

PATENT SPECIFICATION (11)

1 377 723

1 377 723

- (21) Application No. 4978/73 (22) Filed 31 Jan. 1973 (19)
 (31) Convention Application No. 15624/72 (32) Filed 7 Feb. 1972 in
 (33) Japan (JA)
 (44) Complete Specification published 18 Dec. 1974
 (51) International Classification A44B 19/30 19/36
 (52) Index at acceptance
 E2S 1A3A 1A4 1A5



(54) CONCEALED SLIDING CLASP FASTENER

- (71) We, YOSHIDA KOGYO KABUSHIKI KAISHA, of No. 1, Kanda Izumi-cho, Chiyoda-ku, Tokyo, Japan: a corporation organized under the laws of 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:—
- 10 This invention relates to sliding clasp fasteners and has particular reference to a sliding clasp fastener of the concealed type which substantially simulates a garment seam in its closed position.
- 15 Sliding clasp fasteners having two rows of interlocking elements formed from a single plastics filament and secured to the folded edges of a pair of opposed stringer tapes are well known, and such fasteners when closed
- 20 by a reciprocating slider mask the elements from external view, only leaving a linear seam in the junction of the opposed tapes.
- Various locking means have been proposed for locking or otherwise retaining the slider in stationary position relative to the fastener against unintentional separation of the interlocked fastener stringers.
- 25 Some prior-art sliders for use with the concealed fasteners are provided with locking pins or prongs for retaining the slider in stopped position against spontaneous displacement. More advanced slider-locking concepts are known which preclude the necessity of the above-mentioned locking
- 30 pins or prongs and which feature the provision of a "braking" flange at both inlet and outlet sides of the slider for frictional engagement with the stringer tapes adjacent the element-carrying folded edges of the fastener. Since this concept relies solely upon
- 40 frictional contact between the upper flange members of the slider and the tapes, the slider is prone to retract from its locked position when severe lateral forces are exerted upon the fastener, particularly up
- 45 above the inlet side of the slider, with the results that the fastener is split open. Furthermore, this type of concealed fastener has the drawback that the slider with its flanges disposed in frictional engaging relation to the
- 50

tapes is sluggish in its operative movement.

It is an object of the present invention to provide a concealed sliding clasp fastener of this character which will eliminate the above-noted drawback of the prior-art fastener.

The invention consists in a sliding clasp fastener of the concealed type which comprises a pair of stringer tapes each having an inwardly folded edge portion, a row of fastener elements formed from a single plastics filament and secured to said folded edge portion, a slider movably mounted on said tapes for coupling and uncoupling said fastener elements and provided centrally with a guide post and side flanges defining therewith a guide channel for the passage of said row of elements, said side flanges each having an inner side wall which lies adjacent an inlet of said guide channel and extends substantially parallel with a longitudinal axis of said slider, and a retaining means provided on said row of elements adjacent a top terminal end thereof and having opposite side edges disposed for pressure engagement with a side wall of said guide post and said inner wall respectively to lock the slider against retractive movement in the fully closed disposition of the fastener.

Methods of performing the invention will now be described with reference to the accompanying drawings in which like reference characters refer to like parts throughout the several views and in which:

Fig. 1 is a plan view of a concealed sliding clasp fastener in accordance with this invention;

Fig. 2 is a rear view of an important part of the fastener in fully closed disposition with the slider shown partially broken away for a better illustration of the invention;

Fig. 3 is a transverse cross-sectional view taken on the line III—III of Fig. 2; and

Fig. 4 is a rear view of an important part of a modified embodiment according to the invention.

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 illustrated

[Price 25p]

price 75p

fastener elements E are made of a plastics filament formed into a coil in the known manner and are secured by stitchings S to the folded edge portions 13 of the tapes.

There is shown a slider 14 which is mounted astride of the rows of fastener elements E and movable reciprocally therealong to couple and uncouple the elements E, hence the two opposed stringer tapes 11, 12. The slider 14 comprises a plate body 15, a central guide post 16 defining a Y-shaped element-guide channel 17 and side flanges 18 integral with said body.

It will be noted that each side flange includes an inner side wall 19 which lies adjacent an inlet 20 of the guide channel 17 and extends substantially parallel with a longitudinal axis y-y of the slider 14 as better seen in Fig. 2 for purposes herein-after described. Alternatively, the inner side wall 19 may be directed slightly inwardly relative to the longitudinal axis y-y of the slider 14 as shown in Fig. 4.

