swinging stacker. 19th. The combination, with the cylinder, the vibrating separating table and the shaking shoe, of a carrying device situated beneath the cylinder and the separating table, and supported independently of the separating table and arranged to carry the grain that drops from the cylinder and from the table, backward to the shoe. 20th. In a thrashing and separating machine, a vibrating separating table adapted to receive the mingled mass of straw and grain from the cylinder, in combination with an independently mounted grain carrying table arranged below the separating table to receive the grain which falls through the separating table.

No. 12,376. Improvements on Steam Pumps.

(Perfectionnements aux pompes à vapeur.)

The Pulsometer Steam Pump Company, New York, (Assignee of John Maslin, Jersey, N.J.), U.S., 18th February, 1881; for 5 years.

Claim.—1st. The method of preventing too sudden and excessive condensation of steam and thereby economizing steam and causing a smooth and noiseless working of a steam vacuum pump, consisting in forming an air cushion between the entering steam and the water in the pump, and in introducing air into the vacuum chamber. 2nd. In a steam vacuum pump, the combination, with the cylinders A A and vacuum chamber D, of the vacuum operated valve E. 3rd. As a means for regulating the admission of air to a steam vacuum pump, the vacuum operated valve E consisting of chambered head *f*, shouldered valve rod *h*, perforated valve seat *l* and screw nut *o*. 4th. In a valve, the combination, with the chambered head *f* and valve rod *h* provided with cleft head *i*, of the transverse bar *g* whereby the said valve rod is prevented from turning.

No. 12,377. Improvements on Steam Pumps.

(Perfectionnements aux pompes à vapeur.)

The Pulsometer Steam Pump Company, New York, (Assignee of Gardner F. Badger, East Orange, N.J.), 18th February, 1881; for 5 years.

Claim.—1st. A steam vacuum pump provided with ball C in the common upright passage between the two bottle shaped chambers A A, said ball C being fitted so as to oscillate between its seats from the supply and exhaust of steam from said chambers. 2nd. The combination, with the chambers A A provided with ball C, of the vacuum chamber J, induction and eduction chambers D^1 H, respectively, and valve seats F G formed with upward flaring sides *c d*, respectively, for receiving the valves E E. 3rd. The construction of a steam vacuum pump, the combination with the induction chambers D^1 D^1 and eduction chambers H, of the upward flaring valve seats *c d* and valve seats F G, respectively, having corresponding downward bevelled edges. 4th. As a means for holding the induction valve seats, valves and valve guards in place, the combined rod L and set screw M, said rod and screw being set in line at right angles to the face of the valve seat. 5th. The combination, with the valve seat G, valve E and screw tapped valve guard K, of the screw bolt O, said bolt being entered through the shell of the pump and screwed at right angles into the valve guard.

No. 12,378. Improvements on Sawing Machines. *(Perfectionnements aux scieries.)*

William W. Giles, Chicago, Ill., U.S., 18th February, 1881: for 5 years.

Claim.—1st. In a sawing machine to be operated by one man, a single rear supporting leg B, beam F, hand lever H *c* and saw K, pitman L connecting the same to the saw lever J by the link M, or directly attached to the latter by bolts. 2nd. In a reciprocating sawing machine, the combination of the diverging beam D D, adjustable dog G and single leg B. 3rd. In a reciprocating sawing machine, the combination of the beam F, the dog G and single leg B. 4th. In a reciprocating sawing machine, the combination of the beam F, the dog G, single leg B, with the block C. 5th. The combination of the single leg B, beam D D, (or F) saw lever J, link M, hand lever H *c* and a saw, or saw and pitman, with the dog G. 6th. The combination of the single leg B, beam D D, (or F), saw lever J, link M, hand lever H *c* and a saw, or saw and pitman, with the dog G and the spiral spring P. 7th. The combination of the single leg B, beam D D (or F), saw lever J, link M, hand lever H *c* and a saw, or saw and pitman, with the dog G, spiral spring P and the rubber blocks *f f*, or equivalent springs. 8th. The combination of the single leg B, beam D D (or F), saw lever J, link M, hand lever H *c* and a saw, or saw and pitman, with the dog G and rubber springs *f f*. 9th. The combination of the single leg B, with or without the adjustable block C, beam D D (or F), saw lever J, link M, hand lever H *c* and a saw, or saw and pitman, with the dog G and spiral spring P. 10th. The combination of the single leg B with or without the adjustable block C, beam D D (or F), saw lever J, link M, hand lever H *c* and a saw, or saw and pitman, with the dog G and the rubber blocks *f f*, or equivalent springs. 11th. The combination of the single leg B with or without the adjustable block C, beam D D (or F), saw lever J, link M, hand lever H *c* and a saw, or saw and pitman, with the dog G, spiral spring P and rubber springs *f f*. 12th. In a hand sawing machine with a single rear leg, diverging beam D D, or single beam F, dog G with the saw lever J, attached rigidly to the hand lever H *c*, together with a saw, or saw and pitman and with or without either or both, the springs P or *f f*. 13th. A reciprocating sawing machine with but one leg upon the ground to support its rear end, and the forward end upon the log or a suitable frame work for supporting the wood to be sawed. 14th. A reciprocating sawing machine, with but one leg to support its rear end, with or without an auxiliary adjustable dog attached to the main beam to support and adjust the machine to saw at any desired angle. 15th. In a reciprocating sawing machine, the widened base pivot for connecting the saw lever and saw pitman. 16th. A reciprocating sawing machine with but one leg to support its rear end (calling the end resting on the log or frame, the front end), and having the main beam to part thus ⊲ so as to form two dogs or rests to support the front end and to keep the machine in position.

