

J. E. A. GIBBS.
SEWING MACHINE.

No. 28,851.

Patented June 26, 1860.

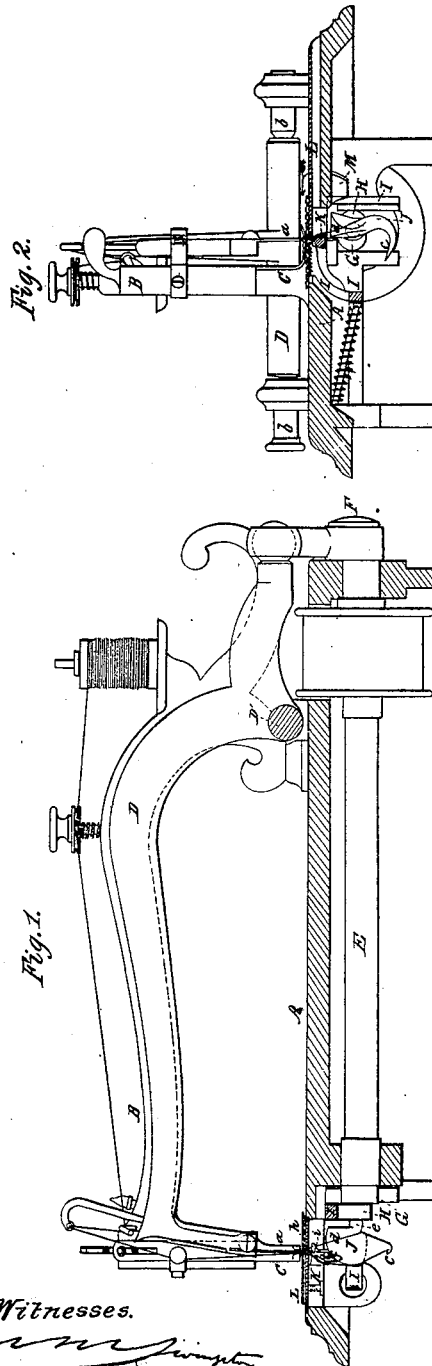


Fig. 2.

Fig. 1.

Witnesses.

[Signature]
P. G. House



Fig. 6.

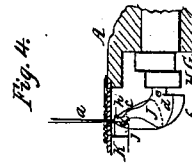


Fig. 4.

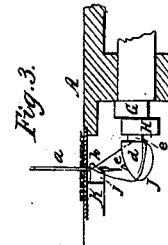


Fig. 3.

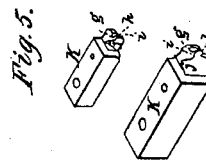


Fig. 5.

Inventor.

James E. Gibbs

UNITED STATES PATENT OFFICE.

JAMES E. A. GIBBS, OF MILL POINT, VIRGINIA.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 28,851, dated June 26, 1860.

To all whom it may concern:

Be it known that I, JAMES E. A. GIBBS, of Mill Point, in the county of Pocahontas and State of Virginia, 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 of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1 and 2 are vertical sections, at right angles to each other, of a sewing-machine with my improvements. Figs. 3 and 4 represent the needle and the devices operating in connection with it to produce the stitch at different stages of their operation. Fig. 5 is a perspective view of the thread guard or guide on an enlarged scale. Fig. 6 represents the stitch made by the machine.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in constructing a rotating looper and a stationary thread guard or guide, and so arranging the same in combination with the needle of a sewing-machine that the combination of the needle, looper and guard or guide produces the single-thread interlooped stitch which constitutes the subject of Letters Patent granted to James S. McCurdy, May 10, 1859.

It also consists in the employment, in combination with a rotating looper, of a stationary thread guard or guide applied, substantially as hereinafter described, to assist in spreading the loops; and it further consists in the employment, in combination with a rotating looper, of a stationary looper-guard so applied as to prevent the point of the looper catching the loop which is being drawn up to the cloth or other material being sewed.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is the bed of the machine. B is the stationary arm which holds the presser C. D is the needle-arm which carries the eye-pointed needle *a*, attached to a rock-shaft, D', arranged between centers *b b* above the bed. E is the main shaft of the machine, arranged horizontally below the bed in suitable fixed bearings, with its axis parallel with the plane of oscillation of the needle-arm, carrying a crank, F,

for driving the needle-arm, and two cams, G and H, for operating the feed-bar I, which feeds in the direction of the arrow shown near the cloth in Fig. 2. These parts, being similar in all essential particulars to the corresponding parts of many other sewing-machines, need no particular description.

