

Oct. 31, 1933.

G. C. COOPER ET AL

1,932,575

SEWING MACHINE FOR ATTACHING WAIST BANDS TO BODY FABRICS

Filed July 9, 1931

4 Sheets—Sheet 1

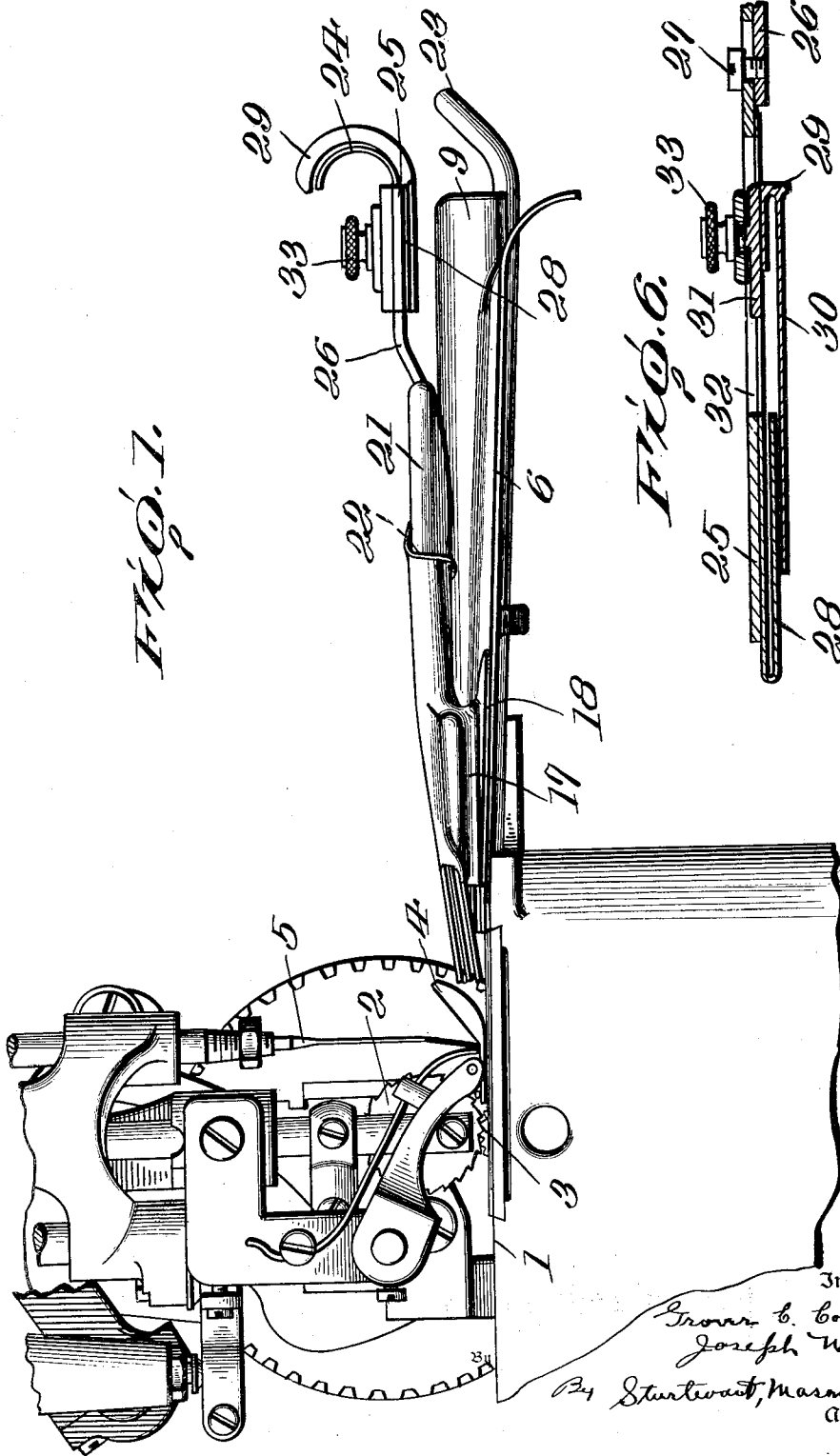


FIG. 1.

FIG. 6.

