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STRIP FOLDING AND GUIDING ATTACHMENT FOR SEWING MACHINES.

APPLICATION FILED MAR. 30, 1911.

1,015,967.

Patented Jan. 30, 1912.

3 SHEETS—SHEET 1.

Fig. 1.

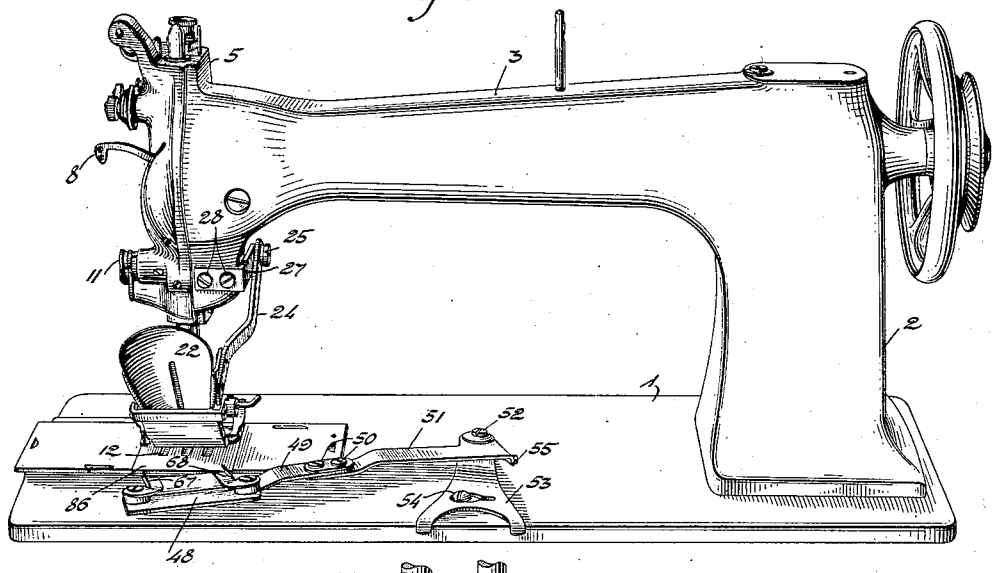
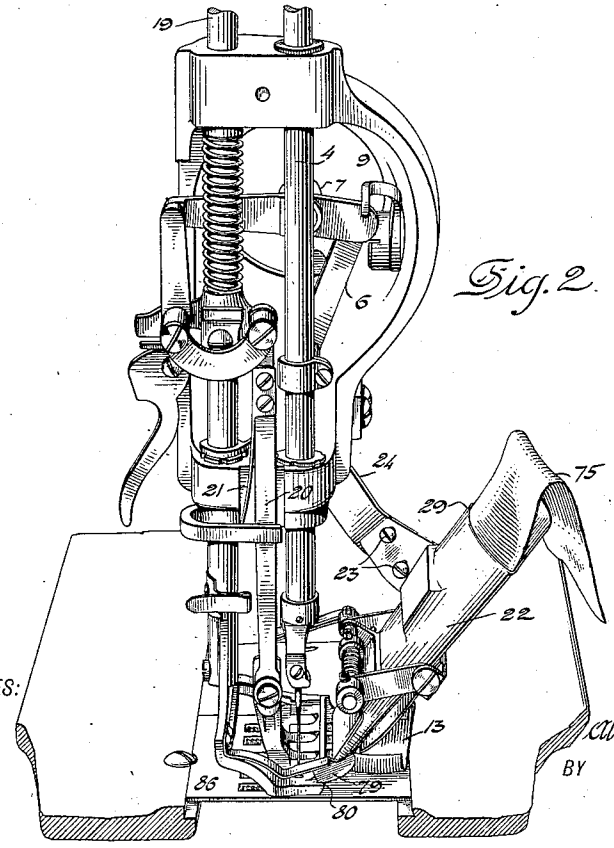


Fig. 2.



