

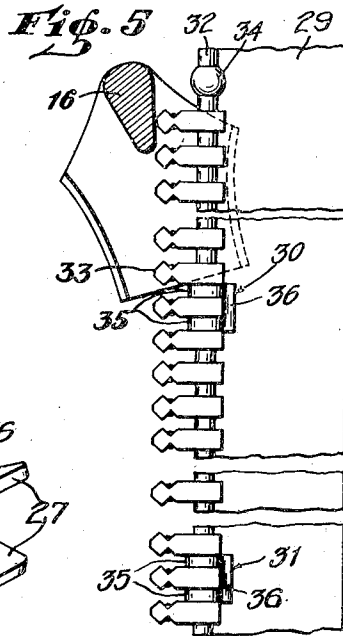
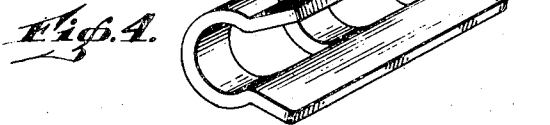
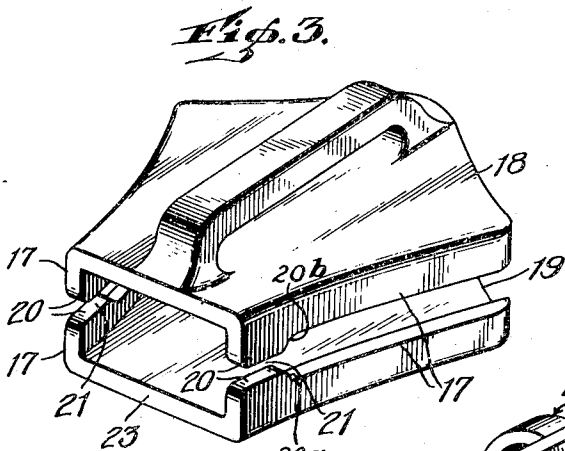
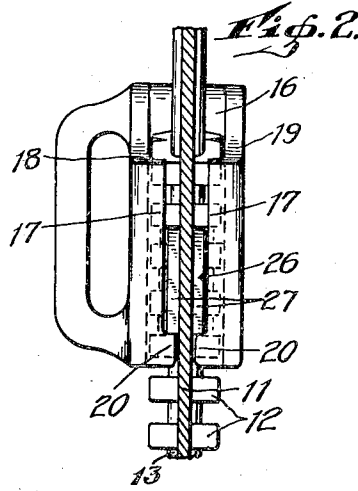
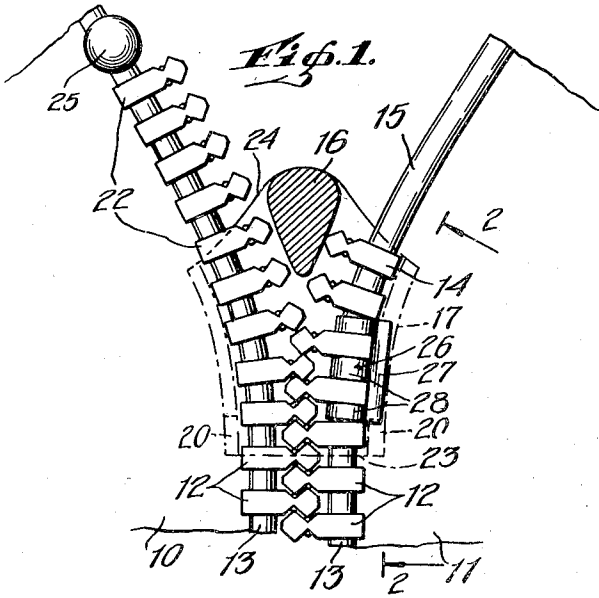
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STOP DEVICE FOR PULL APART SLIDERS FOR SEPARABLE FASTENERS

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STOP DEVICE FOR PULL APART SLIDERS FOR SEPARABLE FASTENERS

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1

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 provision of means on at least one stringer and on the slider for checking movement of a slider along the stringers. Further, the invention also includes the provision of a tentative end stop beyond which the slider is capable of forceable movement in completely separating the stringers at said stop end 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 detail view of one end portion of a pair of stringers, showing a slider thereon in a normal stop position, the slider being shown in section.

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

Fig. 3 is an enlarged perspective view of the slider detached.

Fig. 4 is an enlarged perspective view of one of the stop members which I employ shown in a detached and open position preparatory for mounting on a stringer; and

Fig. 5 is a reduced detail view of one stringer showing a spaced arrangement of stop or check members thereon, the slider being shown in section.

