Jan. 15, 1946. D. MARINSKY ET AL 2,392,934

COVERED SEPARABLE FASTENER

Filed April 20, 1943 2 Sheets-Sheet 1

Fig. 1.

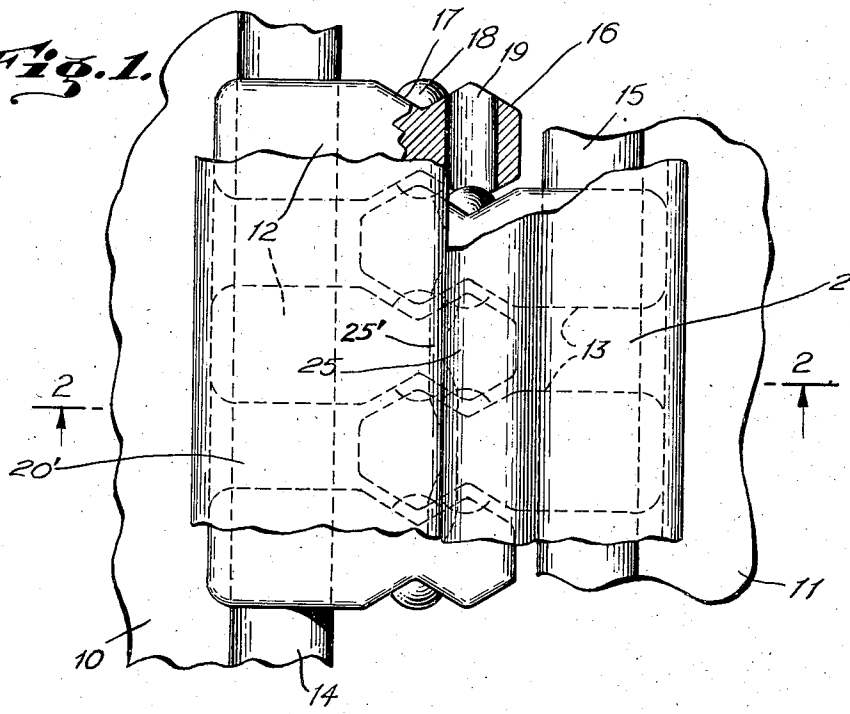


Fig. 2.

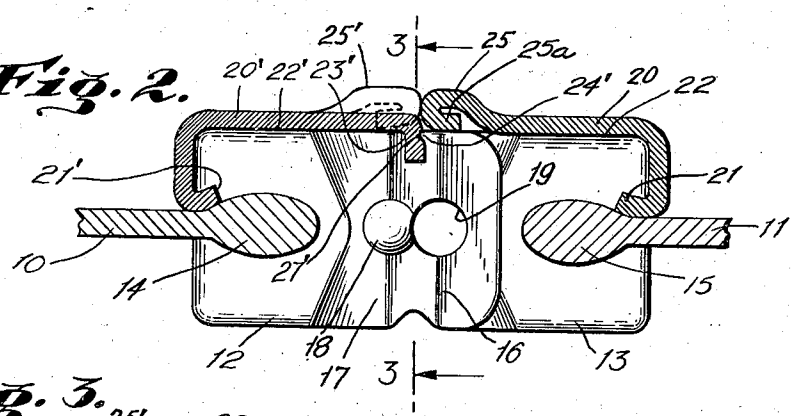
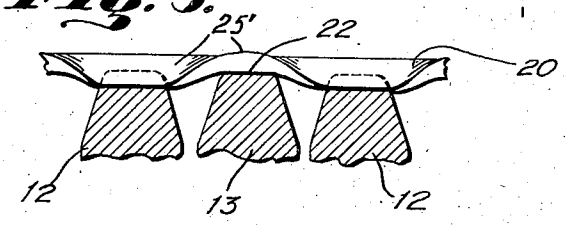


Fig. 3.



