Dec. 19, 1961 E. RYSER 3,013,319

SLIDER FOR A SLIDE FASTENER

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Fig. 1

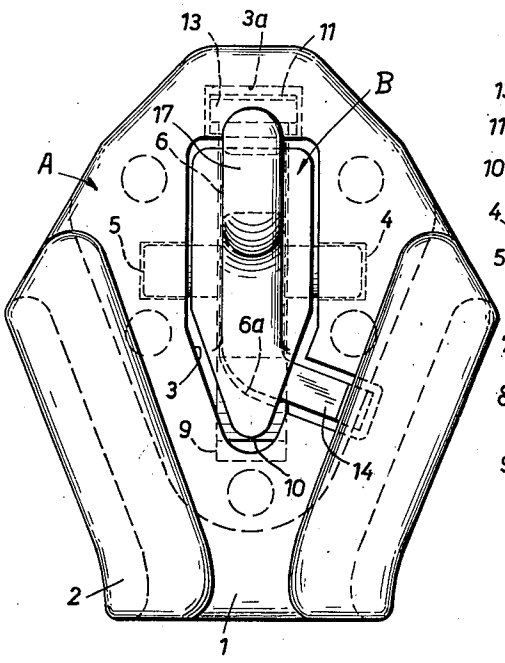
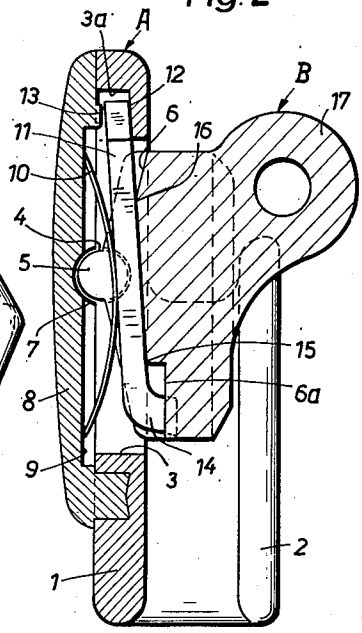


