

PATENT SPECIFICATION

DRAWINGS ATTACHED

1161999

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Date of Application and filing Complete Specification: 25 Nov., 1966.

No. 52791/66.

Application made in Japan (No. 27302) on 25 March, 1966.

Application made in Japan (No. 40621) on 30 April, 1966.

Complete Specification Published: 20 Aug., 1969.

Index at acceptance:—E2 S1A3A

International Classification:—A 44 b 19/30

COMPLETE SPECIFICATION

A Slider for Sliding Clasp Fasteners

We, YOSHIDA KOGYO KABUSHIKI KAISHA, of No. 1, Kanda, Izumi-cho, Chiyoda-ku, Tokyo, Japan; a Corporation duly 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:—

This invention relates to sliding clasp fasteners and has particular reference to the provision of an improved slider therefor which is of the locking type comprising means for automatically locking it in position on the fastener stringers to prevent accidental movement of the slider.

According to the invention, a slider for a sliding clasp fastener comprises a pair of spaced-apart wing members forming between them a stringer guide channel for two stringers, in which a pull tab provided with a cam member is pivotally connected to one of the wing members which has a recess containing a locking member provided with a projection which is freely movable through an aperture in the recess into and out of the guide channel, the slider also having a resilient member which has one end portion secured to the said wing member and the other end free and which is deformable substantially arcuately by the cam member of the pull tab to urge the projection of the locking member into engagement with fastener elements of the stringers when the pull tab is manipulated to lock the slider in position on the stringers.

Some examples of sliding clasp fasteners in accordance with the invention are shown in the accompanying drawings, in which:

Fig. 1 is a perspective view, on an enlarged scale, of a slider embodying the invention;

Fig. 2 is a cross-sectional view of the slider taken substantially on the line I—I

in Fig. 1, showing the pull tab lying flat in locking position;

Fig. 3 is a view similar to Fig. 2, but showing the pull tab as standing substantially upright in unlocking position;

Fig. 4 is a perspective view similar to Fig. 1 but with the pull tab portion removed in the interest of clarity of illustration;

Fig. 5 is a perspective view of the reverse side of the pull tab showing a cam integrally formed therewith;

Fig. 6 illustrates the various forms of the locking member according to the invention; and

Fig. 7 is a front view illustrating the operation of the slider.

Figs. 1 to 3 show a slider comprising an upper wing member 2 and a second, lower, wing member 3 each having a pair of similar side flanges 4 and 5. These wing members are joined at their one ends by a wedge-shaped neck member 6 but are spaced from each other to form a stringer guide channel 7 between the marginal side flanges 4 and 5 of the two wing members 2 and 3. While the upper and lower wing members 2 and 3 are of substantially the same general form, the upper wing member 2 is provided on the outer surface with a pair of laterally spaced outwardly extending yoke members 8 each having a transverse pin-receiving bore 9.

The upper wing member 2 is further provided centrally with a longitudinal recess 10 having an arcuate inner wall and extending substantially to the full distance between the opposing yoke members 8, which recess contains a leaf spring member 11 having one end portion secured by riveting or welding to the rear end portion of the recess 10 and the other end portion movably seated on a ledge 12 formed in the neck portion 6 (see Fig. 2).

Provided centrally in the inner wall of the recess 10 is an aperture 13 communicating

with the stringer guide channel 7. This aperture may receive any one of the locking members shown in Fig. 6. For purposes of illustration, however, the locking member 14 of Fig. 6a is shown in Figs. 2 and 3; this has an upper surface 15 slightly curved to abut flat against the leaf spring member 11 when the latter is deformed as shown in Fig. 2 and a lower surface bisected by a projection 17 (Fig. 6a). Each lower surface portion 17 (Fig. 6a) is likewise curved to conform with the arcuate inner wall contour of the recess 10.

The locking member 14 is disposed freely in the recess 10 in interposed relation between the leaf spring member 11 and the arcuate inner wall of the recess, with the projection 16 disposed for free passage through the aperture 13.

