Nov. 11, 1941. D. MARINSKY 2,262,188

REVERSE LOCK SLIDER

Filed Sept. 2, 1939

Fig. 1.

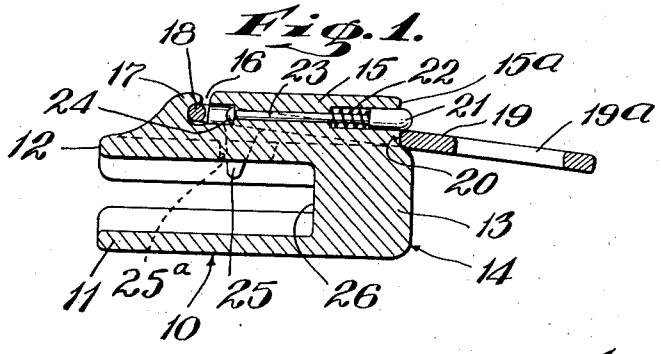


Fig. 2.

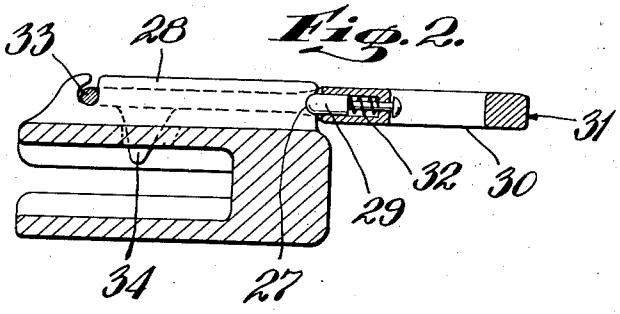


Fig. 3.

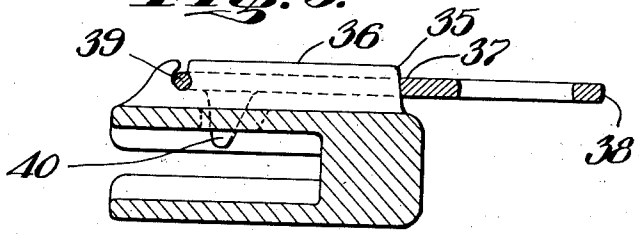


Fig. 5.

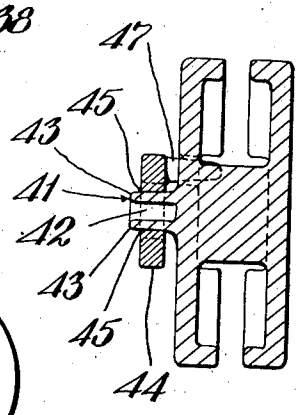
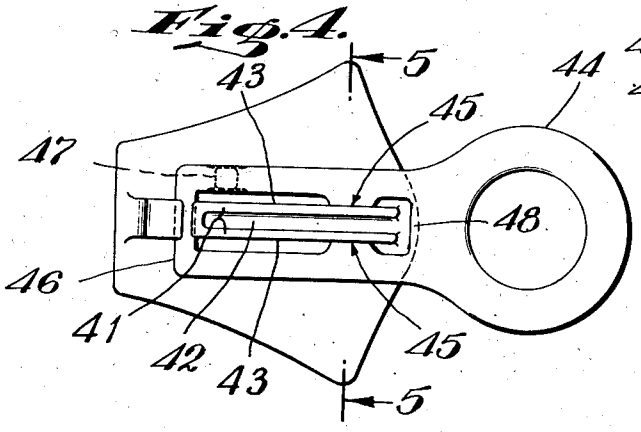


Fig. 4.



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REVERSE LOCK SLIDER

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Application September 2, 1939, Serial No. 293,182

7 Claims. (Cl. 24—205.5)

This invention relates to sliders for separable fastener stringers and particularly to what is commonly referred to as reverse locking sliders adapted for use on various types of merchandise where the pull is normally hanging downwardly and protruding beyond the flared or doubled channeled end of the slider body such for example, as stringers as applied to leggings. More particularly the invention relates to sliders having cooperating means between the pull and the slider for retaining the pull against accidental displacement when in locked position. The novel features of the invention will be best understood from the following disclosure and annexed 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 longitudinal sectional view through a slider showing one adaptation of the invention.

Fig. 2 is a view similar to Fig. 1 showing another adaptation of the invention.

Fig. 3 is a view similar to Figs. 1 and 2 showing a further adaptation of the invention.

Fig. 4 is a plan view of a slider showing another adaptation of the invention, and

Fig. 5 is a partial sectional view substantially on the line 5—5 of Fig. 4.

