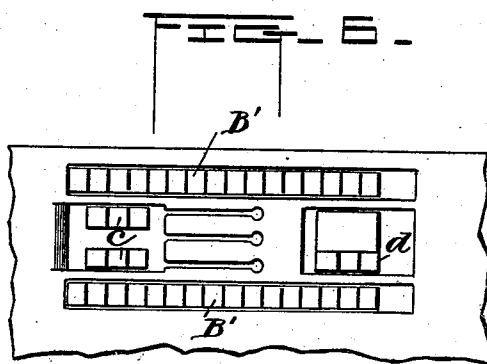
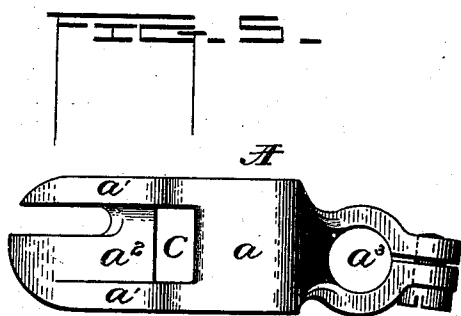
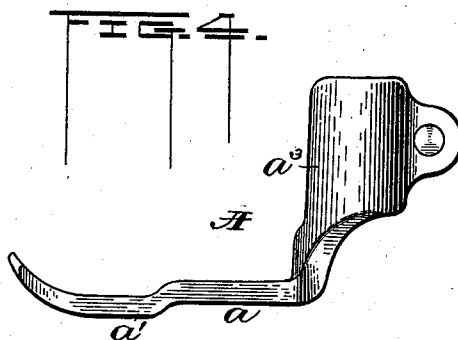
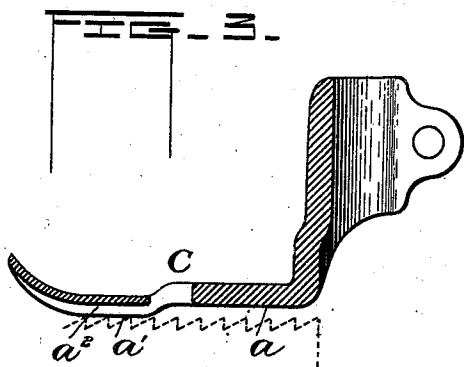
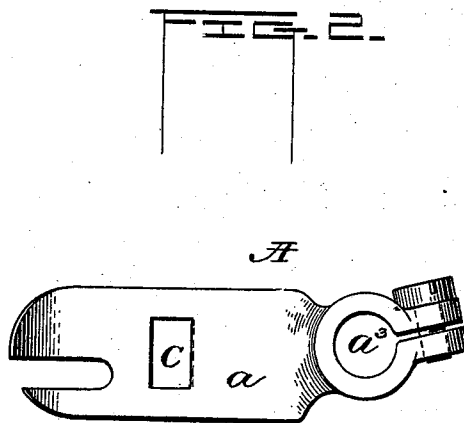
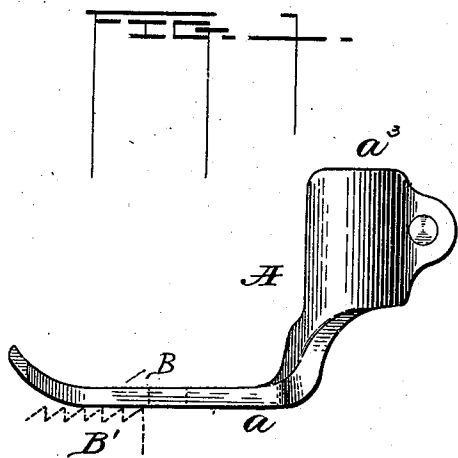


(No Model.)

R. G. WOODWARD.
FEEDING MECHANISM FOR SEWING MACHINES.

No. 506,455.

Patented Oct. 10, 1893.



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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 506,455, dated October 10, 1893.

Application filed September 3, 1892. Serial No. 444,946. (No model.)

To all whom it may concern:

Be it known that I, RUSSEL G. WOODWARD, a citizen of the United States, residing at Waukegan, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to sewing machines and particularly to an improved means for feeding forward the material for use on machines for sewing knit goods and similar elastic fabric.

In the joining or overseaming of knit goods the fabric is likely to become stretched by the feed, and after the stitches are passed down through the fabric, when the elasticity of the fabric tends to return it to its former relaxed condition, that portion through which the stitches have passed is prevented from assuming its former condition by reason of the said stitches, and consequently the fabric is curled or puckered, which is, of course, very objectionable. I have heretofore endeavored to remedy the defects above referred to by providing a form of feeding mechanism which acts in such a way that the portion of the fabric outside the rows of stitches is fed forward at a certain speed while that portion of the fabric through which the stitches pass is fed at a more rapid rate of speed, whereby the portion of the fabric through which the stitches pass is stretched before the rest of the fabric, and thereby puckering is prevented. This feeding apparatus comprised mechanism for giving various motions to different feed dogs, that is, one portion of the feed moved forward faster than the other, thereby feeding forward one portion of the fabric in advance of the other and letting go of it sooner, so that at the time the stitches pass through, that portion of the fabric is partially or wholly relaxed while the portion of the fabric

outside the stitches is just returning to its relaxed condition.

The primary object of my invention is to provide a mechanism for performing the work mentioned above without necessitating the use of a complicated form of feeding mechanism.

A further object is to do away with said complicated feeding mechanism and to provide a presser foot of such construction that it will co-operate with the ordinary feeding mechanism of a sewing machine to accomplish the desired result.

My invention therefore consists in the matters hereinafter described and referred to in the appended claims.

