

May 22, 1934.

N. KNAUS

1,959,719

FEEDING MECHANISM FOR SEWING MACHINES

Filed Oct. 28, 1932

2 Sheets-Sheet 1

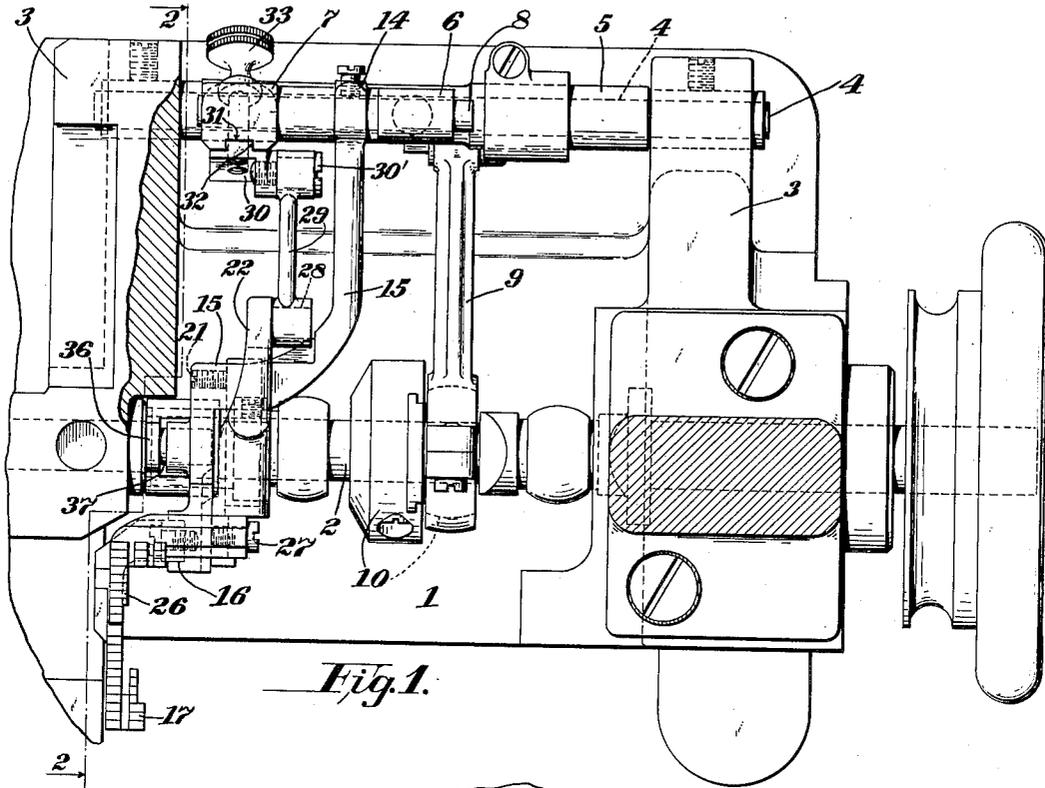


Fig. 1.

