

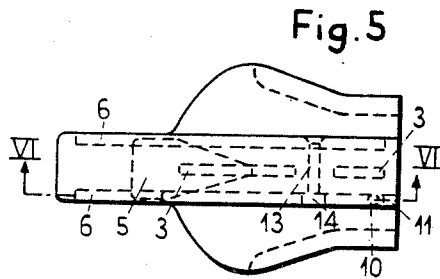
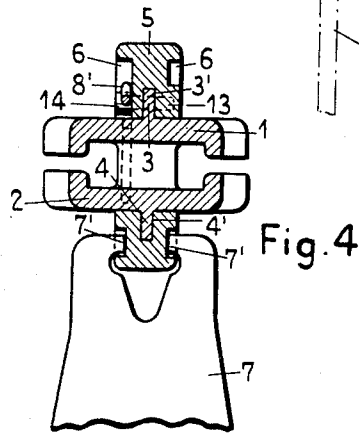
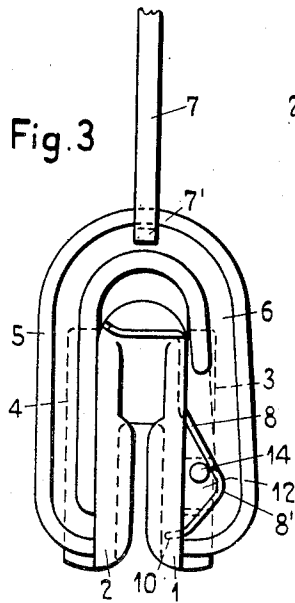
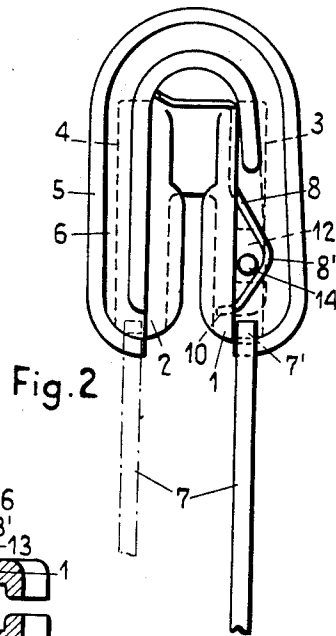
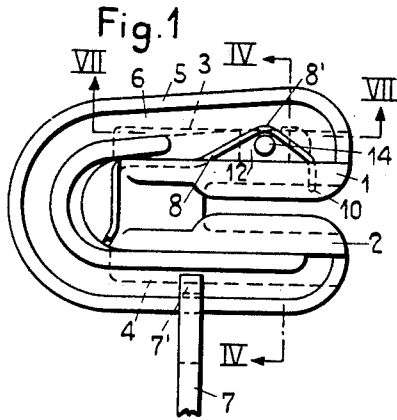
Dec. 21, 1954

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SLIDE FOR ZIPPERS

2,697,261

Filed May 25, 1951

3 Sheets-Sheet 1



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Fig. 6

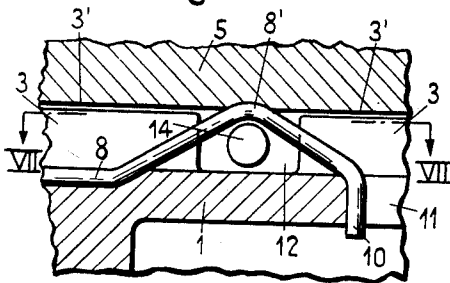


Fig. 7

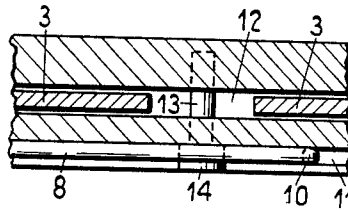


Fig. 8

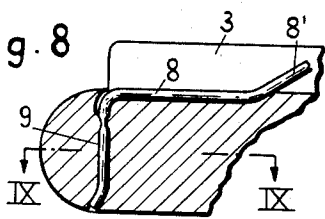


Fig. 9

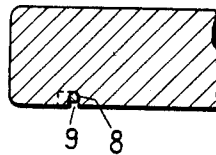


Fig. 10

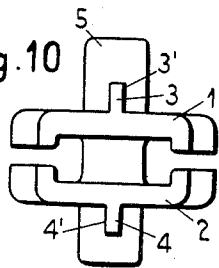


Fig. 11

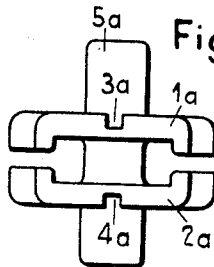


Fig. 12

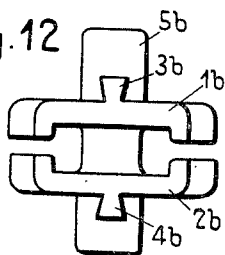
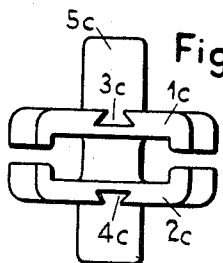


