posite lever D, oscillating upon a fixed bearing at one end *d* and connected to a crank rod d^1 at the other end, in combination with a link applied at an intermediate point D_9, between the ends; 16th. A wheel made in sections and having the inner ends of its separate arms so formed as to embrace the shaft; 17th. The pump barrel C_4 supported, in a pump box C_2, by partitions C_5 which brace the sides of the box and which serve to secure, for each section of the inlet valves C_6 C_6, close and near equal proximity to both the water supply and the vacuum chambers C_7; 18th. The pump box C_2 supporting the crank shaft E_1 and recessed to accommodate the sweep thereof, strengthened, longitudinally, by the walls and bottom of said recess and, transversely, by the partitions C_{13} which also serve to secure, for each section of the delivery valves C_{15}, close and nearly equal proximity to the air chambers C_7; 19th. The two pump boxes C_2 in combination with the air pipe C_{19} connecting their air chambers C_9; 20th. The conical chamber M_3 and the compressible lip M_7, in combination with a pump plunger and rod; 21st. The helical spring guide c_4, made elastic in the direction of the valve movement and rigid in transverse directions, in combination with a stationary abutment and a lifting valve.

No. 10,545. Improvements on Animal Powers.

(Perfectionnements aux manèges.)

James J. Heenan, Ops, Ont., 13th October, 1879, (Extension of Patent No. 9907), for 5 years.

No. 10,546. Improvements on Animal Powers.

(Perfectionnements aux manèges.)

James J. Heenan, Ops, Ont., 14th October, 1879, (Extension of Patent No. 9907), for 5 years.

No. 10,547. Machine for Cutting Cheese.

(Machine à couper le fromage.)

Robert S. Selby, Toronto, Ont., 14th October, 1879, for 5 years.

Claim.—A cheese knife G, bolted to the cross-head C provided with a rack D, and operated by the toothed quadrant E and handle F, in combination with the circular table H having friction rollers *h* and pivoted to the bed-plate A.

No. 10,548. Improvements in Carriage Springs

(Perfectionnements aux ressorts des voitures.)

George D. Griffin, Hamilton, Ont., 14th October, 1879, for 5 years.

Claim.—The combination, with the body and shafts of the vehicle, of the metallic loops formed of the two parts D B hinged together, the auxiliary springs, arranged between the front end of said loops and the shafts, and the elliptical springs E, arranged between the shafts and axle.

No. 10,549. Improvements in Smut Machines.

(Perfectionnements aux émotteurs.)

Benjamin Barter, Toronto, Ont., 14th October, 1879, for 5 years.

Claim.—1st. Corrugated beaters or friction plates D, arranged in pairs between a disk C C_1, in combination with the brushes E placed between each pair of beaters D, near the disc C_1; 2nd. A drop box J, at the end of the air trunk K, in combination with the valve I.

No. 10,550. Suspension Rings and Hooks.

(Anneaux et crochets de suspension.)

Eleanor M. Fine, Philadelphia, Pa., U.S., (Assignee of Isaac Fine), 14th October, 1879, for 5 years.

Claim.—1st. The ring A formed with a loop B turned up from the body thereof and having a locking end *a*; 2nd. A suspension ring formed of the ring A and loop B adapted to fold within, or nearly within the confines of the pamphlet, or other article to which it is applied.

No. 10,551. Improvements in Stove Backs.

(Perfectionnements aux derrières des poêles.)

Edward L. Parsons, St. John, and H. Le Baron Smith, Fredericton, N.B., 14th October, 1879, for 5 years.

Claim.—The slits *a a a*.

No. 10,552. Improvement on Sash Locks.

(Perfectionnement aux arrête-croisées.)

George F. Thompson, Jr., (Administrator of Michael W. Thompson), and Hartwell A. Crosby, Saint John, N. B., 14th October, 1879, for 5 years.

Claim.—1st. The shield A, hook B, rod D, thumb-piece C, spring H, box or lock F, key G, rack J; 2nd. The thumb-piece C, rod D, spring H and key G, in combination with the rack J that is provided with a deep cut or hole O; 3rd. The rack J provided with a deep cut or hole O near its lower end.

No. 10,553. Improvements in Nut Locks.

(Perfectionnements aux arrête-noix.)

Saul Laporte, Ottawa, Ont., 14th October, 1879, for 5 years.

Claim.—1st. In a bolt nut, the grooves *a* and *b*; 2nd. The lock plate B having the arms *c* and *d*; 3rd. The notches *e*; 4th. The combination of the bolt nut A, having the grooves *a b*, with the lock plate B, having the arms *c* dovetailed or rivetted to the nut, and arms *d*; 5th. The combination of the nut A, lock plate B with the notches *e* formed in the surface of the article that is bound by the bolt.

No. 10,554. Method of Propelling Vessels by Steam. *(Système de propulsion des vaisseaux par la vapeur.)*

Richard Smith, Sherbrooke, Que., 16th October, 1879, for 5 years.

Claim.—1st. The contractile propellor A A^1; 2nd. The propulsion of vessels by the direct lineal thrust of a propellor; 3rd. The contracting an expanding of the propellor A A^1 by means of the independent steam chambers E^1 E^2 and the pistons G^1 G^2, or equivalent device; 4th. The combination of the cranks N N and links O O^1, in a direct line with the rod R and spindle M, for the purpose of locking the propellor A A^1 in an open or closed position.

