

UNITED STATES PATENT OFFICE.

WALTER HUNT, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 11,161, dated June 27, 1854.

To all whom it may concern:

Be it known that I, WALTER HUNT, of the city, county, and State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a full and exact description.

Said improvements consist in the manner of feeding in of the cloth and regulating the length of the stitch solely by the vibrating motion of the needle; in a rotary table or platform, upon which the cloth is placed for sewing; in guides and gages for controlling the line of the seam.

The subjoined drawings exhibit a machine constructed on said improved plan, the same letters of reference indicating the same parts throughout.

Figure 1 is a sectional side elevation, Fig. 2 a top, and Fig. 3 an open front end elevation, of the machine and its parts in their order of connection and arrangement. Figs. 4, 5 are enlarged side and front views of the needle and stock detached. Figs. 6 and 7 are front elevations of the same, connected with the slide. Figs. 9 and 10 exhibit the position of the shuttle-slide and carrier in connection with the shuttle when the motion is given either way. Figs. 9 and 10 also show two positions of the needle.

The following is a minute description of the construction, arrangement, and operation of said machine, the drawings of which are about the full size of the smallest working model.

Fig. 11 is a side view of the cam-wheel, and Fig. 12 a front view of the same.

The driving or cam wheel A, Fig. 11, is discous in its form and about one inch thick. Upon its periphery is a projecting pin or continuous cam, B, Fig. 2, which crosses the rim of the wheel twice at opposite sides of the periphery, leaving nearly one-half of the pin projecting radially in a straight line from opposite sides of the rim. This continuous cam B traverses in a notch cut in the upper end of a vertical limb, C, (shown in Fig. 3,) which forms a part of the rock-shaft D, which is thereby moved forth and back at each revolution of the cam-wheel A. At the opposite end of D is an elevated limb, E, (see Fig. 1,) which extends upward and enters into a longitudinal slot in the under corner of the slide-race F in Figs. 3 and 8, and fits into a gap in the slide G at H, thus giving motion to the shuttle K by means of the shuttle-carrier I, the ends of which alternately enter cavities J J

in and near the ends of K at each vibration of the carrier, the rear ends of which are tripped and thrown back by coming in contact with the back of the needle-guide L (see Figs. 8 and 3) at each vibration, so that one of the ends of I is at all times connected with K. The slide-race F is laterally connected with the shuttle-race M, which together are horizontally supported at their ends in the frame directly under the table O. (See Fig. 3.) Through said frame or case of the machine there is an opening, P, in Fig. 1, corresponding with those of the shuttle and slide races, for the purpose of inserting and withdrawing G, the slide, and K, the shuttle, which are disengaged by dropping the end of the rock-shaft D, which has a bearing, near E, on a bridge, Q, the end of which is let down or raised and secured by means of a pendulous hook, R, which engages and disengages the upper end of the limb E from the gap H in the slide G.

Having described the instrumentalities which give motion to the shuttle, I will next consider those which operate the needle.

Upon one face of the wheel A is an elevated fin or groove, S, Figs. 11 and 12, which, in effect, is a continuous compound eccentric and concentric cam, on or in which traverses the limb T, Fig. 1, which is connected with or forms the lower end of the needle-arm U, which is here a lever of the first order, having its fulcrum at V, which fulcrum has a slight horizontal movement, (in order to disengage its front end from the needle-slide at W,) and is fixed by the prop *q*.

At the extreme front end of the arm X is a vertical tube, open in front, in which plays the needle-slide *a*, directly over the center of the table O. Lengthwise in said needle-slide *a*, Figs. 6 and 7, about two-thirds upward from its bottom end, is cut a small groove, in which the needle-stock *b* (containing the needle *c*) is inserted and suspended upon the pivot *d*, Figs. 4 and 6, which passes through said slide and through near the upper end of *b*, upon the extreme upper end of which a slight spring, *e*, (secured in the upper portion of said groove,) is made to bear with sufficient force to throw out the lower end or point of the needle from a straight line as far as may be required for taking the longest stitches, which is regulated by a set-screw, *f*, bearing against the opposite surface of *a*.

