Sept. 12, 1944. D. MARINSKY 2,358,179

TWO WAY SEPARABLE COUPLING FOR FASTENER STRINGERS

Filed Aug. 15, 1942

Fig. 1.

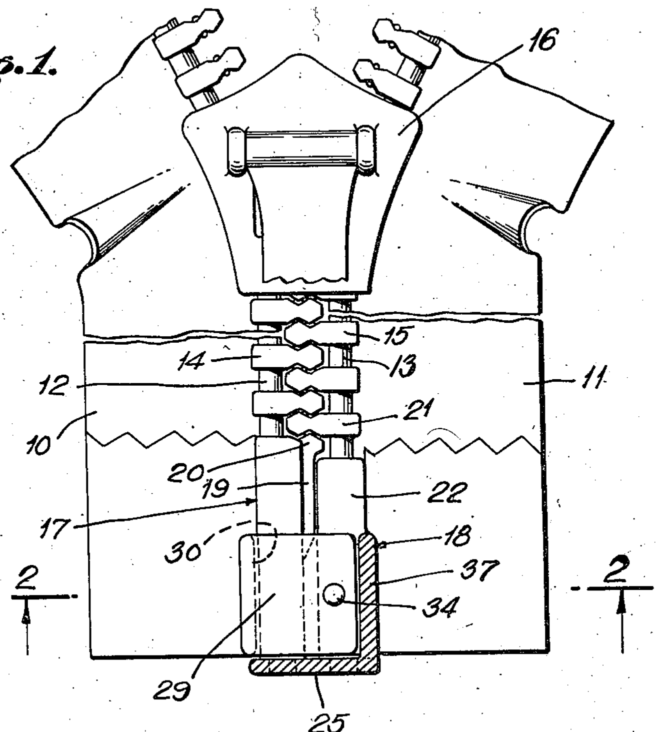


Fig. 4.

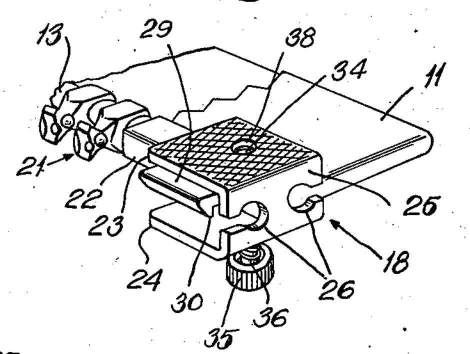
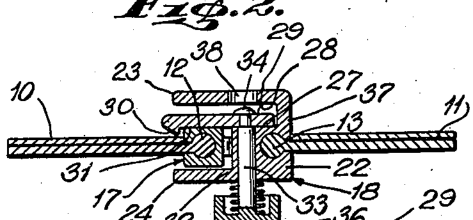


Fig. 2.



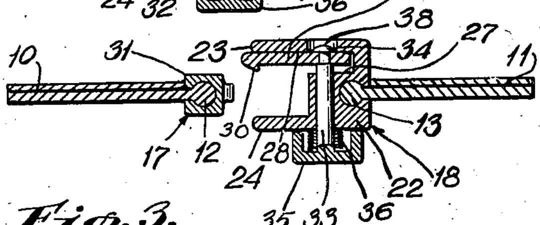


Fig. 3.

INVENTOR
DAVIS MARINSKY
BY
Lyford Seuller Burgess
ATTORNEYS

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TWO-WAY SEPARABLE COUPLING FOR FASTENER STRINGERS

Davis Marinsky, Bronx, N. Y., assignor of one-half to Louis H. Morin, Bronx, N. Y.

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13 Claims. (Cl. 24—205)

This invention relates to separable end stop couplings of separable fastener stringers providing complete separation of the two stringers. More particularly, the invention relates to an end stop coupling having a latching element normally retaining the stringers in coupled relationship and movable into unlatched position to provide separation of the stringers independent of the slider in providing separation of the stringers at said end portion thereof. 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 view of a separable fastener made according to my invention with part of the construction broken away and part in section.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 showing the parts in unlatched position, and

Fig. 4 is a perspective view of the latching end of one stringer.

