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REVERSIBLE FEEDING MECHANISM FOR SEWING MACHINES

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Fig. 1.

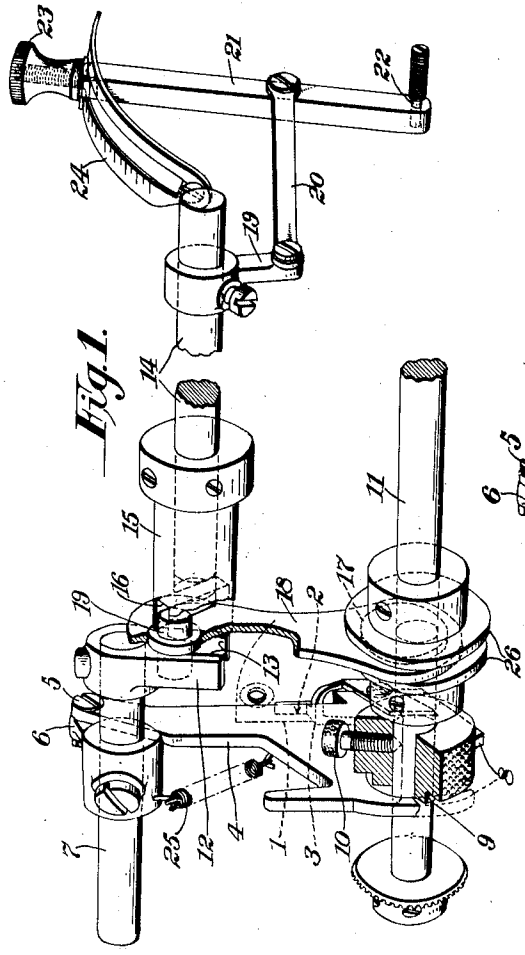
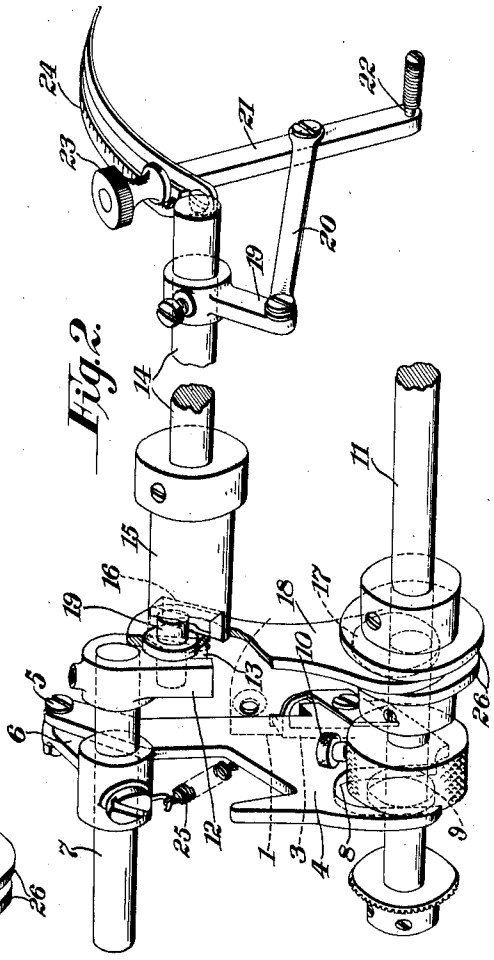


Fig. 2.



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REVERSIBLE FEEDING MECHANISM FOR SEWING MACHINES

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4 Claims. (Cl. 112—210)

This invention relates to sewing machines and more particularly to the work-feeding mechanism of such machines.

