

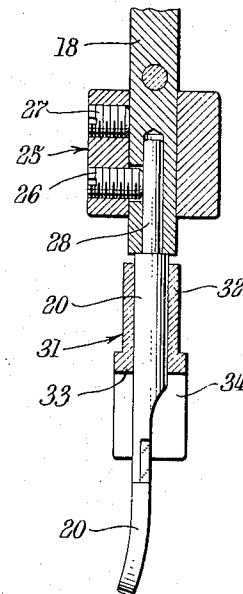
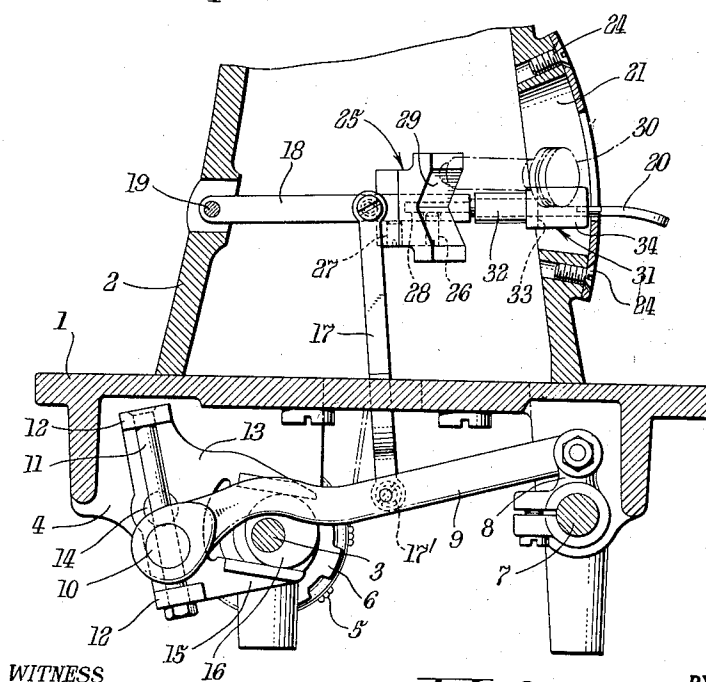
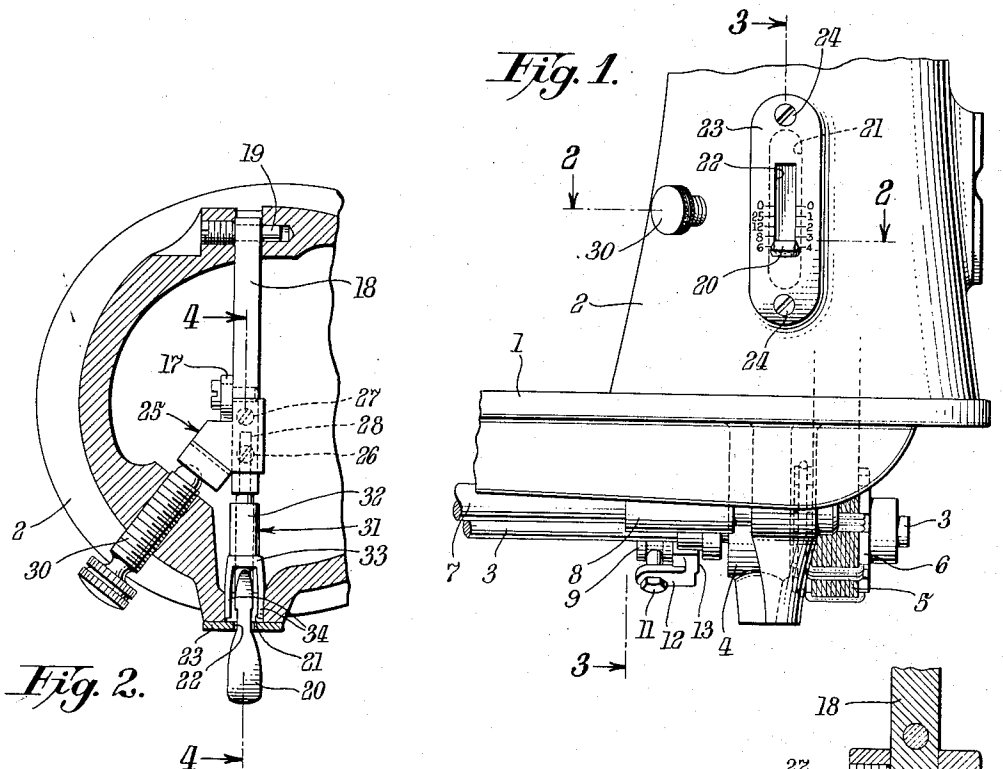
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FEED ADJUSTING MEANS FOR SEWING MACHINES

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WITNESS
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Fig. 3.

