Nov. 20, 1934. M. HEMLEB 1,981,837

NEEDLE STRIPPER FOOT FOR SEWING MACHINES

Filed Sept. 7, 1933

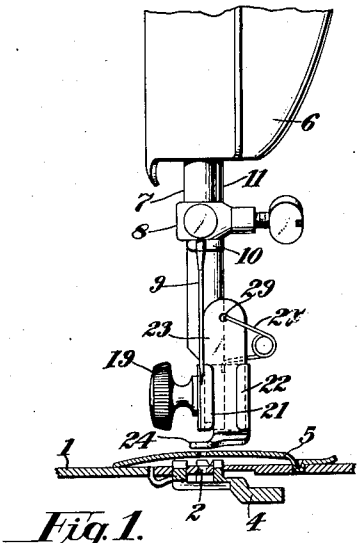


Fig. 1.

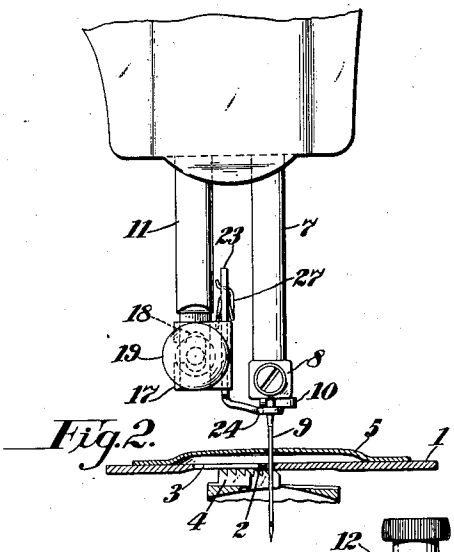


Fig. 2.

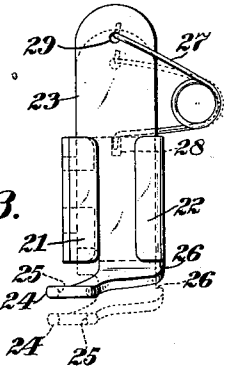


Fig. 3.

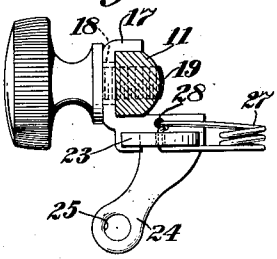


Fig. 4.

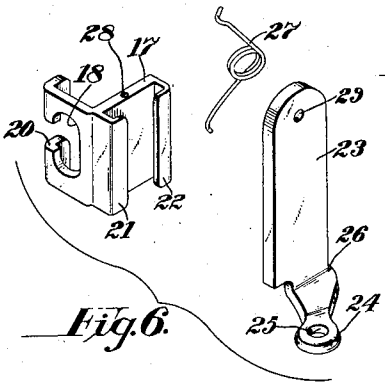


Fig. 6.

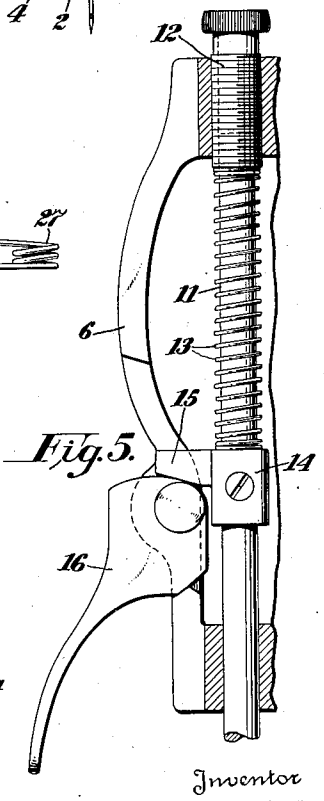


Fig. 5.

Inventor
Martin Hemleb

Witness:
John W. Cave

By Henry J. Miller
Attorney

Patented Nov. 20, 1934 1,981,837

UNITED STATES PATENT OFFICE

1,981,837

NEEDLE-STRIPPER FOOT FOR SEWING MACHINES

Martin Hemleb, Elizabeth, N. J., assignor to The Singer Manufacturing Company, Elizabeth, N. J., a corporation of New Jersey

Application September 7, 1933, Serial No. 688,423

10 Claims. (Cl. 112—236)

This invention relates to improvements in needle-stripper foot devices for sewing machines more particularly adapted for darning and embroidering purposes, and has for an object to improve the stitch-forming conditions incidental to the employment of a needle-stripper foot designed to permit manual shifting of the work during the darning or embroidering operation.

