

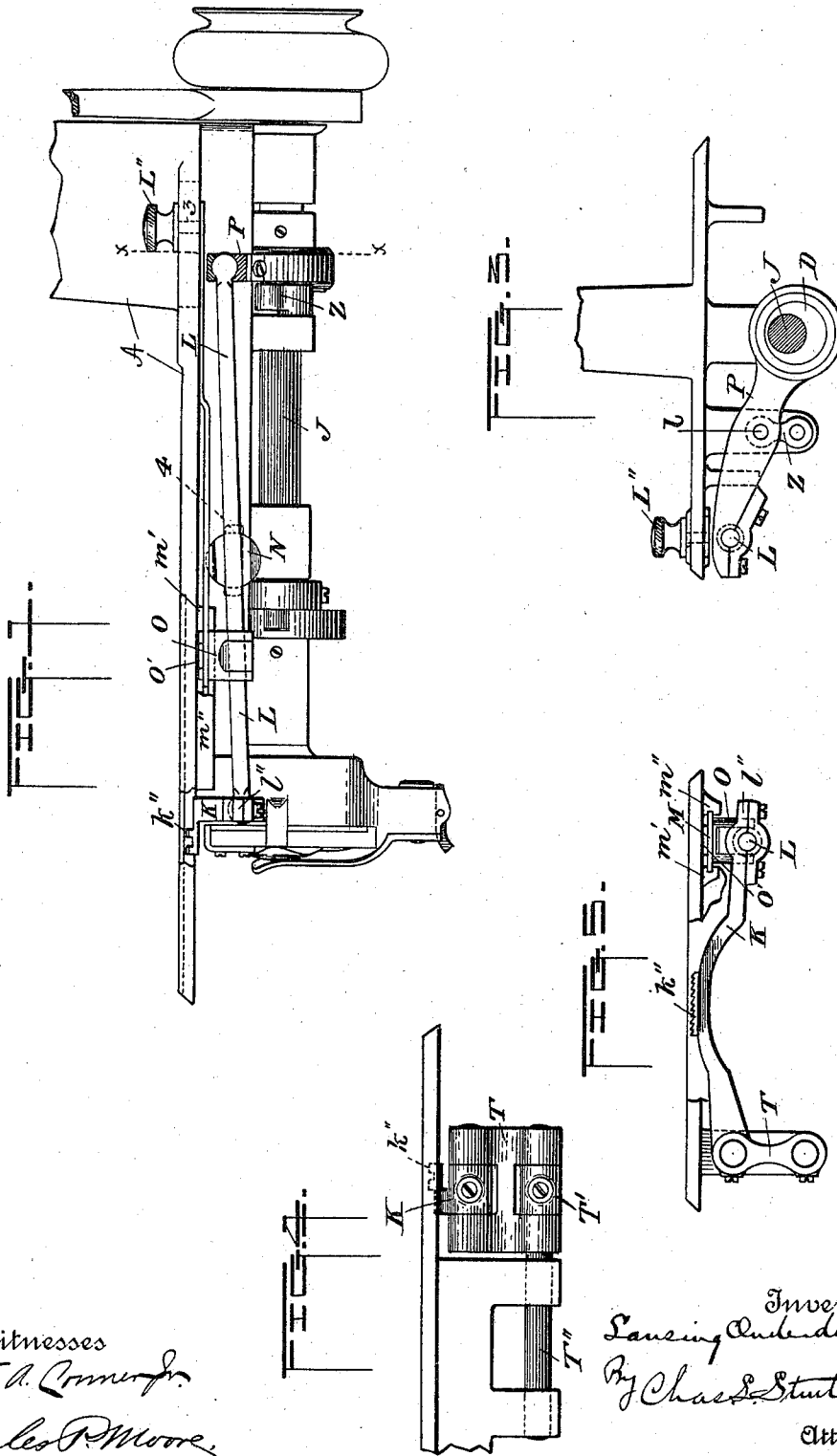
(No Model.)

2 Sheets—Sheet 1.

L. ONDERDONK. FEEDING MECHANISM FOR SEWING MACHINES.

No. 577,877.

Patented Mar. 2, 1897.



