Nov. 18, 1924. 1,516,256

J. P. WEIS

METHOD OF APPLYING BUTTON AND BUTTONHOLE FACING STRIPS TO KNIT UNDERWEAR

Filed April 29, 1919 2 Sheets-Sheet 1

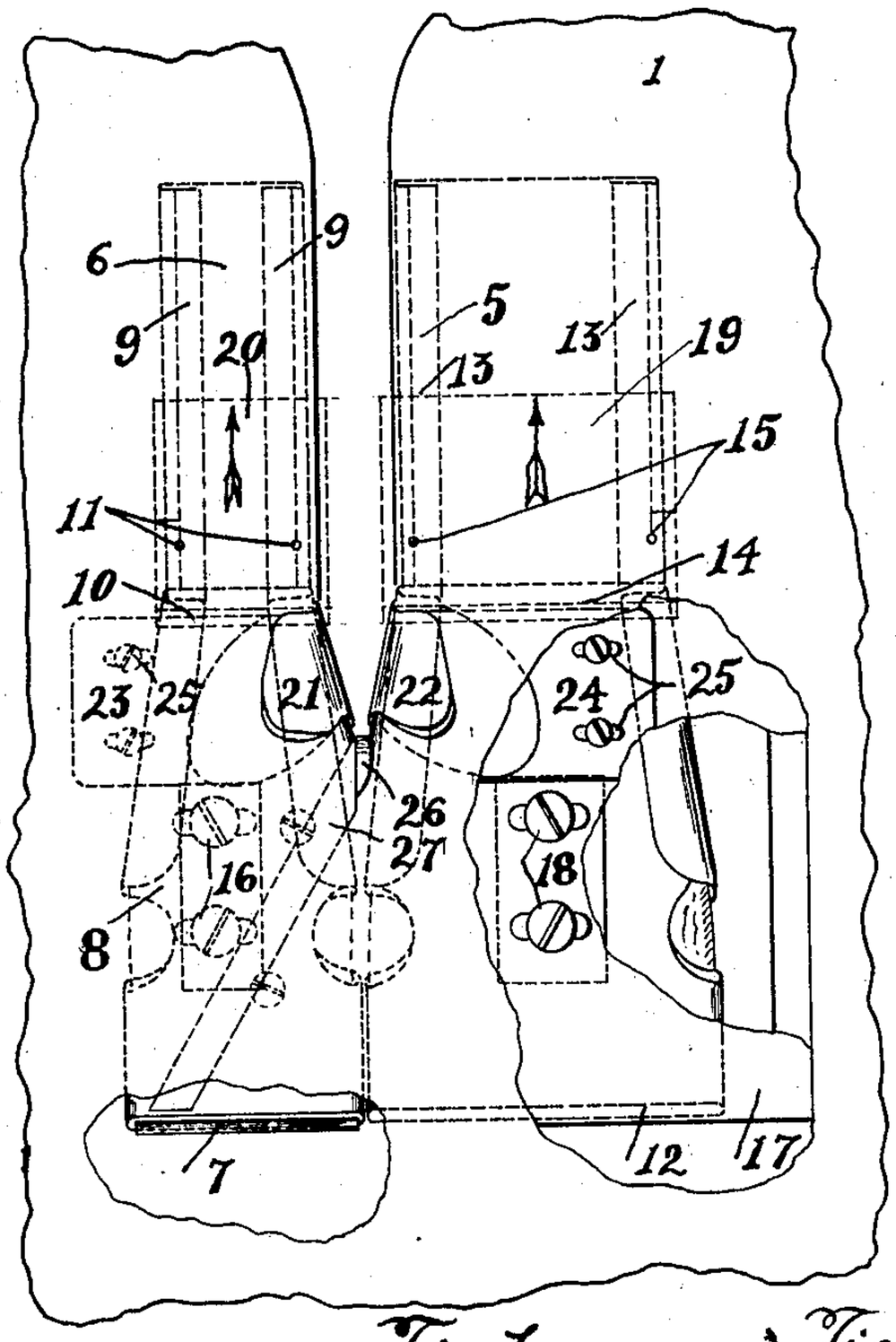


Fig. 1.