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FEED ADJUSTING MEANS FOR SEWING MACHINES

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4 Claims. (Cl. 112—210)

The present invention relates to sewing machines, particularly to feeding mechanisms for sewing machines, and has for a primary object to provide an improved means for maintaining the desired adjustment of a feed-adjusting or regulating lever of a sewing machine.

More specifically, it is an object of the present invention to provide a simplified means for frictionally maintaining the desired adjustment of a feed-adjusting lever of a sewing machine, which means is more economical to manufacture, will perform its intended function in a fully satisfactory manner, and can be readily adjusted to vary the frictional forces generated thereby for maintaining the desired position of the feed-adjusting lever.

Having in mind the above and other objects that will be evident from an understanding of this disclosure, the invention comprises the devices, combinations and arrangements of parts as illustrated in the presently preferred embodiment of the invention which is hereinafter set forth in such detail as to enable those skilled in the art readily to understand the function, operation, construction and advantages of it when read in conjunction with the accompanying drawings, in which:

Fig. 1 is a partial front elevation view of a sewing machine incorporating the invention.

Fig. 2 is a fragmentary section view taken substantially on the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary section view taken substantially on the line 3—3 of Fig. 1.

Fig. 4 is a fragmentary detail section view taken substantially on the line 4—4 of Fig. 2.

The present invention is illustrated in the drawings as embodied in a sewing machine having a bed-plate 1, a standard 2 rising from the one end thereof and a rotary bed-shaft 3 journaled longitudinally of the bed 1, as in a bearing-boss 4 depending from said bed. In the usual manner, the shaft 3 is designed to actuate the loop-taker and feed-lift mechanism (both not shown) and is itself driven by any suitable means, such as by a belt 5 entrained about a pulley 6 fixed on said shaft. The above mechanism may be substantially the same as that illustrated in the U. S. patent of Eames, No. 2,024,434, to which reference may be had for a complete description thereof.

The feed-advance mechanism, as illustrated in the drawings, is substantially the same as that disclosed in the above-mentioned patent of Eames and briefly includes a feed-advance shaft 7 journaled longitudinally of the bed 1 and parallel to the shaft 3. An upstanding crank 8 is fixed to the shaft 7 and is pivotally connected at its free end to one end of a radius-bar 9. The opposite end of the radius-bar 9 is apertured to pivotally receive a stud 10 that is, in turn, apertured to slidably receive a rod 11 fixed at its ends in spaced ears 12 of a rocking frame 13. The rocking frame 13 is fixed to the end of a shaft 14 that is journaled longitudinally of the bed 1 and parallel to the shaft 3. Formed integral with the frame 13 is a fork 15 that embraces an eccentric 16 on the shaft 3. By means of the above mechanism, rotary motion of

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the shaft 3 imparts oscillation to the frame 13 through the fork 15 and eccentric 16, which is transmitted to and causes oscillation of the shaft 7 through the rod 11, the radius-bar 9 and the crank 8. Oscillation of the shaft 7 may be converted to feed-advance movements of the feeding element (not shown), in any suitable manner which may be such as illustrated in the above mentioned patent of Eames.

The amplitude of the oscillation imparted to the feed-advance shaft 7 upon oscillation of the rocking frame 13, and thus the amplitude of the feeding-stroke, is dependent upon the eccentricity of the stud 10 with respect to the axis of the shaft 14. To permit adjustment of the stud 10 diametrically of the axis of the shaft 14 into a neutral position of no-feed or in either direction therefrom into positions of forward feed or reverse feed, the rod 11 is made to lie in a plane normal to the shaft 14 and with the axis of the shaft 14 intersecting the central point of the axis of the rod 11.

To slide the stud 10 relative to the rod 11, there is provided a link 17 that is pivotally connected at one end to the radius-bar 9 intermediate its ends, which connection includes an eccentric pivot-pin 17' that provides for minute adjustments and centering of the parts. The opposite end of the link 17 is connected to a feed-adjusting lever 18 that is pivoted to the rear wall of the standard 2 as by a pivot-screw 19. The lever 18 includes an aligned hand-piece 20 that extends forwardly through a vertically elongated slot 21 in the front wall of the standard 2, and through a comparable slot 22 formed in a plate 23. The plate 23 is secured to the front wall of the standard 2 by screws 24, and is provided with suitable indicia to indicate the selected setting of the lever 18.

