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STOP FOR SLIDE FASTENERS

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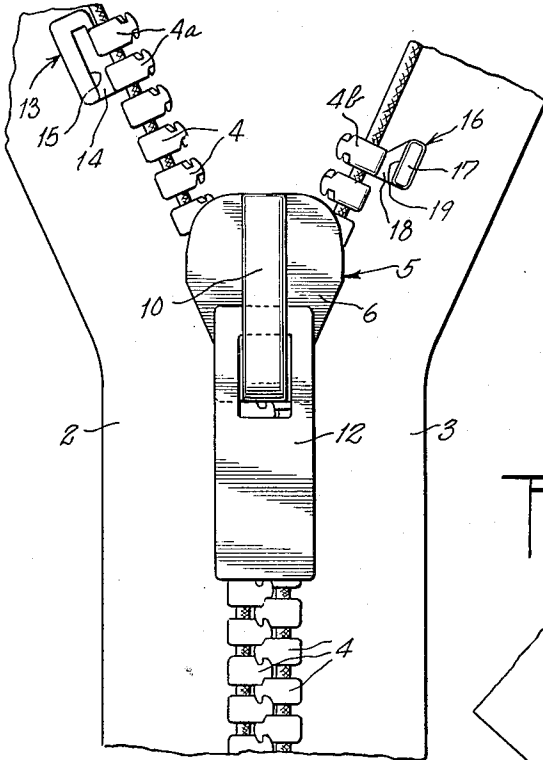


Fig. 1.

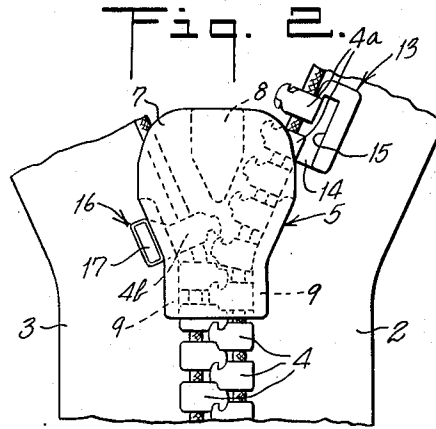


Fig. 3.

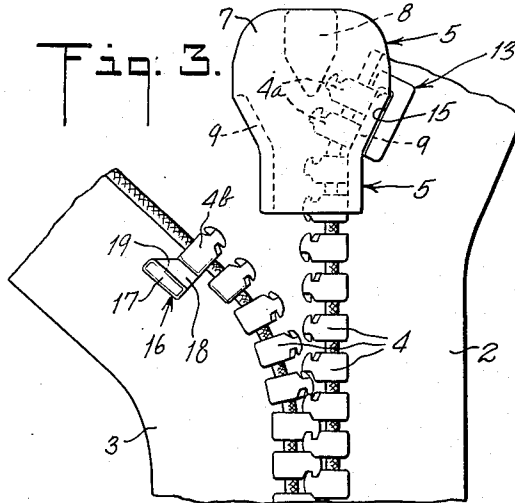


Fig. 4.

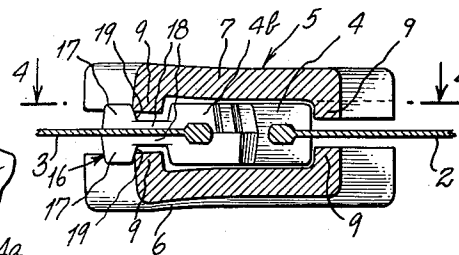
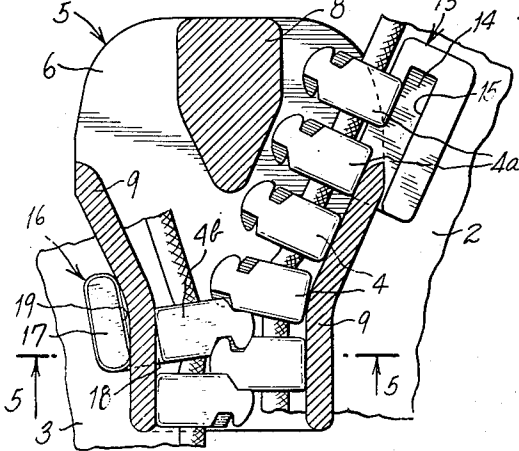


Fig. 5.

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STOP FOR SLIDE FASTENERS

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7 Claims. (Cl. 24—205.11)

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This invention relates to slide fasteners, and particularly to an improved stop therefor.

In certain applications of slide fasteners, such as, for example, in flying suits and the like, it is often necessary, particularly in the case of an emergency, for the wearer to get out of the suit as quickly as possible. In order to accomplish this, there should be provided a quick opening for the fastener, and such a fastener is sometimes called the quick releasing type. Such rapid opening is best obtained by providing means whereby the stringer tapes will separate automatically when subjected to lateral pull at the closing end of the fastener, and it is to such a means that the present invention relates.

