Nov. 16, 1943. L. L. ALMOND ET AL 2,334,685

METHOD OF MAKING BUTTON STAYS

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Fig. 1

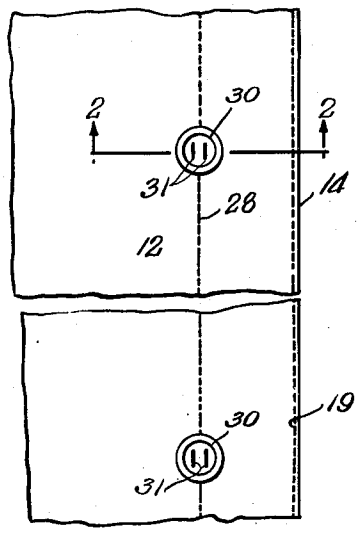


Fig. 2

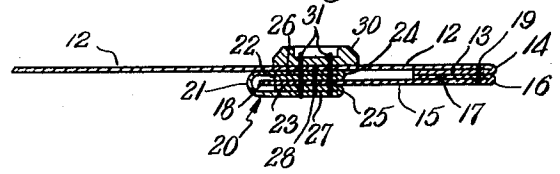


Fig. 3

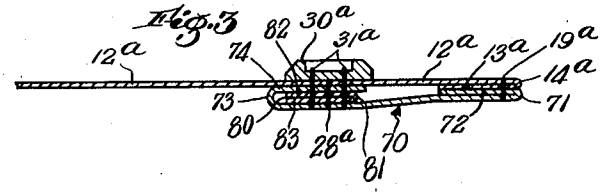


Fig. 4

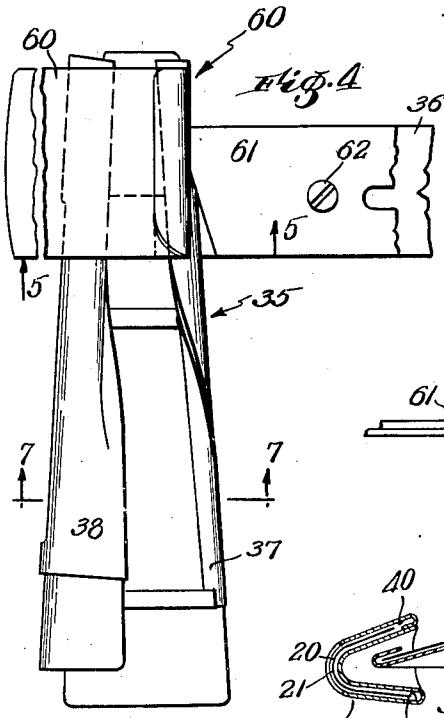


Fig. 5

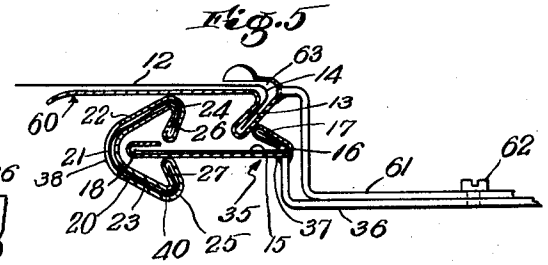


Fig. 6

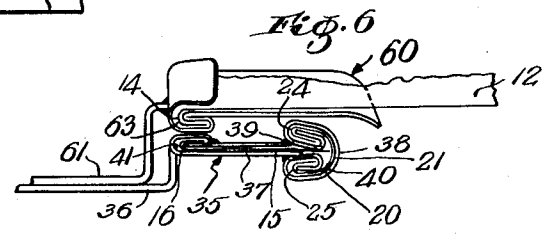
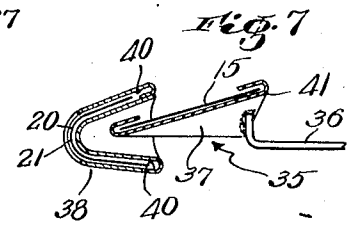


