Nov. 4, 1941. N. J. POUX 2,261,132

LOCK SLIDER FOR SLIDE FASTENERS

Filed Oct. 13, 1939

Fig. 1.

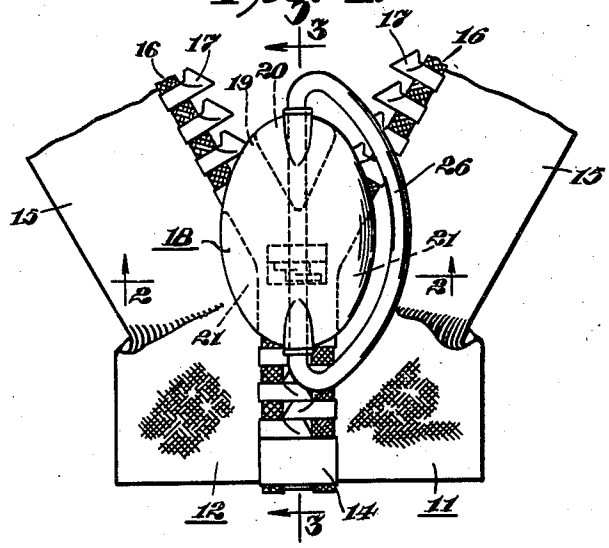


Fig. 2.

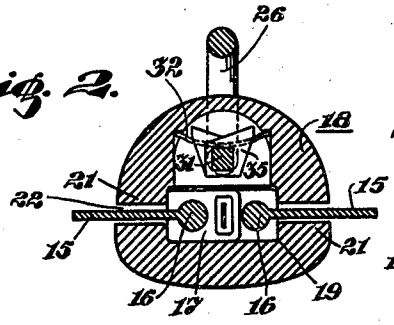
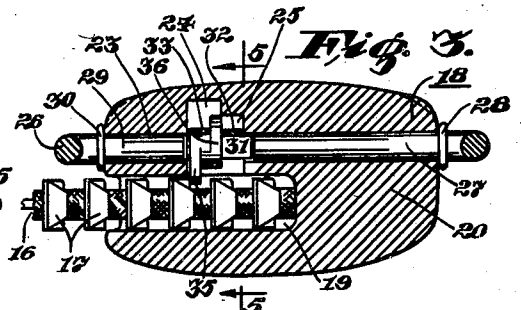


Fig. 3.



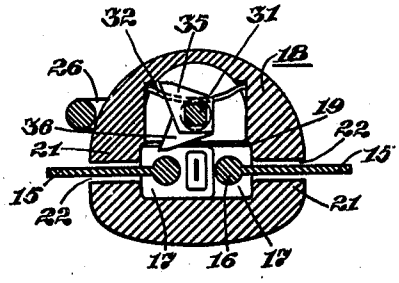


Fig. 4.

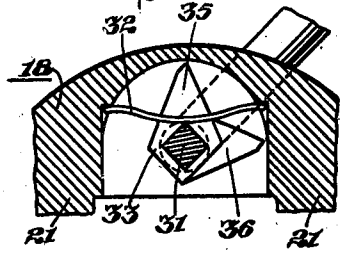


Fig. 5.

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LOCK SLIDER FOR SLIDE FASTENERS

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7 Claims. (Cl. 24—205.5)

This invention relates to slide fasteners and, in particular, to the provision of new and improved sliders therefor.

It is an object of this invention to provide a slider construction embodying improved locking means entirely enclosed within the body of the slider.

It is a further object of this invention to provide a slider embodying such locking means which is manually actuated by bail means swingable about an axis disposed longitudinally with respect to the slider body.

It is a further object of this invention to provide, in such a slider construction, means automatically operative resiliently to latch the locking mechanism, both in locked position and in unlocked position.

It is a further object of this invention to provide, in such a slider construction, a bail construction with a portion pivotally secured to the slider body for movement about an axis longitudinally disposed with respect to the slider body and having secured thereto locking means operated by swinging movement of the bail to locking and unlocking positions.

It is a further object of this invention to provide such a slider construction wherein the locking operation may be accomplished by swinging the bail in either direction about its axis from "neutral" or unlocking position.

These and other objects and advantages of the invention will appear from the following description taken in conjunction with the accompanying drawing which forms a part thereof, and will be pointed out in the appended claims.

In the drawing:

Fig. 1 is a face view of a slider constructed according to the principles of this invention as applied to a conventional slide fastener, a fragment of which is shown;

Fig. 2 is a section taken substantially on the line 2—2 of Fig. 1, showing the parts in unlocking position;

Fig. 3 is a longitudinal section taken substantially on the line 3—3 of Fig. 1, with the parts in locking position, as shown in Fig. 1;

Fig. 4 is a view similar to Fig. 2, but showing the parts in one locking position which is the reverse of that locking position shown in Figs. 1 and 3; and

Fig. 5 is an enlarged fragmentary detail view in section of the lock latching mechanism, with the parts in a position intermediate those shown in Figs. 2 and 3, and taken substantially along the line 5—5 of Fig. 3.

