

J. H. WHITNEY.
Sewing-Machines.

No. 134,961.

Patented Jan. 14, 1873.

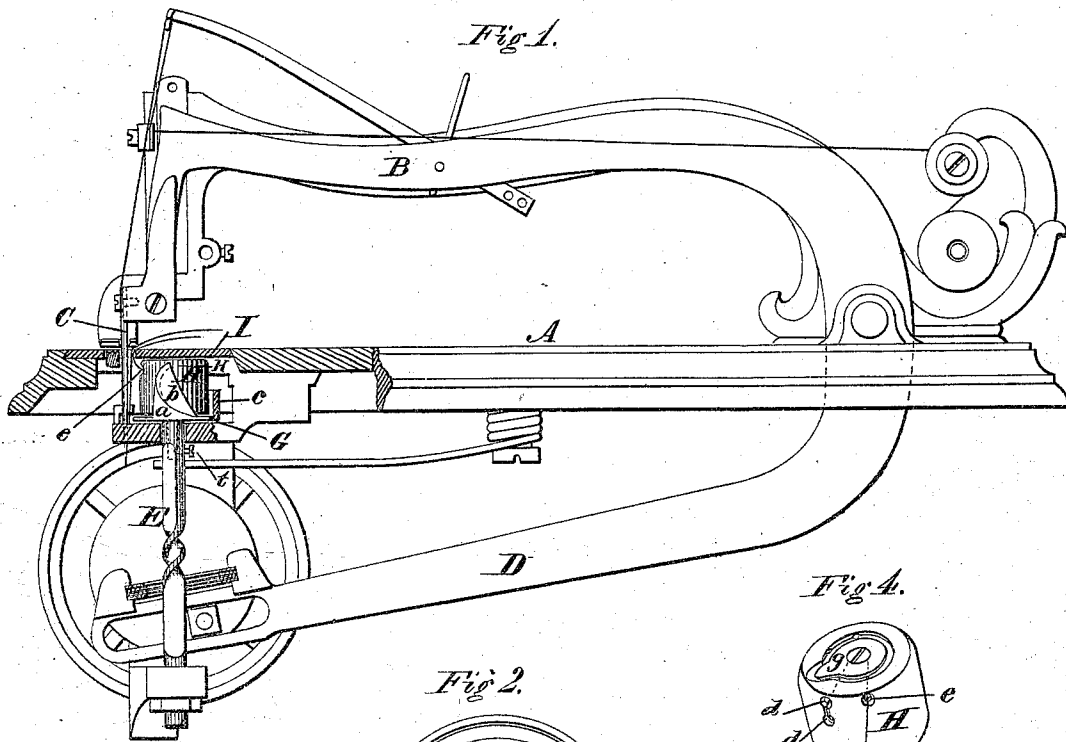


Fig. 2.

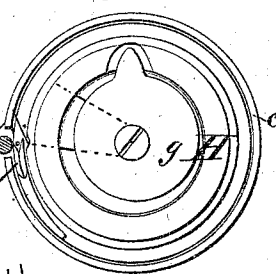


Fig. 4.

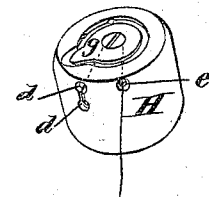


Fig. 5.

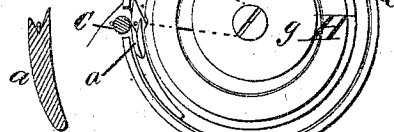


Fig. 3.

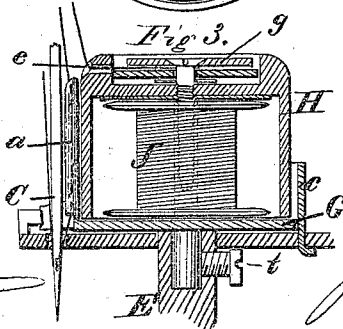
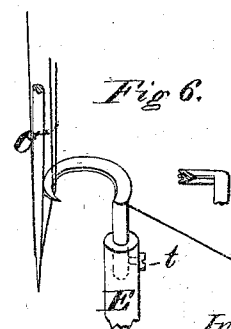


Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN H. WHITNEY, OF ROCHESTER, MINNESOTA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 134,961, dated January 14, 1873.

To all whom it may concern:

Be it known that I, JOHN H. WHITNEY, of Rochester, in the county of Olmsted and State of Minnesota, have invented certain Improvements in Sewing-Machines, of which the following is a specification, reference being had to the accompanying drawing.

My invention consists in the novel arrangement of a stationary shuttle or bobbin holder in connection with a revolving head provided with a lip, which carries the needle-thread around said shuttle or bobbin holder so as to form the ordinary lock-stitch. My devices are especially adapted for application to the common Grover & Baker machine in place of its circular needle, so as to cause said machine to make the lock-stitch instead of its usual double loop-stitch, so that the machine may be caused to make either form of stitch at will by inserting the circular needle or my revolving head and shuttle, as may be required.

Figure 1 is a longitudinal section through a Grover & Baker machine having my devices applied thereto; Fig. 2, a top view of the revolving lipped head or looper with the shuttle in position thereon; Fig. 3, a vertical section through the revolving head and the shuttle; Fig. 4, a perspective view of the shuttle or bobbin holder; Fig. 5, a horizontal section of the lip on the revolving head, to carry the needle-thread around the bobbin; and Fig. 6, a view of the ordinary circular needle used on the Grover & Baker machine.