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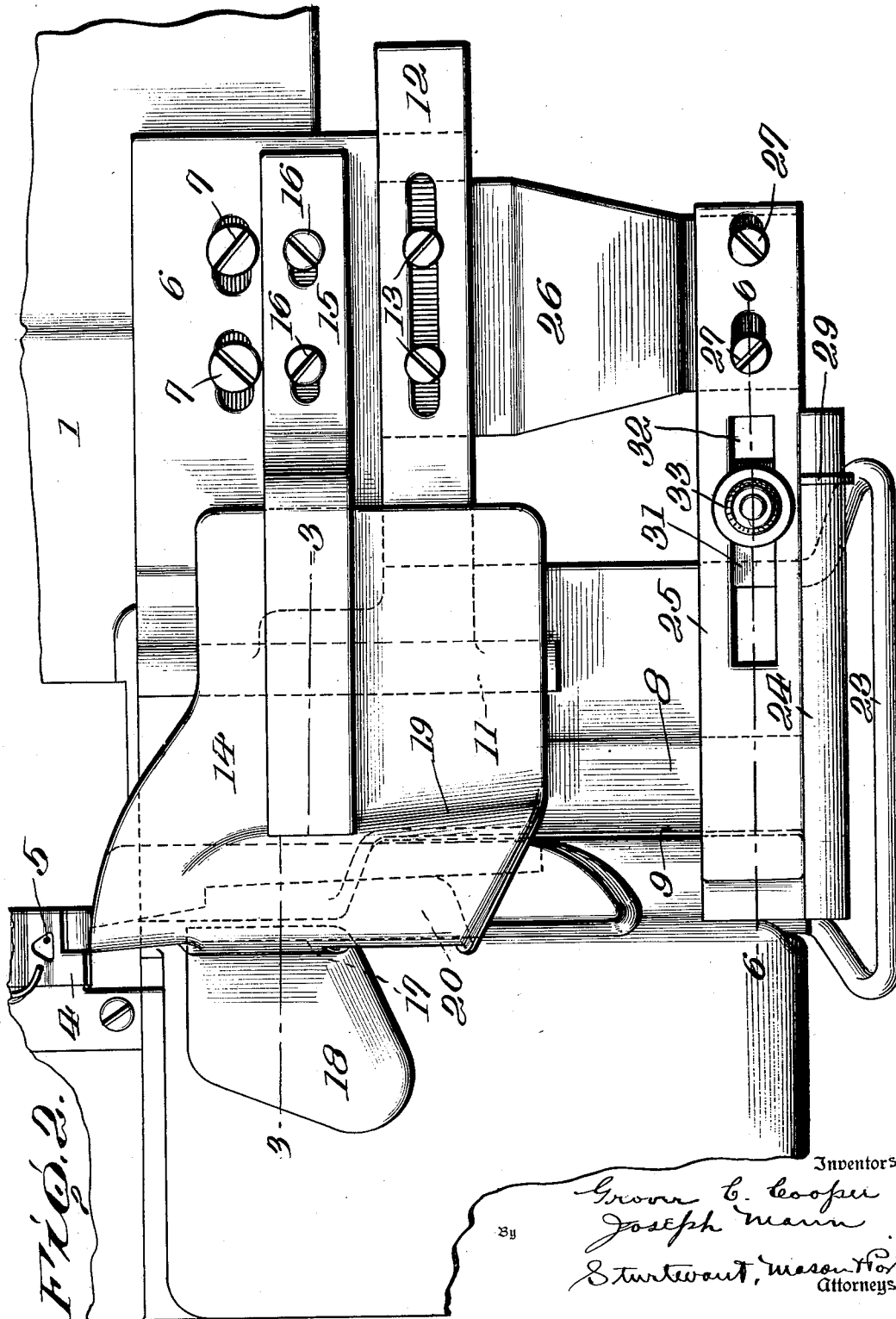
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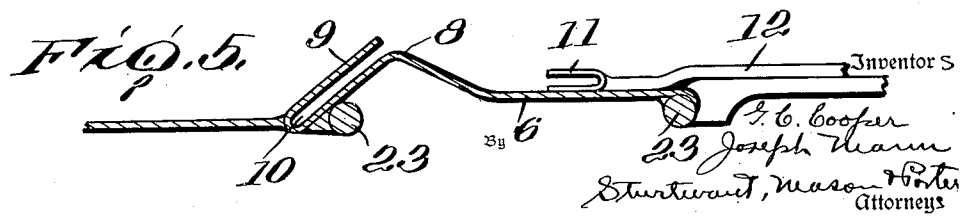