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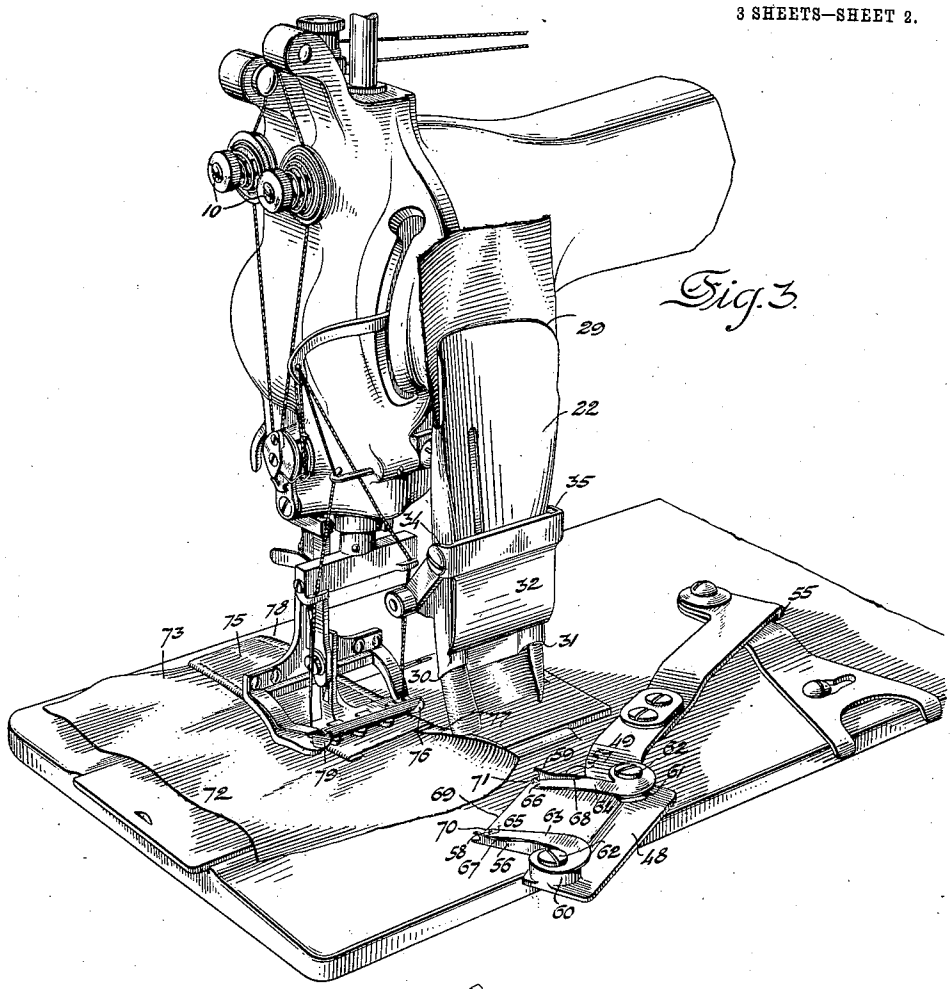

Fig. 3.

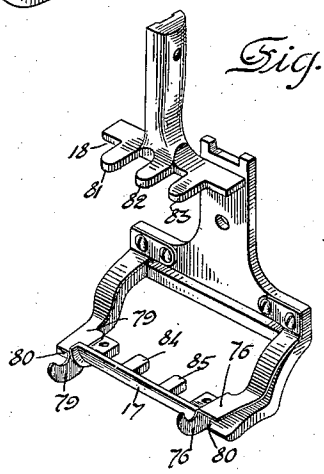

Fig. 6.

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3 SHEETS—SHEET 3.

Fig. 4.

