

D. W. CLARK.
Sewing Machine.

No. 19,409.

Patented Feb. 23, 1858.

Fig. 2.

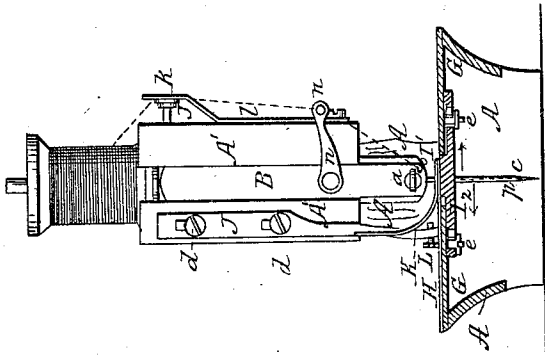


Fig. 1.

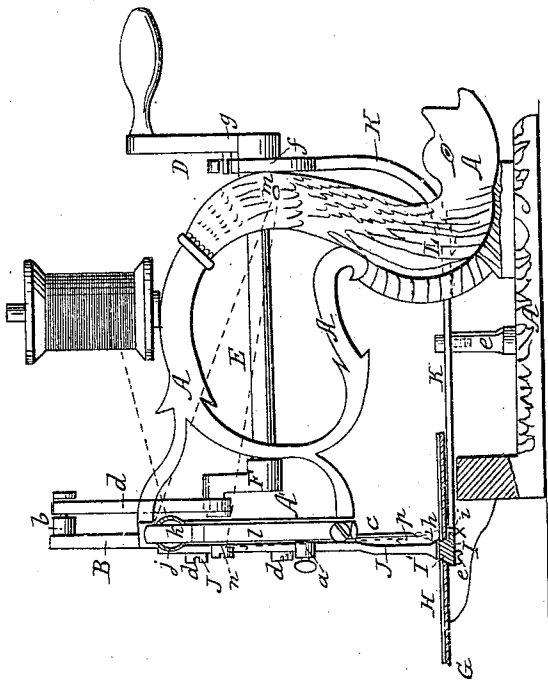


Fig. 5.

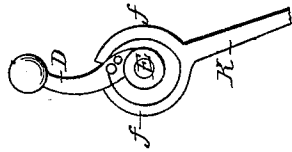


Fig. 4.

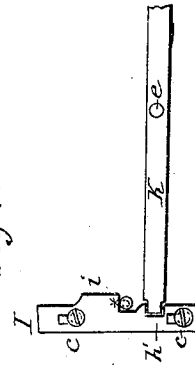
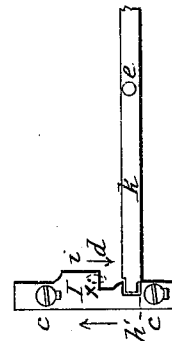


Fig. 3.



UNITED STATES PATENT OFFICE.

D. W. CLARK, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 19,409, dated February 23, 1858.

To all whom it may concern:

Be it known that I, DAVID WILLIAM CLARK, of Bridgeport, in the county of Fairfield and State of Connecticut, 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 side elevation of my improvement. Fig. 2 is an end elevation of the same. Fig. 3 is a plan of the slide and a portion of the vibrating arm detached, looking down. Fig. 4 is a plan of the same, looking upward, and showing their under surfaces. Fig. 5 is a sectional elevation of the crank and a portion of the vibrating arm.

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

This invention consists, first, in employing the device which feeds the cloth to flatten and place the loop of the thread in the proper position for receiving the needle; second, in the employment of a peculiar slide in the formation of the stitch.

This improvement is intended for the sewing and ornamenting of every description of cloth or other fabric.

A A' represent the frame of the machine, which may be made in the ornamental state here shown, or in any desired form.

B is the needle-holder. This consists of a flat slide having beveled edges, and moving up and down between grooves in the frame A'. C, the needle, is inserted in the lower part of the needle-holder B, and held there by means of a screw, *a*. Vertical movement is communicated to the needle-holder B by means of the crank D, which connects with the shaft E. The latter runs longitudinally through the frame A, as shown, and connects with another crank, F. From this crank a link, *a'*, extends to a stud, *b*, which is attached to the needle-holder B. Instead of a vertically-moving needle-holder, as here shown, the vibrating arm commonly used in sewing-machines may, if preferable, be employed.

G is the table upon which the fabric is placed.

h is the aperture in the table through which the needle passes. The table may be made separately from the frame and attached there-

to in any suitable manner; or it may be cast with the frame.

H is the fabric to be sewed.

The feeding is done by means of a slide, I, which consists of a thin plate attached by screws *cc* to the under side of the table G. The screws *cc* pass through slotted apertures in the slide I, the object of the slots being to allow of a horizontal or reciprocating movement (as will shortly be described) of the slide I, and the object of the set-screws is to effect an adjustment of the slide I' when necessary. One portion, I', of the slide is more elevated than the other and projects up through a slot in the table. The surface of I' has serrated teeth which are nearly level with the table. The feed movement is effected by the reciprocation of the slide I, the teeth of the serrated portion I' entering or pressing against the fabric and carrying it along in the direction of the arrow 1.

