

admission of air and of liquid, in combination with the piston provided with the passages for admission to both sides of the piston, of the air and liquid, and the piston rod also provided with a similar passage, substantially as described. 5th. The combination of the cylinder provided with the flange *e*, the draw bar or piston rod with the cut out portion *b* and the timber supports *f* and *e*2, substantially as described.

No. 19,555. Gate. (*Barrière.*)

Amon W. Chilcott, Mattoon, Ill., U.S., 14th June, 1884; 5 years.

Claim.—1st. The combination, with a sliding gate, of a bar *K* pivoted near one end thereof, a dip *O* in the side of the gate and an elbow-lever *J* having one arm pointed to the said rod, and so arranged, with reference to the gate and its operating mechanism, that the said arm of lever *J* and the bar *K* will be in alignment, or nearly so, whenever the gate is closed, and thus lock it securely, as described. 2nd. The combination, with the gate *A*, of the elbow-lever *J*, the connecting bar *K*, the connecting rods *L* and the levers *M* pivoted on the cross piece *N* of a standard *C*, substantially as herein shown and described and for the purpose set forth. 3rd. The combination, with the gate *A*, of the elbow lever *J*, the connecting rod *K*, the dip *O*, and of levers and connecting rods for swinging the angle lever *J*, substantially as herein shown and described and for the purpose set forth.

No. 19,556. Valve Mechanism. (*Mécanisme de Soupape.*)

Charles Belknap, Bridgeport, and John W. Bradley, Stratford, Ct., U.S., 14th June, 1884; 5 years.

Claim.—1st. An improved valve, composed of a valve seat, a stiff hinged arm having a stationary bearing, and a non-rotating disk loosely connected to the arm, substantially as set forth, so that, when the disk is pressed to its seat, it is free to adjust itself and bear equally at all points. 2nd. The combination, with the sectional valve shell, of an independent removable, dished or recessed valve seat, firmly clamped between the sections of the shell (whereby a light internal packing is afforded) and the valve contained within the valve seat, substantially as described. 3rd. The combination of the hinged valve and an independent removable dished or recessed valve seat, with shoulders integrally formed therewith, which are provided with sockets for the bearing pin of the hinged valve, substantially as set forth. 4th. The combination, with the valve shell, of an independent removable, dished or recessed valve seat, containing a valve composed of a hinged arm, and a removable disk loosely connected together, the valve seat and valve being conveniently removable together from the shell, substantially as set forth.

No. 19,557. Gradual Reduction Machine. (*Machine à Réduction Graduelle.*)

The Case Manufacturing Company (Assignee of John M. Case), Columbus, Ohio, U.S., 14th June, 1884; 5 years.

Claim.—1st. In a gradual reduction machine, the combination of a vertical series of rolls, riddles and return boards, an iron frame on which are mounted the rolls and the gearing for driving the same, and a wooden frame of any necessary length, extending therefrom and supporting the ends of the riddles and return boards, substantially as set forth. 2nd. In a gradual reduction mill, the combination, with a vertical series of paired rolls, of a belt-tightening pulley located between each two pairs of said rolls, in the manner and for the purpose set forth, and means for simultaneously operating said pulleys, as described. 3rd. In a gradual reduction mill, the combination, with a vertical series of roll-driving pulleys and a belt passing over said pulleys, of a series of tightening pulleys located in position relatively to the rolls to adapt them to take the belt, as it passes from each roll, and deflect it out of its natural course, whereby it is made to encircle a greater part of the peripheries of the roll pulleys, and means for simultaneously adjusting said series of tightening pulleys for taking up slack in the belt, substantially in the manner set forth. 4th. The combination of the eccentric shaft *20*, having a box fitted loosely thereon, the riddle straps *18*, suitable horizontal friction pulleys and springs *21* for imparting a vibrating motion to the riddle, as set forth. 5th. The combination of two or more riddles and their connecting straps, with an eccentric shaft common to all, a box loosely fitted thereon, and springs acting in opposition to said straps for imparting a shaking movement to said riddles in opposite directions, so that each will counteract the momentum of the others, as explained. 6th. The combination of a riddle, a return board suspending hangers and adjusting support common to both, substantially as and for the purpose set forth.

No. 19,558. Electric Automatic Railway Signal Register. (*Registre de Signal Electrique Automatique pour Chemins de Fer.*)

George W. Babbitt, Alonzo Ellison and Joseph H. Bacon, St. Thomas, Ont., 14th June, 1884; 5 years.

Claim.—1st. The key board *E*, attached to an electric circuit and operated by any mode of changing the position of the signal, enabling the party interested to know that said signal is changed, as desired. 2nd. And the arrangement of the keys, Fig. 4 and Fig. 5, on the key board, to indicate any particular signal.

No. 19,559. Machine for making Felt Boots. (*Machine pour Confectionner les Bottes de Feutre.*)

Laurent Ruel, Merrimac, Mass., U.S., 14th June, 1884; 5 years.

