

secured to said drum, a band wound around said wheel, and having one end secured to the frame rod *g7* to which the other end of said band is secured, and adjusting nut *g8* screwed upon the other end of said rod, combined and operating as and for the purposes hereinbefore set forth. 7th. The warp spool arm *G*, provided with pad *g*, rod *g1*, nut *g2*, spring *g3*, guide and tension bar *d1*, tension drum *d2*, band wheel *g4*, band *g5*, rod *g7*, and nut *g8*, combined and operating as and for the purposes described. 8th. The frame, a stationary gear *h* supported thereby, a revoluble sleeve passing through said stationary gear and supported by the frame, a ring or collar *n3* rigidly secured to said revoluble sleeve, a shuttle driver frame secured to said ring or collar, a shaft having bearings adapted to turn in said frame, a gear fixed to one end of said shaft and intermeshing with said stationary gear, and the shuttle driving wheel geared with said shaft, all combined and operating as and for the purposes set forth. 9th. The shuttle-driving frame *I*, provided with the arm *h10*, substantially as and for the purpose set forth. 10th. The fixed gear, a revoluble ring or collar, the shuttle-driving frame secured to and operated by said ring or collar, a shaft adapted to turn in said frame, a gear on one end of said shaft intermeshing with said fixed gear, gear *h2*, a shaft *h4*, gear *h3* and driving-wheel *h5*, all arranged, combined and operating as hereinbefore set forth. 11th. The frame, provided with circular tracks *j2* and *j3*, a shuttle frame provided with wheels adapted to support it and to travel upon said tracks, an arm *h8* attached by one end to said shuttle-frame, an idler wheel *h9* carried on free end of said arm, and adapted to engage one of the wheels of said shuttle-frame and drive the latter, a shuttle-driver frame revoluble in the line of said circular tracks, a wheel *h6* journaled in said shuttle-driving frame, means for rotating said wheel *h6* and adapted to engage said idler wheel, combined, related and operating as and for the purposes hereinbefore set forth. 12th. The frame, provided with circular tracks, a shuttle-frame provided with wheels adapted to support it and to travel upon said tracks, a series of pins arranged circularly in the shuttle-frame, a wheel horizontally arranged on the outward rearward part of said shuttle-frame, and adapted to roll on the sides of the pins within the circle thereof, a wheel horizontally arranged on the outer forward part of the shuttle-frame, and adapted to roll on the sides of the pins without the circle thereof, a wheel rearward of the series supporting the frame, and means for rotating said wheel to drive the same, all combined, arranged and operating as and for the purpose hereinbefore set forth. 13th. The frame, provided with circular tracks *j2*, *j3*, one being arranged at a lower horizontal plane than the other, the shuttle provided with wheels adapted to travel on said tracks, the heddles and their operating mechanism, and means to drive the shuttle, all arranged, combined and operating as and for the purposes hereinbefore set forth. 14th. The frame, provided with the circular tracks *j2* and *j3*, one being arranged at a lower horizontal plane than the other, constructed substantially as hereinbefore set forth. 15th. The frame, provided with the circular inclined tracks *j2*, *j3*, one track *j2* being placed at a lower horizontal plane than the other *j3*, as set forth. 16th. The frame, the weaving pin heddles to control the warps, means for operating the heddles, the shuttle and mechanism to support and drive it, a spreader *L*, V-shaped in cross-section, as shown, connected with the shuttle to insure the opening of the shed for the passage of the shuttle tension, mechanism connected with the shuttle for the weft or filling yarn, a batten shoe *k3* connected with the shuttle and extending to the weaving pin, through which the weft thread is adapted to pass and by which it is adapted to be pressed or laid up between the warps supported on the weaving pin, substantially as and for the purposes hereinbefore set forth. 17th. The frame, the weaving pin heddles to control the warps, means for operating the heddles, the shuttle and mechanism to support and drive it, a spreader connected with the shuttle to insure the opening of the shed for the passage of the shuttle tension, mechanism connected with the shuttle arm *k5*, connected with the shuttle and provided at its inner end with the batten shoe *k3*, through which the filling thread is adapted to pass, and by which it is adapted to be pressed between the warps supported on the weaving pin, and arm *k2* for bringing the batten shoe and supporting the spreader, all combined, arranged and operating as and for the purposes set forth. 18th. The shed-spreader *L*, formed of sheet metal V-shaped in cross-section, as shown, and bulged out or forward at rod arm *l2* extending around within the spreader and the shuttle-frame, combined and operating substantially as set forth. 19th. The shuttle-frame supporting arm *B*, batten shoe *k3*, shed-spreader *L* formed of sheet metal and V-shaped in cross-section, as shown, and bulged out or forward at rod arm *l2* extending rearwardly from said point *l* rod or arm *l1* extending around within the spreader, and brace-rods or wires *l4*, combined and operating substantially as set forth. 20th. The weaving pin, the batten shoe *k3*, provided with the guide eye *k11*, the shuttle frame supporting arm *B* and rod or arm *l2* combined and operating substantially as and for the purposes set forth. 21st. The batten shoe *k3*, provided with the guide eye *k11*, a shuttle and device, substantially as set forth, for supporting the batten shoe connected with the shuttle, combined and operating as and for the purposes hereinbefore set forth. 22nd. The shuttle frame provided with the rod *k* and guide eye *k1*, the shuttle spool bar *k2*, provided with a plurality of guide eyes, through which the yarn from the spool may be led back and forth, a tension plate pivoted by one end to said bar stud *m1*, and thumb-screw *m2*, combined, arranged and operating as and for the purposes hereinbefore set forth. 23rd. The shuttle frame, the shuttle spool, its journals, dog *Q* pivoted to the frame and having one of its arms bearing on one of the journals of the spool cam *o5*, spring *o4*, rod *N*, arm *n*, spring *n2* and pad *n1*, all combined and operating as and for the purposes described. 24th. The frame-ring *v*, bracket *V*, feeler pins *d3* and spring *v1*, all combined, arranged and operating as and for the purposes hereinbefore set forth. 25th. The feeler pins, supports therefor, spring *v1*, hoop *R* provided with pins *r*, revolving shaft *p4*, disk *Q*, provided with pins *q5*, engaging with said pins *r*, said disk having a screw-threaded connection with said shaft spring *q2*, lever *S* and belt shipping mechanism, substantially as explained, connected with said lever, all combined and operating substantially as and for the purposes hereinbefore set forth. 26th. Hoop *R*, provided with the pins *r*, pulleys *r1* for supporting said hoop, revoluble shaft *p4* and disk *Q* provided with pins *q5*, combined and operating as and for the purposes set forth. 27th. The shuttle frame ten-