Another object of this invention is to provide a stripper-foot which, while so designed as to effectively control the work or the enchained thread-loops while the needle is out of the work, may be raised into an inoperative position without incurring the liability of breakage of parts should the machine be inadvertently started in the raised position of the stripper-foot

The features of the invention will be understood from an inspection of the accompanying drawing and the following detailed description of a preferred embodiment of the improved needle-stripper foot illustrated therein.

In the drawing, Fig. 1 is a front side elevation, with the work-support in section, of a portion of a sewing machine to which the improved attachment has been applied, the stripper-foot being shown in a normal operative position. Fig. 2 is a front end elevation, with the work-support in section, of the parts shown in Fig. 1, but with the stripper-foot raised into inoperative position and with the needle-bar down. Fig. 3 is an enlarged front side elevation of the attachment, with the stripper-foot illustrated in dotted lines as depressed in its supporting member. Fig. 4 is an enlarged top plan view of the attachment, with the presser-bar in section. Fig. 5 is a front end elevation, partly in section, of a portion of the head of the sewing machine bracket arm and of the presser bar journaled therein. Fig. 6 represents enlarged and separate perspective views of the attachment.

When employing a sewing machine for embroidering or darning purposes, it has been a common practise to adapt the machine to permit of shifting the work manually between successive needle reciprocations. To this end, various expedients have heretofore been employed to lift the presser-foot intermittently or to hold it raised so that the work is free to be shifted. In one form of the devices more commonly employed, a special needle-stripper foot is substituted for the regular presser-foot of the machine, which stripper-foot is designed to yieldingly engage the work during the work-penetrating movements of the needle and is raised while the needle is out of the work. This expedient has the disadvantage that the work is not properly controlled by the foot during the time that the needle-thread loop is being drawn up to set the stitches, because it is at that time that the foot is raised from the work. The needle-stripper foot according to the present invention is designed to control the work more efficiently and, nevertheless, permit of raising the foot manually in the usual manner for insertion and removal of the work.

Referring to the drawing, a sewing machine to which the improved stripper-foot has been applied, has a work-support including the usual throat-plate 1 provided with a needle-aperture 2 and with feed-slots, as 3, through which operates a feed-dog 4. For embroidering or darning purposes, the work may be supported and shielded from the feed-dog 4 by means of a cover-plate 5 which overlies the throat-plate and may be secured thereto in any usual manner. An expedient well known in the art as a substitute for the feed-dog cover-plate involves the provision of means whereby the feed-dog does not project above the usual throat-plate during the operation of the machine, and it is therefore to be understood that the present invention is not limited to the employment of a feed-dog cover-plate.

Overhanging the work-support is the usual bracket-arm terminating at its free end in a head 6, in which a needle-bar 7 is journaled for vertical reciprocation. The lower end of the needle-bar 7 carries a clamp 8 in which is secured the shank of a needle 9 and, in the present case, also a thread-guide 10 projecting from the under side of said clamp. Any suitable mechanism may be employed below the throat-plate 1 as complementary to the needle in the formation of stitches.

Journaled for vertical movement in the bracket-arm head 6 is the usual presser-bar 11 of which the upper bearing comprises an adjustable bushing 12 serving as an adjustable abutment for the upper end of a spring 13 coiled about the presser-bar. The lower end of the spring 13 bears against a collar 14 suitably fixed upon the presser-bar, said collar being provided with a laterally extending lug 15 which overlies the cam-edge of the usual lifter lever 16 and is depressed thereagainst by the spring 13.

The presser-foot usually employed for stitching operations is in the present case detached from the lower end of the presser-bar 11, and substituted for said presser-foot is an attachment more particularly adapted for embroidering and darning purposes. This attachment comprises an angular supporting member 17 shaped

to partly embrace the slabbed lower end of the presser-bar 11, one wall of said member 17 having a vertically elongated slot 18 receiving the usual presser-foot securing screw 19 and providing for vertical adjustment of said supporting member upon the presser-bar. As illustrated more particularly in Fig. 6 of the drawing, a slot 20 is cut into the rear wall of the supporting member to open into the vertically elongated slot 18, whereby said supporting member may be applied to or detached from the presser-bar without completely unthreading the screw 19.

The front wall of the supporting member 17 is formed or otherwise provided with reversely bent and spaced guide-lips 21 and 22, which together with said front wall define a vertical guideway. Vertically slidable in said guideway of the supporting member 17 is the flat shank 23 of a needle-stripper foot 24 extending forwardly from said shank and provided with a needle-aperture 25. A shoulder 26 projects from the lower end of a side edge of the stripper-foot shank 23 in position to engage the lower end of the guide-lip 22, said shoulder 26 constituting a stop limiting upward movement of the stripper-foot in its guideway. A spring 27 having one end entering an aperture 28 in the upper edge of the supporting member 17 and its other end entering an aperture 29 in the shank 23 of the stripper-foot acts to hold the shoulder 26 yieldingly against the lower end of the guide-lip 22, i. e., the spring 27 acts to raise the stripper-foot a limited extent in the supporting member guideway and to support said foot in its operative position.

