L. and rise *f* with the notches *a*, and the plate Q with the pivoted pawls P, said plate Q having notches *y* engaging the lugs *u* on the plate X, and the pawls P having tails *c* engaging notches *a*; 4th. In blowers, &c., the mechanism for converting the reciprocating motion of the handles into a rotary one consisting essentially of the driving pulley G having a ratchet fixed to it, of a plate having pivoted pawls and a further plate moveably connected with the pawl-plate and with the pawls, whereby said pawls are actuated in the manner specified; 5th. In ratchet and pawl clutches, the device for actuating the pawls, consisting of a plate carrying said pawls, and of a further plate engaging the pawl plate and the pawls, whereby the pawls are operated; 6th. The handle *a* pivoted to the retainer T by the bolt K, said retainer having the eye *i* for attachment of the shaft O and the segment *m* engaged by the overlapping catch *q*; 7th. The combination with the handle U, of the retainer T consisting of a plate having an eye *i*, a lug *j* and a segment *m* with a stop *t*, and the plate *c* having the overlapping catch *q*, said handle being pivoted to the retainer by the bolt *k*.

## No. 11,058. Improvements on Machines for Sharpening Mower Knives. (*Perfectionnements aux machines à aiguiser les contaux des faucheuses.*)

Porter Williams, London, Ont., 22nd March, 1880, for 5 years.

*Claim.*—1st. The combination of wheel H into which the slide J is dovetailed, upright K provided with a slot and screw L; 2nd. The combination of arms S S provided with journals T T, knife holder O provided with journals $T_1$, shaft V and counter balance W.

## No. 11,059. Improvements on Milk Coolers. (*Perfectionnements aux garde-lait.*)

Leavitt B. Austin, Holyoke, Mass., U. S., 22nd March, 1880, for 5 years.

*Claim.*—1st. In combination with milk pan B, the water vessel A provided with the outlet pipe D, chamber *x*, curved pipes *o*, wings *s*, gutter *d* and overflow pipe *f*; 2nd. The combination with the water vessel A provided with the gutter *d* and adapted to receive within it the milk pan B, of the perforated cover *e* provided with the screw cover *i* and strainer *c*; 3rd. The milk pan B adapted to be secured in vessel A, by the hinged clasps *t*, and provided with tube *z* extending down through the water space, between the bottom of said pan and of said vessel and through the bottom of the latter.

## No. 11,060. Improvements on Means of Transmitting Rotary Motion. (*Perfectionnements aux moyens de transmission du mouvement rotatoire.*)

Charles L. French, Brooklyn, N. Y. U. S., 22nd March, 1880; for 5 years.

*Claim*—1st The combination with a hub or shaft and a drum arranged upon the same and provided with openings or recesses between its inner circumference, and the hub or shaft, of rollers arranged in said openings or recesses, and levers pivotted at one end and having axis or bearing for said rollers upon their free ends, so that said rollers may swing approximately radially to said hub or shaft; 2nd. The combination, with the hub or shaft A and the drum B having recesses or openings C, of the levers E having rollers D mounted at one end, and the other end pivotted to the oscillating plate or disc F; 3rd. The combination, with the hub or shaft A and the drum B provided with recesses or openings C, of the levers E having the rollers D mounted at one end and pivotted at the other end to the disk or plate T, and the arm or lever G extending from said disc or plate and engaging with the notches or catches in said drum.

## No. 11,061. Improvements on Weeding Hoes. (*Perfectionnements aux extirpateurs.*)

Archibald Lefebvre, Robinson, Que. 22nd March, 1880; for 5 years.

*Claim.*— The blade A, teeth *b b b b*, cutting edges *c*, teeth *d d d*, cutting edges *e*, half teeth *f f*, cutting edges *g*, shank H, handle I, all combined.

## No. 11,062. Improvements in Spring Mattresses. (*Perfectionnements aux paillasses à ressorts.*)

Edwin P. Fowler, New York, U. S., 22nd March, 1880; for 5 years.

