

[54] **METHOD OF ATTACHING SLIDE FASTENERS TO GARMENT FABRIC**  
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[52] U.S. Cl. ....112/265  
[51] Int. Cl. ....D05b 3/12  
[58] Field of Search .....112/265, 105; 2/265

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[57] **ABSTRACT**

A method of attaching a slide fastener onto a fabric having a split providing two sewing edges along which the fastener opposed stringer tapes with their element-carrying edges laterally inverted away from each other, are simultaneously sewn up to an end portion thereof at which the slider is positioned whereupon said non-sewn portion and slider of the fastener can be drawn through said fabric split so that the pull tab of said slider is positioned face up against the reverse side of the fabric and the slider moved towards the other end of the tapes with the sewing stitches concealed from view.

**6 Claims, 11 Drawing Figures**

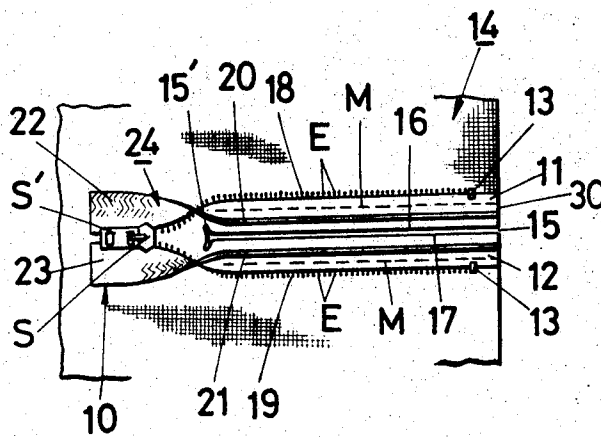


FIG.1

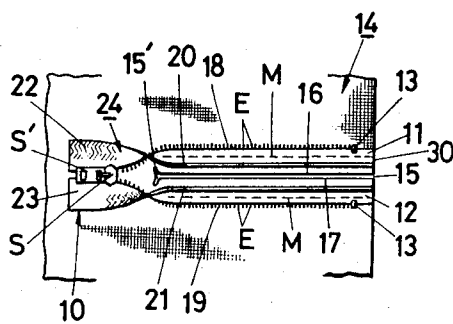


FIG.2

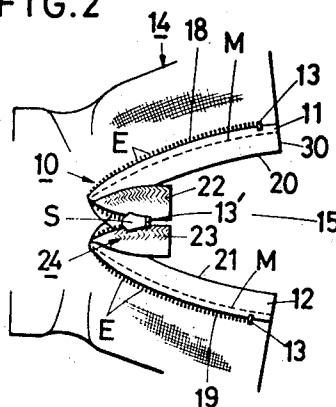


FIG.3

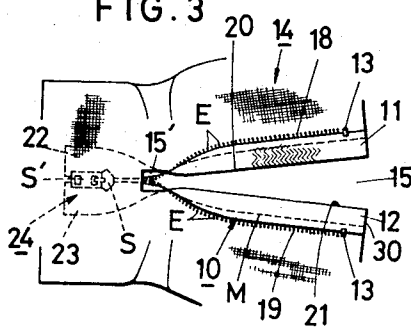


FIG.4

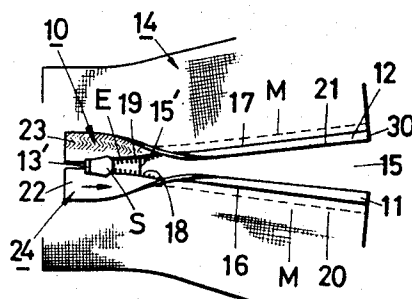


FIG.5

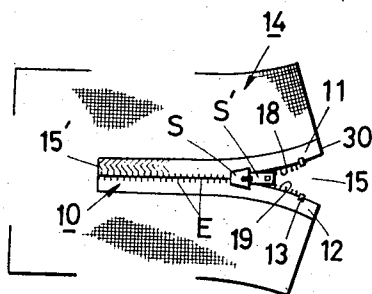
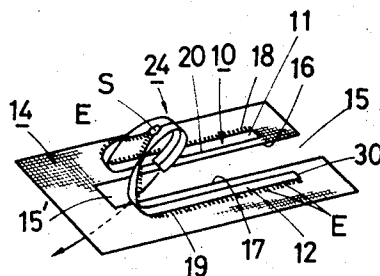