Fig. 7



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Fig. 8

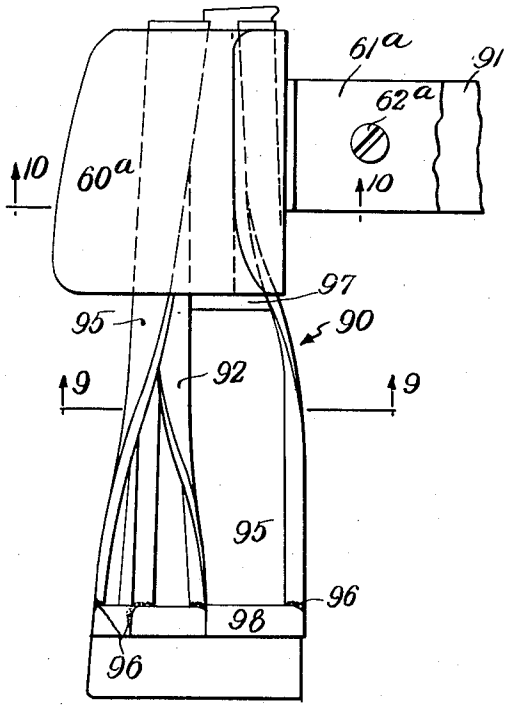


Fig. 9

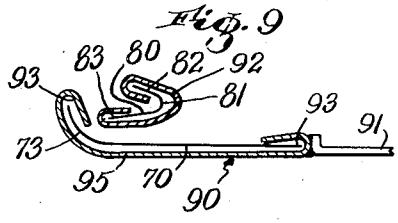


Fig. 10

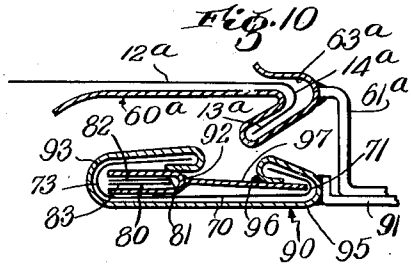
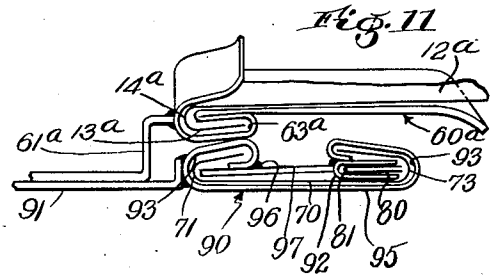


Fig. 11



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UNITED STATES PATENT OFFICE

2,334,685

METHOD OF MAKING BUTTON STAYS

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Application May 20, 1940, Serial No. 336,082

1 Claim. (Cl. 112—262)

This invention relates to apparel, and more particularly to a novel reinforcing means to resist the pulling off of fastener elements such as buttons, snap fasteners, or the like. This invention also relates to a novel and efficient method of making such a fastener reinforcing means. The reinforcing means will be referred herein as a button stay, intending to include a reinforcing means for a button or for any other fastening element for apparel.

It has been found that buttons pull off garments primarily because when the button is pulled unduly in laundering or in use the button threads cut or tear through the fabric in which they are secured. It has been proposed that a strip of reinforcing fabric, called a facing strip, should be located beneath the portion of the garment where the button is located and that said facing strip be folded into a plurality of plies to provide more than two plies of the facing strip to receive the button thread. Such a facing strip has met with no substantial use because of the difficulty and expense involved in folding a single facing strip into a plurality of plies.

The principal object of this invention is to provide a novel and efficient method of folding facing strips into a multiple-ply button stay.

A further object is to provide a novel button stay which is not only strong but is also simple and cheap to make and to apply.

Further objects and advantages will be apparent from a consideration of the following specification and the accompanying drawings.