Immediately below the point of the needle, and in a line with the same, is placed the gage-finger *g*, Figs. 1 and 3, which is secured and regulated by the set-screw *h* in the arm X. The office of said finger is to hold down the cloth or other material in sewing, it having a central slot through which the needle passes while the machine is in operation.

Upon the under surface of the table O a sliding cap, *i*, is placed, and connected centrally to said table by a rivet-washer, *j*, or hub, in Fig. 2, which forms an axis upon which O may revolve back and forth at pleasure. The cap *i* is made to slide horizontally and fasten by means of flanges upon the top of the pedestal at the outer end of the frame Y, directly over the shuttle-race, as before mentioned.

Through the center of the hub *j* is a perforation in which is placed a button, *l*, supported upon an upward-acting spring, *m*, which is secured to the under surface of *i*. This spring-button presses the cloth up against the finger *g*, and prevents it from moving when the needle is withdrawn, but is depressed as it enters and allows it to move the cloth forward the distance of the length of stitch required. The lateral or sidewise movement of the needle which makes the feed is produced by means of a hopper-shaped groove, *n*, (see Figs. 9 and 10,) cut vertically or nearly so in the face of the needle-guide L. The needle having passed through the slot in the finger *g*, the cloth and the spring-button *l*, in a partially-inclined position, now enters the groove in the needle-guide L, which is partially inclined the opposite way from the inclination of the needle. Consequently, as it descends down the inclined groove, it assumes a vertical position, and consequently, having pierced the cloth to its center of the line to be sewed, draws it forward in the direction and to the extent of its lateral movement, to fix the length of the stitch, and as the needle is withdrawn it rises vertically, the cloth being held by the spring-button *l* against the finger *g* sufficiently firm to prevent its being moved by the needle-spring *e*, which, however, throws the needle out in the inclined position as it raises its point above the cloth the proper distance for the next stitch.

Upon the arm X is placed my tension-forceps *o*, Figs. 1 and 2, suspended upon the pin *p*, through the bite of which at *r* the threads

from the spool *s* is passed, thence through *t*, and thence through guide-holes in the cap of the needle at *t*, thence down in front of said slide and through the eye of the needle at *d*. The forceps are operated by means of the connecting-link *u*, which extends from the same to the needle-arm U, having the pins *v* and *w* as connecting-joints with the same, and by means of which any required tension may be given to the needle-thread.

The shuttle K is double-pointed and made of sheet metal, with portions of the same bent inward, forming bearings *x x*, (see Fig. 8,) in which the ends of the bobbin-spindle *y* are held with any required tension.

From underneath the back end of the arm X extends a movable gage, Z, having set-screws *e e*, the outer end of which may be fixed upon the table O at any required point, operating as a gage against which the edge of the cloth may be placed while sewing, and the course of the seam thereby regulated. There is also a sliding gage, *a*, which traverses in a groove, *b*, cut across the face of O, having a stud-pin, *c*, upon which the cloth, &c., may be placed for the purpose of stitching circles, curves, &c.

Mode of operation: The needle being threaded from the spool through the forceps, as before directed, and the filled bobbin inserted in the shuttle, with end of the thread protruded about two inches through the shuttle-eye, the shuttle is taken in the right hand and the slide G in the left. The back end of the carrier I is inserted in the rear cavity, J. I and K, being thus held, are inserted together into the slide and shuttle races. The bridge Q, being down, is now raised, (so that E enters into the gap H,) and is secured by the hook R. The cloth to be worked is now introduced (guided by the hand or otherwise) between *g* and *j*, (the needle being raised for the purpose.) The machine is now put in motion by means of the crank *j'*, by hand or other power, as may be preferred.

I claim—

The rotary table-top, in combination with the guides and ways underneath the same, all arranged and operating in the manner and for the purposes set forth.

WALTER HUNT.

Witnesses:

JOHN RICHARDSON,
T. CAMPBELL.