

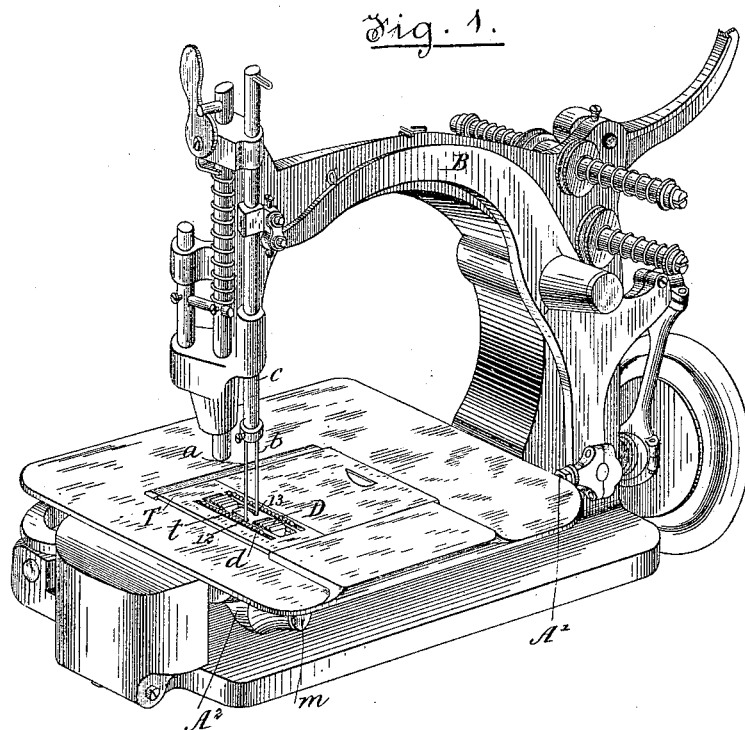
(No Model.)

2 Sheets—Sheet 1.

L. MUTHER.
SEWING MACHINE.

No. 344,493.

Patented June 29, 1886.



Witnesses:
J. A. Rennie.
John F. Rennie.

Inventor,
Lorenz Muther.
By: *Crosby Gregory*
his Atty

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Fig. 2.

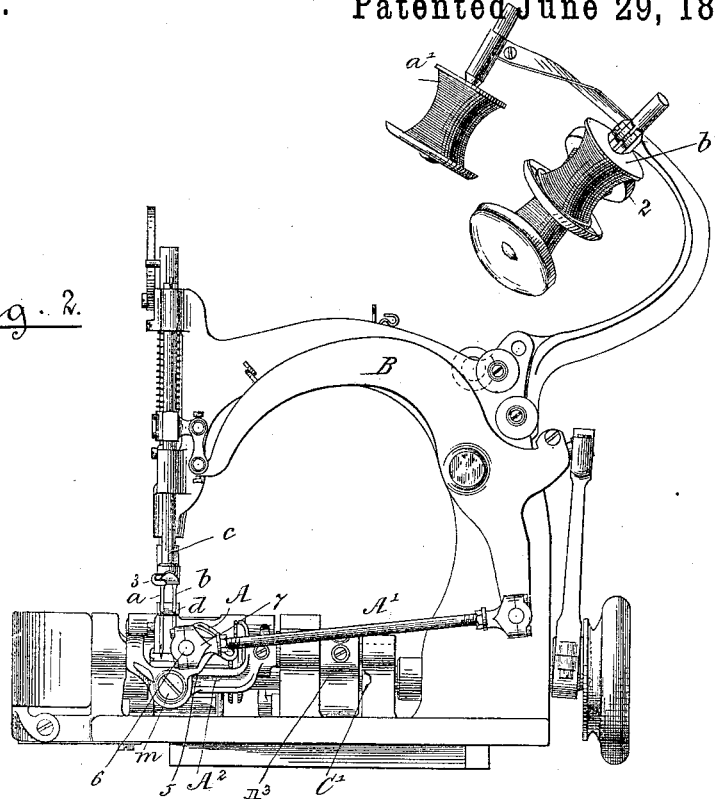


Fig. 3.

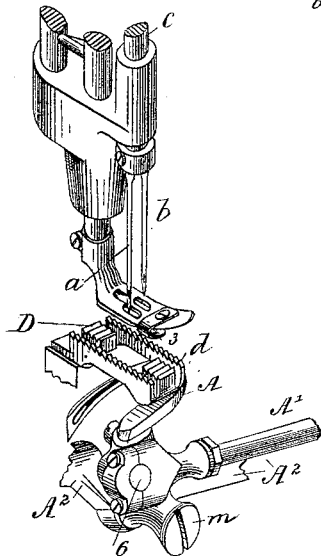


Fig. 5.