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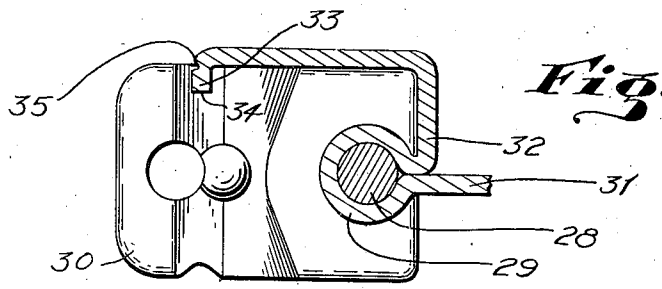


Fig. 4.

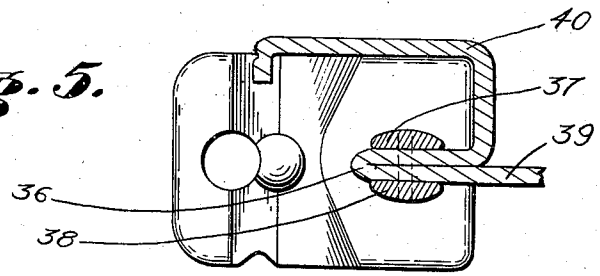


Fig. 5.

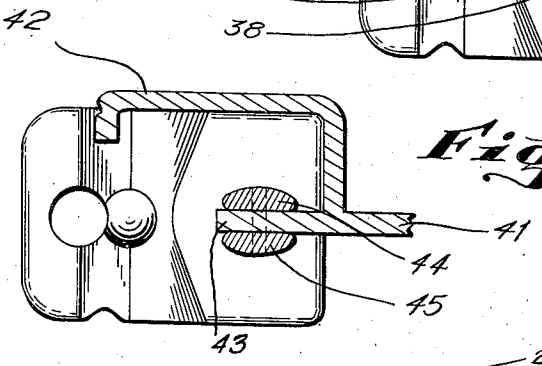


Fig. 6.

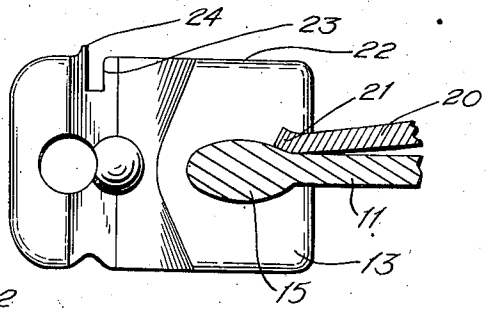


Fig. 7.

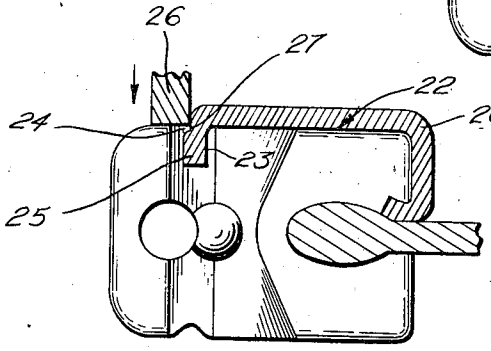


Fig. 8.

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COVERED SEPARABLE FASTENER

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11 Claims. (Cl. 24—205)

This invention relates to separable fasteners employing stringers having links or scoops spaced longitudinally of one edge of the tapes of the stringers. More particularly, the invention relates to fastener devices of this kind employing tapes covering one surface of the links or scoops in producing what is commonly referred to as covered stringers. The invention further comprises a method of attaching the cover tapes to the links or scoops of the stringer.

The novel features of the invention will be best understood from the following descriptions when taken together with the accompanying drawings, 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 part of two stringers made according to the invention, with part of the construction being broken away and in section.

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

Fig. 3 is a partial section on the line 3—3 of Fig. 2.

Fig. 4 is a view similar to Fig. 2, showing only one stringer, and showing a modification.