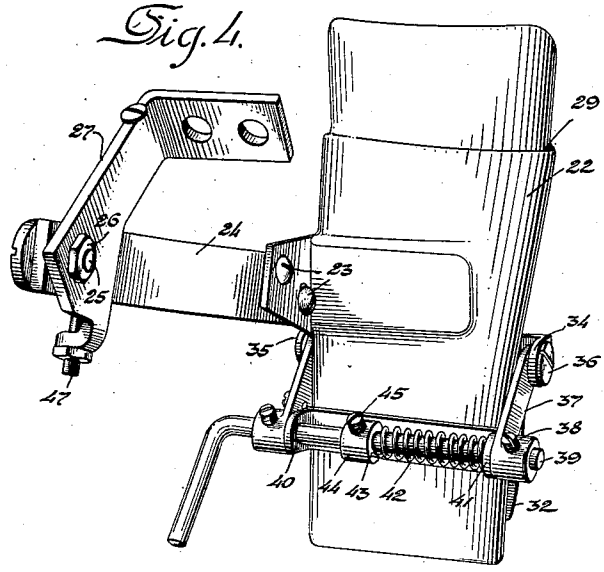
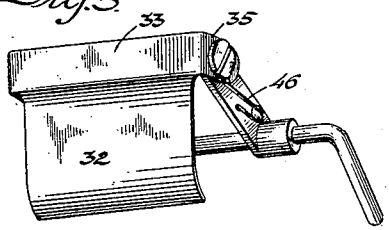


Fig. 5.



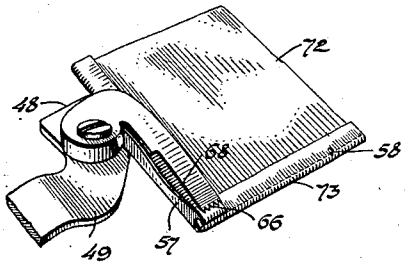
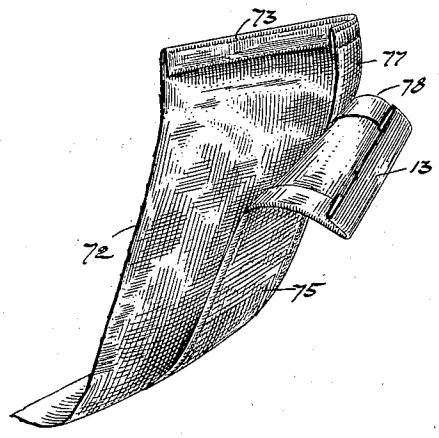


Fig. 7.

Fig. 8.



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UNITED STATES PATENT OFFICE.

ALEXANDER LAUBSCHER, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

STRIP FOLDING AND GUIDING ATTACHMENT FOR SEWING-MACHINES.

1,015,967. Specification of Letters Patent. Patented Jan. 30, 1912.

Application filed March 30, 1911. Serial No. 617,837.

To all whom it may concern:

Be it known that I, ALEXANDER LAUBSCHER, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Strip Folding and Guiding Attachments for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to improvements in strip folding and guiding attachments for sewing machines, and has to do primarily with the application of facings or button and buttonhole strips to men's and women's garments, more particularly those made of knit fabrics.

Heretofore in the manufacture of the cheaper grades of under garments, it has been the common practice to secure the upper or neck end of the facing strip to the garment by one or more lines of stitching placed across and close to the raw edge of the facing strip, which finish, even when executed with great care, is unsightly.

In the manufacture of the finer and more expensive garments, the facing strip is separately folded and stitched, making it self-finished, and is later applied to the garment; but owing to the number of operations necessary, this method is comparatively expensive and impractical in connection with the manufacture of the cheaper productions. The present invention provides means for folding and stitching, or for folding, stitching and applying a facing strip in a single operation, thus materially improving the finish of the cheaper grades and effecting a substantial reduction in the cost of the more expensive grades of garments.