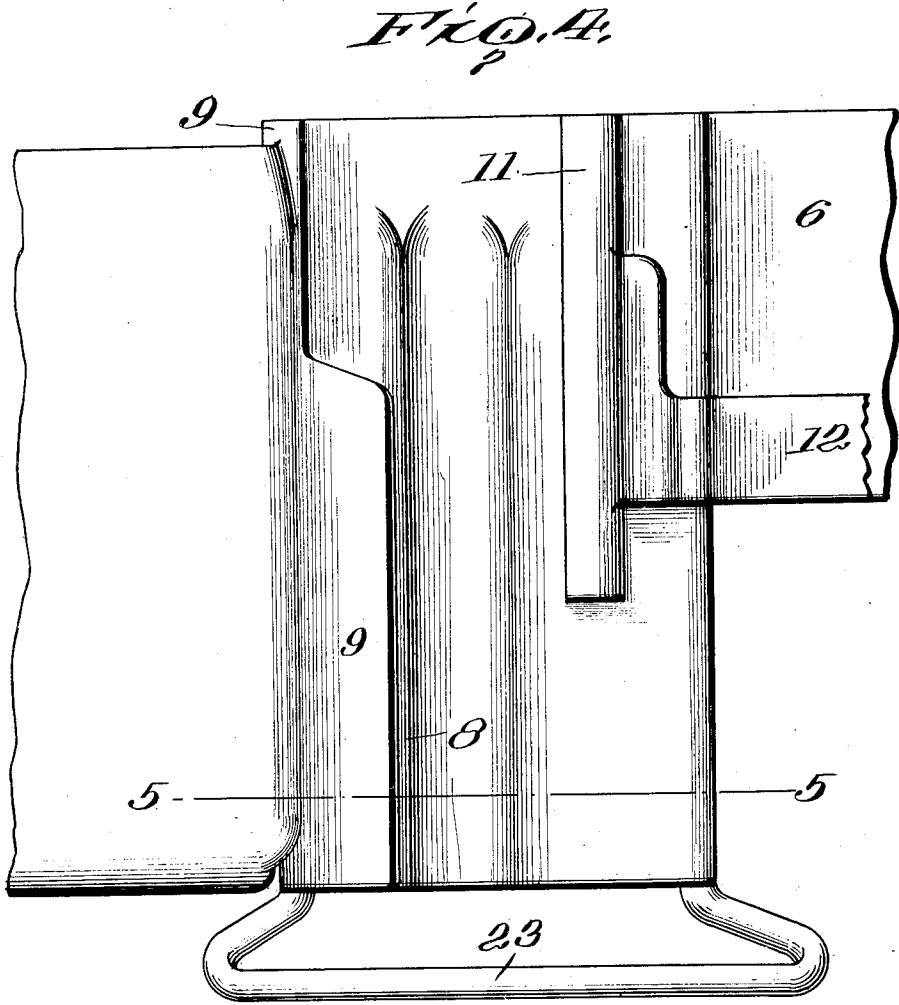
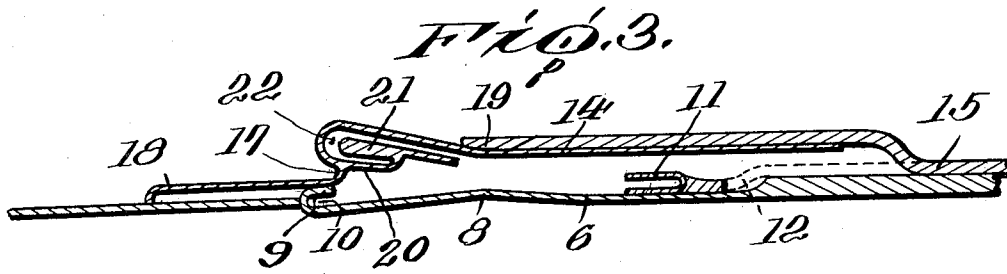
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FIG. 7.