FIG.6



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FIG. 7

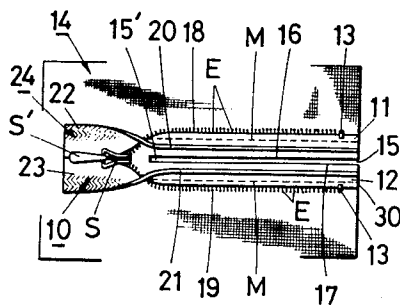


FIG. 8

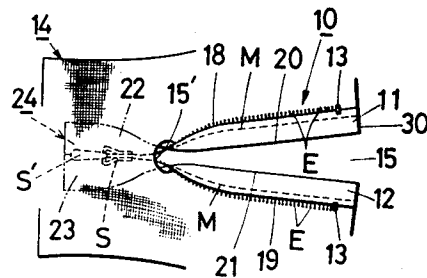


FIG. 9

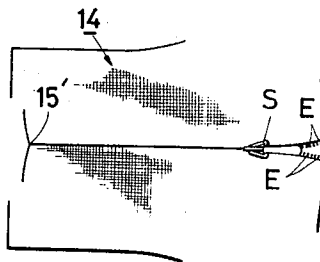


FIG. 10

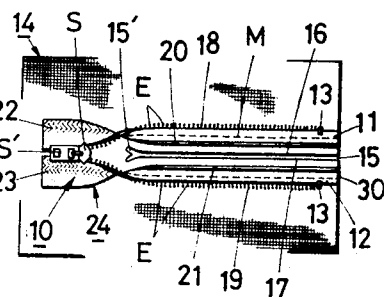
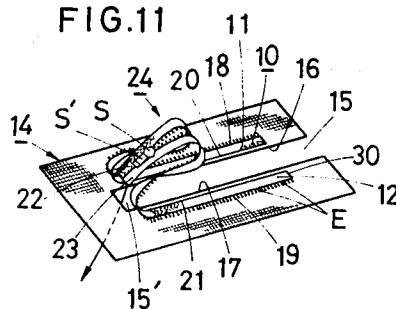


FIG. 11



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## METHOD OF ATTACHING SLIDE FASTENERS TO GARMENT FABRIC

This invention relates to a method of attaching an interlocking slide fastener or slide fastener chain carrying sliders in position to a garment or the like, the fastener consisting of two opposed stringer tapes carrying rows of fastening elements interengageable by a reciprocating slider. The term slide fastener or its chain carrying sliders in position as herein referred to in accordance with the invention includes both a standard type and a concealed type fastener structure.

Various methods have hitherto been introduced for attaching or sewing slide fasteners to fabric. An example relied upon the use of a single-needle for sewing one stringer tape at a time onto a strip of fabric. This prior-art method has certain inherent disadvantages in that the fabric to which a fastener is attached must have an opening beforehand to provide two sewing edges, and hence the two stringer tapes of the fastener are often placed out of registration when sewn separately along the opposed edges of the fabric. A more advanced prior-art employed a two-needle sewing procedure whereby fastener attachment was accomplished with greater speed and the drawback of the single-needle method was overcome to some extent. The conventional two-needle double-edge sewing method, however, was not entirely satisfactory in that it was not applicable to concealed-type slide fasteners. Neither prior-art methods are still efficient because it is necessary to move the position of the slider at least once during the sewing operation. What is more critically disadvantageous with existing double-needle sewing methods is that such methods cannot attach slide fasteners or its chain carrying sliders in position to a garment fabric without having to expose to view the stitches that secure the fastener tapes to the fabric.

