

(No Model.)

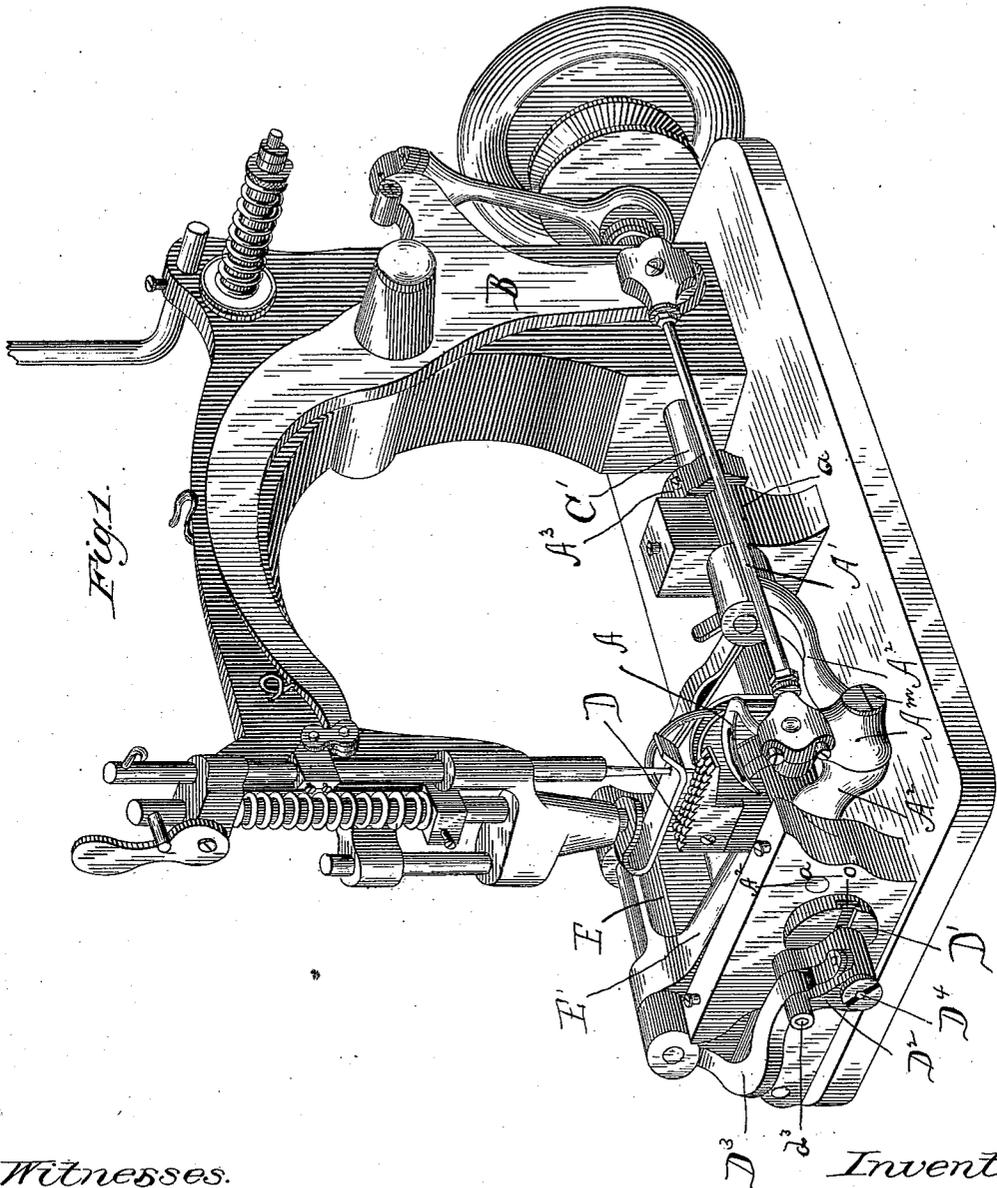
2 Sheets—Sheet 1.

L. MUTHER & C. A. DEARBORN.

SEWING MACHINE.

No. 299,568.

Patented June 3, 1884.



Witnesses.

*Will R. Onshunthro.*

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Inventors.