J is a foot or pad attached to the front of the frame A' by means of screws *dd*. These screws pass through slots in the foot J, and the slots allow of a vertical adjustment of the foot J to suit the thickness of the fabric. The lower extremity of foot J presses upon the fabric immediately above the serrated portion of the slide I'. After the fabric has been fed or carried forward by the slide I' the latter moves back for a new stroke, and its teeth have a tendency to carry back the fabric also; but this tendency is prevented by the teeth upon the bottom of the foot J, which, it will be seen, is serrated. The teeth of the foot J and slide I' incline forward in the same direction, and any tendency of the teeth of slide I' to carry back the fabric after feeding is counteracted by the teeth of the foot J, which catch and hold the fabric from going backward in the direction of the arrow 2. In other machines it is common to cause the needle to pass into and hold the fabric from going back during the backward movement of the feeding device.

The reciprocating motion which the slide I receives is imparted to it by means of the vibrating bar K, which is pivoted to a small standard, *e*, attached to frame A. One end of bar K is curved, and extends up to the shaft E, where it terminates in a fork or ring, *f*, which girdles the shaft E. The inner surface of ring *f* is larger than shaft E, and upon the

latter there is a pin, *g*. When shaft E rotates, the pin *g* alternately strikes the sides of the ring *f*, which causes bar K to vibrate or move back and forth upon its pivot at *e*. The front end of the bar K extends through the frame A and enters a notch, *h'*, in the slide I. When the bar K vibrates, it thus communicates a corresponding reciprocating motion to the slide I; and when the slide I moves in the direction of the arrow 1, the cloth is fed. The extent of horizontal movement given to the slide I in the direction of the arrow 1, and consequently the length of stitch taken by the machine, is regulated by turning the screw L. This screw passes through the bar K and bears against the frame A. The farther the screw L projects through bar K the less will be the inward vibration of the bar. To regulate the length of feed or stitch it is therefore only necessary to adjust the screw L.

The stitch formed by this machine is the well-known "tambour" or "chain" stitch, and it is done in the following manner: The slide I has a projection at *i*. When the needle descends, it passes in front of *i*, and in ascending the needle leaves behind it the slack of its thread or loop in the usual manner. After the needle has risen so far as to carry its point through the table and fabric, the slide I moves in the direction of arrow 2, which movement carries the edge* of the projection *i* against the loop. The contact of the edge* with the loop flattens the latter, and in this flat state the loop is, by the continued ascent of the needle, drawn in between the upper surface of the projection *i* and the under surface of the table G, said loop passing into a small cavity, *x*, in the upper surface of *i*, where it is held in its flat or open condition, ready to receive the needle and thread in their next descent. Just prior to the descent of the needle the slide I withdraws in direction of arrow 1, and the needle comes down through the loop, and thus completes the stitch, the loop being (by the tightening of the thread consequent upon the continued descent of the needle) drawn up through the table and deposited in the usual manner upon the under surface of the cloth. When the needle again rises, it leaves behind a new loop, as before, the slide repeats its movements, and a new stitch is taken. In this manner a line of stitching is formed on the cloth.

It will be seen that the slide I performs the triple office of feeding the cloth, flattening the loop, and holding it.

In another improvement for which I have made application for a patent I form the stitch by means of a hinged lip attached to a slide which has a movement somewhat analogous to the slide I in the present device. The said hinged lip opens and closes in the formation of the stitch, and has other functions not seen in or pertaining to the slide I.

It will also be seen that the same movement of the slide I which withdraws the projection *i* from the loop also feeds the fabric.

The cavity *x*, instead of being formed in the slide, may, if preferable, be made in the under surface of the table, at one side or in front of the lower edge of the aperture *h*.

The thread-spool is held on a spindle placed at any convenient part of the machine. The thread extends from the spool to and around a tension-button, *j*, through a hole, *k*, in the spring *l*, thence through guide *m* to guide *n*, and then down through an aperture, *o*, in the lower extremity of the holder B, to the eye *p* of the needle C, the thread entering the eye *p* on the back side of the needle. The tension-button *j* is inserted into the frame A', the spring *l* is attached by an adjusting-screw, *q*, to the frame A', and the guide *n* is attached to slide B, and rises and falls with it.

Instead of a slide to feed the cloth and flatten the loop, a roller may be employed, one portion of which has serrated teeth to feed the cloth, while another portion places the loop in proper position to receive the needle. There are many other ways in which the device which feeds the cloth may be made also to place and hold the loop.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The employment of the device which feeds the cloth to flatten, hold, and place the loop in proper position for receiving the needle.

2. Flattening and holding the loop by means of a slide, I, substantially as herein set forth.

October 30, 1857.

D. W. CLARK.

Witnesses:

W. TUSCH,
W. HAUFF.