June 21, 1955 R. A. MATTHIES 2,711,142

BUTTONHOLE ATTACHMENT FOR SEWING MACHINES

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FIG. 1

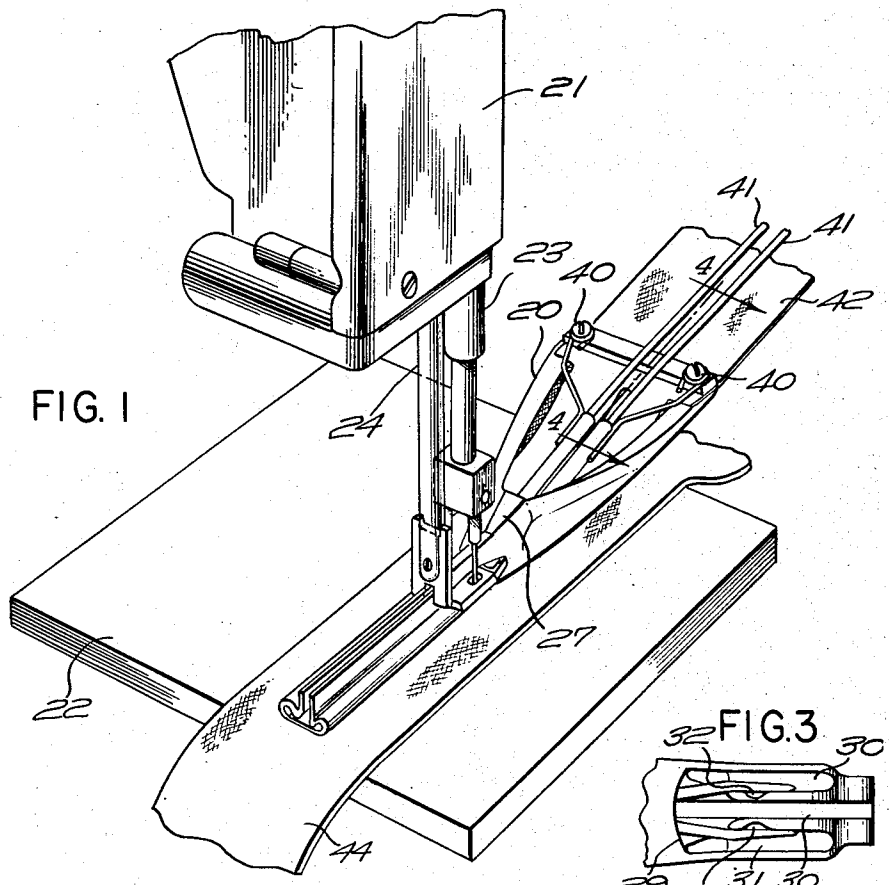


FIG. 3

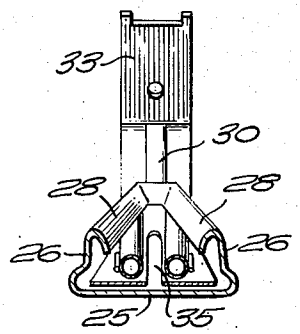
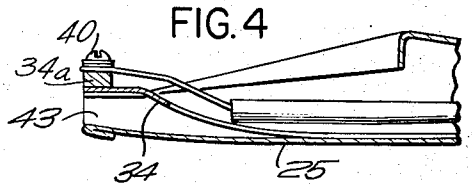


FIG. 2

FIG. 4



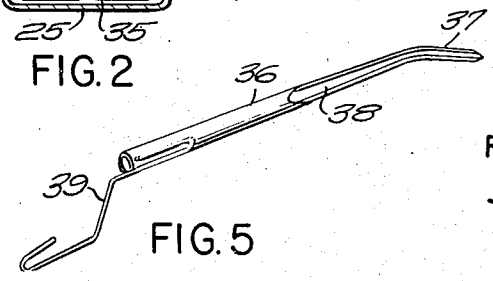


FIG. 5

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BUTTONHOLE ATTACHMENT FOR SEWING MACHINES

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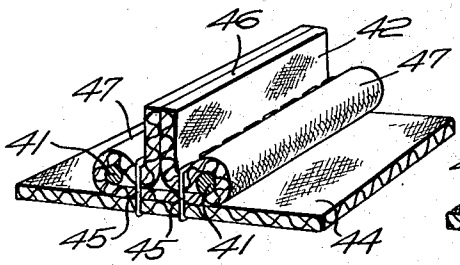


