Nov. 9, 1948. O. FIRING 2,453,660

SLIDER FOR SLIDE FASTENERS

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Fig. 1.

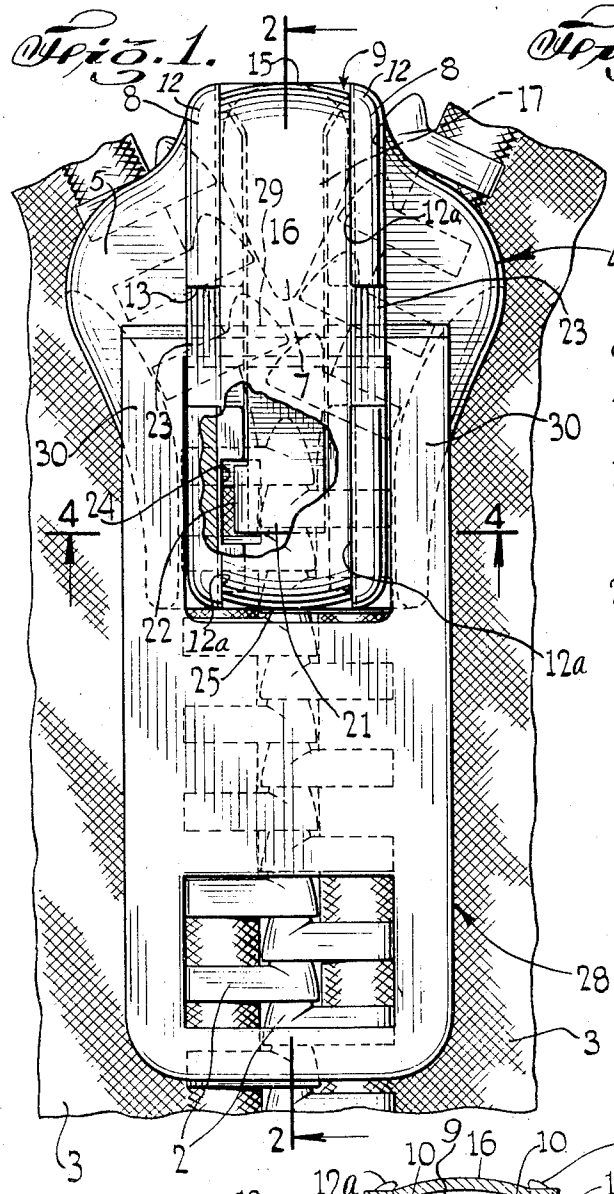


Fig. 2.

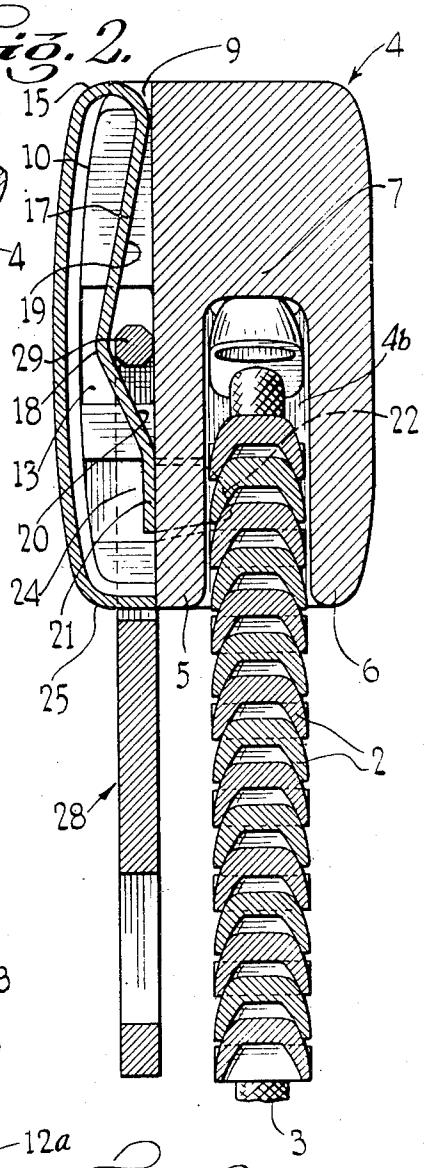
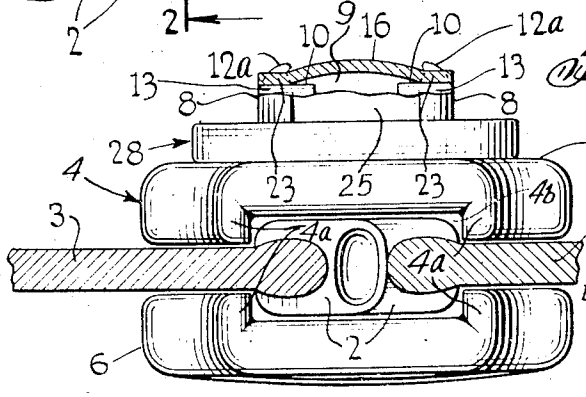