*Claim.*—1st. A roll up spring bed bottom having a laterally extensible frame and springs supported by the said frame; 2nd. A spring bed bottom having a laterally extensible frame, springs secured to said frame and flexible links connecting each spring with those adjacent; 3rd. A spring bed bottom having the laterally extensible frame, springs arranged in alternation on said frame, and flexible links connecting each spring with those adjacent; 4th. The foundation strips A $A_1$ $A_2$, the lazy tongs jointed links B B the pivoted links C, the springs S arranged on strips A $A_1$ $A_2$, and links or chains *a* connecting each of said springs with adjacent ones; 5th. The foundation strips A $A_1$ $A_2$, the lazy tongs jointed links B B, the pivoted end links C, the alternately arranged springs S, the links or chains *a* connecting each of said springs with those adjacent, the side strips D connecting the springs of the outer rows and the angular braces G, rivetted at their ends to strips A, D, and extending around strips $A^1$; 6th. The combination of the springs S having an eye formed at their lowest whirl, with the foundation strips A $A_1$ $A_2$ and a headed rivet extending through the eye and clinched on the under side of the latter.

## No. 11,063. Combined Washboard and Washing Machine. (*Planche à savonner et laveuse combinées.*)

James Mason, Hamilton, Ont., 22nd March, 1880; for 5 years.

*Claim.*—1st. A corrugated washboard C provided with holes F, said washboad C supported by spiral springs D, or their equivalent, in a box A; 2nd. In combination with the washboard C, the roller E journalled thereto; 3rd. The combination of the large roller B, small roller E, washboard C, springs D, box A, journals H, tap I and handle G.

## No. 11,064. Improvements in Boots. (*Perfectionnements dans les bottes.*)

Edward Roos, Galt, Ont., 22nd March, 1880; (Re-issue of patent No 9,463.)

*Claim.*—1st. A boot in which the vamp, quarters and lap over instep are made in one piece, 2nd. A boot having the vamp quarters and lap over instep in one piece, a cut *a d* distended to form the crimp, in combination with the crimp gusset piece B; 3rd. A boot having the vamp, quarters and lap over instep in one piece, the side gusset piece C.

## No. 11,065. Vessel and Machinery for Aerial Navigation. (*Vaisseau et mécanisme pour navigation aérienne.*

Albert L. Blackman, Nashville, Tenn., U.S., 22nd March, 1880; for 5 years.

