May 4, 1948. A. E. CARLILE 2,441,007

STOP FOR SLIDE FASTENERS

Filed April 17, 1944

Fig. 4

Fig. 1.

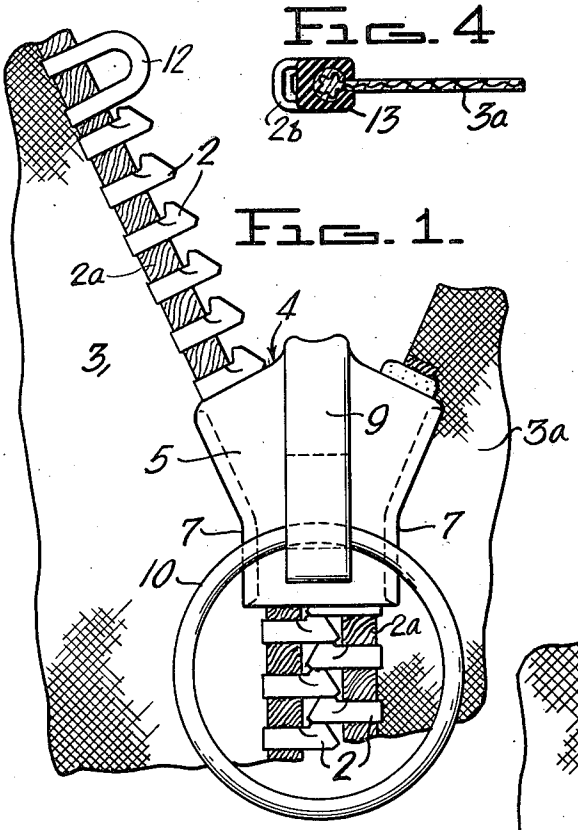


Fig. 2.

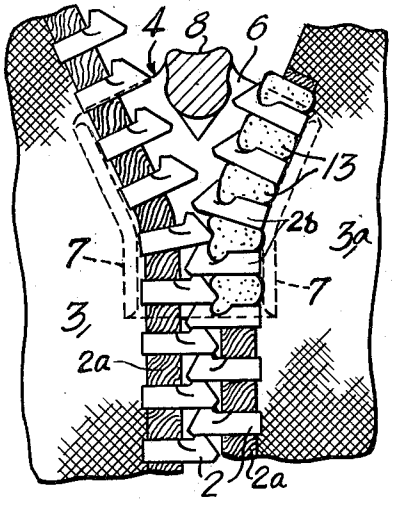


Fig. 3.

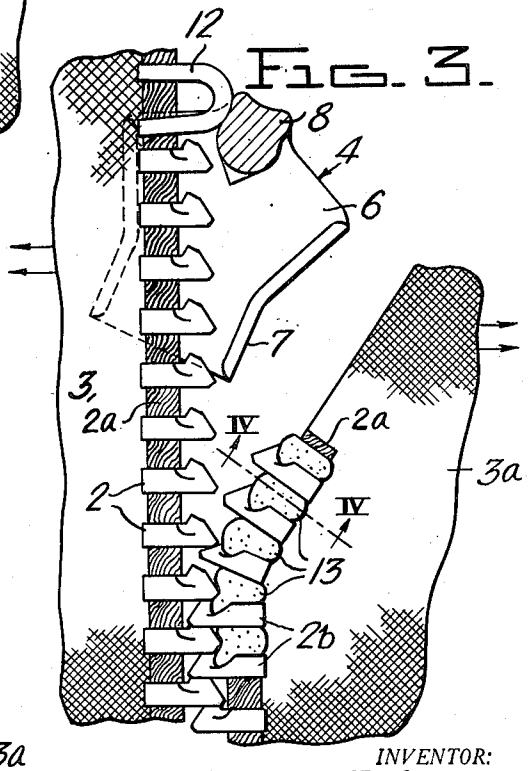
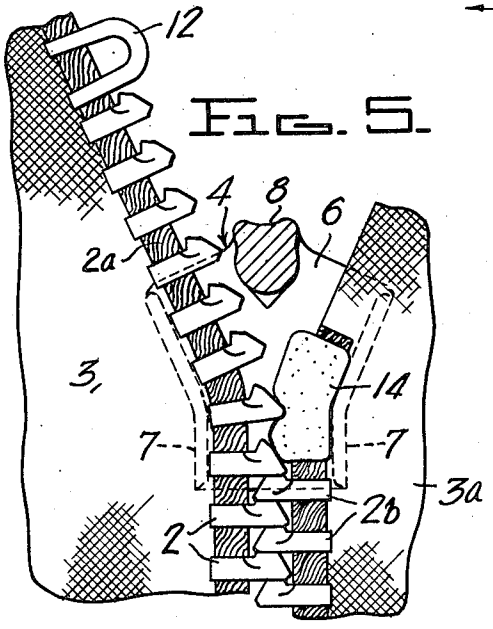


Fig. 5.



