

*d*, gate *a* suspended therefrom, angle levers *A* pivoted on the studs *v* and connecting-rod *i*, of the end pieces *m* pivoted to arms *k*, springs *p* and ways *s*, substantially as shown and described. 6th. The combination, with the levers *d*, gate *a* suspended therefrom, angle levers *A* pivoted on the studs *v* and connecting rod *i*, of the end pieces *m* pivoted to arms *k*, springs *p*, way *s*, perforated adjustable uprights *t*, pins *z* and way *u*, substantially as shown and described.

### No. 19,603. Belt Fastener. (*Joint de Courroie*.)

Daniel Lovejoy, Lowell, Mass., U.S., 19th June, 1884; 5 years.

*Claim*.—1st. A belt fastener consisting of the plate *D* having curved ends, and provided with the curved ribs *e* and the conical teeth *c*, substantially as set forth. 2nd. A belt fastener consisting of the plate *D* having curved ends, and provided with the curved ribs *e* and the teeth *c* arranged in rows upon each of said ribs and between the latter, substantially as set forth. 2nd. A belt fastener consisting of the plate *D* provided with the ribs *e* and the teeth *c*, substantially as set forth. 4th. The combination, with the contiguous ends of a belt, of the plate *D* provided with the conical malleable teeth *c*, as shown, and adapted to unite the plate to the belt by having their ends clinched by being bent diagonally towards the end of the belt, as set forth.

### No. 19,604. Shutter Fastener.

(*Arrête-Persienne*.)

William E. Doolittle and David E. Doolittle, New Briatin, Ct., U.S., 19th June, 1884; 5 years.

*Claim*.—1st. A band fastener consisting of a case having a socket extending through the case and bell-mouthed at each end, and also of a spring actuated latch having an integral operating handle outside of the case and an engaging hook inside the case, and also of a keeper for engaging the latch at a point with the socket, the whole being constructed and operating together substantially as described. 2nd. The herein-described blind-fastener consisting of the case provided with a latch and spring-chamber, the latch and spring arranged therein, and the socket bell mouthed at each end and extending through the case by the side of the spring-chamber, and in the same general direction as the length of the latch, substantially as described and for the purposes specified.

### No. 19,605. Medical Manipulator.

(*Manipulateur Médical*.)

James Rice, Detroit, Mich., U.S., 19th June, 1884; 5 years.

*Claim*.—1st. An adjustable medical manipulator, substantially as described, and provided with elastic jaws, substantially as and for the purposes set forth. 2nd. In combination with the spring jaws of a medical manipulator, constructed substantially as described, the removable cushions sleeved thereon, substantially as and for the purposes specified.

### No. 19,606. Rotary Engine. (*Machines Rotatoire*.)

James H. Philips, Sharon Wis., U.S., 19th June, 1884; 5 years.

*Claim*.—1st. The combination, with the piston and its abutment, of the valve formed with the recess *D* and rotating in unison with said piston, and the inlet ports *e*, *e'* opened and closed by said valve, substantially as specified. 2nd. The combination, with the piston and its abutment, of the valve having the recess to receive the abutment and rotating in unison with said cylinder, the inlet-ports opened and closed by said valve and the passage *F*, substantially as specified. 3rd. The rotary engine consisting of the piston and its abutment and rotating in unison with the piston, the valve having the recess to receive the abutment, inlet ports opened and closed by the valve and the outlet port located near the end of the stroke, substantially as and for the purpose specified. 4th. The combination, in a rotary engine, of the piston and its abutment, the valve and its recess and inlet ports opened and closed by said valve, with one or more sides corresponding to the recess in the valve, substantially as and for the purpose specified.

### No. 19,607. Saw Swaging Device.

(*Machine pour Etamper les Scies*.)

Pascal B. Charbonneau, Bay City, Mich., U.S., 19th June, 1884; 5 years.

*Claim*.—1st. The combination of the anvil *B* and reciprocating die *C*, one having a rounded portion as at *a* to form a recess in the rear of the cutting edge of the tooth, and the die *C* adapted to strike diagonally on the back of the tooth, substantially as described. 2nd. The anvil or stationary die *B* having the rounded portion, as shown, combined with the movable die having inclined surface, and the whole adapted to swage a recess in the face of the tooth in the rear of the cutting edge and spread the metal on either side thereof, as set forth.

### No. 19,608. Electric Arc Lamp.

(*Lampe Electrique à Arc*.)

Nathan H. Edgerton, Philadelphia, Pa., U.S. 19th June, 1884; 5 years.

