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SLIDE FASTENER SLIDER

The present invention relates to a slider for a slide fastener.

A known slide fastener comprises a pair of fastener stringers including a pair of stringer tapes carrying along their longitudinal edges a pair of rows of fastener elements; each row of the fastener elements is in the form of a coiled plastic filament attached by sewn stitches to the respective tape on one face thereof. Each of such fastener elements has a substantially oval contour and hence tends to roll or tilt in a slider when a lateral pull is exerted on the tape. This rolling causes not only unstable coupling of the opposed rows of fastener elements but also non-smooth movement of the slider.

In an attempt to solve this problem, an improved slider has been proposed in which a pair of corner ledges is disposed on one wing adjacent to a pair of lateral flanges respectively, each corner ledge extending along an inner face of the respective flange

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through its length. Each corner ledge has an inwardly sloping surface engageable with leg portions of the respective row of fastener elements which leg portions are disposed remotely from the tape and face the flanged one wing. However, even this improved slider cannot prevent rolling of the fastener elements, in the case where it is used in a slide fastener in which a pair of rows of coiled filamentary fastener elements is disposed on the underside of the respective stringer tapes. In such particular slid fastener, as shown in Figure 1 of the accompanying drawings, which 1 is a fragmentary transverse cross-sectional view of the slider in use, both the lateral flanges 6 6 (only one shown for clarity) and the corner ledges 7 (only one shown for clarity) are disposed on the lower wing 2 of the slider body, and the upper wing 1 has an aperture 1a through which a fastener-element locking pawl of the slider is projectable in response to pivotal movement of a slider pull tab pivotally mounted on the upper wing 1. When a lateral pull in the direction of an arrow 8 is exerted on one tape 3 while the opposed rows of fastener elements 4 attached to the respective tapes 3 by sewn stitches 5 are being coupled to close the slide fastener, the individual fastener elements 4 on the tape 3 tend to roll or tilt in the guide channel of the slider. At that time, the outer or lower leg portion 4b of the fastener element 4, as the latter arrives at the aperture 1a, falls on the inner face 2a of the lower wing 2 so that the

coupling head portion 4a partly project into the aperture 1a, thus causing not only non-smooth movement of the slider but also non-uniform spaces between the fastener elements.

5 According to the present invention, there is provided a slider, for a slide fastener including a pair of stringer tapes carrying along their inner longitudinal edges a pair of rows of fastener elements in a form of coiled plastic filaments of substantially oval contour
10 having upper and lower leg portions and coupling head portions, the slider comprising :

(a) a slider body including a pair of upper and lower wings joined at their front end by a neck to define a Y-shaped guide channel between said upper and lower wings
15 for the passage of the fastener element rows of the slide fastener, said upper wing having an aperture opening into said guide channel, said lower wing having a base and a pair of flanges respectively projecting from opposite lateral edges of said base;

20 (b) a pair of raised corner ledges on an inner face of said base of said lower wing adjacent to said flanges respectively, each of said corner ledges extending along an inner face of the respective flange throughout the length of the flange and having a laterally inclined
25 surface engageable in use with the lower leg portions of the respective fastener element row; and

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(c) a pair of auxiliary ledges on the inner face of said base of said lower wing adjacent to respective front ends of said flanges, each of said auxiliary ledges having a top surface disposed below said sloping surface of the respective corner ledge for being engage-
5 able in use with the lower leg portion of the respective fastener element row.

It is believed possible by means of the present invention to provide a slide fastener slider suitable to
10 a slide fastener in which a pair of rows of coiled filamentary fastener elements is attached to the respective tapes on the underside thereof.

It is also believed possible by means of the present invention to provide a slide fastener slider which enables
15 smooth and stable coupling of the opposed rows of fastener elements with uniform element-to-element pitches.

The invention will be described by way of example with reference to Figures 2 to 11 of the accompanying drawings, wherein :

20 Figure 2 is a side view of a slide fastener slider embodying the present invention;

Figure 3 is a cross-sectional view taken along line III-III of Figure 2;

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Figure 4 is a fragmentary enlarged cross-sectional view taken along line IV-IV of Figure 3;

Figure 5 is a cross-sectional view taken along line V-V of Figure 2;

Figure 6 is a perspective view, partly in cross-section, of a lower wing of the slider;

Figure 7 is a fragmentary side view of the slider having been threaded on a pair of fastener stringers;

Figure 8 is a cross-sectional view taken along line VIII-VIII of Figure 7;

Figure 9 is a view similar to Figure 8 showing the opposed fastener stringers, with stringer tapes omitted, having been pulled in opposite lateral directions;

Figure 10 is a fragmentary cross-sectional view taken along line X-X of Figure 9; and

Figure 11 is a fragmentary cross-sectional view taken along line XI-XI of Figure 9.

The present invention is particularly useful when embodied in a slide fastener slider such as shown in Figure 2, generally indicated by the numeral 20. The slider is suitable for a slide fastener which comprises a pair of opposed stringers having a pair of rows of fastener elements 4, 4 (Figures 7 through 11) attached to a pair of tapes 3,

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3 (Figures 7, 10 and 11) along their respective inner longitudinal edges by means of sewn stitches 5 (Figures 10 and 11), each row of fastener elements 4 being disposed on the underside of the respective tape 3 as shown in Figures 10 and 11. Each row of fastener elements 4 is a coiled plastic filament of substantially oval contour; each individual fastener element has a coupling head portion 4a, an upper leg portion 4b disposed adjacent to the tape 3, and a lower leg portion 4b disposed remotely from the tape 3, as shown in Figures 8-11.