sion bar *k2*, pivoted by one end to said frame rod *z4*, loosely connected with the other end of said bar spring *z5*, latch *z2*, rod *X*, spring *z*, hoop *R* provided with the pins *r*, revoluble shaft *p4*, disk *Q* provided with pins *q5* and having a screw-threaded connection with said shaft spring *q2*, lever *s* and belt shipping mechanism, substantially as explained, connected with said lever. 28th. The driving shaft, a pulley loosely mounted thereon, provided with the clutch part *h*, clutch part *h5* splined on the shaft to turn therewith, but longitudinally movable thereon, the U-shaped rod connected with clutch part *h5*, springs *h7*, lever *T*, latch lever *S2*, provided with the laterally extending arm *s1*, lever *S*, and mechanism, as set forth, for operating said latter lever, all combined, arranged and operating as and for the purposes hereinbefore described. 29th. The main shaft gears *P*, *p*, shaft *p1*, worm *Y*, shaft *y1*, gears *y2*, *y3*, *y4*, shafts *y5*, *y6*, drums on said shafts and gears *y6*, *y7*, combined, arranged and operating as and for the purposes set forth. 30th. Frame *Z*, shafts *z5*, *z6*, gears *z6*, *z7*, drums on said shafts, gear wheels *z4*, provided with a clutch part and splined on shaft *z5* to move longitudinally thereon, but to turn therewith shipper lever *z6*, connected with said gear to move the same longitudinally on its shaft, another clutch part rigidly connected with said shaft to turn therewith arms connected with said latter clutch part to turn the same, and mechanism, as set forth, to turn said wheel *z4*, all constructed, arranged, combined and operating as and for the purposes described. 31st. Frame *Z*, guiding drum *z5*, shafts *z5*, *z6*, drums thereon, gear wheels *z6*, *z7*, *z4*, means for revolving the last-mentioned gear arm *Z*, of frame *Z*, drums or rollers *z2*, *z3* journaled in the upper end of said arm, combined and operating as and for the purposes described.

