Feb. 20, 1951 D. MARINSKY 2,542,547

AUTOMATIC LOCK SLIDER

Filed Oct. 11, 1946

Fig. 1.

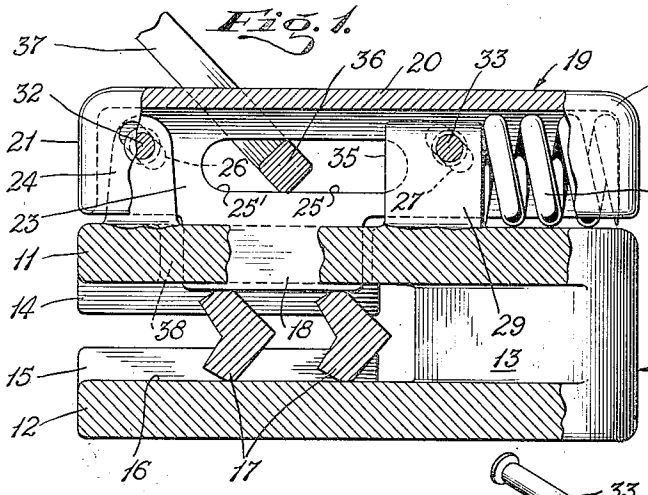


Fig. 4.

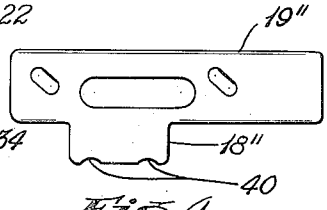


Fig. 2.

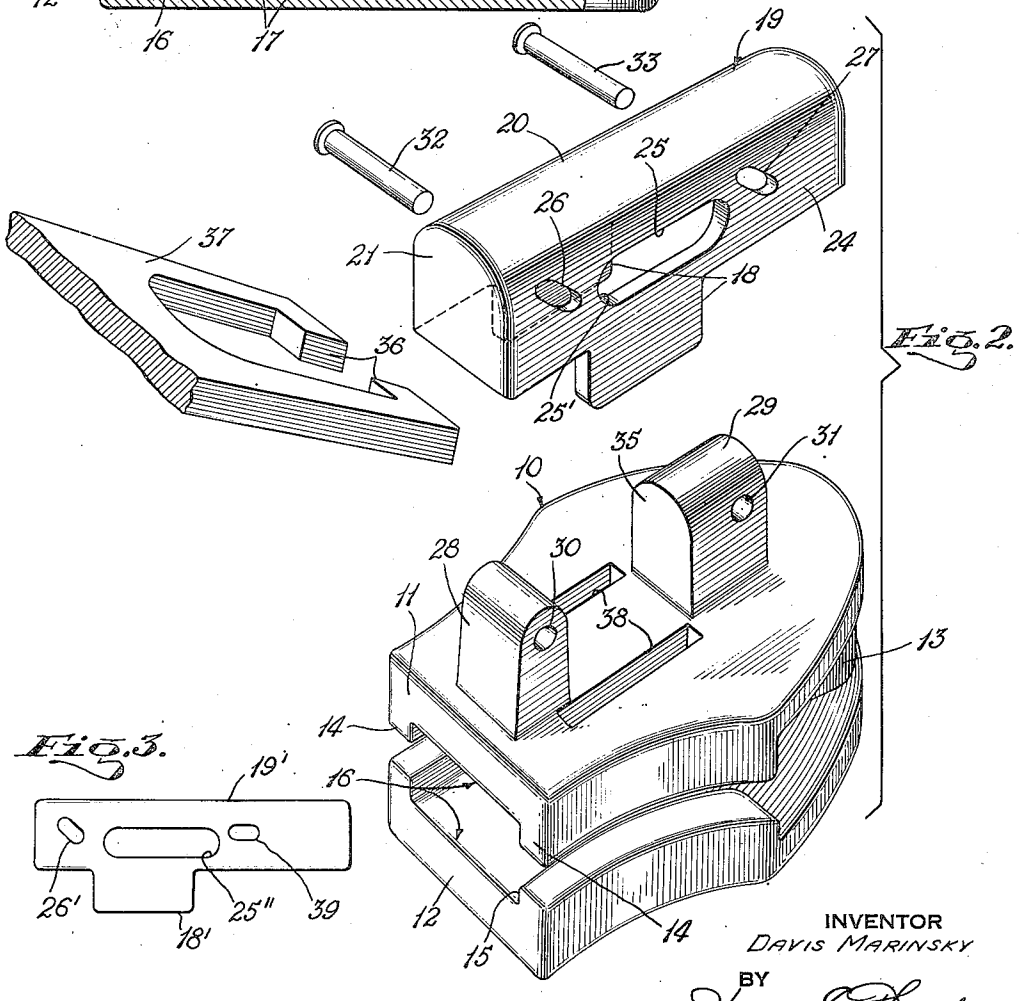


Fig. 3.