Fig. 2



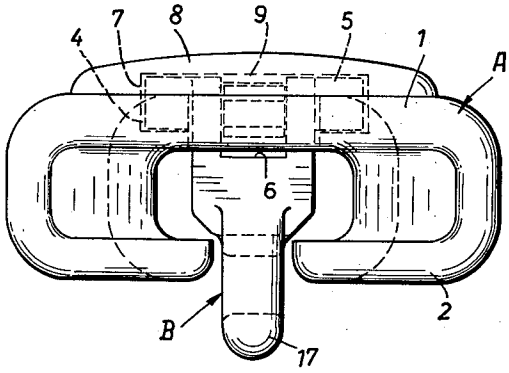


Fig. 3

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Fig. 4

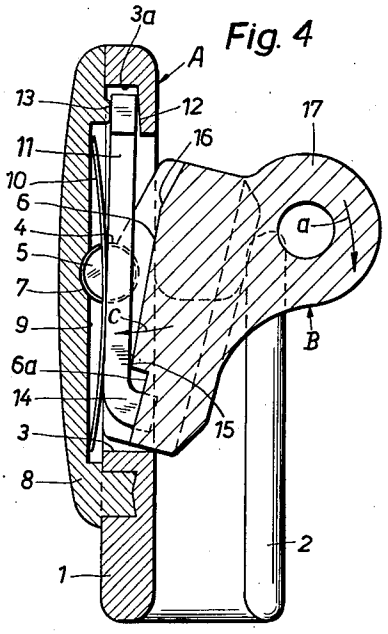

Fig. 5

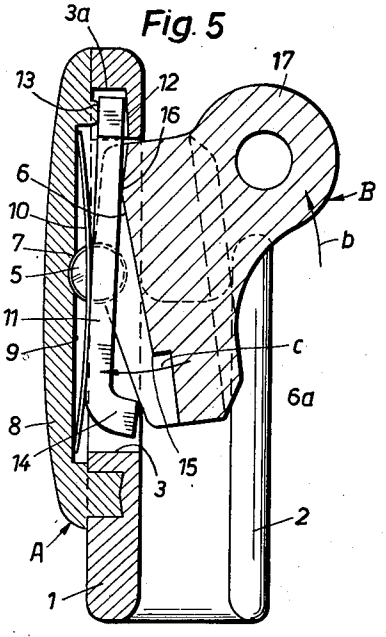

Fig. 6

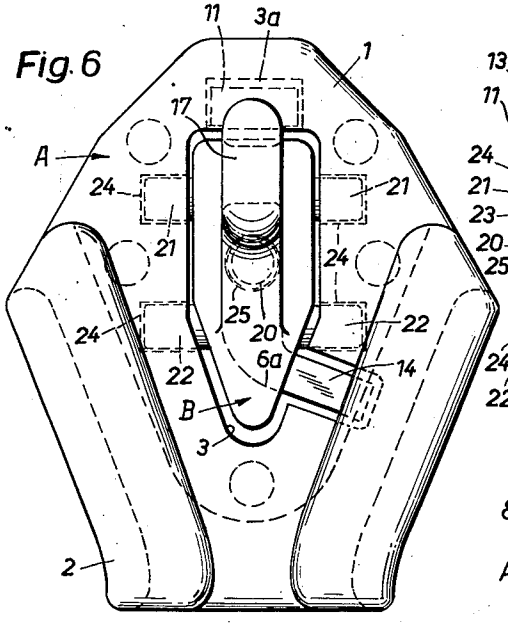

Fig. 7

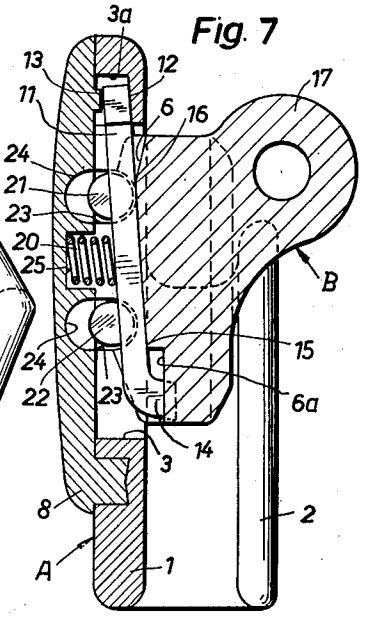

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Fig. 8

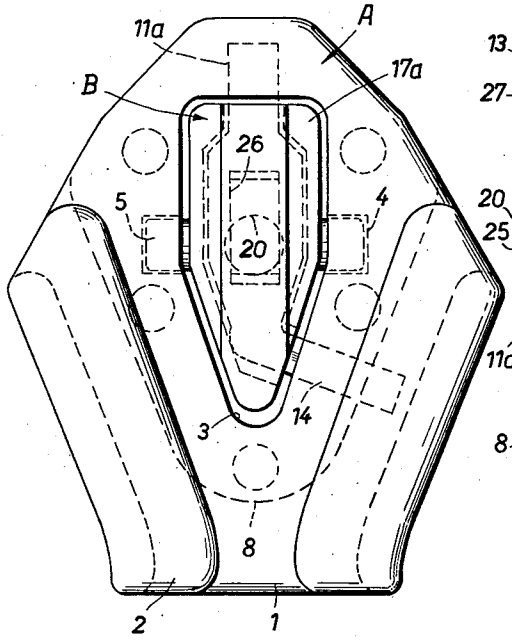
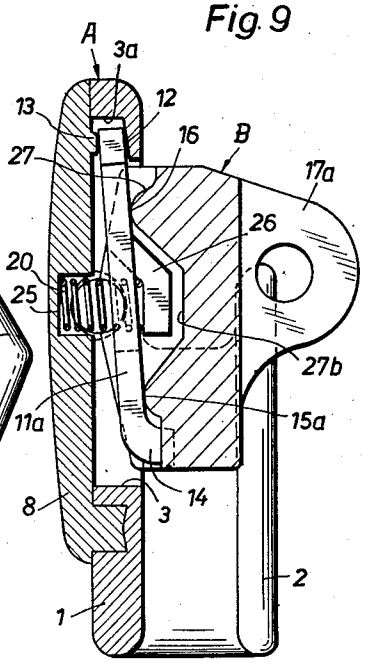


Fig. 9



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SLIDER FOR A SLIDE FASTENER

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8 Claims. (Cl. 24—205.14)

The present invention relates to a slider for a slide fastener, having a locking member adapted to cooperate with the fastener members of the fastener.