In the accompanying drawings illustrating the invention, in the several figures of which like parts are similarly designated, Figure 1 is a view in front side elevation of a sewing machine equipped with the present invention. Fig. 2 is a front end elevation of the bracket arm shown in Fig. 1, together with a portion of the sewing machine bed-plate, the arm face-plate being omitted to bring to view the means for actuating the cloth-feeding foot and vibrating cloth-presser. Fig. 3 is a perspective of the front end portion of the bracket arm and sewing machine bed-plate, together with the improved mechanism and partially finished product. Fig. 4 is a rear side view of the strip-folding guide and the bracket upon which it is pivoted. Fig. 5 is a perspective of the fold-positioning blade carried by the strip-folding guide. Fig. 6 is a perspective of the cloth-feeding foot and vibrating cloth-presser shown in Figs. 2 and 3. Fig. 7 is a perspective of the body fabric positioning blade, illustrating the body fabric in position to be presented to the action of the stitch-forming and cloth-feeding mechanism. Fig. 8 is a portion of body fabric and attached facing strip, the latter, at the neck end, being turned back from the body fabric to better illustrate the relationship of the folds formed in said fabric and said strip.

As the stitch-forming mechanism of the sewing machine herein illustrated is of ordinary construction and the cloth-feeding foot and vibrating cloth-presser are given movements by means common to such machines, it is thought sufficient to refer only to such parts as are important to an understanding of the invention.

Referring to the drawings, 1 represents the bed-plate of the sewing machine upon which is mounted the bracket arm comprising the arm standard 2 and arm 3, 4 the needle-bar mounted in the head 5 of the arm 3 and carrying at its lower end complemental eye-pointed needles of usual construction, said needle-bar being operatively connected, by the needle-bar link 6, with the main or needle-bar-driving shaft 7.

8 is the needle thread take-up, 9 the needle thread take-up cam carried by the main shaft 7, 10, 10 needle thread tensions, 11 the needle thread-controller, and 12 the feed-dog.

In the present instance a vibrating cloth-presser 17 and a cloth-feeding foot 18 are employed, the former being carried by the commonly-employed spring-pressed presser-bar 19, and the cloth-feeding foot by the oscillating feeding foot carrier 20. The mechanism for giving feed movements to said cloth-feeding foot and vertical movements to said cloth-presser is the same as that illustrated and described in U. S. patent to A. Steward, No. 662,505, dated November 27, 1900, except that the spring 21 of the present construction is substituted

for the spring d^6 of the patent; accordingly, further reference to the elements comprising such mechanism is deemed unnecessary.

22 represents a strip-folding guide secured by screws, as 23, to an arm 24, which latter is pivoted by stud screw 25 and nut 26 to a bracket 27 which in turn is secured by screws, as 28, to the head 5 of the arm 3, said guide being provided with an opening 29 for the passage of the strip or facing, and with folding scrolls 30 and 31 for forming the folds at the longitudinal edges of said strip.

From the foregoing it is to be understood that the strip-folding guide is adjustable into and out of operative relationship with the needle actuation, as illustrated in Figs. 2 and 3, respectively, the facing or strip being led from a suitable supply through the opening 29 and out through the delivery end with its edges folded as shown in Fig. 3; and as said guide is adjusted from its inoperative to its operative position, the lower free end of the facing strip shown in Fig. 3 is caused to be folded as shown in Fig. 2, through its lower end coming in contact with the upper surface of the body fabric or the upper surface of the throat plate, dependent upon the nature of the product.

32 represents a fold-positioning blade, the upper edge of which is secured to a metal strip 33 provided with ears 34 and 35, the ear 34 being pivotally attached, by pivot screw 36, to an arm 37 secured by screw 38 upon a crank shaft 39, which latter is mounted in lugs 40 and 41 secured on said strip-folding guide, in which manner the ear 35 is also operatively connected with said crank-shaft. Upon the shaft 39 is mounted a spiral spring 42 which is held against turning by one of its ends entering a suitable opening (not shown) in the lug 41, the opposite end of said spring entering an opening 43 formed in the collar 44. The spring 42 is torsioned by said collar and is secured by screw 45 to resiliently hold the fold-presenting blade in elevated position, as shown in Figs. 3 and 4, a spring 46 acting on the ear 35 to hold the lower edge of said blade against said strip-folding guide, thus when said fold-positioning blade is rocked downwardly through the manipulation of the crank shaft 39, the lower end of said blade enters the fold 13 (see Figs. 2 and 8) and carries it against the complemental needles, after which the blade is returned by the spring 42 to its normal position, a screw 47 threaded into the bracket 27 acting to register the strip-folding guide in operative relationship with said needle.

