

PATENT SPECIFICATION

(11) 1 479 249

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- (21) Application No. 28860/75 (22) Filed 9 July 1975
 (31) Convention Application No. 49/082 005
 (32) Filed 17 July 1974 in
 (33) Japan (JA)
 (44) Complete Specification published 6 July 1977
 (51) INT CL² A44B 19/26//19/30
 (52) Index at acceptance E2S 1A3A 1A3B



(54) SLIDER FOR SLIDING CLASP FASTENER

(71) We, YOSHIDA KOGYOK 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 sliders for sliding clasp fasteners, more particularly to such a slider which essentially comprises a slider body with an upper shield and a lower shield, a pull tab and a yoke.

In the assembling of these slider components there are known two typical methods of attaching the yoke to the slider body. One such method consisted in bringing the yoke into snapping engagement with a bail or lug projecting upwardly from the slider body. The other method was to rivet the front and back end walls and/or the side walls of the yoke into the bail. The first mentioned method of slider assembly suffered from the drawback that the yoke is susceptible to disengagement from the slider body. The riveting operation in the second mentioned method was rather time-consuming and tedious and often involved off-specification products due to machining errors.

According to the invention, there is provided a slider for a sliding clasp fastener having a slider body with an upper shield and a lower shield, a pull tab and a yoke, said yoke having an upper portion and a pair of opposed side walls depending from said upper portion, each of said side walls having a lower edge, and the upper shield of the slider body having a plurality of elongated grooves each disposed to receive a corresponding lower edge of said side walls, said lower edges and upper shield being integrally fused together at said grooves to connect said yoke to the upper shield of the slider body.

The invention will be described by way of examples with reference to the accompanying drawings which illustrate by

way of example some preferred embodiments which the invention may assume in practice, and wherein;

Figure 1 is a top plan view of one slider in accordance with the invention;

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

Figure 3 is an exploded view of the slider of Figure 1;

Figure 4 is an exploded view of another slider embodying the invention; and

Figure 5 is a transverse cross-sectional view of the slider of Figure 4 after the same has been assembled.

Referring now to the drawings and Figures 1 to 3 in particular, there is shown a slider of the non-locking type generally designated 10 and essentially comprising a slider body 11, a pull tab 12 and a yoke 13. The slider body 11 is constituted by an upper shield 14 and a lower shield 15 connected together at one end and in spaced opposed relation by an integral neck portion 16 to provide a substantially Y-shaped channel 17 therebetween for the passage of rows of fastener elements (not shown). Flanges 18 extend inwardly from the upper shield 14 and serve to retain the fastener elements in the Y-shaped channel 17 during longitudinal movement of the slider 10 along the rows of interlocking elements of a sliding clasp fastener (not shown) to open or close the latter in the well known manner.

The pull tab 12 generally rectangular in shape is centrally apertured to provide at one end a transversely extending pintle 20 which serves as a pivotal axis for the pivotal movement of the pull tab.

The yoke 13 has the shape of an elongated hollow cap and has an upper portion 21 and two side walls 22 depending therefrom. Each side wall 22 is provided at or near its center a recess 23 extending upwards from the lower edge of the respective side wall. The recess 23 is utilized for hinging the pull tab 12 at the pintle 20 to the yoke 13.

There is formed a cut-away recess 24 in each of the front and back end walls 25, 26

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of the yoke 13 so as to provide four symmetric flanges 27 at the lower edges of the two side walls 22.

5 The upper shield 14 has formed in its upper surface a plurality of elongated grooves 28 adapted to receive the flanged lower edges 27 of the yoke 13. More specifically, there are provided in the presently shown embodiment such grooves
10 which are transversely separated into two pairs of grooves or indents 28 extending longitudinally of the slider body 11 and in spaced parallel relation with each other and dimensioned to fit with the flanges 27 of the
15 yoke 13, as best shown in Figure 3.

