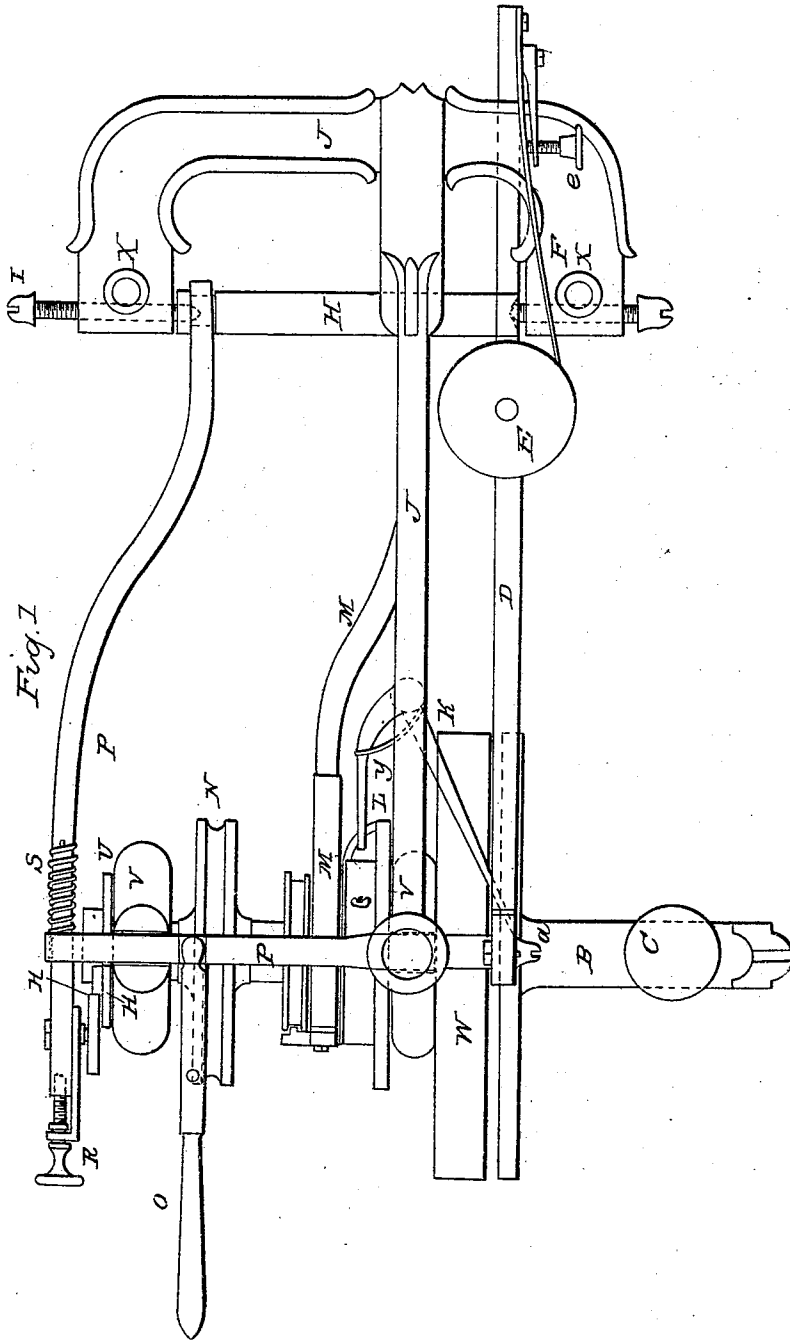


L. W. LANGDON.
Sewing Machine.

No. 13,727.

Patented Oct. 30, 1855.



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3 Sheets—Sheet 2.