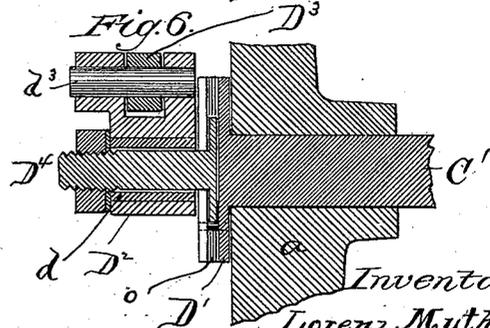
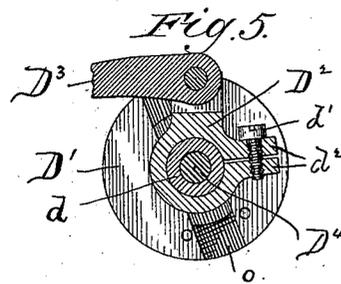
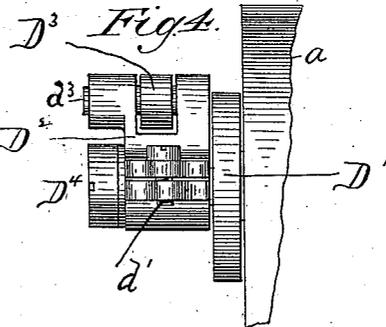
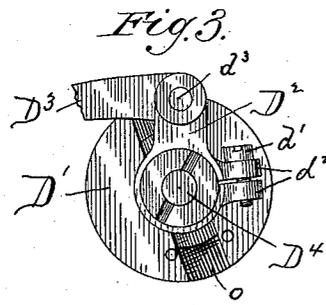
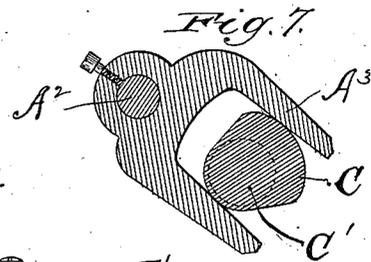
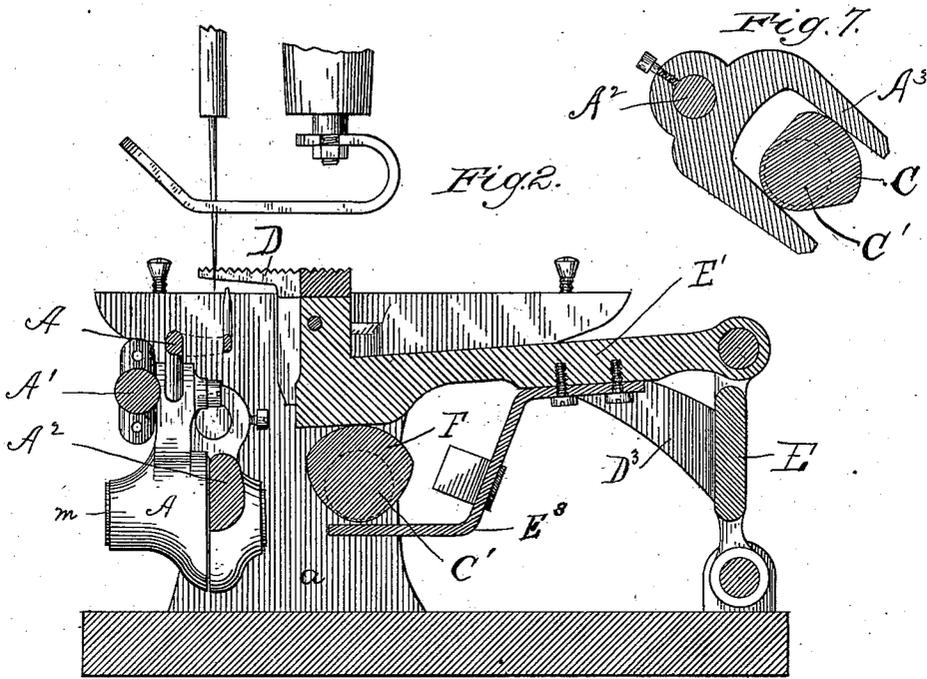
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# UNITED STATES PATENT OFFICE.

LORENZ MUTHER, OF CHICAGO, ILLINOIS, AND CHARLES A. DEARBORN, OF NEW YORK, N. Y., ASSIGNORS TO THE UNION BAG MACHINE COMPANY, CHICAGO, ILLINOIS.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 299,568, dated June 3, 1884.

Application filed May 11, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, LORENZ MUTHER, of Chicago, in the county of Cook, in the State of Illinois, and CHARLES A. DEARBORN, of New York, in the county and State of New York, citizens of the United States, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

The present invention relates to the looper and its actuating devices, and also to the feed devices for sewing-machines.

It has been customary heretofore to give the looper a four-sided or rectangular movement, and in most cases springs or their equivalents have been employed to impart movement in one or more of the four directions constituting the path in which it travels. We very much simplify the mechanism necessary by giving the looper a forward and back oscillating motion and maintaining it upon a frame or support which is given an oscillating movement lateral to that of the looper itself; and this part of our invention consists in an oscillating looper mounted or supported upon a frame having an oscillating motion at right angles to the line of oscillation of the looper and devices for imparting such oscillating movements, substantially as hereinafter set forth.