*Claim*.—1st. In an electric arc lamp, in which a lower fixed electrode of irreducible material is combined with an upper movable electrode, being a carbon pencil free to gravitate with respect to an arc interval between it and the fixed electrode, until entirely consumed, a fixed magazine or carbon feed tube, which is adapted to contain a series of carbon pencils arranged to successively gravitate therefrom, and which is uninfluenced as to its position in the lamp by the passage of the electric current, substantially as set forth. 2nd. In an electric arc lamp, the following instrumentalities in combination, viz: first, a fixed magazine or carbon feed tube adapted to contain a series of carbon pencils, so arranged as to successively gravitate therefrom; second, detaining pins, points, or equivalent contrivances, adapted to arrest the gravitative action of that carbon

pencil which, for the time being, is the upper electrode by bearing against its conical front extremity; third, a carbon lifting sleeve, to which said detaining pins are attached; fourth, an armature applied to said lifting sleeve; and, fifth, an electro-magnet in the circuit of the lamp; the arrangement being such that the setting up of a current in the circuit energizes the electro-magnet, and thereby occasions the attraction of the armature, the lift of the lifting sleeve, and the consequent lift of the carbon electrode to a distance from the fixed electrode corresponding to the arc interval desired, substantially as set forth. 3rd. In an electric arc lamp of the class herein recited, the combination of a casing or kindred containing device inclosing an electro-magnet, a fixed magazine or carbon feed tube adapted to contain a series of carbons arranged to successively gravitate therefrom, a carbon lifting sleeve independent of the magazine and an armature upon said lifting sleeve, the arrangement being such that upon the energizing of the magnet the armature is attracted and the sleeve lifted with respect to both magazine and casing, substantially as set forth. 4th. In an electric arc lamp of the class herein recited, the combination of the carbon feed tube, the lifting sleeve, the stud and slot connection between said tube and sleeve, substantially as and for the purpose specified. 5th. In an electric arc lamp, in which a lower fixed electrode of irreducible material is combined with an upper movable electrode, being a carbon pencil free to gravitate with respect to an arc interval between it and the fixed electrode, the combination of two pieces or plates of graphite positive and negative terminals of the line-wires with which the lamp is connected, and an armature adapted upon its unrestrained descent to rest upon said plates and complete a circuit of high resistance, substantially as and for the purposes set forth. 6th. In an electric arc lamp of the class herein recited, the combination of an electro-magnet in the circuit of the lamp, a fixed carbon magazine, a carbon-lifting sleeve which is vertically movable with respect to said magazine, an armature directly attached to said lifting sleeve, and suitable means for adjusting said armature upon said lifting sleeve, substantially as and for the purpose set forth.

### No. 19,609. Construction of Portable Covers for Hay or Corn Ricks, &c. (*Construction des Couvertures Portatives pour Meules de Foin, Grain, &c.*)

Louis A. Conteau, Léonville, France, 19th June, 1884; 5 years.

*Claim*.—In the construction of portable roofings for affording temporary protection, the channelled, looped and hooked rafters *A*, notched pannels *H*, solid and tubular iron bars *J*, *J'*, slotted ridge *L*, crescent-shaped cotters *N*, looped weights *O*, and the combination of the whole of these parts, substantially as above described and represented in the accompanying drawings.

### No. 19,610. Buckle for the Support of Harness Breechings. (*Boucle pour le Support des Avaloirs de Harnais*.)

Russell S. Boulter, Sao, Me., U.S., 19th June, 1884; 5 years.

*Claim*.—1st. The rim *A* at *a* having the parts *A* depressed, as herein specified, in combination with the alternately depressed cross-bars *B* and *C*, depressed in manner and form as hereinbefore shown and described, and provided with a stud *d*, the whole to form an improved article of manufacture.

### No. 19,611. Close Weeding and Thinning Hoe. (*Houe à Sarclage Serré et pour Eclaircir*.)

John C. Wilson, Mitchell Square, Ont., 19th June, 1884; 5 years.

*Claim*.—1st. As an improved close-weeding and thinning hoe, the narrow hoe *B* fixed to the handle-socket *A* and having notches *a* cut near its cutting edge, in combination with a curved spring hoe *C*, arranged substantially as and for the purpose specified. 2nd. As an improved close-weeding and thinning hoe, a narrow hoe *B* fixed to the handle-socket *A* and having notches *a* cut near its cutting edge, in combination with a curved spring hoe *C* rigidly fastened to the upper end of the hoe *B* and connected at its lower end by the flexible connection *E*, substantially as and for the purpose specified. 3rd. As an improved close-weeding and thinning hoe, a narrow hoe *B* fixed to the handle-socket *A* and having notches *a* cut near its cutting edge, in combination with a curved spring hoe *C* and spike *F*, substantially as and for the purpose specified.

### No. 19,612. Metal Mould for Casting Vices. (*Moule Métallique pour Couler les Vices*.)

William E. Snediker, Trenton, N.J., U.S., 19th June, 1884; 5 years.

*Claim*.—1st. The divided mold for casting vices, comprising one or more cavities, as *C*, *C'*, with hinge-plate recesses, as *c*, *c'*, a pouring gate, as *D*, and core seats, as *b*, *b'*, *d*, for supporting the cores *E*, *E'*, all substantially as herein described. 2nd. The divided mold for casting vices, comprising two lower mold sections *A*, *A'*, and two upper sections *A''*, *A'''*, capable of moving towards the said lower sections, substantially as and for the purpose herein described. 3rd. In per sections *A''*, *A'''*, a divided mold for casting vices, the combination of two upper sections, two lower sections and an interposed divided shrinkage plate, substantially as herein described. 4th. The combination of the upper and lower mold sections, and interposed divided shrinkage plate, and the levers for operating the said shrinkage plate, substantially as and for the purpose herein set forth.

### No. 19,613. Construction of Wood Floorings. (*Construction des Planchers*.)

Alfred Putney, London, Eng., 19th June, 1884; 5 years.

*Claim*.—1st. The strengthening of the tongue marked *P*, by having