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SEPARABLE SLIDE FASTENER

The present invention relates to a slide fastener, and more particularly to a separable slide fastener having a separable bottom end stop assembly.

Numerous slide fasteners of the type described are known, in which the separable bottom end stop assembly comprises a first pin member attached to one stringer, a second pin member attached to the other stringer and a box-like socket member integrally formed with the first pin member for receiving the second pin member in collateral relation to the first pin member.

The first and second pin members have their respective one ends both disposed in abutting relation to the inner bottom wall of the socket member when initiating the coupling operation of the fastener by means of a slider. In the event that there was deviation or misalignment in the relative positions of the two pin members due to error in manufacture or in mounting positions of these parts, the coupling elements on the respective stringers would become mis-meshed or otherwise interfere with each other, making the slider inoperable.

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With the foregoing drawback of the prior art in view, the present invention is aimed at the provision of a separable slide fastener which is equipped with a separable bottom end stop assembly devised to allow smooth starting of the slider and effect correct, orderly meshing or coupling engagement of the fastener stringers.

According to the invention, there is provided a separable slide fastener comprising a pair of fastener stringers each carrying a row of fastener elements, a slider movable along said pair of stringers to open and close the fastener, and a separable bottom end stop assembly mounted on the bottom ends of said stringers and having a first pin member secured to one of said stringers and a second pin member to the other stringer, and a socket member integral with said first pin member and releasably receiving said second pin member, said second pin member being longer than said first pin member, the first pin member in assembled position of the assembly having its lower end disposed ^{short} of the inner bottom wall of the socket member to provide a clearance therebetween, the second pin member in assembled position of said assembly having its lower end disposed in abutting engagement with the inner bottom wall of the socket member.

The invention will be better understood from reading the following description in light of the accompanying drawings which illustrate by way way of

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example certain preferred embodiments which the invention assumes in practice. In the drawings:-

Figure 1 is an enlarged plan view, partially sectional, of a portion of a separable slide fastener embodying the invention;

Figures 2 to 5 inclusive are schematic plan views utilized to explain the sequence in which the separable bottom end stop assembly is mounted on the fastener; and

Figure 6 is a cross-sectional view taken along the line VI - VI of Figure 5, showing a modification according to the invention.

Referring now to the drawings and Figure 1 in particular, there is shown a separable slide fastener 10 which comprises a pair of oppositely disposed fastener stringers 11,12 each including a stringer tape 13,(14) and a row of helically coiled interlocking elements 15,(16) mounted on and along an inner longitudinal edge thereof by means of a sewn seam 17.

A slider 18 is threaded on the opposed fastener stringers 11,12 and is slidable on and along the opposed rows of interlocking elements 15, 16 for coupling and uncoupling the same to close and open the slide fastener 10.

The stringer tapes 13,14 are reinforced at their bottom end portions each as by a strip of plastic film 19.

A separable bottom end stop assembly 20 comprises a first pin member 21 on one stringer 11, a second pin member 22 on the other stringer 12 and a socket member 23 integral with the first pin member 21 and releasably receiving

the second pin member 22 in collateral relation to the pin 21 to couple the stringers 11,12 at their bottom end portions.

5 The two pin members 21 and 22 are devoid of any mutually interengageable lateral projection and recess for longitudinally positioning the one relative to the other. Hence there is substantial possible variation in their relative longitudinal positions, compared with prior art pin members having mutually interengageable
10 lateral projection and recess formalities.

The socket member 23 has a first bore 23a for receiving the first pin member 21 and a second bore 23b for receiving the second pin member 22.

15 The separable bottom end stop assembly 20 when assembled as shown in Figure 1 has the first pin member 21 mounted with the lower end 21' thereof short of the bottom wall 23a' of the first bore 23a in the socket member 23 so as to provide a clearance of gap H between the lower end 21' of the first pin 21 and the bottom
20 wall 23a' of the socket 23.

The second pin member 22 is slightly longer than the first pin member 21 and when assembled, has its lower end 22' in abutting engagement with the bottom wall 23b' of the second bore 23b in the socket member 23.

25 Referring now to Figures 2 to 5 inclusive, there is shown the sequence in which the respective parts of the separable stop assembly 20 are mounted on the stringers 11, 12. As shown in Figure 3, the first and second pin

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members 21 and 22 are secured to the inner edges of the stringer tapes 11 and 12 at the respective end portions of the latter which are reinforced by the films 19, respectively. The slider 18 is threaded through the two pin members 21, 22 and through the rows of elements 15, 16 to couple the latter together in the correct position and posture as shown in Figure 4. The socket member 23 is then threaded over the respective pin members 21, 22 that have been held in collateral relation on the stringers 11, 12 and is joined integrally with the first pin

member 21 but is disposed for releasable engagement with respect to the second pin member 22 to provide a separable function of the fastener 10, as shown in Figure 5.

5 In this assembling operation, the second pin 22 is inserted through the bore 23b until its lower end 22' comes into abutting engagement with the bottom wall 23b' of the socket member 23. With this position unchanged, the socket member 23 is joined fixedly with the first
10 pin member 21.

 In the event that there occurred some deviation or displacement in the relative positions of the first and second pin members 21 and 22 from one individual stringer to another, this can be readily corrected
15 according to the invention wherein the first pin member 21 can be adjusted in position with reference to the second pin member 22 within an allowance provided by the clearance H between its lower end 21' and the bottom wall 23a' of the bore 23a in the socket member 23.

20 Figure 6 shows a modification in which a second pin member 24 is provided with shoulder portions 25,25' engageable with complementarily shaped ledges 26,26' of a socket member 27, whereby the second pin member 24 is retained in abutting engagement with the socket member 27
25 in lieu of the above described embodiment in which the second pin member 22 has its lower end 22' disposed in abutting engagement with the bottom wall 23b' of the socket member 23.



Claims:-

1. A separable slide fastener comprising a pair of fastener stringers each carrying a row of fastener elements, a slider movable along said pair of stringers to open and close the fastener, and a separable bottom end stop assembly mounted on the bottom ends of said stringers and having a first pin member secured to one of said stringers and a second pin member to the other stringer, and a socket member integral with said first pin member and releasably receiving said second pin member, said second pin member being longer than said first pin member, said first pin member in assembled position of said assembly having its lower end disposed short of the inner bottom wall of said socket member to provide a clearance therebetween, said second pin member in assembled position of said assembly having its lower end disposed in abutting engagement with the inner bottom wall of said socket member.
 2. A separable slide fastener according to claim 1, said second pin member being only slightly longer than said first pin member.
 3. A separable slide fastener according to claim 1 or 2, said second pin member having shoulder portions engageable with complementarily shaped ledges formed in said socket member.
 4. A separable slide fastener according to claim 1, 2 or 3 wherein said first and second pin members are devoid of any mutually interengageable lateral projection and recess.
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