material, whereby the capillary surfaces will counteract the gravity of the fluid and the glared surface will facilitate the movement of the entering bubbles of air. 2nd. A holder having its interior surfaces partly roughened, or capillary, and partly smoothed or glazed for the purpose of regulating the flow of ink and egress of air. 3rd. A holder, the interior surfaces whereof are made dissimilar and so arranged that capillary attraction and the non-capillary action will be graduated to have certain strengths in certain parts for the purpose of promoting a flow. 4th. A permeable strand or cord arranged to be moved by the pen as a pipe to draw off the ink from the reservoir, combined with said pen and a trough, or bath, under the same. 5th. A fountain pen-holder provided with an ink-tube, or gutter g, and a pen F combined with a permeable elastic strand b at its end, secured to the point of the ink gutter g and maintained in contact with the pen by a pin e. 6th. The combination, with a fountain-holder for a pen, a capillary surface constituted of an elastic metallic spring covered by a permeable fibrous material. 7th. A permeable strand, or cord, within the ink tube arranged to be moved by the pen as a duct to draw off the ink from the reservoir, combined with said pen and a trough or bath under the same.

No. 16,563. Device for Removing Grease, Air and Other Impurities from Feed Water. (*Appareil pour enlever la graisse, l'air et autres impuretés de l'eau d'alimentation.*)

Dyson D. Wass and Leopold Katzenstein, New York, N.Y., U.S., 27th March, 1883; for 5 years.

Claim.—1st. The combination, with the vessel A provided with transverse partition C, of a device for collecting the grease, and of an automatically operating outlet for the air that collects in the vessel. 2nd. A device for removing grease, air, mud and other impurities from feed water consisting of a vessel provided with a channel along its bottom, and with devices for placing the inlet and outlet pipes in communication with the vessel, or with the said channel. 3rd. The combination, with the vessel A provided with transverse partitions C and a longitudinal channel R on its bottom, of the two-way cocks S at the ends of the said channel. 4th. The combination, with the vessel A provided with transverse partitions C, forming compartments in the vessel A, of the mud cocks u projecting from the sides of the said compartments at the bottom. 5th The combination, with the vessel A provided with the transverse partition C, of a flat funnel-shaped vessel F projecting horizontally from the inner surface of one of the sides of the vessel A. 6th. The combination, with the vessel A provided with transverse partitions C, of the funnel-shaped horizontal vessel F and of the channel G. 7th. The combination, with the vessel A for receiving feed water, of the cock H having a check arm K, and of the float J connected with the cock H.

No. 16,564. Improvements in Toy Savings Banks. (*Perfectionnements aux banques d'épargnes-jouets.*)

Charles G. Shepard, (co-inventor with Peter Adams,) and Walter J. Shepard, Buffalo, N. Y., U.S., 27th March, 1883; for 5 years.

Claim.—1st. The combination, with the receptacle A B having an open mouth a, of a pivoted arm C adapted to receive the coins and convey the same to the open mouth. 2nd. The combination, with a receptacle A B having an open mouth a, of a pivoted arm C mounted on a horizontal shaft I and a thumb piece $i1$, whereby the shaft is actuated. 3rd. The combination of a receptacle A B having an open mouth a, of a pivoted arm C, a pivoted tongue plate E and means whereby the arm and tongue plate are simultaneously actuated. 4th. The combination, with the receptacle A B having an open mouth a, of a pivoted arm C, rock shaft I provided with an arm J, and a pivoted tongue plate E provided with an arm H adapted to be actuated by the J of the rock-shaft. 5th. The combination, with a receptacle A B, having an open mouth a, of a pivoted tongue plate E provided with an overhanging arm H, whereby the lower edge of the tongue plate is pressed forwardly against the mouth, and a lip $g1$ formed on the tongue plate, whereby the forward movement of the tongue plate is limited. 6th. The combination, with a receptacle A B having an open mouth a, a pivoted arm C, shaft I provided with an arm J, a pivoted tongue plate provided with an arm H, and a pivoted eye-plate K provided with a projection L, adapted to be actuated by the arm H of the tongue plate. 7th. The combination, with the head A provided with the eye openings k and a stop $l1$, of the hinged eye plate K having a depression l into which the stop $E1$ projects, whereby the downward movement of the eye plate is limited. 8th. The combination, with the head A provided with eye openings k, of the hinged eye plate K and a stop $l2$ arranged on the inner side of the head above the eye-plate, whereby the upward movement of the eye-plate is limited. 9th. The combination, with the head A and body B connected by a throat, or contracted passage b, of a hinged plate M hung in said throat, to obstruct the same when the figure is placed in a horizontal position.

No. 16,565. Improvements on Numbering Machines. (*Perfectionnments aux machines à numéroter.*)

Wellington P. Kidder, Boston, Mass., U. S., 28th March, 1883; for 5 years.

Claim.—1st, In numbering machines, the tens' wheel above described carrying in addition to types for printing the digits, the type for printing 10, and the blank space, and arranged as stated, and operating with the units' wheel, the tens' wheel having a double motion with the units' wheel after 99 has been printed, the first step of this double motion bringing the 10 in line with the 0 of the units' wheel and printing 100, and the next step, the blank space in line with the one of the 1 of the units-wheel and printing 1. 2nd. The combination, in a numbering machine, of units' wheel and tens' wheel, and mechanism for not only giving the proper motion to the wheels to print from 1 upward in regular order, but in addition for moving the tens-wheel two steps with the units-wheel, to make the changes described in order to begin again at 1.

No. 16,566 Improvement on Bolting Reels. (*Perfectionnement des blutoirs.*)

John D. Hurst, Salem, Oregon, U.S., 28th March, 1883; for 5 years.

Claim.—1st. The combination, with the oblique bracing rods and the parts supported thereby, of a yielding elastic substance interposed between the points of attachment of said rods. 2nd. The combination, with the frame-arms and oblique brace-rods D, of a movable disk E yieldingly supported by an elastic substance. 3rd. The combination, with the frame and arms and outer hub B, of the disk E, the interposed rubber disk F and the diagonal brace D, arranged and connected substantially as described. 4th. The combination, with the frame-arms and the yieldingly supported disk E, of the brace-rods D arranged to pass the central shaft between their points of attachment.

No. 16,567. Improvements on Revolving Show Cases. (*Perfectionnements aux montres tournantes.*)

Henry Westphal, Chicago, Ill,, U.S., 28th March, 1883; for 5 years.

Claim.—1st. The combination of the central column B having the concentric offsets or steps X, rings i, and radial partitions c hinged therein, and provided with the floor f and ends g. 2nd. The central column B provided with the perpendicular row of holes Z, in combination with the radial partitions c and spring-bolt n, for the purpose of locking the sections. 3rd. The combination of the radial partition c having the floors f and ends g, rings i, and set bolt and nut S held in place by the sockets S1 in the lugs, on the sides of the partitions c, for the purpose of holding said partitions in place. 4th. The revolving sections consisting of the two concentric rings i, hinged radial partitions c, floor f, ends g and bolts O and S.

No. 16,568. Improvements on Refrigerating Cars. (*Perfectionnements aux chars frigorifiques.*)

Charles E. Pierce, Chicago, Ill., U.S., 28th March, 1883; for 5 years.

Claim—1st. In a refrigerator car or chamber, an ice pan supported or suspended near the roof or ceiling of the same and in such a manner that open spaces are provided for a free circulation of air. 2nd. The car roof or ceiling, in combination with a V- shaped ice pan arranged lengthwise of the car and supported a short distance from the ceiling, whereby open spaces are provided between the side edges of the pan and the ceiling for the free circulation of air. 3rd, The combination, with an ice-pan, of a waste gutter or trough when arranged with reference to each other. 4th. An ice-pan provided with inclined or sloping sides, with waste openings at the bottom, in combination with a separate waste gutter arranged underneath the pan. 5th. The ice pan B having its sides sloping downward and inward, and provided with waste openings at the angle, in combination with a separate waste gutter F arranged underneath the angle of the pan and hangers D, 6th. The ice-pan having sloping sides, in combination with the hangers D, wooden strips E, and gutter F. 7th. The car body A, in combination with the sloping ice-pan B of less width than the interior of the car and arranged lengthwise in the upper part of the latter on suitable supports, and a separate waste gutter F. 8th. The ice-pan provided with sloping sides, in combination with the waste gutter F and separate waste pipe H. 9th. The sloping ice-pan B, in combination with the separate metallic gutter F and wooden sheathing strips G arranged to cover the under sides of the gutter.

No. 16,569. Improvements on Flour Bolts. (*Perfectionnements aux blutoirs.*)

Josiah N. McConnell, Lawrence, Ks., U.S., 28th March, 1883; for 5 years.

Claim.—1st. The end frames A composed of two or more sections detachably connected together, in combination with the connecting boards or rods a, detachably secured to the said end frames. 2nd. The combination, with the reel shaft E, the radial arms F, the reel-ribs G, the bolting cloth H and the metal bands U, of the short studs V having their ends bent at right angles and perforated. 3rd. The combination, with the reel-shaft E, the radial arms F, the reel-ribs G and the reel head J, of the short studs V having their ends bent at right angles and perforated, the metal bands U secured to the outer ends of the said studs, the bolting-cloth H secured at one end to the said head, and the wooden hoops I placed upon the reel at the centre and tail.

No. 16,570. Improvements on Railroad Beds. (*Perfectionnements aux remblais des railroutes.*)

Jacob Elmer, Biloxi, Miss., U.S., 28th March, 1883; for 5 years.

Claim.—In a swamp railroad bed, the combination of the main road bed A, the longitudinal side ditches B B11 filled with bundles of poles or faggots D laid longitudinally to protect the road bed, the covering of earth C laid over the said faggots, the partitions EE and additional ditches FF.

No. 16,571. Improvement on Mill Disks. (*Perfectionnement des disques de moulins.*)

Louis Gathmann, Chicago. Ill., U.S., 28th March, 1883; for 5 years.

Claim.—1st. In a grinding mill, the combination, with an opposing disk having a relatively plane working face, of a disk A provided in its working face with alternating furrows C closed at their outer ends, lands E, and recesses D, the latter constructed to discharge their contents, and the several parts C E D being arranged and operating in combination with the opposing disk. 2nd. The combination, with an opposite disk having a relatively plane working-face, of a disk A

having in its working-face furrows C which terminate near the periphery, open recesses D, not in the communication with the furrows C and intervening lands E of practically uniform width. 3rd. The combination, with an opposing disk B, of the disk A having furrows C closed at their outer ends, discharging recesses D, and intervening lands E of practically uniform width, arranged in alternation. 4th. The combination, with the disk A having furrows C closed at their outer ends, discharging recesses D1 and intervening lands E arranged in alternation, of the opposing disk B, unlike the disk A in having a relatively plane and uniform surface, whereby all parts thereof present substantially the same active surface in opposition to the lands E. 5th. The combination, with a smooth surfaced disk provided with furrows having inclined bottom faces, of an opposite disk having grooves *b* of fluted or rounded form. 6th. The combination of the the disk B having grooves *b* of fluted or rounded form, and the disk A having the alternating furrows C, lands E and discharging recesses D. 7th. In combination with the disk A having alternating closed furrows C, lands E and open recesses D, an opposing disk B having its working face b^2 continuous and of sharply rough or granular structure.

No. 16,572. Improvements on Chimney Caps.

(*Perfectionnements aux chapeaux des cheminées.*)

Walter J. Pettingell, Lowell, Mass., U. S., 28th March, 1883; for 5 years.

Claim.—1st. A metallic chimney cap made in sections to fit upon each other, each section having bolt-holes at one edge and vertical bolts with projecting-bosses therefor, cast in one with the metallic plate at the overlapping edge, so as to extend downwardly from under surface through the holes therefor in the adjacent section, whereby an imperforated upper surface is preserved. 2nd. A chimney-cap consisting of a metallic shell having a horizontal top with a vertical projecting edge at the flue-opening, vertical corners, lutherns and sides, and bevelled or oblique intermediate portions. 3rd. A metallic chimney-cap having interior ribs adapted to hold the body of the cap from contact with the chimney. 4th. A metallic chimney-cap made in sections which are arranged to overlap each other at the edges, each section provided with a groove beneath one edge and a corresponding rib above the other edge.

No. 16,573. Improvements on Cheese Vats.

(*Perfectionnements aux éclisses à fromage.*)

Gottlieb H. Simon, Kiel, Wis., U. S., 28th March, 1883; for 5 years.

Claim.—1st. The pivoted levers arranged at the corners of the vat, and having angular slots through which their pivots pass. 2nd. The combination, with the outer vat having the depression of the flue *d*, of the cover E, the channels F, perforations *f*, plates f^1, strips G and the perforated cut-off H held by spring fingers and operated by levers. 3rd. The combination of the outer vat having a central longitudinal depression, a heating flue extending through the same, the heater end at the end of the said flue, the boiler, the outlet flue through the boiler, and the regulating valve or damper. 4th. The combination of the outer vat having a central longitudinal depression, the flue extending through the same, the false bottom, the perforations *f*, the cross-channels, the cut-off H having the yielding guides and inner vat. 5th. The combination of the outer vat, the flue passing centrally through its depressed bottom, the cover E, the channels and perforations on the latter, the cut-off H and deflector plates *f*.

No. 16,574. Improvements on Car Couplers.

(*Perfectionnements aux attelages des chars.*)

Joseph M. Plunkett, Ottawa, Ont., 29th March, 1883; for 5 years.

Claim.—1st. The peculiar double armed link pin E F G swinging on pin at F when acted upon by the forward thrusts of link C. 2nd. The swinging lock connection H J, acting automatically by gravitation and holding in check the arm of the link pin F G by coming in contact with it along the circular arc P G. 3rd. The combination of the double armed link pin E F G with the swinging lock connection H J.

No. 16,575. Improvements in the Construction of Railroads. (*Perfectionnements dans la construction des railroutes.*)

Robert Johnston, Rama, Ont., 29th March, 1883; for 5 years.

Claim.—1st. An improved road-bed for railroads, the upright E arranged parallel with, and bound to the angle irons B by the cross ties A, in combination with the rollers D carried in suitable bearings arranged to be vertically adjusted. 2nd. A road-bed provided with angle irons B carrying rollers D, and a central rail P, in combination with the side rollers C and a central roller arranged to act on the central rail P.

No. 16,576. Improvements on Car Brakes.

(*Perfectionnements aux freins des chars.*)

Robert Johnston, Rama, Ont., 29th March, 1883; for 5 years.

Claim.—In an improved brake for use in connection with a car resting on rollers fixed to the road-bed, the combination of the tongs D or rollers A A^1 arranged to grip the angle iron forming the road-bed.

No. 16,577. Method of Burning Emery Wheels and Apparatus therefor. (*Mode de cuire les tambours à émeri, et appareil pour cet objet.*)

Franklin B. Norton, Worcester, Mass., U.S., 29th March, 1883; for 15 years.

Claim.—1st. The improvement in the art of burning solid emery wheels which consists in supporting the wheel by a level bed of quartz sand upon a tile enveloping its periphery in such sand, and subjecting it to the kiln fires within a close protecting casing. 2nd. In an apparatus for burning solid emery wheels, the rings G for surrounding and protecting the wheels within the kiln, provided with overlapping joints *g* adapted for permitting expansion of the ring and contents. 3rd. The tile or bat of refractory brick material provided with a levelled surfacing of loose quartz sand employed as a bed for solid emery wheels during the process of firing or burning. 4th. The combination, in anapparatus for burning emery wheels, of the tiles D, the sectional ring G and the quartz-sand filling E. 5th. The method of forming kiln stands for the burning of solid emery wheels, viz., with the saggers C, tiles D, sectional rings G, clay flats *i* and comminuted quartz filling E, arranged in the manner shown, and embracing the wheels. 6th. The combination, with the sectional ring G and comminuted filling material E, of the clay joint bars J, as and for the purpose set forth.

No. 16,578. Improvements on Permutation Locks. (*Perfectionnements aux serrures à combinaison.*)

James E. Dean, Fishkill, N.Y., U. S., 29th March, 1883 for 5 years.

Claim.—1st. A bolt having a polygonal head with numbered faces, and annular as well as longitudinal grooves on its ends, in combination with a locking device formed of connected independently rotating numbered sections, provided with studs corresponding with the grooves of the bolt. 2nd. In the locking device of a permutation lock, the combination of several ring sections C, the central one having on each face a rigidly secured ring D with projecting rim, and the others being provided with undercut grooves, whereby said sections are held together so that they can rotate independently of each other.

No. 16,579. Improvements in Medicinal Compounds. (*Perfectionnements aux composés medécinaux.*)

David Munbeck, Des Moines, Iowa, U. S., 29th March, 1883; (extension of patent No. 8614.)

No. 16,580. Apparatus for Preserving Eggs.

(*Appareil de conservation des œufe.*)

Thomas Lee and Alvin Record, East Livermore, Me., U. S., 29th March, 1883; for 5 years.

Claim.—In a device for preserving eggs by rotation, the combination of the lower frame *a*, having track *c*, end pieces *e*, and the flanges on the lower edge with the frame *b* having the rollers *d*, the latter resting within, and moving upon the frame, and tracks *a* and *c*.

No. 16,581. Improvements on Car-Couplers.

(*Perfectionnements aux attelages des chars.*)

Aloah Rice and Stephen Wheeler, Rochester, N. Y., U. S., 29th March, 1883; for 5 years.

Claim.—1st. In combination with the parallel bars or members A B and blocks $f f^1$ of the draw-bar, and the bumper ring C, link D and pin F, the sliding bar I fitted to slide longitudinally within the space *b* inclosed between said members A B and blocks $f f^1$, said sliding bar I being provided with finger rests *a a* and shoulders *c c*. 2nd. The combination of the sides or walls A B and $f f^1$ of the draw-bar, and the bumper ring C, link D and pin F with the sliding bar I provided with the finger rests *a a*, shoulders *c c* and the notch *d* in which to hold the end of the link.

No. 16,582. Improvements in Stove Pipe Dampers. (*Perfectionnements dans les clés des tuyaux de poêles.*)

Edward P. Selden, (administrator to the estate of Samuel Selden, Mathew Griswold, Erie, Pa., and Jotham S. Crump, Westfield, N.Y., U.S., 30th March, 1883; (Extension of Patent No. 8610.)

No. 16,583. Invalid Bedstead. (*Lit d'invalide.*)

James Goodwin, Lennoxville, Que., 30th March, 1883; (Extension of Patent No. 4272.)

No. 16,584. Improvements on Axe Handles.

(*Perfectionnements aux manches des haches.*)

John D. Blaker, Newtown, Pa., U.S., 30th March, 1883; for 5 years.

Claim.—The combination of a metallic axe-handle having one end adapted to be held by one hand of the operator, with a sliding grip constructed to be grasped by the other hand and move along the handle when the blow is given. 2nd. The combination, with a spring axe handle B, of the fixed enlarged grip D and tubular sliding grip G constructed to move along the handle when the blow is given.

No. 16,585. Improvements on Saws.

(*Perfectionnements aux scies.*)

Eben M. Boynton and Alfred Boynton, New York, N. Y., U. S., 30th March, 1883; (Extension of Patent No. 8611.)