Reference is now made to Fig. 5 illustrating a pull tab 18 according to the invention which comprises a flat plate with a cam member 19 formed integrally therewith at one end portion and a supporting pin 20 likewise integral therewith across the cam member. The pin 20 extends pivotally through the aligned transverse pin-receive bores 9 in the yoke members 8 so as to provide a support for the pull tab 18.

With this construction, when the pull tab 18 is in the position shown in Fig. 3, the leaf spring member 11 is deformed arcuately by the cam member 19, urging the projection 16 in to the channel 7 of the slider and into engagement with the fastener elements 21 attached to the tapes 22 of the fastener, thereby retaining the slider in locked position (see Fig. 7). The cam member 19 is so shaped as to go slightly "over centre" when the tab 18 is in the locking position so that the leaf spring member 11 then snaps the pull tab 18 into the locking position and retains it firmly against unintentional movement. When the pull tab 18 is raised as shown in Fig. 3 the spring 11 is no longer deformed by the cam 19 and the recess 10 by the fastener elements 21. projection 16 of the locking member 14 is free to be pushed into the recess 10. In order that the projection 16 can readily be disengaged from the fastener elements 21 when the pull tab 18 is in the unlocking position the nose of the projection is made with a rounded profile. This profile acts as a cam so that, when the slider is moved along the stringers, the locking member 14 is readily displaced so that the projection 16 becomes retracted into the aperture 13.

The alternative form of locking member shown in Fig. 6b differs from that described

above only insofar as the projection 16 has a domed nose rather than a part-cylindrical nose, while in the example shown in Fig. 6c the only difference is that the projection is of circular cross section with a domed nose. These locking members are of non-resilient material.

In the examples shown in Figs. 6d to 6f, the lower portion 17 of each locking member is not curved but is substantially flat, and is made of resilient material so that it bends under the action of the cam member 19 to conform with the shape of the recess 10. In these cases the projections can readily be formed as integral parts of the substantially flat portions 17 by pressing, the drawings illustrating various suitable shapes of projection.

An advantage of the separately-arranged locking member 14 is that its material can be chosen at will to be compatible with the specific type of material of the fastener elements used without the need to change the material of which the rest of the slides is made. Another advantage of the slider construction according to the invention is that the locking member 14 is normally concealed within the recess 10 so as to eliminate the possibility of damage to the user's wear.

The slider body is made of metal, a mouldable plastics material or any other suitable material to serve the purposes of this invention.

WHAT WE CLAIM IS:—

1. A slider for a sliding clasp fastener comprising a pair of spaced-apart wing members forming between them a stringer guide channel for two stringers, in which a pull tab provided with a cam member is pivotally connected to one of the wing members which has a recess containing a locking member provided with a projection which is freely movable through an aperture in the recess into and out of the guide channel, the slider also having a resilient member which has one end portion secured to the said wing member and the other end free and which is deformable substantially arcuately by the cam member of the pull tab to urge the projection of the locking member into engagement with fastener elements of the stringers when the pull tab is manipulated to lock the slider in position on the stringers.

2. A slider according to claim 1, in which the locking member is made of non-resilient material.

3. A slider according to claim 1 or claim 2, in which the resilient member comprises a leaf spring.

with the stringer guide channel 7. This aperture may receive any one of the locking members shown in Fig. 6. For purposes of illustration, however, the locking member 14 of Fig. 6a is shown in Figs. 2 and 3; this has an upper surface 15 slightly curved to abut flat against the leaf spring member 11 when the latter is deformed as shown in Fig. 2 and a lower surface bisected by a projection 17 (Fig. 6a). Each lower surface portion 17 (Fig. 6a) is likewise curved to conform with the arcuate inner wall contour of the recess 10.

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2. A slider according to claim 1, in which the locking member is made of non-resilient material.

3. A slider according to claim 1 or claim 2, in which the resilient member comprises a leaf spring.



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4. A slider for a sliding clasp fastener substantially as described with reference to the accompanying drawings.

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Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1969.
Published by the Patent Office, 25, Southampton Buildings, London, W.C.2. from which copies may be obtained.

