June 9, 1959 L. H. MORIN 2,889,605

DUPLEX SEPARABLE FASTENERS FOR UNITING MULTIPLE MEMBERS

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Fig. 1.

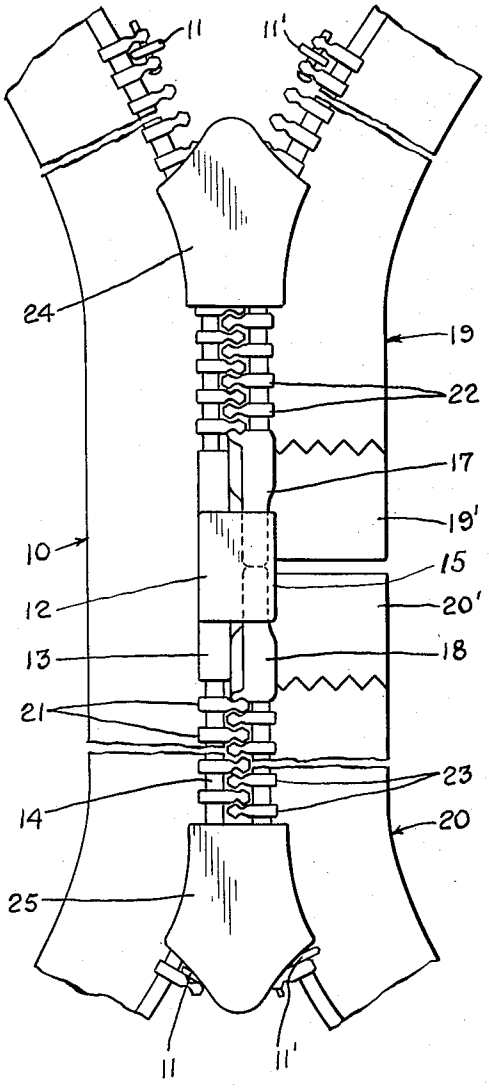


Fig. 2.

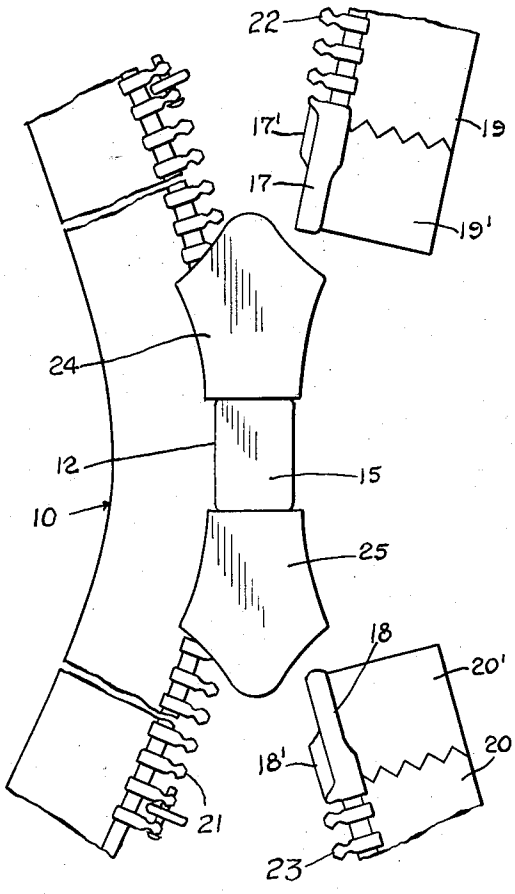
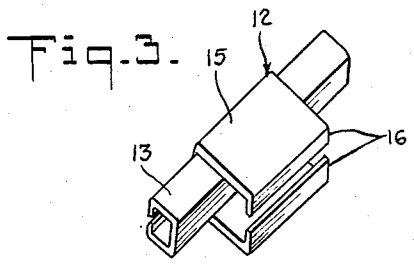


Fig. 3.



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Fig. 3.

