

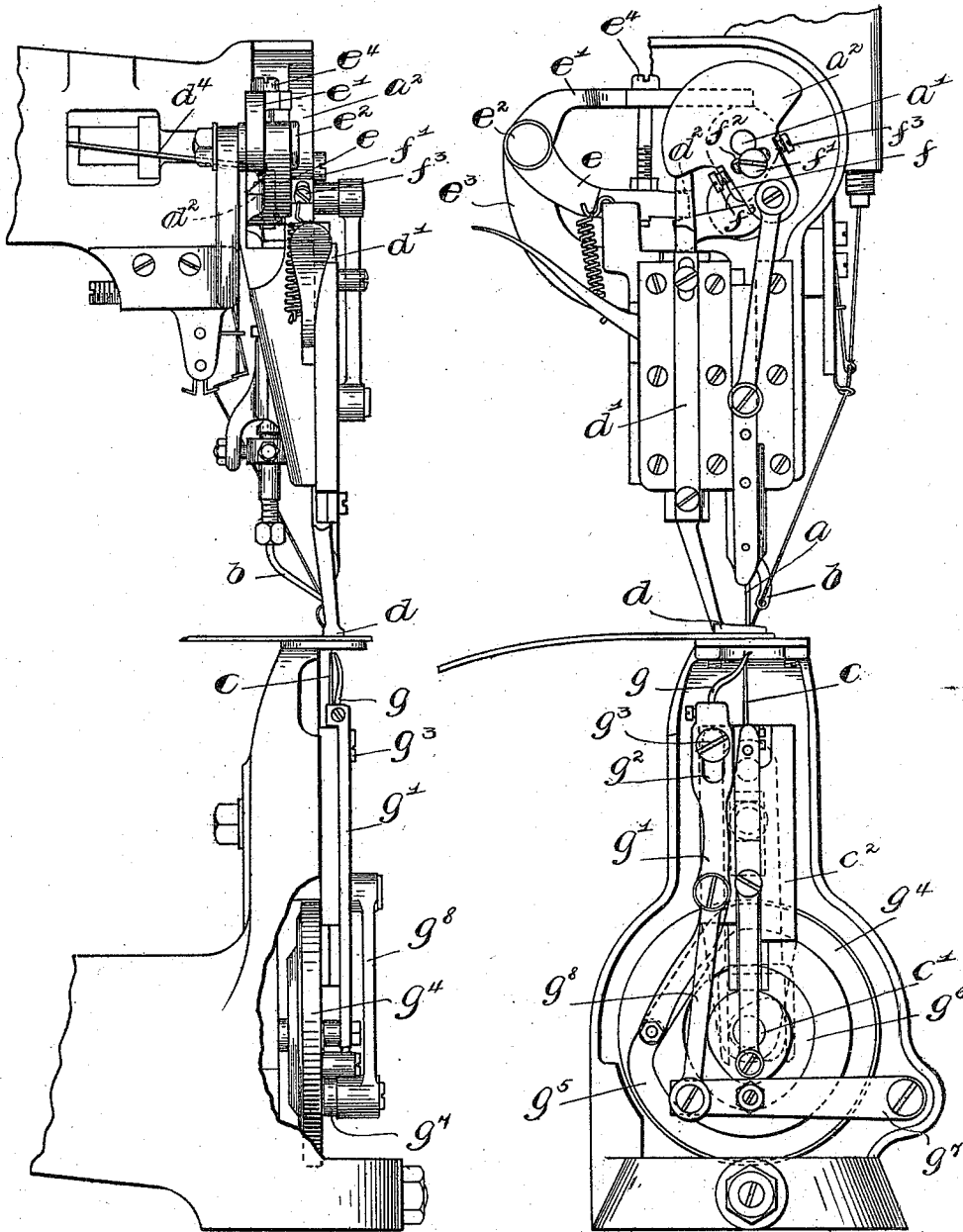
(No Model.)

2 Sheets—Sheet 1.

J. W. LINGLEY.
SEWING MACHINE.

No. 534,835.

Patented Feb. 26, 1895.



WITNESSES:
A. D. Hanson.
C. J. Davis.

Fig. 2.

Fig. 1. INVENTOR:

J. W. Lingley
by *Wm. B. Brown*
Att'y.

(No Model.)