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STOP FOR SLIDE FASTENERS

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4 Claims. (Cl. 24—205)

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This invention relates to slide fasteners and, particularly to an improved stop for the slider thereof.

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 must 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 another object of the present invention to provide stop means which is disposed substantially in the plane of the fastener elements of the stringers, thereby eliminating any danger of subjecting the slider to excessive wear or damage when the stop means passes therethrough to permit a rapid opening of the fastener.

According to the present invention, the upper or closing end of one of the stringers is provided with a yieldable or resilient stop member, which normally prevents complete removal of the slider from that stringer, but which is displaced when an excessive pulling force is exerted on the slider in a direction to close the fastener, thereby permitting the slider to pass thereover free of that stringer.

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

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for the purpose of illustration, one embodiment and a modification which my invention may assume in practice.

In the drawings:

Fig. 1 is a plan view of the upper or closing end of a slide fastener, showing the stop member of my invention incorporated therewith, with the fastener in its normally closed position;

Fig. 2 is a view similar to Fig. 1, with the top of the slider removed, showing the stop of the preferred embodiment of my invention in its normally closed position;

Fig. 3 is a plan view showing the slider moved above the stop member and completely disengaged from one of the stringers so as to permit opening of the fastener by a lateral pull;

Fig. 4 is a sectional view taken on line IV—IV of Fig. 3; and

Fig. 5 is a view similar to Fig. 2, showing a modified form of stop member in accordance with the present invention in its normally closed position.

Referring more particularly to the drawings, there is shown a conventional type slide fastener comprising cooperating series of spaced-apart interlocking fastener elements 2 attached to opposed beaded edges 2a of tapes or stringers 3 and 3a. There is supported on the series of interlocking fastener elements, a slider 4 for longitudinal movement in opposite directions to open and close the fastener in a well-known manner. Such a slider consists generally of spaced-apart upper and lower wings 5 and 6, respectively, inwardly flanged at the sides thereof, as at 7, and connected by a neck 8, so as to provide substantially a Y-shaped channeled body member. There is carried by the top wing 5 of the slider, preferably a longitudinally extending lug 9 to which a pull member 10 is attached for manipulating the slider.

On the upper or closing end of the stringer 3, there is attached to the beaded edge at a point immediately beyond the endmost fastener element thereof, a conventional stop member 12, which is adapted to prevent removal of the slider from the top of this stringer. In other words, the top stop member 12 is constructed and arranged so that it will not pass through the channel of the slider in a manner well-known to those skilled in the art. It will be seen that the fastener elements on the stringer to which the top stop 12 is attached, extend beyond the fastener elements of the opposed stringer or, in other words, one stringer is longer than the other for a purpose hereinafter to be described.

According to the present invention, as shown

in Figs. 2, 3 and 4 of the drawings, there is arranged between the fastener elements 2 of a series of the endmost fastener elements 2b on the shorter stringer 3a, a body of yieldable or resilient material, preferably rubber, which is molded between and around the beaded edge of the stringer in the spaces between these fastener elements, so as to provide a yieldable body member 13 between each of the series of endmost fastener elements which extends outwardly from the edge of the stringer into the interlocking area between the stringers. The terminology "interlocking area," as referred to herein, is meant that space between the opposed edges of the stringers in which the interlocking portion of the fastener elements is disposed. It will be understood that each of the body members 13 has substantially the same thickness as the fastener elements 2, so as to be disposed substantially in the plane thereof, as shown more clearly in Fig. 4.

When the slider 4 is manipulated to close the fastener, it is pulled up in a normal manner by means of the pull 10 until the flanges 7 of the slider engage the endmost fastener elements 2b of the shorter stringer together with the resilient body members 13 disposed therebetween and the directly opposed fastener elements of the longer stringer. It will be understood that the flanges 7 of the slider move the fastener elements 2 of the longer stringer between the fastener elements of the shorter stringer and into abutting relationship with the resilient body members 13 therebetween, thereby providing in effect, a resilient cushion for the opposed fastener elements 2 of the longer stringer, as shown in Fig. 2 of the drawings. In order to obtain such an effect, it will be seen that the combined over-all width of the body members 13 together with the opposed fastener elements 2, must be slightly greater than the width of the channel through the slider. It will be seen then that the resilient body members 13 together with the opposed fastener elements 2 with which they cooperate and abut when disposed in the slider, act as a stop for the slider so as to prevent ordinary movement of the same in a direction to close the fastener, as shown in Figs. 1 and 2. From this position of the slider it will be understood that it may be operated to open the fastener by means of the pull 10, as desired in a conventional manner.

