

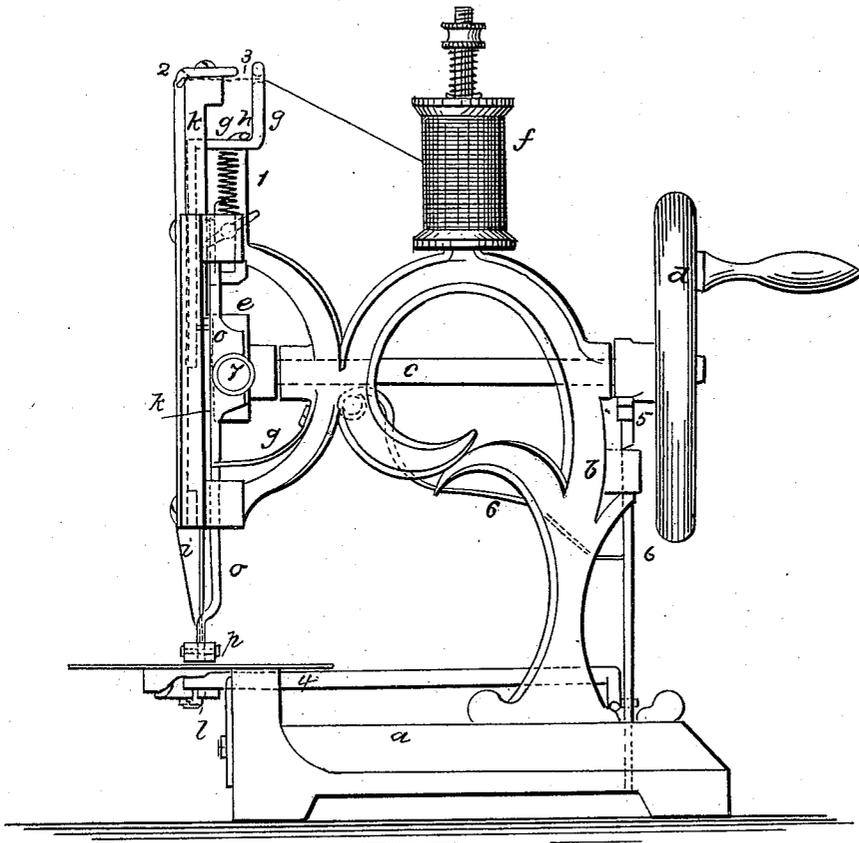
C. RAYMOND,
Sewing Machine.

2 Sheets—Sheet 1.

No. 19,612.

Patented March 9, 1858.

Fig. 1.



Witnesses
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Charles Raymond

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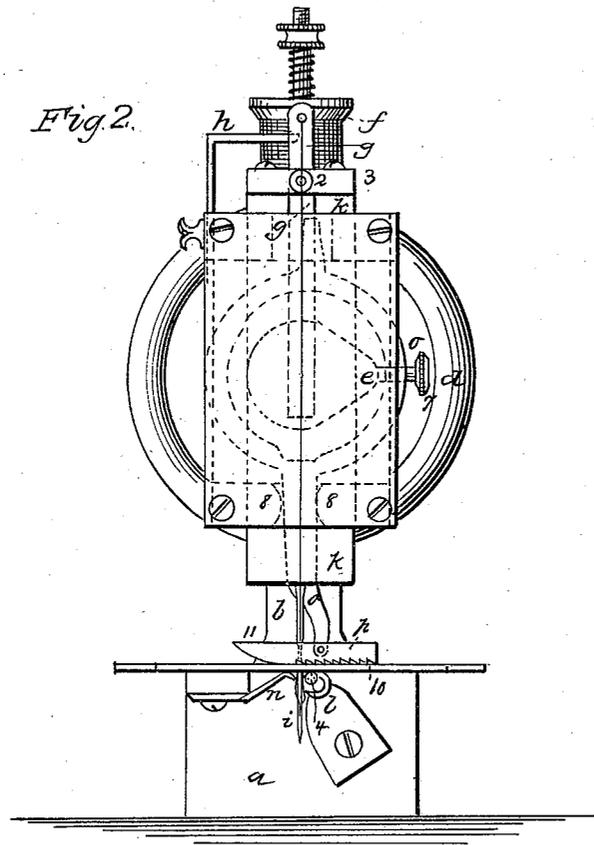


Fig. 2.

Fig. 3



Witnesses

Samuel W. Serrell
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Inventor

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UNITED STATES PATENT OFFICE.

CHARLES RAYMOND, OF BRISTOL, CONNECTICUT, ASSIGNOR TO WILLFORD H. NETTLETON, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 19,612, dated March 9, 1858.

To all whom it may concern:

Be it known that I, CHARLES RAYMOND, of Bristol, in the county of Hartford and State of Connecticut, have invented, made, and applied to use 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 construction and operation of the same, reference being had to the accompanying drawings, making part of this specification, wherein—

Figure 1 is a side elevation of my machine. Fig. 2 is a front view, and Fig. 3 is a plan (inverted) of the loop-spreader.

Similar marks of reference indicate the same parts.

