Aug. 25, 1953 L. H. MORIN 2,649,638

TWO-WAY SEPARABLE FASTENER STRINGER

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Fig. 1.

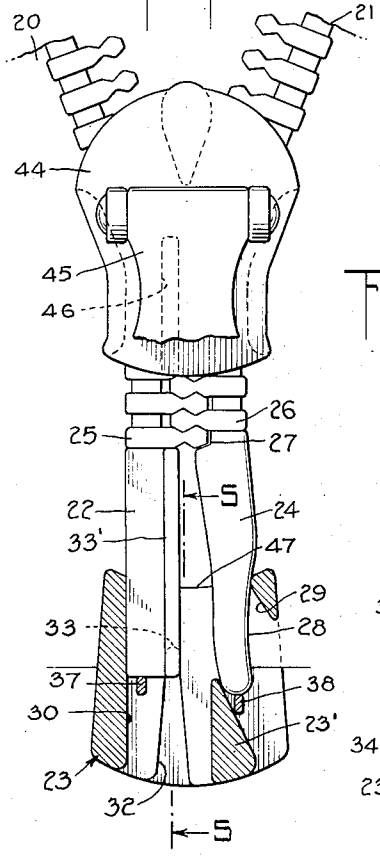


Fig. 5.

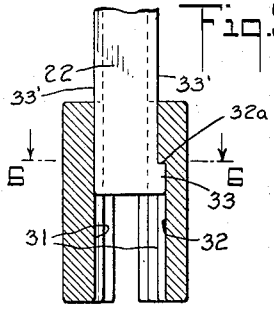


Fig. 6.

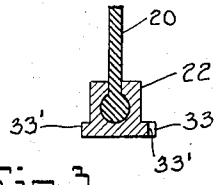


Fig. 2.

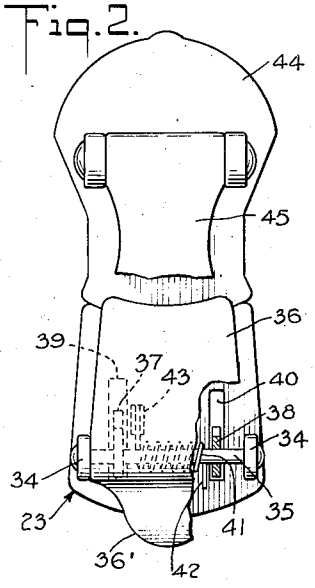


Fig. 3.

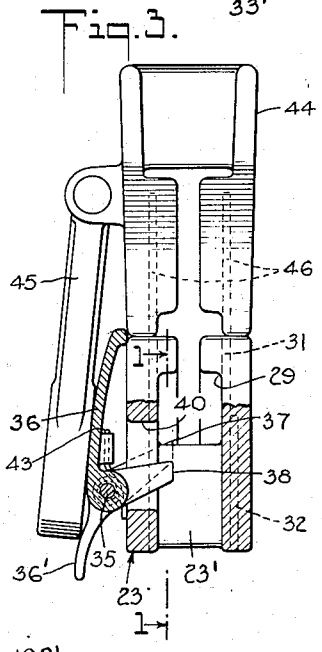


Fig. 4.

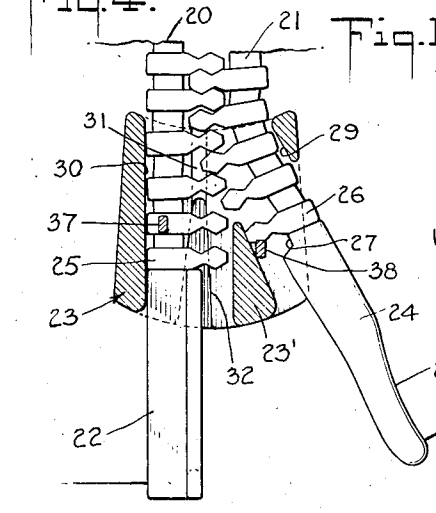


Fig. 16.