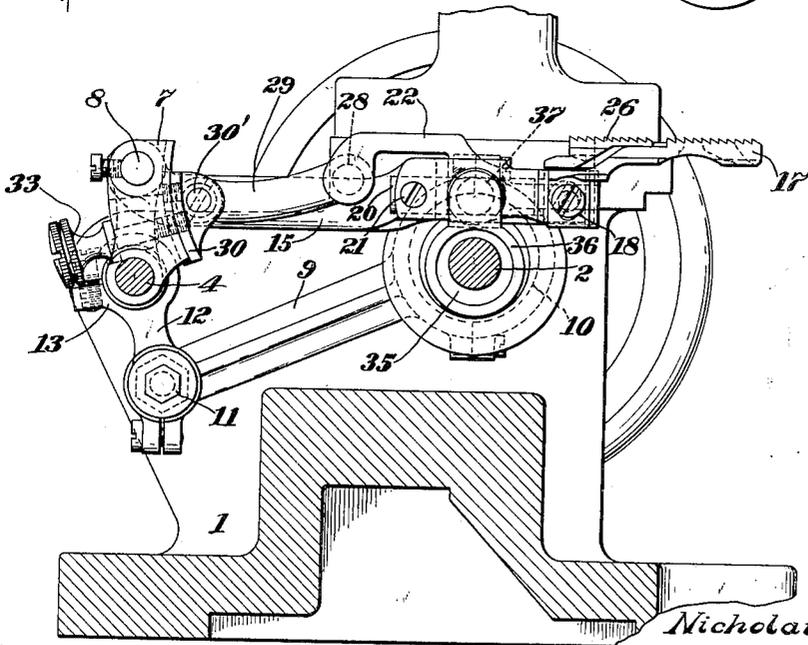


Fig. 2.

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2 Sheets-Sheet 2

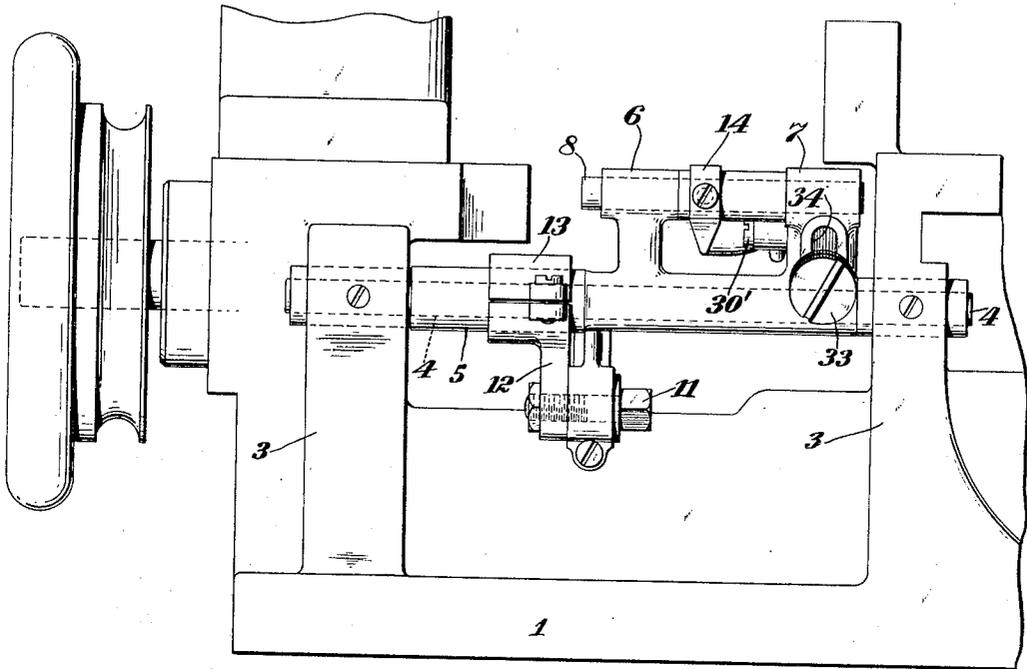


Fig. 3.