As shown in Figures 2, 3, 5 and 6, the slider 20 comprises a slider body including a pair of parallel spaced upper and lower wings 21, 22 joined at their front end by a neck 23 to define a Y-shaped guide channel 24 (Figure 2) between the two wings 21, 22 for the passage of the opposed fastener element rows 4, 4 of the slide fastener. The upper wing 21 has an aperture 21a (Figures 5, 8 - 11) opening into the guide channel 24. A slider pull tab 25 is pivotally mounted on the upper wing 21 and has a locking pawl 25a which is projectable, in response to pivotal movement of the pull tab 25, through the aperture 21a into the guide channel 24 to engage the fastener elements 4. The lower wing 22 has a pair of flanges 28, 28 projecting respectively from opposite lateral edges thereof toward and terminating short of the upper wing 21.

The lower wing 22 has a first flat land 31 (Figures 3 and 6) disposed centrally between the flanges 28, 28 and extending longitudinally of the guide channel 24 and slidably engageable with the coupling head portions 4a of the fastener elements 4 on their lower side, as shown in Figures 10 and 11. The upper wing 21 has a second flat land 30 (Figure 5) disposed opposite to the first land 31 of the lower wing 22 and locatable between the inner longitudinal edges of the tapes 3, 3.

The lower wing 22 has a pair of corner ledges 32, 32 on the inner face 27a of a base 27 adjacent to the flanges 28, 28 respectively, each of the corner ledges 32 extending along the inner face of the respective flange 28 through its length and having a fastener-element pressure surface 32a (Figure 6) engageable with the lower leg portions 4b of the fastener elements 4. The pressure surface 32a is laterally inclined to fit a part of the oval contour of the individual fastener element 4 which part is defined by the outer end of the lower leg portion.

The lower wing 22 also has a pair auxiliary ledges 29, 29 on the inner face 27a of the base 27 adjacent to respective front ends of the flanges 28, 28, each of the auxiliary ledges 29 extending from a midportion of the respective corner ledge 32 beyond the front end thereof. Each auxiliary ledge 29 has a

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uniform height throughout its whole area and thus a flat top surface disposed below the sloping surface 32a of the respective corner ledge 32 for being engageable with the lower leg portion 4b of the respective fastener element row 4.

Figure 8 illustrates the opposed stringers not having been pulled in opposite lateral directions, and Figures 9 - 11 illustrate the opposed stringers having been pulled in opposite lateral directions. In either case, the lower leg portions 4b of the fastener elements 4 adjacent the respective front halves of the corner legs 32,32 rest on the auxiliary ledges 29,29, with the long axis of their oval shape lying parallel to the inner face 27a of the lower wing's base 27. In the latter case in particular, even when relatively strong lateral pulling forces are exerted on the opposed tapes 3,3 while the opposed stringers are being coupled to close the slide fastener, the individual fastener elements 4 adjacent the respective front ends of the corner ledges 32,32 are prevented, by the auxiliary ledges 29,29, from rolling or tilting with respect to the inner face 27a of the lower wing's base 27. The coupling head portions 4a of the fastener elements 4 are thus prevented from projecting into the aperture 21a of the upper wing 21.

With the slider 20 having the auxiliary ledges 29, it is possible to interengage or couple the opposed

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rows of fastener elements 4,4 smoothly and stably, with uniform element-to-element pitches, even when relatively strong lateral pulling forces are exerted on the opposed stringers.

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C L A I M S :

1. A slider, for a slide fastener including a pair of stringer tapes carrying along their inner longitudinal edges a pair of rows of fastener elements in a form of coiled plastic filaments of substantially oval contour having upper and lower leg portions and coupling head portions, the slider comprising :

(a) a slider body including a pair of upper and lower wings joined at their front end by a neck to define a Y-shaped guide channel between said upper and lower wings for the passage of the fastener element rows of the slide fastener, said upper wing having an aperture opening into said guide channel, said lower wing having a base and a pair of flanges respectively projecting from opposite lateral edges of said base;

(b) a pair of raised corner ledges on an inner face of said base of said lower wing adjacent to said flanges respectively, each of said corner ledges extending along an inner face of the respective flange throughout the length of the flange and having a laterally inclined surface engageable in use with the lower leg portions of the respective fastener element row; and

(c) a pair of auxiliary ledges on the inner face of said base of said lower wing adjacent to respective front ends of said flanges, each of said auxiliary ledges having a top surface disposed below said sloping surface of the respective corner ledge for being engageable in use with the lower leg portion of the respective fastener element row.



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2. A slide fastener slider according to claim 1, each said auxiliary ledge having a uniform height throughout its whole area.

3. A slide fastener slider according to claim 1 or
5 2, each said auxiliary ledge extending from a mid-portion of the respective corner ledge beyond the front end thereof.

4. A slide fastener comprising a pair of stringer
tapes carrying along their inner longitudinal edges
10 a pair of rows of fastener elements in a form of coiled plastic filaments of substantially oval contour having upper and lower leg portions, and a slider as claimed in claim 1, 2 or 3.

5. A slide fastener slider substantially as
15 described with reference to and as illustrated in the accompanying drawings.