Fig. 13



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Fig. 14

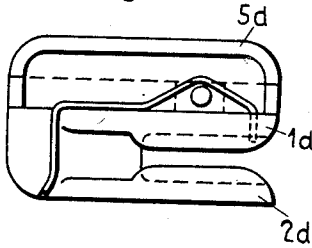


Fig. 15

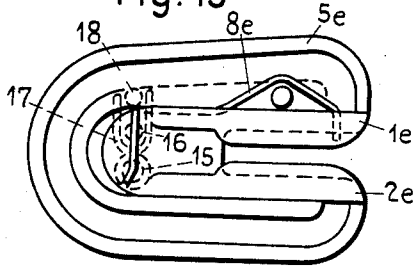


Fig. 16

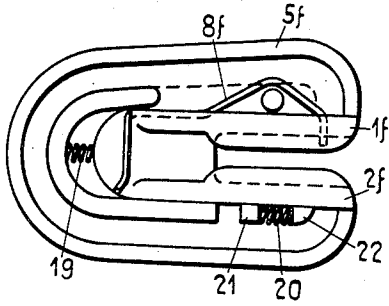


Fig. 17

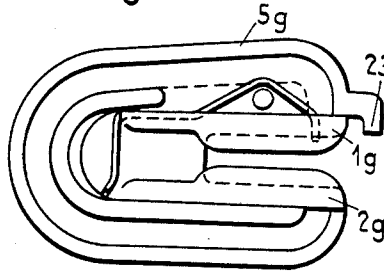


Fig. 18

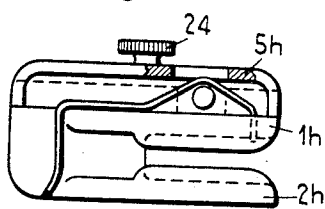
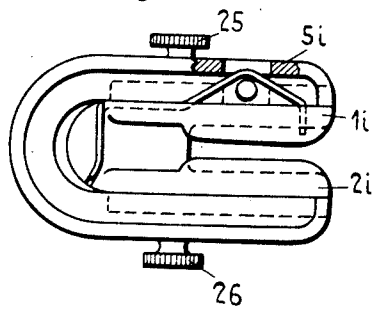


Fig. 19



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SLIDE FOR ZIPPERS

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Application May 25, 1951, Serial No. 228,151

Claims priority, application Switzerland
September 26, 1950

6 Claims. (Cl. 24—205.14)

The present invention refers to a slider with locking means for zippers or slide fasteners which allows engagement and release of said locking means at the end of any movements of the slider relative to the slide fasteners.

The movements of the well-known zipper or fastener slider are always free and only at the end of the slider movement for opening or closing of the fasteners a lock is actuated by a pulling element which is provided on one or both sides of the sliding plates of the slider.

The slider according to the invention may be actuated at will and comprises a spring which passes through at least one of the two plates of which the slider consists, one end of said spring in the form of a detent engaging the space between the teeth of the fasteners, the latter cooperating with the slider in any position thereof while said slider will be released by a pull in whatever direction.

The invention will now be described in greater detail and shown by several embodiments.

Figs. 1, 2 and 3 show the slider in side view with locking means represented in different positions.

Fig. 4 shows a cross section of the slider taken along line IV—IV of Fig. 1.

Fig. 5 shows a top view of the slider of Fig. 4.

Fig. 6 is a fragmentary longitudinal section taken along line VI—VI of Fig. 5 and shown on a larger scale.

Fig. 7 shows on an enlarged scale a longitudinal section taken along line VII—VII of Figs. 6 and 1.

Fig. 8 shows a part of the longitudinal section of the slider (rear part).

Fig. 9 shows a similar section of the slider front part taken along line IX—IX of Fig. 8.

Figs. 10, 11, 12 and 13 are front views of the slider which represent different examples of stirrup connections.

