

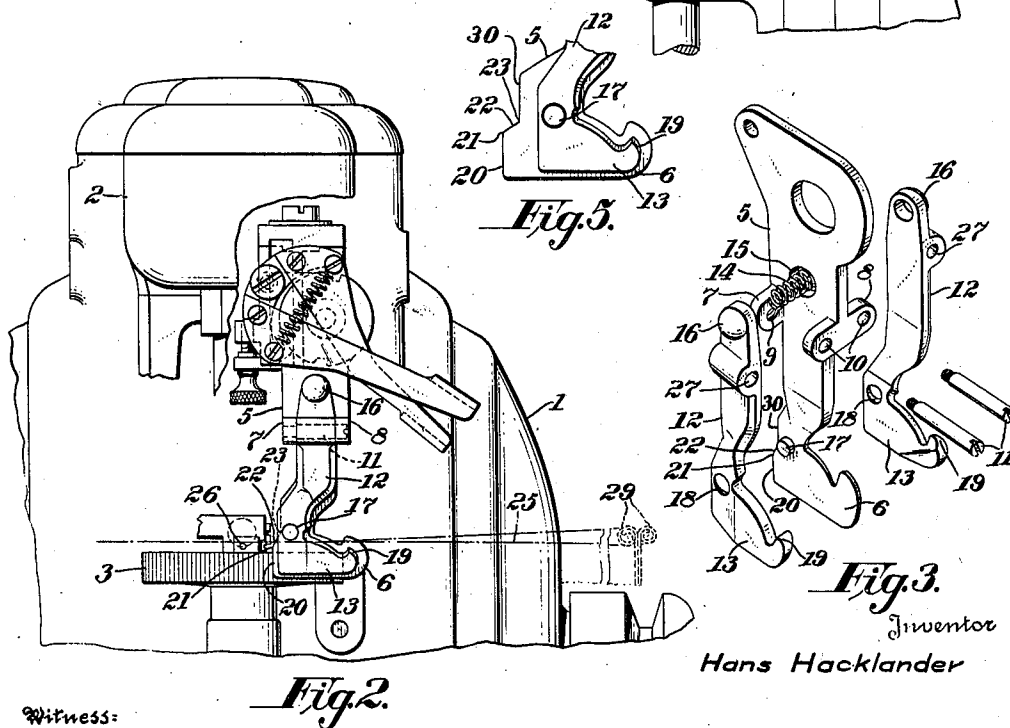
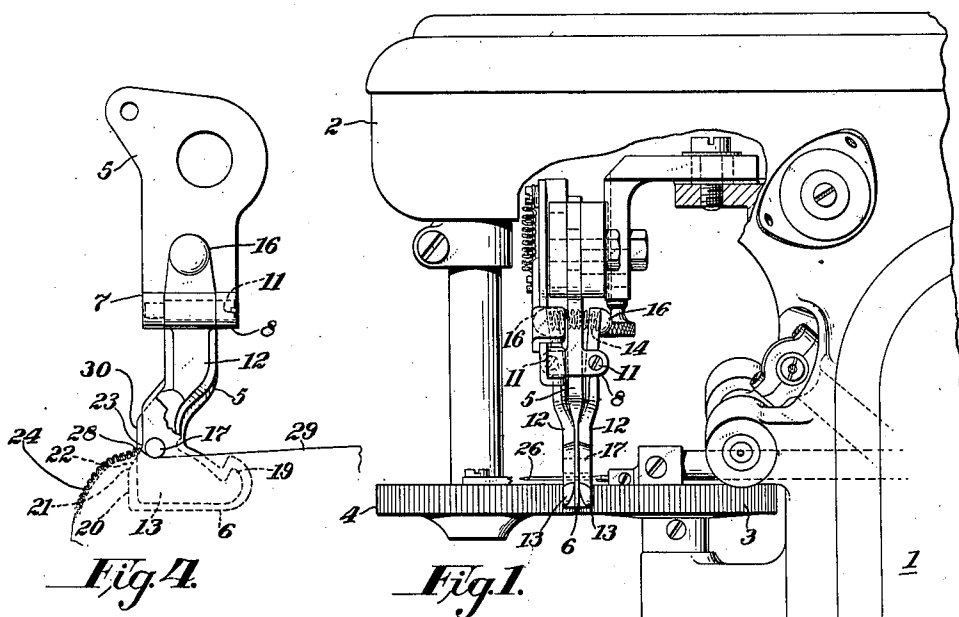
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UNCURLING GUIDE FOR SEWING MACHINES

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UNCURLING GUIDE FOR SEWING MACHINES

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This invention relates to fabric uncurling and guiding devices and more particularly to that type of uncurling and guiding devices used on hosiery seaming sewing machines.

