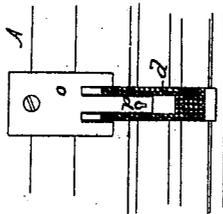
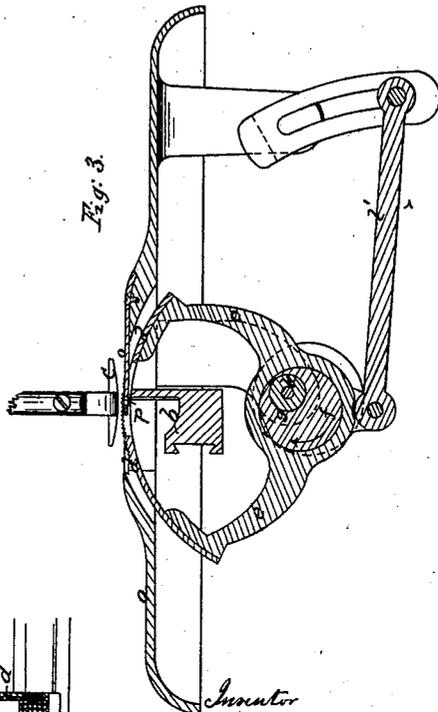
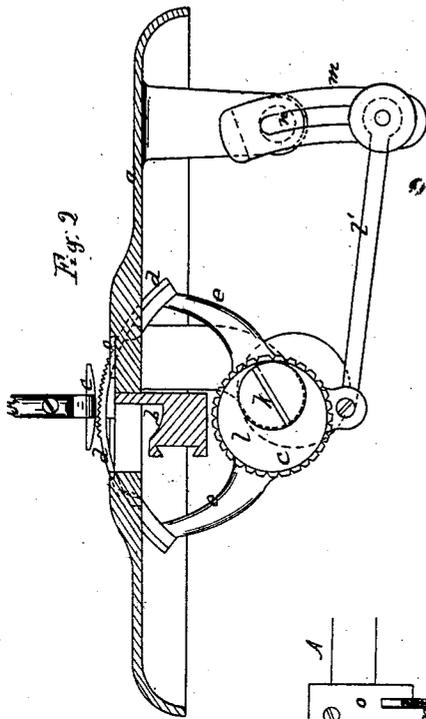


M. H. MERRIAM.
 FEED MECHANISM FOR SEWING MACHINES.

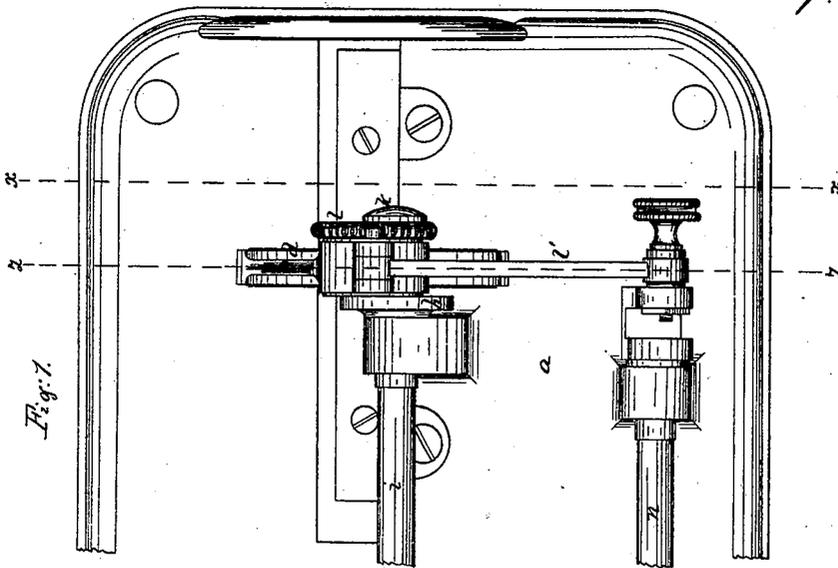
No. 60.769.

Patented Jan. 1, 1867.



Witness
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 by
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 attys.



United States Patent Office.

M. H. MERRIAM, OF CHARLESTOWN, MASSACHUSETTS.:#

Letters Patent No. 60,769, dated January 1, 1867.

IMPROVEMENT IN FEED-MECHANISM FOR SEWING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, M. H. MERRIAM, of Charlestown, in the county of Middlesex, and State of Massachusetts, have invented an Improvement in Sewing-Machines; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practise it.

