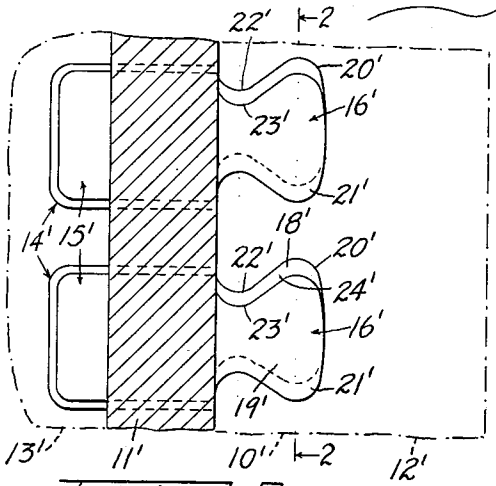
April 21, 1964 L. H. MORIN 3,129,478

SEPARABLE FASTENER

Filed Feb. 2, 1962

FIG. 1.



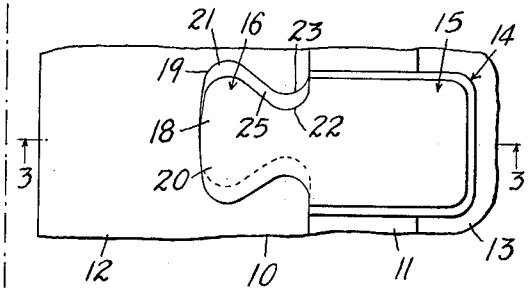


FIG. 2.

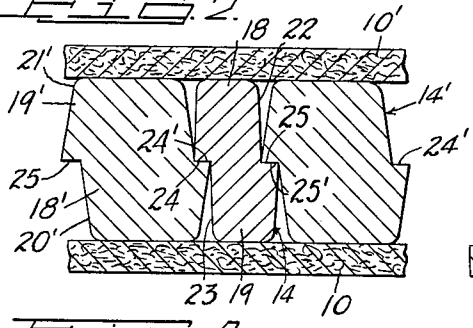


FIG. 3.

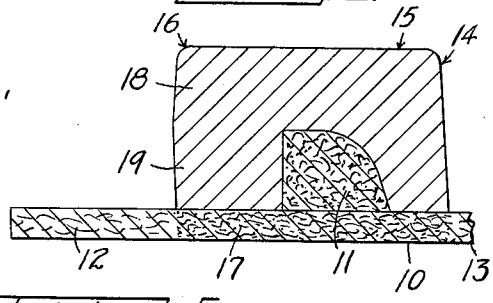


FIG. 4.

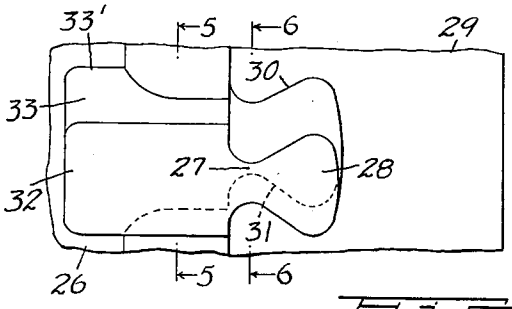


FIG. 5.

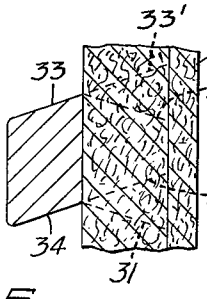


FIG. 7.

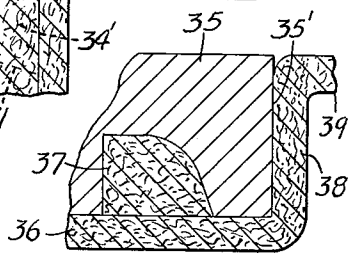
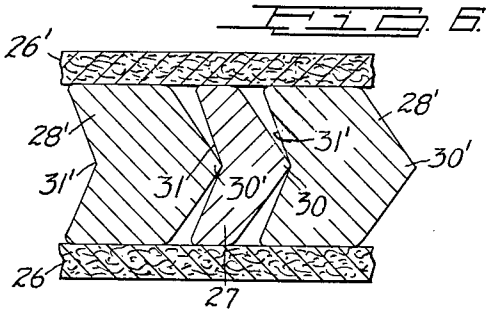


FIG. 6.



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3,129,478

SEPARABLE FASTENER

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1 Claim. (Cl. 24—205.12)

This invention relates to separable fasteners employing stringers, wherein the scoops are fixed to one side surface only of the stringer tapes. More particularly, the invention deals with a fastener of the character defined, wherein each stringer tape includes an extended cover portion projecting beyond the coupling end portions of the scoops, so that the projecting cover portion of both tapes will overlie and conceal the mounting end portions of the scoops of opposed stringers in producing what I term a fully covered one-sided separable fastener stringer.

Still more particularly, the invention deals with a separable fastener, wherein each scoop has upper and lower offset portions adapted to interlock with correspondingly offset portions of a companion stringer in retaining the stringers against separation in one direction; whereas, said scoops include interfitting male and female portions for retaining the stringers against pull apart separation.