Having described the means for folding and presenting the facing strip to the stitch-forming and cloth-feeding mechanism, there will now be described the means employed for positioning, guiding and feeding the body fabric when it is desired to fold, stitch and apply the facing strip in one operation.

48 represents the body fabric positioning blade provided with an extended portion 49 secured by screws, as 50, to the swinging arm 51, the latter being pivotally attached by screw 52 to the bracket 53, which in turn is adjustably secured by screw 54 to the bed-plate 1, the screw 55 threaded into the arm 51 and abutting the edge of the bracket 53 acting to limit the movement of said blade in the direction of the needles. Upon the blade 48 are formed, oppositely arranged flanges 56 and 57, provided with the respective prongs 58 and 59, and upon suitable bosses 60 and 61 are secured by screws, as 62, the respective spring blades 63 and 64, the free ends of the latter being notched, as at 65 and 66, and the outer edge of each of said blades being cut away, as at 67 and 68, and in the edge 69 of said body fabric positioning blade are formed circular notches 70 and 71, all for a purpose now to be explained in connection with the operation of the improved mechanism, and for this purpose there is herein illustrated sufficient of the body portion of a knit under garment to demonstrate the folding, positioning and stitching on of a buttonhole facing strip.

The body portion 72 is first placed in the positioning blade 48, as shown in Fig. 7, with the edge 73 substantially in alinement with the edge 69 of the blade 48, and is held against displacement by the toothed end 66 of the blade 64 and the prong 58, the blade occupying substantially the position illustrated in Fig. 3 when receiving said body portion, when the blade 48 is moved forward sufficiently to bring the edge 73 slightly past the line of needle actuation, the notches 70 and 71 serving to insure that the needles will pierce the fabric in their descent. After the fabric has been positioned as just described, the needles are moved into it and the blade 48 is returned to its normal position. The positioning of the body fabric is followed by adjusting the strip-folding guide 22 to the position shown in Fig. 2, which adjustment effects the fold 13 in the strip 75 (see Figs. 2 and 8), when the fold-positioning blade 32 is operated to carry the fold 13 against the complemental needles, after which the spring 42 returns the blade 32 to its normal position, followed by adjusting the cloth-feeding foot and vibrating cloth-presser into operative relationship with the fabric, when the stitching operation is commenced, the edge guide 76 acting to hold the edges 77 and 78 in vertical alinement; and after the seams have been advanced the required distance, the operator adjusts the strip-folding guide and severs the facing strip, as shown in Fig. 3, after which the stitch formation is continued to the end of the facing.

In the manufacture of men's knit under garments, it is common to place the buttonhole strip as herein shown, while in the manufacture of women's under garments the strip is usually placed in the opposite position or on the opposite side of the opening, and to meet these requirements a spring blade 63 complemental to the blade 64, a prong 59 complemental to the prong 58, and an edge guide 79 complemental to the guide 76 are provided, the edge guide not in use being held above the fabric by positioning its lower edge in one of the notches 80, 80 formed in the vibrating cloth-presser 17, as best shown in Figs. 2 and 6.

In applying a substantially inelastic woven facing to a knit fabric, it is important that the latter be advanced to the needle actuation in its normal condition, to which end the divided sections or fingers 81, 82 and 83 of the cloth-feeding foot are caused to grip the superposed fabrics in advance of the needles (see Fig. 3), so that when the feeding foot is carried back by the action of the feed-dog, said fabrics are held against displacement with respect to each other, the extended portions or fingers 84 and 85 of the vibrating cloth-presser acting, in connection with the needle plate 86, to grip said fabrics during the period that the cloth-feeding foot is being returned to its forward or feeding position.

