

I. M. ROSE.

Embroidering Attachments for Sewing Machines.

No. 153,117.

Patented July 14, 1874.

Fig. 1.

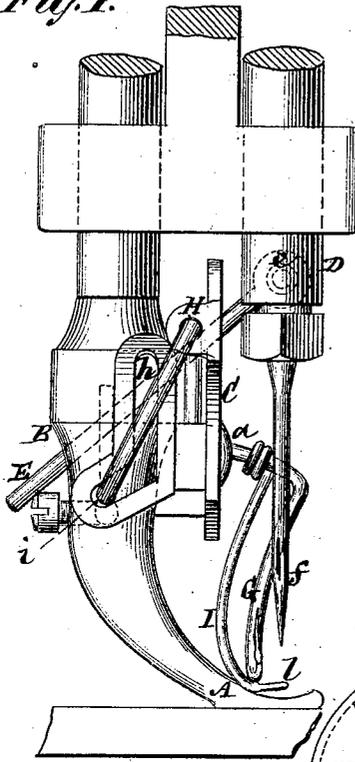


Fig. 2.

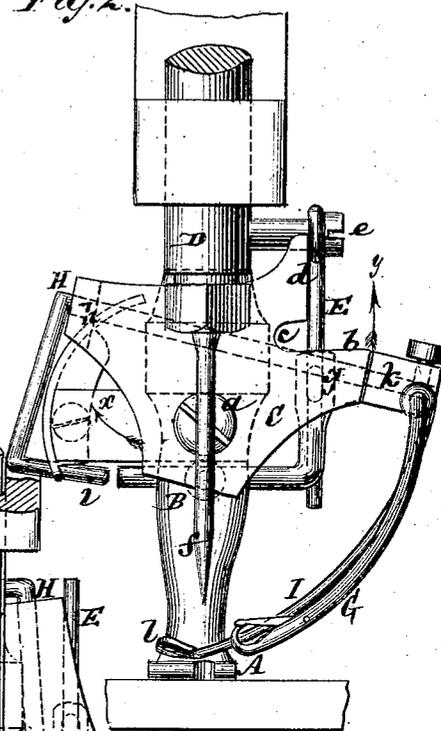


Fig. 3.

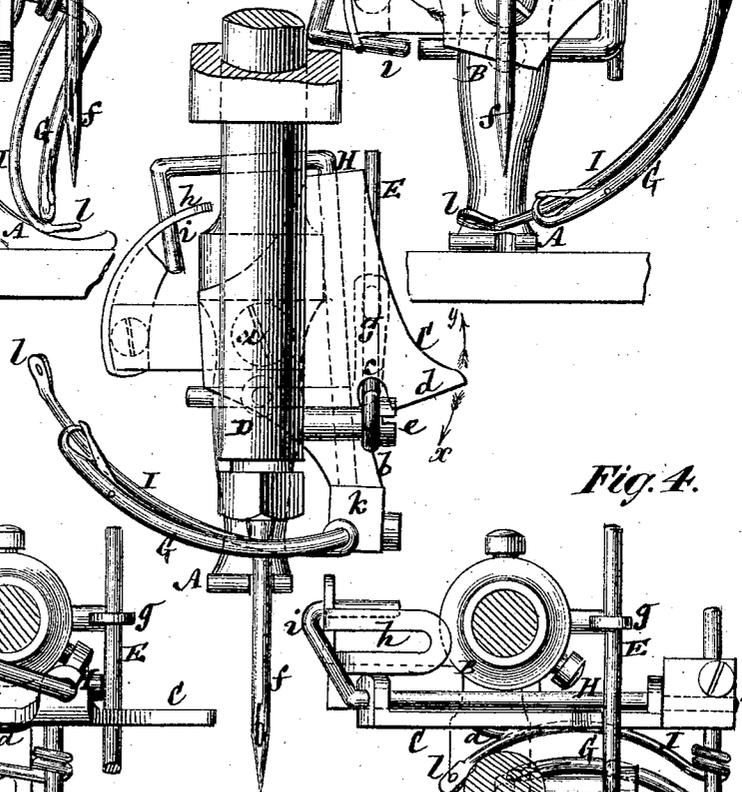


Fig. 5.