Further, the invention deals with a stringer structure of the character described, wherein the tape is adhered to the inner mounted end of each scoop of the 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 bracketed view, diagrammatically illustrating a plan view of a single scoop on one stringer tape of a fastener and a sectional plan view, diagrammatically illustrating two scoops of a companion stringer of the fastener in spaced relationship to but in coupling alinement with the first stringer, the tape of the second named stringer being indicated, in part, in dot-dash lines.

FIG. 2 is a section on the line 2—2 of FIG. 1 showing the scoops of the two stringer tapes illustrated in FIG. 1 in coupled relationship with respect to each other and omitting background showing.

FIG. 3 is a section on the line 3—3 of FIG. 1.

FIG. 4 is a plan view, generally similar to the right-hand portion of FIG. 1, with the directional position of the scoop reversed showing a modified form of scoop structure.

FIG. 5 is a section on the line 5—5 of FIG. 4.

FIG. 6 is a view, generally similar to FIG. 2, but taken on the line 6—6 of FIG. 4 and showing companion scoops coupled with the single scoop of FIG. 4 and omitting background showing; and

FIG. 7 is a partial sectional view, similar to FIG. 3, showing a modified scoop and stringer structure.

In FIGS. 1 to 3, inclusive, I have diagrammatically illustrated one adaptation of my invention. At the right of FIG. 1, I have shown one stringer tape **10**, including a bead **11** and an extended cover portion **12**, the tape including the normal mounting portion **13** extending inwardly beyond the tape **11**. It will be clear from a consideration of FIG. 3 of the drawing that the bead **11** is arranged upon one surface only of the tape. At **14** I have shown one of a number of scoops fixed to the beaded portion **11** and the tape at both sides of the beaded portion. In other words, the mounting end portion **15** of the scoop is arranged upon the bead **11** and the adjacent part of the side portion **13** of the tape; whereas, the coupling end portion **16** of the scoop extends beyond the bead, but is fixed to that part of the tape

projecting beyond the bead and it is preferred that the tape, where the scoops are attached thereto, has condensed fibers to prevent undesirable flow of the metal beyond this portion. The "condensed fibers" mean fibers which are tightly packed due to the weaving or twisting of the strands of the tape or bead. Usually tapes and beads are made of woven material but it is possible that they could be made by the packing of fiber or the "felting" thereof into the form and shape desired. Because the scoops shown in the application may be made by injection molding, it is desirable to have the fibers of tape and bead closely packed so that the molten metal will not flow beyond the area adjacent to the scoop. This condensing is indicated by the heavier showing of the fabric strands at **17** in FIG. 3 of the drawing. It is pointed out, at this time, that the material of the cast scoop extends into the interstices of the braid of the tape, as with other devices of this type and kind, and also into the braid of the bead **11**.

The coupling end portion has laterally offset upper and lower parts **18** and **19**, the lower part being adjacent and secured to the tape. Each of these parts includes the conventional coupling head defining the male coupling portion, as at **20**, **21**, and the reduced neck or female coupling portion, as at **22** and **23**. The offsetting of the upper and lower parts form, at sides of the coupling end portion **16**, a downwardly facing shoulder **24** at one side of the part **18** and an upwardly facing shoulder **25** on the opposed side of the lower part **19**, as will clearly appear from a consideration of FIG. 1, taken with the section through the neck portion of the scoop at the right of FIG. 1 and shown in the section, FIG. 2.

At the left of FIG. 1 are shown two scoops **14'** of the companion stringer and, as the companion stringer and the scoops on this stringer are generally identical in construction, like references will be used, but primed, in order to distinguish one stringer from the other, particularly in the coupled relationship, as seen in FIG. 2 of the drawing. In other words, **10'** designates the tape of the lefthand stringer of FIG. 1 which is indicated in dot-dash lines as it would appear above the two scoops shown in this figure. However, the bead **11'** is sectioned as appearing upon the face of the two scoops, bearing in mind that the bead extends into each of the scoops, as will clearly appear from a consideration of FIG. 3 of the drawing. **12'** represents the extended cover portion and **13'** represents the mounting portion of the tape, which extends beyond the mounting end portions **15'** of the scoops. **16'** represents the coupling end portions of these scoops; **18'**, **19'** represent the offset upper and lower parts of the scoops. These parts have male coupling portions **20'**, **21'** and reduced neck or female coupling portions **22'**, **23'**. The offsetting of the upper and lower parts form, at sides of the coupling end portion **16'**, a downwardly facing shoulder **24'** at one side of the part **18'** and an upwardly facing shoulder **25'** on the opposed side of the lower part **19'**, as will clearly appear from a consideration of FIG. 1, taken with the section through the neck portion of the scoop at the right of FIG. 1 and shown in the section, FIG. 2. It is here to be kept in mind that lefthand and righthand stringers are employed and, in considering FIG. 2, it will appear that shoulders **24**, **24'**; **25**, **25'** engage each other in retaining the stringers against separation. These interengaging shoulders may be said to comprise overlapped coupling portions of the scoops. It is also pointed out that the illustrations in FIGS. 1 and 2 are diagrammatic from the standpoint that the tapers employed on the upper and lower portions **18**, **19**; **18'**, **19'** are not illustrated in FIG. 1 and this is done to simplify the illustrations in FIG. 1. This tapering of the walls provides free flexibility of coupled scoops one with respect to the other. While in the

enlarged view, the shoulder portions are shown snugly engaged in FIG. 2, actually, there are slight clearances between engaged scoops, as is the common practice in other devices of this type and kind.

