

D. W. CLARK.  
SEWING MACHINE.

No. 19,732.

Patented Mar. 23, 1858.

Fig. 3.

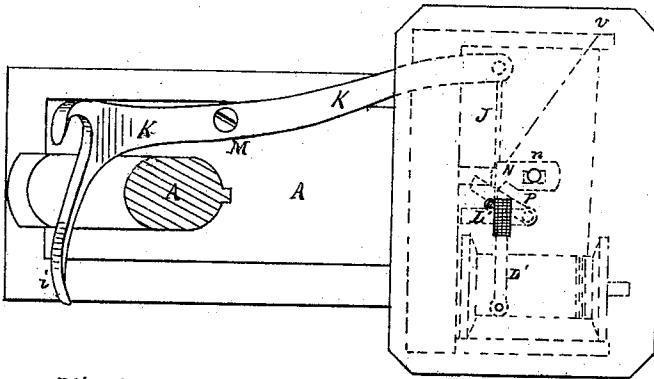


Fig. 4.

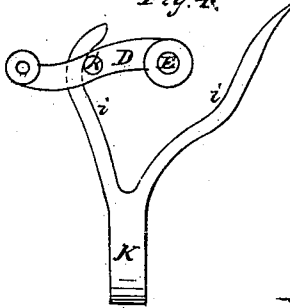


Fig. 5.

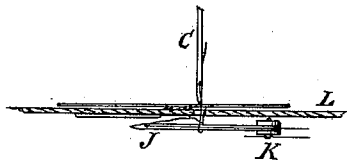


Fig. 6.

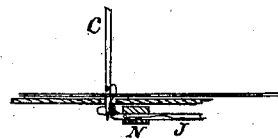


Fig. 8.

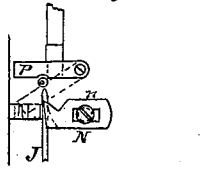
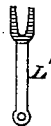


Fig. 7.

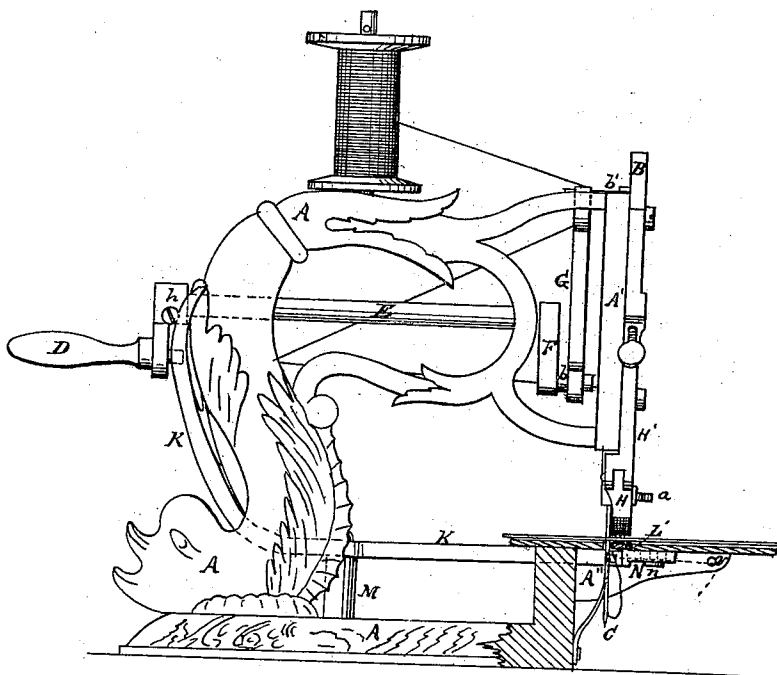


D. W. CLARK.  
SEWING MACHINE.

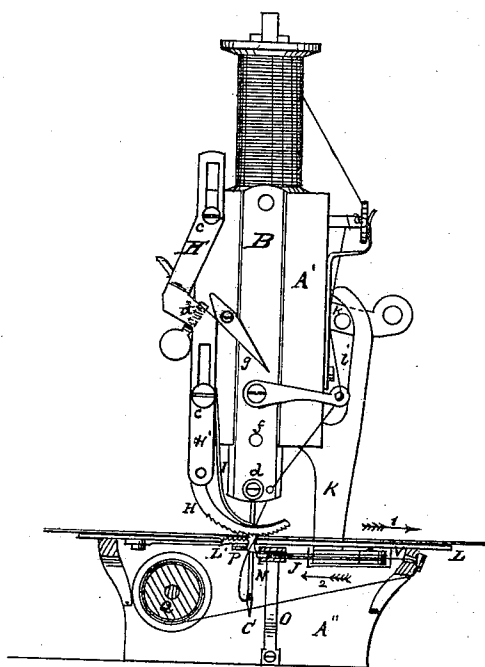
No. 19,732.