This invention relates to the construction of that class of "feeds" which are actuated from below the work-supporting surface and which "feed" the work by means of a surface which vibrates and is a segment of a wheel. The invention consists primarily in the combination of devices shown and described, or their equivalents, for imparting to the aforesaid feeding device both its vibratory motion and one motion toward and another away from the work to be fed.

The drawings represent so much of the mechanism of a common shuttle sewing-machine, in which the shuttle reciprocates at right angles, or nearly so, to the path of the feeding motion of the feeding device, as will enable the invention, shown as embodied thereupon, to be clearly understood—

Figure 1 showing a reversed plan of the mechanism.

Figure 2, a section on the line $z z$, showing the position of the feed surface while effecting the movement of the work.

Figure 3, a section on the line $z z$, showing the position of the feed surface just after the movement of the work is effected.

A shows a plan of the needle-plate, and feed surface. a denotes the table; b , the shuttle race; c , the presser-foot; d , the feed-plate, which is shown as segmental in form, or a section of a ring supported by arms, e , upon an eccentric, f , the surface of the feed being concentric with the axis of the eccentric, which, when the feed is taking place, is in the vertical plane of the needle at right angles to the seam. This eccentric is placed on a pin, g , projecting from a collar, h , on the end of a rocker-shaft, i , and is held against said collar by a screw, k , which screws into the pin g , and against a head, l , on the eccentric. The feed segment is hung upon the eccentric and rocks freely thereupon, between the collar h and the head l on the eccentric. The segment is jointed by a connecting-rod, l' , to a slotted crank, m , on a rocker-shaft, n . The two shafts, n and i , receive their motion from the driving-shaft of the machine, the shaft n effecting the forward and backward movement of the feed-plate, and the shaft i its upward and downward movement, these movements taking place in succession as follows: The feed surface being just below or in line with the upper surface of the needle-plate o , the shaft i is turned, and with it the eccentric, in the direction denoted by the red arrow in fig. 3. This carries the feed surface up above the needle-plate, and pinches the work against the presser-foot. Next the shaft n turns, and with it the crank m , drawing the connecting-rod in the direction denoted by the arrow in fig. 2. This causes the feed surface to rotate and move the work the length of a stitch, this rotation being from the centre of the eccentric as an axis. The feed being effected, the shaft i turns in the opposite direction, and with it the eccentric, which causes a downward movement of the feed surface, and the shaft n then turns, carrying the connecting-rod in the opposite direction, and bringing back the feed-plate to its first-named position. In devices employed to effect the progression of the work in sewing-machines, under the needles and presser-bars thereof, there is not, to my knowledge, one which has the following characteristics, viz, such a construction and arrangement, or, in other words, such an arranged construction that the roughened surface of the feeding device is substantially the arc of a circle, slotted or bifurcated so as to be located and to operate in opposite sides of the needle, and to move toward and from the presser-bar, as well as vibrate on a centre beneath the work support and in the normal line or direction in which the work is to be fed, when said surface is so connected with its supporting centre on which it vibrates, as to admit the passage of a reciprocating shuttle through or past the feeding device in a path at right angles, or nearly so, to the path of vibration of said device. This peculiar arrangement of construction operating as described, is shown in the drawings, and has been hereinbefore described in the best form of detail known to me; but I do not consider my invention, in that part now referred to, as confined to the precise forms of the details involved, which are so shown and described. That is to say, for example, a form of the vibrating feeding segment may be used other than that shown, so long as it is so constructed and arranged as to operate on both sides of the needle, to move as described, and afford space for reciprocations of a shuttle as

specified, without departure from the essence of my invention, and this whether the mechanism for imparting the described motions is that herein set forth or is different therefrom. To change the length of the stitch the crank end of the connecting-rod is raised or lowered, and clamped in position with respect to the crank slot, thus causing a greater or less lateral throw of the feed-plate and a consequent longer or shorter stitch. To vary the degree of pressure of the feed-plate against the surface of the work, the eccentric is unclamped and then turned and set in the ring in the segment, carrying its axis higher or lower, as a greater or less pressure may be required.

1. I claim the eccentric and its motor, the crank, link, and their motor, when combined and arranged with a feeding device, so as to operate it substantially as described.

2. I claim a feeding device for sewing-machines in which a reciprocating shuttle moves at right angles, or nearly so, to the path of the vibrating feeding movements of the feeding device, when constructed substantially as set forth, and arranged to operate as specified.

M. H. MERRIAM.

Witnesses:

L. H. LATIMER,

FRANCIS GOULD.

Assor to self and E. L. Norton.