Claims:—

1. In a fabric guide for sewing machines, an adjustably-mounted strip-folding guide provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, in combination with an adjustably-mounted fold-positioning blade for positioning the end fold of said facing strip in operative relationship with the stitch-forming and cloth-feeding mechanism of the sewing machine.

2. In a fabric guide for sewing machines, a strip-folding guide pivoted upon the bracket arm of the sewing machine, said guide being provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, in combination with an adjustably-mounted fold-presenting blade for positioning the end fold of said facing strip in operative relationship with the stitch-forming and cloth-feeding mechanism of the sewing machine.

3. In a fabric guide for sewing machines, a strip-folding guide pivoted upon the bracket arm of the sewing machine, said guide being provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, in combination with a fold-positioning blade pivoted upon said strip-folding guide to position the end fold of said facing strip in operative relationship with the stitch-forming and cloth-feeding mechanism of a sewing machine.

4. In a fabric guide for sewing machines, an adjustably-mounted fabric-presenting blade for presenting the body fabric to the action of the stitch-forming and cloth-feeding mechanism, an adjustably-mounted strip-folding guide provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, in combination with an adjustably-mounted fold-positioning blade for positioning the end fold of said facing strip in operative relationship with said stitch-forming and cloth-feeding mechanism.

5. In a fabric guide for sewing machines, the combination of an adjustable fabric-presenting blade mounted on the bed-plate of the sewing machine for presenting a body fabric to the action of the stitch-forming and cloth-feeding mechanism, a strip-folding guide pivoted upon the bracket arm of the sewing machine and provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, and a fold-positioning blade pivoted upon said strip-folding guide for positioning the end fold of said facing strip in operative relationship with said stitch-forming and cloth-feeding mechanism.

6. In a fabric guide for sewing machines, an adjustably-mounted fabric-presenting blade for presenting a body fabric to the action of the stitch-forming and cloth-feeding mechanism, said blade being provided with an edge guide for determining the relationship of the seam formation with respect to said body portion, and an adjustably-mounted strip-folding guide provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said strip-folding guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, in combination with an adjustably-mounted fold-presenting blade for positioning the end fold of said facing strip in stitching relationship with said body fabric.

7. In a fabric guide for sewing machines, a cloth-feeding foot, a vibrating presser-foot provided with an edge guide, an adjustably-mounted strip-folding guide pro-

vided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said strip-folding guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, in combination with an adjustably-mounted fold-presenting blade for positioning the end fold of said facing strip in operative relationship with the feeding mechanism of the sewing machine.

8. In a fabric guide for sewing machines, a cloth-feeding foot, a vibrating presser-foot provided with an edge guide, an adjustably-mounted fabric-presenting blade for presenting the body fabric to the action of the stitch-forming and cloth-feeding mechanism, an adjustably-mounted strip-folding guide provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said strip-folding guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, and an adjustably-mounted fold-presenting blade for positioning the end fold of said facing strip in stitching relationship with said body portion.

9. In a fabric guide for sewing machines, the combination of a fabric-presenting blade provided with means for positioning the body fabric with respect to the stitch-forming and cloth-feeding mechanism, an adjustably mounted strip-folding guide provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, and a fold-presenting blade for presenting the end fold of said facing strip to the action of said stitch-forming and cloth-feeding mechanism.

10. In a fabric guide for sewing machines, the combination of a fabric-presenting blade provided with means for positioning the body fabric with respect to the stitch-forming and cloth-feeding mechanisms and with needle-receiving notches to insure that the needles will pierce the body fabric in their descent next subsequent to the positioning of said body fabric, an adjustably mounted strip-folding guide provided with means for folding the oppositely-arranged longitudinal edges of a facing strip, the adjustment of said guide from its inoperative to its operative position serving to lay a fold across the end of said facing strip, and a fold-presenting blade for presenting the end fold of said facing strip to the action of said stitch-forming and cloth-feeding mechanism.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALEXANDER LAUBSCHER.

Witnesses:
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JAMES J. COX.