Feb. 19, 1963 L. H. MORIN 3,077,847

METHOD OF MACHINE STITCHING CONCEALED-TYPE SEPARABLE FASTENER STRINGERS TO SUPPORTS THEREFOR

Filed Feb. 23, 1960 2 Sheets-Sheet 1

FIG. 1.

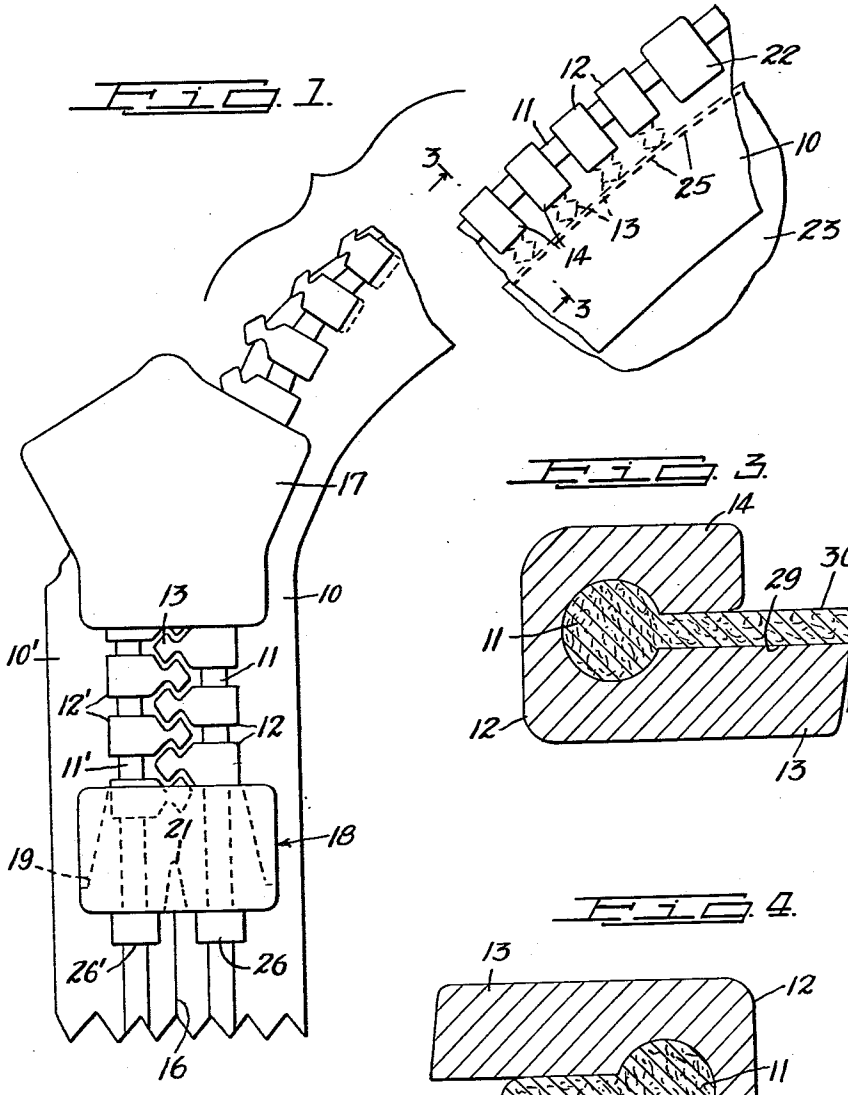
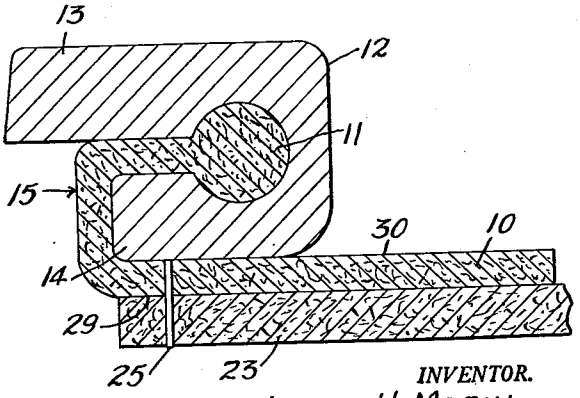


FIG. 3.

