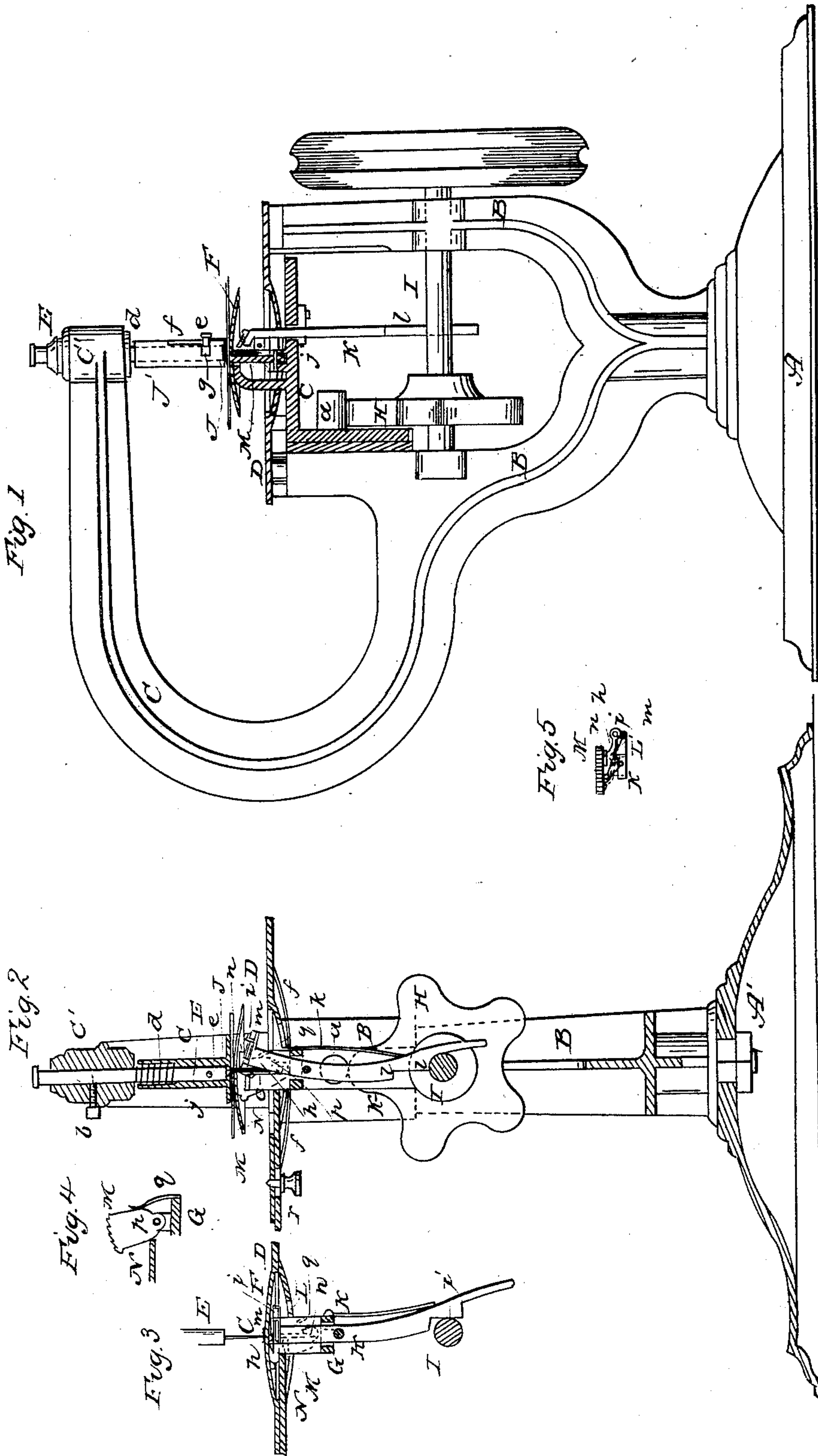


W. C. WATSON.

Sewing Machine.

No. 18,834.

Patented Dec. 8, 1857.





# UNITED STATES PATENT OFFICE.

W. C. WATSON, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND GEO. H. WOOSTER, OF SAME PLACE.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 18,834, dated December 8, 1857.

