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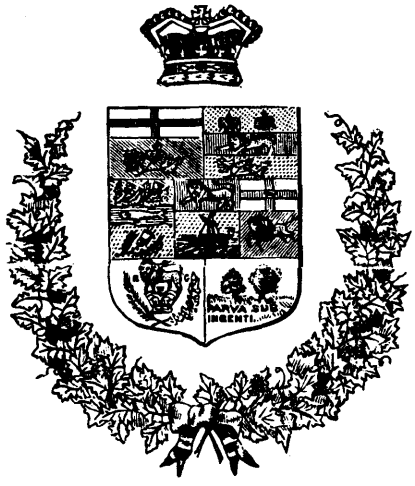
THE CANADIAN PATENT OFFICE RECORD.



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INVENTIONS PATENTED.

NOTE—Patents are granted for 15 years. The term of years for which the fees have been paid, is given after the date of the patent.

No. 25,448. Adjustable Railway Lamp.

(*Lampe Mobile de Chemin de Fer.*)

Edward J. Wessels, Roselle, N.J., U.S., 1st December, 1886; 5 years.

Claim.—1st. In a railway car, the combination, with the seats therein, of adjustable incandescent electric circuits, the said lamp being supported upon a frame, which has a detachable connection with said seats, and a permanent and hinged connection with the side panels of said car. 2nd. In a railway car, the combination, with the seats and side panels therein, of an incandescent electric lamp, adjustable in one or more directions above said seats, a hinged support to said lamp, and a box or other suitable receiver for said support and lamp located upon the said side panels, electric circuit wires passing from the side panels of said car through said hinged support and to the leading-in wires of said lamp, as and for the purpose described. 3rd. In a railway car, in combination with a seat therein, of an incandescent electric lamp adjustably supported upon an adjustable and detachable frame, one end of which is supported upon one end of the seat, and the other hinged upon a receiving box secured to the side panels of said car, electric circuit wires passing from the side panels of said car, through said frame and to the leading inwires of said lamp, as and for the purpose described. 4th. In a railway car, the combination of a seat, a side panel, a receiving box upon said panel, a socket upon said box containing the terminals of an electric circuit, a tube also containing terminals of a circuit which includes one or more incandescent electric lamps, a spring-catch for pressing the said terminals together and located upon said socket, a tube supporting said lamps and provided with a slot and wires, the lamp being in circuit with said wires and adapted to move in said slot, and two hinged joints at each end of said rod, one joint being fixed to said first-mentioned tube, and the other to a rod detachably fixed to that end of the seat opposite said panel, each joint being of insulating substance, provided with metallic portions which are continually at circuit with said lamps. 5th. In combination with the seats of a railway train, incandescent electric lamps adjustably supported upon a frame secured to said seats, and included in an electric circuit, which passes through said frame.

No. 25,449. Spark Arrester. (*Garde-Etincelle.*)

George Saltsman, Bloomingdon, Ill., U.S., 1st December, 1886; 5 years.

Claim—1st. The combination, with the cylinder or smoke stack B, of the spark-arresting fans C, C, arranged one above the other and projecting into the stack so as to slightly overlap each other, and operated by the upward or rising products of combustion, heated air and steam through said stack B, substantially as specified. 2nd. The combination, with the cylinder or smoke stack B and fans C, C, arranged therein, as shown, and operated by the upward or rising products of combustion, heated air and steam, through said stack, of the fans D, D connected to and operated by the fans C, C, and the conduits F, F, and tubes G, G, substantially as and for the purpose herein shown and described. 3rd. The combination, with the cylinder or smoke stack B, of the fans C, C, and their chambers provided with the tube or tubes *d* and the fan D, all arranged to operate substantially as herein shown and described. 4th. The combination, with the cylinder or smoke stack B, of the fans C, C, and their chambers provided with the tubes *d*, *d*, the conduits F, F, fans D, D and tubes G, G, all arranged to operate substantially in the manner as and for the purpose herein shown and described.

No. 25,450. Art of Electrolytically Depositing Aluminium. (*Art de Déposer l'Aluminium à l'Electrolyse.*)

Count Rudolphe de Montgelas (assignee of William Trishmuth), Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. The improvement in the art of electrolytically producing metallic aluminium, which consists in adding to hydrochlorate of aluminium, from which all iron has been removed, an oxide of lead zinc or tin, and depositing electrolytically from said compound aluminium and the metal of the added oxide, substantially as described. 2nd. The improvement in the art of electrolytically producing metallic aluminium, which consists in first treating alumina with hydro-chloric acid to produce hydro-chlorate of aluminium, second, electrolytically depositing the iron contained in said hydro-chlorate, third, decanting the hydro-chlorate and adding an oxide of lead, zinc or tin, fourth, depositing electrolytically from said compound aluminium and the metal of the added oxide, substantially as described.

No. 25,451. Process for the Manufacture of Chloride of Aluminium and Double Chloride of Aluminium and Sodium. (*Art de Fabriquer le Chlorure d'Aluminium et le Double Chlorure d'Aluminium et de Sodium.*)

Count Rudolphe de Montgelas (assignee of William Frishmuth), Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. The process of producing aluminium chloride, substantially as hereinbefore set forth, which consists in combining aluminium oxide and carbon with a carbonizable agglutinating material, subjecting said compound to a temperature sufficiently high to carbonize the carbonizable substances therein, and distilling said compound in the presence of chlorine gas. 2nd. The process of producing aluminium chloride, and the double chloride of aluminium and sodium, substantially as hereinbefore set forth, which consists in combining aluminium oxide, sodium, chloride, carbon, and a carbonizable agglutinating material, subjecting said compound to a temperature sufficiently high to carbonize the carbonizable substances in said compound, and distilling said compound in the presence of chlorine gas. 3rd. The process of producing aluminium chloride, and the double chloride of aluminium and sodium, substantially as hereinbefore set forth, which consists in combining aluminium oxide chloride of sodium charcoal and molasses, forming said compound into lumps, subjecting said lumps to a temperature sufficiently high to carbonize the carbonizable substances in said compound, and distilling said compound in the presence of chlorine gas.

No. 25,452. Process of Obtaining Metallic Aluminium from Chlorides. (*Procédé pour Tirer l'Aluminium Métallique des Chlorures.*)

Count Rudolphe de Montgelas (Assignee of William Frishmuth,) Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. The process of obtaining metallic aluminium from its chloride or double chloride, with sodium, substantially as hereinbefore set forth, which consists in combining aluminium chloride, or double chloride, with sodium, lead oxide, a flux and charcoal, and subjecting the same to fusion, with or without a reducing agent. 2nd, The process of obtaining metallic aluminium from its chloride or double chloride, with sodium, substantially as hereinbefore set forth, which consists in combining aluminium chloride, or double chloride, with sodium, lead oxide, a flux and charcoal, subjecting the same to fusion with or without a reducing agent, and finally separating the metallic aluminium by pouring the fused mass in a molten state into water. 3rd. The process of obtaining metallic aluminium from its chloride of double chloride, with sodium, substantially as hereinbefore set forth, which consists in combining aluminium chloride (or double chloride, with sodium) lead oxide, a flux and charcoal, fusing the same, cooling and re-fusing with metallic magnesium. 4th. The process of obtaining metallic aluminium

from its chloride, or double chloride, with sodium, substantially as hereinbefore set forth, which consists in combining aluminium chloride, or double chloride, with sodium, lead oxide, a flux and charcoal, fusing and cooling the same, re-fusing with a flux and a reducing agent, cooling, and finally re-fusing with a flux. 5th. The process of obtaining metallic aluminium from its chloride or double chloride, with sodium, substantially as hereinbefore set forth., which consists in combining aluminium chloride (or double chloride, with sodium), sodium chloride lead oxide and charcoal fusing and cooling the same, re-fusing with a flux and metallic magnesium, cooling, and finally re-fusing with a flux of muriate of potassium, containing a trace of nitrate of potash. 6th. The improvement in the art of reducing aluminium from a compound containing the same, which consists in adding to said compound, while in a fused condition, metallic magnesium.

No. 25,453. Process of Obtaining Metallic Aluminium from its Chlorides.

(*Procédé pour Tirer l'Aluminium Métallique de ses Chlorures.*)

Count Rudolphe de Montgelas (Assignee of William Frishmuth), Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. The process of obtaining metallic aluminium, from its chloride, substantially as hereinbefore set forth, which consists in fusing together chloride of aluminium, and a flux, adding metallic zinc to produce a zinc aluminium alloy, and separating the zinc and aluminium in said alloy. 2nd. The process of obtaining metallic aluminium from its chloride, substantially as hereinbefore set forth, which consists in fusing together chloride of aluminium and a flux, adding metallic zinc and cooling, then re-fusing and adding double chloride of aluminium and sodium and magnesium, and finally separating the aluminium from the resulting alloy. 3rd. The process of obtaining metallic aluminium from its chloride, substantially as hereinbefore set forth, which consists in fusing together chloride of aluminium and a flux, adding metallic zinc, and cooling, then re-fusing and adding magnesium, and, finally, separating the aluminium from the resulting alloy. 4th. The process of obtaining metallic aluminium from its chloride, substantially as hereinbefore set forth, which consists in fusing together chloride of aluminium and chloride of sodium, adding zinc, cooling and re-fusing with magnesium, and, finally, fusing the resulting alloy with a flue of muriate of potassium and sodium.

No, 25,454. Apparatus for the Manufacture of Chlorine Gas. (*Procédé de Production du Gaz Chlore.*)

Count Rudolphe de Montgelas (Assignee of William Frishmuth), Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. The combination of the vessel A, cover B, perforated tray D supported in said vessel, pipe E and pipe F, substantially as described. 2nd. The combination of the vessel A, cover B, perforated tray D, supports C, pipe E, pipe F, pipe G and stop-cock H, substantially as described.

No. 25,455. Retort Furnace for the Distillation of Alluminium Chloride.

(*Fourneau de Cornue pour la Distillation du Chlore d'Aluminium.*)

Count Rudolphe de Montgelas (Assignee of William Frishmuth), Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. The combination, in a furnace for the production of aluminium chloride, of a retort for containing the material to be heated, a depositing chamber communicating with said retort, a means of heating said retort, and a chlorine gas generator communicating with said retort, substantially as described. 2nd. The combination, in a furnace for the production of aluminium chloride, of a retort for containing the material to be heated, a jacket surrounding said retort, a means of applying heat to the exterior of said jacket, a depositing chamber communicating with said retort, and a chlorine gas generator communicating with said retort, substantially as described. 3rd. The combination, in a furnace for the production of aluminium chloride, of the chamber A, retort B, jacket D, perforated pipe H, chamber I, passage J, and a means of conducting heat into the chamber A, substantially as described. 4th. The combination, in a furnace for the production of aluminium chloride, of the chamber A, retort B, jacket D, perforated pipe H, chamber I, passage J, and pipe E for conducting an air and oil spray into said chamber A, substantially as described.

No. 25,456. Galvanic Cell. (*Cellule Galvanique.*)

Count Rudolphe de Montgelas (Assignee of William Frishmuth), Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. In a galvanic cell, an element of aluminium, substantially as described. 2nd. In a galvanic cell, elements respectively of zinc and aluminium, substantially as described. 3rd. In a galvanic cell, a circuit connection of aluminium, substantially as described. 4th. In a galvanic cell, an element of carbon and a circuit connection of aluminium, substantially as described.

No. 25,457. Electro-Deposition of Magnesium Alloy. (*Electro-Déposition des Alliages de Magnesium.*)

Count Rudolphe de Montgelas (Assignee of William Frishmuth), Philadelphia, Penn., U.S., 1st December, 1886; 5 years.

Claim.—1st. The improvement in the art of producing metallic magnesium, which consists in depositing the same electrolytically in the form of an alloy with another metal, substantially as described. 2nd. The improvement in the art of producing metallic magnesium, which consists in depositing the same electrolytically in the form of an alloy, with another metal, from a solution of magnesium chloride, and a solution of the chloride of said other metal, substantially as described. 3rd. The improvement in the art of producing metallic magnesium, which consists in depositing the same electrolytically in the form of an alloy with zinc from a concentrated solution of magnesium, chloride and a concentrated solution of zinc chloride, substantially as described. 4th. As an electrolytic bath. in combination with a zinc anode and a cathode of other conducting material, a concentrated solution of magnesium chloride, mixed with a concentrated solution of zinc chloride, substantially as described. 5th. As an electrolytic bath, in combination with a zinc anode, and a cathode of other conducting material, a mixture of one part concentrated solution of zinc chlorine, and two parts concentrated solution of magnesium chloride, substantially as described. 6th. In a single deposition cell, a containing vessel, an electrolytic liquid containing magnesium chloride and zinc chloride, a cathode of brass therein, a porous pot dilute sulphuric acid, substantially as described.

No. 25,458. Syringe. (*Seringue.*)

Horace R. Allen, Indianapolis, Ind., U. S., 2nd December, 1886; 5 years.

Claim.—1st. A syringe, syringe attachment or douche having an orifice or a conduit adapted to fit the outer portion of an opening, such as the lower end of the rectum or the anus, substantially as described and for the purpose specified. 2nd. In combination with a suitable pipe, conduit shank or nozzle, a head provided with one or more dischage orifices adapted to fit the lower or outer portion of the anus, substantially as and for the purpose described. 3rd. In combination with a head A, a tube or shank B and a handle C, substantially as and for the purpose described.

No. 25,459. Heating Stove. (*Poêle de Chauffage.*)

Eugene L. Messenger, Fulton, N. Y., U. S., 2nd December, 1886; 5 years.

Claim.—1st. The combination, with a stove provided with a return passage for the products of combustion, of a passage within the stove separate from the flues of the stove having a part of its length adjacent to the passage for the products of combustion, said passage communicating with the air outside of the room at one end, and at the other discharging into the room, and a ventilating passage communicating with the air of the room and its lower end, and rising therefrom and discharging into the smoke outlet of the stove, said ventilating passage having a portion of its length adjacent to the passage for the products of combustion, substantially as described. 2nd. The combination, with a stove provided with two vertical passages, and a horizontal passage connecting the lower ends of the two forming a return passage for the products of combustion, of a passage within the stove having a part in close proximity to the horizontal connecting passage, communicating with the air outside of the room at one end, and at the other discharging within the room, and a foul air ventilating passage communicating with the air of the room at its lower, and rising therefrom adjacent to the vertical passages of the return flue, and extending into the smoke outlet of the stove and discharging into the same, substantially as described. 3rd. The combination, with a stove provided with two vertical passages, and a horizontal passage connecting the two lower ends of the two forming a return passage for the products of combustion, of a passage within the stove having apart in close proximity to the horizontal connecting passage communicating with the air outside of the room at one end, and at the other discharging within the room, and a foul air ventilating passage communicating with the air within the room at its lower end rising therefrom between the vertical passages of the return flue and extending into the smoke outlet and discharging into the same, substantially as described.

No. 25460. Art of Making Horseshoes.

(*Art de Faire les Fers à Cheval.*)

John B. White, Buffalo, N.Y., U.S., 2nd December, 1886; 5 years.

Claim.—The within-described process of making horseshoes having sharp toe and heel calks integral with the body or web of the shoe, perpendicuiar to its sole and of substantially uniform thickness from top to bottom, consisting in hot-rolling a blank with calk projections that are thick at their union with the body or web and taper outward, hot-bending said blank edge-wise, drop-swaging the bent blank in dies having matrical calk-recesses conformed to the finished calks, trimming the forging, and cold-punching the trimmed forging, substantially as hereinbefore set forth.

No. 25,461. Stove. (*Poêle.*)

John F. Stewart, Hamilton, Ont., 2nd December, 1886; 5 years.

Claim.—1st. In a stove, a hot air tube placed around the feeder in the upper portion of the fire chamber, in combination with the hot air chamber and hot air flue, substantially as and for the purpose specified. 2nd. In a stove, a hot air tube D surrounding the feeder E in the upper portion of the fire chamber C, and having its ingress opening *a*, *a* in the rear plate G, and its egress openings *b*, *b* into the hot air chamber B, thence to the exterior hot air pipe collar H, all constructed and operating substantially as and for the purpose specified.

No. 25,462. Cooking Stove. (*Poêle de Cuisine.*)

John A. Wilson and George J. C. Whitelaw, Meaford, Ont., 2nd December, 1886; 5 years.

Claim.—The combination of the hot air pipe or conductor B, collar C, dampers D, E, with oven A, substantially as and for the purpose hereinbefore set forth.

No. 25,463. Railway Signal.

(*Signal de Chemin de Fer.*)

Jacob F. Riethmayer, Lansdale, Pa., U. S., 2nd December, 1886 ; 5 years.

Claim.—1st. In an alarm signal, the combination with a visible signal carried by a sliding bar, of a weight connected to said bar by a chain or rope, a guiding sheave arranged in advance of the point of connection between the bar and chain. a spring-catch and a tripping mechanism, substantially as described. 2nd. In an alarm signal, the combination, with a visible signal carried by a sliding bar, of a weight connected to said bar by a chain or rope, a guiding sheave arranged in advance of the point of connection between the bar and chain, a spring-catch, a rock-shaft having a tripping arm and a lever, a chain leading from said lever to the spring-catch and guiding sheaves, substantially as described. 3rd. In an alarm signal, the combination, with a visible signal carried by a sliding bar, of a weight connected to said bar by a chain or rope, a guiding sheave arranged in advance of the point of connection between the bar and chain, a spring-catch engaging with the sliding bar, a rock-shaft having a tripping-arm and a lever-arm, a chain leading from said lever to the spring-catch, connecting chains or ropes and guiding sheaves, arranged as described, a lever J, cord and chain N, shaft K having trips *l*, *l* and a lever L, and guiding-sheaves over which the rope or chain N passes, substantially as described. 4th. The combination of a sliding bar carrying a visible signal, with a weight D connecting rope or chain *d*, a sheave *e*, a spring-catch C, and a tripping mechanism, a lever J, a rack M having pins *m*, *m*, and a bell and its hammer, whereby an audible signal is sounded a t the time the visible signal is displayed.

No. 25,464. Heating Stove. (*Poêle de Chauffage.*)

Richard W. Chamberlin, Brantford, Ont., 2nd December, 1886 ; 5 years.

Claim.—The flue G, around fire-pot D, in combination with flue 3, flue H and chamber or flue I, substantially as and for the purposes hereinbefore set forth.

No. 25,465. Whip Socket. (*Porte-Fouet.*)

Charles A. Webb, Lansingburg, and Perry D. Randall, Troy, N. Y., U.S., 3rd December, 1886 ; 5 years.

Claim.—The combination, with barrel introverted ferrule, of a rubber disk having a raised flange *b* that extends beyond the barrel, and a depression b_1 into which extends the ferrule end *g*, as shown and described.

No. 25,466. Vehicle Axle. (*Essieu de Voiture.*)

The National Tube Works Company, Boston, Mass., (assignee of Edgar Peckham, New York), U,S., 3rd December, 1886 ; 5 years.

Claim.—1st. A tubular metallic axle having its spindles compressed circumferentially from the outer ends partway the length of the spindles, substantially as described and shown. 2nd. A tubular metallic axle, reinforced by a lining or bushing in the spindle, and the outer end portion of said spindle and its lining compressed circumferentially, substantially as set forth. 3rd. A tubular metallic axle, provided internally with a dam-back of the spindle, and having rearwardly inclined lubricating channels through the bottom of the bottom of the spindle, substantially as described and shown. 4th. In combination with the axle provided in the spindle, with a lubricant reservoir, and with lubricating channel through its bottom, the journal box provided with circumferential grooves communicating with the aforesaid channels, substantially as described and shown. 5th. A tubular metallic axle having the outer ends of its spindles compressed circumferentially, and screw-threaded externally for the reception of the wheel, retaining nut and bushings on the interior of the spindles extending through the aforesaid compressed ends thereof, substantialy as described and shown. 6th. A tubular metallic axle having its spindles tapered externally and formed internally with cylindrical portions, the outer of which is of a smaller diameter than the inner portion, and joined therewith by a circumferential offset, substantially as described and shown.

No. 25,467. Calculating and Adding Machine. (*Machine à Calculer et Additionner.*)

Edward Halsey, San Jose, Cal., U.S., 3rd December, 1886 ; 5 years.

Claim.—1st. In a device for multiplying and performing similar arithmetical calculations, the combination of the frame composed of the board A and top plate B, the former having the table of lines and numbers E, and the latter provided with the openings *b*, *b*, each designated by number, and the numbered slides C, C having their surfaces spaced and marked with figures, which are obtained by multiplying the number of the slide successively by the several numerals designating the openings, and placing the product in such opening, substantially as described for operation as set forth. 2nd. In a machine of the character described, the numbered slides C, C having their faces divided by spaced lines into the spaces of which are placed numbers that are obtained by multiplying the designating number of the slide by the numerals from 1 to 9 inclusive in succession for opertion with reference to a plate, as B, having openings *b* equal in number to the numerals taken for multipliers, as set forth. 3rd. The combination of the plate B having opening *b*, with the line wire *g*, of the slides C, C numbered from 1 to 9 inclusive and adapted to be moved back and forth beneath said opening, and having on the end portion beneath said plate numbers which represent the interest at one per cent. for 1 day, or from $1 to $9 inclusive, and the table F at the opposite end, for operation as set forth in Figs. 1 and 5. 4th. In a device for computing tables and percentage, the combination of the board A, its top plate B, the irregularly-shaped opening *b* in the top plate having the line *g*, thread or wire *g*, stretched across the spaced and numbered lines E on the board A, the slides C adapted to be moved out and in underneath the top plate and confined in their movements by pins *d*, *d*, and the spaces or divisions on the upper face of each slide having figures which are based in a given rate, and are produced by regularly increasing and decreasing the same above and below "hundreds" by ten, the same being arranged and applied for operation as set forth in figure 3. 5th. In a device for adding columns of figures, the herein-described adding machine consisting of the board or tables A, top plate B, the slides C, C, each provided with the row of spaced perforations which are numbered consecutively from "1" upwards, and the whole set of slides being numbered consecutively and in progression from the first to the last one and the row of numerals from 1 to 9 inclusive at each opening to designate the perforations exposed, for operation as set forth. 6th. In an adding machine of the character described, the slide C having the row of perforations, and the column of figures corresponding in numbers therewith, and a regularly increasing order, substantially as described, for operation with a fixed plate B having an opening *b*, as set forth in Figs. 2 and 6.

No. 25,468. Side Bar Vehicle.

(*Voiture à Sommiers de Côté.*)

Arthur A. Abbott, Chicago, Ill., U.S., 3rd December, 1886 ; 5 years.

Claim.—As a new article of manufacture, a side-bar buggy gear in two parts, the two side bars being of metal forming the head block in said two parts meeting at or near the centre of the front axle, in combination with the front and rear axles, and fifth-wheel of the vehicle, substantially as shown and described.

No. 25,469. Heater. (*Calorifère.*)

Elijah S. Wilber, Chicago, Ill., U.S., 3rd December, 1886 ; 5 years.

Claim.—1st. In a heater, the combination, with the shell and its fire-pot, of a series of horizontal pipe-coils having smoke-escape openings alternately at their periphery and centre, substantially as and for the purpose set forth. 2nd. In a heater, a shell formed of a series of sections, each made in two parts hinged together, whereby any portion of the interior may be opened up at will, substantially as and for the purpose set forth. 3rd. In a heater for steam or hot water, a shell provided with vertical stand-pipes to take the supply and exhaust to and from the radiators, in combination with a series of pipe coils arranged horizontally within the shell having alternate escape-openings through them for the smoke, and connections between the smoke and heated gases are caused to circulate under and over all parts of each heating coil, substantially as and for the purpose set forth. 4th. In a heater, the shell A formed with several hinged two-part sections *a*, *a*, and having a central reservoir or feeder B_3, in combination with the stand-pipes B_1, B_2 connecting to the radiating system, the coil of pipe *b* forming the fire-pot and the horizontal coils C, having openings *c* alternately at their outer and inner edges, all of these coils connected to one of said stand-pipes at a lower level than their connection with the other, substantially as and for the purpose set forth. 5th. In a heater, the combination, with the shell and its fire-pot, of a series of horizontal pipe-coils having smoke-escape opening alternately at their periphery and centre, and a series of vertical coils around the shell and feeder, substantially as shown and described and for the purpose set forth.

No. 25,470. Tobogganer's Shoe Protector.

(*Protecteur de Soulier de Glisseur.*)

Henry Porter, Montreal, Que., 3rd December, 1886 ; 5 years.

Claim.—1st. As a new article of manufacture, a toboggan shoe protector made to envelope the front part of the moccasin or boot, having heel and instep straps, as shown and described for the purpose set forth, 2nd. As a new article of manufacture, a toboggan shoe protector made to envelope the front part of the moccasin or boot, laced or buttoned on the instep, and provided with heel and instep straps, as shown and described for the purpose set forth.

No. 25,471. Side Bar Spring.

(*Ressort de Sommier de Côté.*)

Charles P. Crowe, Homer M. Smith, Mount Gilead, Ohio, and Archibald M. McLachlan, Thayer, Ks., 3rd December, 1886 ; 5 years.

Claim.—A vehicle spring formed from a single rod or bar of metal, the central portion of which extends parallel with the body of the vehicle, and which is provided with the bends and the curved ends G, substantially as shown and described.

No. 25,472. Heating and Ventilating System. (*Système de Chauffage et d'Aérage.*)

Charles F. Fogg, (assignee of Horace C. Strout), Brooklyn, N. Y., U. S., 3rd December, 1886 ; 5 years.

Claim.—1st. In a heating and ventilating system, the combination, with a building having a series of communicating rooms, of a heater provided with circulating pipes located below and connecting with one of said rooms, and suitable ingress and egress ventilators situated in the uppermost part of the building, and communicating with one of the rooms most remote from the heater, substantially as described. 2nd. In a heating and ventilating system for building, the combination, with a building having a series of communicating rooms, of a jacketed furnace, a cold-air duct connected to the lower part of the jacket, the upper portions of the jacket and cold-air duct being supplied with registers passing through the flooring above an egress-duct for the escape of hot-air, and an ingress-duct for entrance of cold-air situated in the rear uppermost portion of the building, and upper and lower registers in the apartments, whereby the heated air is allowed to ascend into the uppermost portion of the building and circulate downward forcing the cold air into contact with the furnace, ameliorating the temperature by the admission of cold air, substantially as described. 3rd. In a heating and ventilating system for buildings, the combination, with a building having a series of communicating rooms, of a heating furnace, a jacket surrounding

the same having a short pipe in the top passing through the floor above the furnace, a cold-air duct connected to the lowermost part of the jacket and extending up through the floor above, suitably registers in the said jacket, and air-duct suitable ventilators for the egress of hot air and ingress of cold air situated in the uppermost part of the building, and upper and lower registers in the apartments, described and for the purposes specified. 4th. In a heating and ventilating system for buildings, the combination, with a building having one or more rooms, of a heating furnace surrounded by a jacket and connected with the floor above, a cold-air duct connected to the lower part of the jacket and extending up through the floor above, cold and heat ventilating duct in the upper portion of the building, and suitable means, as shown and described, for controlling and regulating the temperature, substantially as described. 5th. In a heating and ventilating system, the combination, with a building having one or more apartments, of a heating furnace C, a jacket C_1, surrounding the same, and connecting with and passing through the floor above, a cold air duct C_2 connected with the floor above and the lower portion of the jacket C_1, ventilating ducts D and E situated in the upper portion of the building, upper and lower registers b and b_1 in the apartments, and means as shown and described, for controlling and equalizing the temperature, substantially as described.

No. 25,473. Self-Lighting Lamp Burner.

(*Bec de Lampe Mécanique.*)

Shipley W. Spooner, Astoria, Oregon, U. S., 4th December, 1886; 5 years.

Claim.—1st. The combination, with the ordinary lamp burner A, B, C, and cross-piece H at one side of the wick-tube B, of the shaft G journalled on the upper edge of the body A and on the cross-piece, the disk E upon the inner end of the shaft between the wick-tube and the cross-piece, match-holding recesses being formed in the said disk, and the igniter D extending through the cap C, substantially as set forth. 2nd. The combination, with the ordinary burner A, B, C, the cross-piece H at one side of the wick-tube B, and the hooked catch a pivoted upon the said cross-piece, of the shaft G journalled upon the upper edges of the body A and the cross-piece, and held to the cross-piece by the catch, the match-holder E on the inner end of the shaft between the wick-tube and the cross-piece, and the igniter D extending through the cap C, substantially as set forth. 3rd. The burner provided with the match-carrying disk and igniter, in combination with the extinguishing plate M, rod p, arm p^1, and weight p^2, substantially as described. 4th. The burner formed with the box K to enclose the match-carrying disk, and matches held therein, substantially as described.

No. 25,474. Automatic Electric Liquid Level Indicator. (*Indicateur Electrique Automatique du Niveau d'Eau.*)

John J. Ghegan, Newark, N.J.. U.S., 4th December, 1886; 5 years.

Claim.—1st. The combination of a selenium cell, with a translucent liquid-containing vessel and a source of light, substantially as described. 2nd. In an automatic liquid level indicator, the combination of a source of light, a liquid translucent containing vessel, an opaque float therein and a piece of selenium forming part of an electric circuit containing a translating device, such as an electric signal, said float being normally between said source of light and said selenium. 3rd. In an automatic liquid indicator, the combination of a source of light, a condensing lens, a liquid translucent containing vessel, an opaque float in said vessel, a piece of selenium and an electric circuit including a translating device, such as an electric signal, said source of light lens float and selenium lying normally in an approximately straight line. 4th. In a liquid level indicator, the combination of a lamp, a double convex lens attached thereto, a liquid-containing vessel, a funnel-shaped mouth fixed upon the side of said vessel, an opaque float of glass in said vessel, a piece of selenium, and an electric circuit containing an electric bell, said lamp lens, funnel float and selenium being normally in an approximately straight line, as and for the purposes described.

No. 25,475. Wrapping and Toilet Paper.

(*Papier à Enveloppe et à Garde-Robe.*)

Seth Wheeler, Albany, N.Y., U.S., 4th December, 1886; 5 years.

Claim.—A web or sheet of paper perforated transversely, the line of perforations containing diagonal bars and spaces for easily effecting the separation of the sheets or portions of the same, substantially as described.

No. 25,476. Process and Mould for Casting.

(*Procédé et Moule de Coulage.*)

John R. Whitney, Radnor, Penn., U.S., 4th December, 1886; 5 years.

Claim.—1st. The within-described improvent in the art of casting chill moulds for car wheels, etc., the same consisting in dividing a mould into sections by means of thin blades of asbestos-paper or other equally refractory material, and pouring the molten metal into the sections, substantially as set forth. 2nd. The combination, with a mould for casting chill moulds for car wheels, etc., of thin blades of asbestos or other refractory material, extending into the opening of the mould, so as to separate the parts of the casting after the manner of a core at the places where the blades are situated, substantially as and for the purpose set forth. 3rd. The combination, with a mould for casting chill moulds for car wheels etc., of thin blocks or blades of asbestos or other equally refractory material extending from the sand into the mould opening, substantially as set forth. 4th. The combination, with a mould for casting chill moulds for car wheel, etc., of thin plates or blades consisting in whole or in part of asbestos, or other equally refractory thin material, embedded in a dry sand core or frame and placed in the mould, substantially as described.

No. 25,477. Lubricator. (*Graisseur.*)

Edward Grace and Charles H. Marshall, Jr., 4th December, 1886; 5 years.

Claim.—1st. A lubricator, consisting of a condenser, and an oil reservoir, united by a long thin neck, through which condense water is fed to the oil reservoir, a glass tube starting from or near the top of the oil reservoir, and a supporting stem at the top of the sight-feed glass, through which oil is discharged to the steam pipe, substantially as and for the purpose described. 2nd. The combination, with a lubricator, composed of condenser oil reservoir intervening, long neck glass water tube at the top of the reservoir, through which oil rises in visible drops, and a supporting stem through which oil is discharged into the steam pipe, of a steam conduit F connecting the top of the condenser with the steam pipe, and with or without the steam passage e, substantially as described.

No. 25,478. Folding Hammock, Chair, Stand and Canopy. (*Hamac, Siège, Chevalet et Dais Pliants.*)

Arthur O. Hubbard, Sauk Center, Minn., U.S., 4th December, 1886; 5 years.

Claim.—1st. A folding hammock chair stand, consisting of the base bar A_1, having the foot bars A_4, A_5, and uprights A_2, A_3 pivoted thereto, braces A_6, A_7, A_8, A_9 adapted to connect the ends of said base-bar and foot bars with said uprights by thumb-serews or other removable connections a_1, a_2, whereby said stand may be folded down into a small space for convenience of transportation, or set up to form a support for a hammock chair, or other similar article, substantially as set forth. 2nd. In a hammock chair seat, foot and back sections pivoted together, arms F_1, F_2 pivoted near their centers to the seat section, links G_1, G_2 connecting the lower end of said arms with the foot sections, and arms F_4, F_5 pivoted near their centers to the back section, and at their forward ends to the upper end of the arms F_1, F_2, in combination with cross-bars connecting the lower ends of the sides of the foot section, the upper and lower ends of the sides of the back section, the lower ends of arms F_1, F_2, and a fabric C_2 attached by its ends to the cross-bars B_3, B_8, substantially as set forth. 3rd. A hammock chair frame, consisting of a foot section, a seat section and back section hinged together and covered with a fabric or web, in combination with pivoted arms F_1, F_2, connected by round F_3, arms F_4, F_5 pivoted to said arms F, F_2 and to said back section, and links G_1, G_2 pivoted to said foot section and adapted to be hooked over said round F_3, substantially as and for the purpose set forth. 4th. A hammock chair frame, consisting of a foot section, a seat section and a back section hinged together, in combination with arms F_1, F_2 pivoted near their centers to the seat section round F_3 connecting said arms, links G_1, G_2 connecting the lower ends of said arms F_1, F_2 with the foot section, arms F_4, F_5 pivoted near their centers to the back section, and at their forward ends to the upper ends of the arms F_1, F_2, and suspending cords or rods t_1, t_2 attached to the forward ends of the seat section and to the outer ends of the arms F_4 F_5, substantially as set forth. 5th. The combination, with the side bars B_4, B_5, of the web C_1 having supporting bars D_1, D_2, and connected adjustably to said bars B_4, B_5, by bolts or nuts g, substantially as set forth. 6th. The combination, with a stand for supporting a hammock, chair, or other similar article, a canopy frame consisting of main bars H_1, H^2, rafter bars H_3, H_4, ridge bar H_5 and brace-bars H^6, H_7, H^8, H_9, said main bars being pivoted to said supporting stand, and said rafter and brace bars being removably attached to said main bars and ridge bar, whereby said canopy frame may be folded into a small compass, substantially as and for the purpose set forth.

No. 25,479. Nut Lock. (*Arrête-Ecrou.*)

James H. Westman, Toronto, Ont., 4th December, 1886; 5 years.

Claim.—As an improved nut-lock for fish-plate bolts, a plate B made of pliable material, and having two or more annular holes made in it to fit over the fish-plate bolts A, and having its end projecting beyond the sides of the nuts C, so that it may be turned up against the sides of the said nuts, substantially as and for the purpose specified.

No. 25,480. Hose Truck. (*Voiture à Boyaux.*)

Henry P. Cope, Detroit, Mich., U.S., 4th December, 1886; 5 years.

Claim.—In combination with the wheel of a hose truck, a gear-wheel secured to the axle of the wheel, a hose-reel having a gear-wheel secured to its shaft, and a movable gear-wheel adapted to connect said gear wheels together, substantially as shown and described.

No. 25,481. Seeding Machine. (*Semoir.*)

Charles E. Patric, Springfield, Ohio, U. S., 4th December, 1886; 5 years.

Claim.—1st. The hoes G, their lifting chains and the lifting crank-bar H, combined with arms J rigidly secured to said crank-bar intermediate its ends, and pivoted to the frame on the same axial line as the said crank-bar, for the purpose set forth. 2nd. The crank-bar H, with the crank bend b at one end, resting in the bearing d, combined with the arm e rigidly secured to end of said crank-bar and resting in the box g, whereby the arms J, lifting-chains, thimbles, etc., may be easily put on and off said crank-bar. 3rd. In a seeding machine, a series of seed-cups and force-feed distributers, and a main axle or shaft, whereby power is transmitted to drive the seed-cups, and distributers provided at each end with a bearing-wheel, combined with clutches attached to said wheels, and clutch collars adapted to simultaneously engage said clutches, whereby one or both of said wheels automatically may act as drivers for said shaft, as set forth. 4th. A seeding machine, wherein there is a series of seed-cups and force-feed distributers, and a main shaft to receive and transmit motion to the feed-wheels, and the supporting and carrying-wheels, each provided with a spring-clutch combined with clutch-levers and

a cam-bar, whereby said clutches may be simultaneously operated and said wheels may be caused to engage and drive said shaft at both ends, as set forth. 5th. In combination, in a seeding machine, a main shaft to receive and transmit motion to the feed-wheels, the bearing-wheels, each provided with a clutch, and a cranked lifting-bar H to raise or lower the hoes, a cam M at each end of said lifting-bar, and the clutch-levers L pivoted to the frame and actuated by said cams, whereby the turning of said bar to raise or lower the hoes automatically and simultaneously moves said notches out of or into engagement, as set forth. 6th. The lifting crank-bar H, combined with the clutches J, K, whereby the wheels E are locked to the axle C, and the clutch-levers L in engagement with said crank-bar, so as to be actuated by it to control said clutches and move them into engagement when said crank is lowered, and move them out of engagement when said crank is raised. 7th. The lifting crank-bar H, provided at one end with two lugs *p*, *p*, each adapted to receive and hold the hand-lever Q, whereby said lever may be set in position convenient for operation from the driver's seat or from the ground, as set forth, combined with the arched rack or latch-plate R, with notches wherewith the hand-lever latch will engage with the lever in either position, as set forth.

No. 25,482. Means for Closing Apertures in the Hulls of Vessels. (*Moyens de Boucher les Voies d'Eau.*)

John Speirs, Jersey City, N.J., U.S., 4th December, 1886; 5 years.

Claim.—1st. The device, herein shown and described, for closing apertures in the hulls of vessels, which consists of a plate or frame provided with eye-bolts or other fastenings, for securing the device to the outside of the vessel, substantially as described. 2nd. The outside closing plate, having eye-bolts or other fastenings, combined with a brace-bar, constructed to be applied to the angle-irons, substantially as described. 3rd. The outside closing plate, provided with edge cushions, substantially as described. 4th. The outside closing plate, provided with edge cushions, and eye-bolts upon the inner surface, and with attachments *d* for lowering the plate, substantially as described. 5th. The brace-bar F, provided with a screw, and with means for attaching it to the angle-irons of a vessel, substantially as described. 6th. The brace-bar F, provided with a screw, in combination with reversible hooks for attaching it to angle-irons at the bottom of a vessel, substantially as described. 7th. The brace-bar F, provided with a screw, and adjustable hooks at its ends, substantially as described. 8th. The brace-bar F, provided with a screw, and with means for attaching it to the angle-irons, in combination with a plate for closing the aperture, substantially as described.

No. 25,483. Dumping Waggon. (*Tombereau.*)

William H. Knowlton, Toronto, Ont., 4th December, 1886; 5 years.

Claim.—1st. A waggon, having its box connected to its frame, so that it may be turned on a pivot to any angle desired, and turned for the purpose of dumping its load, substantially as and for the purpose specified. 2nd. A waggon, having its box supported on the timbers B, with rounded ends, as shown, in combination with the pinion F provided with a crank handle H, and suitably carried in journals on the supports B, and arranged to mesh with the rack E, secured to the platform D, substantially as and for the purposes specified. 3rd. A waggon, having its box supported on the timbers B, with rounded ends, and resting upon the platform D, in combination with the pins *d* an the platform D, and holes *e* in the rounded portion of the timbers B, substantially as and for the purpose specified. 4th. A waggon, having its box supported on the timbers B with rounded ends, and resting upon the platform D, in combination with the sixth wheel J, on which the platform D is supported and turns, substan tially as and for the purpose specified. 5th. A waggon, having its box supported on the timbers B with rounded ends, and resting upon the platform D, and chute C situated between the supporting timbers B resting upon the platform D, in combination with the rods I secured on the bottom near the end of the box A, and having friction rollers *i* placed on it, substantially as and for the purposes specified.

No. 25,484. Hay Elevator and Carrier.

(*Monte-Foin.*)

Manias G. Grosscup, Milwaukee, Wis., U. S., 4th December, 1886; 5 years.

Claim.—1st. In a travelling hay-carrier, the frame A, in combination with a longitudinally swinging grapple G, a latch M, having two arms at an angle to each other, the latch being pivoted at its angle to the frame of the carrier, and the inclines Q, Q, on the supporting rail against which the latch M is adapted to impinge, substantially as described, 2nd. The rail C and the thereto affixed stop P, provided with lateral inclines and recess, in combination with the frame of a travelling carrier, the angle-shaped, two-armed latch M pivoted in the frame, and a longitudinally swinging grapple G, substantially as described. 3rd. In a hay-carrier, the supporting frame A, the thereto pivoted to armed latch M and the longitudinally swinging grapple G, in combination with the horizontally swinging arm R pivoted about the neck of the frame A, and the tackle block K provided with means for being grappled by the arm I of grapple G, substantially as described.

No. 25,485. Package for the Transportation of Liquids, etc., by Mail. (*Enveloppe pour le Transport par la Malle des Liquides, etc.*)

James B. Andrews and Henry R. Gillingham, Baltimore, Ind., U. S., 4th December, 1886: 5 years.

Claim.—The combination, in a package, for the transportation of liquid or pasty substances through the mails, of the pad or casing B made of absorbent material, the separate and distinct pad D, the tin box C provided with a water-proof cap, and the wooden block or casing in which the tin box is inclosed, substantially as set forth.

No. 25,486. Wire Rope Coupler.

(*Joint de Câble en Fil de Fer.*)

James Milne and Joseph J. Milne, Scotch Grove, Iowa, U.S., 4th December, 1886; 5 years.

Claim.—1st. In a fastening device for ropes, a disk having side flanges to provide a circumferential recess, one of said flanges having a tangential recess through which the end of the rope may pass, substantially as described and for the purpose set forth. 2nd. In a rope fastening device, a disk having a circumferential recess or groove, a notch *b* formed in one of the flanges and a hook formed on the opposite flange, substantially as shown. 3rd. A rope fastening device, a disk having a chain or connecting device attached thereto, a circumferential recess with a spiral base, said disk being provided at the beginning or commencement of said spiral base with a tangential notch *b*, substantially as shown and for the purpose set forth. 4th. A disk A having side flanges *a*, *a*, braces *c*, and a circumferential recess having a notch *b* in one of the said flanges, the opposite flange being provided with a hook which overlaps the circumferential recess and a fastening device located between the hook D and notch *b*, the parts being combined and organized, substantially as shown and for the purpose set forth.

No. 25,487. Journal Brass for Car Axles, etc. (*Coussinet de Fusées d'Essieux de Chars, etc.*)

Paschal P. Emory, George M. Hoadley and Sumner A Bemis, Springfield, Mass., U.S., 6th December, 1886; 5 years.

Claim.—A journal brass consisting of a cast brass body, having on the cast surface of its journal-seat a coating of tin, and having attached to said tinned surface, a strip of lead extending centrally thereon from end to end of the brass, substantially as set forth.

No. 25,488. System of Temperature Regulation. (*Mode de Régler la Température.*)

Warren S. Johnson and William Plamkington, Milwaukee, Wis., U. S., 6th December, 1886; 5 years.

Claim.—1st. In a system of temperature regulation, the combination of one thermostat which serves to control, through the means of a fluid under pressure, the valves which govern the supply of heat to an apartment with said valves, and the fluid under pressure, one of which valves is a supply-valve which shuts against the pressure from the steam generator, and the other a return-valve which shuts with said pressure, substantially as set forth. 2nd. In a system of temperature regulation, the combination of one thermostat which serves to control by means of a fluid under pressure, the valves which govern the admission of heat to the apartment in which the thermostat is situated with an auxiliary valve and the fluid under pressure, and two or more main valves connected with the source of heat, whereby all of the main valves are operated at the same time by means of the one thermostat, substantially as set forth. 3rd. In a system of temperature regulation, the combination of a system of heating-pipes having valves operated by a fluid under pressure, a system of pipes containing and conveying said fluid under pressure, an electrically-actuated valve which serves to admit or release the fluid under pressure when it actuates said valves in the heating system, and a suitable electric generator and thermostat in circuit with said electric valve, whereby the thermostat, through the means of the electric valve, and the system of pipes containing a fluid under pressure, operates a series of main valves in the heating system, substantially as set forth. 4th. In a system of temperature regulation, the combination of a heat generator A, and system of heating pipes leading therefrom, provided with the supply-valves C and return-valves C_1, with the coils or radiators B, B, reservoir G containing fluid under pressure, pipe F and connections, and thermostat I connected by wires i, i, i with battery J and valve H on the pipe F, substantially as set forth.

No. 25,489. Automatic Lubricator.

(*Graisseur Automatique.*)

Joseph E. Fletcher and Robert Mitchell, Que., 6th December, 1886; 5 years.

Claim.—1st. The combination, in an oil cup, of a tube communicating with the cup and with the outlet, a plunger working in said tube, a rod attached to the cup body and supporting the end of said plunger, and a lever pivoted to said rod and operating said plunger, the whole being contained within said cup and operating substantially in the manner and for the purpose described. 2nd. The combination, in an oil cup, of the tube F having perforations f_1 and communicating with the outlet plunger E, working in said tube and having collars or stops e, e^1, swinging levers H operating said plunger, and rod D supporting said lever and plunger, the whole being contained within the cup and operating substantially as and for the purpose specified. 3rd. In an oil cup, the combination, with the projection G having oil passages therein, and with the regulating screw K, of the screwed cap K_1 covering the head of said regulating screw, substantially as and for the purpose described.

No. 25,490. Car Axle. (*Essieu de Char.*)

The National Tube Works Company, Boston, Mass., (assignee of Edgar Peckham, Syracuse, N. Y.), U. S., 6th December, 1886; 5 years.

Claim.—A car axle composed of a main tube, and tubular bushings in said main tube extending from the extremities thereof inward beyond the attachments of the wheels, and portions of said main tube and its bushings compressed circumferentially, as described and shown.

No. 25,491. Machine for Sewing on Buttons.

(Machine à Coudre les Boutons.)

The Collins Button Sewing Machine Company, Philadelphia (assignee of Joseph S. Collins, Philadelphia, Edward B. Moore, Westchester, John W. Dewees and Michael D. Connolly, Philadelphia), Penn., U.S., 6th December, 1886; 5 years.

Claim.—1st. The combination, with a sewing machine, of a holder or device for holding a button or fabric or material while being stitched together, said holder consisting of a vertical plate, disk, or stock having a socketed or recessed face, and a slot for the passage of the fabric and button projection or shank, substantially as shown and described. 2nd. The combination, with a sewing machine, of a button and fabric or material holder or device, said holder consisting of a vertical plate, disk or stock having a recess or socket on its face, a slot for the passage of the fabric and button projection or shank, and a slot or groove on its back for the passage of the needle, substantially as shown and described. 3rd. The combination, with the stitch forming devices, of a sewing machine and a bed-piece, of a slide fitted to move on said bed-piece, a vertical button-holder adapted and arranged to hold a button on its edge or vertically, and having a slot or groove for the passage of the sewing-machine needle, and means, substantially as described, for imparting an intermittent reciprocating movement to said slide and holder, as set forth. 4th. The combination, with the main shaft and stitching forming mechanism of a sewing machine, of means for automatically stopping the machine when a predetermined number of stitches has been made, said means comprising the following parts, a main shaft by which motion is communicated to said stitch-forming mechanism, a fast and loose pulley on said shaft, a slide having a retracting spring for moving it in one direction, a belt shifter and a brake connected to said slide, a detent for holding said slide against the action of the slide spring, a ratchet wheel having pins or studs which successively contact with a projection on said detent, a pawl which engages with said ratchet and imparts a step-by-step movement thereto, an eccentric on the main shaft, and a strap on said eccentric connected to said pawl, said parts being constructed and combined for operation, substantially as shown and described. 5th. The combination, with the main shaft having fast and loose pulleys, and the stitch-forming mechanism of a sewing-machine, of a slide carrying a belt-shifter and a brake, and a spring for moving said slide to shift the belt and bring the brake into contact with the pulley, said spring having means for adjusting its tension to adapt the brake to stop the machine at varying speeds with the needle, elevated substantially as set forth. 6th. The combination, with the main shaft and stitch-forming mechanism of a sewing-machine, of a fast and loose pulley on said shaft, a slide, a belt-shifter and a brake on said slide, a spring for moving said slide, a detent for holding said slide against the action of said spring, and means operating substantially as described, for automatically releasing the slide to cause it to move under the influence of the spring, substantially as set forth. 7th. The combination, with the stitch-forming mechanism of a sewing-machine, of a device for holding fabric and material and a button while being stitched together, said device consisting of a vertical or upright disk with a socketed face, and a slotted back located between the needle and co-operating part of the stitching mechanism, whereby the needle in its movement passes through the fabric above and below the shank or projection of the button, substantially as shown and described.

No. 25,492. Stock Car. *(Char à Bestiaux.)*

The Americal Live Stock Company, New York, (assignee of Edward H. Brown, Brooklyn), N.Y., U.S., 6th December, 1886; 5 years.

Claim.—1st. The combination, with flexible partitions, of mechanism independent of the partitions for moving them positively in two directions, substantially as specified. 2nd. The combination of wheels, shaft on which said wheels are mounted, endless chains passing around said wheels, flexible bands coiled at their ends about said shaft, and slats or bars extending between said bands and constituting with said bands a partition, substantially as specified. 3rd. The combination of wheels, shaft on which said wheel are mounted, endless chains passing around said wheels, flexible bands coiled at their ends about said shafts, guides for said bands, and slats or bars extending between said bands, and constituting with said bands a partition, substantially as specified. 4th. The combination of wheels, shafts on which said wheels are mounted, endless chains passing around said wheels, flexible bands coiled at their ends about said shafts, guides for said bands, slats or bars extending between said bands, and constituting with said bands a partition, and guides for the partition, substantially as specified. 5th. The combination of the shaft D, wheels E, pulleys F, endless chains J, studs H, wheels G, pulleys I, bands K, slats or bars *a*, studs N and pulleys M, substantially as specified.

No. 25,493. Inkoleum for Softening Printers' Ink. *(Encre Oléagineuse pour Détremper l'Encre d'Imprimerie.)*

George M. Stanchfield, St. Paul, Minn., U. S., 6th December, 1886; 5 years.

Claim.—The herein-described composition of matter to be used for softening or cutting printer's inks, either in bulk or on the rolls of the press, the same consisting of kerosene oil, sulphuric ether, essential oil of sassafras, essential oil of cloves, in the proportions and for the use as specified.

No. 25,494. Telephone Circuit and Switch.

(Circuit et Commutateur de Téléphone.)

Edwin Pope, Quebec, Que., 6th December, 1886: 5 years.

Claim.—1st. In telephone exchange systems, the combination of the following elements: a central office connected by a given number of wires with a larger number of stations, two or more of the wires being taken to each station in each station, an undividual call operated only from the central office, and the within-described switch, connecting at will subscriber's instruments with a particular wire, and by joint action with the central office connecting such instrument with any wires of the system, all as herein set forth. 2nd. In a subscriber's station of a telephone exchange system, the combination of two electro-magnets placed on separate wires connected with the central office, and armatures and levers for the purpose of operating an undividual call and switching the instrument in and out of circuit, the armature of the first magnet breaking the circuit at the second magnet, and the armature of said second magnet liberating said levers substantially as described and shown. 3rd. In each station of a telephone exchange system, the combination of an electro-magnet and pivoted levers forming a short circuit around the telephone operating through the armature of said electro-magnet by currents from the central office, to control the short circuit, with a switch operated by each subscriber to cut his instrument in and out of circuit with another station, all as herein set forth.