In heretofore known sliders of this type the locking member, which is automatically operative when the slider is not actuated, is directly released by the pull member engaging the core piece rigidly mounted in the slider body. The locking member thereby must project through an aperture in the small core piece to come into the zone of engagement of the pull member at the core piece in order to be operated by the latter which is movably arranged on the core piece. Besides the complicated structure of such a slider only small lever arms are at disposal for producing the leverages effecting the release of the locking member so that relatively large tractional forces must be exerted on the pull member in order to release the locking member and displace the slider.

It is a prime object of the present invention to realize a slider for slide fasteners avoiding the aforementioned drawbacks.

To this end according to the present invention a slider for a slide fastener having a locking member adapted to cooperate with the fastener members of the fastener comprises a core piece arranged in the slide body so as to be pivotable in both pulling directions of the slider, said core piece bearing, in the operative position of a locking member having a locking arm and pivotable in the pivoting plane of the core piece about a supporting point of the slider body, with at least two spacedly arranged pressure points against said locking member, the latter being held in said operative position by a spring supported at the slider body, the core piece in the operative position of the locking member being in a middle position in which said pressure points in the pivoting plane of the core piece at both sides of the respective pivoting axle of the core piece lie on the same side of the supporting point of the locking member and serve to operate the latter in such manner that pivoting of the core piece out of its middle position in both directions results in a pivoting of the locking member against the action of the spring into inoperative position.

Obviously, as the core piece is used as a whole for the actuation of the locking member the lever arm required for producing the releasing force may be selected greater and also a greater pivoting distance is at disposal compared with the cases in which the pull member is used directly for actuating the locking member at its engagement point at the core piece. Moreover, such construction simplifies the manufacture of the core piece and the assembling of the slider.

Other features and advantages of the invention will become apparent from the description now to follow, of preferred embodiments thereof given by way of example only and in which reference will be made to the accompanying drawings, in which:

FIGURE 1 is a front view of a first embodiment with the pull member removed.

FIGURE 2 is a longitudinal section through the slider of FIGURE 1, transversally with respect to the plane of the slider body, and with a locking member in operative position.

FIGURE 3 is a plan view of the slider of FIGURE 1.

FIGURES 4 and 5 each show a longitudinal section corresponding to that of FIGURE 2, but with the core piece pivoted in different directions.

FIGURE 6 is a front view similar to that of FIGURE 1 of a second embodiment.

FIGURE 7 is a longitudinal section corresponding to that of FIGURE 2 but through the slider of FIGURE 6.

FIGURE 8 is a front view similar to that of FIGURE 1 but of a third embodiment, and

FIGURE 9 is a longitudinal section corresponding to that of FIGURE 2 but through the slider of FIGURE 8.

The slide fastener slider illustrated in FIGURES 1 to 5 comprises a two-part slider body or slider plate A and a core piece B made of one piece. The portion **1** of the slider body A comprises in well known manner inwardly bent rim portions **2** forming the guiding channel of the slider for guiding the fastener members when the slider is displaced along the rows of fastener members. The portion **1** of the body is further provided with a rectangular middle recess **3**, which is wedge-like tapered in its lower section. In the rear side of the body portion **1** there are provided two semi-cylindrical recesses **4** extending transversally to the longitudinal axis of portion **1** and coaxially with respect to each other. These recesses **4** open into the middle recess **3** and they house cylindrical axle pins **5** of the core piece B inserted from the rear side of the slider body and through the middle recess thereof. These pins **5** project laterally outwardly from end flanges of the core piece B, said end flanges being formed by a longitudinal groove **6** in the rear side of the core piece B. The recesses **4** constituting one of the bearing bushes for the pins **5** are completed by recesses **7** provided at the inner side of the cover portion **8** of the slider body A forming the second bearing bush. The cover portion **8** secured to portion **1** closes the middle recess **3** of the body portions **1** towards the rear side. On its inner side facing the core piece B the cover portion **8** has a longitudinal groove **9** extending in the middle thereof and opposite the longitudinal groove **6** of the core piece B. This longitudinal groove **9** receives a leaf spring **10** elliptically vaulted outwardly. The spring **10** loads with its dishing between the two pins **5** a locking member **11** arranged in the middle recess **3** of the body portion **1** and in the longitudinal groove **6** of the core B. The head end of locking member **11** lies in an upper recess **3***a* of the slider body in such manner between a wall **12** of the portion **1** and a nose **13** that this locking member **11** is pivotable between two end positions about this supporting point in a plane perpendicular to the plane of the slider body. The lower or free end portion **14** of the locking member **11** is bent forwardly and sidewardly and extends in operative position of the locking member through a recessed portion **6***a* of the groove **6**, and transversally through one of the branches of the Y-shaped guiding channel of the slider body. The middle portion of the locking member **11** abuts in operative position of the latter a plane surface of the base of groove **6** of the core piece B. The end edges **15**, **16** of this plane base of the groove form a pair of spacedly arranged pressure points. The pressure point **15** lies below and the pressure point **16** above the pivotal axis of the core piece formed by the axis of the pin **5** while both pressure points are below the supporting point **12**, **13** of the locking member. An eyelet **17** of the core piece B projecting out of the front side of the guiding channel of the slider body A serves to secure the pull member which is not shown.