When the two stringers are coupled together, it will clearly appear, from a consideration of FIG. 1 of the drawing, that the extended cover portion **12** will cover the mounting end portion **15'** of the scoops of the left-hand stringer of FIG. 1; whereas, the extended cover portion **12'** will cover the mounting end portion **15** of the scoops of the righthand stringer. In other words, the portions **12, 12'** extend beyond the coupling end portions of the scoop a distance equal to the length of the mounting end portions **15', 15**, respectively. In view of utilizing the extended cover portions **12, 12'**, it will be apparent that specially designed sliders will be required in coupling and uncoupling the stringers, illustrated, in part, in FIG. 1 and a slider of this type and kind forms the subject matter of a companion application filed of equal date herewith.

Now, turning to FIGS. 4, 5 and 6 of the drawing, here is shown a modified form of scoop structure and **26** represents a tape, similar to the tape **10**, and **26'** represents a tape, similar to the tape **10'**. In order to simplify the description in pointing out the difference in the two scoop structures, **27**, as seen in FIG. 6, will be a section through the neck portion of the scoop shown in FIG. 4, in other words, the female coupling portion of the scoop; whereas, **28'** represents the section through the male coupling portions of the scoops of the companion stringer, the male coupling portion of the scoop shown in FIG. 4 being illustrated at **28**. The tape **26**, as seen in FIG. 4, has the extended cover portion **29**, similar to the extended portion **12** of FIG. 1 and the tape **26'** will have a similar portion. The scoops of FIGS. 4, 5 and 6 may be generally described as dart-shaped in form throughout the length of the male and female coupling portions of the scoops. In other words, upper and lower portions are offset with respect to each other to provide outwardly contracted center portions, as at **30, 30'**, and correspondingly formed recessed portions **31, 31'**, which interfit one with respect to the other, as clearly seen in FIG. 6 of the drawing, the recesses **31, 31'** being shallower to provide clearance between engaged scoops for free flexibility, as will clearly appear from a consideration of FIG. 6 of the drawing. It will be apparent that the portions **30, 30'** operating in conjunction with the recessed portions **31, 31'** form overlapped coupling portions. The mounting end portion **32** of the scoop shown in FIG. 4 will have its parallel beveled surfaces **33, 34**, note FIG. 5, extend continuously onto the surface of the tape **29**, as seen in dotted lines at **33', 34'** and this will also be true of the scoops of the companion stringer. In other words, with the scoops shown in FIGS. 4 to 6, inclusive, the interfitting portions **30, 31; 30', 31'** accomplish the same interlocking engagement as

accomplished by the interengaged shoulders, as with the construction shown in FIGS. 1 to 3, inclusive. The heads and necks of the scoops forming the male and female coupling portions are otherwise the same.

In FIG. 7 of the drawing, I have shown a modification which would be applicable to the structure of both scoops previously referred to but which is applied to the scoop structure as seen in FIGS. 1 to 3, inclusive. In FIG. 7, **35** represents a scoop, similar to the scoop shown in FIGS. 1 and 3, **36** represents the tape and **37** represents the bead to which the scoop **35** is attached and, instead of extending the tape in direct alinement, part of the coupling end portion of the tape, as at **38**, is secured to the end wall **35'** of the scoop **35** and, then, laterally from the exposed surface of the scoop, as indicated at **39**, which represents the side edge portion of the tape utilized in fixing the stringers to a suitable support. With this type of construction, the slider will have its flanged sides operating upon the portion **38** of the tape, rather than directly upon the scoops fixed to the stringer tape. Fixing the portion **38** of the stringer tape to the end wall **35'** of the scoop **35** is accomplished in the attachment of the scoop **35** to the tape, in other words, the material of the scoop **35** at the surface **35'** will extend into the interstices of the braid of **38** in fixing **38** to the scoop.

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

A separable fastener of the character defined comprising a pair of stringers, each stringer having a bead on one surface of the tape thereof, scoops secured to said bead and said surface of the tape in spaced relationship longitudinally of the stringer, each scoop including a mounting end portion engaging the bead of the stringer to which it is attached, a coupling end portion projecting in a direction parallel to the plane of the tape beyond said bead and comprising male and female coupling portions, means permitting said stringers to engage and disengage each other only when moving in a plane parallel to the plane of the tape of said stringer and the tape of each stringer including a portion projecting beyond the coupling end of the scoop sufficiently to cover the scoop of a companion stringer when the stringers are coupled together, said projetcing cover portion of the tape lying in the plane of the tape to which the scoops are attached.

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