FIG. 4.



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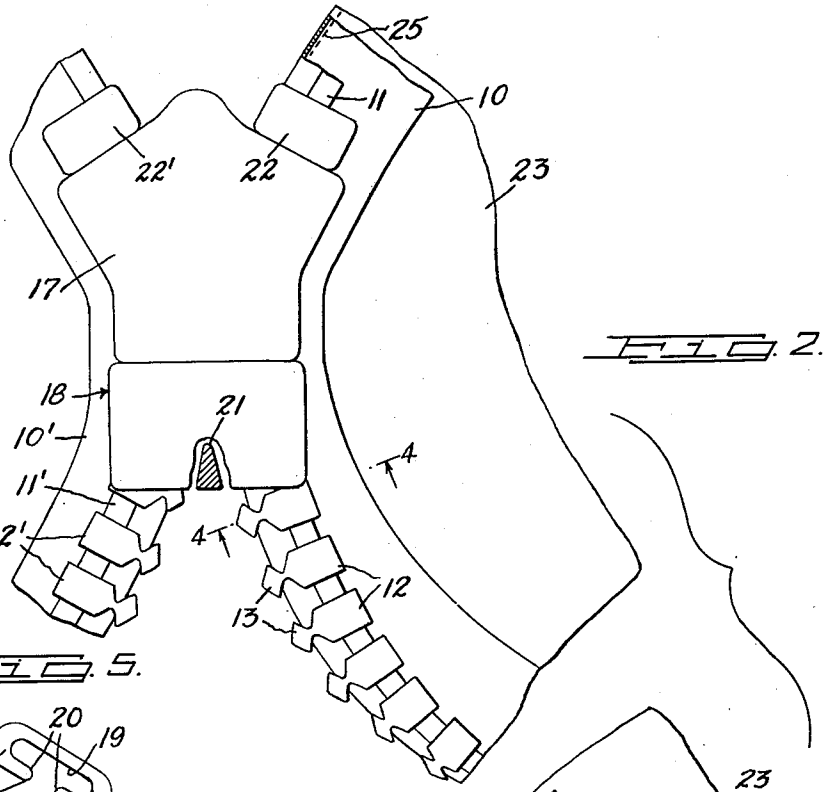


FIG. 2.

FIG. 5.

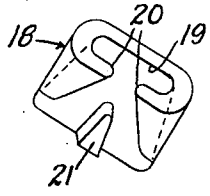
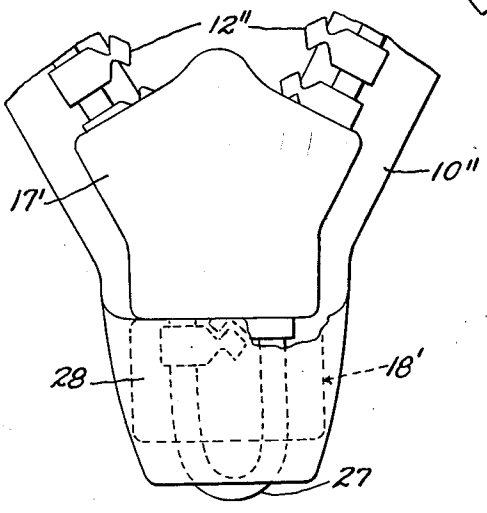
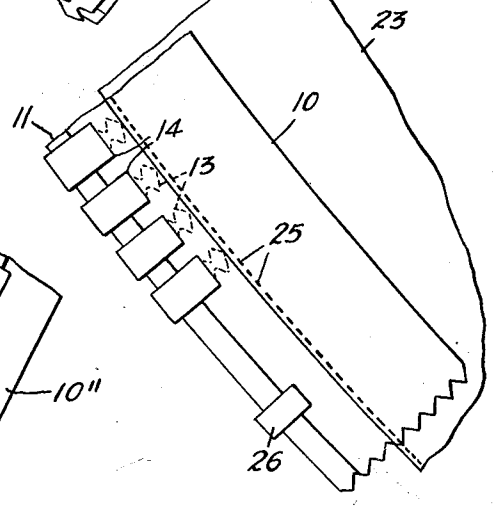


FIG. 6.





