

charging line, and a single independent line, including electro-magnets, to operate said series of switches. 4th. The combination, substantially as hereinbefore set forth, of a dynamo-electric machine or generator, a main line over which the current of said generator is conducted, a series of independent storage batteries to be charged from said main line, a series of switches, one for each of said batteries, to simultaneously throw said batteries into the circuit of the charging line, a single independent line, including electro-magnets to operate said series of switches, and a second series of switches, one for each of said batteries, by which and one or more of said batteries may be cut out from the main line for an indefinite period without cutting out the others, or interfering with their operation. 5th. The combination, substantially as hereinbefore set forth, of a dynamo-electric machine or generator, a secondary battery to be charged by said generator, an electric lamp to be run directly by the current of said generator, and switch mechanism for determining whether the current of said generator shall flow through the battery or through the lamp. 6th. The combination, substantially as hereinbefore set forth, of a dynamo-electric machine or generator, a series of independent secondary batteries to be charged by said generator, a series of electric lamps to be run directly by the current of said generator, and switch mechanism for determining whether the current of said generator shall flow through said batteries or through said lamps.

No. 21,977. Bolt Nut. (*Ecrou de Boulon.*)

Alonzo Johnson, Springfield, Mass., U.S., 3rd July, 1885; 5 years.

Claim.—1st. A nut having two parallel straight edge bearing-surfaces on the same side and recessed between the bearings, substantially as set forth. 2nd. A nut having two parallel straight edge bearing surfaces on the same side or face, between which surfaces is an arch-shaped concavity, the curve of which is in the direction in which the rolled grain of the iron runs of which the nut is made, substantially as set forth. 3rd. A nut having two opposite straight edge bearing-surfaces on both its sides, between which surfaces is an arch-shaped concavity extending from edge to edge of the nut, substantially as set forth.

No. 21,978. Furnace for the Combustion of Town's Refuse, etc. (*Fourneau pour la Combustion des Déchets, etc., dans les Villes.*)

John E. Stafford and James T. Pearson, Burnley, Eng., 3rd July, 1885; 5 years.

Claim.—1st. The construction of furnaces, or destructors, with openings or spaces formed in the flooring of the refuse chamber, that the heated gases may pass directly underneath the refuse matter under treatment, and thence upward amongst the same. 2nd. The various means of escape for the heated gases from the burning fuel to the refuse chamber, as hereinbefore described. 3rd. Causing the waste heat from the refuse chamber to pass between the dome and the lining *c*, substantially as described and set forth. 4th. Causing the waste from one furnace to pass into the next furnace, substantially as described and set forth. 5th. Forming the floor or grating of the refuse chamber of tubing, through which water is caused to circulate for the purpose set forth. 6th. The general arrangement and construction of a furnace with a dome-shaped roof, substantially as described and set forth.

No. 21,979. Shoemaker's Iron Last.

(*Forme de Cordonnerie en Fer.*)

James Robertson and John F. Lee, Rochester, N.Y., U.S., 3rd July, 1885; 5 years.

Claim.—1st. As an improvement in metallic shoemakers' lasts, the combination, with the last having the elliptical recesses in its underside and directly under the shank or hollow part, of the retaining standard formed with a corresponding elliptical top end conforming to the recess in the last, and entirely filling the same, substantially as and for the purposes set forth. 2nd. As an improvement in shoe-lasts, the combination of the last having the elliptical recess in its underside and under the shank or hollow part, the cylindrical standard formed with the corresponding elliptical top end conforming to the recess in the last and entirely filling the same, and the base plate formed in a single piece with a central recess receiving the end of the standard and provided with projecting ears forming braces at its edge, substantially as and for the purpose set forth. 3rd. As an improvement in shoemakers' lasts, the combination of the last having the elliptical recess in its underside, the cylindrical standard having its top end conforming to the recess and received by the same and provided with a cylindrical bottom end *b*, with the annular circumferential shoulder *b*³ above the same, and the base plate having a central recess corresponding to, and receiving the end of the standard, and provided with the ears at its edge by which it is secured in position, substantially as set forth. 4th. The combination, in a shoemaker's last, the last formed with the elliptical opening in its underside, the standard having a corresponding elliptical top end entirely filling said recess and provided with a bottom portion formed with the annular shoulder and the slots *f*₃/*f*₃, the base plate provided with the opening receiving the slotted bottom portion of the standard, and the retaining strap passing through said slots, substantially as set forth. 5th. As an improvement in shoemakers' lasts, the combination, with the bottom portion of the last, of a filling of leather or other suitable material, substantially as and for the purpose set forth. 6th. A shoemaker's last hollowed out at its bottom or sole portion to provide a narrow bead around its edge, and having the space thus formed filled with leather or other suitable material, substantially as and for the purpose set forth.

No. 21,980. Automatic Gate.

(*Barrière Automatique.*)

Josian Austin, East Liberty, Ohio, U.S., 3rd July, 1885; 5 years.