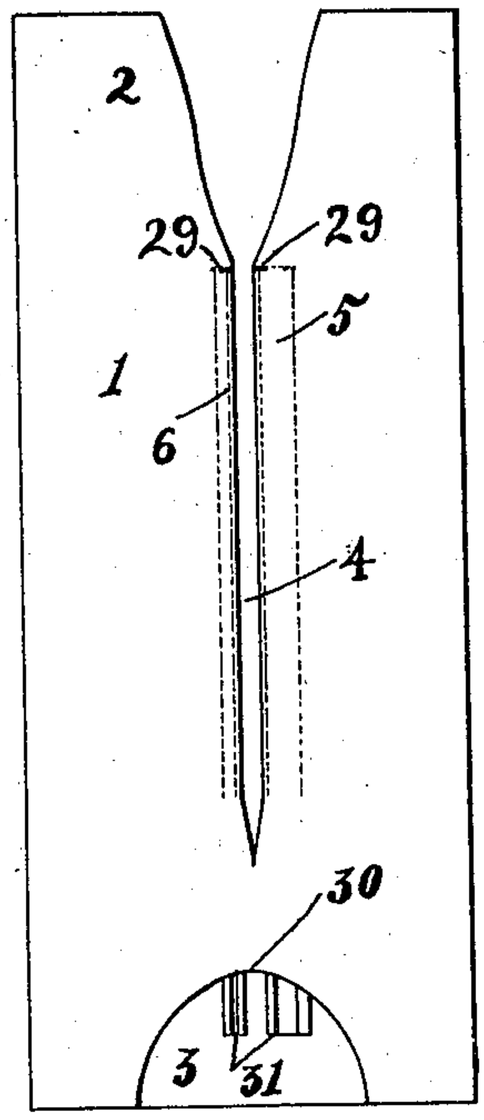


Fig. 2.

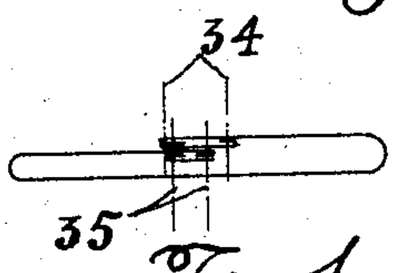
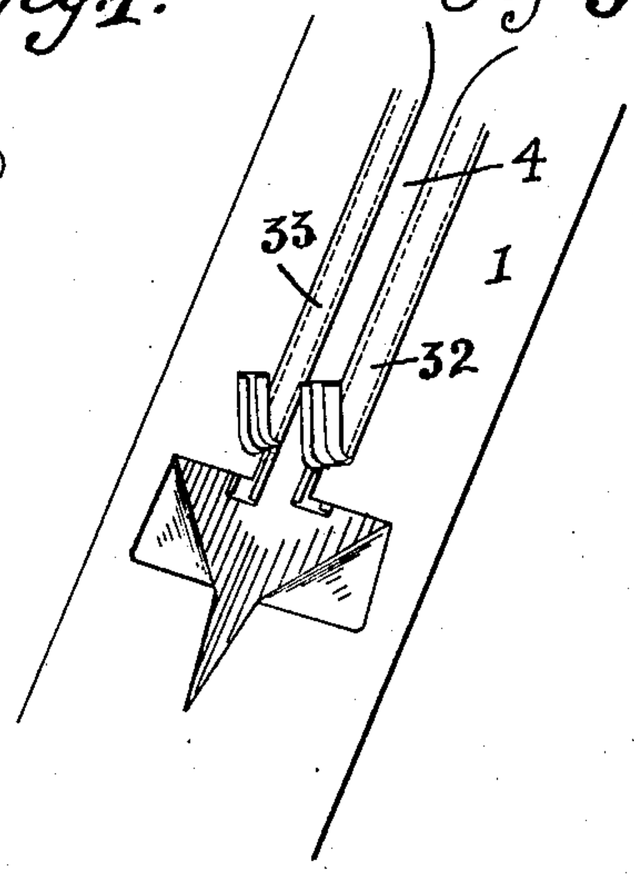