No. 25,495. Vehicle Wheel. *(Roue de Voiture.)*

Robert A. Townsend, Sibi, Belouchistan, India, 6th December, 1886; 5 years.

Claim.—1st The application of an inclined plane at the hub of a wheel, substantially as shown, or by any other method involving the use of an inclined plane, for the purposes specified. 2nd. A tire-jack, formed in two pieces L, L, substantially as and for the purposes specified. 3rd. A tire-jack, formed in two pieces L, L, in combination with the felloes K, K, and spoke G formed with a tapered end, substantially as and for the purpose set forth. 4th. A hub A, formed with an inclined plane D, in combination with a spoke G, or shoe F and collar nut H, substantially as and for the purpose set forth. 5th. A hub A, formed with an inclined plane D, in combination with a shoe F, on the base of which an inclined plane is formed, and collar nut H, substantially as and for the purpose set forth. 6th. A hub A, formed with an inclined plane D, and ribs or flanges E, E, in combination with a shoe F, collar nut H, spoke G, formed with a tapered end, tire-jack formed of two pieces L, L, felloes K, K and rim-tire J, substantially as and for the purpose set forth. 7th. An independent spoke socket F, substantially as and for the purpose set forth. 8th. A packing T, of rubber or other suitable material, placed beneath the end of the spoke in the shoe socket F1, substantially as and for the purpose set forth.

No. 25,496. Combined Pulverizer, Harrow and Cultivator. *(Brise-Motte, Herse et Scarificateur Cembinés.)*

John R. Gibbons, Rome, Ga., U.S., 6th December, 1886; years.

Claim.—1st. In an earth pulverizer and cultivator, the combination of a laterally extensible arch-bar, having downwardly extending legs and gangs, of rotatable disks connected thereto by universal joints with the shaft upon which said disks are journalled, said shaft being connected by rods to operative levers, substantially as described. 2nd. In a harrow, earth pulverizer and cultivator, an arch-bar having a bridge-piece 1, provided with laterally sliding legs 2, said legs provided with detachable feet 7, having terminal balls 6, in combination with split boxes B1 having upward socketed extension boxes *b*5 and the disk gang-shafts, as and for the purpose described. 3rd. In a harrow, earth pulverizer and cultivator, the operating levers L, L, in combination with gangs of rotatable disks mounted upon an axle B, said axle being connected by a ball and socket joint to the feet of downwardly-extending legs of a laterally extensible arch bar, as and for the purpose intended, substantially as described.

No. 25,497. Apparatus for the Manufacture of Cloth Buttons. *(Appareil de Fabrication des Boutons Garnis.)*

Carl A. Pfenning, Barmen-Rittershausen, Germany, 6th December, 1886, 5; years.

Claim.—1st. The combination of a core *b*, pin *d*, tube *c*1 and helical slot *f* open below, all substantially as illustrated and described and for the purpose set forth. 2nd. The combination, with the tube *c*1, of a narrower cored cover *k*, having a rim *g*, all substantially as illustrated and described and for the purposes set forth. 3rd. The combination of the said ring *g* in a cover *k*, with the pressing spindle *s*, all substantially as illustrated and described and for the purpose set forth. 4th. The combination of the slide *k*1, having a rim *g*, with the pressing spindle *s* and the space *c*, substantially as illustrated and described, so that the rim *g*, with pressing spindle *s* can be brought alternately over the opening of the tube, that is to say, over the core.

No. 25,498. Combined Railway Sleeper and Chair. *(Traverse et Coussinet de Chemin de Fer Combinés.)*

James Smith, Fruitland Park, Fla., U. S., 6th December, 1886; 5 years.

Claim.—1st. A saddle-shaped cast or wrought-iron sleeper for railways, having its corners rounded and heavier than its adjacent surface, substantially as and for the purpose described. 2nd. A saddle-shaped cast-iron sleeper for railways, having its corners and edge rounded, whereby greater thickness of material is secured at those points, substantially as and for the purpose described. 3rd. A saddle-shaped cast or wrought iron sleeper for railways, having a broad, flat bearing surface at its centre, and tapering therefrom to each end, and a keel-shaped bottom, substantially as and for the purpose described.

No. 25,499. Manufacture of Steel.

(Fabrication de l'Acier.)

Henri E, Cahen, *dit* Regnier, Paris, France, 6th December, 1886; 5 years.

Claim.—1st. The production of steel of superior quality by the im-

mersion of iron, which is more or less carburised, and particularly Bessemer, Liemens, Mærtin, and other similar metal, heated to redness in a bath composed of water, nitric acid, soda, salt and sea salt, the application and employment of this bath constituting a process of refining or purification and of cementation combined by the humid chemical way, essentially as herein described for the purpose specified. 2nd. A bath for the production of steel of superior quality, composed of water, nitric acid, soda, salt and sea salt, substantially as hereinbefore described.

No. 25,500. Veterinary Operating Table.

(*Table de Vétérinaire.*)

Mathew L. Faling, Tonawanda, N. Y., U. S., 6th December, 1886; 5 years.

Claim.—1st. In a veterinary table, the combination, with a main supporting frame, provided with racks, of a table leaf provided with toothed quadrants engaging with said racks and an operating mechanism, substantially as described. 2nd. In a veterinary operating table, the combination, with a supporting stand or frame provided with toothed racks, of a table leaf provided with toothed quadrants engaging with said racks, springs 25 connected with the stand or frame, cables 40 passed under said fixed pulleys 41, and attached to the table chains 35 secured to the table leaf and to drums 34, said drums, their shaft ratchet wheels carried by said shaft, their engaging pawls and a crank-arm or arms, substantially as described. 3rd. A veterinary operating table, consisting essentially of a leaf supported by a stand and provided with downwardly-folding traps, and a mechanism whereby the leaf may be moved from a vertical to a horizontal position, substantially as described.

No. 25,501. Sleigh Runner. (*Patin de Traînean.*)

Victor D. Johnson, Mount Pleasant, Iowa, U.S., 6th December, 1886; 5 years.

Claim.—1st. A sled or sleigh runner, designed for carrying heavy loads, formed of T or analogous shaped wrought-metal bars, having broad longitudinal ribs or flanges, arranged at right angles to each other, by bending said bars so as to form a complete runner, incinding the bench-knees and upward bends at the ends, all made of one continued unbroken bar, substantially as shown for the purpose specified. 2nd. In combination, with a sled or sleigh runner having bench-knees formed of T or analogous shaped iron, by bending the bars, so as to have the crown or cross-head K of said iron placed outward and upward in the formation of said knees, the knee-caps *d* as made and attached to the runner, substantially as shown for the purposes specified.

No. 25,502. Bob Sled. (*Traîneau Accouplé.*)

Orson S. Raymond, New Cassel, Wis., U. S., 6th December, 1886; 5 years.

Claim.—The flanged runner plate L, provided on its convexity l_1 with the curved projection l_2, in combination with a knee having a correspondingly-curved cavity in its bottom plate K, as and for the purpose described.

No. 25,503. Flour Bolt. (*Blutoir.*)

Beeri W. Tuttle, Council Hill, Ill., U. S., 6th December, 1886; 5 years.

Claim.—1st. A flour-bolt, comprising a rotary beater, a partly cylindrical bolting-screen, with a straight or slightly-curved upright portion, and a series of adjustable chutes completing the circumference of said screen, substantially as described. 2nd. In a flour-bolt, the combination of a rotary beater and a bolting-screen, consisting of a semi-cylindrical section, and another section made straight with a slight curve at one end, substantially as described. 3rd. The bolting screen D, composed of the grooved concave ribs *e, e*, the end connecting bars *e1, e1*, the bolting cloth and the wires *f, f*, pressed tightly with the cloth into the grooves of said ribs, and secured, substantially as described and shown. 4th. In a flour-bolt, the combination of the stationary bolting screen D made in two sections with a straight upright portion, and the solid rotary beater E, substantially as described. 5th. In a flour-bolt, the stationary bolting-screen D, made in two sections with a straight, or very nearly straight, upright portion, the solid rotary beater E and the series of adjustable chutes *h, h*, arranged above the latter and between the two sections of the bolting-screen, substantially as described. 6th. In a flour-bolt, the combination of the bolting-screen D, having a straight upright portion, the solid rotary beater E, the adjustable chutes *h, h*, and the bolting chest having the feed-opening at one end and the discharge opening near its top at the opposite end, substantially as described.

No. 25,504. Nickel Plating. (*Placage en Nickel.*)

George A. Gray and John Maggis (Assignees of Camille Maggis), Montreal, Que., 6th December, 1886; 5 years.

Claim.—The method of preparing base metals to receive electro-plating of nickel, the same consisting in applying a surface of tin previous to the nickel-plating, substantially as described.

No. 25,505. Hose Hoist. (*Monte-Tuyau.*)

John J. Bresnau and Simon Brentano, New York, N, Y., U. S., 6th December, 1886; 5 years.

Claim.—1st. In a portable hose hoist, two plates or frames connected together, in combination with a roller or rollers mounted between said plates or frames, said plates or frames extending beyond the peripheries of said rollers, substantially as set forth. 2nd. As an improved article of manufacture, a portable hose hoist composed of two parallel plates or frames connected together, each of said plates being formed of two arms at an angle to each other, one of said arms being hooked, and two anti-friction rollers rotatively mounted between said plates in the respective arms thereof, on either side of the angle formed between said arms, said side plates or frames extending beyond the peripheries of said rollers, substantially as set forth. 3rd. In a hose hoist, two plates or frames connected together, in combination with an anti-friction roller or rollers mounted between said plates, said plates or frames extending beyond the peripheries of said rollers and being flared outwards, substantially as set forth. 4th. In a portable hose hoist, two parallel plates or frames, each formed with two arms at an angle to each other, one set of arms being hook-shaped and a swinging bail between the other set of arms, in combination with anti-friction rollers rotatively mounted between said plates in said arms respectively, and a securing line attached to said swinging bail, substantially as set forth. 5th. In a portable hose hoist, two parallel plates or frames, each of which is formed of two arms at an angle to each other, and two anti-friction rollers rotatively mounted between said plates or frames in the respective arms thereof, on either side of the angle formed by said arms, said side plates or frames extending beyond the peripheries of said rollers, in combination with cross-bars or rods C, C, extending between and connecting said plates or frames at or near the outer ends of the two arms of each plate or frame, and a line permanently attached to one of said cross-bars or rods, substantially as set forth.

No. 25,506. Machine for Arranging Crackers. (*Machine à Ranger les Biscuits.*)

James McClurg, Pittsburg, (assignee of William Jackson, Allegheny), Penn., U.S., 6th December, 1886; 5 years.

Claim.—1st. In a machine for arranging crackers and like articles for packing, the combination of a supporting frame, a vibrating hopper mounted thereon and movable throughout its entire area, a movable conducting and arranging tube connected to the hopper to receive the crackers therefrom, and a receiving tray arranged in juxta-position to the free end of the conducting tube, substantially as described. 2nd. In a machine for arranging crackers and like articles for packing, the combination of a supporting frame, a vibrating hopper supporting thereon, a conducting tube connected to the hopper and partaking of the motion thereof, and a tray for receiving the crackers and the like from the tube, substantially as described. 3rd. In a machine for arranging crackers and like articles for packing, the combination of a frame, a vibrating hopper mounted thereon, a conducting tube connected to and partaking of the motion of the hopper, and provided with a section having a shape in cross section corresponding to the shape of the crackers passing through the same, and a receiving tray, substantially as described. 4th. In a machine for arranging crackers and like articles for packing, the combination of the following elements, namely: a supporting frame, a vibrating hopper mounted thereon, suitable mechanism for actuating said hopper, an inclined conical conducting tube pivotally connected to the hopper, a tube section of proper form connected to one end of the connecting tube, and a suitable tray in communication with the tube section, substantially as described. 5th. In a machine for arranging crackers and like articles for packing, the combination of a frame, a vibrating hopper mounted thereon and adjustable vertically at one end to vary the inclination thereof, a conducting tube pivotally connected to the hopper, and a receiving tray, substantially as described. 6th. In a machine for arranging crackers and like articles for packing, the combination of a frame, a longitudinally vibrating hopper, supporting uprights for the hopper pivotally connected thereto and to the frame, the rear upright being vertically adjustable to vary the inclination of the hopper, a conducting tube or tubes connected to and partaking of the motion of the hopper, and a receiving tray, substantially as described. 7th. In a machine for arranging crackers and like articles for packing, the combination of the following elements, namely: a main supporting frame, a vibrating hopper, uprights pivotally connected to the hopper and frame, a crank shaft having a pulley and belt, a rod connecting the crank shaft with one of the hopper, supporting uprights, a conical conducting tube or tubes pivotally connected to the hopper, and having an angular discharge foot and a receiving tray or trays, in communication with the tube or tubes, all arranged and combined substantially as described. 8th. The combination of a vibrating hopper, a receiving tray or trays, and a sectional conducting tube or tubes, substantially as described. 9th. The combination of a movable hopper, receiving tray or trays, and a sectional conducting and arranging tube or tubes, the lower section of said tube being detachably connected to the upper section and interchangeable with lower tube sections of different sizes and shapes, substantially as described.

No. 25,507. Automatic Car-Coupling.

(*Attelage Automatique de Char.*)

John S. Smith, (co-inventor, with Martin H. Motes), Hamburg, Penn., U.S., 6th December, 1886; 5 years.

Claim.—1st. In a car-coupling, the doubled barbed draw-bar E having one of its barbs projecting beyond the face of the draw-bar, the other barb having its point on a plane with the upper face of the draw-bar and having an inclined or slanting pocket E_3, in combination with a sliding spring-actuated bolt, said bar being bifurcated to receive the bolt, and the flat spring bearing against the upper face of the draw-bar, substantially as set forth. 2nd. In a car-coupling, the combination, with a sliding spring-actuated bolt, of a draw-bar bifurcated at its rear end and pivoted to the bolt, said bar having double barbs, as described, the yoke H for supporting the draw-bar, the block G and the spring F secured thereto and bearing upon the draw-bar, as set forth.

No. 25,508. Automatic Cut-off for Water Pipes. (*Détente Automatique pour Tuyaux de Conduite.*)

The United States Automatic Water Cut-off Company, (assignee of Walker G. Brown), Atlanta, Ga., U. S., 6th December, 1886; 5 years.

Claim.—1st. In an automatic cut-off for water pipes, the combination of a self-closing valve with the compound plates *e, e1* and *f, f1*,

hinged together, the supplemental compound plates *d*, d^1 and *g*, g^1, the bar *t* and sliding bolt *s*, substantially as shown and described for the purpose specified. 2nd. In a cut-off for water pipes, the combination of the valves B provided with an actuating lever, with the bar *t*, links t^1 and bolts *s*, provided with an adjusting nut *n* and pressure spring s^1, and the compound plates supported and enclosed by the box-shaped casing *c*, and the support C and legs c^1, substantially as shown.

No. 25,509. Car Coupling. (*Attelage de Char.*)

The Thurmond Car Coupling Company, West Virginia. (assignee of William H. Thurmond, Forsyth, Ga.), U.S., 6th December, 1886; 5 years.

Claim.—1st. In a coupler of the class described, the combination, with the coupling hook arranged to oscillate or swing on a vertieal pivot, of a thrust or locking bar, provided on its front end with a notch or recess, facing the shank of the coupling hook, forming two walls or faces which consecutivly engage with the shank of the hook, said thrust bar having a motion across the plane of oscillation of the said shank, substantially as and for the purpose specified. 2nd. In a coupler of the class described, the combination, with the coupling hook arranged to oscillate or swing on a vertical pivot, of a thrust bar provided on its front end with a notch or recess facing the shank of the hook, said thrust bar having a motion across the plane of oscillation of the shank of the hook, and a locking block for the thrust bar provided with two inclines or bevelled faces and moving in a vertical plane, substantially as and for the purposes specified. 3rd. In a coupler of the class described, the combination, with the coupling hook of a block for holding the devices that lock the hook out of engagement therewith, said block having two of its faces bevelled or provided with inclined bearing surfaces, substantially as and for the purposes specified. 4th. In a coupler of the class described, the combination, with the coupling hook, of a block for holding the devices that lock the hook out of engagement therewith, said block having two of its faces bevelled or provided with inclined bearing surfaces, one of said surfaces being formed at a greater angle than the other, substantially as described for the purpose specified. 5th. In a coupler of the class described, the combination, with the draw-bar, the gravital thrust bar having a notch E^3 formed therein, and a shaft for operating said thrust bar, of the gravital block D, substantially as and for the purpose specified. 6th. In a coupler of the class described, the combination, with the draw-bar provided on its underside with an opening or hand hole, of the thrust bar E arranged in said draw-bar, substantially as and for the purpose specified. 7th. In a coupler of the class described, the combination of the draw-bar provided with a longitudinal slot in its underside, and a shaft mounted in bearings depending from the underside of the bar, and carrying a radial arm projecting through the slot into said draw-bar, with a coupling hook arranged to oscillate or swing on a vertical pivot on said draw-bar, a thrust bar provided with a longitudinal slot for the reception of the radial arm of the said shaft, and having a motion across the plane of oscillation of the shank of the hook, and a locking block for the thrust bar having a motion in a vertical plane, substantially as and for the purpose specified. 8th. The combination, with the coupling hook C and the thrust bar E, of the gravital block D provided with the bevelled faces *d* and d^1, substantially as described for the purpose specified. 9th. The combination, with the coupling C, of the thrust bar E provided with the notch or recess E^3 in its forward end, substantially as described for the purpose specified. 10th. The combination, with the draw-bar A having a slot in its underside, and the thrust bar E having a longitudinal slot E^1, of the shaft F pivoted underneath the draw-bar, and carrying a radial arm *f* that projects through slot A^1 into slot E^1 of the thrust bar, substantially as and for the purpose specified.

No. 25,510. Car Coupling. (*Attelage de Char.*)

The Thurmond Car Coupling Company, West Virginia, (assignee of William H. Thurmond), 6th December, 1886; 5 years.

Claim.—1st. A draw-bar forcar couplers, consisting of a hollow draw-bar, and a draw-head formed integral therewith, having curvilinear lateral walls forming jaws B^6, B_7, bearing legs or ears B_3 projecting from one of said jaws, abutments b_7, b^8, b_9, and and a recess or cavity B^1 formed between the jaws and terminating in a vertical rear wall *b*, substantially as and for the purpose specified. 2nd. A draw-bar for car couplers, consisting of a hollow draw-head formed integral therewith, said draw-bar having longitudinal ribs or webs formed on its interior surface, and said draw-head having curvilinear lateral walls forming jaws B^6, B_7, bearing legs B_3 projecting from one of said jaws, the space B^1 between the latter communicating with the hollow draw-bar, and the cavities B_4, B_4 and B_5, B_5, substantially as and for the purpose specified. 3rd. A draw-bar for automatic couplers, consisting of a draw-head B, and the hollow draw-bar A having longitudinal ribs or webs on its inner surface, and a slot in its underside intersected by a cross-piece or bridge a^2 bearing lugs A^2 formed on opposide sides of the rear end of the slot, inclined bearing surfaces or webs a^1 at said rear end of the slot, an inclined bearing surface *a* forming the rear wall of a transverse slot in the underside of the draw-bar, and between it and the draw-head, the hollow boss or projection B^2, the curvilinear jaws B^6, B_7, bearing lugs B_3 projecting from one of said jaws, a recess or cavity B^1 formed between the jaws abutment B_7, B^8, B_9, and the cavities B_4, B_4 and B_5, B_5, substantially as and for the purpose specified. 4th. In a coupler of the class described, the combination, with the draw-head B provided with a hollow boss B^2 projecting from the upper face thereof, said boss being closed at top, and a pin extending transversely through the boss, of the gravital block D hung from said pin within the boss, substantially as and for the purpose specified. 5th. In a coupler of the class described, the combination of a draw-bar having a longitudinal slot in its underside, intersected by a cross-piece or bridge a^2 with the thrust bar E having in its underside a recess e_2, substantially as described and for the purpose specified. 6th. In a coupler of the class described, the combination, with the coupling hook arranged to oscillate or swing on a vertical pivot, of a thrust or locking bar having its forward end facing the shank of the hook bevelled, or provided with an inclined bearing surface, said thrust bar having a motion across the plane of rotation of said hook shank, substantially as and for the purpose specified. 7th. In a coupler of the class described, the combination, with the coupling hook arranged to oscillate or swing on a vertical pivot, and a thrust or locking bar having its forward end facing the shank, of the hook bevelled or provided with an inclined bearing surface, said thrust bar having a motion across the plane of rotation of said hook shank, of a locking block for the thrust bar having a vertical motion, substantially as and for the purpose specified. 8th. The herein-described coupling hook having a slot e_4 in its shank, substantially as and for the purpose specified. 9th. The herein-described coupling hook having the perforated and longitudinally recessed hook portion C^2, and a shank C^1 slotted longitudinally and terminating in a square vertical *c*, substantially as and for the purpose specified. 10th. The herein-described coupling hook having the perforated and longitudinally recessed hook portion C_2, and a shank C^1 nearly rectilinear throughout its length, and terminating in an attenuated square vertical face *c*, said hook having a cavity c_3 in its front face extending along a portion of the shank, and a longitudinal vertical slot C_4 in the said shank, substantially as and for the purpose specified.

No. 25,511. Spring Lock Washer.

(*Rondelle Elastique d'Arrêt.*)

The National Lock Washer Company, Newark, (assignee of Hayward A Harvey, Orange), N.J., U.S., 6th December, 1886; 5 years.

Claim.—1st. The new article of manufacture herein shown and described, the same consisting of a spring washer in the form of a single convolution of a helix, and provided with a projecting rib adjacent to the concave edge of that one of its faces which is intended for impact against the faces of the nut. 2nd. The combination, as herein set forth, of a bolt and nut of ordinary construction with a helically curved spring-washer, provided that one of its faces which bears against the nut with a projecting rib, the apex of which by the screwing home of the nut is made to imbed itself in the face of the nut, and to thereby compress upon the bolt a portion of the metal of the nut immediately adjoining the bolt. 3rd. A spring-washer for a bolt nut formed of a single convolution of a helically-coiled quadrangular bar, and having a dishing shape, substantially as and for the purposes herein set forth. 4th. A spring-washer for a bolt nut formed of a single convolution of a helically-coiled quadrangular bar having a dishing shape, and provided with a projecting rib adjacent to the inner edge of that one of its faces which is intended for impact against the face of the nut.

No. 25,512. Paper and Composition of Matter for the same. (*Papier et Pâte à Papier.*)

John M. Allen, New Bedford, Mass., U. S., 6th December, 1886; 5 years.

Claim—1st. Paper composed of raw cedar bark and straw or grasses, substantially in the proportions described. 2nd. Paper composed of raw cedar bark and straw or grasses, substantially in the proportions described and suitably saturated.

No. 25,513. Plough Coulter and Method of Manufacturing Plough Coulters. (*Coutre de Charrue et Mode de Fabrication des Coutres de Charrues.*)

James G. Bailey, New Glasgow, N.S., 7th December, 1886; 5 years.

Claim.—1st. A plough coulter, the portion above the blade of which is hollowed on one side, substantially as described and for the purpose specified. 2nd. A metal bar A of the form represented in Fig. 1, substantially as described, for the manufacture of plough coulters. 3rd. A plough coulter made from a metal bar A of the form represented in Fig. 1, substantially as described and in the manner specified.

No. 25,514. Street Receiver and Stench Trap. (*Trappe de Puisard et d'Egout.*)

Thomas J. O'Brien, Buffalo, N.Y., U.S., 7th December, 1886; 5 years.

Claim.—1st. A street-receiver and stench-trap consisting of the parts 1 and 2, each having a slideway 12, a pipe or tile-receiving portion 10, and flanges adapting them to be bolted together, in combination with the sliding plate or door 13, and the bottom 9 having the cross piece 11, and flanges adapting it to be bolted to the two side pieces 1 and 2, substantially as specified. 2nd. A street-receiver and stench-trap consisting of the inclined portions 1 and 2 bolted together and provided with interior slideways adapted to receive a sliding plate, and having the tile-reciving portion 10, in combination with a concave bottom provided with a cross-piece 11 upon which the sliding door sets when in place, for the purposes specified. 3rd. A street-receiver and stench-trap consisting of two parts provided with slideways and sliding plate or door, a flanged top portion adapted to receive the grate and flanges by which the two parts are bolted together, in combination with a concave bottom having a cross-piece 11 and a flange by which it is bolted to the parts 1 and 2, substantially as specified. 4th. In a street-receiver, the combination therewith of an automatically acting valve 21 set on an incline and upon pivotal bearings, substantially as specified, so as to be opened by the water or other matter passing in and to close automatically when relieved from the weight of such water or material, as described.

No. 25,515. Tube Expander.

(*Machine à Elarger les Tubes.*)

Patrick Fitzgibbons, Oswego, N. Y., U. S., 7th December, 1886; 5 years.

Claim—1st. A tube-expander composed of a rigid body provided with an axial opening through it, and with radial recesses intersecting the axial opening boxes arranged radially and at right angles

from the axis of the body and sliding radially in the aforesaid recesses, expanding rollers extending through the body and projecting from the end thereof, and journalled on the inner ends of the aforesaid boxes. and the tapering mandrel entering the axial opening of body, substantially as set forth. 2nd. The combination of the rigid body A, formed with the axial opening B, radial with the recesses C, C, C, C intersecting said openings and ports D, D, D, D at the outer ends of the recesses, the boxes E, E, E, E sliding radially in said recesses, the rollers F, F, F, F, having intermediate their length, the circumferentially reduced journals a pivoted on the inner ends of said boxes, and the tapering mandrel H entering the axial opening B, substantially as shown. 3rd. The combination of the rigid body A formed with the axial opening B, radial recesses C, C, C, C intersecting said opening, and ports D, D, D, D at the outer ends of the recesses, the boxes E, E, E, E sliding radially in said recesses, and provided with eyes I, I, I, I and journal bearings b, the rollers F, F, F, F having intermediate their lengths the circumferentially-reduced journals a, journal-boxes c and set-screws L confining the journals of the rollers in the bearings b, and the tapering mandrel H entering the axial opening of the body, substantially as shown.

No. 25,516. Pendulum for Electric Clocks and Means for Oscillating the Same. (*Pendule pour Horloges Electriques et Moyens de l'Actionner.*)

John J. Abell and Clarence B. Gifford, Colesburg, Ky., U. S., 7th December, 1886; 5 years.

Claim.—1st. The combination of the local circuit, including the battery, the electro-magnet, the armature having the contact points, and the vibrating arm having the contact spring between the contact points and connected to the penduium and the line circuit, including the electric clock, or series of electric clocks, whereby, when the pendulum swings in one direction, the current from the battery flows through the local circuit, and when the pendulum swings in the contrary direction, the current from the battery flows through the line circuit, for the purpose set forth, substantially as described. 2nd. The combination, with the main circuit, including the electric clock, and local circuit, including the electro-magnet D, of the armature having the contact points connected with the main and local circuits, and the vibrating arm included in one circuit and playing between the contact points of the armature to automatically make and break the main and local circuits alternately, for the purpose set forth, substantially as described. 3rd. The combination of the pendulum, the vibrating arm connected to the pendulum, the armature adapted to strike opposite sides of the vibrating arm to swing it and the pendulum, and the electro-magnet to attract the armature, substantially as described. 4th. The combination of the pendulum, the vibrating arm connected thereto and having the spring W^2, the armature having the arms or stops to strike opposite sides of the said spring alternately, and the electro-magnet to attract the armature, substantially as described. 5th. The combination of the vertical iron rods, having the cross-bar at their lower ends, the brass rod supported on the cross-bar, the fulcrumed lever bearing on the brass rod and the pendulum suspended from the said lever, substantially as described. 6th. The combination of the plate C, the iron stirrup depending therefrom, the brass rod supported on the said stirrup, the lever connected to the brass rod and movable thereby, the screw x^1 in the said lever, the nut thereon, and the pendulum suspended from the screw, substantially as described. 7th. The combination of the plate C, the iron stirrup depending therefrom, the brass rod supported on the said stirrup, the lever connected to the brass rod and movable thereby, the screw x^1 in the said lever, the graduated nut thereon and the pendulum suspended from the said screw, substantially as described. 8th. The combination of the supporting screw x^1, with the spring leaf suspended from the screw, and having the head provided with the inclined open slot, and the pendulum, having the slot at the upper end of its rod to receive the head, and the transverse pin to enter the open slot therein, substantially as described. 9th. The combination of the supporting screw x_1, the leaf pivoted to the lower end thereof and suspended therefrom, the pendulum suspended from the leaf and the clamp to prevent lateral vibration of the leaf, substantially as described.

No. 25,517. Cutter. (*Traîneau.*)

Henry Roese, Zurich, Ont., 7th December, 1886; 5 years.

Claim.—1st. In a cutter, the above described combination of parts, consisting of body-frame A, central bar B, runners c, c, and standards D, D, all fastened together by bolts E, E, and shaped and arranged substantially as shown and described. 2nd. In combination with the standards D, D, the cross-braces F, F, fastened lug bolts E to said standards, and bracing the same in position, substantially as shown and described.

No. 25,518. Water Elevator. (*Puits.*)

Joshua Houlgate, Fairfield, Neb., U.S., 7th December, 1886; 5 years.

Claim.—1st. A well-bucket, provided with an air-chamber in its top to prevent the bucket from sinking. 2nd. A well-bucket, provided with an air chamber, and which chamber forms a covering for the top of the bucket, substantially as described.

No. 25,519. Fire Extinguisher. (*Extincteur d'Incendie.*)

John W. Bishop, New Haven, Conn., U. S., 7th December, 1886; 5 years.

Claim.—1st. In a fire extinguisher, the combination of a valve adapted to close the water-way, an elastic disk arranged outside of and in a plane substantially parallel with the said valve, the disk provided with a screw-threaded sleeve G, the valve having a central spindle arranged to work through said sleeve, and a nut on said sleeve with a bearing in said nut fusible at a low temperature, the said bearing adapted to support said valve in its closed position and under the force of the elastic disk, substantially as described. 2nd. In a fire-extinguisher, the combination of the valve B forming a water deflector, an elastic disk arranged outside said deflector, and substantially parallel therewith, the said disk provided with a sleeve extending through it, the said valve provided with a spindle C corresponding to said sleeve and so as to work through it as a guide, the said sleeve externally screw-threaded, and a nut upon said sleeve, provided with a fusible bearing adapted to bear upon the end of said spindle. and support the valve in its closed position, substantially as described. 3rd. In a fire extinguisher, the combination of the valve adapted to close the water way, an elastic disk arranged outside of and in a plane substantially parallel with said valve, the disk provided with a sleeve extending through it, the said valve provided with a spindle corresponding to said sleeve, and so as to work through it as a guide, and a fusible bearing between said spindle and disk, substantially as described and whereby said disk becomes a support to hold the said valve in its closed position. 4th. The combination of the spindle C, by which the flow of water is held in suspense, the elastic disk F, screw-threaded sleeve G supported by said disk and through which said spindle extends, the cup H screw-threaded into said sleeve, and provided with a fusible support b against the end of the spindle, and the spring L between said disk and spindle, substantially as described.

No. 25,520. Automatic Grain Weighing Machine. (*Balance-Bascule.*)

Carlton Hershey and Andrew Hershey, Allendale, Ill., U. S., 7th December, 1886; 5 years.

Claim.—1st. In an automatic grain-weighing machine, the combination of a receiver, an oscillating scale beam journalled in the receiver and having a regulating weight at one end, a shaft journalled in the opposite end of the scale-beam and carried thereby, and having a pawl at one end and the cams or arms at the opposite end, the measuring vessels carried by the shaft with their longitudinal axis out of line with each other, a pawl carried by the scale beam and engaging the ratchet of the shaft, and registering mechanism arranged at one end of the shaft, and having a toothed wheel adapted to be actuated by the arms of the shaft, substantially as described for the purpose set forth. 2nd. The combination, in an automatic grain weighing machine, of a receiver, a scale-beam journalled therein, the rotary receptacles carried by the scale-beam, and each having a detent projecting from its edge, a hopper arranged above the receptacles and having a swinging bottom arranged in the path of the said receptacles when opened, and a latch for retaining the swinging bottom in a closed position, substantially as described for the purpose set forth. 3rd. In an automatic grain-weighing machine, the combination of a receiver having an inclined bottom and the outlet opening, the scale-beam journalled therein, the rotary vessels carried by the beam, and a conducting spout suspended from the receiver immediately beneath the discharge opening therein and having the diverging independent passages, and the swinging cut-off located at the point of juncture of the passages, substantially as described for the purpose set forth. 4th. The combination of a receiver, an oscillating scale beam journalled therein, and having an adjustable weight, the bars for limiting the movement of the free end of the beam, a hopper suspended over the receiver and having a swinging bottom, and a latch for retaining the free end of the bottom in place, a rotating shaft journalled in the scale beam, and having the ratchet engaged by a pawl and the cams or arms, the registering device having a wheel Q actuated by the arms of the shaft, the measuring vessels or receptacles carried by the shaft and having their longitudinal axis arranged out of line with each other, and having the projecting detents, and a conducting spout having the independent grain passages, and a swinging deflector adapted to deliver the grain from the receiver into either one of the passages of the spout, all arranged and combined substantially as described.

No. 25,521. Waterproof Paint. (*Peinture Hydrofuge.*)

The Paraffine Paint Company, San Francisco (Assignee of Truman J. Pearce and Melvin W. Beardsley, Oakland), Cal., U. S., 7th December, 1886; 5 years.

Claim.—As a new composition of matter, maltha and bisulphide of carbon, substantially as herein set forth.

No. 25,522. Trowsers. (*Pantalon.*)

William Hocking and Robert H. Gray, Toronto, Ont., 7th December, 1886; 5 years.

Claim.—1st. The construction of the crotch in a pair of trousers, or other such garment, covering the limbs and the lower part of the human body, by means of an improved conformation and arrangement of the parts thereof, so that the crotch will be solid cloth and free from the usual objectionable seams of the old method, substantially as shown and described. 2nd. A pair of trousers, or other such garment, constructed with a crotch of solid cloth, in the manner shown and described.

No. 25,523. Changeable Speed Gearing. (*Engrenage à Vitesse Variable.*)

Lyman Bickford and Helen M. Kirkpatrick, Macedon (Assignees of Albert Armitage, Lyons), N. Y., U. S., 7th December, 1886; 5 years.

Claim.—1st. In a changeable speed gear, a central driving pinion, a rotary shell having its axis coincident with that of the pinion, secondary pinions mounted in the shell to engage with the driving pinion, and a locking device to hold the shell, whereby either of the secondary pinions may be presented at will in position for use. 2nd. In a changeable speed gear, the combination of the driven pinion, a series of secondary pinions, each in engagement with the driving pinion, a rotary support for the secondary pinions, and an intermediate pinion or pinions to communicate motion from the secondary

pinions to the driven pinion. 3rd. In combination with the central driving pinion and the secondary pinions of different sizes in permanent engagement therewith, the rotary shell or support for the secondary pinions, the locking device for said shell, the pinion changeable from one to another of the secondary pinions, and the driven pinion to engage the changeable pinion, as described. 4th. The driving pinion mounted on a fixed shaft, the rotary shell or support, the secondary pinions of different sizes mounted in the shell, each in engagement with the driving pinion, said parts combined for joint operation, substantially as described. 5th. In combination with the wide driving pinion, the narrow secondary pinions arranged in two series in different planes, the rotary shell or support, the pinion or pinions E and the pinion F. 6th. In a changeable speed speed gear, a central driving pinion, in combination with a series of secondary pinions, each gearing therein, and a rotary case surrounding and supporting the pinions, as shown. 7th. In a changeable speed gear, the combination, with a driving and a driven pinion, of a series of intermediate or secondary pinions mounted on a rotary carrier or support, substantially as described, whereby the respective intermediate pinions may be brought into action in the train at will.

No. 25,524. Toy Race Course.

(*Hippodrome-Jouet.*)

Josiah T. Mareau, Brooklyn, N. Y., U. S., 9th December, 1886; 5 years.

Claim.—1st. A toy race course, provided with miniature figures attached to wires or arms journalled on a central post, as described, in combination with a follower made to revolve about the axis of such post, having a rotating shaft provided with cams, which bear respectively against the several arms, and successively project the figures, one beyond the other, as the follower revolves and the shaft rotates. 2nd. A toy race course, provided with the horizontal wires or arms and the figures, and counterbalancing weights, in combination with the follower journalled on the same post as the horizontal arms, and provided with the cam-shaft and cams and the pinion wheel gearing into the stationary pinion-wheel on the aforesaid central post.

No. 25,525. Thermostat. (*Thermostat.*)

John E. White, Syracuse, N.Y., U.S., 9th December, 1886: 5 years.

Claim.—1st. A thermostat, comprisinga tube having a central bore terminating below in a mercury bulb and above in an enlarged chamber, in which are arranged, out of contact with each other, the terminals of an electric circuit, the upper surface of the mercury reaching normally a point below said enlarged chamber, substantially as specified. 2nd. A thermostat, comprising a tube, the lower end of the bore, which is extended to form a bulb, and the upper end of which is gradually expanded to form an inverted cone, in combination with terminals hermetically arranged separately in the upper cone from which the mercury is separated by a reduced bore of the tube, substantially as specified. 3rd. A thermostat, comprising a tube, the bore of which is expanded to form a bulb, a grade mark at a point on the tube to which the mercury therein rises at a certain temperature, and terminals arranged in the upper end of the tube and projected to said point, substantially as specified. 4th. The combination of the tube A, having the bore A^3, the cone-shaped symmetrical enlargement thereof A^4, the mercury bulb A^5 and the inverted cone A^6, with the terminals C, C_1, arranged within said cone A^6, and means for hermetically sealing said terminals in the tube, the mercury being separated by the reduced bore from the enlargement A^4, substantially as specified.

No, 25,526. Load Binder. (*Embrelage.*)

Lyman B. Melins, Copake, N.Y., U.S., 9th December, 1886; 5 years.

Claim.—1st. In combination with a body or frame of a waggon, three or more ropes secured at various points of said body or frame, and a windlass secured to two of them at its ends, so as to turn upon the same, and secured to a third at its periphery, whereby when turned upon the first two the windlass will coil the third around its surface. 2nd. In combination with a waggon frame or body, three or more ropes attached to the frame or body at various parts thereof, and a windlass, composed of a cylinder and a transverse bar movable longitudinally through the cylinder, the said cylinder being secured to two of the ropes at its ends and to the third rope upon its surface, substantially as described.

No. 25,527. Metal Shoe or Runner for Toboggan and Coasting Sleds.

(*Patin Métallique pour Toboganes et Traineaux de Montagnes Russes.*)

Charles H. Emerson, Yonkers, N. Y., U. S., 9th December, 1886; 5 years.

Claim.—1st. The combination, with the wooden slat or runner in a coasting sled or toboggan, of a flexible metal shoe flanged at its edges and snugly embracing overlying portions of the wood throughout the length of the shoe, substantially as described, whereby the main or bearing portion of said shoe is confined in position on the slat or runner without the aid of the screws, bolts or rivets, at any point throughout the bearing of the shoe. 2nd. The combination, of a wooden slat or runner, provided with longitudinal grooves on its under surface, and a flexible metal shoe having upwardly-turned flanges, which occupy said grooves, substantially as described.

No. 25,528. Octave Coupler for Reed Organs, etc. (*Accoupleur de Régistres d' Orgue, etc.*)

Gustavus W. Ingalls (Assignee of Jerome A. Hendrick), Worcester, Mass., U.S., 9th December, 1886: 5 years.

Claim.—1st. In an octave coupler, a hook having a curved head adapted to fit over the surface of a roller wire, and a pointed shank adapted to be driven into the coupler table at one side of said roller-wire to hold the latter in position, substantially as set forth. 2nd. In an octave coupler, a roller wire fastening device, comprising in combination a hook having a curved head adapted to fit over the surface of said roller-wire, also having a shank adapted to be driven into the coupler table at one side of the wire, and a bushing interposed between said wire and the curved head of the hook, and adapted to be held in position, substantially as shown and described.

No. 25,529. Insect Destroyer.

(*Destructeur d'Insectes.*)

Dudley H Manning, Sibley, Iowa, U.S., 9th December, 1886; 5 years.

Claim.—1st. In an insect destroyer, the combination of the frame B, lamp socket H, lamp K with the vessel M and the conical or glass shade N, substantially as shown and described. 2nd. In an insect destroyer, the combination, with the inverted conical ring A, of the frame B, the lamp support H, the top D and the inverted conical transparent shade or casing N, substantially as herein shown and described. 3rd. In an insect destroyer, the combination, with the inverted conical ring A, of the frame B, the top D, the lamp support H, the inverted conical transparent shade or casing N, and the partitions or reflector G extending from the uprights of the frame, and holding the lamp support, substantially as herein shown and described. 4th. In an insect destroyer, the combination, with the inverted conical ring A, of the frame B, the top D, the partitions G forming reflectors, the inverted conical transparent shade N, supported by the partitions G, the lamp socket H, having perforations for ventilation, and the lamp K, substantially as herein shown and described.

No. 25,530. Changeable Speed Gearing.

(*Engrenage à Vitesse Variable.*)

Lyman Bickford and Helen M. Kirkpatrick, Macedon, (assignees of Homer Bickford, Macedon, and Albert Armitage, Lyons), N. Y., U.S., 9th December, 1886; 5 years..

Claim.—1st. In combination with the stationary driving pinion B, and stationary driven pinion D, the rotary carrier provided with secondary pinions of different diameters, each engaging the driving pinion, the pinion or pinions G and the movable arm or support H, provided with pinions to communicate motion from pinion G to pinion D, substantially as described. 2nd. In combination with the driving pinion, the secondary pinions, the rotary shell or support therefor, the driven pinion J and the intermediate pinion G of two diameters, adapted to receive and impart two speeds, as described. 3rd. The driving frame, the rotary shell or support, the secondary pinions carried by the latter and the pinion G, in combination with the pinin D and swinging arm provided with pinions I and J, and the slide L to adjust and lock said arm. 4th. In combination with the swinging arm, provided with the stud and having the pinions thereon, the slotted slide L, substantially as described, engaging the stud whereby the pinions may be adjusted and held in and out of gear.

No. 25,531. Auto-Pneumatic Clock Apparatus. (*Appareil d'Horloge Auto-Pneumatique.*)

Pierre G. Puttmans, Brooklyn, N.Y., U.S., 9th December, 1886; 5 years.

Claim.—1st. The combination of the water reservoir and air compressing chamber A, with the water supply pipe *a c*, containing the valve *b* having crank *f*, water discharge pipe *d i*, valve *e* having crank *g*, and with the lever B, all arranged so that by moving said lever both said valves will be turned one to open and the other to close, substantially as herein shown and described. 2nd. In an auto-pneumatic clock apparatus, the combination of the auxiliary compressed air chamber H, with the main compressed air chamber, and mechanism, substantially as described, for supplying the main air chamber and the auxiliary chamber with air compressed to the same degree of pressure, and with mechanism, substantially as described, for utilizing the air in the chamber H for setting the actuating mechanism into activity, and for liberating the air contained in the main chamber, as specified. 3rd. The combination of the compression chamber A, main compressed air chamber D, and auxiliary compressed air chamber H, with a regulating or central clock P and with mechanism, substantially as described, for causing said clock to liberate the air contained in the auxiliary chamber H, as specified. 4th, The combination of the central clock P, and its disk r^2 having toe s^2 with the pivoted elbow Q, lever t^2 having plate u^2 with the lever N having pen y^2, and with the valve n^2 which is controlled by said lever N, as specified. 5th. The lever N having pin v^2, combined with the lever t^2 having plate n^2 and with the spring z^2, the said spring being adapted to carry the lever t^2, after it has been disconnected from the lever N, into such a position that the plate n^2 will again be in the path of the pin v^2, as specified. 6th. The combination of the lever a^3, with the pivoted hook-shaped attachment f^3 and with the vibrating elbow h^2, all arranged so that said pivoted attachment will be rigid when the lever a^3 is moved in one direction, and free to turn on its pivot when the lever is moved in the opposite direction, as set forth. 7th. The combination of the lever E, and its valves *m* and *o*, which it controls with the elbow *u* and regulating spring *v* again which spring said elbow bears, as specified. 8th. The combination of the lever E, and the valves which it controls, with the pivoted block a^2 and regulating spring b^2, and with means substantially as described, for moving said lever, all as set forth. 9th. The combination of the air pipes *l*, *n*, single valve *m* and three-way cock *o*, with the lever E, regulating springs b^2 and *v*, lever *z*, elbow *u*, bellows F and J, weight G and compressed air pipes leading to the bellows F and J, substantially as described, all arranged to move the said lever E in manner specified. 10th. The combination of the lever I, with the lever a^3, elbow catch h^2, bellows L and R, weight S, cock f^2, and with compressed air pipes leading into

said bellows respectively, all arranged for moving said lever I and turning said cock, as specified. 11th. The combination of the lever B and its valves *b* and *e*, with the catch h^3, lever e^3, bellows T, M and weight U, and with pipes leading to said bellows respectively, all arranged for moving the lever B and both said valves, simultaneously as set forth. 12th. The combination of the clock P and its wheel r^2 having toe s^2, with the elbow Q, lever N, lever t^2, valve n^2, rod q^2, bellows O, and weight a^4, all arranged for operation substantially as herein shown and described. 13th. The combination of the bellows V, with the lever W, pawl o^3 and slide X having forked upper end, as specified. 14th. The combination of the bellows V, lever W having pin q^3, with the pawl r^3, lever s^3, and toothed wheel Y, substantially as herein shown and described. 15th. The combination of the bellows V, with the lever W having pawl o^3, and pin q^3, slide X having prong p^3, pawl r^3, lever s^3 and toothed wheel Y, substantially as herein shown and described. 16th. The combination of the synchronizing slide X having forked upper end with bevelled inner faces, with the arbor l^3 having synchronizing projection m^3, as specified. 10th. The lever E, constructed and combined with the articulated hooking end J^3, substantially as and for the purpose herein shown and described. 18th. The combination of the tank H and its air supply, and discharge pipe e^2 leading to a bellows with the cock n^2 in said pipe, mechanism substantially as described, for opening said cock by the action of a central clock, and with the rod q^2, weight a^4, bellows O and pipe f^2, all arranged to enable compressed air in the pipe f^2 to take the cock n^2, as specified. 19th. The combination of the compressed air supply pipe *n*, and three-way cock *o*, with the branch pipes *p* and *q*, bellows J and F, and lever E, all arranged so that when the cock *o* is in one position it admits air to the bellows F under lower pressure for moving the lever E in one direction, while when the cock *o* is in the opposite position it admits air by the pipe *p* to the bellows J under greater pressure for moving the lever E in the opposite direction, as specified. 20th. The combination of the tanks A, D and H, with the weighted levers B, I, E, N, bellows T, M, R, L, F, J and O, and with the cocks *m*, *o*, f^2, *b*, *e* and n^2, and with the system of connecting pipes, substantially as herein shown and described. 21st. The lever I, combined with the three-way cock f^2 in the pipe d^2, and with the exhaust nozzle i^2 on said pipe, substantially as and for the purpose specified. 22nd. The combination of the auxiliary compressed air chamber H, and its discharge pipe e^2 having cock n^2, with mechanism substantially as described, for opening said cock and with the bellows R, and lever I which controls the cock f^2, all arranged so that upon opening the valve n^2, said lever I and cock f^2 will be moved, and the function of the compressed air chamber H thereby performed, as specified.

No. 25,532. Felt Foot Wear.

(Chaussures de Feutre.)

Alfred A. Hawley, Kennebunk, Me., U. S., 9th December, 1886; 5 years.

Claim.—1st. A machine for making articles of the kind described, provided with a frame for supporting spools of thread, as set forth. 2nd. The combination of a carding machine, a former-frame and a thread spool supporting frame, as set forth. 3rd. As an improved step in the process of making articles of the kind described, the incorporating with the sliver threads, as distinguished from a prepared fabric, as set forth. 4th. The process of making articles of the kind described, which consists in incorporating threads with the sliver forming a bat, and then manipulating said bat in any of the ordinary ways, as set forth. 5th. As an improvement in the art of making articles of the kind described, a bat consisting of felting material with which are incorporated simple threads, as distinguished from a prepared fabric, as set forth. 6th. As an improved article, felted foot wear in which are incorporated threads, as distinguished from a prepared fabric, as set forth. 7th. As an improved material, felt with which is incorporated simple threads, as distinguished from a prepared fabric, as set forth. 8th. As an improved material, felt with which is incorporated threads crossing one another, in manner as set forth as distinguished from thread in a prepared fabric.

No. 25,533. Hoop Cutter. *(Fendoir de Tonnelier.)*

Jacob Michels, Detroit, Mich., U.S., 10th December, 1886; 5 years.

Claim.—In hoop-cutters, the combination, with a reciprocating head, of a plurality of knives or cutters A, each having an obtuse-angular cutting edge, as shown and set forth.

No. 25,534. Railway Station Indicator.

(Indicateur de Station de Chemin de Fer.)

Joseph P. Roberge and Leonard P. Timmons, Wickham West, Que., 10th December, 1886; 5 years.

Claim.—1st. The rod G connected by the coupling H, with a corresponding rod in an adjoining car, so as to form a continuous line through a railway train for the purpose of operating a number of station indicators simultaneously, as herein shown and described. 2nd. The slotted tube I, forming tube J, forming a connecting link between the rod G and coupling H, substantially as and for the purpose described. 3rd. The pulley J fixed on the rod G, belted to the pulley K and operated by the hand crank *l*, as shown and described, for actuating a station indicator. 4th. The spools B carrying the belt A, placed and supported as shown, and having their top ends held by the bell cranks E, as shown and described. 5th. The pulleys N resting loosely on the rod G, except when engaged by the hub M to turn with it, and the rod G and bolted to the pulleys *r* on the pivots of the spools B, substantially as and for the purpose set forth. 6th. The clutch fork *o*, suspended from the bracket L and arranged to move the hub endways so as to engage it with the pulleys N, and operated by a lever *p* connected to the rack *n*, substantially as shown and described and for the purpose specified. 7th. The spur pinion *m* on the rod G, geared to the rack *n* to move it vertically, so as to operate the clutch fork *o*, substantially as and for the purpose set forth. 8th. The gong hammer W having the pallets *y*, *y* engaging with the teeth of the pinion *m*, so as to be vibrated by it, in combination with the spools B and belt A, as shown and described. 9th. The combination of the gong hammer W, having the pallets *y*, *y* and operated by the spur pinion *m* on the rod G, with the movable gong T which is held by the shank *u* in the clasp *v*, substantially as shown and described and for the purpose set forth.

No. 25,535. Neck Yoke. *(Volée d'Avant.)*

John B. Armstrong, Guelph, Ont., 10th December, 1886; 5 years.

Claim.—1st. A metal neck yoke composed of the plates A, B, shaped in the form of a truss, and having secured between them, substantially in the centre, the pole support C, substantially as and for the purpose specified. 2nd. A metal neck yoke composed of the plates A, B, shaped in the form of a double arched truss, with a pole-support C secured to them, substantially in their centre, and their ends rivetted together by the strap-loops *a*, substantially as and for the purpose specified. 3rd. A metal neck yoke composed of spring tempered steel plates A, B, shaped in the form of a truss and having secured between them, substantially in the centre, a pole-support C, the pole through the support for the pole being oval and having a flange *f*, set at such an angle to the plate A, B, that it constitutes a level rest for the pole, substantially as and for the purpose specified.

No. 25,536. Cleaner for Breach-Loading Fire-Arms. *(Nettoyeur d'Armes à Feu Chargeant par la Culasse.)*

William E. Forster, Lawrencetown, N. S., 10th December, 1886; 5 years.

Claim—A breach-loading fire-arms cleaner of conical shape, composed of screw-bolts A, circlets C, layers of leather or rubber solid or by sections, snap-hook F, sponge E, spiral coil G, cord D, all substantially as described and for the purposes set forth.