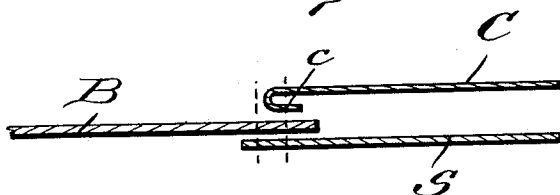


FIG. 8.

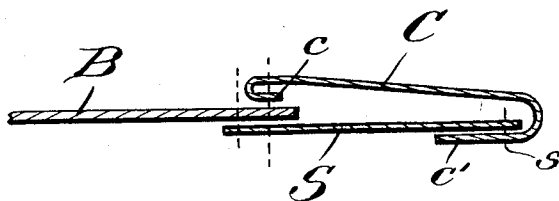
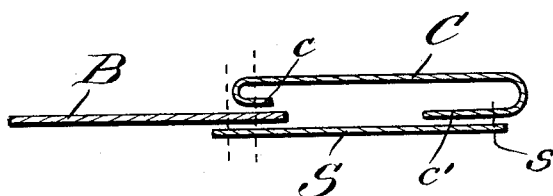


FIG. 9.



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UNITED STATES PATENT OFFICE

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SEWING MACHINE FOR ATTACHING WAIST BANDS TO BODY FABRICS

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Application July 9, 1931. Serial No. 549,783

7 Claims. (Cl. 112—136)

The invention relates to new and useful improvements in a machine for joining a waist band to a body fabric.

5 An object of the invention is to provide a machine having a stitching mechanism including a needle with an attachment having means for guiding the edges of the body fabric, the pants curtain and the stiffening strip which are being stitched, so that said body fabric will be
10 secured between the pants curtain and the stiffening strip, and also having an independent adjustable means for guiding the other edge of the stiffening strip.

15 Another object of the invention is to provide a machine with an attachment of the above type wherein the means for guiding the stiffening strip is shaped so as to separate the edge portions only that are being stitched of the stiffening strip and the pants curtain to permit the infolding of the pants curtain.

20 A further object of the invention is to provide a machine having an attachment of the above type wherein means is provided for directing the pants curtain into the infolding guide therefor.

25 These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings—

30 Figure 1 is an end view of a portion of the machine with the improved attachment applied thereto;

Fig. 2 is a view showing the improved attachment and its position in the machine relative to the needle and the presser foot;

35 Fig. 3 is a sectional view on the line 3—3 of Fig. 2, and showing a pre-formed waist band passing through the attachment;

40 Fig. 4 is a detail in plan showing the attachment with the guide for the pants curtain and the edge of the body fabric removed;

Fig. 5 is a sectional view on the line 5—5 of Fig. 4;

Fig. 6 is a sectional view on the line 6—6 of Fig. 2;

45 Fig. 7 is a diagrammatic view showing a body fabric attached to a waist band which is not pre-formed;

50 Fig. 8 is a diagrammatic view showing a body fabric attached to a waist band which is pre-formed, and wherein the pants curtain is folded about the edge portion of the stiffening strip and stitched thereto, and

55 Fig. 9 is a view similar to Fig. 8, but showing a different manner of attaching the pants curtain to the stiffening strip.

The invention is directed to a sewing machine having an attachment for securing a waist band to a body fabric. The stitching mechanism of the machine may be of any desired character, but is preferably of a type which makes a zigzag stitch. The feed of the machine may also be of any desired type, but is preferably in the form of feed rollers engaging the stitched fabric sections in rear of the needle. The machine is adapted for stitching a waist band to a body fabric which has been pre-formed, that is, the pants curtain and stiffening strip have been joined together. It is also adapted for the stitching of a waist band wherein the pants curtain has not been joined to the stiffening strip before the waist band is passed into the machine. In either case, the machine includes a guide for guiding that edge of the body fabric which is to be stitched, and this guide is disposed relative to the needles so that the needle enters the edge portion of the body fabric at each stitch well back from the edge of the body fabric. The machine includes a guide for that edge portion of the pants curtain which is being stitched. This guide preferably is shaped for infolding the edge portion and directing the same to the stitching mechanism so that in case of a zigzag stitching mechanism, the needle will, on one stroke, pass through the pants curtain, and on the next stroke, pass beyond the edge thereof and through the pants curtain and stiffening strip only. The machine also includes a guide for that edge of the stiffening strip which is being stitched, and this guide is so disposed that the stitches pass through the stiffening strip at a predetermined distance from the edge thereof. These guides are so placed in the machine that the body fabric is secured between the pants curtain and the stiffening strip. The machine also includes a guide for the other edge of the stiffening strip, and this guide is preferably adjustable. In case the waist band is pre-formed, then this guide will also direct the pants curtain as well as the stiffening strip. It is primarily for directing the stiffening strip. When the pants curtain is not pre-formed, then there is another guide which engages and directs that edge of the pants curtain which is not being stitched.