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AUTOMATIC LOCK SLIDER

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9 Claims. (Cl. 24—205.14)

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This invention relates to sliders as used on separable fastener devices to couple the stringers of such devices by movement of the sliders along the stringers. More particularly, the invention deals with slider devices employing what I term a friction type of cam lock wherein the lock element is tensionally supported in engagement with the stringer scoops or links and cammed out of engagement therewith in free movement of the slider along the stringers. The novel features of the invention will be best understood from the following descriptions 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 and sectional view of a slider made according to my invention.

Fig. 2 is an exploded perspective view of some of the slider parts to clearly illustrate the assemblage of the parts.

Fig. 3 is a side view of a modified form of hood or yoke I employ, on a reduced scale; and

Fig. 4 is a view similar to Fig. 3 showing another modification.

In Figs. 1 and 2 of the drawing, I have shown a slider 10 comprising top and bottom walls 11 and 12 joined at one end of the slider by a connecting web 13, the walls 11 and 12 having inwardly directed side flanges 14 and 15 respectively, by defining the channel 16 of the slider. This slider body, generally speaking, is of more or less common structure, and is adaptable for use on separable fastener stringers, well known in this art, to couple and uncouple the scoops of the stringers.

To diagrammatically illustrate the locking principles of the slider, I have indicated in Fig. 1 of the drawing two scoops 17 arranged in the channel 16 and engaged by lock elements 18 depending from the sides of a lock member, hood or yoke 19.

The hood or yoke 19 is in the form of an elongated box shaped enclosure having a top wall 20, end walls 21 and 22 and side walls 23 and 24, note Fig. 1. The lock elements 18 form downward extensions to the side walls 23 and 24, as will clearly appear from a consideration of Figs. 1 and 2. The side walls have centrally thereof elongated and longitudinally extending apertures 25 adjacent the ends of which are inclined apertures 26 and 27. For simplicity in description, and by reason of similarity in construction, like references are used in identifying

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the apertures 25, 26 and 27 on the opposed side walls.

Extending upwardly from end portions of the top wall 11 are lugs 28 and 29, having transverse apertures 30—31 for the reception of rivet pins 32 and 33 for securing the yoke or hood 19 to the slider, the pins 32 and 33 passing through the apertures 26 and 27. In assembling the parts, a coil spring 34 is arranged between the end wall 22 of the yoke or hood and the lug 29, the spring normally urging the lock yoke to the right, as seen in Fig. 1, and downwardly (by reason of the inclination of slots 26—27) thereby moving the lock elements 18 into firm engagement with the scoops 17. When the parts are assembled, it will appear that the surface 35 of the lug 29 extends to a point overlapping the elongated aperture 25 to form an abutment against which the inturned coupling ends 36 of a pull 37 are adapted to strike in the operation of moving the slider to the right, as seen in Fig. 1, or in coupling a pair of stringers. However, in the operation of moving the slider in the opposite direction to uncouple the stringers, the ends 36 of the pull engage the ends 25' of the apertures 25 and draw the yoke or hood 19 outwardly by reason of the cam apertures 26 and 27 riding on the pins 32—33, thus lifting the lock elements from engagement with the scoops 17.

The top wall 11 of the slider has between the lugs 28 and 29, elongated apertures 38 for freely receiving the lock elements 18 and permitting longitudinal movement of the yoke 19, as above described. It will be understood that upon release of the pull, the spring 34 will automatically return the yoke to bring the lock elements 18 into operative engagement with the scoops 17.