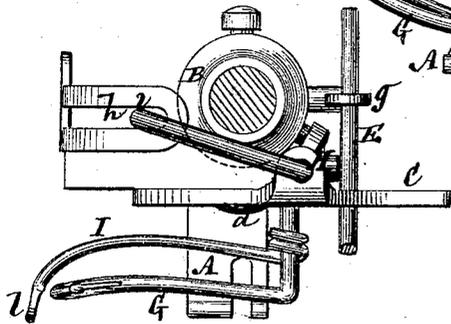
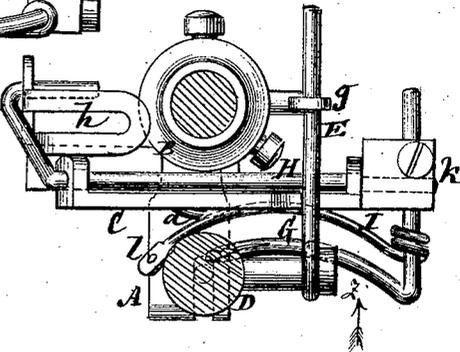


Fig. 4.



Witnesses

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IMPROVEMENT IN EMBROIDERY ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **153,117**, dated July 14, 1874; application filed
January 10, 1874.

CASE B.

To all whom it may concern:

Be it known that I, ISRAEL M. ROSE, of Brookhaven, in the county of Suffolk and State of New York, have invented certain Improvements in Embroidery Attachments to Sewing-Machines, of which the following is a specification:

This invention relates to an embroidery attachment to the presser-feet of sewing-machines, operating upon the same general principle as that described in Letters Patent No. 136,098 of the United States, issued to me February 18, 1873, the object of which is to lay an embroidery-thread upon the fabric that is subjected to the process of sewing, and of stitching said embroidery-thread down upon the fabric by means of an ordinary needle and thread, without causing the embroidery-thread to pass through the fabric, but leaving the same entirely upon the surface of the latter; and to which end there is used a latch-needle attached to a rocking or vibrating plate carried by the presser, and actuated by the needle bar or carrier to take a thread from a guide and draw it under the needle-thread, and form it into a chain on the upper side of the fabric, said latch-needle having also a movement in direction of the length of its axis to give to it a slight lateral motion in addition to its longitudinal movement, in common with the vibrating plate, for the purpose of carrying the embroidery-thread toward and by the sewing-needle.

This invention or improvement consists in a substitution for a fixed thread-guide, from which the latch-needle draws the embroidery-thread, of a thread-guide having the same combined movements as said needle—that is, both longitudinal and lateral—thus causing said devices always to bear the same relative positions to each other, and doing away with undue tension and entanglement of the embroidery-thread. The invention also consists in a novel means for operating the vibrating plate, which carries the latch-needle, combined with a special construction of said plate, whereby the sewing-needle bar or holder, as a driver, is kept in constant action on or con-

trol of said plate, which thus is kept from slipping or yielding by the tension of the thread, especially during the upper portion of the stroke of the needle-holder.

In the drawing, Figure 1 represents a front view, and Fig. 2 a side view, of the presser-foot of a sewing-machine with my improved attachment and needle-bar applied, showing the needle-bar in its raised position, and latch-needle with thread-guide as drawn back. Fig. 3 is a similar view to Fig. 2, but in its down position behind the latch-needle, and the latter as occupying a forward position. Fig. 4 is a plan, with the parts in the position represented in Fig. 2; and Fig. 5, a plan of the parts as in Fig. 3.

Similar letters of reference indicate corresponding parts.

A is the presser-foot, and B its shank or holder, said presser-foot being adjustable in the customary manner, if desired. The sewing-machine to which my improved attachment is applicable may, as in my patent hereinbefore referred to, be either a single or double thread machine, and I do not restrict myself to the use of any particular kind of sewing-machine. C is the vibrating bar or plate, pivoted, at *a*, to the presser-foot, and formed with two shoulders, *b* *d*, meeting, at their junction, in a notch, *c*. Pivoted, by screw or otherwise, at *e*, to the bar or holder D of the sewing-needle *f* is a rod or lever, E, which passes freely through an eye in a bracket, *g*, attached to the presser-foot. This lever, during the ascent of the needle *f*, leaving the shoulder *b* and notch *c*, strikes or rubs over and plays against the shoulder *d*, and continues to bear against it during the whole ascent of the needle bar or holder D, swinging the plate C from the position represented in Fig. 3 to that represented in Fig. 2, while during the descent of the needle *f* the lever E strikes on the shoulder *b* and moves the vibrating plate C to the position shown in Fig. 3. This is necessary for the operation of the latch-needle G, as in my hereinbefore previously referred to patent; but there is this important difference, that, by the elongation or construc-