In reverse locking sliders of the type and kind under consideration, considerable difficulty has been experienced in maintaining the pin or other locking arrangement commonly employed upon the pull of a slider against accidental displacement, and this is especially true when the fastener is used upon leggings which are subjected to stresses and strains tending to open the slider and also subjected to the blows or strains occasioned by running or walking. It is the purpose of my invention to provide in conjunction with the slider and pull means for retaining the pull in locked position on the slider at least sufficiently to care for the normal stresses or strains tending to separate the stringers employed, while at the same time permitting movement into unlocked position if the stringers are subjected to excessive strains so as to prevent the destruction of the stringer tapes or fastener links which might otherwise occur if a positive lock were provided. Further, it is a feature of my invention to construct the slider so as to provide throughout the length of the wall thereof to which the pull is attached a reenforcing bar the upper surface of which is disposed above the upper surface of the pull when the latter is in locked position so as to prevent crushing of the slider when subject to laundering.

In the embodiment of my invention as disclosed in Fig. 1 of the drawing, 10 represents the slider body having a bottom wall 11, a top wall 12, a crosshead 13 at the wide end portion 14 of the slider forming the usual diverging channels at the wide end.

A long bar 15 centered longitudinally of the upper surface of the top wall and extending from the wide end portion 14 to a pivot recess 16 formed between the bar and a hook member 17, the latter being normally open and adapted to be bent over in securing the pivot 18 of the pull 19 against displacement from the slider. Sufficient clearance is provided for the pivot 18 in the recess 16 to provide free swinging movement of the pull into a position paralleling the top wall 12 of the slider.

The pull is recessed or apertured to receive the bar 15 as will be apparent but the end wall 20 of this recess is disposed adjacent the end 15a of the bar 15, so as to move freely thereover in frictionally passing over a spring actuated catch pin 21. The spring 22 of the catch pin 21 is housed within the bar 15, the pin 21 having a guide rod 23 extending longitudinally through the bar 15 with a head 24 at one end limiting outward movement of the pin. The pull 19 includes, in the construction shown, an apertured finger grip portion 19a and also a protruding lock pin 25 which is adapted to extend through an opening 25a in the top wall 12 to enter the channel 26 of the slider to engage a fastener stringer arranged therein in retaining the slider against longitudinal movement. The lock pin or element 25 extends into the channel 26 when the pull 19 is in its locked position as indicated at Fig. 1 being held in this position by the spring catch pin 21. The outer end of the catch pin is rounded to permit forcible movement of the finger piece into raised unlocked position when it is desired to manually operate the slider of the stringers.

In Fig. 2 of the drawing, I have shown a slight modification of the construction shown in Fig. 1 which simply consists in forming an indent or recess 27 and the outer end of the bar 28 similar to the bar 15 to receive a spring actuated pin 29 yieldably supported in the somewhat enlarged hand grip portion 30 of a pull 31, the spring acting upon the pin 29 being shown at 32. It will be apparent that the pin 29 rides over the end of the bar 28 in cam-like fashion to enter the recess 27. The pivot of the pull 31 is shown at 33 and the lock element of the pull 34, otherwise the struc-

ture as shown in Fig. 2 is the same as that of Fig. 1.

In Fig. 3 of the drawing, I have shown another adaptation of the invention which consists in substituting for the recess **27** a rounded cam surface **35** on the end of the bar **36** similar to the bar **15** of Fig. 1 and arranging a rounded end wall **37** on a pull **38** so as to frictionally engage the surface **35** in holding the pull against displacement. The pivot of the pull **38** is shown at **39**, and at **40** is shown the pin lock or other element for engaging one of the stringers. The structure shown in Fig. 3 is otherwise similar to the structure shown in Fig. 1.

In all the forms of construction shown and above described, it will appear that the engagement of the pull with the slider in retaining the same against accidental displacement was located an appreciable distance from the pivot of the pull as compared with the location of the locking element with respect thereto. This produces a strong locking or retaining engagement of the pull with the slider in resisting the normal stresses or strains tending to unlock the slider, while at the same time providing movement of the pull into inoperative position should the stringers be subjected to excessive strains which might otherwise destroy or render the fastening device as a whole inoperative.

In Figs. 4 and 5 of the drawing, I have shown another adaptation of the invention, and in this construction a bar **41** is provided having a central longitudinal slot **42**, as in the outer surface thereof, which will form flexing side members or fins **43** on the bar. The members **43** have tapered outer surfaces providing frictional or camming engagement of the pull **44** on the offset members **45** thereof with the fins **43**. The pull **44** is pivoted to the slider body as seen at **46** in substantially the same manner as in the other forms of construction shown, and a lock element **47** is provided adjacent the pivot **46** in position to enter the channel of the slider. With this construction, the end wall **48** of the apertured portion of the pull which receives the bar **41** is in spaced relation to the outer end of the bar, the locking engagement being dependent upon the members **45** passing over the outer surfaces of the fins **43**.

While I have indicated my improved lock structure in connection with one general type or shape of pull, it will be understood that any desired design of pull may be employed, the important feature being that the mounting end of the pull be fashioned to engage the protruding bar or mounting member of the slider in the firm and yet yieldable manner above described. In each of the modifications of the mounting end structure of my locking pull, a cam-like engagement is provided between the pull and the mounting bar of the slider, the engaging portions being fashioned in a manner to permit disengagement thereof when excessive stress is applied to the lock element of the pull while in the locked position on a fastener stringer.

