Dec. 1, 1942. D. MARINSKY 2,303,750

LOCK SLIDER

Filed July 22, 1941

Fig. 1.

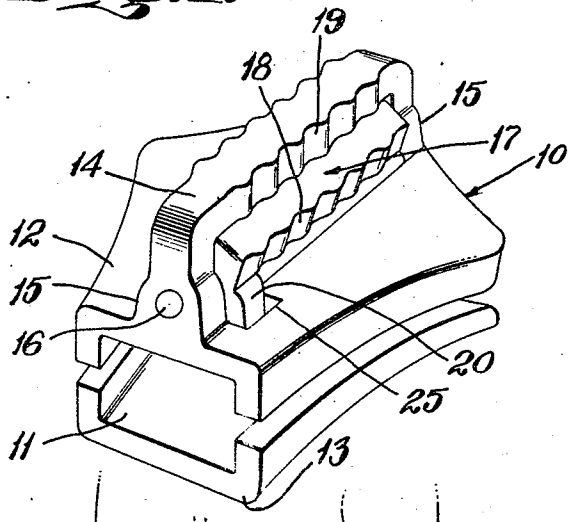


Fig. 3.

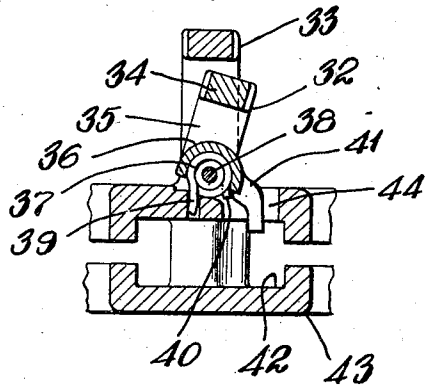


Fig. 2.

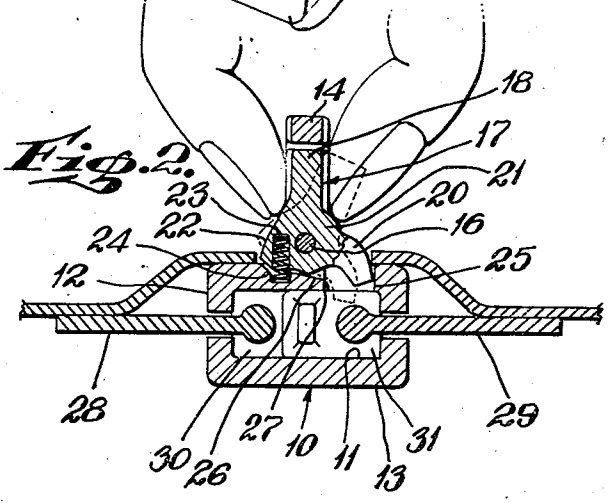


Fig. 4.

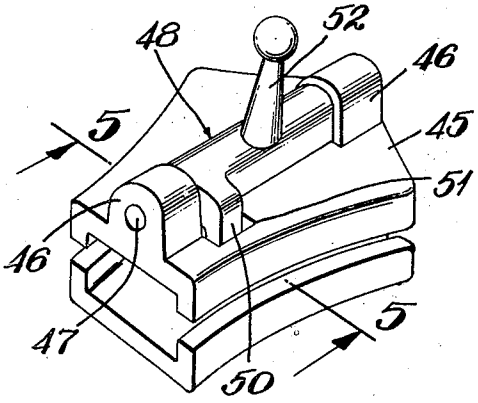


Fig. 6.

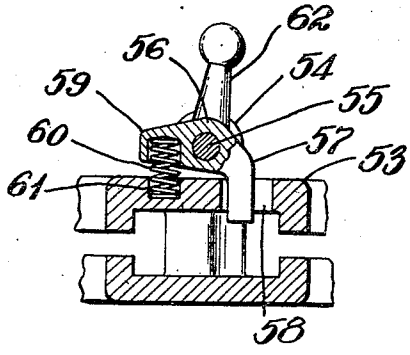
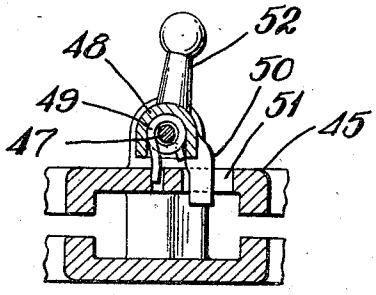


Fig. 5.



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Patented Dec. 1, 1942

2,303,750

UNITED STATES PATENT OFFICE

2,303,750

LOCK SLIDER

Davis Marinsky, Bronx, N. Y., assignor, by mesne assignments, of one-half to said Davis Marinsky and one-half to Louis H. Morin, Bronx, N. Y.