The other part of our invention, which relates to the feed, consists in a radially-slotted disk on the outer or front end of the main shaft, a crank-pin adjustably secured in the slot, a rocking frame carrying the feed-dog and connected with said crank-pin by means of an intermediate pivoted link. By adjusting this crank in the slotted disk the length of the stitch is regulated at will and without disturbing the relative turning of the feed and needle movements.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a perspective view of a machine to which our present improvements have been applied. Fig. 2 is a partial cross-section of the machine. Fig. 3 is a front view of the feed-actuating crank and disk. Fig. 4 is a side view of the same; and Figs. 5 and 6 are,

respectively, central sections of Figs. 3 and 4. Fig. 7 is a section through the cam and the U-shaped arm, whereby the looper-frame is rocked.

In said drawings, A is the looper, which receives its forward and back oscillation from the lower extension of the needle-arm B by means of the connecting pitman-rod A'. The looper itself is pivoted at *m* upon a rocking frame or support, A<sup>2</sup>, which is provided with bearings in stationary parts *a a*, as shown. This supporting-frame is oscillated at proper intervals by a cam, C, upon the main shaft C', working in the opening of a U-shaped piece, A<sup>3</sup>, upon the end of the pivotal part of the frame A<sup>2</sup>. The connection between the pitman-rod and extension of the needle-arm, or that between the rod and the looper, must be of such a nature as to accommodate the lateral oscillation, and for this purpose a ball-joint at one or the other of said points should be employed. The looper thus constructed has a positive motion in all four directions, and the mechanism for actuating it is very simple.

The horizontal movements of the four-motioned cloth-feed D we obtain from the front end of the main shaft by means of a jointed crank secured to but radially adjustable upon said shaft.

Upon the outer or front end of the shaft C is mounted a disk, D', having a radial T-slot, *o*, on its face adapted to receive the T-headed crank-pin D<sup>1</sup>, one end of which slides freely in the slot *o*, while the other is provided with a screw-thread and jam-nut, as shown. A sleeve, *d*, surrounds the crank-pin D<sup>1</sup>, and by means of the jam-nut upon the outer end of the crank-pin the latter can be secured at any point in the slot, thus giving a crank of any desired radius. A link, D<sup>2</sup>, embraces the sleeve *d*, upon which it moves freely, and is also freely pivoted at *d*<sup>3</sup> to the arm D<sup>3</sup>, attached to the rocking frame E, hinged to the bed-plate, as shown clearly in Fig. 2. An arm, E', carrying the feed-dog D, is pivoted at one end to the upper portion of the frame E, and rests at the other end upon the cam F of the driving-shaft, and a downwardly-depending piece, E<sup>3</sup>, secured to the arm E', projects beneath the cam F. The vertical movements of the feed are ef-

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fected by means of the cam F, and the horizontal movements by means of the jointed crank attachment and rocking frame, and, as the adjustment of the crank-pin D<sup>1</sup> is radial  
 5 to the driving-shaft D<sup>2</sup>, we insure the commencement and conclusion of the feed movement in precisely the same relation to the needle movement, whatever be the length of feed, since the oscillations of the frame E, whether  
 10 large or small, will always correspond to the same arc of rotation of the main shaft.

To take up the wear upon the link D<sup>2</sup> it is constructed, as shown, with an opening or slot between the projecting ends d<sup>2</sup>, through which  
 15 passes a tightening-screw, d'.

We claim—

1. The combination, with the needle and the feeding mechanism, of a pivoted looper-frame whose axis of oscillation is substantially at  
 20 right angles to the line of feed, a looper pivoted to said frame and having an axis of oscillation substantially at right angles to the axis of the frame, and means for oscillating said frame and said looper, respectively, the whole operating  
 25 substantially in the manner specified.

2. In a sewing-machine having an eye-point-

ed needle, the combination, with said needle, of the oscillating looper-frame A<sup>2</sup>, the looper pivoted thereto upon an axis at right angles to the axis of the frame, and the pitman A', connected  
 30 with the looper by means of a ball-and-socket joint, whereby the oscillation of the looper-frame at right angles to the movement of the pitman is permitted.

3. The combination of the rocking frame  
 35 having the feed-dog mounted thereon, the driving-shaft provided with a lifting-cam beneath said feed-dog, and also provided on its outer end with a radially-adjustable crank-pin, and the freely-pivoted link connecting said crank-  
 40 pin and said frame, whereby the length of feed may be altered without varying the time of feed movement, substantially as set forth.

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