*To all whom it may concern:*

Be it known that I, WILLIAM C. WATSON, of the city, county, 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, forming part of this specification, in which—

Figure 1 is a side elevation, partly in section, of a machine with my improvements. Fig. 2 is a vertical sectional view of the same, the plane of section being at right angles to Fig. 1, and in a direction parallel with the feed movement and passing close to the needle. Fig. 3 is a vertical section, in the same plane as Fig. 2, of the principal working parts of the machine, exhibiting them in a different condition to that figure. Fig. 4 is a side view of the feeding device. Fig. 5 is a top view of the looper and the feeding device.

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

This invention consists in the employment, in a sewing-machine, of a stationary needle combined in such a manner with a reciprocating table or cloth-holder that the protrusion of the needle through the cloth or material being sewed is caused by the movement of the said material, by which means several advantages are obtained over the use of a reciprocating needle and stationary table or cloth-holder.

It also consists in certain contrivances for operating the looper and feeder.

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

A is a base or bed plate, on which is erected a standard, B B C, of which the two upright portions B B support a stationary horizontal table, D, and the portion C, which is of crane-necked form, sustains the needle-bar E, at the bottom of which is the needle *c*, which is of the kind most commonly used in sewing-machines—viz., having an eye near its point. In the center or other convenient part of the stationary table D a recess is constructed to receive what I call the "reciprocating table F," which may be of circular or other form, and which is attached by a small standard, F', to a cross-head, G, which slides between guides

in the two upright portions B B of the main standard, and which derives a vertical reciprocating rectilinear motion parallel with the needle from a cam, H, on a horizontal shaft, I, aided by a spring, S, the said shaft working in bearings on the lower part of the main standard, and the said cam acting on a stud, *a*, secured to the cross-head. The needle-bar E is secured in a socket, C', at the extremity of the crane-necked portion C of the main standard by a binding-screw, *b*, which permits it to be adjusted higher or lower to bring the needle *c* to a proper elevation.

J is the pressure-pad having a socket fitted to slide on the needle-bar E, which has a spring, *d*, coiled round it, between the said pressure-pad and the socket C', to produce the necessary pressure on the pad to cause it to confine the cloth or other material being sewed to the surface of the reciprocating table F, or to the feeding device attached to the said table. The spring *d* permits the pressure-pad to move up and down with the reciprocating table F, and the said table and pressure-pad may be considered together as a reciprocating cloth-holder. The upright socket J' of the pressure-pad contains a vertical slot, *f*, which slides upon a screw or pin, *e*, in the needle-bar during the reciprocating motion of the pad with the table F, and at the bottom of this slot *f* there is a slot, *g*, branching off in a horizontal direction. By pushing the pressure-pad as high as possible up the needle-bar with the hand, and then turning it to bring the slot *g* on the screw or pin *e*, the pad is caused to be held up from the table F in such a manner as to permit the cloth or material to be sewed to be placed or adjusted on the said table. The table F has a hole in it for the needle to work through, like the stationary table of other machines. The reciprocating motion of the table F and pressure-pad causes the stationary needle to pass through and leave the cloth in the same manner as though the cloth were placed upon a stationary table and the needle had a reciprocating motion. The thread is to be supplied to the needle from a spool placed on the top of the crane-necked portion C of the main standard, and to pass through a guide-hole drilled in the lower front part of the pressure-pad down to the needle,



and through the eye thereof, in the usual manner.

