June 15, 1937. S. H. NORTON 2,083,919

SLIDE FASTENER

Filed May 4, 1935

Fig. 1.

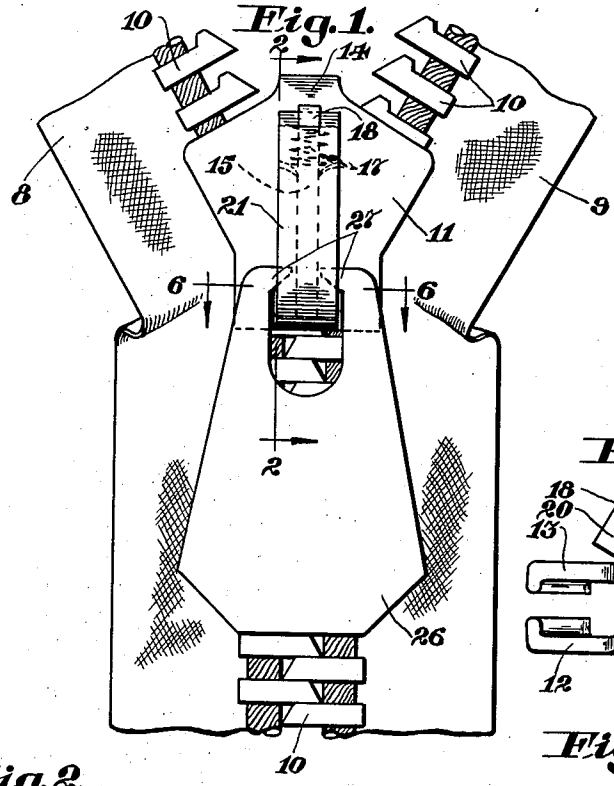


Fig. 7.

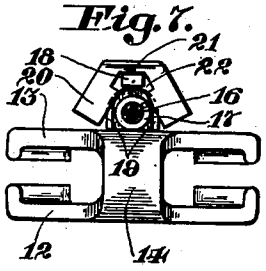


Fig. 2.

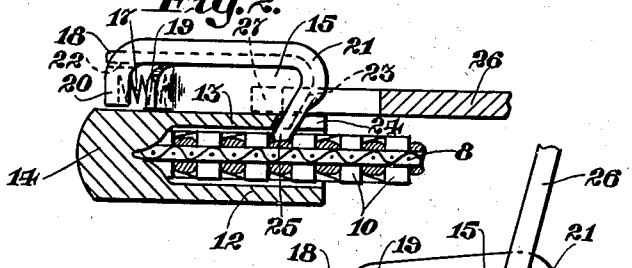


Fig. 4.

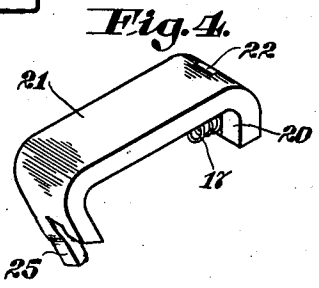


Fig. 3.

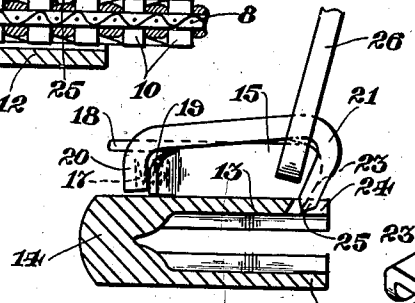


Fig. 5.

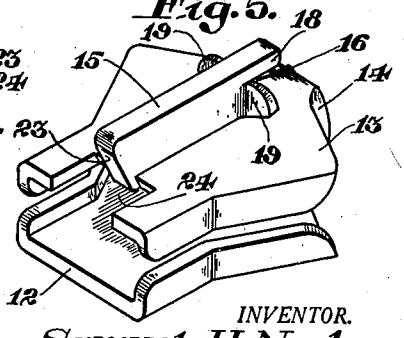
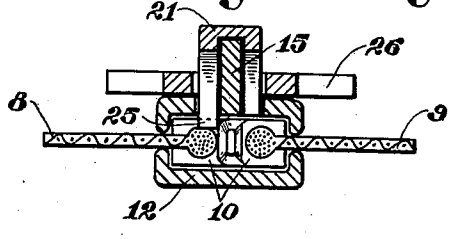


Fig. 6.



