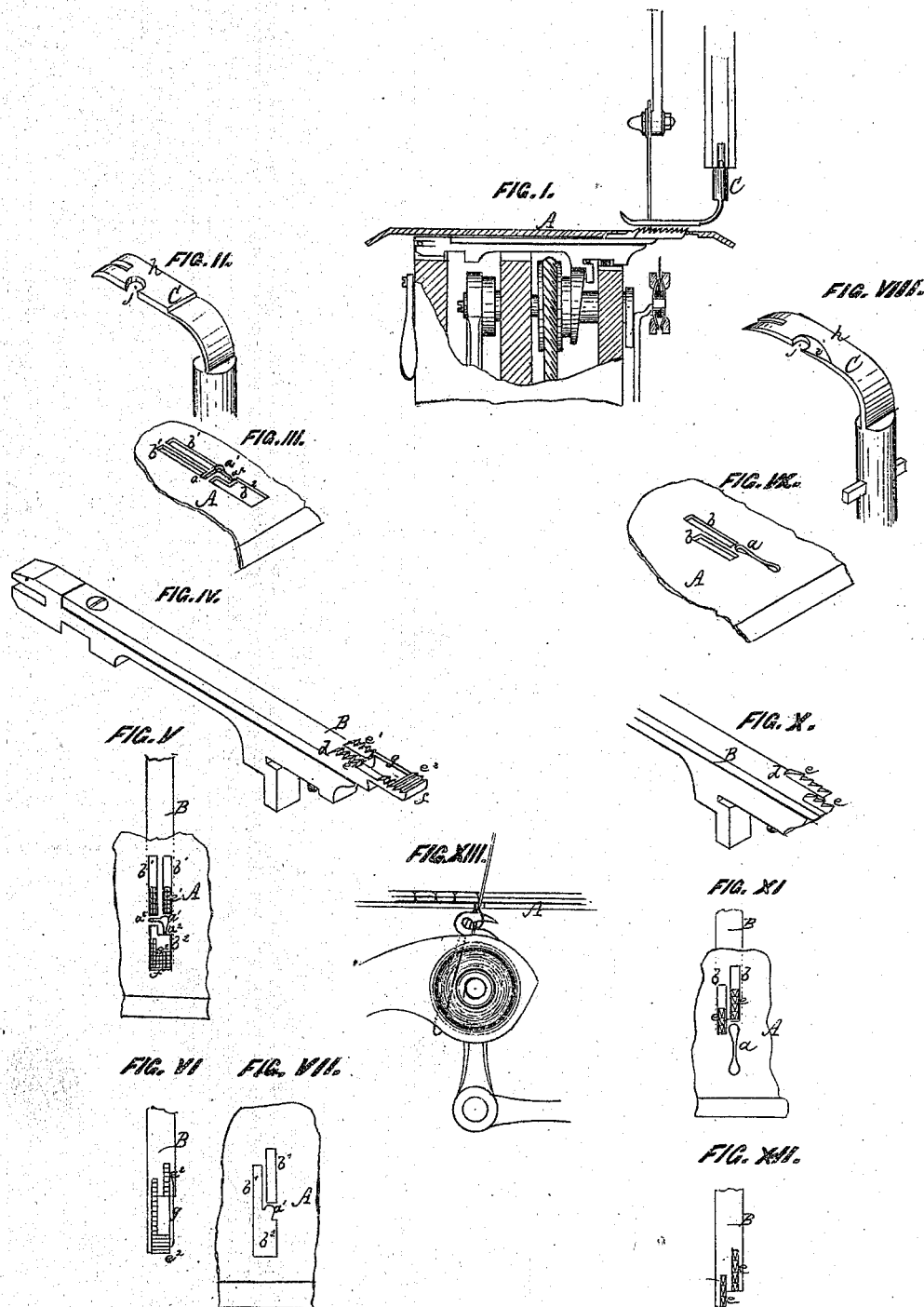


W. C. Winter,
Sewing Machine.
No. 112,308. Patented Feb. 28, 1871



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM C. WINTERS, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **112,308**, dated February 28, 1871.

To all whom it may concern:

Be it known that I, WILLIAM C. WINTERS, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Sewing-Machines, of which the following is a specification:

Nature of the Invention.

This invention is an improvement upon the machine patented to A. B. Wilson, August 12, 1851, and known as the "Wheeler & Wilson machine," and also upon the machine patented by Geo. B. Sloat, September 7, 1858, known as the "Improved Elliptic machine," and is applicable to rotary hook and bobbin machines only.

The novelty consists in the peculiar form and construction of the cloth-plate and feed-bar, as hereafter described, whereby the thread is drawn up perfectly at each stitch in turning curves or corners as well as in straight work, and the cloth is held firmly down before and beyond the needle during the operation of sewing, to prevent its being drawn down in the needle-eye in the cloth-plate, or holding and pulling the work as it comes from the machine while being stitched, to prevent it from puckering and breaking the thread.

General Description.

In the drawing, Figure 1 is a sectional elevation, showing the cloth-plate, feed-bar, and cloth-presser, with the usual underlying parts. Figs. 2, 3, 4, 5, 6, and 7 represent my improved forms of presser, (shown inverted,) cloth-plate, and feed-bar; Figs. 8, 9, 10, 11, and 12, views of the old forms of cloth-plate, feed-bar, and presser; Fig. 13, a diagram illustrating the action of drawing the stitch.