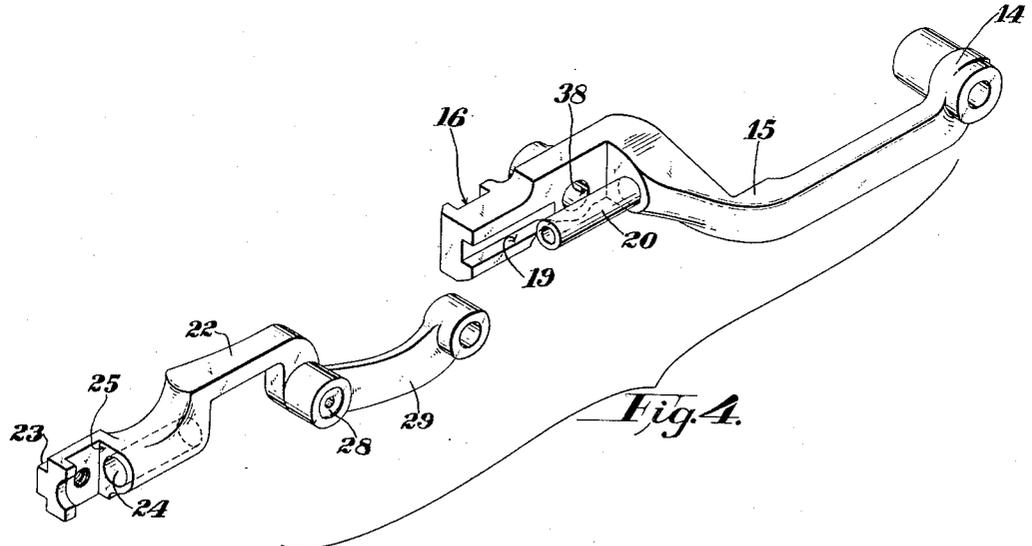


Fig. 4.

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# UNITED STATES PATENT OFFICE

1,959,719

## FEEDING MECHANISM FOR SEWING MACHINES

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Application October 28, 1932, Serial No. 639,976

2 Claims. (Cl. 112—209)

This invention relates to feeding mechanism for sewing machines, and more particularly to a feeding mechanism embodying two feed-dogs which are given differential movement relative to each other.

One of the objects of this invention is to provide improved mechanism for operating the two feed-dogs; to reduce vibration of the feeding mechanism to a minimum; and to provide operating mechanism for the feed-dogs which is compact and is capable of high speed operation.

Another object of this invention is to provide improved adjustable means for varying the throw of one of the feed-dogs relative to the other so that they may be coordinated, when operating upon delicate fabrics, to insure against distortion of the fabric.

With the above and other objects in view, as will hereinafter appear, the invention consists in the devices, combinations, and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings 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.

Figure 1 is a view partly in plan and partly in section, showing a machine having my improved feeding mechanism embodied therein.

Figure 2 is a sectional view taken along the line 2—2 of Figure 1.

Figure 3 is a rear elevation of a portion of a machine having my improved feeding mechanism embodied therein.

Figure 4 is a disassembled perspective view of the feed-bars.

My improved feeding mechanism is shown as applied to an overseaming machine such as that disclosed in the patent to A. Grieb, No. 933,033, dated August 31, 1909, and known commercially as the "Singer" 81 class machine. In the embodiment selected for illustration, 1 is the bed of the machine having suitable bearing brackets in which are journaled a main-shaft 2, and rearwardly extending bearing supports 3 formed with suitable bearing apertures to receive the feed rock-shaft 4.

Fixed upon the feed rock-shaft 4 is the feed-rocker 5 having two spaced lateral arms 6 and 7, each arm having an enlarged apertured end which receives a pivot-pin 8. The feed-rocker 5 receives an oscillatory movement from the main-shaft by means of a pitman 9 having one of its ends embracing an adjustable eccentric 10 carried by the main-shaft 2, and its other end

connected by the pivot-pin 11 to the depending arm 12 which has its split hub end 13 secured to the feed-rocker 5.

Disposed intermediate the arms 6 and 7 of the feed-rocker and carried by the pivot-pin 8 is the enlarged apertured end 14 of the auxiliary feed-bar 15 which is formed in its forwardly projecting end with a vertical channel 16 (Fig. 4) to receive the shank of the auxiliary feed-dog 17 which is adjustably secured in position upon the bar by means of a stud-screw 18. As clearly shown in Figure 4, the opposite face of the auxiliary feed-bar is formed with a longitudinal channel 19 and the offset portion is provided with a longitudinal aperture in which the stud 20 is secured by the set-screw 21.

The auxiliary feed-bar 15 carries a main feed-bar 22 having a longitudinal rib 23 (Fig. 4) which extends into the channel 19 of the auxiliary feed-bar, and a longitudinal aperture 24 in the main feed-bar slidably receives the stud 20 of the auxiliary feed-bar. The above described connection permits the main feed-bar to be reciprocated on the auxiliary feed-bar and independently thereof, but connected thereto, so as to be moved up and down therewith. The forward end of the main feed-bar is formed with a vertical channel 25 to receive the shank of the main feed-dog 26 which is adjustably secured in position by a screw 27. It will be observed in Figure 1 that the main and auxiliary feed-dog 17 and 26 are offset relative to the feed-bars so that they are in alignment with each other and that the shank of the main feed-dog 26 extends over the forward end of the auxiliary feed-bar 15.

