

E. T. LATHBURY.

Sewing Machine.

No. 17,744.

Patented July 7, 1857.

Fig. 1.

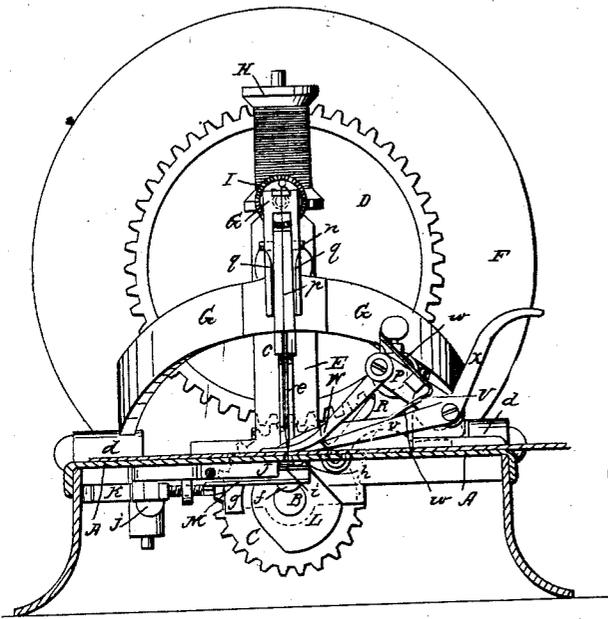


Fig. 4.

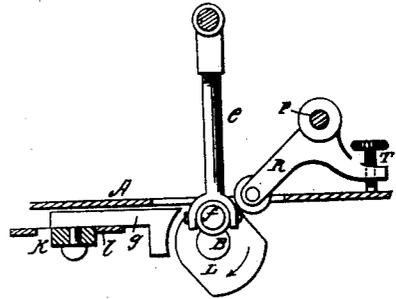
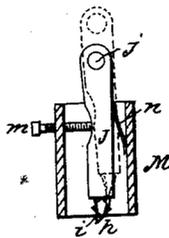


Fig. 5.

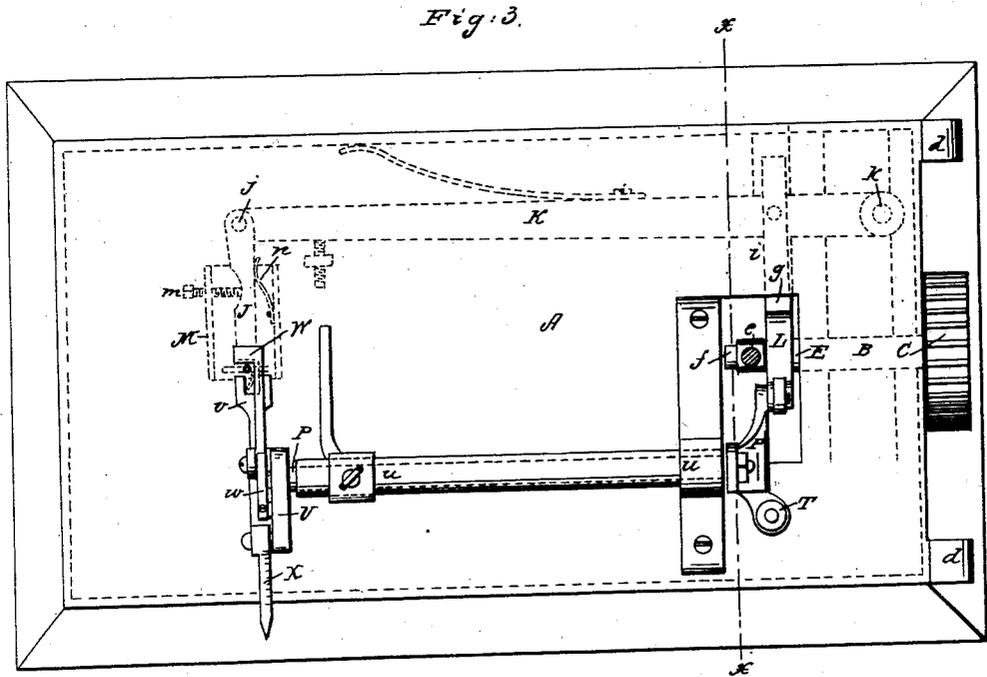
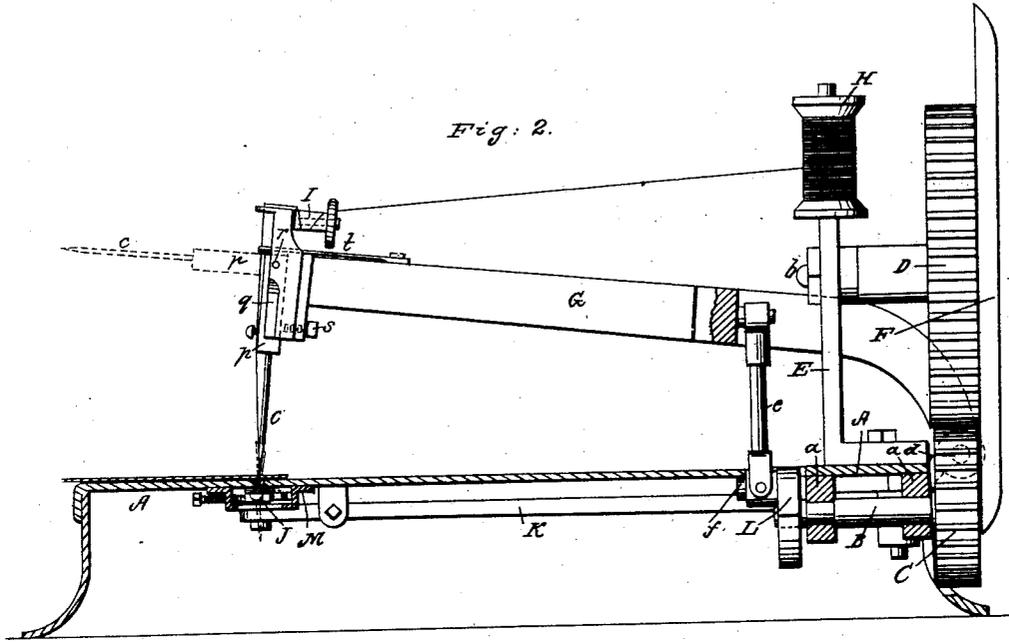