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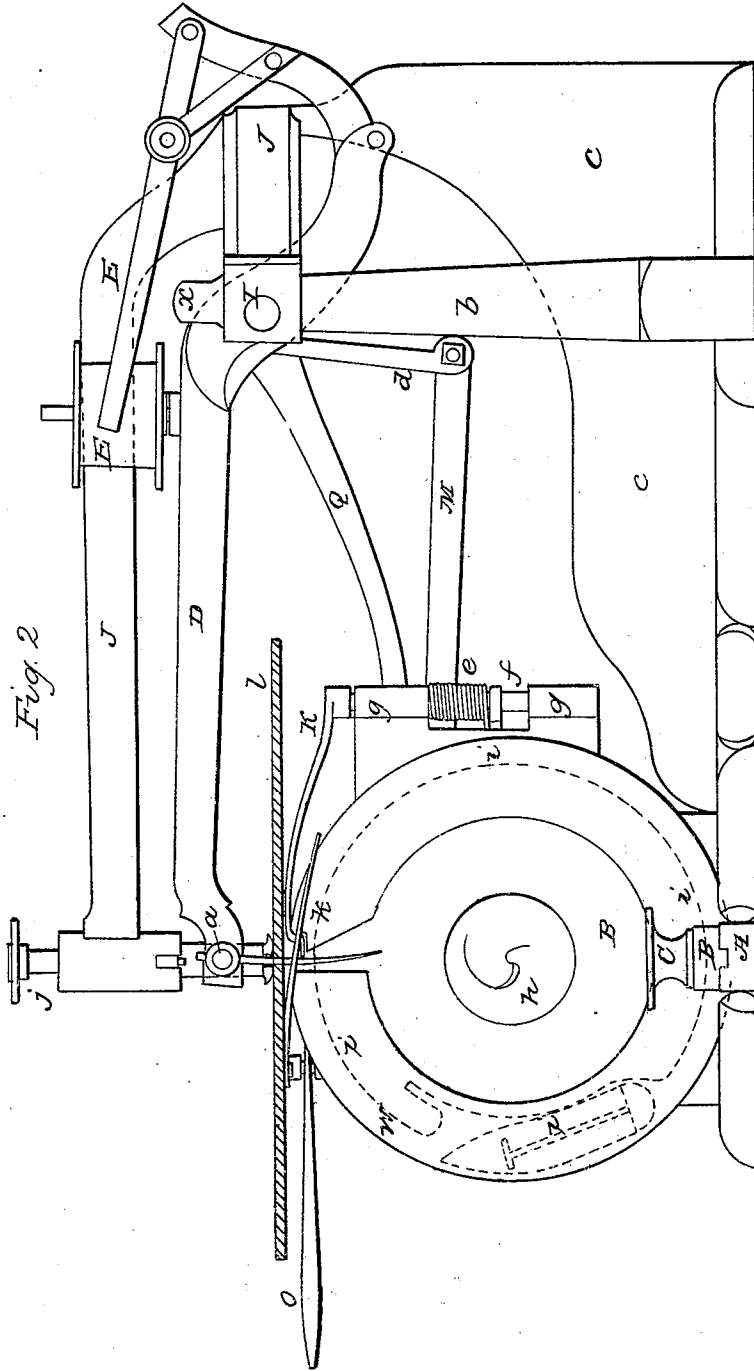


