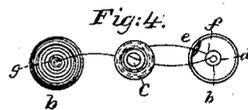
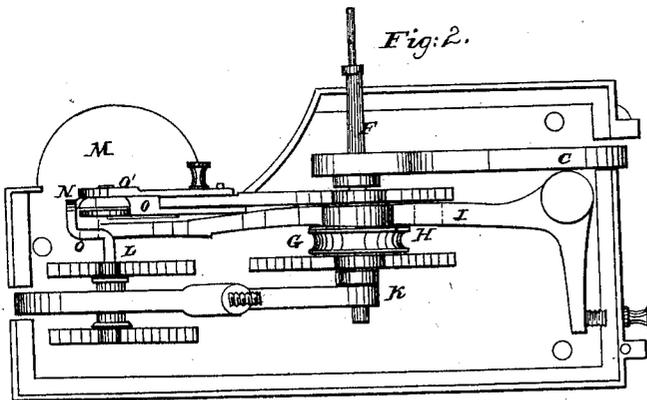
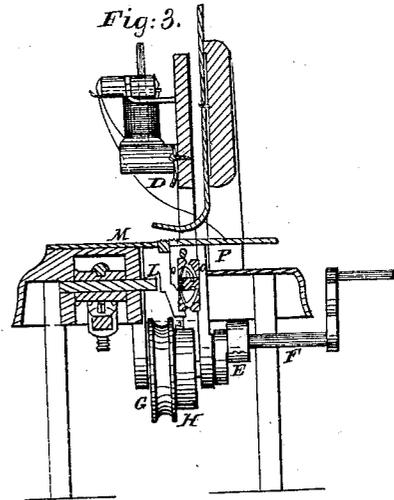
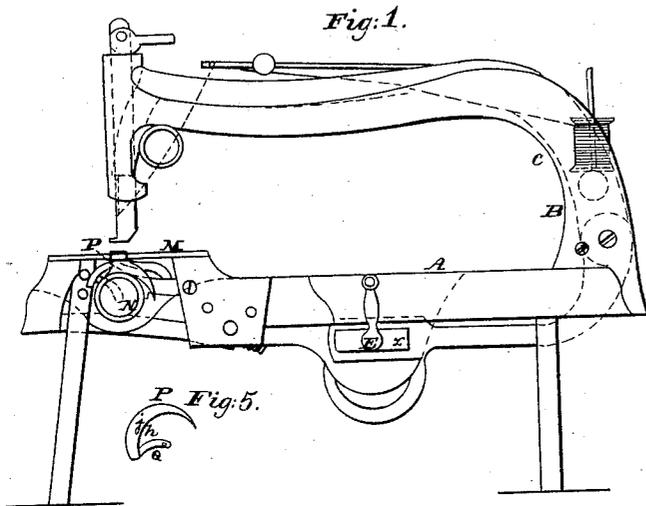


W. MILLAR,
Sewing Machine.

No. 27,867.

Patented Apr. 10, 1860.



Witnesses.

J. J. Brooks

Henry Brooks

Inventor.

Warren Millar

UNITED STATES PATENT OFFICE.

WARREN MILLAR, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND JOHN NUTT, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 27,867, dated April 10, 1860.

To all whom it may concern:

Be it known that I, WARREN MILLAR, of the city of Chicago, in the State of Illinois, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which--

Figure 1 represents a side elevation of a sewing-machine embracing my improvement; Fig. 2, a bottom view of the same; Fig. 3, a vertical transverse section; Fig. 4, a detail view of the bobbin-case. Fig. 5 represents the looper detached from the machine.

My invention relates more especially to that class of sewing-machines in which the loop of the needle-thread is made to pass around a stationary bobbin in order to engage with its thread and form what is commonly denominated a "lock-stitch." In using this class of machines great difficulty is experienced to produce a regular, even, and perfect stitch when sewing together cloth or other materials of varying thicknesses. This is caused by the friction of the loop of the needle-thread upon the lower edge of the bobbin-case while being carried around the latter by a hook or looper, and which friction the more increases the thicker the cloth through which the needle-thread is made to pass, so much so that it occasions frequently a partial turning of the bobbin-case. By such change in the relative position of a bobbin-case, as heretofore constructed, a change in the direction of the thread of the bobbin and an increase of its tension is produced, which prevents the preceding loop from being properly and completely drawn in unless the tension of the needle-thread is increased by the operator, which will tend to pucker the cloth in passing again to a thinner piece, to obviate which defect is the object of my present invention; and it consists in so arranging the bobbin-case (the construction of which will be hereinafter fully described) that there will be no change either in the direction or the tension of its thread on the bobbin-case being partially turned by friction, caused by the loop of the needle-thread bearing strongly against its lower edge while carried around it and in combination with said bobbin-case and a needle.

My invention further consists in the employment of a peculiarly-constructed oscillating curved barbed looper, whereby the catching of the loop of the needle-thread and the proper carrying of it around the case is most effectually insured and any liability of the bobbin-thread becoming entangled with the loop of the needle-thread completely obviated.