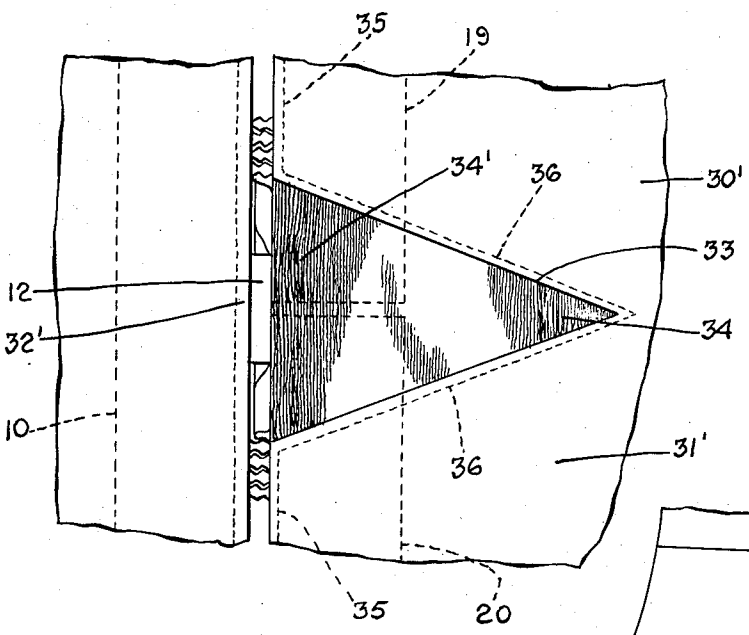
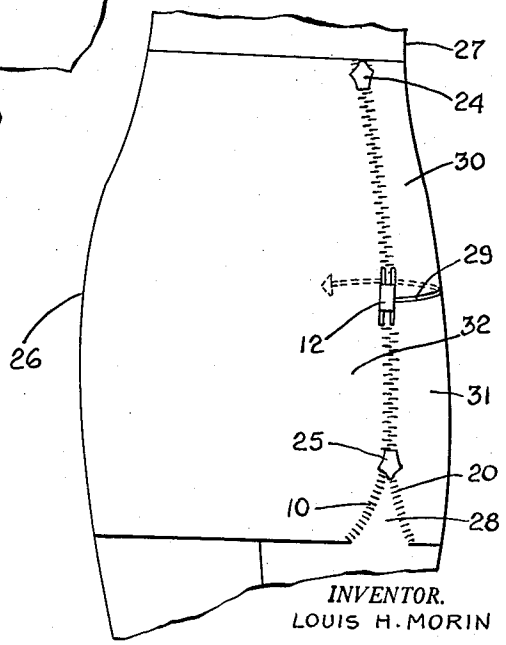


Fig. 4.



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DUPLEX SEPARABLE FASTENERS FOR UNITING MULTIPLE MEMBERS

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Application February 21, 1955, Serial No. 489,619

12 Claims. (Cl. 24—205)

This invention relates to separable fasteners employing stringers with sliders movable along the stringers in coupling and uncoupling the same. More particularly, the invention deals with a single separable fastener employing multiple stringers coupled and uncoupled through action of a pair of sliders in coupling and uncoupling a plurality of members.

Still more particularly, the invention deals with a separable fastener structure, wherein one long and two short stringers are employed, the long stringer having a single box part, with which coupling pin members of the other stringers are detachably coupled in complete separation of the fastener and the members, to which the fastener stringers are attached.

Further, my invention deals with a separable fastener, wherein yieldable means is provided on the supporting member of two stringers bridging intersections of said stringers, facilitating coupling and uncoupling of the pins of said stringers with the box part of the companion stringer.

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 parts of the construction broken away and indicating the fastener in a partially closed position.

Fig. 2 is a view, similar to Fig. 1, showing the parts in a different position, with two of the stringers detached with respect to a third stringer.

Fig. 3 is a perspective view of a box part which I employ, detached.

Fig. 4 is a perspective view, diagramamtically illustrating the use of the fastener shown in Figs. 1 to 3, inclusive, on a garment, with one end portion of the fastener and the garment in partially opened position; and

Fig. 5 is a detailed view, generally similar to the showing in Fig. 1, with the fastener attached to a modified form of garment.

My improved separable fastener is what may be termed a multiple stringer-type, adapting the fastener for uses wherein multiple members or garment parts or sectional portions of a garment part may be independently coupled and uncoupled in the operation of adjusting a garment upon the body of the wearer, as well as in applying and removing the garment with respect to the body of the wearer.