Whereas, it is an object of the invention to eliminate the above-noted difficulties involved in the conventional practice.

It is a more specific object to provide a unique double-needle stitching method for sewing slide fasteners or a slider-carrying fastener chain to a fabric with faster rate of speed and greater accuracy and with sewn stitches completely concealed from view.

These objects and other desirable advantages of the invention will be apparent from the embodiments thereof illustrated in the following description and by the accompanying drawings in which:

FIG. 1 is a plan view of a standard type slide fastener shown as has been sewn onto a fabric according to one embodiment of sewing of the invention;

FIG. 2 is a plan view of the sewn fastener with its non-sewn end portion turned half way over;

FIG. 3 is a plan view of the same with its non-sewn portion completely inverted and positioned underneath the fabric;

FIG. 4 is a plan view of the reverse side of the fabric;

FIG. 5 is a plan view of the fastener being closed;

FIG. 6 schematically illustrates the manner in which the non-sewn end portion of the fastener is inverted to assume the position of FIG. 3;

FIG. 7 is a plan view of a concealed fastener sewn in a similar manner onto fabric;

FIG. 8 is a plan view of the same with its non-sewn portion held in inverted position at the reverse side of the fabric;

FIG. 9 is a plan view of the same with the sewn concealed fastener being closed;

FIG. 10 is a plan view of a slide fastener sewn according to an alternative embodiment of sewing of the invention; and

FIG. 11 schematically illustrates the manner in which the non-sewn portion of the fastener of FIG. 10 is displaced underneath the fabric to assume a closing posture analogous to FIG. 3 or FIG. 8.

Referring to FIGS. 1 through 6, inclusive, there is shown one preferred embodiment of the invention wherein a slide fastener generally denoted by numeral 10 consists of two opposed stringer tapes 11 and 12 each carrying a row of interlocking fastener elements E engageable by a reciprocating slider S. The slider S has a pull tab S' with which to move the slider back and forth to open and close the fastener 10. Designated at 13 is an end stop secured to an end of each tape stringer closely at a terminal element thereon and adapted to limit the movement of the slider S. Similar stop members 13' are provided at the other extreme end of the fastener in the usual manner.

A garment fabric or the like designated at 14 is provided with a split opening 15 extending longitudinally of the fastener 10 and terminating short of one end of the fastener at which end the slider S is to be held in position when commencing the sewing operation according to the invention. This split longitudinal opening 15 is formed to provide two sewing edges 16 and 17 along which the respective stringer tapes 11 and 12 are sewn to the fabric 14.

As shown in FIG. 1, the opposed stringer tapes 11 and 12 are separated by moving the slider S all way to one extreme end till it is stopped in abutment to the end stop 13'. The fastener 10 in its normal position is placed on the fabric 14 in superposed relation, in which instance the element-carrying edges 18 and 19 of the tapes 11 and 12 are inverted laterally away from each other so that the element-free edges 20 and 21 of the fastener tapes are brought together in face-to-face relationship. In this disposition, the end portions 22 and 23 of the respective stringer tapes at which the slider S is held in stopped position are flared with the element-free edges 20, 21 twisted outwardly of the opening 15 and overlying the element-carrying edges 18, 19. The slider S is positioned with its pull tab S' face up on the fabric 14 and situated beyond the terminal end 15' of the split opening 15. The fastener 10 is thus secured to the fabric 14 by stitching along the tapes 11, 12 closely adjacent to their element-carrying edges 18, 19 and parallel to the sewing edges 16, 17 resulting from splitting the fabric to form the opening 15. The stitches M start from the free end 30 of the fastener 10 opposite to the slider-carrying end, or from right to left as viewed in the drawings, and terminate substantially adjacent the terminal end 15' of the opening 15, leaving a non-sewn end portion 24 where the slider S is positioned.