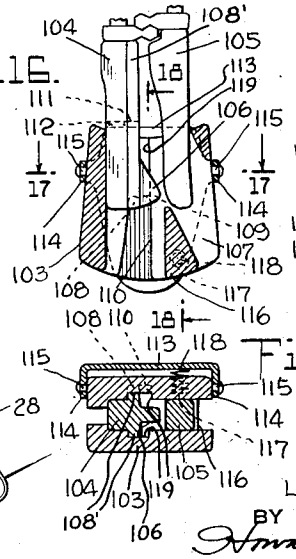


Fig. 18.

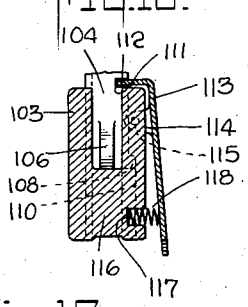


Fig. 17.

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Fig. 7.

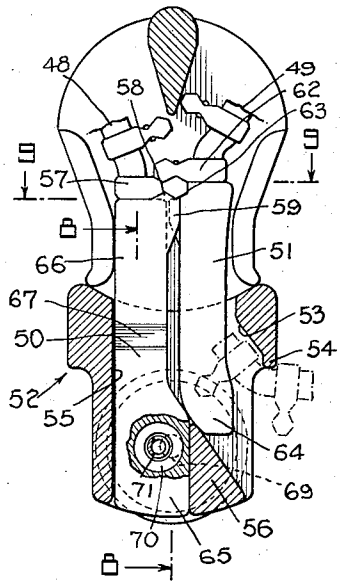


Fig. 9.

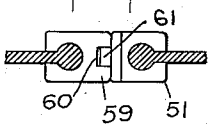


Fig. 8.

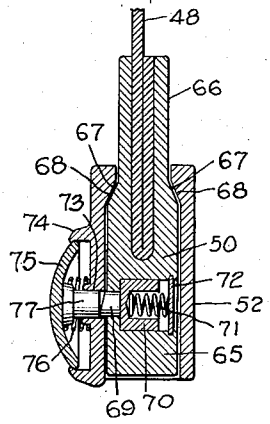


Fig. 10.

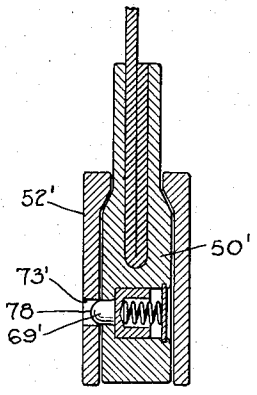


Fig. 11.

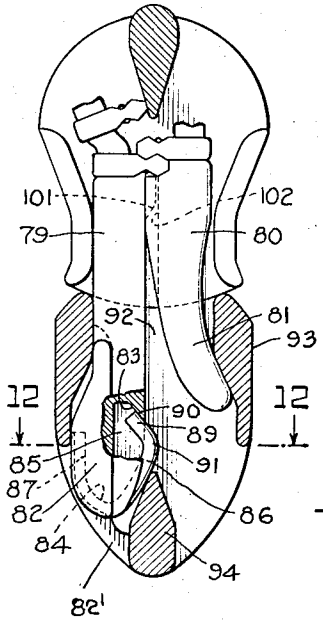


Fig. 12.

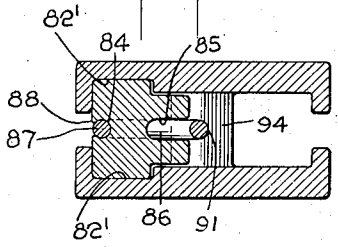


Fig. 13.

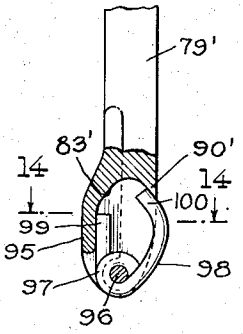


Fig. 14.

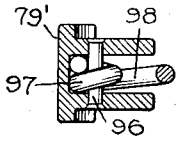
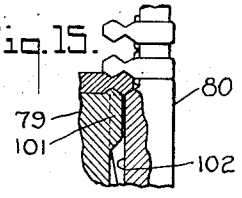


Fig. 15.