In sewing-machines which have heretofore been constructed a difficulty has arisen in pulling up the stitch (particularly in looped stitches) with an exact uniformity, because sometimes a knot or slight inequality of the thread will cause a tension that unwinds too much thread from the spool, leaving one or more of the loops slack. Several devices of pads, rollers, &c., have been used to hold the thread and insure a proper tension. These, however, are more or less complicated and apt to break the thread.

The nature of this part of my invention consists in a spring thread-guide, through which the thread passes, and into which the top of the needle-bar in its motion descends, simultaneously clamping the thread and drawing down said spring-guide with itself, while the descent of the needle draws up the previous loop; and the instrument with which I spread my loop consists of a triangular double-inclined piece of metal, against which the loop from the needle is carried by a looper, so that the pulling up of the thread as the needle recedes causes the loop to spread and insure the passage of the needle through the same.

In the drawings, *a* is the bed of the machine; *b*, the standard, carrying the shaft *e*, on the end of which is the fly-wheel and handle *d*.

e is a cam with an eccentric pin working in a cross-slot in the needle-bar *k*, and giving motion to the needle *i*.

f is the spool, the thread of which passes

through the spring-guide *g*. This guide is fitted so as to slide up or down in a groove in the needle-bar, as shown by dotted lines, Fig. 1, and the said guide *g* is kept up by the spring 1 to the adjustable stop *h*, and the thread passes through this guide *g* and a hole in the top of the needle-bar *k* at 2, and thence through the eye of the needle. The operation of this part is as follows: The needle passes through the cloth and the loop of thread is retained, as hereinafter described. The needle-bar *k*, as it rises, brings the eye 2 nearly the height of the eye in the guide *g*, and as the needle descends the top part, 3, of the needle-bar draws thread through the guide from the spool until said part 3 rests on the guide *g*, confining the threads between the parts. The guide *g* then descends with the needle-bar, (compressing the spring 1,) and as no more thread can now draw through the eye of the needle *i*, said needle, in its descent, draws up definitely the previous loops, and so on each loop is drawn up by a definite motion, and only the proper amount of thread for each loop is measured off, and the surface that clamps the thread is so much as to prevent the thread being broken or cut, and the amount of thread supplied to each stitch will be regulated by the position of the stop *h*.

The looper is formed by means of a hook, *l*, that is set on a shaft 4, and receives an oscillating motion from the cam 5 on the main shaft *e*, the connecting-bar being kept to the cam by a spring, 6. The looper *l* carries the loop of thread to the triangular piece *n*, and this piece is formed with a double incline from the point, so that as the loop is drawn by the upward movement of the needle the loop is spread by the said inclines and opened to insure the passage of the needle, in its next descent, through the said loop, at which time the looper *l*, receding, leaves the loop around the needle, and then by its next oscillation takes another loop to the triangular spreading-plate *n*. It will be apparent that instead of an oscillating looper the loop might be taken to the spreading-plate *n* by a reciprocating instead of an oscillating looper.

My feeding-motion is operated by the cam

e, acting on the bow formed on the upper end of the feed-bar *o*, (see dotted lines, Fig. 2,) and by this means a rocking motion is given to the bar *o* to a greater or less extent, according to the position of the point of the screw 7, against which the cam acts. The feed-bar *o* rocks in a notch at the point 8, and is kept down by a spring, 9, but can be raised against said spring to insert the cloth beneath the feeding-foot. The feeding-foot *p* is jointed at the lower end of the bar *o*, and provided with a smooth portion at the forward end and a roughened portion at 10, formed with teeth, which slide over the cloth as the feed-bar goes back while the needle is in the cloth, and then give the feeding motion as the foot moves forward. My foot, being jointed to the bar, will accommodate itself to inequalities in the surface being fed, because the curved part 11 will rise onto a seam or other elevation while the back of the foot is in contact for feeding; and by having the roughened surface to act on the part of the cloth which has been sewed, there is no opportunity for slipping one part of the cloth on the other, as would be the case if the feeding device operated on the unsewed portion.

Having thus described the nature and operation of my said invention, I wish it to be understood that I do not claim fixed and moving looping-instruments over both of which the thread is drawn to spread the loop for the needle to pass through, as this has before been used; but I am not aware of any previous de-

vice in which the loop has been taken and directed to a double-inclined spreading-plate on the sides of which the loop is spread by the drawing up of the needle-thread, thereby insuring the proper entrance of the needle into said loop in its next descent, and using but a very short loop close up to the bed supporting the material being sewed. At the same time the instrument taking the loop from the needle performs no duty in spreading the loop, but simply directs it to the stationary double-inclined spreader; as specified. Therefore

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

1. The combination of the thread-guide *g*, clamping-surface 3, and the eye 2 on the upper end of the needle-bar, when said thread-guide is fitted to move with the needle-bar and regulated by the stop *h* or its equivalent, so as to measure off the amount of thread for each stitch, substantially as specified.

2. A stationary double-inclined spreading-plate, *n*, over the sides of which the loop is drawn and spread, when combined with a looping-point to direct the loop of needle-thread to said spreading plate as it draws up, as specified.

In witness whereof I have hereunto set my signature this 13th day of January, 1858.

CHARLES RAYMOND.

Witnesses:

LEMUEL W. SERRELL,
THOMAS G. HAROLD.