June 1, 1954 G. SUNDBACK 2,680,087

METHOD OF INSTALLING A SLIDE FASTENER IN A GARMENT

Filed June 16, 1950

Fig. 1.

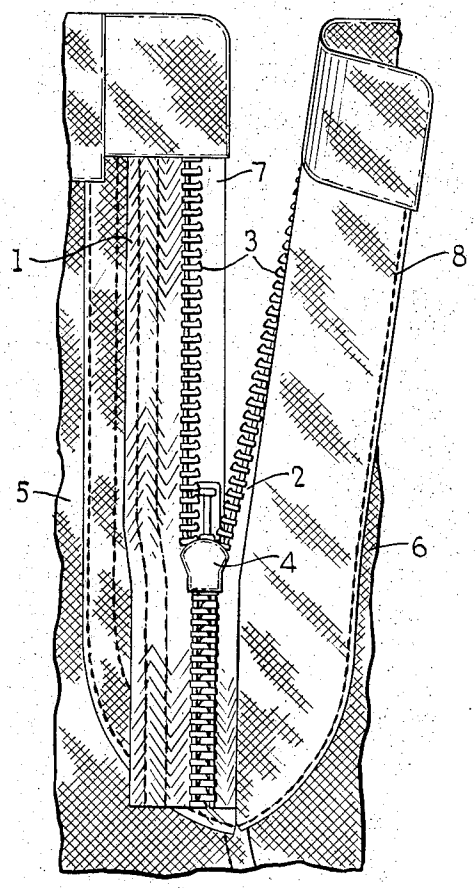


Fig. 3.

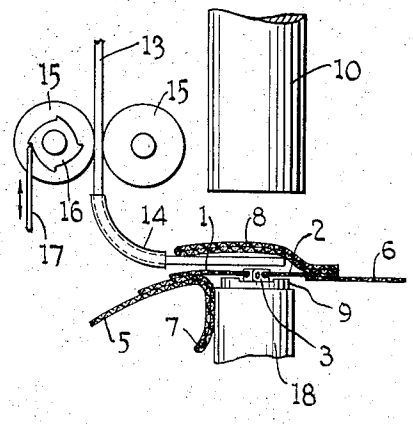


Fig. 2.

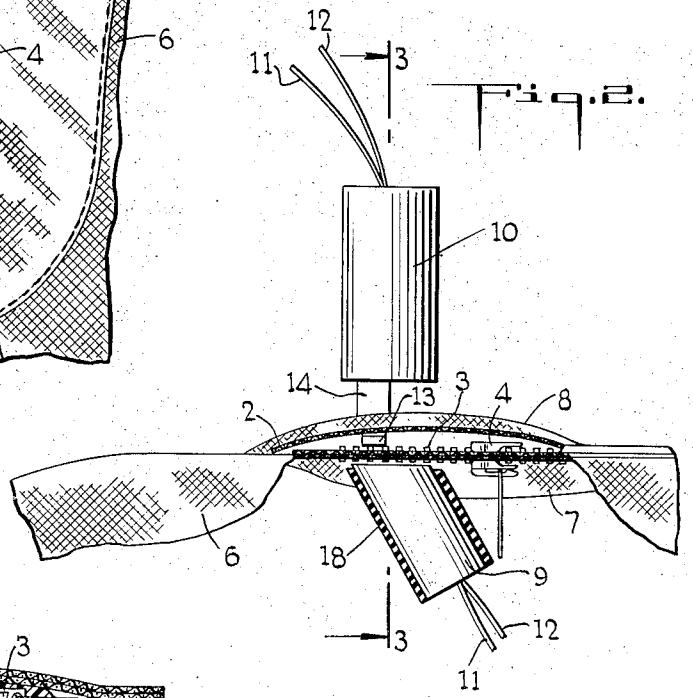
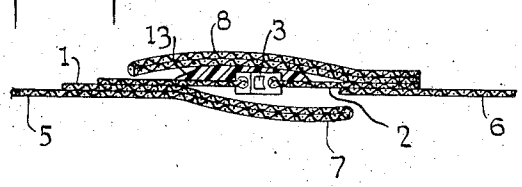


Fig. 4.



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METHOD OF INSTALLING A SLIDE FASTENER IN A GARMENT

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2 Claims. (Cl. 154—116)

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This invention relates to improvements in bottom stops for slide fasteners, and to a method of anchoring in a garment or the like slide fasteners of the type comprising a pair of flexible stringers carrying interlocking elements and a slider for engaging or disengaging the stringers.

In applying a slide fastener of the above type to trousers or the like, it is common practice to install one stringer of the fastener in one part of the garment, install the other stringer of the fastener in another part of the garment, then to engage the interlocking elements of the pair of stringers by means of the slider, and finally complete the installation of the fastener in the garment by applying a bottom stop to the normally closed end of the fastener. A further operation often consists of anchoring the closed end of the fastener to the garment by sewing a bar tack through the fabric of the garment and the fastener below the closed end of the fastener to firmly anchor the closed end of the fastener in the garment. A typical exposition of such a method of installing a fastener in a garment appears in United States Patent No. 2,103,985 to Jacobs.