Fig. 3.



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Fig. 5.

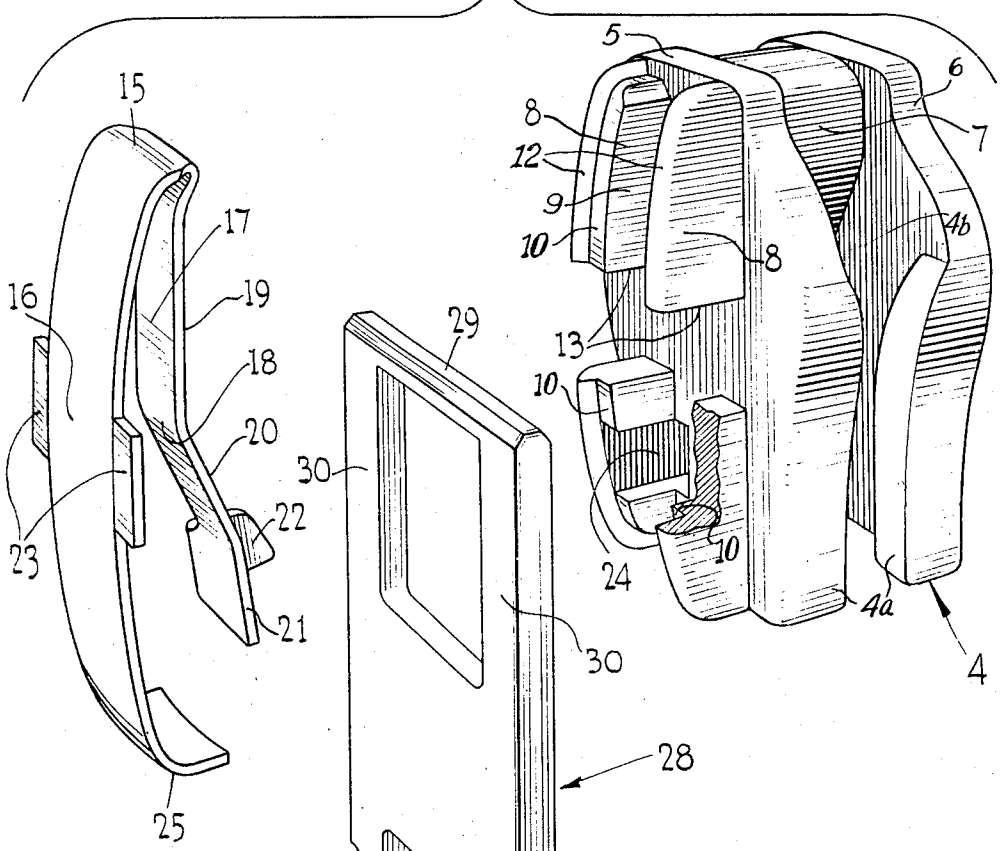
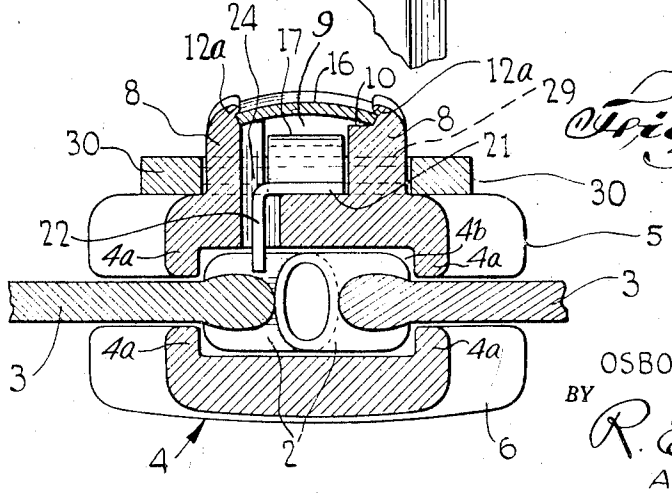


Fig. 4.