It is thought that the invention will possibly be made more clear by a detail description of the illustrated embodiment thereof. In the drawings, the sewing machine is illustrated only in part, and includes a work support 1 over which the material being stitched passes. The material is fed across the work support by an inter-

mittently rotated feed wheel 2 with which a feed wheel 3 cooperates. It is held on the work support by a presser foot 4. The stitching mechanism includes a needle 5 which may reciprocate in a fixed position forming a straight line of stitching, or which may be vibrated so as to form zigzag stitches. Cooperating with the needle beneath the work support is a suitable complementary stitch forming element. The attachment for guiding the waist band and the body fabric includes a supporting base plate 6 which is attached to the work support by screws 7, 7 passing through suitable slots extending in a direction at right angles to the line of feed, so that the entire base plate can be shifted laterally of the line of feed by loosening these screws. The base plate is provided with a V-shaped raised portion 8, at the left-hand side of which is a spaced guiding member 9 forming a channel or guide 10 therebetween adapted to receive that edge portion of the stiffening strip which is to be stitched. This raised portion gradually decreases in height and finally vanishes, so that the stiffening strip is substantially flat and un-bent when it passes to the stitching mechanism. Attached to the base plate 6 is an edge guide 11 which is substantially U-shape in cross section. This edge guide is carried by a shank portion 12 which is secured to the base plate by screws 13, 13 passing through slots, which permit the edge guide 11 to be shifted toward and from the line of feed. This edge guide is particularly for the purpose of guiding that edge portion of the stiffening strip which is not to be stitched, and holds the stiffening strip in the channel or guide 10, insuring that the edge portion of the stiffening strip which is being stitched will pass to the needle, so that the line of stitching will be a predetermined distance from the edge of the stiffening strip. The guides 10 and 11 which engage the opposite edges of the stiffening strip will direct said stiffening strip and the attached pants curtain in a predetermined path relative to the needle. Mounted on this base plate 6 and located above the V-shaped raised portion 8 and the channel or guide 10 is a plate or guiding member 14. This plate is mounted on a shank portion 15 secured to the base plate 6 by suitable screws 16, 16 passing through slots in the shank, so that the plate or member 14 may be shifted in a direction transversely of the line of feed. Attached to this plate 14 is an edge guide 17 for the body fabric. Associated with the edge guide is a laterally extending apron 18 which rests on the base plate 6, and the body fabric passes over this apron and the edge thereof is directed by the edge guide 17. This edge guide 17 is so disposed that the needle will pass through the body fabric back from the edge thereof, whether a straight line of stitching is being formed or zigzag stitching for joining the waist band to the body fabric. The plate 14 is bent upwardly along the line 19, and is then bent downwardly and underneath the plate at 20. This under-turned part carries a guiding member 21. This forms a channel or guide 22 through which the edge portion of the pants curtain is directed, and the channel is so shaped that it will inturn or fold under the edge of the pants curtain. The infolded edge portion of the pants curtain is directed to the stitching mechanism, so that in case the needle does not vibrate and produces a straight line of stitching, the stitches will pass through the pants curtain adjacent the fold. In case the needle is vibrated for producing zigzag stitches, then the edge of the fold in the pants curtain will pass relative to the needle so that the needle will enter the edge of the pants curtain on one stroke and pass outside of the edge on its next stroke, thus producing stitches wherein the connecting threads are laid across the edge of the pants curtain similar to the forming of a hand whipped stitch. By the above arrangement of guides, one for each edge of the stiffening strip, one for the edge of the pants curtain being stitched and one for the body fabric, a pre-formed waist band may be directed to the stitching mechanism as a pre-formed unit and in a path of travel which will cause the needle to penetrate the fabric sections in the desired relation to the edge of the facing strip and the edge of the stiffening strip and the facing strip and stiffening strip will be properly attached to the body fabric so that the facing strip will lie smoothly on the stiffening strip.