There is provided a slider locking or retaining means 21 at least on one of the two rows of elements E adjacent a top terminal end thereof for retaining the slider 14 in position against unintentional retractive movement when severe lateral forces are applied to the fastener 10 in the direction of the arrow tending to force apart the two opposed stringer tapes 11, 12. The retaining means 21, preferably comprises a portion 22 of the row of elements E adjacent a top terminal end thereof which is flattened out or otherwise deformed as by heat to expand sidewise to a width substantially equal to or slightly greater or smaller than the width of the guide channel 17 defined between the guide post 16 and the inner side wall 19 of the slider 14. The dimension of the retaining means 21 is such that the same may be introduced in the guide channel 17 with least effort when the fastener is brought into a fully closed position, but opposite longitudinal side edges 21a and 21b of the means 21 may be held in pressure engagement with the inner side wall 19 of the flange 18 and the side wall 23 of the guide post 16, respectively, when the lateral forces are applied to the stringers 11, 12 in the direction of the arrow. This constitutes an important aspect of the invention in which the forces tending to open apart the closed stringers of the fastener when exerted particularly at the top end region of the fastener above the retaining means 21 are substantially taken up by the retaining means 21 whereupon the respective side edges 21a, 21b of the means 21 are urged into pressure engagement respectively with the inner side wall 19 of the flange 18 and the side wall 23 of the guide post 16 thereby producing sufficient frictional forces to prohibit the tendency of the slider 14 to move down or retract which

would otherwise take place under the influence of component forces tending to draw the slide backward. Where the deformed portion 22 of the elements E is deficient in volume, there may be used a reinforcing strip 24 as in the illustrated embodiments which is preferably made of a thermoplastic material so as to permit the same to be fused together with the deformed portion 22 and thus anchored in place for abutting engagement with the inner side wall 19 of the flange 18.

Designated at 25 is a pull tab attached to the slider body with which to move the slider along the rows of elements E.

However, it is to be noted that since the slider 14 is held in locked position by the retaining means 21 located at the top end of the fastener and adapted to function only in cooperation with the interior parts of the slider as above described, the slider pull tab 25 need not be manipulated in a prescribed manner for opening the fastener but only appreciable amount of forces in the lateral direction will suffice to disengage the coupled elements once the slider is released from engagement with the retaining means 21.

Having thus described the invention, it will be understood that the invention is not to be limited to the precise details of form and construction illustrated, but various changes and modifications may be made therein without departing from the scope of the appended claims.

WHAT WE CLAIM IS:—

1. A sliding clasp fastener of the concealed type which comprises a pair of stringer tapes each having an inwardly folded edge portion, a row of fastener elements formed from a single plastics filament and secured to said folded edge portion, a slider movably mounted on said tapes for coupling and uncoupling said fastener elements and provided centrally with a guide post and side flanges defining therewith a guide channel for the passage of said row of elements, said side flanges each having an inner side wall which lies adjacent an inlet of said guide channel and extends substantially parallel with a longitudinal axis of said slider, and a retaining means provided on said row of elements adjacent a top terminal end thereof and having opposite side edges disposed for pressure engagement with a side wall of said guide post and said inner side wall respectively to lock the slider against retractive movement in the fully closed disposition of the fastener.

2. A sliding clasp fastener as defined in claim 1 wherein said retaining means is dimensioned such that said opposite side edges thereof may be held in pressure engagement with said inner side wall of the flange and

said side wall of the guide post respectively when lateral forces are applied to the stringer tapes.

- 5 3. A sliding clasp fastener as defined in claim 1 wherein said retaining means comprises a portion of said row of fastener elements which is deformed to expand sidewise for pressure engagement respectively with said guide post and said inner side wall of the slider.

- 10 4. A sliding clasp fastener as defined in claim 2 wherein said retaining means includes a reinforcing strip formed integrally therewith and disposed for engagement with
15 said inner side wall of the slider.

5. A sliding clasp fastener as defined in claim 1 wherein said inner side wall of the slider is directed slightly inwardly relative to the longitudinal axis of the slider.

6. A sliding clasp fastener substantially 20 as herein described with reference to and as illustrated in the accompanying drawings.

For the Applicants
G. F. REDFERN & CO.,
St. Martin's House,
177 Preston Road,
Brighton, Sussex, BN1 6BB.

Printed for Her Majesty's Stationery Office by Burgess & Son (Abingdon), Ltd.—1974.
Published at The Patent Office, 25 Southampton Buildings, London, WC2A 1AY
from which copies may be obtained.

