T. J. W. ROBERTSON.

Sewing Machine.

No. 18,470. Patented Oct. 20, 1857.

Fig. 1.

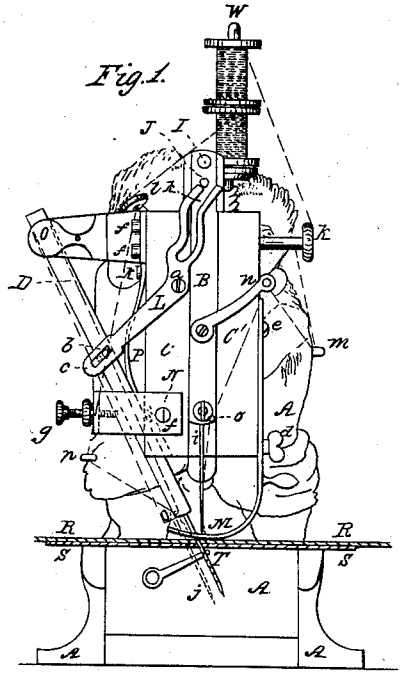


Fig. 2.

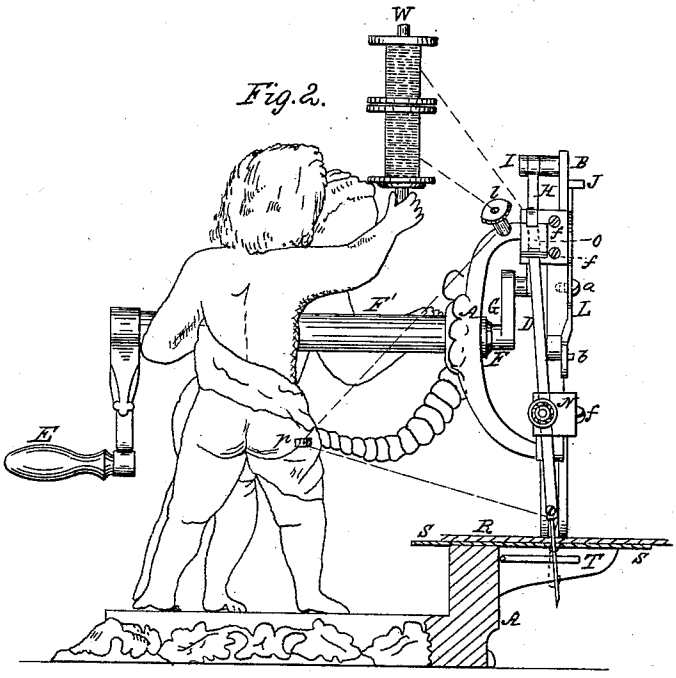


Fig. 3.

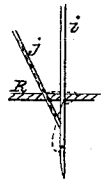


Fig. 4.

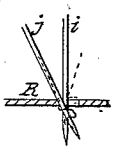


Fig. 5.

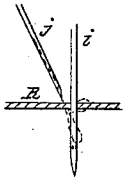


Fig. 9.

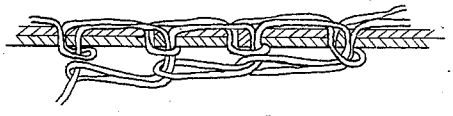


Fig. 8.

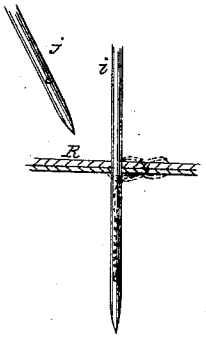


Fig. 7.

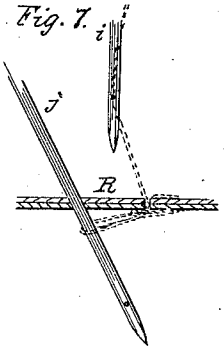
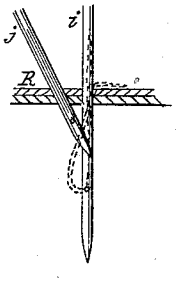


Fig. 6.



UNITED STATES PATENT OFFICE.

T. J. W. ROBERTSON, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **18,470**, dated October 20, 1857.

To all whom it may concern:

Be it known that I, T. J. W. ROBERTSON, of the city, county, and State of New York, have invented a new and useful Improvement 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 part of this specification, in which—

Figure 1 is a front view, showing one of the angles which the two needles form in relation to each other, and also showing the oblique needle in two positions. Fig. 2 is a side view, showing the other angle formed by the two needles. Fig. 3 is a view showing the position of the needles as the second needle, *j*, enters the loop of the first needle, *i*. Fig. 4 is a view showing the first needle, *i*, (after it has passed through its own loop,) passing through the loop of the second needle, *j*. Fig. 5 shows the loops of both needles around the first needle, *i*, previous to the tightening of the stitch. Fig. 6 shows the second needle, *j*, operating as a looper to form the single-thread or chain stitch, taking the loop from the needle *i*. Fig. 7 represents the second needle, *j*, holding the loop for the first needle, *i*, to pass through. Fig. 8 shows the position of the needles when this stitch is completed. Fig. 9 is a magnified view of the two-thread stitch made by this machine.