No. 16,586. Improvements on Fire Armours and Respirators. (*Perfectionnements aux cuirasses et aux respirateurs des pompiers.*)

Charles McIntosh, Jersey, N. J., U. S., 31st March, 1883; for 5 years.

Claim.—1st. In a fire armour and respirator, a mouth piece provided with a flexible tube penetrating the outer wrap or garment and adapted to take its supply of air from the inner protected side thereof. 2nd. The combination, with a fire armor and respirator or wrap, of eye glasses provided with protecting rims of asbestos, said glasses

forming a part of the fire armor and respirator. 3rd. A fire armor and respirator consisting of an outer wrap or garment of asbestos, in combination with a mouth piece and eye glasses protected by asbestos or its equivalent. 4th. A fire armour and respirator consisting of an outer wrap or garment of asbestos, in combination with the bags H J, with whistles and belt with rope. 5th. The filtering of smoke or noxious gases by means of the mouth-piece B with tube C, one end of which being placed inside the garment.

No. 16,587. Improvements on Door Hangers. (*Perfectionnements aux pentures des portes.*)

George W. Hey and Charles H. Duell, Syracuse, N. Y., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination, with carrying rollers mounted on a track-way above the door, a stationory journal side bearing and a vertically adjustable top bearing connected to a plate attached to the top of the door and confining between them the journal of said roller. 2nd. A door hanger consisting of a bracket plate and carrying rollers, adjustably connected to the plate, said plate having a concave inner vertical face for guiding the carrying roll rs in their vertical adjustment. 3rd. In a sliding door hanger, a plate attached to the upper edge of the door having a vertical frame terminating in a curved hook passing over the axle of the rollers, in combination with the rollers and an adjusting screw, said screw having at its upper end a hook or box, bearing on the axle of the rollers. 4th. In a sliding door hanger, the combination of the bracket plate having a frame terminating in a vertical extension, with a friction roller adapted to bear against or between the track rails, and an adjusting device. 5th. In a sliding door hanger, the bracket plate having a vertical frame, in combination with the yielding bumper. 6th. In a sliding door hanger, an adjusting device consisting of the axle bearing T, arm *i* and screw *s* passing through the plate. 7th. The combination, with the track T, the carrying rollers R supported against the post C, of the bracket-plate P without being connected to said post, the post C rising from the plate and the rollers connected to the plate by a screw passing through the plate. 8th. The combination of the post C having guide c, axle bearing I having side guide *h* and socket *i* and the screw *s*. 9th. The bracket plate P having post C, base r^1, and recess *a*. 10th. A door hanger frame composed of the plate P, post C and angular projection P^1. 11th. A door hanger frame composed of the plate P, interior recess *x* and hooked vertical projection H.

No. 15,588. Improvements on Bevels.

(*Perfectionnements aux fausses-équerres.*)

The Comformator Bevel Company, New York, N. Y., (assignee of Donald A. Clarke, Sedalia, Mo.,) U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination of the central strip A slotted at *a* and having solid ends, the longer arms B C adjustably pivoted at one end in said slot *a*, and the shorter arms D E adjustably pivoted at the other end in said slot, said arms being pivotally connected at *b d*, 2nd. In a Bevel or conformator, the binding plate G provided with flanges *g g*, bar g^1, point f^2, and rigid threaded pivot *f*. 3rd. The combination of the arms B C, slotted strip A, plate G, having bars g^1 and rigid pivot *f*, and the nut F.

No. 16,589. Improvements on Car Brakes.

(*Perfectionnements aux freins des chars.*)

Alden D. Kilborn and William F. Smith, Tucson, Ariz., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination, with the brake beams A B having brake shoes on their ends, and the adjustable brake rod C provided with the strap *d*, threaded eyebolt *g*, heads *f f*^{1}, spring *e*, nuts *l k* and eye bolt *h* secured to the brake beam B, of the draw-rod E provided at its outer end with a strap, spring, heads and nuts, as on the brake rod C and lever D fulcrumed in the beam A and having its ends pivoted to the brake and draw-rods C E.

No. 16,590. Improvements on Power Presses. (*Perfectionnements aux presses à levier.*)

Oliver P. Morgan, Hazleton, Mich., U. S., 31st March. 1883; for 5 years.

Claim.—1st. The combination, with the follower C, of the toggle levers D D, ropes F F^1, pulley H and winding shaft E. 2nd. The plates *d d* and blocks G and G^1, combined to form a connection between the levers of each toggle and the winding rope. 3rd. The winding shaft E, in combination with the follower C, toggle levers D D, pulleys H and *b* b^1 and the ropes F F^1 and *a* a^1. 4th. The pulley H combined with the rope F^1, to form a connection between the block G^1 and the shaft E. 5th. The combination, with the ropes F F^1, winding shaft E and follower C, of the toggle levers D D, provided with blocks G G^1 to which the ropes are attached. 6th. The press consisting of the follower C, toggle levers D D, pulleys H *b* b^1, winding shaft E, ropes F F^1 and *a* a^1, the lever J, reversible pawls *l* l^1 and the notched wheels K L.

No. 16,591. Improvements on Water Wheels and Paddle Wheels. (*Perfectionnements aux roues hydrauliques et aux roues à palettes.*)

Augustus Figge, London, Eng., 31st March, 1883; for 15 years.

Claim.—1st. An improved water wheel or propeller in which the floats preponderate on one side of the pivot and tend to set themselves vertically, and are so held and kept by guides when in position for efficient action. 2nd. An improved water wheel or propellor with floats working in a water course, which is closed at the sides and at the bottom. 3rd. An improved water wheel or propeller substantially as described.

No. 16,592. Improvements on Vehicle Springs. (*Perfectionnements aux ressorts des voitures.*)

Lafayette A. Melburn, Denver, Col., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The vehicle spring extension c^2 formed with an outward and inward curve of nearly circular form, and adapted to be secured to a side bar at one end, and to form a joint with the end of a spring at the other, at a point underneath the side bar. 2nd. The combination, with the half-spring C, of the separable extension or scroll portions c_2 having their lapped ends connected.

No. 16,593. Improvements on Dumping Boats. (*Perfectionnements aux maries-salopes.*)

The Barney Dumping Boat Company, (assignee of Nathan Barney,) Bergin Point, N.J., U.S., 31st March, 1883; for 5 years.

Claim.—1st. The combination, with the two hinged floats or pontoons, of the sliding bars connected with said floats or pontoons, and means for clamping said bars together or against the walls of their slideway, for the purpose of holding the floats or pontoons and controlling their movements. 2nd. The combination, with the two hinged floats or pontoons, of the sliding bars connected with them, and provided with interlocking shoulders, and means for clamping said bars. 3rd. The combination, with the two hinged floats or pontoons, of two or more pairs of sliding bars conneeted with them, and means for clamping and releasing the several pairs of bars simultaneously. 4th. The combination, with the two hinged floats or pontoons geared together at their ends by intermeshing sectors, of the sliding bars connected with said floats or pontoons, and means for clamping said bars.

No. 16,594. Improvements on the Process of Separating Glycerine from Fatty Matters. (*Perfectionnements aux procédés de séparation de la glycerine des matières grasses.*)

Charles F. E. Poullain, Edmond F. Michaud and Ernest N. Michaud, Paris, France, 31st March. 1883; for 15 years.

Claim.—The process for separating glycerine from neutral fatty matter and producing acid fat ready for the soap or stearine manufacture, by subjecting the matter to the action of high pressure steam in presence of water and of zinc white or zinc grey.

No. 16,595. Improvements on Hay Presses.

(*Perfectionnements aux presses à foin.*)

John March, Eden, N. Y., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The levers or arms F1, their lower ends being jointed to the base of the machine by bolts *g* so as to act as levers, and the arms G jointed thereto by bolts g^1 at their lower ends and having their upper ends jointed by bolts g_2 to the undersides of the platen C, the ropes or cables F being connected to the lever F^1 by bolts f_2 so as to pass under the pulleys G_1 on each end of the platen C, in combination with the running pulley E, standing pulley G^2 G_3 G^4 and a suitable capstan. 2nd. The door B^1 provided with the rib J^1, in combination with the swinging or hinged plate, or side piece J arranged between the compressing chamber. 3rd. The pulleys G^4 and their ropes or cables, and the capstan H provided with the cross-piece L, in combination with the pole L^1, yokes N^1 N^2, rods o^1 o_2 and lever N.

No. 16,596. Improvements in the Manufacture of Entire Wheat Flour. (*Perfectionnements dans la fabrication de la farine bise.*)

Wallace Warren and Frank C. Taylor, Chicago, Ill., U.S., 31st March, 1883; for 5 years.

Claim—1st. A whole wheat granular flour combining the inner grain substance and the nutritive part of the bran in a state of practically equal comminution. 2nd. The method of making whole wheat flour which consists in, first, separating the inner grain substance from the bran, second, reducing said inner grain substance and the bran separately to granular flour, and thereafter mixing the two flour products. 3rd. In a bran flouring machine, the combination of the cylindric shell and winged disk, said shell having its inner periphery minutely and sharply rough, and having a suitable inlet and a lateral adjustable outlet located near. but slightly inward from the periphery, whereby the bran may be swept about against the rough face of the shell until suitably reduced and then discharged. 4th. In the bran reducing machine, the disk D provided with the wings I having the flanges I^2 turned backward and supported from the disk at the outer margin of the wings. 5th. The disk D provided with opposite wings I, each pair consisting of a single plate having a slot *i* and bent at the extremity of the slot. 6th. The side plate provided with an adjustable discharge opening variable in distance from the inner serrated periphery.

No. 16,597. Improvements on Machines for Sanding Brick Moulds. (*Perfectionnements aux machines à saupoudrer les moules à briques.*)

James A. Buck, Crescent, N. Y., U. S., 31st March, 1883; for 5 years.

Claim—1st A sanding box or cylinder adapted to be uniformly and continuously revolved and which is made with four equal fixed side portions c c and equal openings D D adapted to receive moulds *m*, for holding them located alternately between said fixed side portions, whereby when said sanding box is revolved, two of said moulds will

be carried downward to and below the plane of the centre of their rotation to be successively filled with sand, at the same time other two moulds are being carried upward and above said plane of centre of rotation to be successively emptied of sand and brought into position at the rear upper side corner of said box, for the convenient and successive removal of each sanded mould, and the openings carried forward for convenient and successive replacement of moulds to be sanded, all while the said box is being continuously revolved. 2nd. The combination, with frame A and sanding box or cylinder C, which is mounted centrally on a shaft supported from said frame and provided with a series of longitudinally arranged openings D D, which are about equidistant apart in the periphery of said box, and moulds M M adapted to fill said openings, of mechanism which only operates to hold said moulds securely, closing said openings when they are relatively fully or partly below the plane of their centre of revolution, and release them from such holding when being moved relatively above said plane of centre of revolution, and mechanism which is adapted to revolve said box continuously. 3rd. The combination, with frame A and a sanding box or cylinder mounted on said frame and having a series of mould receiving openings D, which are made equidistant apart in its periphery, so that its sides will be balanced, of mechanism which is wholly supported from said frame and made to have an upward bearing against the portions of the periphery of said box and the moulds which are relatively below a horizontal line drawn on a plane with the centre of their revolution and mechanism by which the said box will be uniformly revolved. 4th. The combination, with frame A and sanding box or cylinder C adapted to be rotated in said frame, and which is provided with a series of openings D D made about equidistant apart in the periphery of said cylinder or box for receiving moulds M interchangeably, of endless bands P P or their equivalent supported or running on pulleys or wheels mounted on said frame, said bands being arranged to have an elastic bearing against the portion of the periphery of said box, and the bottoms of the moulds as they are being carried relatively below the plane of their centre of revolution. 5th. The combination, with frame A and revolving sanding box or cylinder C which is provided with alternate fixed side portions c c, and openings D D adapted to receive moulds M M interchangeably, of pulleys J J, endless bands P P or their equivalents, pulleys J^1 J^1 carried by a frame suspended from main frame A, and weight W.

No. 16,598. Improvement on Electric Lamps. (*Perfectionnement des lampes électriques.*)

The European Electric Company, (assignee of Charles A. Hussey,) New York, N. Y., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination, with a rod for supporting a carbon, of clamping pieces controlling the movement of the said rod, an electric magnet or solenoid, an armature or core therefor, arms pivoted at one end directly to said armature or core and pivoted at the other end to said clamping pieces, and stops for limiting the upward movement of the clamping pieces so as to maintain them in position to act upon the said rod. 2nd. The combination, with the rod D, of the clamping pieces I, the arms J, the solenoids G, the core G1 therefor, and the stops K L. 3rd. The combination, with a rod for supporting a carbon, and a clutch or locking device controlling the movement of the said rod, of two solenoids arranged one within the other and located one in a main circuit, and the other in a derived circuit, and a core consisting of a cylindric or tubular piece fitting between the solenoids. 4th. The combination, with a rod for supporting a carbon, and a clutch or locking device controlling the movement of the said rod, of two solenoids arranged one within the other in a derived circuit, two cylindric or tubular cores for the solenoids, and a connecting piece between the said cores. 5th. The combination, with a rod for supporting a carbon and a clutch for engaging with said rod, of two solenoids arranged one within the other and located one in a main circuit and the other in a derived circuit, cores for said solenoids consisting of two cylindric or tubular pieces and a connecting piece of diamagnetic material.

No. 16,599. Improvements in Bag and Twine Holders. (*Perfectionnements aux porte-sacs et porte-fil.*)

Louis Steinberger, Bradford, Penn., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination, in a paper-holder, of a standard or other upright support *a*, two or more arms *d* and one or more hoops, pins or rods *e*, said hoop, pins or rods being partly or wholly detachable for the application of the bags and being secured to prevent detachment by stripping the bags from them. 2nd. The combination of a standard or other upright support *a*, two or more arms *d*, one or more pins, hoops or rods *e* and twine cups *m*, said pins, hoops or rods being partly or wholly detachable for the application of the bags. 3rd. The combination of a standard or other upright support *a*, two or more arms *d*, one or more pins, hoops or rods *e*, twine cup *m* and one or more leading arms *n*. 4th. The combination, of an upright support *a*, arms *d* and one or more pins, hoops or rods *e*, said arms having a hook notch *g*. 5th. The combination of an upright support *a*, radial arms *d* and pins, hoops or rods *e*, said arms having hook notches *g* and plain notches *j*.

No. 16,600. Improvements on Pattern Tracers. (*Perfectionnement aux tracerets.*)

Louise J. Purdy, Saint Louis, Mo., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination, of handle A, screw pin B, hollow stem C having socket E, adjustable arm F carrying wheel G with or without the compass point J. 2nd. The combination of an adjustable arm having a cross arm or head provided at one end with a compass point, and at the other end with a star wheel. 3rd. A pattern tracer consisting of a suitable handle, a star wheel journalled at the lower end, and an arm adjustable in said handle and provided with a head having at one end a compass point, and at the other end a star wheel. 4th. The combination of handle A, screw-threaded pin B on the end of the handle, hollow screw-threaded stem C, which receives the pin, star wheel D journalled at the end of the stem, arm F adjustable in a transverse socket E in the stem, and cross arm or head K provided at one end with a compass point, and at the other end with a star wheel.

No. 16,601. Improvement on Lathe Chucks. (*Perfectionnement des poupées de tours.*)

Augustus B. Wadsworth, Hopkinton, N. H., U. S., 31st March, 1883; for 5 years.

Claim.—1st. The combination of the collar A, annular plate D and sleeve C, the sleeve having the bearing *d* and flange F, said flange being provided with means for centering the work. 2nd. In a centre rest or chuck, the combination of the collar A, plate D, flanged sleeve C, set screws H, screw bolts *f* and bed B adapted for use with a lathe. 3rd. In a centre rest or chuck for lathes, the slotted plate E in combination with the collar carrying bed A, bolt G and nut *a*. 4th. The improved centre rest or chuck, the same consisting of the collar A flanged sleeve C, screws H, plate D, bolts *f*, screws K, bed B, plate E, bolt G and nut *a*. 5th. In a centre rest or chuck for lathes, the annular plate D provided with the screws K.

No. 16,602. Improvements on Milk Cans. (*Perfectionnements aux bidons à lait.*)

Philip Hohmeier, Waterloo, Ont., 31st March, 1883; for 5 years.

Claim.—1st. The cover D provided with an internal tubular flange F, an external tubular flange E and an escape tube G. 2nd. The combination of reservoir H provided with locking lever I, and a cylindrical can A having cover D provided with an escape tube G, to retain the can submerged in the liquid, in the reservoir, by locking the end of the lever.

THE

CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

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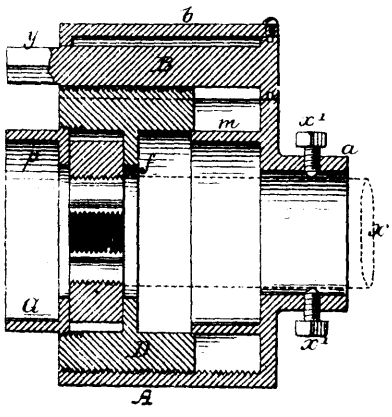
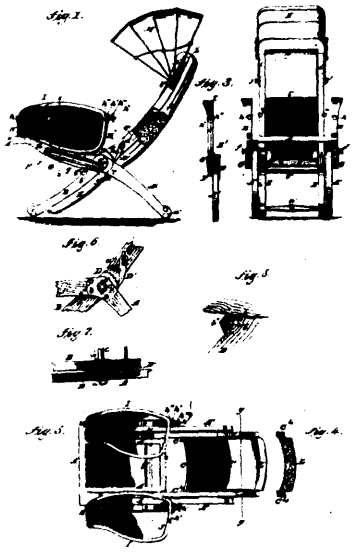
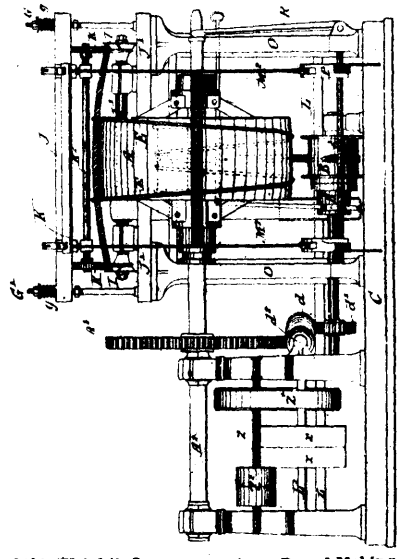


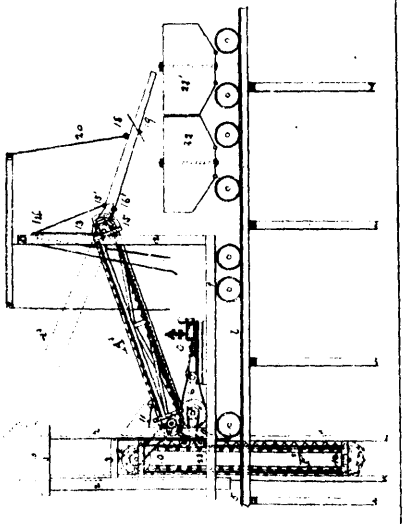
16422 Forbes' Improvements on Die Stocks.