No. 25,537. Belt Pulley. *(Poulie à Courroie.)*

Frederick Siebert, St. Louis, Mo., U. S., 10th December, 1886; 5 years.

Claim—The herein-described composite belt-pulley consisting of the rim C, the spider A having the central aperture a^4, and the hub-flanges B, B made separate and detachable from the spider having bearings for the shaft, and bolted to the spider-web upon each side thereof, substantially as set forth.

No. 25,538. Cork Puller. *(Tire-Bouchon.)*

The F. F. Adams Company, (assignee of John A. Hurley), Erie, Penn., U.S., 10th December, 1886; 5 years.

Claim.—In a cork-puller, the combination of the supporting frame A, A^1, the part A^1 having the flaring mouth *a*, the inwardly projecting pins a^2 and the slot a^1, the plunger C within the part A^1 of the frame, and having the grooves c^1, the pin *c* extending through the slot a^1 in the part A^1, the actuating lever B pivoted to the frame and having the slot b^1 engaging with the pin *c*, and the crank-shaft D, D^1, with cork-screw D^2 thereon, journalled and longitudinally movable within and with said plunger C.

No. 25,539. Cork Puller. *(Tire-Bouchon.)*

The F. F. Adams Company (Assignee of John A. Hurley), Erie, Penn., U.S., 10th December, 1886; 5 years.

Claim.—In a cork puller, the combination, substantially as herein set forth, of the barrel A, having therein the slot a^1, the plunger B fitting in said barrel, and having on its surface opposite said slot a series of rack-teeth *b* sunk in its surface, the lever D fulcrumed near said slot *a*, and having thereon a segment gear D^1, which enters said slot and meshes with the rack-teeth on said plunger, the cork-screw stem C journalled in said plunger, and the cranks C^1 connected with said stem and seated on said plunger.

No. 25,540. Mechanical Telephone System.

(Système de Téléphone Mécanique.)

Moses G. Farmer, Eliot, Me., U.S., 11th December, 1886; 5 years.

Claim.—1st. The combination, with two mechanical telephone lines, provided with couplings or mechanical connections for uniting the two lines, of means, substantially as described, for operating or controlling the couplings, and thereby bringing the lines into or out of operative relation with one another, as herein set forth. 2nd. In a mechanical telephone system, the combination, with a main line and one or more branch lines, of couplings or mechanical connections for uniting a branch line to the main line, and means, substantially as described, for controlling or operating the couplings, and thereby bringing the branch line into or out of operative relation with the main, as set forth. 3rd. In a mechanical telephone system, the combination, with a main and branch line, of a coupling or mechanical connection, the two parts of which are connected respectively to the two lines, an electric circuit and devices therein adapted to be operated by the current, and to control or operate the coupling, and thereby bring the two lines into or out of operative relation with each other, as set forth. 4th. In a mechanical telephone system, the combination, with a main and branch lines, of an armature inserted in one line and a magnet in the other, and placed or suspended in proximity to one another, and an electric circuit for causing an attraction between the magnet and armature, whereby they are brought together and the lines thereby connected at will, as set forth. 5th. In a mechanical telephone system, the combination, with a main line and a branch line and means for mechanically connecting and disconnecting the same, of a spring connected to the branch line for holding it taut, and an electric circuit containing an electro-magnet or solenoid, acting in opposition to the spring, and means for operating or controlling the connection between two lines, as set forth. 6th. In a mechanical telephone system, the combination, with a main line, of a branch line normally disconnected from the main, means

for connecting the main and branch lines, an electro circuit extending from the terminals of the branch line to its point of connection with the main, and devices included therein for controlling or operating such connection, as set forth. 7th. In a mechanical telephone system, the combination, with a main line, of a branch line or lines normally disconnected from the main, means for connecting the main and branch lines, an electric circuit for each branch, extending from the terminus thereof to the point of connection with the main devices included therein for controlling or operating such connection, and an electric signalling line running to all the telephones on the lines, as set forth.

No. 25,541. Automatic Apparatus for Carbonizing Saw-Dust and the Production of Gas. (*Appareil Automatique de Carbonisation du Bran de Scie et de Production du Gaz.*)

Edward W. Rathbun, Deseronto, Ont., 11th December, 1886: 5 years

Claim.—1st. The combination of the saw-dust conveyor C, having discharge openings with adjustable slides, the hopper H1, tubular connections with the retorts H1, provided with screw-conveyor extending into said hopper, retort A, with closed mouth-pieces and glands, a screw conveyor mounted on a hollow shaft, vapormain M1 collecting and delivering the crude vapors to the condenser D, a charcoal main M1 connected by tubular necks to the retort, said main being provided with a gas seal, and with means of moving the charcoal therein. 2nd. The charcoal main M receiving the carbonized saw-dust from the rear of the retorts by tubular connections, said main provided with a screw-conveyor N, and with a hydraulic gas seal, consisting of a tubular downwardly-inclined extension O1, and an upwardly-inclined tubular extension O11, fitted with screw conveyor, the two inclined portions filled partly with water, arranged to overflow at an orifice situated below the level of the main M. 3rd. The combination, with the retort A having a screw feed device, a charcoal main M receiving the carbonized saw-dust from the retort, and provided with a screw conveyor, a downwardly-inclined extension from the main, and an upwardly-inclined discharging tube having a screw-conveyor and a hydraulic seal for said discharge, substantially as described. 4th. An automatic apparatus for producing gas from saw-dust, consisting of the saw-dust conveyor C, delivering in a hopper above the retorts, said hopper connected to the retorts A by tubular connections A1 fitted with screw-conveyor, the retorts A set upon a bridging of the fire tiles F, supported on piers F1, and provided with screw-conveyor having a tubular shaft passing through the ends of the retorts, and adapted to pass a current of water or air, a vapor main H1 placed above the rear ends of the retorts, and connected thereto by tubular connections passing the gas to a condenser D and other apparatus for further treatment, a charcoal main M below the rear ends of the retorts and connected by tubular connections, said main fitted with a screw conveyor N for moving the charcoal therein, and provided with a gas seal and delivering the charcoal into waggons, or to an elevator E, raising it to the return course C1, or the sawdust conveyor, all substantially as shown and described and for the purpose set forth.

No. 25,542. Shoe for Mowing Machines.

(*Sabot de Faucheuse.*)

George H. Bartlett, Hoosick Falls, N.Y., U.S., 11th December, 1886; 5 years.

Claim.—1st. An inner or main shoe for a mowing machine, consisting of two parts, one within the other, the inner part supported at the top and bottom, on the outer part by segmental bearings, the upper bearing being formed on segments of circles of different diameter from the bottom or side bearing, whereby the two points of bearing are co-acting to resist the strain in raising the cutter-bar and the strain from the thrust of the cutting apparatus, substantially as and for the purpose specified. 2nd. A main shoe for a mowing machine, composed of two segmental parts, one part working within the other and held together by the arcs of two pairs of rings or circles concentric with each other, one pair of arcs being located on one side of the shoe, and the other pair on the opposite side of the shoe, substantially as and for the purpose described. 3rd. A circle or ring A, side extensions A1 and cross-bar A4, having the recess *a4*, in combination with the circle or ring B, bottom B1 and extension B11, having tongue *b11* for supporting the cutting apparatus, substantially as and for the purpose specified. 4th. The circle or ring A and circle or ring B, in combination with the arm C, and guide-clip E for maintaining the rings against end movement, substantially as specified.

No. 25,543. Potato Planting Machine.

(*Semoir à Potates.*)

George Stapleton, Hamilton, Ont., 11th December, 1886; 5 years.

Claim—In a potato planting machine, the combination of the frame *a*, three gear-wheels *e*, *c*, and D, or their equivalents, driven by a ground wheel B, the chain pulleys F and F1, the endless chain G, with its projections, rigid knife I, the double crank shaft K11 on bearings K, agitators H and the connecting rods J, substantially as and for the purpose hereinbefore set forth.

No. 25,544. Thrashing Machine.

(*Machine à Battre.*)

William Mogridge and William Giberson, Brampton, Ont., 11th December, 1886; 5 years.

Claim.—1st. In a thrashing machine, an elevating straw deck, composed of a series of rollers suitably journalled in the machine, a short distance apart, in combination with mechanism designed to impart a simultaneous rotary motion to the said rollers, substantially as and for the purpose specified. 2nd. In a thrashing machine, an elevating straw deck composed of a series of rollers suitably journalled in the machine, a short distance apart, and having fingers D attached to them, in combination with mechanism designed to impart a simultaneous rotary motion to the said rollers, substantially as and for the purpose specified. 3rd. In a thrashing machine, an elevating straw deck composed of a series of rollers suitably journalled in the machine a short distance apart, and having curved fingers D attached to them in such a position that the fingers on one roller, in leaving the grain, will pass by the fingers on the next roller af they enter the grain, in combination with mechanism designed to impart a simultaneous rotary motion to the said rollers, substantially as and for the purpose specified. 4th. In a thrashing machine, an elevating straw deck, composed of a series of flattened rollers suitably journalled in the machine a short distance apart, and having fingers D attached to them, in combination with mechanism designed to impart a simultaneous rotary motion to the said rollers, substantially as and for the purpose specified. 5th. In a thrashing machine, an elevating straw deck, composed of a series of flattened rollers suitably journalled in the machine a short distance apart, and having curved fingers D attached to them, in such a position that the fingers on one roller, in leaving the grain, will pass by the fingers on the next roller as they enter the grain, in combination with mechanism designed to impart a simultaneous rotary motion to the said rollers, substantially as and for the purpose specified. 6th. In a thrashing machine, an elevating straw deck composed of a series of rollers suitably journalled in the machine a short distance apart, a driving-shaft E, forming the spindle of one of the rollers A, and having a crank F connected to it, in combination with the rods H and I arranged to connect all the rollers A together by means of the cranks F, G and J, the whole being operated substantially as and for the purpose specified.

No. 25,545. Printing in Type-Writing Machines, and Making Author's Proofs of the Matter Printed.

(*Impression au Graphotype et Production des Epreuves.*)

John C. Yonker, Chicago, Ill., U.S., 11th December, 1886: 5 years.

Claim.—The method, substantially as herein shown and described, of producing author's proofs of matter printed by type-writing machines in a continuous line upon a strip, the same consisting in printing two strips by one action of the key-board, and arranging one of the strips in form and securing it to a base sheet or other support, and subsequently proof-reading the remaining strip and arranging it in form in accordance with the corrections made on the first form.

No. 25,546. Burner for Natural Gas.

(*Bec à Gaz Naturel.*)

Frank Barnhart, Warren, Penn,, U.S., 11th December, 1886; 5 years.

Claim—The natural gas burner, described, consisting of the base B having gas inlet *a* upwardly-inclined, ledge *e* and vertical sockets *g*, and the cap or dome A, having short legs *c* to form intervening spaces with upwardly-inclined roofs, and having long legs *f1*, which engage the sockets *g* of the base to lock the parts together, as set forth.

No. 25,547. Machine for Planting Corn, etc.

(*Machine à Semer le Blé d'Inde, etc.*)

Robert Wood, Wyoming, Ont., 11th December, 1886; 5 years.

Claim.—The combination of the frame L, slides J, J which open the axle, standards H, hopper B, shafts and mitre wheels E, cup belt F, drop spout D, point A and mould boards I, substantially as and for the purpose hereinbefore set forth.

No. 25,548. Plug Tobacco Machine.

(*Machine à Presser le Tabac.*)

Tillman Puetz, St. Louis, Mo., U.S., 11th December, 1886; 5 years.

Claim.—1st. A sliding charger consisting of longitudinally movable side-pieces, a vertically-moving front piece, and a longitudinally moving rear piece sliding between the side-pieces, in combination with mechanism for operating the said parts, substantially as set forth. 2nd. A sliding-charger consisting of longitudinally-moving side-pieces, a longitudinally-moving rear piece and a front piece, in combination with a longitudinally-moving bottom piece, and operating mechanism, substantially as set forth. 3rd. A sliding-charger consisting of side pieces, rear pieces, a vertically-moving front piece, in combination with a longitudinally-moving bottom piece and operating mechanism, substantially as set forth. 4th. A sliding-charger consisting of longitudinally-moving side pieces, a vertically-moving front piece, and a rear piece, in combination with a discharger forming a bottom piece to the charger, a table on which the material is supported in front of said rear piece and said discharger, a plunger by which the material is pressed into the receptacle in rear of the front piece and in rear of the discharger, and operating mechanism, substantially as set forth. 5th. A sliding-charger consisting of longitudinally-moving side pieces, a vertically-moving front piece, and a longitudinally-moving rear piece sliding between the side pieces, in combination with a longitudinally-moving bottom piece sliding beneath the rear piece, a cross-bar between the side-pieces working on the bottom piece, guide-rods working through the cross-bar and secured to the rear piece, and operating mechanism, substantially as set forth. 6th. The combination of a table having fixed guides, a charger consisting of side-pieces sliding on the table between the guides, a front piece and a rear piece, a bottom piece sliding on the table between the side pieces and operating mechanism, substantially as set forth. 7th. The combination of a sliding charger having a rear piece D3, a cross-bar F1, sliding rods E screw-threaded on their outer ends passed through the cross-bar and secured to the rear piece, a sliding support G1 having a cross-head G receiving the outer ends of the rods, pin H, a table in which the support is guided, a driving shaft and a drum on the driving shaft having cams I, I3, and I1 engaging the pin, substantially as set forth. 8th. The com-

bination of a sliding-charger having a vertically-moving front piece, a longiudinally-moving bottom piece or discharger having a downwardly projecting pin, a table on which the charger and discharger slide alternately, a drive-shaft and a drum having cams P, P10, substantially as set forth. 9th. The combination of a sliding-charger having a vertically-moving front piece formed with lugs K5, a table, a frame K3 sliding vertically in front of the table and charger, a rod K2 secured to the frame, and means by which the front piece is advanced to engage the lugs with the frame, substantially as set forth. 10th. The combination, with the plunger, of the drum C provided with the cams N, N1 and M, the sliding block L, toggle-bars L3 connected to said block, and rods L2 and L11 operating substantially as and for the purpose set forth. 11th. The combination, with the plunger and drum C provided with cams N, N and M, of the sliding block L, toggle-bars L3 connected to the blocks, rods L and L11, connecting the toggle-bars to the plunger, and the levers T connected to the sliding block by links T1, substantially as and for the purpose set forth. 12th. The combination, with a frame and charger operating mechanism, of a charger consisting of a front part having side-pieces secured thereto, a rear part fitting between the side pieces, cross-bar secured to the side-pieces behind the rear part, cross-head in rear of the cross-bar, rods connecting the cross-head to the rear part through the cross-bar, and stops on the rods to limit the movement of the cross-head towards the cross-bar and the rear part within the front part, substantially as set forth. 13th. A single drum E formed with inclined cam I1, cam I having straight portion I3, and cam M having straight portion M2, the cams being located on the periphery of the drum, substantially as set forth. 14th. A single drum formed with cams I1 and M, N on the periphery thereof, and a cam-groove O4 in the inner end of the drum having an offset O5, substantially as set forth. 15th. A single drum provided with cams M and N, the cams having inclines and straight portions, for the purpose set forth. 16th. A single drum provided with cams I1 and I as specified, the cam I having an inclined portion and straight portion, for the purpose set forth. 17th. A single drum formed with cams M, N and I1, I on the periphery thereof, the cams I1, I being elevated above the cams M, O, substantially as set forth. 18th. In combination with a machine having a sliding collar, and a drum or its equivalent provided with a perforation, an automatic stop consisting of spring-rod, a rod to enter the perforation in the drum, and a lever for operating the rods, substantially as set forth. 19th. In combination with a machine having a sliding collar, and a drum or its equivalent provided with a perforation, an automatic stop consisting of a spring-rod, a rod to enter the perforation in the drum, a pivoted arm or bar and a lever for operating the rods, substantially as set forth. 20th. The combination, with the plate or equivalent having cutters, of the compressing plunger having recesses in its face, and elastic strips located in the recesses for enabling the cutters to sever the threads or fibres of the material being operated upon, substantially as set forth.

No. 25,549. Railway Station Indicator.

(*Indicateur de Station de Chemin de Fer.*)

Daniel Ormiston, New Glasgow, N.S., 13th December, 1886; 5 years

Claim.—1st. The combination, with the rollers B and belt C, of the roller B1 having radial pins I, and the gong G having a spring hammer H, as set forth for the purpose described. 2nd. A railway station indicator having attached to the case, a series of shutters K covering one another and hung on a pintle wire J, each inscribed with the name of a place to which the car may be destined, so that when the proper shutter is exposed as set forth the destination of the car will be known.

No. 25,550. Tooth or Hoe for Grain Drills.

(*Tube-Semeur de Semoir en Ligne.*)

George W. Kirkpatrick, Macedon, N.Y., U.S., 13th December, 1886; 5 years.

Claim.—1st. The pivoted tooth or hoe provided with the notched rack, in combination with a movable break-pin adapted to be disengaged from said rack without being removed or withdrawn from its arm or support, substantially as described. 2nd. The drill-tooth or hoe provided with the toothed rack on its pivoted supporting-arm, in combination with the pivoted pawl for engaging said rack and holding the tooth at any desired adjustment, substantially as described. 3rd. The pivoted drill-tooth or hoe provided with the toothed rack or segment, in combination with a break-pin secured in a pivoted arm or pawl, for the purpose and substantially as described. 4th. The combination of the pivoted hoe or tooth provided with the toothed rack or segment, the break-pin mounted in a pivoted arm or pawl, and a spring for holding said pawl with the break-pin in engagement with said rack, substantially as described. 5th. The combination, with the draw-bar, of the pivoted hoe or tooth provided with the toothed rack or segment, the pivoted arm or pawl and the break-pin upheld bv said pawl, and operating substantially as described.

No. 25,551. Pump. (*Pompe.*)

John Woodward and Robert Anderson, Oil Springs, Ont., 13th December, 1886; 5 years.

Claim.—1st. The sleeve c^1 resting upon the working barrel D, and bored to fit loosely on the pump rod F, substantially as shown and for the purpose set forth. 2nd. The working-barrel seat B connecting the shell A and strainer C, and supporting the working barrel B and drop-tube I, substantially as shown and for the purpose set forth. 4rd. The vent holes d^1 in the working-barrel D, substantially as shown and for the purpose set forth. 4th. The drop-tube I secured to the barrel seat A, and extending below the induction openings c^1 in the strainer C, substantially as shown and for the purpose set forth.

No. 25,552. Stock Car. (*Char à Bétail.*)

Benjamin F. Williams, Springville, N.Y., U.S., 13th December, 1886; 5 years.

Claim.—1st. In a stock car, a partition consisting of a frame having fixed bars, and bars pivoted to such frame and provided with plates extended from one of their edges and lapped alongside the fixed bars, substantially as set forth. 2nd. The combination, with a stock-car and a partition pivoted thereto and provided with fixed bars and pivoted bars, of a slide-rod connected with the pivoted bars and having transverse perforations and a swinging latch arranged to enter said perforation, substantially as set forth. 3rd. The combination of the partition, the slide-rod provided with a detachable extension and latch whereby to secure such extension, substantially as set forth. 4th. The combination, substantially as set forth, of the pivoted partition consisting of a frame having fixed bars and pivoted bars, a slide-rod connected with the pivoted bars and having a detachable extension, and the latch swinging concentrically with the pivot of the partition and arranged to engage and secure the extension of the slide-rod, substantially as set forth. 5th. In a stock-car a trough having a cover divided longitudinally into sections, and provided below each of said sections with a feed compartment, substantially as set forth. 6th. A trough for stock cars provided with a movable feed compartment in its upper portion, and having a water chamber below said compartment, the latter being movable from over the water chamber, subftantially as set forth. 7th. A trough for stock cars provided in its upper part with a movable feed compartment, and having below such compartment a water chamber, the latter being divided into a number of compartments, communication being formed between such compartments, whereby the water may circulate from one to the other thereof, substantially as set forth. 8th. A stock-car having a hay-loft or compartment in its upper end, and an opening whereby the hay may discharge from said loft, combined with a gate whereby to control the discharge of the hay, subftentially as set forth. 9th. The combination, with a car having a hay-loft provided with a discharge-opening, and an opening through which the hay may be supplied to said loft, of the door for closing said supply-opening, and a gate connected with said door and arranged and adapted to control the discharge of the hay, substantially as set forth. 10th. The combination, with the car, of the door having vertically-elongated staples near its said edges, the cross-bar held and movable vertically in said staples and having its ends extended beyond the side of the car, springs for operating said bar, and keepers supported on the car alongside the doorway nnd arranged and adapted to receive the said bar, substantially as set forth.

No. 25,553. Instrument for Measuring the Distance and Vertical Height of Objects. (*Instrument pour Mesurer la Distance et la Hauteur.*)

William Farquharson, Montreal, Que., 13th December, 1886; 5 years.

Claim.—1st The cross-staff having cross-sights, as described, in combination with the distancer having oscillating table *t*, and hands *s* and *h*, graduated circles e^1, substantially as described. 2nd. In combination with a cross-staff, constructed and arranged substantially as described, the distancer having oscillating table *e*, provided with graduated circles e^1 and level *t*, cross-bar *b*, frame *f* having graduated scales k^1 and level *n*, the whole constructed and arranged substantially as described. 3rd. In the instrument called the distancer, the combination of cross-bar *b*, frame *f* having level *n* and scales k^1, table *e* having level *t* and graduated circles e^1 and trunnions *d*, hands *s* and *k*, with a mechanism substantially as described, for actuating the said hands, and mechanism for adjusting the table either to the level or at an inclination, the whole constructed and arranged substantially as shown and described for the purposes set forth. 4th. The combination, in the cross staff, of the plate c^3 having graduated scale of degrees d^3, foot e^3, frame f^3, cylinder h^3, plate k^3, sight m^3 having level a^4, cross-sight t^3, the whole constructed and arranged substantially as described for the purposes set forth.

No. 25,554. Boiler Flue Cleaner.

(*Nettoyeur des Carneaux des Chaudières.*)

Louis Duennisch, Sandusky, Ohio, U. S., 13th December, 1886; 5 years.

Claim.—1st. The improved flue-cleaner herein described, consisting of the tube C provided at one end with a fixed handle D, a nipple F adjacent to said handle, flexible steam-connection G secured to said nipple, the nozzle A, spear-shaped in cross-section, removably secured to the opposite end of said tube, and the handle E loosely and independently sleeved on said tube and free to slide thereon, between said head A and connection G, as herein shown and described.

No. 25,555. Bedstead. (*Couchette.*)

Stephen M. Hubbell, Carland, Mich., U. S., 13th December, 1886; 5 years.

Claim.—1st. The combination, with a bedstead and a strip, of a fastening bar eccentrically journalled at its ends between the side rails near said strip, and means for actuating said bar to clamp the bed-clothes between it and the strip, substantially as and for the purpose described. 2nd. The combination, with the side rails, of a bedstead having a series of corresponding opening on the inner sides of a fastening bar journalled between the rails in a corresponding pair of openings, and means for actuating said bar, substantially as and for the purpose described. 3rd. The combination, with the side rails of a bedstead, of plates having a series of coincident openings fastened to the inner sides of the rails, the clamping bar journalled between the rails in a corresponding pair of openings in the plates, and means for actuating said bar, substantially as described. 4th. In a bedstead, the combination of the fastening bar journalled between the side rails, a lever depending therefrom, a hand lever pivoted to one of the slats, a notched bar and a rod connecting the ends of two levers, substantially as and for the purpose set forth. 5th. In a bedstead, the combination of the foot board having a strip fastened thereon, a fastening bar journalled between the side rails and acting in opposition to the strip, a bell-crank lever depending from

the bar, a hand lever pivoted to one of the slats and extending in convenient reach, a notched bar and a link connecting the two levers, substantially as shown and for the purpose described.

No. 25,556. Adjustable Seat. (*Siège Pliant.*)

Manoah Miles, Russell, Ks., 13th December, 1886; 5 years.

Claim.—1st. The combination, with the uprights A having notched curved slots B, of the seat-boards G pivoted between the end pieces, the rods H secured to the seat-boards and passed through the slots B, and of the wings K hinged to the swinging edges of the seat-boards, substantially as herein shown and described. 2nd. The combination, with the uprights A having notched curved slots B, of the seat-boards G pivoted between the uprights, the hinged wings K, the sliding bolts M and the rods H secured to the seat-boards and passed through the curved slots B, substantially as herein shown and described. 3rd The combination, with the uprights A having slots B, of the seat-boards G, the hinged wings K, the rods H, the sliding bolts M on the under sides of the seat-boards, the braces R, hinged side of the wings K, substantially as herein shown and described. 4th. The combination, with the uprights A, of the seat-boards G, the wings K, the bolts M having recesses Q and the braces R hinged on the ends of the bolts, substantially as herein shown and described. 5th. The combination, with the uprights A, of the swinging seat-boards G, the rods H on the same, the bolts M, and the pins O on the inner ends of the said bolts, substantially as herein shown and described.

No. 25,557. Tile-Laying Machine. (*Machine à Poser les Tuiles.*)

John C. White, Swatara, Penn., U.S., 13th Decembear, 1886; 5 years

Claim.—1st. In a ditching and tile-laying machine, a frame, in combination with a tile-conveyer and layer, and an earth-hopper, substantially as described. 2nd. The combination, with a frame, of a tile-conveyer and layer, an earth-hopper and a covering plow, substantially as described. 3rd. In a machine of the character named, the combination, with a tile-conveyer actuated from the driving wheels of an earth-hopper, and a covering plough, substantially as described. 4th. In a ditching and tile-laying machine, the beam A provided with a plough or ploughs, in combination with the frame B, wheels L, pulley F mounted on the axle of said wheels L, endless belt C, pulleys D, D1 and E, and conveyer N, substantially as and for the purpose set forth. 5th. In a ditching and tile-laying machine, the beam A provided with one or more ploughs, in combination with the frame B, wheel L, a tile-conveyer, means whereby the rotation of the wheel L actuates the tile-conveyer, a dirt-hopper and chute, and a covering plough, substantially as and for the purpose set forth.

No. 25,558. Water Heater. (*Bouilloire.*)

David C. Tedford, St. Helens, (assignee of John H. Swager and Jacob F. Ferchen, Astoria), Oregon, U.S., 13th December, 1886; 5 years.

Claim.—1st. In a water-heater, the combination, with the chamber A and the annular chamber B connected by a neck C, of the pipes F and G, tank E and faucet I, substantially as described. 2nd. In a water-heater, the combination, with chamber A and the annular chamber B connected by the neck C, of the pipe G having faucet I and stop-cock J, the pipe F having cocks H and J1, and tank E, substantially as described.

No. 25,559. Spring Bed Bottom. (*Sommier Elastique.*)

Harrison Quaid and Henry A. Burt, Swanton, Vt., U.S., 13th December, 1886; 5 years.

Claim.—1st. In combination with the coiled wire springs A, the semi-elliptic links B and loops E, as and for the purpose specified. 2nd. In combination, with the coiled-wire springs A, the semi-elliptic links B and loops C, the auxiliary links D connecting said loops, as and for the purpose specified. 3rd. In spring bed-bottoms, the combination of the coiled-wire spring A, semi-elliptic links B connecting said springs, loops C connecting said links and the auxiliary links D connected with the loops, all constructed and arranged substantially as shown and described for the objects herein set forth.

No. 25,560. Seed Planter. (*Semoir.*)

Swanney B. Drury, Memphis, Tenn., (assignee of Louis S. Flatan, Pittsburg, Texas), U.S., 13th December, 1886; 5 years.

Claim.—1st. In a seed-planter, the combination, with the rotary funnel-shaped hopper B, the rotary shaft K connected with the said hopper, and the stationary funnel-shaped bottom pan G having lugs R, of the stationary radially-slotted bottom plate L, and the adjustable radially-slotted gauge plate N connected with the said bottom pan, and the spoke wheel Q attached to the said shaft, substantially as herein shown and described, whereby the seed will be discharged with certainty and in uniform quantities, af set forth. 2nd. The combination, with the frame A, the shaft E and the gear D, of the tube H extending through the frame, the funnel-shaped hopper B having a neck fitting around the tube H, and a gear C meshing with with the gear D, the tubular plough I screwed upon the lower end of the tube H, and mechanism within the hopper for acting on the seed, substantially as set forth. 3rd. The combination, with the frame, A, the rotary funnel-shaped hopper B, the gear C thereon, the axle E and the gear D, of the inner fixed funnel-shaped pan G around which hopper B revolves, the apertured bottom plate L in the hopper-shaped pan G, the shaft K connected to the hopper B and revolving therewith, and a seed-operating device carried by the lower end of the said shaft over the seed plate C, substantially as set forth. 4th. In a seed-planter, the combination, with the axle having a gear wheel, of a revoluble hopper on the frame having a gear wheel meshing into that on the axle, and a seed-operating mechanism within the hopper, and operated thereby, substantially as set forth.

No. 25,561. Device for Supplying Salt to Stock. (*Appareil pour Servir le Sel aux Bestiaux.*)

George W. De Haven, Monroe, Wis., (assignee of George Milliken and James C. Bike, Oneco, Ill.), U. S., 13th December, 1886; 5 years.

Claim.—1st. In a device for supplying salt to stock, the combination of a salt-receptacle, a trough below said receptacle and rigidly connected therewith, and a roller suspended above said trough and forming the bottom of the salt receptacle, and adapted when rotated to carry downward a portion of the salt within said roller, and the contents of said trough being readily accessible to stock, substantially as and for the purpose set foth. 2nd. In a device for supplying salt to stock, the combination of a salt receptacle, a trough below said receptacle, and a grooved roller suspended above said trough by suitable journals and forming the bottom of the salt receptacle, the rotation of said roller having a roller adapted to carry downward a portion of the salt in the receptacle, and the front of the trough being open, whereby its contents and the roller above it are readily accessible to stock, substantially as and for the purposes set forth. 3rd. The combined salt receptacle and trough consisting of the back AIII, the the sides AI, AII, the front A and bottom AIV, in combination with the journalled collar H above the trough and forming the bottom of the receptacle, the front A of the receptacle being shorter than the back AIII, and its lower edge being above the axis of the roller, whereby the roller and the bottom of the trough are readily accessible from the front, substantially as and for the purpose set forth. 4th. The combination of the receptacle M, the roller H in contact with the front of said receptacle but separated by a space from the back thereof, and the regulator L N attached to the back and adapted to vary the space between the back and the roller, substantially as shown and described and for the purpose set forth. 5th. The combination of the receptacle M having the cover B, the roller H, regulator L N, and the trough J provided with the apertures, substantially as set forth.

No. 25,562. Electric Battery. (*Batterie Electrique.*)

Harry B. Cox, Cincinnati, Ohio, U.S., 14th December, 1886; 5 years.

Claim.—A battery element, having its exciting fluid thickened to the consistency of jelly by gelatine, or its equivalent, so as to admit of fermentation and thereby assist in the action of the exciting fluid.

No. 25,563. Vertical Draft Attachment for Furnaces. (*Appareil de Tirage Vertical pour Calorifères.*)

George W. Wheater, Ogdensburg, N.Y., U.S., 14th December, 1886; 5 years.

Claim—1st. The combination, with a grate, of a series of transverse pivoted deflecting plates below the same, spaces being provided between the grate and the upper edges of the plates, except the rear plate, links pivotally connecting said plates beyond their pivotal points, and an adjustable rod for adjusting said plates at any desired angle, substantially as set forth. 2nd. The combination, with a grate, of one or more deflecting plates arranged beneath the grate, substantially as set forth. 3rd. The combination, with a grate, of deflecting plates 20, 30 and 40 pivotally connected to the grate, links 5 arranged to connect the plates and manipulating-rods 6, substantially as described.

No. 25,564. Faucet. (*Robinet.*)

Lewis E. Clark, Lynn, Mass, U.S., 14th December, 1886; 5 years.

Claim.—1st. The combination, with a pipe or faucet for conducting liquid under pressure, having a supply part through which the liquid is forced into the pipe, of an independent part leading directly or indirectly to the external air, and a valve for opening and closing said independent part, said valve being adapted to be operated by the pressure of the liquid within the pipe for closing the part to the escape of liquid, and being also adapted to be operated by the pressure of the atmosphere without for opening the part to entrance of air, whenever the pressure of the liquid is removed, substantially as and for the purposes described. 2nd. The combination, with a pipe or faucet for conducting liquid under pressure, having a supply part through which the liquid is forced into the pipe, of an independent part leading directly or indirectly to the external air, and a valve, consisting of a piece of thin rubber, or a similarly flexible material for opening and closing said independent part, said valve being adapted to be operated by the pressure of the liquid within the pipe for closing the part to the escape of liquid, and being also adapted to be operated by the pressure of the atmosphere without for opening the part to entrance of air whenever the pressure of the liquid is removed, substantially as described. 3rd. The combination of the faucet A, the spigot C, the valve-cup B, having part *f*, the valve and screw *h*, all substantially as described.

No. 25,565. Excavator. (*Fouilleur.*)

Morris F. Brainard, Brooklyn, N. Y., U. S., 14th December, 1886; 5 years.

Claim.—1st. In an excavator scow, the bins or pockets covered with wire screen or netting, and provided with a solid cone-disk 23, upon which the material is discharged, substantially as and for the purposes set forth. 2nd. In an excavator scow, the guide rolls 25 erected upon the false deck thereof, and in combination with suction pipe 7 and grame 14, substantially as and for the purposes set forth. 3rd. In an excavator, the swiveller socket joint 10, consisting of the ball *a*, pipe connections 11 and 12, protruding lugs *c*, link 13 and case or frame *b*, in combination with the pipe 7 and frame 14, substantially as and for the purposes set forth. 4th. In an excavator, the pipe 7 and frame 14, in combination with links 13 and swivel-joint 10,

substantially as and for the purposes set forth. 4th. In an excavator, the oscillating shoe 15, consisting of the cylinder *d*, case or frame *g*, suction-chamber *h*, valve *m* and runners *j*, in combination with frame 14 and pipe 7, substantially as and for the purposes set forth, 6th. In an excavator, the scow 1, bins 2, compartment 4, pump 5, swivel-joint 10, suction-pipe 7, frame 14, oscillating shoe 15, adjusting chains 8, 9, booms 6, guide-rolls 25, cone disk 23 and overflow holes 24 covered with wire screen, all constructed substantially as and for the purposes set forth.

No. 25,566. Patient's Elevator and Perambulator. (*Voiture d Invalide.*)

Margaret Hammond, Port Madison, W. T., U. S., 14th December, 1886 ; 5 years.

Claim.—1st. An improved elevator and perambulator, comprising a main frame having wheels, elevating devices, frames, or bars, provided with wheels, as Q, and clamps for detachably securing said bars or frames to the main frame, substantially as set forth. 2nd. In a device, substantially as described, an arm or support formed of separable side sections, provided with interlocking connections, whereby they may be united or detached at will, substantially as set forth, 3rd. In combination, with the framing and elevating devices, the stretcher, and means whereby to secure the same to the framing, substantially as set forth. 4th. The combination, with the framing, the arms or supports and the elevating cords, of spring connections M between said cords and the arms of supports, substantially as set forth. 5th. The combination of the framing, having uprights A, provided with clamps *f*, the side bars or frames, having wheels Q and provided with clamps *g* and the elevating devices, substantially as set forth.

No. 25,567. Cam Cylinder for Knitting Machines. (*Cylindre à Excentrique pour Métier à Tricoter.*)

Joseph J. Adgate, New York, N. Y., U. S., 14th December, 1886; 5 years.

Claim.—The combination of the parts B, B1, provided with lugs *c* and screw-threaded lugs *e*, with the screw-threaded studs D, provided with the shoulders *d* for connecting and adjusting said parts, substantially as and for the purposes set forth. 2nd. The combination of the parts B, B1, provided with lugs *c* and screw-threaded lugs *e*, with the screw-threaded studs D, provided with the shoulders *d* for securing and adjusting said parts and the nuts *g*, substantially as and for the purposes set forth.

No. 25,568. Knitting Machine Needle.

(*Aiguille de Métier à Tricoter.*)

Joseph J. Adgate and Samuel P. Kittle, New York, N.Y., U.S., 14th December, 1886; 5 years.

Claim.—1st. A knitting-machine needle having the shank A provided with the reduced spring portion *g*, as described and for the purposes set forth. 2nd. A knitting-machine needle having the shank A, provided with the reduced spring portion *g*, and the inclined back portion *b*, *c*, as described and for the purposes set forth. 3rd. A knitting machine needle having the shank A, provided with the reduced spring portion *b*, *c*, and the straight forward edge behind the beard for the yarn to slide upon, all substantially as set forth.

No. 25,569. Culinary Beater. (*Verge de Cuisine.*)

Edwin Baltzley, Philadelphia, Penn., U. S., 14th December, 1886; 5 years.

Claim.—1st. A culinary beater or whipper, the arms of which are expanded outward and held in their expanded positions by centrifugal force, whereby the said beater or whipper is enlarged in its diametric length, substantially as set forth. 2nd. The combination of the revolving beater head having notches or openings formed around its rim, and a whipper composed of depending arms, two or more of said arms being formed from A, single rod or wire bent at its middle portions, and interlocked in the peripheral notches or openings, whereby the arms are rigidly attached to the revolving beater head, substantially as set forth. 3rd. The combination, with the revolving beater head having peripheral notches or openings, whereby means are provided for attaching the whipper arms of the flexible whipper arms, having their upper ends bent and interlocked in the peripheral notches or openings and arranged in groups, the shanks of the wires composing each group being secured in close contact, whereby the one wire or rod is strengthened or stiffened by its contact with another, substantially as set forth. 4th. In a culinary beater, the combination of a revolving beater head and a series of flexible or elastic springing whipper arms having their upper ends secured to the rotary beater head and their lower ends detached, whereby they may bend independently of each other, substantially as set forth. 5th. The improved beater hereinbefore described, composed of a revolving beater head, and a series of loop-shaped double whipper arms depending from the beater head, and having their lower ends disposed in a circular row surrounding and enclosing a central open space, the said space being in line with the axis of the beater head, substantially as and for the purposes set forth. 6th. In a culinary beater, the combination, with the revolving beater head, of a series of depending whipper arms detached at their lower ends, and having their upper ends disposed in two or more circular rows concentric with the axis of the beater head, substantially as set forth. 7th. In a culinary beater, the combination of a revolving beater head, and a series of whipper arms depending from and revolving with the beater head, and having their lower ends flared outward, substantially as set forth. 8th. The combination of the revolving beater having notches or openings formed around its rim, and provided with hooked projections arranged between each two adjacent notches or openings and the whipper arms, two or more of which arms being formed from a single rod or wire having its middle portions bent or twisted around the said hooked projections, whereby the said arms are secured rigidly to the beater head, substantially as shown and described. 9th. The hereinbefore described beater head for revolving whippers provided with a series of hooked projections on its periphery, and arranged transversely to the rim thereof, and having notches or openings formed between the adjacent projections to receive the upper ends of the flexible whipper arms, substantially as set forth.

No. 25,570. Art of Constructing Buildings and Engineering Works of Masonry. (*Art de Construire les Edifices et les Travaux de Génie en Maçonnerie.*)

Edmund W. Plunkett, Ottawa, Ont., 15th December, 1886 ; 5 years.

Claim.—The combination of concrete béton or other suitable substance jointly or severally with the framework A A A. with or without its bottom B, B, the pillars C, C, C, the groined or other arches D, D, D, the walls E, E, and the arched diaphragms F, F, F.

No. 25,571. Bed Bottom. (*Sommier de Lit.*)

Frederick T. Browning, Orange, N.J., U.S., (assignee of John Henkel, Montreal, Que.), 15th December, 1886 ; 5 years

Claim.—1st. The combination, with a folding bed bottom, of the guide *n* secured to the intermediate lower slats *d*, *f*, the guide bars E secured to the outer lower slats and engaging with said guides *n*, and the side braces D rigidly fastened to the upper slats, and the guide bars, substantially as and for the purpose set forth. 2nd. The combination, substantially as hereinbefore described, with the bed slats, of guides *k*, *k*1, etc., secured to said slats, and the guide bars *l*, *l*1, etc , each secured at one end to one of the guides, its other end being adapted to engage with the guide on the adjacent slat. 3rd. The combination, with the bed slats, of the diagonal bars A, A1 and B, B1 pivoted to the outer bottom slats *c*, *g*, and the longitudinal bars C, C1, etc, guided on the intermediate bottom slats and pivoted to the diagonal bars, substantailly as and for the purpose specified. 4th. The combination, substantially as hereinbefore described, with the top and bottom slats, of the guides *n* secured to the intermediate lower slots *d*, *f*, the guides bars E secured to the outer lower slats, and engaging with said guides, the side braces D rigidly fastened to the upper slats *a*, *b* and the guide bars E, the guides *k*, *k*1, etc., attached to the bottom slats, and the guide bars *l*, *l*1, etc., each secured at one end to one of the guides *k*, *k*1, etc., its other end being adapted to engage with the guide on the adjacent slats. 5th. The combination, substantially as hereinbefore described, with the top and bottom slats, of the guides *n* secured to the intermediate lower slats *d*, *f*, the guide bars E secured to the outer slats and engaging with said guides, the side braces D rigidly fastened to the upper slats *a*, *b* and the guide bars E, the guides *k*, *k*1, etc., attached to the bottom slats, the guide bars *l*, *l*1, etc., each secured at one end to one of the guides *k*, *k*1, etc., its other end being adapted to engage with the guide on the adjacent slat, the diagonal bars A, A1 and B, B1 pivoted to the outer bottom slats *c*, *g*, and the longitudinal bars C, C, etc., guided in the intermediate slats and pivoted to the diagonal bars.

No. 25,572. Universal Swivel and Pipe Connection for Excavators. (*Emerillon et Raccordement Universels de Tuyaux pour Fouilleurs.*)

Morris F. Brainard, Brooklyn, N, Y., U. S., 15th December, 1886; 5 years.

Claim.—1st. In an excavator, the frame A, yoke D provided with trunnions C, C1, and the swivel-band F with trunnions E, E1, in combination with the pipe G and bands H and H1, substantially as and for the purposes set forth. 2nd. In an excavator, the pipe G, provided with a cone-connection I and cone-sleeve J, in combination with suction pipe K, substantially as and for the purposes set forth.

No. 25,573. Machine for Splitting Quills, Feathers, etc. (*Machine à Ecafer les Plumes, etc.*)

Jonas H. Holden, Three Oaks, Mich., U. S., 15th December, 1886 ; 5 years.

Claim.—1st. The knife *c* and guide plates *a*, *b*, in combination with the rollers D, E, substantially as specified. 2nd. The rocking knife *c* having the projections *d*, in combination with the adjusting nut I, and adjusting screw H, substantially as described. 3rd. The combination and arrangement of the rollers D, E, adjusting screws G and support C, with the guide plates *a*, *b*, adjusting screws *h*, knife *c*, adjusting nut I and adjusting screws H, all constructed and arranged substantially as set forth.

No. 25,574. Bustle. (*Tournure.*)

Beverly S. Reed, Boston, Mass., U. S., 15th December, 1886 ; 5 years.

Claim.—1st. The combination, with a waist-band and rigid stays connected therewith, of hoops rigidly connected at their ends with the said stays, and supporting springs connected with the waist-band, and with the hoops between their ends, substantially as described. 2nd. A waist-band and V-shaped stays having their upper ends connected with the waist-band, and projecting downwardly therefrom, in combination with hoops rigidly connected at their ends to the said stays, substantially as described. 3rd. The combination of a waist-band and hoops, with sets of springs constituting hoop-supporting standards, the springs being connected with the hoops between their ends, and braces connecting the different standards, substantially as described. 4th. A waist-band and rigid stays connected therewith, combined with hoops connected at their ends to the said stays, and sets of springs constituting hoop-supporting standards, each standard being connected with the waist-band and having the ends of its spring arms connected with the hoops between their ends, and braces connecting the different standards, substantially as described.

No. 25,575. Car-Coupler. (*Attelage de Chars.*)

James R. Avery, Louisville, Ky., U.S., 15th December, 1886; 5 years.

Claim—1st, In a car-coupler, a pin seat in the upper front wall of its pin hole, substantially as and for the purposes set forth. 2nd. In a car-coupler, a pin hole or socket entering a coupling link cavity vertically through its lower wall, substantially as and for the purposes illustrated and specified. 3rd. In a car-coupler, a link cavity having its rear wall made semi-elliptical or otherwise concave, joined by cylindrically circular or convex walls blending therewith and forming the front opening thereto, substantially as described and for the purposes set forth. 4th. In a car-coupler having its link cavity made with a semi-elliptical or concave rear wall joined by a cylindrically circular or convex walls blending therewith, and forming the entrance thereto, diverging outwardly and blending with diverging plane-walls, forming the front or link-receiving opening to said entrance and cavity, provided with an additional cavity bisecting its back wall and extending rearwardly for the reception of the inner end of a link to elevate its outer end and permit the operation of long links without injury or inconvenience, substantially as set forth. 5th. In a car-coupler, a coupler head having its link cavity made with a concave or semi-elliptical back wall joined by circular walls, blending therewith and forming the walls of the entrance thereto, diverging outwardly and blending with diverging plane walls forming the front or link-receiving opening to said cavity, provided with an additional rearward-extending cavity and bisecting the rear wall of said link cavity for the reception of the inner end of a link, and a hole extending rearwardly through the end of said coupler head to permit passage of the stem of draw-bar, said hole having draw-bar head or key seats provided in its sides to receive a draw-bar head or coupler-head key passing transversely through a draw-bar near its front end, to prevent the rearward withdrawal of said draw-bar, and permit the sliding of the coupler head thereon, substantially as and for the purposes set forth. 6th. In a car-coupler, a coupler-head having a link cavity formed with a concave or semi-elliptical back wall reverse cylindrically circular or convex walls blending therewith forming the entrance thereto and diverging outwardly, blending with diverging plane walls forming the opening to said entrance and cavity provided with a rearwardly extending cavity bisecting its concave back wall, a hollow neck or hole continued therefrom through the rear end of said coupler-head and holes entering the lower side near its end passing vertically and bisecting the side walls of said hollow neck for the reception and security of a pin lever hanger, substantially as set forth. 7th. In a car-coupler, a draw-bar made of a wrought-iron rod or other suitable material having a head formed upon one end, and a key-seat near the other end provided with a combination key or key seat near each end and between the two, all provided with keys substantially as and for the purposes set forth. 8th. In a car-coupler, a cross-bar having a draw-bar bearing and nibs or journalled ends, substantially as and for the purposes illustrated and described. 9th. In the combination of a car-coupler, with cars, locomotives, and tenders, a coupler frame, or preferably journal bearing plates having a centre hole or bearing for the reception and operation of the nibs or journal ends of pivotal cross-bar, and a bolt hole between the centre hole and each corner of said plate for secure attachment, in combination substantially as illustrated and described. 10th. In a coupling combination, journal bearing plates having centre bearings and bolt holes provided with bolts and toe angles, substantially as illustrated and for the purposes described. 11th. In combination with a car journal bearing plates securely bolted to its draft timbers, a cross-bar pivoted therein, a draw-bar supported by said cross-bar and a coupler head supported on the end of said draw-bar, substantially as set forth. 12th. The combination with a car, locomotive or tender having journal bearings, provided of a cross-bar pivoted therein, a draw-bar supported by said cross-bar, a coupler head supported on the front end of said draw-bar, and a spring interposed between the coupler head and cross-bar, and between said cross-car and rear end of said draw-bar to cushion thrust in both directions, as set forth. 13th. In a car-coupler, the combination with a pivotal cross-bar, and a draw-bar supported therein, of spring interposed between the ends of the draw-bar and the pivotal cross-bar, as set forth. 14th. In a car-coupler, the combination with a pivotal cross-bar, and a draw-bar therein having a coupler head connected with and adapted to slide upon the front end thereof of a spring or springs interposed between the sliding coupler head and cross-bar, and a spring or springs interposed between the rear end of the draw-bar, and the cross-bar by which it is supported, as set forth. 15th. In a car-coupler, the combination of a pivotal cross-bar having a draw-bar passing therethrough, a coupler head connected with and sliding longitudinally upon the front end, and a washer impinged against a combination key or other abutment upon the rear end of said draw-bar, and springs interposed between the sliding coupler head and cross-bar, and between the washer or other abutment and the cross-bar, substantially as and for the purposes set forth. 16th. In a car-coupler, the combination, with a cross-bar supporting a sliding draw-bar, and coupler head of rods, bars, chains or equivalents extending therefrom through and secured to the king-bolt transom or rearwardly to a point equally distant from the coupler at either, and of a car, and connected each with the other, with a double nut or otherwise continued from a cross-bar at one of a car to another cross-bar at the other end of same car securely connecting said cross-bars, all substantially as and for the purposes set forth, 17th. A car-coupler comprising a coupler-frame or journal bearing plates, a cross-bar pivoted therein, a draw-bar passing through said cross-bar, a coupler head connected with and sliding longitudinally upon the front end, and a washer impinged against a combination key or other abutment provided at or near the rear end of said draw-bar, springs interposed between the sliding coupler head and cross-bar, and between the washer and other abutments, and the cross-bar rods or other equivalents connected with the cross-bar and extending rearwardly through the king-bolt transom and secured thereto, or to a meeting point between two couplers attached to the same car and connected each with the other with a double nut or other convenient means of adjustment, or from one cross-bar to another pivoted to the same car, the continuous rods having both ends circled upon the nibs or journals of the pivotal cross-bars respectively between the journal bearings and shoulder of the pivotal cross-bar, substantially as set forth respectively and collectively. 18th. In a car-coupler, the combination with a pivotal cross-bar, a draw-bar passing therethrough, of a coupler head provided with a pin-lever hanger connected with and sliding longitudinally upon the front end of said draw-bar, a gravity-latch hanger provided with gravity-latches supported by and adapted to slide upon the said draw-bar, an abutment key passing through said draw-bar between the gravity-latch hanger and cross-bar, and a spring interposed between said hanger and sliding coupler head, and between the pivotal cross-bar, and a washer impinged against a combination key in a key seat or vertical key hole near the rear end of said draw-bar, a pin-lever to the front end of which is attached a coupling pin pivoted and fulcrumed in a hanger depending from a coupler head or draw-bar provided with a transverse rod supported and guided in and by a hanger having gravity-latches constructed and arranged to offer no resistance to the upward course of said lever but to engage its transverse rod and prevent its return until released therefrom as provided, and a pin or lever-operating device, all constructed, combined and operated substantially as and for the purposes set forth. 19th. In a car-coupling, a pin-operating combination consisting of a hanger depending from a coupler head supporting a lever pivoted therein provided with a coupler pin attached to its front end, and a transverse rod rearwardly, a latch hanger provided with gravity-latches, and a pin or lever-operating device having its ends angled, and an arm provided with a loop, all substantially as and for the purposes illustrated and described. 20th. In a car-coupler, a pin-lever pivoted in a hanger depending from a coupler head having a pin attached to its front, and a pin or lever-operator engaging its rear end, substantially as set forth. 21st. In a car-coupler, a hanger provided with automatic latches, substantially as and for the purposes set forth. 22nd. In a car-coupler, a combination key F in form substantially as shown in detail as a part of Fig. 4 and a purposed in combination shown in Fig. 1, substantially as illustrated. 23rd. In a car-coupler, a pin or lever-operating devlce, substantially as set forth and described. 24th. In a coupling combination, draft rods connecting the couplers of a car, as and for the purposes set forth and described.

No. 25,576. Vehicle and Motor.

(*Voiture et Moteur.*)

Hugh Baines, Brooklyn, N.Y., U.S., 15th December, 1886; 5 years.