There are several objections to such a method of applying a fastener to a garment. Among them are the fact that since the stringers of a slide fastener have been sewn into portions of the garment before the bottom stop is applied, it is often difficult to apply the bottom stop accurately and correctly since parts of the garment, especially in trousers, tend to interfere with the positioning of the normally closed end of the fastener in the press, or other device used for applying the bottom stop. If the bottom stop, which usually takes the form of a staple, is applied in the proper position under such conditions, it is sometimes difficult to clench the bottom stop properly, and one or more points of the bottom stop, which should be bent out of any possible contact with the wearer or user of the garment, may be left projecting from the surface of the fastener to cause injury to the wearer or user. Additionally, if the conventional staple bottom stop is used to close the fastener, extensions of the tape which forms the stringers of the fastener must be provided beyond the interlocking elements to provide a site for the bottom stop, which means that either these tape extensions must be provided on the fastener when it is made, as a unit for each installation, or if, as is desirable in the interests of economy, continuous lengths of stringer carrying interlocking elements are sold to be cut into lengths each suitable for

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application to a garment, a number of interlocking elements have to be cut off the ends of the stringers which are to become the closed end of the fastener, which is an expensive and time-consuming operation.

My invention contemplates a method of providing a bottom stop which obviates substantially all of the aforementioned objections to the conventional methods. Thus, an object of the invention is to provide a bottom stop for a slide fastener which may be installed on the fastener after the fastener has been applied to a garment with a minimum of difficulty no matter how crowded the fabric of the garment is at the normally closed end of the fastener.

A further object is to provide such a bottom stop for a slide fastener, which, no matter how difficult the installation is, may always be so located that it operates properly as a stop for the slider, and can under no circumstances cause injury to the wearer or user of the garment.

An additional object is to devise such a bottom stop which at the same time will serve to anchor the normally closed end of the fastener to the garment and obviate means such as sewing or bar tacking as are now practiced.

Various other objects and advantages of this invention will be more apparent in the course of the following specification, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, an embodiment which my invention may assume in practice.

In these drawings:

Fig. 1 is a fragmentary rear elevational view of two stringers of a slide fastener installed in the fly of a pair of trousers ready for the application of my improved bottom stop;

Fig. 2 is a fragmentary side elevational view, partly in section, of the garment and fastener of Fig. 1, as they would be presented to a press, of which the parts are shown schematically, for installation of the stop of the present invention;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 2; and

Fig. 4 is an enlarged transverse sectional view through the bottom stop on the fastener after the stop has been applied.

Referring more particularly to the drawings, a typical application of a slide fastener to a garment is shown in Fig. 1, in which the slide fastener consists of a pair of stringers 1 and 2, of tape, on one edge of each of which are mounted interlocking elements 3, and a slider 4 for engaging and disengaging the interlocking elements,

or, in other words, closing and opening the fastener. Such interlocking elements are preferably, although for purposes of my invention, not necessarily of metal. As shown, the fastener stringers 1 and 2 have been sewn into the halves 5 and 6 respectively of a pair of trousers or like garment which have been provided with an outer fly flap 7, and an inner fly flap 8, which in use overlie the fastener and conceal it from outward view and protect it from contact with the wearer, respectively. As shown in Fig. 1, installation of the fastener in the garment has been carried to the point where completion of the installation only requires the provision of a bottom stop to prevent the slider 4 running off the interlocking elements 3 at the lower end of the fastener, and an anchorage for the lower end of the inner flap 7 of the fly to keep the flap in position overlying the fastener.

According to my invention, I place a piece of fusible material, such as, for example, a plastic material, preferably nylon, across the interlocking elements 3 of the fastener below the slider 4, as shown in Fig. 1, and fuse it onto the interlocking elements and/or into the margins of the tapes of the stringers 1 and 2, to simultaneously bond the interlocking elements 3 of the fastener together at the point covered by the plastic, and to provide a lump or projection of plastic extending beyond the interlocking elements which acts as a stop for the slider.

Additionally, I may effect the fusing of the plastic material while pressing the plastic material between the inner fly flap 7 of the garment and the interlocking elements 3 of the fastener, in which case the fly flap is bonded to the tape and/or interlocking elements of the fastener at the same time.