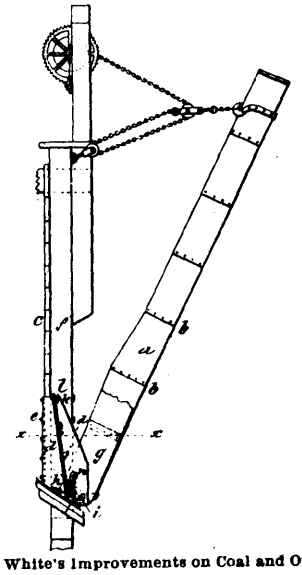
16423 Johnson and Hayward's Improvements on Life-Preserving Chairs.



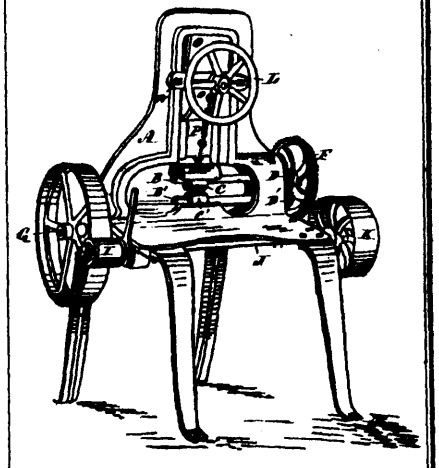
16424 Wright's Improvements on Barrel Making Machines.



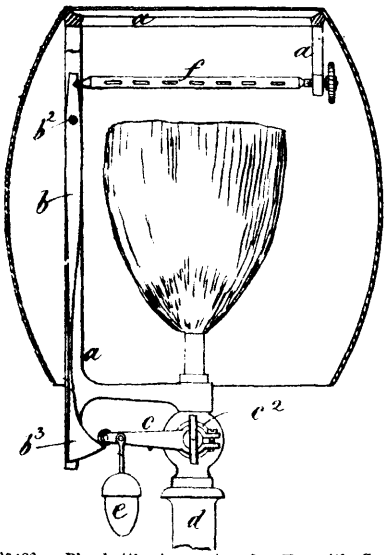
16425 Lawton's Improvements on Devices for Handling Coal.



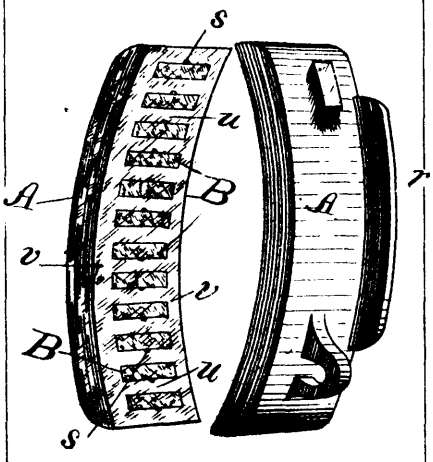
16427 White's Improvements on Coal and Ore Chutes.



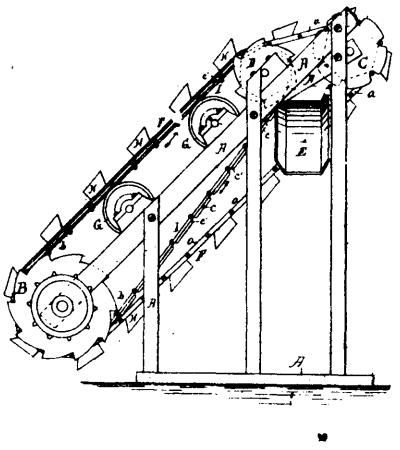
16428 Wilkin's Improvements on Saw Stretchers.



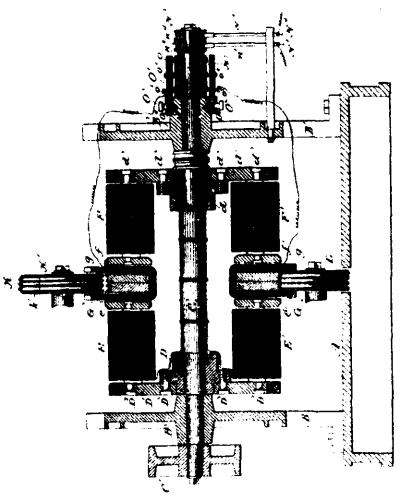
16429 Plunkett's Apparatus for Use with Gas Burners, Gas Cooking Ovens and the like.



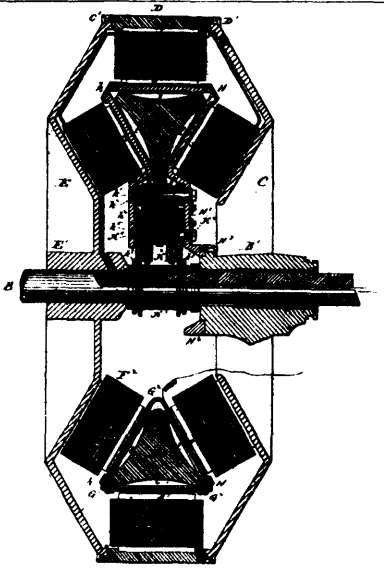
16434 Sargent's Improvements on Car Brakes.



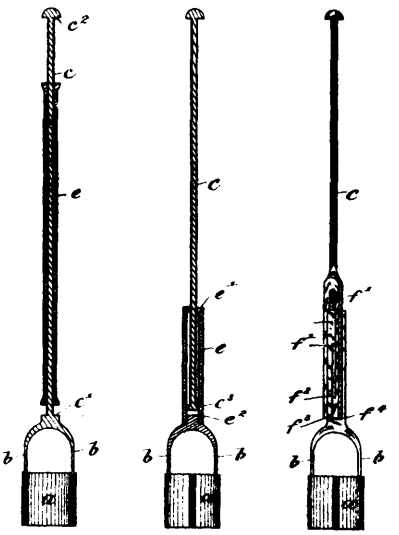
16438 Smith's Improvements on Earth Excavators and Conveyors.



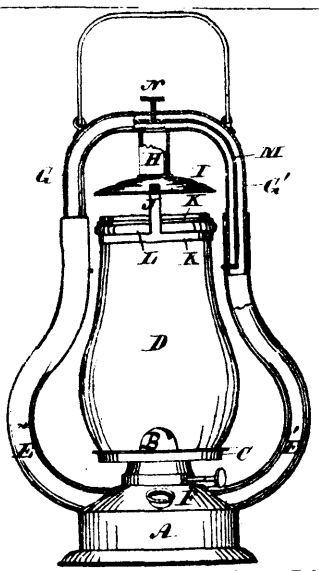
16439 Fuller's Improvements on Dynamo-Electric Machines.



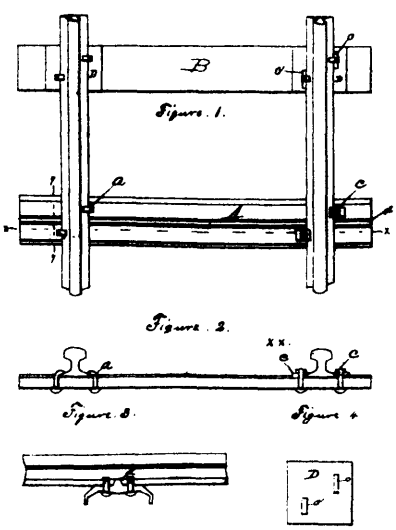
16440 Fuller's Improvements on Dynamo-Electric Machines.



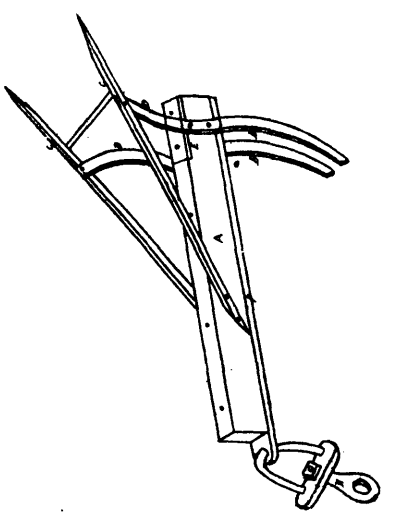
16441 Fleming's Improvement on Post Hole Diggers.



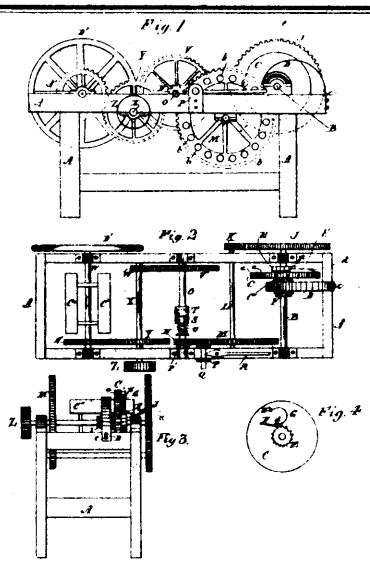
16442 Butchart's Improvements on Tubular Lanterns.



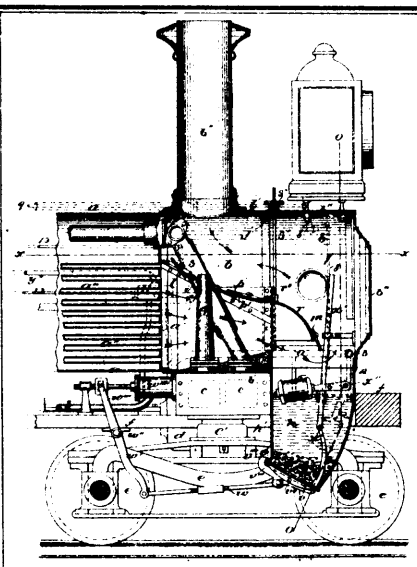
16444 Putnam's Method of Securing Railway Ties to the Rails.



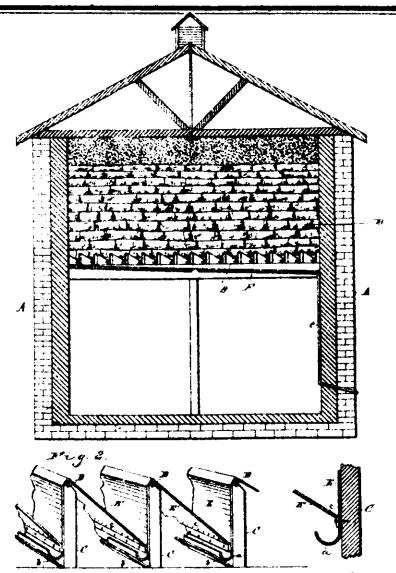
16445 Holbrook's Improvements on Stone and Root Diggers.



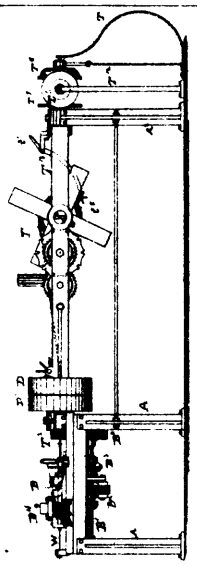
16446 Burkholder's Improvements in Spring Motors.



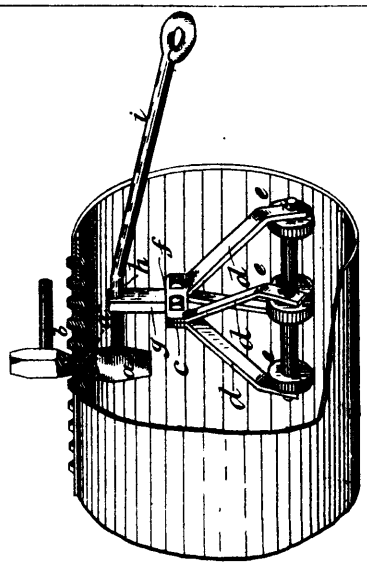
16447 Groesbeck and Wright's Improvements on Spark-Arresters.



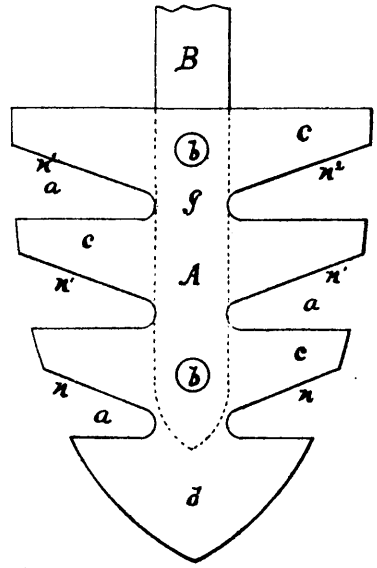
16448 Cain's Improvements on Ice Floors for Cold Storage Houses.



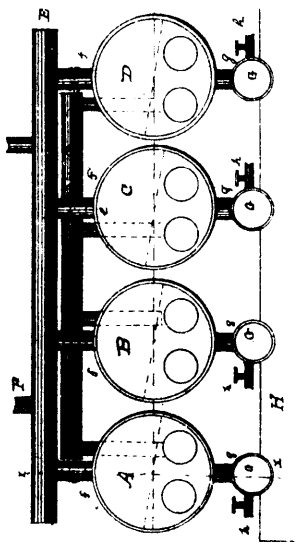
16449 Wells' Improvements on Wire Barbing Machines.



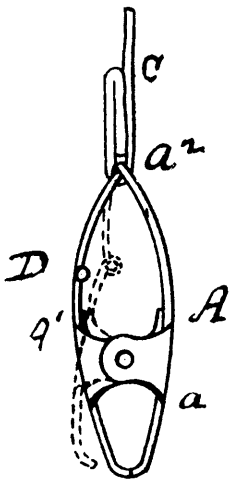
16450 Clinch's Improvement in Rivetting.



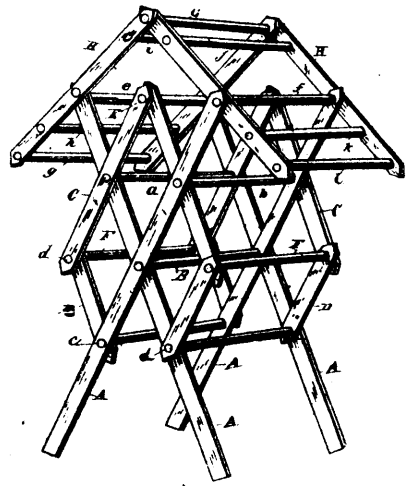
16451 Core's Improvements on Cultivators.



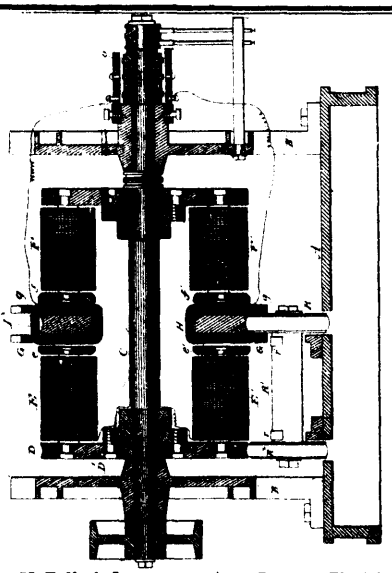
16452 Funke's Improvements on Marine Boilers.



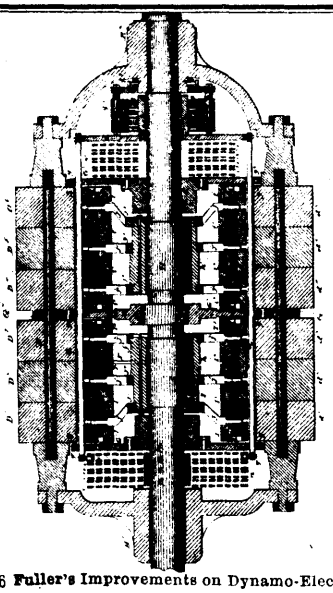
16453 Minor's Improvements on Garment Clasps.



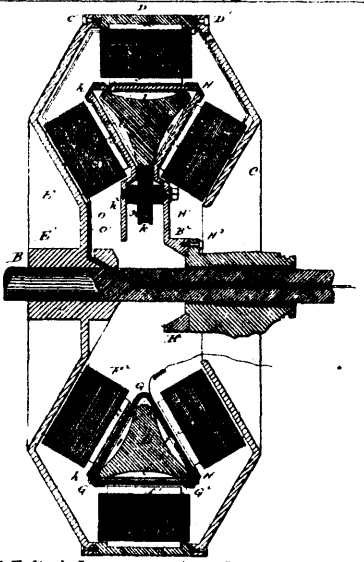
16454 Vanderlip's Improvements on Clothes Dryers.