Claim.—1st. In a vehicle or motor, the combination of the driving-wheels or wheels, the frame supported on the wheels, the operating lever or levers hung in the frame, means of connection between the driver or drivers, and an intermediate fulcrum connected flexibly to the frame, whereby the power may be applied to the driving-wheels and the frame in equal or nearly equal proportions. 2nd. In combination, with a vehicle, a rotary fulcrum and driver-wheel situated in therear of the main wheels and connected with the operating mechanism of the vehicle, whereby it can be rotated in unison with the main wheel, as shown and described. 3rd. In combination, with a vehicle, a rotary fulcrum and driver-wheel situated in the rear of the main wheels, provided with teeth on its periphery and connected with the operating mechanism of the vehicle whereby it can be rotated in unison with the main wheels. 4th. In combination with a vehicle, the rotary fulcrum and driver-wheel provided with pinion-gearing on its axle, the pinion-wheels journalled in the frame of the vehicle, the horizontally-moving racks gearing therewith, and the segments and operating levers, all arranged substantially as and for the purposes set forth. 5th. In combination with a vehicle, the segments journalled in sliding block in the main frame of the vehicle, connected to the treadle-levers and to the driving-wheels, and adapted to be operated by the former and to operate the latter, as set forth. 6th. In combination with a vehicle, the segment-gearing, journalled as described, and provided with springs for retracting them to their normal and operative position, the treadle-levers connected to the segments, the rack and pinion gearing and the rotary fulcrum-driver, all adapted to operate substantially es shown and described. 7th. In a vehicle, the segment-gearing and the treadle-levers, in combination with the horizontally-moving racks provided with the movable and solid teeth, the main drivers and the rotary fulcrum-driver, and the intermediate pinion-gearing, all adapted to operate substantially as described 8th. In a vehicle, the segment-gearing provided with the retracting-springs, the treadle-levers connected to and adapted to operate the segments, the depending rods swivelled to the main frame slightly in front of the axle of the rotary fulcrum-driver, in combination with said driver and the intermediate rack and pinion gearing.

No. 25,577. Feed Water Heater for Steam Boilers. (*Réchauffeur d'Eau pour Chaudières à Vapeur.*)

John M. Dunn and William E. Sidnell, Norwalk, Ohio., U. S., 15th December, 1886; 10 years.

Claim.—1st. The combination, with a boiler A, a feed water heater G, and a hot-air chamber H^1 entirely surrounding the same, as set forth. 2nd. The combination, with the boiler A and suitable circulating pipes K, L, of a feed water heater G curved at the top and straight at the lower end, the top above the flues of the boiler, as set forth. 3rd. The combination, with the boiler A and suitable circulating pipes K, L, of a curved feed water heater G and a mud drum G_1 located in the bottom of the same, as set forth. 4th. The combination, with a boiler A and circulating pipes K, L, of a heater G secured to the rear end of said boiler by an expansible lug *b*, as set forth. 5th. The combination, with the boiler A and suitable circulating pipes K, L, and the mud drum G_1 of the angle plate H, as set forth.

No. 25,578. Boot or Shoe. (*Chaussure.*)

William B. Arnold, North Abington, Mass., U. S., 15th December, December, 1886; 5 years.

Claim.—1st. As an improved manufacture, a shoe or boot having

its outer sole or the welt thereof sewed to the insole and upper, with a compound thread composed in part of a metallic wire or wires corrugated lengthwise, all being substantially as set forth. 2nd. As an improved manufacture, a shoe or boot having its outer sole sewed to the welt, with a compound thread composed in part of a metallic wire or wires corrugated lengthwise, all being substantially as set forth.

No. 25,579. Carriage Fender.

(Défense de Voiture.)

James W. Black, Berwick, N.S., 15th December, 1886; 5 years.

Claim.—1st. A fender for waggons, consisting of a composite roller formed of a single shaft having independent rollers thereon, each of which is of the form of two frustums of a cone, joined together at their bases and mounted in suitable bearings attached to the waggon, as set forth. 2nd. The combination, with the base plate, bearings, shaft and independent rollers, of the rubber cushion interposed between the base plate and the waggon body, for the purpose set forth. 3rd. The combination of the bearing post secured to the waggon, the shaft H, the independent rollers E, E, each of which is substantially in the form of two frustums of a cone joined together at their bases, and the interposed washers, for the purpose set forth.

No. 25,580. Journal Bearing.

(Coussinet de Tourillon.)

Mahlon Randolph, New York, N. Y., U. S., 15th December, 1886; 5 years.

Claim.—1st. An improved journal-bearing or machinery support, formed of a vegetable or mineral fibre, reduced to a pulpy mass, and incorporated with plumbago, and an adhering matrix, such as a strong albumen. 2nd. In a journal bearing, or any machinery bearing, a constant and durable lubricant formed of an unctuous carbonaceous matter, such as finely powdered graphite, held in any prescribed form by an admixture of a vegetable or mineral fibrous pulp, and a cementing material in the form of an albumen, substantially as described and set forth. 3rd. A journal, or other machinery bearing, formed of a vegetable or mineral fibrous material reduced to a pulp, mixed with finely-powdered graphite and a cementing albumen, then pressed into the required form, and, after that, thoroughly indurated by drying. 4th. An anti-friction journal-bearing compound, formed of any suitable vegetable or mineral fibrous material reduced to a pulp, incorporated with finely-powdered graphite, and a cementing albumen, in combination with powdered sulphur, substantially as described. 5th. A journal, or other machinery-bearing, formed of a fibrous pulp, mixed with finely-powdered graphite, and an adhesive albumen thoroughly incorporated by mixing, and pressed into a metallic casing, provided with one or more dovetailed lugs or recesses for holding the compound bearing material to the metallic casing. 6th. In a journal-bearing or machinery support, a metallic box or housing, provided on its inner face with one or more dovetailed ribs or recesses, adapted to receive and hold in place a bearing bushing, formed of a plastic material pressed into the said housing piece, and allowed to indurate therein.

No, 25,581. Beading Tool. *(Outil à Quarderonner.)*

Oscar E. Hildebrand, Norwich, Conn., U. S., 16th December, 1886; 5 years.

Claim.—1st. In a beading tool, in combination with two companion rods, a cutter adapted to be clamped beeween said rods, as described, and handles cored to slip over said rods to clamp the said cutters, all being substantially as herein specified. 2nd. In combination with two semicircular rods, a cutter adapted to be clamped between said rods, and handles cored to slip over said rods, as described, said handles being provided with clamping screws by which the several elements may be clamped together, for the purpose specified. 3rd. In combination, with two companion-rods, a cutter adapted to be clamped between said rods, as described, handles cored to slip over the ends of said rods, and formed with gauge flanges at their inner ends, and thumb-screws or similar means for clamping the several parts together, substantially as herein set forth.

No. 25,582. Burnishing Machine.

(Machine à Brunisser.)

William G. Anthony, Lynn, Mass., U, S., 15th December, 1886; 5 years.

Claim.—1st. In a heel burnishing machine, the combination of a vibrating shaft, carrying a burnisher tool, a shoe carrying jack-brasing movement in a plane at right angles to the plane of the movement of the burnisher, and means to impart a reciprocating movement vertically to the jack, substantially as and for the purpose described, said movement L of the jack being effected automatically, as stated. 2nd. In a burnishing machine, the combination of a burnisher tool, the shoe carrying jack are the toggle arms *a*, *e*, and latch *h*, arranged to operate substantially as and for the purposes stated.

No. 25,583. Machine for Cutting Blanks for Shovels, Spades and Scoops.

(Machine à Tailler les Ebauches des Bèches, Pelles et Ecopes.)

Henry M. Myers, Beaver Falls, Penn., U. S., 18th December, 1886; 5 years.

Claim.—1st. In a machine for cutting shovel blanks, a reciprocating head having a knife attached thereto, which consists of a blade having end sections projecting from opposite sides and at right angles thereto, substantially as shown and described, 2nd. In a machine for cutting shovel blanks, a reciprocating head having a knife attached thereto, which consists of a blade having right angled sections projecting from opposite sides thereof, in combination with an anvil or fixed portion of the machine, having a die corresponding with the knife secured thereto, substantially as shown and described. 3rd. A knife for cutting shovel blanks, as shown, which consists of a blade having right and left projecting sections on the ends thereof forming a figure, substantially Z-shaped.

No. 25,584. Paper, and Composition of Matter for the Same. *(Papier et Pâte à Papier.)*

John M. Allen, New Bedford, Mass., U. S., 18th December, 1886; 5 years.

Claim.—1st. Paper, composed of raw cedar bark as the principal ingredient, and two or more other stocks, substantially in the proportions described. 2nd. Paper, composed of raw cedar bark as the principal ingredient, and two or more other stocks, substantially in the proportions described, and suitably saturated.

No. 25,585. Machinery for Preparing Filamentous Materials, by which the Woody Matter is Separated from the Fibres, etc. *(Machine pour Préparer les Matières Filamenteuses en Séparant la Pulpe des Fibres du Bois, etc.)*

Jules Cardon, Lille, France, 18th December, 1886; 15 years.

Claim.—1st. The combination of parts constituting the machine herein described for breaking, detaching and separating the straw and woody portion of flax, hemp, ramie, alfa and other textile materials, as well as for dividing and hackling the fibres of said materials. 2nd. The employment of pin-bars, having a continuous advancing and receding movement for piercing the material, in combination with grids for clearing the pins, and with a holder from which the material is suspended freely between the grids, said holder being traversed continually while the pins are operating upon said material, as described. 3rd. The employment of pin bars, having rows of pins or teeth inclined to the direction of motion of the holders, for the purpose of ensuring the uniform penetration of the material at all points of its length, as described. 4th. The employment of grids, having bars of triangular form in cross section, for the purpose of facilitating of the entrance of the pins, as described. 5th. The employment of pin-bars, having pins of different sizes and differently spaced, those which first operate upon the material being placed further apart than the last acting pins, also the employment of pin bars having finer pins at the lower than at the upper part, the material being more difficult to operate upon at the ends than at mid-length of the fibres. 6th. The employment intermediate of the pin-bars for piercing the material of endless bands, provided with blades, such as those herein described, for the purpose of straightening the fibres and removing some of the straw or wood portion before the material is further pierced, as described. 7th. Prolonging the fixed trough beyond the piercing portion of the machine, so that the holder may continue its travel for the purpose of presenting the pierced material to the action of intersecting breakers, formed of bars having converging ends, and receiving a rising and falling motion for the purpose of acting uniformly upon the material at all points of its length. 8th. Prolonging the fixed trough beyond the breaking portion of the machine, so that the holder may continue its travel for the purpose of presenting the material to be hackled after having been subjected to the action of the piercer and breaker, as described.

No. 25,586. Stock Car. *(Char à Besteaux)*

The American Live Stock Express Company, New York (Assignee of Benjamin F. Holmes, Brooklyn), N. Y., U. S., 18th December, 1886; 5 years.

Claim.—1st. The combination of partitions or doors, having their sides fitted to guides, and propelling mechanism for the partitions or doors, connected to the partitions or doors at one end of the latter only. 2nd. The combination of partitions or doors, consisting of slats, and longitudinally stiff strips or links, affording provision for flexure, transverse guides for the sides of the partitions or doors, and propelling mechanism for the partitions or doors connected to one end of the partitions or doors only. 3rd. The combination of partitions or doors, guides for the sides of the partitions or doors, and chains passing over pulleys and connected to the partitions or doors at one end of the latter only. 4th. The combination of partitions or doors, composed of slats, and longitudinal stiff strips or links, affording provision for flexure guides for the sides of said partitions or doors, nuts arranged at one end of the partitions or doors, and screws engaging with said nuts for operating the partitions or doors. 5th. The combination of partitions or doors, guides for the sides thereof, propelling mechanism, connected one with each side of the several partitions or doors at one end of the latter only, and gearing connecting the two said mechanisms together, so that both may be operated by a single prime mover. 6th, A partition or door, consisting of slats, caps connected to the ends of the slats, and strips or links fastened to the caps and serving to connect the slats. 7th. The combination of partitions or doors, pairs of screws, guides, nuts fitting said screws and having flat exterior sides, with flanges at the ends extending over the sides, the partitions or doors at one end being provided with jaws which embrace the sides of the nuts between the flanges. 8th. The combination of movable partitions or doors, screws for operating them, shafts extending transversely to the car body below the same and geared to said screws, a shaft extending lengthwise of the car body below the same, and provided with worms, the said transverse shafts being provided with worm-wheels, which may be slid lengthwise of them to enable them to be engaged with them or disengaged from the said worms. 9th. The combination, with a car, having two floors arranged one above the other, of two sets of partitions or doors, one set for each floor, and mechanism common to both for operating them. 10th. The combination, with a car having two floors, arranged one above the other, of two sets of partitions, one set for each floor, and screws for operat-

ing both sets of partitions. 11th. The combination, with a car body having slatted sides, of shutters fitted to slide in close proximity to said sides, and having openings or perforated portions corresponding to the space between the slats, forming the sides of the car, the said shutters being provided with racks, and the car body with shafts, furnished with pinions engaging with said racks, whereby the said shutters may be shifted into either of the two positions they are designed to occupy for closing or opening the sides of the car body to admit or exclude air. 12th. The combination of rocking water pipes, arranged outside the car body pipes extending therefrom, and water troughs secured to said rocking pipes and branch pipes and adapted to receive water through the latter from the rocking pipes. 13th. The combination, with a car body, of troughs arranged at intervals along the sides, pipes leading to said troughs and arranged outside the car body, and water tanks arranged at the ends of the car and connected to said pipes. 14th. The combination, with the sides of a car body, of stationary mangers and rocking troughs arranged below the same, and adapted to swing up into a position flush with the inner surface of the sides of the car body. 15th. The combination, with the sides of a car body, of mangers arranged along the upper part of the sides of a car body, the sides of the car body being provided with hinged sections, which may be swung outwardly to afford communication with the mangers and facilitate the introduction of fodder into the same from the roof of the car body. 16th. The combination, with the sides of a car body, of mangers arranged along the upper portion of the same, hinged doors or sections at the upper portion of the sides of the car body for affording communication with the mangers, rock shafts arranged along the roof of the car, arms extending from the rock shaft and links extending from these arms to the said hinged doors or sections. 17th. The combination, with the sides of a car body, of mangers arranged along the same at intervals, troughs arranged below the mangers, chutes extending through the mangers, and doors or sections hinged to the sides of the car body, so as to afford communication with the mangers, substantially as described, whereby, when the doors or hinged sections are opened, hay, or the like, may be introduced into the mangers from the roof of the car body, and corn, or the like, may be introduced into the troughs through the chutes. 18th. The combination, with the sides of a car body, of adjustable doors or hinged sections arranged near the bottom, and capable of being opened to facilitate the cleaning out of the car body. 19th. The combination, with the sides of a car body, composed of an inner and an outer wall, of hinged sections or doors connected with the outer wall and sliding sections or doors connected to the inner wall, affording provision for ventilating and cleaning the car body.

No. 25,587. Car Coupling. (*Attelage de Chars.*)

William R. Bowman, Danville, Ky., and John S. Mason, New York, N.Y., U.S., 18th December, 1886; 5 years.

Claim.—1st. In a car-coupler, a link support, consisting of a transverse shaft with squared ends, and carrying a handle and ratchet-wheel, and a frame with slotted ends surrounding the shaft, said ends having a contracted continuation, substantially as and for the purpose specified. 2nd. In a car coupler, a pin support, consisting of a curved arm, with adjustable stops at one end, and an enlargement and friction rollers at the other end, said arm resting within the draw-head, and having an end passing through a slot therein, substantially as and for the purposes specified. 3rd. In a car-coupler, the combination, with a draw-head, of a link support, consisting of a frame with slotted ends, having contracted continuation, and a transverse shaft supporting the same, and a pin support consisting of a curved arm, with an adjustable stop and friction rollers, the whole arranged substantially as and for the purpose specified.

No. 25,588. Steam Engine. (*Machine à Vapeur.*)

The Westinghouse Machine Company (Assignee of Henry H. Westinghouse), Pittsburgh, Penn., U. S., 18th December, 1886; 15 years.

Claim.—1st. As an improvement in the class of engines, in which lubrication of the moving parts is effected wholly or in part by the splashing of the oil effected by the piston and valve stem connections, the combination of a close oil vat and a vent pipe leading therefrom, substantially as set forth. 2nd. As an improvement in the class of engines, in which lubrication of the moving parts is effected wholly or in part by the splashing of the oil effected by the piston and valve stem connections, the combination of a close oil vat, and a vent and return drip pipe, substantially as set forth. 3rd. In combination with a close oil vat Y of a steam engine, a vent pipe a, escape opening or funnel c and drip pipe c^1, substantially as set forth. 4th In combination with a close oil vat T and the cylinders and valve-chambers A, V, a water-escape pipe e entering the vat at or near the bottom and rising to the normal oil level of the vat, substantially as set forth.

No. 25,589. Lamp Burner Support.

(*Support de Bec de Lampe.*)

George S. White, Danbury, Conn., U. S., 20th December, 1886; 5 years.

Claim.—1st. As a new article of manufacture, a device for holding a lamp burner during the operation of filling, provided with a yoke adapted to be attached to the neck of the lamp, substantially as set forth. 2nd. As a new article of manufacture, a wire support for lamp burners, adapted to be attached to the neck of the lamp. 3rd. The yoke and rest formed from a single piece of wire bent into the desired shape, whereby the arms of the yoke may be spread and firmly clasped around the neck of the lamp, and the rest may be adapted to accommodate the burner, substantially as shown and described.

No. 25,590. Sash Pulley. (*Poulie de Croisée.*)

Warren T. Kellogg, Lansingburgh, N.Y., U.S., 20th December, 1886; 5 years.

Claim.—A sash pulley, with a socket having ribs upon its sides and ends, which ribs exteriorly have the form of intersecting segments of circles, and wedge-form blades arranged exteriorly upon each of said ribs adapted to enter the wood of the socket opening when the socket is driven into the latter, substantially as and for the purposes set forth.

No. 25,591. Gas Lamp. (*Lampe à Gaz.*)

Francis H. Wenham, Goldsworth Woking, Eng., 20th December, 1886; 15 years.

Claim.—1st. In gas lamps, the combination of a lamp casing and frame enclosing glass air heating chamber and outlet for the escape of the products of combustion between the air heating chamber and the lamp body, a gas supply from above or from below and clear of the air heating chamber, and air dividing gauze or gauzes or its or their equivalent in or in connection with the air-heating chamber, substantially as described, whether or not the opening e in the lower part of the glass and the tube e^2 be used. 2nd. In gas lamps, the combination, with the subject matter of the first claiming clause, of a gas outlet orifice delivering gas to beneath a disc or cover below the air-heating chamber, the disc or cover having around it, a toothed or pegged periphery or depending rim, substantially as described. 3rd. In gas lamps, the combination of a flame-enclosing glass, a lamp casing and air-inlet between the lamp body and a curtain, and terminating in an air-heating chamber with gauze or gauzes or its or their equivalent, as described, a gas supply from either above or below and clear of the air-heating chamber, and a burner closed at top and with holes around its side or periphery, and with a space between the top of the burner and the lower end of the air-heating chamber, substantially as described. 4th. In gas lamps of the kind hereinbefore described and claimed, gauze or its equivalent at the lower end of the air-heating chamber through which the air passes to the upper side of the flame, the central passage for air through the said gauze or its equivalent being freer or of greater capacity than at the surrounding portions, substantially as described.

No. 25,592. Friction Clutch.

(*Embrayage à Friction.*)

Otto Flohr, Newark, N.J., U.S., 20th December, 1886; 5 years.

Claim.—1st. The combination to form a friction clutch, of a rotary part having an overhanging flange, a divided friction-ring within said flange, a rotary part connected to said ring, whereby both must rotate together, the axial shaft upon which said rotating parts are mounted, an expanding pin arranged longitudinally along and parallel with said shaft having a tapered or wedge-shaped end, which enters between the divided parts of said friction-ring at right angles to the plane thereof, and adapted when thrust longitudinally toward the friction-ring to spread the sections thereof, and an operating-sleeve fixed to the opposite end of said pin and adapted to slide on said axial shaft, substantially as set forth. 2nd. The combination of a driving and a driven part, an annular flange formed upon one of said parts, a diametrically-divided friction-ring within said flange and connected to the other of said parts, whereby either part may be driven from the other, an axial shaft upon which said rotary parts are mounted, and an expander for said ring consisting of two tapered pins arranged parallel with said shaft and on diametrically-opposite sides thereof, with their ends entering between the divided parts of said ring and at right angles to the plane thereof, and an operating-sleeve sliding on said shaft and connected to both said pins, substantially as set forth. 3rd. A divided friction-ring for a friction clutch formed with ribs b, b, and diagonal braces c, c, substantially as and for the purpose set forth. 4th. The combination of a rotating part having an annular flange, a divided friction-ring within said flange, another rotating part connected to and moving with said ring, an axial shaft upon which said rotating parts are mounted, an expanding pin parallel with said shaft having a tapered end entering between the divisions of said ring at right angles to the plane thereof, a sliding-sleeve on said shaft secured to the opposite end of said pin, a slide mounted on a stationary part and moving parallel with the axis of said shaft, and provided with a fork entering a groove in said sliding-sleeve, and a hand-lever enagaging and adapted to reciprocate said slide, substantially as set forth. 5th. The combination of sleeve I, forked slide J, hand-lever K, frame L, plate m, and adjustable back-stop n, substantially as set forth.

No. 25,593. Machine for Grinding Mica.

(*Machine à Moudre le Mica.*)

Thomas Head, Copetown, Ont., 20th December, 1886; 5 years.

Claim—The rotary rasp running close in the stationary perforated concave rasp, and for the purpose hereinbefore set forth.

No. 25,594. Journal Bearing.

(*Coussinet de Tourillon.*)

Robert W. Hardie, Albany, N. Y., U. S., 20th December, 1886; 5 years.

Claim.—1st. A journal bearing consisting of a sustaining base-block, a bearing box and resilient cushions so placed between said base-block and bearing box that a spindle revolving in said box will adjust itself to a constant centre, substantially as shown and described, 2nd. A journal bearing consisting of a sustaining base, a bearing box loosely connected with said base and supported upon resilient cushions placed between said base and box, in such a manner that a pressure exerted upon any part of the spindle revolving in said box will be compensated for at a point directly opposite its point of application, substantially as shown and described. 3rd. A journal consisting of a sustaining base, a bearing box capable of a limited motion with respect to said base, by means of yielding cushions and set screws at opposite sides of said base adapted to hold said box tightly in position, substantially as shown and described. 4th. A journal bearing consisting of a sustaining base, a bearing box, a loose jointed connection between said base and box and yield-

ing cushions interposed between said base and box, substantially as shown and described. 5th. A journal bearing consisting of a pillow-block, a bearing box loosely connected with said block and resilient cushions intermediate between said box and block, substantially as shown and described. 6th. A journal bearing consisting of a sustaining base, a bearing box, resilient cushions between said base and box, and a tightening eye-bolt, substantially as shown and described. 7th. A journal bearing consisting of a sustaining base, a bearing box, resilient cushions intermediate between said box and base, and a resilient cushion beneath said base connected with the tightening eye-bolt, substantially as shown and described. 8th. A journal bearing consisting of a pillow-block, a bearing box, resilient cushions between said block and box, and a cap extending over the bearing box and adiustably secured to the pillow-block, whereby the tension of the box on the cushion may be regulated, substantially as shown and described. 9th. A journal bearing consisting of a pillow-block, a cap for said block, a bearing box whose outer surface is provided with a rim adapted to fit within an annular groove upon the inner surface of the pillow-block, and resilient connections between the box and block, substantially as shown and described.

No. 25,595. Automatic Railway Air Brake.

(Frein Atmosphérique Automatique de Chemin de Fer.)

William W. Hanscom, San Francisco, Cal., U. S., 20th December, 1886; 5 years.

Claim.—1st. Mechanism for operating air brakes, comprising a pump for compressing the air, a valve for distributing the air to the brake cylinders, the valve being contructed so that the current of air may flow direct from the pump without the intervention of a reservoir or other obstruction into either or both ends of the brake-cylinder at the same time, two train-pipes connected to this valve and to the opposite ends of the brake-cylinder, both of these pipes permitting an unobstructed flow of air into the cylinder, and an unobstructed flow from the cylinder through one of the pipes, the other pipe having a retaining pressure valve preventing the outward flow of air from the other end of the cylinder below a fixed or regulated pressure, substantially as described. 2nd. The operating valve P having the admission opening R, the divided channel or passage T, the two parts for the pipes D and E, the exhaust-opening O and the ports land 2 so constructed that when the valve S is in or near its mid-position there will be a direct communication from the admission-opening R through the parts 1 and 2 of the valve into the openings or ports for the pipes D and E, substantially as shown and for the purpose described. 3rd. In air-brake mechanism, an air-pump brake-valve, two lines of pipe and brake-cylinder with its piston, in combination with a valve which will allow free admission of air to one end of the brake cylinder, and will permit the outflow when the pressure in the cylinder is above a fixed amount, substantially as shown and described. 4th. The retaining pressure-valve having the chamber F, with the openings 1 and 2 for attaching pipes, the metal valve C having an elastic face and held to its position on the seat by springs, this valve having openings through it which are closed by a valve *i* which opens in an opposite direction from valve *d*, the valve *i* being loaded so that it will only be opened with a fixed pressure, substantially as shown and described.

No. 25,596. Poker, Tongs and Stove Lid Lifter. *(Tisonnier, Pinces et Levier.)*

Sidell E. Fish and Charles G. King, Greenport, N. Y., U. S., 20th December, 1886: 5 years.

Claim.—1st. The combination, with the arm B and a folding poker D hinged thereto, and provided with an extension or projection D_1 at its inner end, of an arm A pivoted to the arm B to close at its outer end against said extension D_1, substantially in the manner and for the purpose herein set forth. 2nd. The combination, with the arm B fitted with a poker D hinged thereto to fold back thereon, and with the arm A, pivoted to said arm B, of offsets H, H_1 formed to project outwardly from each arm between its pivot and handle, and slotted to receive and inclose the outer end of the folded poker, whereby the hand is protected from its heat, substantially in the manner and for the purpose herein set forth. 3rd. The combined tool, constructed substantially as described, of the arm A terminating at its outer end in a lid-lifter F, the arm B pivoted to the arm A so that the outer ends of the two arms shall close together, and a poker-rod D provided with stop-extension or projection D_1, and pivoted to the outer end of the arm B to fold back on said arm, substantially in the manner and for the purpose herein set forth.

No. 25,597. Mechanism for Exercising the Physical Powers of a Person.

(Appareil pour Exercer les Forces Phisiques Humanies.)

Alfred H. Howard, Boston, Mass., U. S., 20th December, 1886; 5 years.

Claim.—1st. The combination of the bracket C, provided with the stationary arm *c*, the angular lever F and the screw *f* thereof screwed through and inclined to the upper arm of said lever, and the part of the bracket against which the said screw bears, with the swivel D pivoted to such arm *e* and lever F, the guide-rods B, B, extending down from the brackets, the weight carrier A arranged to slide on such rods and the rope I fastened to and depending from the bracket and extending about the grooved wheels of such swivels and weight carrier and provided with a handle, as set forth. 2nd. The combination of the rope I, fastened at one end, as described, and extending downward in the form of a loop and thence over a sheave or wheel to a handle, as set forth, with the weight-carrier A provided with a grooved wheel *m*, hung in said loop and with the guiding projections *c*, *c*, *d*, *d*, and with vertical rods or guides B, B, to enter such projections, all being substantially as shown and hereinbefore explained. 3rd. The combination of the rope I fastened at one end, as described, and extending downward as a loop, and thence over a sheave or wheel to a handle, as represented, a bracket C and its swivel D for supporting such sheave or wheel, guide-rods B, B, leading downwardly from such bracket, and a weight-carrier A provided with projections or devices to guide it upon the said rods, and having a grooved wheel *m* hung on said loop, all being substantially as set forth. 4th. The combination of the swivel supporting bracket C, provided with the stationary arm *e*, with the lever F fulcrumed to such bracket, and provided with the screw *f* and with the swivel D pivoted to such arm and lever, and provided with the grooved wheel E, all being substantially as set forth. 5th. The combination of the swivel supporting bracket C, provided with the stationary arm *e*, with the lever F fulcrumed to such bracket, the screw *f* screwed through the upper arm of such lever, and inclined, as described, to the bracket, and the swivel D provided with the grooved sheave or wheel E, and pivoted to the said arm *e* and lever F, all being substantially as set forth. 6th. The combination of the auxiliary swivel D_1, provided with the sheave E_1, and connected with the floor by the stationary supporting bracket C_1, with an exercising mechanism, substantially as set forth, consisting of the rope I secured at one end to or near the floor by suitable detachable devices, the bracket C with its swivel D and sheave E, and the weight-carrier A and its guide-rods B, B, and sheave *m*, as described, such rope I going through an eye *l* of the bracket C, being extended downward under the sheave *m*, and then upward to and over the sheave E, and fastened to a handle *n*, all set forth, the whole being for use, as explained. 7th. The combination of a sheave or wheel E_1, suitably connected with the floor with an exercising machine, substantially as set forth, consisting of the rope I secured at one end to or near the floor by suitable detachable devices, the bracket C with its swivel D and sheave E, and the weight-carrier A and its guide-rods B, B, and sheave *m*, as described, such rope I going through an eye *l* of the bracket C, being extended downward under the sheave *m*, and then upward to and over the sheave E and fastened to a handle *n*, all set forth, the whole being for use, as explained.

No. 25,598. Reed Organ. *(Orgue.)*

James B. Hamilton, Worcester, Mass., U. S., 20th December, 1886; 5 years.

Claim.—In combination with a range freed chambers, open at their front ends, and these provided with a closing flap or valve, or devices, and with a series of passages or channels leading from such chambers, and a phalanx, or several ranges of pipes extending over and communicating with such passages, of an auxiliary series of reed chambers, disposed in front of and below the mouths of the front set of reed chambers and open at their front ends, and there provided with closing devices, or a flap or door, as described, such auxiliary set of reed chambers having a set of pipes or their equivalent arranged over and opening out of them, and so connected to the bank on which they are placed as to be readily removable from the front of the first set of reed chambers, as explained.

No. 25,599. Railway Car Journal Box.

(Boîte à Graisse de Char de Chemin de Fer.)

Jacob Kritch, Cleveland, Ohio, U.S., 20th December, 1886; 5 years.

Claim.—A railway axle journal bearing (or brass) having the lower part thereof which bears on the journal made of an alloy or compound of metals, and a reinforced backing or top of cast iron in contact therewith by the adhesion of the metals, substantially as shown and for the purpose described.

No. 25,600. Hay Tedder. *(Faneuse.)*

Pratt A. Spicer, Marshall, Mich., U. S., 22nd December, 1886; 5 years.

Claim.—1st. In a hay tedder, the combination of the axle journalled in swinging boxes pivotally hung upon the frame, with suitable devices, substantially as described, for advancing and retracting such axle to engage and disengage the driving mechanism, substantially as specified. 2nd. In a hay tedder, the combination of the forks arranged in groups, a sliding bar L and radius bars pivotally secured to the stales of the forks and to the said sliding bar, with means, substantially as described, for simultaneouly adjusting the same for regulating the lift or stroke of the tedder forks, substantially as described. 3rd. In a hay tedder, the combination of the fork stales J, forks R and radial links S, substantially as and for the purpose set forth. 4th. In a hay tedder, the combination of the fork, stales J, forks R, radial links S and spools R_1, substantially as and for the purposes set forth. 5th. In a hay tedder, the combination of the fork stales J, forks R, radial links S and spools R_1 and check springs S_1, substantially as and for the purposes described. 6th. In a hay tedder, the combination of the axle A with the swinging boxes G and lever I, substantially as described. 7th. In a hay tedder, and in combination with the frame thereof and its accessories of the levers W, T, the former of which is pivoted to said frame and provided with a pin *e*, the spring latch plate X, provided with a series of holes *a* adapted to engage with such pin *e* and retain its lever in its adjusted position, substantially as specified. 8th. In a hay tedder, the combination of the axle A, with the swinging boxes G, bearing plates H and lever T, substantially as and for the purposes described. 9th. In a hay tedder, and in combination with the frame F and link U, a spring link or bar V connecting such link U to an actuating lever, substantially as and for the purposes set forth. 10th. In a hay tedder, and in combination with a fork R, *c*, constructed substantially as described, a stop or stops W_1 for preventing the uncoiling of the spring tooth, substantially as and for the purpose specified.

No. 25,601. Shingle Machine.

(Machine à Battre.)

Robert Brammer, Orillia, Ont., 22nd December, 1886; 5 years.

Claim.—The combination, with the carriage 2, provided with friction rollers 24, 25, of the wheel 21 having friction segment 22, and

cam slot or opening 23 engaging with said rollers and provided with a counterbalance 39 and spring 34, to recede the same, a movable yoke or bearing 26, carrying a friction roller 29 to partially rotate wheel 21 in one direction intermittently for advancing the carriage rod 29, connecting with rock shaft 31, having a cam arm 32 and a cam 33 automatically reciprocated by the carriage at the termination of each stroke, whereby the yoke will be raised and depressed, as set forth for the purpose described.

No. 25,602. Machine for Connecting Soles and Uppers of Turned Shoes.

(*Machine à Coudre les Semelles aux Empeignes des Souliers sans Trépointe.*)

Peter A. Coupal, Boston, and Joseph Coupal, Quincy, Mass., U. S., 22nd December, 1886; 5 years.

Claim.—1st. A curved needle, having knives alongside thereof, presenting their cutting faces toward the point of the needle, combined with mechanism for oscillating said needle and knives, substantially as described. 2nd. A curved needle, having knives alongside thereof, which present their cutting edges in the same direction as the needle point, mechanism to oscillate said needle and knives, a looper, a take-up, and mechanism for operating the same, all in combination substantially as described. 3rd. A curved needle, having attached cutting knives with their edges in the direction of the needle-point, mechanism, substantially as described, for oscillating the same, and suitable mechanism, as described, for moving the needle laterally, and an awl and its operating mechanism, arranged as described, to perforate for the needle, all combined as set forth. 4th. The combination, with the curved needle, of knives having their edges in the direction of the needle's point, mechanism, as described, for operating the same, a looper and its operating devices, the cast-off and the take-up, all relatively arranged substantially as stated. 5th. The combination, with the awl, the needle having cutting wings, with edges in the direction of the needle's point, operating devices for the awl and needle, the movable gauge e^2 and devices for adjusting the same, all substantially as set forth. 6th. The combination, with the curved puncturing device, having a cutting blade at each side thereof, the blades presenting their cutting-edges in the same direction as the puncturing-device point of the needle, and cutter-carrier and its oscillating mechanism, and the loop-engaging mechanism, substantially as described, all co-operating substantially as and for the purposes set forth.

No. 25,603. Boot. (*Botte.*)

Morris E. Faber, Buffalo, N.Y., U.S., 22nd December, 1886; 5 years.

Claim.—A boot, composed of an inner portion A of felt, a waterproof sock C, encasing the foot of the felt portion, and an outer portion B of leather, substantially as set forth.

No. 25,604. Spring Tooth Harrow.

(*Herse à Dents Elastiques.*)

Thomas G. Cook, Brockville, Ont., 22nd December, 1886; 5 years.

Claim.—1st. The combination, with the tooth and tooth-holder, having notches 3, 4, in the edges of plates 5, 5^1, having curved channels to fit against the notched portion of the tooth and tooth-holder, and a spur or tooth 6 to engage the notches and bolts, and nuts 7 to clamp the plates and hold the tooth and tooth-holder together, as set forth. 2nd. The combination, with the tooth-holder 2 and intersecting cross-bars 16, 18 of the harrow frame, of the channeled plate 11 to receive the heel of the tooth-holder, block 14, having diagonal channels 15, 17 on opposite sides to receive the intersecting bars of the harrow frame, and bear upon the tooth-holder covering plate 19, and bolts and nuts 20 outside the tooth-holder to clamp the plates and intervening parts together, as set forth.

No. 25,605. Two-Wheeled Vehicle.

(*Voiture à Deux Roues.*)

Jacob J. Deal, Jonesville, Mich., U.S., 22nd December, 1886; 5 years.

Claim.—1st. In a two-wheeled vehicle, the combination of rearwardly-projecting seat-supports, pivotally and adjustably secured to the shafts at their forward ends, and springs supported at their rear ends from the shafts, and having longitudinal slots at their forward ends, provided with bolts secured in the seat-supports, as and for the purpose shown and set forth. 2nd. In a two-wheeled vehicle, the combination of a rearwardly-projecting inclined seat supports, secured pivotally and adjustably at their forward ends to the shafts, seat-supporting springs supported at their rear ends from the shafts, and having longitudinal slots in their forward ends, plates having perforations registering with the slots in the springs and bearing against their under sides, and bolts passing through the perforations and slots into the seat-supports, as and for the purpose shown and set forth. 3rd. In a two-wheeled vehicle, the combination, of the shafts having transverse eyes upon their upper sides, and connected by cross-bars, seat-supports having lips at their forward ends formed with a series of perforations, and connected to the eyes upon the shafts by bolts passing through them, flat springs secured at the forward end of the cross-bars, and having transverse eyes at their slightly upwardly-turned rear ends, springs having longitudinal slots in their forward ends, sliding adjustably upon bolts upon the seat-supports, and having eyed downwardly and forwardly and upwardly curved rear ends, and links or shackles pivoted with their ends upon bolts passing through the eyed ends of the springs, as and for the purpose shown and set forth. 4th. In a two-wheeled vehicle, the combination of the shafts connected by cross-bars, seat-supporting springs movably connected at their rear ends, straps pivoted at their rear ends to the joints of the springs, and having cross slats connecting them and hook-shaped forward ends, and eyed bolts having the hooked ends of the straps engaging their eyes, and having their threaded and nutted upper ends fitting in perforations in the cross-bars, as and for the purpose shown and set forth.

No. 25,606. Thill Coupling. (*Armon de Limonière.*)

Henry J. Iles, Seymour, Conn., U.S., 22nd December, 1886; 5 years.

Claim.—1st. In a thill coupling, substantially such as described, the combination therewith of the spring J, one end arranged to bear against the shaft-eye, the other extending beneath the clip with a fulcrum between the two ends, and a toothed rack hinged to the clip, the teeth of the rack adapted to engage said spring, substantially as described. 2th. In a thill-coupling, substantially such as described, the combination therewith of the spring J, one end arranged to bear against the shaft-eye, the other extending beneath the clip, the plate H secured to the clip-bar and extending forward to form a fulcrum for the spring, the said plate constructed with transverse recesses, and the toothed rack I constructed with trunnions resting in said recesses, the teeth of said racks arranged to adjustably engage said spring, substantially as described. 3rd. In a thill-coupling, substantially as described, the combination, therewith of the spring J, one end arranged to bear against the shaft-eye and the other extending beneath the clip of the plate H, secured to the clip-bar and extending forward to form a fulcrum for the spring, and means as a bolt and nut for raising the rear end of the spring and thereby tighten its bearing against the shaft-eye, substantially as set forth. 4th. The combination, in a thill-coupling, of the spring, the clip and the plate H, of a bolt and nut for raising the rear end of the spring and thereby tightening its grasp on the shaft-eye, said bolt having trunnions for securing its upper end and said nut having its faces sloped toward the edges and slightly rounded as to the meeting edges of said faces, substantially as set forth.

No. 25,607. Cultivator. (*Scarificateur.*)

James M. Sutton, Bryan, Texas, U.S., 22nd December, 1886; 5 years.

Claim.—1st. In a cultivator, the combination of the laterally adjustable connected sections, each consisting of the parallel beams, the links connected at their ends to the beams, the through-bolts, the shovel standards pivoted at one end to one of the links, and the arms intermediate of the standard and the other end of the links, substantially as described. 2nd. In a cultivator, the combination of the laterally adjustable sections, each having the parallel beams, the pivot plates intermediate of the rear ends of the beams of the sections, the links connected at their ends to the beams, the shovel standards connected at their upper ends to one end of the links and carrying the shovels at their lower ends, and the arms pivoted at their upper ends to the opposite ends of the links, and adjustably connected at their lower ends to the shovel standards, substantially as described. 3rd. In a cultivator, the combination of the sections A, B adjustable laterally of each other, and each having the parallel connected beams carrying the shovel standards, the connecting arms pivoted to the forward ends of the sections and adjustably connected together at their inner inner ends, the connecting plates pivoted at the rear ends of the beams of both sections and a handle, substantially as described.

No. 25,608. Spring Washer for Screw Bolts and Nuts. (*Rondelle Elastique pour Boulons et Ecrous.*)

John W. Grover, Westminster, Eng., 24th December, 1886; 5 years.

Claim.—1st. As a new article of manufacture, a helical spring washer having a girder-shaped section, or with the middle part thereof of a less width than the upper and lower surfaces, substantially as herein described. 2nd. As a new article of manufacture, a helical spring washer having one or both sides grooves, substantially as herein described. 3rd. A blank for helical spring washers consisting of a bar having a deep groove on one side, and a shallower one on the other, so that on coiling the bar with the deeper groove on the outer side for producing the washer, the extension of the metal will tend to reduce the outer groove and make it about equal to the inner groove, substantially as herein described.

No. 25,609. Method of Making Composite Bars for Car Axles, Shafting, etc. (*Mode de Fabrication des Barres Composites pour Essieux de Chars, Arbres de Couche, etc.*)

Robert H. Libby, Boston, Mass., U.S., 24th December, 1886; 5 years.

Claim.—The art of manufacturing rolled metal structures for shafting, axles, etc., having solid metal sections united by integral metal sections in the form of a tube, cylinder, or shell, comprising first the forming of a box-pile of alternating sections of metal and sand or other equivalent refractory material inclosed in the pile and disposed in relation to the metal, as may be desired, second, in heating the box-pile to a welding heat, and third, in reducing the heated pile thus made by rolling to the required form, all substantially as and for the purpose described.

No. 25,610. Screw-Holder and Screw-Driver Combined. (*Pince-Vis et Tourne-Vis Combinés.*)

William E. Douglas, Columbia, Ind., U.S., 24th December, 1886; 5 years.

Claim.—The combination, with a screw-driver having fast rings D, D^2, and intermediate loose band E provided with guide-loop F, of the screw-holder H having loop J at one end and at the other the spring-jaws K, K, all arranged and adapted to be used as described.

No. 25,611. Contracting and Expanding Die for Hand or Machine Use. (*Etampe Compensatrice pour le Travail à la Main ou à la Machine.*)

William Murchey, Toronto, Ont., 24th December, 1886: 5 years.

Claim.—1st. The cutter-arms C pivoted in a head, and actuated by the spring G, in combination with the adjustable collar D, arranged substantially as and for the purpose specified. 2nd. The cutter-arms C, pivoted in a head and actuated by the spring G, in combination, the adjustable collar D attached to the gauge-rod E, substantially as and for the purpose specified. 3rd. The cutter-arms C, pivoted in a head and actuated by the spring G, in combination with the adjustable collar D attached to the gauge-rod E, and acted upon by the pivoted lever F, substantially as and for the purpose specified.

No. 25,612. Axe. (*Hache.*)

Nicholas Goodier, Dardanelle, Ark., U. S., 24th December, 1886; 5 years.

Claim.—As an improved article of manufacture, an axe head, consisting of a body portion, provided with a transverse groove *d*, and a central slot *a* at right angles to the groove, a detachable blade provided with e transverse tongue *c*, and a central projection *b* fitting in the groove and slot respectively, of the body, a bolt *f* passed through the body, and central projection *b* on the blade at right angles to the slot *a* in the body and the fastening nut *n*, substantially as specified.

No. 25,613. Treatment of the Spent Lyes used in the Manufacture of Cellulose by Means of Sulphites for the Recovery of Sulphurous Acid Therefrom, and for the Utilization of the said Lyes after such Treatment. (*Traitement des Lessives Amorties Employées dans la Fabrication de la Cellulose au Moyen des Sulfites pour en Tirer l'Acide Sulfureux, et l'Emploi de ces Lessives après un tel Traitement.*)

Adolph Frank, Charlottenburg, Germany, 24th December, 1886; 5 years.

Claim.—1st. Process of precipitating, by means of lime or proper calcium salts, and in the form of calciummonosulphite, the free and combined sulphurous acid, which is still contained in the spent lyes resulting from the manufacture of cellulose by means of the sulphite process, in combination with the said calciummonosulphite being cleansed from adhering organic substances by elutriation or by washing with a solution of sulphurous acid, or of acid sulphites of alkali or alkaline earths. 2nd. The process of converting calcium monosulphite by partial decomposition, with sulphuric acid into sulphite of lime, in which process, if sulphuric acid is used, calcium sulphate (annalin) can be obtained as a bye product. 3rd. The process of preparing from acid calcium, sulphite solutions by the precipitation of the same with magnesium sulphate acid solutions of magnesium sulphite at the same time obtaining calcium sulphate (annalin). 4th. The extraction of acid sodium sulphite solutions by decomposing the calcium monosulphite with acid sulphate of soda, calcium sulphate (annalin) being precipitated as a bye product. 5th. The removal of the sulphurous acid and sulphites contained in the sulphite lyes, which acid and sulphites are especially deleterious to the water, of water courses by neutralization, and precipitation of the same with lime and by subsequently blowing air and carbonic acid therethrough.

No. 25,614. Marking Compound for Transferring Designs to Surfaces from Perforated Patterns. (*Composition pour Appliquer des Dessins sur les Surfaces au Moyen de Patrons Perforés.*)

Lillian Whitefield, Reading, Mass., U. S., 27th December, 1886; 5 years.

Claim.—The herein described liquid marking compound, consisting of benzine, naphtha, or turpentine, bronze powder, kerosene oil and a suitable coloring substance, mixed together in about the proportions named substantially as set forth.

No. 25,615. Middlings Purifier. (*Epurateur des Gruaux.*)

William H. Likins, Detroit, Mich., U. S., 27th December, 1886: 5 years.

Claim.—1st. In a middlings purifier, the combination of the feed-spout E, conveyor D at the entrance of said spout, the cylindrical case R, the rotary disk G arranged to spread the material by centrifugal force, the cylindrical partition F forming annular passages M, U, said passage M arranged to receive and carry the material, the lateral discharge spout P and means for producing an upward air-current through passage U, all arranged and operating substantially as described. 2nd. In a middlings purifier, the combination of the horizontal revolving disk G, the cylindrical case R, the cylindrical partition F placed concentrically to the case and disk and forming therewith, and the wall K, the passages N, U, O, the central feed spout E connecting with said passage N, the cylindrical wall K having outwardly deflecting flange L, and forming the passage M, and the annular discharge opening P, and means for producing an upward air current, all arranged and operating to spread the material, substantially as described. 3rd. In a middlings purifier, the combination, with the disk G, partition F, wall K and the concentric inclosed case R, all arranged as described, to form the passage N, U, O of the inwardly-inclined flange S at the lower end of said case, the hopper Z below said flange, having an annular opening Y between the same, and means for producing an upward air current, substantially as and for the purpose specified. 4th. In a middlings purifier, the combination, with the rotary disk G, cylindrical wall K, partition F and case R, constructed and arranged to form the passage N, U, O, as described, of the trunk V communicating with the passage U, outwardly deflecting flange L at the lower end of the wall K, inwardly inclined flange I at the lower end of the case R, the hopper Z below said flange S, having an annular opening Y between said flange and hopper, and means for producing an air-current through passage U and truck V, substantially as and for the purpose specified. 5th. The combination, with the flue *b* and the trunk-flues V connected with said flues, of valves *d* at the points of connection of said flues, seperator trunks *e*, each provided with a hinged valve *f* and the conveyer *g*, all combined, arranged and operating substantially as and for the purposes specified.

No. 25,616. Roof Double Seaming Machine. (*Machine à Toiture à Double Ourlure.*)

John H. Wagenhurst, Dewart, Penn., U. S., 27th December, 1886; 5 years.

Claim.—1st. A seaming machine, having the advanced rollers A1, A1, substantially as and for the purpose set forth. 2nd. In a seaming machine, the combination of the frames A with the advanced rollers A1, A1, the rollers G, G1, H, H1, J, J1, K, K1, the same being arranged and operating substantially as described 3rd. In a seaming machine, the rollers G, G1, made angularly adjustable in relation to each other, substantially as described. 4th. In a seaming machine, the combination of the bars B, having tongues and carrying rollers, grooved blocks C, frame A, and means, substantially as described, for adjusting said blocks C and bars B, as and for the purpose set forth. 5th. A seaming machine, composed of the frame A, provided with lateral and vertical adjustable bars B, having blocks C connected therewith, rollers G, G1, H, H1, J, J1 and K, K1, all of said parts being arranged, combined and operated substantially as and for the purpose set forth. 6th. A seaming machine, having the rollers G, G1, H, H1, J, J1, the said rollers being formed and combined substantially as described. 7th. In a seaming machine, the combination of the frame A, bars B, blocks C, springs E and screws F, substantially as and for the purpose set forth. 8th. In a seaming, the frame A provided with screws secured to blocks C, in combination with bars B, carrying rollers and adjustably attached to the said blocks C, substantially as and for the purpose set forth.

No. 25,617. Pantograph. (*Pantographe,*)

Jens A. Wang, Alpena, Mich., U.S., 27th December, 1886; 5 years.

Claim.—In a pantograph, the combination of the rules A, C, the rule B pivoted on permanent pivots *a* to one end of said rules, and provided with pencil point, the rule D adjustabls on the rules A, C, parallel with the rule B and carrying pointer, the block G pivotally secured to the end of the rule A, and the clamp E pivoted to the block G and provided with screw F, substantially as and for the purposes specified.

No. 25,618. Potato Digger and Bean Harvester. (*Arrache-Patates et Moissonneuse à Fèves.*)

Charles Peets and Peter Schwarz, Rochester, N. Y., U. S., 27th December, 1886; 5 years.

Claim.—In combination with the beam of a potato digger and bean harvester, a curved cutting blade B extending laterally from said beam, and a series of rods *b*, which extend backward and upward from said blade to their tips, the middle part of each one of said rods being bent to form an indentation *w*, substantially as set forth.

No. 25,619. Reaping and Mowing Machine Cutter. (*Couteau de Faucheuse-Moissonneuse.*)

Isaac Hazel (assignee of Elias Hazelton), Brantford, Ont., 27th December, 1886; 5 years

Claim.—1st. In mowing or reaping machine cutters, an endless chain K with cutters M arranged to enable the opposite moving knives to run in contact, or nearly so, for cutting against each other, substantially as and for the purposes hereinbefore set forth. 2nd. In a mowing and reaping machine, the combination of guards O and P, with an endless chain K, and knives M arranged to allow the opposite moving knives to run in contact, or nearly so, for cutting against each other, substantially as and for the purposes hereinbefore set forth. 3rd. The knives or sections M, connected to the links of a driving chain K by brackets extending from one side of the chain links, to enable the edges of the cutter to cut against each other, substantially as described. 4th. The knife bar C, having the tongue D, or the front side for the chain to work over, and also having guards O and P, in combination with endless chain K and knives or sections M, substantially as and for the purposes hereinbefore set forth.

No. 25,620. Hermetically Closing Jar, etc. (*Jarre, etc., Fermant Hermétiquement.*)

Martin O. Rehfuss, Philadelphia, Penn., U. S., 27th December, 1886; 5 years.

Claim.—1st. The combination of the jar or other vessel and its cap, with cams formed upon one of said parts, and retaining arms pivoted to the other part and having bearing portions and a yoke connecting the same, the parts being arranged in respect to each other, as specified, whereby, as the arms swing, their bearing portions engage with the cams, and cause the cap to be drawn down firmly to its seat on the vessel, all substantially as specified. 2nd. The combination of the jar or other vessel and its cap, having cams and recesses, as described, retaining arms having bent or pivoted ends adapted to the recesses and bearing portions connected by a yoke, the parts being arranged as specified, whereby, as the arms swing on their pivots, the bearing portions of said arms engage with the cams, and cause the cap to be drawn down firmly to its seat upon the jar, all substantially as specified.

No. 25,621. Ladder. (*Echelle.*)

Frederic S. Seagrave, Bay City, Mich., U.S., 27th December, 1886; 5 years.