In the manufacture of full fashioned hosiery it is generally the practice to prepare a stocking blank for the seaming operation by folding the same along its longitudinal axis until the opposite or the selvage edges are brought into juxtaposed relation with each other. The overlying edges of both the heel and toe portions are then respectively stitched together. The remaining edges of the stocking blank are then seamed between the previously stitched toe and heel portions and along the back of the leg portion from the heel to the top thereof.

In these last two seaming operations the problem arises of properly inserting the stitched toe and heel portions between the feed-cups and placing the unseamed selvage edges into the uncurling device so that the unseamed edges of the stocking will be initially presented to the feed-cups at the correct height relative to the needle and in an uncurred condition. To thus insert the stocking between the cups, the operator must grasp the previously stitched toe or heel portion in one hand while grasping the unseamed foot or leg portion in the other hand, and as the stitched portion of either the toe or heel represents a relatively short section of material, the operator encounters great difficulty in properly placing said stitched sections between the feed-cups at the correct elevation. Furthermore, the free space about the stitching area of a cup-feed sewing machine is so limited that an operator has very little room in which to maneuver the work about. To initially adjust the height of the work correctly is an important consideration in the seaming of fine mesh stockings as a weak seam results if the fabric edges have not been brought to a sufficient elevation so that the needle may penetrate the material at a substantial distance from the edges of the fabric. However, to initially raise the stocking edges too high relative to the needle level would result in a heavy unsightly seam.

To overcome these difficulties in the past some uncurling devices have been so designed that they could be bodily raised relative to the needle level in order to insure that the fabric edges would be brought to a sufficient height at the beginning of the seaming operation. It has been found that a stocking has a tendency to drop slightly after leaving the uncurling device and it therefore reaches the path of needle reciprocation at a

level lower than that which it had while in the uncurling device. To initially raise the uncurler helped to minimize this difficulty until the work was fed along in a normal manner. As soon as the first few stitches were successfully placed, the device would be lowered into normal operating position.

Such a device was of necessity raised and lowered by means controlled by a foot treadle, and, therefore, it was an expensive attachment that required a large amount of space in the already limited stitching area of a cup-feed machine.

It is therefore an object of the present invention to provide an extremely simple and inexpensive uncurling guide which will permit the edges of a fabric to be initially raised to the proper extent, prior to the seaming operation, without the necessity of bodily elevating the uncurling mechanism.

A further object of this invention is to provide an uncurling guide which will initially raise the edges of a fabric to a predetermined level in order that the first few stitches will be placed at a proper distance from said edges.

With these and other objects in view, as will hereinafter appear, the invention consists in the devices, combinations and arrangements of parts described in connection with the accompanying drawing, which illustrates a preferred embodiment of the invention and in which:

Fig. 1 is a front elevation of the present invention showing the entrance end thereof and illustrating the device as applied to a cup-feed hosiery seaming sewing machine.

Fig. 2 is a side elevation of the present invention as applied to a cup-feed sewing machine with the outer feed-cup removed.

Fig. 3 is a disassembled perspective view of the main elements of the device.

Fig. 4 is a side elevation of the device, detached from the sewing machine but illustrated as being in operative position and containing a stocking therein as positioned prior to a seaming operation.

Fig. 5 is a fragmentary view of a portion of a modification of the improved device.

Referring more specifically to the drawing, the improved uncurling and guiding device is illustrated as applied to a "cup-feed" type sewing machine having a standard 1 and an overhanging bracket 2 from which the uncurling guide depends. A feed-cup 3 is supported by the standard 1 and cooperates in advancing the fabric past the stitching mechanism with a second or outer feed-cup 4 which depends from the overhanging

bracket 2. As best illustrated in Figs. 1 and 2, the uncurling guide is mounted directly in front of the feed-cups 3 and 4 and functions to uncurl and direct the juxtaposed fabric edges of a stocking prior to the stitching operation.

A more detailed description of the cup-feed sewing machine may be had by reference to my Patent No. 2,277,970, March 31, 1942.

One modification of the present invention is illustrated as comprising a central shank portion 5 terminating in a fabric-guiding plate 6. Secured to and disposed transversely of the shank 5 are two cross-bars 7 and 8 which are provided respectively with two threaded apertures 9 and two plain apertures 10 adapted to receive the threaded pins 11. Cooperating with the shank 5 are two presser-members 12 pivotally secured thereto by means of the pins 11 passing through apertures 27 provided in said members. These presser-members 12 terminate in uncurling plates 13 which are urged toward the guide-plate 6 by means of the coil-spring 14. This spring 14 passes through the aperture 15 provided in the shank 5 to bear against the recessed bosses 16 of the presser-members 12. Mounted within and transversely of the guide-plate 6 is a gauge pin 17 which extends from each face thereof to be received within each of the apertures 18 provided in the presser-members 12. Each uncurling plate 13 is formed with the usual uncurling protuberance 19 located upon the entrance end thereof.