Figs. 14, 15, 16 and 17 are side views of different forms of execution of the slider.

Figs. 18 and 19 are side views of two different forms of execution of the slider, with one, respectively, and two buttons for the movement of the slider.

In the embodiment shown in Figs. 1—9 the slider for zippers is provided with two covering plates 1 and 2, which have two ribs running in the direction of the slider movement. These ribs 3, 4 engage the guide slots 3', 4' of the stirrup or bail means 5.

In this stirrup 5 a groove 6 runs along the outer boundary of the stirrup. In this groove a pulling member or organ 7 can slide from the upper to the lower covering plate of the slider structure, in a way, that said member may assume a position which is shown in Fig. 2 in full lines, further the positions seen in Fig. 3 and Fig. 1 and may finally assume another extreme position shown in Fig. 2 by dotted lines.

One of the slider covering plates, as shown in Fig. 1 covering plate 1, carries a control spring 8 made of steel wire or flat steel, which is anchored in end slot 9 (Fig. 8). The anchorage is provided at the rear part of the spring (see Figs. 8 and 9) while the intermediate part of the spring forms a bent part 8', in a way that it provides two legs slanting at an obtuse angle to each other.

This bent spring part 8' is placed exactly in the middle of a slot 12 provided in stirrup or bail 5. Across this bent part passes a pin 13 with head 14 which is fixed on the stirrup 5 and is able to move somewhat in and relative to slot 12. The same movement may be performed by the stirrup 5. The forward end of spring 8 provides a detent or tooth 10 which passes through an opening 11 of the covering plate 1, for engagement within a space

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usually existing between two adjacent fastener elements to lock the slider in this manner against movement.

If now the stirrup 5 is shifted by pulling the member 7 which according to Fig. 2 assumes the position shown in full lines at 7', the pin 13—14 will be displaced and abuts against one of the slanting legs of the bent spring part 8', so that the detent 10 is lifted from its position between two adjacent fastener elements and releases the slider for performing a movement. As soon as the pull on member 7 ceases, the pin 13—14 is returned by spring part 8' to its median position within slot 12, and detent 10 is guided again into a space between adjacent fastener elements for locking the slider thereat.

The pin 13—14 fulfils two tasks; firstly, it lifts the spring out of its locking position and thus allows for the movement of the slider. Secondly, it limits the displacement of the slidable stirrup 5 by abutting against either end wall of slot 12 so that the stirrup cannot move away from the slider and at the same time prevents the spring from being used beyond its limit of elasticity.

The spring 8 fulfils for its part also two tasks. Firstly, it permits locking of the slider on the fastener elements by detent or tooth 10. Secondly, after the movement of the slider with corresponding movement of the stirrup, which is relatively limited, the spring effectuates retraction of pin element 13 to its median position which corresponds to the locking position of detent 10.

In Figs. 10 to 13 are described some forms of embodiment of the covering plates 1, 2 with the stirrup 5 represented in front elevational view.

Fig. 10 is an embodiment which is provided with ribs 3, 4 on the covering plates 1, 2 and the corresponding slots 3', 4' in the stirrup 5.

In Fig. 11 the ribs are provided in the stirrup 5a at 3a, 4a and the slots in the covering plates 1a, 2a.

Figs. 12 and 13 show two similar front views but in which ribs and slots 3b, 4b and 3c, 4c are of dovetail shape and are integral with plates 1b, 2b and stirrup 5c, respectively. In Fig. 13 plates 1c, 2c have correspondingly shaped recesses.

Fig. 14 shows an embodiment in which the stirrup 5d is only provided on one half of the covering plates 1d, 2d. This half may be the upper plate or the lower plate. In Fig. 14 the stirrup or bail is connected to the upper plate 1d.

In this case release or locking operations of the zipper may be executed only at one side, while said operations may take place according to other examples of execution on both sides of the lock slider.

In Fig. 15 a form of embodiment is shown according to which a spring 8e is built in the slider, which has the task of stopping the pin exactly in the middle position. Bail means 5e is connected to plate means 1e, 2e as shown.

In Fig. 16 an embodiment is shown in which there are provided two springs of compensation 19, 20, the spring 19 being placed between the stirrup 5f and the rear side of the two covering plates 1f, 2f and the spring 20 between the stirrup 5f and abutments 21, 22 of the lower plate 2f. These springs 19, 20 serve therefore as a compensation and as a reinforcement of the spring 8f.