Claim.—1st. A ladder, having an expanded base, the spread of which increases downwardly from the centre, and provided with wooden trusses secured to the ends of each leg, substantially as described. 2nd. A ladder, provided with wooden trusses, curved rearwardly and secured to the legs of the ladder by means of bolts or rivets, and supported against end strain by halving the said trusses in the ladder legs, or by dowel pins, substantially as and for the purposes described. 3rd. In combination with a ladder, provided with trusses, secured thereto in the manner described, the spreader struts by means of which such trusses are secured in position, such struts being of varying lengths and extending beyond the two sides of the ladder, substantially as shown. 4th. In combination with a trussed ladder, constructed substantially as described, the central arched braces, substantially as and for the purposes set forth.

No. 25,622. Sleigh and Cutter Gear.

(*Châssis de Traîneau.*)

John Dow, Gananoque, Ont., 27th December, 1886; 5 years.

Claim.—1st. As an improved article of manufacture, a sleigh or cutter gear, having runners A and knees C constructed of channel steel. 2nd. As an improved article of manufacture, a sleigh or cutter gear having beams E, supported by channel steel knees C, curved inwardly and provided with reinforcing bar G, said knees footed in a channel-steel runners A, having shoe B and braces T, starting from a bearing intermediate of the knees and supporting the end of the beams and rave K, all as set forth.

No. 25,623. Vehicle Top. (*Couverture de Voiture*)

George Gifford, Philadelphia, and Simon P. Wolverton, Sunbury, Penn., U. S., 27th December, 1886; 5 years.

Claim.—1st. In a vehicle top, the combination of the curtains upon one side of the top, coiled springs upon the other side, and cords connecting said curtains with the springs. 2nd. In a vehicle top, the combination of the quarter pieces, the inner edges of which are provided with a groove or channel the rear curtain sliding therein, a series of springs secured to the front bow, and a cord secured to each of said springs and to the top of said curtain. 3rd. In a vehicle top, the combination of a bar secured to the under side of the rear and middle bows, a curtain, a series of coiled springs secured to the front bow, and a cord connecting each of said springs with the top of said curtain. 4th. In a vehicle top, the combination of a bar secured to the rear bow, a curtain between said bar and said bow, a bar secured to each end of said curtain, said bars in said curtain being longer than the curtain is wide, a series of springs secured to the front bow, and a cord connecting each of said springs with the top of said curtain. 5th. In a vehicle top, the combination of a spring actuated curtain, a bar in its lower edge having slots through it, the shifting rail and a series of half moon catches. 6th. In a vehicle top, the combination of the bows, one of which is slotted, a curtain in each end of said slotted bow, a spring upon the rear, and slotted bows at each side of the top, and a cord connecting each spring on one side of the top with the curtain upon the opposite side of the vehicle. 7th. In a vehicle top, the combination of the bows, one of which is slotted, a curtain in each end of said slotted bow, a partition in the top or middle of said slotted bow, two troughs secured to the rear bow, a spring upon the rear and slotted bow at each side of the buggy, and a cord connecting the springs on one side of the top with the curtain upon the opposite side. 8th. In a vehicle top, the combination of the quarter pieces, the front edge of each of which is formed with a curl and spring actuated sides of the curtains, the rear edge of each of which is formed with a curl or hook. 9th. In a vehicle top, the combination of a slotted bow, a curtain in each end of said bow, and guide strips secured to the curtains at the sides of said bow. 10th. In a vehicle top, the combination of spring actuated side curtains, and a piece of cloth in the front portion of the top.

No. 25,624. Machine for Turning Wooden Bowls. (*Machine à Tourner les Vases de Bois.*)

Samuel R. Evans, Middletown, Ohio (assignee of Prentice B. Skinner, Wilmington, Ind., U.S., 27th December, 1886; 5 years.

Claim.—1st. A bowl-making machine, having parallel plates, with coincident concentric guiding grooves, and a series of curved concentric cutter-arms guided in said grooves, substantially as specified. 2nd. A bowl-making machine, having parallel plates, with coincident concentric guiding grooves, a concentric series of curved cutter-arms, a lever pivoted to the common centre of the arms and adapted to operate them, a shaft for carrying a block of wood, and a knife with an extended pivotal bearing for leveling the bottoms of the bowls, substantially as specified. 3rd. In a bowl-making machine, a series of guided concentric cutter-arms, each provided with a longitudinal slot, combined with a block-carrying shaft extending through said slots and forming a stop for said arms, substantially as specified.

No. 25,625. Cultivator Tooth.

(*Coutre de Scarificateur.*)

Henry C. McFarlane and John A. McFarlane (assignees of Peter McFarlane), Tilsonburg, Ont., 27th December, 1886; 5 years.

Claim.—1st. The solid tooth cut out of one piece, substantially as and for the purpose hereinbefore set forth. 2nd. The special form of the same, as indicated by the curve B, B and the cut A, A, substantially as and for the purpose hereinbefore set forth.

No. 25,626. Carbureter and Gas Generator.

(*Carburateur et Generateur à Gaz.*)

Robert S. Lawrence, Washington, D. C., 27th December, 1886; 5 years.

Claim.—1st. In a carbureter and gas-generator, the combination, with the tank and a vertical tube in the centre of the tank, of two sets of pans of unequal size, the pans of one set being of the full diameter of the tank to which they are secured, and having a walled opening in the bottom, the pans of the other set being smaller, and secured to the central vertical tube above the pans of the first-mentioned set, substantially as described. 2nd. The combination, with the tank and an inlet-pipe, of a coiled distributing pipe perforated in the bottom, the perforations increasing in size or number toward the centre, substantially as described and for the purpose stated. 3rd. The combination, with the tank, provided with a condensation-chamber, of gathering pipe located in said chamber, substantially as described. 4th The combination, with the tank provided with a condensation chamber, of a coiled perforated gathering pipe located in said chamber, substantially as described. 5th. The combination, with the tank, a series of distributing pans within the tank, and a reservoir located on top of the tank, of a series of clearance pipes, their upper ends extending above the top of the reservoir, and their lower ends communicating one with the lower portion of the tank and the other with the pans, substantially as described and for the purpose set forth. 6th. The combination, with the tank, a series of distributing pans within the tank and a reservoir located on top of the tank, of a float-rod tube in the centre of the tank and reservoir, a series of clearance-pipes arranged around said tube and a tube or casing around the said pipes, the casing having openings for the passage of the lower ends of the clearance pipes, substantially as described. 7th. In a carbureter, the combination, with the oil reservoir, of a water-sealed gauge for the purpose set forth. 8th. In a carburetor, the combination, with the oil reservoir, of a water-sealed gauge located in a chamber in the side thereof, said chamber having a glass front and provided with a filtering and emptying-cock, substantially as described. 9th. In a carbureter, the combination, with the reservoir of a valve-casing, having a valve-seat formed within it, and a valve made of cork and having a charred or carbonized face, for the purpose set forth. 10th. In a carburetor, the combination, with the reservoir of a valve-casing, having a conical valve-seat formed within it, and a reciprocating cork valve having a conical charred or carbonized face, substantially as described. 11th. In a carburetor, the combination, with the reservoir, of a cylindrical casing having inlet openings above its base, a valve-seat in its base and a threaded stem below its base for attachment of the casing to the reservoir, a cylindrical stem adapted to reciprocate within the casing and a cork valve carried by said cylindrical stem, the face of the valve being charred or carbonized and of a shape to accurately fit its seat, substantially as described,

No. 25,627. Elevator. (*Ascenseur.*)

Capitola P. Beckwith (Co-inventor with Nelson Beckwith), Cambridge, Mass., U.S., 27th December, 1886; 5 years

Claim.—1st. In an elevator of the character described, the combination of the following instrumentalities, to wit: a well, a carriage adapted to traverse vertically therein, a door adapted to slide vertically and close the entrance to the carriage, a switch-board provided with a vertically-arranged cam-groove, six pulleys journalled on or in the well near said groove, an endless chain passing around said pulleys, a chain passing over or around a pulley or pulleys journalled on or in said well, and having one of its ends secured to said door and the other to said endless chain, two blocks secured to said endless chain and respectively projecting into said groove from the opposite sides thereof, and two bolts or bars adapted to project into said groove and engage said blocks, substantially as described. 2nd In an elevator, of the character described, the pivoted levers 10 and 11, in combination with the bolts H, J, springs T, Q, cam F, shaft 14, wheel 15, carriage B, chair D and blocks P, P1, substantially as set forth. 3rd. In an elevator, of the character described, the leaf *b*, provided with the flanges *f*, in combination with the leaf *d*, chain *x* and mechanism for raising and lowering said levers, substantially as described. 4th. In an elevator, of the character described, the block P secured to the chain D, and having the oppositely inclined ends *w*, *w*, in combination with the endless chain D, carriage B and bolts H, J, having the chamfered or inclined ends L, K, and springs T, Q, substantially as set forth. 5th. In an elevator, of the character described, the blocks P, P1, respectively provided with the oppositely inclined ends *w*, *w*, projections S and grooves *t*, in combination with the tracks or ways *p*, p^1, chain D, carriage B, and bolts H, J, having the chamfered or inclined ends L, K, and springs T, Q, substantially as described, 6th. In an elevator, of the character described, the switch-board E provided with the cams M and 20 and 21, the cams 20 and 21 having respectively half the rise of the cam M, and being arranged with respect to each other, substantially as set forth. 7th-In an elevator, of the character described, the switch-board E, provided with the groove G and cams M, N, in combination with the chain D provided with the blocks P, P1, pulleys *m*, *g*, *k*, *l*, *h*, *i*, chain *x*, pulleys *y*, door C, carriage B and bolts H, J, substantially as described. 8th. In an elevator, of the character described, a door, consisting of two or more leaves adapted to engage each other successively, and slide one over another as the lower one is raised, in combination with a well, a carriage, and mechanism for automatically opening and closing the door, as the carriage traverses the well, substantially as set forth. 9th. In an elevator, of the character described, the switch-board E, having the cam groove G and provided with the depressions U, substantially as and for the purpose set forth. 10th. In an elevator, of the character described, the switch-board E having the groove G, spring O and depressions U, in combination with the chain D, blocks P, P1 and pulleys for said chain, substantially as described.

No. 25,628. Centre Board for Boats.

(*Semelle de Bateau.*)

Jacob H. Moyer (assignee of Richard Gilbert), Louth, Ont., 27th December, 1886; 5 years.

Claim.—1st. In combination with a boat A, of a centre-board box B, constructed wider at the front end than the rear, so as to allow the forward part of the centre-board to shift from the centre line of

the keel to windward, as desired, substantially as and for the purpose specified. 2nd. The combination of the boat A, the shaped centre-board box B, and centre-board C, substantially as and for the purpose specified. 3rd. The combination of the boat A, shaped centre board box B, wedges *h*, *h*, operated by rods *g*, *g*, *f*, or their equivalent, substantially as and for the purpose specified.

No. 25,629. Door Check. (*Arrête Porte.*)

Charles H. Shaw, Edwin H. Brown, Robert H Thompson and Henry D. Norris, Brooklyn, N.Y., U.S., 27th December, 1886; 5 years.

Claim.—1st. The combination of a resilient tappet for neutralizing the force of a closing door, a support for the tappet, a cam and an abutment secured to a support, one of said supports being intended and adapted to be on a door and the other on a door casing, the whole being so organized and combined that, when the door, in closing, causes contact of the tappet with the cam, there will be a relative movement between the tappet and cam in the direction of the length of the tappet, substantially as specified. 2nd. B resilient tappet, a rock shaft forming a support for the tappet, a stop for limiting the rocking of the said shaft, a cam for moving the tappet, and an abutment secured to a support, one of said supports being intended and adapted to be on a door, and the other on a door casing, substantially as specified. 3rd. A door check, consisting of an abutment and a cam, connected together and pivotally connected to a support and a tappet and spring, the said parts being adapted and intended for use on a door and door casing, arranged in such relative position that the tappet will act on the cam, and, when the door needs checking, rock the abutment into a position to resist the closing of the door, substantially as specified,

No. 25,630. Traction Increasing Coupler for Locomotives and Tenders. (*Barre d'Attelage pour Locomotives et Tenders.*)

Alexander Selkirk, Charles Selkirk, Frederick A. Waterhouse, Walter J. Eaton and Charles Wetherwax, Albany, N. Y., U. S., 27th December, 1886; 5 years.

Claim.—1st. In a traction-increasing coupler for locomotives, the combination and arrangement, with a horizontally-oscillating coupling bar which has its rear end pivoted with the tender, and its forward end provided with friction rollers bearing against a piece rigidly fixed to the forward end of the same, and a horizontally-oscillating sleeve which is connected with the locomotive so as to be capable of vertical adjustment in relation to the plane of the coupling-bar, of the pulling toggle-lever J J_1 having its forward limb J jointed with said sleeve at a point above the plane of the joint pin of said toggle-lever, and its rearward limb J_1 jointed with the coupling-bar at a point distant and removed from the friction rollers, so that its forward end portion will support the forward end of said coupling-bar, while the latter is supporting the forward end of the tender, substantially as and for the purposes set forth. 2nd. In a traction-increasing coupler for locomotives, the combination, with the the horizontally-oscillating coupling-bar which has its rear end joined with the tender, and its forward end provided with friction-rollers bearing against a piece rigidly fixed to the front end of the same, and a horizontally-oscillating sleeve connected with the locomotive so as to be capable of vertical adjustment in relation to the plane of coupling-bar, of the backing toggle-lever K K_1 having its forward limb jointed with said sleeve at a point below the plane of the joint pin of this toggle-lever, and its rearward limb K_1 jointed to the coupling-bar at a point rearward of the friction roller, so that the knuckle ends of the said two limbs of this toggle-lever will support the forward end of the coupling-bar, while the latter is supporting the front end of the tender, substantially as and for the purposes set forth. 3rd. In a traction-increasing coupler for locomotives, the combination, with the horizontally-oscillating sleeve which is connected with the locomotive, and the horizontally-oscillating coupling-bar which is connected by its rear end with the tender, of the pulling toggle-lever J J_1, jointed with both said sleeve and coupling-bar, so that its joint with the former will be at a point relatively above the plane of the joint pin of the toggle-lever with the latter, and the joint of the toggle-lever with the coupling-bar between the forward end of the latter and its tender coupling pin, with the rearward limb of this toggle-lever operating to support the forward end of the coupling-bar, while the latter operates to give support to the tender, substantially as and for the purposes set forth. 4th. In a traction increasing coupler for locomotives, the combination, with the horizontally-oscillating sleeve jointed with the locomotive, and the horizontally-oscillating coupling-bar jointed with the tender, of the two reversely arranged toggle-levers J J_1 and K K_1, having separate and independent knuckle joint pins, and both jointed with said sleeve and coupling-bar, the forward limb of toggle-lever J J_1, being jointed with the sleeve at a point relatively above the joint pin in the knuckle ends of the two limbs of said lever, the forward limb of toggle-lever K K_1 being pivoted with said sleeve at a point relatively below the knuckle ends of the limbs of that lever, while the rearward limbs of these reversed toggle-levers articulate on the same joint pin from the coupling-bar, at a point in the same between its forward end and its tender coupling pin, so that the coupling-bar at all times will be made to support the forward end of the tender, by the alternate operations of their reversely arranged toggle-levers, accordingly as the locomotive is pulling or backing, substantially as and for the purposes set forth. 5th. In a traction-increasing coupler for locomotives, a connection between a horizontal coupling-bar, which has its rear end coupled with the tender, so that its forward end will operate to support the forward end of the tender when lifted consisting of the sleeve G, loosely mounted on a vertical shaft, which is connected with the locomotive, and a toggle-lever having its rearward limb pivoted with the coupling-bar at a point between its front and rear ends, and its forward limb pivoted with said sleeve at a point relatively above the joint pin of the two limbs, substantially as and for the purposes set forth. 6th. In a traction-increasing coupler for locomotives, the combination, with two inclined toggle-lever limbs J and K, which are arranged at reversed angles to each other and to the line of direction of the coupling-bar they are to alternately force upward for raising the tender by the pull or push of the locomotive respectively, of a sleeve having pivoted connection with the forward limb of said toggle-lever, and which can be raised or lowered and adjusted at will on a vertical shaft connected with the locomotive, so as to simultaneously change the angles of both said toggle-limb, and thereby increase or lessen the extent and power of said two limbs for lifting the load on the said coupling-bar, substantially as and for the purposes set forth. 7th. In a traction-increasing coupler for locomotives, the combination of two toggle-levers which are arranged between the locomove and tender, with the angles of their respective co-acting limbs reversed, a coupling device connected with the locomotive and jointed by separate and independent joint pins with the forward limbs of these toggle-levers, and a coupling-bar jointed with the tender and also jointed with the rearward limbs of said toggle-levers, so that said rearward limbs will alternately lift up said coupling-bar when their respective co-acting limbs are operating by the pull or push respectively of the locomotive, substantially as and for the purposes set forth. 8th. In a traction-increasing coupler for locomotives, the combination, with two toggle-levers which are connected with a coupling-bar having a joint connection with the tender, and a sleeve loosely mounted on a vertical shaft connected with the locomotive and jointed from its opposite ends respectively with the forward limbs of said toggle-lever, of a movable step supporting said and adjustable at will in a vertical direction, substantially as and for the purposes set forth.

No. 25,631. Process of Manufacturing Explosive Compounds. (*Procédé de Fabrication des Compositions Explosibles.*)

John C. Schrader and Russell S. Penniman, Dover, N. Y., U. S., 28th December, 1886; 5 years.

Claim.—1st. The process of manufacturing nitro-glycerine powder, substantially as hereinbefore described, which consists in mixing with suitable combustible ingredients, a quantity of powdered sulphur capable when melted of adhesively controlling the mass heating said mass, and melting the sulphur, cooling said mass, and forming it into porous grains, each containing a cellular mass of sulphur, and then charging said grains with the liquid explosive in quantity not greater than their capacity for receiving and retaining the same by capillary attraction, and thereby producing a dry grained free running into glycerine powder.

No. 25,632. Device for Holding and Turning Sheet Music. (*Appareil pour Appuyer et Tourner le Papier de Musique.*)

Lewis E. Williams, Matthew Tucker and J. C. Steitz, Warehouse Point, Conn., U.S., 28th December, 1886; 5 years.

Claim.—1st. In combination with the the frame *d*, *b*, the clamps *a*, a_1, one of which is hinged to the standard of the frame, and connected to the other clamp by contractile springs *i* at the end thereof, the angular turning bars *l* having their stems secured in the frame standard, and the holding and releasing means consisting of the body *h*, the part *t*, spring catch *s*, the bolt *p* provided with the spring *r*, and the finger lever *j*, substantially as described. 2nd. In combination, the frame consisting of the cross-piece *d*, provided with guiding-bars *m* arranged side by side, and the standard *b* chambered in its upper face to receive the stems of the turning-bars, the clamps comprising the plate *a* hinged to the standard of the frame, and the plate a_1 adjustably attached to the hinged plate by contractile springs *i*, the angular turning-bars having their stems anchored in the standard of the frame, and a holding and releasing lever, substantially as described and for the purpose stated. 3rd. In combination with the frame of a music-leaf turner, and the leaf-turning bars thereof, a holding and releasing means consisting of the body *h*, the part *t*, spring-catch *s*, bolt *p* with spring *r* and operating lever *j*, substantially as described. 4th. In combination with the frame of a music-leaf turner, the leaf-clamping means herein described, consisting of a plate *a* pivotally secured to the back of the frame, and a counter-part plate a_1 attached to the pivoted plate by contractile springs and held in adjustable connection therewith, substantially as and for the purpose stated.

No. 25,633. Combined Water and Temperature Indicator. (*Indicateur d'Eau et de Température.*)

John Guyette and Robert W. Laird, Toronto, Ont., 28th December, 1886; 5 years.

Claim.—1st. A thermometer F placed within a glass tube C, communicating directly with the interior of a hot water boiler, substantially as and for the purpose specified. 2nd. A thermometer F supported in the interior of the glass tube C by the stool G, in combination with tne cylinder A connected to the tube C by means of the passage-ways *a* and *b*, and to the boiler by means of the pipes B and E, substantially as and for the purpose specified. 3rd. The thermometer F placed within the glass tube C, which is connected to the cylinder A by means of the passage-ways *a* and *b*, in combination with the pipes B and E, and cooks H, I and J, substantially as and for the purpose specified.

No. 25,634. Carbon for Electrical Purposes. (*Charbon pour des Fins d'Electricité.*)

Edgar Shaw, Lynn, Mass., U.S., 28th December, 1886; 5 years.

Claim.—Blocks, plates or rods, consisting of compressed carbonized algae or sea weed adapted for electrical uses.

No. 25,635. Snow Plough for Country Roads. (*Charrue à Neige pour Voies Publiques.*)

John J. Taber, Adamsville, Que., 28th December, 1886; 5 years.

Claim.—1st. A scraper A of plate metal, in combination with the movable beam B, substantially as and for the purpose hereinbefore set forth. 2nd. The combinaton of the movable beam B and scraper A, with the fixed beam C, substantially as and for the purpose hereinbefore set forth.

No. 25,636. Wheel Hub. (*Moyeu de Roue.*)

John M. Sweet, Batavia, N.Y., U.S., 28th December, 1886; 5 years.

Claim.—1st. The combination, with a wooden hub having mortises, of a metallic hub-band having spoke sockets provided with convex side faces, and the spokes having tenons fitted in the hub-mortises and provided with concave sides fitting the the convex faces of the sockets in the hub-band, said spokes being in contact between the inner ends of the sockets and the outer ends of the mortises in the wooden hub, substantially as described. 2nd. In a wheel-hub, the combination of a wooden core having an annular shoulder near one end, a mortised collar adjacent to said shoulder, and a reduced portion beyond said collar, a metallic band having inward-projecting sockets registering with staggered mortises formed in the core, and a face-piece having a collar similar to the annular shoulder on the core, said face-piece being placed on the reduced outer end of the core, and together with the core-shoulder abutting alternately against the ends of the staggered sockets, substantially as described.

No. 25,637. Screw-Propelling Apparatus for Steam Vessels. (*Hélice de Propulsion.*)

Edward H. Hall, Brooklyn, N.Y., U.S., 28th December, 1886; 5 years.

Claim.—1st. In a steam-vessel, the combination, with the hull A, of the guards or floats B and B_1, longitudinal of the hull below the water line, triangular in cross-section from the bow and stern respectively to near the vessel's waist, and rectangular in cross-section at the vessel's waist, and there constituting the spaces or recesses B_2, together with the screw-propellers C and C_1 located one on each side in said recesses B_2, and the screw-propellers D and D_1 at the stern of the vessels, as described. 2nd. A screw-propeller adapted to be wholly submerged in operation, consisting of an axial shaft G and a blade C extending helically entirely once around the said shaft, and having the elliptical opening E in that portion of the body which is immediately adjacent to the shaft, and extending in a curve which if concentric to that of the shaft and the blade-rim into each wing F_1 of the blade, about one-third of the distance from the axial line of the shaft to the extremity of the wing, as and for the purpose specified.

No. 25,638. Wheel Hub. (*Moyeu de Roue.*)

Boniface A. Grasberger, Richmond, Va., U.S., 23th December, 1886; 5 years.

Claim.—1st. The combination, with the shell B having the central tubular extension *c* on its inner end, and the projections *h*, of the section B_1 having the inner flange *d*, having an aperture receiving the outer end of the extension *c*, and projections *h* alternately with those on the shell C and the bolts or rivets *e*, substantially as set forth. 2nd. The hub consisting of the sections B, B_1, connected by a tubular inner flange or extension, and intermediate alternating projections *h* forming hub-receiving recesses and the wooden hub-sections A, A_1, substantially as set forth.

No. 25,639. Windmill. (*Moulin à Vent.*)

George A. Dunn and Alexander Champion, Arkona, Ont., 28th December, 1886; 5 years.

Claim.—1st. The combination, with the main shaft of a windmill, of a mutilated gear, a double rack and connecting rod, substantially as described. 2nd. The combination, with the main shaft of a windmill, of a mutilated gear, a double rack, a connecting-rod secured to the double rack, a second double rack secured to the lower end of the connecting-rod, and a mutilated pinion carried by a horizontal shaft and arranged to be operated by said lower double rack, substantially as described. 3rd. The combination, with the main shaft of a windmill, of a mutilated gear, a double rack arranged in connection therewith, a lower double rack, connecting-rod extending from rack to rack, a pinion carried by a horizontal shaft and arranged in connection with the lower double rack, a toothed plate carried by the pinion, and pawls carried by the lower double rack, substantially as described. 4th. The combination, with the main shaft of a windmill, of a mutilated gear or pinion carried thereby, a double rack arranged in connection with said pinion, a connecting-rod, a second double rack secured to the lower end of the connecting-rod, a mutilated pinion arranged in connection with the lower rack and carried by a horizontal shaft, a balance wheel and pulley also carried by said shaft, and spring-pressed pawls carried by the lower rack, substantially as described. 5th. A windmill wheel consisting essentially of a central hub, radial angle or T-iron spokes, inner and outer bracing strips, fans pivotally mounted between said bracing strips, and regulating strips secured to the fans and adjustably connected to the outer bracing strips, substantially as described. 6th. A windmill wheel consisting essentially of a hub, radial spokes formed of angle or T-iron, inner and outer bracing strips, fans formed with flanges 26 and 27, strengthening plates 28 secured to the flanges, pivot pins 29 and 30 arranged to fit within properly-arranged apertures that are formed in the inner and outer bracing strips, adjustable connecting strips 31, one end of said strips being secured to the upper strengthening plate while the other end is adjustably connected to the outer bracing strip, substantially as described. 7th. The combination, with a turn-table, of a wheel mounted thereon, a vane hinged thereto, a rearwardly and downwardly extending bar, a sliding weight mounted upon said bar, a rod connecting the weight and the vane, and a manipulating attachment, substantially as described. 8th. The combination, with a turn-table, of a wheel mounted thereon, a vane hinged thereto, a rearwardly and downwardly extending bar carried by the turn-table, a sliding weight mounted upon said bar, a rod connected to the weight and arranged to be adjustably connected to the vane, a rope or cord connected to the weight-guiding sheaves over which the rope passes, substantially as described. 9th. A windmill standard consisting essentially of piping, substantially as described. 10th. The combination, with a hollow standard made up of piping, of properly anchored guy ropes connected to said standard, substantially as described. 11th. A windmill standard wherein the lower portion of the standard constitutes a pump standard, substantially as described. 12th. The combination, with a windmill standard, of a collar 13 having an annular groove 14, and a sleeve 16 provided with an arm 17, a downwardly-extending bar 54 and ears 51, substantially as described. 13th. The combination, with a standard 10, of guy ropes 11, a roller 13 secured to said standard and formed with a groove 14, a sleeve 16 mounted upon the standard and resting within the groove thereof, an arm 17 formed upon the sleeve, a shaft 18 supported by said arm, a wheel 20 carried by the shaft, a mutilated pinion secured to the opposite end of the shaft, a double rack arranged to be engaged by the pinion, and a connecting-rod, substantially as described.

No. 25,640. Fastening for Covers of Boxes, Burial Caskets, etc. (*Fermeture pour Couvercles de Boîtes, de Cercueils, etc.*)

Albert E. Lockhart, East Cambridge, Mass., U. S., 28th December. 1886; 5 years.

Claim.—The improved box or casket cover, fastening substantially as described, consisting of the plate A having the concavo-convex and tapering catch *a*, and the plate B having the furcated opening *d* and the guide channel or groove *e*, and the concavo-convex and tapering tooth or catch *f*, arranged with such opening as represented, all being essentially and for use as set forth.

No. 25,641. Hay Press. (*Presse à Foin.*)

Jean F. R. X. Hérard, St. Guillaume, Que., 28th December, 1886; 5 years.

Réclame.—1o. La combinaison des bielles H, *j* et leur bras *i*, avec la tige à crans *q* et ses machoires a ressorts *l*, *l*, ainsi que ses crochets M, tel que ci-dessus décrit et pour les fins indiquées. 2o. La combinaison de la platine P, avec la boîte T, permettant au moyen des vis V de soutenir à hauteur convenable le levier *k*, tel que décrit et pour les fins indiquées.

No. 25,642. Car-Coupling. (*Attelage de Chars.*)

Robert Powell, Kansas, Mo., U.S., 29th December, 1886; 5 years.

Claim—1st. The combination, with a draw-head, of a car provided with a rotary coupling device, having arms so arranged within the draw-head that they will engage with, and lock the shackle, and a vertical slot in said draw-head, of a catch-bolt having a suitable longitudinal groove, a lever, a transverse perforation through the draw-head in rear of said catch-bolt adapted to receive said lever, and a cam keyed upon said lever and arranged in a suitable opening in the draw-head, and adapted to operate as shown and described. 2nd. The combination, with the draw-head provided with a rotary coupling device having arms adapted to engage with and lock the shackle, and a vertical slot in said draw-head, of a catch-bolt having a suitable longitudinal groove, a lever, a transverse perforation through the draw-head in rear of said catch-bolt, adapted to receive said lever, and a cam keyed upon said lever and arranged in a suitable opening in the draw-head, and a curved extension of said cam adapted to engage with and depress an arm of said wheel, as shown and described. 3rd. The combination, with the draw-head provided with a rotary coupling device having arms adapted to engage with and lock the shackle, and a vertical slot in said draw-head, of a catch-bolt having a suitable longitudinal groove, a lever, a transverse perforation through the draw-head in rear of said catch-bolt adapted to receive said lever, and a cam consisting of a curved extension keyed upon said lever within the draw-head, and adapted to operate as shown and described. 4th. The combination, with the draw-head provided with a vertical slot therein, of a catch-bolt having a suitable groove, and a lever extending through a suitable opening in the draw-head, and a cam provided with a curved extension keyed upon said lever, and a rotary coupling device arranged in a suitable opening in the draw-head, and having arms adapted to engage with and lock the shackle, and provided with curved outer ends, for the purpose specified. 5th. In combination, with the draw-head, of a car provided with a rotary coupling device, having arms adapted to engage with and lock the shackle, a lever for operating said device, and a transverse rod or lever upon and extending beneath the car, and a connecting bar attached to said rod or lever on the car, and to said coupling device upon the draw-head, and adapted to automatically release itself from said lever, as herein described for the purpose specified. 6th. In combination with a vertical catch-bolt in the draw-head, and a transverse lever connected with said bolt, a connecting bar pivotally attached at one end to said lever, and provided with an opposite forked end, and arranged to operate, as shown and described. 7th. In combination with a vertical catch-bolt in the draw-head, and a transverse lever connected with said bolt, a connecting bar pivotally attached at one end to said lever, and provided with an opposite forked end and a slot in said forked end, and a a transverse lever upon and extending beneath the car, and a pin upon said lever adapted to engage with the slot in said connecting-bar, as described. 8th. The combination, with a transverse lever arranged upon the car and provided with a bent portion extending beneath the coupling devices, of a spring having one end attached to the car near the coupling devices, and the opposite end engaging with the said bent portion of said transverse lever, as herein shown and described.

No. 25,643. Toe Weight. (*Pesée de Sabot.*)

Reuben G. Wilcox, Hiram, Ohio, U.S., 29th December 1886; 5 years.

Claim.—1st. A clip adapted for attachment thereto, of a toe-weight, and cast with a spur segmental in form, so as to extend around the toe of the horseshoe at each side of the clip, substantially as and for

the purpose set forth. 2nd. A segmental spur provided with a grooved clip having a perforation therein, in combination with a toe-weight having a mortise, a spring with a lug formed with a bevelled end, and a groove in the weight directly under the spring, substantially as and for the purpose described.

No. 25,644. Bracket. (*Console.*)

August W. Koch, Peoria, Ill., U.S., 29th December, 1886; 5 years.

Claim.—1st. The cast plate A having openings d^2 and hooks D, with webs d, substantially as and for the purposes specified. 2nd. The bracket B, provided at each edge with vertical row of teeth C, in combination with the plate A, provided with the two vertical rows of hooks D, with their free ends pointing upward, each of the hooks D of one row arranged for the reception of the teeth of the corresponding row of teeth on the bracket, substantially as and for the purposes specified. 3rd. The bracket B having two sides of unequal length, each side provided with teeth, and the plate A provided with hooks for engagement with the teeth of the bracket, substantially as and for the purposes specified

No. 25,645. Fishing Float and Line Connection therefor. (*Flotte de Ligne de Pêche et Empile de Flotte.*)

Ernest F. Pflueger, Akron, Ohio, U.S., 29th December, 1886; 5 years.

Claim.—1st. A float for fishing lines and seines, having projecting from each end a stem having an annular groove, and a coiled resting in said groove and encircling said stem, substantially as described. 2nd. The combination, with a float composed of pressed pulp coated with a water-proof substance, of a stem secured in the axis thereof, the ends of which project beyond said float and are provided with annular grooves for line fasteners, and elastic line-holding devices resting in said annular grooves, substantially as shown and for the purpose specified. 3rd. An attachment for floats for fishing lines and seines, consisting of a coiled wire fastener resting in an annular recess in the stem of said float, and retained by its own elasticity substantially as shown.

No. 25,646. Clock Movement Frame. (*Boîte d'Horloge.*)

Swen P. Sandmark, Ishpenning, Mich., U.S., 29th December, 1886; 5 years.

Claim.—A clock-movement frame formed of the back plate A, the central plate-section C supported from the back-plate, and the lateral plate-sections D D^1, E E^1 secured to each other and to the central-section C, and supported from the back plate by studs, substantially as shown and described.

No. 25,647. Finger Bar for Mowing Machines. (*Souche de Pointes de Faucheuse.*)

George A. Weaver, Newport, R. I., U. S., 29th December, 1886; 5 years.

Claim.—1st. The combination, in the cutter of a mowing-machine, with the finger-bar and a reciprocating blade or knife bar, of a roller located between the two bars, and turning upon an adjustable pivot or journal, substantially as described. 2nd. The combination, in the cutter of a mowing-machine, having the finger-bar and a reciprocating blade or knife bar, of a roller bearing against the rear edge of the blade or knife bar secured upon a journal or pivot on a removable block, said block being provided with the extension g on its forward edge projecting over the knife or blade bar, for the purpose specified. 3rd. The finger-bar and reciprocating knife or blade bar, combined with rollers located between the adjacent vertical edges of the said bars, and journalled upon removable blocks secured to the finger-bar, substantially as set forth. 4th. The finger-bar and reciprocating knife or blade bar, combined with rollers located between the adjacent vertical edges of the said bars, and journalled upon removable and adjustable blocks, substantially as and for the purpose described. 5th. The combination, in the cutter of a mowing-machine, having the finger-bar and reciprocating knife or blade bar, of a roller bearing against the rear edge of the blade or knife bar secured upon a journal or pivot on a removable block, said block being provided with diagonal slots, substantially as described, through which securing screws or bolts are passed, as set forth.

No. 25,648. Steam Boiler. (*Chaudière à Vapeur.*)

John F. Pease, Syracuse, N.Y., U.S., 29th December, 1886; 5 years.

Claim.—1st. In combination with the upright boiler, and the combustion-chamber extending into said boiler from the bottom thereof, as shown, a fire-pot composed of a coil of water-pipes arranged inside of the combustion-chamber, with a fire-passage between their vertical sides, flues extending vertically through the boiler from the bottom of the water-space surrounding the combustion-chamber, and a smoke-box over the top and sides of the boiler, all constructed and combined substantially in the manner specified and shown. 2nd. The combination, with an upright boiler, of the combustion-chamber extending verrically in the boiler from the bottom thereof, the fire-pot extending into the combustion-chamber, a fire-passage between the vertical sides of the combustion-chamber and boiler, and under the latter vertical flues extending through the boiler at the sides of the combustion-chamber, a smoke-box surrounding the upper part of the boiler and communicating with the upper ends of the flues, a smoke-box surrounding the lower portion of the boiler and communicating with the fire-passage at the bottom thereof, an exit-flue tapping one of the smoke-boxes, a duct extended from the other smoke-box to the exit-flue, and dampers in said flue and duct, substantially as described and shown. 3rd. The combination, with the upright boiler, of a combustion-chamber extending vertically into the boiler from the bottom thereof, and concentric therewith, flues extended vertically through the boiler at the sides of a fire-pot arranged concentric with the bottom portion of the combustion-chamber, with a fire-passage between their vertical sides, smoke-boxes completely surrounding the boiler and extended across the top thereof, and communicating respectively with the base of the combustion-chamber and upper end of the flues, and a fuel-magazine extending vertically through the upper smoke-box and through the centre of the boiler, all combined substantially in the manner specified and shown. 4th. The combination of the upright boiler formed with the combustion-chamber extending vertically into the bottom of the boiler, a coil of water-pipe arranged concentric in the lower portion of the combustion-chamber, with a fire-passage between their vertical sides, the base of said coil communicating with the base of the boiler, and the top of the coil terminating with vertical branch pipes tapping the boiler at the top of the combustion-chamber, vertical flues extending through the boiler at the side of the combustion-chamber, smoke-boxes completely surrounding the boiler and communicating respectively with the upper ends of the flues, and with the combustion-chamber at the bottom of the boiler exit-pipes connected to one of the smoke-boxes, ducts extended from the other smoke-box to the exit-pipes and dampers in said pipes and ducts, all combined to operate substantially as described and shown.

No. 25,649. Reed Organ. (*Orgue.*)

James B. Hamilton, Worcester, Mass., U.S., 29th December, 1886; 5 years.

Claim.—1st. The combination, with each vertical series of reeds and their induction and eduction chambers, of a valve applied to the induction ends of such chambers, all being substantially as set forth. 2nd. The combination of two vertical series of reeds and their induction and eduction chambers, with two valves applied to the induction ends of such chambers, and arranged close to each other and hinged to the sound-board, so as to open in opposite directions therefrom to uncover the mouths of the said chambers. 3rd. The combination, with each vertical series of reeds and their induction and eduction chambers, and a valve applied against the induction ends of such chambers, of springs and studs to close such valve or hold it open, and of a lever and its operating rod, arranged as described, with a projection from the valve, all being substantially as set forth. 4th. The combination, with the reed chamber of a reed organ, of a valve arranged against the end of such chamber, and with a reed inserted in such chamber through such end, as set forth.

No. 25,650. Machine for Grinding Grain. (*Machine à Moudre les Grains.*)

John A. McMartin, Montreal, Que., 29th December, 1886; 5 years

Claim.—1st. In a machine for grinding grain, the combination of the threaded bolt d^1, operating knob i, check nut d, handle h, nut e, cap e, and shaft C, all operating as and for the purposes described. 2nd. In a machine for grinding grain, a hopper E detachably secured by means of lugs and recesses p^2, p^3, the feed-shake H with the bracket s^1 adjustably supporting the said feed-shake H, a lever composed of parts n n^1, m m^1 and l and vibrating on pen o, substantially as and for the purpose specified. 3rd. In a machine for grinding grain, the double faced grinding discs M, M^1 having teeth or serrations at angles different one side from the other, and having teeth or serrations and blank spaces alternately, substantially as shown and for the purposes hereinbefore set forth. 4th. In combination, with grinding disks M, M^1, the preliminary spirally grooved cutting cone v, with teeth V^1, V^2, V^3, V^4 intermeshing with similar teeth of an internal concave c, substantially as and for the purposes set forth. 5th. In a machine for grinding grain, in combination with grinding discs M, M^1, a head-plate O, having the front side a hollow backing for disc M^1 with fans N for the circulation of air, and on the reverse side radial fans a^2 acting as a blower of cold air, substantially as and for the purposes set forth.

No. 25,651. Bee Hive. (*Ruche.*)

James W. Tefft, Collamer, N.Y., U.S., 29th December, 1886; 5 years.

Claim.—1st. The combination, with the brood-chamber provided at its upper end with a transverse ledge i, and at the bottom with a transverse strip j or reversible frames F resting upon the strip j, and provided at two diagonally opposite corners with projecting lips h, the lips at the upper corners of the frames resting upon the ledge i, substantially as set forth. 2nd. The combination, with the surplus-chamber consisting of a rectangular frame open at top and bottom, and provided at its upper end with a transverse ledge q, and at the bottom with a transverse strip r, of reversible frames F provided at two diagonally opposite corners with projecting lips h, and supported by the ledge q and strip r, substantially as set forth. 3rd. The combination, with the brood-chamber provided with a transverse top ledge j and a transverse bottom strip j, of a surplus-chamber resting upon the brood-chamber and provided with a transverse top ledge q, and transverse bottom strip r, and reversible frames F provided at two diagonally-opposite corners with projecting lips h, substantially as set forth. 4th. The surplus-chamber consisting of a rectangular frame open at top and bottom, and provided with removable side pieces p^2, locking buttons p^3, top ledge q, and bottom strip r, substantially as set forth. 5th. The combination, with the brood-chamber, of a raised bottom strip j, arranged in front of the rear wall of the brood-chamber, with an intervening feeding space k and frames F resting upon the strip j and extending rearwardly beyond the same, and having openings formed between the frames in rear of the strip j through which the bees reach the feed chamber k, substantially as set forth. 6th. The combination, with a brood-chamber, of a raised bottom strip j arranged in front of the rear wall of the brood-chamber, with an intervening feeding space k, and frames F resting upon the strip j, and provided with horizontal projecting lips h resting against the rear wall of the brood-chamber, and having openings u through which the bees reach the feeding chamber k, substantially as set forth.

No. 25,652. Sun Dial. (*Cadran Solaire.*)

Dalph L. Spencer, Wallingford, and Herman O. Rose, Essex, Conn., U.S., 29th December, 1886; 5 years.

Claim.—1st. The combination of the case a bearing a rotary stem

terminating in a pinion within the case, and a handle without a dial-card having annular gear in mesh with the pinion, and bearing an adjustable gnomon and a magnetic needle arranged within the case, all substantially as described. 2nd. The combination, with a case bearing a rotary stem terminating in a pinion within the case, and a handle without, of a dial-card having an annular gear in mesh with the pinion and bearing an adjustable gnomon, substantially as described. 3rd. As an improved article of manufacture, the herein-described compass and sun-dial comprising the case a, a magnetic needle pivoted centrally therein, a dial-card provided with the annular gear, the handle pinion meshing with the annular gear and adapted to rotate the same, the adjustable gnomon and marks and figures upon the several parts, substantially ss shown and for the purposes described.

No. 25,653. Decorated Asbestos or Amianthus Stove and Furnace Pipes.

(*Tuyaux de Poêle et de Calorifère d'Asbeste ou d'Amiante Ornés.*)

Andrew R. Bennett, Utica, N.Y., U.S., 29th December, 1886 ; 5 years.

Claim.—A new article of manufacture, consisting of stove or furnace-pipe, manufactured from asbestos, substantially as shown and set forth and for the purposes stated.

No. 25,654. Bustle. (*Tournure.*)

William H. Nasmyth, Hoboken, N.J., U. S., 29th December, 1886 ; 5 years.

Claim.—1st. In combination, in a bustle, two or more tubular sections A, composed of braided rattan, end pieces B for holding the sections together, and a strap D for securing the bustle to a wearer, substantially as described. 2nd. In combination, in a bustle, two or more tubular sections A composed of braided rattan, end pieces B for holding the sections together, a strap D for securing the bustle to a wearer, and a band E for holding the sections together at their middle points, and to the strap D, substantially as described.

No. 25,655. Heel Counter.

(*Contrefort de Chaussure.*)

Louis Coté, St. Hyacinthe, Que., 30th December, 1886 ; 15 years.

Claim.—As an improved article of manufacture, a boot or shoe heel counter, substantially as shown, having its upper part or that part of its lying between the upper edge M and line X permanently compressed and extended, substantially as described for the purposes set forth.

No. 25,656. Process of Manufacturing Articles of Leather. (*Procéde de Fabrication d'Objets en Cuir.*)

Charles M. Hooker (assignee of Horace B. Hooker), Rochester, N.Y., U.S., 30th December, 1886; 5 years.

Claim.—As an improvement in the art of manufacturing articles of leather, as boots, harness, etc., the herein described process of uniting the parts, consisting in sewing them together by suitable machinery, with a line of stitches which permit the ready removal of the thread, in subsequently removing the thread and then sewing the parts again together by hand in the holes previously made by the machine stitches, whereby the employment of an awl is dispensed with, substantially as described.

No. 25,657. Button Hole Attachment for Sewing Machines. (*Appareil à Boutonnières pour Machines à Coudre.*)

Frank C. Hall, Philadelphia, Penn., U. S., 31st December, 1886 ; 5 years.

Claim.—1st. In combination with a sewing machine attachment, and the needle bar of a sewing machine, a vibrating lever which receives motion from the needle-bar and transmits it to the attachment having a forked end which engages with a projection on the needle-bar, and means for adjusting the jaws of the forked end of the lever toward and from each other, substantially as and for the purpose set forth. 2nd. In an attachment for a sewing machine, the combination, with a vibrating cloth clamp, of a vibrating lever operated by the needle-bar, a shaft adapted to be rotated by said lever, and a star wheel mounted on said shaft and engaging with the vibrator to move it, substantially as described. 3rd. In an attachment for a sewing machine, the combination, with a vibrating cloth clamp, of a vibrating lever operated by the needle-bar, a shaft d an adjustable spring pawl carried by the said lever for rotating said shaft, and a series of alternately arranged rays projecting from said shaft and adapted to engage with the vibrator and to oscillate the same, substantially as described. 4th. In an attachment for a sewing machine, the combination of a vibrator, consisting of two parts, one of which carries the cloth clamp, mechanism engaging with the other part of the vibrator to oscillate it, and means for adjustably connecting the part of the vibrator carrying the cloth clamp with the other part, substantially as and for the purpose set forth. 5th. In a button-hole attachment for a sewing machine, the combination of a vibrator having the lower plate F and the upper plate F1, both fulcrumed at f, the cloth clamp carried by the plate F1, means engaging with the plate F for oscillating the vibrator, and devices adjustably connecting the two plates, substantially as described. 6th. In a button-hole attachment for a sewing machine, the combination, with a vibrator, consisting of two parts adjustable relatively to each other, the cloth clamp carried thereby, a spring interposed between or mounted on the two parts of the vibrator, and means for moving the vibrator, substantially as described. 7th. In a button-hole attachment for a sewing machine, the combination of a vibrator, mechanism for moving the same, and a sliding cloth clamp consisting of the lower plate H and the two superposed plates H1. H2, secured to said lower plate, substantially as and for the purpose set forth. 8th. In a button-hole attachment for a sewing machine, the combination of a vibrator mechanism for moving the same, and a sliding cloth clamp having a lower plate, a plate provided with serrated sides and ends, and another plate having the flanges $h2$, and a device for forcing the last of said plates down upon the lower plate, substantially as described. 9th. In a cloth clamp for a button-hole attachment for a sewing machine, the combination, with the lower plate upon which the cloth rests, having a quadrangular opening in which the button-hole is formed, of an upper plate having at the ends of said opening downwardly-projecting flanges, and means for forcing said upper plate down upon the cloth resting on the lower plate, the said flanges operating to stretch the cloth in the direction of the length of the button-hole, substantially as and for the purpose set forth. 10th. In a sliding cloth clamp of a button-hole attachment for a sewing machine, the combination of the lower plate, an upper plate secured thereto, a spring bearing upon said upper plate to force its cloth-engaging portion away from the lower plate, and a device for forcing said upper plate into contact with the cloth, substantially as described. 11th. In a sliding cloth clamp of a button-hole attachment for a sewing machine, the combination of the lower plate, two superposed plates secured thereto, a spring bearing against said superposed plates to force the cloth engaging portions away from the lower plate, and a device for forcing said superposed plates into contact with the cloth against the action of said spring, substantially as and for the purpose set forth. 12th. In a sliding cloth clamp of a button-hole attachment for a sewing machine, the combination of a lower plate, two upper plates and a cam having faces which bear against both of said upper plates, whereby they may be separately brought into contact with the cloth, substantially as set forth. 13th. In a button-hole attachment for a sewing machine, the combination of a cloth clamp having an opening in which the needle works to form the button-hole, mechanism for moving said clamp and a presser-foot passing through said opening and bearing upon the cloth in proximity to the needle, substantially as set forth. 14th, In a button-hole attachment for a sewing machine, the combination of a vibrator, a cloth clamp, a spring presser-foot secured to and carried by the vibrator and adapted to engage with the cloth in proximity to the needle, and the presser-bar of the sewing machine adapted to force said presser-foot down, substantially as set forth. 15th. In a button-hole attachment for a sewing machine, the combination of a vibrator, a cloth clamp, a spring presser-foot carried by the vibrator, and an arm carried by the presser-bar and having a roller at its lower end, which, when brought down, bears upon the spring presser-foot and forces it into contact with the cloth, substantially as described. 16th. In a button-hole attachment for a sewing machine, the combination of a vibrator, a sliding cloth clamp, and a presser-foot carried by the vibrator having a slot for the passage of a needle and provided with rollers, adapted to engage with the cloth to hold it firmly upon the base plate, near to the needle, and having the axis of the rollers at right angles to the line of travel of the cloth as it is moved by the cloth clamp, substantially as set forth. 17th. In a button-hole attachment for a sewing machine, the combination of the vibrating lever B, bell crank lever L, an adjustable connection, substantially of the character described, between the levers B and L, the dog M, a ratchet-wheel driven by said dog, a feed cam intermediately driven by said ratchet-wheel, the sliding cloth clamp and mechanism interposed between the cloth clamp and feed cam, substantially as described. 18th. In a button-hole attachment for a sewing machine, the combination of a feed cam mechanism for operating it, a yoke engaging with said cam, a pivoted plate operated by said yoke, a sliding cloth clamp and a link connecting said plate with the cloth clamp, substantially as described. 19th. In a button-hole attachment for a sewing machine, the combination of a feed cam, mechanism for operating it, a pivoted plate Q connected with and operated by said cam, having the slot $q1$, the slotted plate Q1 secured to plate Q, a sliding cloth clamp and a link connecting the cloth clamp with said pivoted plate, it having one end engaging with said plate Q1 and entering the slot $q1$, whereby the slide of the cloth clamp may be varied to suit the size of the button-hole being formed, substantially as described. 20th. In a button-hole attachment for a sewing machine, the combination of the vibrator, the cloth clamp mechanism for sliding the cloth clamp, a single pattern wheel having its periphery formed of two parts of different radii, and a yoke engaging with said pattern wheel and connected with the vibrator, whereby its movements are regulated to properly lay the stitches to form the button-hole, substantially as described. 21st. In a button-hole attachment for a sewing machine, the combination of the vibrator, the cloth clamp mechanism for sliding the cloth clamp, a single pattern wheel having its periphery formed of two parts $o1$, $o2$, struck with different radii, the portion struck with the shorter radius being the longer, and a yoke having the engaging points s and connected with the vibrator, substantially as and for the purpose set forth. 22nd. In a button-hole attachment for a sewing machine, the combination of the vibrator mechanism for oscillating the vibrator, a pattern wheel, a yoke engaging with said pattern wheel and connecting it with the vibrator, and means, substantially as described, for adjusting the positions at which the pattern wheel shall arrest the movements of the vibrator, substantially as described. 23rd. In a button hole attachment for a sewing machine, the combination of the vibrator mechanism for oscillating the vibrator, a pattern wheel, a yoke engaging with said pattern wheel and connecting it with the vibrator and adjustable blocks $s1$, carrying bearing points s, which engage with the periphery of the pattern wheel, substantially as described. 24th. In a button-hole attachment for a sewing machine, the combination of a vibrator, the cloth clamp mechanism for sliding the cloth clamp, a pattern wheel, a yoke engaging with said wheel, a pin whereby said yoke is connected with the vibrator, and means for adjusting the said pin upon the vibrator, substantially as set forth. 25th. In a button-hole attachment for a sewing machine, the combination of the vibrator, the sliding cloth clamp, the wheel O, feed cam O1 and pattern wheel G2, all operating around the same centre and moving together, mechanism for moving said parts O, O1, O2, mechanism connecting the feed cam with the cloth clamp, and mechanism connecting the pattern wheel with the vibrator, substantially as described. 26th. In a button-hole attachment for a sewing machine, the combination, with the feed cam and the pattern wheel,

of the yokes which engage therewith, and the spring bearing upon said yokes, whereby the tension of the device may be regulated, substantially as described. 27th. In a button-hole attachment for a sewing machine, the combination of the sliding cloth clamp mechanism which moves the same, having the gear wheel O, and the setting device, consisting of the pinion V, meshing with wheel O and the shaft V_1, whereby the position of the cloth clamp may be conveniently set at any desired time, substantially as described, 28th. In combination with a sewing machine attachment, substantially such as herein described, the shield X, having projections x adapted to recesses in the base plate of the attachment, and adapted to be also secured thereto, substantially as and for the purpose set forth. 27th. In an attachment for a sewing machine, the combination, with a vibrating cloth clamp, of a vibrating lever operated by the needle-bar, a shaft d, carrying devices for vibrating the cloth clamp, a ratchet wheel upon said shaft, a spring pawl which engages with said wheel, and a lever fulcrumed on flange A_1 of the base plate, of the attachment carrying said pawl and receiving motion from the vibrating lever, substantially as and for the purpose set forth. 30th. The combination, with a shaft carrying devices for vibrating the cloth clamp, of a ratchet wheel on said shaft, a pawl carried by a slotted lever fulcrumed on the base plate, a vibrating lever operated by the needle-bar, and a disengaging slide block or pin connecting saidlevers, substantially as described.