Fig 4

Fig 3



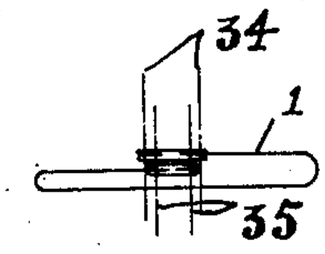


Fig 5

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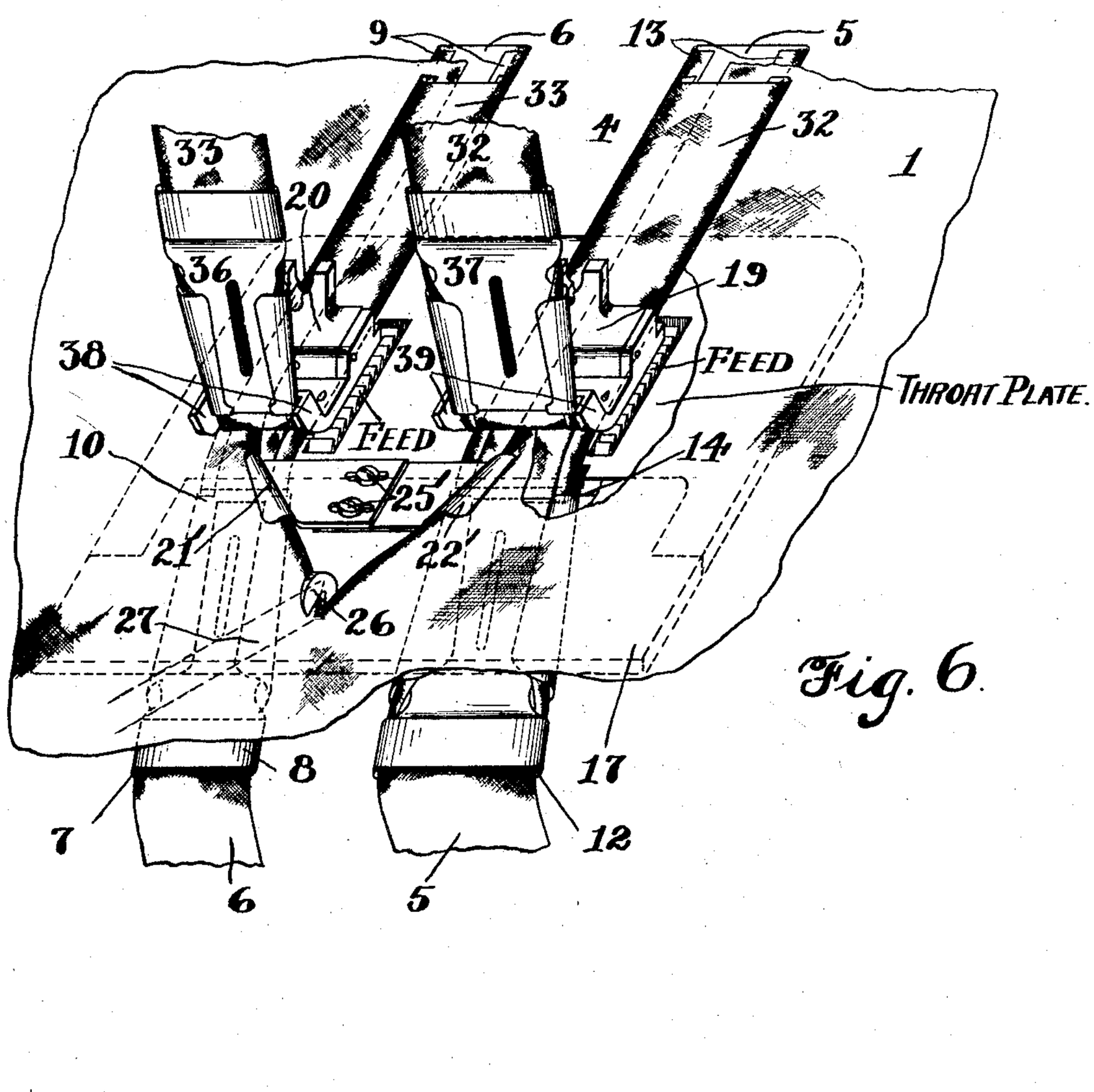

Fig. 6.

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UNITED STATES PATENT OFFICE.

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METHOD OF APPLYING BUTTON AND BUTTONHOLE FACING STRIPS TO KNIT UNDERWEAR.

Application filed April 29, 1919. Serial No, 293,540.

To all whom it may concern:

Be it known that I, JOHN P. WEIS, a citizen of the United States, residing at Nyack, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Methods of Applying Button and Buttonhole Facing Strips to Knit Underwear, of which the following is a specification.

