March 14, 1933. J. D. KARLE 1,901,752

SEWING MACHINE PRESSER FOOT

Filed Nov. 14, 1931

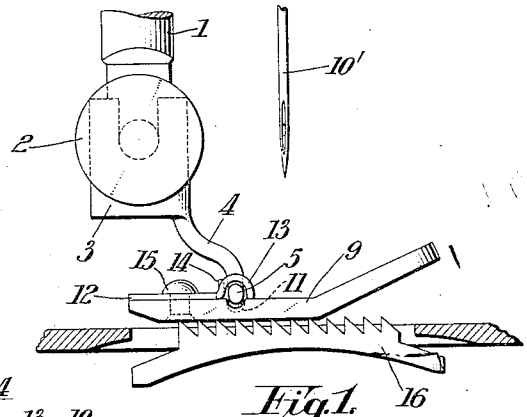


Fig. 1.

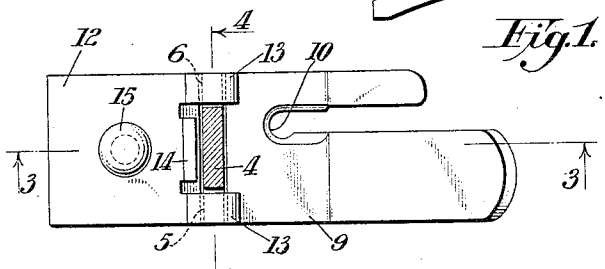


Fig. 2.

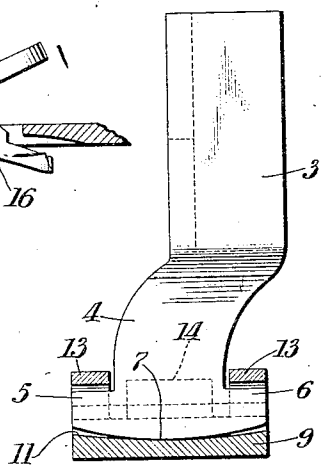


Fig. 4.

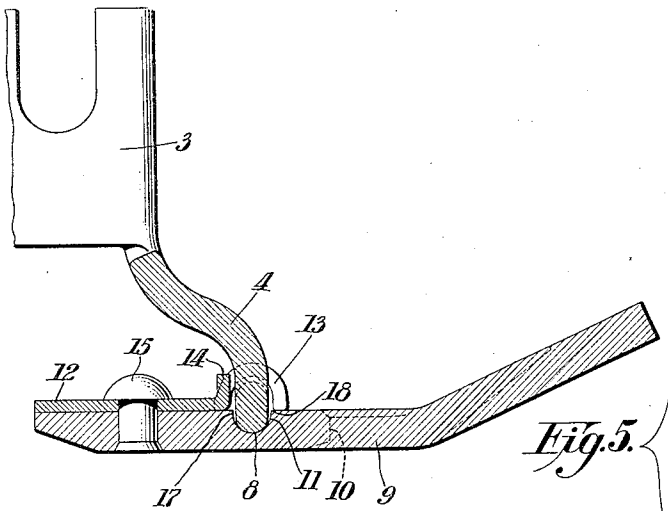


Fig. 3.

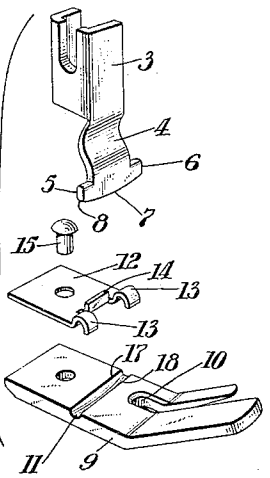


Fig. 5.

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UNITED STATES PATENT OFFICE

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SEWING MACHINE PRESSER-FOOT

Application filed November 14, 1931. Serial No. 575,022.

This invention relates to sewing machine presser-feet and has for its objects: to provide an improved presser-foot capable of limited lengthwise and sidewise rocking movements with respect to the line of seam-formation, so that it will accommodate itself to any irregularities in the work; to construct a presser-foot which offers a minimum of resistance to the rocking movements; and to provide a presser-foot that is simple in construction and may be assembled and manufactured at little expense.

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 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.

In the accompanying drawing—

Figure 1 is a left side elevation of a presser-foot embodying the invention.

Figure 2 is a top plan view, partly in section, of the presser-foot.

Figure 3 is a section taken along the line 3—3 of Figure 2.