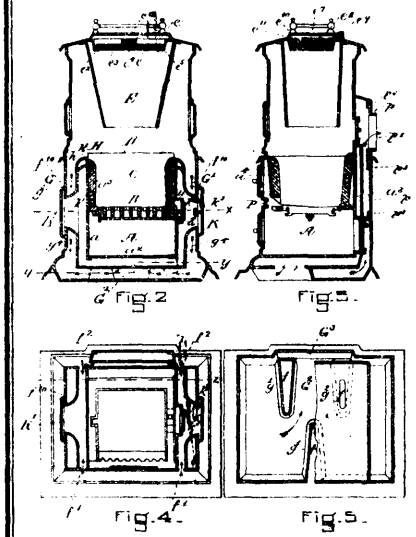
16455 **Fuller's Improvements on Dynamo-Electric Machines.**



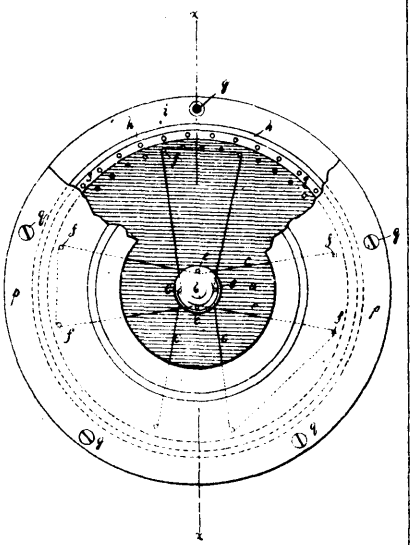
16456 **Fuller's Improvements on Dynamo-Electric Machines.**



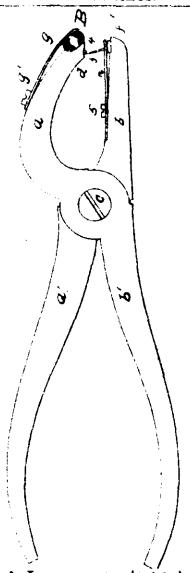
16457 **Fuller's Improvements on Dynamo-Electric Machines.**



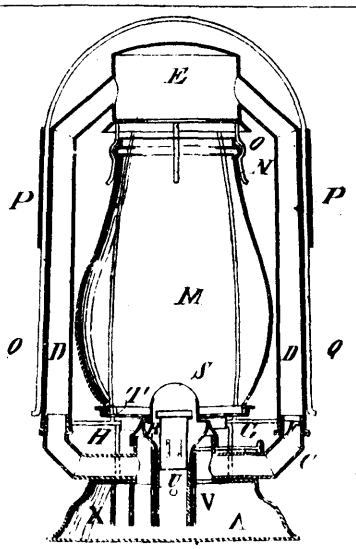
16458 **Anthony's Improvements on Heating Stoves.**



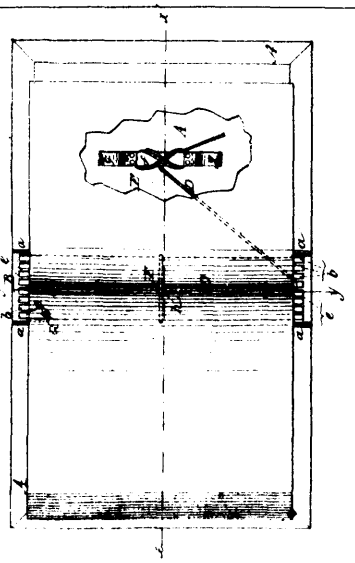
16459 **Johnson's Improvements on Telephones.**



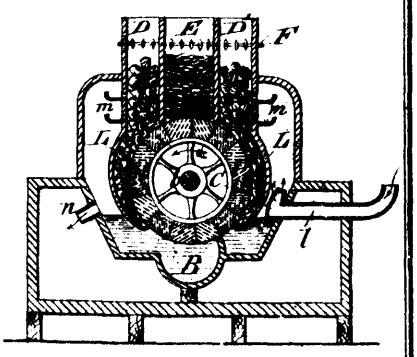
16460 **Goddu's Improvements on Apparatus for Fastening Buttons.**



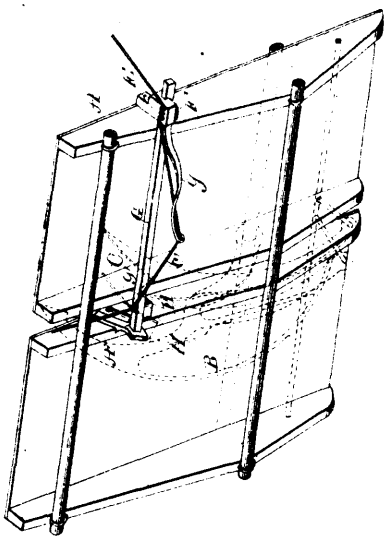
16461 **Kennedy's Improvements on Tubular Lanterns.**



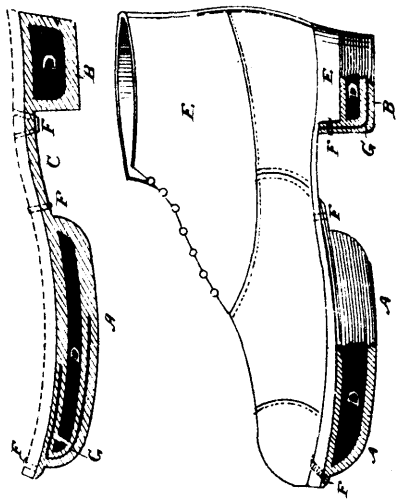
16462 **Cooke's Temporary Binder for Pamphlets.**



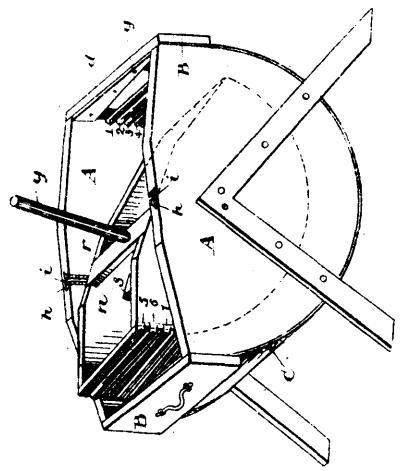
16563 **Allen's Improvements in the Manufacture of Paper Pulp.**



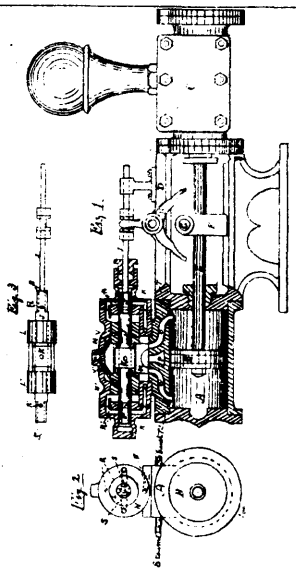
16467 Dennett's Improvements on Grain Binders.



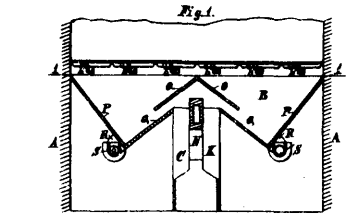
16468 Butterfield's Improvements on Air Cushions for Boot and Shoe Soles.

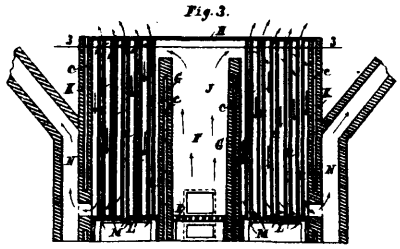


16469 Cumming's Improvement on Washing Machines.

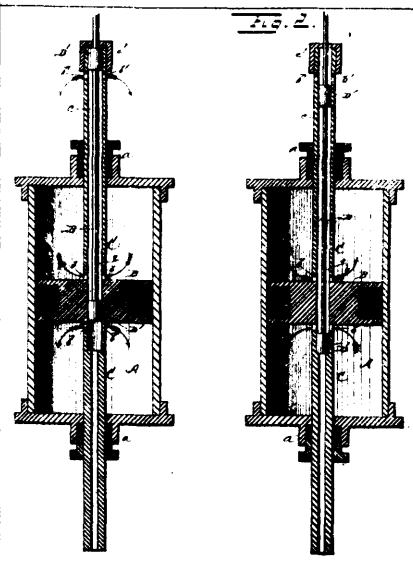


16470 Johnson's Improvements on Steam Pumps.

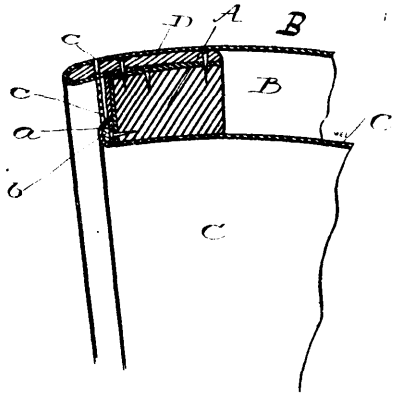




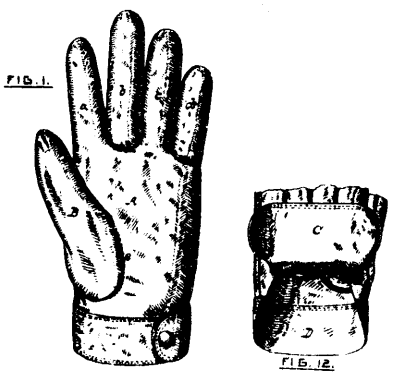
16471 Burkhardt's Improvements on Malt Drying Apparatus.



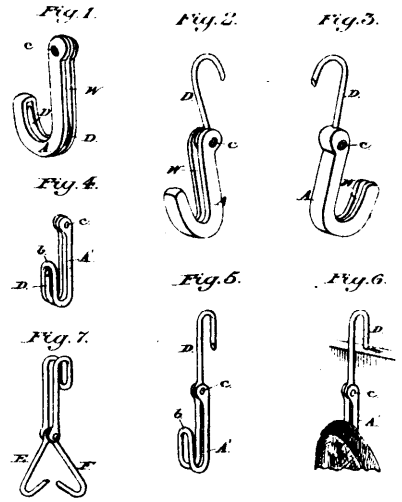
16472 Power's Improvements on Pumps.



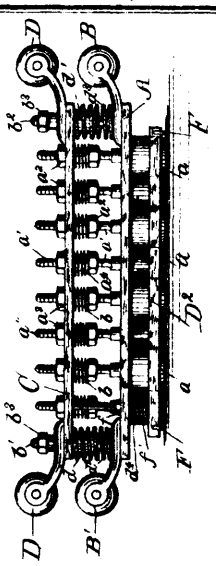
16473 Butterworth and Bolles' Improvements on Vehicle Top Trimmings.



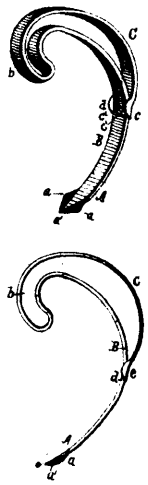
16474 Burr's Improvements on Gloves.



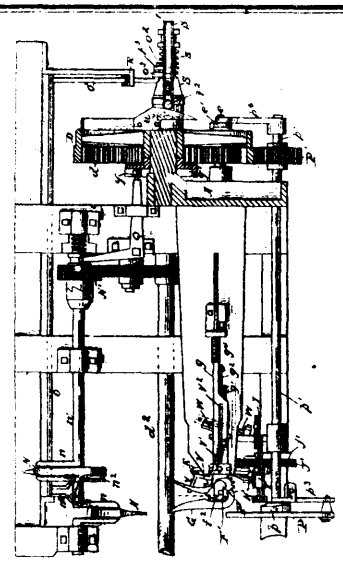
16575 Onderdonk's Improvements in Coat-Hooks.



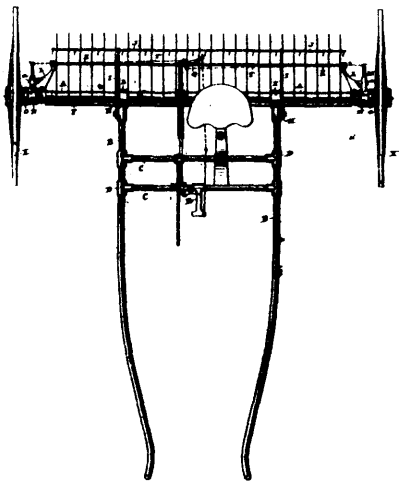
16476 Hall's Improvements in Hand Lozenge Cutters.



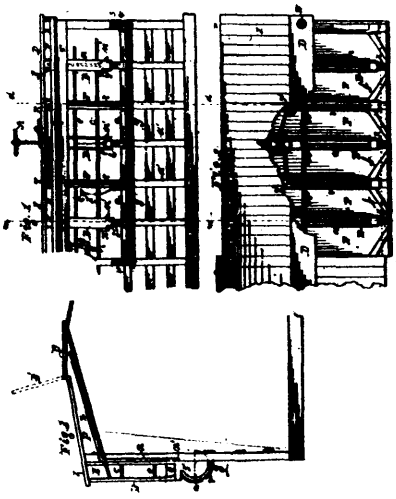
16477 Stanton's Improvements on Harrow Teeth.



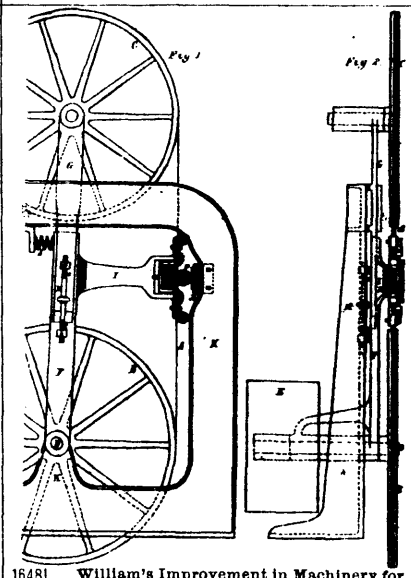
16478 Strunk's Improvements in Grain Binders.



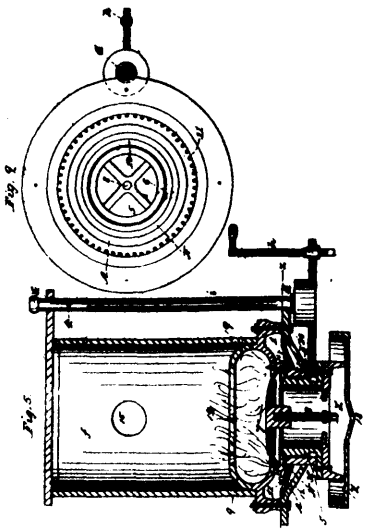
16479 Clokey's Improvements on Horse Rakes.



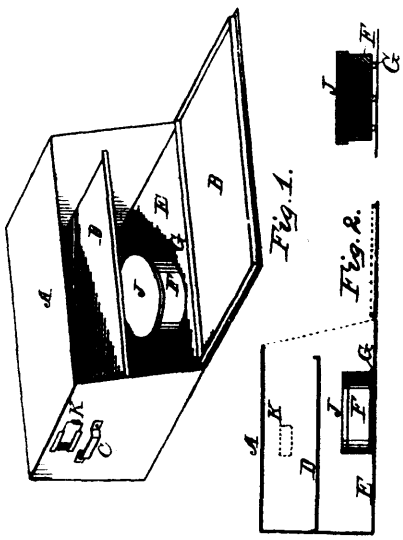
16480 Wolfe's Improvements on Stock Cars.



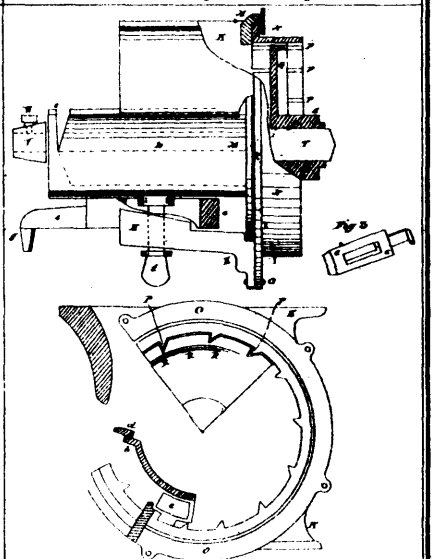
16481 William's Improvement in Machinery for Sawing Barrel Hoops.



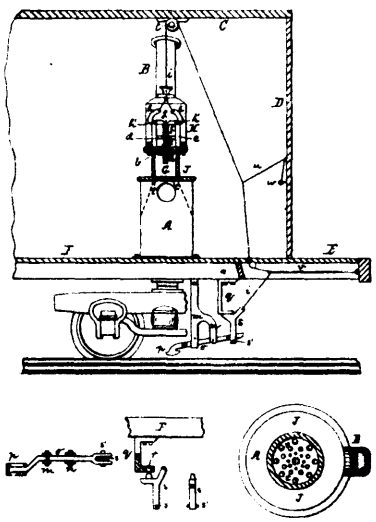
16488 Eastman's Apparatus for Heating Freight Cars.



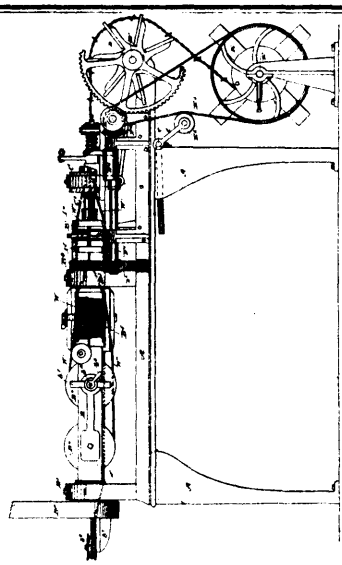
16491 Morgan's Improvements on Bread Raising Ovens.



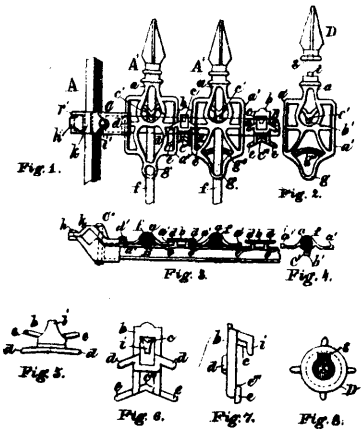
16492 Bartlett's Improvements on Seed Drill Distributors.



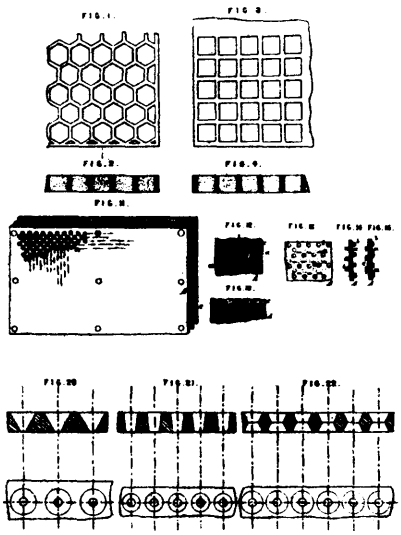
16493 Reese's Improvements in Car Stoves.



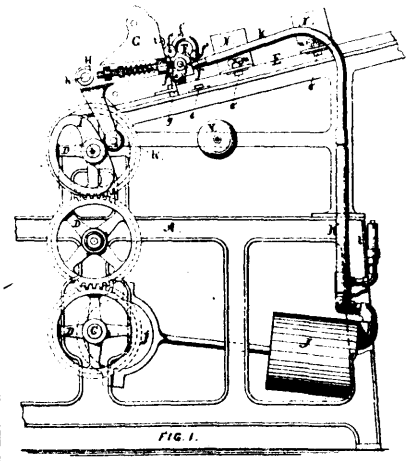
16496 Ross' Improvements on Machines for Barbing Fence Wire.



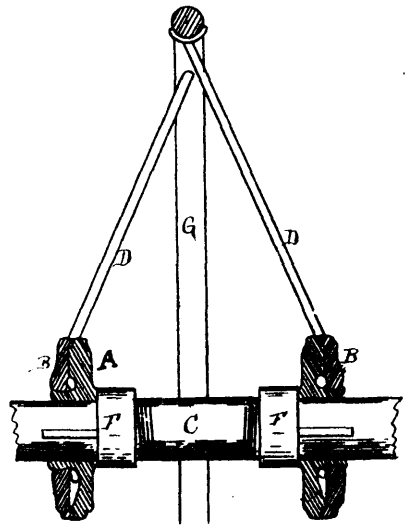
16497 Dewe's Improvements in Iron Fences.



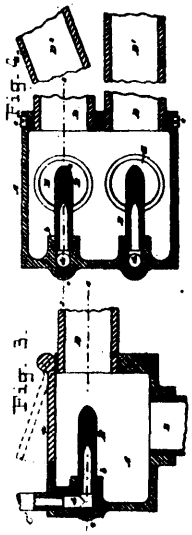
16499 Sellon and Volkmar's Improvements in Secondary Batteries.



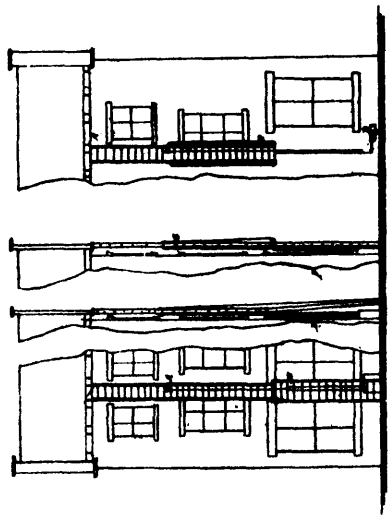
16500 Ellery's Machine for Feeding Paper to Printing Presses.



