Oct. 27, 1964 J. A. FADY 3,153,831

LOCK SLIDER

Filed Aug. 1, 1963

Fig. 1

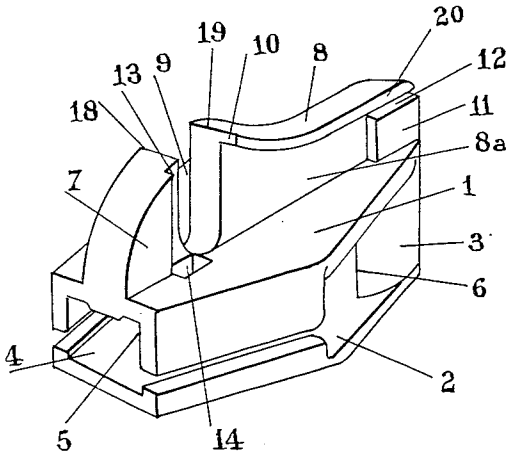
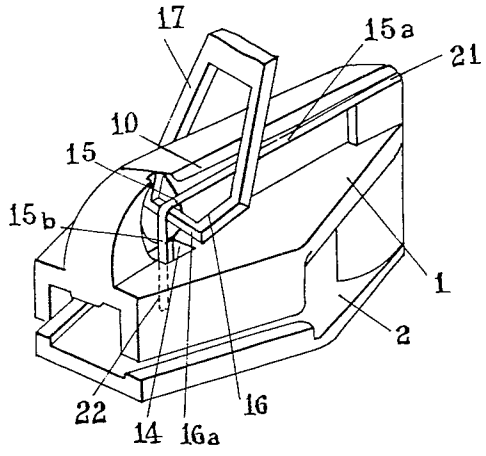


Fig. 2



United States Patent Office 3,153,831 Patented Oct. 27, 1964

3,153,831

LOCK SLIDER

Jean André Fady, Brunoy, France, assignor to Societe Francaise de Fermeture de Luxe, Choisy le Roi, France, a corporation of France

Filed Aug. 1, 1963, Ser. No. 299,256
Claims priority, application France, Aug. 11, 1962 906,756, Patent 1,337,905
2 Claims. (Cl. 24—205.14)

The present invention relates to sliders for zip fasteners and more particularly to sliders of the so-called self-locking type.

Sliders of this type are advantageous in that they remain by themselves at any desired point along the fastener and keep thereat in spite of the lateral tractive efforts exerted on the strips supporting the hooking elements of the fastener, this locking action resulting from the combined effect produced by the different component elements of the slider. In fact, these sliders comprise as as a rule a movable locking member adapted to engage itself between two successive hooking elements of the fastener for holding the relevant slider in the position in which it was left. As a rule, this member is kept in its locking position by a separate spring. On the other hand, the slider control lug is adapted to produce the movement of the locking member in the unlocking or release direction when said lug is operated with a view to change the position of the slider along the zip fastner.

Many types of sliders of this general type are already known but most of them consist of four or five different component elements cut and pressed with particularly close dimensional tolerances. Moreover, assembling these various elements constitutes a particularly elaborate and delicate operation.

It is therefore the essential object of this invention to provide a self-locking slider for zip fastener which has the simplest possible structure and consists of a reduced number of component elements lending themselves very easily to mass production and adapted to be assembled by a single operation.

To this end, the present invention provides an improved slider for zip fastener which consists of only three component elements, namely a body comprising two superposed, plate-like walls assembled by means of a central distance-piece, a control lug provided with an aperture at its end pivoted on said body, and a locking member consisting of a simple elastic metal wire bent to an L shape. The body of this slider carries on the outer face of one of its walls a boss, rib or like projection formed with a recess adapted to receive the pivoted end of said lug, the latter being retained in position by approaching the edges of said recess toward each other. The boss, rib or like projection is divided by said recess into two portions, one of these portions comprising at its end opposite to said recess a lateral groove in which one end of the elastic locking member is secured, the free end of this member extending firstly through the aperture formed in the pivoted end of said lug and then through a hole formed in the relevant wall of said slider body so as to project into this body to permit its engagement between two succesive hooking elements of the zip fastener.