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United States Patent Office

3,077,847

Patented Feb. 19, 1963

3,077,847

METHOD OF MACHINE STITCHING CONCEALED-TYPE SEPARABLE FASTENER STRINGERS TO SUPPORTS THEREFOR

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Filed Feb. 23, 1960, Ser. No. 10,252
3 Claims. (Cl. 112—265)

This invention deals with what are termed separable fastener stringers of the scoop concealed-type. More particularly, the invention deals with a method of completely machine stitching the stringer tapes to the supports therefor without the necessity of utilizing any hand stitching. Still more particularly, the invention deals with a method of the character defined, wherein a combination bottom stop and supplemental slider is utilized in coupling and uncoupling the stringer tapes in performing the machine stitching operation and thereafter sealed to the lower portion of the stringers in definitely forming what is generally referred to as the bottom stop of the fastener.

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 diagrammatic bracketed view of end portions of a separable fastener stringer, illustrating the step of machine stitching one of the tapes to a support at and for a considerable distance adjacent and extending from the upper top stop end of the stringer tape, only a small portion of said end portion being diagrammatically illustrated.

FIG. 2 is a bracketed view, generally similar to FIG. 1, but showing the step of stitching the remainder and other end portion of the stringer tape prior to final securing the bottom stop to said end portion.

FIG. 3 is an enlarged diagrammatic section on the line 3—3 of FIG. 1.

FIG. 4 is a diagrammatic sectional view, similar to FIG. 3, showing the tape and a scoop of the tape in its normal operative position, the section being partially on the line 4—4 of FIG. 2.

FIG. 5 is a perspective view of the combination slider stop which I employ detached; and

FIG. 6 is a diagrammatic detail view illustrating a method of forming the lower bottom stop end of a separable fastener where the stringers are formed from a single tape.

In considering FIGS. 1 and 2 of the drawing collectively, these figures diagrammatically illustrate the steps of my method in machine stitching stringers of concealed-type separable fasteners to supports and, for illustrative purposes, the step is dealt with the attachment of one stringer to one support, it being understood that the other stringer of the fastener is correspondingly attached. FIG. 1 diagrammatically illustrates the method performed in stitching what may be termed the upper top stop end portion of one stringer to a support and for an extent along the stringer to a point spaced from the bottom stop end thereof shown at the lower portion of FIG. 1 and, in completing this stitching operation, the slider and combination slider stop are moved to the first stitched end portion of the stringer, as noted in FIG. 2, whereupon, the operation of completing the stitching is performed on the remainder of the stringer, including the lower end portion thereof, as indicated in FIG. 2, after which, the combination bottom stop and slider element is moved to its lowered position and compressed upon the scoop and tapes in forming the definite bottom stop, in other words, with

said element in the position as noted in FIG. 1 of the drawing.

In FIGS. 1 and 2 of the drawing, 10, 10' represent two substantially similar stringer tapes and, as both tapes are of identical construction, the brief description of one will apply to the other. Fixed to the beaded edge portion 11, 11' of the tapes are scoops 12, 12', each scoop having a coupling side portion 13, note FIGS. 3 and 4, and a tape fold controlling side portion 14, around which the tape is folded in forming the concealed-type of stringer, the folded position of the stringer being illustrated in FIG. 4 of the drawing. When in this position, the surface 15 of the tape arranged over the side portion 14 will be substantially in alinement with what may be termed the pitch coupling line between the scoops 12, 12', as noted at the bottom of FIG. 1 of the drawing, so as to bring the surfaces of both stringers into abutting engagement, as indicated by the line 16 in FIG. 1.