Patented Mar. 23, 1858.

*Fig. 1.*



*Fig. 2.*



# UNITED STATES PATENT OFFICE.

D. W. CLARK, OF BRIDGEPORT, ASSIGNOR TO H. L. CLARK, OF FAIRFIELD, CONNECTICUT.

## IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 19,732, dated March 23, 1858.

*To all whom it may concern:*

Be it known that I, DAVID W. CLARK, of Bridgeport, Fairfield county, 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, which will enable any one skilled in the arts to make and use my improvements, reference being had to the accompanying drawings, wherein—

Figure 1 is a side elevation of my improvement. Fig. 2 is an end elevation. Fig. 3 is a plan; Figs. 4, 5, 6, elevations of detached parts; Figs. 7, 8, plans of modifications detached.

Similar letters of reference indicate the same parts of the machine in all the figures.

My invention pertains to that class of sewing-machines in which two needles and threads are employed, the stitch formed being the well-known "double-loop stitch."

Referring to the drawings, A A' A" is the frame; B, the needle-holder, being a flat plate with beveled edges, sliding between grooves in the front portion of the frame A'.

C is the upper needle, attached by screw *a* to the lower end of B. The upper thread passes from a spool located upon the upper part of the frame through suitable guide-holes to the eye of the needle in the usual manner. The holder B has the usual up-and-down movement, which is communicated by means of a crank, D, attached to the shaft E by means of screw *h*. The front end of shaft E has a crank, F, connected by pin *b* with link G. The latter connects by means of pin *b'* with needle-holder B. When therefore the crank D is turned, the holder B rises and falls.

The cloth is fed in direction of arrow 1 by means of a rocker, H, which is a curved serrated strip, hinged at one end to its vertical actuating-bar H'. The latter is held in front of frame A' by set-screws *c*. When the holder B rises, it carries up the pin *f* into contact with the long arm of lever *g*, which is thereby lifted, causing its short arm to strike upon the elbow-surface *d* of bar H', and carry the said bar H' down. This downward movement causes rocker H to rock and carry the cloth in direction of arrow 1. The bar H' is thrown up again to its place after each stroke

by the spring I, the lower end of which is attached to the outer end of rocker H, the other end of spring I being free, but made to bear against the side of H', as shown in Fig. 2.

Almost any of the known feed-motions may be employed in connection with my improvements.

The second or under needle, J, is carried upon the extremity of a lever, K, which extends back from beneath the table L in a horizontal direction, being pivoted at M to the frame A'. The rear part of lever K rises vertically at the back end of the machine, where it is forked, as at *i i*. The required lateral or vibratory movement of needle J is obtained by the vibration of its lever or carrier K, and this is done by a pin, *k*, upon the crank D. When said crank is turned, the pin *k* comes in contact with the forked surfaces *i i* of lever K, and causes the latter to vibrate upon its pivot at M. (See Figs. 1 and 4.)

The cloth is prevented from going back during the back action of the feeding device by means of a retainer, L', which is a spring attached at one end to the under surface of the table. The front end of L' is provided with a serrated surface, which projects up through an aperture in the table, so that said serrations will be even with the table upon its upper side, and press against the under surface of the fabric as it lies upon the table. When the feeding device moves backward for a new stroke, the teeth of the retainer L' will enter the cloth, as there will be a tendency in the cloth to be carried backward by the feeder. The backward motion of the feeding device presses the cloth upon the serrations or teeth of the retainer L', and the latter holds or prevents the cloth from going back.

Instead of a simple flat serration, as in Fig. 2, the serrated end may be forked, as in Fig. 7; or, if preferable, a simple point or hook may be used instead of a fork.