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SLIDER FOR SLIDE FASTENERS

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13 Claims. (Cl. 24—205.5)

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This invention relates to slide fasteners, and particularly. to an improved slider therefor which may be adapted for use either as a locking or non-locking type.

Various types of automatic lock sliders have been heretofore suggested and used. While some of these lock sliders have been practical and satisfactory in their use, they have been relatively expensive in their construction and difficult to assemble, primarily due to the fact that they consisted of a multiplicity of parts. Also. in such lock sliders, the locking element usually presented, on the wall of the slider, a protruding portion which is objectionable in that it increases the over-all thickness of the slider which, for various reasons, is undesirable.

Accordingly, it is the general object of the present invention to provide an automatic lock slider in which all of the above mentioned disadvantages are eliminated, and at the same time, a lock slider which is efficient and effective in its use.

It is another object of the invention to provide an automatic lock slider consisting of a minimum number of parts which can be easily and quickly assembled.

It is a further object of this invention to provide an automatic lock slider in which the locking element protrudes a minimum distance above the slider body so as to provide a relatively flat upper surface on the slider and which is constructed so as successfully to withstand contact with and pressure applied by flatirons, laundering equipment and other like instrumentalities or objects without damage to the slider or to the overlying plies of textile material as, for example, in slide fasteners incorporated in trouser flies and skirt plackets.

It is a more specific object of this invention to provide an improved automatic lock slider in which the locking means consists of an elongated thin strip of resilient material which is bent upon itself so as to provide a combined cap portion and locking element so assembled and arranged that the cap portion encloses the locking element so as to protect the same from foreign elements and to enhance the appearance of the slider.

It is still a further object of this invention to provide a pull mounting member for sliders having a locking element integrally arranged therewith wherein the locking element can be mounted selectively during assembly so as to provide either a lock slider or a non-locking slider.

Various other objects and advantages of this invention will be more apparent in the course of

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the following specification, and will be particularly pointed out in the appended claims.

In the accompanying drawings, there is shown for the purpose of illustration, one embodiment which my invention may assume in practice.

In the drawings:

Fig. 1 is a plan view of a slide fastener having the improved slider of my invention incorporated therewith partly in section;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is an end view partly in section of my improved slider;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1; and

Fig. 5 is an isometric view of the locking element, the pull member and the slider body before they are assembled, showing them in alignment for assembling.

Referring more particularly to the drawings, there is shown in Fig. 1 a conventional type of slide fastener comprising cooperating rows of spaced interlocking fastener elements 2, attached to the opposed beaded edges of tapes or stringers 3. There is arranged on the rows of fastener elements, a slider for longitudinal movement in opposite directions for opening and closing the fastener in a manner well-known to those skilled in the art. Such a slider consists generally of a channeled body member 4 consisting of spaced-apart upper and lower wings 5 and 6, respectively, which are flanged at their opposite edges, as at 4a, and connected at the top end thereof by means of a V-shaped neck 7, so as to provide a Y-shaped channel 4b in the slider.

According to the present invention, there is positioned on the outer side of the top or upper wing 5, a pair of spaced-apart longitudinally extending lugs 8 so as to provide an open ended space or channel 9 therebetween. As more clearly shown in Fig. 4, there is arranged on the inner side of each of the lugs 8 a ledge or shelf 10 which extends substantially throughout the length thereof and the portion of each of the lugs immediately next to the shoulder or ledge extends upwardly so as to provide a flange portion 12. Intermediate the length of each of the lugs 8 substantially centrally thereof, there is arranged therein an elongated recess 13 with these recesses positioned directly opposite to and in alignment with each other and provided for a purpose hereinafter to be described.

