

J. C. SMITH.
Sewing Machine.

No. 34,988.

Patented April 15, 1862.

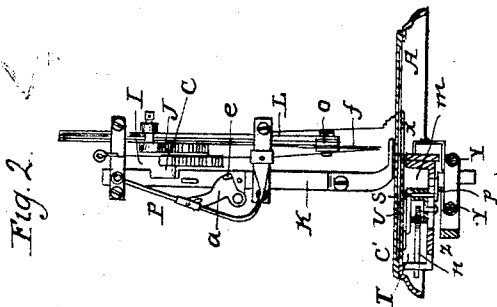


Fig. 2.

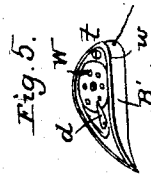


Fig. 5.

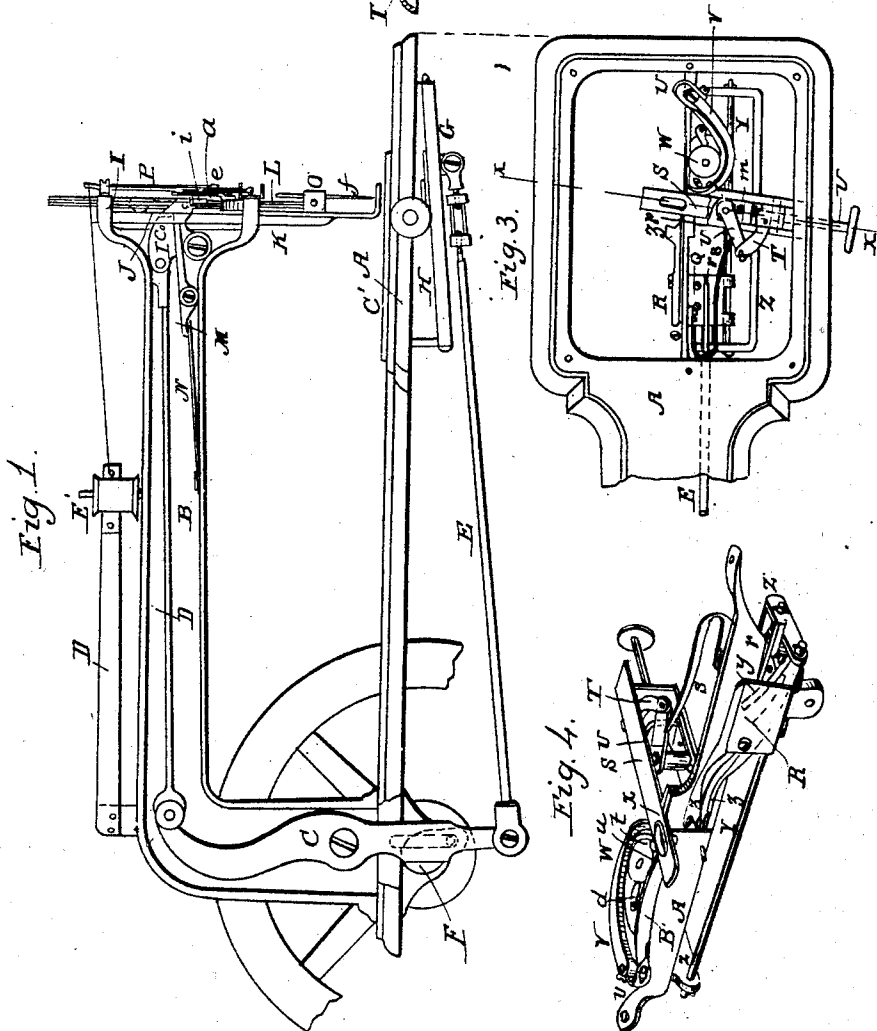


Fig. 1.

Fig. 3.

Fig. 4.

Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN C. SMITH, OF TROY, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 34,988, dated April 15, 1862.

To all whom it may concern:

Be it known that I, JOHN C. SMITH, of Troy, in the county of Rensselaer 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 annexed drawings and letters of reference marked thereon, forming part of this specification, in which—

Figure 1 represents a side elevation of the machine; Fig. 2, a front elevation, part of Fig. 2 being a transverse sectional view taken at the line *xx* of Fig. 3. Fig. 3 is a top view of the mechanism arranged below the sewing-plate, the plate being removed in the drawings. Fig. 4 is a perspective enlarged view of the mechanism arranged and situated directly under the sewing-plate and detached from the frame of the machine, and Fig. 5 is a perspective detached view of the bobbin or spool-box and spool.

The same letters have reference to like parts in each figure.

The nature of my invention or improvements consists in feeding the cloth or other material to the stitch by means of the thread, in combination with simultaneously rawing up and coupling the stitch, accomplishing the same without the positive aid or contact of any moving feeding-plates having pressure, friction, or gripping above or below on the surfaces of the cloth fed to the stitch. The above result is attained by suitable combinations of mechanical devices, arranged and operating substantially in the manner as hereinafter fully described.

In order to enable others skilled in the art of constructing sewing-machines to construct and use my improved machine, I will describe the same as follows:

A is the bed-plate of the machine; *B*, the arm or standard sustaining the needle-driving machinery, the construction and arrangement of which are fully shown in Fig. 1.

