May 23, 1939. O. KILLMER 2,159,387

LOCKING SLIDER FOR SLIDE FASTENERS

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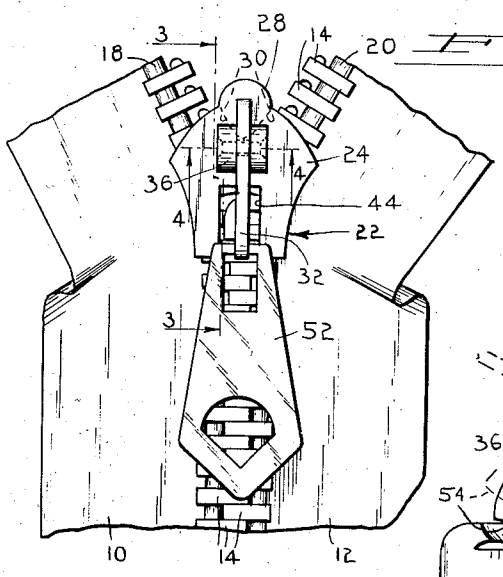


Fig. 1.

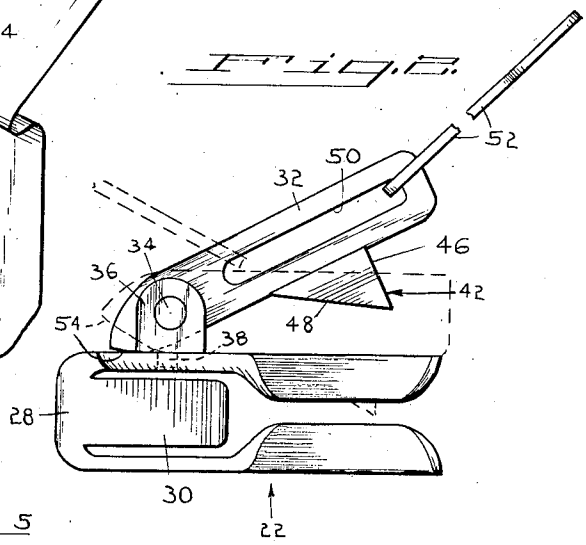


Fig. 2.

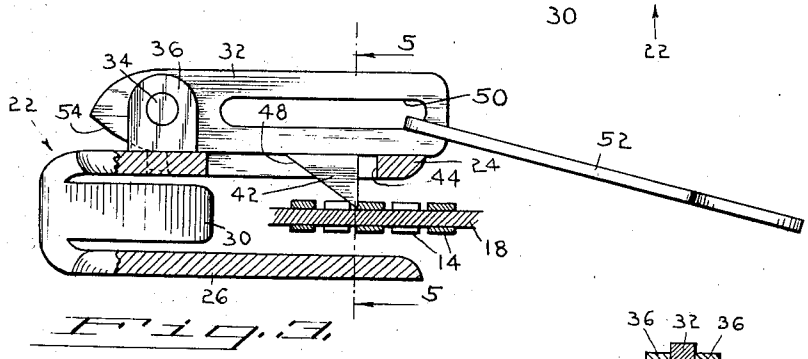


Fig. 3.

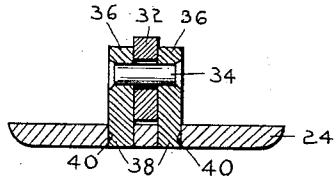


Fig. 4.

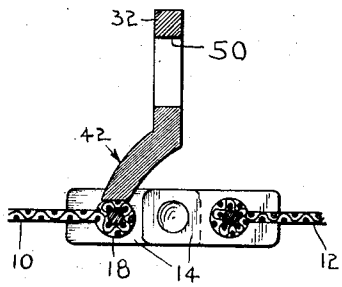


Fig. 5.

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LOCKING SLIDER FOR SLIDE FASTENERS

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7 Claims. (Cl. 24—205)

This invention relates to slide fasteners, and more particularly, to such fasteners provided with locking sliders.

One object of the invention is to provide a locking slider having a pivoted locking member disposed centrally of the slider and extending longitudinally thereof and provided with a locking prong for engagement between any two of the interlocking elements on one of the stringers preferably at the corded edge thereof.

Another object of the invention is to provide a locking slider member having a longitudinal slot in which the pull tab is movably engaged for movement longitudinally of the slider.

Another object of the invention is the provision of the slider with simple means for pivotally connecting the locking member thereto.

A yet further object of the invention is generally to provide a locking slider of improved construction and operation.

