

PATENT SPECIFICATION (11)

1 392 653

1 392 653

- (21) Application No. 17341/72 (22) Filed 14 April 1972 (19)
 (31) Convention Application No. 30709/71 (32) Filed 20 April 1971 in
 (33) Japan (JA)
 (44) Complete Specification published 30 April 1975
 (51) INT. CL.² A44B 19/36
 (52) Index at acceptance
 E2S 1A2A 1A2B1 1A4



(54) A SLIDING CLASP FASTENER

(71) We, YOSHIDA KOGYO KABUSHIKI KAISHA, a corporation duly organized under the laws of Japan, of No. 1, Kanda Izumicho, Chiyoda-ku, Tokyo, Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates generally to a sliding clasp fastener and more particularly to such a fastener which is provided with means for preventing its sliding member from over-running or from being separated from the fastener.

Heretofore, there have been proposed various types of end stops for limiting the reciprocal movements of a slider along rows of fastener elements to open and close the fastener. Because of the usual orientation of a fastener, these end stops are usually termed the "top end stops" and the "bottom end stops" respectively, the "top end stops" being the stops arranged for limiting a closing movement of the slider. These terms will be used hereinafter in the specification, but no limitation as to the actual positioning of the fastener stops is to be taken by this.

The present invention is directed to the provision of an end stop suitable for use on a sliding clasp fastener carrying interlocking fastener elements made of plastics filaments.

Prior to this invention, there were known top end stops made of a metal and having a cross-section in the form of a U. For use such a stop is mounted astride an edge of a stringer tape so as to embrace some of the terminal fastener elements of the tape. These end stops are, however, prone to become loose or displaced upon repeated abutment against the slider. Furthermore, if they are exposed to the skin of the wearer, the metal stops can cause discomfort to the wearer.

The present invention aims to provide a sliding clasp fastener having rows of fastener elements made of plastics filaments with an end stop which will substantially eliminate

the above-mentioned disadvantages of the conventional top end stops.

According to the invention, there is provided a sliding clasp fastener comprising: a pair of opposed stringer tapes each carrying along their respective adjacent edges a row of plastics fastener elements each having a coupling head engageable between the coupling heads of two fastener elements on the other stringer tape and each having a base portion remote from said coupling head; a slider movable along the rows of fastener elements and having side flanges engageable with the base portions of the fastener elements on both stringer tapes; and stop means for limiting the movement of said slider in one direction at an end of the fastener, said stop means comprising, for each stringer tape, an arcuate stop member composed of thermoplastics material, said stop member being arcuate in the longitudinal direction of the respective tape, the central portion of the arc extending beyond the fastening elements to be engaged by the slider and both of its end portions being embedded between the base portions of adjacent fastening elements at an end portion of the respective tape and being directly fused to and forming part of the base portions of said elements, said stop members having substantially the same height as the fastener elements so that each stop member lies substantially flush with the plane of the respective row of fastener elements, and the central portion of each stop member terminating in a smooth and continuously extending contact surface engageable with an inner side wall of a flange of the slider during movement thereof in said one direction to limit the movement of said slider.

The invention will now be further described, by way of example, with reference to the accompanying drawings, in which:—

Fig. 1 is a plan view, partly in section of part of a sliding clasp fastener only one of the stringer tapes being shown in detail for clarity; and

Fig. 2 is a cross-sectional view of the

stringer tape shown in Fig. 1, taken on the line A—A of Fig. 1.

For the purposes of illustration, the invention will be described in respect of an embodiment in which its principles are applied to a sliding clasp fastener of the known concealed type as shown in Fig. 1. The fastener, generally designated by the reference numeral 10, comprises a pair of opposed stringer tapes 11, 12 each carrying along their respective folded edge 13 a row of fastener elements E. The fastener elements E are made of a plastics filament formed into a coil in the known manner and each comprise a coupling head 14, legs 15 and a base portion 16. As seen, the row of these coil elements E is secured by two-thread chain stitches S through a stiffening cord 17 onto the folded edge 13 of stringer tape 11.

Designated at 18 is a top end stop provided for limiting the upward closing movement of the slider 19. This end stop is made of a plastics material fusible with the fastener elements E. It forms an arcuately shaped projection 20 extending beyond the base, i.e. non-operative, edge of the elements E for engagement with the slider 19. The arcuate projection 20 preferably has a part-circular edge (when seen in cross-section), and provides a smooth contact surface for engagement with an inner side wall portion 21 of the flange 24 of the slider 19 so that the end stop 18 is accurately located in position relative to the slider as seen in Fig. 1. Another important feature is that both ends 22 of the end stop 18 are embedded in between adjacent fastener elements E and secured firmly in place by being fused as at 25 integrally with those elements E as by means of ultrasonic processing, in such a manner that the exposed upper (as seen in Figure 2) surface 20¹ of the projection 20 lies substantially flush with the exposed upper surfaces of the row of fastener elements E. In this way the end stop 18 is firmly anchored in position on the fastener, and its tendency to become loose or detached upon repeated impinging contact with the slider (as is experienced with the conventional devices) is substantially eliminated. It should be also noted that the end stop 18 being thus arranged will serve, with the other end stop 18, as a guide to align the terminal end of the fastener with the side wall of the diamond 23 of the slider 19 as desired. Also, the

end stop 18, because it lies flush with the respective row of elements E, advantageously permits the running of an ordinary presser foot of a sewing machine over the fastener.

