

PATENT SPECIFICATION

(11) 1 418 224

1 418 224

- (21) Application No. 41844/73 (22) Filed 5 Sept. 1973
 (31) Convention Application No. 103540/72
 (32) Filed 5 Sept. 1972 in
 (33) Japan (JA)
 (44) Complete Specification published 17 Dec. 1975
 (51) INT CL² A44B 19/26//19/30
 (52) Index at acceptance E2S 1A3A



(54) IMPROVED SLIDER FOR SLIDE FASTENERS

(71) 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 improvements in sliders for slide fasteners, particularly but not exclusively for such slide fasteners which are used for various transport containers, sealed storage bags and the like.

A well-known form of slider for a slide fastener consists basically of a top and a bottom wing member, a wedge-shaped post connecting these wing members and a pull tab pivotally connected to a supporting lug rising from the top wing. More advanced, so-called snap-type sliders further include a prong projecting from the top wing at an end opposite to the supporting lug, which prong is adapted to engage resiliently in an aperture formed in the pull tab whereby the tab, when flipped down flat against the top wing, can be retained snappingly into position against accidental movement.

Prior art sliders of the so-called "snap" type have suffered from the disadvantage that due to the aperture in the pull tab being peripherally limited and confined whereby the elastic deformation and resiliency obtainable around the inner marginal edge of the aperture are extremely limited, manipulation of the pull tab is heavy and sluggish to take the prong forcibly into and out of such confined aperture. Repeated manipulation of the pull tab in this manner often resulted in worn periphery of the prong, shortening the life of the slider as a whole. This phenomenon is particularly pronounced with die-cast sliders.

The present invention seeks to provide an improved snap type slider wherein the pull tab can be locked into position on the slider

body with a high degree of stability and with little frictional wear thereby tending to prolong service life of the slider as a whole.

According to the invention there is provided a slider for a slide fastener, comprising a top wing and a bottom wing, an integral post connecting these wings together at one end, a front lug projecting upwardly from said top wing, a pull tab pivotally connected to said front lug, and a rear lug upwardly projecting from said top wing, said pull tab having means resiliently engageable with said rear lug and an opening surrounding said means to permit the same to elastically flex when said pull tab is snapped into locked engagement between said top wing and the rear lug projecting therefrom.

By way of example, embodiments of the invention will now be described with reference to the accompanying drawings in which like reference numerals denote like and corresponding parts throughout the several views and in which:—

FIG. 1 is a plan view of the front of one slider embodying the invention;

FIG. 2 is a transverse cross-sectional view taken on the line II—II of FIG. 1;

FIG. 3 is a side view, partly broken away, of the slider of FIG. 1, showing the operation of its pull tab;

FIG. 4 is a transverse cross-section of the slider of FIG. 1, diagrammatically illustrating the sequence of the pull tab movement corresponding to that shown in FIG. 3;

FIG. 5 is a frontal plan view of another form of slider according to the invention; and

FIG. 6 is a side view of the slider of FIG. 5 with parts broken away to show the locking position of the slider.

Referring now to the drawings and FIGS. 1 and 2 in particular, there is shown a slider constructed in accordance with the invention which comprises a top wing or plate member 11 and a bottom wing

member 12 connected together at one end by an integral post 13 defining a channel for the passage of slide fastener elements (not shown). Projecting upwardly from the top wing 11 is a front supporting lug or bail 14 to which a pull tab 15 is pivotally connected. The pull tab 15 has a locking pin member 16 downwardly projecting from adjacent the pivotal end of the tab 15 and through an opening in the top wing 11 and engageable between the fastener elements to lock the slider 10 in stationary position.

The pull tab 15 is provided with an opening 17 which is formed to consist of a vertically elongated central channel 17a and a pair of opposite parallel side channels 17b, 17b, which opening is thus configured to resemble the letter "T" as best depicted in FIG. 1. The provision of the opening 17 results in a pair of spaced apart, elongated solid locking tongues 18, 18 formed integrally with the tab 15 between the central channel 17a and side channels 17b, 17b so that each of the tongues 18, 18 is thus surrounded by open space created by the opening 17 and is thereby imparted a sufficient resiliency to flex sidewise particularly as desired in the locking operation hereafter described.