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SLIDE FASTENER

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Application May 4, 1935, Serial No. 19,833

8 Claims. (Cl. 24—205)

This invention relates to slide fasteners and particularly to improved automatic locking sliders for slide fasteners.

Locking sliders have been devised and are on the market, which operate without any attention from the user. Such locking devices usually embody a locking member pivotally mounted on the slider and a spring normally urging the locking member around the pivot to its locked position, in combination with a pull tab connected to the locking member for lifting it out of locking engagement. While some of these locking devices are generally satisfactory, difficulty has been experienced in the sticking of the locking members, making it difficult to move the slider. This is particularly true in certain applications where the force applied to the pull tab in starting to open the fastener almost is parallel to the fastener stringers. In that case there is no component of the pulling force tending to lift the locking member upwardly to its unlocked position, and thus the locking member is not disengaged.

It is one object of my invention to devise an automatic locking slider which will avoid sticking in circumstances such as those described above.

Another object of the invention is to provide an improved automatic lock slider in which a stress on the fastener will tend to urge said locking member more tightly to locked position, thus avoiding any danger of the locking member kicking out.

Other objects are to provide an automatic lock slider having the advantages above set forth in which the entire assembly will be very strong and rugged, in which a stronger spring may be incorporated, and which will have all of the parts visible during the process of assembly. The latter feature permits ready inspection of the device during and after assembly so that poor jobs are more easily avoided.

In the accompanying drawing I have shown for purposes of illustration one embodiment which my invention may assume in practice. In this drawing:

Fig. 1 is a plan view of a slide fastener equipped with my improved lock slider;

Fig. 2 is a longitudinal central section on line 2—2 of Fig. 1, showing the locking member in locked position;

Fig. 3 is a view similar to Fig. 2, showing the locking member in unlocked position;

Fig. 4 is a perspective view of the locking member detached;

Fig. 5 is a perspective view of the slider body member;

Fig. 6 is a cross-section on line 6—6 of Fig. 1; and

Fig. 7 is a rear end view of the slider.

The slide fastener shown comprises a pair of fabric tapes 8, 9 having on their adjacent edges cooperating rows of fastener elements 10. The form and spacing of these elements may be in accordance with any known design and will not be described herein. It is sufficient to say that they are adapted to be brought together and progressively engaged and disengaged by movement of a slider. The slider shown herein comprises a channeled body member 11, which has the form of two parallel wings 12 and 13 flanged at their sides and integrally connected by a neck 14 at one end. The slider body can also be of any convenient design. On the upper wing 13 of the slider there is formed the lug 15, which extends along the longitudinal center line of the slider and projects outwardly therefrom a suitable distance. This lug preferably is elongated and terminates just short of the ends of the slider. The rear end is formed to provide a recess or seat 16 for a spring 17, and above the spring the lug extends to form a pin 18. In forming the recess 16 the material of the lug is spread apart to provide wings 19, which form abutments for the downturned portion 20 of the locking member 21. As shown in Fig. 7, the portion 20 of the locking member has a hole 22 receiving the pin 18 and the parts may be assembled by making the end of the locking member in bifurcated form and bending the two sides together, as illustrated in Fig. 7. The spring 17 must, of course, be placed in position before this bending operation. The forward end of the lug 15 has an inclined surface 23 sloping inwardly toward the slider channel and in the backwardly direction. The slider body is cut away adjacent this end of the lug to form the recess 24. The locking member 21 is of channel shaped cross-section, as shown in Fig. 6, and extends throughout the length of the lug 15, fitting over the same like a cap. The locking member is bent inwardly and somewhat backwardly so as to lie parallel to the inclined surface 23 on the lug. The contacting inclined surfaces on the lug and locking member cooperate to urge the locking member inwardly as by the spring 17. The extreme end of the locking member is shaped to provide the locking pin 25, which is adapted to engage between fastener elements inside the slider channel to lock the slider. It will be noted that the force which comes against

the locking end 25 by pressure of the fastener members when the fastener is under a lateral stress, is applied so as to be substantially normal to the inclined surface 23. Thus any tendency for the locking member to kick out is avoided and furthermore is prevented because any pressure coming on the locking member will have a component in the backwardly direction, which tends to make the locking member "dig in" rather than "kick out".

In Fig. 2 the locking member is shown at its backward and inward position as when locked. In Fig. 3, it is shown in its unlocked position, the forward end being moved outwardly and the whole locking member having shifted forwardly against the abutments 19.