N is an adjustable guide, attached by set-screw *n* to the under surface of the table. The inner end of guide N is grooved, so as to receive needle J. That side of guide N next to the needle-aperture in the table is notched out or provided with a steep side. Thus notched the guide N presents a pointed or in-

clined surface toward the upper needle, C, when it descends. The guide N serves to direct the needle J during its vibrations. Needle J is attached by hinge or rigidly to the extremity of lever K. Needle J is pressed and kept in the groove of its guide N by a spring, O, (which is attached to the lower part of frame A'') and extends up so as to bear against or toward the grooved portion of N. Any other suitable yielding pressure may be substituted for spring O. If needle J is rigidly attached to its lever K, then the needle should have such a shape and spring as that by its own elasticity it will hug or keep within the groove, and yield at the same time to the extent requisite for the movement of its lever K.

P is a swinging plate attached to the under side of the table just on one side of the needle-aperture. This plate serves as a ridge or stop to prevent the loop of the upper thread from being carried too far in direction of arrow 2 when the under needle, J, moves in direction of arrow 2.

When the single chain-stitch is desired to be made by this machine, the swinging plate P is moved so that it will stand upon the other side of the needle-aperture. When in this latter position, it serves as a barrier or stop to prevent the loop from going too far in direction of arrow 1, and holds the loop in position to receive the needle in its descent. Fig. 8 shows the plate P in its two positions, the black lines indicating its position as placed for use in forming the double stitch, and the red lines showing the change when placed for use in forming the single chain-stitch.

The thread which supplies needle J is derived from a spool placed immediately below the table upon a pin, Q, which projects horizontally from the frame A''. The thread passes from the spool through a guide-hole, v, in frame A'', thence to the eye of needle J, as shown by the blue lines.

The double chain-stitch is formed as follows: When the upper needle C, descends through the fabric and table and begins to rise, it leaves behind the slack of its thread or loop in the usual manner. At this moment, while the upper needle, C, is rising and its loop is open, the needle J moves in direction of arrow 2, and passes with its thread through the loop of the needle C. The latter continues to rise, passes above the cloth, and draws its loop close around the lower needle, J, and thread, which, until now, have remained stationary in the loop of needle C. The cloth is fed by the rise of needle-holder B, as before described. Just as the needle C begins to pierce the cloth in its downward movement the needle J moves

in direction of arrow 1, and in drawing back through the groove of guide N, the point of the latter catches or receives the loop of needle C, (which was drawn around needle J,) and prevents the loop from going back in direction of arrow 1. When the needle J has gone so far in direction of arrow 1 that its point has passed the point of the guide N, the loop will have been stripped from needle J, and as the upper needle, C, is now descending, said loop will be drawn up against the under surface of the cloth by the tension or tightening of the thread consequent upon the descent of the needle C. The needle J, by its movement in direction of arrow 1, leaves its own loop or slack behind just in front of or at the point of guide N, which latter serves to hold and place the loop of needle J in position to receive the needle C and thread in its descent. Needle C now descends through the loop of needle J, and the loop, by the tension caused by the descent of C, rises up against the under surface of the cloth. In this manner a line of stitching is formed known as the "double loop-stitch," the upper needle, C, and thread passing through the loop of the under needle, and the under needle, J, and thread passing through the loop of the upper needle, C.

When it is wanted to form the common single chain-stitch, the needle J is unthreaded and the swinging plate P thrown over upon the other side of the needle-aperture into the position shown in red, Fig. 1; or, without altering said plate P the needle J may be unthreaded and employed as a looper to enter the loop of needle C, and the single chain-stitch thus formed. In this case the crank D will need to be shifted upon shaft E by means of screw h, so as to cause pin k to strike the surface i a little sooner than it does when the double loop-stitch is being formed.

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

1. The employment of an adjustable guide, N, constructed and arranged, substantially as described, for the purpose of guiding the needle J and its thread, stripping the loop of needle C, and placing the loop of needle J.
2. The combination of spring O with guide N for holding the needle J within the groove of the guide, substantially as described.
3. The employment of a swinging plate, P, serving as a loop-stop for both stitches.

D. W. CLARK.

Witnesses:

A. E. BEACH,  
R. MACFARLANE.