The shank portion 5 is pivotally secured to the overhanging head 2 of the machine by means of a latching device which is illustrated but not described in this case. For a more detailed description of this latching device, reference may be had to my Patent No. 2,256,672, September 23, 1941.

The fabric-guiding plate 6 is formed at its discharge end with a substantially vertically disposed trailing edge 20 the upper portion of which terminates at a corner point 21 located below the lower edge of the guide-pin 17. Sloping upwardly and towards the entrance end of the uncurling device from the corner 21 is a shoulder portion 22 extending to a reentrant corner at point 23 which is substantially above the lower edge and below the upper edge of the guide-pin 17. Rising vertically from the point 23 is the abutment edge-portion 30 of the guiding plate 6. As shown in Fig. 4 the guide-plate 6 extends beyond the discharge ends of the uncurling plates 13 so as to properly support the edges of a fabric while they are between the discharge ends of the uncurling plates and the path of needle reciprocation. Such support will help to prevent the unseamed fabric edges from recurring.

Fig. 5 illustrates a modification of the present device in which the trailing edge 20 has been extended backwardly to a greater degree than that of the form illustrated in Fig. 4, for a purpose hereinafter referred to.

In using the present uncurling device, the operator grasps the previously stitched stocking portion 24, which in Fig. 4 represents the heel portions of a stocking, in one hand and the unseamed edges 29 in the other hand and inserts the edges thereof into the uncurler in the usual manner. The operator thereupon deviates from her heretofore usual procedure and pulls back upon the stocking towards the entrance end of the device and thus forces the stitched portion 24 of the stocking up the inclined shoulder 22, Fig. 4, so that the end-portion 28 of the heel seam is

elevated to a point above the lower edge of the gauge pin 17. This condition is shown in Fig. 4. The operator may then commence the seaming operation with the full assurance that the work has been so elevated above its normal feeding level 25 that it will not drop to a dangerously low level before reaching the needle 26. The modified device illustrated in Fig. 5 is disclosed as having its sloping shoulder portion 22 entirely behind the discharge ends of the uncurling faces so that the distance between the path of needle reciprocation and the elevated point 28 of the stitched fabric edges 24 would be shortened to thereby further minimize the falling action of the fabric. As soon as the first few stitches have been placed, the stocking will then be automatically fed along its normal line of feed.

It will be understood, therefore, from the above description, that the present uncurling guide provides a simple inexpensive means by which an operator may quickly and efficiently overcome the difficulties of initially hand-positioning a stocking blank between the feeding-cups of a sewing machine.

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

1. A fabric uncurling and guiding device for sewing machines comprising, a central shank terminating in a fabric-guiding plate, a gauge pin carried by and disposed transversely of said guiding plate for contacting and gauging the height of the edges of a fabric, said guiding plate being provided with an inclined shoulder portion located on the trailing edge thereof and having a portion of said inclined shoulder disposed below said gauge pin for raising an initially seamed portion of said fabric above the normal feeding level as defined by the lower edge of said gauge pin, and presser-members adapted to cooperate with said guiding plate in the uncurling and guiding of the fabric.

2. A fabric uncurling and guiding device for sewing machines, comprising, a central shank terminating in a fabric-guiding plate, a gauge pin carried by and disposed transversely of said guiding plate for engaging and limiting the height of fabric edges, said fabric-guiding plate being provided with an inclined edge-portion located at the trailing edge thereof, said inclined edge-portion being formed so as to slope upwardly toward the entrance end of the device and terminate at its upper end at a point above the level of the lower edge of said gauge pin, the lower end of said inclined edge-portion terminating at a point below the level of the lower edge of said gauge pin, and presser-members adapted to cooperate with said guiding plate in the uncurling and guiding of a fabric.

3. A fabric uncurling and guiding device for sewing machines, comprising, a central shank terminating in a fabric-guiding plate, a gauge pin carried by and disposed transversely of said guiding plate for contacting and gauging the height of the edges of a fabric, said guide-plate being provided with a substantially vertically disposed trailing edge the top portion of which terminates at a point below the level of the lower edge of said gauge pin in an inclined shoulder-portion, said inclined shoulder being formed so as to slope upwardly toward the entrance end of the device and terminate at a point below the level of the upper edge of said gauge pin in a vertically disposed edge portion, and presser-members adapted to cooperate with said guiding plate in the uncurling and guiding of a fabric.

4. A fabric uncurling and guiding device for sewing machines, comprising, a central shank terminating in a fabric-guiding plate, a gauge pin carried by and disposed transversely of said guiding plate for contacting and gauging the height of the edges of a fabric, said guide-plate being provided with two vertically disposed trailing straight edge-portions connected by an inclined straight edge-portion forming with one of

5 said trailing straight edge-portions a seam-positioning reentrant corner the lower portion of said inclined straight edge-portion being disposed at a point below the level of the lower edge of said gauge pin, and presser-members adapted to cooperate with said guiding plate in the uncurling and guiding of a fabric.

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