The above objects of the invention and other objects ancillary thereto will be more fully explained in the course of the following description of the preferred embodiment of the invention, said embodiment being illustrated in the accompanying drawing.

In the drawing:

Fig. 1 is a plan view of a slide fastener provided with a locking slider;

Fig. 2 is a side view of the locking slider, showing the locking member in full lines in unlocking position and in dotted lines in locking position, and showing also in full and dotted lines two different positions, respectively, of the pull tab for moving the slider in different directions longitudinally of the stringers for meshing and unmeshing the interlocking elements;

Fig. 3 is a side view partly in elevation and partly in section along the line 3—3 of Fig. 1;

Fig. 4 is a detail sectional view on the line 4—4 of Fig. 1; and

Fig. 5 is a detail sectional view on the line 5—5 of Fig. 3.

Referring to the drawing in detail, the slide fastener comprises the usual companion stringers 10 and 12 which, customarily, are provided with interlocking elements 14 clamped to the confronting corded edges 18 and 20 of the stringers. Said interlocking members are engaged with and disengaged from each other as usual by a slider which is movable longitudinally of the stringer in opposite directions for meshing and unmeshing said interlocking elements in a well understood manner.

In accordance with the present invention the slider designated on the drawing by the reference character 22 is of the locking type and accordingly is provided with means for preventing the unintended movement of the slider longitudinally of the stringers. Said slider is made of suitable sheet metal and comprises in integral relation upper and lower wings 24 and 26 connected by a neck 28 provided with the usual pair of inturned tabs 30 which engage between the interlocking elements on the opposite stringers and define, together with the wings 24 and 26, the diverging slider channels. A locking member 32 is pivotally attached at one end thereof to the upper slider wing 24 on a pin 34 fixed in lugs 36 carried by said upper wing at the wider portion thereof. Said lugs are provided with reduced or pin portions 38 which are received within openings 40 in wing 24. The free ends of said pin portions 38 are upset for riveting and thereby securing said lugs 36 to the slider wing 24 in upstanding vertical position. The ends of the pin 34 are likewise upset for securing said pin in position in said lugs.

Locking member 32 is provided with an integral downwardly extending locking prong 42 disposed between the ends of said locking member. Locking member 32 is flat and extends edgewise longitudinally of the slider at the longitudinal medium line thereof. Said locking prong, however, is offset laterally from one side of the locking member toward one side of the slider in position to project through a laterally disposed opening 44 in the upper slider wing 24. More specifically, as here shown, the locking prong 42 is disposed in position to engage the corded edge 18 of stringer 10 between any two of the interlocking elements when said locking member is in locking position, as illustrated in full lines in Fig. 3 and in dotted lines in Fig. 2. Said prong is pointed preferably as shown so that when it is in locking position the front edge 46 thereof abuts against the side of the interlocking element. The inclined edge 48 of said prong, by engagement with one of the interlocking elements, serves to more readily position the slider so that said locking prong may more readily project between two adjacent interlocking elements, thus eliminating unnecessary movement of the slider for securing the same in locked condition.

Locking member 32 is provided with a longitudinal slot 50 and a pull member 52 pivotally connected to said locking member engages the latter in said slot and is movable longitudinally of said slider from one end of the locking mem-

ber, substantially at the narrow end of the slider, to a point adjacent the pivot pin **34**.

The sliding connection between the pull member and the locking member minimizes the resistance to the movement of the slider when the latter is operated for engaging the interlocking elements for closing the fastener and, as illustrated in Fig. 2, in moving the slider fastener in closing direction the pull member **52** is positioned as shown in dotted lines close to the fulcrum of the locking member thus minimizing the torque tending to press the bottom wing of the slider against the interlocking elements. It will be observed that when a force is applied to the pull member for moving the slider longitudinally of the stringers the locking prong is moved entirely out of the slider channel so as to eliminate the possibility of engagement of the prong with the interlocking elements when the slider is moved in a direction to disengage the interlocking elements for opening the fastener. After the prong is moved entirely out of the slider channel, further movement of the locking member **32** to unlocking position is limited by engagement of the rear end **54** thereof with the top of the upper slider wing **24**.

While I have shown and described the preferred embodiment of the invention, it will be understood that the invention may be embodied otherwise than as specifically disclosed herein and that in the illustrated embodiment certain changes in the construction and arrangement of parts may be made without departing from the invention as defined by the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a slide fastener comprising stringers having confronting edges provided with interlocking elements, a slider for engaging and disengaging the elements of said stringers having an upper wing provided with an opening therethrough in position over one of said stringers, a flat locking member pivotally connected adjacent one end thereof to said upper wing, said locking member being disposed edgewise of said upper wing and extending longitudinally of the slider over said upper wing between the side edges thereof, and a locking prong carried by and depending from said locking member in fixed unitary relation therewith and offset laterally from one side thereof for projection through said opening to releasably engage between two successive interlocking elements thereof.