In Figs. 1 and 2 of the drawing, I have shown one form of fastener, comprising a long stringer **10**, having end stops **11** at opposed ends thereof, intermediately of which the stringer has a coupling box part **12**. The box part **12** is shown in perspective detail in Fig. 3 of the drawing and comprises, at one side thereof, an elongated channel tube **13**, in which the beaded edge **14** of the stringer **10** is adapted to be secured, the box part having, centrally thereof, an enlarged body **15** extending above and below

the channel **13**, the body **15** having extending side hook-shaped flanges **16**, forming channels into which male coupling pins **17** and **18** of two associated stringers **19** and **20** are adapted to pass in the operation of coupling the stringers **19** and **20** with the stringer **10**.

The box part **12** may be said to be a dual box part adapting the same to the duplex stringer structure employed, that is to say, facilitating coupling and uncoupling of the stringers **19** and **20** with respect to the stringer **10**, each stringer **19** and **20** being individually coupled and uncoupled, as will be readily apparent from the disclosure and from descriptive uses, later set forth.

The stringer **10** includes, between the ends of the channel **13** and the stops **11**, longitudinally spaced links or scoops **21**, which are adapted to be coupled and uncoupled with corresponding scoops **22** and **23** of the stringers **19** and **20**. The scops **22** and **23** extend from the coupling pins **17**, **18** to the ends of the stringers and these ends may include end stops **11'**, similar to the stops **11**. At this time, it will be pointed out that the stops **11** are sufficient to check full closing movement of two sliders **24** and **25**. Therefore, in some uses, the stops **11'** will not be employed.

The sliders **24** and **25** are only shown in outline in the accompanying drawing as, in themselves, they form no specific part of the present invention, but any type and kind of the known sliders can be used, that is to say, those of the normal simple type or those of the automatic locking type can be employed.

It will be noted, from a consideration of Figs. 1 and 2, that the ends of the stringers, with which the coupling pins **17** and **18** are attached, have the inwardly folded tape portions **19'**, **20'** to finish said ends. It will also appear that the coupling pins **17** and **18** include projecting bar portions **17'**, **18'**, which abut the channel **13**, as indicated in Fig. 1 of the drawing, in alining the stringers one with respect to the other.

In Fig. 1 of the drawing, the adjacent end portions of the stringers **19** and **20** are shown in coupled engagement with the stringer **10** with the sliders **24** and **25** spaced from but in close proximity to the box part **12** and the pins **17** and **18**.

In separating the stringers, the sliders **24** and **25** are brought into abutting engagement with the enlarged body **15** of the box part, as indicated in Fig. 2 of the drawing, after which, the stringers **19** and **20** are free to be withdrawn from the box part **12** through each of the sliders.

In recoupling the stringer parts, it will be apparent that the pins **17** and **18** are passed through the sliders **24** and **25** into the flanged side of the box part, after which, the sliders are moved in opposed directions, in the manner partially seen in Fig. 1 of the drawing, in securing the stringers together.

In order to illustrate a use of the duplex stringer structure, I have diagrammatically illustrated in Fig. 4 of the drawing, a foundation-type of garment **26** arranged upon the body of a wearer, which is partly outlined at **27**. The garment has a vertical opening **28** therein, as partially noted at the lower portion of Fig. 4, which opening is controlled by the duplex stringer structure and, at the widest portion of the garment, one side of the garment is divided, as indicated at **29**, for a portion of the side or from a part of the front to a portion of the rear around the side to provide, at said side of the garment, upper and lower sections **30** and **31**, the section **30** enveloping the upper portion of the hips and part of the waist, whereas, the portion **31** envelopes the lower portion of the hips. The other side portion **32** of the garment is continuous or, in other words, one piece from the top to the bottom of the garment. It will be apparent that the stringer **10** would be attached to the side portion **32** of the garment; whereas, the stringers **19** and **20** would be

secured to the garment sections **30, 31**, respectively. Part of the stringer **10** is indicated diagrammatically at the lower portion of Fig. 4, as is also part of the stringer **20**. The box part is diagrammatically seen at **12** and the two sliders at **24** and **25**. The stringer attached to the upper section **30** is shown in full coupled engagement with the upper portion of the stringer **10**.