In the accompanying drawings which illustrate my invention, Figure 1 is a side elevation of my invention when used with an ordinary presser foot. Fig. 2 is a top plan view thereof. Fig. 3 is a sectional side elevation of my improved presser foot. Fig. 4 is a side elevation thereof. Fig. 5 is a bottom plan view, and Fig. 6 is a top plan view of a sewing machine throat plate used with my invention and showing the ordinary feed.

In the drawings, A represents the presser foot as a whole, the shank portion of which is provided with a divided sleeve as shown at a^3 and it is fitted over the presser bar in the usual way. C is the opening through which the needle or needles pass and the toe of the foot is upturned in the usual manner.

Referring now to Figs. 3, 4, 5 and 6 which illustrate the preferred construction used for carrying out my invention, since it can be applied to machines already in use without necessitating a change in the feed, B is the lower longitudinal portion of the presser foot, the forward end of which bears upon the goods. A suitable throat plate is provided as shown in Fig. 6, having openings for the passage of the needles and slots through which the feed dogs project, the feed as shown in the figures mentioned being composed of the forward and rear dogs c , d , and side dogs B' , the

latter operating at the same time to feed forward the fabric. As ordinarily constructed, a presser foot bears equally upon all portions of the fabric beneath it but in the use of such a presser foot with the ordinary feed shown in Fig. 6 the goods beneath the presser foot will be stretched by the forward movement of the feed and the stitches will pass down through the fabric before it has returned to its normal condition, thereby causing curling inasmuch as that portion of the fabric through which the stitches pass will be held by the said stitches permanently in its stretched condition while the remainder of the fabric will return to its normal state.

The particular presser foot forming an element of the present invention is so constructed that the portion of the fabric through which the stitches pass has no pressure brought to bear upon it in front of the needles so that it is not stretched at all, while the fabric on either side is stretched, but the stitches pass down through the fabric in normal condition, so that when the portion stretched assumes its usual condition there will be no curling. I accomplish this result by forming a groove or channel a^2 in the under side of the presser foot about equal in width to the needle hole C and of sufficient depth that when the forward dog c advances there will be no clamping of the fabric against the upper wall of the groove. In rear of the needles the presser foot is flattened but is elevated above the surface of the forward portion a' so that there will be just about sufficient space to admit the fabric between the presser foot and feed dogs. In front of the needles the sides of the groove a^2 are made to bear upon the fabric and the side feed dogs B', B' , force the same against the presser foot in the usual way, and feed the fabric forward.

While I have heretofore described a particular form of presser foot to be used in connection with the ordinary feeding mechanism, so that said foot can be applied to machines having the ordinary feed and thus carry out the object of my invention, it will be understood that in its scope my invention relates to something more than a mere construction of presser foot. For example, as shown in Figs. 1 and 2, the presser foot may be of the ordinary construction, *i. e.*, without the longitudinal groove described. In the use of such a presser foot a feed would be used comprising one or more side dogs B', B' , adapted to clamp the fabric against the under side of the presser foot beneath the edges thereof and in front of the needles.

It will be readily seen from the above description that the only feed dogs acting upon the fabric are the side dogs in front of the needles and consequently all of the dogs in rear of the needles and the central dog in front thereof may be omitted as shown in Figs. 1 and 2, but in order to apply my invention to machines having the ordinary feed

shown, the form of presser foot illustrated in Figs. 3, 4 and 5 is preferably used, and in such construction the side dogs seize the fabric and force it up against the presser foot forward of the needles and on the sides of said longitudinal groove and there being a certain amount of resistance to the passage of the fabric, it will be stretched by the side dogs; but directly in front of the needles and in the line of the seam, the fabric will remain in practically normal condition and the stitches passed down through the same while in that condition and of course this action is the same, no matter whether the ordinary form of presser foot or my particular construction be used in connection with the feed dogs.

The side dogs may be in one piece with an open space between them or they may be separate pieces, and either of these constructions may be used with either the usual or my improved form of presser foot.

The invention may also be used in combination with any form of sewing mechanism whether regular or irregular stitch and with any number of needles. A trimmer may also be employed in combination therewith arranged either in front of or behind the needle or needles in any well known manner.

I claim—

1. In a sewing machine, in combination with complementary stitch forming mechanism, the feeding device comprising a perforated presser foot and an opposing member, one of the latter elements being provided with bearing surfaces extending longitudinally of the other and terminating at a point in advance of the vertical plane in which the needle of the stitch forming mechanism reciprocates, said bearing surfaces being located on each side of said vertical plane, whereby in sewing the fabric is relieved of strain between the bearing surfaces; substantially as described.

2. In a sewing machine, the combination with stitch forming mechanism, the feeding device comprising a perforated presser foot, and an opposing member, the latter being provided with bearing surfaces extending longitudinally of the presser foot and terminating at a point in advance of the vertical plane in which the needle of the stitch forming mechanism reciprocates, said bearing surfaces being located on each side of said vertical plane, whereby in sewing the fabric is relieved of strain between the bearing surfaces; substantially as described.

3. In a sewing machine, the combination with stitch forming mechanism, of the feeding device comprising a perforated presser foot, and an opposing member one of the latter elements being provided with bearing surfaces extending longitudinally of the presser foot and terminating at a point in advance of the vertical plane in which the needle of the stitch forming mechanism reciprocates,

said bearing surfaces being located on each side of said vertical plane, and the presser foot being provided with an elevated portion in rear of said needle plane; substantially as described.

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4. The perforated presser foot provided with longitudinal bearing surfaces located on each side of said perforation and located in advance thereof, and also provided with an

elevated portion in rear of said perforation; substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

RUSSEL G. WOODWARD.

Witnesses:

CHESTER McNEIL,
W. L. SWIFT.