The operation of the described slider for a sliding fastener is as follows:

FIGURE 2 shows the parts of the slider with the pull member not operated. The leaf spring **10** presses the locking member **11** outwardly about the supporting point **12**, **13** of the latter. As no other forces act on the core piece the whole base surface of the groove **6** including

pressure points **15**, **16** contacts the locking member. Consequently, locking arm **14** thereby projects in a known manner into the guiding channel of the slider.

If the pull member is pulled downwardly in the sense of opening the slide fastener the core piece B is pivoted with its pivoting pins **5** in direction of the arrow *a* in FIGURE 4. The lower pressure point **15** thereby is pressed against the locking member **11** causing the locking member to pivot against the action of spring **10** in direction of the arrow *c*. The locking member pivots about its supporting point **12**, **13** so that the locking arm **14** is pressed out of the guiding channel of the slider. Thus, the latter may be freely slid downwardly. As soon as the pull member is released, the leaf spring **10** again presses against the locking member **11** to cause the locking member to engage the core piece B as shown in the starting position of FIGURE 2. If the pull member is pulled upwardly in the sense of a closing of the slide fastener, the core piece B is pivoted with its pivoting pins **5** in direction of arrow *b* in FIGURE 5. The upper pressure point **16** thereby is pressed against the locking member **11** and pivots the latter against the action of spring **10** about its supporting point **12**, **13** in direction of arrow *c* so that the locking arm **14** is also pressed out of the guiding channel of the slider and the slider can freely be displaced upwardly. As soon as the pull member is released again, the locking member returns automatically into its operative position under the action of the spring **10**.

The slider illustrated in FIGURES 6 and 7 comprises a helical spring **20** in place of a leaf spring and its core piece B instead of being arranged with only one pair of axle pins is arranged in the slider body A with two pairs of axle pins **21**, **22**. In this embodiment the body portion **1** is provided with two pairs of transversal recesses **23** having a semi-cylindrical base and these recesses are closed outwardly by appropriate semi-cylindrical recesses **24** at the inner side of the cover portion **8**. In the bearing openings **21**, **24** and **22**, **24** respectively produced thereby and the cross-section (FIGURE 7) of which is delimited by two semi-circles connected by two parallel straight lines, the axle pins **21** and **22**, respectively, are not only rotatable, but may also effect limited displacements in a direction parallel to themselves. Moreover the semi-cylindrical portions of these bearing openings have a diameter slightly superior to that of the axle pins **21**, **22** so that the core piece may selectively pivot to a certain extent about the axle of one or of the other of the two pairs of axle pins. The pins **21** are arranged in the zone of the pressure point **16** and the pins **22** are arranged in the zone of the pressure point **15** of the core piece B, whereby the axes of these pins lie within the distance separating the pressure points. At half height between the recesses **24** there is provided a boring **25** in the cover portion **8** said boring housing and supporting one end of the helical spring **20** loading with its other end the locking member **11**. Otherwise the slider of FIGURES 6 and 7 is of the same construction as the slider described with reference to FIGURES 1 to 5. It operates as follows: Upon downwardly pulling the pull member suspended from the eyelet **17** of the core piece B in order to open the slide fastener, the core piece B is pivoted in clock-wise direction about the axis of the pair of pins **21** remaining in its position shown in FIGURE 7 whereby the pair of pins **22** penetrates into the semi-cylindrical portion **24** of the bearing opening. The pressure point **15** pivots the locking member **11** also in clock-wise direction about its supporting point **12**, **13** whereby the locking arm **14** is moved out of the guiding channel of the slider. If, on the contrary, the pull member is pulled upwardly in the sense of the closing of the slide fastener, the core piece B analogously pivots about the axis of the lower pins **22** which remain in the position shown in FIGURE 7 as the pins **21** slide into the portion **24** of the bearing opening. The pressure point **16** pivots the locking member **11** again in clock-wise direction shown in FIGURE 7 about its supporting point **12**, **13** until the locking arm **14** releases the guiding channel of the slider. As soon as the pull member is released the parts return into their starting position shown in FIGURE 7 under the action of pressure spring **20**.