The lock is controlled automatically without attention from the operator by means of the pull tab 26, which has the attaching claws 27 engaged under the edges of the locking member. It will be noted that any normal pull applied to the locking member either in the outward direction or on an incline, will tend to move the member forwardly and outwardly to its unlocked position. Even when the pull is parallel to the fastener, the locking member will be pulled to its forward position and will automatically kick out of locking position so that the slider will not stick.

Wherever movement of the locking member "backwardly and forwardly" is referred to in the specification and claims the intention is to define movement of the locking member lengthwise with respect to the slider and fastener. Wherever movement of the locking member "outwardly" is referred to the intention is to designate the tilting movement of the locking member as illustrated in Fig. 3 in the direction away from the body of the slider.

While I have shown and described in this application, one embodiment which my invention may assume in practice, this embodiment is merely for the purposes of illustration and description, and various 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. A slider for slide fasteners comprising a channeled body member, a locking member connected to said body member and movable longitudinally relative thereto, at least a part of said locking member being movable outwardly, means for normally urging said locking member to locked position, and manual means for moving said locking member longitudinally and outwardly to unlocked position.

2. A slider for slide fasteners comprising a channeled body member and a locking member connected to said body member and movable backwardly and forwardly relative thereto, at least a portion of said locking member being movable outwardly, means for normally urging said locking member to its backward position, means for holding said locking member in locked position when it is in its backward position, and a lock controlling member for moving said locking member forwardly and outwardly to unlocked position.

3. A slider for slide fasteners comprising a channeled body member, a locking member connected to said body member and movable backwardly and forwardly relatively thereto at least a portion thereof being movable outwardly, a spring acting to hold said locking member in its backward position, said body member and locking member having cooperating cam surfaces to force said locking member to its inward locked position when it is moved to its backward position, said cam surfaces permitting relative outward movement of said locking member to unlocked position when said locking member is moved to its forward position, and means for moving said locking member to its forward position.

4. A slider for slide fasteners comprising a channeled body member, a locking member, a lug connecting said locking member to said body member in such a way that the locking member has limited backward and forward movement and relative outward movement on said body member and lug, a spring between the rear end of said lug and said locking member acting to hold said locking member in its backward position, cooperating cam surfaces on the forward end of said lug, and the channeled portion of said locking member for forcing the forward end of said locking member inwardly toward the slider body when the locking member is moved to its rearward position, the forward end of said locking member being shaped to extend into the slider channel and engage between slide fastener members therein to lock the slider, and a pull tab connected to said locking member for operating said slider, said pull tab being engageable with said locking member when moved forwardly to move said locking member to its forward position thereby permitting release of said locking member.

5. A slider for slide fasteners comprising a channeled body member, a locking member connected to said body member and movable backwardly and forwardly relative thereto, the forward end of the locking member being also movable outwardly relative to the body member, means carried by the forward end of said locking member for locking the slider when the locking member is in its inward position and releasing same when in its outward position, and means for preventing outward movement of said locking member when the same is in its backward position.

6. The combination defined in claim 5 and a spring acting to urge said locking member normally to its backward position.

7. The combination defined in claim 5, a spring for normally holding said locking member in its backward position, and a pull tab for said slider engageable with said lug to move the same to its forward position upon a forward movement of said pull tab.

8. A slider for slide fasteners comprising a channeled body member with parallel wings connected together at one end, a narrow lug projecting outwardly from and extending along the longitudinal central part of one wing, a locking member positioned over said lug and having a pin and hole connection therewith at the rear end of the slider whereby relative longitudinal movement is permitted, the forward end of said lug being inclined backwardly and inwardly toward said slider, and the adjacent portion of said wing being cut away to afford access to the interior channel of the slider, the forward end of said locking member being bent inwardly and backwardly parallel to said sloping end surface of said lug, and being shaped to provide a locking prong extending through said cut away portion of the wing, said inclined surfaces of the forward end of said lug and locking member cooperating to prevent relative outward movement

of said locking member when the locking member is in its backward position, and also tending to urge the forward end of said adjacent end of said locking member inwardly to locked position when said locking member is urged backwardly, a spring for normally urging said locking member to its backward position, and a pull tab connected to said locking member and adapted to counteract said spring when the slider is pulled forwardly to permit said locking member to move to unlocked position, said cam surfaces on the forward end of said lug and locking member also limiting relative outward movement of said locking member.

SAMUEL H. NORTON.