May 9, 1950 L. H. MORIN 2,506,965

SLIDER CHECK FOR SEPARABLE FASTENERS

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Fig. 1.

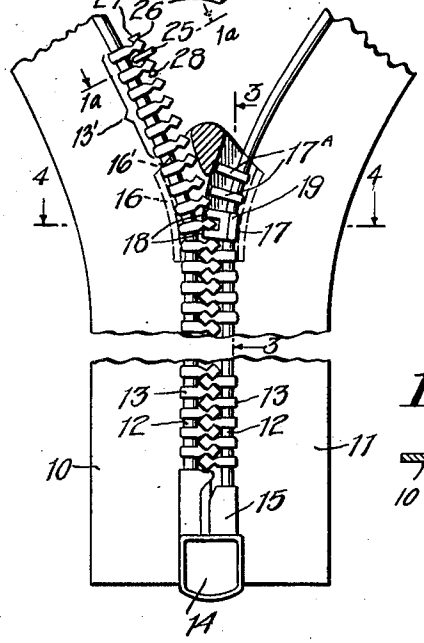


Fig. 2.

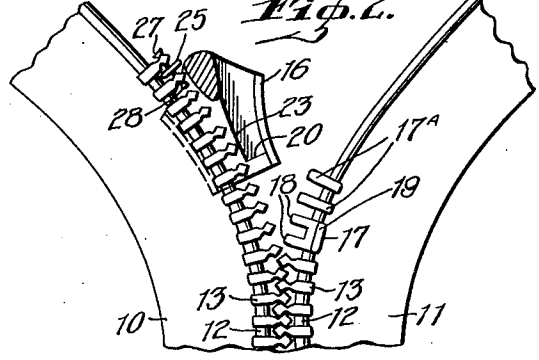


Fig. 1a.

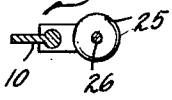


Fig. 3.

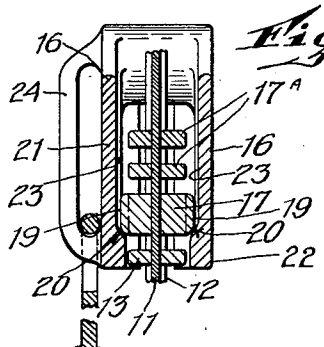


Fig. 4.

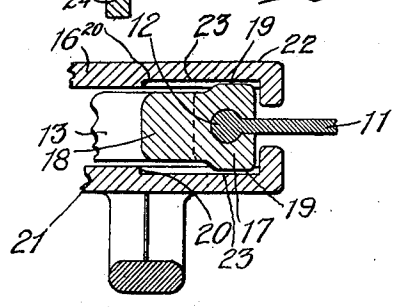
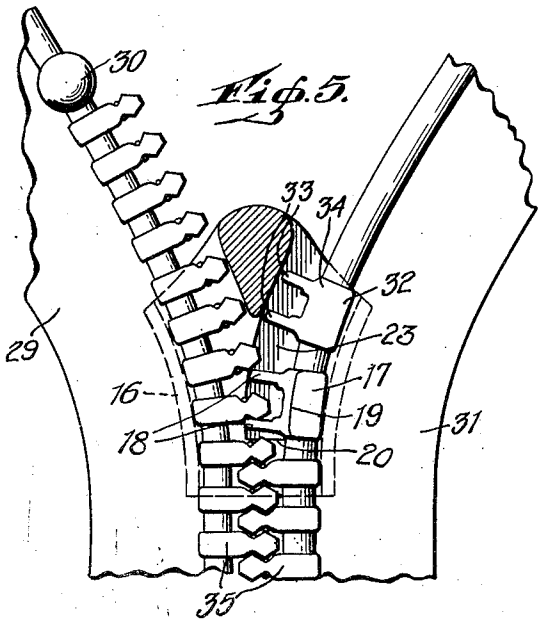


Fig. 5.



INVENTOR
LOUIS H. MORIN

BY

Howard E. Thompson
ATTORNEY

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Fig. 6.

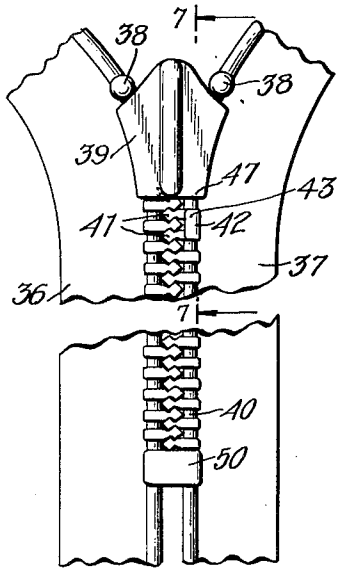


Fig. 7.