*Claim.*—1st. A vessel for aerial navigation divided into a hull and a gasfield, constructed on one general frame work of tubing, or other light material enc'osed with silk, linen, thin metal or other equally light substance, made air and gas tight and fire and water proof, by paint or other compound, the whole resembling in form the Grayling or Salmon fishes and having the gasfield divided into compartments, and subdivided into chambers, the hull divided into rooms. A vessel for aerial navigation provided with rotating shafts and revolving screws on the sides, for propelling, raising and lowering the vessel, a rotating shaft and revolving steering screw forward, and a rotating driving screw astern, for propelling the vessel forward. A vessel for aerial navigation having the propelling, raising and lowering screws on the sides, a steering screw forward and driving screw aft, provided with internal propelling power and machinery, gas condensers and apartments for the accommodation of passengers and freights. Rotating screws having shafts provided with journals, collars and vaults or pulleys with bearings in, and carried by revolving cylindrical shafts having a lateral movement for propelling, raising and lowering, as well as steering vessels for aerial navigation. Rotating screws having shafts provided with journals and collar bearings sustained by and operating in cylindrical revolving shafts and carried by endless belts, for propelling, raising and lowering, as well as steering vessels for aerial navigation. Combined revolving cylindrical shafts and belt sheaths, which revolve on their own axes, as well as having a lateral movement to loosen or tighten the machinery belts provided with racks *c*, idlers *s s*, a double flanged muff or collar *n*, a lever *q* for conveying the lateral movement to the shafts and journal boxings *i i* supported in journal bearings and hangers for carrying revolving screws, for raising and lowering, as well as steering vessels for aerial navigation. Rotating screws secured to a shaft extending under the gasfield to the central machinery, having bearings in the node, at the stern of the vessel, and secured to the cord D. Rotating screw secured to a shaft and extending under the gasfield to the central machinery, having bearings in the node at the stern of the vessel and secured to cord D and provided with, and operated by pulleys and idlers, for propelling vessels for aerial navigation. A vertical cone pulley, receiving a driving belt from a driving shaft connected with a motive engine and carrying three endless belts, one to the right and one to the left of the vessel, and one to the bows, for driving the screws on the sides and the steering screw forward. In combination, the cone pulley Q, endless belts R R R, idlers *s s*, cylindrical shafts M $M_1$ O, vaults *m*, bearings *i* $i_1$, for propelling, lowering and raising as well as steering vessels for aerial navigation. In combination, driving shaft 4 and pulleys 3, driving belt *z* with cone pulley Q, endless belts R R R, cylindrical shafts M $M_1$ O, idlers *s s*, vaults *m*, screws N $N_1$ $O_1$ rotating on journals *j j* in boxings *i i*. In combination, propelling engine W, endless belt $Z_1$, driving shaft 4 and pulleys 3, driving belts Z Z with pulleys $Z_1$ on shaft T, and the driving screw for propelling vessels for aerial navigation and with cone pulley Q, endless belts R passing through revolving cylindrical shafts M $M_1$ O, vaults *m* and screws N $N_1$ $O_1$ for raising, propelling, steering and lowering vessels for aerial navigation. In combination, the propelling engine W, endless belt $Z_1$, driving shaft 4, pulleys 3, power belt Z with cone pulley Q, endless belts R R R, laterally moving and revolving cylindrical shafts M $M_1$ $O_1$, vaults *m*, rotating screws N $N_1$ $O_1$, for raising, lowering, steering and propelling vessels for aerial navigation. In combination, propelling engine W, endless belts $Z_1$, pulley 3 on driving shaft 4, endless belt *z*, pulley wheel $z_1$, revolving shaft T, hangers *n* $n_1$, journal bearings $a_1$ and driving screw P, for aerial navigation. Corrugated pulley *o* on the revolving cylindrical shafts M $M_1$ O, in combination with endless chain belts *p*, corrugated pulley $o_1$, friction clutch *x*, wheel *v*, bevel gear *u*, for revolving simultaneously the cylindrical shafts M $M_1$ to change the position of screws N $N_1$ for raising, propelling or lowering the vessel, and the steering screw $O_1$ for steering vessels for aerial navigation. Corrugated pulley wheel $o_1$, wheel *v* and friction clutch *x*, in combination with endless chain belt *p*, corrugated pulley $o^1$, cylindrical shafts M $M_1$ O, screws N $N_1$ $O_1$ for handling vessels for aerial navigation, lever *q*, double flanged muff or collar *r*, in combination with and for the purpose of conveying a lateral motion to cylindrical shafts M $M_1$ O for throwing in and out of gear endless belts R R R in starting, stopping, slackening and tightening the belts and conveying the screws N $N_1$ $O_1$, used in lowering, raising, steering and propelling vessels for aerial navigation.

## No. 11,066. Improvements on Pumps. (*Perfectionnements aux pompes.*)

John A. McMartin, Montreal, Que., 24th March, 1880; (Extension of Patent No. 4,538), for 5 years.

## No. 11,067. Improvements on Shuttle Motion. (*Perfectionnements aux chasse-navettes.*)

The New York Silk Manufacturing Co., New York (Assignee of Alfred Faulkner, Jersey City, N.J.), U. S., 27th March, 1880; for 5 years.

*Claim.* 1st. The combination, with the reciprocating shuttle driver or carrier A, of the vibrating and longitudinally moving lever C extending laterally from said driver or carrier, the rod D, cam F, lever E having a projecting pin engaging with the groove of said cam, and the oscillating fulcrum yoke H; 2nd. The combination, with shuttle driver or carrier, of the vibrating and longitudinally moving lever C having the slot *f*, the slide J arranged in said slot, the crank N pivoted to said slide rod D also pivoted to said slide cam F, and lever E having a projecting pin engaging with the groove of said cam; 3rd. The combination with the shuttle driver or carrier of the lever C, rod D, cam F, lever E, pivot *e*, slide J, crank K and oscillating fulcrum yoke H.