No. 25,658. Vessel for Breaking and Removing Ice. (*Bateau pour Briser et Enlever la Glace.*)

Robert Romaine, Ottawa, Ont., 31st December, 1886; 5 years.

Claim.—1st. In combination with a vessel, a series of hammers at one or both ends thereof for breaking the ice. 2nd. In combination with a vessel, a series of hammers therein for breaking the ice, an engine for imparting motion to said hammers, and an endless chain extending from the front to the rear of the vessel. 3rd. In a vessel for breaking and removing ice, the combination, with the hull or shell A having the inclined front wall, of a series of chains mounted upon said wall, and a series of hammers in advance of the latter, substantially as set forth. 4th. In a vessel for breaking and removing ice, the combination, with the hull or shell A having the inclined front wall, of the overhanging deck C, the reciprocating hammers mounted in said overhanging portion, and the endless chains in rear of said hammers. 5th. In a vessel for breaking and removing ice, the combination, with a hull provided with inclined end walls, endless chains extending along the bottom and ends of the hull, and a series of hammers at each end of the vessel, and a suitable motive device for actuating the hammers and chains simultaneously. 6th. In a vessel, such as described, a series of ice-crushing hammers, a series of conveying chains in rear of said hammers, and mechanism, substantially such as shown, for simultaneously operating the chains and hammers. 7th. In a vessel, substantially such as shown, the combination, with a hull A having the inclined front and rear walls, the overhanging deck C and the keels F secured to the hull and to the deck, substantially as shown. 8th. In a vessel, substantially such as shown, the combination, with a hull, of the keels F secured thereto, the shafts K extending from keel to keel and provided with sprocket wheels L, chains M passing about the wheels when combined with mechanism for imparting motion to the shafts. 9th. In a vessel, substanitally such as shown, the combination, with the hull A, the deck C overhanging the stern of the hull and forming a chamber D, the keels F connected to the hull, extending in rear thereof up to the deck bars H, extending from keel to keel and closing the rear and bottom of the chamber D, and a propeller E located within the chamber, all substantially as shown and described. 10th. In combination with a vessel, substantially such as described and shown, a hammer V provided with a valve for regulating the admission of steam into its cylinder, a chain in rear of said hammer, a gear wheel N secured to the chain shaft, a wheel X meshing with wheel N and serving to actuate the hammer valve, a wheel O meshing with wheel N, wheel P meshing with wheel O and serving by means of the motion imparted to it by an engine Q to transmit motion to the gears O, N, as and for the purpose set forth.

No. 25,659. Friction Clutch.

(*Embrayage à Friction.*)

Etienne Salomon and William C. Hibbard, Montreal, Que., 31st December, 1886; 5 years.

Claim.—1st. In a friction clutch pulley, the clutch device, consisting of a hub secured on shaft, and a double split expansion ring forced apart by levers or wedges, all as herein set forth and for the purposes described. 2nd. The combination, with the double split expansion ring, of levers H, H_1 laid loosely in opening in ring F pivoted on wedge driven in between them, and acted upon by arms projecting from sliding sleeve, all as and for the purposes herein set forth. 3rd. The combination with hub E, and double split expansion ring, of a wedge carried on a screwed spindle and forced into opening in same by means of jam nuts on said spindle, as and for the purposes described. 4th. The oil cups G, with stoppers g formed in hub of clutch, as and for the purposes set forth. 5th. The pulley B, constructed with rim B_1, central on hub B_2, as and for the purposes set forth.

No. 25,660. Combined Envelope and Letter Sheet. (*Envelope-Papier à Lettre.*)

Robert B. Barber, Streetsville, James Castle and S. W. Jay, Toronto, (assignees of Alfred E. Ames, Toronto), Ont., 31st December, 1886; 5 years.

Claim.—The folding of a combined message-envelope and letter sheet, composed of five divisions marked A, B, C, D and E, in which the division marked A is folded upon the division marked B, and these divisions folded upon the division C, and the division D folded backwards and down upon the folded divisions A, B, C, and then doubled into half its length, and the flap E gummed over both the ends thereof, which seals the same and thoroughly protects the contents of the message from being read without breaking the seal, as specified and described.

No. 25,661. Air Compressor.

(*Machine de Compression.*)

Hezekiah E. Depp, Sedalia, Mo., U.S., 31st December, 1886; 5 years.

Claim.—1st. In an air-compressor, the combination, with suitable driving mechanism, of the eccentrics c_1, cylinders d_1 having tapering slots d_2, and arranged and sustained in rows radial with the main shaft, and suitable pistons, rods, valves, chambers, and pipes, substantially as and for the purpose described. 2nd. In an air-compressor, the single-acting cylinder d_1 having the end slots d_2, and piston d having valves d_3, substantially as and for the purpose described. 3rd. The compressing cylinders of air-compressors, made with open lower ends, and provided with slots tapered to a proper extent toward their upper ends, substantially as and for the purpose described.

No. 25,662. Valves especially applicable to Pumps. (*Soupape spécialement applicable aux Pompes.*)

Asplan Beldam, London, Eng., 31st December, 1886; 5 years.

Claim.—1st. The combination, with a corrugated valve such as B, corrugated valve guard such as A, substantially as and for the purposes set forth. 2nd. In valves of the type herein described, a recess or recesses or corrugations such as b, substantially as and for the purposes set forth. 3rd. A valve of the type herein described, consisting of a corrugated body B, and a recessed or corrugated bearing edge b, substantially such as that set forth with reference to the drawings. 4th. The combination of the valve with its annular seat, corrugation b and valve guard A having the recess a, operating substantially as set forth with reference to the drawings. 5th. The combination, with a valve B and valve guard A, of the type herein described, of a spring h, operating substantially as and for the purposes set forth with reference to the drawings. 6th. The combination of the valve B, box G, spring h, ferrule H, stud D, and guard A arranged and operating substantially as and for the purposes set forth with reference to the drawings. 7th. The oval valve B, in combination with the oval guard A, corrugated substantially as set forth with reference to the drawings. 8th. The valve guard A having annular recesses e^1, and a hollow portion e, substantially as set forth with reference to the drawings. 9th. In a valve B and valve guard A, arrangement of the type herein described, the combination of a guard such as A, false face such as a_1 and a spring or springs such as a_2, operating substantially as and for the purposes specified. 10th. The valve B and valve guard A arrangement as set forth with reference to the drawings, consisting of the guard A having a false face a^1, a spring or springs a^2, and valve B, constructed and operating substantially as described. 11th. The combination of a valve guard such as A, and a rubber face such as a^1, substantially as and for the purposes set forth with reference to the drawings.

No. 25,663. Clod Crusher and Pulverizer.

(*Brise-Motte.*)

Milton C. Jett, Bloomington, Ind., U. S., 31st December, 1886; 5 years.

Claim.—1st. In combination with the frame A, the clod crusher or roller D journalled therein, the curved arm H attached to the front or frame A, and bent vertically at I, and horizontally at K, the standard L pivoted to the part K of arm H, the guiding wheel M journalled in the standard L, the box O embracing the standard L below the part K of the arm H, and forward of the part I, the bolt R connecting the box O rigidly to the standard L, the tongue P adjustable in the box O, and the chains X connecting the frame and the standard, and detachable from the latter, as set forth.

No. 25,664. Method of and Apparatus for increasing the Vapour Test of and Partially Purifying Petroleum Distillates. (*Procédé pour Augmenter le Dégré d'Inflammabilité du Pétrole et Epurer partiellement les Produits distillés du Pétrole, et Appareil pour cet objet.*)

Martin J. Woodward, Petrolia, Ont., 31st December, 1886; 5 years.

Claim.—1st. The method or process of increasing the vapour test of, and partially purifying petroleum distillates, by means of the apparatus hereinbefore described. 2nd. In the said apparatus, the combination of its several parts, namely: the still "A" and the pipes B, C, D, E and "F", with each of and all the others of them, substantially as and for the purposes hereinbefore set forth.

No. 25,665. Process and Apparatus for the Continuous Production of Sulphite of Lime dissolved in Aqueous Sulphurous Acid. (*Procédé et Appareil pour la Production Continue de Sulfite de Chaux Dissout dans un Acide Sulphureux Aqueux.*)

Eugen B. Kitter and Charles Kellner, Goerz, Austria, 31st December, 1886; 5 years.

Claim.—1st. The herein-described method of continuous production of sulphite of lime dissolved in aqueous sulphurous acid, consisting in conducting the cooled gases containing the sulphurous acid through a vessel, through which the lime liquid passes in the

reverse directiod and conducting the non-absorbed gases into other vessels through which lime liquid passes before being conducted into the first-mentioned vessel, substantially as described. 2nd. In an apparatus for producing bisulphite of lime, the combination, with a vertical vessel, of a gas inlet pipe at the bottom, a gas outlet-pipe at the top, and absorption vessels connected with the said gas outlet-pipe of the vertical vessel, substantially as shown and described. 3rd. In an apparatus for producing bisulphite of lime, the combination, with an upright vessel, of a liquid inlet-pipe at the top, a gas inlet-pipe at the bottom, a gas outlet-pipe at the top, absorption vessels connected with the gas outlet-pipe of the vertical vessel, a tank for the lime solution, and a gas-conducting pipe connecting the absorption vessel with the lime solution tank, substantially as shown and described. 4th. In an apparatus for producing bisulphite of lime, the combination, with an upright vessel, of a liquid inlet-pipe at the top, a gas inlet-pipe at the bottom, a gas outlet-pipe at the top, absorption vessels connected with the said gas outlet-pipe, two tanks for the lime solution connected by pipes, a pipe for conducting the lime solution from the upper tank to the absorption vessels, and a gas conducting pipe for conducting gas from the absorption vessels to the upper tank, substantially as shown and described. 5th. In an apparatus for producing bisulphite of lime, the combination, with an upright vessel, an absorption vessel and a tank, pipes for conducting gases from the upright to the absorption vessel and then to the tank, and pipes for conducting the liquid from the tank to the absorption vessel, and to the upright vessel in the reverse direction of the gas, substantially as shown and described. 6th. In an apparatus for producing bisulphite of lime, the combination, with the vessel T, of the absorption vessels A, the tanks R, R1, pipes for conducting the gases from the vessel T to the absorption vessels, and pipes for conducting the liquids from the tanks R R1 into the vessel T, substantially as shown and described. 7th. In an apparatus for producing bisulphite of lime, the combination, with the upright vessel T, the absorption vessels A and tanks R, R1, of the tanks *m* and M, the regulating vessel V, a pipe for conducting liquid into the same, a pipe for conducting the liquid from the vessel V to the absorption vessel A, and a pipe Q for conducting liquids from the vessel V to the tank M, substantially as shown and described. 7th. In an apparatus for bisulphite of lime, the combination, with the vessel T, of the absorption vessels A, divided by partitions into compartments, said partitions having apertures at different elevations, and of agitators in the compartments, pipes for conducting the gases from the vessel T into the absorption vessels A, and pipes for conducting liquid into the vessel T, substantially as shown and described.

No. 25,666. Horse Collar. (*Collier de Cheval.*)

Henry Brooks, Brooklyn, Ohio, Ont., U. S., 31st December, 1886; 5 years.

Claim.—In a horse collar, the combination of the outer covering A, the felt lining B, the filling C and its wrapper *b*, essentially as shown and described.

No. 25,667. Hydraulic Air Compressor.

(*Machine Hydraulique de Compression.*)

James B. Irwin, Milwaukee, Wis., U. S., 31st December, 1886; 5 years.

Claim.—1st. In an oscillating hydraulic air compressor, the combination and arrangement of the inlet and outlet water ports with the inlet and outlet water-valves and valve-stem, both of said valves being connected together and located between the seats of said inlet and outlet water ports, and adapted to be moved in one direction by their gravity and water pressure, and in the other direction by contact of said stem with a stop, as said receiver with its counterpoise oscillates upon its pivotal support, substantially as set forth. 2nd. In an air compressor, the combination, with its receiver mounted upon a pivotal support amd counterpoised by a weight, of a valve chamber pivoted with both an inlet and outlet water passage through which water enters and escapes from said receiver, inlet water controlling valve *b* and outer water controlling valve H, the said valves connected and moving together, valve stem I, valve seat G and supporting tank E1, said inlet valve being adapted to be closed, and said outlet valve to be opened by contact of said valve stem with a stop at the bottom of said tank, and reversed in their movement by their gravity and water pressure, substantially as and for the purpose specified. 3rd. The combination, with the valve chamber E, provided with hose connection F, and having a downwardly opening inlet water port, of the opposing valve seat or outlet water port G provided with a guide bracket K, valve stem I operating in said guide, bracket and valves *b* and H, adapted to vibrate between said valve port and seat with said valve stem, substantially as set forth. 4th. The combination of the inlet air tube P, valves, screw-threaded nut O, elastic bearing I, guide walls R, fitted to the periphery of said tube and serving to guide and retain said valve thereon, and valve stem N, protruding from the lower end of said tube and adapted by contact with a stop to raise said valve, substantially as set forth. 5th. The combination, with the valve chamber E affix to the receiver and provided with an outlet air duct, of an air tube A1, communicating from said air duct to the upper part of said receiver, and provided with an enlarged downward opening mouth float G1, and float-supporting bracket H, substantially as and for the purpose set forth. 6th. In an air compressor, having an oscillating receiver mounted upon a pivotal support and counterbalanced by a weight above a tank, the combination of the weight-supporting lever C, adjustable screw or stop S, standard M and tank E1, substantially as and for the purpose specified.

No. 25,668. Organ Pedal. (*Pédale d'Orgue.*)

Seth W. Herrick, Washington, N.J., and Phillip J. Lawrence, Easton, Tenn., U.S., 31st December, 1886; 5 years.

Claim.—1st. In combination with an organ, a pedal having two arms projecting substantially in the direction of the length of the organ, one being inside of the organ case and secured to or connected with the exhaust bellows strap, the other extending outside and in front of the case and forming the foot lever, substantially as described. 2nd. In combination with an organ, a pedal having an arm projecting inwardly substantially in the direction of the length of the organ and secured to, or connected with the exhaust-bellows strap, and an outwardly-projecting arm forming the foot-lever, such pedal being hinged or secured at an incline, whereby the motion of the foot-lever when pressed upon, is downward and inward toward the organ. 3rd. In combination with an organ, a pedal having an arm extending inside of the organ-case in the direction of the length of the organ, such arm being pivoted to, or adjustably connected with the exhaust bellows strap, whereby such strap is made to retain its same relative position during the tread of such pedal, substantially as described.

No. 25,669. Harness. (*Harnais.*)

Joseph W. Cheney, Palmer, Mass., U. S., 31st December, 1886; 5 years.

Claim.—1st. A harness attachment consisting of the rods R, R, crupper C, piece C1 and strap T, substantially as shown and described. 2nd. A harness attachment consisting of the rods R, R, crupper C, piece C1, strap T and hip straps H, H, substantially as shown and described. 3rd. A harness attachment consisting of the adjustable rods R, R, crupper C, piece C1, strap T, and adjustable hip straps H, H, substantially as shown and described. 4th. A harness attachment consisting of the rigid back strap S, rods R, R, crupper C, piece C1, and strap T, substantially as shown and described. 5th. A harness attachment consisting of the back strap S, rigid in regard to lateral movements, but otherwise yielding, the hook *h*, rods R, R, crupper pieces C, C1, and strap T, the whole arranged and operating substantially as described.

No. 25,670. Feed for Roller Mill.

(*Trémie de Moulins à Cylindres.*)

John Goldie, Galt, Ont., 31st December, 1886; 5 years.

Claim.—1st. A shoe A suitably supported above the crushing rolls E, in combination with mechanism designed to impart a longitudinal vibratory movement to the said shoe, substantially as and for the purpose specified. 2nd. A shoe A supported by the fingers B resting in the frame C, in combination with the rocking-arm F, connected to the shoe A and to mechanism by which a rocking movement is imparted to it, substantially as and for the purpose specified. 3rd. The rocking-arm F, connected by the rod G to the shoe A, in combination with the rotating spindle H having an eccentric pin *h* on its end, designed to fit into the box *f*, carried in the end of the arm F, substantially as and for the purpose specified.

No. 25,671. Attachment for Vice Jaws, etc.

(*Appareil pour Machoires d'Etaux, etc.*)

Edgar Shaw, Lynn, Mass., U.S., 31st December, 1886; 5 years.

Claim.—1st. The jaw or plate having a convex boss on its rear side, combined with a socket having an annular bearing for said boss of a lesser diameter than the boss at the largest portion of the latter, so that the boss may be tipped in any direction on said fixed bearing, a bolt connecting the jaw and socket, and devices, substantially as described, whereby the jaw may be held or supported at any angle to which it may be adjusted on the fixed annular bearing, as set forth. 2nd. The combination of the jaw or plate having the convex boss, the socket having the annular bearing, the connecting-bolt and the rotary plate having the spiral or volute rib formed to support a shoulder on said boss, as set forth. 3rd. The jaw or plate having the convex boss with the shoulder or projection a^2 thereon, combined with the socket having the annular bearing b^1 and the slots *p*, *p*, adapted to receive said shoulder, as set forth.

No. 25,672. Automatic Boiler Feed Regulator. (*Régulateur Autimatique d'Alimentation de Chaudière.*)

Charles O. Wiman, Anoka, Minn., U. S., 31st December, 1886; 5 years.

Claim.—1st. The valve-supporting rod J, the float-support a arranged out of line with rod J, the float and lever I, pivotally supported and connected with supports a and J, all combined substantially as set forth. 2nd. The combination of the tank having pipes for connecting it with the boiler, above and below the water line of the latter, and provided with pipes leading to the pump, the valve-supporting rod J, the float support a arranged out of line with rod J, the float and the lever I pivotally supported and connected with supports a and J, all being constructed and arranged substantially as described and for the purposes specified. 3rd. The combination of the tank, the pipes E, F, for connecting the tank with the boiler, the guides *b*, the float provided with a rod movable through guides *b*, and into the pipes E, F, the valves C, and the lever I connected with the float and the valve, substantially as set forth.

No. 25,673. Steam Boiler Furnace.

(*Foyer de Chaudière à Vapeur.*)

Allen R. Jones, Milwaukee, Wis., U. S., 31st December, 1886; 5 years.

Claim.—1st. In a steam-boiler furnace, a tubular grate consisting of a transverse front header-pipe, a similar rear header-pipe that has a series of vertically-depending nipples, and a series of longitudinal pipes that unite the front header with the nipples of the rear one, in combination with a feed-water pipe connected to said front header, and a discharge-pipe united to said rear header, and arranged to have its outlet into the boiler above the water line, substantially as and for the purpose set forth. 2nd. In a steam-boiler furnace, a tubular grate consisting of transverse front and rear header-pipes set at different elevations, the rear header being provided with a series of vertically-depending nipples, and a series of longitudinal pipes directly connected to the front header and coupled to the nipples of

the rear one, in combination with a feed-water pipe that connects with said front header, and a discharge-pipe united to said rear header and having an outlet into the boiler above the water-line, substantially as set forth. 3rd. In a steam-boiler furnace, a tubular grate consisting of transverse front and rear header pipes, the former one of which is provided with a blow-off valve, and the latter with a series of vertically-depending nipples, and a series of longitudinal pipes uniting the front header with the nipples of the rear one, in combination with a feed-water pipe connected to said front header and provided with a cut-off and back-pressure valve, and a discharge-pipe united to said rear header and provided with a cut-off valve, said discharge-pipe being arranged to have its outlet into the boiler above the water-line, substantially as and for the purpose set forth.

No. 25,674. Plough Jointer.

(*Eclisse de Charrue.*)

George B. Casaday, Hudson, Ind., U. S., 31st December, 1886; 5 years.

Claim—1st. In a plough, a shin or cutter having a groove in its working-face about parallel with its cutting-edge, in combination with a jointer having on its under side, a flange provided with a shoulder adapted to be secured in the groove on the cutter and adjustable in said groove, substantially as shown and described. 2nd. In a plough, a shin or cutter, in combination with a jointer secured directly to the working-face of the cutter, the lower edge of the jointer forming a continuous cutting-edge from the point of the plough to the heel of the jointer, substantially as shown and described.

No. 25,675. Foot Warmer. (*Chaufferette.*)

Alphonse Carreau, Quebec, Que., 31st December, 1886; 5 years.

Réclame.—1o. Une chaufferette composée d'une enveloppe intérieure et extérieure, et d'un tiroir mobile arrangé de manière a contenir une masse chauffée, et mobile, telle que representée et décrite. 2o. Dans une chaufferette, la combinaison de l'enveloppe extérieure A, les extremités B avec les ouvertures *a*, l'enveloppe intérieure C avec les ouvertures *b*, et les ressorts *g* pour maintenir le tiroir D, ayant des côtés perforés et le fond recouvert d'un grillage grossier *e* pour recevoir une masse chauffée, tel que décrit et pour les fins mentionnées.

CERTIFICATES OF THE PAYMENT OF FEES FOR FURTHER TERMS HAVE BEEN ATTACHED TO THE FOLLOWING PATENTS.

753. J. SEY, 2nd 5 years of No. 13,790, from the 4th day of December, 1886. Improvements in Drill Ploughs, 3rd December, 1886.

754. J. O. and W. S. WISNER, 2nd 5 years of No. 13,806, from the 5th day of December, 1886. Improvements in Spring Hoes, 3rd December, 1887.

755. THE INTERNATIONAL TERRA COTTA LUMBER CO., (assignee) 2nd 5 years of No. 13,942, from the 2nd day of January, 1887. Improvements in Fire Proof Composition, 3rd December, 1886.

756. P. HOULE, 2nd 5 years of No. 13,799, from the 5th day of December, 1886. Bolt for Doors and Windows, 4th December, 1886.

757. J. W. BROOKS, (assignee), 2nd 5 years of No. 13,800, from the 5th day of December, 1886. Improvements in Machines for Compressing and Punching Heels, or Heel Blanks for Boots and Shoes, 4th December, 1886.

758. P. DUNN, 2nd 5 years of No. 15,669, from the 2nd day of January, 1886. Improvements on Wire Staples, 7th December, 1886.

759. THE STAR BRASS MANUFACTURING CO., (assignee), 2nd 5 years of No. 17,781, from the 29th day of September, 1886. Improvements on Lubricators, 7th December, 1886.

760. L. E. McKINNON, 2nd 5 years of No. 13,840, from the 16th day of December, 1886. Improvements on Buggy or Carriage Dashes, 9th December, 1886.

761. L. TILTON, 2nd 5 years of No. 13,943, from the 2nd day of January, 1887. Improvements on Cancelling Stamps, 9th December, 1886.

762. F. OUTRAM, 2nd 5 years of No. 15,048, from the 5th day of July, 1887. Improvements on File Cutting Machines, 9th December, 1876.

763. THE J. W. MANN MANUFACTURING CO., (assignee), 2nd 5 years of No. 13,833, from the 14th day of December, 1886. Improvements on Seeding Machines, 11th December, 1886.

764. J. HEWETT, 2nd 5 years of No. 13,846, from the 16th day of December, 1886. Improvements on Metal Barbed Fencing, 15th. December, 1886.

765. W. HAMILTON, 2nd 5 years of No. 14,011, from the 16th day of January, 1886. Improvements on a Machine for Sawing Lumber, 17th December, 1886.

766. L. COTÉ, 2nd and 3rd 5 years of No. 25,305, from the 2nd day of November, 1886. Improvements in Heel Stiffener Shaping Machines, 18th December, 1886.

767. L. COTÉ, 2nd and 3rd 5 years of No. 25,353, from the 13th day of November, 1891. Improvements in Machides for Nailing on the Heels of Boots and Shoes, 18th December, 1886.

768. L. COTÉ, 2nd and 3rd 5 years of No. 25,358, from the 13th day of November, 1891. Improvements in Heel Counter Machines, 18th December, 1886.

769. D. POTTINGER, 3rd 5 years of No. 6,891, from the 21st day of December, 1886. Improvements in the Manufacture of Plaster of Paris, 18th December, 1886.

770. G. WARIN, 3rd 5 years of No. 8.008, from the 15th of October, 1887. Improvements in Shooting Skiffs, 20th December, 1886.

771. L. F. HOLMAN, 2nd 5 years of No. 13,869, from the 21st day of December, 1886. Improvements on the Method of and Apparatus for Pulverizing Mineral and other substances, 21st December, 1886.

772. J. F. ANDREWS, 2nd 5 years of No. 13,888, from the 26th day of December, 1886. Improvements on Coal Sifters, 21st December, 1886.

773. J. HARRIS, 2nd 5 years of No. 13,887, from the 26th day of December, 1886. Improvements on Harvesting Machines, 23rd December, 1886.

774. S. L. Kelly, 2nd 5 years of No. 14,072, from the 26th day of January, 1887. Improvements in the Art of Freezing Fish, 23rd December, 1886.

775. H. M. PIERCE, 2nd and 3rd 5 years of No. 14,305, from the 28th day of February, 1887. Improvements on the Manufacture of Charcoal, 23rd December, 1886.

776. A. HARRIS, J. HARRIS and J. K. OSBORNE, 2nd 5 years of No. 13,909, from the 28th day of December, 1886. Improvements on Harvesting Machines, 23rd December, 1886.

777. THE NORTON DOOR CHECK AND SPRING CO., (assignee) 2nd 5 years of No. 13,934, from the 2nd day of January, 1887. Improvements on Door Checks, or Devices for Preventing Doors from Slamming, 22nd December, 1886.

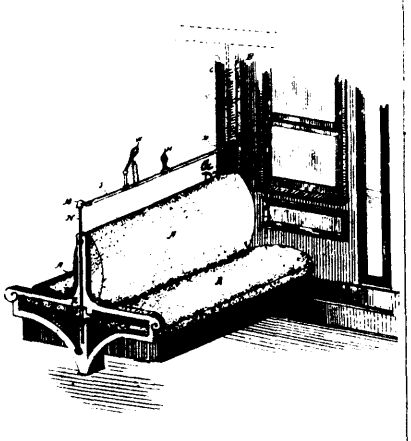
778. H. B. GATES, 2nd 5 years of No. 13,953, from the 9th day of January, 1887. Improvements on Churns, 17th December, 1886.

THE

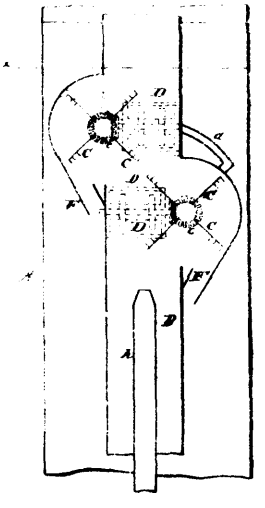
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

Vol. XV. JANUARY, 1887. No. 1.



25448 Wessels' Adjustable Railway Lamp.



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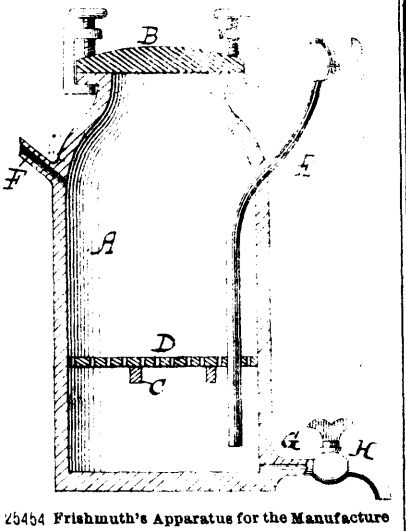
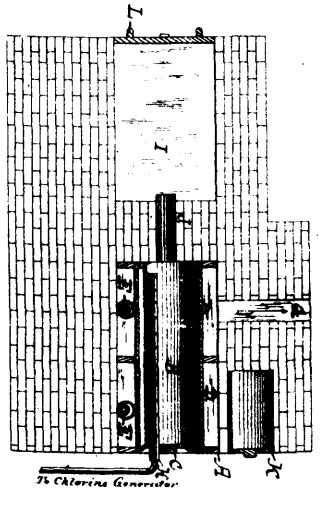
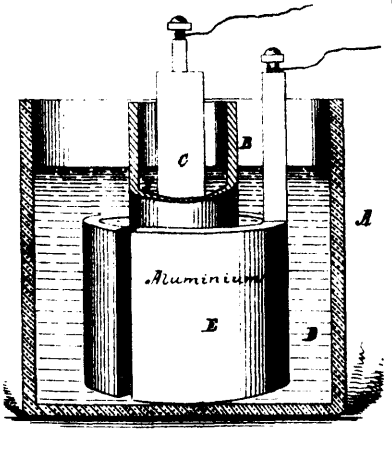


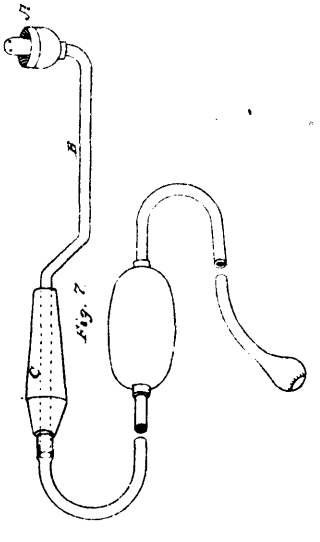
25454 Frishmuth's Apparatus for the Manufacture of Chlorine Gas.



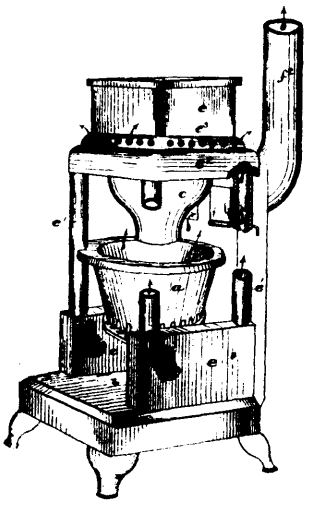
25455 Frishmuth's Retort Furnace.



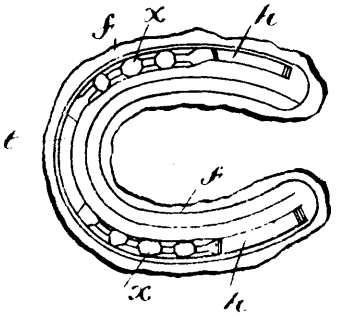
25456 Frishmuth's Galvanic Cell.



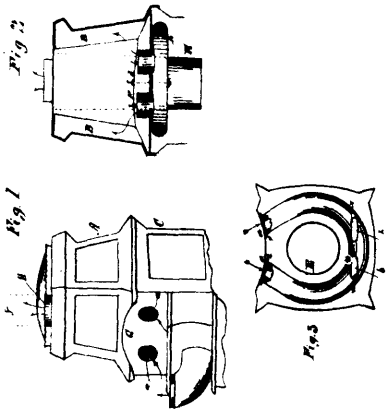
25458 Allen's Syringe.



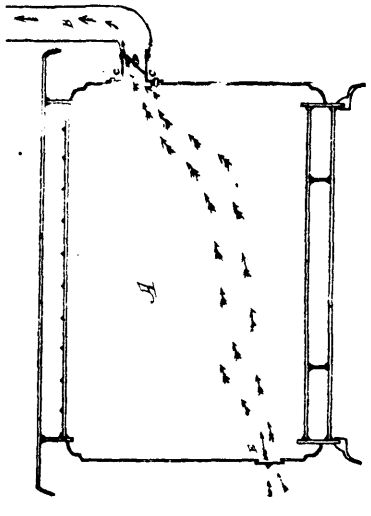
25459 Messenger's Heating Stove.



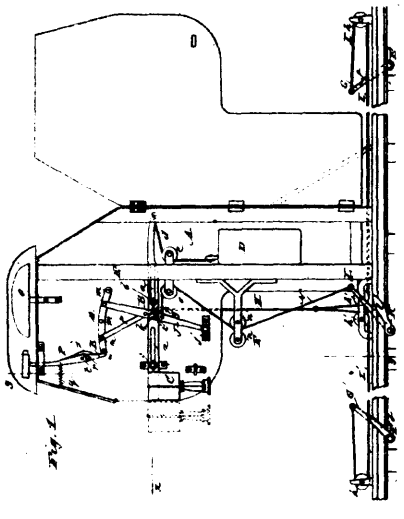
25460 White's Art of Making Horse-shoes.



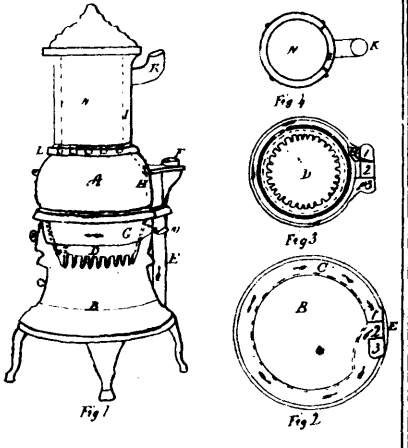
25461 Stewart's Stove.



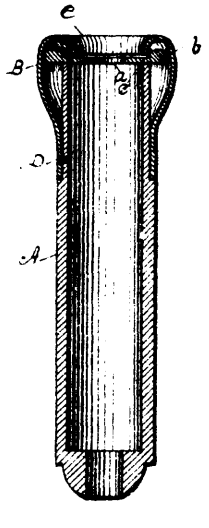
25462 Wilson & Whitelaw's Cooking Stove.



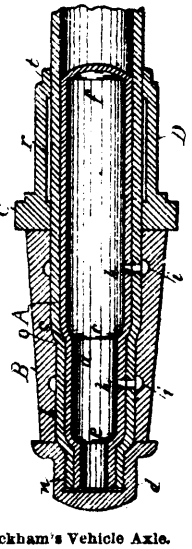
25463 Riethmayer's Railway Signal.



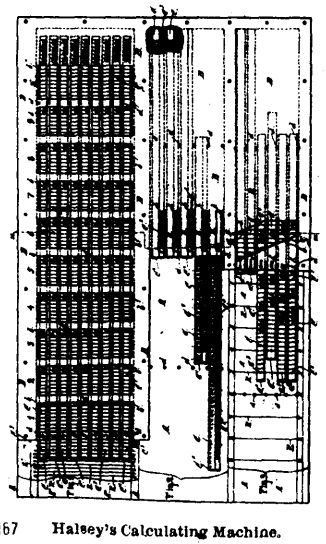
25464 Chamberlin's Heating Stove.



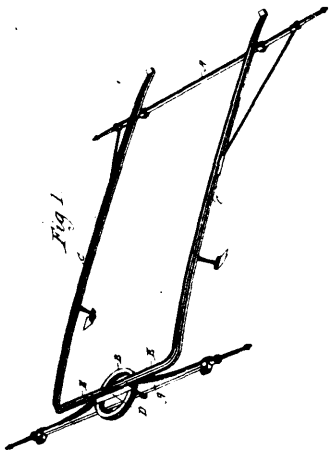
-5465 Webb's Whip Socket.



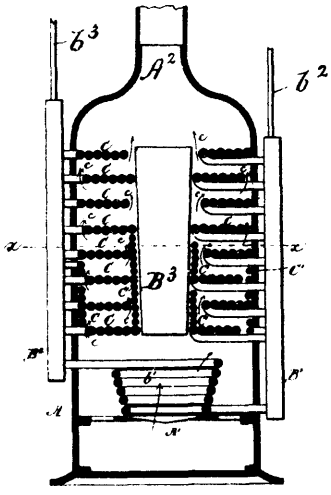
26466 Peckham's Vehicle Axle.



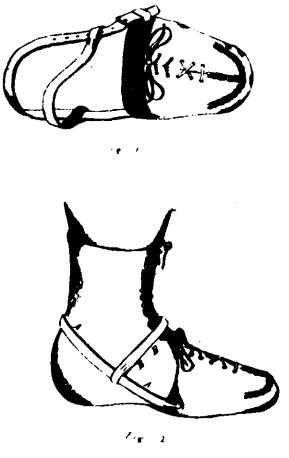
25467 Halsey's Calculating Machine.



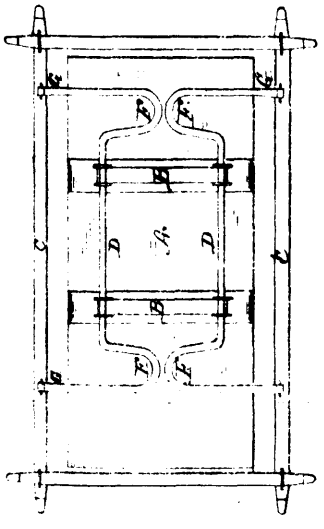
25468 Abbott's Side Bar Vehicle.



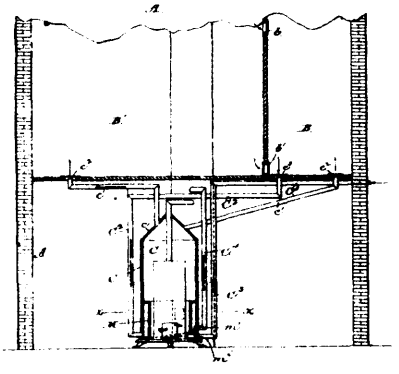
25469 Wilber's Heater.



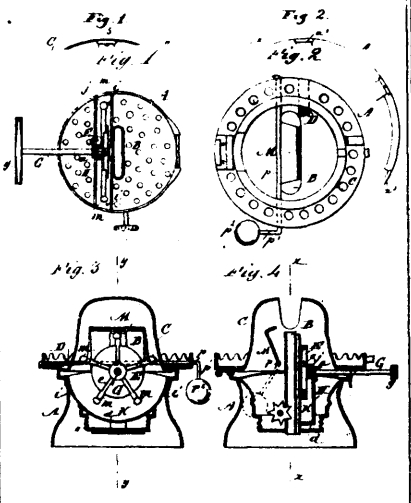
25470 Porter's Shoe Protector for Tobogganers.



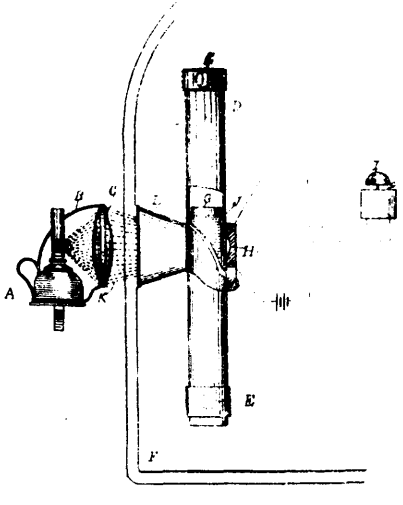
25471 Crowe's Side Bar Spring.



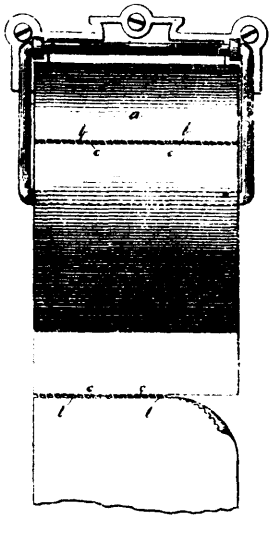
25472 Strout's Heating and Ventilating System.



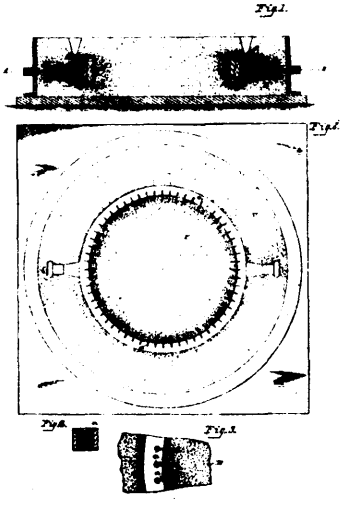
25473 Spooner's Self-Lighting Lamp Burners.



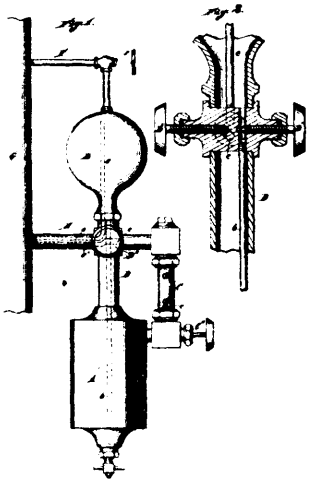
25474 Ghegan's Liquid Level Indicator.



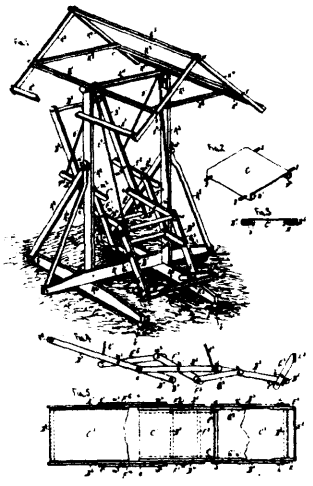
25475 Wheeler's Wrapping and Toilet Paper.



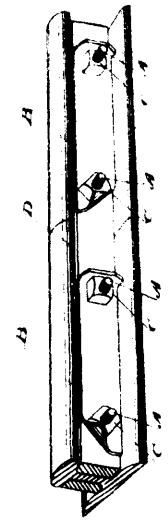
25476 Whitney's Mould for Casting.



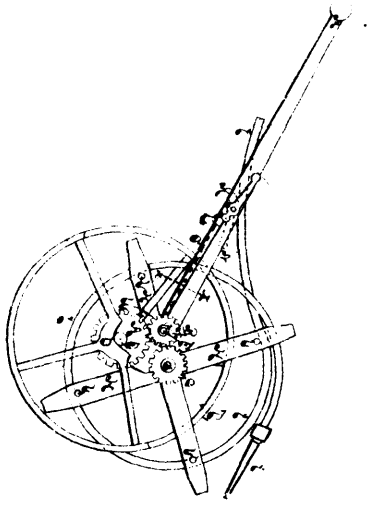
25477 Grace & Parshall's Lubricator.



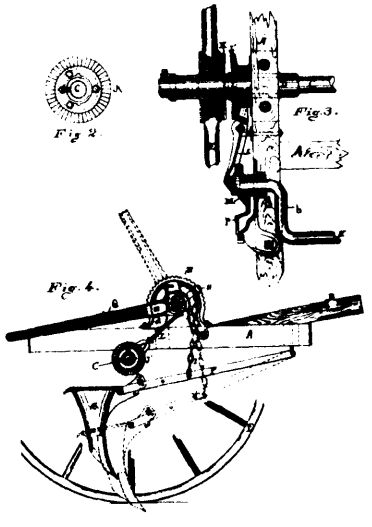
25478 Hubbard's Folding Hammock, etc.



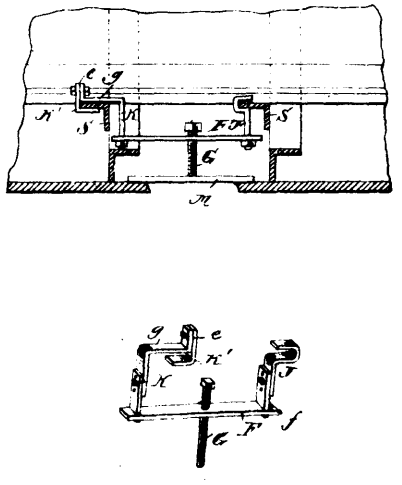
25479 Westman's Nut Lock.



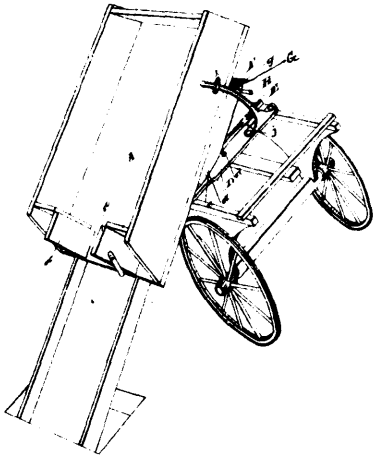
25480 Cope's Hose Truck.



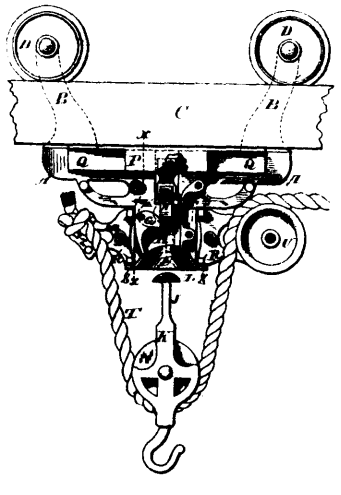
25481 Patric's Seeding Machine.



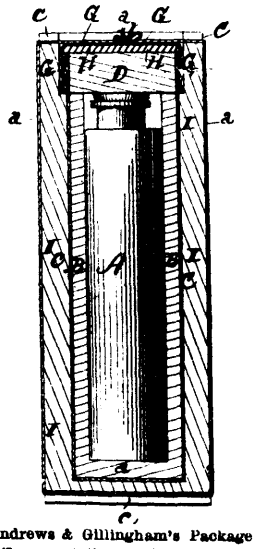
25482 Speirs' Means for Closing Apertures in Vessel Hulls



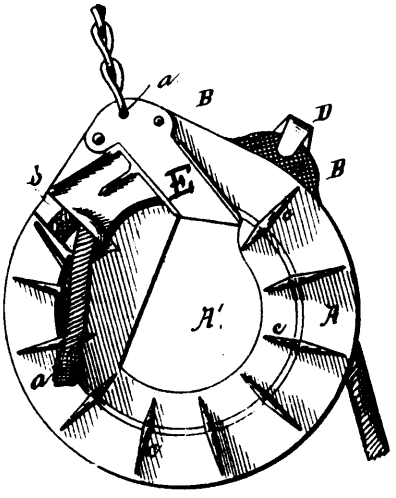
25483 Knowlton's Dumping Waggon.



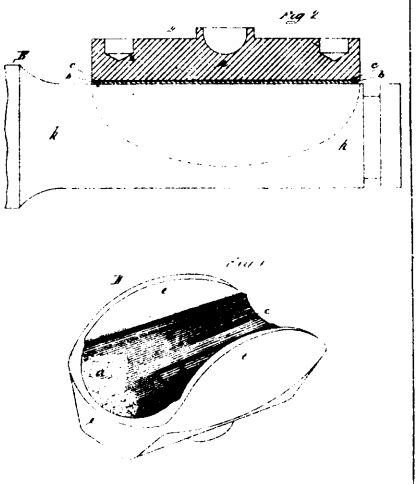
25484 Grosscup's Hay Elevator and Carrier.



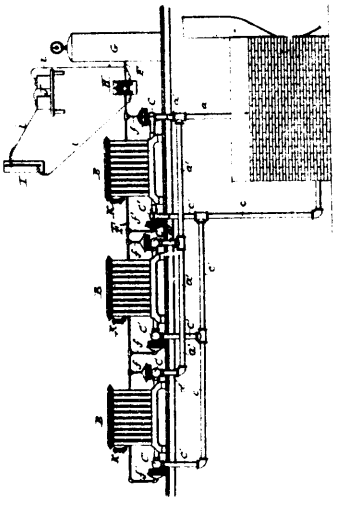
25485 Andrews & Gillingham's Package for the Transportation of Liquid, etc., by Mail.



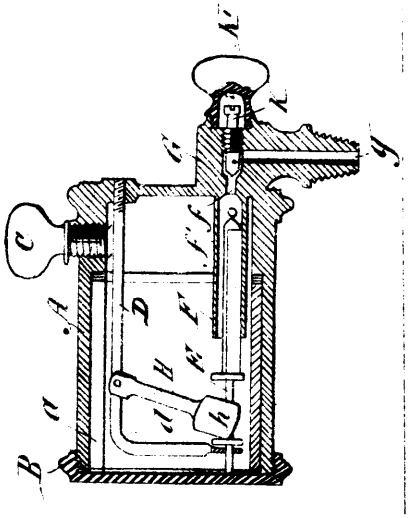
25486 Milne's Wire Rope Coupler.



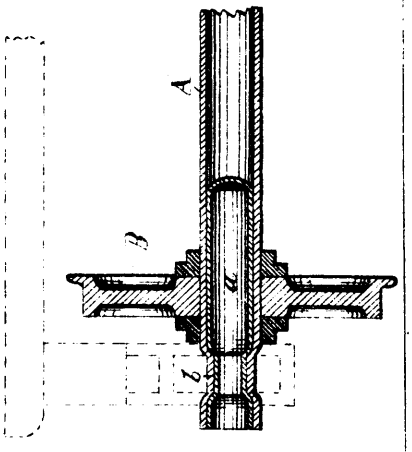
25487 Emory's Axle Journal Bearing.



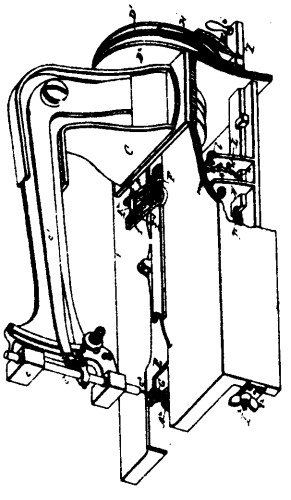
25488 Johnson's System of Temperature Regulation.



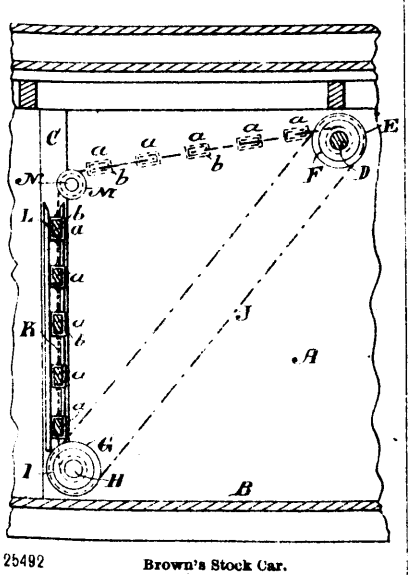
25489 Fletcher's Lubricator.



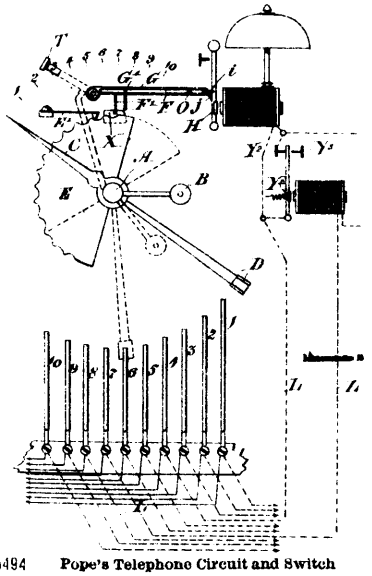
25490 Peckham's Car Axle.