With the use of the fastener, as diagrammatically shown in Fig. 4 of the drawing, it will be apparent that the sections **30, 31** can be independently coupled and uncoupled in the operation of attaching and detaching the garment with respect to the body of the wearer. It will also be understood that, in utilizing lock sliders, these sliders can be stopped and retained at different positions on the coupled stringers in control of the support of the garment upon the body of the wearer. For example, the slider **25** is shown stopped at a point above the lower edge of the garment in the diagrammatic showing.

In Fig. 5 of the drawing, I have shown a modified use over the use showing in Fig. 4, wherein upper and lower portions or sections **30'**, **31'**, generally similar to the sections **30, 31**, instead of have free opposed edges, have a V-shaped cutout **33** disposed therebetween and attached to the opposed edges or end portions thereof is an elastic gusset **34**. In the closed position of the garment as shown, the gusset is not under any appreciable tension. With this structure, the stringers **19** and **20** will be stitched to the parts **30'**, **31'** up to the positions **35** or, in other words, in alinement with the stitchings **36** employed in securing the gusset **34** to the sections **30'**, **31'**. In Fig. 5, the side portion **32'** of the garment will be similar to the side portion **32** of Fig. 4 and the only difference in the two structures is that, instead of detaching free corner portions of the sections **30, 31** from the box part **12**, as would be the case with the structure shown in Fig. 4, these corner portions are held in coupled relationship by the wide outer portion **34'** of the gusset **34** and this wide outer portion of the elastic gusset will facilitate free withdrawal of the coupling pins of the stringers **19** and **20** with respect to the box part **12**, as well as with respect to the sliders of the stringers during the step of uncoupling the sections **30'** and/or **31'** with respect to the section **32'**.

While different uses of the duplex stringer are possible, the uses herein shown are simply to illustrate one adaptation of the invention and such uses are desirable, particularly with garments of the specific type and kind under consideration. Here, it must also be apparent that the garment structure, in itself, is distinct from conventional garments of this type and kind, particularly in the independent coupling of the sectional portions of the garment. It will be understood that the sliders **24** and **25** remain, at all times, in coupled engagement with the stringer **10**.

For purposes of description, the scoops **21** of the stringer **10** may be said to comprise scoop lengths which are arranged between the channels **13** and the end stops **11**.

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

1. A separable fastener for coupling and uncoupling multiple members, said fastener comprising a long stringer having end portions and two short stringers, sliders mounted on and movable along the long stringer, and means, at said end portions of the long stringer, for retaining the sliders against displacement therefrom, the long stringer, intermediate its ends, having a box part including means adapted to receive a pin in coupling relation, and each of said short stringers having, at one end thereof, a pin adapted to be coupled with the box part, with the sliders of the long stringer arranged on said box part in the operation of coupling the short stringers with said long stringer by movement of the slider in the direction of the end portions of said long stringer.

2. A separable fastener for coupling and uncoupling multiple members, said fastener comprising a long stringer having end portions and two short stringers, sliders mounted on and movable along the long stringer, and means, at said end portions of the long stringer, for retaining the sliders against displacement therefrom, the long stringer, intermediate its ends, having a box part, each of said short stringers having, at one end thereof, a pin adapted to be coupled with the box part, with the sliders of the long stringer arranged on said box part in the operation of coupling the short stringers with said long stringer by movement of the sliders in the direction of the end portions of said long stringer, and said box part having an enlarged central portion and a channelled side portion adapted to receive the pins of said short stringers.

3. A separable fastener for coupling and uncoupling multiple members, said fastener comprising a long stringer having end portions and two short stringers, sliders mounted on and movable along the long stringer, and means, at said end portions of the long stringer, for retaining the sliders against displacement therefrom, the long stringer, intermediate its ends, having a box part, each of said short stringers having, at one end thereof, a pin adapted to be coupled with the box part, with the sliders of the long stringer arranged on said box part in the operation of coupling the short stringers with said long stringer by movement of the sliders in the direction of the end portions of said long stringer, said box part having an enlarged central portion and a channelled side portion adapted to receive the pins of said short stringers, said short stringers being independently attachable and detachable with respect to the long stringer, and adjacent ends of said sliders abutting the enlarged central portion of the box part in the operation of coupling and uncoupling the short stringers with the long stringer.