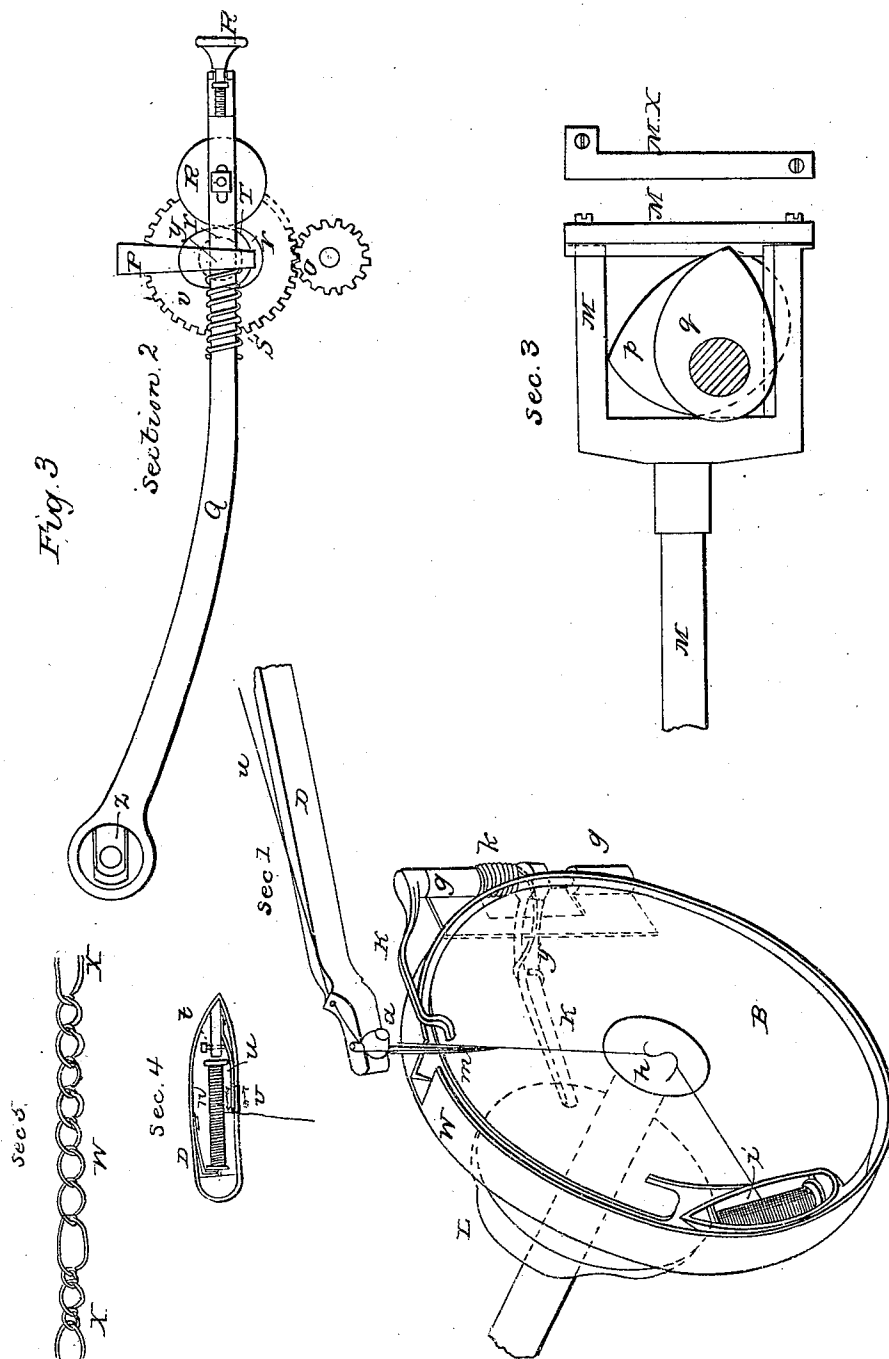
Fig. 2

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UNITED STATES PATENT OFFICE.

L. W. LANGDON, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 13,727, dated October 30, 1855.

To all whom it may concern:

Be it known that I, L. W. LANGDON, of Rochester, in the county of Monroe, in the State of New York, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, the same letters designating like parts.

Figure 1 is a front view with the work-plate removed. Fig. 2 is a side view. Fig. 3 are sectional views representing different sections of the machine detached.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the construction of my machine, Fig. 1, letter A is the base, on which the stationary face-plate for keeping the shuttle in its place rests. B is the lower end or arm of the stationary face-plate, let into the base by means of a groove, and fastened in its position by the thumb-screw C. D is the needle-bar, with the wrist *a* fitting through it for clamping the needle, the eye of which I place in a horizontal line with the shuttle. E is a spool attached to the needle-bar by means of a stud fitted to the bar. F is the spring bearing on the spool, with the set-screw G bearing on the spring, to give it the tension necessary to regulate the thread. H is the needle-bar rocker-shaft, held in its proper place by set-screws I I. J is a portion of the frame-work through which the screws I I pass, and extends forward to the face-plate for the purpose of retaining the presser, as seen in Fig. 2. K is the looper for carrying the thread to the left side of the needle for tying the knot, and is operated by the cam L. M is the combined eccentric yoke for moving the needle. N is a driving-pulley over which a belt passes for driving the machine. O is an adjustable lever fitted into the slide-bar P, and attached to the under side of the work-plate as its fulcrum for the purpose of changing the feed from a half to whole knot. Q is a connecting-rod attached to the rock-shaft H, to which are attached the adjustable set-screw and rollers R R, and passes through a slot on the lower side of slide-bar P. S is a spiral spring operating against the slide-bar P, and held in its place on the connecting-rod Q by means of a pin for the pur-

pose of producing an equal pressure of the roller R on the cams T T, which, with the cog-wheel U, revolve on the stud *y*. (Seen in Fig. 3, section 2.) V V are upright portions of the frame-work through which the main shaft passes, and to which the work-plate is secured. W is the stationary circular shuttle-box in which the shuttle revolves, and which is secured properly in its place by the stationary face-plate B. *xx* are two set-screws for fastening the upper portion of the frame J to the uprights *b*, as seen in Fig. 2. Letter Y is a spring for holding the looper against the cam L.

Fig. 2, letter *b* is an upright column to which the upper part of the frame J is attached by the set-screws *xx*, as also seen in Fig. 1. Letter *c* is a portion of the frame extending up to assist in supporting the frame J. *d* is the arm connecting the rod M with the rock-shaft H. *e* is a spiral spring around the looper-shaft *f*, secured in boxes *g g*, which boxes are fastened to the stationary shuttle-box W.

Fig. 1, letters *iiii* are the revolving face-plate and shuttle as they describe their circuit. Letter *h* is the snail screw or worm on the center of the face-plate for the purpose of holding the thread out of the way of the looper until the knot is tied, and then casting it off in time for the stitch to be drawn up. *j* is the presser for holding the material in its place while being sewed. *k* is a small spring attached to the work-plate *l*, over which the thread is passed from the shuttle for the purpose of keeping it from being caught by the looper when the machine is being started.