Claim.—1st. In a felt boot machine, the vat *B* having the two bottoms *b*, the upper one being perforated, as and for the purpose set forth. 2nd. In a felt boot machine, the jaws *c*, *e*1, spring *d*, eccentric *e* and lever *f* substantially as described. 3rd. The cylinder *C*, placed as shown, the pipe *E* working in said cylinder, carrying the piston *A*

and rack *k*, substantially as shown and described. 4th. The tree pieces *F* and *F*1, connected by the arms *i* to the rod *j* in such a manner that the opposite arms *i* form a toggle joint to be operated upon by the rod *j*, for moving the tree piece *F*, *F*1, together or apart, substantially as and for the purpose set forth. 5th. In a felt boot machine, the rod *j* working in the pipe *E*, and having its lower part widened where it passes through a slit in the floor of the machine or the building, *s*, as thereby to prevent its turning and operated upon by the foot lever *t*, substantially as shown and described. 6th. The arrangement and combination of the pulley *H*, with the rack *k*, pinion *l*, ratchet wheel *m* and pawl *n*, substantially as and for the purpose set forth. 7th. In a felt boot machine, the combination of the tree piece *F*1 having the heel *J* sliding therein, with the lifting rod *K* and the levers *L* and *M* for operating the same, substantially as herein shown and described. 8th. In a felt boot machine, the combination of the cylinder *C*, with the clamps *u*, placed as shown, and movable by the levered eccentrics *v*, for the purpose herein specified. 9th. In a felt boot machine, the steam pipe *w* branching into the steaming vat *B* and the cylinder *C*, substantially as and for the purpose herein specified.

No. 19,560. Axle for Two-Wheeled Vehicles. (*Essieu pour Voitures à deux Roues.*)

Frank Gilbert, Union, Ind., U.S., 14th June, 1884; 5 years.

Claim.—1st. The combination, with a metallic axle formed with two longitudinal beds, of a spring located transversely on said beds, substantially as set forth. 2nd. The combination, with an axle formed with two beds substantially parallel with, and on opposite sides, of a straight line forming the axle-spindles, of a spring resting upon and secured to both said beds, substantially as set forth.

No. 19,561. Cheese Press. (*Presse à Fromage.*)

George W. Hay, Syracuse, N.Y., U.S., 14th June, 1884; 5 years.

Claim.—1st. A gang press, having a platen provided with arms, which bear against the followers of several series of cheese hoops supported in the press frame, and operated by suitable pressing mechanism to simultaneously press said series of hoops. 2nd. A gang press, having a platen carrying the pressing screw, and provided with arms bearing against the followers of cheese hoops arranged in separate tiers within the press frame, and combined with an adjustable head block, substantially as specified. 3rd. The combination of a platen adapted to bear against the followers of separate tiers of cheese hoops, a press frame provided with quadruplex way, and a central guide channel and a pressing screw, substantially as described. 4th. The platen *P*, having central hub or boss *p* and arms *pt*, *pr* radiating from the centre, and guides or slides *s*, *s*1, substantially as and for the purpose specified. 5th. The combination of the platen *P*, constructed as described, with a screw *s* and pawl and ratchet, said pawl consisting of the dogs *d*, *d*1 adapted to engage with and reverse the action of the screw, substantially as described. 6th. A gang press frame, composed of the ways *w*, *w*1, central guide channel *c*, and having side opening *u*, *u*1 for the admission and removal of the lower tiers of hoops, substantially as specified. 7th. The within described gang press, composed of the platen press screw frame, adjustable head block and the tension or take up screw *T* or its equivalent, substantially as and for the purpose specified.

No. 19,562. Turbine Water Wheel. (*Turbine Hydraulique.*)

Joseph Raab, Dayton, Ohio, U.S., 14th May, 1884; 5 years.

Claim.—1st. In a turbine water wheel, the combination of the shaft and hub having the buckets, as described, with the casing gate and crown cover, said gate being suspended on the upper rim of the casing by journals to which are arranged the friction rollers, substantially as set forth. 2nd. In a turbine water wheel, the case provided with the annulus on its top rim, the combination of the gate suspended and held therein on the friction rollers, as described, with the crown top and guide, said guide having the key turning in the slot in the top rim of the casing and adapted to engage between the shoulders on the gate, as set forth. 3rd. In a turbine water wheel, the combination of the shaft having the hub and buckets, as described, the gate and casing and the crown top having thereon the means for operating the gate with the bridge tree and step, said bridge tree having a standard to each side of the step on which is secured a guide plate for the shaft, as set forth. 4th. In a turbine water wheel, the herein described combination of the gate having the shoulders *t*, *t*1, suspended on the upper part of the rim of the casing by the friction rollers, and adapted to be controlled by the key in the crown top, with the wheel having the buckets and annular rim *K*, as set forth, said buckets being contiguous to the openings of the gate and casing. 5th. In a water wheel, the combination, with the wheel and shaft, of the thimble *g* having flange *pt*, stuffing box *G* fitting on said flange, the bridge tree step *a* and guide plate *b*, said parts being formed and arranged substantially as set forth.

No. 19,563. Type Rubbing Machinery. (*Machine à Frotter les Caractères d'Imprimerie.*)

George S. Eaton, Brooklyn, N.Y., U.S., 14th June, 1884; 5 years.

Claim.—1st. The combination, in a type-rubbing machine, of the adjustable heads *B*, *C*, cutters *i* and revolving conveyor *l*, substantially as set forth. 2nd. The combination of the heads *B*, *C* having rubbing surfaces *q* and cutters *i*, with the revolving conveyor *l*, feed table *F*, delivery inclines *h*, galley *m* and means, substantially as described, for moving the line of types endwise, substantially as set forth. 3rd. The feeding table, having an inclined base-plate *G* and the adjustable guides *3* and *4*, in combination with the adjustable heads *B*, *C*, conveyor *l* and cutters *i*, substantially as set forth. 4th. The combination, with the rubbing mechanism and galley *m*, of the pusher *s*, revolving cams *13*, tappet *12*, shaft *t* and spring *11*, substantially as specified. 5th. The combination, in a type-rubbing machine, of