In the assembly of the component members of the non-locking slider just described, the cap-like yoke 13 is mounted
20 on the slider body 11 with the flanged lower edges 27 of the yoke inserted into the corresponding grooves 28 of the upper shield 14 and with the pull tab 12 interposed between the yoke 13 and the upper shield
25 14. Importantly in accordance with the invention, an ultrasonic or similar deposition treatment is applied to the flange-and-groove connections 29 of the yoke 13 and the upper shield 14 so that the material of these members melts and
30 deposits one on the other to form an integral joint. In such instance the provision of the grooves 28 prevents molten material from flowing out and scattering around on the slider body, which would otherwise make
35 the finished slider look unattractive. Another advantage of the provision of the grooves 28 is that the yoke 13 can be guided into the proper position on the slider body by registering the flanged edges 27 of the
40 yoke 13 with the grooves 28. This can greatly facilitate the assembling operation especially where such operation is automatically performed. If the material of the slider 10 is a synthetic resin such as
45 nylon or "TETRON" (Registered Trade Mark) it is preferred to reinforce the same with a glass fiber or similar fibrous material so that the finished slider has sufficient hardness and strength, particularly where
50 the connections between the yoke and the upper shield are fused together by a remotely located ultrasonic horn as in the so-called "conductive deposition". A choice of synthetic material for the slider 10 is advantageous in that the slider can be dyed
55 simultaneously with the dyeing of a finished sliding clasp fastener. Where the slider 10 is made of a metal, the yoke to shield connections may be finished by electric-
60 resistance welding or high-frequency welding.

Reference now to Figure 4 and 5 shows a slider of the automatically locking type, that is to say, the slider includes means for

65 automatically locking it in position on the sliding clasp fastener to prevent unintentional movement of the slider. This locking means consists of a spring member 30 having at one end a prong 31 movable
70 into and out of engagement with the fastener elements and connected at the other end to a bifurcated bail or lug 32 projecting upwardly from the slider body 11.

Other structural details of this locking slider are substantially similar to those of the non-locking slider previously described. The
75 yoke 13 is joined to the slider body 11 by fitting the flanged lower edges 27 of the yoke into the grooves 28 of the upper shield 14, and subjecting there connecting portions to ultrasonic or other deposition processing
80 as already stated.

In the embodiment shown in Figures 4 and 5, the dimensions of the yoke 13 are determined such that the inner wall 21a of
85 its upper portion 21 lies substantially in abutting relation to the upper surfaces 33 of the bail 32 when the yoke 13 is mounted in position on the upper shield 14. Deposition processing may be also applied to the
90 connections between the inner wall 21a of the yoke and the upper surfaces 33 of the upper shield 14 thereby intensifying the joint of the yoke 13 to the slider body 11.

While the invention has been described with reference to certain preferred embodiments, it will be understood the invention is not to be limited to the precise
95 form and construction herein advanced but various changes and modifications may be made therein without departing from the scope of the appended claims. As for an example, the flanged lower edges 27 of the
100 yoke 13 may be tapered so that they can be received more easily into the corresponding grooves 28 of the upper shield 14.

WHAT WE CLAIM IS:—

1. A slider for a sliding clasp fastener having a slider body with an upper shield and a lower shield, a pull tab and a yoke,
110 said yoke having an upper portion and a pair of opposed side walls depending from said upper portion, each of said side walls having a lower edge, and the upper shield of the slider body having a plurality of elongated
115 grooves each disposed to receive a corresponding lower edge of said side walls, said lower edges and upper shield being integrally fused together at said grooves to connect said yoke to the upper shield of the
120 slider body.

2. A slider claimed in claim 1 including a bail extending from said upper shield into abutting contact with the inside surface of the upper portion of the yoke and integrally
125 fused thereto.

of the yoke 13 so as to provide four symmetric flanges 27 at the lower edges of the two side walls 22.

5 The upper shield 14 has formed in its upper surface a plurality of elongated grooves 28 adapted to receive the flanged lower edges 27 of the yoke 13. More specifically, there are provided in the presently shown embodiment such grooves
10 which are transversely separated into two pairs of grooves or indents 28 extending longitudinally of the slider body 11 and in spaced parallel relation with each other and dimensioned to fit with the flanges 27 of the
15 yoke 13, as best shown in Figure 3.