Figs. 5 and 6 are views similar to Fig. 4, showing other adaptations of the invention.

Fig. 7 is a view diagrammatically illustrating the first step in the assemblage of the cover tape with the fastener stringer in the operation of producing said stringer, and;

Fig. 8 is a section detailed view of part of the construction shown in Fig. 7, illustrating the forming operation employed for securing the free edge of the cover tape in position on one surface of the links or scoops.

In the production of what is commonly referred to as covered separable fastener stringers, it has been the custom or practise to stitch or otherwise secure a cover tape to each stringer of the fastener, and this operation has been expensive and difficult, particularly in contending with the links or scoops attached to the stringer tape. Further, it has produced a weak cover tape construction, and further, the appearance of the resulting stringer has been impaired by the presence of the stitching employed.

It is the purpose of our invention to provide a covered separable fastener stringer which dispenses with all stitching operations, further produces a neater and finished appearance on the resulting stringer. Still further, a stronger and more durable covering, as well as one which will be securely retained in position, particularly from the standpoint of firm engagement and support of outer edge portions of the covered tape upon each link or scoop of the fastener stringer.

In Figs. 1 and 2 of the drawings, 10 and 11 represent the tapes of two stringers to which are attached links or scoops 12 and 13. The links or scoops are spaced longitudinally of the beaded edges 14, 15 of the tapes 10 and 11 in the usual manner.

In the construction shown, both of the links or scoops 12—13 are of the same construction, and are of what is known, as the double action type, that is to say, both side surfaces of the links or scoops are of the same form and construction, thus providing coupling of the stringers without regard for arrangement, and further providing movement of the usual sliders in either direction on the stringer to couple and uncouple the same.

Looking at the upper link 12 of Fig. 1 of the drawings, the structure as it appears on side surfaces of each link will be described; 16 represents the projecting or male portion, and 17 the recess or female portion which receives the male portion 16 of the link of an opposed stringer. In the recess 17 is formed a projecting rounded knob 18 which is adapted to enter the aperture 19 formed in the member 16. The projection 18 and recess or aperture 19 form the secondary coupling which prevents transverse separation of the coupled stringers.

Considering Figs. 7 and 8 of the drawings, in the process of producing each stringer, the following steps of procedure will be followed, and for purposes of illustration, the formation of the stringer 11 will be dealt with, but as both stringers are identical, the process is naturally the same in forming the stringer 10.

At 20 is shown the cover tape, this tape is laid along the tape 11 with one edge 21 thereof arranged adjacent the bead 15, and then the links or scoops 13 are attached to the beaded edge 15, in which operation the edge 21 of the cover tape 20 is also engaged and securely held in position. When the links or scoops 13 are formed by die cast methods, the casting material will extend into the interstices of the braid of the cover tape 20 in the well-known manner, and securely anchor the edge 21 of this tape in position. In other processes where the link or scoop is crimped onto the tape, the edge 21 may be somewhat enlarged or beaded, and of course, the adjacent side of the link will be formed to engage this edge 21, as will be apparent.

In forming the links or scoops, the surface 22 thereof which is to be covered, has inwardly of the outer coupling end thereof a longitudinal

recess 23 at the outer side of which is a raised flange 24.

It will be understood that in attaching the links or scoops the cover tape 20 lies flatly upon the stringer tape 11. However, after the links have been attached, the tape 20 is then folded up over onto the surface 22, and the edge 25 thereof is inserted into the recess 23 of each of the links or scoops 13, after which the raised flange 24 is depressed, by a suitable tool, such as a punch, pressure roller or the like 26 with the link suitably supported and backed, so as to force the projection 24 into the recess 23, producing the pinching effect as indicated at 27, in Fig. 8 of the drawings.

This operation compresses the edge portion 25 of the tape 20 to a slight extent, thus securely anchoring said edge within the recess 23. The movement of the projection 24 into the position shown in Fig. 8 will also have a tendency to stretch the fabric of the tape 20 over the surface 22, thus producing a neat and smooth appearance of the tape along said surface of all of the links or scoops of the stringer.