Claim.—1st. The plate D, pivoted at F, having the gate post pivot-

ed to the same at G, and having teeth I to engage with a rack for throwing the gate out of plumb, substantially as shown and described. 2nd. In combination with an automatic trip for operating a drive gate, the plate D pivoted at F, having the gate post pivoted in the same at G, and teeth I, squared sides V, V, and the rack M, carrying rolls L, as and for the purpose set forth. 3rd. The combination, with the rack M, having rollers L and the cam plate D having teeth I and squared sides V, V, of the rod X, slide rod U, V, stops W, Z, and levers T, as and for the purpose set forth. 4th. The combination, with an automatic drive gate, of the rods *p*, latches *h*, springs *i*, and stops K for automatically locking and keeping the gates shut, substantially as shown and described. 5th. In an automatic drive gate, the slamming rest *m* on post *o*, and catch *n* on the gate rail, to lock the gate open, as and for the purpose set forth. 6th. The combination, with crank rod Q, rack M, plate D, gear wheels R, S, and rod X, as and for the purposes set forth. 7th. In a drive gate, the pull rod X for throwing the gate, the trip *a*, arms *b*, *c*, *f*, slide rods U, V, stops W, Z, and retracting spring *d*, as and for the purposes set forth. 8th. In an automatic drive gate, a double pivoted crank rod to support the gate, and a coiled spring to throw the same, as and for the purpose set forth. 9th. The combination, with the tripping devices, of an automatic gate of the double pivoted crank rod on which the gate is swung, a coiled spring to throw the gate and the rack M, and plate D to open the same, as and for the purpose set forth.

No. 21,981. Screw Plate. (*Filière à Vis.*)

Frederick D. Butterfield and H. Stewart Haskell, (Assignee of George L. Reece), Derby Line, Vt., U.S., 3rd July, 1885; 5 years.

Claim.—1st. In combination with the divided die, the adjusting screws and the chambered body of the collet, the cap *b*, for the prevention of tilting of the parts of the die, substantially as described. 2nd. The combination of the divided die *c*, *c*, the adjusting screws *f*, *f*, the main body of the collet chambered to receive said die, and having as an integral part thereof the guide jaws *d*, *d*, *d*, and the cap *b*, covering a part of the face of said die, as and for the purpose specified. 3rd. The combination of the divided reversible die *c*, *c*, the adjusting screws *f*, *f*, the main body of the collet chambered to receive the said die, and having as an integral part thereof the guide jaws *d*, *d*, *d*, and the cap *b*, covering a part of the face of said die, upon which it is screwed down with pressure, and having a depression *i*, in its periphery for easy attachment and removal, substantially as described. 4th. The combination of a collet, a reversible divided die and a cap for holding said die in position, substantially as specified.

No. 21,982. Door Mat. (*Paillasson.*)

Henry T. Windt, Toronto, Ont., 3rd July, 1885; 5 years.

Claim.—1st. A coiled wire mat, formed substantially as described, and attached to the frame A, in combination with the bracing bar or bars B, arranged substantially as and for the purpose specified. 2nd. A coiled wire mat, formed substantially as described, and attached to the frame A, in combination with a bracing bar or bars B, and rod or rods C, slipped through the coils as described. 3rd. A coiled wire mat having two of its end secured to the frame A, by the coils, as described, in combination with the bars D, and C, inserted within the coils, as described, and forming hold-fasts for the staples G, which are wrapped round the sides of the frame A for the purpose of securing the edges of the mat to the side frame, substantially as and for the purpose specified.

No. 21,983. Crane. (*Grue.*)

John H. Whiting, Detroit, Mich., U.S., 3rd July, 1885; 5 years.

Claim.—1st. In an overhead traversing crane, the combination of an endless starting cable running alongside the whole length of the track of the carriage, and with one branch in proximity to the foundry floor, of a cable pulley over which said endless cable passes and by means of which it may be oscillated, and a belt-shifting device operated by the oscillations of the cable pulley, substantially as described. 2nd. In an overhead traversing crane, the combination of a safety stopping-cable running alongside the whole length of the carriage and in proximity to the foundry floor, of a cable pulley to which said rope is secured, and a belt-shifting device operated by the oscillations of the cable pulley, all arranged so that the operation of the cable will positively oscillate the cable pulley into the required positions for stoppage, substantially as described. 3rd. In an overhead crane, the combination of an endless starting cable running the entire distance of the carriage track, and with its lower stretch brought in proximity to the foundry floor, of a cable pulley over which said endless cable passes, and by means of which it may be oscillated, of a stopping cable secured to the cable pulley and placed alongside the starting cable, and of a belt-shifting device operated by the oscillations of the cable pulley, all combined and operating substantially as set forth.

No. 21,984. Burglar Alarm.

(*Délaleur de Voleur.*)

Alexander Jacobi, St. Clair, Mich., U.S., 3rd July, 1885; 5 years.

Claim.—1st. In an auto-mechanical burglar alarm having a sliding detent M, and operating by the pull of the alarm cord, the combination of the main alarm cord O, passing to all the doors and windows to be protected, with the branch alarm cords P, secured to the main cord so as to transmit a pull received by any one of them to the main cord, substantially as set forth. 2nd. In an automatic burglar alarm, the sliding detent M, in combination with the arm N, secured to the hammer rod and provided with the eye *a*, all arranged and operating substantially as described. 3rd. In an auto-mechanical burglar alarm, the vertically-sliding detent M, provided with the bend *b*, in combination with the arm N, secured to the hammer rod and provided with the eye *a*, all arranged and operating substantially as described. 4th. In a burglar alarm as described, a weight G, supported on a platform in proximity to a door or window sash, and connected