Application July 22, 1941, Serial No. 403,465

17 Claims. (Cl. 24—205.5)

This invention relates to slide fasteners employing sliders movable along the fastener stringers in coupling and uncoupling the same. More particularly, the invention relates to a slider device of the automatic locking type employing a pin part urged by a spring into projected position within the channel of the slider body and which is automatically withdrawn from the channel in the operation of grasping the slider for manual operation thereof. 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 perspective view of one form of slider which I employ showing the same detached.

Fig. 2 is a cross section through the silder of Fig. 1 illustrating the same upon fastener stringers and indicating the method of releasing the lock element thereof.

Fig. 3 is a view similar to Fig. 2 showing the slider detached from the stringers and showing a modification.

Fig. 4 is a view similar to Fig. 1 showing another adaptation of the invention.

Fig. 5 is a cross section substantially on the line 5—5 of Fig. 4; and,

Fig. 6 is a view similar to Fig. 5 showing another form of construction.

My present invention relates to what are commonly referred to as lock sliders; that is to say, sliders employing a lock element for engaging at least one of the stringers of a slide fastener to retain the slider against movement on the stringers, wherein the lock element forms at last part of a finger gripping portion or pull of the slider so that the operation of grasping the pull will automatically release the lock element. In the different forms of construction shown, the lock element employed is mounted on a longitudinal axis to swing transversely of the path of movement of the slider along the stringers so that the lock element forms a positive blocking portion which can be moved into inoperative position only by swinging the element on its pivot.

In Figs. 1 and 2 of the drawing I have shown one adaptation of the invention; and in these figures 10 represents a channeled slider body of more or less conventional form, the channel being indicated at 11 formed between top and bottom spaced walls 12 and 13. The top wall is provided centrally and longitudinally thereof with a yoke-shaped finger grip portion joining the wall 12 in enlarged end bearings 15 forming pivots for a pivot pin 16 on which is mounted an elongated lock element 17. The element 17 has a finger grip portion 18 with ribbed sides to correspond with ribbed sides 19 of the finger grip 14, the portion 18 fitting within and beneath the grip 14 when the slider is grasped between the fingers of the hand as indicated in Fig. 2 of the drawing, in which position the lock pin or pawl part 20 of the element 17 is raised out of the channel 11 of the slider as will readily appear.

The element 17 has a long substantially cylindrical portion 21 in which the pivot pin 16 is arranged, and this portion is enlarged at one side as seen at 22 to form a socket seat for a coil spring 23 which also seats in a recessed portion 24 in the top wall 12 of the slider. The spring is preferably arranged adjacent the end of the element 17, having the pin or pawl 20. The top wall 12 of the slider has an aperture 25 to admit the pin or pawl 20, and one wall of this aperture is beveled as seen at 26 to form a seat for a correspondingly beveled portion 27 which limits the swinging movement of the element 17, particularly when the slider is removed from the stringers 28 and 29 of a separable fastener.

The stringers 28 and 29 are shown in part in Fig. 2 of the drawing, and each stringer carries coupling links 30, 31, respectively, which are coupled and uncoupled by the slider 10. The pin or pawl 20, in the construction shown, is adapted to engage the links 31 of the stringer 29.

From the foregoing it will appear that the normal position of the slider is that shown in full lines in Fig. 1 and in dotted lines in Fig. 2, in which position the spring 23 supports the pin 20 in operative position. Grasping the slider for operation thereof in the manner indicated diagrammatically by the two fingers in Fig. 2 of the drawing will automatically bring the parts 14, 18, into alinement as shown in full lines in Fig. 2, allowing the slider to be moved freely along the stringers 28, 29. When the slider is released, the spring 23 will automatically move the pin 20 into locked position.

The structure shown in Fig. 3 of the drawing differs slightly from that shown in Figs. 1 and 2, and primarily in the structure of the lock element 32 which is pivotally arranged within a yoke-shaped handle member 33 substantially the same as the handle member 14. The element 32 instead of being in the form of a solid cross

sectional body, as in Figs. 1 and 2, is yoke-shaped in form; that is to say, has a top finger grip portion 34 and depending end walls 35 which are joined by a semi-circular hood portion 36 extending the full length of the element 32 to form an enclosure for an elongated coil spring 37 arranged upon the pivot pin 38 which pivots the element 32 to the slider or the ends of the handle portion 33. One end of the spring 37 enters an aperture in the slider wall as seen at 39, and the other end 40 engages the element 32. The spring serves to support the pin or pawl 41 of the element 32 in operative position extending into the channel 42 of the slider 43 through the aperture 44. The operation of the device shown in Fig. 3 will be the same as that shown in Figs. 1 and 2.