The coupling of the stringers together is illustrated in Figs. 1, 2 and 3, from which it will be apparent that as the links are brought together, the nose or outer end of each link engages, and doubles under, the extreme edge of the cover tape of the opposed stringer in the stretch between links. Thus, as shown particularly in Fig. 2, the extreme edge 25a of the free end 25 of cover tape 20, in the stretch between its adjacent links 13, has been doubled under by and rests upon the outer end of link 12; and, similarly, the extreme edge of the free end 25' of cover tape 20' has been doubled under by and rests upon the outer end of link 13. As will be understood, the several reference characters having primes affixed designate corresponding elements, on the opposite stringer parts, to those already described.

In Figs. 4, 5, and 6 of the drawings are shown slight modifications which differ from Figs. 1 to 3 inclusive, primarily in the construction of the stringer tape, as well as the cover tape. In all of these adaptations, the cover tape constitutes part of the stringer tape.

In Fig. 4, a wide tape is folded around a cord or core 28, as seen at 29 in producing the beaded edge to which the links or scoops 30 are secured. These links or scoops are the same as the links or scoops 12, 13. One edge portion 31 of the tape forms the normal mounting or attaching edge of the stringer, whereas the other edge portion 32 constitutes the cover part of the tape, and is similar in all respects to the tape 20. In other words, its free side edge 33 is retained in the recess 34 of the links or scoops by the reformed flange portion 35, the latter being similar to the flange 24.

Fig. 5 differs from Fig. 4 simply in that the stringer tape is folded directly upon itself, as seen at 36, and two cords or bead forming strands 37 and 38 are laid on opposite sides of the folded portion to form the retaining bead of the stringer tape. With this construction the free edge 39 of the tape is similar to the end 31, and the end 40 similar to the end 32 of the structure, as seen in Fig. 4.

In Fig. 6 of the drawings, a one piece woven tape 41 is employed, which has intermediate its side portions a tape extension 42 which forms the cover tape similar to the tape 20 or the tape ends 32—40. The tape 41 also includes the part 43 extending into the links or scoops and on which is arranged two cords or strands 44 and 45 similar to the cords or strands 37, 38.

With all of the constructions shown in Figs. 4, 5, and 6, the cords or strands 28, 37, 38, 44, and 45 may be stitched, cemented, or otherwise secured to the tapes prior to the attachment of the links or scoops thereto. However, when the links or scoops are formed by die cast material, the pre-attachment of the cords is not necessary, in that the casting material will extend into and be firmly anchored in the interstices of the braid of the tapes, as well as the cords, where the latter are exposed in securely anchoring the tapes within the links or scoops.

With the construction as shown in Figs. 1 to 3 inclusive, the cover tape may be of a different texture, as well as color, than that which is employed in the mounting tape of the stringers. In the specially woven tape, as illustrated in Fig. 6, the cover tape 42 may be of a lighter or thinner structure than the remainder of the tape.

In producing covered fastener stringers by the process which comprises first forming the links or scoops, and then pinching or otherwise attaching the same to the mounting tape and strips, the links will be formed with the tape edge engaging means, comprising the recesses and the outwardly projecting flange on one wall of the recess. It will thus be apparent that these devices then constitute articles of manufacture and are produced as such.

From the standpoint of producing fasteners of the class under consideration, where the links or scoops have the means on one surface thereof for attaching a cover strip or other member, it will be apparent that the precise method defined in the present illustrations need not necessarily be followed, as a cover strip or other member may be attached to the securing means of the links or scoops independent of attachment of said links or scoops to the stringer tape. When a cover strip is employed the free edge of this strip can be stitched or otherwise secured to the stringer tape or to the support in connection with which the fastener is mounted.

