June 20, 1950 L. H. MORIN 2,512,213

AUTOMATIC LOCK SLIDER

Filed June 13, 1944

Fig. 1.

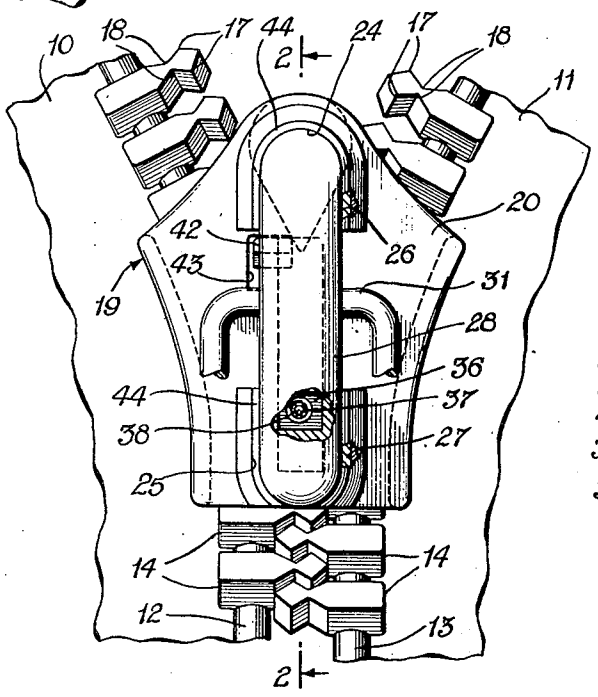


Fig. 2.

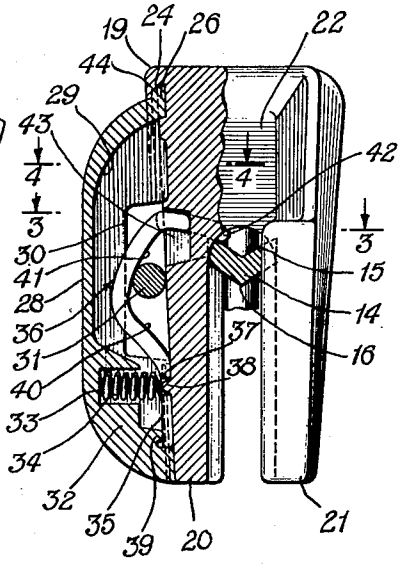


Fig. 3.

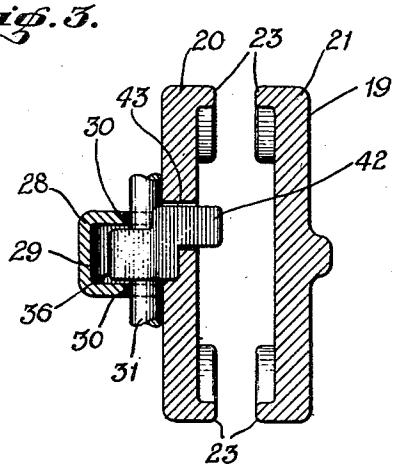
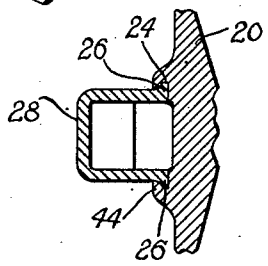


Fig. 4.



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AUTOMATIC LOCK SLIDER

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2 Claims. (Cl. 24—205.14)

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This invention relates to sliders for use in coupling and uncoupling separable fastener stringers. More particularly, the invention deals with devices of this kind employing a spring actuated locking finger adapted to be normally held in engagement with the scoops of at least one stringer of the fastener to retain the slider against accidental opening movement. Further, the invention deals with a locking finger having angularly disposed portions adapted to be engaged by the pull of the slider to automatically move the finger into inoperative position and in the operation of advancing the slider along the stringers in both directions. Still more particularly, the invention deals with lock sliders having locking fingers adapted to engage scoops of V-shaped cross sectional form.

The novel features of the invention will be best understood from the following description when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed, and in which the separate parts are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a side view of a part of a fastener with my improved lock slider thereon, part of the construction being broken away and in section.

Fig. 2 is a section on the line 2—2 of Fig. 1 showing part of the slider in elevation and diagrammatically illustrating one scoop on one stringer to indicate the locking engagement.

Fig. 3 is a section on the line 3—3 of Fig. 2 omitting the stringer and scoop shown in Fig. 2; and

Fig. 4 is a partial section on the line 4—4 of Fig. 2, omitting part of the showing in Fig. 2.

In Fig. 1, I have shown at 10 and 11 a portion of two stringers, upon the beaded edges 12 and 13 of which are arranged longitudinally spaced scoops 14. The scoops 14 are of the coreless type and comprise scoop bodies of V-shaped cross-sectional form to provide longitudinal channels 15 at the upper surfaces thereof and longitudinal ridges 16 at the lower surfaces thereof, as indicated in Fig. 2 of the drawing. This formation of the scoops retains the scoops against transverse separation; whereas the scoops have upper and lower transverse projections 17 at the outer ends thereof, inwardly of which are upper and lower recesses 18, note Fig. 1, to couple the scoops against lateral or pull-apart separation.

At 19 is shown one of my improved lock sliders. The slider is in the form of a more or less conventional body defined by upper and lower walls 20 and 21 joined at one end by a connecting web

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22. The walls 20 and 21 have inturned side flanges, as indicated at 23 in Fig. 3 of the drawing. The outer surface of the top wall 20 of the slider has, at the end portions thereof, substantially U-shaped recesses 24 and 25, to receive the outwardly flanged ends 26 and 27 of a pull supporting bar 28 arranged centrally and longitudinally of the slider. The bar 28 has a channel portion 29, the side walls of which are recessed, as seen at 30, to receive the cross-head end 31 of a pull, the recesses 30 being sufficiently long to permit substantial longitudinal movement of the pull with respect to the bar 28.