Referring to the drawing in detail, the slide fastener shown in Fig. 1, which is of conventional form and which is shown for purposes of illustration only, comprises stringers 11 and 12 secured together at their lower ends by a conventional bottom stop 14.

Each stringer is formed in conventional manner of a textile or other tape 15 having one edge thereof reinforced at 16, to which reinforced edge 16 is secured a plurality of cooperating interlocking fastener members 17. The fastener members of the respective stringers 11 and 12 are adapted to be engaged and disengaged by movement of the slider, generally designated 18, longitudinally with respect to the stringers 11 and 12. The slider 18, as shown, comprises a body provided internally with a substantially Y-shaped upwardly diverging channel 19 for slidably receiving the fastener members 17. The fastener member receiving channel 19 is formed by the substantially V-shaped wedge member or wedge portion 20 disposed centrally at the upper end of the slider body 18 and the side flanges 21 which are provided with lateral slots 22 in which the stringer tapes 15 are slidably supported.

In order to provide means for locking the slider in any desired position longitudinally with respect to the stringers 11 and 12, the upper portion of the slider, upwardly of, or forwardly of, the channel 19, is provided with a longitudinal bore 23 extending from end to end of the slider body 18 and having a locking member receiving chamber 24 disposed intermediate its ends immediately adjacent a latch spring-receiving chamber 25. Pivotally or swingably mounted in the bore 23 is a bail member 26 having a substantially U-shaped loop disposed outside of the slider body 18 and having substantially straight end portions. One end portion 27 is disposed in the portion of the bore 23 above the chambers 24 and 25 and is provided with a bearing collar 28 adapted for engagement with the upper end of the slider body 18 adjacent the bore 23. The opposite end portion 29 is received by the portion of the bore 23 below the chambers 24 and 25 and is provided with a bearing collar 30 similar to the bearing collar 28 and adapted, in like manner, to engage the lower end surface of the slider body 18 adjacent the bore 23. The lower end portion 29 of the bail 26 is provided at its extremity with a latch cam member 31 having at least one flat side, and preferably of rectangular or square section, as shown in Figs. 2 to 5 inclusive. The free end of the latch cam member 31 may, for the sake of convenience, extend into the portion of

the bore 23 above the latch spring-receiving chamber 25, as shown in Fig. 3.

The latch cam member 31 performs the function of supporting the locking member hereinafter described and also of cooperating with the latch spring member which is also hereinafter described and which cooperatively engages the flat surface or surfaces provided on the latch cam member.

Engaging the latch cam member 31, which is integral with the end portion 29 of the swingable bail 26, is the latch spring member 32 which, as shown, is in the form of transverse leaf spring. The ends of the latch spring member 32 engage shoulders provided for this purpose at the upper termination of the side walls of the latch spring-receiving chamber 25, as shown in Figs. 2, 4 and 5. As will be readily understood from these figures, the latch spring member 32 cooperates with the latch cam member 31, at all times, to urge the swingable bail 26 into the nearest of the three positions shown respectively in Figs. 1, 2 and 4. When the bail is in either of these positions, namely, in the intermediate or unlocking position as shown in Fig. 2, or in either of the locking positions shown in Figs. 1 and 4 respectively, the cooperation of the latch spring member 32 with the corresponding flat surface of the latch cam member 31, yieldingly maintains the bail in that position.

In order that the slider body 18 may be locked against longitudinal movement with respect to the stringers 11 and 12 in each of the positions shown in Figs. 1 and 4 respectively, a locking member 33 is fixed to the end portion 29 of the bail 26 preferably by the provision of a non-circular bore in the locking member 33 corresponding with the cross section of the latch cam member 31. This prevents relative rotation between the locking member 33 and the bail 26. As shown, the locking member 33 is provided with two prong portions, namely, 35 and 36, which are angularly disposed with respect to one another in such manner that, when the bail is in the position shown in Fig. 1, the prong portion 35 is disposed sufficiently below the righthand forward or upward side flange 21 to project within a space between adjacent fastener members of the right-hand stringer 11, and when the bail is in the position shown in Fig. 4, the other prong portion 36 of the locking member 33 will project, in like manner, between adjacent interlocking fastener members 17 of the lefthand stringer member 12. Where movement of the bail from the intermediate position shown in Fig. 2, either to that shown in Fig. 1 or that shown in Fig. 4, causes engagement of either of the prong portions 35 or 36 with the forward surfaces of a fastener member 17, then the engaged prong portion will be resiliently urged by the latch spring member 32 downwardly against the engaged fastener member 17, whereby slight longitudinal movement of the slider body 18 in either direction will cause the fastener member engaging prong portion to be yieldingly thrust into the next adjacent space between the fastener members 17.