tion of the shoulder *d* and use of the lever E, the needle-holder D acts upon said shoulder during the completing portion of the ascent of said needle-holder, thereby preventing the vibrating plate C from slipping or yielding by the pull of the thread on it or otherwise.

In the descent of the needle-holder D the lever E acts upon the shoulder *b* as in my previous invention.

H is the arbor, which is swiveled or hung on the plate C in such manner that it can swing independently on its own axis, its independent motions being controlled by a slotted guide, *h*, which projects backwardly from the shank of the presser-foot, and into which slot a crank, *i*, of the arbor H enters. The lower end of the arbor carries a projecting arm, *k*, to which the latch-needle G is rigidly secured by a screw or otherwise. This latch-needle, during the oscillation of the plate C, is carried into the two extreme positions shown in Figs. 2 and 3—that is to say, during the downward motion of the needle bar, when the plate C is swung in direction of the arrow *x*, the latch-needle is carried above and across the presser-foot into the position shown in Fig. 3, and during the subsequent upward motion of the needle-bar, when the plate C is swung in direction of the arrow *y*, the latch-needle is carried clear of and beyond the presser-foot into the position shown in Fig. 2. I is the wire or embroidery-thread guide, which, in this case, instead of being fastened to the presser-foot, is fast to the arm *k* or shank of the latch-needle, so as to have motion in common with the latch-needle. This guide I is formed with a loop, *l*, through which the embroidery-thread is drawn after having passed through or over suitable tension devices.

When the needle-bar D descends and causes the latch-needle to move forward, said latch-needle catches under and takes hold of the embroidery-thread, and during the subsequent ascent of the needle-bar the latch-needle carries the embroidery-thread with it across and over the presser-foot; and at the end of its movement in this direction the latch-needle will be swung in direction of the arrow *z* (shown in Fig. 4) by the crank *i*, moving in the slot *h*, into which it is laterally deflected at the end of the upward vibration in direction of the arrow *y* of the plate C. This lat-

eral deflection of the latch-needle G causes the same to pass or stand behind the sewing-needle, and in this position that portion of the embroidery-thread which lies across the presser-foot is sewed down during the descent of and by the sewing-needle and its thread. The subsequent vibration of the plate C in direction of the arrow *x* causes the latch-needle to pass through the last-formed loop of the embroidery-thread, and to retain such loop on its shank, and to open its latch, so that it can again take hold of another portion of the embroidery-thread, and draw it back over the presser-foot as before. Upon arriving in the position represented by Fig. 4 the latch becomes closed by the loop which was on its shank slipping over and off the latch-needle, leaving, however, the last portion of the thread carried on such needle to form the succeeding loop, and so on. In this manner, as in my patent hereinbefore referred to, the required stitch is formed entirely on the surface of the fabric, and secured by the thread of the sewing-needle; but by the attachment of the looped-thread guide I to the latch-needle G or its shank said guide has the same combined movements as the latch-needle, and thus always retains the same relative position to the latter, thereby doing away with undue tension and entanglement of the embroidery-thread.

I claim—

1. The combination of the lever E with the shoulders *b d* of the vibrating plate C, for operation by the sewing-needle bar or holder, whereby the vibrating plate C, which carries the latch-needle, is retained in position during the upper portion of the stroke of the needle-bar, and is prevented from slipping, essentially as described.

2. The combination, with the latch-needle G, having not only a longitudinal movement to and fro across the presser-foot, but also a slight lateral movement relatively thereto, of the embroidery-thread guide I, constructed and arranged to have the same combined movements as the latch-needle G, and in common with the latter, substantially as specified.

ISRAEL M. ROSE.

Witnesses:

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JOHN H. ROSE.