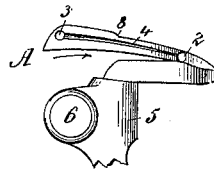


Fig. 6.

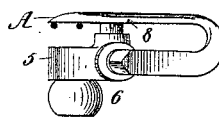


Fig. 7.

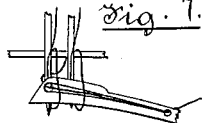


Fig. 4.

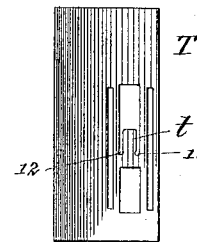
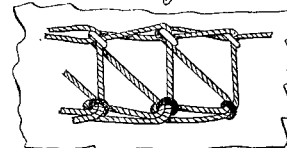


Fig. 8.



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UNITED STATES PATENT OFFICE.

LORENZ MUTHER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE UNION BAG MACHINE COMPANY, OF SAME PLACE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 344,493, dated June 29, 1886.

Application filed August 31, 1885. Serial No. 175,740. (No model.)

To all whom it may concern:

Be it known that I, LORENZ MUTHER, of Chicago, county of Cook, and State of Illinois, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

The invention herein to be described is an improvement on that described in United States Patent No. 299,568, dated June 3, 1884, and has for its object to enable the rapid production of a seam or stitching composed of three threads—two upper or needle threads and one under or looper thread, the latter being enchained with the loops of upper thread, as fully described in application, Serial No. 175,737, filed concurrently herewith.

The machine described in the patent referred to contains but one upper-thread-carrying needle, but herein the needle-bar is provided with two upper-thread-carrying needles, each adapted to penetrate the material, one of the needles—viz., that one nearest the upright arm of the machine—being set the highest, to place the eyes of said needles in position to accommodate the circular movement of the looper. The looper is provided with a shoulder to act upon and deflect the loops of needle-thread as the looper is retracted or moved backward, and just as the needles are passing through the material to enter the loop of looper-thread, the said shoulder holding the said loop, so that the needles will pass each at the left-hand side of the loop of its own thread then held by the looper, the operator sitting at the front of the machine, and the feed being directly away from her.

To prevent the material entered by the two lines of loops of upper thread from being puckered or distorted when enchaining the looper or third thread with the two loops of upper thread below the material, I have provided the needle-throat plate with a tongue which occupies a space equal to the distance between the two upper needles, and which is of sufficient length to remain in place between the lines of stitches until the stitch is finished, the loops of under

thread thereafter passing off the under side of the tongue as the feed takes place.

My invention consists, essentially, in the combination, in a sewing-machine, of the following instrumentalities, viz: a needle-bar, two eye-pointed needles held therein, and a looper or under thread carrier having a movement at right angles to the feed, and also in the line of movement of the feed, and with means to move the needle-bar and the looper, whereby the two needles are made to descend through the loop of looper-thread, and thereafter, while the two needles are yet below the material, the looper is made to enter the two loops of upper or needle thread to operate substantially as will be described; also, in a sewing-machine, a throat-plate having two needle-holes and a tongue between them and two eye-pointed upper-thread-carrying needles, combined with an oscillating looper and a rocking frame upon which the looper has its fulcrum to operate all substantially as will be described; also, in a sewing-machine, a throat-plate having two needle-holes and a tongue between them and two eye-pointed upper-thread-carrying needles, combined with an oscillating looper having a shoulder and a rocking frame, upon which the looper has its fulcrum, to operate all substantially as will be described.

Figure 1 in perspective represents a sewing-machine embodying my present improvements, the presser-foot and part of the spool-carrying bracket being omitted; Fig. 2, an elevation thereof with the cloth-plate and needle-throat omitted, the presser-foot being lifted. Fig. 3 is a detail chiefly to show the needles and the looper. Fig. 4 shows the throat-plate detached. Fig. 5 shows the looper in elevation. Fig. 6 shows the looper in top or plan view; Fig. 7, a detail showing the looper as holding the two loops of needle-thread; and Fig. 8, an under side view of the material, showing the formation of the stitch.

The frame-work, the needle-bar B, the main shaft C', the pitman A', to vibrate the looper, the looper-pivot m, the rocking frame or support A², having its pivots in a line parallel

with the main shaft, the arm A^3 , to co-operate with a cam on the said main shaft and rock the frame or support A^2 , the feeding-bar D , the presser-bar, and the cloth or work supporting plate are all substantially as in the said Patent No. 299,568, so need not be herein minutely described.