In separable fasteners of the kind under consideration, it has been common to provide two separable end stop couplings generally referred to as a box part on one stringer and a pin part on the other stringer entering the box part in coupling the stringers and providing complete separation of the stringers when the slider is brought into engagement with the box part. In certain uses of separable fasteners, particularly on long jackets, coats and other garments or wraps, it is desirable to open the lower portion of the garments while maintaining the upper portion thereof closed, particularly when the wearer is in a sitting position.

To adapt fasteners for such use, I provide a separable end stop coupling comprising a box part on one stringer and a pin part on the other stringer with latching means normally retaining said parts in coupled relationship, whereby in manually or otherwise moving the latching means into inoperative position, the pin and box parts may be separated to uncouple the stringers independent of the usual slider. This end stop coupling construction is further applied to stringers having double action scoops capable of being coupled and uncoupled by a slider movable in either direction on the stringers, thereby facilitating recoupling of the stringers which have been separated through the release of the latching means.

To show one adaptation of the invention, I have illustrated in Fig. 1 of the drawing spaced portions of two stringers 10 and 11, to the beaded edges 12 and 13 of which are attached links or scoops 14 and 15 of the double action type, that is to say, scoops having common coupling surfaces at opposed sides thereof so that a slider 16 may be moved in either direction on the stringers to couple the scoops, and in like manner, in uncoupling the same.

In Fig. 1, the slider 16 is shown at one end portion of the partially coupled stringers. Secured to the beaded edge of the other end portion of the stringer is a pin part 17 and a box part 18. The pin part 17 extends along the bead 12 and it includes at the outer surface thereof a projecting rib 19 terminating in a link engaging enlargement 20 to engage the end link 21 of the stringer 11.

The box part 18 comprises a pin portion 22 arranged along the beaded edge 13 and at the end of the stringer, the part 20 extends laterally beyond the stringer edge to form top and bottom walls 23 and 24 of the box part, these walls being joined in the end of the box part in an end wall 25 having apertures 26 therein.

The top wall 23 of the box part 18 is spaced from the surface 27 of the pin portion 22 to form a clearance or channel 28, which provides free vertical movement of a latch element 29 in the box part.

In the construction shown, the latch element comprises a plate which fits within the longitudinal dimensions of the top wall and has at the outer side thereof a hooked flange 30 to engage the shoulder portion 31 of the pin part 17, as clearly seen in Fig. 2 of the drawing.

Extending vertically through the pin portion 22 is an aperture 32, in which is mounted a pin or plunger 33, the upper end of which is riveted or otherwise secured to the element 29, as seen at 34. This pin projects beyond the surface of the bottom wall 24 and has a cup shaped head 35, which forms a seat for a spring 36 arranged on the pin and engaging the bottom wall 24. The top wall 23 also joins the pin part 22 in a side wall 37; the top wall 23 also has an aperture 38 in alinement with the pin 33, or the rivet head 34 thereof, to provide clearance for this head, thus minimizing the amount of clearance provided in the channel 28 for the free operation of the latching element 29. In this connection, it will be understood that any type and kind of latching element can be employed, as well as any means for actuating the same de-

pending entirely upon the use to which the fastener is applied and the question of cost of the complete latching equipment. The illustration in the accompanying drawing is simply to show one simple adaptation of the invention.

In the normal use of the fastener, the stringers will be coupled and uncoupled by the slider 16 in the usual manner. In other words, to completely separate the stringers, the slider will be moved from the position shown in Fig. 1 in the direction of the pin and box parts 17 and 18, the contracted end of the slider being checked in this movement by the top and bottom walls 23 and 24 as well as the wall 37. When the slider is in this position, the pin part 17 is free to be drawn through the slider channel and the stringers are separated leaving the slider on the stringer 11 adjacent the box part 18. In recoupling the stringers, the pin part is inserted through the slider and into the box part and the slider is then moved away from the pin and box parts in recoupling the links 14 and 15.