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TWO-WAY SEPARABLE FASTENER STRINGER

Louis H. Morin, Bronx, N. Y.

Application June 21, 1950, Serial No. 169,339

15 Claims. (Cl. 24—205.11)

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This invention relates to separable fastener stringers of the type and kind, where the stringer halves are completely separable, as for example in applications on windbreakers and the like. More particularly, the invention deals with a fastener construction of the kind under consideration, wherein what is generally known as the box member of a box and pin separable coupling is converted into a slider for separation of the stringers in addition to separation by a conventional slider. Still further, the invention includes means for controlling conversion of the box member into a slider element.

The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, 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 plan and sectional view of one end portion of separable fastener stringers with part of the construction broken away and showing a box member in section, the section being on the line 1—1 of Fig. 3.

Fig. 2 is a view similar to Fig. 1 omitting the stringers and showing abutting relationship between the box member and slider with part of the construction broken away and in section.

Fig. 3 is a side and sectional view of the structure as seen in Fig. 2.

Fig. 4 is a view similar to Fig. 1 showing only a part of the construction and illustrating the separation of the stringers by the box slider.

Fig. 5 is a partial section on the line 5—5 of Fig. 2.

Fig. 6 is a section on the line 6—6 of Fig. 5 omitting part of the construction.

Fig. 7 is a view similar to Fig. 1 of a modified form of construction, showing parts in a different relationship and illustrating separation of one stringer in dot and dash lines.

Fig. 8 is a partial section on the line 8—8 of Fig. 7.

Fig. 9 is a partial section on the line 9—9 of Fig. 7.

Fig. 10 is a view similar to Fig. 8 showing another form of construction.

Fig. 11 is a view similar to Fig. 7 showing another modification.

Fig. 12 is a section on the line 12—12 of Fig. 11.

Fig. 13 is a view similar to Fig. 11 showing only a part of the construction and showing a modification.

Fig. 14 is a section substantially on the line 14—14 of Fig. 13.

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Fig. 15 is a view showing a detail of the structure of Fig. 11 with parts broken away and in section.

Fig. 16 is a view similar to Fig. 1 omitting part of the construction and showing a modification.

Fig. 17 is a section on the line 17—17 of Fig. 16; and

Fig. 18 is a section on the broken line 18—18 of Fig. 16.

In Figs. 1 to 6, inclusive, I have illustrated one adaptation of my invention and, in Figs. 1 and 4, 20 and 21 represent a pair of stringers. To the beaded edge at one end of the stringer 20 is attached a bar or pin portion 22 forming part of a box member 23. As will be seen, the box member is movable relatively to the bar 22. To the corresponding end of the other stringer 21 is attached a pin member 24. It will be apparent that the bar 22 is fixed to the stringer 20 adjacent and in contact with one end scoop 25 thereon; the pin member 24 is correspondingly attached adjacent and in contact with a scoop 26 on the stringer 21, the pin member 24 having the recess 27 to receive part of the scoop 25 as will clearly appear from a consideration of Fig. 1 of the drawing.

It will appear that the pin member 24 has a lower slightly contracted and curved end, as seen at 28, to facilitate passage through an angular opening 29 at one side of the box member in the manner clearly illustrated in Fig. 4. Extending vertically through the box member 23 is a channel or passage 30 which communicates with the opening 29 at the upper end of the box member, but is divided from said opening by a web portion 23' at the lower portion of the box member. Opposed walls of the box member, within the channel 30, have grooves, as seen at 31, to key the bar 22 against lateral displacement from the box member 23 and one of these walls has a downwardly flared groove 32 for the reception of an offset stop lug 33 on the bar 22 to check displacement of the bar 22 through the top of the box member 23, as clearly illustrated in Figs. 1 and 5 of the drawing. The groove 32 terminates in a shoulder 32a (Fig. 5) intermediate the ends of the box member, which shoulder is engaged by the stop lug 33 of bar 22.