The slide fastener slider illustrated in FIGURES 8 and 9 as the one described with reference to FIGURES 1 to 5 comprises a slider body A made of two parts and having a middle recess **3**, **3***a*, and a core piece B pivotally mounted in the slider body by means of a pair of axle pins **5**. As in the preceding embodiments the locking member **11***a* with its locking arm **14** is supported at **12**, **13** in the recess **3***a* and is loaded as in the embodiment of FIGURES 6 and 7 by a helical spring **20** lodged in a boring **25** at the inner side of the cover portion **8** of the slider body A.

The locking member **11***a* has a widened middle portion from which is cut or stamped out a tongue **26**. This tongue forms a recess in the locking member and the helical spring **20** is supported by this tongue **26**. For lodging this tongue **26** the longitudinal groove **27** of the core piece B which receives the locking member **11***a* is provided, between two eminences forming the pressure points **15***a* and **16***a*, with a recess **27***b* while the locking arm **14** in the operative position of the locking member **11***a* as in the preceding embodiment extends transversally to one of the branches of the Y-shaped guiding channel. The pressure point **15***a* is arranged below and the pressure point **16***a* is arranged above the axis of the pins **5** while both pressure points are below the supporting point **12**, **13** of the locking member **11***a*. The operation of this slider provided with a twin eyelet **17***a* at the core piece B for a not represented pull member corresponds exactly to the operation of the slider described with reference to FIGURES 1 and 5.

Owing to the described construction of the slider with a core piece pivotable to both sides, small tractional forces exerted on the pull member are sufficient to produce great leverages guaranteeing a perfect and safe displacing of the locking member to its inoperative position. The described structure also permits use of relatively strong springs for loading the locking member so that the forcible engagement of the locking arm into the row of fastening members and thus the locking of the slider at any point of the slide is always assured as soon as the pull member is released. Moreover the manufacture and the assembling of the described slider is easy.

I claim:

1. A slide for a slide fastener having fastener members comprising a slider body, a pivotable core piece including a pivoting axle arranged in said slider body so as to be pivotable in both pulling directions of the slider about said pivoting axle, said core piece and slider body defining guiding channels for said fastener members, a pivotable locking member having a locking arm adapted to cooperate with the fastener members of the fastener, said locking member being pivotable in coplanar relation with said core piece between an operative and inoperative position, said slider body defining a support for said locking member said core piece including at least two end edge portions defining spaced pressure points, said locking member bearing on said pressure points with the locking member in said operative position, a spring supported on the slider body to resist pivoting of the locking member, said pivoting axle being between said pressure points and said pressure points being on one side of the support for the locking member so that pivoting of the core piece in either direction causes pivoting of the locking member from an operative to an inoperative position.

2. A slider as claimed in claim 1, in which the core piece has a rear side facing the slider body provided with a groove defining the pressure point for the actuation of the locking member.

3. A slider as claimed in claim 2, including a pair of axle pins provided at both sides of the groove for the

locking member, the core piece being mounted in the slider body by said pair of axle pins.

4. A slider as claimed in claim 3, in which said slider body is provided with a groove facing the core piece and extending in the pivoting plane thereof, a leaf spring housed in said last-mentioned groove and loading, with a dishing thereof between said two axle pins and within the distance separating the two pressure points of the core piece, the locking member arranged in the groove of said core piece.

5. A slider as claimed in claim 4, in which the groove of the core piece has a base constituting a plane bearing surface for the locking member in the operative position thereof, said two end edge portions being on said surface and forming the said pressure points for the actuation of the locking member.

6. A slider as claimed in claim 3, in which the slider body is provided with a recess facing the core piece, a helical spring housed and supported in said recess pressing against the locking member within the distance separating the two pressure points on the core piece.

7. A slider as claimed in claim 6, in which said locking member is provided with a recess formed by a tongue cut and bent out of the said locking member, said helical spring engaging said last-mentioned recess.

8. A slider as claimed in claim 7, including two pairs of axle pins spaced in longitudinal direction of the slider and arranged within the distance separating the pressure points at the core piece, said two pairs of axle pins mounting said slider body.

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