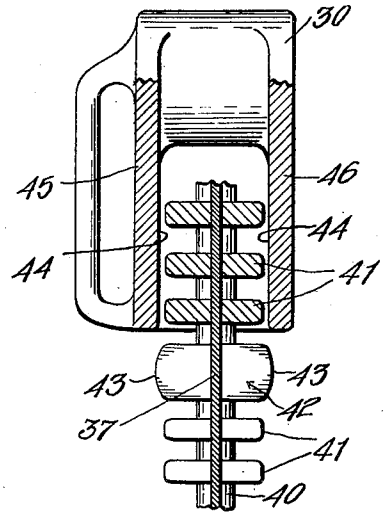


Fig. 8.

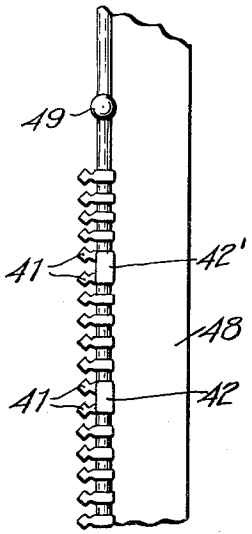
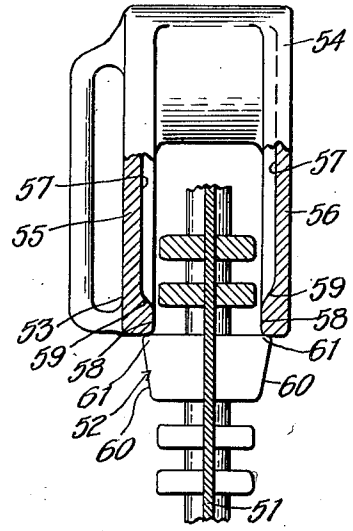


Fig. 9.



INVENTOR
LOUIS H. MORIN

BY Howard C. Thompson
ATTORNEY

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SLIDER CHECK FOR SEPARABLE FASTENERS

Louis H. Morin, Bronx, N. Y.

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6 Claims. (Cl. 24—205.11)

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This invention relates to separable fasteners employing stringers with a slider movable along the stringers to couple and uncouple the same. More particularly, the invention relates to the use of a check link or scoop, or what might be termed a nubbin on at least one stringer forming a stop limiting movement of the slider in one direction on the stringer, while at the same time, permitting forceable movement of the slider over the nubbin at least in one direction. The novel features of the invention will be best understood from the following description when taken together with the accompanying drawings, in which certain embodiments of the invention are disclosed, and in which the separate parts are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a face view of a separable fastener with parts of the construction broken away, and with parts shown in section.

Fig. 1*a* is a section on the line 1*a*—1*a* of Fig. 1.

Fig. 2 is a view similar to Fig. 1, showing the stringers separated.

Fig. 3 is a partial section on the line 3—3 of Fig. 1 on an enlarged scale.

Fig. 4 is a partial cross section on the line 4—4 of Fig. 1 on an enlarged scale.

Fig. 5 is a view similar to Fig. 1, showing only a part of the construction and showing a modification.

Fig. 6 is a view similar to Fig. 1, showing another adaptation and use of the invention.

Fig. 7 is a partial section on the line 7—7 of Fig. 6 on an enlarged scale.

Fig. 8 is a detailed view of one stringer of a fastener illustrating the use of a plurality of checked devices; and

Fig. 9 is a view similar to Fig. 7, showing another form of checked device.

In separable fasteners employing stringers having links or scoops which are coupled and uncoupled by a slider movable along the stringers, I employ a check device which may be termed a nubbin as a part of the link or scoop structure of at least one stringer for checking movement of a slider in one direction on the stringers, and utilizing the spring or yieldable properties of opposed walls of the slider to permit forceable movement of the slider over said check device for the several purposes, as will more fully hereinafter appear.

In one adaptation of the invention, I employ check devices of the kind under consideration for the purpose of providing quick separation of separable fasteners. For example in the use of fas-

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teners of this kind on sleeping bags wherein it is desirable to quickly separate the fasteners at the closed end of the stringers to enable the occupant of the bag to quickly separate the stringers by simply pulling the stringers apart after quick separation has been accomplished.