In the assembly of the component members of the non-locking slider just described, the cap-like yoke 13 is mounted on the slider body 11 with the flanged lower edges 27 of the yoke inserted into the corresponding grooves 28 of the upper shield 14 and with the pull tab 12 interposed between the yoke 13 and the upper shield 14. Importantly in accordance with the
20 invention, an ultrasonic or similar deposition treatment is applied to the flange-and-groove connections 29 of the yoke 13 and the upper shield 14 so that the material of these members melts and
25 deposits one on the other to form an integral joint. In such instance the provision of the grooves 28 prevents molten material from flowing out and scattering around on the slider body, which would otherwise make the finished slider look unattractive.
30 Another advantage of the provision of the grooves 28 is that the yoke 13 can be guided into the proper position on the slider body by registering the flanged edges 27 of the yoke 13 with the grooves 28. This can greatly facilitate the assembling operation especially where such operation is automatically performed. If the material of the slider 10 is a synthetic resin such as
35 nylon or "TETRON" (Registered Trade Mark) it is preferred to reinforce the same with a glass fiber or similar fibrous material so that the finished slider has sufficient hardness and strength, particularly where
40 the connections between the yoke and the upper shield are fused together by a remotely located ultrasonic horn as in the so-called "conductive deposition". A choice of synthetic material for the slider 10 is advantageous in that the slider can be dyed simultaneously with the dyeing of a finished sliding clasp fastener. Where the slider 10 is made of a metal, the yoke to shield connections may be finished by electric-
45 resistance welding or high-frequency welding.

Reference now to Figure 4 and 5 shows a slider of the automatically locking type, that is to say, the slider includes means for

65 automatically locking it in position on the sliding clasp fastener to prevent unintentional movement of the slider. This locking means consists of a spring member 30 having at one end a prong 31 movable into and out of engagement with the fastener elements and connected at the other end to a bifurcated bail or lug 32 projecting upwardly from the slider body 11.

Other structural details of this locking slider are substantially similar to those of the non-locking slider previously described. The yoke 13 is joined to the slider body 11 by fitting the flanged lower edges 27 of the yoke into the grooves 28 of the upper shield 14, and subjecting there connecting portions to ultrasonic or other deposition processing as already stated.

In the embodiment shown in Figures 4 and 5, the dimensions of the yoke 13 are determined such that the inner wall 21a of its upper portion 21 lies substantially in abutting relation to the upper surfaces 33 of the bail 32 when the yoke 13 is mounted in position on the upper shield 14. Deposition processing may be also applied to the connections between the inner wall 21a of the yoke and the upper surfaces 33 of the upper shield 14 thereby intensifying the joint of the yoke 13 to the slider body 11.

While the invention has been described with reference to certain preferred embodiments, it will be understood the invention is not to be limited to the precise form and construction herein advanced but various changes and modifications may be made therein without departing from the scope of the appended claims. As for an example, the flanged lower edges 27 of the yoke 13 may be tapered so that they can be received more easily into the corresponding grooves 28 of the upper shield 14.

WHAT WE CLAIM IS:—

1. A slider for a sliding clasp fastener having a slider body with an upper shield and a lower shield, a pull tab and a yoke, said yoke having an upper portion and a pair of opposed side walls depending from said upper portion, each of said side walls having a lower edge, and the upper shield of the slider body having a plurality of elongated grooves each disposed to receive a corresponding lower edge of said side walls, said lower edges and upper shield being integrally fused together at said grooves to connect said yoke to the upper shield of the slider body.

2. A slider claimed in claim 1 including a bail extending from said upper shield into abutting contact with the inside surface of the upper portion of the yoke and integrally fused thereto.



3. A slider for a sliding clasp fastener substantially as herein described with reference to and as illustrated in Figures 4 to 5 of the accompanying drawings.

5 4. A slider for a sliding clasp fastener substantially as herein described with

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Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1977.
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from
which copies may be obtained.