By virtue of its inherent elasticity alone the metal wire constituting the locking member tends to keep its free or operative end engaged between two successive hooking elements of the zip fastener, thus holding the slider against movement. However, any tractive effort exerted on the control lug will automatically lift this locking member and therefore release the slider.

Other features and advantages of the slider according to this invention will appear as the following description

proceeds with reference to the accompanying drawing illustrating diagrammatically by way of example a typical form of embodiment of the improved zip-fastener slider of this invention. In the drawing:

FIGURE 1 is a perspective view showing the body of the slider before the other two component elements are assembled therewith, and

FIGURE 2 is another perspective view but showing the slider upon completion of its assembly.

The slider body illustrated comprises two superposed walls 1, 2 in the form of plate-like elements assembled by means of a substantially heart-shaped central distance-piece 3 serving the purpose of separating the hooking elements of the corresponding zip fastener during the movement of the slider in the opening direction. The inner face of each plate 1, 2 is formed with a channel or groove 4 of gradually increasing width in the fore-and-aft direction, the front end 5 of the slider being assumed to be the leading end when the slider is moved in the zip-fastener opening direction. This channel permits the passage of the hooking elements of the zip fastener which, when the slider is pulled in the opposite or closing direction, are assembled in relative locking engagement at the front end 5 of the slider body, these elements being released from each other when the slider is pulled in the opening direction, due to the action exerted thereon by the leading portion 6 of distance-piece 3.

The upper face of plate 1 carries a longitudinal boss, rib or like projection extending from one to the other end of the slider and symmetrically along its longitudinal axis. This projection is formed with a recess 9 opening upwards and dividing it into two portions 7, 8.

The height of these two portions 7, 8 is maximum at the edges of said recess 9 and decreases gradually toward each end. The base of the rear portion 8 of the projection is narrower than that of the front portion 7, said rear portion 8 comprising a kind of notch 8*a* on one of its side faces. However, this rear portion 8 has formed along its upper longitudinal edge a lateral flange 10 projecting above said notch over said side face. Due to the decreasing height of the corresponding portion 8 of said projection, this flange is inclined and approaches the plate 1 at its rear end opposite to the recess 9.

The notched portion 8*a* of projection 8 carries at the rear a lateral heel or like projection 11 of same width as the flange 10 but of lesser height than said lateral notch. This difference in height provides a lateral groove 12 between said flange 10 and said heel 11, this groove 12 being substantially parallel to the plate 1.

The front portion 7 of said projection is rounded and comprises along the edge of said recess 9 a vertical groove 13 coplanar with the notch 8*a* of portion 8. Registering with this groove 13 is a hole 14 formed through the plate 1 and of any suitable configuration.

The body of the slider of this invention is a one-piece element which may be manufactured by moulding so that its various portions constitute an integral unit. More particularly, this body is moulded from a material adapted to undergo a permanent set subsequently, by the application of pressure or other similar adequate treatment. Thus, this body may be moulded under pressure from a zinc alloy such as the one known under the trade name of "Zamak," or from any other suitable material.

The slider according to this invention further comprises a control lug 17 as well as a locking member 15. The control lug 17 consists of a small plate of any suitable configuration, of which the upper portion is not shown in the drawing. The end portion of this lug which is to be pivotally mounted on the slider body comprises an aperture 16 of which the edge 16*a* is adapted to be engaged into the recess 9 of the body to constitute the

pivot pin of this lug. According to a particularly interesting feature of the device of this invention the locking member consists of a simple elastic metal wire 15 bent to an L configuration and comprising two arms 15*a* and 15*b*. The tip 21 of the first arm is fitted and retained in the lateral groove 12 whereby this arm extends substantially parallel to the plate 1. Due to the inclination of the upper flange 10 a certain play is provided between this flange and the arm 15*a* of wire 15. This wire is engaged through the aperture 16 of the control lug and its other arm 15*b* extends towards the plate 1 and through the hole 14 thereof. The length of this arm 15*b* is such that its tip 22 lies normally between the two plates 1 and 2 to constitute a lock pin.