In Figs. 4 and 5 is shown another adaptation of the invention; and in these figures, the slider body 45 is provided centrally of the ends of the top wall with pivot bearings 46 for a pivot pin 47 which also passes through end walls of a lock element 48 which is substantially U-shaped in cross sectional form to receive a coil spring 49 similar to the spring 37 and mounted in substantially the same manner. At one end of the element 48 is a downwardly extending pin or pawl 50 which passes through an aperture 51 in the slider wall. Substantially centrally of the element 48 is an upwardly directed finger portion 52 which may be of any desired form and construction, and which normally tilts to one side of the axis 57 when the pin 50 is in operative position. It will thus be seen that as the finger piece 52 is grasped to operate the slider 45, the same will be moved into perpendicular position against the action of the spring 49, and the pin 50 will be moved into inoperative position.

In Fig. 6 of the drawing is shown a slight modification of the structure shown in Figs. 4 and 5. In Fig. 6, 53 represents the slider. At 54 is shown one of the end bearings for the pivot pin 55 on which the lock element 56 is mounted. This element has a pin or pawl 57 at one end operating in an aperture 58 in the slider 53. At said end, the element 56 is enlarged as seen at 59 to form a socket for a spring 60 which also seats in a recess 61 in the slider; this structure being similar to the structure shown in Figs. 1 and 2. The element 56 is also provided with a finger piece part 62 similar to the finger piece 52.

In the different forms of construction shown, it will appear that the pin or pawl part, or in fact the lock element as a whole, is mounted to swing transversely on the slider and with reference to the longitudinal movement of the slider on the stringers. In this way a definite and positive locking of the slider on the stringers is provided; that is to say, one which cannot be accidentally dislodged when the stringers are strained in the direction tending to separate the same. It will be apparent, however, that in all instances the operation of grasping the slider to operate the same will automatically withdraw the pin or pawl part from its operative position thus releasing the slider for free movement on the stringers.

It will appear from a consideration of Figs. 2, 3, 5 and 6 of the drawing that spring movement of the lock element into the slightly inclined vertical position is checked in this direction either by the element engaging the top wall of the slider or by the pin or pawl engaging a wall of the aperture in which the same operates; and the other directional movement of the element; that is to say, from the inclined to the vertical position, is also checked by engagement of the element with the top wall of the slider so that the swinging movement of this element is checked in both directions and minimizes the movement of the element necessary to engage and disengage the pin or pawl part thereof. It will also appear that in all positions of the element, this pin or pawl part remains in and is not wholely withdrawn from the aperture in the slider wall. By reason of the limited movement of the lock element, the ease of operation of the slider in grasping the element is materially improved while at the same time this limited movement makes it possible to maintain the springs substantially concealed at all times, thus presenting a neater and more finished appearance. It will also appear that in all instances the lock element includes an elongated cylindrical or substantially cylindrical pivot portion disposed between end bearings receiving and enclosing the pivot pin; and in some instances, also sufficiently large to enclose the coil spring arranged on said pin.

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

1. A slider for separable fasteners of the class described, said slider having spaced walls forming a channeled body, one wall of the slider having longitudinally spaced bearings, a lock element arranged between said spaced bearings, means pivoting the element to said bearings, said element having a projecting pin part adapted to extend through an opening in the slider wall, yieldable means co-acting with said element to normally support the pin part in projected position into the channel of said body, said element having an upwardly directed finger engaging portion rigidly secured thereto, and means supporting said finger engaging portion in a slight inclination to the vertical in the normal position of said element.

2. A slider for separable fasteners of the class described, said slider having spaced walls forming a channeled body, one wall of the slider having longitudinally spaced bearings, a lock element arranged between said spaced bearings, means pivoting the element to said bearings, said element having a projecting pin part adapted to extend through an opening in the slider wall, yieldable means co-acting with said element to normally support the pin part in projected position into the channel of said body, said element having an upwardly directed finger engaging portion rigidly secured thereto, means supporting said finger engaging portion in a slight inclination to the vertical in the normal position of said element, and said slider wall including a finger grip portion into which the finger engaging portion of said element is adapted to pass in withdrawing the pin of said element from the channel of the slider body.

