

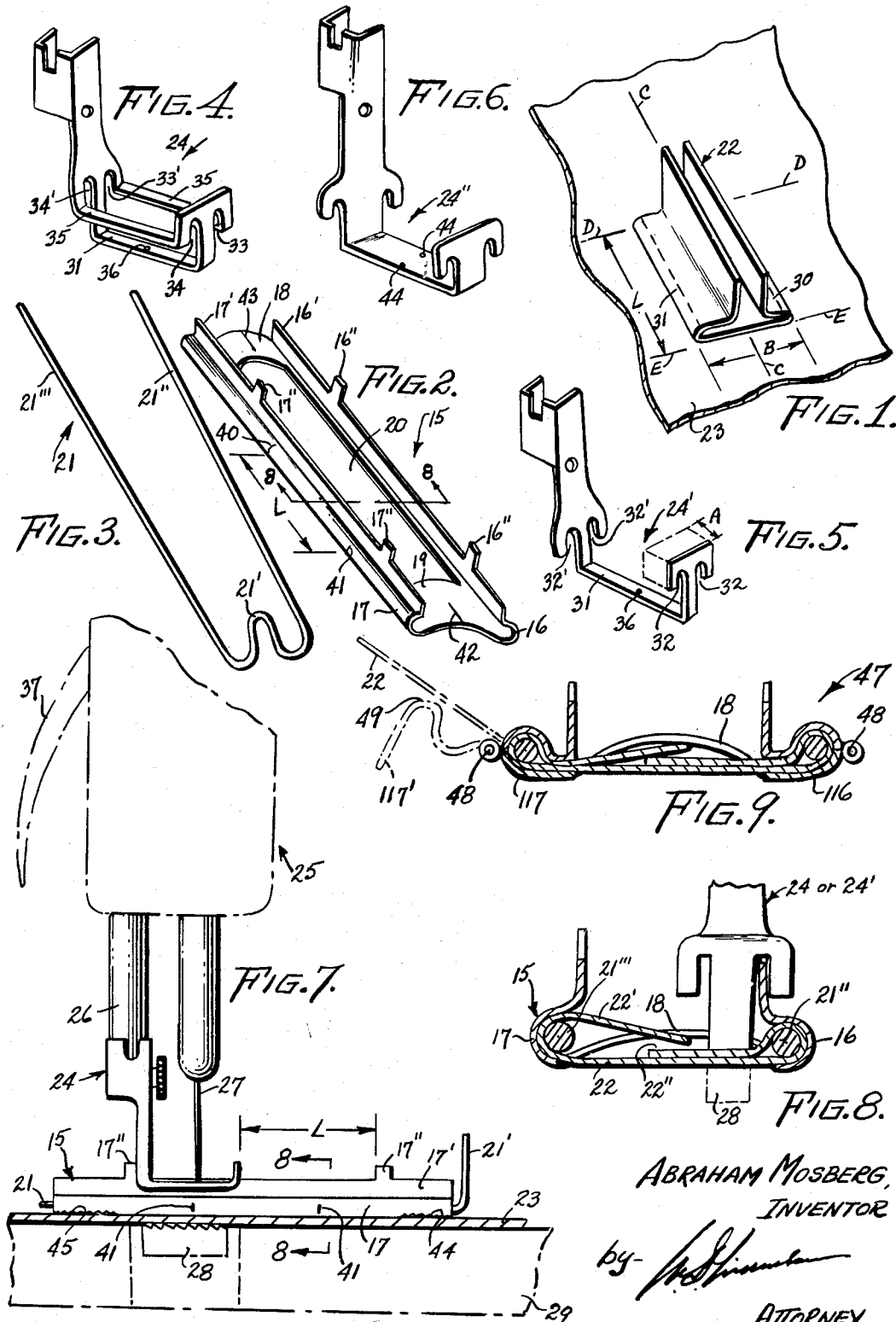
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DEVICE FOR USE IN THE MAKING OF PIPED BUTTON HOLES

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DEVICE FOR USE IN THE MAKING OF PIPED BUTTON HOLES

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The present invention relates to a device for use in the making of piped button holes on an ordinary sewing machine.