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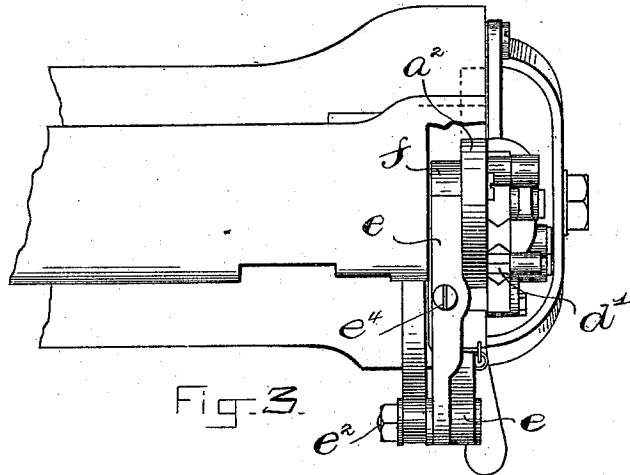


Fig. 3.

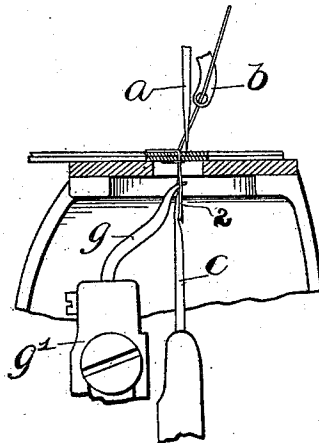


Fig. 4.

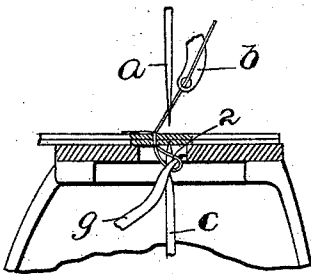


Fig. 5.

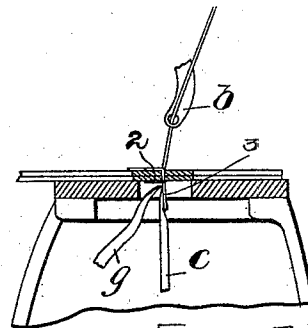


Fig. 6.

WITNESSES:

A. D. Harrison.

T. Davis.

INVENTOR:

J. W. Lingley
by M. B. Brown
Att'y.

UNITED STATES PATENT OFFICE.

JOHN W. LINGLEY, OF WOLLASTON, MASSACHUSETTS, ASSIGNOR TO THE
MERRICK SEWING MACHINE COMPANY, OF PORTLAND, MAINE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 534,835, dated February 26, 1895.

Application filed March 12, 1894. Serial No. 503,305. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. LINGLEY, of Wollaston, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

This invention relates to that class of sewing machines especially designed for sewing leather, as uppers of boots and shoes, and employing a reciprocating presser-foot, and a looper having a compound movement.

One object of the present invention is to provide improved means for elevating the presser-foot which will obviate the objectionable noise heretofore incident to this operation in this class of machines, and which will permit ready adjustment to determine the extent of movement of the presser-foot, and adjustment to determine the time of the presser-foot's action.

Another object of the invention is to provide improved means for imparting the compound movement to the looper without employing an angular slot in the looper-arm, as heretofore, and by which greater accuracy in the looper's action is obtained, and strain on the thread to free it from the looper is obviated.

To the above ends the invention may be said to consist in the novel combinations of elements pointed out in the claims hereinafter.

The following specification describes a construction embodying the invention, and is to be taken in connection with the accompanying drawings forming part thereof.

Of said drawings—Figure 1 shows a front elevation of a sufficient portion of a machine having the improvements to illustrate the same. Fig. 2 shows a side elevation of the same. Fig. 3 shows a top plan view. Figs. 4, 5, and 6 are sectional views illustrating the movements of the looper in the formation of a stitch.

It will not be necessary to enter into a detailed description of those parts of the machine not affected by the present invention, and a simple enumeration of some of them will be sufficient.

The letter, *a*, designates the awl; *b*, the

thread-guide; *c*, the needle; *c'*, the needle driving shaft, and *a'* the awl-driving shaft.

The presser-foot, *d*, has its bars, *d'*, in a vertical slide-way, as usual, and is here shown as offset at its upper end, (see dotted lines in Fig. 2) to form a horizontal shoulder, *d''*. A flat spring, *d'''*, bears on the upper end of the bar over the said shoulder, and impels the presser-foot downward.