The stationary needle and reciprocating table or cloth-holder, operating together, as above described, may have combined with them either a looper for enchaining and forming a seam with a single thread or a shuttle or its equivalent to make a seam with two threads, either of the said devices having the same relation to the reciprocating table or cloth-holder as it does to the stationary table of other machines; and it will be readily understood that to have such relation those devices must be attached to or be otherwise caused to have the same reciprocating motion as the table or cloth-holder. In the example of my invention represented in the drawings, a looper, *h*, is employed to enchain the needle-thread, to form what is known as the "chain-stitch." This looper, which is shown in Figs. 1, 2, and 3, and of which a top view is given in Fig. 4, consists of a pointed tongue of steel or other metal attached by a pivot, *i*, to the plate *L*, that is secured rigidly to the top of a lever, *K*, which works on a fulcrum, *j*, attached to the cross-head *G*, the said fulcrum being so arranged that the plane of vibration of said lever will be perpendicular, or nearly so to the axis of the shaft *I*. This lever *K* is held in contact with the shaft *I* by means of a spring, *k*, attached to the cross-head, and the side of the said lever that is next the shaft is formed with an offset, *l*, (see Figs. 2 and 3,) which passes in contact with the shaft every time the reciprocating table *F* rises and falls, and thus causes the lever to derive a vibrating motion from the reciprocating motion of its fulcrum with the said table. It is obvious that the same movement may be produced by causing the offset *l* of the lever *K* to pass in contact with any stationary piece. This vibrating motion of the lever *K* gives the looper the necessary movement to carry it between the thread and needle to form the loop, and to cause it to extend the loop for the needle to pass through and afterward to withdraw it from the loop, the entrance of the looper between the needle and thread and extension of the loop being effected as the table descends and the cloth moves off the needle, and the withdrawal of the looper from the loop being effected as the table rises and the needle is being protruded through the cloth. The looper, besides having the direct movement back and forth to form and be withdrawn from the loop, receives a lateral movement upon its pivot *i*, just before the descent of the reciprocating table *F* and movement of the looper into the loop terminate, for the purpose of bringing the loop into a position for the needle to pass through, said lateral movement being effected by a spring, *m*, and a stationary guide-plate, *n*, against which the looper is held by the said spring till it has made about half of its movement into the loop, when it (the looper) passes the said plate and is moved laterally by the spring. When the looper is being retracted,

it is moved laterally in the opposite direction, out of the way of the needle, by coming in contact with the guide-plate *n*. The movement of the looper is illustrated in Fig. 4, where it is represented in black outline in the position it occupies before the commencement of its movement to form the loop, and in blue outline at the termination of its movement into the loop. The loop is shown in dotted red outline in this figure to correspond with the position of the looper that is represented in blue outline. The operation of this looper in forming the loop differs very slightly from that of some loopers in use, and it is presumed will be fully understood without further description.

*M* is the feeding device, consisting of a metal plate of the form of a segment of a circle, or nearly so, fitted to oscillate on a pivot, *p*, which is secured in the cross-head *G*. One edge of this plate, which is in form of a true circle described from the pivot *p*, and which is serrated, works through a slot in the table, *F*, and projects slightly above the surface of the table, so that the cloth or material being sewed will be confined to it by the pressure-pad. This plate *M* receives a vibrating movement in the direction in which it is required to feed the cloth or other material by one of its edges sliding in contact with the end of a plate or bar, *N*, which is secured to the stationary table *D* as the reciprocating table *F* descends, and it is returned as the table rises, so that it may be in readiness to feed again by means of a spring, *q*, which is attached to the cross-head *G*, and which presses against the opposite edge to that which slides against the bar *N*. The feed-plate *M* is prevented drawing back the cloth by reason of the needle being in the cloth when the said plate moves back. The length of feed is regulated by setting the bar *N* in or out, said bar being made adjustable lengthwise and secured in its adjustment by means of a set-screw, *r*, passing through a slot in the bar.

The advantages obtained by making the needle stationary and giving the table or cloth-holder a reciprocating movement to protrude the needle through and retract it from the cloth, are, first, greater simplicity of construction of the machine, all the movements being derived through very simple means from the reciprocating movement of the table, and with fewer parts than are generally used when the needle moves and the table or cloth-holder is stationary; second, increased capability for doing heavy work without a corresponding increase of strength of the working and driving parts of the machine; third, the use of a shorter needle, (which is consequently stiffer without being stouter.) This last advantage is obtained by less clearance being required between the cloth and the needle-bar than when the pressure-pad is applied in the ways common to the machines in which the needle moves.

I will remark, in conclusion, that the cam *H* and spring *S*, for giving motion to the table,



may with advantage have an eccentric substituted for them; but these devices serve as well as any other to illustrate my invention.

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

1. The employment of a stationary needle combined in such manner with a reciprocating table or cloth-holder that the protrusion of the needle through the cloth or material being sewed is caused by the movement of the said material, substantially as and for the purpose herein set forth.

2. Operating the looper by attaching it to a lever which is carried by the reciprocating table or cloth-holder, and which derives motion from the movement of the said table or

cloth-holder through an offset on one of its edges working in contact with the driving-shaft or its equivalent, substantially as described.

3. The combination of the reciprocating table or cloth-holder, the oscillating feed-plate M, the stationary bar N, and the spring *q*, the whole operating, substantially as described, to produce the movement of the cloth in the direction to produce the seam.

W. C. WATSON.

Witnesses:

W. TUSCH,

J. T. BUCKLEY.