As shown more clearly in Fig. 2 of the drawings, there is provided a combined cap and locking member consisting preferably of an elongated rel-

atively thin strip of an inherently resilient piece of metallic material bent upon itself substantially centrally thereof as at 15 so as to provide two spaced-apart portions, namely, cap portion 16 and a locking element or portion 17. The locking portion 17 is preferably arched intermediate the length thereof as at 18, so as to provide oppositely inclined surfaces 19 and 20 to either side thereof. The extreme outer or free end of the locking element preferably terminates in a flat portion 21 and there is formed on one side of this flat portion, an angularly disposed locking pin or prong 22. The cap portion 16 is preferably bowed longitudinally thereof and has preferably an arcuated cross-section as shown in Fig. 4 and is wider than the locking portion 17. Centrally of the cap portion 16, there is arranged in opposed relation on either side thereof, an outwardly projecting lug portion 23, the purpose of which will be later described.

The cap portion 16 of the combined cap and locking member, rests upon the opposed shoulders or ledges 10 of the lugs 8, so as to be positioned at a spaced distance from the top wing 5 of the slider, and is held in position thereon by the flanges 12 with the extreme upper ends 12a thereof being bent inwardly and downwardly over the upper surface of the cap, as shown in Fig. 4, of the drawings, so that the cap portion 16 is held securely in position on the slider body. It will be seen that the cap portion 16 bridges the recesses 13 in the lugs 8 and that the outwardly projecting portions 23 carried by the cap portion, extend over the top of the recesses to the outer sides of the lugs, as shown in Figs. 1 and 3 of the drawings. The lower or free end of the cap portion 16 preferably is turned downwardly and inwardly as at 25, so as to enclose the front or bottom end of the channel or space 9 between the lugs 8 at the lower end of the slider, and the folded portion 15 at the opposite end of the combination member encloses substantially the top end of the channel 9 at the upper end of the slider, as clearly shown in Fig. 2. The locking portion 17 extends between the lugs 8 and is movably disposed therebetween.

The arched portion 18 of the locking portion 17 is disposed directly opposite and in alignment with the center of the recesses 13 of the lugs 8, for a purpose hereinafter to be described. The locking pin or prong 22 on the outer free end of the locking portion 17 is disposed adjacent the lower end of the slider body and extends through an aperture 24 in the top wing adjacent the inner side of one of the lugs 8 and into the Y-shaped channel 4b of the slider body, as shown in Figs. 2 and 4. The flat portion 21 of the locking portion 17 rests preferably on the outer surface of the upper wing so as to limit the inward movement of the locking prong 22 into the slider.

There is provided a pull member or tab 28 which may be of any desired construction or design but the end of the pull which supports the pivotal portion 29 thereof, preferably terminates in side arms 30 which are spaced apart sufficiently to clear the outer sides of the lugs 8 so that the pull may be disposed against or parallel to the upper wing of the slider, as shown in Figs. 1, 2 and 3. The pivotal portion 29 of the pull is disposed in the recesses 13 of the lugs 8, between the arched portion 18 of the locking element 17 and the upper wing of the slider and, preferably, has such a cross-section that it is disposed freely within the recesses 13, particularly when in the center thereof, as shown in Fig. 2.

It will be seen that the locking element 17 in cooperation with the end walls of the recesses 13, provides a mounting means for the pull member and prevents displacement of the pivotal portion 29 thereof from the slider body.

In assembling the slider, the pull member 28 is first positioned on the slider body with the pivotal portion 29 thereof disposed in the recesses 13 and extending transversely of the slider body. The combined cap and locking member is then mounted with the locking element 17 positioned in the space 9 between the lugs 8 and with the locking pin or prong 22 disposed in the aperture 24 of the slider body. The cap portion 16 is seated on the shoulders or ledges 10 and the upper ends of the flanges 12 are then bent inwardly and downwardly by a suitable tool over the outer surface of the cap portion and this completes the assembling operations. Due to the fact that the combined cap 16 and locking element 17 is made of a material which is inherently resilient, it will be understood that the cap portion is normally spaced a greater distance from the locking element before assembly, as shown in Fig. 5, than after assembly so as to maintain normally the locking pin 22 in the channel of the slider when assembled. It follows naturally that the cap portion is then forced to position on the shoulders or ledges 10 against the resilient or spring action of the member at the time of assembly with the flat portion 21 of the locking element seated on the top wing of the slider, as shown in Fig. 2.