3. A slider for separable fasteners of the class described, said slider having spaced walls forming a channeled body, one wall of the slider having longitudinally spaced bearings, a lock element arranged between said spaced bearings, means pivoting the element to said bearings, said element having a projecting pin part adapted to extend through an opening in the slider wall, yieldable means co-acting with said element to normally support the pin part in projected position into the channel of said body, said element having an upwardly directed finger engaging portion rigidly secured thereto, means supporting said finger engaging portion in a slight inclina-

tion to the vertical in the normal position of said element, and means substantially concealing said yieldable means between said element and slider body in both positions of said element.

4. A slider for slide fasteners comprising spaced walls forming a channeled body, one wall having protruding bearing portions centrally of the ends thereof, a lock element pivotally supported in and between said bearing portions to swing transversely with respect to the longitudinal movement of the slider, a lock part projecting from one end of said element and adapted to extend through an opening in the slider wall into the channel of said slider body, a spring cooperating with said element to normally support said lock part in said channel, and a finger engaging portion rigidly secured to said element projecting upwardly and at a slight inclination to the vertical when said part is in normal position.

5. A slider for slide fasteners comprising spaced walls forming a channeled body, one wall having protruding bearing portions centrally of the ends thereof, a lock element pivotally supported in and between said bearing portions to swing transversely with respect to the longitudinal movement of the slider, a lock part projecting from one end of said element and adapted to extend through an opening in the slider wall into the channel of said slider body, a spring cooperating with said element to normally support said lock part in said channel, a finger engaging portion rigidly secured to said element projecting upwardly and at a slight inclination to the vertical when said part is in normal position, the means forming the pivot of said element in said bearings comprising an elongated pivot pin, and said element having a pivot portion extending substantially the full distance between said bearings concealing said pivot pin.

6. A slider for slide fasteners comprising spaced walls forming a channeled body, one wall having protruding bearing portions centrally of the ends thereof, a lock element pivotally supported in and between said bearing portions to swing transversely with respect to the longitudinal movement of the slider, a lock part projecting from one end of said element and adapted to extend through an opening in the slider wall into the channel of said slider body, a spring cooperating with said element to normally support said lock part in said channel, a finger engaging portion rigidly secured to said element projecting upwardly and at a slight inclination to the vertical when said part is in normal position, the means forming the pivot of said element in said bearings comprising an elongated pivot pin, said element having a pivot portion extending substantially the full distance between said bearings concealing said pivot pin, and said spring being arranged upon the pin and substantially concealed by the pivot portion of said element.

7. A slider for slide fasteners comprising spaced walls forming a channeled body, one wall having protruding bearing portions centrally of the ends thereof, a lock element pivotally supported in and between said bearing portions to swing transversely with respect to the longitudinal movement of the slider, a lock part projecting from one end of said element and adapted to extend into the channel of said slider body, a spring cooperating with said element to normally support said lock part in said channel, a finger engaging portion rigidly secured to said element projecting upwardly and at a slight inclination to the vertical when said part is in normal position, the means forming the pivot of said element in said bearings comprising an elongated pivot pin, said element having a pivot portion extending substantially the full distance between said bearings concealing said pivot pin, and the pivot portion of said element being enlarged at one side to form a seat for said spring.

8. A slider for slide fasteners comprising spaced walls joined by a connecting web at one end thereof forming a channeled body, one wall of said body having an integral U-shaped finger grip portion extending centrally and longitudinally of said wall and joining the wall in end bearings, a lock element pivotally supported in said end bearings to swing transversely with respect to said finger grip, said wall of the slider adjacent one of said bearings having an aperture opening into the channel of the slider body, and said element having a lock part movable in said aperture to enter the channel of said body when said element is in locked position.

9. A slider for slide fasteners comprising spaced walls joined by a connecting web at one end thereof forming a channeled body, one wall of said body having an integral U-shaped finger grip portion extending centrally and longitudinally of said wall and joining the wall in end bearings, a lock element pivotally supported in said end bearings to swing transversely with respect to said finger grip, said wall of the slider adjacent one of said bearings having an aperture opening into the channel of the slider body, said element having a lock part movable in said aperture to enter the channel of said body when said element is in locked position, and said element having a longitudinal hollow portion receiving a pivot pin supported at its ends in said bearings and extending through said element.

10. A slider for slide fasteners comprising spaced walls joined by a connecting web at one end thereof forming a channeled body, one wall of said body having an integral U-shaped finger grip portion extending centrally and longitudinally of said wall and joining the wall in end bearings, a lock element pivotally supported in said end bearings to swing transversely with respect to said finger grip, said wall of the slider adjacent one of said bearings having an aperture opening into the channel of the slider body, said element having a lock part movable in said aperture to enter the channel of said body when said element is in locked position, said element having a longitudinal hollow portion receiving a pivot pin supported at its ends in said bearings and extending through said element, and said element having a U-shaped finger grip portion substantially conforming with the contour of the finger grip portion of said slider body and substantially housed in said body in one position of said element.