In Fig. 1 of the drawing the upper or normally closed end portion of two stringers 10 and 11 is shown having links or scoops 12 arranged on the beaded edge portions 13 of the stringer tapes. Further, the illustration of Fig. 1 shows my improved stop or check construction applied to what is termed a quick pull apart fastener which can be pulled apart and separated at said stop end. This is accomplished by providing beyond the end link 14 of the stringer 11 a blank space 15 on the beaded edge a distance sufficient to freely clear the tape and beaded edge 13 through one open side of a slider 16. That is to say, between the inturned flanges 17 on the opposed top and bottom walls 18 and 19 of said slider.

Similar inturned flanges 17 are provided at the other side of the slider, as will clearly appear in Fig. 3 of the drawing, and the flanges 17 at both sides of the slider include at the inner contracted ends thereof inwardly projecting members 20 which produce restricted areas 21, for purposes

2

later described. Considering Fig. 1 of the drawing, the stringer 10 includes a number of links 22, which extend beyond the end link 14 of the stringer 11, and are sufficient in number to position the contracted end 23 of the slider in a position to freely clear the end link 14 in the pull apart separation of the stringers 10 and 11. In this position, the end 24 of the walls 18 and 19 of the slider will be in engagement with a stop 25 arranged on the stringer 10 beyond the end link thereon.

Arranged on the stringer 11 inwardly of but adjacent the end link 14, is a stop or check device 26, which in the construction shown, comprises a member consisting of two side plate portions 27 joined by two or more spaced loops 28. The loops 28 are of such width as to fit freely between adjacent links of the stringer, and are of such diameter as to envelop the beaded edge 13 of the stringer to dispose the plates 27 upon the surfaces of the stringer tape inwardly of the bead 13. This construction produces on both upper and lower surfaces of the tape, at inner ends of the links or scoops, bearing surfaces adapted to be engaged by the projections 20 at the contracted end of the slider.

From the foregoing, it will be apparent that when the slider is moved into the closed position as shown in Fig. 1 of the drawing, and also indicated in Fig. 2, the projections 20 will strike the ends of the bearing surfaces 27 and check normal closing movement of the slider. However, by applying force to the slider, the projections 20 are caused to ride-up onto and pass over the surfaces 27, the walls 18 and 19 are slightly yieldable and adapted to be sprung apart in this operation, and thus the slider is free to move into the final stop position in engagement with the stop 25 at which position of the slider the stringers 10 and 11 are free to be pulled apart.

In some instances, the stop or check member 26 may be composed of strip or sheet material, and formed in the open position illustrated in Fig. 4 of the drawing, and then afterwards mounted on and secured to the stringer tape by compression of the wall or projecting stop portions 27 toward each other. When these devices are composed of plastic material, as they may be in plastic fasteners, the member 26 may first have to be heated before shaping or forming the same into the final attached position upon the stringer.

In Fig. 5 of the drawing another adaptation and use of the invention is illustrated. In this figure, a stringer 29 has two check or stop devices

3

30 and 31 arranged at spaced intervals along the beaded edge 32 of the stringer, and arranged between predetermined spaced links or scoops 33 thereon. The outermost stop or check device 30 being arranged inwardly of and in spaced relation to the end stop 34.

It will appear from a consideration of Fig. 3 of the drawing that the ends 20a and 20b of the projection 20 are rounded, thus producing camming surfaces which will permit forceable movement of the slider over the devices 30 and 31 in either direction, thus it will appear that movement of a slider in the direction of the stop 34 on the stringer 29 may be first checked by the device 31. The slider may be forceably moved over the device 31, and then checked by the device 30, thus disposed between the devices 30 and 31. Still further, the slider may be forced over the device 30, and then retained between the device 30 and the stop 34. However, to again open or separate the stringers, the slider may be moved in the opposite direction to be forceably passed over the device 30 and then forceably passed over the device 31.

While many adaptations and uses may be employed for the spaced stop or check devices, one practical illustration would be in checking opening movement of a shirt, sweater, jacket or similar article of apparel, to produce for example, different neck openings, while at the same time, retaining a slider against accidental opening movement on the stringers in any position which may be assumed thereby in the partially open position.

Furthermore, these devices will check sliders against opening movement in their final stopped or closed position. In other words, the distance of the outer end of the device 30 with respect to the stop 34 may equal the length of the slider. That is to say, to position the projecting members 20 slightly beyond the devices 30 when the slider is in engagement with the stop 34. Thus to open the slider, a forceable downward movement of the slider or movement away from the stop 34 would be required. This construction will dispense with the use of the conventional securing means commonly employed on sliders to check opening movement thereof.

The devices 30 and 31 are of the same construction as the device 26, except that only two rings or loops 35 are employed, and these loops are joined by wall portions 36 similar to the wall portions 27.