Figs. 1 and 2 of the drawing illustrate this quick separation or pull apart of stringers and in these figures, 10 and 11 represent the pair of stringers of a fastener. Attached to the beaded edges 12 of these stringers are links or scoops 13 adapted to be coupled and uncoupled in the coupling and uncoupling of the stringers. Attached to the beaded edge 12 of the stringer 10 is the box part 14 of a detachable coupling. To the corresponding end of the stringer 11 is attached the pin part 15, freely removable from the box part when the slider 16 is arranged adjacent the box part 14 as in other devices of this kind commonly known in this art.

A greater number of links as shown at 13' are arranged on the beaded edge 12 of the stringer 10 than on the stringer 11 thus providing a greater scoop length on the former than on the latter, and inwardly of two end links of the stringer 11, and occupying a space substantially equal to two other links is a check device 17, which may be said to be a special form of link or scoop, or dual link or scoop or characterized as a nubbin.

The nubbin 17 has projecting beyond the bead 12 of the stringer 11 two link portions 18, so shaped as to fit freely between links of the opposed stringer 10. Each link 18 of the nubbin 17 is substantially of the same width as each link 13 of the stringers, as will appear from a consideration of Fig. 4 of the drawing. The inner or mounting end of the nubbin has on its upper and lower surfaces projections 19 which are adapted to engage projections 20 formed at the contracted end of the opposed walls 21, 22 of the slider 16 (see Fig. 3). These projections 20 are produced by forming, on inner surfaces of these walls, recesses 23 which open through the wide or flared end of the slider, as will clearly appear from a consideration of Figs. 3 and 4 of the drawing.

The projections 19 are free to pass through the recesses 23, but are not free to pass over the projections 20, thus the nubbin acts as a stop, limiting the closing movement of the slider, which position is illustrated in Fig. 1 of the drawing. However, by yanking on the slider 16 through the medium of a conventional pull 24' attached to the pull mounting loop 24 of the slider, the projections 20 will be forced over the projections 19 by the yielding or spreading of the walls 21, 22 of the

slider. This further opening movement of the slider is checked by the stop 25, as seen in Fig. 2 of the drawing. When the slider is in this position the stringers can be freely and quickly pulled apart, as is illustrated in Fig. 2 of the drawing. The stringer 11 includes beyond the nubbin 17 two scoop blanks 17A, adapted to fit freely between the scoops 13 of the stringer 10. In the above movement of the slider from the position shown in Fig. 1, to that shown in Fig. 2, these scoop blanks serve to guide the slider in this operation.

In the construction shown in Figs. 1 and 2, the stop 25 comprises a disc mounted on a pin 26 coupled with two end links of the stringer 10, the pin 26 being retained against displacement from said end links by enlarged end portions 27 and 28, at least one of which will be formed after the pin has been assembled with the links. The stop washer or disc 25 is of such diameter to engage the flared end 16' of the slider 16 in checking movement of the slider, as will be apparent.

After the stringers have been completely separated, they may be readily re-coupled by simply moving the slider 16 into position adjacent the box part 14, and then inserting the pin part 15 through the slider into the box part and against moving the slider along the stringers to couple the same and into the position shown in Fig. 1. It will be apparent that when hasty opening or separation of the stringers is not essential, the slider may be moved from the position shown in Fig. 1, in the direction of the box part 14 in separating the stringers in the usual manner.

It will also be apparent that in addition to the matter of quick opening or separation of stringers, the present construction would also be practical for use where long stringers are employed, for example, on large coverings or sheetings employed to protect equipment of various kinds and classes. On the other hand, and from the quick action standpoint, fasteners of the kind under consideration may be used in connection with garments worn by theatrical people, particularly where quick changes of costumes are desirable.

In all instances, a normal top stop or stop at the closed end portion of the fastener is provided, sufficiently to resist any normal stresses or strains. However, by exerting a little greater force, or by yanking on the slider, the quick separation can be accomplished, as set forth above.

In Fig. 5 of the drawing is shown a slight modification of the construction shown in Figs. 1 to 4 inclusive, and the primary difference resides in two facts. First, the stringer 29, which is substituted for the stringer 10, has a more or less conventional end stop 30 attached to the stringer beyond the end links or scoops, and the stringer 31 will have on it a check device 17, identical with the device 17 of Figs. 1 to 4 inclusive. The stringer 31 differs simply in providing a supplemental end link construction 32, which would constitute a nubbin generally similar to the nubbin 17, with the exception that the projections 19 are removed.