Upon completion of the stitching in the manner shown in FIG. 1, the non-sewn end portion 24 of the fastener 10 is turned in a somersault fashion as seen in FIG. 2 and brought underneath the fabric 14 through the opening 15. FIG. 3 shows the position of the non-sewn portion 24 in which the slider pull tab S' having its plane rotated substantially 360°, is now oriented face up against the reverse side of the fabric as shown in

dotted line. FIG. 4 shows the sewn fastener as viewed from the reverse side. The slider S is then moved towards the free end 30 of the fastener, allowing the fastener elements E to intermesh progressively and close together the two stringer tapes 11, 12 with the stitches M concealed from view, as shown in FIG. 5. FIG. 6 is utilized to schematically illustrate the manner in which the non-sewn portion 24 including the slider S is over-turned and drawn underneath the fabric through the opening 15 as indicated by an arrow.

FIGS. 7, 8 and 9, inclusive, are views illustrating the invention as applied to a concealed type slide fastener, the sewing principles being the same here as applied to the hereinabove advanced embodiment except that a presser foot should be used such that the concealed fastener is sewn infinitesimally closely along its element-carrying edges to maintain the concealing advantage.

FIG. 10 is a modification of the method of sewing according to the invention in which the fastener 10 in its normal position is also sewn with the non-sewn end portion 24 or stitch-free section thereof already inverted in a manner similar to the foregoing embodiment and placed on the front side of the fabric 14 instead of being brought underneath the same, so that the element-carrying edges 18, 19 at the portion 24 are twisted inwardly and overlying the element-free edges 20, 21. After the sewing is completed, the non-sewn end portion 24 including the slider S is brought underneath the fabric 14 through the opening 15 without inverting the plane of the slider S as indicated by an arrow and, as schematically shown in FIG. 11.

While the invention has been illustrated in respect of its preferred embodiments, it will be understood that various changes and modifications may be made in said embodiments without departing from the scope of the appended claims. For example, although it is preferred to form the split opening 15 simultaneously with the sewing operation, the method of the invention can be applied where the opening 15 has been provided in advance or will be provided after the fastener is attached to the fabric, whichever the case may be.

It will also be understood that where the invention is applied to a fastener chain, the chain may be arranged on a garment with a plurality of sliders mounted at predetermined intervals and held in a position separating the opposed stringer tapes and may be cut to an in-

dividual unit fastener length according as it is progressively sewn to the garment.

What is claimed is:

1. A method of attaching onto a garment fabric or the like a slide fastener consisting of two opposed stringer tapes each carrying a row of fastening elements interengageable by a slider, which method comprises; separating the stringer tapes of the fastener in its normal position with the slider brought to an extreme end of the fastener; forming a split longitudinal opening in the fabric to provide two sewing edges along which to sew the respective stringer tapes to the fabric; positioning the fastener in superposed relation to said fabric with its element-carrying edges laterally inverted away from each other so that the element-free edges are brought together in face-to-face relationship; sewing the two stringer tapes simultaneously closely along the respective element-carrying edges parallel with said sewing edges of the fabric and all way up to a point adjacent to the closed end of said opening, leaving a non-sewn portion at said extreme end of the fastener; and drawing said non-sewn portion of the fastener including the slider through said split opening so that the pull tab of the slider is positioned face up against the reverse side of the fabric, whereby the fastener is closed by moving said slider towards the other end thereof with the stitches concealed from view.

2. The method according to claim 1 wherein said slit opening is formed simultaneously with the stitching of the stringer tapes.

3. The method according to claim 1 wherein said opening is formed prior to the sewing of the stringer tapes.

4. The method according to claim 1 wherein the fastener is superposed on the fabric with said element-free edges adjacent to said non-sewn portion displaced outwardly of said opening and overlying said element-carrying edges.

5. The method according to claim 1 wherein the fastener is superposed on the fabric with said element-carrying edges adjacent to said non-sewn portion displaced inwardly of said opening and overlying said element-free edges.

6. The method according to claim 1 wherein the length of said slit opening is slightly less than the length of a slide fastener to be sewn.

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