Considering Figs. 7 and 8 of the drawings the above method of procedure will be understood, bearing in mind that the cover tape 20 would be omitted from Fig. 7, and this tape or the edge portion 25 thereof would first be attached to the links or scoops in the manner indicated in Fig. 8, and thereafter the unattached side edge portion of this strip would be secured in position, as previously stated.

It will be understood that the cover strips employed or the cover portions of the tape as with the structure shown in Figs. 4, 5 and 6 will be made of a width to bring the free edge portion thereof in position to enter the recess of the links or scoops. With the construction as shown in Figs. 1 to 3 inclusive, the strip 20 together with the stringer tape 10—11 will be guided into the machine in the desired relationship, and the dies themselves will act as guides in properly positioning the strip or the edge portion 20 thereof in the attachment of the links or scoops. In some instances, means may be provided to at least temporarily retain the strips 20 on the stringer tapes in maintaining proper relationship of these parts prior to the attachment of the links or scoops.

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

1. The combination with a series of separable

fastener links each having a mounting end portion including jaw portions opening at one end of each of the links and coupling end portions adjacent the other ends of the links, of a mounting tape and a cover tape both embraced by said jaw portions and issuing therefrom in the direction of the central longitudinal plane of the links, said mounting end portions having opposite side faces equally spaced from said plane, said cover tape extending laterally from the jaw portions, along one of said side faces and along a part of the side face of the coupling end portion of each link, a recess extending into each link in the coupling end portion thereof in said side face to receive the free edge of the cover tape and means adjacent each recess deformable to clamp the edge of the cover tape therein.

2. The combination with a series of separable fastener links each having a mounting end portion including jaw portions opening at one end of each of the links and coupling end portions adjacent the other ends of the links, and a mounting tape embraced by said jaw portions and issuing therefrom in the central longitudinal plane of the links, said mounting end portions having opposite side faces equally spaced from said plane, of a cover tape extending outwardly from the mounting tape and along one of said side faces and along a part of the side face of the coupling end portion of each link, a recess extending into each link in the coupling end portion thereof in said side face to receive the free edge of the cover tape and means to secure such free edge of the cover tape in said recess.

3. The combination with a series of separable fastener links each having a mounting end portion including jaw portions opening at one end of each of the links and coupling end portions adjacent the other ends of the links, and a mounting tape embraced by said jaw portions and issuing therefrom in the central longitudinal plane of the links, said mounting end portions having opposite side faces equally spaced from said plane, of a cover tape extending outwardly from the mounting tape and along one of said side faces and along a part of the side face of the coupling end portion of each link, a recess extending into each link in the coupling end portion thereof in said side face to receive the free edge of the cover tape and means adjacent each recess deformable to clamp the edge of the cover tape therein.

4. The combination with a series of separable fastener links supported in spaced relation on a mounting tape, each link having a mounting end portion embracing the edge of said tape and a coupling end portion extending beyond the edge of the tape, and said mounting end portions and coupling end portions having continuous substantially flat side faces, of a cover tape extending from the mounting tape along one side face of the mounting end portion and coupling end portion of each link, a recess in the adjacent side face of each of said coupling end portions, the free edge of the cover tape entering said recesses, and means to secure the same therein, each of said recesses being located at a distance from the coupling end of the link to leave such coupling end exposed.

5. The combination with a series of separable fastener links supported in spaced relation on a mounting tape, each link having a mounting end portion embracing the edge of said tape and a coupling end portion extending beyond the edge of the tape, and said mounting end portions and coupling end portions having continuous substantially flat side faces, of a cover tape extending from the mounting tape along one side face of the mounting end portion and coupling end portion of each link, a recess in the adjacent side face of each of said coupling end portions, the free edge of the cover tape entering said recesses, each of said recesses being located at a distance from the coupling end of the link to leave such coupling end exposed and each recess having an upstanding wall portion deformable to clamp the tape edge therein.