In actuating the slider by means of the pull 28 to open the fastener, the pivotal portion 29 of the pull cooperates with the angular surface 20 of the arched portion 18 to move the locking pin or prong 22 out of the channel of the slider and out of engagement with the fastener elements therein, so as to permit the slider to be moved along the fastener elements 2. When the slider is moved in the direction to close the fastener with the pull disposed in a direction opposite to that shown in Fig. 2, it will be seen that the pivotal portion 29 thereof cooperates with the angular surface 19 to move the locking prong 22 to disengaged position.

In the construction shown, it will be seen that the slider body is so designed and arranged as to facilitate easily and conveniently the die casting thereof and it is preferable that the slider body be made by such die casting, thereby reducing the cost of the same to a minimum.

An important aspect of the present invention is that it may be so assembled as to provide a non-locking slider, if desired. In other words, the slider of the present invention may be adapted for universal use, thereby eliminating the need for various types of slider bodies. If such a non-locking slider is desired, all that is necessary is to bend further together the portions 16 and 17 at the fold 15 so as to set the same, whereby they lie substantially in superposed relation and so that the locking pin or prong 22 will not extend into the channel of the slider and extends merely a slight distance into the aperture 24 in the top wing. In such case, it will be seen that the locking pin or prong 22 is ineffective and does not interfere with the fastener elements as they pass through the channel of the slider and, consequently, a non-locking slider is provided.

As a result of my invention, it will be seen that there is provided an automatic lock slider having a combined cap, locking and pull mounting member. In other words, there is provided a mount-

ing member for the pull member 28, a locking element 17 having a prong 22, and a cap portion 16 for enclosing the locking element, so as to prevent any foreign elements or other objects from interfering with the action thereof. In other words, the locking element is completely enclosed by the cap portion 16 so as to eliminate any damage to the locking element 17, thereby insuring effective locking of the same at all times.

It will be seen that our improved automatic lock slider consists of a minimum number of parts, namely, three, which is another important aspect of the present invention. While other three-part automatic lock sliders have been heretofore suggested and used, the locking element of such sliders was usually exposed and unprotected, which resulted not only in detracting from the appearance of the slider, but also was subject to interference by foreign elements and other objects. Also, such lock sliders were flimsy and weak in their construction. In the present invention, there is not only provided a three-piece automatic lock slider, but one which has a smooth or flat-appearing outer surface, thereby providing a slider which is enhanced in appearance. Furthermore, the lock slider of the present invention is strong and rugged, due primarily to the lugs 8, which aid in housing the locking element. As hereinbefore stated, and due to the construction thereof, the over-all thickness of the slider of the present invention is reduced to a minimum so as to eliminate any bulky or unsightly effect.

While I have shown and described in this application, one embodiment which my invention may assume in practice, it will be understood that this embodiment is merely for the purpose of illustration and that other forms may be devised within the scope of my invention as set forth in the appended claims.

What I claim as my invention is:

1. In a slider for slide fasteners of the class described having a body member with an interior channel through which the fastener elements pass for engaging and disengaging the same, and a pull member, a locking device comprising a longitudinally extending inherently resilient member mounted on the outer side of said body member, said resilient member bent upon itself substantially centrally thereof so as to provide two spaced-apart portions, one of said portions being movable relative to said slider and having an inwardly extending locking pin carried thereby which extends through an aperture in said slider body into the channel thereof and into the path of the fastener elements so as to lock the slider against movement therealong, with the other of said portions being securely attached to said slider body at a spaced distance from the outer side thereof so that said first mentioned portion is disposed yieldably between said slider body and said second mentioned portion, said pull member having the pivotal portion thereof positioned between said first mentioned movable portion and said slider body for moving the movable portion together with the locking pin out of said channel when a pull is exerted thereon.

2. In a slider for slide fasteners of the class described having a body member with an interior channel through which the fastener elements pass for engaging and disengaging the same, and a pull member, a locking device comprising a longitudinally extending inherently resilient member bent upon itself centrally thereof so as to provide a pair of spaced-apart portions, means

extending from the outer side of one of the slider wings for attaching one of said portions thereto at a spaced distance therefrom, the other of said portions constituting the locking element which is disposed yieldably between said first mentioned portion and the outer side of said wing so as to be freely movable toward and away from the slider body, a pin portion carried by said last mentioned portion adjacent the outer end thereof which projects normally into the channel of said slider, that portion of said resilient member which constitutes the locking element having an arched portion arranged therein intermediate the length thereof, said pull member connected to the slider having its pivotal portion disposed between the arched portion of said locking element and the slider body whereby the pin portion of said locking element is moved out of said channel when a pull is exerted on said pull.