On one wall of the box member 23 is a pair of lugs 34 supporting a pin 35 on which is mounted a pull or control member 36 controlling operation of a pair of lugs 37 and 38 thereon with respect to position in the channel 30 and opening 29, respectively. The lugs operate in apertures 39 and 40 in the wall of the box member 23. The pull or control member 36 is normally urged

into the locked or operative position by a coil spring 41 arranged on the pin 35. The control member 36 has a projecting lip or fingerpiece 36' for actuating member 36 to move lugs 37 and 38 into inoperative position. One end 42 of the spring engages the wall of the member 23 and the other end is fixed to the pull 36, as seen at 43. The stop lugs 37 and 38 are so positioned in the box member 23 as to retain the bar 22 in its normal position to function as part of the box member 23 in normal use of the sliders and also to check downward movement of the pin member 24 in this position and use, as is illustrated in Fig. 1.

However, by pulling outwardly on the member 36, the lugs 37 and 38 can be retracted, thus allowing the box member 23 to slide upwardly upon the stringers and the pin portions 22 and 24 to move downwardly through the box slider member 23 in the manner clearly illustrated in Fig. 4 of the drawing.

In Figs. 1, 2 and 3, I have shown at 44 a slider of any type or kind, including a lock slider, arranged on the stringers to provide coupling and uncoupling thereof, the slider 44 having a pull 45 which is only partially seen in Figs. 1 and 2 and the pull can be of any construction.

The walls of the slider 44 are grooved, as seen at 46, to receive rib portions 33' on the bar 22 when the slider 44 is moved into abutting engagement with the upper concaved edge 47 of the member 23, as seen in Fig. 2. Although upper and lower rib portions 33' are shown, it is also possible to employ only the lower one, on which is provided the lug 33. In the position of the parts shown in Fig. 2, the pin member 24 is free for displacement through the slider 44 in completely separating the stringers, as in other devices of this type and kind, and this may be accomplished, of course, by first raising the pull 36 to move the lugs 37, 38 out of contact with the pins 22, 24, respectively. Assuming that the pin portions 22, 24 have been placed on the stringers, in order to assemble the box member 23 and slider 44 on the stringers, the box is first attached to the stringer 20 as by entering it at the top of the stringer and moving it downwardly until it engages the bar 22, being supported thereon by the engagement of the lug 33 with the shoulder 32a. Then the slider is placed on stringer 20 in the same way and moved downwardly until it comes into contact with the box member 23, as shown in Fig. 2. Thereafter, the pin 24 of the stringer 21 is inserted through the righthand side of the slider and box member in the usual way.

In Fig. 6 of the drawing, a section through the bar 22 is illustrated and it will be apparent from this figure, taken in conjunction with Fig. 5, that the ribs 33' operate in the grooves 31 of the box member 23.

In Figs. 7, 8 and 9, I have shown a modified form of construction, in which 48 and 49 represent a pair of stringers having, at one end, a bar 50 and pin member 51, respectively. At 52 is shown a box member which is generally of the structure of the box member 23, except for the detail formation thereof. In other words, the box member 52 has a diverging opening 53, part of the wall of which has an offset flange 54. The other side of the member 52 has a vertical channel or passage 55, the latter being divided from the opening 53 by a web portion 56. The bar 50 operates in the channel 55, whereas the pin 51 operates in the opening 53.

The upper end of the bar 50 is disposed adjacent an end scoop 57 and has a portion 58 keyed to the scoop, said portion including a lateral yoke-shaped extension 59, in the groove 60 of which a projecting lug 61 on the pin member 51 is adapted to operate. The pin member 51 also abuts an end scoop 62 on the stringer 49 and has a recess 63 for reception of the scoop 57. The pin member 51 also has a slightly rounded and laterally offset lower end 64 which bears upon the web 56 in the normal use position of the fastener, as seen in Fig. 7, but the pin member 51 is free to pass through the opening 53 when the slider box member 52 is moved upwardly, as with the structure shown in Figs. 1 to 4, inclusive.

The bar member 50 is enlarged at its lower end, as seen at 65, to fit snugly but freely in the lower portion of the channel or passage 55. It will also be noted from a consideration of Fig. 8 that the upper reduced end 66 of the bar joins the enlarged lower end 65 in bevelled wall portions 67, which are adapted to seat upon bevelled wall portions 68 of the member 52 in checking upward movement of the bar 50, as clearly seen in Fig. 8.