The operating parts of the machine are of the usual form, with the exception of the cloth-plate A, feed-bar B, and presser C.

The cloth-plate A, instead of having the ordinary eye *a* for the passage of the needle, which is elongated, as shown in Figs. 9 and 11, is provided with a needle-eye, *a'*, having two right-angled slots, *a'' a''*, Figs. 3 and 5, opening from it, for the purpose of allowing the thread free and unobstructed action during the formation and drawing of the stitches,

in whatever direction the cloth may be turned or fed.

If desired, the slot *a'* may open into slot *b''*, as in Fig. 7. Also, instead of having simply two narrow elongated slots, *b b*, Figs. 9 and 11, it is provided with three slots or openings, *b'* *b'* *b''*, Figs. 3 and 5, the latter being situated forward and widened beyond the needle-eye *a'*, in order to receive the increased bearing-surface of the feed-bar resting therein, presently to be described.

The feed-bar B is of the same shape, and is operated in the same manner, as the old form of bar, (shown in Fig. 10,) with the exception that the feed-point *d*, instead of having simply the ordinary bearing-surfaces *e e*, Fig. 10, which come just under and in the rear of the needle, has two bearing-surfaces, *e'* *e''*, the latter extending forward and beyond the needle an extra distance, and being widened, as shown at *f*, which enters the slot *b''* before referred to. It also has a thread-bar, *g*, on one side, opposite the needle-thread, for the purpose of preventing the thread from being drawn over the corner of the feed-point *e''*, and thereby causing an uneven tension and breaking of the upper thread while the stitch is being taken or drawn up.

This construction leaves a large open passage for the working of the thread, which is necessary in my invention, and yet it serves as a perfect guard to prevent the catching of the thread, as before described. In this respect it differs essentially from a feed-bar having simply a long narrow slot to allow the needle to pass through without respect to the drawing up of the thread.

The presser C is operated in the usual manner, and is of the ordinary form, Fig. 8, excepting the foot *h*, which, instead of having a bevel or angle, *i*, cut from its under or bearing surface adjoining the slot or needle-eye *j*, has its under surface left smooth and complete, as in Fig. 2, thus increasing the bearing-surface and insuring a firm hold.

It will be seen that by this new form of feed-bar and presser-foot the bearing-surface for holding the cloth is materially increased, and at the same time is distributed all around and in front and rear of the needle; that the cloth is held before and beyond the needle

with equal draft or firmness, thus obviating the possibility of the thread drawing the cloth unevenly from either direction, which would produce what is known as "puckering," or, as is frequently the case in the old form where thin material is being sewed, drawing the cloth down partially through the needle-eye a^1 and spoiling the work.

In the old form the bearing-surface is unequal around the needle, for the reason that it is all in the rear of the needle and none in front, as in mine.

In ordinary rotary hook and bobbin machines the first stitch is not drawn up or completely tightened until the second stitch has been taken. Therefore it is impossible to turn an angle or curve in the sewing with any success, as the thread comes in contact with the cloth-plate, which prevents it from having a free action. For instance, in turning a corner with the needle acting as a pivot upon which the cloth turns, the stitch or loop which is not yet drawn up is brought around in the needle-eye and resting upon the cloth-plate, and when the cloth-presser is let down upon the cloth it holds the stitch or loop firmly between the cloth-plate and presser, thereby producing a loop or loose stitch upon the under side of the cloth from one-eighth to one-half an inch in length, according to the length of the stitches produced by the machine in working.

In my case these difficulties are avoided by the use of the right-angled slot $a^1 a^2 a^3$ in the cloth-plate, and through which the needle plays, which, whenever a corner or sharp curve is being turned, allows the loop of the unfinished stitch to be drawn up through it and completed in precisely the same manner as it would be drawn up through slot a if the cloth were being fed continuously in one direction.

The peculiar open form of that portion of the cloth-plate immediately under the needle, and through which the needle descends, en-

ables the thread to have free play and presents an unobstructed passage for the loop upward under all circumstances. This effect is due to the peculiar form of the slot $a^1 a^2 a^3$, which allows a partial circuit of the thread therein without catching. It cannot be performed in the straight slot of the old form.

Much difficulty occurs in the old form from the unequal bearing of the cloth-presser and feed-bar and the unequal distribution around the needle-passage. This ensues not only from the puckering of the cloth, but also from the breakage of the thread under the varying action. In my arrangement this difficulty is obviated.

My arrangement permits of the cloths being guided by one hand only, for the reason that the additional bearing-surface of the feed beyond the needle causes sufficient draft to hold and carry the cloth forward without the assistance of the right hand, as in the old form of machine. This arrangement of the cloth-plate and feed-bar, I claim only as applied to the machines as herein described, and not to ordinary shuttle-machines.

Claim.

What I claim, and desire to secure by Letters Patent in a rotary hook and bobbin machine, is—

The arrangement, in connection with a cloth-supporting bed having needle hole or groove and feed-openings, as shown, of the feeding-dog having the feeding-points e^1 and e^2 and guide g , all as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM C. WINTERS.

Witnesses:

R. F. OSGOOD,

G. WILLM. MIATT.