In other words, the dual link portions 33 and the body portion 34 of the nubbin 32 will all be of a thickness substantially similar to the thickness of the links or scoops 35 of the stringers 29 and 31. A slider 16 employed in Fig. 5 would be identical with the slider 16 of Figs. 1 to 4, and therefore, no further brief description of this slider is essential.

With the construction shown in Fig. 5, the two nubbins 17 and 32 will be simultaneously applied, by casting or otherwise, directly to the stringer tape 31 beyond end links on this stringer. Whereas, with the construction shown in Figs. 1 and 2 of the drawing a blank space would be formed on the stringer inwardly of two end links in order to receive the nubbin 17.

In addition to utilizing check devices of the kind under consideration as stops limiting closing movement of a slider, as taught in Figs. 1 to 5 inclusive, these devices may also be used to check opening movement of the sliders.

For example, in Figs. 6 and 7 is shown one adaptation of check devices of this kind. In Fig. 6 portions of two stringers 36, 37 are shown, having end stops 38 at the closed end thereof for checking closing movement of a slider 39. On the beaded edge 40 of the stringer 37, preferably between two adjacent links or scoops 41 is attached a check device 42, comprising a member having upper and lower curved surfaces 43, the curvature on the surface 43, Fig. 7, being such as to locate the high point of the curvature midway between the ends of the device 42, the ends being considered with respect to the longitudinal plane of the stringer.

The high points of the surfaces 43 will represent a distance greater than the distance between opposed inside surfaces 44 of the opposed walls 45 and 46 of the slider 39 (see Fig. 7). It will thus be apparent that in moving the slider into its fully closed position abutting the conventional stops 38, Fig. 6, the slider will be forceably passed over the check device or member 42. This member is located on the stringer 37 below but adjacent the contracted end 47 of the slider when the slider is in fully raised position, as clearly illustrated in Fig. 6 of the drawing. This check member will prevent accidental opening movement of the slider, but on the other hand, permit forceable opening movement of the slider in the same manner as forceable closing movement thereof.

In the operation of forceably moving the slider over the check device or member 42, the walls 45 and 46 of the slider are sprung apart, or will yield sufficiently to permit this operation.

In Fig. 8 of the drawing is shown a slight modification of the structure shown in Figs. 6 and 7, in which two devices 42 and 42' are employed at spaced intervals along a stringer 48, the uppermost device 42' shown in Fig. 8 being spaced with respect to a normal end stop 49, a distance similar to the spacing of elements 38 and 42 of Fig. 6, whereas the lower check device is spaced at any predetermined distance from the upper device to check opening movement of the slider on the stringer at a point spaced with respect to the upper device. Here it will be understood that a number of these check devices may be used along a stringer, particularly in adapting the invention to such garments as shirts, windbreakers, jackets and the like, where a varied neck opening of the fastener would be desirable.

While in Fig. 6 of the drawing the invention is illustrated as applied to stringers having a permanent stop end coupling 50, it will be understood that it is also applicable to stringers of the type shown in Fig. 1, where the detachable box and pin couplings are provided, and particularly in the shirt and jacket applications of the fasteners. Devices such as shown in Fig. 6 of the drawing are desirable for use in many applications, for example, on pocketbook installations where the checking means would be desirable to

prevent unauthorized opening of a pocketbook. It being understood that a real pull is required on the slider in forceably moving the slider over the check device in moving the slider into open position.

In Fig. 9 of the drawing is shown a still further adaptation of the invention which would be applied to fastener stringers of the type and kind shown in Fig. 1 of the drawing, that is to say, fasteners capable of pull apart separation at the closed end of the stringers.

With this construction, at least one stringer 51 of a fastener would have a check device 52 positioned with respect to any suitable end stop that may be employed, so as to locate the check 52 beyond the contracted end 53 of a slider 54 to positively retain the slider against opening movement on the stringers. Opposed walls 55, 56 of the slider 54 will have recesses 57 similar to the recesses 23. The walls will also have at the contracted end 53 of the slider projections 58 similar to the projections 20, exception however, that it would be desirable to include on the projections inner bevelled walls 59 to facilitate movement of the projections 58 over the bevelled surfaces 60 of the check 52.