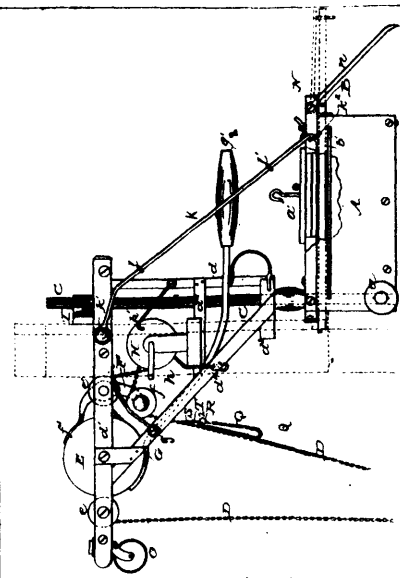
16502 Gendron's Improvements on Vehicle Wheels.



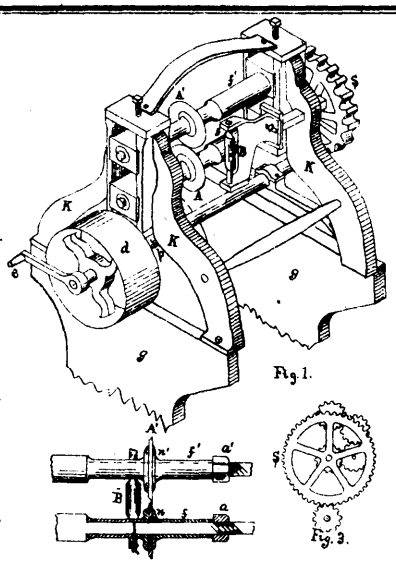
16503 Orvis' Improvements in Steam Boiler and other Furnaces.



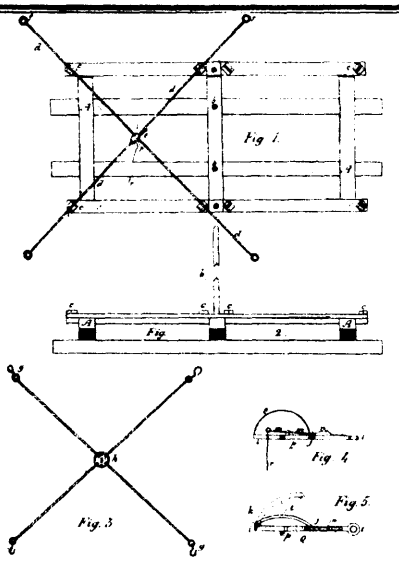
16504 Gregory's Improvements in Fire-Escapes.



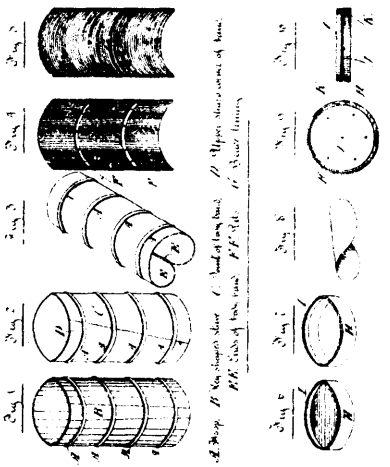
16506 Vinton's Improvements on Fire-Escapes.



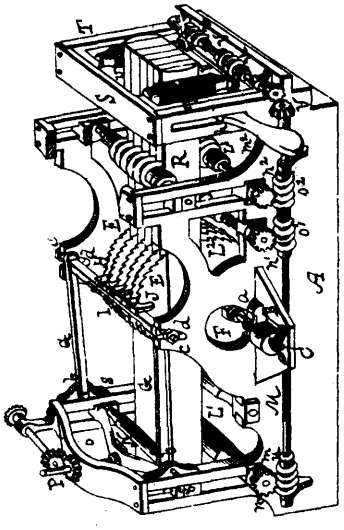
16507 Holt's Improvements on Hoop Cutting Machines.



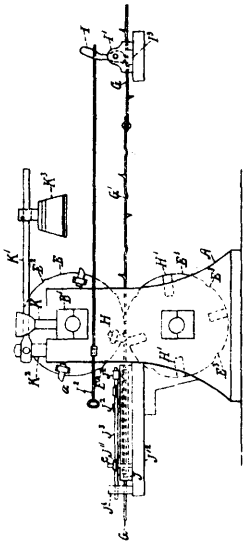
16508 Irvine's Improvement in Hay Unloaders.



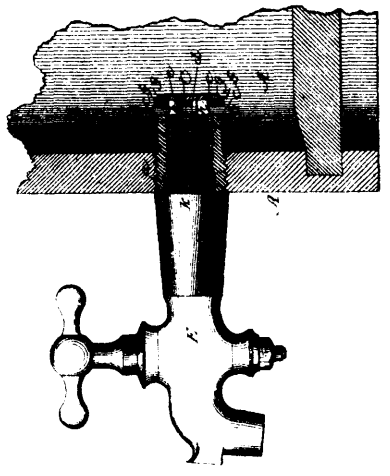
16509 Lawrence's Improvements in Wooden Casks.



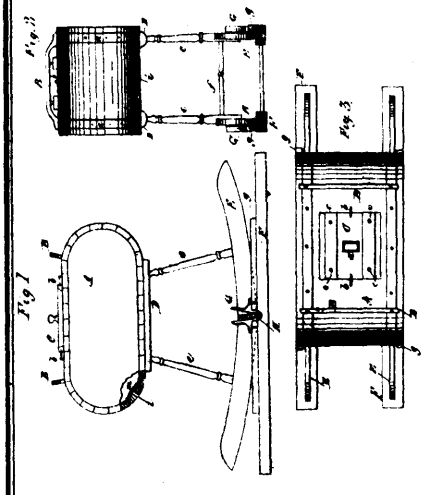
16510 Winter's Gang Circular Saw-Mill.



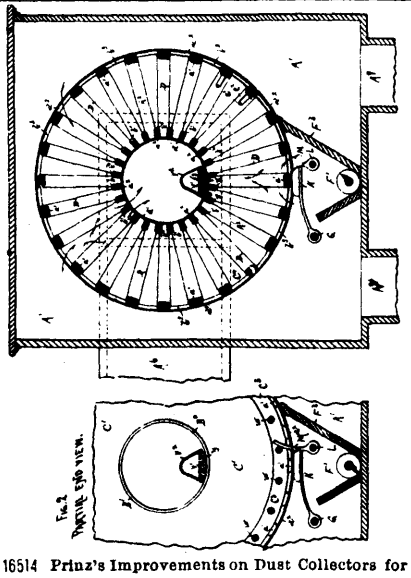
16511 Hewitt's Machine for Forming Barbs on Flat Strips of Metal.



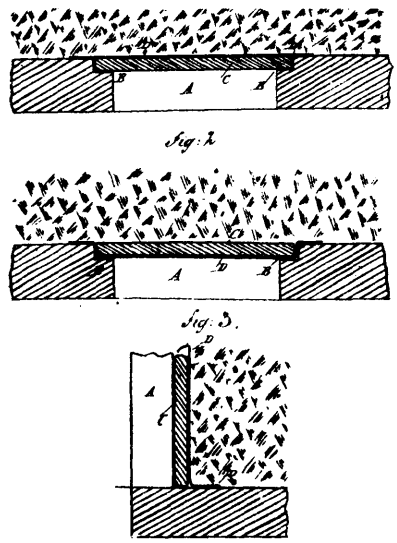
16512 Jackson's Faucet Attachments or Cask Stoppers.



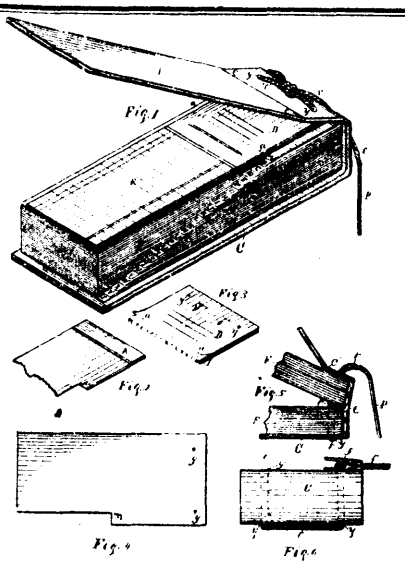
16513 Parmenter's Improvements in Churns.



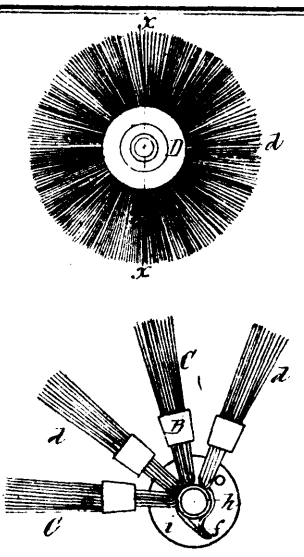
16514 Prinz's Improvements on Dust Collectors for Flour Mills.



16516 Roberts' Improvements in Preserving Ensilage in Silos.

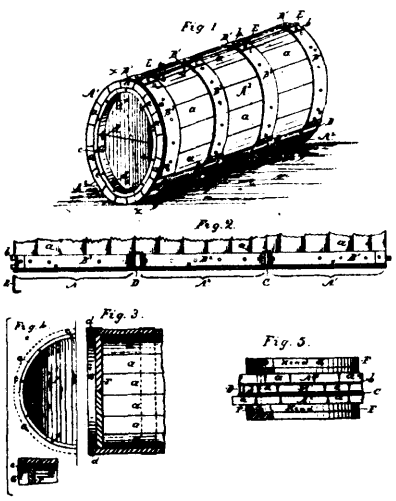


16517 Pratt's Improvements in Temporary Binders.

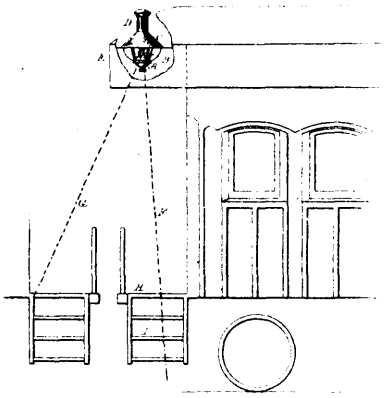


16520 Quinby's Improvements on Circular Brushes.

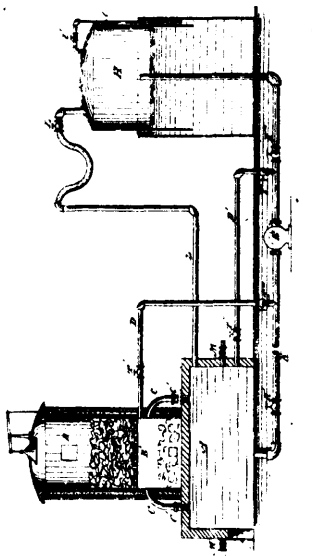
16521 McDonald's Method of Steering Tow-Boats and Tows.



16522 Barksdale's Improvement on Folding Barrels.

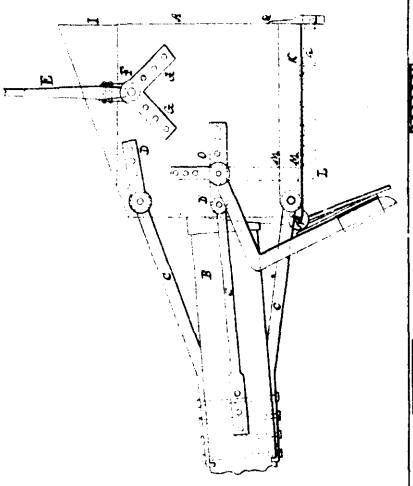


16523 Chamberlain's Apparatus for Lighting Platforms and Steps of Railway Cars.

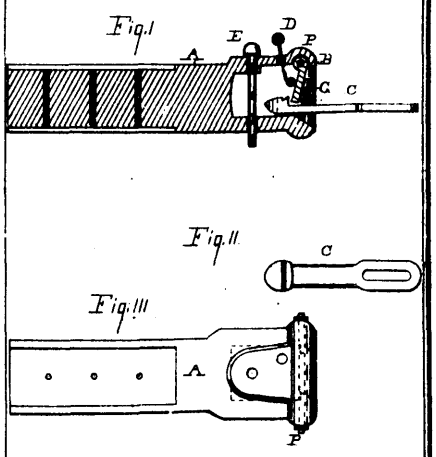


16524 Campbell's Method of Annealing Glass, &c., and Apparatus therefor.

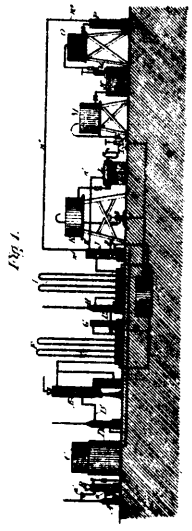
16525 Kraetzer's Improvements on Fasteners.



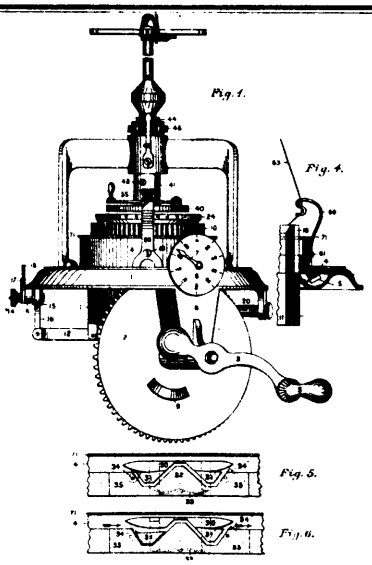
16526 Osgood's Improvements on Dredge Dippers.



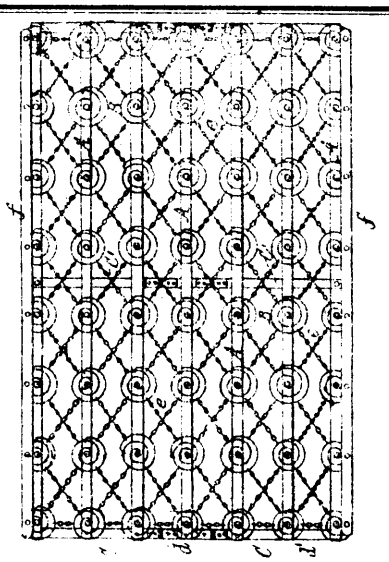
16527 Burns' Improvements on Car-Couplings.



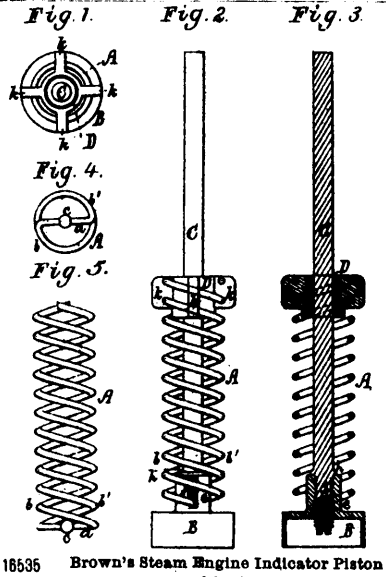
16529 Fogarty's Process for Manufacturing Gas.



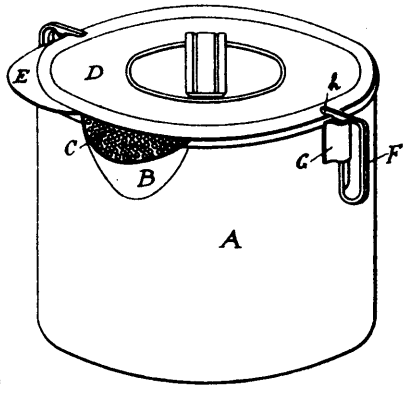
16530 Carter's Improvements on Knitting Machines.



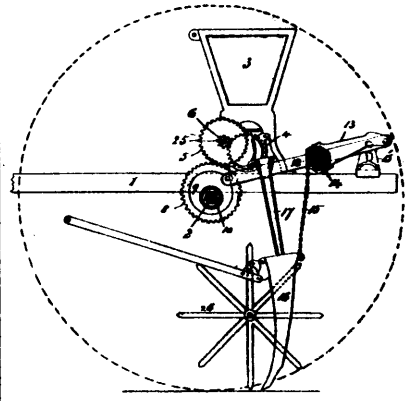
16534 Keenholt's Improvement in Spring Bed Bottoms.



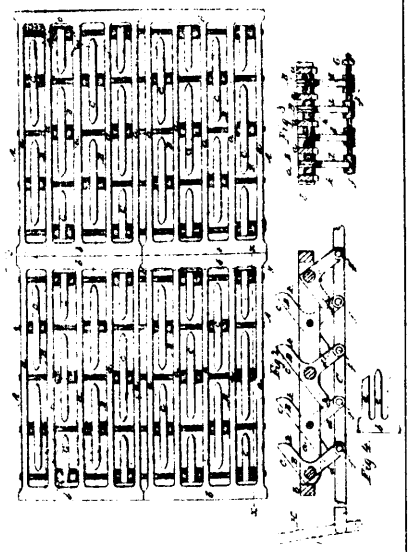
16535 Brown's Steam Engine Indicator Piston and Spring.



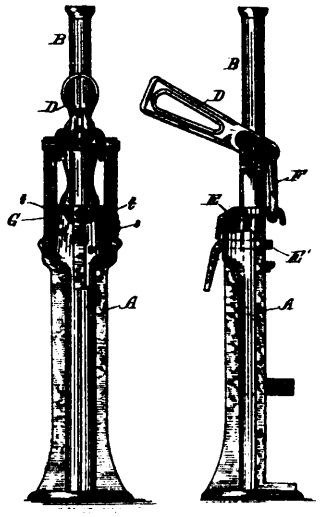
16536 Obermann's Improvements on Cooking Vessels.



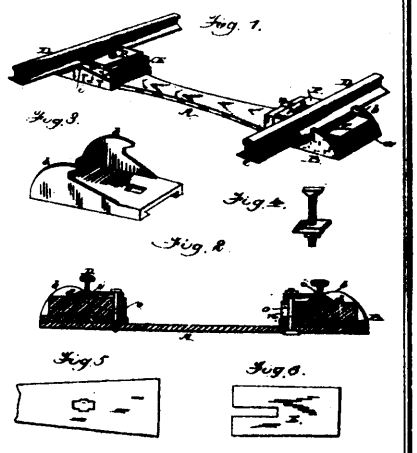
16537 Galloway's Improvements on Grain Drills.



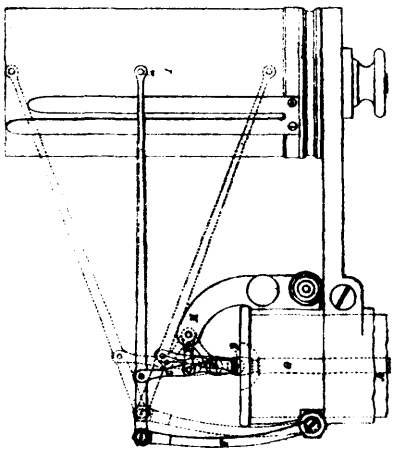
16538 Niebell's Improvements in Furnace Grates.