No. 10,555. Process of Treating Ores.

(Procédé pour traiter les minéraux.)

Farnham M. Lyte, London, England, 18th October, 1879, for 5 years

Claim.—1st. The separation of metals, such as silver, lead, zinc and copper, in ores containing them, by treating the ores with acid and brine; 2nd. In the treatment of ores containing antimony or bismuth mixed with lead, or lead and silver, the separation of the silver and lead by means of the hot brine treatment and the cooling thereof; 3rd. The mode of employing brine as a carrier and depositor of silver and lead by means of alternate heatings, decantations and coolings; 4th. The use, in the process of treating mineral ores or metallic mixtures, of apparatus arranged and employed in the manner described; 5th. That part of the improved process referred to which relates to the causing the lead, or lead and silver to remain almost entirely in the attaching vessels and not to be carried over with the acid liquors employed, the said acid liquors being carefully neutralized before decanting them finally into the tank which receives them, thus retaining the lead or lead and silver with the gangue ready for extraction by the brine; 6th. The employment of metallic lead as a precipitant for the silver in the brine or the acid solution of the soluble chlorides.

No. 10,556. Improvements on Waggons.

(Perfectionnements aux wagons.)

John F. Drew, Barnston, Que., 18th October, 1879, for 5 years.

Claim.—The arrangement of the hounds D with the circle F and reach G; 2nd. The peculiar arrangement and construction of the axle wood A with the superimposed rocker-plate wood B, whereby a stronger and more durable axle-stock is obtained; 3rd. The reach G, having the hinge clasp *b* secured thereto, in combination with the circle E.

No. 10,557. Improvements in Pruning Knives. *(Perfectionnements aux sécateurs.)*

Justus Smith, Hamilton, Ont., 18th Oct., 1879, for 5 years.

Claim.—1st. The combination of the malleable iron socket A, hook C, chisel E, brace H and recess F; 2nd. The combination of the malleable iron socket A, hook C, chisel E, brace H, recess F, handle B, lever N, connecting rod L, curved knife J and saw G.

No, 10,558. Blotter Bath for Copying Presses.

(Bain au papier buvard pour les presses à copier.)

Benjamin B. Hill, Springfield, Mass., U.S., 18th October, 1879, for 5 years.

Claim.—1st. The walls B inclosing a bottom or floor A, provided with cells or cavities communicating with each other so that water may circulate freely therein, from one to the other, when a series of blotter sheets are placed upon the bottom in combination with a presser D; 2nd. The combination of the cellular receptacle A B and the presser D adapted to hold, closely packed together, a series of blotter sheets while being dampened; 3rd. A bottom and four inclosing walls B, one or more of which is provided with an extension or off-set *e*, to facilitate the removal of the blotter sheets therefrom; 4th. A blotter sheet having both sides porous, to absorb water and moisture readily, and having a gum applied to its edges.

No. 10,559. Machine for Cutting and Planing Hoops. *(Machine à tailler et planer les cercles.)*

Harvey Morris, Wallaceburgh Ont., (Assignee of John Greenwood, Rochester, N. Y., U. S.), 18th October, 1879, for 5 years.

Claim.—1st. The cutter C, provided with knives C having the slitting ends C^1 for dividing the hoops, and the concave faces C^2 C^2 for rounding the corners of the hoops, in combination with the pressing roller D resting above the cutters; 2nd. The combination of the endless apron or bed E provided with the inclined planes *f f*, the roller G provided with the cones *h h*, said planes and cones being parallel with each other to hold the hoops in an angular position, and the planer H set in a horizontal or straight position to plane the hoops to a bevel; 3rd. The combination of the saws or cutters C C, the feeding roller D, the endless apron E provided with the inclined planes *f f*, the pressing roller G provided with the cones *h h* and the straight planer H, the whole arranged so that the hoops are first cut from staves or sections, then carried in an inclined position through the apron and pressing roller and, finally, planed to bevel form by the planer; 4th. The process of forming hoops which consists in, first, slitting or dividing the hoops and rounding the corners, then passing the hoops in an inclined position between a bed and roller and planing off the raised corners by a straight planer.

No. 10,560. Improvements in Sewing Machines. *(Perfectionnements aux machines à coudre.)*

George Juengst, New York, U.S., 18th October, 1879, for 15 years.

Claim.—1st. The combination of the take up lever E e^1, the needle driving crank-pin *e* and a spring for keeping the said lever against the said crank-pin and producing its downward motion; 2nd. The adjustable cushion S^1 and its presser S^4, sleeve S^3 and screw S^2, in combination with the take up lever; 3rd. The combination, with the feeding dog, of the lever N, rod or lever *e*, cam *d*, and the two adjustable fulcrums g^1 and e^3, whereby a great degree of variation in the length of the movement of the dog is provided for; 4th. The combination, with the feed operating lever N, of an adjustable fulcrum O^3, for regulating the height to which the feeding dog rises; 5th. The loose bobbin-holder in combination with an oscillating hook for forming the stitch; 6th. The feeding dog in combination with the bobbin-holder and the oscillating hook, whereby the said dog is made to depress the bobbin-holder, after the tightening of the stitch; 7th. The com-