WHAT WE CLAIM IS:—

1. A sliding clasp fastener comprising: a pair of opposed stringer tapes each carrying along their respective adjacent edges a row of plastics fastener elements each having a coupling head engageable between the coupling heads of two fastener elements on the other stringer tape and each having a base portion remote from said coupling head; a slider movable along the rows of fastener elements and having side flanges engageable with the base portions of the fastener elements on both stringer tapes; and stop means for limiting the movement of said slider in one direction at an end of the fastener, said stop means comprising, for each stringer tape, an arcuate stop member composed of thermoplastics material, said stop member being arcuate in the longitudinal direction of the respective tape, the central portion of the arc extending beyond the fastening elements to be engaged by the slider and both of its end portions being embedded between the base portions of adjacent fastening elements at an end portion of the respective tape and being directly fused to and forming part of the base portions of said elements, said stop members having substantially the same height as the fastener elements so that each stop member lies substantially flush with the plane of the respective row of fastener elements, and the central portion of each stop member terminating in a smooth and continuously extending contact surface engageable with an inner side wall of a flange of the slider during movement thereof in said one direction to limit the movement of said slider.

2. A sliding clasp fastener according to claim 1, wherein said stop means is a top end stop member having a round cross section.

3. A sliding clasp fastener substantially as hereinbefore described with reference to the accompanying drawings.

For the Applicants,
EDWIN C. AXE & CO.,
Chartered Patent Agents,
113 Kingsway,
London WC2B 6QP.



stringer tape shown in Fig. 1, taken on the line A—A of Fig. 1.

For the purposes of illustration, the invention will be described in respect of an embodiment in which its principles are applied to a sliding clasp fastener of the known concealed type as shown in Fig. 1. The fastener, generally designated by the reference numeral 10, comprises a pair of opposed stringer tapes 11, 12 each carrying along their respective folded edge 13 a row of fastener elements E. The fastener elements E are made of a plastics filament formed into a coil in the known manner and each comprise a coupling head 14, legs 15 and a base portion 16. As seen, the row of these coil elements E is secured by two-thread chain stitches S through a stiffening cord 17 onto the folded edge 13 of stringer tape 11.

Designated at 18 is a top end stop provided for limiting the upward closing movement of the slider 19. This end stop is made of a plastics material fusible with the fastener elements E. It forms an arcuately shaped projection 20 extending beyond the base, i.e. non-operative, edge of the elements E for engagement with the slider 19. The arcuate projection 20 preferably has a part-circular edge (when seen in cross-section), and provides a smooth contact surface for engagement with an inner side wall portion 21 of the flange 24 of the slider 19 so that the end stop 18 is accurately located in position relative to the slider as seen in Fig. 1. Another important feature is that both ends 22 of the end stop 18 are embedded in between adjacent fastener elements E and secured firmly in place by being fused as at 25 integrally with those elements E as by means of ultrasonic processing, in such a manner that the exposed upper (as seen in Figure 2) surface 20¹ of the projection 20 lies substantially flush with the exposed upper surfaces of the row of fastener elements E. In this way the end stop 18 is firmly anchored in position on the fastener, and its tendency to become loose or detached upon repeated impinging contact with the slider (as is experienced with the conventional devices) is substantially eliminated. It should be also noted that the end stop 18 being thus arranged will serve, with the other end stop 18, as a guide to align the terminal end of the fastener with the side wall of the diamond 23 of the slider 19 as desired. Also, the

end stop 18, because it lies flush with the respective row of elements E, advantageously permits the running of an ordinary presser foot of a sewing machine over the fastener.

WHAT WE CLAIM IS:—

1. A sliding clasp fastener comprising: a pair of opposed stringer tapes each carrying along their respective adjacent edges a row of plastics fastener elements each having a coupling head engageable between the coupling heads of two fastener elements on the other stringer tape and each having a base portion remote from said coupling head; a slider movable along the rows of fastener elements and having side flanges engageable with the base portions of the fastener elements on both stringer tapes; and stop means for limiting the movement of said slider in one direction at an end of the fastener, said stop means comprising, for each stringer tape, an arcuate stop member composed of thermoplastics material, said stop member being arcuate in the longitudinal direction of the respective tape, the central portion of the arc extending beyond the fastening elements to be engaged by the slider and both of its end portions being embedded between the base portions of adjacent fastening elements at an end portion of the respective tape and being directly fused to and forming part of the base portions of said elements, said stop members having substantially the same height as the fastener elements so that each stop member lies substantially flush with the plane of the respective row of fastener elements, and the central portion of each stop member terminating in a smooth and continuously extending contact surface engageable with an inner side wall of a flange of the slider during movement thereof in said one direction to limit the movement of said slider.

2. A sliding clasp fastener according to claim 1, wherein said stop means is a top end stop member having a round cross section.

3. A sliding clasp fastener substantially as hereinbefore described with reference to the accompanying drawings.

For the Applicants,
EDWIN C. AXE & CO.,
Chartered Patent Agents,
113 Kingsway,
London WC2B 6QP.