E. T. LATHBURY.

Sewing Machine.

No. 17,744.

Patented July 7, 1857.



# UNITED STATES PATENT OFFICE.

E. T. LATHBURY, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 17,744, dated July 7, 1857.

*To all whom it may concern:*

Be it known that I, E. T. LATHBURY, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a front view of a machine with my improvements, having the table represented in section in a plane parallel with the direction of the feed motion. Fig. 2 is a vertical section of the machine, taken transversely to the line of stitching. Fig. 3 is a plan of the same with the needle-bar and driving-wheel removed. Fig. 4 is a vertical section in the line *xx* of Fig. 3, showing the manner in which motion is transmitted to the working parts from the main shaft. Fig. 5 is a plan of the looper and needle, illustrating their relative operations.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in an improvement in the looper that operates, in combination with a needle and a single thread, to produce a chain-stitch, by which the liability of the needle to miss the loops is obviated.

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

A is the table or base of the machine, upon the top of which the sewing is performed.

B is the main shaft, from which motion is transmitted to all the working parts, said shaft working in bearings *aa* below the table, and receiving motion through a small gear, C, fast on one end, from a larger gear, D, rotating on a stud, *b*, secured in a standard, E, that is secured on the top of the table A, said gear D having attached to it a crank-wheel, F, to be turned by hand.

G is the vertically-vibrating needle-arm, carrying at one end the needle *c*, and having its other end, which is of forked shape, hinged at *dd* to one end of the table A. The needle-arm derives its vibrating motion to pass the needle through and withdraw it from the cloth, through a connecting-rod, *e*, from an eccentric wrist, *f*, attached to the shaft B.

H is the spool carrying the thread, which is represented in red color.

I is a well-known contrivance for producing a drag upon the thread, attached to the extremity of the needle-arm, above the needle.