This invention relates to the improved method of applying button and button-hole facing strips to knit underwear especially union suits having an opening extending down the front. The present improvement permits the stitching of the button-hole strip and button facing or strip at one operation simultaneously with the cutting of the front slit in the garment to which the facing strips are applied, this resulting in economy of manufacture since it does away with several operations heretofore necessary, with the added advantage of having the fronts of the garment of equal length. While the invention is especially useful in the manufacture of union suits, it is not limited thereto, as it may be used to advantage for applying the button and button-hole strips to under shirts, and similar garments.

Heretofore under the method practiced in the finishing of union suits, the fronts were slit by hand using shears for the cutting operation; and as the goods were tubular, only one garment could be cut at a time. The button facing was then applied by the usual stitching operation, the sewing machine used for the purpose being equipped with a hemmer for turning the edges of the garment, and a folder for folding the raw edges of the strip, guiding it into position to receive the stitches parallel with the edge of the front opening of the garment. Then the garments were passed along to receive the button-hole facing or strip which is usually wider than the button stay or strip. This was applied by another sewing machine equipped with attachments similar to those described in connection with the button stay machine. But great difficulty was experienced in keeping both edges of the front slit of the same length, due to the fact that the operation of applying the button stay was accomplished by one operator operating the button stay machine, while the button-hole facing was applied by another operator operating the button-hole facing machine. Union suits, made from knit tubular material stretch easily, and it requires considerable experience and care on the part of the operators to have the button stay and button-hole facing come from the two sewing machines so that the two front sections of the garment are of exactly the same length and can be properly buttoned. To assist the operators in maintaining exact lengths to the fronts of the garment at the time of stitching the button hole and button stay facings thereto, various mechanical devices have been used, as a means of measuring and guiding these operations. All of these however necessitated the comparison of each garment, that is the button stay, with the length of the button facing, as the stitching thereof progressed, thus curtailing the production. When it was found that one side of the garment was coming out longer than the other the goods had to be fulled in, or stretched if it were coming out too short, which frequently caused an unsightly finish of the most particular part of the garment.

All of these disadvantages are avoided by my present improvement wherein all of this work is done in one operation on the same machine, the machine being fitted with four needles, two of which are spaced a suitable distance, say 5/8 of an inch apart, to stitch along the two outer edges of the button facing, another needle spaced about one-half inch from the right hand needle used for stitching the button stay, and another needle about an inch and one-quarter from the third needle so as to stitch the two parallel edges of the button hole facing. Suitable feeds and presser feet co-act with the needles and the stitch forming mechanism to feed the work through the machine. Located in front of and close to the presser foot and needles, are two edge hemmers for turning down and under, the edges of the front slit of the garment. Directly in front of the edge hemmers and between the two, is located a cutting knife reciprocating up and down so as to shear against the edge of a horizontal ledger blade, to form a shear cutting action for slitting the front wall of the tubular knit goods forming the garment. The two edge hemmers are adjust-

ably secured to the top surface of a slide plate, which forms a rest for the goods directly in front of the stitching and cutting mechanism. Underneath the slide plate is adjustably secured two strip folders, one for the button stay strip and one for the button hole facing strip, arranged so as to guide and fold the edges of each strip and deliver them to the stitching mechanism so that one edge of each strip will be stitched under and parallel to the hemmed or otherwise finished edges of the front of the garment, thus producing what is termed in the trade, as a self-finish, because of the fact that the button stay and facing strips do not show on the outside of the garment.

I propose to also arrange the presser feet of the sewing machine to have a guiding channel such as that formed by the side walls 38 and 39, Fig. 6, in the front upturned edge so as to receive strips 32, 33, see Figs. 3 and 6, feeding down from the top of the machine, to be guided thereby so that stitches will pass through the parallel edges of each strip, as they are stitched to the outside of the garment. When such strips are used however, I dispense with the use of the hemmers, for turning the edge of the garment under on each side of the front opening, and substitute therefor edge guides 21′ and 22′, see Fig. 6, to divert the cut edges of the front slits from the cutting knife 26 over to and in line with the strips as they are applied thereto, or it may be desirable to narrow the space between the two center needles when the top and bottom strips are being applied to each side of the garment.

From the foregoing it will be clear that I have combined in one machine and one operation, the application of the button and button-hole strips and the slitting of the front in such a manner that not only several operations are eliminated but both edges of the front will always come out the same length, and that it is merely necessary for the operator to follow a mark on the knit goods, representing the location of the front slit.