In the devices 26, 30 and 31, the wall portions 27 and 36 extend onto the tapes only a slight distance, namely a distance to be engaged by the projections 20 on the flange portions 17 of the slider. Thus the devices 26, 30 and 31 become substantially invisible upon the stringers, particularly if these devices are composed of materials having the same or substantially the same color as the color employed in the scoops. Where conductor wires are employed in the tapes or the beaded edges thereof, as taught in my prior Patent Number 2,063,515 dated December 8, 1936, and the stop or check devices are composed of metal, contact will be established with these conductor wires to facilitate plating the top or check devices with a plating common to the plating applied to the links or scoops, thus maintaining the same appearance thereof.

One of the distinctive features of the present construction resides in the fact that the stop or check devices can be readily applied to stringers without altering or interfering in any way with

4

the structure of the stringers, and can be applied to meet specific requirements of a manufacturer or even the resultant purchaser, it being understood that the devices can be readily applied by a merchant in the store in which the purchase is made. Suitable tools will be provided for this purpose. In this sense, the stop or check devices may be made to suit the fancies or desires of a purchaser in any particular garment or article of manufacture which would require the use of such devices. In fact, in making the devices of a sufficient pliable or spring material, a purchaser may from time to time, shift the devices on the stringer or stringers in altering the stop or check positions of the slider thereon.

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

1. The combination with stringers having scoops spaced longitudinally of one edge of the stringers with a slider movable along the stringers to couple and uncouple the scoops thereon, of a stop device mounted upon one of the stringers inwardly of one end portion thereof, said stop device being independent of the scoops on said stringer, said stop device having means adapted to engage part of the slider movable along the stringers to check normal movement of the slider on the stringers, said stop device including parts arranged between adjacent scoops on said one stringer, and said means being arranged on the stringer inwardly of and adjacent inner ends of adjacent scoops and joining said parts.

2. The combination with a slider for separable fastener stringers employed to couple and uncouple the scoops of the stringers, of a stop device detachably coupled with at least one stringer, said device having a projecting stop portion, the slider having projecting means adapted to engage the stop portion of said device in checking normal movement of the slider longitudinally of the stringers, while permitting forceable movement of the slider over the stop, and yielding means on said slider compensating for the forceable movement of the slider over said stop.

3. The combination with the tape of a separable fastener stringer of the type employing a slider movable along two stringers to couple the scoops at one edge portion to each stringer, of stop devices secured to the tape of at least one stringer at spaced intervals longitudinally thereof, said devices having portions arranged between adjacent scoops of the stringers, each of said devices being arranged in spaced relation to and inwardly of end links on the stringer, and said devices having members adapted to be engaged by the slider movable along the stringer to check normal movement of the slider on the stringer at each of said stop devices.

4. The combination with the tape of a separable fastener stringer of the type employing a slider movable along two stringers to couple the scoops at one edge portion to each stringer, of stop devices secured to the tape of at least one stringer at spaced intervals longitudinally thereof, said devices having portions arranged between adjacent scoops of the stringers, each of said devices being arranged in spaced relation to and inwardly of end links on the stringer, said devices having members adapted to be engaged by the slider movable along the stringer to check normal movement of the slider on the stringer at each of said stop devices, and means on the slider providing for forceable movement of the slider

5

over the stop devices in both directional movements of the slider on the stringer.

5. In separable fasteners employing stringers having scoops spaced longitudinally of the stringer tapes, a slider movable along the stringers to couple and uncouple the scoops thereof, a stop device comprising a strip of sheet material having spaced loops joined at opposite ends by bearing portions, said device being arranged upon the tape of one stringer with the loops thereof intermediate scoops on said tape and with said bearing portions inwardly of and adjacent inner ends of the scoops, said slider comprising a channelled body having inturned side flanges engaging the inner ends of the scoops in coupling and uncoupling the scoops, and the inturned flanges at one side of the slider having projections adapted to engage the bearing portions of said stop device in checking normal sliding movement of the slider along the stringers.

6. In separable fasteners employing stringers having scoops spaced longitudinally of the stringer tapes, a slider movable along the stringers to couple and uncouple the scoops thereof, a stop device comprising a strip of sheet material having spaced loops joined at opposite ends by bearing portions, said device being arranged upon the tape of one stringer with the loops thereof intermediate scoops on said tape and with said

6

bearing portions inwardly of and adjacent inner ends of the scoops, said slider comprising a channelled body having inturned side flanges engaging the inner ends of the scoops in coupling and uncoupling the scoops, the inturned flanges at one side of the slider having projections adapted to engage the bearing portions of said stop device in checking normal sliding movement of the slider along the stringers, said stop device being spaced from one end of the stringers a distance greater than the length of said slider, and another similar stop device on one of the stringers and spaced from the first stop device a distance greater than the length of said slider.

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