Adjustment of the lever 18 about its pivot 19 and thus, adjustment of the feed-stroke, is limited by a block 25 secured thereto as by set screws 26 and 27. It will be noted that the hand-piece 20 includes a reduced end portion 28 that extends into a longitudinal bore formed in the adjacent end of the lever 18, and is releasably secured therein by the set-screw 26. The block 25 includes a V-shaped groove 29 that cooperates with the end of a stop screw 30 threaded through the front wall of the standard 2 and adjustably entering the groove 29. In the usual manner, the V-shaped groove 29 is positioned such that when the lever 18 is swung about its pivot 19, corresponding points on the opposite faces of the groove will contact the end of the stop screw 30 and thus limit adjustment of lever 18 to corresponding positions in each direction from a central or neutral position of no-feed, which opposed settings will effect forward and reverse feed-strokes of substantially equal length.

The feed-regulating lever 18 is frictionally maintained in the desired position by an element 31 that includes a sleeve-like portion 32 adapted to surround the cylindrical shank of the hand-piece 20. The sleeve-like portion 32 is carried by the base of a U-shaped portion 33 having opposed legs 34 which extend from the base in a direction opposite to that of the sleeve-like portion 32. The element 31 is placed on the hand-piece 23 with the legs 34 of the U-shaped portion 33 located within or between the walls of the slot 21 in the bracket-arm 2. The legs 34 are adapted to spring outwardly away from each other and thus resiliently bear against the walls of the slot 21. This, of course, generates a frictional resistance to movement of the legs 34 relative to the walls of the slot 21 which can be made sufficient to hold the lever 18 in any desired position but will permit manual adjustment of the lever. Adjustment of the frictional forces generated can be made by bending the legs 33 toward or away from each other as the case may be to thus vary the resilient force urging the legs into contact with the walls of the slot 20. To obtain a finished appearance, the slot 21 in

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the plate 22 is made only large enough to permit the end of the lever 18 to pass therethrough, and not large enough for the legs 34 of the element 30 to enter.

Numerous alterations of the structure herein disclosed will suggest themselves to those skilled in the art. However, it is to be understood that the present disclosure relates to a preferred embodiment of my invention which is for purposes of illustration only and not to be construed as a limitation of the invention. All such modifications which do not depart from the spirit of the invention are intended to be included within the scope of the appended claims.

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

1. In a sewing machine, a frame provided with a slot having parallel opposed side walls, an adjusting-lever extending through said slot and pivotally mounted to said frame on an axis normal to a plane parallel to the opposed side walls of the slot whereby said lever may be swung longitudinally of said slot, and means for frictionally maintaining said adjusting-lever in adjusted position relative to said slot comprising, a U-shaped element including a base having an aperture therethrough for receiving said adjusting-lever and two opposed legs extending from said base and arranged substantially parallel to the axis of said aperture for resiliently bearing against the opposed walls of said slot.

2. In a sewing machine, a frame provided with a slot having parallel opposed side walls, an adjusting lever extending through said slot and pivotally mounted to said frame on an axis normal to a plane parallel to the opposed side walls of the slot whereby said lever may be swung longitudinally of said slot, and means for frictionally maintaining said adjusting-lever in adjusted position relative to said slot comprising a U-shaped element including a base having an aperture therethrough, and two opposed legs extending from said base and being arranged substantially parallel to the axis of said aperture, and a sleeve-like element extending from said base with the axis thereof aligned with the axis of said aperture, said adjusting-lever extending through said aperture and said

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sleeve-like element, and said legs resiliently bearing against the walls of said slots.

3. In a sewing machine, a frame provided with a slot having parallel opposed side walls, an adjusting-lever extending through said slot and pivotally mounted to said frame on an axis normal to a plane parallel to the opposed side walls of the slot whereby said lever may be swung longitudinally of said slot, and means for frictionally maintaining said adjusting-lever in adjusted position relative to said slot comprising a U-shaped element including a base having an aperture therethrough, and two opposed legs extending from said base and being arranged substantially parallel to the axis of said aperture, and a sleeve-like element extending from said base on that side thereof opposite to said legs and with the axis thereof aligned with the axis of said aperture, said adjusting-lever extending through said aperture and said sleeve-like element, and said legs resiliently bearing against the walls of said slots.

4. In a sewing machine, a frame provided with a slot having parallel opposed side walls, an adjusting-lever extending through said slot and pivotally mounted to said frame on an axis normal to a plane parallel to the opposed side walls of the slot whereby said lever may be swung longitudinally of said slot, said adjusting-lever comprising a first element having an axial bore and a second element having a reduced end-portion adapted to be releasably secured within the bore in said first element, and means for frictionally maintaining said adjusting-lever in adjusted position relative to said slot comprising, a U-shaped element including a base having an aperture therethrough for slidably receiving said second element of said adjusting-lever, and two opposed legs extending from said base and arranged substantially parallel to the axis of said aperture for resiliently bearing against said opposed walls.

References Cited in the file of this patent

UNITED STATES PATENTS

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