To assemble the three component elements of the improved slider of this invention the edge 16*a* of the control lug is simply engaged in the recess 9 and the tip 21 of the wire is engaged in the lateral groove 12, whereafter the edges 18 and 19 of the recess are approached, and the edges of groove 12 are also approached to clamp the tip 21 therein. This last step may be performed by simply flattening the rear end 20 of flange 10, for example by exerting a pressure thereon. Due to this operation the flange 10 will keep the tip 21 of the elastic wire 15 firmly in position in the groove 12. On the other hand, by approaching the edges 18 and 19 of recess 9 the latter will be closed to retain permanently the edge 16*a* of the control lug therein (see FIG. 2). Thus, the three component elements of the slider are perfectly assembled.

As already stated hereinabove, the free end of arm 15*b* of metal wire 15 is normally caused to project within the slider body, across the groove or channel 4 formed therein. Under these conditions, when the slider is fitted on a zip fastener the free end 22 of metal wire 15 will automatically project between two adjacent and successive hooking elements thereof, thus locking the slider at the desired location along this fastener. This locking member will remain automatically in position because it constitutes a spring and therefore the use of another spring may be dispensed in the slider of this invention.

During the movements of the slider which are produced by pulling the control lug 17, the edge 16*a* thereof will automatically exert a tractive effort on the elastic wire 15, thus lifting its tip 22 acting as a locking pin proper. Thus, the slider is released and can move along the zip fastener. It may be noted that the possibility of lifting the free end or tip of the elastic wire is due to the play provided above the arm 15*a* thereof, as a consequence of the inclination of the upper flange 10.

As will be readily understood the slider of this invention is characterized by many advantageous features in comparison with hitherto known self-locking sliders. Firstly, this slider is extremely simplified since it comprises only three component elements. Secondly, the manufacture of the slider is also simplified to a considerable extent because the assembly step may consist of a single operation effected automatically in a suitable machine or event, if desired, manually. On the other hand, this slider is adapted to operate both in zip fasteners of the type comprising plastic hooking elements and in zip fasteners comprising metal elements. Besides, the slider of this invention has a pleasant appearance due to the external shape of its body and the mounting of the metal elastic wire 15 in a lateral notch 8*a* of projections 7, 8.

It may be noted that the component elements of the slider of this invention are particularly simple in design. On the other hand, the locking member consists of a simple spring-forming elastic metal wire, whereby any other spring means may be dispensed with. Or course, the metal wire may have any desired cross section, such as round or flat.

Finally, various other modifications and variations may be contemplated in the practical embodiment of the slider of this invention without however departing from the spirit and scope of the invention as set forth in the appended claims.

What I claim is:

1. A self-locking slider for a slider fastener comprising a body member having parallel spaced plates and an intermediate central member defining a channel through which the locking members of the fastener pass, one of said plates having on its outer surface a longitudinanlly extending projection located centrally of such plate and divided lengthwise into two parts by a slot extending through the outer side of such projection and towards said one plate, a substantially L-shaped spring wire secured at one end to the end of said projection adjacent to said central member and extending to said slot, the free end of said spring wire projecting down through an aperture in said one plate adjacent to the inner end of said slot and into said channel to provide a locking tooth for the locking members in such channel, a control member pivotally mounted at one end in said slot and having an aperture through which extends said spring wire, the outer portions of the opposed ends of the divided projection parts provided by the slot being deformed to close the outer end of said slot and thereby permanently link said control member to said projection.

2. A slider as defined in claim 1 in which said longitudinal projection is provided at the end thereof adjacent to said central member with a lateral projection, the outer end of which provides a horizontally disposed shoulder spaced from the outer surface of said one plate, and in which the outer side of said projection in the region of said lateral projection, is provided with a lateral flange overlying said shoulder in spaced relation, the fixed end of said spring wire being positioned on said shoulder and said lateral flange being deformed inwardly to secure such fixed wire end on said shoulder.

References Cited in the file of this patent

FOREIGN PATENTS

852,456	Great Britain	Oct. 26, 1960
264,281	Switzerland	Jan. 3, 1950