Supported in the enlarged lower end 65 of the bar 50 is a lock pin 69 having an enlarged socket portion 70 in which a spring 71 seats, the spring seating upon a retaining plate 72 suitably fixed to the bar 50. The spring 71 normally supports the pin 69 in protruding operative position, as seen in Fig. 8, in which the pin enters an aperture 73 in one wall of the box member 52.

Encircling the aperture 73, said wall of the box member has a circumferential inturned ring portion 74, forming a stop checking outward movement of a rounded button 75, the button being actuated by a spring 76 and having a pin portion 77 arranged in the aperture 73. It will thus be apparent that, by pressing inwardly upon the button 75, the lock pin 69 can be moved into inoperative position, thus permitting downward movement of the bar 50 through the member 52 or, in other words, facilitates operation of the member 52 as a slider for separating the lower ends of the stringers 48 and 49.

In Fig. 10 of the drawing, I have shown a slight modification of the structure shown in Figs. 7 to 9, wherein 50' is a bar, similar to the bar 50, and supporting a lock pin 69', generally similar to the lock pin construction 69, wherein the pin 69' is rounded and exposed in and accessible through an opening 73' in a wall of a box member 52' so that any small instrument can be inserted in the aperture 73' for displacing the pin 69' or, on the other hand, and by reason of the rounded end 78 on the pin 69, separation can be provided by forcibly moving the box member 52' in the upward direction.

In Figs. 11 and 12 of the drawing is shown another modification which again is generally similar to the structure shown in Figs. 7 to 10, wherein a box member 79 and pin member 80 are employed, here the pin member being reduced and curved at its lower end, as seen at 81, somewhat like the end 28 of Figs. 1 to 4.

The bar member 79 has an enlarged lower end 82 in which is formed a socket 83 comprising a peripheral groove 84 and a recessed portion 85. The enlarged lower end 82 operates in grooves 82', note Fig. 12, in the manner that 33 engages the groove 32. In the groove 84 is arranged a spring rod 86 forming a spring member, one end 87 of the rod being crimped in the groove 84 as clearly seen at 88 in Fig. 12 of the drawing,

whereas the other end 89 is tensioned to rest upon an offset stop 90 in such manner as to extend a rounded portion 91 of the member 86 into the channel portion 92 of a box member slider 93, as clearly illustrated in Fig. 11. The spring 86 normally engages a web portion 94 to hold the same in normal position, while facilitating forcible movement of the member 93 in the upward direction.

In Figs. 13 and 14, I have shown a slight modification of the structure shown in Figs. 11 and 12, wherein the bar member 79' has a socket portion 83' which includes a back wall part 95 and a pin 96 is passed through the socket portion 83' to form a support for the curled portion 97 of a spring 98 which, in other respects, is generally similar to the spring 86. The spring 98 has an end 99 bearing upon the wall 95 and an end 100 which bears upon a stop 90', similar to the stop 90.

Considering Fig. 15 of the drawing, it will appear that the bar member 79 has, adjacent the end link, a projection 101, similar to the projection 61; whereas, the pin 80 has a groove 102, similar to the groove 60, to key the end portions of the bar 79 and pin 80 against lateral movement. The parts are also fashioned to engage the end scoop the same as in the illustration in Fig. 7 of the drawing. This is also clearly seen in Fig. 11.

In Figs. 16 to 18, inclusive, I have shown a modification of the structure seen in Figs. 1 to 4 inclusive, wherein 103 shows a box member in the form of a channelled body, much like the box member 23 and, at 104, is shown the bar or pin portion and, at 105, is shown the pin member, generally similar to the pin member 24.

The bar 104 differs from the bar 22 in including a projecting lug 106, which acts as an abutment for the end of the pin member 105 to divert this pin member into the channel portion 107 of the channel body 103. The bar 104 has a projection 108, similar to the projecting stop lug 33, which is adapted to strike the shoulder 109 of the groove 110 in checking displacement of the member 103 from the bar 104. It will be noted that the projection-receiving recess or groove 110 is of substantial width, enabling the bar 104, or rather the projection 108, to be moved transversely thereof in order to facilitate the entry of member 105 into the channel 107.