FIG. 6

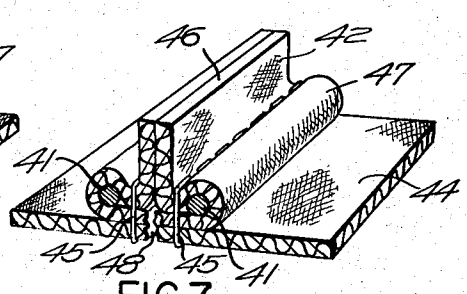


FIG. 7

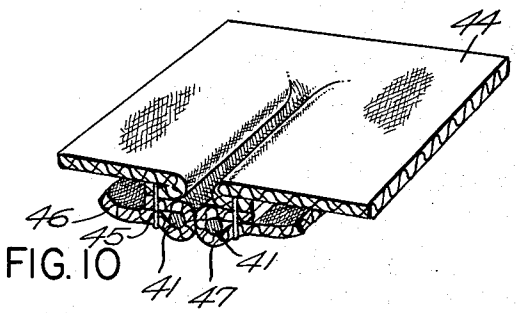


FIG. 10

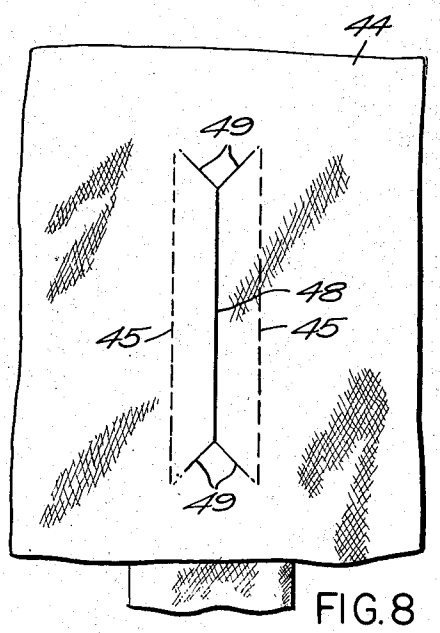


FIG. 8

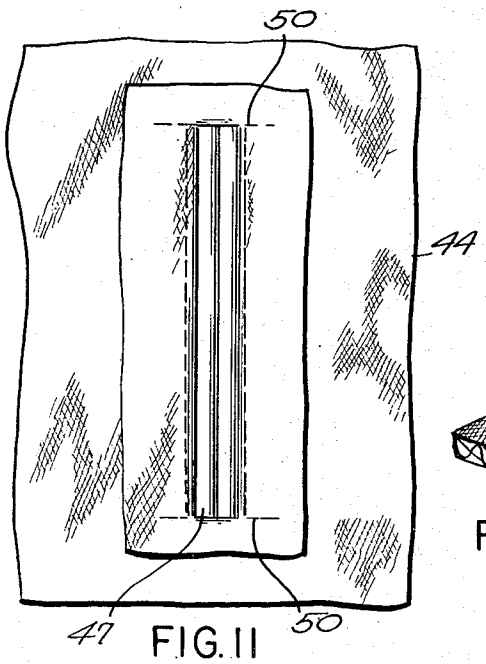


FIG. 11

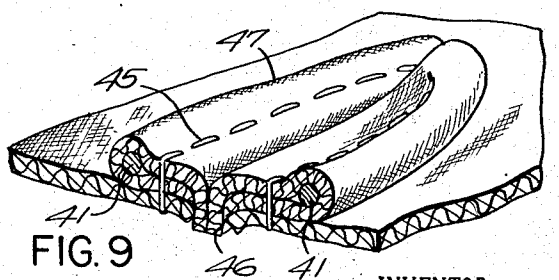


FIG. 9

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BUTTONHOLE ATTACHMENT FOR SEWING MACHINES

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Application May 11, 1953, Serial No. 354,064

6 Claims. (Cl. 112—147)

My present invention relates to sewing machine attachments, and more particularly to a buttonhole attachment.