In the drawings accompanying and forming a part of this specification Fig. 1 shows the arrangement of such sewing machine parts as are necessary to perform the work described. This view shows the knit goods in full lines, the facing strips in dotted lines, certain portions of the goods being broken away, more clearly to show the arrangement of the attachments; Fig. 2 shows a lay-out of a union suit with the button stay and facing strip applied thereto, part way up the front. The front slit extending part way to the neck opening, that part of the button and button hole strips projecting beyond the neck opening being intended to show how such strip edges are folded. This view illustrates what is termed as the self-finish; Fig. 3 is a view similar to Fig. 2 showing a portion of a union suit, having the top and bottom strips applied to the front of the garment, forming the button-hole and button strips. Cross-cuts are made in this view to show the two walls of the knit goods as well as the bottom strips; Fig. 4 is a diagrammatic view showing the tubular knit goods with the button strip and facing applied thereto forming the self-finish, the vertical dotted line representing the needles or stitch lines; Fig. 5 is a view similar to Fig. 4, but showing the four strips applied to the edges of the garment, representing the work shown in Figure 3; and Fig. 6 illustrates a mechanism adapted for use when strips are applied to both the top and bottom walls of the garment at each side of the cut.

Similar characters of reference indicate corresponding parts in the several figures of the drawings.

The front wall of the knit goods, forming a union suit is designated as 1 the leg portion, as 2, the neck opening as 3, and the front slit as 4. The button hole strip is 5, and the button stay strip is 6 each of the strips having each edge folded over upon itself. The button strip 6, passes into the mouth 7, of the folder, 8, the edges of which are turned as at 9, by said folder, the delivery end of which is indicated by 10, extending close to the left-hand pair of needles, 11. The button-hole strip, 5, enters the folder at 12, the edges of which are turned as at 13, the deliverv end of the folder is indicated by 14, delivering the edges of the strips to the right-hand needles 15. The button stay folder is secured by screws 16, to a slide plate, 17. These screws pass through elongated slots, for lateral adjustment with respect to the needle. Screws 18 attach the button facing folder to the bottom of the slide plate, 17, in a similar manner. There is a space between the front edge of the slide plate and the adjacent edge of the throat plate, to permit these two strips to feed up from underneath the plate, to the top of the throat plate, to receive the stitches, and be carried along by the feed, see Fig. 6, and the presser feet represented by 19 and 20, shown, in dotted lines, Fig. 1 and in full lines, Fig. 6. Attached to the top of the slide plate are the edge hemmers, 21 and 22, Fig. 1, each of which is provided with a shank 23 or 24, secured to the slide plate by attaching screws 25, and have a lateral adjustment.

Directly in front and between the edge hemmers is located the top cutting knife, 26, which projects up through the slide plate between the button stay and button-hole facing folders, for cutting the front slit.

This knife co-acts with a ledger blade, 27, carried by the slide plate over which the goods is fed. The operation is as follows:

The sewing machine may be a cylinder, or a post machine, having a bed of small proportions, so that the garment can be drawn under the presser feet, 19 and 20, having the leg portions of the garment indicated by 28 and 29, come directly underneath the needle. The bottom or back portion of the garment hangs down in front of the machine bed, post or cylinder, and when the front of the garment feeds into the machine the operator guides the garment so that the knife, 26, will cut along a line marked on the goods indicating the front slit location; the cut edges are drawn into the hemmers 21 and 22, by the feeding of the goods so that the edges are turned down and under automatically before they reach the needles, so that all that is necessary for the operator to do is to follow the line until the neck opening edge, 30, is reached. As this edge 30 emerges from underneath the presser feet, 19 and 20, completing the stitching operation, the ends of the strips are cut at 31, disconnecting the finished garment from the machine.

As the work is fed out from underneath the presser foot, the garment sags to the right and left, due to one wall of the tubular knit goods being underneath or at the front of the post or cylinder, so that the edges diverge from one another, which greatly facilitates the handling of the goods. When the neck opening is reached, completing the stitching operation, the garment falls from the machine, as the two stay strips are cut off.

When the top strips, 32 and 33, are used, the work is handled in the same manner, except that the necessary folders 36 and 37 and guides 38 and 39, shown in the present instance as mounted on the presser feet are employed to guide the top strips, see Fig. 6, and the edge guides 21′ and 22′ are substituted for the hemmers 21 and 22 of Fig. 1, which guides are suitably secured by screws 25′ to the slide plate 17 as shown in said Fig. 6.