When applying the attachment to the presser-bar, the supporting member 17 of the stripper-foot is vertically adjusted into a position such that the stripper-foot is spaced from the work-support of the machine just sufficiently to permit of manual shifting of the work between successive needle reciprocations, the stripper-foot being sustained against downward movement by the spring 27 which yieldingly holds the stripper-foot at its upper limit of movement in the supporting member of the foot. In this position of the stripper-foot 24, the work is held effectively against excessive response to the drawing action of the thread while the needle is out of the work. Should an undue thickness of work be presented under the stripper-foot, the latter may respond thereto by an upwardly yielding movement of the presser-bar. When the stripper-foot is raised into its inoperative position by manipulation of the presser-bar lifter-lever 16, said stripper-foot is disposed in the path of movement of the needle-clamp 8 and of the thread-guide 10 carried thereby, because of the initially raised position of the stripper-foot while in its operative position. However, the provision of the stripper-foot sustaining spring 27 permits of a downward yielding movement of the stripper-foot when engaged by the needle-clamp in an inadvertent operation of the machine, thereby obviating breakage of parts.

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

1. An attachment for sewing machines comprising, a supporting member, a needle-stripper foot mounted upon said supporting member for vertical movement thereupon, a stop limiting the upward movement of said foot upon said supporting member, and a spring yieldingly urging upward movement of said foot.

2. An attachment for sewing machines comprising, a supporting member having a vertical guideway, a needle-stripper foot slidingly mounted in said guideway, and yieldingly means acting to raise said stripper-foot a limited extent in the guideway of said supporting member.

3. An attachment for sewing machines comprising, a supporting member adapted to be secured for vertical adjustment upon said sewing machine, a needle-stripper foot slidingly mounted upon said supporting member for vertical movement thereupon, a stop limiting upward movement of said foot upon said supporting member, and a spring interposed between said supporting member and foot yieldingly acting to hold said foot at its upward limit of movement.

4. In a sewing machine, a reciprocatory needle-carrier, a work-support, a needle-stripper foot, and supporting means for said needle-stripper foot including a spring yieldingly acting in a direction away from said work-support to hold said foot in spaced relation to the work-support throughout complete reciprocatory movements of said needle-carrier.

5. In a sewing machine, a needle-carrier, a work-support, a needle-stripper foot, supporting means for said needle-stripper foot including a spring yieldingly acting in a direction away from said work-support to hold said foot in spaced relation to the work-support, and adjustable mean for determining the spaced relation of said foot and work-support.

6. In a sewing machine, a needle-carrier, a work-support, a presser-bar movable toward and from said work-support, a needle-stripper foot mounted upon said presser-bar for movement thereupon toward and from the work-support, and a spring acting upon said foot in a direction away from said work-support.

7. In a sewing machine, a needle-carrier, a work-support, a presser-bar movable toward and from said work-support, means for limiting the movement of said presser-bar toward the work-support, a needle-stripper foot mounted upon said presser-bar for movement thereupon toward and from said work-support, a spring yieldingly acting to move said needle-stripper foot upon said presser-bar in a direction away from said work-support, and a stop limiting the movement of said needle-stripper foot under the action of said spring.

8. In a sewing machine, a needle-carrier, a work-support, a presser-bar movable toward and from said work-support, means for limiting the movement of said presser-bar toward the work-support, a needle-stripper foot mounted upon said presser-bar for movement thereupon toward and from said work-support, a stop limiting the movement of said foot in a direction away from said work-support, yielding means acting to hold said foot at its limit of movement determined by said stop, and adjustable means for determining the operative position of said stop.

9. In a sewing machine, a needle-carrier, a work-support, a presser-bar vertically movable toward and from said work-support, means for limiting the movement of said presser-bar toward the work-support, a supporting member secured for vertical adjustment upon said presser-bar and provided with a vertical guideway, a needle-stripper foot slidingly mounted in said guideway, a stop for limiting movement of said foot upon said supporting member in a direction away from said work-support, and yielding means acting to hold said foot at its limit of

movement determined by said stop and in spaced relation to said work-support.

10. In a sewing machine, a work-support, a reciprocatory needle-carrier, a presser-bar, a spring yieldingly depressing said presser-bar in a direction toward the work-support, means limiting the extent of movement of the presser-bar toward the work-support, a needle-stripper foot mounted upon said presser-bar for movement thereupon toward and from said work-support, and a spring sustaining said stripper-foot in spaced relation to said work-support.

MARTIN HEMLEB.