The invention has for an object to provide a sewing machine work-feeding mechanism with simple and efficient means for governing the amplitude and direction of work-feeding movements of the work-feeding element. Another object of the invention is to provide a reversible work-feeding mechanism which is well adapted for incorporation below the cloth-plate or bed-plate of a box-type or flat bed family sewing machine.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations and arrangements of parts hereinafter set forth and illustrated in the accompanying drawing of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

Of the accompanying drawing, Fig. 1 is a perspective view of a sewing machine feeding mechanism embodying the invention, the feed-regulator being set for maximum stitch-length, feeding forward. Fig. 2 is a similar view with the feed-regulator set for maximum stitch-length, feeding backward.

In the preferred embodiment of the invention illustrated there is the usual sewing machine throat-plate 1 which is slotted at 2 to admit the feed-dog 3 which rises and falls in the slot 2 and is given feed-and-return movements lengthwise of such slot. The feed-dog 3 is carried by the feed-bar 4 which is pivotally connected at 5 to the feed-rocker arm 6 fast on the feed rock-shaft 7 suitably journaled below the bed of the frame of the machine. The feed-bar 4 is slotted at 8, as usual, to embrace the feed-lift cam or eccentric 9 fixed by the set-screw 10 to the main-shaft 11 also suitably journaled below the bed of the sewing machine frame. The feed rock-shaft 7 carries a crank-arm 12 which is formed with a slideway 13.

Offset from but parallel to the feed rock-shaft 7 is the feed-regulating shaft 14 to one end of which is fixed the cylinder 15 formed in its free end with a guideway 16 which is in face-to-face relation with the slideway 13; the axis of the shaft 14 being preferably disposed between the axes of the shafts 7 and 11.

Fixed to the main-shaft is the feed-eccentric 17 into cylindrical bearing engagement with which is one end of the pitman 18 carrying at its opposite end a cross-pin 19 which projects at its opposite ends into the guideway 16 and slideway 13, respectively.

The rock-shaft 14 carries a crank-arm 19 which is connected by the link 20 to the feed-regulator lever 21 fulcrumed at 22 in the bracket-arm standard of the machine-frame and having at its opposite end a thumb-nut 23 by which the lever 21 may be manipulated and tightened in adjusted position to the slotted scale-plate 24.

It will be observed that the guideway 16, which controls the side-throw movements of the cross-pinned end of the pitman 18, is adjustable into and across a position of parallelism with the slideway to provide a zero or reversal of feeding movement of the feed-dog.

The spring 25 takes up any lost motion between the cam or eccentric 9 and the slot 8. It also takes up any lost motion between the cross-pin 19 and the slideway 13 and guideway 16.

The pitman 18 is a simple plate-like part and is held between the cheek-pieces or flanges 26 of the eccentric 17 so that it cannot tilt laterally relative to or cramp said eccentric.

Having thus set forth the nature of the invention what I claim herein is:—

1. In a sewing machine, a rotary crank, a pitman actuated thereby, a manually adjustable guideway with which said pitman has a sliding connection for controlling and regulating the amplitude of side-throw movements of said pitman, and a work-feeding element having a slip-joint connection with said pitman, whereby said feeding element is actuated by said side-throw movements, said sliding connection being adjustable into and across a position of parallelism with said slip-joint connection, whereby zero and reversely timed work-feeding movements of said feeding element may be obtained.

2. In a sewing machine, a rotary crank, a pitman having at one end a cylindrical bearing engagement with said crank, a cross-pin at the other end of said pitman, a manually adjustable guideway engaged by one end of said cross-pin, and a driven crank-arm having a slideway engaged by the other end of said cross-pin.

3. In a sewing machine, a rotary crank, a pitman having at one end a cylindrical bearing engagement with said crank, a cross-pin at the other end of said pitman, a manually adjustable guideway engaged by one end of said cross-pin, and a driven crank-arm having a slideway engaged by the other end of said cross-pin, said guideway being adjustable into and across a position of parallelism with said slideway.

4. In a sewing machine feeding mechanism, a feed-rocker including a slotted crank-arm member, a feed-governor including a slotted governor member in face-to-face relation with said slotted crank-arm member, and an actuating member having projections received in said slotted members and slidable therein.

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