11. A slider for slide fasteners comprising spaced walls joined by a connecting web at one end thereof forming a channeled body, one wall of said body having an integral U-shaped finger grip portion extending centrally and longitudinally of said wall and joining the wall in end bearings, a lock element pivotally supported in said end bearings to swing transversely with respect to said finger grip, said wall of the slider adjacent one of said bearings having an aperture opening into the channel of the slider body, said element having a lock part movable in said aperture to enter the channel of said body when said element is in locked position, and a spring ar-

ranged between said element and slider wall normally supporting said element in locked position.

12. A slider for slide fasteners comprising a channeled body formed by spaced walls, one wall of the body having outwardly protruding bearings at end portions thereof, an elongated pivot pin mounted in said bearings and extending therebetween, an elongated hollow member arranged on said pin intermediate said bearings and housing said pin, said wall of the slider adjacent one of said bearings having an aperture opening into the channel of said body, the corresponding end of said member having a projecting lock part movable in said aperture to enter the channel of said slider, means normally supporting said lock part in projected position within said channel, and an upwardly projecting finger part rigidly secured to said member arranged at a slight inclination to the vertical when said part is in normal position.

13. The combination with the slider of slide fasteners, of a lock element comprising an elongated body adapted to be arranged centrally and longitudinally of one wall of the slider, means pivotally coupling the element to the slider body to swing transversely, a projecting pin part at one end of said element, and said element having an upwardly projecting elongated finger grip portion rigidly secured thereto.

14. The combination with the slider of slide fasteners, of a lock element comprising an elongated body adapted to be arranged centrally and longitudinally of one wall of the slider, means pivotally coupling the element to the slider body to swing transversely, a projecting pin part at one end of said element, said element having an upwardly projecting elongated finger grip portion rigidly secured thereto, and said finger grip portion being yoke-shaped in form.

15. In a slide for slide fasteners, said slide having spaced walls forming a channeled body, the improvement which comprises a unitary finger grip and automatic lock structure, said structure including bearing members carried by one of said slider walls and disposed at opposite ends longitudinally thereof; a pivoted member journalled in said bearing members and adapted to swing about an axis parallel to the slider walls; said pivoted member having a rotatable upstanding finger grip part rigidly joined to said pivoted member and extending therefrom perpendicular to the axis thereof and adapted to swing with the pivoted member; a detent depending from said pivoted member; an opening in said slide wall to permit entry of said detent into link-engaging position, and resilient means normally biasing the pivoted member so that the angle subtended between the axis of the upstanding finger grip part and the adjacent slide wall is less than ninety degrees and the depending detent passes through said opening in the slide wall for locking engagement with the links of the fasteners.

16. In a slide for slide fasteners, said slide having spaced walls forming a channeled body, the improvement which comprises a unitary finger grip and automatic lock structure, said structure including bearing members carried by one of said slider walls and disposed at opposite ends longitudinally thereof; a pivoted member journalled in said bearing members and adapted to swing about an axis parallel to the slider walls; said pivoted member having a rotatable upstanding finger grip part rigidly joined to said pivoted member and extending therefrom perpendicular to the axis thereof and adapted to swing with the pivoted member; a detent depending from said pivoted member; an opening in said slide wall to permit entry of said detent into link-engaging position; a non-rotatable second finger grip member mounted above and in spaced relation to said rotatable finger grip part, rigidly connected to said bearing members and extending therebetween longitudinally of the slider; and resilient means normally biasing the rotatable finger grip portion into a position offset in relation to said non-rotatable finger grip member and placing said detent in link-engaging position.

17. In a slide for slide fasteners, said slide having spaced walls forming a channeled body, the improvement which comprises a unitary finger grip and automatic lock structure, said structure including an elongated body extending centrally and longitudinally of one wall of the slider with its ends pivotally connected to said wall to permit said elongated body to swing transversely of the longitudinal axis of the slider, a projecting locking pin on said elongated body with its outer end extending through an opening in said slider wall into the channel of the slider, a spring biased to hold the locking pin in said channel, and an upwardly projecting handle rigidly secured to said elongated body, whereby the elongated body may be rocked on its pivots against the bias of the spring to move the end of the locking pin substantially out of said channel and the slider may then be moved bodily by said handle longitudinally of the axis of the elongated member.

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