Instead of utilizing the stop lug 37 to hold the bar 22 in position, as in Fig. 1, I employ, in Figs. 16 to 18, inclusive, a transverse groove or recess 111 adapted to be engaged by a lock lug 112 upon a plate 113. The plate 113 has, at its sides, apertured flanges 114, the apertures of which are adapted to engage outwardly extending pivot pins 115 on one wall portion of the member 103, as clearly illustrated in Fig. 17 of the drawing.

The web 116 which integrally joins the walls of the channelled body 103 has a socket 117 therein for the reception of a coil spring 118, which is adapted to bear upon the inner surface of the plate 113 to normally urge the lock lug 112 into operative position. It will be understood that, in moving the channelled body 103 upwardly on the stringers to uncouple the same, the plate 113 is simply pressed inwardly to disengage the lock lug 112 from the recess or groove 111.

It will be apparent that on release of the pressure upon the plate 113, the lug 112 can also be utilized to engage the scoops on the stringer, with which the bar 104 is attached, to retain the channelled body 103 in any position thereof.

Aside from the difference in structure defined, the device of Figs. 16 to 18, inclusive, is otherwise substantially the same as that illustrated in Figs. 1 to 6, inclusive, the bar 104 having upper and lower rib portions 108', similar to 33', which are received or keyed in recesses or grooves 119, which are similar to grooves 31 except that recesses 119 are widened to permit transverse movement of bar 104, as described above.

It will be apparent that, in the sectional view of the box member 23 as seen in Fig. 1 of the drawing, the section is taken through the retaining elements or lugs 37, 38 so that the flange portions of the box member appear on top of the stringers, 20, 21, i. e., the upper flange portions are shown. The section of Figs. 4, 7, 11 and 16 is also such as to show the upper flanges. However, in Figs. 7, 11 and 16, the tape has been omitted for sake of clarity. It will be understood that, in all forms of construction, the box member has the open flanged sides, as with other slides, for reception of the stringer tapes. No specific reference is made to these side openings as reference to the box member as the slider is deemed sufficient to characterize this structure of the device.

From the standpoint of description, the bar member or portion of the box member may be considered a second pin member, as this bar, in the several showings, functions as the pin member in passage through the box member, when the latter is utilized as a slider in coupling and uncoupling the stringers. As will be understood, the stringer scoops are of the double-acting type.

In all instances, a yieldably supported element or a yielding element is employed in retaining the one pin member or bar in coupled relationship with the box member in what can be regarded as the normal position of these parts or members. This normal position is shown in Figs. 1, 7, 11 and 16 of the drawings; whereas, in Fig. 4, is indicated the use of the box member as a slider and this same operation takes place with the structures as seen in the other figures.

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

1. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by a web, one of said flanges being shorter than the other and the web being disposed nearer to said shorter flange, said flanged walls and web serving to define a pair of channels which intersect above the web, one channel opening through opposite ends of the box part and the second channel opening through one end and one side thereof, said box part being movable along the stringers so that the pin and bar are slidable through said channels with the pin being slidable through the second channel, said bar having ribs on upper and lower sides of the same and said box part having grooves on the inner surface of each wall for receiving said ribs, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, said means comprising a projection on the bar and a flared slot in the inner surface of a wall of the box part which slot terminates in a shoulder for engaging the projection, means for preventing the box part from sliding upwardly along said bar comprising a spring-biased finger piece on the upper wall of the box part having a lock tooth thereon adapted

to enter a box part channel, said tooth being engageable by the lower end of the bar, and said lock tooth being adapted to engage said stringers when the box part is moved upwardly beyond said pin and bar.

2. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by a web, one of said flanges being shorter than the other, said web being offset with respect to the central, longitudinal axis of the box part, said flanged walls and web serving to define a pair of channels which intersect above the web, one channel opening through opposite ends of the box part and the second channel opening through one end and one side thereof, said box part being movable along the stringers so that the pin and bar are slidable through said channels with the pin being slidable through the second channel, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, said means comprising a projection on the bar and a shoulder in the inner surface of a wall of the box part, and means for preventing the box part from sliding upwardly along said bar comprising a spring-biased fingerpiece on the upper wall of the box part having a yieldably supported element thereon adapted to enter a box part channel to engage the lower end surface of he bar.

3. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by an offset web, one of said flanges being shorter than the other, said flanged walls and web serving to define a pair of channels which intersect above the web, one channel opening through opposite ends of the box part and the second channel opening through one end and one side thereof, said box part being movable along the stringers with the pin and bar being slidable through said channels, said pin being slidable through the second channel, a fingerpiece on the box part having a lock tooth engageable with the bar to prevent the box part from moving upwardly beyond said bar, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, and means on the box part for enabling the bar to be moved transversely therein to facilitate entry and movement of the pin in said second channel.

4. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower walls connected by a web, said walls and web serving to define a pair of channels which intersect above the web, said box part being movable along the stringers with the pin and bar being slidable through said channels, said bar having a rib on one side of the same and said box part having a groove on the inner surface of one wall for receiving said rib, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, said means comprising a projection on the bar and a shoulder in the inner surface of a wall of the box part for engaging said projection, and means for preventing the box part from sliding upwardly along said bar comprising a spring-biased fingerpiece on one wall of the box part having a lock tooth thereon adapted to engage the bar.

5. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by a web, said flanged walls and web serving to define a pair of channels which intersect above the web, one channel opening through opposite ends of the box part and the second channel opening through one end and one side thereof, said box part being movable along the stringers so that the pin and bar are slidable through said channels, said bar having an extension on its lower end portion for guiding the pin into said second channel, said bar having a rib on one side of the same and said box part having a groove for receiving said rib, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, said means comprising a projection on the bar and a projection-receiving recess in the box part which recess terminates in a shoulder engageable by the projection, said recess being of a width as to enable the projection to be moved transversely therein and thus facilitate entry and movement of the pin in said second channel, means for preventing the box part from sliding upwardly along said bar comprising a control member on the box part having a lock tooth adapted to engage the bar, said control member extending downwardly over the lower end of the box part, and said box part being lockably engageable to said stringers when the box part is moved upwardly beyond said pin and bar.

6. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by a web, said flanged walls and web serving to define a pair of channels which intersect above the web, said box part being movable along the stringers so that the pin and bar are slidable through said channels, said bar having a rib on one side of the same and said box part having a groove on the inner surface of one wall for receiving said rib, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, means for preventing the box part from sliding upwardly along said bar comprising a spring-biased control member on the upper wall of the box part having a lock tooth thereon adapted to engage the bar, and said control member being pivotally connected to side edges of the box part.

7. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by a web, said flanged walls and web serving to define a pair of channels which intersect above the web, one channel opening through opposite ends of the box part and the second channel opening through one end and one side thereof, said box part being movable along the stringers so that the pin and bar are slidable through said channels, said bar having an extension on its lower end portion for guiding the pin into said second channel, said bar having a rib on one side of the same and said box part having a groove on the inner surface of one wall for receiving said rib, interengaging means on the bar and on the box part for preventing the latter from sliding downward-

ly off the bar, and means for preventing the box part from sliding upwardly along said bar comprising a control member on the upper wall of the box part having locking means thereon adapted to engage the bar.

8. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by a web, said flanged walls and web serving to define a pair of channels which intersect above the web, said box part being movable along the stringers so that the pin and bar are slidable through said channels, said bar having a rib on one side of the same and said box part having a groove on the inner surface of one wall for receiving said rib, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, means for preventing the box part from sliding upwardly along said bar comprising a control member on the upper wall of the box part having a yieldably supported element thereon adapted to engage the bar, and means on the box part for enabling the bar to be moved transversely therein to facilitate entry and movement of the pin in its channel.

9. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having a pair of intersecting channels, said box part being movable along the stringers so that the pin and bar are slidable through said channels, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, means for preventing the box part from sliding upwardly along said bar comprising a spring-biased control member on the upper wall of the box part having a lock tooth thereon adapted to engage the bar, said lock tooth being movably disposed at the upper, intersecting-channels end of the box part, said control member extending downwardly over the lower end of the box part, and said box part being lockably engageable to said stringers when the box part is moved upwardly beyond said pin and bar.

10. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar associated with a box part on the other stringer, the improvement therein comprising a movable box part having a pair of intersecting channels, one channel opening through opposite ends of the box part and the second channel opening through one end and one side thereof, said box part being movable along the stringers so that the pin and bar are slidable through said channels with the pin being slidable through the second channel, said bar having a rib and said box part having a groove for receiving said rib, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, and means for preventing the box part from sliding upwardly along said bar comprising a control member on the upper wall of the box part having a yieldably supported element thereon adapted to engage the bar.

11. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a substantially straight bar associated with a box part on the other stringer, the improvement therein comprising a movable box part having a pair of intersecting channels, one channel opening through opposite ends of the box part and the second channel opening through one end and one side thereof, said box part benig movable along the stringers so that the pin and bar are slidable through said channels with the pin being slidable through the second channel, said bar having a rib and said box part being movable along the stringers so that terengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, means for preventing the box part from sliding upwardly along said bar comprising a control member on the upper wall of the box part having locking means engageable with the bar, and said control member extending downwardly over the lower end of the box part.

12. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar associated with a box part on the other stringer, the improvement comprising a movable box part having a pair of intersecting channels therein, said box part being movable along the stringers so that the pin and bar are slidable through said channels, said bar having a rib and said box part having a groove for receiving said rib, interengaging means on the box part and on the bar for preventing the box part from sliding downwardly off the bar, and means for preventing the box part from sliding upwardly along said bar comprising a control member on the box part having a yieldably supported element engageable with the bar.

13. In separable fastener stringers having detachable bottom stops comprising a pin part on each stringer and a box part associated with one of said pin parts, the improvement comprising a channelled box part that is movable along the coupled stringers with the pin parts being slidable through said channels, interengaging means on one pin part and on the box part for preventing the box part from sliding off the lower end of said one pin part, said interengaging means comprising a projection on one of said parts and a recessed portion on the other of said parts, said one pin part having a rib thereon and said box part having a groove for receiving said rib to thereby aid in alining said parts relatively to each other, means for preventing the box part from sliding upwardly along said one pin part, said last-named means comprising a spring-operated stop on one of said parts operative to engage said other part, and means for rendering said stop inoperative to permit the box part to slide upwardly along said pin part.

14. In a separable fastener of the class described comprising stringers having scoops spaced thereon and coupled and uncoupled by a slider movable along the stringers, the end of one stringer having a pin member fixed thereto, the corresponding end of the other stringer having a bar member fixed thereto, a channelled box member having an opening at one end for reception of the pin and bar members and having divided openings at the other end for passage of the pin and bar members therethrough, said box member being movable to uncouple and couple the stringers, a rib on the bar member and a groove on the box member for receiving said rib to aline said two members relatively to each other, cooperating means on the bar member and box member for preventing downward displacement of the box member from normal position on said bar member, and other means for preventing upward displacement of the box member

from normal position on the bar member comprising a fingerpiece on the box member having a lock tooth engageable with the bar member, said fingerpiece extending downwardly over the lower end portion of the box member and being spring-biassed to normally remain in a fixed position relatively thereto.

15. In a pair of separable fastener stringers having detachable bottom stops comprising a pin on one stringer and a bar on the other stringer, a movable box part having upper and lower flanged walls connected by a web, said flanged walls and web serving to define a pair of channels which intersect above the web, said box part being movable along the stringers so that the pin and bar are slidable through said channels, said bar having a rib on one side of the same and said box part having a groove on the inner surface of one wall for receiving said rib, interengaging means on the bar and on the box part for preventing the latter from sliding downwardly off the bar, means for preventing the box part

from sliding upwardly along said bar comprising a control member on the upper wall of the box part having a lock tooth thereon adapted to engage the lower end edge of the bar, and said box part being lockably engageable to said stringers when the box part is moved upwardly beyond said pin and bar.

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