In the drawings:

Fig. 1 is a fragmentary plan view of one front flap of a man's shirt and the attached buttons;

Fig. 2 is an enlarged section on the lines 2—2 of Fig. 1;

Fig. 3 is an enlarged section like that of Fig. 2, but showing a modified form of button stay;

Fig. 4 is a plan view of a folding device for producing the button stay shown in Fig. 2;

Fig. 5 is an enlarged section on the lines 5—5 of Fig. 4;

Fig. 6 is an enlarged elevation of the delivery or upper end of the folding device shown in Fig. 4;

Fig. 7 is an enlarged section on the line 7—7 of Fig. 4;

Fig. 8 is a plan view of a folding device for producing the button stay shown in Fig. 3;

Fig. 9 is a enlarged section on the lines 9—9 of Fig. 8;

Fig. 10 is an enlarged section on the lines 10—10 of Fig. 8; and

Fig. 11 is an enlarged elevation of the delivery or upper end of the folding device shown in Fig. 8.

The front flap 12 of the shirt (Figs. 1 and 2) is turned inwardly at its free edge along the fold line 14 to form the inwardly folded ply 13. One facing strip 15 is turned inwardly at one edge along the fold line 16 to provide the inwardly folded ply 17 which is located adjacent the ply 13 of the shirt material. The facing strip 15 extends substantially parallel to the shirt fabric so that the other edge 18 is located beyond the point where the button is to be secured. A line of stitching 19 secures the facing strip 15 and the shirt fabric in said position.

A second facing strip 20 is folded longitudinally along the line 21 to provide plies 22 and 23 on opposite sides of the facing strip 15, and the plies 22 and 23 are each folded longitudinally along the lines 24 and 25 to provide the plies 26 and 27 on opposite sides of the strip 15. The line of stitching 28 secures the four plies 22, 23, 26, 27, the end 18 of the strip 15, and the overlying shirt fabric in superimposed position throughout the length of the front flap 12 of the shirt.

The buttons 30 are secured to the garment by button threads 31 which pass through the five plies of the reinforcing strips and the single ply of shirt fabric which are located beneath the button. This provides a very strong button stay having four plies of facing strips to anchor the thread and which can be folded easily and economically by the method hereinafter described.

The button stay shown in Figs. 1 and 2 is made by the use of the folding device shown in Figs. 4 to 7. The folding device consists of a bottom plate 35 and a top plate 60. An outstanding arm 36 is secured to the bottom plate and an outstanding arm 61 is secured to the top plate. The top and bottom plates 60 and 35 are removably secured in superimposed position by the screw 62 (Figs. 4 and 5) which passes through the superimposed arms 61 and 36. The bottom plate 35 consists of two separate plates 37 and 38 which are soldered together as at 39 (Fig. 6).

As shown in Figs. 5 and 6 the shirt fabric 12 is fed into the passage 63 in the top plate 60 and the fold line 14 is progressively formed adjacent one edge as the fabric is drawn through the passage toward the delivery end.

As shown in Fig. 7 the facing strip 20 is fed

into the passage 40 in the plate 38. As the facing strip 20 is drawn through the passage 40 the fold line 21 is first formed (Fig. 7) and the fold lines 24 and 25 are subsequently formed, as shown in Figs. 5 and 6.

As shown in Fig. 7 the facing strip 15 is fed into the passage 41 in the plate 37, and as shown by Figs. 5 and 6 the fold line 16 is formed as the facing strip is drawn toward the delivery end.

In operation the folding device is detachably secured to a double needle sewing machine so that the delivery end is located adjacent the needles. The shirt fabric 12 and the two facing strips 15 and 19 are then manually pulled through the passages 63, 41 and 40, respectively, so that they emerge from the delivery end in the relative positions shown in Fig. 6. The shirt fabric and facing strips are then fed beneath the presser foot of the sewing machine, the sewing machine is started, and it automatically pulls the remainder of the fabric through the folding device and the needles simultaneously sew the lines of stitching 19 and 26. This novel folding method automatically and progressively folds the strip 20 and simultaneously places the edge portion of the strip 15 between the folded plies of the strip 20.