In Fig. 3 of the drawing I have shown a slight modification in the form of yoke employed, the yoke being designated by the reference 19' and having lock elements 18' similar to the elements 18, apertures 25'' similar to the apertures 25, apertures 26' similar to the aperture 26, and at 39 are shown apertures which differ from the apertures 27 in extending straight or parallel to the apertures 25'' instead of inclined, as with the apertures 26'. With this construction, the camming action takes place primarily at the forward end of the yoke 19', whereas the rear end portion of the yoke slides back and forth in the elongated aperture 39.

In Fig. 4 of the drawing, I have shown another modification which differs from the structure shown in Figs. 1 and 2, simply in modifying the lock elements 18'' to the extent of having notches

or recesses 40 on the lower surfaces thereof. These notches or recesses are employed to provide a more positive engagement with the scoops in retaining the slider against movement along the stringers.

In Fig. 4, the yoke or hood is identified by the reference character 19'', and as the remaining structure of this hood and yoke are the same, as the yoke 19, no further specific description is given.

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

1. A lock slider for separable fastener stringers comprising a channel slider body, one wall of said body having outwardly projecting longitudinally spaced lugs, said wall of the slider body having elongated apertures positioned adjacent said lugs, an elongated lock member, means coupling the lock member with said lugs to provide longitudinal movement of the member on the slider wall in combination with movement toward and from said wall, the lock member having downwardly extending lock elements adapted to pass through the apertures in said slider wall to extend into the channel of said slider body to engage the fastener stringers, tensional means supporting said member normally with the lock elements thereof in operative position, a pull coupled with said member to move the same against the action of said tensional means in moving the lock elements into inoperative position, said member comprising an elongated hood having top, side and end walls, the hood being arranged over and enveloping the lugs of the slider wall, and the side walls of said hood having elongated apertures in which the pull is longitudinally movable.

2. A lock slider for separable fastener stringers, comprising a channel slider body, one wall of the body having longitudinal apertures opening into the channel of said body, said wall at end portions of the apertures having outwardly projecting apertured lugs, an elongated hood member arranged upon and substantially enveloping said lugs, the hood member being defined by side, end and top walls, side walls of the hood member having spaced pairs of elongated apertures, means passed through said apertures and the apertures of said lugs for coupling the hood member with said lugs while permitting longitudinal movement of the hood member on said slider wall, at least one pair of the apertures in the hood member being inclined to form cam surfaces, side walls of said hood member having projecting lock elements arranged in the apertures of the slider wall and adapted to extend into the channel of the slider body to engage stringers therein, a coil spring arranged between one of said lugs and one end wall of the hood member normally supporting the lock elements in operative position, and a pull coupled with said hood member and adapted to move the hood member longitudinally of the slider wall in moving the lock elements into inoperative position.

3. A lock slider for separable fastener stringers, comprising a channel slider body, one wall of the body having longitudinal apertures opening into the channel of said body, said wall at end portions of the apertures having outwardly projecting apertured lugs, an elongated hood member arranged upon and substantially enveloping said lugs, the hood member being defined by side, end and top walls, side walls of the hood member having spaced pairs of elongated apertures, means passed through said apertures and the apertures of said lugs for coupling the hood member with said lugs while permitting longitudinal movement of the hood member on said slider wall, at least one pair of the apertures in the hood member being inclined to form cam surfaces, side walls of said hood member having projecting lock elements arranged in the apertures of the slider wall and adapted to extend into the channel of the slider body to engage stringers therein, a coil spring arranged between one of said lugs and one end wall of the hood member normally supporting the lock elements in operative position, a pull coupled with said hood member and adapted to move the hood member longitudinally of the slider wall in moving the lock elements into inoperative position, the side walls of the hood member having elongated apertures in which the pull is slidably mounted, and one of said lugs having a pull engaging surface arranged inwardly of end limits of one end of said last named apertures.

4. In sliders for separable fasteners comprising channeled slider bodies having at least one apertured wall opening into the channel thereof, a lock member comprising an elongated hood, said hood being defined by top, side and end walls, at least one side wall having a downwardly protruding lock element adapted for arrangement in the aperture of the slider wall to extend into the channel of said slider, side walls of said member having two pairs of alined elongated apertures at longitudinally spaced positions thereon, at least one pair of apertures being inclined with respect to the longitudinal plane of said member, pins supported on the slider wall and operating in said apertures to couple the member with the slider wall and provide movement of the member longitudinally with respect to said wall and toward and from the wall in movement of the lock element into operative and inoperative positions, and tensional means engaging one end wall of said hood member for normally supporting the lock element thereof in operative position.

