

gulating the movement of the angular levers *b, b*, by the screws *K, K* (fig 7) or their equivalent in order compensate differences in the length of the lever on the piston shaft, and the length of throw of the crank of the fly-wheel. 5th. A yoke *d, d*, figs. 1 and 3, on a valve by which to impart motion; 6th. The arrangement of parts into and from the piston chamber through the valve in such manner as that when the fly-wheel is on either of its centres at the instant of cut-off in reversing, the eduction (or exhaust) parts in the valve, on either side of the piston, will be partially open; 7th. A cylindrical or conical oscillating valve with chambers to receive respectively the induction and eduction currents and present them to the proper parts for the purposes of the motor; 8th. The diaphragm through the valve separating the induction fluid from the eduction fluid.

No. 4325. GUSTAVUS A. GASPER, Boston, Mass., U. S., 28th January, 1875, for 15 years: "Method for Promoting the Combustion of Fuel in Furnaces." (Méthode pour accélérer la combustion dans les fourneaux.)

Claim.—1st. The method of promoting the combustion of fuel in furnaces by combining water in a mechanically divided state, with a blast or blast of air, as described; 2nd. The combination with a furnace of the blast pipe *l*, water pipe *p*, and distributing disc or discs, as described.

No. 4326. JACOB CONRAD and JERRY H. FAHRINGER, Montoursville, Pa., U. S., 28th January, 1875, for 5 years: "Apparatus for Elevating Building Material." (Appareil à élever les matériaux de construction.)

Claim.—1st. The extension-ladder *A*, having the ends of its section tapered and provided with a joint *B*, which can be adjusted vertically to adapt it to buildings of varying heights; 2nd. The extension-ladder having the ends of its sections tapered and provided with a joint *B*, adjustable vertically in combination with the car *c*, windlass *D*, cord *E*, pulley *F*, and revolving rings *G, B*, as described.

No. 4327. HENRY FOLLIOTT, Temperanceville, and JONATHAN Y. N. FOLLIOTT, Balsover, Ont., 28th January, 1875, (Extension of Patent No. 2781) for 5 years: "Field Roller." (Rouleau d'agriculture.)

Claim.—1st. Placing friction rollers upon the frame in such a position that they rest upon the periphery of the main rollers, and carry the weight of the frame as described; 2nd. Making the journals which carry the centres of the main rollers oblong so that the rollers may work vertically and adapt themselves to the nature of the ground they have to pass over, and 3rd. Making the centres of the main rollers working in the journals act merely as guides for the rollers without carrying any weight.

No. 4328. JOSEPH LEWIS, Manchester, Eng., 29th January, 1875, for 5 years: "Improvements on Water Meters, applicable to Motors." (Perfectionnements aux hydromètres, applicables aux moteurs.)

Claim.—1st. The rotating valve *R*, in the chamber *B*, and the cylinders *A, A*, arranged as described; 2nd. The piece *G* constructed to afford bearings for the crank shaft *H*, screw-wheel *I*, division wall *F*, and grooves *f*; 3rd. The combination of the two hemispherical discs *J*, to be used in connection with an elastic diaphragm piston; 4th. The connecting piece *K*, with anti-friction rollers and *L*, 5th. The combination of the piston block *M*, with wooden casing *N*, corrugations *P*, grooves *Q*, and bands or rings *O*, in connection with the rubber ring packing; 6th. Wood lining *x*; 7th. The general arrangement of cylinders *A, A*, valve chamber *B*, valve *R*, crank shaft *H*, wheels *I* and *T*, piece *G*, enlarged cylinder *a*, stuffing box *d*, shaft *b*, connecting piece *k*, top-plate *e*, bottom plate *D*, as described.

No. 1329. WILLIAM T. DOREMUS, New York, U. S., 29th January, 1875, for 15 years: "Oscillating Spring Chair." (Chaise à bascule à ressort.)

Claim.—1st. The chair base formed of the feet *A*, the angular blocks *B*, the centering circle *b*, and the veneers *b*, as described; 2nd. The combination of the plate *C*, the flange nut *D*, and the tubular projection *f*, with the base *B*, the pivot or screw *E*, and the cross-bar *F*, as described; 3rd. The combination of the flanged seat *G*, the rubber blocks *H*, the flanged arm *I*, the rock bar *J*, and the hooks *K*, or equivalent with each other, and with the base *B*, as described; 4th. The cross-head *L*, the flanged yokes *M*, the bolts *N*, and the rubber blocks *O*, in combination with the cross bar *F*, and the rock bar *J*, to take up the slack caused by the compression of the rubber blocks *H*, as described; 5th. The arrangement of the rock bar *J*, in front of the cross bar *F*, and the pivot or screw *E*, to bring the centre of oscillating motion in front of the centre of rotary motion, as described.