Witnesses
T. A. Connor,
Gales P. Moore,

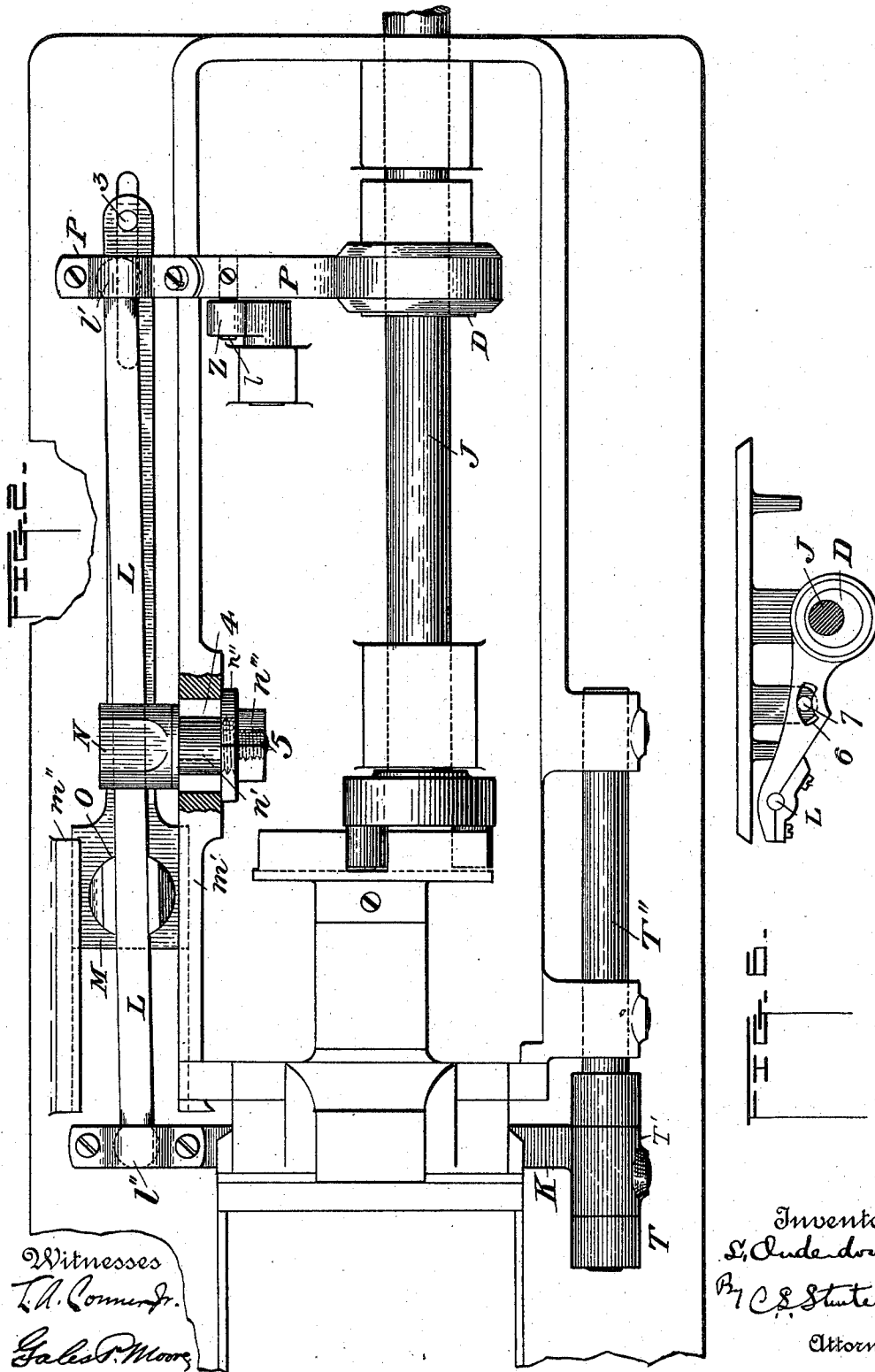
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L. ONDERDONK.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 577,877.

Patented Mar. 2, 1897.



UNITED STATES PATENT OFFICE.

LANSING ONDERDONK, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 577,877, dated March 2, 1897.

Application filed July 20, 1892. Renewed July 25, 1896. Serial No. 600,565. (No model.)

To all whom it may concern:

Be it known that I, LANSING ONDERDONK, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

My invention relates to sewing-machines, and especially to a feeding mechanism therefor; and it consists in the matters hereinafter described, and referred to in the appended claims.

In the accompanying drawings, Figure 1 is a front side view of so much of a machine as is necessary to properly illustrate the present invention. Fig. 2 is a bottom plan view. Fig. 3 is a section on line *xx*, Fig. 1. Fig. 4 is a view in elevation, looking from the rear of the machine, showing the connection of the feed-bar to the swinging bracket. Fig. 5 is an end view of the feed-bar-supporting mechanism. Fig. 6 is a view similar to Fig. 3, but showing a modification thereof.

I have shown my invention as applied to the revolving-hook machine described and claimed in an application filed by me on the 6th day of October, 1892, but desire to be understood as not limiting myself to any particular kind of sewing-machine.

In the drawings, A represents the machine bed and frame.

J is the main shaft of said machine, from which, by suitable connecting eccentrics and levers, the ordinary stitch-forming mechanism is operated. On this shaft J is mounted an eccentric D, to which is attached the eccentric-rod P. This rod is provided with a suitable laterally-extending stud or pin *l*, which is journaled on the oscillating support Z, attached to the frame of the machine. This eccentric-rod P is formed at its outer end to receive the ball-shaped end of the gyratory lever L. This gyratory lever L is attached at the opposite end of the machine by a ball-and-socket joint *l''* to one end of the feed-dog bar K, attached to the rocking frame T, transversely adjustable on the stationary

shaft T'' by means of the collar T', whereby the feed-bar can be moved to the right or left.

In order to regulate the rise and fall and forward and backward movement of the feed-bar K and feed-dog *l''*, secured thereto, I have provided two adjustable rocking centers, through which the gyratory lever passes, one of these centers forming a fulcrum for said lever, governing the rise and fall thereof, and the other at right angles thereto, governing the amount of transverse oscillation of said lever.