In the auxiliary or supplemental use of the stringers, in other words when it is desirable to separate the end portions of the stringers having the pin part 17 and box part 18 without uncoupling a predetermined part of the other end portion of the stringers, all that will be necessary is for the wearer to depress the button 35 which will raise the latch element 29 out of engagement with the pin part 17, thus providing free lateral movement of the pin part 17 through the box part, as indicated in Fig. 3 of the drawing. The links 14 and 15 may then be uncoupled by simply pulling on the stringers to any desired degree. While it is possible to recouple the stringers by hand, it would be quicker to move the slider downwardly along the stringers to recouple the lower end portion of the stringers, allowing the pin part 17 to freely enter the box part with the latch element 29 in raised position and thereafter the slider may be moved in the opposite direction along the stringers to recouple the entire stringer length.

The latch element 29 may be said to comprise a supplemental wall of the box part which is interposed between the outer walls and movable toward and from one of these walls to vary the spacing between the walls. This supplemental wall includes the retaining flange which engages the pin part to normally retain the pin part against lateral displacement from the box part. However, by increasing the spacing between the walls by movement of said supplemental wall, its flange clears the pin part to provide free lateral separation of the pin and box parts.

It will be understood that the surface 27 of the pin portion 22 of the box part 18 serves as a stop limiting movement of the latch element 29 in the direction of the wall 24. It will thus be apparent that the pin part 17 may be snapped into locked position without having to first manually raise the element 29.

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

1. In separable fastener stringers employing pin and box couplings at one end thereof for complete separation of the stringers by movement of the pin longitudinally of the strings, a latch element on the box part engaging the pin part to retain said parts in coupled relationship, means for moving the latch element into inoperative position to facilitate manual separation of said stringers by lateral withdrawal of the pin from the box, said latch element comprising a plate movable in the box part between spaced walls thereof, and said plate having a hook flange along the outer edge thereof operatively engaging said pin part.

2. In separable fastener stringers employing pin and box couplings at one end thereof for complete separation of the stringers, a latch element on the box part engaging the pin part to retain said parts in coupled relationship, means for moving the latch element into inoperative position to facilitate manual separation of said stringers, said latch element comprising a plate movable in the box part between spaced walls thereof, said plate having a hook flange along the outer edge thereof operatively engaging said pin part, and means coupled with said latch plate and projecting externally through the box part for manually moving said plate into inoperative position in releasing the pin part.

3. In separable fastener stringers employing pin and box couplings at one end thereof for complete separation of the stringers, a latch element on the box part engaging the pin part to retain said parts in coupled relationship, means for moving the latch element into inoperative position to facilitate manual separation of said stringers, said latch element comprising a plate movable in the box part between spaced walls thereof, said plate having a hook flange along the outer edge thereof operatively engaging said pin part, means coupled with said latch plate and projecting externally through the box part for manually moving said plate into inoperative position in releasing the pin part, and a spring normally supporting the latch plate in operative position.

4. In end couplings for separable fastener stringers, said coupling comprising a box part on one stringer having spaced outer walls protruding beyond the stringer edge, a supplemental wall disposed intermediate the first named walls and movable therebetween, said supplemental wall including at its outer edge a hooked flange, and tensional means for normally supporting the intermediate wall in predetermined spaced relation to one of said first named walls.

5. In end couplings for separable fastener stringers, said coupling comprising a box part on one stringer having spaced outer walls protruding beyond the stringer edge, a supplemental wall disposed intermediate the first named walls and movable therebetween, said supplemental wall including at its outer edge a hooked flange, tensional means for normally supporting the intermediate wall in predetermined spaced relation to one of said first named walls, and manually actuated means for moving the supplemental wall away from said first named wall to increase the spacing between said walls.