If it is desired quickly to open the fastener independently of the slider by a lateral pull on the stringers, an excessive force is applied to the slider in the closed direction so as to cause the same to pass over the resilient body members 13 and the endmost fastener elements to a point thereabove, as shown in Fig. 3 of the drawings. In other words, the resilient material of each of the body members 13 is compressed due to the abutting relationship of the opposed fastener elements 2 of the opposed stringer 3 as the body members 13 together with the fastener elements pass through the channel, thereby permitting the same to pass thereover. In such a case it will be seen that the slider has passed off the end of the shorter stringer 3a and is free thereof but is being retained on the other or longer stringer by means of the top stop 12. The fastener can now be easily and quickly opened merely by applying a lateral pull to the upper end of either one or both of the stringers, in a direction as shown by the arrows in Fig. 3, and the fastener elements will automatically disengage from each other, thereby providing a quick opening of the fastener.

In Fig. 5 of the drawings, there is shown a slight modification of the stop member in accordance with the present invention. In this construction instead of the yieldable material being disposed between the endmost fastener elements 2b as in the preferred embodiment, the yieldable or resilient material is molded to the beaded edge of the shorter stringer 3a at a point immediately above or beyond the endmost fastener element thereof so as to provide substantially a rectangular-shaped resilient body member 14. As before, this body member consists preferably of rubber molded around the edge of the stringer and has substantially the same thickness as the fastener elements so that it is able to pass into the channel of the slider. The body member 14 cooperates with the directly opposed fastener elements 2 on the longer stringer 3 in the same manner as the body members 13 of the preferred embodiment, so as to provide a top stop for preventing ordinary movement of the slider in a direction to close the fastener. As in the preferred construction, the resilient material of the body member 14 is compressed when an excessive pulling force is applied to the slider in a direction to close the fastener, thereby permitting the slider to be moved to a position above the body member 14 and permitting the fastener to be opened as before, by means of a lateral pull applied to the upper ends of the stringers.

As a result of my invention, it will be seen there is provided an end stop for slide fasteners which can be conveniently and inexpensively applied to the fastener stringers without the use of expensive tools or equipment. Also, it will be seen that the improved stop member of my invention is molded directly to the edge of the stringer so as to become substantially an integral part thereof, thereby eliminating any danger of displacement of the same along the stringer when an excessive pulling force is exerted on the slider. It will be seen further that the improved stop member of my invention has no portions which strike the slider or which tend to spread the wings thereof, thereby eliminating any danger of damage to the slider through continued use.

While I have shown and described one embodiment and a modification of my invention, it will be understood that this embodiment and the modification are merely for the purpose of illustration and description and that various 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 having a pair of flexible stringers with an opposed series of spaced-apart interlocking fastener elements attached to the longitudinal edges thereof and a slider for engaging and disengaging the same, a stop member comprising a body member attached to one stringer adjacent the endmost fastener elements thereof having a yieldable portion arranged therewith which extends outwardly from the edge of the stringer into the interlocking area between the stringers so as to be disposed in the plane of the fastener elements whereby said yieldable portion is adapted to abut the outer ends of the opposed fastener elements of the opposed stringer when disposed in the slider channel so as to limit normally the closing movement of the slider and is adapted to be depressed by the opposed fastener elements so that the slider is permitted to pass thereover to a position thereabove when the slider is subjected to an excessive pulling force tending to move it further toward its closed posi-

tion so that the fastener elements may be disengaged by subjecting the stringers to a tearing action.

2. A stop member as defined in claim 1 wherein the body member consists of yieldable material attached to the stringer at a point between a series of the endmost fastener elements of the stringer.

3. A stop member as defined in claim 1 wherein the body member consists of yieldable material attached to the stringer at a point immediately beyond the endmost fastener element of the stringer.

4. A stop member as defined in claim 1 wherein the body member consists of a pliable rubber-like material secured to the edge of the stringer between a series of the endmost fastener elements of the stringer.

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