4. A separable fastener for coupling and uncoupling multiple members, said fastener comprising a long stringer having end portions and two short stringers, sliders mounted on and movable along the long stringer, and means, at said end portions of the long stringer, for retaining the sliders against displacement therefrom, the long stringer, intermediate its ends, having a box part, each of said short stringers having, at one end thereof, a pin adapted to be coupled with the box part, with the sliders of the long stringer arranged on said box part in the operation of coupling the short stringers with said long stringer by movement of the sliders in the direction of the end portions of said long stringer, the box part having an enlarged central portion that is channelled outwardly with respect to the long stringer for reception of the pins of said short stringers, and said box part and pins, beyond the limits of the enlarged central portion, having means extending into the sliders when in abutting engagement with the enlarged portion of said box part.

5. In separable fasteners of the character described, a long stringer having scoop lengths arranged at end portions thereof, a dual box part arranged intermediate the stringer ends and dividing said scoop lengths, a slider movable along each scoop length, the box part having an enlarged portion checking movement of the sliders toward each other, said enlarged portion having a channelled side opening in the direction of each scoop length, free end portions of the stringer having means retaining the sliders against displacement from each scoop length of said stringer, and independent companion stringers attachable and detachable with respect to the scoop lengths of said first named stringer, each companion stringer being attachable to one of said scoop lengths through one of said openings of said enlarged portion of the box part.

6. In articles of manufacture employing a pair of independent members adapted to be coupled with a third member, a separable fastener comprising one long and two short stringers, the long stringer being fixed to said third member, said short stringers being fixed to the independent members, the long stringer having a box part and a pair of sliders arranged at end portions of the long stringer and movable toward and from said box part, and means, at ends of the long stringer, for retaining

the sliders against displacement therefrom, and said short stringers having coupling pins movable into and out of the sliders and box part when the sliders are in abutting engagement with said box part.

7. In articles of manufacture employing a pair of independent members adapted to be coupled with a third member, a separable fastener comprising one long and two short stringers, the long stringer being fixed to said third member, said short stringers being fixed to the independent members, the long stringer having a box part and a pair of sliders arranged at end portions of the long stringer and movable toward and from said box part, and means, at ends of the long stringer, for retaining the sliders against displacement therefrom, said short stringers having coupling pins movable into and out of the sliders and box part when the sliders are in abutting engagement with said box part, and adjacent end portions of said members, in the environment of said box part, having means yieldably coupling said adjacent end portions.

8. In garments of the character described, having a long side and independent short sides at an opening in the garment, a multiple separable fastener for independently coupling and uncoupling the short sides of the garment with said long side, and said fastener including a pair of sliders movable along and retained against displacement from the long side of the garment for coupling and uncoupling the short sides with said long side.

9. In garments of the character described, having a long side and independent short sides at an opening in the garment, a multiple separable fastener for independently coupling and uncoupling the short sides of the garment with said long side, said fastener including a pair of sliders movable along and retained against displacement from the long side of the garment for coupling and uncoupling the short sides with said long side, said short sides of the garment having spaced adjacent edges, and yieldable means joining said spaced edges.

10. A garment of the character described, having a vertical opening therein, a horizontal division in the garment extending into said opening and dividing one side of the garment into independent members adapted for attachment and detachment with respect to the other side of said opening, and means for independently coupling and uncoupling said members with said other side of the garment, said means comprising a separable fastener stringer attached to each of said members and to said other side, said stringers on said members being couplable to and uncouplable from said stringer on said other side.

11. A garment of the character described, having a vertical opening therein, a horizontal division in the garment extending into said opening and dividing one side of the garment into independent members adapted for attachment and detachment with respect to the other side of said opening, means for independently coupling and uncoupling said members with said other side of the garment, said means comprising a separable fastener stringer attached to each of said members and to said other side, said stringers on said members being couplable to and uncouplable from said stringer on said other side, the horizontal division being defined by spaced end portions of said members, and yieldable means attached to said spaced portions of said members and bridging the spacing thereof.

12. In separable fasteners of the character described, a first stringer having scoops thereon, a box part on the stringer intermediate ends of the latter so that a length of scoops is disposed above and below said box part, said box part having openings in opposite ends thereof, a pair of independent companion stringers each couplable to and uncouplable from a length of scoops on said first stringer, and said companion stringers each having a pin part at an end portion thereof which is engageable in one of said openings of said box part.

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