In Fig. 17 is shown an embodiment in which the stirrup 5g has a little extension 23, which serves as an abutment in order to limit the longitudinal movement of the stirrup to the outside.

According to the embodiment of Fig. 18, the stirrup 5h has a button 24 on its circumference, which may be formed in one piece with the stirrup or which can be fixed on this stirrup by welding. This button 24 replaces the pull organ 7 of Figs. 1, 2, 3. If the stirrup 5h is pulled by the button 24, the slider will be moved and the locking spring system will operate as already described.

In the embodiment of Fig. 19, the stirrup 5i surrounds at opposite sides the two covering plates 1i and 2i and shows on both sides a button 25, 26, respectively. In this manner the slider may be moved from either side of the zipper. As hereinabove mentioned buttons 25, 26 may be formed integral with the stirrup or fixed to it. It follows from the aforesaid disclosure that the slider

is always locked when at rest, while it is able to slide freely as soon as a pull is exerted by means of member or button 7 or 24 or 25, 26 in lengthwise direction of plate means, such as 1g, 2g (Fig. 17), 1h, 2h (Fig. 18), 1i, 2i (Fig. 19).

It can thus be seen that there has been provided according to the invention an automatic lock slider for slide fastener elements; comprising slider plate means 1, 2 for engaging said slide fastener elements to open and close the same, bail means 5 being arranged for slidable movement relative to said plate means 1, 2, interengageable means 3, 3' and 4, 4' slidably connecting said bail means 5 with said slider plate means 1, 2, whereby the rib forming means 3 is provided with an elongated slot 12 terminating in opposite end walls, a pin element 13—14 extending across said slot being arranged for displacement within said slot to the extent of said end walls, spring means 8 having one end 9 anchored in said plate means and having a free end 10 forming a detent, said free end passing through an opening 11 in one of said plate means and being operable to extend into and out of a space usually existing between two adjacent fastener elements to respectively lock and unlock said slider thereat, said spring means 8 including an intermediate bent portion 8' located between said detent 10 and said one end 9, said bent portion 8' being provided with two legs angularly directed to each other with the apex thereof positioned astride said pin element 13—14 and in normal position at a location approximately midway of the length of said elongated slot 12, said pin element being provided with a head 14 movable in said guide means, and pulling means 7 displaceable along said guide means 6 for position at either end of said plate means 1, 2 and operatively connected at 7' to said bail means 5 whereby upon actuation of said pulling means said bail means and said pin element may be moved relative to said plate means, so that said pin element abuts against either of said end walls and simultaneously actuates either of said legs to unlock said slider, said pin element and said detent being retractable to said normal position by said spring means upon release of said pulling means.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. An automatic lock slider for slide fastener elements: comprising slider plate means for engaging said slide fastener elements to open and close the same, bail means including guide means, said bail means being connected to said plate means for relative sliding movement thereto, means on said plate means for guiding said bail means relative to said plate means, said bail means being provided with a slot, said slot being defined by opposite end walls and positioned adjacent one end of said bail means, a pin element extending across said slot and

connected to said bail means, spring means having one end anchored in said plate means and having a free end forming a detent passing through an opening in said plate means, said detent being operable in said opening to extend into and out of a space provided between two adjacent fastener elements to respectively lock and unlock said slider thereat, said spring means including a bent portion located between said detent and said one end of said spring means, said bent portion having two legs angularly directed to each other with the apex thereof positioned astride said pin element and in normal position at a location substantially midway of the length of said slot, and pulling means displaceable along said guide means to thereby assume a position at either end of said plate means, whereby said pulling means is operable to displace said bail means and said pin element relative to said plate means, thus causing abutment of said pin element against either of said end walls and simultaneously actuating either of said legs to thereby unlock said detent and said slider plate means, said pin element and said detent being retractable by said spring means to said normal position upon release of said pulling means.

2. An automatic lock slider according to claim 1, said guiding means including rib and recess, respectively, provided in said plate means and in said bail means.

3. An automatic lock slider according to claim 2, wherein said rib and recess are, respectively, dove-tailed in cross-section.

4. An automatic lock slider according to claim 2, wherein said slot is provided in said rib, said guiding means being recessed within said bail means.

5. An automatic lock slider according to claim 1, wherein said bail means is U-shaped and surrounds said plate means in stirrup-shaped fashion, said pulling means when displaced along said bail means to a position at either end of said plate means actuating said detent for operating said slider.

6. An automatic lock slider according to claim 1, said spring means extending in lengthwise direction of said plate means.

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