3. In a slider for slide fasteners of the class described, a combination pull mounting, cap and locking element, said element comprising an elongated inherently resilient member bent upon itself intermediate the length thereof so as to provide a pair of spaced-apart superimposed portions with one of said portions adapted to be securely attached to said slider at a spaced distance from the outer surface thereof, the other of said portions comprising the locking element disposed yieldably between said cap portion and said slider body so as to be movable relative thereto and terminating in an angularly extending pin portion.

4. In a slider for slide fasteners having a slider body with a channel arranged therethrough, a spring locking element comprising an elongated relatively thin strip of resilient material bent upon itself so as to provide a pair of spaced-apart portions, means carried by the outer wall of one of the slider wings for attaching one of said portions thereto at a spaced distance therefrom with the other of said portions disposed yieldably between said first mentioned portion and said slider body so as to be movable relative to both said slider body and said first mentioned portion, and a pin portion arranged on the outer free end of said last mentioned portion.

5. In a slider for slide fasteners having a slider body with a channel arranged therethrough, a spring locking element comprising an elongated relatively thin strip of resilient material bent upon itself so as to provide a pair of spaced-apart portions, one of said portions extending substantially the length of said slider body, means for attaching said portion to the outer side of one of the wings of said slider at a spaced distance therefrom with the other of said portions disposed yieldably between said first mentioned portion and said slider body so as to be movable relative to both said slider body and said first mentioned portion, said first mentioned portion acting as a cover for said last mentioned portion so as to protect the same, and a pin portion carried by said last mentioned portion adjacent the outer free end thereof.

6. In a slider for slide fasteners having a slider body with a channel arranged therethrough, a spring locking element comprising an elongated relatively thin strip of resilient material bent upon itself so as to provide a pair of spaced-apart portions, means extending from the outer wall of one of the slider wings for attaching one of said portions thereto at a spaced distance therefrom with the other of said portions disposed yieldably between said first mentioned portion

and said slider body, a pin portion carried by said last mentioned portion which projects normally into the channel of the slider, an arched portion arranged in said last mentioned portion intermediate the length thereof so as to provide inclined surfaces on said portion, a pull member having its pivotal portion positioned between the arched portion of said last mentioned portion and the slider body, said pivotal portion of the pull member adapted to be forced between said inclined surfaces and said slider body when a pull is exerted on said pull member whereby the pin portion of the locking element is urged by a camming action out of the slider channel in the movement of the pull in either direction.

7. In a slider for slide fasteners having a slider body with a channel arranged therethrough, a spring locking element comprising an elongated relatively thin strip of material bent upon itself so as to provide a pair of spaced-apart portions, means extending from the outer wall of one of the slider wings for attaching one of said portions thereto at a spaced distance therefrom with the other of said portions disposed yieldably between said first mentioned portion and said slider body, a pin portion carried by said last mentioned portion which projects normally into the channel of the slider, an arched portion arranged in said last mentioned portion intermediate the length thereof, a pull member having a pivotal portion, and means arranged on the outer side of the wing of said slider forming, in conjunction with said arched portion, a free mounting for the pivotalal portion of said pull member.

8. In a slider for slide fasteners having a slider body with a channel through which the fastener elements are adapted to pass for engaging and disengaging the same, a pair of spaced-apart longitudinally extending lugs arranged on the outer side of one of the wings of said slider body, a longitudinally extending inherently resilient combined cap and locking member bent upon itself so as to provide a pair of superimposed portions, one of said portions being attached to said lugs and bridging the same so as to provide a cap which encloses the space between said lugs throughout substantially the length thereof, the other of said portions being disposed yieldably between said lugs and having a pin portion carried thereby which is adapted to act as a locking element, said last mentioned portion characterized in that it is adapted to be arranged selectively so that the pin carried thereby projects normally into the channel of the slider so as to provide a lock slider, or arranged so that the pin is disposed normally outside the slider channel so as to provide a non-locking slider whereby an all-purpose slider is provided.