The principal object of the present invention is to provide a buttonhole attachment for making a "hand made" type buttonhole in a minimum of time.

A further object of the present invention is to provide an attachment which will fold a strip of material into a double channel to form the channel strip at each edge of the buttonhole.

Another object of the present invention is to provide an attachment which will insert a binding cord into each channel of a folded strip of material and stitch the fold close to the cord.

A further object of the present invention is to provide a buttonhole attachment which is simple in construction and easy and economical to manufacture and assemble.

With the above and other objects and advantageous features in view, my invention consists of a novel arrangement of parts, more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more particularly defined in the appended claims.

In the drawings:

Fig. 1 is a perspective view of the present invention attached to a sewing machine.

Fig. 2 is a transverse section thereof.

Fig. 3 is a bottom plan view of the front end of the attachment.

Fig. 4 is a transverse section through the rear end of the attachment.

Fig. 5 is a perspective view of one of the guide tubes.

Fig. 6 is a perspective view of the finished strip formed by the attachment of the present invention.

Fig. 7 is a similar view showing the next step in forming the buttonhole.

Fig. 8 is a plan view showing the work performed in Fig. 7.

Fig. 9 is a perspective view showing the beginning of the next step in forming the buttonhole.

Fig. 10 is a similar view showing the completion of the final step in forming the buttonhole.

Fig. 11 is a bottom plan view of the completed step shown in Fig. 10.

Fancy buttonholes have heretofore been made by hand, so that they could only be applied to more expensive garments because of the high cost. These buttonholes are formed by folding a small strip of material over a binding cord and stitching it to one face of the garment. A second similar strip is stitched in exact spaced parallel relation to the first. A slit is cut in the material and the channel members are then folded through the slit and then tacked into place. The strips could be formed at contrasting colors. However, care must be taken to fold the cords tightly in place, keep the channel members straight while stitching close to the cord, and properly positioning and spacing the second strip.

The present invention is designed to provide a considerable saving in time and to insure accuracy and uniformity. The attachment of the present invention guides and folds a strip of material to form two channels each having a cord extending therethrough and permits sewing of these channels in exact spaced parallel relation to the garment.

Referring more in detail to the drawings, particularly

Figs. 1 to 5 inclusive, the buttonhole attachment **20** is mounted on a sewing machine in which the head **21** and table **22** are shown. The head **21** is provided with a conventional double needle sewing arm **23** and the attachment **20** is mounted on the supporting arm **24** extending in back of the arm **23**. The outer portion of the attachment **20** comprises an integral one-piece sheet of material which tapers forwardly towards the end portion from which the folded material is discharged. It comprises a flat bottom wall **25** and side walls **26** which are turned inwardly and upwardly as shown in Figs. 1 and 2. The side walls **26** taper inwardly at a sharper angle than the bottom wall **25** so that they form a triangular cut out portion and providing a solid portion **27** adjacent the front end. The upper edges of the side walls **26** are re-entrantly bent as at **28**.

The front end of the bottom plate **25** is cut away as at **29** in Fig. 3 to provide an open bottom at the forward end. The body of the attachment at the forward end comprises a heavier and more solid material than the rear end cut into a central groove **30** which forms a vertical slot or passageway extending from the forward tip of the cut out portion to the portion **27** at the front end. At each side of the passageway **30** are a pair of grooves **31** having their inner walls cut away as at **32** to form needle openings extending entirely through the attachment. The extreme front end then turns upwardly to form the attaching section **33** which is attached to the arm **24** extending from the head **21**.