Accordingly, it is the general object of the present invention to provide an improved means whereby the slider may be readily removed from one of the stringers when it is desired to separate them, thereby permitting the stringers to become disengaged by a lateral pull.

It is another object of the invention to provide an improved means which acts as a stop member in ordinary use of the fastener, but which is adapted to pass through the slider when the same is subjected to an excessive pulling force, thereby permitting the fastener tapes to be separated by a lateral pull.

It is a further object of this invention to provide an improved stop member for slide fasteners which is simple and inexpensive in its construction and, at the same time, efficient and effective in its use.

It is still a further object of the present invention to provide a stop member which is securely molded to the stringers so as not to be accidentally displaced therefrom and, at the same time, permits the slider to pass to a position therebeyond.

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 of which my invention may assume in practice.

In these drawings:

Fig. 1 is a plan view of a slide fastener having the improved stop means of my invention incorporated therewith;

Fig. 2 is a rear view of the upper end of the fastener, as shown in Fig. 1, showing the fastener in its normally closed position;

Fig. 3 is a view similar to Fig. 2, showing the slider moved above the stop member and disen-

gaged therefrom so as to permit opening of the fastener by a lateral tearing action on the stringers;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 5; and

Fig. 5 is a sectional view taken on line 5—5 of Fig. 4.

Referring more particularly to the drawings, there is shown a conventional type slide fastener comprising a pair of stringer tapes 2 and 3 having a series of interlocking fastener elements 4 attached to the opposed beaded edges thereof. There is arranged on the fastener elements, a slider 5 for longitudinal movement therealong to open and close the fastener in a well-known manner. Such a slider consists generally of a pair of spaced-apart upper and lower wing portions 6 and 7, respectively, connected by a neck portion 8 and having inwardly extending marginal flanges 9 which diverge at the upper end of the slider and converge at the lower end thereof so as to provide substantially a Y-shaped channel in the slider. There is carried by the upper wing 6, preferably a suitable lug 10 to which a pull member 12 is pivotally attached for manipulating the slider.

In the fastener shown, the fastener elements together with other component parts thereof are preferably molded to the stringer tapes from a material such as nylon, but may be made of metal or any other suitable material.

On the upper or closing end of the stringer 4, there is arranged a stop member 13 which is adapted to prevent removal of the slider from the top end of this stringer. While any conventional type of stop member may be used, the construction shown consists of a pair of inverted substantially J-shaped members preferably arranged integral with the two endmost fastener elements 4a disposed on either side of the tape directly opposite one another. These members are connected to these two endmost fastener elements 4a by means of relatively thin web portions 14 which lie directly next to the tape. Such a construction provides a longitudinal extending open ended recess in each side of the stop, as at 15, which acts as a track for the flanges at the upper end of the slider. In other words, the main leg portion of the stop member is spaced from the outer ends of the two endmost fastened elements 4a a distance slightly greater than the thickness of the flanges so as to provide this track which acts as a guide for the flanges to seat the slider in the stop. It will be seen that the fastener elements on the stringer 2 to

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which the stop member 13 is attached extend beyond the fastener elements of the opposed stringer 3 or, in other words, one stringer is longer than the other for a purpose hereinafter to be described.

According to the present invention, there is arranged on the upper end of the stringer 3 directly opposite the endmost fastener element 4b of this stringer, a stop member 16 for normally preventing unintentional movement of the slider along the fastener elements in a closing direction. This stop member consists of a pair of substantially rectangular-shaped abutment members 17 having rounded corners and arranged directly opposite one another on opposite sides of the stringer tape 3. Both of the abutment members 17 are preferably molded integral with the endmost fastener element 4b and integrally connected thereto by means of opposed relatively thin web portions 18 disposed directly next to the tape on either side thereof. These abutment members 17 are preferably molded to the tape at the same time the fastener elements are molded thereto. The web connecting portions serve an important function in that they maintain the abutment members at all times in exact spaced relation from the outer end of the endmost fastener element. In other words, by providing such a construction the abutment members will not be forced outwardly away from the fastener elements after a period of use due to any stretching of the stringer tape 3.

The inner side walls of both of these abutment members 17 are spaced from the outer end of the endmost fastener element 4b a distance slightly greater than the thickness of the marginal flanges 9 of the slider so as to provide a space therebetween through which the flanges pass and are oppositely beveled, as at 19, for a purpose hereinafter to be described. It will be seen that these abutment members are of such length that they are prevented from passing normally along the converging portion of the slider due to the angle in the flanges between the converging and diverging portions of the slider, as clearly shown in Fig. 4. In other words, the abutment members tend to bind on the flanges of the slider at the angular portion thereof so as to prevent the abutment members from passing around the angle when the slider is operated in a normal manner merely to close the fastener, and this binding action of these abutment members then prevents further unintentional movement of the slider along the fastener elements in a closing direction.