Designated at 19 is a rear supporting lug or prong projecting upwardly from the top wing 11 at an end opposite to the front supporting lug 14 and at a position corresponding to the central channel 17a near the free ends of the two locking tongues 18, 18. The rear supporting lug 19 is provided, as better shown in FIGS. 2 and 4, with an upwardly tapered top portion 19a, a central barrel portion 19b and a reduced neck portion 19c.

With this construction, when the pull tab 15 is flipped down flat against the top wing 11 to lock the same against movement, this locking operation is performed accurately and smoothly without encountering any appreciable mechanical wear of frictionally engaging parts. More specifically, the locking operation of the pull tab 15 is best depicted in FIGS. 3 and 4 illustrating the sequential steps of movement of the pull tab 15 wherein the tab 15 engages the rear lug 19 first with the locking tongues 18, 18 mounted astride of the tapered top portion 19a of the lug 19. This is indicated by the downwardly directed arrows in FIG. 4.

Further lowering the pull tab 15 causes the locking tongues 18, 18 to flex or spread elastically sidewise in a direction away from each other in engagement with the central barrel portion 19b as indicated by the horizontally outwardly directed arrows in FIG. 4. As the pull tab 15 is moved further down past the barrel portion 19b, the

locking tongues 18, 18 are elastically urged back towards each other and snapped into locked engagement with the reduced neck portion 19c of the lug 19 as indicated by the horizontally inwardly directed arrows in FIG. 4.

A second preferred embodiment of the invention is illustrated in FIGS. 5 and 6 wherein the pull tab 15 is provided therein with a substantially S-shaped opening 20 consisting of a horizontally extending centre channel 20a and a pair of spaced parallel upper and lower channels 20b, 20b on opposite sides of the centre channel 20a. The provision of the thus configured opening 20 provides a pair of spaced locking tongues 21, 21 each surrounded by the channels 20a and 20b.

Designated at 22 is a rear supporting lug or prong corresponding to that already described in connection with the first embodiment. The lug 22 has a tapered surface 22a for abutting engagement with the lower one of the locking tongues 21 during the downward arcuate movement of the pull tab 15, a central barrel portion 22b and a reduced neck portion 22c adapted for purposes hereinabove stated in connection with the first embodiment.

WHAT WE CLAIM IS:—

1. A slider for a slide fastener, comprising a top wing and a bottom wing, an integral post connecting these wings together at one end, a front lug projecting upwardly from said top wing, a pull tab pivotally connected to said front lug, and a rear lug upwardly projecting from said top wing said pull tab having means resiliently engageable with said rear lug and an opening surrounding said means to permit the same to elastically flex when said pull tab is snapped into locked engagement between said top wing and the rear lug projecting therefrom.

2. A slider as claimed in claim 1 wherein said means comprises a pair of spaced parallel tongues integrally formed with said pull tab.

3. A slider as claimed in claim 1 or claim 2, wherein said opening has a substantially T-shaped configuration.

4. A slider as claimed in claim 1 or claim 2, wherein said opening has a substantially S-shaped configuration.

5. A slider as claimed in any preceding claim, wherein said rear lug has a tapered portion, a central barrel portion and a reduced neck portion.

6. A slider substantially as herein described with reference to and as illustrated in the accompanying drawings.



member 12 connected together at one end by an integral post 13 defining a channel for the passage of slide fastener elements (not shown). Projecting upwardly from the top wing 11 is a front supporting lug or bail 14 to which a pull tab 15 is pivotally connected. The pull tab 15 has a locking pin member 16 downwardly projecting from adjacent the pivotal end of the tab 15 and through an opening in the top wing 11 and engageable between the fastener elements to lock the slider 10 in stationary position.