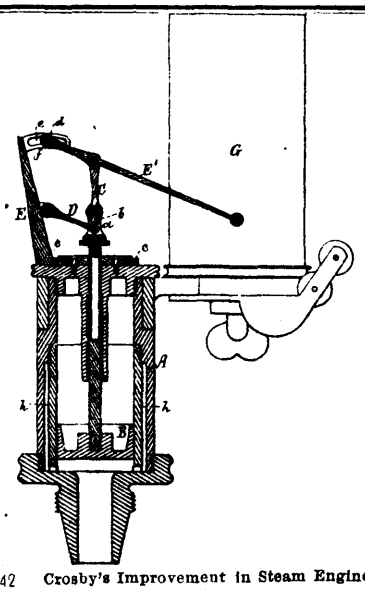
16539 Jenne's Improvements on Lifting Jacks.



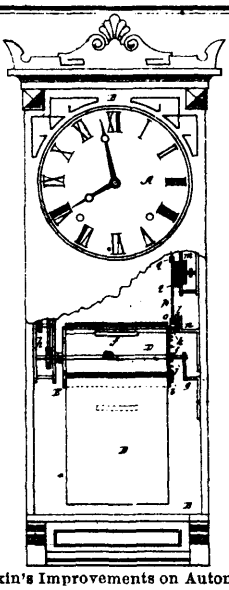
16540 Pendleton's Improvements on Railroad Ties.



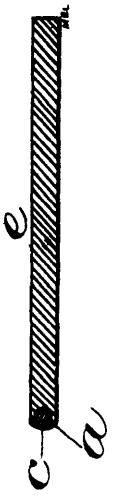
16541 Crosby's Improvements in Steam Engine Indicators.



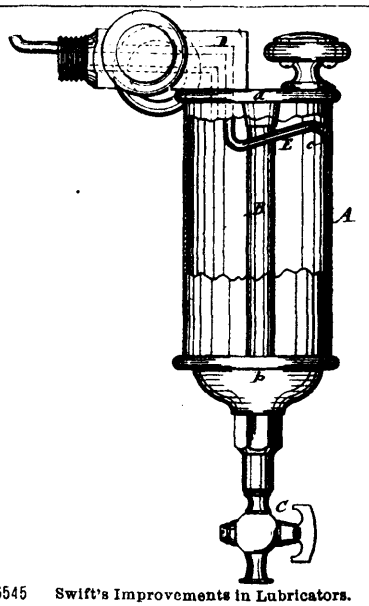
16542 Crosby's Improvement in Steam Engine Indicators.



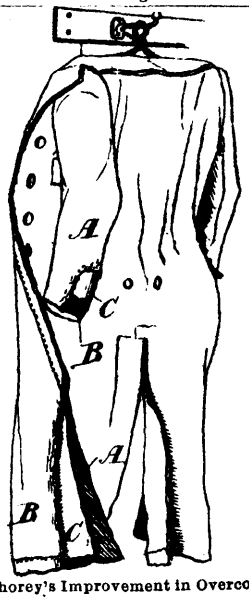
16543 Akin's Improvements on Automatic Advertising Devices.



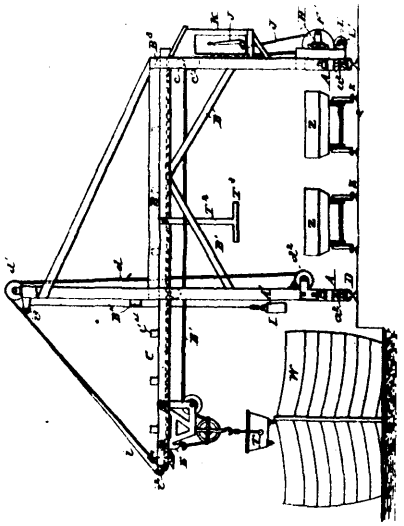
16544 Baker's Improvements in the Manufacture of Friction Matches.



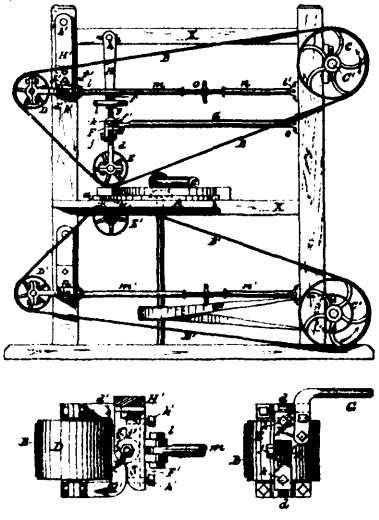
16545 Swift's Improvements in Lubricators.



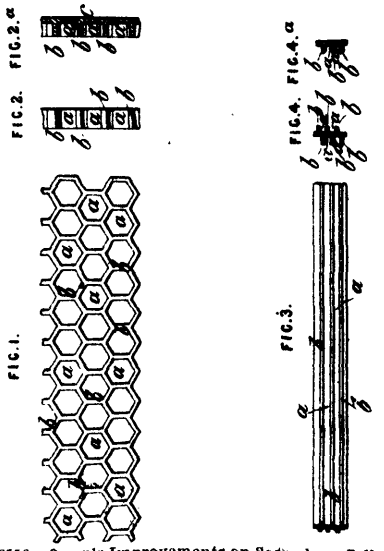
16547 Shorey's Improvement in Overcoats.



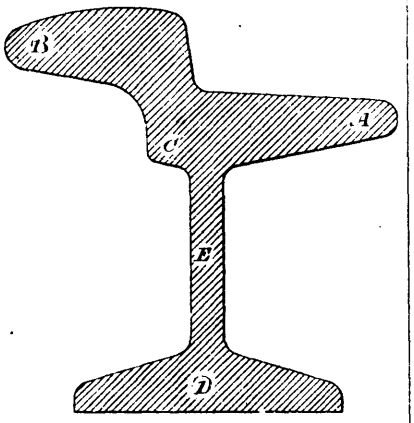
16551 Ludlow's Machine for Unloading Coal and Iron Ore.



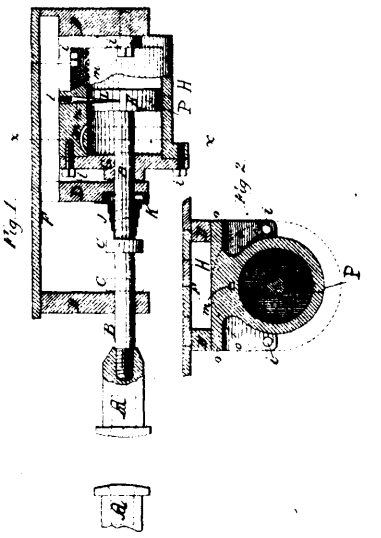
16552 Brown and Holt's Machine for Sand Papering Wheel Rims, Felllies, &c.



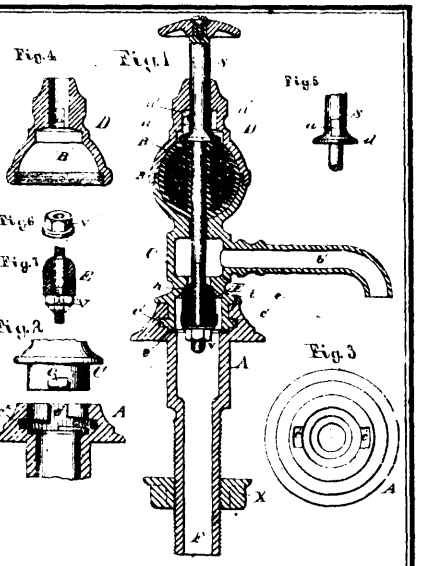
16553 Swan's Improvements on Secondary Cells and Batteries, or Apparatus for Storing Electricity.



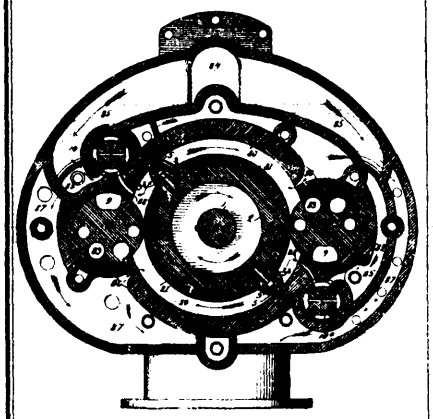
16554 Johnson's Improvements in Combined Tram and T-Rails.



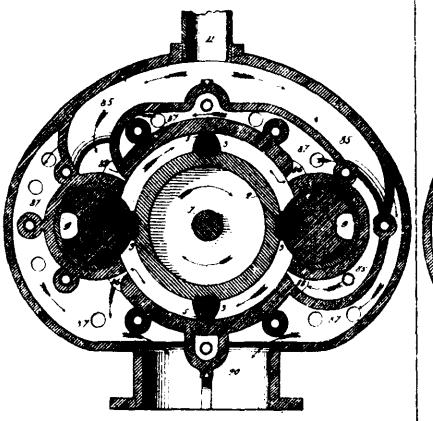
16555 Crouch's Combined Air Buffer and Draw-Bar for Cars.



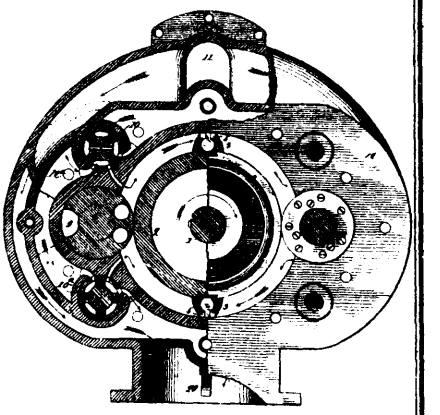
16556 McGinley's Improvements on Faucets.



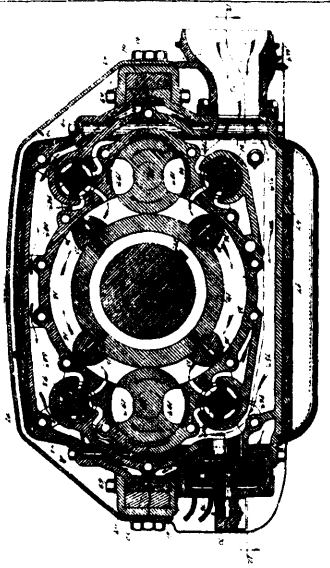
16557 Forbes's Improvement on Rotary Engines.



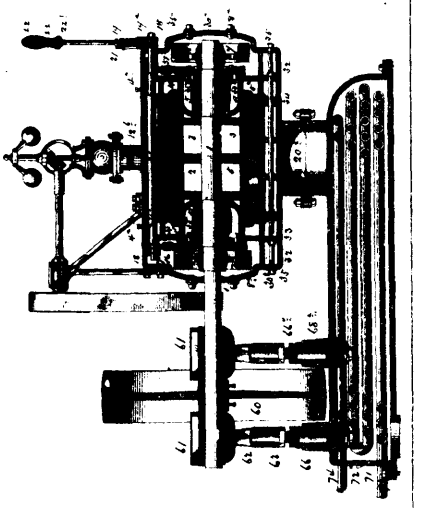
16558 Forbes' Improvement on Rotary Engines.



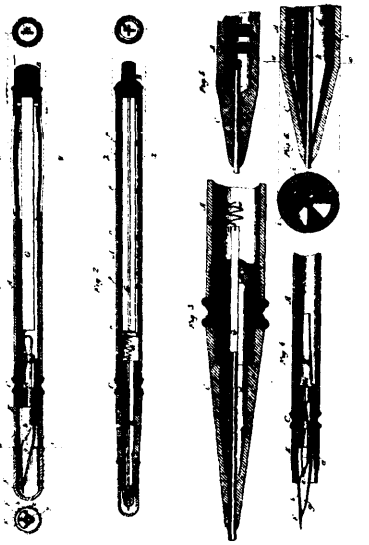
16559 Forbes' Improvement on Rotary Engines.



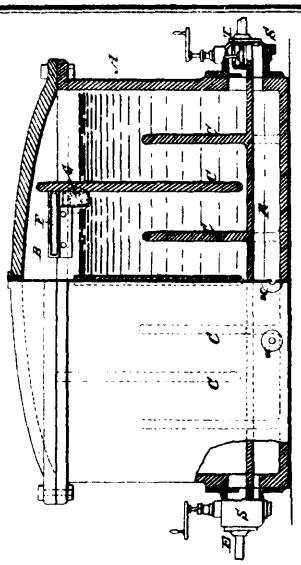
16560 Forbes' Improvements on Locomotives.



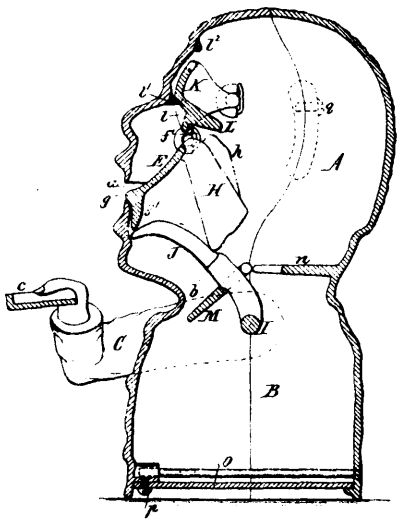
16561 Forbes' Improvement in Rotary Engines.



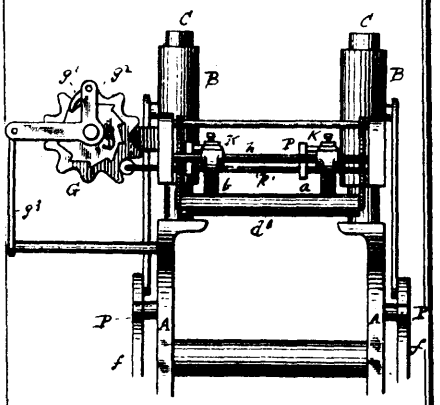
16562 Stewart's Improvement on Fountain Pen-Holders.



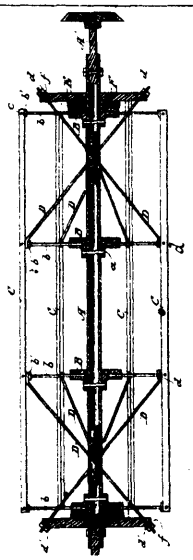
16563 Wass' Device for Removing Grease, Air and other Impurities from Feed Water.



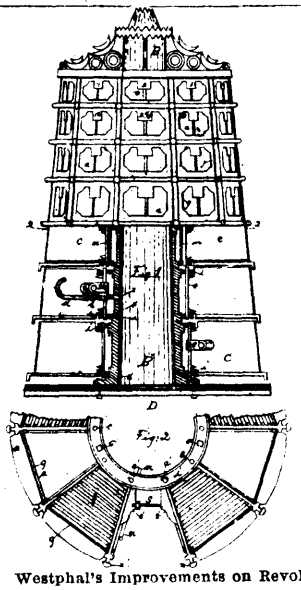
16564 Shepard and Adams' Improvements in Toy Savings' Banks.



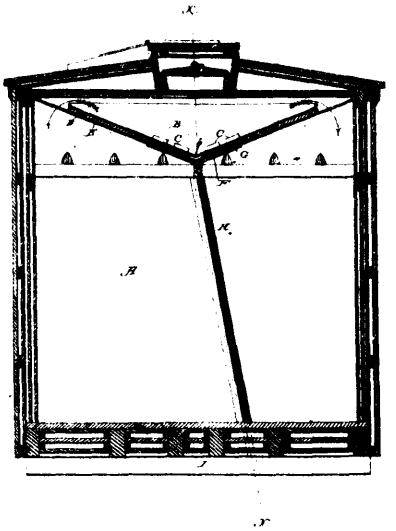
16565 Kidder's Improvements on Numbering Machines.



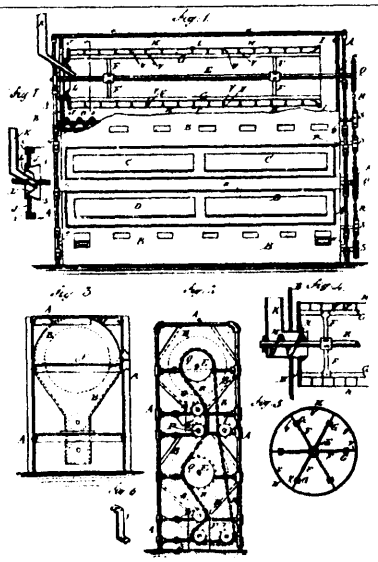
16566 Hurst's Improvement on Bolting Reels.



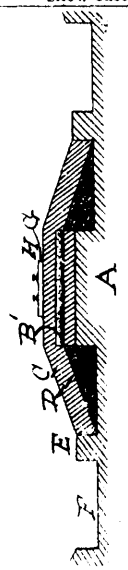
16567 Westphal's Improvements on Revolving Show-Cases.



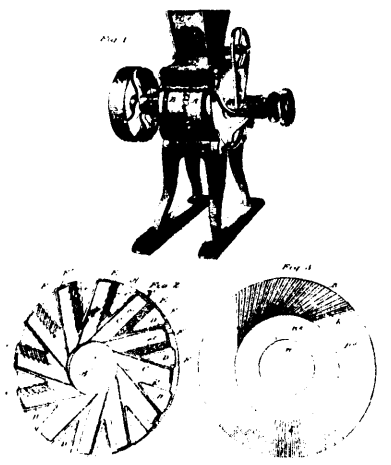
16568 Pierce's Improvements on Refrigerating Cars.



16569 McConnell's Improvements on Floor Bolts.



18570 Elmer's Improvements on Railroad Beds.



16571 Gathmann's Improvement on Mill Disks.

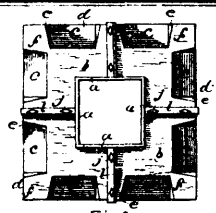


Fig. 1.

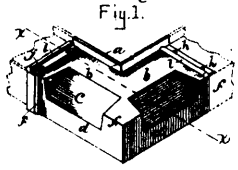


Fig. 2.

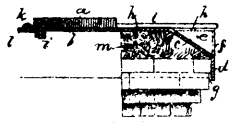
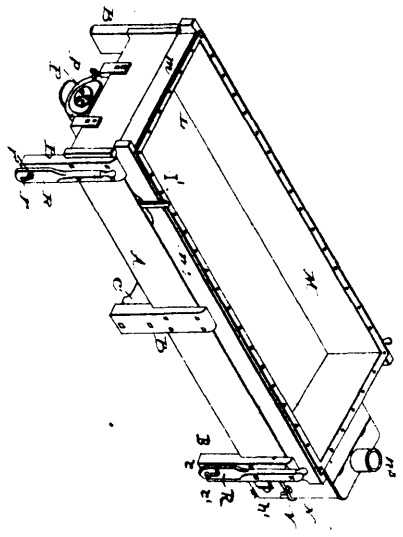
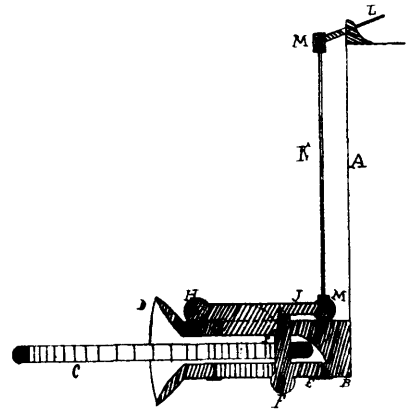


Fig. 3.