Now referring to Figs. 1 and 4, a guide plate **34** is mounted on the upper part of the rear end of the attachment. A bar **34***a* extends across the rear end of the plate **34** and the assembly is locked to the attachment by the screws **40**. The plate **34** extends forwardly and downwardly to form a resilient tongue which is split along the center as at **35**. This resilient tongue serves to keep the material passing through the attachment smooth and even and pressed towards the bottom **25**. The tongue **34** tapers forwardly parallel to the sides of the attachment and extends just short of the cut out portion **29**.

I now provide a pair of guide tubes **36** shown in Fig. 5. Each tube is slightly tapered towards the forward end and is provided with a bent end portion **37**. The front half of the tube **36** including the bent portion **37** is open at one side as at **38**. The tube itself is supported by a bent wire supporting member **39** which is soldered or otherwise fastened to the tube **36** and the rear ends mounted on the back upper edge of the supported attachment by the assembly screws **40**. Each tube **36** is therefore mounted on a screw **40** and extends in spaced parallel relation through the attachment with the front ends **37** resting in the grooves **31** as shown in Fig. 3. The tubes **36** therefore resiliently float within the grooves **31** serving a double purpose. The binding cords **41** are fed through the tubes **36** as shown in Fig. 1, and the strip of material **42** is wrapped around the tubes **36** to form the double folds.

The device operates as follows:

The cords **41** are inserted in the tubes **36**, and the strip of material **42** is inserted in the front opening **43** beneath the guide plate **34**. As the material **42** passes through the attachment, the tapered sides force the excess of material upwardly around plates **34** and around tubes **36**, the excess material extending upwardly into the slot **30** so that the material is folded over into an inverted T-shape as shown in Fig. 1 with the side edges rounded over tightly around the cords **41**. The double needles on the sewing arm **23** pass through the opening **32** to stitch the material into the form shown in Fig. 1 to the garment or other material **44**. Since the side folds of the material **42** are wrapped around the front end **37** of the tubes **36** with the cords **41** extending therefrom, and these are pressed tightly against openings **32** as shown in Fig. 3, the stitch

will form as close as possible to the corded fold to provide a neat straight corded edge on each side.

The buttonhole is formed by the method disclosed in Figs. 6 to 11 inclusive. Referring to Fig. 6, the strip of material 42 has been stitched to the garment 44 between rows of stitching 45 on each side of the central upstanding edges 46 of the material. This forms a pair of rounded side edges 47 in which the cord 41 is tightly held. In the next step the bottom portion of the strip 42 together with the garment material 44 is slit or cut as at 48. Referring to Figs. 7 and 8 the main cut 48 is made in exact central spaced parallel relationship to the stitching 45 terminating at each end with a pair of V-shaped cuts 49 directed toward the ends of the lines of stitching.

Now referring to Figs. 9, 10 and 11, the edge material 46 is pushed through the cuts 48 and 49 until they extend through and around in parallel relation to the material 44. In Fig. 6 the ends 46 are just beginning to go through the cuts 48 and 49 and in Fig. 10 they are completely through turning the material 42 on to the reversed side of the garment material 44. Stitches 50 are then placed at each end to tack the material in place as shown in Fig. 11. The finished buttonhole then comprises a rounded edge having an additional corded material reinforcing the edge and showing through the buttonhole. The buttonhole is therefore provided with separate corded strips at each edge.

As referred to in the beginning of this specification, these separate corded strips were normally positioned on the material by hand making it slow and difficult to provide a perfect buttonhole. The attachment of the present invention therefore greatly reduces the amount of labor and eliminates any margin of error. The length of the buttonhole can of course be varied and the device can be used for making pocket openings or any other type of decorative openings in a similar manner.

Other advantages of the present invention will be readily apparent to a person skilled in the art.

I claim:

1. A buttonhole attachment for a sewing machine comprising an elongated housing tapering toward the forward end, said housing having a bottom, sides and an open top, said sides tapering toward the front end and extending inwardly and vertically and joining to form a top portion adjacent the front end, said front portion forming an inverted T-shaped housing, guide means extending through said housing, said guide means comprising a pair of hollow tubes, resilient means extending from the rear of each tube and mounted to the rear of said housing for supporting said tubes to permit limited movement of the front ends thereof, and means integral with the front end of said housing for attaching said housing to a sewing machine head.