The principal object of this invention is to provide a novel and improved device for use with a sewing machine, which will make it a very simple matter to properly fold, position and sew on the fabric which shall constitute the edging to encompass the edges of the button hole slit in the formations in the tailoring and dressmaking art called piped button holes.

Another object hereof is to provide a novel and improved device of the character mentioned, which is simple and cheap in construction, easy to use and efficient in carrying out the functions for which it is designed.

Other objects and advantages will become apparent as this disclosure proceeds.

Essentially this device consists of a means to fold and hold a fabric piece which is to form the button hole edging, and such means cooperates with a sewing machine's presser foot along which it is made to ride so that a properly positioned line of stitching is effected to secure the edging fabric to the main fabric member which is to be provided with the piped button hole; the scope of movement of said holding means being limited to the length of the intended button hole. Correct positioning of said device onto the main fabric member is accomplished by initially aligning predetermined markings thereon with related markings on said main fabric member as will be explained.

In the accompanying drawings forming part of this specification, similar characters of reference indicate corresponding parts in all the views.

Fig. 1 is a perspective view showing the work accomplished with the device taught herein, namely, the fabric piece to constitute the edging of the button hole, is properly sewn on the main fabric member which is to have the piped button hole. The ends of such fabric piece are shown bent upwardly, merely to attain clarity of illustration. In reality, such ends lie flat or overlap each other as in Figs. 8 and 9 herein.

Fig. 2 is a perspective view of a part of the means used to fold and hold the fabric piece which is to constitute the edging for a button hole.

Fig. 3 is a perspective view of a wire member which cooperates with the member shown in Fig. 1, to fold and hold the edging fabric.

Fig. 4 is a perspective view of the presser foot which acts as a track on which the laden folding and holding means rides during the sewing operations.

Fig. 5 is a perspective view showing a presser foot of slightly modified construction.

Fig. 6 is a perspective view showing a presser foot for use on a double-needle machine, which serves as the track for the folding and holding means; the presser feet shown in previous views, being for a single needle sewing machine.

Fig. 7 shows the end view of a sewing machine with the device taught herein in use relation.

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Fig. 8 is a section taken at lines 8—8 in Fig. 2 when the members shown in Figs. 2 and 3 are assembled and hold a fabric piece properly folded, ready to be sewn.

Fig. 9 is a view similar to Fig. 8, showing a laden folding and holding means of modified construction.

In the drawings, in the embodiments shown in Figs. 2 and 8, the frame-piece designated generally by the numeral 15 which is a unitary structure suitable to be of stiff sheet metal and the like, comprises a pair of spaced, elongated, parallel, opposite channels 16, 17, opening towards each other. One side wall of each such channel therefore extends above its associated side wall in this structure 15. The lower walls of said channels 16, 17 are joined at their ends by the spacers 18, 19, thereby providing the opening 20. The free longitudinal edges of the upper walls are bent upwardly as at 16', 17' and are provided with upwardly extending spaced stop elements 16'' and 17'' respectively. The numeral 21 denotes a stiff resilient U-shaped wire formed with a loop or bend 21' in its bight, to serve as a handle for such wire piece. The arms 21'' and 21''' of said wire member diverge from its bight when free, but when pinched towards each other, said wire piece may be inserted in stressed condition so that each of its arms lies within and along one of said channels 16, 17 respectively. Said arms are preferably longer than said channels and when said arms are parallel, the U-shaped wire piece 21 fits snug in channels 16, 17 as in Fig. 8 to clamp the fabric piece 22 which is to become the edging for the slit of a piped buttonhole in the work 23.

With the framepiece 15, the presser foot 24 or that shown at 24' is used on the single-needle machine 25. The numeral 26 denotes the presser foot bar of said machine, on the bottom of which bar the presser foot 24 is mounted. The numeral 27 indicates the needle of said machine, the work-feed toothed member is shown at 28 while the numeral 29 denotes the table of the sewing machine for the work to rest on.