Attached to the base plate 6 is a wire loop 23, over which the pre-formed waist band passes into the guides therefor. If the waist band is not pre-formed, then the stiffening strip only passes over the guiding rod of this wire loop. In case the waist band is not pre-formed, then the pants curtain is led from above over a guiding member 24 which is in the form of a flat plate 25 having the upturned and inturned edges, thus forming a rounded surface over which the pants curtain is guided. This plate forming the guide for the pants curtain strip is attached to a bracket 26 by means of bolts 27, 27 passing through slots, which permit the plate to be adjusted in a direction transversely of the line of feed. The flat plate 25 at the end thereof adjacent the line of feed is provided with a member 28 which forms a channel for directing that edge of the pants curtain which is to be stitched. Mounted on the flat plate 25 is an edge guide 29 for the other edge of the pants curtain, and attached to this edge guide is a supporting plate 30. The edge guide is secured to a shank portion 31 which slides in a slot 32 and is held in adjusted position by a set screw 33.

The above are the essential features of the sewing machine and attachment for directing and stitching a waist band to a body fabric. In Figure 7 there is shown diagrammatically the arrangement of the elements of the waist band and the body fabric where the waist band is not pre-formed. The body fabric is indicated at B, the pants curtain at C, and the stiffening strip at S. The inturned edge of the pants curtain is indicated at c. These three strips are directed through the attachment so that the edge of the body fabric B is guided by the edge 17 of the attachment. The pants curtain C passes over the guide 24 and is directed beneath the plate 14 with the edge portion in the channel 22 which gradually infolds the edge portion of the pants curtain and directs it to the needle. The stiffening strip S is passed over the bar 23 of the wire loop, and is then directed into the channel 10 and also into the guide 11. Thus it is that the three fabric sections are directed to the stitching mechanism so that they are joined, with the body fabric between the pants curtain and the stiffening strip.

In Figure 8 there is shown diagrammatically a pre-formed waist band, in which case, the pants curtain C has a folded portion c' which is folded about the edge of the stiffening strip and is secured thereto by a line of stitching s.

In Figure 9 there is shown a slightly different

form of pre-formed waist band. The infolded portion *c'* of the pants curtain lies on top of the edge portion of the stiffening strip instead of passing around the same, and is joined thereto by a line of stitching *s*. In both of the forms of pants bands shown in Figures 8 and 9, the guide 24 is not necessary, and may be removed from the attachment. The pre-formed pants curtain is passed over the rod 23 and then is directed so that the edge portion of the facing strip which is to be stitched will be infolded by the guide having the channel 22. The joined edge portions of the pants curtain and the stiffening strip, as shown in Figure 8, will be directed by the guide 11, and the edge portion of the stiffening strip, in the form shown in Figure 9, will be directed by this guide 11, while the infolded portion of the pants curtain will pass over the guide 11 which is spaced a sufficient distance from the plate 14 to permit the free passing of the same.

In both of the forms shown in Figures 8 and 9, wherein the pants curtain is stitched to the stiffening strip, the raised portion 8 in the base plate performs an important function. This raised portion bends the stiffening strip as it passes into the machine between the side edge portions thereof. The pants curtain is bent slightly upward a short distance back from the infolded edge thereof as it enters the attachment. In this way, the edge portions only of the stiffening strip and the pants curtain at the left of the line of stitching *s* are separated from each other sufficiently to permit the inturning of the edge of the pants curtain. After this edge portion has been inturned, then the attachment is so shaped as to bring the stiffening strip into the flat position; also the pants curtain into a flat position, placing the body fabric between the pants curtain and the stiffening strip. By adjusting the guide 11, the machine is adapted to receive pants curtains having stiffening strips of different widths.