6. In end couplings for separable fastener stringers, said coupling comprising a box part on one stringer having spaced outer walls protruding beyond the stringer edge, a supplemental wall disposed intermediate the first named walls and movable therebetween, said supplemental wall including at its outer edge a hooked flange, tensional means for normally supporting the intermediate wall in predetermined spaced relation to one of said first named walls, and a manually operated button externally of the box part for moving the supplemental wall into wide spaced relationship to said first named wall.

7. In detachable end coupling structure for separable fastener stringers particularly those

having series of scoops mounted thereon adapted to be coupled and uncoupled by a slider movable along said stringers, said structure comprising a box part adapted to be mounted at the end of one stringer and to receive within said box a pin element mounted at the end of the other stringer and to permit entrance into and withdrawal of said pin element from said box by movement of said pin longitudinally of said stringers when the slider is adjacent said box, the improvement which comprises spring actuated retaining means in said box part adapted to normally prevent lateral withdrawal of the pin element from said box while permitting said longitudinal movement of the pin element, and manually operable means to render said retaining means inoperative in order to permit lateral withdrawal of said pin from said box.

8. In detachable end coupling structure for separable fastener stringers particularly those having series of scoops mounted thereon adapted to be coupled and uncoupled by a slider movable along said stringers, said structure comprising a box part adapted to be mounted at the end of one stringer and to receive within said box a pin element mounted at the end of the other stringer and to permit entrance into and withdrawal of said pin element from said box by movement of said pin longitudinally of said stringers when the slider is adjacent said box, the improvement which comprises resiliently controlled retaining means on said box adapted to normally prevent lateral withdrawal of the pin element from said box while permitting said longitudinal movement of the pin element, and manually operable means on said box to render said retaining means inoperative in order to permit lateral withdrawal of said pin from said box.

9. In separable fasteners of the type employing stringers and a separable end stop at one end of the stringers, said stop comprising a pin member and a box part, said box part having a spring biased latch adapted to engage the pin part to retain the same against lateral separation from the box part, and means on the box part for actuating said latch to release the pin part for free lateral movement from the box part.

10. In separable fastener stringers employing pin and box couplings on one end thereof for a complete separation of the stringers by movement of the pin longitudinally of the stringers, a spring actuated latch element on the box part engaging the pin part to retain said parts in coupled relationship, and means on the box part for moving the latch element into inoperative position to facilitate manual separation of said stringers by lateral withdrawal of the pin from the box.

11. The combination with separable fastener stringers adapted to be coupled and uncoupled by a slider movable along the stringers, of box and pin means at one end portion of the stringers providing complete separation of the stringers when the slider is arranged adjacent said means, and said means including spring actuated means on the box for releasing the pin in separating said end of the stringers by lateral movement of the pin in relation to the box when the slider is in spaced relation thereto.

12. The combination with separable fastener stringers adapted to be coupled and uncoupled by a slider movable along the stringers, of box and pin means at one end portion of the stringers providing complete separation of the stringers when the slider is arranged adjacent said means, said means including other means for releasing the pin in separating said end of the stringers by lateral movement of the pin in relation to the box when the slider is in spaced relation thereto, said second named means comprising a latch element on the box, tensional means normally supporting the latch element in operative position, and manually actuated means on the box for moving said element against the action of said tensional means into inoperative position.

13. The combination with separable fastener stringers, of an end coupling comprising a box part on one stringer and a pin part on the companion stringer longitudinally insertable into and out of the box part in coupling and uncoupling the stringers, means comprising a spring actuated latch element normally retaining the pin part against lateral separation from the box part, and means on the box part for moving the latch element against the action of its spring out of engagement with the pin part to provide lateral separation of the pin and box parts.

DAVIS MARINSKY.