From the above description, it will clearly appear that I have provided a slider construction wherein the locking means is controlled by a bail which is readily and conveniently swingable about an axis disposed longitudinally of the slider. It will likewise appear that the slider may be effectively locked by urging the bail from the intermediate unlocked position shown in Fig. 2 toward either of the extreme positions shown in Figs. 1 and 4 respectively sufficiently to permit the latch spring member 32 automatically to complete the locking engagement of the locking member 33 with either of the two stringers 11 or 12 and that, in either of the two locking positions, the prong portions 35 or 36 are resiliently or yieldingly maintained in their locking position by the latch spring member 32. Likewise, when the slider is locked, it may be unlocked by swingably urging the bail 26 from either of the two extreme locked positions toward the intermediate position shown in Fig. 2 sufficiently to permit the latch spring member 32 to complete the unlocking function by bringing the bail to the position shown in Fig. 2 and yieldingly to maintain the bail in that position.

It is, of course, to be understood that the above-described structure is merely illustrative and in no wise limiting and that I desire to comprehend within my invention all modifications included within the scope of the appended claims.

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

1. In a slider for slide fasteners, a slider body having therein a longitudinally disposed fastener member receiving channel, manually engageable pull member pivoted to said slider body, locking means on said pull tab movable into and out of said channel by swinging movement of said pull member, and means including a spring carried by the slider and operating directly on said pull member to urge said locking means into locking position in said channel from positions adjacent said locking position and yieldingly to retain said locking means in said locking position.

2. In a slider for slide fasteners, a slider body having therein a longitudinally disposed fastener member receiving channel, a manually engageable pull member pivoted to said slider body, locking means on said pull member movable into and out of said channel by swinging movement of said pull member, cam means on said pull member having a plurality of flat surfaces defining unlocked and locking positions of said pull member and said locking means, and a leaf spring carried by the slider and engaging said cam means and cooperating with the flat surfaces thereof for yieldingly urging said pull member to the nearest of a plurality of predetermined positions defined by said flat surfaces from positions between said predetermined positions and yieldingly maintaining said pull member in such predetermined positions for locking and unlocking said slider.

3. In a slider for slide fasteners, a slider body having therein a longitudinally disposed fastener member receiving channel, a bail member manually swingable about an axis disposed longitudinally with respect to said slider, said bail having thereon locking means movable into and out of said channel by swinging movement of said bail, latch cam means associated with said locking means and having thereon a plurality of flat surfaces, and a leaf spring engaging said latch cam means and cooperating with the flat surfaces thereof for yieldingly urging said bail to the nearest of a plurality of predetermined positions from positions between said predetermined positions and yieldingly maintaining said bail in such positions for locking and unlocking said slider.

4. In a slider for slide fasteners, a slider body having therein a longitudinally disposed fastener member receiving channel, a longitudinal bore extending from end to end thereof, a locking

member receiving chamber communicating with intermediate portions of said bore and said channel, a bail member having an intermediate loop portion outside said body and having a straight portion pivotally supported in said longitudinal bore, a locking member non-rotatably secured to the straight portion of said bail and disposed in said locking member receiving channel and rotatable therein upon swinging movement of said bail for movement into and out of said channel for engaging and disengaging fastener members therein, said locking member having latch cam means non-rotatably associated therewith, and spring means engaging said cam means for yieldingly maintaining said bail in a plurality of positions for locking and unlocking said slider.

5. In a slider for slide fasteners, a slider body having therein a longitudinally disposed fastener member receiving channel, having a longitudinal bore extending from end to end thereof and having a locking member receiving chamber communicating with intermediate portions of said bore and said channel, a bail member having a loop portion disposed outside said body and having a straight portion pivotally supported in said longitudinal bore, a bifurcated locking member non-rotatably secured to a straight portion of said bail and disposed in said locking member receiving chamber for rotation therein upon swinging movement of said bail in either direction for movement into and out of said channel for engaging and disengaging the fastener members therein, latch cam means on the straight portion of said bail having a plurality of flat surfaces, and a leaf spring engaging said latch cam means and cooperating with the flat surfaces thereof for yieldably urging said bail to the nearest of a plurality of predetermined positions and for yieldingly maintaining said bail in such positions for locking and unlocking said slider.

6. In a slider for slide fasteners, a slider body having therein a longitudinally disposed fastener member receiving channel, a bail member having a manually engageable portion disposed outside said slider body and having a straight portion pivoted on a substantially longitudinal axis in said slider body, locking means associated with said bail and disposed entirely within said slider body and movable into said channel to lock said slider and out of said channel to unlock said slider by swinging movement of said bail for locking and unlocking said slider by engagement with and disengagement from fastener members in said fastener member receiving channel, and means carried by said slider yieldingly urging said locking member from positions intermediate said locking and unlocking positions to the nearest of said positions and yieldingly maintaining said locking member in said nearest position.

7. In a slider for slide fasteners, a slider body having therein a fastener member receiving channel, a bail connected with said slider for swinging movement through substantially 180 degrees of arc, a rotary locking member on said bail and movable therewith for locking engagement with fastener members in said channel in a plurality of positions of said bail and for withdrawal from locking engagement therewith in at least one position of said bail and means carried by said slider and cooperating with said bail yieldingly to urge said locking member from positions intermediate said aforesaid positions to the nearest of said aforesaid positions and yieldingly to maintain said locking member in said nearest position.

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