No. 4330. ISRAEL KINNEY, London, Ont., 29th January, 1875, for 5 years. "Lock and Key Guard." (Pertuis de serrure.)

Claim.—The guard *A*, constructed with bows *A*, ends *B*, and tooth *C*, as set forth.

No. 4331. GUILLAUME BOIVIN, Montreal, Que., 29th January, 1875, for 5 years: "Boot and Shoe Stiffener." (Contrefort de chaussures.)

Claim.—1st. Cutting stiffeners for boots and shoes with ears or projections *A* and *B*, for the purpose set forth; 2nd. Cutting the upper part of the central portion of the stiffeners with the recess or deflection *E*, shaped as described; 3rd. Cutting the end *C*, and *D* of the stiffeners in curved or straight lines so that each will correspond with the next as described; 4th. Cutting the lower part of the central portion so as to leave one or more points *F*, shaped as described; 5th. The combination of the different parts *a, b, c, d, e, f*, as described.

No. 4332. LEWIS KIMBALL, Jr, Bolton, Vt., U. S., 29th January, 1875, for 15 years: "Meat Chopping Tray." (Plateau pour hacher la viande.)

Claim.—1st. A wooden tray with circular sides and ends, with the handles *h, h*, as described; 2nd. A wooden tray formed by the special process described.

No. 4333. LE ROY SATTERLEE, Rochester, N. Y., U. S., 30th January, 1875, for 5 years: "Heating apparatus." (Appareil de chauffage.)

Claim.—1st. The combination with the fire chamber *C*, and heating flues *1, 2, 3, 4, 5, 6, 7*, of the exit pipe *H*, resting directly within the fire chamber, or in an auxiliary heating chamber, the said parts being connected by the tubes *t, t*, as specified; 2nd. The combination with the exit pipe *H*, of the heating cone *m*, so arranged that the draught shall impinge upon the same in entering the exit pipe as described; 3rd. The combination with the heating flues *1, 2, 3*, &c., of the air pipes *I, I*, passing centrally through the flues, and otherwise arranged to operate in the manner specified; 4th. The combination with the ash-pit *G* and chute *J*, of the dust tube *E*, operating in the manner specified; 5th. The combination with the flues *1, 2, 3*, &c., of the caps or dampers *n, n*, as specified.

No. 4334. CEVEDRA B. SHELDON, New-York, U. S., 30th January, 1875, for 5 years: "Improvements on Furniture Casters." (Perfectionnements aux roulettes de meubles.)

Claim.—1st. In combination with any caster, the wheel composed of the casting *A*, cup *B*, and plate *C*, all arranged as described; 2nd. In combination with any caster, the wheel composed of cup *B*, and plate *C*, with bush *C*; 3rd. In combination with any caster, the horn having the bearing for the spindle formed by drawing down the metal in making the aperture; 4th. In combination with any caster, the horn having the bearing for the spindle formed by the insertion of an eyelet *E*, in the aperture punched in the plate; 5th. In combination with any furniture caster, an "English" horn having the eye or pin hole *F*, formed by rolling the metal as set forth; 6th. In combination with a caster, the socket and plate formed of one piece of metal by stamping as set forth; 7th. In combination with a caster the roller socket *I*, upset or otherwise secured to the plate *K*, as described; 8th. The arrangement in combination with any caster of three or more rollers *L*, revolving circumferentially between the plate *K*, and the plate of the horn, 9th. The loose washer *M*, interposed between the plate *K*, and the plate of the horn to carry the rollers *L*, and keep them the proper distance apart, as described.

No. 4335. HOWARD P. GARLAND and ANDREW J. GORE, San Francisco, Cal., U. S., 30th January, 1875, for 5 years: "Sewing Machine for Bags, &c." (Machine à coudre les sacs, etc.)

Claim.—1st. A spiral needle for stitching, or over sewing having a groove or retaining guide of sufficient depth around the circumference of its spirals for receiving the thread; 2nd. A spiral needle moving independently in a slotted case upon a feathered stern *b*, attached to the end of the needle, when the case is caused to revolve, and the coils of the needle to engage the diagonal rods *a, a*, in the manner specified; 3rd. The combination of a spiral needle having a groove around its periphery or spirals and operating in a case *B*, with the rods *a, a*, in the manner specified; 4th. The spiral needle having a retaining eye *c*, and a set *d*; 5th. The retaining clamp *E*, movable on the bar *H*, and posts *g*, in the slots *g, g*, operated by the hand screw *G*, in the cross-head *g*; 6th. The bent guide rod *j*, and oblong slots *i*, of the clamp *F*; 7th. The flat smoothing and guiding clamp *K*, movable in the rod *b*, as specified; 8th. In combination with the diagonal rods *a, a*, the U shaped groove *B*, in the frame *A*, in which the needle is caused to travel in its progress through the cloth, in the manner specified; 9th. Forming an over stitch as shown at fig. 4, by means of a spiral needle in the manner described.