This improvement consists, first, in a new stitch, which I call the "double back-stitch," which is made as follows: Pass a loop of thread through the fabric to be sewed; then pass through the fabric and through the first loop (from the same side of the fabric as the first loop) another loop from another thread; then pass through the fabric another loop from the first thread through its own first loop and the loop of the second thread.

The second part of my invention consists in a machine for making the foregoing-described stitch by means of two needles working at such angles to each other that they cross beneath the table and work through each other's loops.

A A A is the frame of the machine, which may be made of any fanciful or convenient form.

B is a needle-holder working vertically between guides C C′, attached to the frame A.

D is another needle-holder set to run in such a manner as regards the holder B that the needles *i j* shall cross each other below the table S, said holder D having such a relative position to the holder B as to form with it the angles shown in Figs. 1 and 2.

Motion is imparted to the holder B by turning the handle E, which is attached to one end of a shaft, F, which runs through a tube, F′, said tube serving as a bearing for the shaft. The other end of the shaft F is bent so as to form a crank, G, which operates the holder B by means of the pitman H, said pitman being connected to the holder B by the screw I. The second needle-holder D derives its motion from a pin, J, on the holder B, which pin works in in a slot, K, in the driver L. This driver works on a pivot, *a*, screwed into the guide C, and operates the holder D by means of a pin, *b*, attached to said holder and working in a slot, *c*, in the other end of the driver L.

M is the foot for holding down the fabric R to the table S of the machine, said foot being fastened to the guide C′ by the screws *d e*.

N O are guides for the holder D, attached to guide C by screws *f f f*. The guide N is slotted to allow the holder D a vibrating motion, as shown in Fig. 1.

P is a spring attached to the guide C, imparting a backward motion to holder D after the needle has risen clear of the fabric.

g is a set-screw passing through the guide N to limit the backward motion of the holder D.

U and V are two spools running on spindle W, attached to frame A.

k l are tension-pins, around which the threads are wound to give the requisite tightness to the stitch.

m n o p are thread-guides to carry the thread to the needles *i j*.

The operation of the machine, when making the double back-stitch may be described as follows: The machine being fastened to a table in any convenient manner, the needle *i* is raised to its highest point, and the upper end of the driver L is slipped from under the pin J, thereby lifting the needle *j* clear of the table, so that the cloth or material to be sewed can be introduced between the foot M and table S. The needle-holder D is now returned to its proper position and the machine is ready for use. The operator should now take hold of the fabric with his left hand, giving it a steady moderate pull toward himself, and at

thr same time working the machine by turning the handle E with his right hand. As the first needle, *i*, descends the second needle, *j*, rises, and as it clears the fabric the spring P gives the needle-holder D a backward motion corresponding to the length of stitch. The extent of this motion is regulated by the holder D coming in contact with the point of the set-screw *g*. As the first needle, *i*, begins to rise it forms a loop in its thread, and the second needle, *j*, in its downward motion, passes through said loop, taking with it a loop of its own thread, as seen in Fig. 3. As the first needle, *i*, completes its upward motion the fabric is moved the length of a stitch. This causes the second needle, *j*, to assume the position shown in black in Fig. 1, the red outline showing the position of the needle previous to this motion. The forward motion of holder D is limited by said holder coming in contact with the fixed screw *h*, and by the needle pressing against the stop T. This stop serves to sustain the needle *j* against any extra pull on the fabric, which would otherwise break or bend it. When the second needle, *j*, begins to rise, it forms a loop also, and the first needle, *i*, as it descends, passes through its own loop (the said loop being held in proper position by needle *j*) and through the loop of the said second needle, as shown in Figs. 4 and 5. As the first needle, *i*, finishes its downward motion the loop of said first needle, *i*, is liberated by the rising of the second needle, *j*, and is drawn tight around the first needle, thereby finishing the stroke. A succession of these movements completes a line of what I call "double back-stitching."

To make the single-thread or "tambour" stitch it is only necessary to remove the thread from the second needle, *j*, when it immediately becomes a simple looper, to take the thread from the needle *i*, as seen in Fig. 6, and hold it in position for the needle *i* to pass through it in its next descent, as shown in Fig. 7. The operation of the machine in making this stitch may be briefly described as follows: The needle *i*, on its first descent, carries a loop of thread through the fabric R. As the needle *i* rises the loop bows or spreads out, so that the needle *j* (which is now making its downward motion) passes through said loop, as seen in Fig. 6. When the needle *i* has completed its upward motion and the needle *j* its descent, the loop of thread is held open by needle *j*, as shown in Fig. 7, for needle *i* to pass through in its next descent. As the needle *i* descends the needle *j*, by rising, casts off the loop, which is drawn tight round the needle *i*, as represented in Fig. 8. A continuation of these motions makes a line of "tambour stitching."

I do not claim, broadly, the employment of two needles for the purpose of sewing cloth, for they are seen in the patents of O. Avery, October 19, 1852, to May 9, 1854.

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

1. Forming a seam by passing a loop of thread through the fabric to be sewed, then passing through the fabric and through the first loop a loop taken from another thread from the same side of the material as the previous loop, then passing through the fabric another loop from the first thread through its own first loop and the loop of the second thread, thus making a line of stitching which I call "double back-stitching."

2. The arrangement and combination of the needles *i* and *j*, or their equivalents, substantially as described.

August 6, 1857.

T. J. W. ROBERTSON.

Witnesses:

WILLIAM TUSCH,
A. E. BEACH.