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(54) BRIDGE TOP STOP IN SLIDING CLASP FASTENERS

(71) We, YOSHIDA KOGYO K.K., a corporation duly organized under the laws of Japan and existing at 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 to sliding clasp fasteners and has particular reference to what is commonly referred to as bridge top end stops for use on sliding clasp fasteners.

Bridge top stops have been adapted as a common connection to join the upper ends of fastener stringers, and sliding clasp fasteners equipped with such bridge top stops have found extensive application in garment placket and other closure openings such as in bags, suitcases and the like. While a number of bridge top stops have been proposed in the art, most of them have been found not entirely satisfactory in view of the mechanical strength and positional stability required to withstand severe impinging forces applied in the operation of a slider to open and close the fastener, or stresses tending to pull the stringer tapes laterally apart. Amongst the many reasons rendering the prior-art bridge top stops less durable, it has been the most fatal that their bondage with both the fastener elements and the stringer tapes was weak.

According to the invention, there is provided a sliding clasp fastener comprising a pair of stringer tapes, a row of interlocking fastener elements secured to and along one longitudinal edge of each of said stringer tapes, a slider movable along said longitudinal edge to couple and uncouple the rows of fastener elements, and a bridge top stop positioned at an upper end of the fastener and adapted to prevent the slider from running off said upper end, said bridge top stop embracingly overlying a first length of fastener elements that remain coupled at said upper end and a second length of fastener elements that continue from said first length but are uncoupled, and said bridge top stop being bonded integrally with said

first and second lengths of fastener elements to the stringer tapes.

The features which are believed to be novel and characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to its construction and manner of operation, will become more apparent from the following description of preferred embodiments taken in connection with the accompanying drawings in which like reference characters denote like parts throughout the several views, and wherein:

Figure 1 is a plan view of an upper end portion of a sliding clasp fastened at which a bridge top stop is applied in accordance with the invention;

Figure 2 is a transverse cross-sectional view taken on the line II—II of Figure 1;

Figure 3 is a view similar to Figure 1 but showing another bridge top stop embodying the invention;

Figure 4 is a transverse cross-sectional view taken on the line IV—IV of Figure 3; and

Figure 5 is a view similar to Figure 3 but showing still another bridge top stop embodying the invention;

Referring now to the drawings and Figures 1 and 2 in particular, there is shown an upper end portion of a sliding clasp fastener F, which fastener generally comprises a pair of stringer tapes T₁, T₂, and a row of interlocking fastener elements E of conventional construction secured as by sewing threads S to and along one longitudinal edge of each of the stringer tapes, the two rows of fastener elements E being disposed to be interengaged and disengaged by a slider (not shown) to close and open the fastener F in the well known manner.

Designated at 10 is a bridge type of top end stop which is adapted to connect the upper ends of both stringer tapes T₁, T₂ and prevent the slider from running off that end of the fastener at which the top stop 10 is prepositioned. The bridge top stop 10 which embodies the features of the invention comprises a body portion 11 bifurcated at one end to provide downwardly

projecting jaw portions 12, 13. The body portion 11 embraces or covers a first length or group of interengaged fastener elements Ea , while the bifurcations, or jaw portions 12, 13 embrace or cover a second length or group of disengaged fastener elements Eb on the respective stringer tapes T_1, T_2 . The bifurcations or jaw portions 12, 13 define therebetween a bay or slot 14 for receiving the neck or wedge of the slider and each have an outer periphery 12a (13a) of a contour substantially conforming with the inner peripheral walls of the flanges of the slider so that the slider can be received smoothly and anchored snugly at the top stop 10. The top stop 10 further includes outwardly directed lateral extensions or flange portions 15, 16 which are intimately bonded to the respective stringer tapes T_1, T_2 .

The material used to form the bridge top stop 10 in this and other subsequently appearing embodiments of the invention may be preferably the same as used to form the fastener elements E so as to achieve intimate bondage of these fastener parts. For purposes of illustration, the embodiments herein presented are all directed to the use of thermoplastic materials both for the fastener elements and the bridge top stops. Therefore, the bridge top stop 10 may be bonded adhesively to or fused together with the fastener F with heat and pressure, as for example by high frequency or supersonic treatment, or alternatively by injection molding. Where metallic fastener elements are employed, the bridge top stop 10 may be preferably in the form of a die cast. While the processes for attaching the bridge top stop 10 to the fastener F do not form the subject matter of this invention, it may be originally preformed to the showings in Figures 1 and 2 and secured in place with heat and pressure, or may be so shaped as by punching after attachment to the fastener.