The pull tab 15 is provided with an opening 17 which is formed to consist of a vertically elongated central channel 17a and a pair of opposite parallel side channels 17b, 17b, which opening is thus configured to resemble the letter "T" as best depicted in FIG. 1. The provision of the opening 17 results in a pair of spaced apart, elongated solid locking tongues 18, 18 formed integrally with the tab 15 between the central channel 17a and side channels 17b, 17b so that each of the tongues 18, 18 is thus surrounded by open space created by the opening 17 and is thereby imparted a sufficient resiliency to flex sidewise particularly as desired in the locking operation hereafter described.

Designated at 19 is a rear supporting lug or prong projecting upwardly from the top wing 11 at an end opposite to the front supporting lug 14 and at a position corresponding to the central channel 17a near the free ends of the two locking tongues 18, 18. The rear supporting lug 19 is provided, as better shown in FIGS. 2 and 4, with an upwardly tapered top portion 19a, a central barrel portion 19b and a reduced neck portion 19c.

With this construction, when the pull tab 15 is flipped down flat against the top wing 11 to lock the same against movement, this locking operation is performed accurately and smoothly without encountering any appreciable mechanical wear of frictionally engaging parts. More specifically, the locking operation of the pull tab 15 is best depicted in FIGS. 3 and 4 illustrating the sequential steps of movement of the pull tab 15 wherein the tab 15 engages the rear lug 19 first with the locking tongues 18, 18 mounted astride of the tapered top portion 19a of the lug 19. This is indicated by the downwardly directed arrows in FIG. 4.

Further lowering the pull tab 15 causes the locking tongues 18, 18 to flex or spread elastically sidewise in a direction away from each other in engagement with the central barrel portion 19b as indicated by the horizontally outwardly directed arrows in FIG. 4. As the pull tab 15 is moved further down past the barrel portion 19b, the

locking tongues 18, 18 are elastically urged back towards each other and snapped into locked engagement with the reduced neck portion 19c of the lug 19 as indicated by the horizontally inwardly directed arrows in FIG. 4.

A second preferred embodiment of the invention is illustrated in FIGS. 5 and 6 wherein the pull tab 15 is provided therein with a substantially S-shaped opening 20 consisting of a horizontally extending centre channel 20a and a pair of spaced parallel upper and lower channels 20b, 20b on opposite sides of the centre channel 20a. The provision of the thus configured opening 20 provides a pair of spaced locking tongues 21, 21 each surrounded by the channels 20a and 20b.

Designated at 22 is a rear supporting lug or prong corresponding to that already described in connection with the first embodiment. The lug 22 has a tapered surface 22a for abutting engagement with the lower one of the locking tongues 21 during the downward arcuate movement of the pull tab 15, a central barrel portion 22b and a reduced neck portion 22c adapted for purposes hereinabove stated in connection with the first embodiment.

WHAT WE CLAIM IS:—

1. A slider for a slide fastener, comprising a top wing and a bottom wing, an integral post connecting these wings together at one end, a front lug projecting upwardly from said top wing, a pull tab pivotally connected to said front lug, and a rear lug upwardly projecting from said top wing said pull tab having means resiliently engageable with said rear lug and an opening surrounding said means to permit the same to elastically flex when said pull tab is snapped into locked engagement between said top wing and the rear lug projecting therefrom.

2. A slider as claimed in claim 1 wherein said means comprises a pair of spaced parallel tongues integrally formed with said pull tab.

3. A slider as claimed in claim 1 or claim 2, wherein said opening has a substantially T-shaped configuration.

4. A slider as claimed in claim 1 or claim 2, wherein said opening has a substantially S-shaped configuration.

5. A slider as claimed in any preceding claim, wherein said rear lug has a tapered portion, a central barrel portion and a reduced neck portion.

6. A slider substantially as herein described with reference to and as illustrated in the accompanying drawings.

For the Applicants:
EDWIN C. AXE & CO.,
Chartered Patent Agents,
113 Kingsway, WC2B 6QP.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1975.
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from
which copies may be obtained.