6. In a separable slide fastener the combination with a pair of opposed flexible mounting tapes each having a series of fastener links supported in spaced relation thereon, each link having a mounting end portion embracing the edge of the mounting tape and a coupling end portion extending beyond the edge of said tape, each link having continuous substantially flat side faces extending from the mounting end to the coupling end thereof, and each link having a recess in one of said side faces of the coupling end portion of the link, of a pair of opposed cover tapes each one extending from the mounting tapes along one of the side faces of the links, the free edges of the cover tapes being caught in said link recesses, each recess having an upstanding wall portion deformable to clamp the tape edge therein, and each recess being located at a distance from the coupling end of the link to leave such coupling end exposed with respect to the cover tape held by the link but adapted to fit underneath the edge of the opposing cover tape.

7. In a separable slide fastener the combination with a pair of opposed flexible mounting tapes each having a series of fastener links supported in spaced relation thereon, each link having a mounting end portion embracing the edge of the mounting tape and a coupling end portion extending beyond the edge of said tape, each link having side faces extending from the mounting end to the coupling end thereof, and each link having a recess in one of said side faces of the coupling end portion of the link, of a pair of opposed cover tapes each one extending from the mounting tapes along one of the side faces of the links, the free edges of the cover tapes being caught in said link recesses, each recess having an upstanding wall portion deformable to clamp the tape edge therein, and each recess being located at a distance from the coupling end of the link to leave such coupling end exposed with respect to the cover tape held by the link but adapted to fit underneath the edge of the opposing cover tape.

8. The combination with a series of separable fastener links supported in spaced relation on a mounting tape, each link having a mounting end portion embracing the edge of said tape and a coupling end portion extending beyond the edge of the tape, and said mounting end portions and coupling end portions having side faces, of a cover tape extending from the mounting tape along one side face of the mounting end portion and coupling end portion of each link, a recess in the adjacent side face of each of said coupling end portions, the free edge of the cover tape entering said recesses, each of said recesses being located at a distance from the coupling end of the link to leave such coupling end exposed with respect to the cover tape, each recess having an exposed upstanding wall portion situated between the coupling end portion of the link and the nearest surface of said cover tape in said recess,

said wall portion being deformable to clamp the tape edge therein.

9. A stringer for separable fasteners, said stringer comprising a plurality of links spaced longitudinally of one edge portion of a mounting tape, each link comprising a mounting end portion and a coupling end portion, outer ends of said mounting and coupling end portions being of the same width, each link intermediate said ends being of a width common to the width of said ends throughout the major portion of the length of the link producing substantially flat opposed side surfaces throughout the major portion of the length of the links, a cover tape having one edge portion anchored to the mounting end portion of the links, said cover tape being arranged flushly upon one side surface of all of the links of a stringer, and the other edge portion of said cover tape being secured to the coupling end portions of the links within the bounds of said side surfaces.

10. A stringer for separable fasteners, said stringer comprising a plurality of links spaced longitudinally of one edge portion of a mounting tape, each link comprising a mounting end portion and a coupling end portion, outer ends of said mounting and coupling end portions being of the same width, each link intermediate said ends being of a width common to the width of said ends throughout the major portion of the length of the link producing substantially flat opposed side surfaces throughout the major portion of the length of the links, one common side surface of all of the links having a transverse recess at the coupling end portions thereof, a cover tape extending from the mounting tape over said side surface of said links, the free edge of the cover tape being arranged in the recesses of all of said links, and means securing the free edge of said cover tape in the recesses of all of said links.

11. A stringer for separable fasteners, said stringer comprising a plurality of links spaced longitudinally of one edge portion of a mounting tape, each link comprising a mounting end portion and a coupling end portion, side surfaces of each link being substantially flat throughout the major portion of the length thereof and spaced at equal distances from the link center defined by the mounting tape, one common side surface of the mounting end portion of all of the links having recesses extending throughout the full width of the links, a cover tape arranged upon said side surface of all of the links, said cover tape extending from the mounting tape with the free edge portion thereof arranged in the recesses of the links, and means retaining the free edge portion of the cover tape in the recesses of each of said links.

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