In Fig. 3, Drawing 1 is a sectional view in which is shown more fully the operation of the machine in forming the knot. *i* is the shuttle with the bobbin in it, the thread of which passes around the snail screw or worm to the cloth. D is the needle-bar, and *a* the wrist, in which is placed the needle *m* and the thread *n* passing through it.

In Drawing 3, letter *q* is the connecting-rod detached, showing the sliding step which is let into the end of the rocker-shaft H, giving it a vibrating motion, and thus causing the needle to feed. *o* is the pinion on the outer end of the main shaft for driving the gear-wheel *u*. Drawing 3 is a sectional view of the cams and yoke for moving the needle. *p q* are the two cams that play within the yoke M. Cam *p* operates on the right hand and upper

side and back end of the yoke M. Cam *q* operates on the left side and on the bottom and front end of the yoke M. M X is a section of the yoke detached, showing its projection to the left. Fig. 3, Drawing 4 is the shuttle with the bobbin in it. *r* is the bobbin. *s* is a spring for holding the bobbin in the shuttle. *t* is a set-screw operating against a spring, *u*, for the purpose of regulating the thread passing from the shuttle. The thread from the bobbin *r*, in passing from the shuttle, follows the direction of the arrows *v v*, that it may pass lengthwise under the spring *u*.

Fig. 3, Drawing 5, *w* represents the stitch as made with the half-knot. *x* represents the stitch as made with a whole knot between each stitch not entirely drawn up.

In operating my machine, I drive my revolving face-plate on the main shaft by means of a crank or handle, or by means of a belt on the driving-pulley N, thereby causing the shuttle to revolve in its orbit and the needle-bar to vibrate vertically. When the needle passes through the cloth as it begins to recede, the thread is taken by the looper and carried across the path of the shuttle to the left side of the needle, thus forming a loop, where it is held until the shuttle passes through the loop, when the looper recedes to its position. As it recedes, the motion of the shuttle is accelerated by the looper pressing on the rear end of the shuttle and quickly sliding it forward in its bed, thus giving to the shuttle a greater velocity in passing the eye of the needle than at any other portion of its orbit, and as the shuttle passes around, the thread is caught on the snail screw or worm *h*, where it is held until the knot is tied, and then casting it off in time for the stitch to be drawn up, thus making a half-knot stitch at every revolution of the shuttle. By changing the lever *o* to the right, the needle-bar is made to vibrate twice in the same line before feeding, and as the needle enters twice in the same place, and the shuttle in its revolutions passes through two successive loops without feeding the material forward, a whole knot is thus formed, similar to one made by hand.

In operating the machine, to avoid the difficulty by the wearing away of the cams *p q*, I have so constructed my yoke M that by two

set-screws I can remove the front part, M X, of the yoke, and by filing away the ends of the yoke M, I can tighten it and keep it always tight, thus always keeping up the lost motion. The change of feed is effected by means of the adjustable lever *o*, operating on the slide-bar P, which moves the roller R and changes its bearing alternately on the cams T T, and thus tying a half or whole knot at the will of the operator. By moving the lever *o* to the left, a half-knot is made, and by moving it to the right a whole knot is made. The shuttle in its revolution passes on the opposite side of the needle from which the seam is formed. The length of the stitch is effected by means of the adjustable set-screw R at the end of the connecting-rod *q*. By turning it to the left the stitch is shortened. By turning it to the right the stitch is lengthened.

Having thus fully described the operation and construction of my machine, what I claim as my improvement, and desire to secure by Letters Patent, is—

1. Making a stitch by tying a half-knot or a whole knot at the will of the operator, in the manner herein set forth and described.
2. The snail-worm on the revolving vertical face-plate, for the purpose of holding the thread until the knot is tied, and then casting it off in time for the stitch to be drawn up.
3. The vertical face-plate, into which the shuttle is set for the purpose of carrying it around, and the reaction of the looper K for quickening the motion of the shuttle as it passes the needle for the purpose of letting the looper pass out freely.
4. I do not claim, broadly, feeding the cloth by the motion of the needle; but what I do claim is feeding the material by the needle, when combined and arranged with the lateral motion of the needle in the manner described—that is to say, in connection with the rock-shaft H, with the sliding step in the end, the connecting-rod *q*, the spring S, the set-screw and rollers R R, the cams T T, the sliding bar P, and the adjustable lever *o*, as set forth.

L. W. LANGDON.

Witnesses:

JOHN L. SMITH,
T. G. CLAYTON.