In the diagrammatic views, Figures 4 and 5, the stitch lines of the button hole facing are represented by 34, while the stitch lines of the button stay are represented by 35.

It will be understood of course that the various details may be more or less changed without departing from the spirit or scope of the present improvement, for instance, as the gist of the present improvement is the simultaneous application to both cut opposed edges of a garment, such as union suits, or overalls or similar garment, of stay strips of any desired character or form, one or more stay strips to each such cut edge thereof, it will therefore be obvious that it is not material as to in what manner the raw edges of the garment may be finished since the hemming thereof is but one way of finishing such raw edges for the application of such stay strips, and in fact as shown in Figs. 3, 5 and 6, where strips are sewed both at the top and bottom of the raw edges, it is not essential that the raw edges be finished at all since they are completely covered, nor is it essential that the covering strips shown in Figs. 3, 5 and 6, at each side of the cut be of the same kind or character as one might be an edging and the other a stay strip, and in some instances the raw edges of the garment might be merely finished by suitable stitches for the application of the stay strips thereto, or in any other desired way.

It will also be understood that the present improvement is also useful in simultaneously applying stay strips to both of the opposed previously cut raw edges of a garment, which can be readily done without any change whatsoever in the mechanism of the present improvement.

In short, the present improvement may be used to both cut and simultaneously apply to such cut raw edges stay strips or to apply to previously cut raw edges such stay strips and to apply such stay strips to both top and bottom walls of both cut edges or only to the bottom wall of each cut edge, and finish the opposed raw edges of the garment in any other desired way.

I claim as my invention:

1. The method of simultaneously applying button and button hole facing strips to a garment, which consists in cutting a slit in the garment and during such cutting operation and simultaneously therewith folding the edges of facing strips and sewing to each cut edge a folded edge facing strip.

2. The method of simultaneously applying button and button hole facing strips to a garment, which consists in cutting a slit in the garment and during such cutting operation and simultaneously therewith folding the edges of facing strips and sewing to each cut edge a folded edge facing strip, the stitched lines of a facing strip at one side of the slit being further apart than the stitched lines of a facing strip at the opposite side of the slit.

3. The method of simultaneously applying button and button hole strips to a garment, which consists in cutting a slit in such garment and during such cutting operation and simultaneously therewith folding the opposed raw edges of such cut portion, and sewing to each a facing strip.

4. The method of simultaneously applying button and button hole strips to a garment, which consists in cutting a slit in such garment and during such cutting operation and simultaneously therewith fold-

ing the opposed raw edges of such cut portion, and sewing to each a facing strip having its raw edges folded inwardly.

5. The method of simultaneously applying button and button hole facing strips to tubular knit underwear, which consists in cutting a slit in one wall of such underwear, and during such cutting operation and simultaneously therewith folding the edges of facing strips and sewing to each cut edge a folded edge facing strip.

6. The method of simultaneously applying button and button hole facing strips to tubular knit underwear, which consists in cutting a slit in one wall of such underwear, and during such cutting operation and simultaneously therewith folding the edges of facing strips and sewing to each cut edge a folded edge facing strip, the stitched lines of a facing strip at one side of the slit being further apart than the stitched lines of a facing strip at the other side of the slit.

7. The method of simultaneously applying button and button hole facing strips to tubular knit underwear, which consists in cutting a slit in one wall of such underwear, and during such cutting operation and simultaneously therewith folding the opposed raw edges of such cut portion and sewing to each a facing strip.

8. The method of simultaneously applying button and button hole facing strips to tubular knit underwear, which consists in cutting a slit in one wall of such underwear, and during such cutting operation and simultaneously therewith folding the opposed raw edges of such cut portion and sewing to each a facing strip having its raw edges folded inwardly.

9. The method of simultaneously applying button and button hole facing strips to tubular knit underwear, which consists in cutting a slit in one wall of such underwear, and during such cutting operation and simultaneously therewith folding the opposed raw edges of such cut portion and sewing to each a facing strip having its raw edges folded inwardly, the stitched lines of one facing strip being further apart than the stitched lines of the other facing strip.

10. The method of applying button and button hole facing strips to tubular underwear, which consists in cutting a slit in one wall of such underwear, and during such cutting operation and simultaneously therewith folding the edges of facing strips and sewing to both cut edges said folded edge facing strips, the stitched lines of the facing at one side of the slit being further apart than the stitched lines of the facing at the opposite side of the slit.