A pair of spread arms, *e*, and *e'*, are pivoted on a stud, *e''*, fastened in a fixed bracket, *e'''*, and are connected together by a screw, *e''''*, whose turning varies the distance of the arms apart, the said arms constituting a lever. The lower arm, *e*, extends under the shoulder, *d''*, and the upper arm, *e'*, extends over the shaft, *a'*. The latter carries a cam, *f*, to act on said arm, *e'*, and elevate the presser-foot by the arm, *e*, acting against the shoulder, *d''*. It will be seen that this construction obviates the noise caused by the striking of an arm on the awl-bar against an abutment on the presser-foot bar, the arrangement now in vogue.

The screw, *e''''*, provides very convenient means for regulating the extent of movement of the presser-foot. The cam, *f*, is adjustable to change its time, said cam being capable of turning on the shaft, *a'*, and carrying a screw, *f'*, which extends through a slot, *f''*, in the awl-driving crank, *a''*. Check screws, *f'''*, entered in opposite sides of said crank about the screw, *f'*. By this arrangement the time of elevating the presser-foot may be regulated.

The looper, *g*, is fastened to an arm, *g'*, which has a straight longitudinal slot, *g''*, receiving a pivot, *g'''*, supported by the vibrating needle-frame, *c''*. A disk, *g''''*, affixed on the shaft, *c'*, has a cam groove, *g'''''*, which receives a roller on the lower end of the arm, *g'*, and produces lateral vibrations of the looper. The said disk, *g''''*, is formed with another cam-groove, *g''''''*, which receives a roller on a pivoted horizontal arm *g'''''*, whose free end is connected by a link, *g''''''*, with the arm, *g'*. Through these connections the looper receives vertical reciprocation.

The looper's movement is best illustrated in Figs. 4, 5, and 6. When the loop, 2, has been brought down by the needle the looper is moved laterally to the right and into the

loop which it spreads. Then as the needle ascends the looper also ascends, holding the loop while the needle goes up through the work and comes down with the next loop, 3; and the looper moves laterally out of the loop 5 and out from in front of the needle as the latter descends, so that it is entirely withdrawn from the loop before the latter is taken up, and hence, the thread is not subjected to strain to cast it off the looper as heretofore. 10 After having thus moved laterally the looper descends to its first position in time to enter the new loop, 3.

It will be seen that by the means shown 15 and described an accurate movement of the looper is assured.

A cam for vibrating the looper in addition to the cam for vertically reciprocating it is a more reliable arrangement than that of an 20 angular slot in the looper arm and a single cam for operating the latter, and has the advantage of providing for lateral movement distinct from the vertical movement and vice versa, whereas with the angular slot one move- 25 ment is produced by the other, and the lateral and vertical movements are not distinct but the motion of the looper is in an oblique direction and the loop is cast off the looper while the latter is in front of the needle, and 30 therefore, the thread has to be put under strain to force it off the end of the looper.

Another advantage of a distinct lateral movement of the looper is that its end can be 35 formed to extend on a greater angle to more securely hold the loop while in the same, and no auxiliary means for holding on the loop are needed, as heretofore.

Having thus explained the nature of the 40 invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which

it may be made or all of the modes of its use, it is declared that what is claimed is—

1. In a sewing machine the combination of a looper, an arm supporting the same and hav- 45 ing a straight slot embracing a pivot-pin, on which said arm vibrates a disk on the needle driving-shaft having a pair of cam-grooves, one receiving a roller on said arm and adapted to produce lateral vibration of the same, a 50 horizontal pivoted arm carrying a roller in engagement with the other cam-groove, and a link connecting said arm with the looper-arm whereby vertical reciprocations of the latter are produced. 55

2. In a sewing machine the combination of a vertically movable presser-foot and bar, a pair of concentrically pivoted arms connected together by an adjustment screw, one of said 60 arms extending under a shoulder on the presser-foot bar, and a cam on the awl driving-shaft arranged to act against the other arm to elevate the presser-foot.

3. In a sewing machine the combination of a vertically movable presser-foot and bar, a 55 lever for elevating the same, a cam on the awl-shaft co-acting with said lever and movable on said shaft, a slotted awl-driving crank on the shaft and receiving a screw fastened 70 in the cam, and carrying check-screws to bear against said screw, an awl operatively connected with said crank, and a needle and needle reciprocating means.

In testimony whereof I have signed my name to this specification, in the presence of 75 two subscribing witnesses, this 28th day of February, A. D. 1894.

JOHN W. LINGLEY.

Witnesses:

C. F. BROWN,
F. P. DAVIS.