J is the rotating looper; secured to the end of the main shaft E. It is composed of a tapering hook, *c*, with a broad heel, *d*, the hook starting from the axis of the shaft and curving outward gradually therefrom, as shown in Fig. 2, till it begins to assume the form of an arc concentric with the shaft, which form is continued to the point, and the heel projecting from the shaft in the opposite direction to the hook, but being curved slightly away from the shaft in a similar direction relatively to the revolution thereof. The width of the hook in a direction parallel with the axis of the shaft increases gradually from the point to the rounded stem *e*, which attaches the looper to the shaft, such stem being concentric with the shaft, and the heel, commencing at the widest part of the hook, is rounded off on the outer side, as shown at *f*, Figs. 1 and 4. The looper is so arranged relatively to the path of the needle and its movement so timed relatively to the movement of the needle that after the descent of the needle through the material being sewed and through the bed the point of the hook of the looper passes close to that side of the needle which faces the end of the shaft E. The point of the looper in its revolution passes the needle in the opposite direction to that in which the feed movement of the cloth takes place.

K is the stationary thread-guard, consisting of a small thick plate or block of metal, secured by a screw, *l*, to the under side of the movable plate L, which constitutes a part of the bed A. This guard is arranged on the opposite side of the path of the needle to that on which the looper rotates. The end of this guard, which is toward the needle, contains a groove, *g*, Fig. 5, in which the needle works, and from this groove there extends on that side of the path of the needle toward which the feed movement takes place a small round-pointed tongue, *h*, in which there is a shallow recess, *i*, and on the same side of the plate there is a deeper recess, *j*, and all that part

of the guard which is near the path of the needle is cut away at the top to leave a considerable space between it and the plate L.

M is the looper-guard, by which the looper is prevented catching the loop which is being drawn up, consisting of a stationary upright plate so arranged under the bed, on the same side of the looper on which the needle works, that the point of the looper passes close to it during a portion of the revolution, arriving in contact with it shortly after passing the needle.

The operation of forming the stitch is as follows: The needle having passed down through the cloth with the thread, which is represented, in red color, double, and having commenced to rise, the friction of the groove *g* of the guard or guide K against the thread on its side of the needle causes the thread to be thrown out loosely from the needle on the opposite side in the form of a loop, and the point of the looper, coming round to the needle as it is rising, passes into the said loop and extends it, while the needle continues to move upward, and during the first part of its next descent the full extension of the loop taking place when the point of the looper has made rather more than half a revolution past the needle, and the point of the needle has again entered the cloth. The continued movement of the looper draws one side of the loop into the deep recess *j* of the guard or guide K, and the inclination of the said recess and tongue causes the neck or throat of the loop to be spread out wide, as shown in Fig. 1, that the needle in its continued descent may pass into it without difficulty, the feed movement having before this time drawn the loop into a favorable slanting position for the needle to enter it. After the needle has entered the groove *g*, and the loop is thereby prevented slipping over its point, the continued revolution of the looper draws the one side of the loop out of the recess *j* toward the point of the tongue *h* of the guard or guide J till it is temporarily arrested by coming into the smaller recess, *i*, and the other side of the loop is caused to slide over the rounded heel of the looper toward or into the recess *j*. The loop has now received a half turn or twist, and the position of its two sides are now the reverse of what they were when the needle entered it, one crossing the other close to the needle, as shown in Fig. 3, and in this position they remain until the point of the looper has again passed the needle and caught the new loop which has been thrown out of the needle by the upward movement

of the latter, which has now commenced. The looper now draws the new loop through the old one below where the crossing of its sides has taken place, as illustrated in Fig. 5, and the old one now slips off the looper and is drawn up tight to the cloth by the extension of the new one.

By the above operation of giving a half turn or twist to the loop and taking the new loop through it after such twist each loop is made to pass twice through its predecessor—viz., it is carried through first by the needle before the twist or crossing of its sides takes place, and then again by the looper after the twist or crossing of its sides has taken place, thus passing once through the loop on each side of its twist, and by this means each loop is caused to be encircled by a coil of the thread of the preceding loop, as shown at *n n* in Fig. 6, which represents the thread removed from a seam. One of these coils *n* is shown loose in Fig. 6 for better explanation.

The looper-guard M contributes in a great degree to the successful performance of the above-described operation, for in working rapidly the old loops, as they slip off the looper, are liable to fly out to such a position that if it were not for the said guard they would be caught again by its point; but the guard, being placed in the position where this catching would occur, effectually prevents such accident.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. So constructing a rotating looper and a stationary thread guard or guide and applying the same in combination with the needle of a sewing-machine as to effect the twisting of the loop and the passage of each loop twice through its predecessor, substantially as herein described, for the production of the stitch herein specified.

2. The employment of a stationary thread guard or guide in combination with a rotating looper for the purpose of spreading the loops to facilitate the entrance of the needle thereinto, substantially as herein specified.

3. The stationary guard M, applied in combination with a rotating looper, substantially as described, to prevent the looper entering the loop which is being drawn up toward the cloth.

JAMES E. A. GIBBS.

Witnesses:

M. M. LIVINGSTON.

B. GIROUX.