E' is the needle-thread spool; *D'*, a tension-spring on the spool.

K is the foot or pad for strapping the cloth from the needle, a pressure on the foot being given by the spring *N* on lever *M*.

L is the needle-bar, holding needle *f*. The needle-bar is connected with the segment *I* by

link *J*, by means of which a reciprocating right-line motion is given to it.

P is a vibrating arm. Through an eye at the lower end passes the needle-thread. This arm is vibrated to slack the needle-thread to form the loop by means of the link *a* having a stud, *e*, on its lower side and a slot in its upper end, in which works a pin attached to the arm *P*. This pin bears upon a spring, *i*. The slack is made by a pin, *c*, in segment *I* as the segment turns, striking on the stud *e* and pressing it down. The return of the slack is made by the action of the spring *i* upon the pin in the arm *P*. (See Figs. 1 and 2.) *C'* is the sewing-plate.

S is a bar having a slot, *x*, at its end, through which operates the needle and threads of the machine. This bar has given that a reciprocating right-line motion upon suitable bearings, and this motion may be graduated to suit the length of stitch required by means of the graduating-screw *n*, working into the saddle *m*, supporting said bar. The saddle is held on its bed by means of a guide-pin working in a slot in the bed. For giving a reciprocating motion to the bar *S* there is attached to the under side of the bar an arm, *T*, with a slot in its end. Affixed to the upper end of a spindle passing through the saddle is an arm, *U*, having a pin at its end in the slot of arm *T*. At the lower end of this spindle is affixed an arm, *p*. (Shown by dotted lines in Fig. 3.)

Q is a cross-head working upon guides *Y Y*, attached to the frame *Z*. A reciprocating motion is given to this cross-head by means of the rod *E*. Connected with the driving part of the machine, affixed to the cross-head, is the cam-block *r*, which, at about half-point of the upstroke of the cross-head, strikes the end of arm *p*, thereby giving a feed motion to the bar *S*, which bar, acting upon the sewing-threads, causes the threads to give the cloth the requisite amount of feed for the succeeding stitch. After the arm *p* is released from the cam *r* on the back stroke of the cross-head the spring *s*, acting upon the arm *U*, moves the feed-bar back for the succeeding stitch to be made.

Attached to the side of the cross-head *Q* is the pair of fingers *R*. These fingers are kept closed during part of their operation by a spring, *y*, and are provided with shoulders *z z*. *w* is a fixed pin or tripper, upon which the back end of the under finger rides as the finger-

points approach the stirrup *v*, so as to open or spread the same.

V is a stationary case affixed to the frame *A'*. Bolts to this case is the hook-shaped stirrup *v*, having a stirrup-hole near its point for holding the point or toe of the spool-box *B'*, which lies in the stationary case.

W is the spool or bobbin carrying the under thread of the stitch, and running on a center pin or spindle in the box, kept in place by a latch, *d*.

t is an eccentric-headed screw having its bearing in the spool-box.

u is a spring secured to the box, the acting end of this spring operating upon the eccentric side of the screw-head, the thread from the spool passing off between the head and spring. The tension on the thread is regulated by turning the eccentric head either on or off the spring, as wanted.

The operation is as follows: Fig. 3 represents the position of the mechanism at the end of the downstroke of the needle and the commencement of the upstroke. The loop of the needle-thread being formed the fingers *R* advance, take the loop on its shoulders *z z*, carry it to the toe of the spool-box, the points of the fingers meantime opening, so that the loop, striking the toe-point, slips between it and the stirrup and over or around the toe, the stirrup, by holding the point, effectually preventing the loop from slipping off the toe, thereby securing its passage around the spool-box, so as to complete with the under thread the stitch simultaneously with taking up the loop, drawing the stitch, and delivering the loop over the toe of the spool-box. A feed motion is given to the feed-bar *S* by means of the cam *r* striking arm *p*, connected with other arrangements, as before

described for the purpose. This feed-bar, acting on the sewing-threads at the moment of tightening the stitch, enables the threads to move or feed the cloth without any direct aid and contact on the surfaces of the cloth by feeding plates or surfaces or toothed racks. In order to feed with advantage and accuracy, it will be seen that the tightening or drawing of the stitch and the feed motion must occur together.

In the description as above I lay no claim to feeding cloth to the stitch by means of one or more moving surfaces or similar devices coming directly and positively in contact on the surfaces of the cloth fed and with sufficient frictional adhesion to move the cloth. Such devices accomplish the act of feeding without the aid of the threads used in sewing the cloth; also, I lay no exclusive claim to an eye-pointed needle and a vibrating needle-bar carrying the same, and no exclusive claim to a shuttle and sewing-plate, or to an elastic foot or pad; and, further, I make no claim to feeding the cloth along by means of the thread, when the cloth so fed has its surface in positive or direct contact on or with any portion of a moving feeding-plate acting on or pushing against the thread; but

I claim—

The fingers *R*, stirrup *v*, spool-box *B'*, and spool *W*, in combination with feed-bar *S*, arms *T U p*, cam *r* on cross-head *Q*, needle *f*, and sewing-plate *C'*, arranged in the manner and operating for the purposes as herein fully described and shown.

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Witnesses:

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