In FIGS. 1 and 2 are diagrammatically indicated at 17 a conventional slider movable along the stringers to couple and uncouple the same, as with other devices of this type and kind, the slider operating on the coupling or scoop side of the stringers, as will be apparent from a consideration of FIGS. 1 and 2 of the drawing. At 18 is shown a combination bottom stop and slider element movable along the scoops of the stringers in coupling and uncoupling the stringers in performing the machine stitching operation in accordance with my method.

Considering FIG. 5 of the drawing, it will appear that the element 18 has a flared channel 19, partially formed by inwardly extending and flared flanges 20, the flared end of the channel being divided by a web 21, generally common with webs of conventional sliders.

In carrying my method into effect and in illustrating one procedure, the slider 17 and the slider stop 18 are brought into position adjacent the lower end of the stringers, as indicated in FIG. 1 of the drawing, and the remainder of the stringer through the upper end of the stringer having the top stop 22 is arranged in the position as indicated diagrammatically in FIG. 3 of the drawing and the edge portion of a support 23 is arranged adjacent the coupling end portion 13 of the scoop, as diagrammatically indicated at 24 in FIG. 3; whereupon, the support 23 is stitched to the tape 10, which is then lying in a flat position, this stitching being diagrammatically illustrated at 25 in FIGS. 1 and 3 of the drawing.

In the foregoing stitching operation, it will be understood that the lower end portion of the stringers are in the position, as indicated in section in FIG. 4 of the drawing. However, as noted in FIG. 1, the support is not secured to the tape 10, but the tape 10 will assume the folded position, as this is the only manner in which the stringers can be coupled.

After performing the first part of the stitching operation, the upper portion of the stringer 10 is folded into the position shown in FIG. 4 and the slider 17, together with the slider stop 18, are moved to the upper portion of the stringers, as diagrammatically illustrated in FIG. 2 of the drawing, with the slider brought into engagement with the top stops 22, 22' and with the slider stop 18 adjacent the slider 17. Then the lower portion of the stringer tape 10 is moved into a position similar to that shown in FIG. 3 and illustrated at the lower part of FIG. 2; whereupon, the remainder of support 23 is stitched to the tape 10 in the continuation of the stitchings 25, noted in FIG. 2, thus completing the attachment of the one stringer 10 to the support 23. It will be apparent that the companion support will then be correspondingly stitched to the stringer tape 10' but, as this would be a repetition of the first procedures mentioned above, the step of this latter stitching will not be reviewed but,

when both stringer tapes 10, 10' have been secured to their respective supports in the manner described, the stringers and scoops will be brought into the position illustrated in FIG. 4 of the drawing and the slider stop 18 will be moved into abutting engagement with the conventional bottom stops 26, 26', as indicated in FIG. 1 of the drawing, and the slider stop 18 compressed for fixed attachment to the scoop and tapes and thus form the final bottom stop of the assembled and attached separable fastener.

By the foregoing method of procedure, attachment of stringers is simplified and a neat and finished appearance is produced on the supports, in connection with which the stringers of the separable fastener are attached and the scoops are definitely concealed by virtue of abutment of the surfaces 15, as indicated by the line of abutment 16 in FIG. 1 of the drawing.

In FIG. 6 of the drawing, I have illustrated a slight modification, wherein a single stringer tape 10'' is employed with the scoops 12'' attached, in a manner similar to the showings in FIGS. 1 to 4, inclusive, the scoops being spaced along a section of the stringer tape 10, 10' and this portion of the stringer tape is looped as indicated at 27 in FIG. 6, and forms what might be termed a pocket 28, in which the slider stop 18', similar to the stop 18, is finally positioned. The slider is indicated at 17'. With the structure shown in FIG. 6, the stringer 10'' will be secured to the separate supports by stitching, in the manner diagrammatically illustrated in FIGS. 1 and 2, it being understood, however, that the stitching of the lower end portion of the stringer tape to the supports will terminate adjacent the pocket 28 or the end scoops of the stringer tape located beyond the pocket, thus leaving the pocket open for free admission of the slider stop 18'.