Figure 4 is a section taken along the line 4—4 of Figure 2.

Figure 5 is a disassembled perspective view of the presser-foot.

In the embodiment of this invention selected for illustration, 1 is the usual spring-pressed presser-bar to which is secured by the screw 2 the upper part of the shank 3 of the presser-foot. The shank 3 is formed from sheet-metal and has an offset depending portion 4 terminating with two oppositely projecting horizontal lugs 5 and 6. The lugs 5 and 6 are at right angles to the depending portion and are transverse to the line of seam formation, when the presser-foot is in operative position. The lugs 5 and 6 are so formed with respect to the lower part of the depending portion 4, that the lower edge of the lugs and lower part form the arc of a circle; this arc being transverse to the line of seam-formation and convex in form, and having its axis of curvature in the direction of and parallel to the line of seam-formation as shown at 7 in Figures 4 and 5. In the direction of the line of seam-formation the lower part of the depending portion 4 and lugs 5 and 6 are rounded to form the arc of a circle, as shown at 8 in Figures 1, 3 and 5. The contour or shape of the lower part of the depending portion 4 and lugs 5 and 6, may best be described as a segment of an ellipsoid.

The usual bifurcated sole-plate 9 having a needle-aperture 10 for the needle 10′ is provided with a centrally located transverse channel 11. The channel is concave both transversely of and in the direction of its length, so that it forms a suitable bearing for the lower part of the shank 4 and the lugs 5 and 6. It will be observed in Figures 3 and 4 that the curvatures of the walls of the concave channel 11 are greater than those of the respective portions of the convex lugs 5 and 6 and the lower part of the shank 4 adjacent thereto. This construction permits a limited lengthwise and sidewise rocking movement of the sole-plate with respect to its length or the line of seam-formation, so that it will exert a uniform pressure upon the work over the entire area of the feed-dog 16 under substantially all conditions.

A retaining plate 12 provided with fingers 13 and an upstanding lug 14 is secured to the heel of the sole-plate by any suitable means, here shown as a rivet 15. The fingers 13 of the retaining plate 12 extend over the lugs 5 and 6 thereby holding the depending portion 4 of the shank in the channel 11 of the sole-plate, it being understood that there is a certain amount of clearance between the fingers 13 and the lugs 5 and 6 necessary to permit the rocking movements described. This construction offers the minimum of resistance to the movement of the sole-plate on the shank.

It will be observed in Figure 3 that the shoulders 17 and 18 act as stops to limit the movement of the sole-piece 9 on the shank 4. The upstanding lug 14 on the retaining plate 12 acts as a supplemental stop for the sole-plate. This lug or stop 14 prevents

the toe of the sole-plate from rocking downward beyond a certain limit when the presser-foot is in inoperative or raised position; the greater weight being in the toe-portion of the sole-plate.

From the foregoing description considered in connection with the accompanying drawing, the construction, manner of operation, and several advantages of my improved presser-foot 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 sewing machine presser-foot comprising a shank, a member depending from said shank having its lower end curved both transversely of and in the direction of the line of seam-formation, a sole-plate, and means for retaining said sole-plate on said depending member.

2. A sewing machine presser-foot comprising a shank having a depending portion, the lower end of said depending portion terminating in a segmental sole-piece engaging portion having its axis of curvature parallel to the line of seam-formation and its edges rounded, a sole-plate, and means for pivotally connecting said depending portion to said sole-plate for lengthwise and sidewise rocking movement with respect to the line of seam-formation.

3. A sewing machine presser-foot comprising a shank and a sole-piece constructed in separate parts, said parts being provided with complementary seats at least one of which is curved both transversely of and in the direction of the line of seam-formation, and means for securing said sole-piece to said shank for sidewise and lengthwise rocking movement with respect to the line of seam-formation.

4. A sewing machine presser-foot comprising a shank, a member carried by said shank, the lower end of said member having substantially the shape of a segment of an ellipsoid, a sole-plate, and means for pivotally connecting said member to said sole-plate.

5. A presser-foot having a sole-plate formed in its upper surface with a transverse channel, a shank-member having a depending portion received in said channel, the proximate surfaces of said depending portion and channel being cut away to provide clearance spaces permitting a limited rolling action of the sole-plate upon and relative to said shank both transversely and longitudinally of said sole-plate, and means for retaining said sole-plate and shank in assembled relation.

In testimony whereof I have signed my name to this specification.

JOHN D. KARLE.