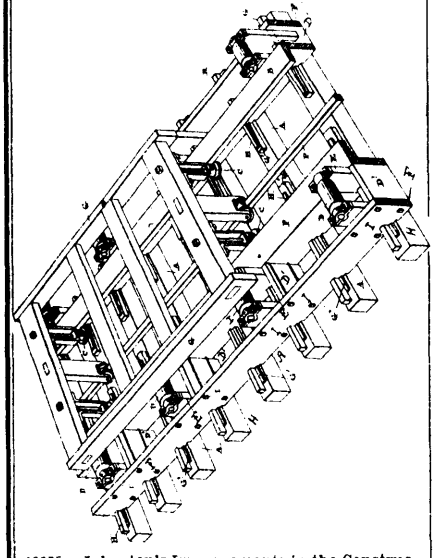
16572 **Pettingell's Improvements on Chimney Caps.**



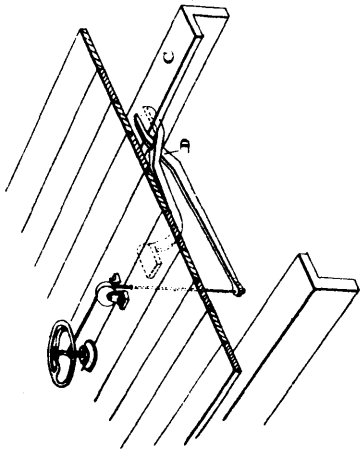
16573 **Simon's Improvements on Cheese Vats.**



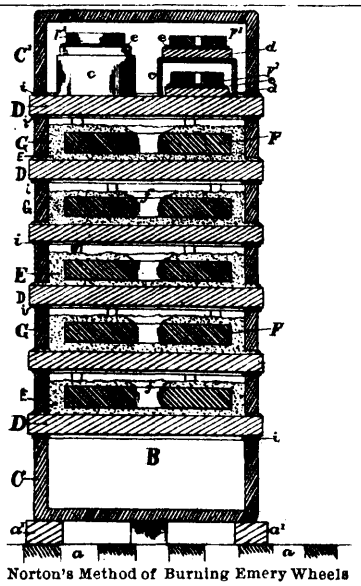
16574 **Plunkett's Improvements on Car Couplers.**



16575 **Johnston's Improvements in the Construction of Railroads.**



16576 **Johnston's Improvements on Car Brakes.**



16577 **Norton's Method of Burning Emery Wheels and Apparatus therefor.**

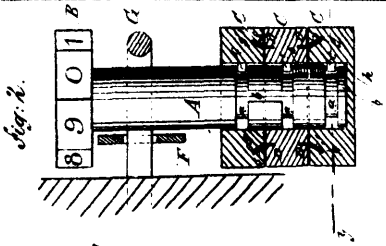


Fig. 2.

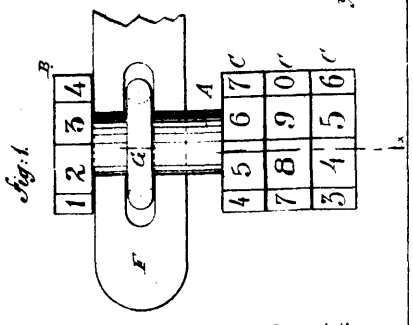


Fig. 1.

16578 **Dean's Improvements on Permutation Locks.**

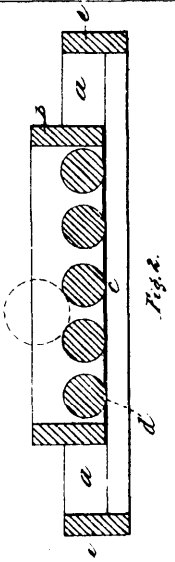
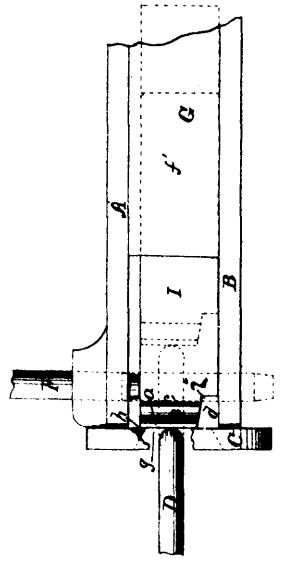
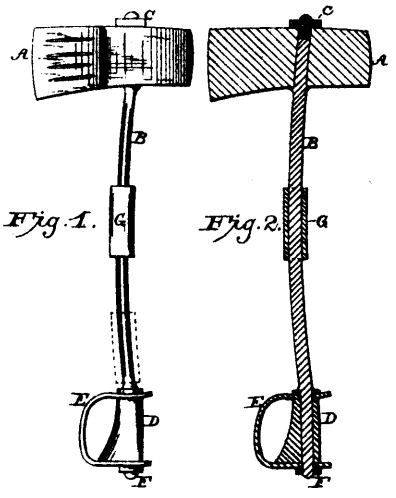


Fig. 2.

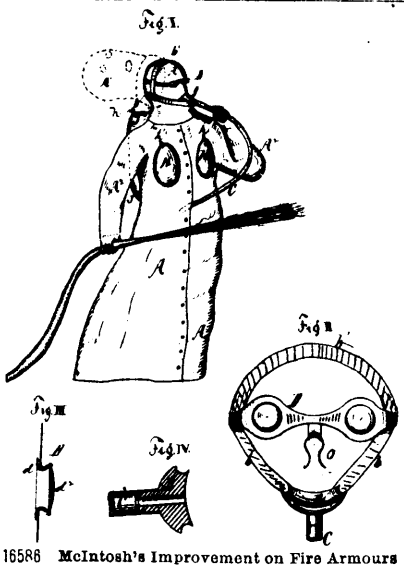
16580 **Lee and Record's Apparatus for Preserving Eggs.**



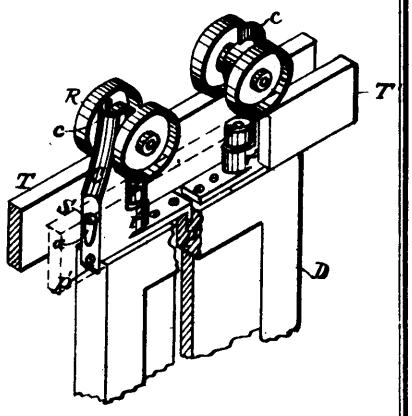
16581 **Rice's Improvements on Car-Couplers.**



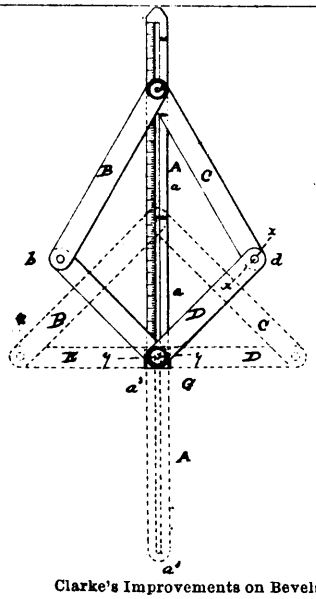
16584 Blaker's Improvements on Axle Handles.



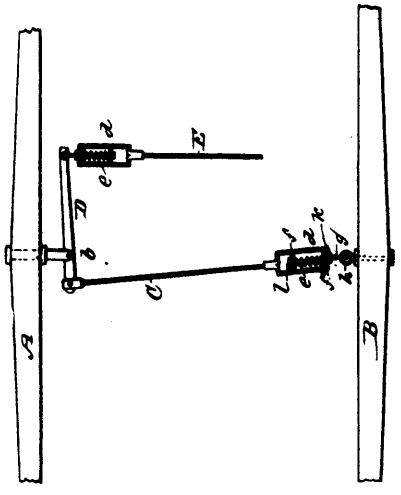
16586 McIntosh's Improvement on Fire Armours and Respirators.



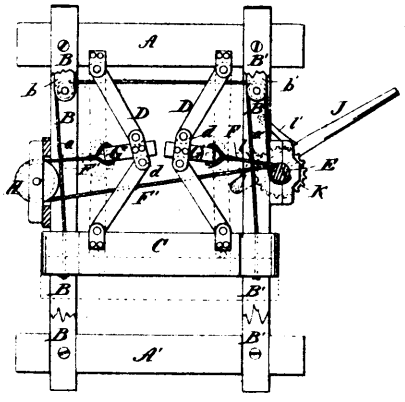
16587 Hey's Improvements on Door Hangers.



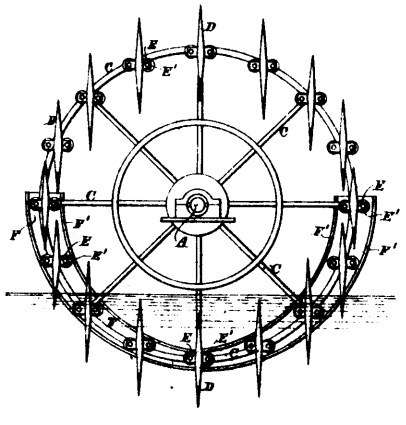
16588 Clarke's Improvements on Bevels.



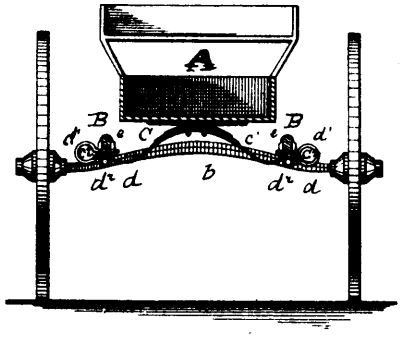
16589 Kilborn and Smith's Improvements on Car Brakes.



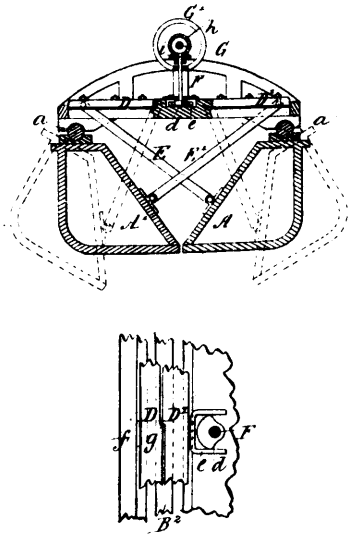
16590 Morgan's Improvements on Power Presses.



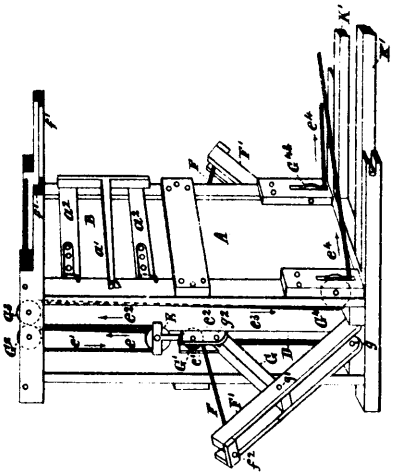
16591 Figge's Improvements on Water Wheels and Paddle Wheels.



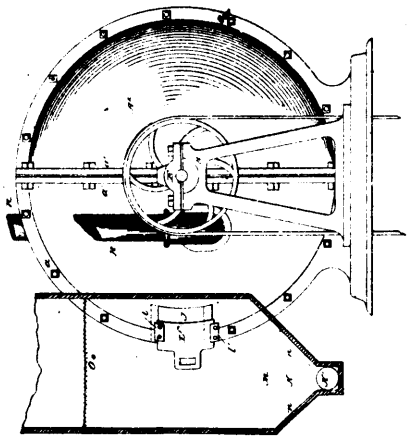
16592 Melburn's Improvements on Vehicle Springs.



16593 Barney's Improvements on Dumping Boats.



16595 March's Improvements on Hay Presses.



16596 Warren's Improvements in the Manufacture of Entire Wheat Flour.

Fig. 2.

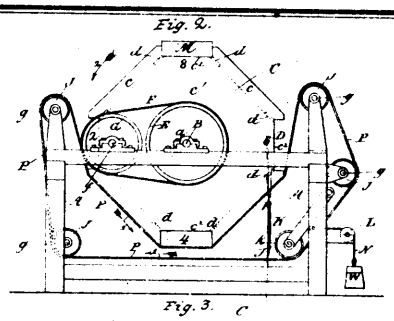
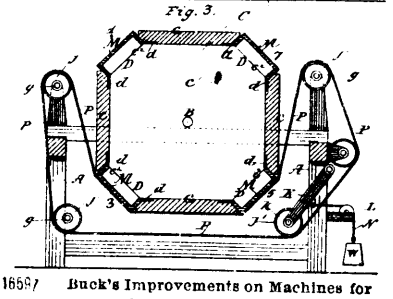
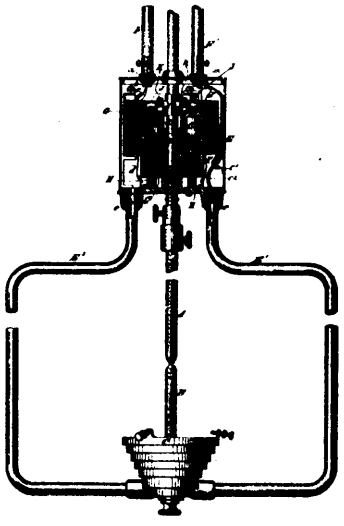


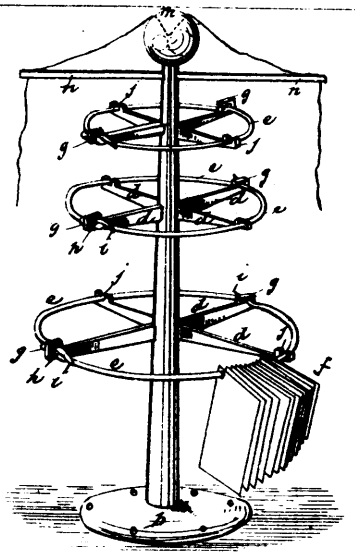
Fig. 3.



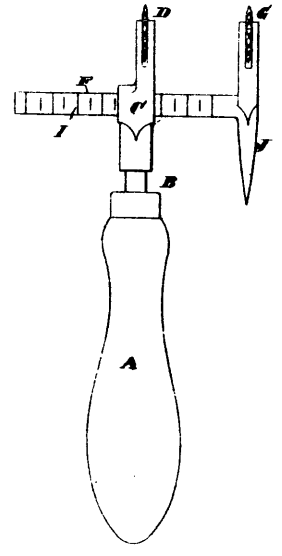
16597 Buck's Improvements on Machines for Sanding Brick Moulds.



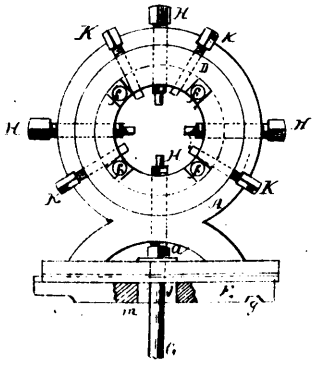
16598 Hussey's Improvement on Electric Lamps.



16599 Steinberger's Improvements in Bag and Twine Holders.



16600 Purdy's Improvements on Pattern Tracers.



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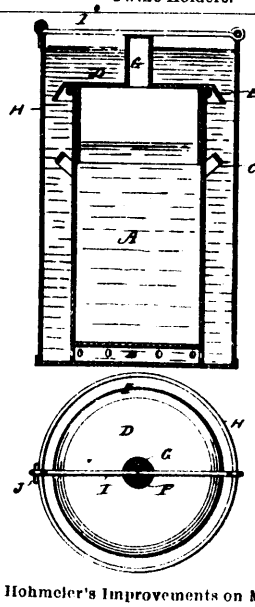

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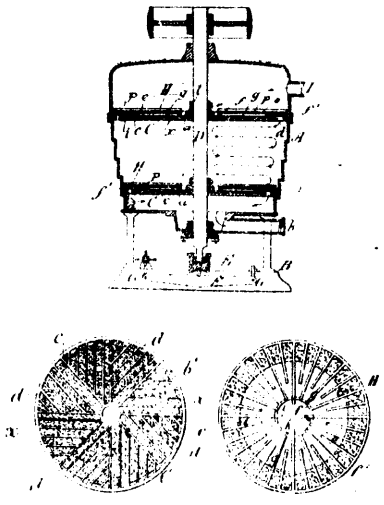

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Westphal, H., revolving show cases..... 16,567
Wheeler, S., et al., car coupler..... 16,581
White, G. H., coal chutes..... 16,427
Wilkin, T. S., saw stretchers..... 16,428
Williams, R., barrel hoops..... 16,481
Wilson, C., et al., lawn mowers..... 16,482
Windsor, E. G., et al., lighting apparatus..... 16,523
Winter, J. G., gang circular saw mill..... 16,510
Wolfe, H. S., stock cars..... 16,480
Woodward, N. S., fog alarms..... 16,464
Wright, D. P., et al., spark arresters..... 16,447
" S., barrel making machines..... 16,424

Patents issued up to 30th April, 1883, Claims and Drawings of which will appear in a subsequent number of the Patent Record.

No. 16,603. A. Ansley, Geneva, N. Y., "Combined Cultivator and Potato-Digger," 31st March, 1883.

No. 16,604. J. D. Brunton, Kentish Town, Eng., "Machinery or apparatus for cutting rock and cutting dressing planing and shaping stone," (Extension of Patent No. 8657), 3rd April, 1883.

No. 16,605. E. Glendillen, Owen Sound, Ont., "Horse rakes," 3rd April, 1883.

No. 16,606. I. Frechette, St. Hyacinthe, Que., "Shingle machine," (Extension of Patent No. 2239,) 4th April, 1883.

No. 16,607. N. H. Greene, Montreal, Que., "Freight cars," 4th April, 1883.

No. 16,608. E. Bigelow, jr., Medford, N. S., "Reefing gear," 4th April, 1883.

No. 16,609. H. J. Allen, Port Byron, N. Y., "Mince pie compound," 4th April, 1883.

No. 16,610. P. Filman, Barton, Ont., "Draft bolt," 4th April, 1883.

No. 16,611. L. Katzenstein, N. Y., "Metallic packing," 4th April, 1883.

No. 16,612. J. Young and E. Furniss, Mellor, Eng., "Ring spinning and doubling frames," 4th April, 1883.

No. 16,613. G. M. Crapen, Wilmington, N. C., "Draining cases for barrels," 4th April, 1883.

No. 16,614. J. W. Barnes, Meaford, Ont., "Tonic medecine for the cure of liver complaint, dyspepsia, etc.," 4th April, 1883.