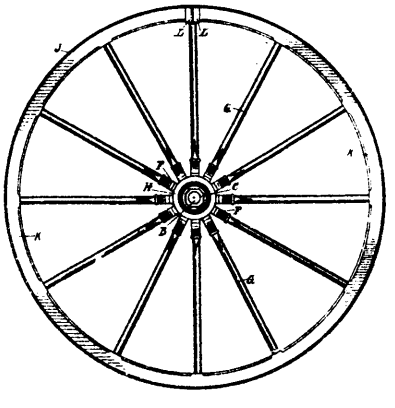
25491 Collins' Machine for Sewing on Buttons.



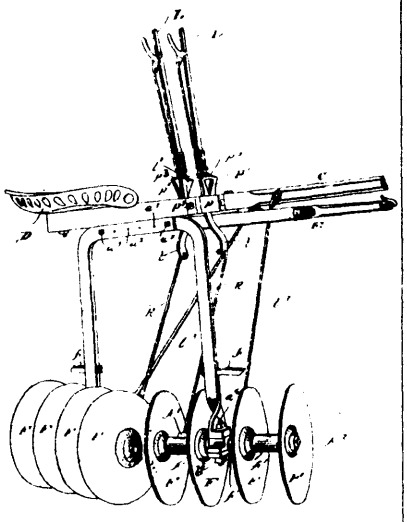
25492 Brown's Stock Car.



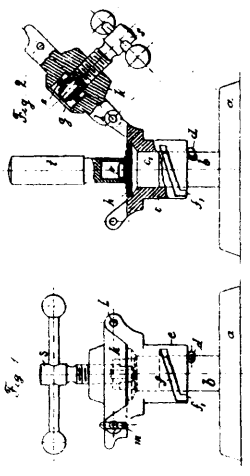
25494 Pope's Telephone Circuit and Switch.



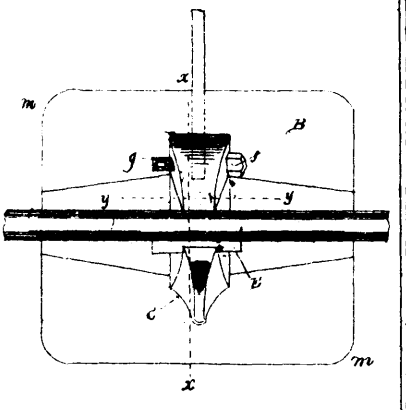
25495 Townsend's Vehicle Wheel.



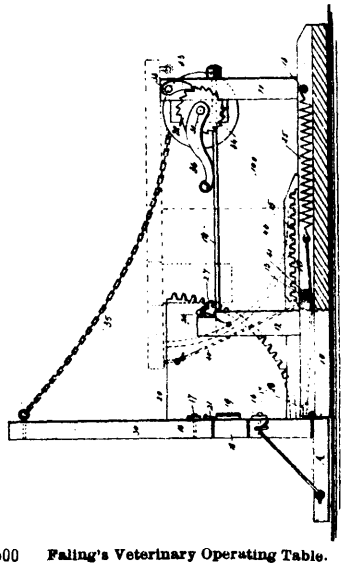
25496 Gibbons' Pulverizer, Harrow and Cultivator.



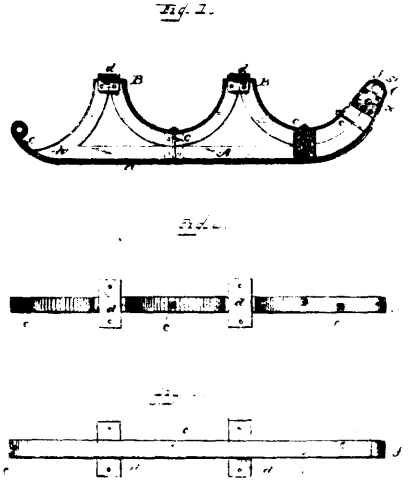
25497 Pfenning's Apparatus for Making Buttons.



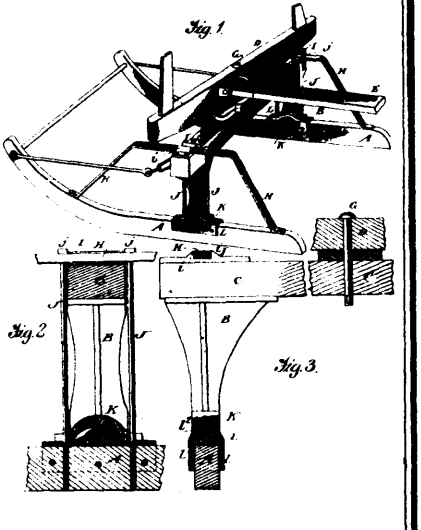
25498 Smith's Railway Sleeper and Chair.



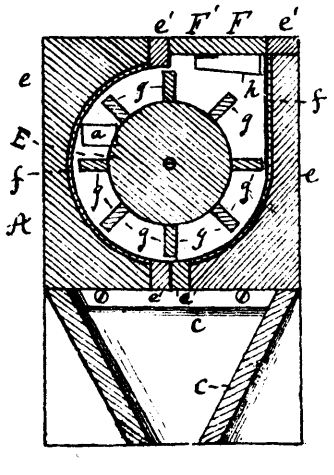
25500 Faling's Veterinary Operating Table.



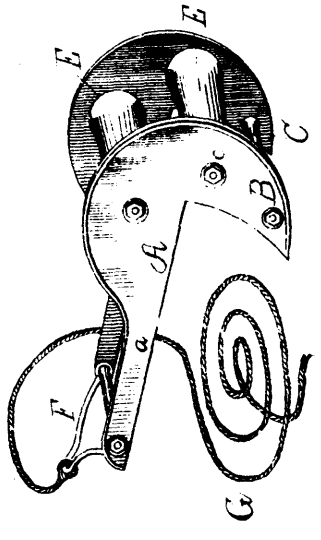
25501 Johnson's Sleigh Runner.



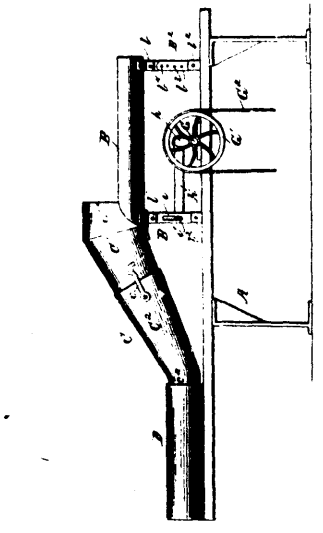
25502 Raymond's Bob Sleigh.



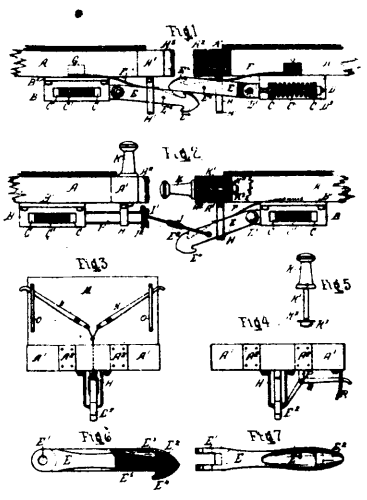
25503 Tuttle's Flour Bolt



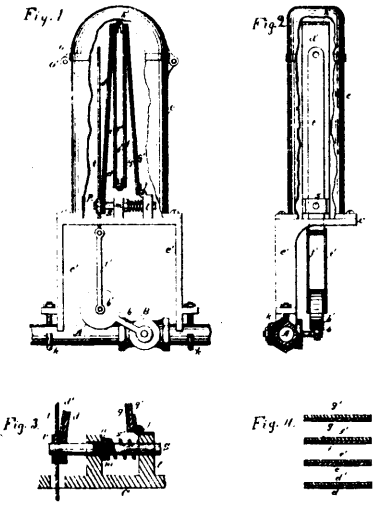
25505 Bresnan's Hose Hoist.



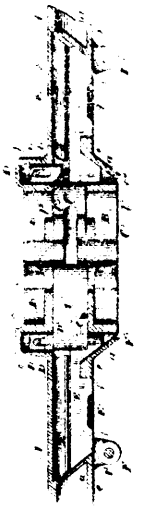
25506 Jackson's Machine for Arranging Crackers.



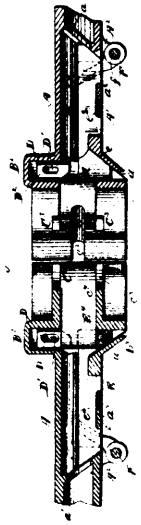
25507 Smith & Motes' Car Coupling.



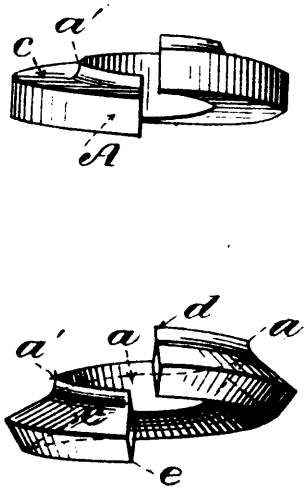
25508 Browne's Cut-Off for Water Pipes.



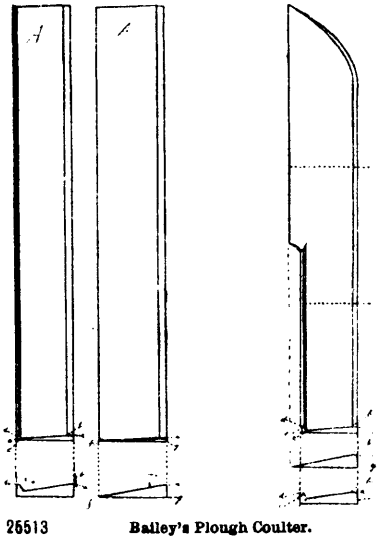
25509 Thurmond's Car Coupling.



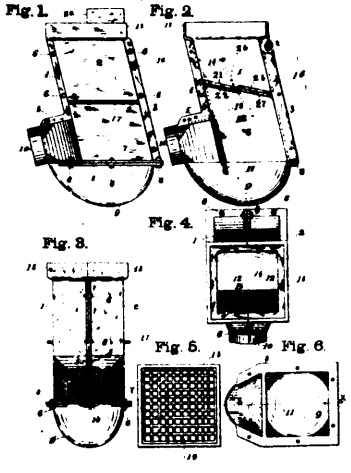
25510 Thurmond's Car Coupling.



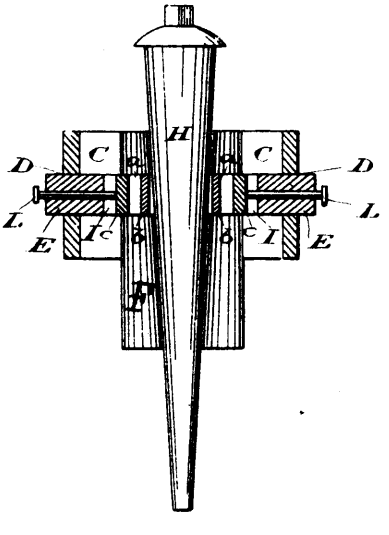
25511 Harvey's Spring Lock Washer.



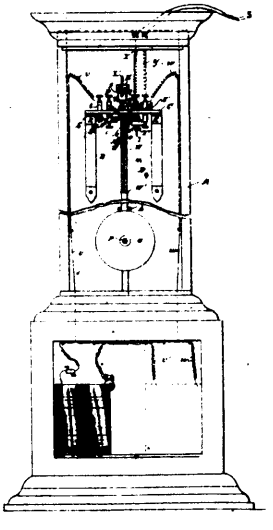
25513 Bailey's Plough Coulter.



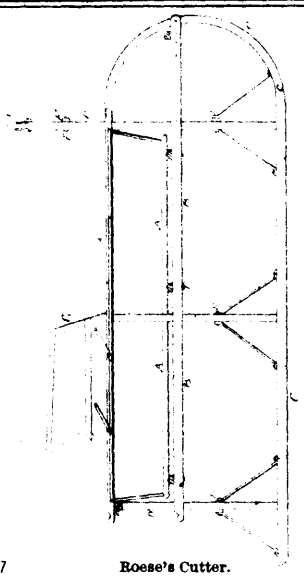
25514 O'Brien's Stench Trap.



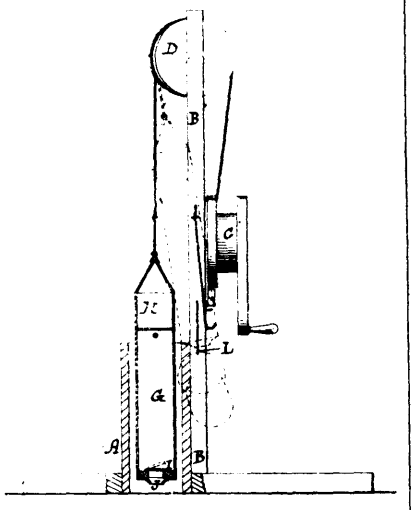
25515 Fitzgibbons' Tube Expander.



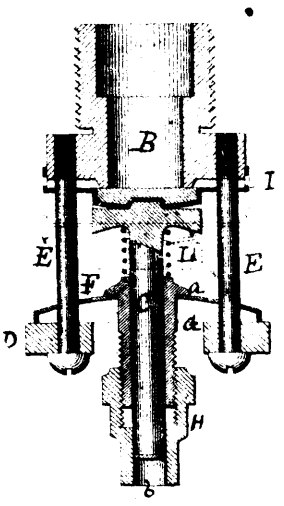
25516 Abell & Gifford's Pendulum for Clocks.



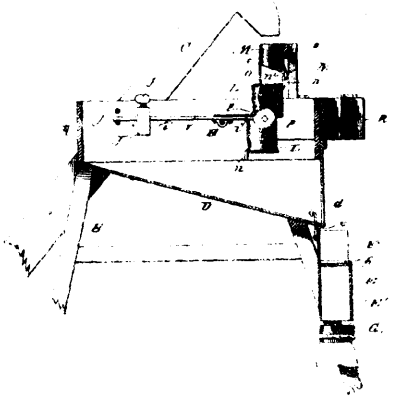
25517 Roese's Cutter.



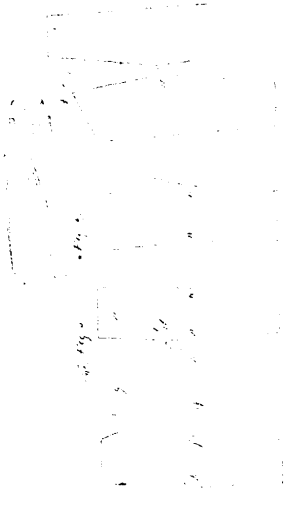
25518 Houlgate's Water Elevator.



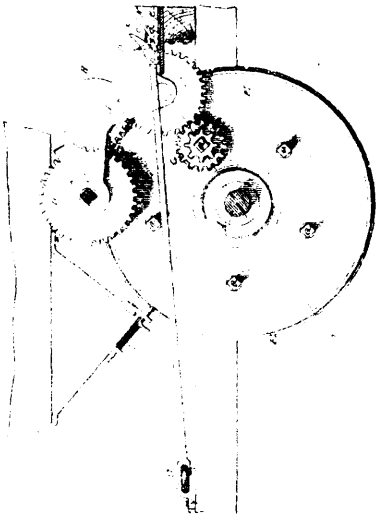
25519 Bishop's Fire Extinguisher.



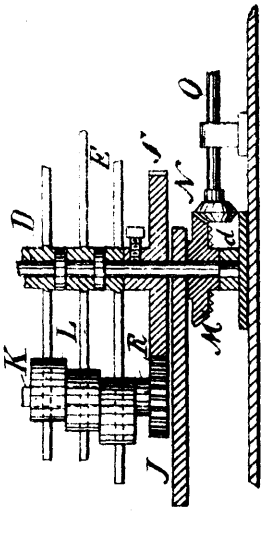
25520 Hershey's Grain Weighing Machine.



25522 Hocking's Trousers.

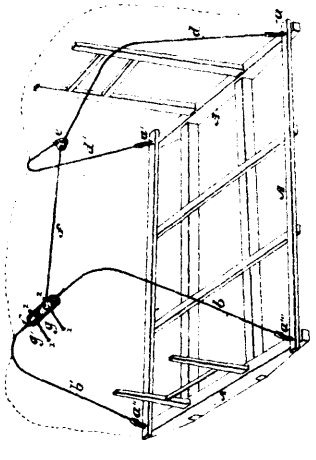


25523 Armitage's Speed Gearing

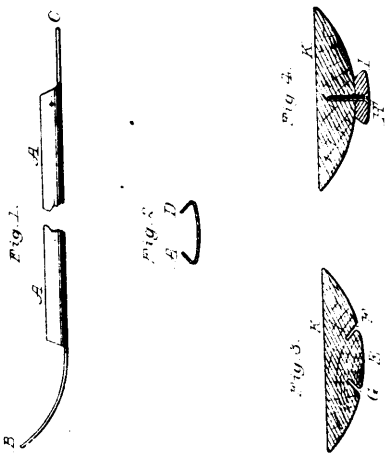


25524 Marean's Toy Race Course.

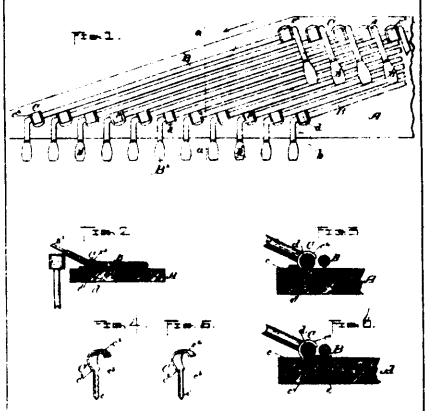
25525 White's Thermostat.



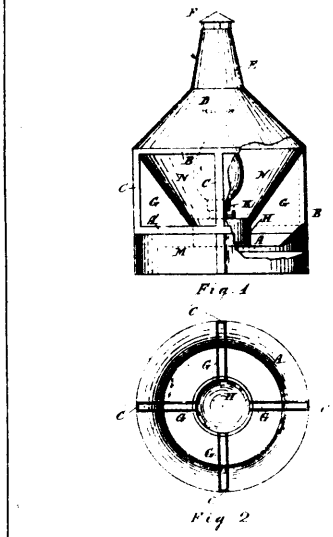
25526 Melius' Load Binder.



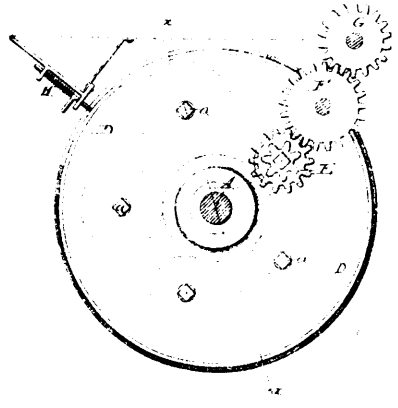
25527 **Emerson's Sleigh Runner.**



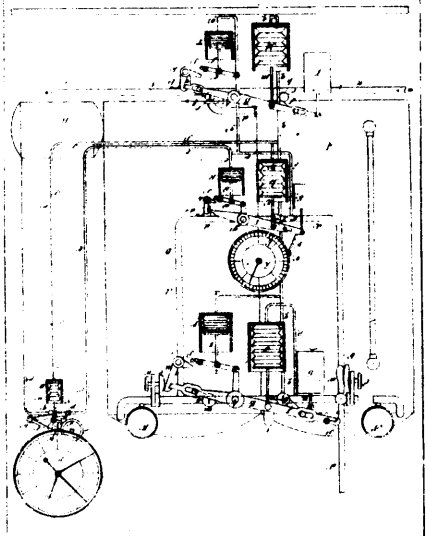
25528 **Hendrick's Octave Coupler**



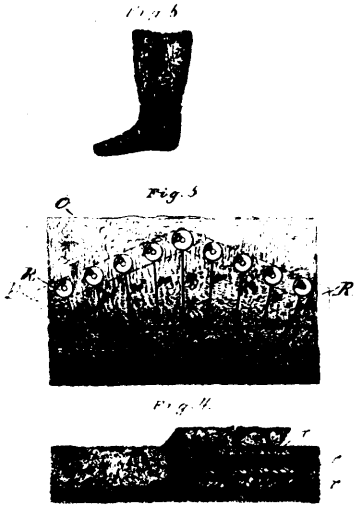
25529 **Manning's Insect Destroyer.**



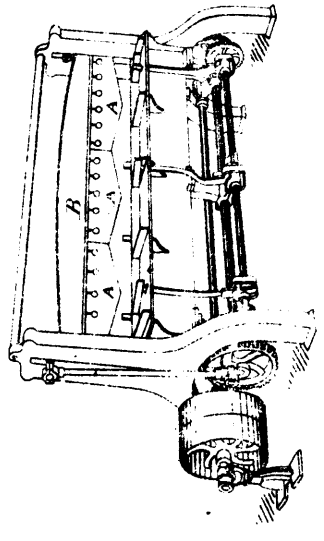
25530 **Bickford & Armitage's Gearing.**



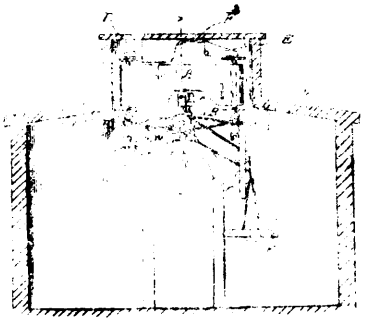
25531 **Puttemans' Clock Apparatus.**



25532 **Hawley's Felt Foot Wear.**

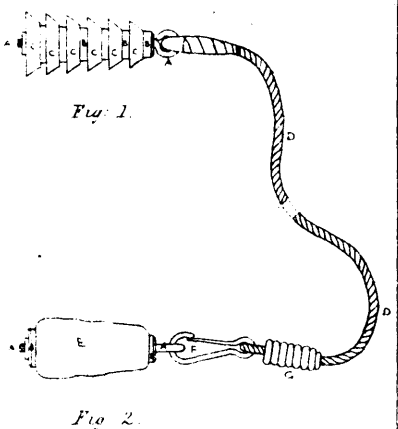


25533 **Michels' Hoop Cutter.**

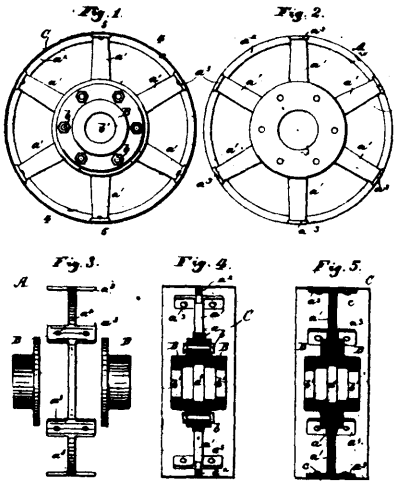


25534 **Roberge and Timmons' Railway Station Indicator.**

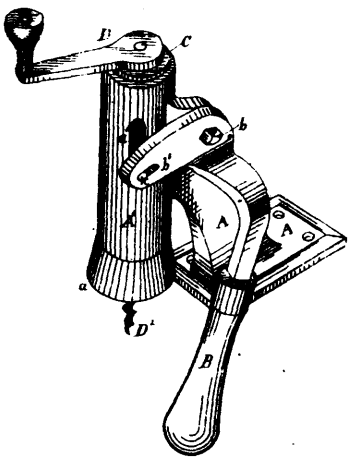
25535 **Armstrong's Neck Yoke.**



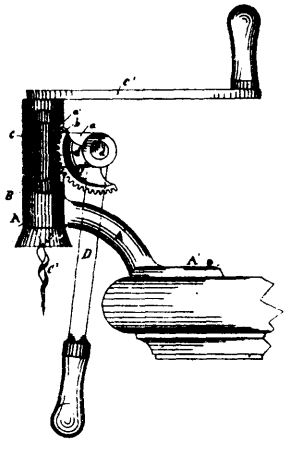
25536 Forster's Cleaner for Breech Loading Fire Arms.



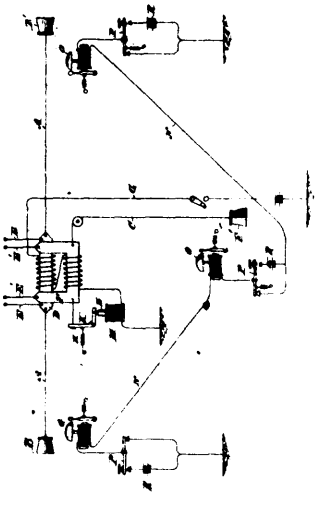
25537 Siebert's Belt Pulley.



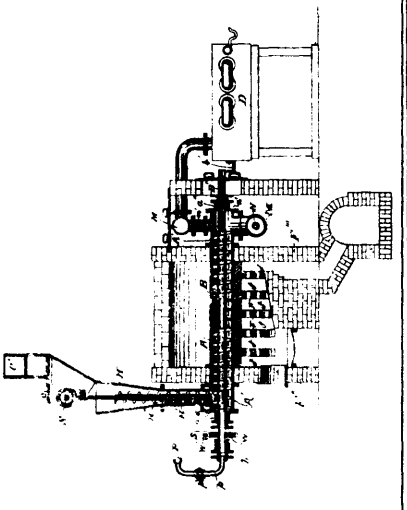
25538 Hurley's Cork Puller.



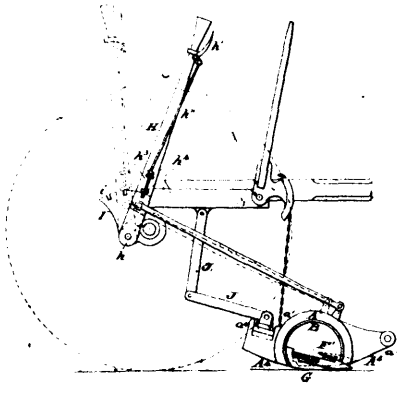
25539 Hurley's Cork Puller.



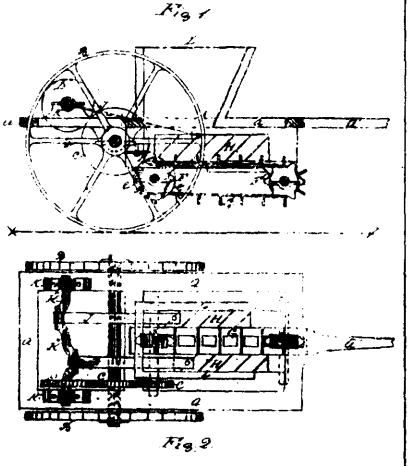
25540 Farmer's Telephone System.



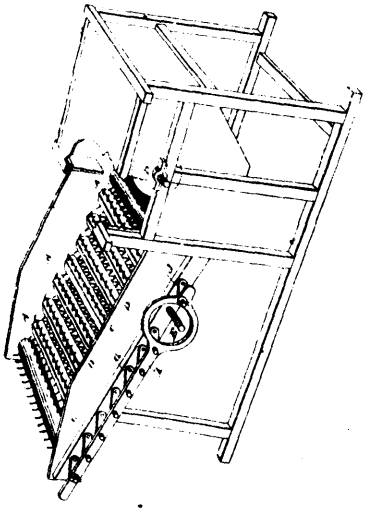
25541 Rathbun's Apparatus for Carbonizing Saw Dust, etc.



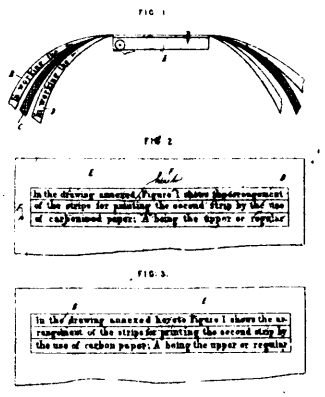
25542 Bartlett's Shoe for Mowing Machines.



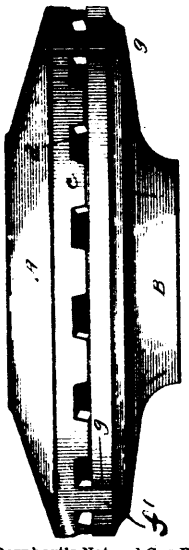
25543 Stapleton's Potato Planter.



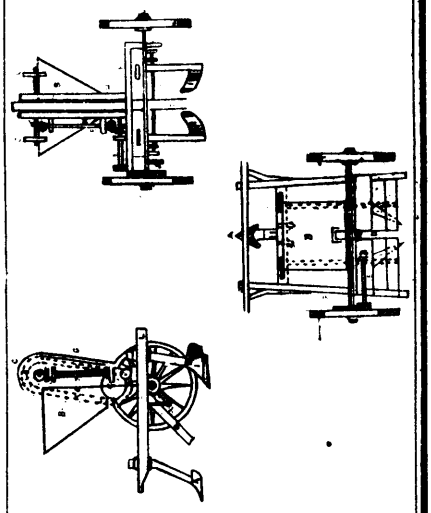
25544 Mogridge & Giberson's Thrashing Machine.



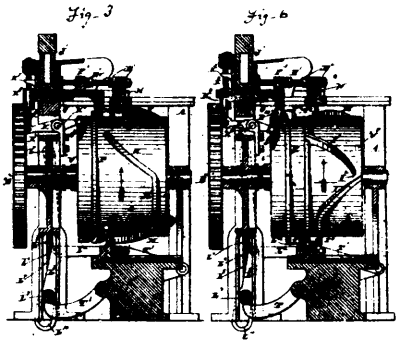
25545 Youker's Printing in Type Writing Machine, etc.



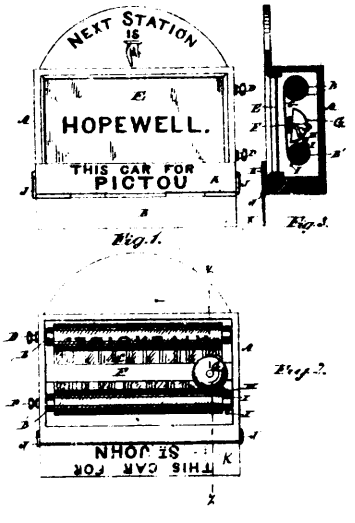
25546 Barnhart's Natural Gas Burner.



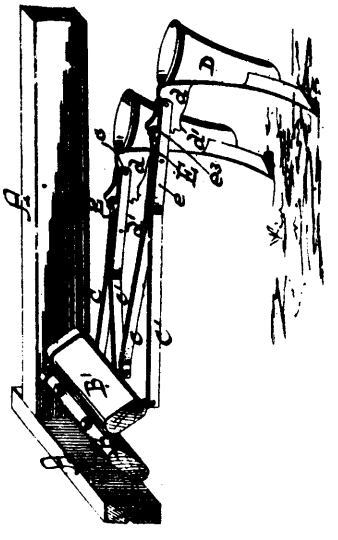
25547 Wood's Seed Sower.



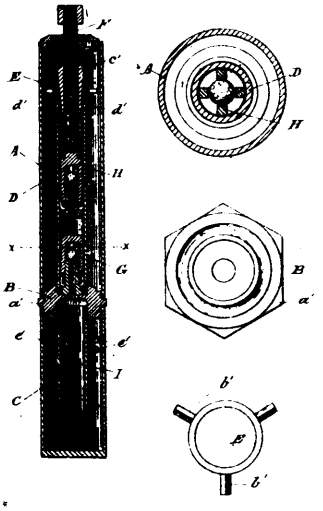
25548 Puetz's Plug Tobacco Machine.



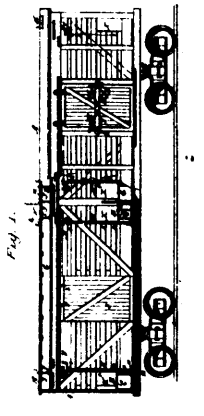
25549 Ormiston's Railway Station Indicator.



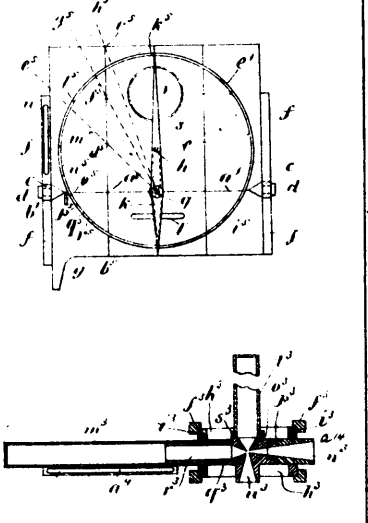
25550 Kirkpatrick's Tooth for Seeding Machines.



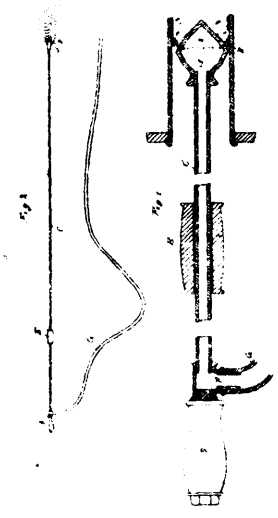
25551 Woodward & Anderson's Pump.



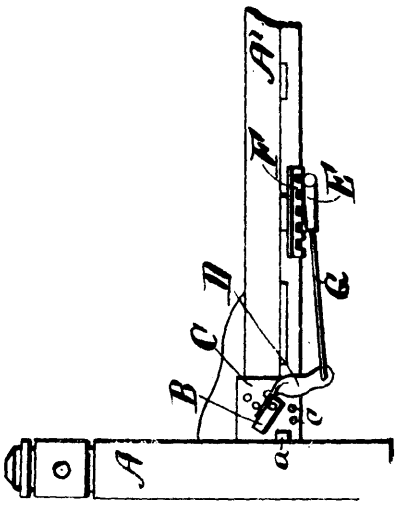
25552 William's Stock Car.



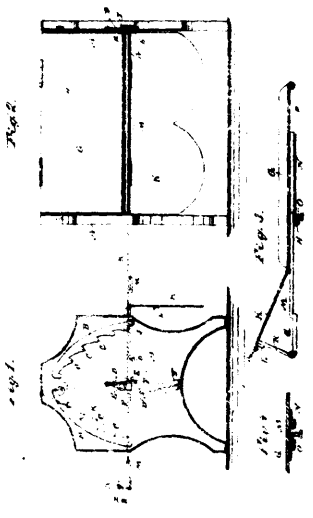
25553 Farquharson's Machine for Measuring Distance and Height.



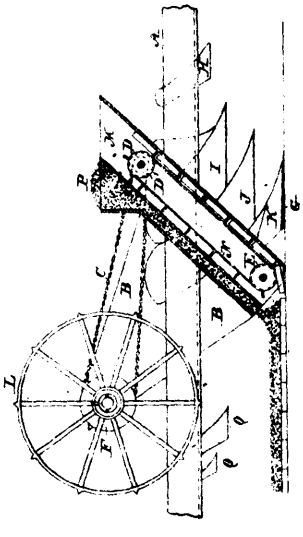
25554 Duennisch's Boiler Flue Cleaner.



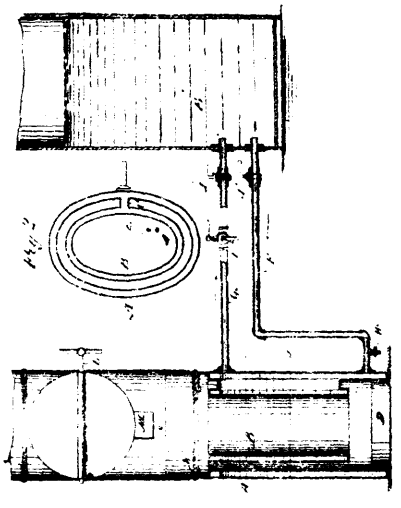
25555 Hubbell's Bedstead.



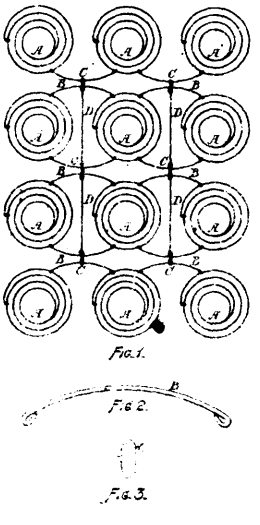
25556 Miles' Adjustable Seat.



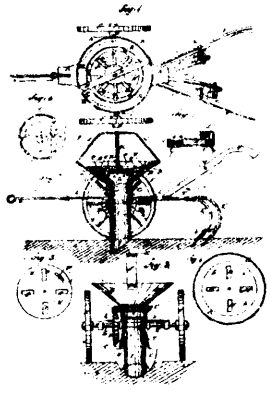
25557 White's Tile Laying Machine.



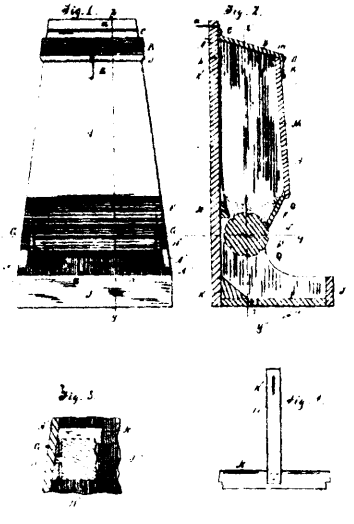
25558 Swager & Ferchen's Water Heater.



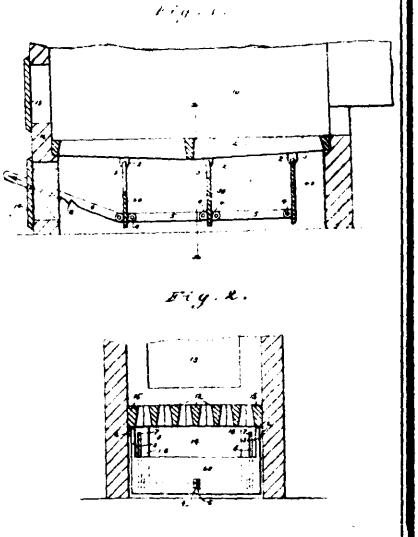
25559 Quaid's Spring Bed Bottom.



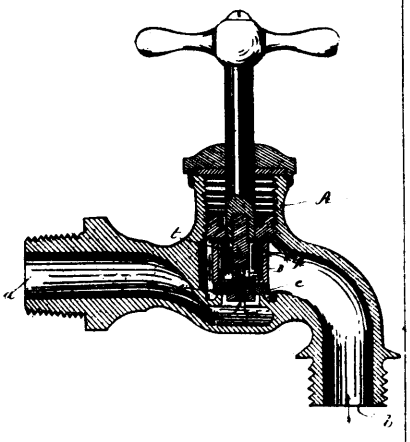
25560 Flatau's Seeder.



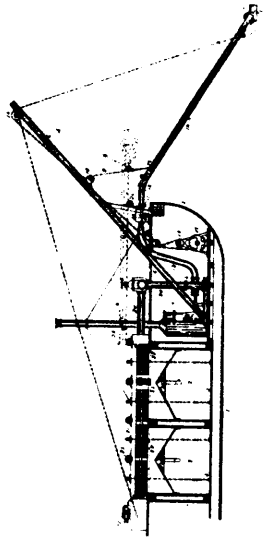
25561 Milliken's Device for Supplying Salt to Stock.



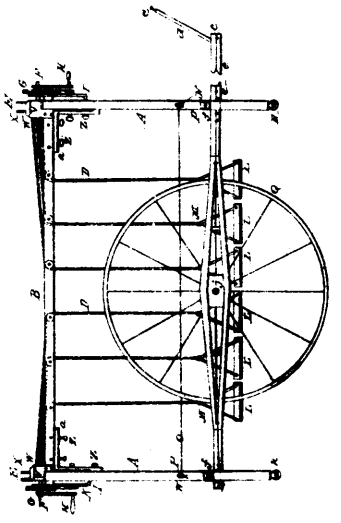
25563 Wheater's Draft Attachment for Furnaces.



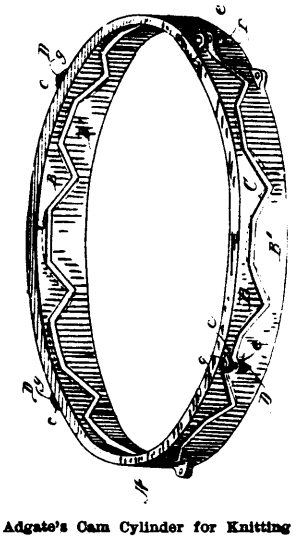
25564 Clarke's Faucet,



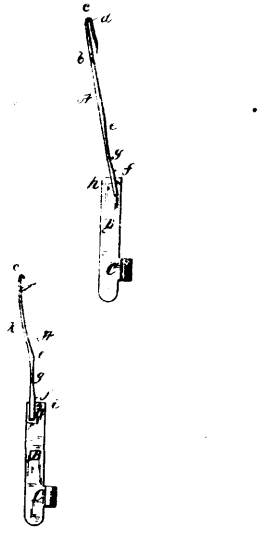
25565 Brainard's Excavator.



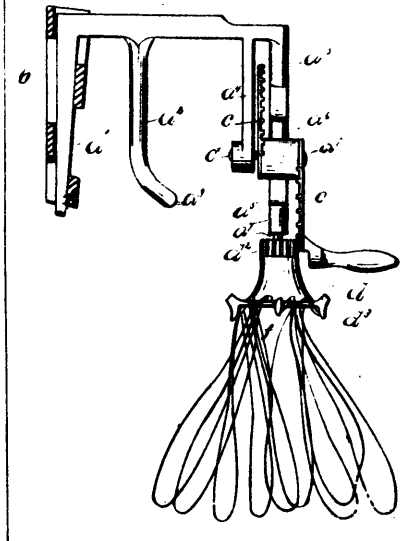
25566 Hammond's Patient's Elevator and Perambulator.



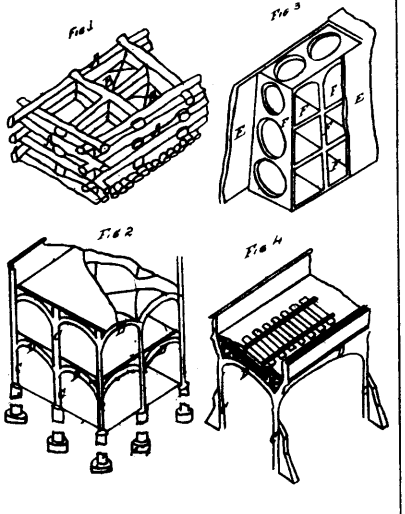
25567 Adgate's Cam Cylinder for Knitting Machines.



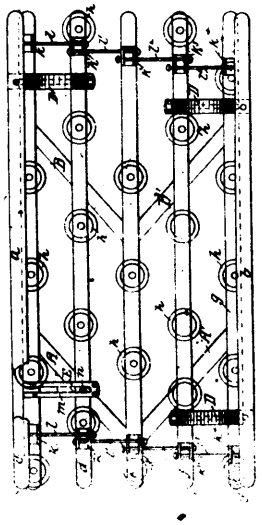
25568 Adgate & Kittle's Knitting Machine Needle.



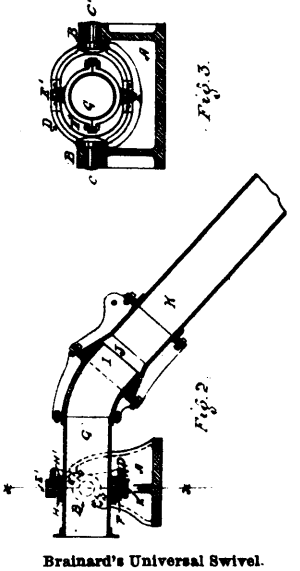
25569 Baltzley's Culinary Beater.



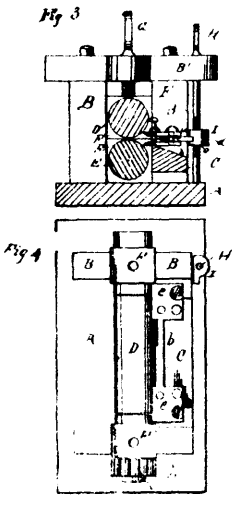
25570 Plunkett's Construction of Buildings.



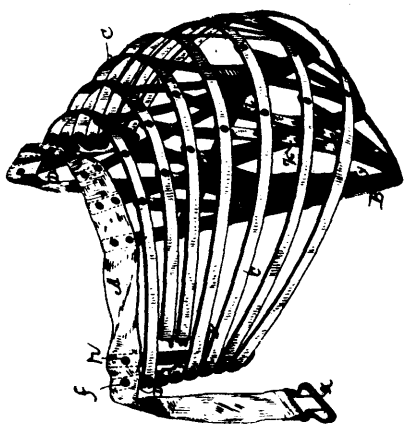
25571 Henkel's Bed Bottom.



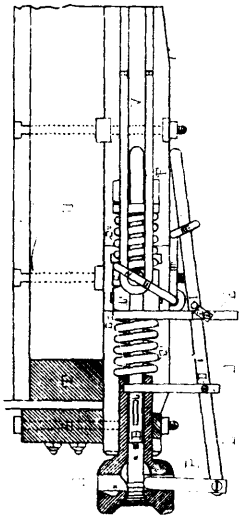
25572 Brainard's Universal Swivel.



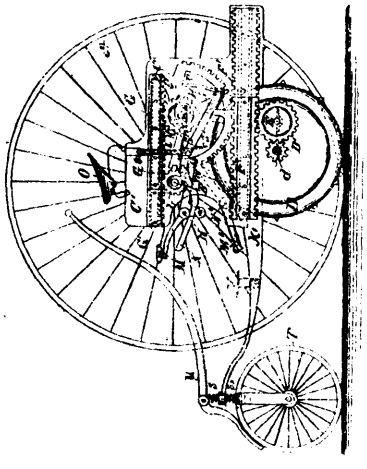
25573 Holden's Machine for Splitting Quills, etc



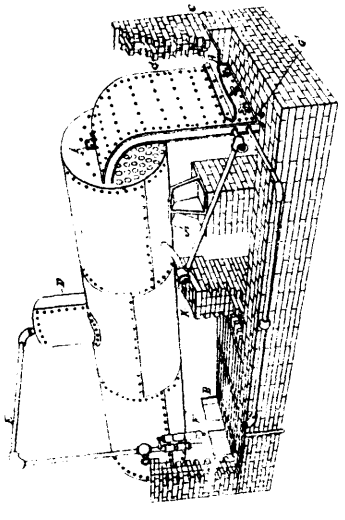
25574 Reed's Bustle.



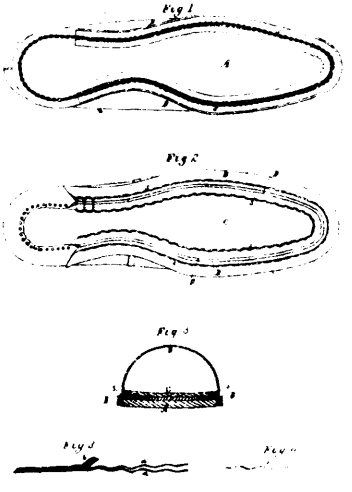
25575 Avery's Car-Coupler



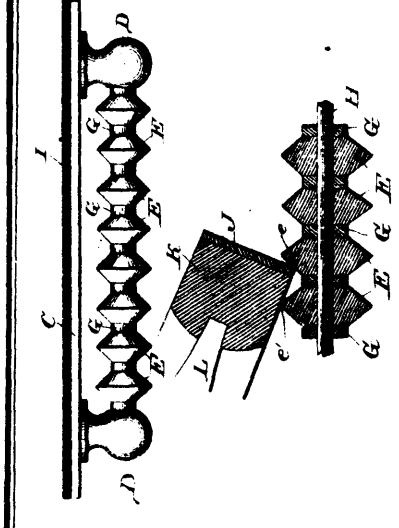
25576 Baines' Vehicle and Motor.



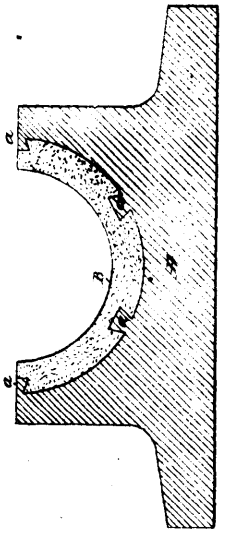
25577 Dunn & Sidnell's Feed Water Heater



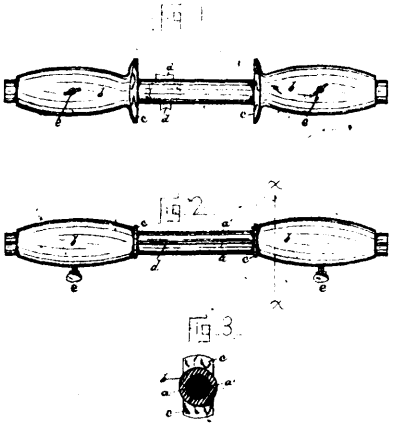
25578 Arnold's Boot or Shoe.



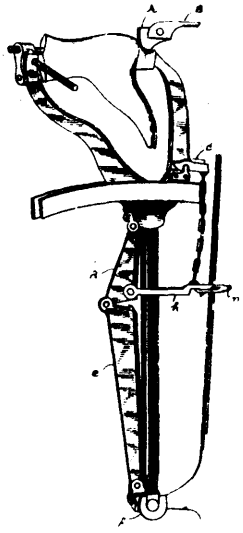
25579 Black's Carriage Fender.



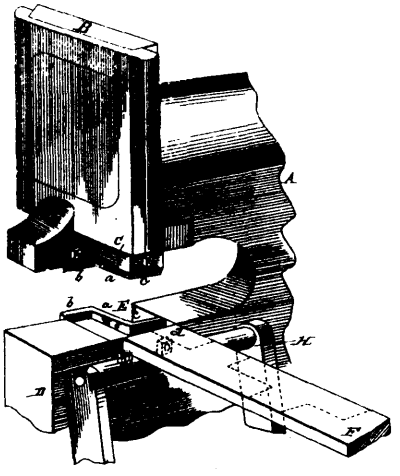
25580 Randolph's Journal Bearing.



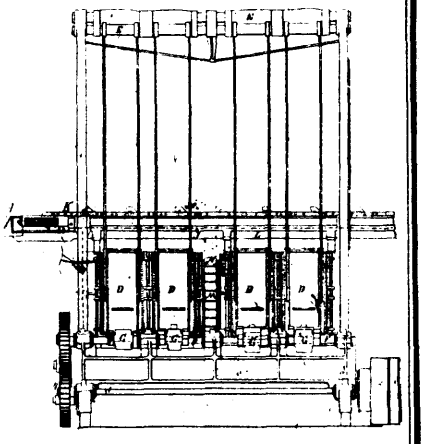
25581 Hilderbrand's Beading Tool.



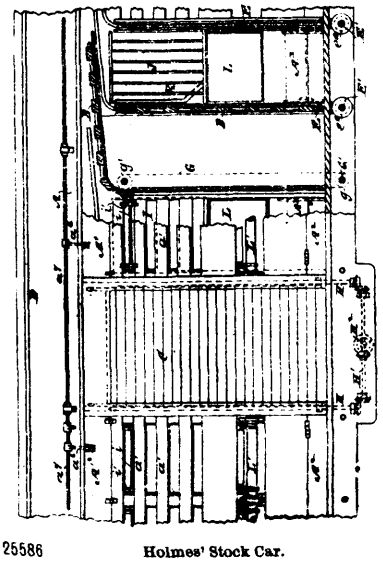
25582 Anthony's Burnishing Machine.