*hi* is the looper attached to an arm, J, which is jointed by a pin, *j*, to the end of a horizontally-vibrating lever, K, of the third order, working on a fulcrum-pin, *k*, under the table A, and deriving motion from a cam, L, on the shaft B, acting on a slide, *g*, which is connected with the said lever K, and works in a guide, *l*, attached to the table. The looper is composed of two elastic needle-pointed fingers, attached to the arm J at a little distance apart, one of said fingers, *h*, being a little longer than the other, *i*, and the said fingers inclining toward each other, so that the point of the shorter one, *i*, touches the longer one, *h*, near the point. This looper, when the needle has been protruded through the cloth and retracted a little to slacken the thread on one side of the needle to commence the formation of the loop, is caused by the movement of the lever K to advance and pass between the needle and the slack thread with the shorter finger *i* next the needle, as shown in dotted outline in Fig. 5, and as the needle is withdrawn from the cloth the loop is left extended on the outside of the looper, which moves onward so far that when the needle is withdrawn upward from the side of it a lateral movement of the looper will bring the open space between the two needle-pointed fingers directly under the needle with the loop extended around them, as shown in bold outline in Fig. 5, so that the needle, in its next passage through the cloth—the looper being in the meantime stationary—will pass between the two fingers of the looper, and the loop being extended in an open condition around them, the needle cannot fail to pass through it.

It may be observed that the proper disposition of the loop is aided or partly effected, as in other sewing-machines making the same stitch, by the feed movement of the cloth. After the point of the needle has passed through the loop, the looper is drawn back out of the loop, and the elastic character of the fingers *h* *i*, which should be of tempered steel, allows their points to spring apart to pass the needle when they come in contact with it.

The above-described lateral movement of the looper to throw it under the needle is effected in the following manner: The looper-arm J works through a box, M, against a screw, *m*, on one side and a spring, *n*, on the other side, as shown in Figs. 2, 3, and 5. The side of the arm J, which is in contact with the screw *m*, is partly straight and partly concave, and the straight side works in contact with the screw while the looper is passing outside of the needle, and thus allows the said arm only a longitudinal motion; but as soon as the needle is withdrawn the concave part begins to pass the screw, and the spring is allowed to move the arm laterally. This movement is illustrated in Fig. 5.

The needle *c* is not attached rigidly to the needle-arm, nor to a slide which is rigidly confined in all directions laterally, as in other sewing-machines, but is secured in the bottom of a short bar, *p*, that is fitted into a groove, *q q*, made in the T-shaped head at the extremity of the needle-arm, and is secured to the needle-arm only by a joint-pin, *r*, near the top. The bar *p* is incapable of moving laterally in a direction parallel with the line of sewing, being confined by the sides *q q* of the groove, and is prevented moving laterally so far toward the back of the groove that the point of the needle can get on the wrong side of the looper. The latter condition is regulated by a stop-screw, *s*, in the back of the groove. The said bar, *p*, however, is capable of being swung up to a horizontal position across the line of sewing, as shown in dotted outline in Fig. 2, for convenience of removing and replacing or changing the needle. A flat steel spring, *t*, is screwed to the top of the needle-arm, so as to press upon the top of the bar *p*, and this spring holds the bar against the screw *s*, when it is turned down with the needle in its operative condition, and it also holds it steady on the pin *r* when turned up. The spring *t* allows the needle to yield a little to allow the looper to pass if the finger *h* of the latter presses hardly against it in coming out of the loop. The screw *s* serves to adjust the needle, so that the looper will work in proper relation to it in entering the loop.

P is a rock-shaft working in bearings *u u* on the table A, and deriving motion from the cam L on the main shaft B, acting upon its double arm R, such motion being increased or diminished by a stop-screw, T, that is screwed into the arm R and comes in contact with the table. At the front end of this rock-shaft is a double arm, U, at one end of which is a dog, *v*, that is caused to give the feed motion to the cloth at the proper time by the rocking movement of the shaft P. The dog *v* is held down upon the cloth by a spring, *w*, attached to the arm U. W is a foot-piece attached to the opposite end of the arm U, and so controlled by the spring *w* and a rocking movement of the shaft that it confines the cloth to the table by a strong pressure when the dog *v* moves back after feeding, but that it leaves the cloth comparatively free from pressure when the dog *v* is giving the feed movement. X is a handle-piece attached to the dog *v*, for the purpose of applying the pressure of the hand to raise the dog *v* from the cloth to remove the latter from or adjust it in the machine. The dog *v* lifts the foot-piece W.

I do not claim the employment of a looper with two fingers or a thumb and finger, as described in the patents of W. H. Johnson and L. Jennings, which fingers or thumb and finger operate differently to the fingers of my looper to produce a different stitch; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The looper composed of two elastic pointed fingers, *h i*, and operating in combination with the needle, so that the needle passes through the looper while the loop is extended upon it, then escapes from it by opening its point as the looper is withdrawn from the loop, substantially as and for the purpose herein specified.

E. T. LATHBURY.

Witnesses:

WILLIAM WALKER,  
G. E. LATHBURY.