The presser foot of any construction shown herein, serves its normal function of holding the work for action by the said feeding means 28 which advances the work towards the line of the needle upon upstroke of said needle, and also to guide the frame piece 15 with respect to the needle 27 so that the seam lines 30, 31 may be properly performed. The element 31 which is the actual foot, sets on that portion of the fabric piece 22 which is over the opening 20. Each presser foot illustrated presents for the frame piece 15, a track means as for instance the channels 32 or related notches 33, 33' and 34, 34' determining channels in which the elongated elements 16', 17' slidably fit for movement along the work 23 parallel to the stitching. When width "A" is sufficient to hold the frame piece 15 so that only longitudinal movement but no lateral movement of said frame piece is permitted, then notches 32' may be omitted. In 24' and 24'', the connection elements 35 are omitted, for they may be dispensed with. The needle hole 36 is midway between the plane through the guide slots or notches 33, 33' and the plane through the notches 34, 34', and the distance between such planes respectively to such needle hole must be proper for accomplishment of distance "B" between the lines of stitching 30, 31 when the device herein is used as will be explained, and of course, the distance between the track elements 16', 17' must be of suitable dimension.

Consider the sewing machine 25 fitted with the presser foot 24 and the latter in raised position accomplished by manipulation of the handle 37 for such purpose. Lines are then chalked on the work 23 as follows. Line C—C is the line of the slit of the intended button hole. Lines D—D and E—E are across the ends of the proposed slit of length "L." The distance between stops

16" and between the directly opposite stops 17", are such that the permitted scope of travel of the frame piece 15 is distance "L" as shown in Fig. 7. Although such stops are shown fixed, it is evident that an opposite pair of them may be separate pieces with suitable clamping means so as to adjust the distance "L" as may be desired.

A rectangular piece of fabric material of sufficient area for making the format thereof shown as 22 in Fig. 1, but of a length longer than distance "L," is placed substantially symmetrically over the frame piece 15. The wire piece 21 is then laid atop the said fabric piece and its arms 21" and 21'" are successively inserted in the channels 16 and 17 respectively. The longitudinal margins of said fabric piece will automatically be folded by the mounting of said wire piece 21 and will assume overlapped relation shown at 22' and 22" in Fig. 8 (and Fig. 9). It is to be noted that each channel 16, 17 has the exterior line markings 40 and 41 spaced a distance "L" properly positioned thereon to indicate the permitted lines of stitching afforded the needle 27. There are also the line markings 42 and 43 on the spacer elements 18, 19 respectively, midway the track elements 16', 17', for properly positioning the frame piece 15 along the slit line C—C when laden.

The laden frame piece 15 is set on the work 23 so that marks 42 and 43 line on line C—C and the markings 40 and 41 line on lines D—D and E—E respectively. The surface of the channels 16, 17 resting on the work 23, may be roughened in any suitable manner at 44, 45 to aid adherence of the frame piece to the work so that both shall move together. This non-slippage is necessary until the stitching commences and has progressed a bit along the line effected. The frame piece 15 so positioned on the work 23, is moved along therewith and set as shown in Fig. 7 where the track member 17' rides in notches 34 and 34' of the lowered presser foot 24 with element 31 on the fabric piece 22, and the presser foot body up against the stop 17". The sewing machine is then operated by "edging" for slight movements to perform the line of stitching 31 which is finished when the presser foot 24 contacts the front stop element 17. The presser foot bar 26 is now raised by moving the handle 37. The line of stitching effected will of course hold the frame piece 15 onto the work 23. The operator now shifts the work laterally and forwardly on the table 29 and then lowers the presser foot 24 so that the track 16' shall be in the notches 33, 33' and said presser foot shall contact and of course be behind the forward stop element 16" so that the presser foot shall contact stop element 16". The sewing operation is now repeated to make the line of stitching 30. It is of course possible, though not very practical, to accomplish the sewing on of the fabric piece 22, by having only one track means on the presser foot, meaning one set of guide channels or notches, because the second line of stitching can be made after the work and all it carries, is turned by the operator a full turn on the table surface 29. When both lines of stitching are done, wire piece 21 is withdrawn by pulling on its handle 21', the frame piece 15 is lifted off the work, and the fabric piece 22 is trimmed by shearing same at its ends as required.