The important features of the invention reside, however, in the arrangement of the bridge top stop 10 in which it embracingly overlies a length of fastener elements Ea that remain coupled at an upper terminal end portion of the fastener F and further another length of fastener elements Eb that continue from the first mentioned length but are uncoupled, the top stop 10 thus being bonded integrally with these lengths of fastener elements to the stringer tapes T_1, T_2 .

An alternative form of bridge top stop 10 is shown in Figures 3 and 4, which is arranged in a manner similar to the above described embodiment to embracingly overlie both a first length of coupled fastener elements Ea and a second length of un-

coupled fastener elements Eb . The bridge top stop 10 in this embodiment is characterized in that it is attached to the fastener F by injection moulding, as may be understood from the showing of Figure 4.

There is shown in Figure 5 another alternative form which is substantially similar to the bridge top stop 10 illustrated in Figures 3 and 4 but which includes a modification in which a strip of thermoplastic film 17 is attached together with the body of the bridge top stop 10 to the upper end portion of each of the stringer tapes T_1, T_2 so as to reinforce that end portion of the tape. The strip 17 may be injection-moulded together with the bridge top stop 10.

WHAT WE CLAIM IS:—

1. A sliding clasp fastener comprising a pair of stringer tapes, a row of interlocking fastener elements secured to and along one longitudinal edge of each of said stringer tapes, a slider movable along said longitudinal edge to couple and uncouple the rows of fastener elements, and a bridge top stop positioned at an upper end of the fastener and adapted to prevent the slider from running off said upper end, said bridge top stop embracingly overlying a first length of fastener elements that remain coupled at said upper end and a second length of fastener elements that continue from said first length but are uncoupled, and said bridge top stop being bonded integrally with said first and second lengths of fastener elements to the stringer tapes.
2. A sliding clasp fastener as claimed in claim 1 wherein said bridge top stop comprises a body portion disposed to embrace said first length of fastener elements, said body portion being bifurcated at one end to provide downwardly projecting jaw portions which are disposed respectively to embrace said second length of fastener elements on the stringer tapes and which define therebetween a slot for receiving the neck or wedge of the slider.
3. A sliding clasp fastener as claimed in claim 1 which further includes a strip of thermoplastic film secured together with said bridge top stop to the upper end portion of each of the stringer tapes.
4. A sliding clasp fastener substantially as herein described with reference to and as illustrated in the accompanying drawings.

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projecting jaw portions 12, 13. The body portion 11 embraces or covers a first length or group of interengaged fastener elements Ea, while the bifurcations, or jaw portions 12, 13 embrace or cover a second length or group of disengaged fastener elements Eb on the respective stringer tapes T₁, T₂. The bifurcations or jaw portions 12, 13 define therebetween a bay or slot 14 for receiving the neck or wedge of the slider and each have an outer periphery 12a (13a) of a contour substantially conforming with the inner peripheral walls of the flanges of the slider so that the slider can be received smoothly and anchored snugly at the top stop 10. The top stop 10 further includes outwardly directed lateral extensions or flange portions 15, 16 which are intimately bonded to the respective stringer tapes T₁, T₂.

The material used to form the bridge top stop 10 in this and other subsequently appearing embodiments of the invention may be preferably the same as used to form the fastener elements E so as to achieve intimate bondage of these fastener parts. For purposes of illustration, the embodiments herein presented are all directed to the use of thermoplastic materials both for the fastener elements and the bridge top stops. Therefore, the bridge top stop 10 may be bonded adhesively to or fused together with the fastener F with heat and pressure as for example by high frequency or supersonic treatment, or alternatively by injection molding. Where metallic fastener elements are employed, the bridge top stop 10 may be preferably in the form of a die cast. While the processes for attaching the bridge top stop 10 to the fastener F do not form the subject matter of this invention, it may be originally preformed to the showings in Figures 1 and 2 and secured in place with heat and pressure, or may be so shaped as by punching after attachment to the fastener.

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coupled fastener elements Eb. The bridge top stop 10 in this embodiment is characterized in that it is attached to the fastener F by injection moulding, as may be understood from the showing of Figure 4.

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