2. In a slide fastener comprising stringers having confronting edges provided with interlocking elements, a slider for engaging and disengaging the elements of said stringers having an upper wing with an opening therethrough, a flat locking member pivotally connected adjacent one end thereof to said upper wing, said locking member being disposed edgewise of said upper wing and extending longitudinally of the slider over said upper wing between the side edges thereof, a locking prong carried by and depending from said locking member in fixed unitary relation therewith for projection through said opening to releasably engage between two successive interlocking elements thereof, said locking member having a longitudinal slot disposed between the opposite longitudinally extending edges of the locking member, and a pull member pivotally connected to said locking member and slidable longitudinally thereof in said slot.

3. In a slide fastener comprising stringers having confronting edges provided with interlocking elements, a slider for engaging and disengaging the elements of said stringers having an upper wing provided with an opening therethrough in position over one of said stringers, a flat locking member pivotally connected adjacent one end thereof to said upper wing, said locking member being disposed edgewise of said upper wing and extending longitudinally of the slider over said upper wing between the side edges thereof, a locking prong carried by and depending from said locking member in fixed unitary relation therewith and offset laterally therefrom for projection through said opening to releasably engage between two successive interlocking elements thereof, and a pull member pivotally connected to said locking member and slidable longitudinally thereof between its opposite longitudinally extending edges.

4. In a slide fastener comprising stringers having confronting edges provided with interlocking elements, a slider for engaging and disengaging the elements of said stringers having an upper wing provided with an opening therethrough, a flat locking member pivotally connected adjacent one end thereof to said upper wing, said locking member being disposed edgewise of said upper wing and extending longitudinally of the slider over said upper wing between the side edges thereof, and a locking prong carried by and depending from said locking member for projection through said opening to releasably engage between two successive interlocking elements thereof, said locking prong having a pointed end portion including an inclined edge extending downwardly from the adjacent edge of the locking member in a direction away from the pivoted end thereof and engageable with an interlocking element for guiding said prong between said two successive interlocking elements.

5. In a slide fastener comprising stringers having confronting edges provided with interlocking elements, a slider for engaging and disengaging the elements of said stringers having an upper wing provided with an opening therethrough in position over one of said stringers at the corded edge thereof, a flat locking member pivotally connected adjacent one end thereof to said upper wing, said locking member being disposed edgewise of said upper wing and extending longitudinally of the slider over said upper wing centrally between the side edges thereof, and a locking prong carried by and depending from said locking member and offset laterally from one side thereof for projection through said opening to releasably engage said corded edge of the stringer between two successive interlocking elements thereof, said locking prong having a pointed end portion including an inclined edge extending downwardly from the adjacent longitudinally extending edge of the locking member and engageable with an interlocking element for guiding said prong between said two successive interlocking elements, said pointed end portion of the prong also having an edge extending substantially at right angles downwardly from said adjacent longitudinally extending edge of the locking member in parallel relation with the side edge of the interlocking element engaged thereby.

6. In a slide fastener comprising stringers having confronting edges provided with interlocking elements, a slider for engaging and disengaging the elements of said stringers having an upper wing provided with an opening therethrough, spaced lugs extending through and riveted to said upper wing and upstanding from the outer sur-

face thereof, a flat locking member pivotally connected at one end thereof to and between said lugs and a locking prong carried by and depending from said locking member for projection through said opening for engagement between two of said interlocking elements, and a pull member connected to locking member, said flat locking member being disposed edgewise to the outer surface of said upper wing and extending longitudinally of the slider over said upper wing between the side edges thereof.

7. In a slide fastener comprising stringers having confronting edges provided with interlocking elements, a slider for engaging and disengaging the elements of said stringers having an upper wing provided with an opening therethrough, spaced lugs secured to said upper wing and upstanding from the upper surface thereof, a flat locking member pivotally connected adjacent one end thereof to and between said lugs and extending edgewise longitudinally of the slider over said upper wing centrally between the side edges thereof, said locking member having a slot extending longitudinally of said locking member and disposed between the opposite longitudinally extending edges of the locking member, a locking prong carried by and depending from said locking member for projection through said opening in the slider wing and a pull member pivotally connected to said locking member and slidable longitudinally of the slider in said slot.

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