For a double-needle machine performing stitch lines 30 and 31 simultaneously, the presser foot may be as 24" with two needle holes 44 and track slots 45 and 46 for either one or both of the track elements 16', 17' may be provided on such presser foot for the operation is done by a single run.

If desired, the frame piece may be as illustrated the numeral 47, where each channel akin to 16 and 17 is made of longitudinally hinged parts; the hinges being indicated at 48. Here, each of the channels can be opened as shown by dash and dot lines at 117'. Further, the movable part of each channel may be formed with a ledge 49 to clamp the fabric piece 22 when said frame piece 47 is in use condition as shown in full lines

in Fig. 9. Bringing said channels 116, 117 from open to use position, also serves to automatically fold the fabric piece 22.

Performing the sewing on of the fabric piece 22, to enable making the format shown in Fig. 1, is the sole purpose of the device described herein. This sewing operation as mentioned, is one preparatory to making a piped button hole. The finishing of the button hole structure is well known in the tailoring and dressmaking arts, for which information, reference may be had to Patent No. 1,945,104.

Having set forth preferred and practical embodiments of this invention, which may be made in numerous forms, I claim:

1. In combination with a sewing machine having a needle bar carrying a needle, a presser foot bar which can be raised and lowered, carrying a presser foot, a table for supporting work to be sewn, under said bars and means for feeding the work in a predetermined straight line to the needle, of a member having an elongated channel, positioned on the table parallel to said line lengthwise and below said bars with the longitudinal opening of said channel to one side of the needle and facing said needle, a track means and a track-engaging means positioned to one side of the needle; one of such means being on said member and the other of such means being on the presser foot; said track means and track-engaging means being in disengagement when the presser foot bar is raised and in engagement when the presser foot bar is lowered; upon engagement of such means, the member is afforded movement parallel to said line; said member being adapted to receive within its channel, a piece of fabric folded on itself to form two plies, so that said fabric piece may be positioned with its fold line within and along said channel and with portions of both its plies extending out of the lengthwise opening of said channel beyond the needle, an elongated element adapted to be set between the plies along their fold line; said elongated element fitting within and along said channel and means for releasably holding said elongated element within said channel, whereby on operation of the machine, said needle will engage both said plies and enclose said elongated element between said fold line and the line of stitching effected; said member affording unhindered needle operation along a predetermined length of its channel.

2. The combination as defined in claim 1, including stops on the mentioned member cooperating with the presser foot when the track means are in engagement, to limit the scope of longitudinal movement of the member.

3. The combination as defined in claim 1, wherein the channel is formed by two lengthwise parts in hinged relation whereby the channel side walls may be moved in lateral relation, to open the channel, further than their normal position.

4. The combination as defined in claim 3, wherein one of the side walls of the channel includes a longitudinal element therealong which is adapted to clamp plies of cloth between the walls of the said channel when the latter is in normal position.

5. The combination as defined in claim 1, wherein the track means comprises a lengthwise element along the member and extending therefrom in an upwardly direction and wherein the presser foot is provided with an inverted channel positioned to receive in and be in slidable engagement with said lengthwise element when the presser-foot bar is in lowered position.

6. The combination as defined in claim 1, wherein the mentioned member presents another elongated channel; the two channels being spaced, parallel, opposite, with their longitudinal openings opposite each other, one at each side of the needle and facing the needle, another elongated element fitting within and along the second channel and wherein the holding means includes a resilient element connecting both elongated elements at

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corresponding ends of said elongated elements; said elongated and resilient elements constituting a unitary structure; said elongated elements being in divergent relation from said resilient element when said structure is removed from the channels.

7. The combination as defined in claim 6, wherein another track means is included on the presser-foot bar and the mentioned member; such track means being at the other side of the needle and affording longitudinal movement of the member parallel to the mentioned line; the distance between the track means on said member being greater than the distance between the track means carried on the presser foot bar; said member being shiftable when the presser foot bar is raised so that either track means which are intended to cooperate can be engaged upon the lowering of the said presser foot bar.

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8. The combination as defined in claim 1, wherein another track means is included on the presser foot bar at the other side of the needle so that the track means on the mentioned member may be set by shifting said member to engage either track means on the presser foot bar when the longitudinal opening of the channel faces the needle.

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