In other words, the check 52 differs from the check 42 in being bevelled in one direction only, thus forming stop shoulders 61 at the upper end of the check device which will strike against the projections 58 and prevent movement of the slider in the opening direction on the stringers. It is preferred that the shouldered portions 61 of the device 52 pass freely through the recessed portions 57 of the slider, or at least without exerting any great amount of pressure thereon, so as to minimize the strain in moving the slider into the finally closed position. Furthermore, by positioning the projections 58 near the free edge of the slider walls, greater spring or yielding properties are provided.

In all instances, the degree of projection provided on the check devices will be governed to suit the type and kind of fasteners employed. In some instances, sliders are composed of sheet metal and of plastic materials where greater degrees of elasticity in the material are provided, particularly in comparison with die cast metals which can also be employed.

The various check devices or nubbins may comprise unitary castings or other attachments to the stringers, and in some instances, for example, as illustrated in Fig. 6, the device may simply comprise a body cast upon two adjacent links of a stringer.

It will be understood that in the teachings of Figs. 1 to 5 inclusive, the added end links 17A on the stringer 11, or the link construction 32 is employed to maintain the stringers in proper relationship within the slider and to guide the slider in its movement into its position against the end stops 25 and 30.

Considering the structure shown in Fig. 9, it will be apparent that devices like 52 may be spaced along a stringer as devices 42 are arranged on stringer 48, particularly where it might be desirable to provide definite stops against opening movement of a slider at different positions along a stringer. In all instances, however, it will be necessary to move the slider into its final stop position at one end of the stringer to separate the stringer, and in all such cases, the stop device 52 will be arranged on the stringer having the pin end coupling fitting in the box coupling of the other stringer, the slider being retained against displacement from the stringer having the box coupling in all such instances.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In separable fastener stringers having scoops spaced along adjacent edge portions adapted to be coupled and uncoupled by a slider movable along the stringers, the improvement comprising means for checking normal movement of the slider in one direction on the stringers, said means comprising an enlarged portion on one stringer in alinement with the scoops thereon and adapted to enter the slider, in combination with means on the slider engaging said enlarged portion to resist normal movement of the slider on the stringers, and yieldable means incorporated in said slider permitting forceable movement of the slider over the enlarged portion on said stringer.

2. In separable fastener stringers having scoops spaced along adjacent edge portions adapted to be coupled and uncoupled by a slider movable along the stringers, the improvement comprising means for checking normal movement of the slider in one direction on the stringers, said means comprising an enlarged portion on one stringer in alinement with the scoops thereon and adapted to enter the slider, in combination with means on the slider engaging said enlarged portion to resist normal movement of the slider on the stringers, yieldable means permitting forceable movement of the slider over the enlarged portion on said stringer in one direction, and said enlarged portion having means positively retaining the slider against movement in the opposite direction on said stringer.

3. In stringers of separable fasteners adapted for complete separation, said stringers having a detachable coupling at one end, the other end of one stringer being of greater length than the corresponding end of the companion stringer, a slider movable along the stringers, the last named end of the long stringer having a stop positively checking movement of the slider in the direction of said end of said stringer, the combination of means on one stringer in spaced relation to said last named stop and means on the slider for checking normal movement of the slider along the stringers and maintaining the stringers in coupled relationship when so checked, and yieldable means on the slider permitting forceable movement of the slider over said checking means in the direction of the first named stop in complete separation of said end of the stringers.

4. In a separable fastener of the class described, comprising a pair of stringers, a slider for coupling and uncoupling the stringers, means detachably coupling one end of the stringers, the scoop length of one stringer being greater than that of the companion stringer by at least the length of said slider, thereby providing for the separation of the other end of the stringers, the improvement comprising means inwardly of the last named end of the shorter stringer for checking normal movement of the slider in the direction of said second named end of the stringers, and yieldable means on the slider permitting forceable movement of the slider over the last named means in manually separating the stringers.

5. In separable fastener stringers employing a slider movable along the stringers to couple and

uncouple the same, the combination of a non-yieldable check device on at least one stringer engageable with and forcibly traversable between opposed walls of the slider to check normal movement of the slider in one direction on the stringers, and means including slider walls having lateral springiness to permit forcible movement of the entire length of the slider longitudinally over and beyond the entire length of said check device to a stop position on at least one stringer.

6. In fastener stringers of the character described, the combination of a non-yieldable check device positioned on one stringer in line with fastener members thereof and a channeled slider on said stringers for receiving said check device for forcible passage through said channel, said slider having yieldable means to permit the slider to be forcibly moved over the entire length of said check device.

LOUIS H. MORIN.

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