Such an operation may be done in a hand or foot operated press, or by means of a tool fashioned similarly to a pair of pliers, so for purposes of illustration I have indicated the elements of such a press or tool schematically. Referring to Figs. 2 and 3, one method of installing the stop consists of providing a pair of platens or tools 9 and 10, respectively, at least one of which, preferably the lower, 9, may be heated by electrical resistance elements enclosed in the tool and fed with current through leads 11 and 12. When the lower tool 9 only is heated, it is preferable to make the upper tool 10 of heat insulating material, such as resin bonded canvas known as "Bakelite." Such tools would be mounted in a press of conventional type (not shown), which may also be provided with means for feeding a wire or rod 13 of nylon or other material to be used for making the bottom stop, and such wire or rod might be fed to the point of use in the press through a guide 14 by means of a pair of conventional feed rolls 15, 15, one or both of which could be actuated by a ratchet 16 and pawl 17 actuated by the press mechanism through a conventional mechanical connection. It may also be desirable to provide a protecting sleeve 18 of heat insulating material around the lower platen 9 of the press to prevent scorching of parts of the garment to which the stop is being applied.

To install the bottom stop and anchorage means, the garment having the fastener installed to the point as illustrated in Fig. 1, is presented to the press, the tools 9 and 10 having been heated to a temperature which will fuse the material of the plastic strip 13. The interlocking elements 3 of the fastener of the garment are positioned on the tool 9, the insulating sleeve 18 ploughing the front flap 7 of the fly out of interference with the tools, and the press mechanism is actuated to feed the end of the plastic wire 13 across the interlocking elements 3 of the fastener above the fastener and below the inner flap 8 of the fly. Further actuation of the press brings the hot tool 10 down on to the inner flap 8 of the fly and presses it against the plastic strip 13, which in turn is pressed against the interlocking elements 3, and the plastic melts or fuses until it runs or soaks into the tapes 1 and 2 of the fastener and the inner flap 8 of the garment to weld or fuse the group of elements into what is, for all practical purposes, a single element. At the same time, the melted portion of the plastic 13 frees itself from the end of the strip. On withdrawal of the upper tool 10 of the press and removal of the garment from the press, the molten plastic freezes and leaves a permanent connection between the two stringers of the fastener and the flap of the trouser fly.

It should be noted that, if desired, in the application illustrated, or even in the application of my improved stop to a fastener which has not been installed in a garment, the plastic material 13 may be fused across the two stringers of the fastener without at the same time bonding the plastic material to any part of a garment, such as the fly flap 8, and in such case there may be enough plastic extending on either side of the interlocking elements to engage the slider 4 of the fastener in the fully opened position of the fastener to prevent the slider coming off the interlocking elements and, in fact, to act as the equivalent of a conventional metal bottom stop. It should be noted, however, that a perfectly adequate stop for the slider is produced by the plastic material 13 melting, wetting, and running into the interstices between pairs of interlocking elements 3 and solidifying into a bond with the interlocking elements only. In such a case, even though the bond between the interlocking elements and the solidified plastic might not be strong, the fact that the plastic is compressed between pairs of interlocking elements when the slider abuts the stop makes it impossible to move the slider off the fastener no matter how weak the bond is.

Thus, I have provided a bottom stop for a slide fastener of the class described, which may be installed on the fastener either before or after the fastener has been applied to a garment, and which may, if required, serve the additional purpose of anchoring the lower end of the fastener to a portion of the garment, which can be installed quickly and inexpensively, which may be applied to a pair of stringers forming the fastener which have been cut off continuous lengths of stringers and which, therefore, have no tape extensions such as are normally required for a bottom stop, and which, no matter how imperfectly made, can never serve as a source of injury to the wearer or user of a garment in which the stop is installed.

While I have shown and described an embodiment which my invention may assume in practice, it will be understood that this embodiment is merely for the purpose of illustration and description, and that other forms may be devised within the scope of my invention as defined in the appended claims.

What I claim as my invention is:

1. The method of installing a slide fastener,

which includes a pair of flexible stringers having a series of interlocking fastener elements carried thereby and a slider for engaging and disengaging the stringers by its movement therealong, in a garment which comprises attaching one stringer to one part of the garment, attaching the other stringer to another part of the garment, engaging the stringers by means of the slider, positioning a piece of fusible plastic material across the interlocked elements adjacent the closed end of the slide fastener, and fusing said fusible material into a bond with both the fastener elements and said stringers of the slide fastener and the material of the garment so as to provide a combined slider stop and anchoring means at the bottom end of said fastener.

2. The method of installing a slide fastener, which includes a pair of flexible stringers having a series of interlocking fastener elements carried thereby and a slider for engaging and disengaging the stringers by its movement therealong, in a fly opening of a garment, which comprises attaching one stringer to one margin of the fly opening, attaching the other stringer to the other

margin of the fly opening, engaging said stringers by means of the slider, positioning a piece of fusible plastic material across the interlocked elements of the engaged stringers between the interlocking elements and a flap of the fly adjacent the bottom end of said fastener, and fusing the fusible material into a bond with the fastener elements, at least one of the stringers and the fly flap so as to provide a combined slider stop and anchoring means at the bottom end of said fastener.

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