In the drawing, A represents the bed-plate of the machine; B, the upper vibrating arm provided with the needle C, which is caused to play up and down through the bed; D, the lower vibrating arm; and E, the vertical spiral post, which is mounted under the bed and turned back and forth by the end of arm D acting upon it. These parts are arranged and operate in the usual manner, and therefore constitute no part of my invention and need not be more particularly described. On the upper end of the rotating shaft or post E I secure a circular head or disk, G, provided on one side with an upright looper, *a*, of the form shown in Figs. 1, 2, 3, and 5, provided on its outer side with a curved projecting lip, *b*, having a rounded front edge. The front of the looper is grooved to form a hook to catch the needle-thread, and the rounded portion of the

lip *b* depresses the loop to carry it under the bobbin. Around the outside of the head or disk G I place a stationary rim, *c*, which extends above the top of the head so as to hold the shuttle or bobbin holder in place thereon, as will be presently explained. The rim *c* is cut away on one side, as shown in Figs. 1 and 2, so as to allow the needle C to descend close to the edge of the head or disk G. I next provide the shuttle or bobbin holder H, consisting of a cylindrical metal body or shell of the same diameter as the head or disk G, so that it can be placed thereon within the rim *c*, as shown in Figs. 1, 2, and 3, and of such height or length that when placed on the head or disk it extends up close to the under side of the bed-plate in line with the top of the lip *a*, as shown in Fig. 1. In the lower end of the shuttle or holder I make a recess to receive the round bobbin J, and place therein a pintle for the bobbin to turn on, as shown in Fig. 3. Through the sides of the shuttle I make holes *d* and *e*, and in its top seat a friction washer, *g*, so that by passing the thread through the holes and under the washer, as shown in Figs. 2, 3, and 4, sufficient friction is caused to give it the required tension as it is drawn off. The end of the thread is finally passed out through the hole *e* made through the side close to the top, as shown in Fig. 4, so that when the shuttle is inserted in position and the machine set in operation the thread passing up into the fabric will serve to hold the bobbin from turning, as shown in Fig. 1. As the shuttle is thus held from turning, the rotation of the head or disk G carries the lip *a* around outside of the shuttle.

The various parts are so arranged and timed to operate at such intervals that when the machine is set in motion the following operations take place: The head or disk G stands still, with its lip in the position shown in Fig. 1, while the needle descends and carries its thread down through the fabric, and then the head turns so as to carry its lip backward past the needle-thread. As soon as the lip passes the needle-thread the motion of the head is reversed, so that the grooved front or hook of the lip catches the needle-thread, as shown in Figs. 2 and 3, draws it outward so as to form a loop, and then carries it around the bobbin and releases it, the shuttle being in effect

carried through the loop, so that the loop encircles the bobbin-thread. The needle then ascends and the take-up devices draw the needle-thread up, so as to tighten it around the bobbin-thread, and up into the fabric so as to complete the stitch. After the lip has carried the loop around the shuttle it stands in its original position, as in Fig. 1, until the needle again descends, when it is carried around so as to seize the needle-thread and carry it around the shuttle, as before.

Suitable feeding devices are, of course, used to advance the fabric being sewed between the strokes of the needle, in the usual manner; but as they form no part of my invention I do not deem it necessary to show or describe them.

With my arrangement of devices it will be seen that the needle-thread is seized with perfect certainty at each stroke of the needle, and carried over the stationary shuttle so as to encircle the shuttle-thread, and that the needle-thread is then drawn up and the stitch completed before the next one is commenced. The shuttle or bobbin holder, being placed in loosely on top of the head, can be taken out without trouble after drawing back the slide I in the bed-plate.

Instead of giving the head G the reciprocating rotary motion, as described, it may be given a continuous forward motion, if preferred; but in such case it should be permitted to stop, as in the arrangement shown, while the needle is ascending. Any suitable mechanism may be used to operate the head G and the needle, the arrangement shown being, however, considered a good one.

The shuttle or bobbin holder may be provided with any other arrangement of devices

than that shown for producing the tension on the thread.

By my arrangement of devices I produce a cheap, simple, and durable machine, which does not require to be delicately adjusted, and which operates with perfect certainty and great ease.

When it is desired to have the machine make the double loop-stitch, the shuttle is removed and the head or disk detached from the post or shaft E, and then the Grover & Baker curved needle attached to the post, as shown in Fig. 6, so as to form an ordinary Grover & Baker machine.

Thus it will be seen that by simply exchanging the curved needle for the head and shuttle the machine may be adapted to form a double loop-stitch instead of a lock-stitch. In order to facilitate this interchanging of the head and needle they are provided with stems or shanks to fit into a hole in the top of the post or shaft, which is provided with a screw, *t*, to fasten them.

Having thus described my invention, what I claim is—

1. The hook or looper *a* having the V-shaped groove in its front edge, and provided with the rearwardly-curved lip *b*, by which the thread is depressed and passed under and around the bobbin, as set forth.

2. The combination of the reciprocating needle C and rotating lip *a* with the bobbin-holder H, bobbin J, disk G, and rim *c*, all constructed and arranged to operate substantially as set forth.

JOHN H. WHITNEY.

Witnesses:

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