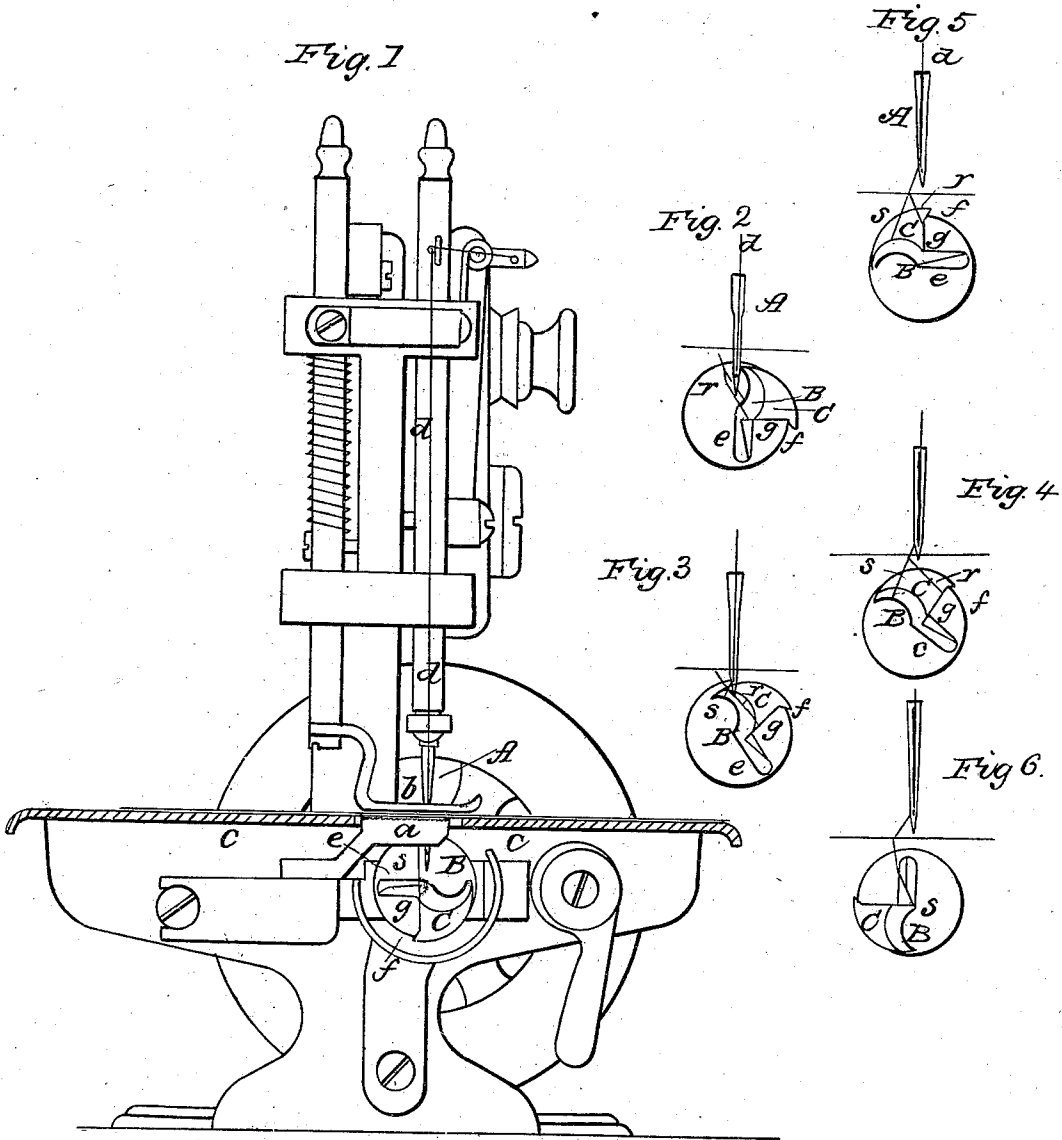


F. E. MARBLE.
Sewing Machine.

No. 33,439.

Patented Oct. 8, 1861.



WITNESSES
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UNITED STATES PATENT OFFICE.

F. E. MARBLE, OF NEW YORK, N. Y.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **33,439**, dated October 8, 1861.

To all whom it may concern:

Be it known that I, F. E. MARBLE, of New York, in the county of New York and State of New York, have invented a new and useful Improvement on Single or Double Thread Sewing-Machines; and I do hereby declare that the following, taken in connection with the accompanying drawings, which form part of this specification, is such a full and clear description as to enable others skilled in the art to which this my improvement relates to make and use the latter.