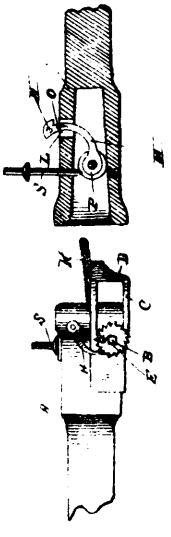
25583 Myer's Machine for Cutting Blanks for Shovels, etc.



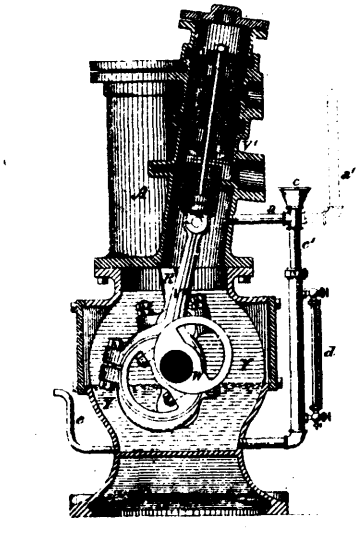
25585 Cardon's Machine for Preparing Filamentous Material.



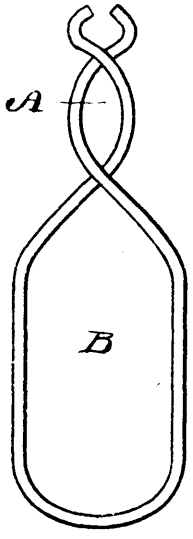
25586 Holmes' Stock Car.



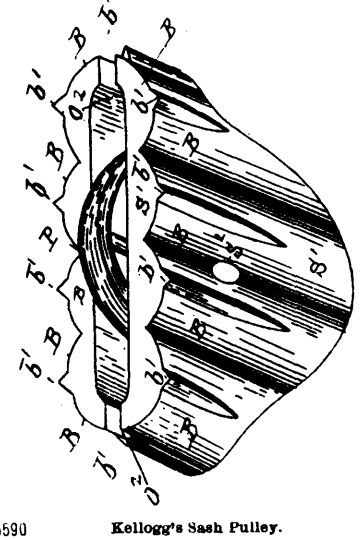
25587 Bowman's Car Coupling.



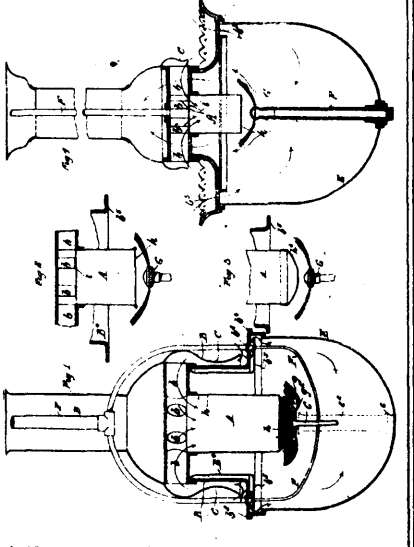
25588 Westinghouse's Steam Engine.



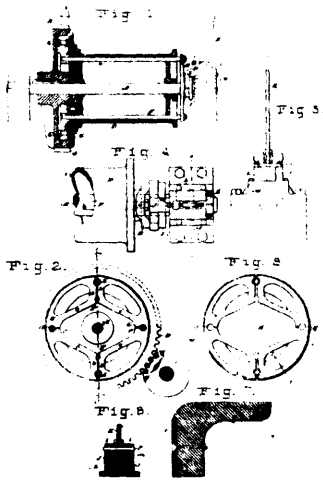
25589 White's Lamp Burner Support.



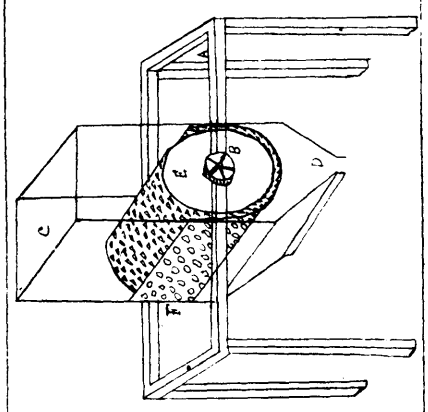
25590 Kellogg's Sash Pulley.



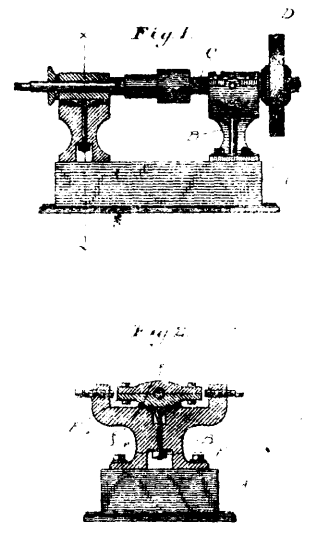
25591 Wenham's Gas Lamp.



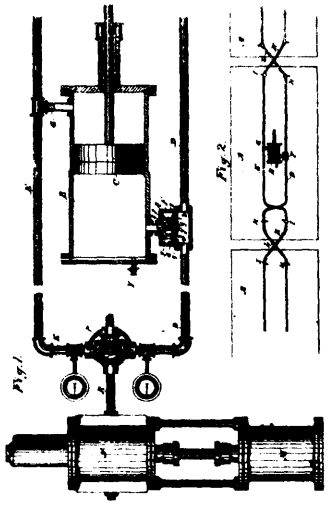
25592 Flohr's Friction Clutch.



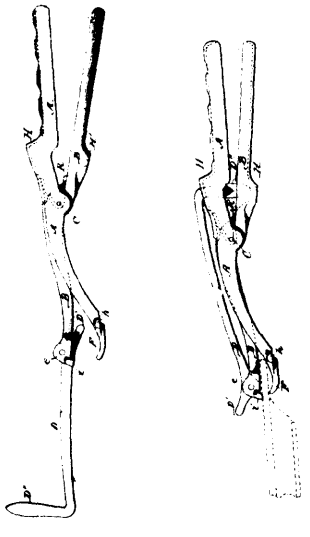
25593 Head's Machine for Grinding Mica.



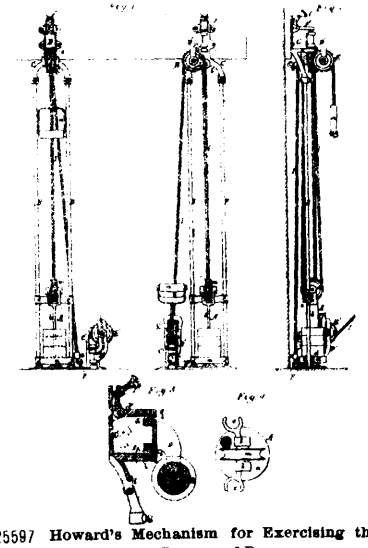
25594 Hardie's Journal Bearing.



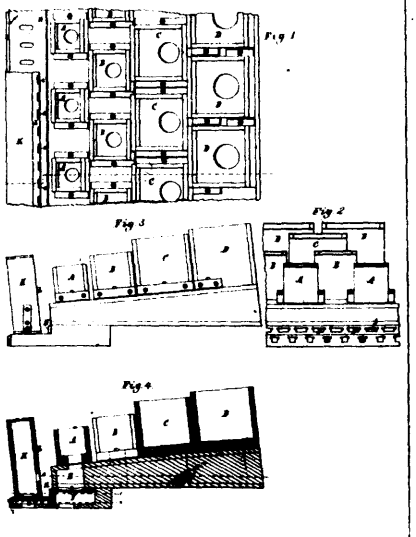
25595 Hanscom's Automatic Air Brake.



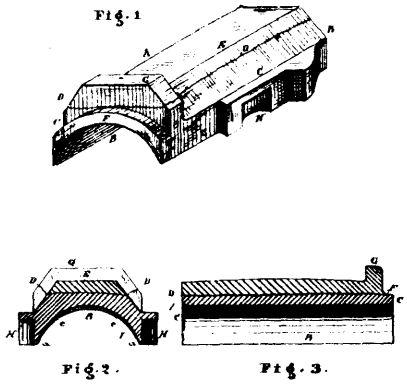
25596 Fish & King's Poker, Tongs and Lifter.



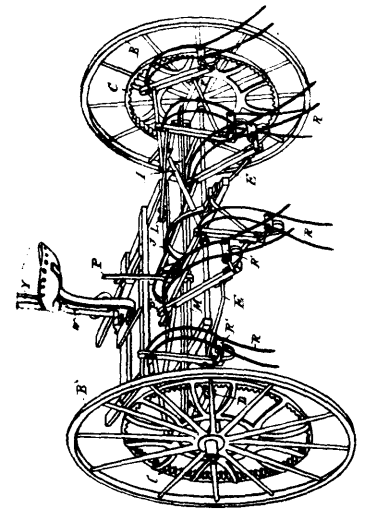
25597 Howard's Mechanism for Exercising the Physical Powers of Persons.



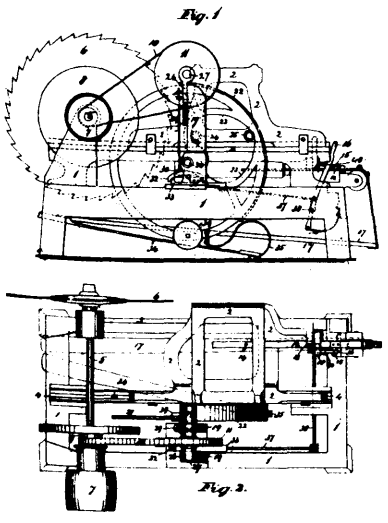
25598 Hamilton's Reed Organ.



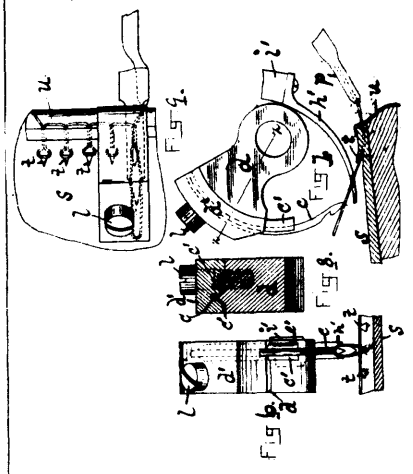
25599 Kritche's Railway Car Axle Bearing.



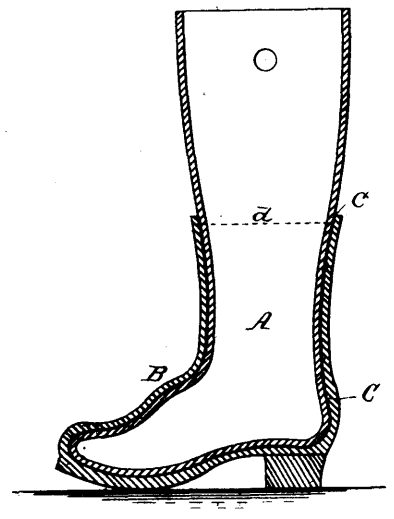
25600 Spicer's Hay Tedder.



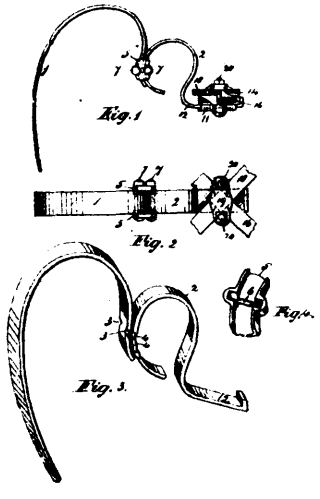
25601 Brammer's Shingle Machine.



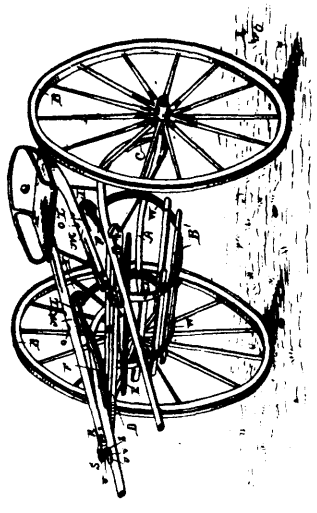
25602 Coupal's Machine for Connecting Shoe Soles and Uppers.



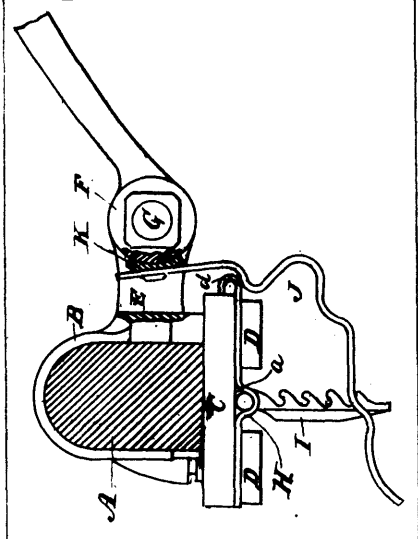
25603 Taber's Boot.



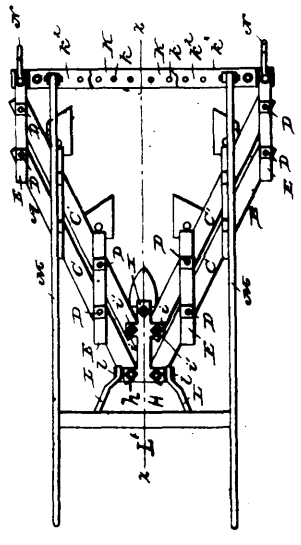
25604 Cook's Harrow.



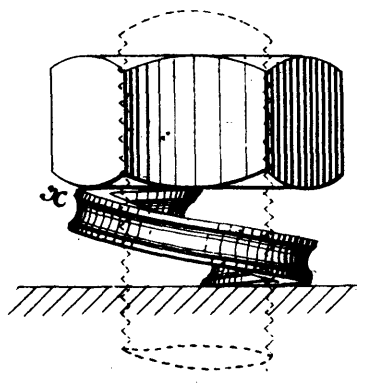
25605 Deal's Wheeled Vehicle.



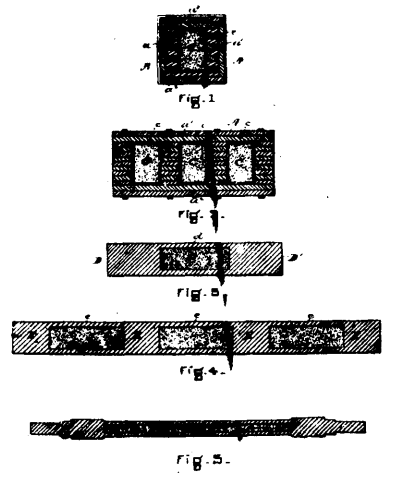
25606 Iles' Thill Coupling.



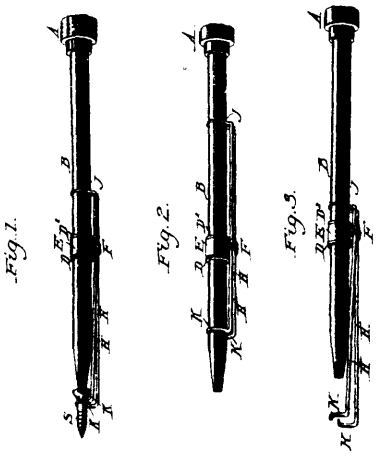
25607 Sutton's Cultivator.



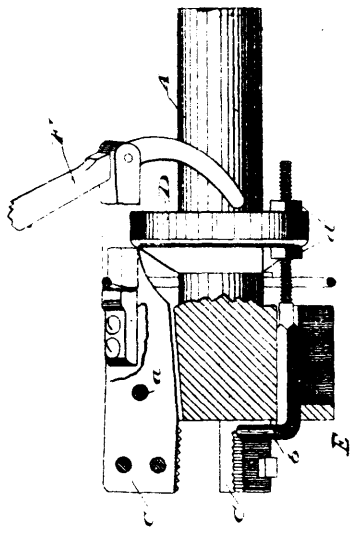
25608 Grover's Spring Washer for Screw Bolts and Nuts



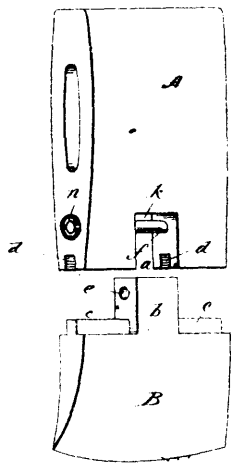
25609 Libby's Method of Making Composite Bars for Car Axles.



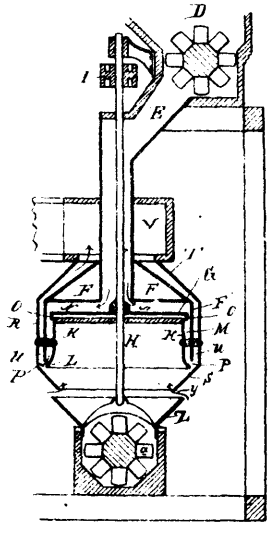
25610 Douglas' Screw Driver and Holder.



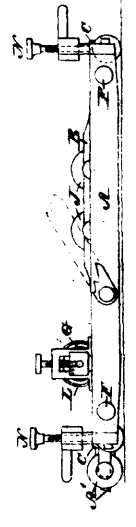
25611 Murchey's Die for Hand or Machine Use.



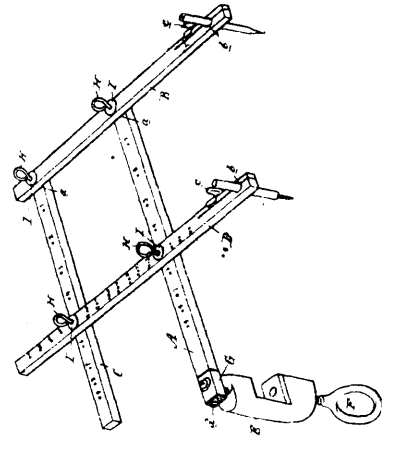
22612 Goodier's Axe.



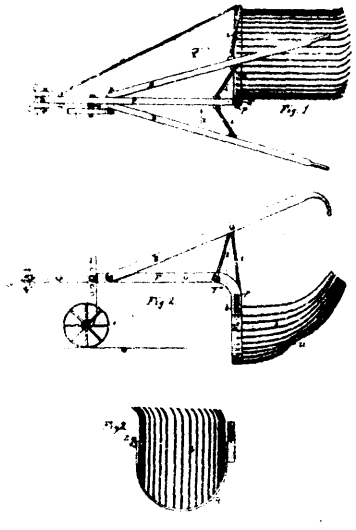
25615 Likins' Middling's Purifier.



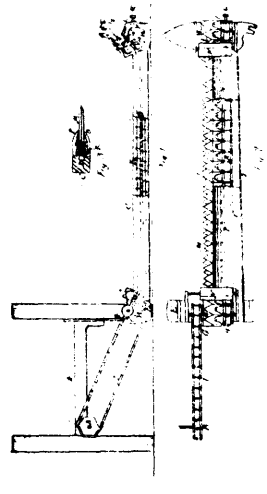
25616 Wagenhurst's Roof Double-Seaming Machine.



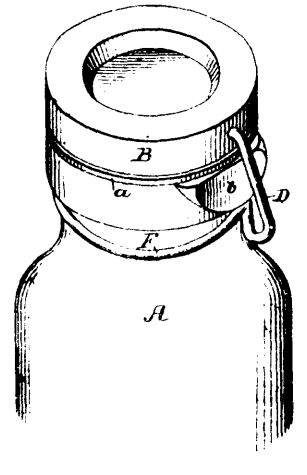
25617 Wang's Pantograph.



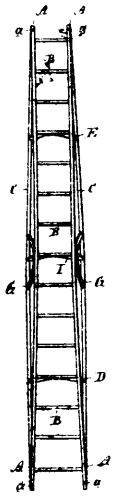
25618 Peet's Potato Digger and Bean Harvester.



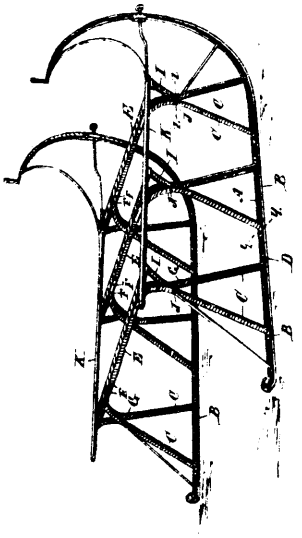
25619 Hazelton's Cutter for Reapers and Mowers.



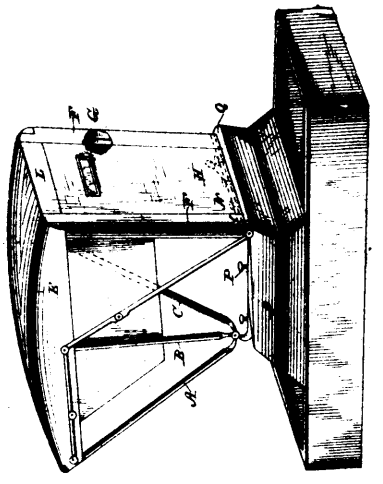
25620 Rehfuss' Hermetically Closing Jar, etc.



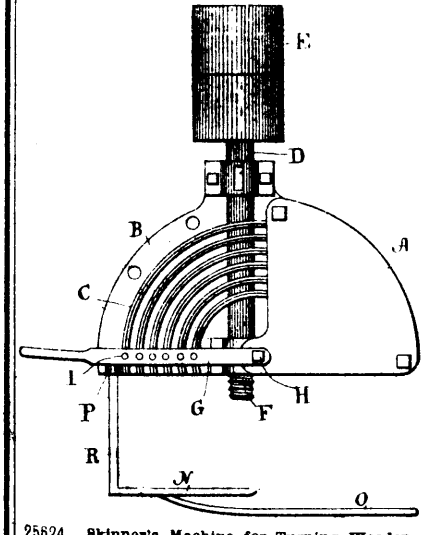
25621 Seagrave's Ladder.



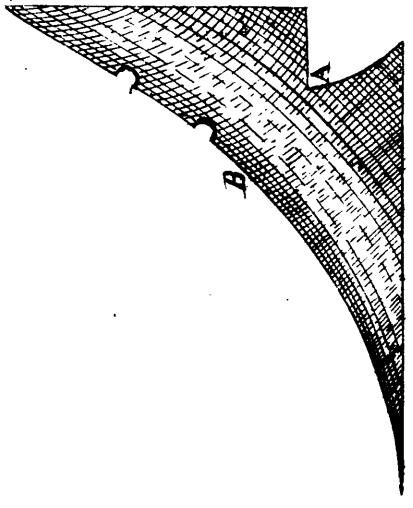
25622 Dow's Sleigh and Cutter Gear.



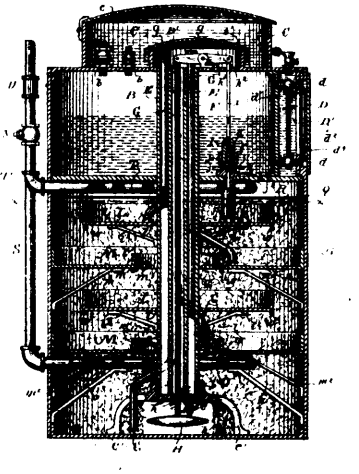
25623 Gifford's Vehicle Top.



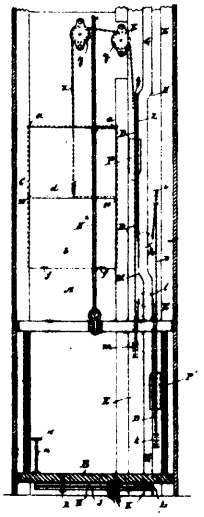
25624 Skinner's Machine for Turning Wooden Bowls.



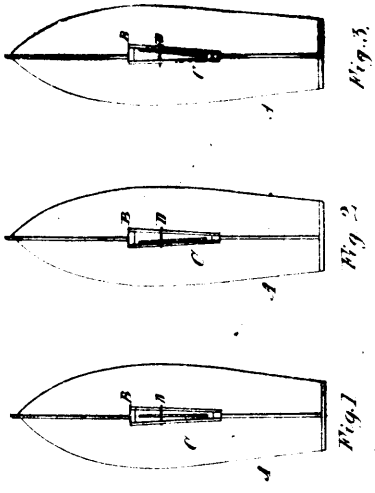
25625 McFarlane's Cultivator Tooth.



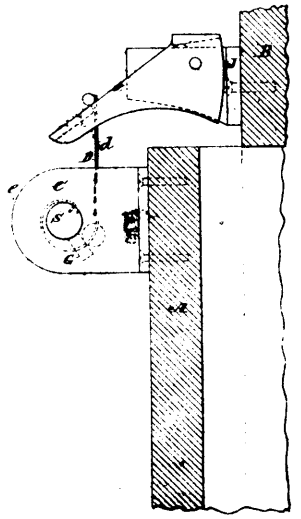
25626 Lawrence's Gas Generator.



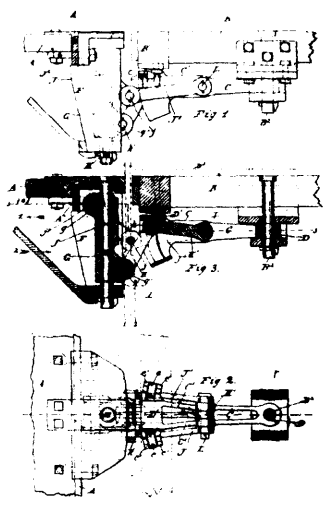
25627 Beckwith's Elevator.



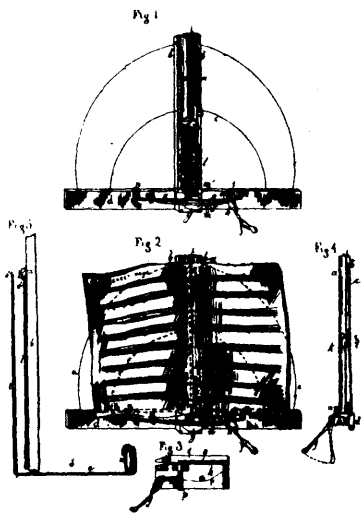
25628 Gilbert's Centre Board for Boats.



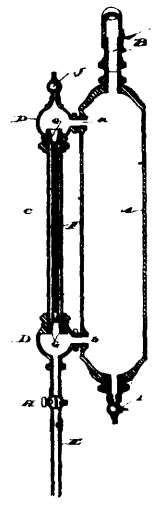
25629 Shaw's Door Check



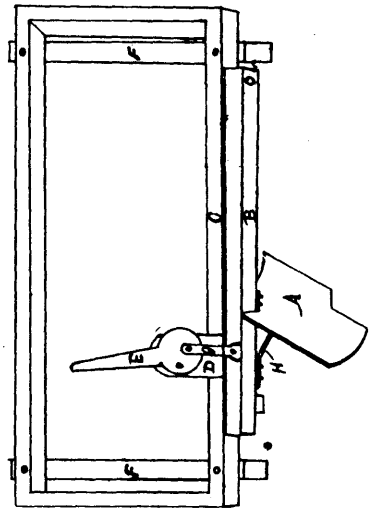
25630 Selkirk's Locomotive Coupler.



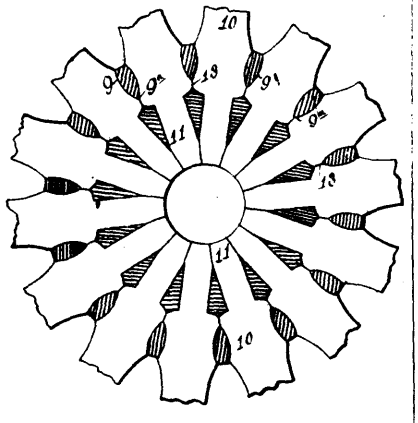
25632 Williams' Music Leaf Turner.



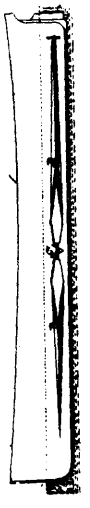
25633 Guyette's Water and Temperature Indicator.



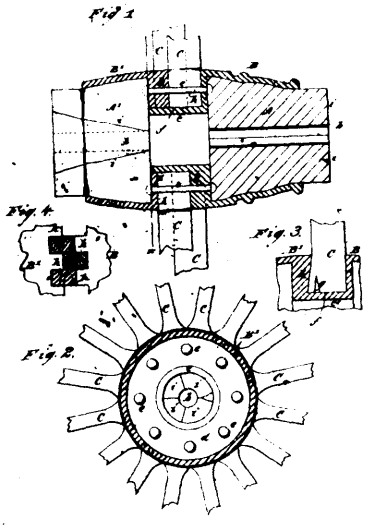
25635 Taber's Snow Plough.



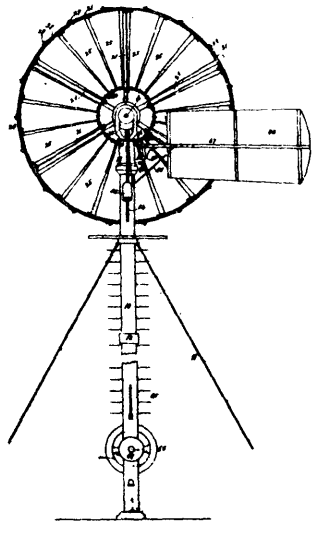
25636 Sweet's Wheel Hub.



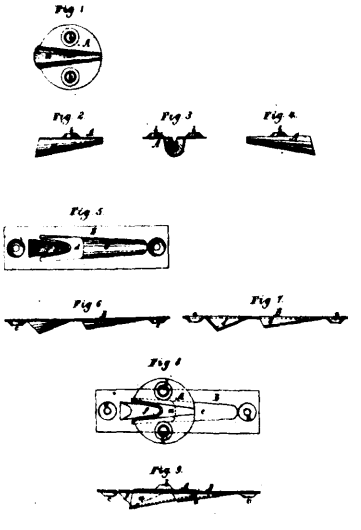
25637 Hall's Screw Propeller.



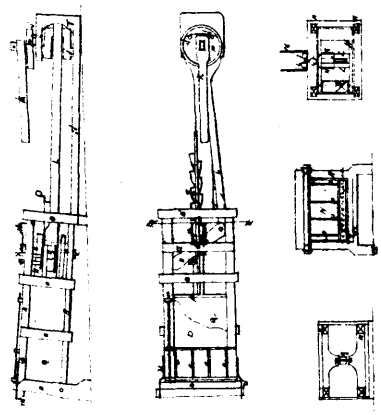
25638 Grasberger's Vehicle Wheel Hub.



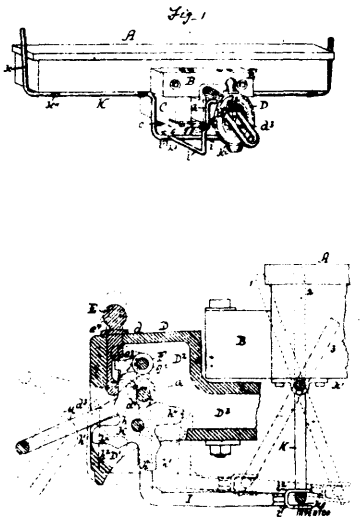
25639 Dunn & Champion's Windmill.



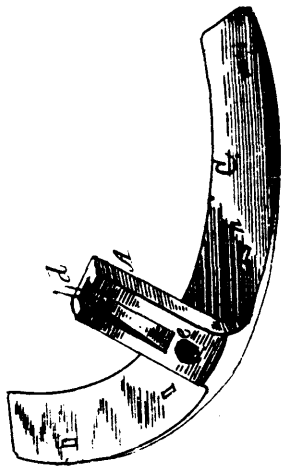
25640 Lockhart's Fastenings for Boxes, etc.



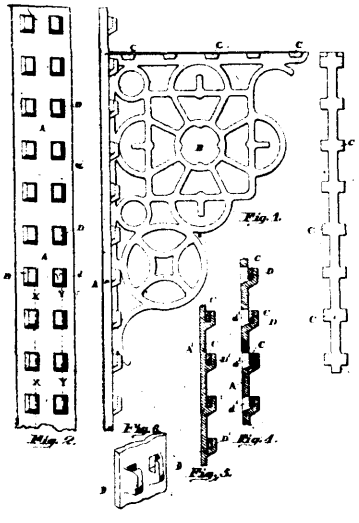
25641 Herard's Hay Press.



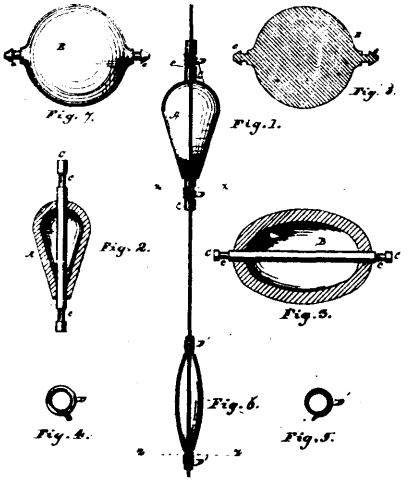
25642 Powell's Car Coupling



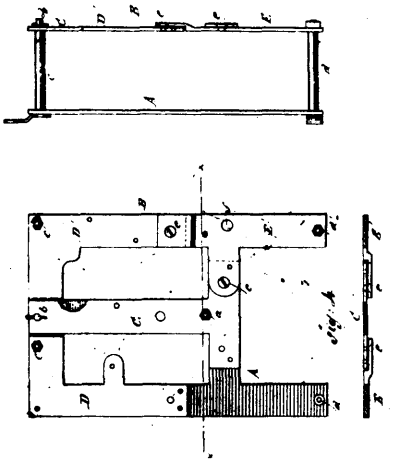
25643 Wilcox's Toe-Weight.



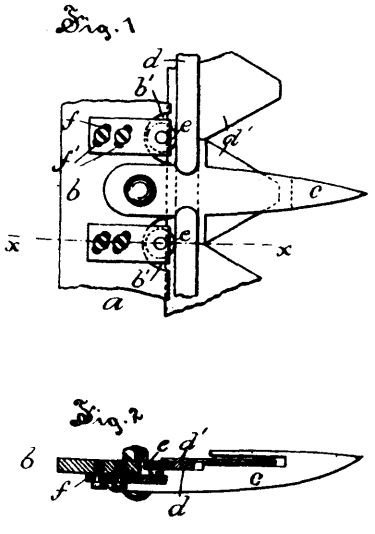
25644 Koch's Bracket.



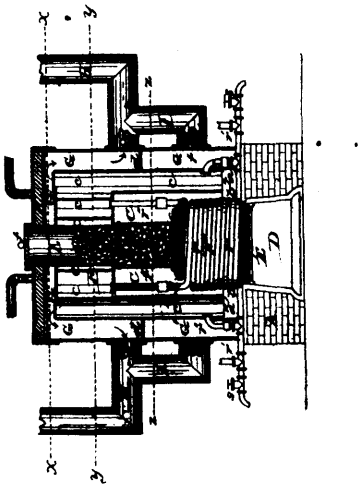
25645 Pflueger's Fishing Float and Line.



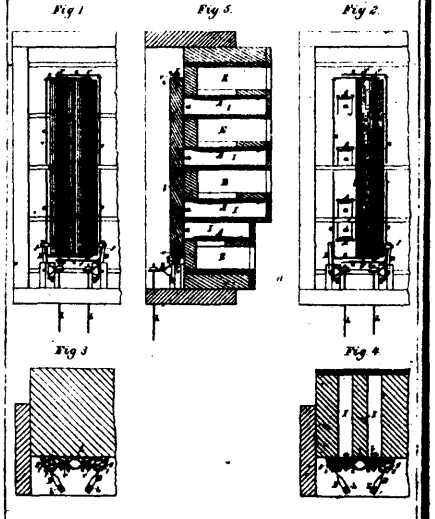
25646 Sandmark's Clock Movement Frame.



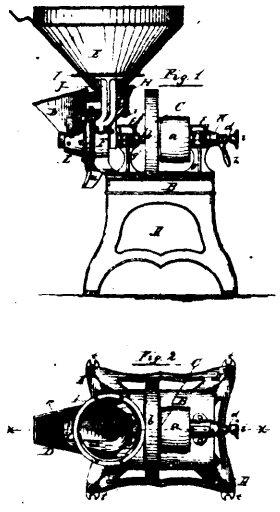
25647 Weaver's Finger Bar for Mowing Machines.



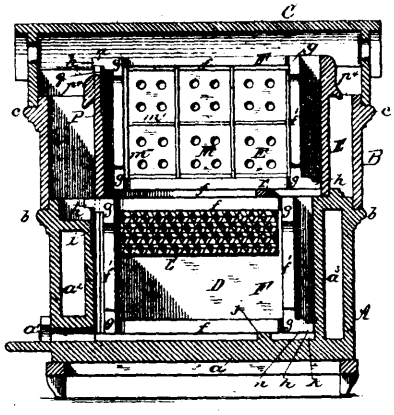
25648 Peace's Steam Boiler.



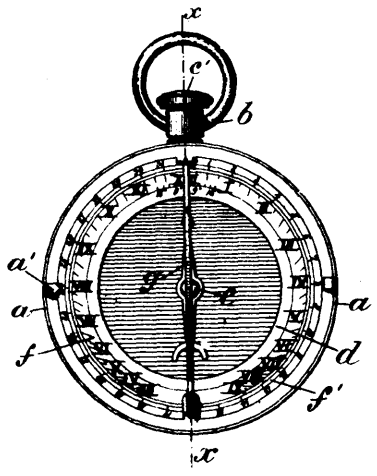
25649 Hamilton's Reed Organ.



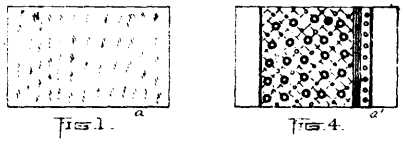
25650 McMartin's Grain Grinding Machine.



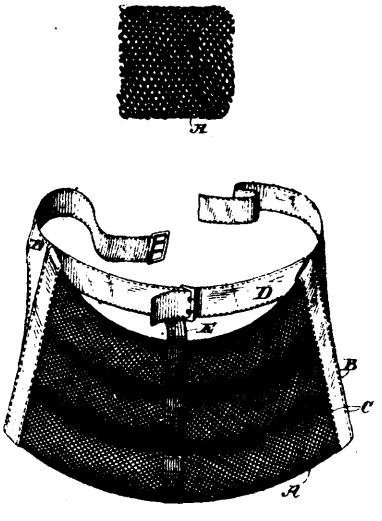
25651 Tefft's Bee Hive.



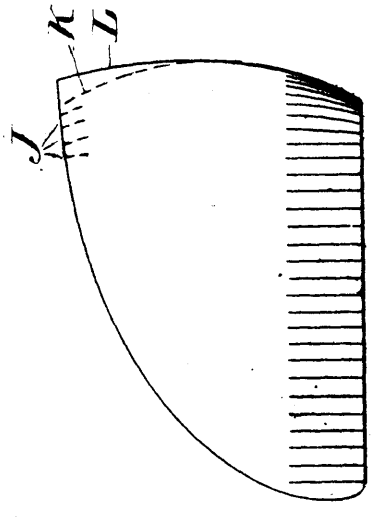
25652 Spencer's Sun Dial.



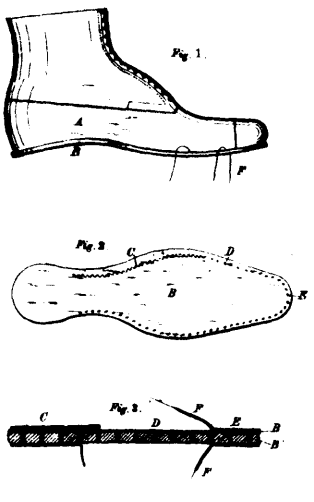
25653 Bennett's Asbestos Stove and Furnace Pipes.



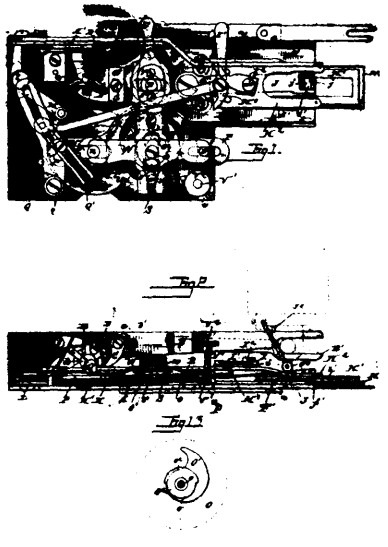
25654 Nasmyth's Bustle.



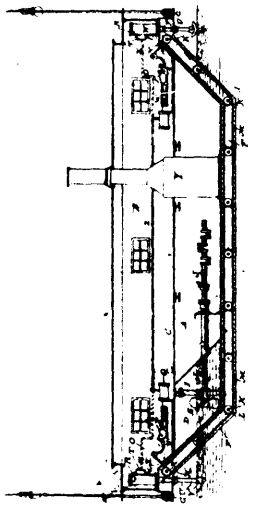
25655 Cote's Heel Counter.



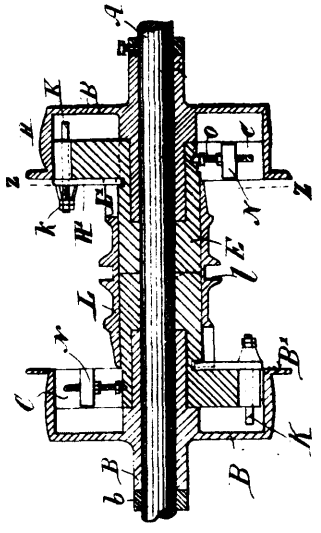
25656 Hooker's Method of Manufacturing Articles of Leather.



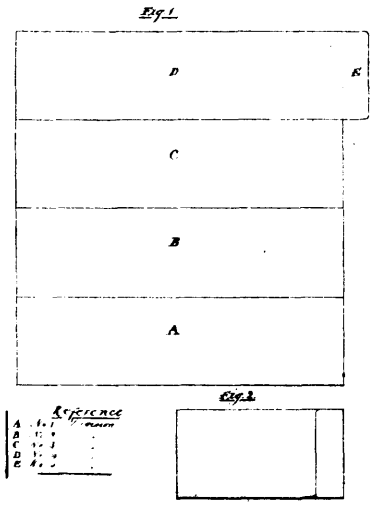
25657 Hall's Button Hole Attachment for Sewing Machines.



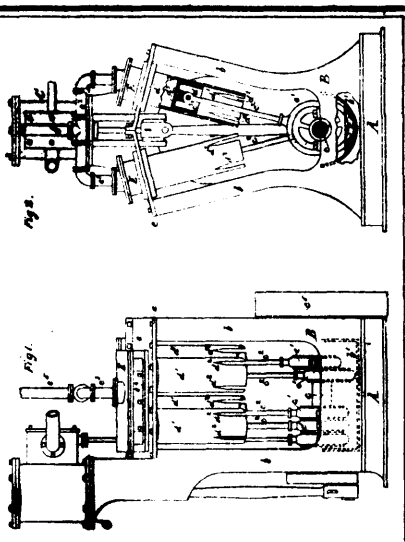
25658 Romaine's Vessel for Breaking and Removing Ice.



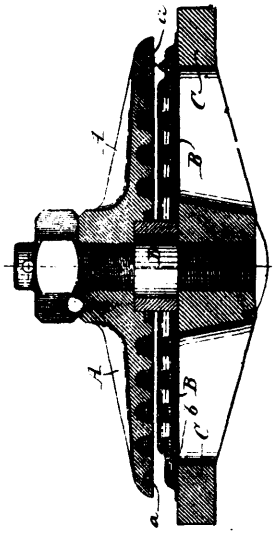
25659 Salomon's Friction Clutch



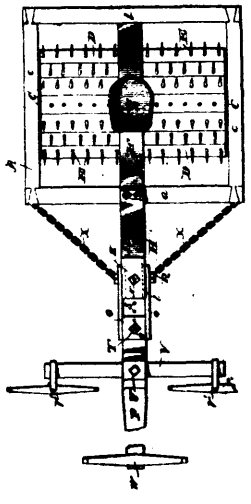
25660 Ames' Combined Envelope and Letter Sheet.



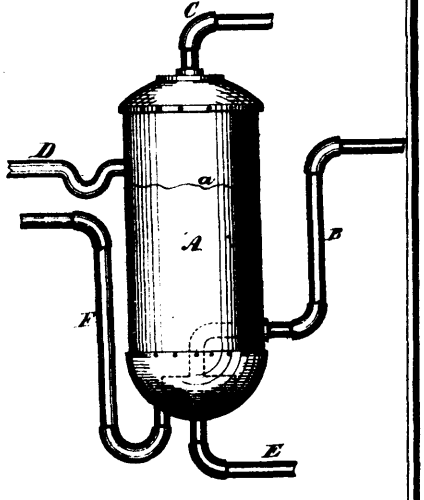
25661 Depp's Air Compressor.



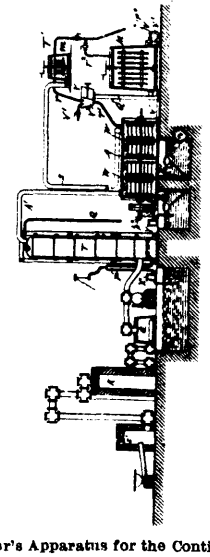
25662 Beldain's Pump Valve.



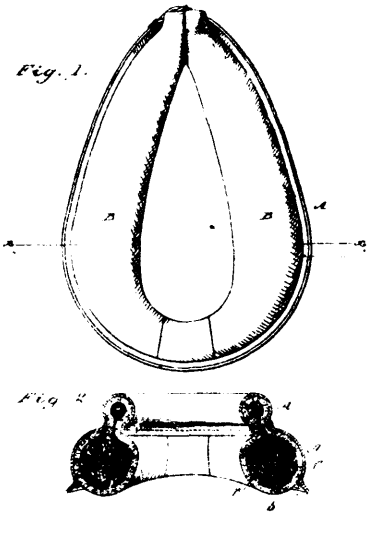
25663 Jett's Clod Crusher.



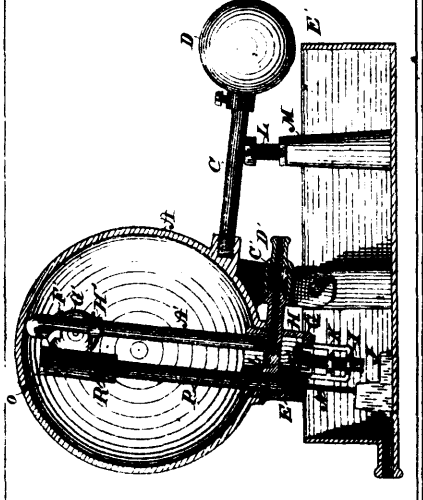
25664 Woodward's Apparatus for Increasing the Vapor Test of and Partially Purifying Petroleum Distillates.



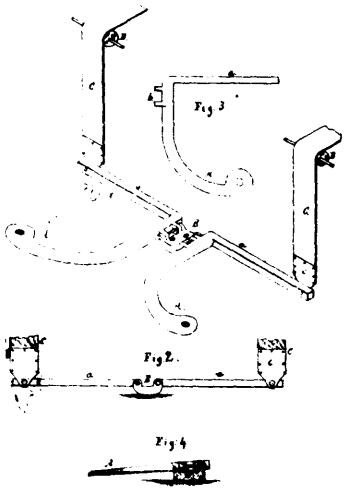
25665 Kitter's Apparatus for the Continuous Production of Sulphite of Lime, etc.



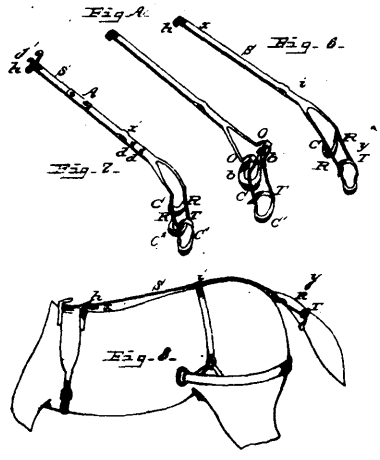
25666 Brook's Horse Collar.



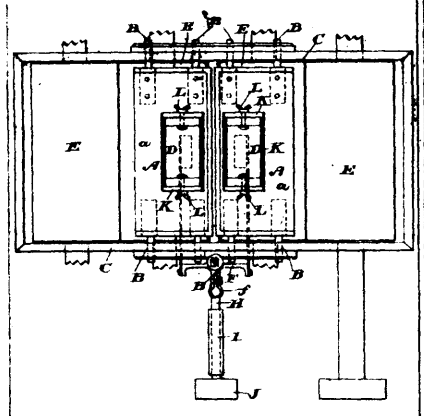
25667 Irwin's Hydraulic Air Compressor.



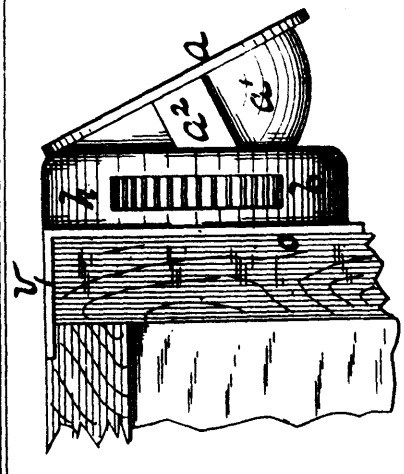
25668 Herrick and Lawrence's Pedal for Organs.



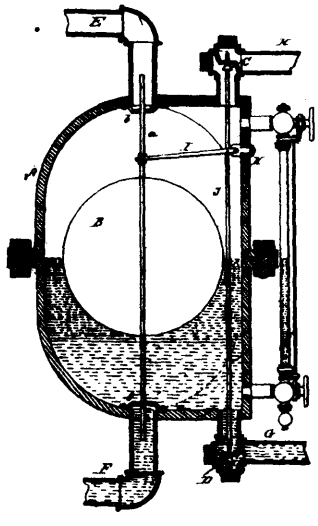
25669 Cheney's Harness.



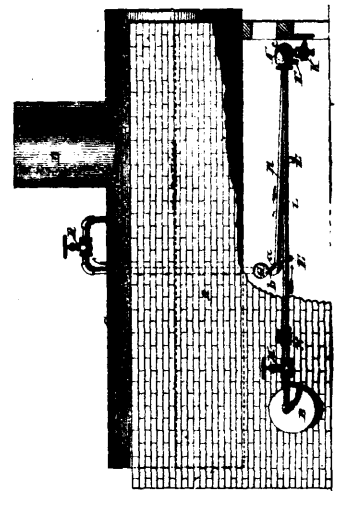
25670 Goldie's Feed for Roller Mills.



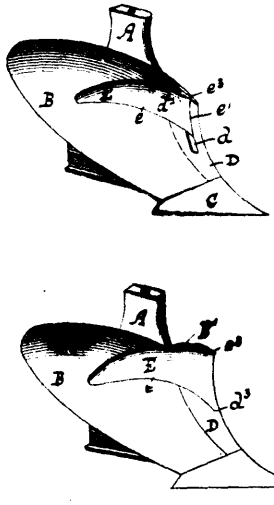
25671 Shaw's Attachments for Vice Jaws, etc.



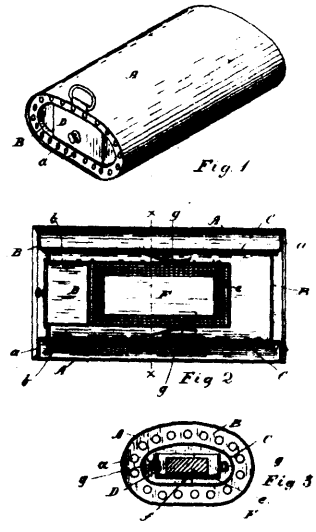
25672 Wyman's Automatic Boiler Feed Regulator



25673 Jones' Steam Boiler Furnace.



25674 Cassaday's Plough Jointer.



25675 Carreau's Foot Warmer.