5. In sliders for separable fasteners comprising channeled slider bodies having at least one apertured wall opening into the channel thereof, a lock member comprising an elongated hood, said hood being defined by top, side and end walls, at least one side wall having a downwardly protruding lock element adapted for arrangement in the aperture of the slider wall to extend into the channel of said slider, side walls of said member having two pairs of alined elongated apertures at longitudinally spaced positions thereon, at least one pair of apertures being inclined with respect to the longitudinal plane of said member, pins supported on the slider wall and operating in said apertures to couple the member with the slider wall and provide movement of the member longitudinally with respect to said wall and toward and from the wall in movement of the lock element into operative and inoperative positions, tensional means engaging one end wall of said hood member for normally supporting the lock element thereof in operative position, and the lower surface of said lock element being of irregular contour.

6. In sliders for separable fasteners comprising channelled slider bodies having at least one apertured wall opening into the channel thereof, a lock member comprising an elongated hood, said hood being defined by top, side and end walls, at least one side wall having a downwardly protruding lock element adapted for arrangement in the aperture of the slider wall to extend into the channel of said slider, side walls of said

member having two pairs of alined elongated apertures at longitudinally spaced positions thereon, at least one pair of apertures being inclined with respect to the longitudinal plane of said member, pins supported on the slider wall and operating in said apertures to couple the member with the slider wall and provide movement of the member longitudinally with respect to said wall and toward and from the wall in movement of the lock element into operative and inoperative positions, tensional means engaging one end wall of said hood member for normally supporting the lock element thereof in operative position, the lower surface of said lock element being of irregular contour, and side walls of said member between said pairs of apertures having elongated apertures forming means for movably coupling a pull therewith.

7. In a slider for separable fasteners comprising a channelled, double-walled body having in one wall an aperture opening into said channel, a lock member mounted on said apertured wall and comprising an elongated hood defined by top, side and end walls, at least one side wall of the lock member having a protruding lock element extending into said aperture and movable into and out of said channel, said side walls of said hood having a plurality of pairs of alined elongated apertures at longitudinally spaced positions therein, at least one pair of apertures being inclined with respect to the longitudinal plane of said member, and pins supported on the slider wall and extending through each pair of said alined apertures to couple the member with the slider wall and to enable the member to be moved longitudinally of, and toward and from, said slider wall.

8. In a slider for coupling and uncoupling the scoops of separable fastener stringers comprising a channelled, double-walled slider body having in one wall an aperture opening into said channel, a lock member mounted on said apertured wall and defined by top, side and end walls, at least one side wall of the lock member having a protruding lock element extending into said aperture and movable into and out of said channel to engage the stringer scoops therein, said lock element having a scoop-engaging surface extending longitudinally of the stringers in said channel for pressing engagement with a plurality of scoops, said side walls of said member having two pairs of alined elongated apertures at longitudinally spaced positions therein, at least one pair of apertures being inclined with respect to

the longitudinal plane of said member, which plane is substantially parallel to the apertured wall of the slider, and pins supported on the slider wall and extending through each pair of said alined apertures to couple the member with the slider wall and to enable the member to be moved longitudinally of, and toward and from, said slider wall.

9. In a slider for separable fasteners comprising a channeled double-walled web-connected body, the improvement comprising a pair of spaced upstanding lugs on the upper wall of the slider, a yoke member on said upper wall enclosing said lugs, cam means for coupling the yoke member to said lugs, said cam means providing limited movement of the yoke member both upwardly and longitudinally relatively to said lugs and said upper wall, an aperture in said upper wall and a lock lug on said yoke member extending through the aperture into the channel of the slider for pressing engagement with fastener scoops in said channel, tension means arranged between one of said upstanding lugs and the yoke member for maintaining the lock lug in pressing engagement with said scoops, a pull-receiving opening in the yoke member disposed above and substantially parallel to the lock lug and being partially coextensive with the space between said upstanding lugs, a pull in said opening movable between said upstanding lugs, said pull when moved in one direction being engageable with the yoke member to move the latter both upwardly and longitudinally of the slider against the action of said tension means, and said pull when moved in the opposite direction being engageable by one of said upstanding lugs.

DAVIS MARINSKY.

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