The flanged end 27 of the bar 28 has, on its inner surface, an enlargement 32, in which is formed a recess 33 for the reception of a coil spring 34. The spring is adapted to bear on the end 35 of a lock finger 36 directly above an aperture 37 formed in the finger. The upper surface of the wall 20 has a projecting knob 38 arranged in the aperture 37 to key the end of the finger in position on the wall 20. The enlarged portion 32 also has a downwardly extending projection 39 which rests upon the end portion 35 of the finger to aid in supporting the finger in engagement with the wall 20 and, further, to form what might be termed a pivot on which the finger can swing in movement into operative and inoperative positions.

The central portion of the finger 36 has angularly disposed portions forming two camming surfaces 40 and 41 adapted to be engaged by the cross-head 31 of the pull to lift the offset end 42 of the finger upwardly and out of engagement with the scoops 14 of at least one stringer. The offset end 42 passes downwardly through an aperture 43 in the top wall of the slider, as clearly seen in Fig. 3 of the drawing, so that the end 42 can normally extend into the channel of the slider to engage the scoops disposed therein.

It will be apparent that, in the engagement of the pull to operate the slider in the direction to separate the stringers or downwardly, as seen in Fig. 1, the cross-head 31 will engage the camming surface 40 to withdraw the locking finger or end 42 from engagement with the scoops. On the other hand, in moving the slider in the opposite direction or upwardly, as seen in Fig. 1, the cross-head 31 will engage the camming surface 41 to accomplish the same result. When the pull is resting idly, the spring 34 will maintain the locking finger or end 42 thereof in constant engagement with the scoops in retaining the slider against accidental movement in the opening direction or downward, as seen in Fig. 1 of the drawing.

Considering Fig. 2 of the drawing, it will appear that the more or less hook-shaped end 42 of the lock finger engages the recessed side 15 of the scoop and will provide a positive locking of the slider against opening or downward movement. On the other hand, this hook-shaped or slightly rounded end 42 of the lock finger will more or less cam itself over the upwardly flared bottom walls of the scoops, if the slider is moved into the closed position or upwardly without engagement of the pull. However, as above stated, in normal operation of the slider through the medium of the pull, the lock finger is at all times moved out of the path of the scoops, thus providing free travel of the slider along the stringers.

It will be understood that the inturned flanges 44, bordering the recesses 24 and 25, in the manner illustrated in the drawing, are formed after the bar 28 is arranged in position in said recesses. In forming the slider of a die casting, this is accomplished by simply forming a straight walled recess and then turning the flanges 44 inwardly in the manner which is clearly illustrated in Fig. 4 of the drawing to engage the flange portions 26 and 27 of the bar 28.

It will appear, from a consideration of Fig. 2 of the drawing, that the end 35 of the lock finger is made somewhat thinner than the remainder of the finger to give a certain amount of spring property to said end portion to provide the swinging or pivotal movement of the finger, as above described; whereas the spring 34 serves to normally support and urge the finger into operative position and is compressed in movement of the finger into inoperative position, in the manner heretofore defined.

Considering Fig. 2 of the drawing, it will appear that, in the event of a strain tending to move the slider downwardly along the stringers, the hook-shaped contour or curvature of the finger or pin end 42, operating upon the bevelled wall of the scoop engaged by the finger, will tend to feed or draw the finger inwardly into more positive engagement with the scoop, thus insuring a positive lock of the slider against movement along the stringers. This construction is contrary to conventional types of pin locks of the kind under consideration which have had a tendency to cam away from and disengage a scoop when excessive strain has been applied to the slider. From this standpoint, a more positive locking engagement of the slider on the stringers is accomplished.

In forming the slider as a die cast body, it will be apparent that a simplified casting is formed, in that the pull supporting bar is not formed as an integral part therewith, but rather as a separate member attached to one wall of the slider in the manner described. This type of construction also facilitates assemblage of the pull with the slider, as compared with devices where the bar constitutes an integral part of the slider wall.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In separable fastener stringers having scoops of V-shaped cross-sectional form spaced along each stringer edge, each scoop by virtue of the V-shaped cross-section having a longitudinal channel on one surface thereof, the combination therewith of an improved lock slider comprising a lock element supported on the slider, a housing for said lock element, said element having a curved scoop-engaging end adapted to enter the channel of a scoop to retain the slider against movement in one direction along said stringers, said element having its other end thinner than the rest of the element to provide resiliency for said element, spring means on the slider for yieldably supporting said element intermediate the ends thereof in a scoop-engaging position, means in the housing for pivotally supporting the thinned end of the element, and manually operated means on the slider for moving said element out of scoop-engaging position.

2. In separable fastener stringers having scoops of V-shaped cross-sectional form spaced along each stringer edge, each scoop by virtue of the V-shaped cross-section having a longitudinal channel on one surface thereof, the combination therewith of an improved lock slider comprising a lock element supported on the slider, a housing for said lock element, said element having a curved scoop-engaging end adapted to enter the channel of a scoop to retain the slider against movement in one direction along said stringers, means on the slider for keying the element thereto intermediate the ends of the element, spring means on the slider for yieldably supporting said element at said keying point in a scoop-engaging position, means in the housing for pivotally supporting the other end of the element, and manually operated means on the slider for moving said element out of scoop-engaging position.

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