For purposes of description and considering FIGS. 3 and 4 of the drawing, the surfaces 29 of the tape 10 may be said to define the support engaging surface, in other words, the surface upon which the support 23 is disposed; whereas, the surface 30 of the tape is the surface upon which the scoop 12 is finally arranged, as indicated in FIG. 4 of the drawing. It can, thus, be said that the support 23 is stitched to the surface 29, with the coupling end portion 13 of the scoop arranged upon said surface, as indicated in FIG. 3, after which, the tape is folded to position the scoop 12 on the surface 30, in the manner illustrated in FIG. 4. Another manner of describing the surfaces 29 and 30 may be as follows, namely that the surface 29 is the outer surface of the tape and the surface 30 is the inner surface thereof.

Also for purposes of description, the member 18 may be considered to be a supplemental slider arranged upon the stringers reversely to the primary slider 17, in other words, so that scoops are maintained in coupled relationship to each other when 17 and 18 are adjacent to each other, as will clearly appear from a consideration of FIG. 2 of the drawing. In other words, the single channel portion of both sliders are arranged adjacent each other; whereas, the flared or double channel portions are opposed to each other.

It will be apparent that stringers employing what are known as double acting scoops are essential for successful operation of the stringers and, particularly, the two sliders 17, 18. In other words, the scoops can be coupled with sliders movable in either direction on the stringers.

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

1. The method of machine stitching concealed-type double acting separable fastener stringers having tapes with beaded edges folded back 180° over the inner surface of said tape to supports therefor, which consists in attaching scoops to beaded edge portions of a stringer tape, each scoop having a coupling side portion and a tape fold portion, unfolding the turned over beaded edge of said tape 180° to bring said coupling side portions of said scoops on the outer side of said tape, arranging a support on an outer surface of a stringer tape so that an edge thereof is adjacent to and aligned with coupling end portions of the scoops disposed on said surface, stitching a support to said outer surface of the tape by a line of stitching arranged adjacent the edge of the support while said beaded edge of said tape is unfolded, utilizing a slider stop in conjunction with a conventional slider in coupling scoops of a pair of stringers, said slider stop and slider arranged on said stringers with single channel end portions adjacent each other, arranging said slider and slider stop adjacent one end portion of a stringer in stitching the opposed end portion of the stringer tape to a support, and then arranging the slider and said slider stop on the first stitched end portion of said stringer thus disengaging the scoops of opposed stringers at said first named end portion and completing the stitching of the tape to said support at the first named end portion of said stringer.

2. A method as defined in claim 1, wherein the stringers are formed from a single stringer tape spacing groups of scoops on the beaded edge portion of the stringer tape to form a foldable portion on said tape, folding said portion to form a pocket, and finally securing the slider stop to the folded portions of the tape in forming the final bottom stop for the sliders of said stringers.

3. The method of machine stitching concealed-type double acting separable fastener stringers to supports therefor, which consists in attaching scoops to beaded edge portions of a stringer tape, each scoop having a coupling side portion and a tape fold portion, arranging a support on an outer surface of a stringer tape so that an edge thereof is adjacent to and aligned with coupling end portions of the scoops disposed on said surface, stitching a support to said outer surface of the tape by a line of stitching arranged adjacent the edge of the support, utilizing a slider stop in conjunction with a conventional slider in coupling scoops of a pair of stringers, said slider stop and slider arranged on said stringers with single channel end portions adjacent each other, arranging said slider and slider stop adjacent one end portion of a stringer in stitching the opposed end portion of the stringer tape to a support, then arranging the slider and said slider stop on the first stitched end portion of said stringer thus disengaging the scoops of opposed stringers at said first named end portion and completing the stitching of the tape to said support at the first named end portion of said stringer, each stringer having fixed to the beaded edge portion thereof a top stop and a bottom stop, positioning said slider stop adjacent the bottom stops of coupled stringers after completing attachment of both stringers to respective supports, and then fixedly securing said slider stop by compression thereof to the stringer tapes in forming the initial bottom stop engaged by said slider.

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