9. In an automatic lock slider for slide fasteners of the class described having a body member with an interior channel through which the fastener elements pass for engaging and disengaging the same, and a pull member, a locking device comprising a longitudinally extending lug arranged on the outer side of one of the wings of said slider body having a recess arranged therein intermediate the length thereof, a longitudinally extending inherently resilient combined cap and locking member mounted on said lug and bridging said recess therein, said last mentioned member bent upon itself so as to provide spaced-apart portions, one of said portions constituting the locking element which is freely movable toward and away from the slider body having a pin portion arranged adjacent the outer end thereof which projects normally into the channel of said slider, means for attaching the other of said portions to said lug whereby said portion acts as a cap therefor, said pull member having its pivotal portion disposed transversely of the recess in said lug between said locking element and said slider body whereby the pivotal portion of said pull is retained against displacement from said recess.

10. In an automatic lock slider for slide fasteners of the class described having a body member with an interior channel through which the fastener elements pass for engaging and disengaging the same, and a pull member, a locking device comprising a pair of spaced-apart longitudinally extending lugs arranged on the outer side of one of the wings of said slider body, each of said lugs having a recess arranged therein in opposed relation intermediate the length thereof, a ledge arranged on the inner side of each of said lugs extending throughout the length thereof, a longitudinally extending inherently resilient combined cap and locking member bent upon itself substantially centrally thereof so as to provide a pair of spaced-apart portions one of said portions which constitutes the cap having its edges positioned on the opposed ledges of said lugs bridging the same so as to enclose the space therebetween with the outer edges of said lugs being bent inwardly toward each other and into engagement with said portion so as to attach securely the same to said slider body, the other of said portions which constitutes the locking element extending yieldably between said lugs so as to be freely movable toward and away from the slider body, a pin portion carried by said last mentioned portion adjacent the outer free end thereof which projects normally into the channel of said slider, said pull member having its pivotal portion disposed transversely of the recesses in said lugs between said locking element and said slider body whereby the pivotal portion of said pull is retained against displacement from said recess.

11. In an automatic lock slider for slide fasteners of the class described having a body member with an interior channel through which the fastener elements pass for engaging and disengaging the same, and a pull member, a locking device comprising a pair of spaced-apart longitudinally extending lugs arranged on the outer side of one of the wings of said slider body, each of said lugs having a recess arranged therein in opposed relation intermediate the length thereof, a longitudinally extending inherently resilient combined cap and locking member positioned between said lugs and bridging said recess therein, said last mentioned member bent upon itself so as to provide spaced-apart portions, one of said portions constituting the locking element disposed yieldably between said lugs so as to be freely movable toward and away from the slider body between said lugs, a pin portion arranged adjacent the outer end of said locking element which projects normally into the channel of said slider, means for attaching the other or cap portion of said last mentioned member to said lugs adjacent the other sides thereof so as to bridge and enclose the space therebetween, said pull member having its pivotal portion disposed transversely of the recesses in said lugs between said locking element and said slider body whereby the pivotal portion of said pull is retained against displacement from said recess.

12. In a slider for slide fasteners having a

slider body with a channel through which the fastener elements are adapted to pass for engaging and disengaging the same, a pair of laterally spaced-apart longitudinally extending lugs arranged on the outer side of one of the wings of said slider body so as to provide a longitudinally extending space therebetween, a longitudinally extending locking element mounted on and securely attached to said lugs adjacent the outer sides thereof at a spaced distance from the outer surface of said wing and extending yieldably into the space between said lugs and having a portion carried thereby which projects normally into the channel of the slider to lock the same, and means for moving said locking element to unlocked position.

13. In a slider for slide fasteners having a slider body with a channel through which the fastener elements are adapted to pass for engaging and disengaging the same, a pair of spaced-apart longitudinally extending lugs arranged on the outer side of one of the wings of said slider body so as to provide a space therebetween, a ledge arranged on the inner side of each of said lugs extending substantially throughout the length thereof, a spring locking element consisting of an elongated relatively thin strip of material having the opposed edges of one end thereof positioned on the opposed ledges of said lugs so as to bridge the same with the other end of said strip extending yieldably into the space therebetween, means for securely attaching said locking element to said lugs, said locking element having a portion carried thereby which projects normally into the channel of the slider to lock the same, and means for moving said locking element to unlocked position.

OSBORNE FIRING.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,963,852	Jones	June 19, 1934
2,373,523	Winterhalter	Apr. 10, 1945

FOREIGN PATENTS

Number	Country	Date
190,601	Switzerland	July 16, 1937
369,200	Great Britain	Mar. 8, 1932