The rear end of the main feed-bar is pivotally connected by the pivot-lug 28 to one end of a short link 29, the other end of the link being pivoted to the adjustable block 30 by the pivot-screw 30'. The upstanding arm 7 of the feed-rocker 5 is provided with a channel 31 which the rib 32 on the adjustable block 30 enters, (Figure 1), the block being adjustably secured to the arm 7 by the knurled headed thumb-screw 33 which extends through the elongated aperture 34 in the arm 7 and is threaded into the sliding block.

The auxiliary feed-bar 15 overhangs the usual feed-lift eccentric 35 on the main-shaft and a short pitman 36 embracing the feed-lift eccentric is pivotally connected to the bar 15 by means of a pivot-stud 37 carried by the pitman and which enters the aperture 38 in the auxiliary feed-bar. Through this connection with the

main-shaft, the feed-bars receive their rising and falling movements.

It will be observed from the foregoing description that the pivotal connection between the auxiliary feed-bar and the feed-rocker is at a point above the fulcrum of the feed-rocker and as the feed-rocker is oscillated a certain predetermined movement will be imparted to the auxiliary feed-bar. The extent of this movement depends upon the throw of the feed-rocker which is controlled by the adjustable eccentric 10 on the main-shaft. As the main feed-bar is pivotally connected to the adjustable block 30 it will be obvious that the pivotal connection between the main feed-bar and the feed-rocker may be shifted relative to the axis of oscillation of the feed-rocker thereby varying the throw of the main feed-bar. This feature permits the feed-dogs to be coordinated, when operating upon delicate or knitted fabrics, to insure against stretching or distortion of the fabric.

From the foregoing description considered in connection with the accompanying drawings, the construction, manner of operation and several advantages of my improved feeding mechanism will be clearly and fully understood. It is apparent that such a device has a wide variety of uses, and it will be understood that the form, construction and arrangement of the several elements employed may be varied. Therefore, the privilege is reserved of resorting to all such legitimate changes therein as may be fairly embodied within the spirit and scope of the appended claims.

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

1. A feeding mechanism for sewing machines including in combination, a feed-rocker having a plurality of laterally extending arms, one of said arms being formed with an elongated aperture and a channel arranged transverse to the axis of the feed-rocker, a feed-bar pivoted to said

feed-rocker, said feed-bar being provided with a longitudinal channel and a stud, a second feed-bar carried by said first mentioned feed-bar, said second feed-bar being provided with a longitudinal rib which enters the channel in the first mentioned feed-bar and a longitudinal aperture which receives the stud on the first mentioned feed-bar, means for raising and lowering said feed-bars, a sliding block fitted into the channel in one of the laterally extending arms of the feed-rocker, a thumb-screw extending through said elongated aperture and threaded into said block, said thumb-screw being arranged transverse to the axis of said feed-rocker, a link connecting said second feed-bar to said block, and a pitman having one of its ends embracing an adjustable eccentric on the main shaft and its other end pivoted to one of the arms of said feed-rocker.

2. A feeding mechanism including in combination, a feed-rocker formed with laterally extending arms; a pitman having one of its ends embracing an adjustable eccentric on the main shaft and its other end pivoted to one of said arms, a feed-bar pivoted to said feed-rocker, said feed-bar being formed with a channel and a centrally located offset portion carrying a stud, a feed-dog carried by said feed-bar, a second feed-bar extending across the offset portion of said first mentioned feed-bar, said second mentioned feed-bar being provided with a rib which enters the channel in the first mentioned feed-bar and a longitudinal aperture which receives the stud on the offset portion of said first mentioned feed-bar; a feed-lift eccentric on the main shaft of the machine, a pitman connecting said feed-lift eccentric with the first mentioned feed-bar; and a feed-dog carried by said second mentioned feed-bar, said feed-dog being arranged in rear of and substantially in alignment with the feed-dog carried by the first mentioned feed-bar.

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65	140
70	145
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