To enable others skilled in the art to make, construct, and use my invention, I will now proceed to describe it in detail, omitting the description of such parts as are not essential to the full understanding of my present improvement.

A represents the bed-plate, on which is erected a curved stand, B, to which is pivoted the bent lever C, by means of which a reciprocating motion is imparted to the carrier of the needle D, said lever being operated by means of the crank E of the main shaft F, engaging with a longitudinal slot, *a*, formed for its reception in the lower arm of the lever.

On the main shaft, which is carried in suitable bearings below the bed-plate A, and furnished with a pulley, G, by means of which it is to be driven, is arranged, also, an eccentric, H, provided with projecting inclines *a*, which operate the lever I in a horizontal and vertical direction in order to feed properly the cloth to the needle automatically, and a pulley, K, over which a band or belt so arranged as to communicate a rocking motion to the shaft L, on which the arm which supports the oscillating looper is mounted.

At the front end of the machine, immediately below the slot in the feeding-table M, through which the needle is caused to pass, is arranged the bobbin-case N, supported by clamps OO'. This bobbin-case consists of two curved disks, *b b'*, as shown in Fig. 4, which form together a suitable receptacle for the spool *c*. The disk *b*, which is provided with a female screw, *d*, in its center, has a pulley, *e*, near its periphery and a small hole, *f*, near its screw, and the other disk, *b'*, is provided with a hollow male screw, *g*, which fits into the female screw *d*. The thread being wound around the spool *c*, its end is passed through the pulley *e* and out through the hole *f*, and the spool *c* then placed on the female screw *d*, when the two disks are screwed together. The thread, which is led from the spool to the pul-

ley *e*, and then passing through the free space between the disk *b* and the spool *c*, carried out through the hole *f*, is passed through the hollow male screw *g* to the other side of the case.

The two clamps *O O'* are so formed and arranged as to allow the loop to pass freely between them and the bobbin-case. The edge of the case projects out of the clamps to enable the thread to engage readily with it. On the upper side of clamp *O* is a groove or guide for the needle. A corresponding groove is formed on the other clamp, *O'*, for the passage of the thread of the bobbin.

The looper *P*, which is attached to an elbow-shaped arm, *Q*, extending from the rocking-shaft *L*, is so arranged as to oscillate around the bobbin-case *N*, in close proximity thereto. It is made in the shape of a segment of a ring of about one hundred and twenty degrees, beveled down at its upper end to a point, and provided on its inner curve, at some distance from the point, with a barb, *h*, having a broad base for spreading the loop and narrowing down rapidly to a long point. Beyond the barb *h*, but close to its base, is a groove, *i*, extending upon one side of the looper in a direction inclining toward its point, into which the thread of the loop sinks when the looper begins to oscillate back, so that the loop of the needle-thread will not be exposed to the danger of entangling with the thread of the bobbin.

The operation of the machine is as follows: On the main shaft *F* being revolved by any suitable means, the crank *E* communicates a vertical rocking motion to the bent lever *C*, which in its turn imparts a vertical reciprocating motion to the needle-carrier. When the needle arrives at its lowest position, the looper *P*, which is operated from the main shaft by pulleys and suitably-arranged band or belting, transmitting at its shaft *L* the required rocking motion, passes, with its point, between the needle and its thread, and advances until the barb has passed the line of the needle. Meanwhile, the needle having commenced its upward motion, a loop is formed on the looper which catches in the barb *h*, and sinks then in

the groove *i*, when the looper commences its backward oscillation. The loop, which is gradually enlarged by the backward motion of the looper, becomes compressed between the edges of the clamps *O O'* as the looper is performing the lower portion of its oscillation, in consequence of which the loop slips from the broad base of the barb on its long point, and when the looper arrives at the end of its backward oscillation the loop slips off the point of the barb and is drawn over the remaining portion of the bobbin as the needle descends again through the cloth.

During the passage of the loop around the bobbin-case the latter by the friction of the passing thread is made to rotate a short distance with the loop, which motion of the bobbin-case is not at all detrimental to the perfect working of my machine, because of the peculiar construction of the bobbin-case, which allows a change of its relative position without affecting the direction or the tension of its thread; but, on the contrary, tends greatly to lessen the friction on the needle-thread while being drawn over the bobbin-case.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The bobbin-case *N*, made of the two curved disks *b b'*, the one disk, *b*, having a hollow female screw, *d*, an eye or pulley, *e*, and a hole, *f*, and the other disk, *b'*, having a hollow male screw, *g*, which allows of the passage of the thread, and, in connection with the screw *d*, secures the disks to each other, as herein set forth.

2. In combination with the bobbin-case *N*, constructed as described, and a needle of a sewing-machine, the oscillating curved barbed looper *P*, having a groove, *i*, at the base of its barb for the thread of the loop, and its point prolonged, as set forth.

WARREN MILLAR.

Witnesses:

W. J. STOORLY,
HENRY BROOKES.