My present improvement is restricted to that class of single or double thread sewing-machines in which a crochet or chain or other kind of stitch is formed by the combined action of an eye-pointed needle and revolving or rotary hook or looper, and more particularly relates in such combination to a revolving hook or looper, always traveling in the same direction when operating, for the formation of said stitch, and in which the one loop is passed through its predecessor while both loops are on the hook or looper, and the interlaced or cast-off loop is drawn up or tightened by the action of the hook on the succeeding loop; also, in which each loop is or may be twisted to open or spread it and to strengthen the stitch after passing the cloth to be sewed and before taking a fresh loop. Such an arrangement is shown and described in Letters Patent of the United States granted to James E. A. Gibbs on the 2d of June, 1851, reissued in July, 1858. My present invention, however, is an improvement upon such combination of an eye-pointed needle and revolving hook or looper, and essentially differs therefrom in a most important respect. Thus in the Gibbs combination, as referred to, the loop after it slips off the hook is caused to lodge in an angular recess, and is afterward twisted by a spur or cast-off arranged in relation to the hook and angular recess, so that the loop is spread for the nose of the hook to pass through on taking a fresh loop from the needle, the preceding loop lying in a concave portion of the hook, while the fresh one is entered by its nose, and immediately afterward the old loop is cast off from all connection with the hook, and in a large or loose form, to be subsequently drawn tight by the opening of the new loop. This action exposes the old loop, after it has been cast off and before being

drawn up or tight, to twist and kink, or it may by the rapid action of the hook be thrown into its path and become entangled therewith. In either case the thread will break, and thus cause imperfections in the seam, which are the starting-points for its raveling.

To remedy this great defect is the object of my improvement, which consists in an attachment to the hook of a gradual let-off, that causes the looper to retain possession of the old loop one revolution or thereabout or more from the first entry of the hook, and till said old loop is fully, or nearly so, drawn up or tight against the cloth by the action of the hook and needle on the new loop, and which retainer of the old loop, moreover, exercises a tension on the latter, in accordance with the action on it, through the new loop of the hook or looper, as aforesaid. Accordingly it will be seen that by this my improvement the old loop, not being left free, cannot kink or become entangled or disarranged while being drawn up.

To more minutely describe this my improvement, I now refer to the accompanying drawings, and which, taken in connection with what has herein already been said, and compared with the Gibbs combination, as referred to, upon which my invention is an improvement, needs but a short description to explain it.

In said drawings, Figure 1 represents a front view of a single-thread chain-stitch sewing-machine with revolving hook or looper and my improvement applied to the latter; and Figs. 2, 3, 4, 5, and 6, views or diagrams in illustration of the action of the hook or looper, with its let-off attachment, at different stages in the formation of the stitch and in its changing positions relatively to the needle.

The general construction and action of the machine is or may be similar to that shown in the Gibbs patent before referred to, or of any other suitable single or double thread chain-stitch sewing-machine. Such therefore, including the action of its feeding mechanism, which comprises the dog *a* and presser *b*, holding the cloth in between them on the table *c*, and the thread-tension devices, and other ordinary features, require no description here; but, in this connection, it will suffice to say A represents the reciprocating eye-pointed needle, which in its descent carries the thread *d* through the cloth and below the table for the revolving hook or looper B to catch and

act upon it, as already generally described. The hook B is not only formed with a loop-twisting spur, *e*, but is also provided at its back with an attachment or extension, C, that may have a lip, *f*, at its extreme end, and which attachment or extension constitutes the tension let-off or retainer I have before specified as my improvement. Said let-off or retainer is formed by a swell on the back of the hook, extending from the nose of the hook for the fourth of a circle (more or less) in the rear of its path, and joined at its back to the base of the hook or near the base of the latter by a curved or straight line, *g*, at the outward extremity of which is the lip *f*.

The operation is substantially as follows: As the needle A commences its retraction the nose of the hook B enters the new loop brought down by the needle, which is the position shown for the hook in Fig. 2 of the drawings. The old or former loop *r* having been previously spread out or opened, as will be hereinafter explained, the hook next advances to the position shown for it in Fig. 3, carrying the new loop *s* through the old one, which latter still remains on the looper or on the inner portion of the back of the let-off C, at or near the base of the hook. The hook then advances to the position shown in Fig. 4, when the old loop has slid considerably outward along the back *g* of the let-off, which keeps said loop in its proper position and at a slight tension during the drawing of it up by the action of the hook on the new loop. Said hook next moves to its position illustrated in Fig. 5, when the old loop has slid farther outward and so as to

catch or rest against the lip *f*, which latter, in the continued forward movement of the hook, and as the old loop is nearly or quite drawn up, travels out of the old loop to act in like manner upon the new one in its turn. The hook then advances to the position shown in Fig. 6, in which the new loop has passed the concavity of the hook, and is about being acted upon by the twisting-spur *e*, which, when arriving at the position shown in Fig. 1, has twisted or turned said loop, or nearly twisted or turned it, and spread or held it open for its passage in the further movement of the hook to the position of the old loop *r* in Fig. 2, to be acted upon by the tension let-off or retainer C, as was described for the old loop, and for the continuance or establishment of a series of chain-stitches.

Having now described my improvement, I shall state my claim as follows:

In a combination of an eye-pointed needle and revolving hook or looper, used either in a single or double thread sewing-machine, providing said hook or looper with a loop-retainer or tension let-off so constructed and applied as that it holds onto and controls the loop till it is drawn up by the action of the hook or needle, or both hook and needle, essentially as herein set forth.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

F. E. MARBLE.

Witnesses:

CHAS. H. WILLCOX,
E. P. HATCH.