It is obvious that minor changes in the details of construction and the arrangement of the parts may be made without departing from the spirit of the invention as set forth in the appended claims.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent, is—

1. In a sewing machine, a stitch forming mechanism including a needle, a guide for that edge of the body fabric which is being stitched, a guide for that edge of the stiffening strip which is being stitched, a guide for that edge of the pants curtain which is being stitched, said guide for the pants curtain having a guiding channel for underfolding the edge of the pants curtain, said guides being located close together and disposed so as to secure the body fabric between the curtain and the stiffening strip, an independent guide for the other edge of the stiffening strip, and means for supporting said independent guide whereby it may be adjusted.

2. In a sewing machine, a stitch forming mechanism including a needle, a guide for that edge of the body fabric which is being stitched, a guide for that edge of the stiffening strip which is being stitched, a guide for that edge of the pants curtain which is being stitched, said guide for the pants curtain having a guiding channel for underfolding the edge of the pants curtain, said guides being located close together and disposed so as to secure the body fabric between the curtain and the stiffening strip, an independent guide

for the other edge of the stiffening strip, and means for supporting said guide for the pants curtain and the guide for the body fabric, whereby they may be shifted transversely of the line of feed.

3. In a sewing machine, a stitch forming mechanism including a needle, a guide for that edge of the body fabric which is being stitched, a guide for that edge of the stiffening strip which is being stitched, a guide for that edge of the pants curtain which is being stitched, said guide for the pants curtain having a guiding channel for underfolding the edge of the pants curtain, said guides being located close together and disposed so as to secure the body fabric between the curtain and the stiffening strip, an independent guide for the other edge of the stiffening strip, all of said guides being carried by a base plate adapted to be shifted transversely of the line of feed.

4. In a sewing machine, a stitch forming mechanism including a needle, a guide for that edge of the body fabric which is being stitched, a guide for that edge of the stiffening strip which is being stitched, a guide for that edge of the pants curtain which is being stitched, said guides being disposed so as to secure the body fabric between the curtain and the stiffening strip, an independent guide for the other edge of the stiffening strip, said guide for the edge portion of the stiffening strip being inclined upwardly toward the center of said stiffening strip at the receiving end thereof for separating the edge portion of the stiffening strip being stitched from the edge portion of the pants curtain being stitched, and said guide for the pants curtain having a guiding channel for underfolding the edge of the pants curtain.

5. In a sewing machine, a stitch forming mechanism including a needle, a guide for that edge of the body fabric which is being stitched, a guide for that edge of the stiffening strip which is being stitched, a guide for that edge of the pants curtain which is being stitched, said guide for the pants curtain having a guiding channel for underfolding the edge of the pants curtain, said guides being located close together and disposed so as to secure the body fabric between the curtain and the stiffening strip, an independent guide for the other edge of the stiffening strip, a guiding bar for directing the stiffening strip into said attachment, and a guiding means for directing the pants curtain into the guide therefor.

6. In a sewing machine, a stitch forming mechanism including a needle, a guide for that edge of the body fabric which is being stitched, a guide for that edge of the stiffening strip which is being stitched, a guide for that edge of the pants curtain which is being stitched, said guides being disposed so as to secure the body fabric between the curtain and the stiffening strip, an independent guide for the other edge of the stiffening strip, said guide for the pants curtain and the guide for the stiffening strip being spaced from each other, and said guide for the pants curtain having means for underturning the edge portion of the pants curtain.

7. In a sewing machine, a stitch forming mechanism including a needle, a base plate, a supporting plate located above the base plate and spaced therefrom to provide an unobstructed passage therebetween for a pre-formed waist band, an adjustable guide between the base plate and supporting plate engaging the joined edges of the waist band, a guide at the upper face of the base plate for directing the edge of the stiffening strip

which is to be stitched, a guide carried by the supporting plate for directing the edge portion of the pants curtain which is to be stitched, said guide on the supporting plate for the pants curtain and said guide on the base plate for the stiffening strip being so disposed as to permit the edge portion of the body fabric to be directed between the edge portions of the pants curtain and the stiffening strip, said guide for the stiffening strip and said guide for the waist band being so disposed as to direct said stiffening strip and attached pants curtain in a pre-determined path to the needle. 80

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