2. A buttonhole attachment for a sewing machine comprising an elongated housing tapering toward the forward end, said housing having a bottom, sides and an open top, said sides tapering toward the front end and extending inwardly and vertically and joining to form a top portion adjacent the front end, said front portion forming an inverted T-shaped housing, the bottom of said housing having a pair of spaced parallel grooves adjacent the front end, guide means mounted at the rear of said housing and extending through said housing, said guide means comprising a pair of hollow tubes, said tubes resting in said grooves, and means integral with the front end of said housing for attaching said housing to a sewing machine head.

3. A buttonhole attachment for a sewing machine comprising an elongated housing tapering toward the forward end, said housing having a bottom, sides and an open top, said sides tapering toward the front end and extending inwardly and vertically and joining to form a top portion adjacent the front end, said front portion forming an inverted T-shaped housing, the bottom of said housing having a pair of spaced parallel grooves adjacent the front end, said housing having a pair of needle openings extending through said grooves, guide means mounted at the rear of said housing and extending through said housing, said guide means comprising a pair of hollow tubes, said tubes resting in said grooves, and means integral with the front end of said housing for attaching said housing to a sewing machine head.

4. A buttonhole attachment for a sewing machine comprising an elongated housing tapering toward the forward end, said housing having a bottom, sides and an open top, said sides tapering toward the front end and extending inwardly and vertically and joining to form a top portion adjacent the front end, said front portion forming an inverted T-shaped housing, a pair of hollow guide tubes extending through said housing, a resilient wire extending from the rear end of each tube, the ends of said wires being mounted on the rear end of said housing to provide a resilient mounting for said tubes, the front end of each tube being slightly tapered and bent at an angle to the tube, the front portion of each tube including the bent end being open along one side, and means integral with the front end of said housing for attaching said housing to a sewing machine head.

5. A buttonhole attachment for a sewing machine comprising an elongated housing tapering toward the forward end, said housing having a bottom, sides and an open top, said sides tapering toward the front end and extending inwardly and vertically and joining to form a top portion adjacent the front end, said front portion forming an inverted T-shaped housing, the bottom of said housing having a pair of spaced parallel grooves adjacent the front end, a spring tongue mounted at the rear of said housing and contacting the bottom of said housing, a pair of hollow guide tubes extending through said housing over said spring tongue, said tubes resting in said grooves, resilient means extending from the rear of each tube and mounted to the rear of said housing for supporting said tubes to permit limited movement of the front ends thereof, and means integral with the front end of said housing for attaching said housing to a sewing machine head.

6. A buttonhole attachment for a sewing machine comprising an elongated housing tapering toward the forward end, said housing having a bottom, sides and an open top, said sides tapering toward the front end and extending inwardly and vertically and joining to form a top portion adjacent the front end, said front portion forming an inverted T-shaped housing, the bottom of said housing having a pair of spaced parallel grooves adjacent the front end, said housing having a pair of needle openings extending through said grooves, a spring tongue mounted at the rear of said housing and contacting the bottom of said housing, a pair of hollow guide tubes extending through said housing over said spring tongue, a resilient wire extending from the rear end of each tube, the ends of said wires being mounted on the rear end of said housing to provide a resilient mounting for said tubes, the front end of each tube being slightly tapered and bent at an angle to the tube, the front portion of each tube including the bent end being open along one side, and means integral with the front end of said housing for attaching said housing to a sewing machine head.

References Cited in the file of this patent

UNITED STATES PATENTS

1,764,846	Maier	June 17, 1930
2,549,294	De Marco	Apr. 17, 1951
2,620,759	Pantusco et al.	Dec. 5, 1952
2,676,557	Silverberg	Apr. 27, 1954

FOREIGN PATENTS

2,528	Great Britain	Feb. 19, 1894