Sliding in the ways *m' m''* on the frame of the machine is the bar M, slotted at its inner end and adapted to be held in any position to which it may be adjusted by means of the bolt 3, passing through the bed of the machine and adapted to carry on its upper end the set-nut L''. The feed rocking center, (marked O,) which regulates the forward and backward movement of the feed-bar K and thereby governs the length of stitch, is provided with a shoulder or shank passing through the sliding bar M, upon which shoulder is secured the nut O' in such a manner as to allow the part O to turn in its bearing and thus conform to the horizontal movement of the bar L to the extent of acting as a rocking fulcrum for L when driven in a direction corresponding to the horizontal movement of the feed-dog; but inasmuch as the part O is slotted vertically where the lever L passes through the same free movement of said lever in a vertical direction is permitted. It will thus be seen that by adjusting the bar M to the right or left the part O will be correspondingly moved, thus changing the fulcrum of the gyratory lever as to its horizontal movement, thereby increasing or diminishing the extent of movement of the feed-bar and consequently the length of stitch.

To regulate the vertical movement of the gyratory lever, I have provided the feed rocking center N, through which said lever passes. This part N is arranged at right angles to the part O and is provided with a shank 5, passing through a sleeve-stud *n'*, secured in the slot 4 in the machine-bed, said stud being made fast by the nut *n''*. The shank is capable of oscillatory movement to conform to the

rise and fall of the lever L and is slotted in the direction of the transverse movement of said lever to allow of the same. The part N is kept in the sleeve-stud by the nut *n''*, secured on the shank 5, and is adjustable to the right or left on the machine-bed in the slot 4. It will be seen, therefore, that by passing the lever L through these parts N and O and by attaching them so that they are adjustable two rocking fulcrums for the gyrotary lever are secured, one of which regulates its movement to control the length of the stitch and the other to control the amount of movement of the feed-bar vertically.

In Fig. 6 is shown a modification of the means for securing the oscillatory movement of the eccentric-lever P. In this figure a curved slot is provided in said lever, as shown at 6, into which projects a pin 7, fixed to the frame of the machine, whereby the necessary movement is given to said lever.

Motion being imparted to the main shaft J, said motion is transmitted through the eccentric D and rod P to the end of the lever L through the ball-joint *l'*, and by reason of said lever P being connected with the frame so as to have an oscillatory movement an elliptical motion in a vertical plane is imparted to the end of the lever L. This motion is transmitted through the ball-joint connection *l''* to the feed-bar K. This connection with K is so made as to give a universal joint and to accommodate the backward and forward movement of the lever L, these movements being accomplished by passing the end of the lever L through the ball carried by the feed-bar, as shown in Figs. 1 and 2. By reason of the parts N and O, attached, respectively, to the machine-frame and to the adjustable bar M, forming rocking fulcrums for said lever, said lever swings upon a circle the center of which in one direction is N and in the other direction O, and by reason of the connection between the eccentric-rod P and the lever L the end thrust which comes upon *l''* is taken up by that joint, and the movement of the lever L consequent upon the rocking fulcrum N acts to give a rising and falling movement to the feed-bar, while that movement consequent upon the rocking fulcrum O acts to regulate the length of the stitch by controlling the amount of movement forward and backward of the feed-bar. By shifting the position of the rocking fulcrum N upon the frame of the

machine the vertical throw of the lever can be varied, and by shifting the position of the bar M by means of the bolt and nut *L''* the rocking fulcrum O is moved and the length of the stitch varied.

The action of the various parts of the apparatus will be readily understood without any detailed explanation of the operation.

Various modifications and changes in the construction of the parts of this feeding mechanism may be made without departing from the spirit of the invention.

I claim as my invention—

1. The combination with the frame, the driving-shaft supported thereby carrying an eccentric, and a feed-bar, of a support for said feed-bar pivoted thereto and to the frame, a rod operated by the eccentric and pivotally supported between its ends, a gyrotary lever connected by a universal joint at one end to the feed-bar and at the other end to the rod, means for pivotally supporting said gyrotary lever intermediate its ends, and means for regulating the throw of the feed-bar; substantially as described.

2. The combination with the frame, the driving-shaft supported thereby carrying an eccentric, and a feed-bar, of a support for said feed-bar pivoted thereto and to the frame, a gyrotary lever connected by a universal joint to the feed-bar, means for pivotally supporting said lever, means for adjusting the supporting means, and a rod connected to and operated by the eccentric, pivoted between its ends, and connected to and operating said lever; substantially as described.

3. The combination with the frame, the driving-shaft supported thereby carrying an eccentric, and a feed-bar, of a support for said feed-bar pivoted thereto and to the frame, and means for adjusting the support laterally of the bar, a rod operated by the eccentric and pivotally supported between its ends, a gyrotary lever connected by a universal joint at one end to the feed-bar and at the other end to the rod, and means for pivotally supporting said gyrotary lever intermediate its ends; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LANSING ONDERDONK.

Witnesses:

A. H. HATCH,
JOHN D. ALLEN.