Herein the looper (marked A and shown enlarged in Figs. 5 and 6, as in the said patent,) has two eyes, 2 3, to receive the third or under or looper thread from the spool 2. The looper is attached to a looper-shank, 5, mounted on the pivot m , and provided with a pin or stud, 6, which is embraced by the split head 7 at the end of the rod A' . The pivot m of the looper A is held on the rocking frame A^2 , which is pivoted at its ends, the pivot m of the looper being at right angles to the pivot of the rocking frame A^2 , whereby the looper, besides its movement to enter the loops of needle-thread, is also capable of having a movement laterally or in the direction of the feeding movement of the feeding device.

As so far described, the looper is common to the said patent; but herein the looper has a shoulder at 8, which in the backward movement of the looper in the direction of the arrow, Fig. 5, acts to deflect the loops of needle-thread then held on the looper, holding them in such position that the needles, which are at that time descending through the material and below the throat-plate, will descend each at the left hand or farthest side of the loop of its own thread then held by the looper, as in Fig. 7. The needle-bar c has at its lower end two eye-pointed needles, $a b$, the eye of the former being set the lowest, the eyes of the needles being so set (see Fig. 2) as to stand in the arc in which the looper A moves, so that the said looper may enter one and then the other loop of needle-thread thrown out from the two needles $a b$. The two needles $a b$ having descended at the left of the loop of their own threads, as described, and entered between the looper and the loop of its thread, the looper is retracted or drawn back until its point passes to the right of the needle b , when the rocking support A^3 is operated to move the looper bodily in the direction of the movement of the material by the feeding-bar until the point of the looper has been carried far enough backward in the direction of the feed movement of the cloth to enable the looper to pass the needles at their sides farthest from the operator in the direction of the feed, and then the needles having been lifted far enough to throw out their threads to form loops the looper is thrown quickly forward and made to enter the loops of thread thrown out from both needles, and the needles are raised from the material and the feed takes place, and the frame A^2 is moved toward the front of the machine, again placing the looper in such position that the two needles $a b$ in their next descent will again enter between the looper and its thread as before, the result of such operation being the production of a

seam or double line of stitching composed of two needle-threads united by a loop of under thread or a third thread carried by the looper, or a stitch or seam, as described in my application, Serial No. 175,737, filed August 31, 1885.

In the formation of the seam or stitches by the mechanism described, the needle a descends through the needle-hole 12 in the combined needle-throat and feed-plate T , at one side of the tongue t , while the needle b descends through the needle-hole 13 at the opposite side of the tongue, the latter supporting the under side of the cloth or other material in which the stitches are taken, between the two lines where the said needles penetrate the said material, the said tongue continuing to support the said material while the loop of looper-thread is being pulled, and the stitch is being set or drawn taut, the tongue acting to prevent the material from being puckered, or drawn, or bunched between the lines of stitches. The tongue makes it possible to leave the loops of third or looper thread at the under side of the material to lie flat thereon and of substantially equal lengths, thus presenting a uniform width of seam. After the stitches have been finished or drawn taut into the material the movement of the latter by the feed-bar causes part of the stitching, which includes the looper-thread, the latter, as the stitch is drawn taut crossing the under side of the tongue, to pass from the end of the tongue.

I am aware that the loops of thread of two needles have been entered by a shuttle.

I claim—

1. In a sewing-machine, a reciprocating needle-bar, two eye-pointed needles, $a b$, having their eyes located at different distances from the end of the needle-bar and connected therewith, and adapted to receive two independent threads, combined with a thread-carrying looper having a pivot at m , and the rocking frame to hold the said pivot, and with means, substantially as described, to vibrate the said looper and cause it to enter both loops of needle-thread, and also to move the looper to place it in position to have the loop of its thread entered by both needles, and then by change of position of the looper to enter both loops of needle-thread, substantially as described.

2. The reciprocating needle-bar and two eye-pointed thread-carrying needles having their eyes located at different distances from the end of the needle-bar, combined with a rocking arm and a looper pivoted thereon, and having a shoulder, 8, to pull aside the loops of needle-thread held thereon as the needles are descending through the material, in order that the said needles may pass at one side of the loops of their own thread as they enter between the looper and its thread, substantially as described.

3. The needle-bar, the two eye-pointed

thread-carrying needles attached to it, and
the looper, and means, substantially as de-
scribed, to operate it, combined with the
throat-plate provided with the two needle-
5 holes and the intermediate tongue to support
the material and prevent it from being puck-
ered or gathered between the lines of stitching
composed of the three threads, substantially
as described.

In testimony whereof I have signed my name 10
to this specification in the presence of two sub-
scribing witnesses.

LORENZ MUTHER.

Witnesses:

W. S. NORTH,
E. P. HATCH.