11. The method of applying button and button hole facing strips to tubular knit underwear, which consists in cutting a slit in one wall of such underwear, and during such cutting operation and simultaneously therewith folding the edges of facing strips and sewing to both cut edges said folded edge facing strips, the stitched lines of the facing at one side of the slit being further apart than the stitched lines of the facing at the opposite side of the slit.

12. In a sewing machine, the combination of stitching mechanism, means for cutting a slit in tubular knit underwear, and means located at each side of the slit for guiding, folding and stitching a stay strip to the cut portions of such underwear simultaneously with the cutting of such slit.

13. In a sewing machine, the combination of stitching mechanism, means for cutting a slit in tubular knit underwear, means located at each side of the slit for simultaneously guiding and folding a stay strip to the cut portions of such underwear, and hemming means also located at each side of the slit for hemming the raw edges of the slitted portion.

14. In a sewing machine, the combination of stitching mechanism, means for cutting a slit in tubular knit underwear, means located at each side of the slit for simultaneously guiding and folding a stay strip to the cut portions of such underwear, hemming means also located at each side of the slit for hemming the raw edges of the slitted portion, and means for adjusting the strip guiding and folding means toward and from each other.

15. In a sewing machine, the combination of stitching mechanism comprising two pair of needles, the needles of one pair being located further apart than the needles of the other pair, means for cutting a slit in tubular knit underwear, and means located at each side of such cut portion for during the cutting operation guiding, folding and stitching a stay strip to each of the cut portions of the underwear.

16. In a sewing machine, the combination of stitching mechanism comprising two pair of needles, the needles of one pair being located further apart than the needles of the other pair, means for cutting a slit in tubular knit underwear, means located at each side of such cut portion for during the cutting operation guiding and folding a stay strip to each of the cut portions of the underwear, and means also located at each side of the cut portion for simultaneously hemming the raw edges of the cut portions of the underwear.

17. In a sewing machine, the combination of stitching mechanism comprising two pair of needles, means for cutting a slit in a garment, means for guiding a facing strip independent of such garment to each of the cut edges of the garment during the sewing thereof by said needles and means for folding both longitudinal edges of each strip.

18. In a sewing machine, the combination of stitching mechanism comprising two pair of needles, means for cutting a slit in tubular

knit underwear, a slide plate, a pair of edge hemmers secured to the top surface of the slide plate and effective to during the cutting operation fold the raw edges of the cut portions of the underwear, and a pair of strip folders located at the underside of the slide plate and effective to guide and fold a strip to each cut portion of such underwear.

19. The method of simultaneously applying button and button hole facing strips to tubular knit underwear, which consists in cutting a slit in one wall of such underwear and during such cutting operation and simultaneously therewith hemming the raw edges of such cut portions and simultaneously folding the longitudinal raw edges of a pair of facing strips and stitching them to such hemmed portions of the underwear each by two rows of stitching, each inner row stitching one folded edge of a facing strip and the hemmed edge of the garment.

20. The method of simultaneously applying facing strips to a garment having a part thereof provided with opposed cut or raw edges, which consists in finishing the cut opposed raw edges of such garment, and simultaneously applying and sewing independent strips of material to both cut opposed edges of the garment.

21. The method of simultaneously applying facing strips to a tubular knit garment having a part thereof provided with opposed cut or raw edges, which consists in finishing the cut opposed raw edges of such garment, and simultaneously applying and sewing independent strips of material to the bottom walls of both cut opposed edges of the garment.

22. The herein described method, which consists in cutting a slit in a garment and during such cutting operation and simultaneously therewith finishing the opposed raw cut edges of such garment, and sewing a strip to each of such cut edges.

23. The herein described method, which consists in cutting a slit in a garment, and during such cutting operation and simultaneously therewith folding the opposed edges of facing strips and sewing to each raw cut edge one of said strips thereby to finish each raw edge of the garment.

24. The herein described method, which consists in cutting a slit in a garment and during such cutting operation and simultaneously therewith finishing the opposed raw cut edges of the garment, and sewing to each thereof a facing having an edge thereof inwardly folded.

25. In a sewing machine for attaching facing strips to a garment having a part thereof provided with opposed cut or raw edges, the combination of stitching mechanism comprising two pair of needles, and means for guiding independent facing strips independent of the garment to each of the opposed cut edges of the garment during the sewing thereof by said needles.

Signed at Nyack, in the County of Rockland and State of New York, this 26th day of April, 1919.

JOHN P. WEIS.