No. 26,049. Spring Hoe. (*Hoe Elastique.*)

J. O. Wisner, Son & Co., Brantford, Ont., 22nd February, 1887; 5 years.

Claim.—1st. In a drill-hoe or cultivator-tooth, pivoted to the drag-bar, the combination of a projection formed on the hoe or tooth below the pivot, and having notches formed in it to receive the pin connecting it to the brace, each of said notches being connected with different inclines, substantially as and for the purpose specified. 2nd. In a drill-hoe or cultivator-tooth, having a projection to fit within the drag-bar, and a notch formed on the top side of the said projection to fit onto the bottom side of the pivot-pin, the combination of a strap, bolted or otherwise fastened to the drag-bar and extending below the notched projection for the purpose of holding it against the pivot-pin, as specified. 3rd. In a spring-hoe, a locking-lever pivoted to the drag-bar, in combination with a brace, the upper end of which is connected to the locking-lever above its pivot, while the portion of the locking-lever extending below its pivot forms a support for the brace, substantially as and for the purpose specified. 4th. In a spring-hoe, substantially as described, and in combination with the brace and plunger thereof, the lever *C* having means for connection with said plunger, and a hook for removably securing it to the brace, as shown. 5th. In a spring-hoe, a locking-lever, provided with pivot-pins to connect it to the drag-bar, and a hooked end to connect it to the brace, in combination with a step formed on or by the top edge of the locking-lever, for the purpose of supporting the brace between the point where it connects with the lever and the point where it is attached to the hoe. 6th. In a spring-hoe, a locking-lever pivoted to the drag-bar and removably connected at its upper end to the hoe-brace by the hook *G*, in combination with a spring arranged to exert an upward pressure on the lower end of the locking-lever, substantially as and for the purpose specified. 7th. In a spring-hoe, in which the upper end of the hoe-brace is connected to the locking-lever above its pivot, while the portion of the locking-lever extending below its pivot forms a support for the brace, the combination of a hook or pin made in or formed upon the upper end of the brace at a point on one side of the longitudinal centre line of the said brace, substantially as and for the purpose specified. 8th. In combination with the drag-bar and a recessed cap supporting the same, the links *J* working loosely in said cap, and the lifting-chain, as set forth. 9th. The cap *I*, recessed as shown, and having lugs to engage the under side of the drag-bar, combined with the links *J*, the drag-bar, the lifting-chain and the hoe, as set forth. 10th. In a spring-hoe, a drag-bar having an extension formed on it projecting behind the pivot-point of the hoe, in combination with a lifting-chain and lifting-roller, arranged substantially as and for the purpose specified.

No. 26,050. Organ Pedal. (*Pédale d'Orgue.*)

Samuel J. Laughlin, Guelph, Ont., 24th February, 1887; 5 years.

Claim.—1st. A frame fitting around the mouth of the pedal-box, in combination with a pedal or pedals designed to close the mouth of the pedal box, substantially as and for the purpose specified. 2nd. A frame *A*, pivoted at *a* to the pedal-bracket *B* and secured to the pedal-base *C*, in combination with the pedal *E*, pivoted at *e* to the frame *C*, and connected to the bellows *G* by the webbing *F*, substantially as and for the purpose specified. 3rd. The webbing *F*, connected at one end to the bellows *G*, and having a hook *H* fastened at its other end, in combination with the lugs *k* formed on the back of the pedal *E*, substantially as and for the purpose specified.

No. 26,051. Construction of Vessels for Marine Purposes. (*Construction de Vaisseaux de Marine.*)

Robert M. Fryer, Brooklyn, N.Y., U.S., 24th February, 1887; 5 years.

Claim.—1st. In the construction of vessels, central longitudinal walls extending the entire length of the vessel on each side of the keelson, and from the bottom of the vessel to the deck or decks, the portion from the stern to the engine being double to admit the propeller shaft, and forward of the engine a single or double wall or frame, the two portions being united by an arch or wall placed high enough to receive the engine, the same being permanently connected with the engine frame, substantially as set forth. 2nd. As an improvement in the construction of vessels, a keelson provided with