No. 12,379. Improvements on Conductor Pipes and Holdfasts. *(Perfectionnements aux tuyaux de conduite et crampons.)*

Thomas Linklater, Belleville, Ont., 18th February, 1881: (Extension of Patent No. 5,703).

No. 12,380. Steam Boiler Injector. *(Injecteur de chaudière à vapeur)*

Charles H. Stuart, Chelsea, (Assignee of William T. Messinger, Boston,) Mass., U.S., 19th February, 1881: (Extension of Patent No. 5,709).

No. 12,381. Improvements on "Fire-place" for Steam Boilers. *(Perfectionnements au foyer des chaudières à vapeur.)*

Joseph Nitsche and Theodore Grellnath, Vienna, Austria, 19th February, 1881; for 5 years.

Claim.—1st. A fire-place having horizontal or nearly horizontal furnace bars or pipes with intermediate solid furnace bars resting thereon. 2nd. A fire-place having two plates in suitable distance apart united by taper tubes or tuyeres of any section. 3rd. A fire-place in which the air coming from the ash pit, or other place, and intending to support the combination, flows partly between the bars or tubes composing the grate, entering the fuel from below, and partly through hollow furnace bars or tubes being heated on its way, and then collects in one or more chambers whence it is conducted into the flame by one or more adjoining or superposed openings. 4th. In a fire-place, an arrangement whereby the air for supporting the combustion passes partly into the fire direct, and partly passes through the grate being heated during such passage, and then let out into the flame at a suitable height over the grate, so that the unconsumed carbon particles or the carbon which has only been formed into carbonic oxide, whilst highly heated, are again brought into contact with oxygen containing air and thereby turned completely into carbonic acid.

No. 12,382. Vehicle Springs. *(Ressorts de voiture.)*

The Whitney Spring Company, (Assignee of William F. Whitney and Edward Storm), Poughkeepsie, N.Y., U. S., 21st February, 1881; (Extension of Patent No. 5,789).

No. 12,383. Improvements on Kettle Handles. *(Perfectionnements aux anses des bouilloires.)*

George Booth, Toronto, Ont., 21st February, 1881; for 5 years.

Claim.—1st. The combination, with the kettle C having the lugs B, of the sheet metal handle A A^1 pivoted to said lugs, made in one piece, bent and provided with the downwardly hanging flanges *a*, on the top of the handle, and the wooden bar D secured to the upper part of the handle by the flanges and screws.

No. 12,384. Improvements on Process and Boots for Making Horseshoes. *(Perfectionnements au procédé et aux outils pour faire les fers à cheval.)*

Wellington B. McFail, Vassar, Mich., U.S., 21st February, 1881; for 5 years.

Claim.—1st. The process described for the manufacture of hand-made horseshoes, by the use of the swage described. 2nd. A swage for the manufacture of hand-made horseshoes adapted to form the nail crease. 3rd. A swage for the manufacture of hand-made horseshoes adapted to form the bottom of the shoe, and simultaneously therewith to form the nail crease. 4th. A new article of manufacture, a hand-made horseshoe manufactured by the process, and by the mechanical device.

No. 12,385. Substitute for Screw Bolts and Nuts. *(Substitut pour les boulons et écrous.)*

Nathan Thompson, London, Eng., 21st February, 1881; for 15 years.

Claim.—1st. Forming the curved wedge *a* with one or more notches or recesses a^6. 2nd. Forming the slotted bolt *b* with a thin web *b3*, connecting the two opposite sides of the bolt. 3rd. Forming the spring washer *c* with ribs or projections *c1*. 4th. Manufacturing the curved rotative wedge *a*, by stamping the same out of plate metal, and finishing the same. 5th. Manufacturing the slotted bolt by the aid of a series of swages, or partly by rolling and partly by stamping or swaging.

No. 12,386. Apparatus for Dressing Axle Arms of Waggons. *(Appareil pour finir les fusées d'essieux.)*

Robert R. Miller, Plantsville, Ct., U.S., 21st February, 1881; for 10 years.

Claim.—1st. A cutter head journalled upon a bearing which is capable of being centered upon an axle arm, and provided with a cutter that is adapted to be moved radially upon or over the face of said head, whereby the shoulders at the inner and outer ends of the said axle arm may be dressed, and its threaded end cut off. 2nd. As a means for journalling the cutter head upon an axle arm, the sectional ring B fitted into a groove *a*, in the hub a^1 of said head, the sleeve K provided with the radial screws *k* and k_1, and the sleeve L, fitted upon said axle arm, and within said sleeve K. 3rd. As a means for centering the sleeve K upon an axle arm and, in combination therewith, the sleeve L and set screw K_1. 4th. As a means for adjusting the cutter G to position, and in combination therewith, the block C fitted into the radial opening a^2 of the head *a*, the spring D, and set screw E, arranged to bear upon opposite sides of said block, the bolt F having the openings *f* and nut f_1, the washer H and the set screw I 5th. The combination of the disc *a* provided with the hub a^1, groove *a*, axial opening a^1, radial opening a^2 and handles a^2, the sectional ring B, the sliding block C, the spring D, the set screw E, the bolt F having the opening *f* and nut f_1, the cutter G, the washer H, the set screw I, the sleeve K, provided with set screw *k* and k_1, and the sleeve L.

No. 12,387. Improvements on Appliances for Manufacturing Baskets. *(Perfectionnements aux appareils à fabriquer les paniers.)*

John Cross, Oakville, Ont., 21st February, 1881; for 5 years.

Claim.—1st. In combination, with a basket block, a gauge or gauges arranged around the said block, for the purpose of gauging the location of the inner and outer hoops.

No. 12,388. Improvements on Brooms. *(Perfectionnements aux balais.)*

James W. Cuthbertson, Listowell, Ont., 21st February, 1881; for 5 years.

Claim.—1st. As an improved article of manufacture, a broom or whisk