The pull retaining means has been described in the specification and shown in the drawing as particularly adapted for use on a reverse locking slider or in other words, on a slider having a pull adapted to extend in the direction of and beyond the wide end of the slider when in the locked position. It will, of course, be apparent that the structural features are also adapted for use in connection with a normal locking slider wherein the pull extends beyond the narrow end thereof. In this instance the pivot forming means and the yieldable pull engaging means would be arranged in the reverse positions on the protruding bar of the slider, and the position of the aperture in the slider for receiving the lock element of the pull might be altered slightly, but the structure and operation of the parts would otherwise be the same. It will also be apparent that my improved structure is adapted for use in connection with any type of slider construction of suitable metallic or thermoplastic materials.

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

1. A reverse lock slider for separable fasteners comprising a channeled slider body having spaced walls joined at one wide end in a connecting web, one wall of the slider having a bar extending centrally and longitudinally thereof, a pull pivotally coupled to said wall of the slider and to the bar thereon adjacent the other narrow end thereof, said pull having an apertured portion adapted to encompass the bar and to provide for flat arrangement of the pull upon the slider wall below the outer surface of said bar, a lock element on the pull for entering the channel of the slider when the pull is arranged horizontally upon said wall of the slider, interengaging means on the pull and said bar for retaining the pull in a horizontal locked position against accidental displacement, and said interengaging means involving a resiliently supported pin movable longitudinally of said bar and adapted to yieldably engage said pull at the end of said apertured portion thereof.

2. A reverse lock slider for separable fasteners comprising a channeled slider body having spaced walls joined at one wide end in a connecting web, one wall of the slider having a bar extending centrally and longitudinally thereof, a pull pivotally coupled to said wall of the slider and to the bar thereon adjacent the other narrow end thereof, said pull having an apertured portion adapted to encompass the bar and to provide for flat arrangement of the pull upon the slider wall below the outer surface of said bar, a lock element on the pull for entering the channel of the slider when the pull is arranged horizontally upon said wall of the slider, interengaging means on the pull and said bar for retaining the pull in a horizontal locked position against accidental displacement, and said means comprising a longitudinally movable pin resiliently supported in said pull and a cam portion on the end of said bar.

3. In combination with a slider for separable fasteners, of a reverse locking pull, means pivoting the pull to the narrow end of the slider to extend longitudinally of one wall thereof in the direction of the wide end of the slider, the pull having a lock element projecting into the slider body when the pull is arranged upon said wall, cooperating means at the wide end of the slider and on the pull and said wall of the slider for frictionally retaining the pull in locked position and against accidental displacement when arranged upon the slider wall and extending in the direction of the wide end thereof, and said cooperating means comprising a spring actuated pin and a recessed portion adapted to be engaged by the pin.

4. A reverse lock slider for separable fasteners comprising a channeled body having spaced walls joined at one wide end in a connecting web, a

lock pull part, means on one wall of the slider adjacent the other narrow end thereof for pivotally supporting one end of the pull in connection with said wall, the pull having a lock element extending into the channel of the slider when the pull is arranged upon said wall with the free finger end portion of the pull extending in the direction of the wide end of the slider, a pull engaging part protruding from said wall of the slider at the wide end thereof to extend beyond the outer surface of the pull when in locked position, interengaging means between said parts for retaining the pull part against accidental displacement when in locked position, said last named means comprising a resiliently supported pin on one of said parts, the pull pivot and last named part being united in a bar extending longitudinally of said wall of the slider, and the pull part being recessed to receive said bar.

5. In combination with a slider for separable fasteners, of a lock pull movably coupled with the slider, a lock element on the pull adapted to enter the slider when the pull is in locked position, and an element yieldably supported on and movable longitudinally with respect to the pull to engage the slider when in locked position to retain the pull against accidental displacement.

6. A reverse lock slider for separable fasteners comprising a channeled slider body having spaced walls joined at one wide end in a connecting web, one wall of the slider having a bar part extending centrally and longitudinally thereof, a pull part pivotally coupled to said wall of the slider adjacent the other narrow end thereof, said pull receiving the bar to provide for flat arrangement of the pull upon the slider wall below the outer surface of said bar, a lock element on the pull for entering the channel of the slider when the pull is arranged horizontally upon said wall of the slider, interengaging means on the pull and said bar for retaining the pull in a horizontal locked position against accidental displacement, and said interengaging means comprising a pin resiliently supported on one of said parts for movement longitudinally thereof and adapted to yieldably engage a cam surface on the other of said parts.

7. In combination with a reverse lock slider for separable fasteners employing a movable finger piece including a locking element for retaining the slider in locked position, of an element yieldably supported on the slider for movement longitudinally of said slider, said element cooperating with the pull when in locked position to retain the pull against accidental displacement.

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