

UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN EMBROIDERY ATTACHMENTS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **148,761**, dated March 17, 1874; application filed February 7, 1874.

To all whom it may concern:

Be it known that I, REUBEN M. ROSE, of Williamsburg, Brooklyn, in the county of Kings 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 embroidery attachments to sewing-machines that operate to lay an embroidery-thread upon the upper surface of the fabric, and which is secured by an independent sewing-thread, two needles and a shuttle, or their equivalents, being used. Furthermore, the embroidery-stitch made by my invention is a well-known one, the same consisting of a succession of coils which the sewing-thread is made to interlace, to accomplish which my invention admits of ordinary-shaped needles being used. To these ends my invention generally consists in a pressure-foot attachment which may be applied to any ordinary sewing-machine in place of the usual foot, and has combined with it a horizontally-reciprocating eye-pointed needle and mechanism for operating the same by the sewing-needle bar, so that the embroidery-thread, which is carried by the horizontal needle, is first worked by the latter in front of the sewing-needle, then moved laterally by a positive motion applied to the horizontal needle, that is thus thrown back of the sewing-needle during the ascent of the latter and across its path, and subsequently returned laterally to its normal position, while the sewing-needle in its descent enters the loop of the embroidery-thread, which, by the straight reciprocating action of the horizontal needle in line of the feed and its lateral action combined, coils the embroidery-thread, as it were, around the sewing-needle.

In the accompanying drawing, Figure 1 represents a front elevation of my embroidery attachment in relation with the sewing-needle when the latter is down; Fig. 2, a like view of similar devices, but showing the sewing-needle as in the act of ascending, shortly before the embroidery-needle is thrown laterally back of it; Fig. 3, a plan with the parts in the position represented in Fig. 1; Fig. 4, a plan after the embroidery-needle has been thrown back of the sewing-needle, and Fig.

5 a top view of a piece of fabric with the embroidery-stitch as produced thereon.

A is the presser foot or shoe, provided on the upper surface of its bearing portion with a horizontal slide, B, moving in direction of the line of feed, and which may be guided in its reciprocating movement by slots *b* and pins or projections *c*. C is the bed or table of the sewing-machine, and D the material to be embroidered. The horizontal slide B has attached to it, in advance of its forward end, a horizontal eye-pointed needle, E, which carries the embroidery-thread *d*, and which is so arranged, relatively to the sewing-needle F, that, in the forward motion of the slide, it causes the horizontal needle E, with its embroidery-thread *d*, to be projected in front of the sewing-needle F shortly before the latter completes its ascent, as represented in Fig. 2. The sewing-needle F then completes its ascent, and, in doing this, the needle E, bearing against or lying immediately in front of the needle F, is moved laterally by a positive motion to the back of the needle F as the latter, in its ascent, clears the horizontal needle E. This leaves a loop, *e*, of the embroidery-thread, as shown in Fig. 4, through which loop the needle F, in its succeeding descent with its sewing-thread *f*, passes, and the horizontal needle E moves laterally to its normal position in a line which is in advance of the needle, and subsequently moves backward in direction of the feed, while the sewing-needle F completes its descent and forms slack, through which a shuttle-thread is passed to lock the sewing-stitch. The horizontal needle E then moves forward again, with its embroidery-thread *d*, in front of the sewing-needle F, for a repetition of the action, as described. In this way, or by these means, the embroidery-thread is coiled, as it were, around the sewing-needle. The horizontal reciprocating action of the needle E in line of the feed is effected by a bell-cranked lever, G, the one arm of which is connected with the slide B, and the other, preferably by a cord or its equivalent, with the needle-bar H, or screw that holds the sewing-needle, so that the sewing-needle may have a dwell motion for the passage of the shuttle before lifting on the lever G to project the horizontal needle in front of the sewing-needle. The reverse move-

ment of the lever G, which draws the horizontal needle E back as the sewing-needle E makes its descent, I prefer to effect by means of a spring, *h*; but a positive motion may be used instead, if desired. The lateral throw or movement of the needle E back of the sewing-needle, as the latter completes its ascent, is effected in a positive manner. Thus the needle E is attached to a spring, I, which is carried by the slide at *i*, and is crooked at *k*, so that as the slide makes its forward movement it or the crook *k* comes in contact with a stop, *l*, which moves the needle E laterally back of the sewing-needle, and so that when the latter commences its descent the spring I throws the needle E laterally in a reverse direction to a position in line with the front of the sewing-needle, as required. Instead of the spring I, however, the needle E may be attached to a pivoted bar or lever which is made to receive a positive lateral motion in both directions as the slide B is reciprocated; but it is preferred to use the spring I, as such provides for irregularities of the needle-thread.

I claim—

1. The combination, with the presser-foot, of the slide B, arranged to reciprocate in direction of the line of feed, and carrying the embroidery-thread needle E, the latter having a lateral motion in relation to the sewing-needle, for operation in connection with the latter, substantially as specified.

2. The horizontal embroidery-thread needle E, arranged to reciprocate in direction of the feed, in combination with the stop *l* and spring or device carrying said needle, to give to said needle a positive lateral movement relatively to the sewing-needle, essentially as described.

3. The combination of the lever G with the slide B and needle E, having a lateral as well as a reciprocating motion relatively to the feed, as described.

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Witnesses:

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