In the modified button stay shown in Fig. 3 the front flap of the shirt 12^a is turned inwardly at the fold line 14^a to form the ply 13^a in the same manner as in the button stay of Fig. 2.

One facing strip 70 is turned inwardly at one edge along the fold line 71 to provide the inwardly folded ply 72 which is adjacent the ply 13^a of the shirt material. A line of stitching 19^a secures the facing strip 70 and the shirt fabric in said position. The opposite edge of the facing strip is folded longitudinally along the line 73 to form the ply 74.

A second facing strip 80 is folded longitudinally along the line 81 to form two plies 82 and 83. The shirt fabric 12^a and the underlying four plies of facing strips are secured together by the line of stitching 28^a which extends parallel to the stitching 19^a.

The button 30^a is secured to the shirt fabric and the underlying four plies of facing strips by the button threads 31^a which extend therethrough.

This button stay is made by means of the folding device shown in Figs. 8 to 11. The folding device consists of a bottom plate 90 and a top plate 60^a. An outstanding arm 91 is secured to the bottom plate and an outstanding arm 61^a is secured to the top plate. The top and bottom plates 60^a and 90 are removably secured together in superimposed position by the screw 62^a (Fig. 8) which passes through the superimposed arms 61^a and 91. The bottom plate 90 consists of two separate plates 92 and 95 which are secured together by the cross-arms 97 and 98 and by the solder spots 96.

As shown in Figs. 10 and 11 the shirt fabric 12^a is fed into the passage 63^a in the top plate 60^a and the fold line 14^a is automatically formed adjacent one edge as the fabric is drawn through said passage toward the delivery end.

As shown in Fig. 9 the facing strip 70 is fed into the passage 93 of the plate 95 and the fold lines 73 and 71 are progressively formed as the facing strip is drawn through said passage toward the delivery end (compare Figs. 9, 10 and 11).

As shown in Figs. 9, 10 and 11 the facing strip 80 is fed into the passage in the plate 92 which forms the fold line 81 and simultaneously positions the folded strip 80 between the plies of the strip 70 as the strips are drawn through the folding device toward the delivery end.

This folding device, like the one formerly described, is detachably secured to a double needle sewing machine whereby the sewing machine progressively draws the shirt fabric and the facing strips through the folder and the facing strips and shirt fabric are progressively and simultaneously folded and positioned whereby they emerge from the delivery end in the proper position for stitching.

While certain desirable embodiments of the invention have been described by way of example, it is to be understood that the invention is not necessarily limited to these precise embodiments but is to be regarded as inclusive of any and all equivalents thereof which fall within the terms of the appended claims.

I claim:

Method of forming a fastener stay on a garment which comprises as steps providing two stay strips, turning in the margin of the garment material adjacent to the desired location of the intended fastener stay to form a fold line and two plies of fabric, turning in one margin of one stay strip to form a fold line and two plies of fabric, so assembling the garment material and the folded stay strip that said fold lines are substantially in registry and the inturned margins are in contact, uniting the assembled four plies by a longitudinally extending sewed seam, doubling the second of said strips substantially along its longitudinal center to form a fold line and superposed plies, turning in the second margin of the first strip to provide a longitudinal fold line and superposed plies, so interposing the folded second strip between the last-named plies of the first strip that the free edges of the second strip are directed toward and housed within the last-named fold of the first strip, uniting the garment material and the first and second strips by a sewed seam whose stitches pass through two plies at least of each of said stay strips, and thereafter attaching a fastener by stitches to pass through the garment material and at least four plies of the assembled stay strip material, the several folding and seaming operations being progressively performed beginning adjacent to one end of each stay strip and proceeding toward its opposite end.

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