No. 16,615. R. E. Strait, Galesbury, Mich., "Tubular wells," 4th April, 1883.

No. 16,616. J. Darrigan, Cagnotte, France, "Double jointing brick," 4th April, 1883.

No. 16,617. A. F. Martel, J. McPherson, Montreal, Que., and A. F. McIntyre, J. T. Lewis, Ottawa, Ont., "Wire fence," 4th April, 1883.

No. 16,618. A. Wildern, Vienna, Ont., "Vehicles," 4th April, 1883.

No. 16,619. E. J. Nelson executor, Little Falls, N. Y., "Trusses," 7th April, 1883.

No. 16,620. L. Francis, Kingston, Ont., "Step ladders," 7th April, 1883.

No. 16,621. W. Taylor and F. King, London, Eng., "Plates for secondary batteries," 7th April, 1883.

No. 16,622. R. A. J. F. Brown, Washington, Ind., "Brick and tile kilns," 9th April, 1883.

No. 16,623. A. B. Jardine, Hespeler, Ont., "Tire upsetter," 9th April, 1883.

No. 16,624. P. N. McChesney and J. W. Craig, Port Elgin, Ont., "Grain decorticator and cleaner," 6th April, 1883.

No. 16,625. D. Brix, Geneseo, Ill., "Stoves," 9th April, 1883.

No. 16,626. E. Witham, Carratunk, Maine, "Calks," 9th April, 1883.

No. 16,627. J. Kelly, Chicago, Ill., "Stop and waste cock," 9th April, 1883.

No. 16,628. F. X. Roy, Montreal, Que., "Carriages," 9th April, 1883.

No. 16,629. W. S. Ovens, Buffalo, N. Y., "Pan cleaning machines," 9th April, 1883.

No. 16,630. M. W. Simkins, Newburgh, Ont., "Sewing machine, needle bars and needles," 9th April, 1883.

No. 16,631. L. Carr, Shakopee, Minn., "Adjustable hame," 9th April, 1883.

No. 16,632. T. Isherwood, Westerly, R. I., "Art of weaving cloth," (Extension of Patent No. 14,979,) 9th April, 1883.

No. 16,633. T. Isherwood, Westerly, R. I., "Art of weaving cloth," (Ext. of Patent No. 14,979,) 10th April, 1883.

No. 16,634. W. S. Eaton and H. G. Dorr, Boston, Mass., assignees, "Skiving machines," 10th April, 1883.

No. 16,635. J. A. and L. N. Vankeuren, Bridgeport, Conn., "Waterproof preservation blacking," 10th April, 1883.

No. 16,636. M. D. Ellison and J. W. Mitchell, Canisteo, N. Y., "Packing vessels," 10th April, 1883.

No. 16,637. C. E. Patric, Rochester, N. Y., "Fertilizer distributers," 11th April, 1883.

No. 16,638. P. Fitzgibbons, Oswego, N. Y., "Steam boiler," (Ext. of Patent No. 8740,) 11th April, 1883.

No. 16,639. W. E. Warner, Syracuse, N. Y., "Door hangers," (Extension of Patent No. 8653,) 21th April, 1883.

No. 16,640. M. R. F. Desjardins, Montreal, Que., "Heating apparatus," 11th April, 1883.

No. 16,641. W. J. Keefe, Boston, Mass., "Paper box machines," 11th April, 1883.

No. 16,642. E. F. Falconnet; Nashville, Tenn., "Vessel for aerial navigation," 11th April, 1883.

No. 16,643. L. Heath, Boston, Mass., "Mattress," 11th April, 1883.

No. 16,644. S. Trott and F. A. Hamilton, Halifax, N. S., "Submarine telegraph cable," 11th April, 1883.

No. 16,645. R. M. Rose, Brooklyn, N. Y., "Attachment for sewing machines," (Extension of Patent No. 8,643,) 11th April, 1883.

No. 16,646. R. S. Bailey, West Concord, Vt., "Horse shoe sharpener," (Extension of Patent No. 8808,) 12th April, 1883.

No. 16,647. L. D. Haskell, jr., Beverly, Mass., "Perches for carriages," 12th April, 1883.

No. 16,648. W. De K. Moody, Brantford, Ont., "Fruit evaporator," 12th April, 1883.

No. 16,649. T. B. Mackey, Dallas, Texas, "Waggons," 12th April, 1883.

No. 16,650. The Hewith Box Lid Company, Ill., assignees, "Oil box lid," (Extension of Patent No. 8,638,) 12th April, 1883.

No. 16,651. J. H. Kennedy and T. P. Hall, Toronto, Ont., "Switch opener," 12th April, 1883.

No. 16,652. H. M. Loud, Oscoda, Mich., "Log feeders and turners," 12th April, 1883.

No. 16,653. R. Johnston, Rama Ont., "Snow plough," 12th April, 1883.

No. 16,654. J. R. Winter, Chambersburg, Penn., "Fire escapes," 12th April, 1883.

No. 16,655. G. D. Burton, Boston, Mass., "Roller skate," 12th April, 1883.

No. 16,656. J. H. Ford, Toronto, Ont., "Fire escape," 12th April, 1883.

No. 16,657. C. G. Calo, Albany, N. Y., "Horse collar," 12th April, 1883.

No. 16,658. J. Fox, Oskaloosa, Iowa, "Washing machines," 12th April, 1883.

No. 16,659. J. Sintzel, Hamilton, Ont., "Fire escape," 12th April, 1883.

No. 16,660. J. R. Cross, N. Y., "Process for transferring the grain marks of wood and other configurations," (Extension of Patent No. 2,634,) 12th April, 1883.

No. 16,661. J. Fish and F. C. Ireland, Lachute, Que., "Hygienic food-," 12th April 1883.

No. 16,662. H. H. Taylor, Detroit, Mich., "Screw cutting machine," 12th April 1883.

No. 16,663. H. Myers, Springfield, Ohio, "Horse hay rakes," 12th April 1883.

No. 16,664. A. C. Tracy Mitchellville, Iowa, "Milking pails," 12th April 1883.

No. 16,665. N. Burkholder, Cherrywood, Ont., "Threshing machines," 12th April 1883.

No. 16,666. J. H. Crocher, Brussels, Ont., "Shower bash," 12th April 1883.

No. 16,667. B. F. Chapman, Wiarton, Ont., "Life boats," 13th April 1883.

No. 16,668. F. Jones and W. Woolsey, Ypsilanti, Mich., "Shaft Attachment for sleighs," 13th April 1883.

No. 16,669. A. C. Palmer, Owosso, Mich., "Registers for wood working machines," 13th April 1883.

No. 16,670. A. O. Wilbur, Davis, Mich., "Vehicle springs," 13th April 1883.

No. 16,671. W. Kurty, N. Y., "Method and apparatus for producing photographic images," 13th April 1883.

No. 16,672. A. Gardner, Hamilton, Ont., "Combined memorandum book," (Extension of Patent No. 10,804), 13th April 1883.

No. 16,673. W. J. English and W. Wood, Cahoes, N. Y., "Non syphon trap," (Extension of Patent No. 15,777), 13th April 1883.

No. 16,674. W. J. English and W. Wood, Cahoes, N. Y., "Non syphon trap," (Extension of patent No. 15,777), 14th April 1883.

No. 16,675. W. Buck, Brantford, Ont., assignee "Stove and furnace grate," (Extension of patent No. 2960), 16th April 1883.

No. 16,676. A. Russell and F. Curtis, Neyburyport, Mass., "Ship's pumps," 16th April 1883.

No. 16,677. W. Gates, Hopkins Station, Mich., "Land rollers," 16th April, 1883.

No. 16,678. W. C. Burrows, Stockton, N. Y., "Churns," 16th April 1883.

No. 16,679. J. P. Whipple, Whatewater, Wisc., "Paint distributors," 16th April 1883.

No. 16,680. A. Warnock, Galt, Ont., "Axles," 16th April 1883.

No. 16,681. J. J. Greenough, Syracuse, N. Y., "Machinery for grooming horses and other mechanical purposes." 16th April 1883.

No. 16,682. J. W. Oulton, Charlestown, Mass., "Car couplings," 16th April 1883.

No. 16,683. J. D. Kiely, Toronto, Ont., "Car couplings." 16th April 1883.

No. 16,684. S. D. Maddin, St. Paul, Minn., "Harvesters," 16th April 1883.

No. 16,685. G. A. Kennedy, Coaticook, Que., "Tabular lanterns," 16th April 1883.

No. 16,686. N. Richardson, Gloucester, Mass., "Steering mechanism, 16th April, 1883.

No. 16,687. S. M. Churchill, State Centre, Iowa, "Nut locks," 16th April, 1883.

No. 16,688. J. S. Beeman, W. Taylor and F. King, London, Eng., "Regulator batteries," 16th April, 1883.

No. 16,689. W. Carter, Toronto, Ont., "Overalls," (Extension of patent No. 16,020. 16th April, 1883.

No. 16,690. W. Carter, Toronto, Ont., "Overalls," (Extension of patent No. 16,020), 17th April, 1883.

No. 16,691. T Miltonberger, Bellefontaine, Ohio, "Combined hay rakes and check power." 17th April, 1883.

No. 16,692 B. C. May, May, Texes, "Churn motors," 17th April, 1883.

No. 16,693. O. J. True, Port Clinton and H. H. Houghton, Elyria, Ohio, "Automatic switch stand," 17th April, 1883.

No. 16,694. W. S. Pugsley, London, Ont., "Alarming fire-escape," 17th April, 1883.

No. 16,695. C. W. Levalley, St. Paul Minn., "Cord-holder for grain binders," 17 April, 1883.

No. 16,696. H. A. Eaton, Manchester, Maine, "Automatic alarm or signal," 17th April, 1883.

No. 16,697. W. J. Cooper, Westminister, Eng., "Distillation of coal for obtaining products therefrom," 17th April, 1883.

No. 16,698. W. R. White, Neoga, Ill., "Gates," 17th April, 1883.

No. 16,699. G. Mitchell, Newcastle, N. B., Car couplers," 17th April, 1883.

No. 16,700. S. D. Maddin, St. Paul, Minn., "Harvesters," April, 1883.

No. 16,701. A. Atkinson, N.Y., "Apparatus for the manufacture of starch," 17th April, 1883.

No. 16,702. P. Patterson, Patterson, Ont., assignee, "Harvesting machines," 17th April, 1883.

No. 16,703. The Whitehead Atherton Machine Company, Lowell, Mass., assignees, "Machinery for opening and preparing cotton," 17th April, 1883.

No. 16,704. I. Brooke, Rogersford, Penn., "Inkstands," 17th April, 1883.

No. 16,705. W. W. McLellan, Newcastle, N. B., "Semaphon signals," 17th April, 1883.

No. 16,706. A. M. Barrett, Jone City, Cal., "Combined spool and thimble holder and thread cutter," 17th April, 1883.

No. 16,707. C. Johson, Canandaigua, N.Y., assignee, "Gate hinges," 17th April, 1883.

No. 16,708. C. G. Dobbs, N. Y., "Decorating buttons and similar articles," 18th April, 1883.

No. 16,709. F. A. Ring, Maplewood, Mass., "Stove pipe attachments," 18th April, 1883.

No 16,710. W. P. Jones, Arcada, N.Y., "Land rollers," 18th April, 1883.

No. 16,711. R R. Osgood, Troy, N. Y., "Spud fixtures," 18th April, 1883.

No 16,712. A. B. Fiske, Lyndonville, N. Y., "Egg carrier," 18th April, 1883.

No. 16,713 J. T. Barnes, Rushville, Ind., "Road carts," 18th April, 1883.

No. 16,714. N. B Blackmer, Portage, Wis., "Air pumps," 18th April, 1883.

No. 16,715. J. E. Townshend, Montreal, Que., "Spring mattresses," 18th April, 1883.

No. 16,716. A. P. Yates, Syracuse, N. Y., "Combined pocket cases and cigar clippers," 18th April, 1883.

No. 16,717 C. Kranse, Hamilton, Ont., "Coat hangers," 18th April, 1883.

No. 16,718. A. J. Nellis, Pittsburg, Penn., assignee, "Horse rakes," 18th April, 1883.

No. 16,719. P. Richards, G. Schaller and W. F. Egan, Wilkes Barré, Penn., "Fire grates," 18th April, 1883.

No. 16,720. T Simmons, Hartford, Conn., "Trusses," 19th April, 1883.

No. 16,721. N. D. Huse, Laconia, N. H., "Knitting machines," 16th April, 1883.

No. 16,722. H. and W. Monk, Hadlow Cove, Que., "Double cylinder steam engines," 19th April, 1883.

No 16,723, W. E. More, Thorntown, Ind., "Ventilators," 19th April, 1883.

No. 16,724. S. and E. B. Dodson, N.Y., L. Walter Clofton, and F. Krohn, Brooklyn, N. Y., "Disintegrating mill," 19th April, 1883.

No.16,725. L. Triplett, Mount Jackson, Vir., "Nut locks," 19th April, 1883.

No. 16,727. The Hon. D. E. Price, Chicoutimi, Que., "Fish register," (Ext. of Patent No. 8,878,) 19 April, 1883.

No. 16,727. The Hon. D. E. Price, Chicoutimi, Que., "Fish register" (Ext. of Patent No. 8.878.)

No. 16,728. G. W. W. Billings, Oshawa, Ont., "Grain drills, 21st April, 1883.

No. 16,729. D. W. Haines and A. D. Hankerson, Readfield, Maine, "Car couplings," 21st April, 1883.

No. 16,730. J. Graham, Detroit, Mich., "Nut locks," 21st April, 1883.

No. 16,731. G. N. Spencer, Three Rivers. Mich., "Velocipedes," 21st April, 1883.

No. 16,732. W. H. Doane, Cincinnati, Ohio, "Sand papering machines." 21st April, 1883.

No. 16,733. W. H. Doane and G. W. Bugbee, Cincinnati, Ohio, "Band saws," 21st April, 1883.

No. 16,734. J. Haldane, Strathroy, Ont., "Fences," 21st April, 1883.

No. 16,735. S. Chambers, Norwich, Ont., "Wire bound fences," 21st April, 1883.

No. 16,736. D. V. Beacock, Brockville, Ont., Dental plate and flask," 21st April, 1883.

No. 16,737. Gay's Sash Lock Company, assignees, Buffalo, N. Y., "Sash lock," 21st April, 1883.

No. 16,738. J. C Woodward, C. H. Crofeet and L. A. Andrews, Cleveland, Ohio, "Reverberatory Smelting furnace," 21st April, 1883.

No. 16,739. E. B. Eddy, Hull, Que.' assignee, "Pail press," (Ext. of Patent No. 8,674,) 23rd April, 1883.

No. 16,740. E. E. Tibbles, Burlington, Iowa, "Sewing machines," 23rd April, 1883.

No. 16,741. S. A. Rice and W. S. Ovens, Buffalo, N. Y., "Machine for cleaning fruit," 23rd April, 1883.

No 16,742. C. T. Emerson, Lawrence. Mass., "Safety guard," 23rd April, 1883.

No. 16,743. A. F. and F. B. Johnson, "Perforators for automatic printing telegraphs," 23rd April, 1883.

No. 16,744. A. F. and F. B. Johnson, Brooklyn, N. Y., "Rapid telegraph printer," 23rd April, 1883.

No. 16,745. J. H. Blessing, Albany, and R. R. Osgood, Troy, N. Y., "Friction clutches," 23rd April, 1883.

No. 16,746. T. Rowan, London, Eng., "Ventilating apparatus," 23rd April, 1883.

No. 16,747. J. Goodwin, Boston, Mass., "Metamorphosic attachment to bedsteads," 23rd April, 1883.

No. 16,748. J. M. Spencer, Great Village, N. S., "Cooking stove," (Ext. of Patent No. 8,680,) 24th April, 1883.

No. 16,749. The National Machine Company, N. Y., assignees, "Button Hole feeding mechanism for sewing machines," 24th April, 1883.

No. 16,750. The Whitehead and Atherton Machine Company, Lowell, Mass, assignees, "Top flats of carding machines," 24th April, 1883.

No. 16,751. A. S. Adams, Boston, Mass., "Automatic tongs, 24th April, 1883.

No. 16,752 C. H. Cowdrey, Fitchburg, Mass, "Self-oiling pulleys," 24th April, 1883.

No. 16,753. N. Rosenwasser, Cleveland, Ohio, "Percolators," 24th April, 1883.

No. 16,754. J. L. Ellis, Millington, Mich., "Lifting jacks," 24th April, 1883.

No, 16,755. E. Barnard, Rome, N. Y., "Surcingles," 24th April, 1883.

No. 16,756. C. L. Cooke, Syracuse, N.Y., "Railway switches," 24th April, 1883.

No. 16,757. W. S. Ovens, Buffalo, N. Y., "Cake machines, 24th April, 1883.

No. 16,758. J. Prince, West Randolph, Vt., "Hoop shaving machine," 24th April, 1883.

No. 16,759. L. G. Kelsey, Marilla, N. Y., "Potato digger," 24th April, 1883.

No. 16,760. P. Proteau, Beauport, Que., "Axle box." 24th April, 1883.

No. 16,761. F. V. Rouleau, St. Jean Baptiste, Ile Verte, Que., "Electro-magnetic cylinder," 24th April, 1882.

No. 16,762. The Guelph Carriage Goods Company, Guelph, Ont., ossignees, "Machine for turning carriage axles," 24th April, 1883.

No. 16,763. J. R. Burchfield, Sharon, Penn,, "Tailor's stoves," 24th April, 1883.

No. 16,764. C. H. Bill. Waltham, Mass., "Crayon mold machine," 24th April, 1883.

No. 16,765. A. Marland, Pittsburgh, Penn., "Nut machines." 24th April, 1883.

No. 16,766. J. Walter, Nashville, Tenn., "Metal roofing," 24th April, 1883.

No. 16,767. J. G. Peace, Salem, Mass., "Umbrellas," 24th April, 1883.

No. 16,768. B. B. Carpenter, Richmond Corner, N.B., "Harrows," 24th April, 1883.

No. 16,769. T. E. Daniels, Chicago, Ill., "Mortising machines," 25th April, 1893.

No. 16770. W. F. Cochrane and J. L. Mothershead, Indianapolis, Ind., "Mowing machines," 25th April, 1883.

No. 16,771. W. B. Noyes, Saginaw, Mich., "Curtain roller," (Ext. of Patent No. 15,077,) 25th April, 1883.

No. 16,772. N. B. Noyes, Saginaw, Mich., "Curtain roller," (Ext. of Patent No. 15,077,) 26th April, 1883.

No. 16,773 H. A. Hempel and J. A. Dingens, Buffalo, N.Y., "Printer's Quoin," (Ext. of Patent No. 16,773,) 28th April, 1883.

No. 16,774. E. Smart, Brockville, Ont., "Blind hinge," (Ext. of Patent No. 8,950,) 30th April, 1883.

No. 16,775. J. Jameson, New Castle, Eng., "Process for coking coal." (Ext. of Patent No. 15,804,) 30th April, 1883.

No. 16,776. J. Jameson, New Castle, Eng., "Process for coking coal," (Ext. of Patent No. 15,804,) 30th April, 1883.