If it is desired to open quickly the fastener without moving the slider in an opening direction along the entire length of the fastener, an excessive pulling force is applied to the slider in the closing direction which results in the beveled side walls 19 of the abutment members 17 bearing against the outer edges of the flanges 9 on that side of the slider which spread apart the wing portions 6 and 7 at this side, as shown in Fig. 5, sufficiently to permit the abutment members to pass from the diverging portion down along the converging portion of the slider with the slider being moved to a position above the abutment members. As a result, it will be seen that the slider passes off the end of the shorter stringer 3 and is free thereof but is retained on the upper end of the longer stringer 2 by means of the stop member 13. The fastener can now be easily and quickly opened merely by applying a lateral tearing action to the upper ends of one or both of the stringers, as shown in Fig. 3 of the drawings, and the fastener elements will automatically dis-

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engage from each other thereby providing a quick opening of the fastener.

As a result of my invention, it will be seen that there is provided a relatively inexpensive stop member for this type of fastener which can be molded directly to the stringer so as to be an integral part thereof thereby tending to eliminate any danger of displacement of the same from the stringer. Also, this stop member has a neat appearance and will function readily at all times for its intended purpose.

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. In a slide fastener of the class described, including a pair of stringers having a series of spaced-apart interlocking fastener elements arranged along the opposed edges thereof, and a slider for engaging and disengaging the fastener elements having spaced-apart wing portions connected by a neck portion and marginal flanges so as to define an interior diverging channel, a stop member normally adapted to prevent movement of the slider along the fastener elements in a closing direction, said stop comprising an abutment member carried by one of said stringers having wedging means arranged on the inner side thereof engageable with the outside surface of the flanges adjacent the converging portion of said slider, said wedging means being spaced from the outer ends of said fastener elements a distance slightly greater than the thickness of said flanges, and cooperable with said converging portion for preventing unintentional closing movement of said slider, said wedging means adapted to be forced between said flanges at said converging portion when the abutment member is positioned adjacent said converging portion so as to spread slightly the wings of said slider when the slider is subjected to an excessive pulling force in the closing direction so that the slider is permitted to pass to a position therebeyond whereby the fastener elements may be disengaged by subjecting the stringers to a tearing action.

2. The combination as defined in claim 1, wherein the stop member consists of a pair of substantially rectangular-shaped abutment members arranged directly opposite one another on opposite sides of one of the stringers.

3. The combination as defined in claim 1, wherein the stop member consists of a substantially rectangular-shaped abutment member carried by one of the stringers and spaced from the series of fastener elements carried thereby a distance slightly greater than the thickness of the flanges of the slider and being of such length that it is prevented normally from passing along the converging portion of the slider.

4. The combination as defined in claim 1, wherein the stop member consists of a pair of substantially rectangular-shaped abutment members arranged directly opposite one another on opposed sides of one of the stringers and being spaced from the series of fastener elements carried thereby a distance slightly greater than the thickness of the flanges of the slider, each of said abutment members being of such length so as to prevent the same from passing normally along the converging portion of the slider.

5. The combination as defined in claim 1,

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wherein the abutment member is molded to the stringer and arranged opposite the endmost fastener element carried thereby and integral therewith by means of a relatively thin connecting web portion disposed directly next to the tape.

6. In a slide fastener of the class described, including a pair of stringers having a series of spaced-apart interlocking fastener elements arranged along the opposed edges thereof, and a slider for engaging and disengaging the fastener elements having spaced-apart wing portions connected by a neck portion and marginal flanges so as to define an interior diverging channel, a stop member normally adapted to prevent movement of the slider along the fastener elements in a closing direction, said stop comprising an abutment member carried by one of the said stringers and spaced from the outer ends of said fastener elements a distance slightly greater than the thickness of the flanges and engageable with the outside surface of the flanges adjacent the converging portion of said slider and cooperable therewith for preventing unintentional closing movement of said slider, said abutment member having a beveled surface arranged on the inner side thereof which is engageable with the flanges of said slider, said beveled surface adapted to be

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forced between said flanges when the abutment member is positioned adjacent the converging portion so as to spread slightly the slider wings when the slider is subjected to an excessive pulling force in the closing direction so that the slider is permitted to pass to a position therebeyond whereby the fastener elements may be disengaged by subjecting the stringers to a tearing action.

7. The combination as defined in claim 6, wherein the abutment member is arranged opposite the endmost fastener element and integral therewith by means of a relatively thin connecting portion.

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