

Description

This invention relates to a locking device and more particularly to a dial assembly suitable for use on slide fasteners.

US-A-2,741 114 discloses a lock device adapted to be used on slide fasteners for opening and closing the same which comprises: A slider body comprising upper and lower wings joined at their front ends by a neck so as to define therebetween a guide channel for the passage of two opposite rows of coupling elements of the slide fastener; a lock prong disposed on a top plate in said upper wing and movable between a lock position to engage with the coupling elements and an unlock position to disengage from the same, a dial lock mechanism mounted integrally on a front end of a top surface of said upper wing and adapted to move said lock prong in said lock and unlock positions. Said lock mechanism comprises a dial including two interengaging disc-like parts constructed and arranged so as to be spaced apart around the periphery thereof whereby a box cam raceway is provided therebetween. The side walls of these raceways have a cam-like projection and a corresponding recess in the upper and lower disc-like part, respectively. A lug portion of the lock prong is positively guided in said raceway, so that rotation of said dial brings about a motion of said lock prong between a lock position and an unlock position. A similar lock device to be used on slide fasteners is disclosed in BE-A-1 001 390 having a dial lock mechanism which comprises two interengaging disc-like parts provided with a cam-like projection. The lock prong is normally urged by spring means toward the unlock position and it is urged toward the lock position by the said cam-like projection.

It is an object of the present invention to provide an improved lock device having a dial lock mechanism which is simpler in construction and more reliable and efficient in operation as compared with the prior lock devices.

According to the first aspect of the present invention, there is provided a lock device adapted to be used on slide fasteners for opening and closing the same, which comprises: a slider body comprising upper and lower wings joined at their front ends by a neck so as to define therebetween a guide channel for the passage of two opposite rows of coupling elements of the slide fastener; a lock prong disposed on a top plate in said upper wing and pivotable between a lock position to engage with the coupling elements and an unlock position to disengage from the same, said lock prong being normally biased toward either one of said lock and unlock positions; a dial lock mechanism mounted integrally on a front end of a top

surface of said upper wing and adapted to move said lock prong in said lock and unlock positions, said lock mechanism comprising a ring member, an annular sleeve, an engaging member, a disc presser and a dial superposed in this order; and an arcuate lug extending in opposed relation to said lock mechanism from a rear end of said upper wing and having one end secured to said upper wing and an opposite end connected to said lock mechanism, said lug being adapted to pivotally mount a pull tab, said engaging member having a cam surface engaging a portion of said lock prong so that rotation of said dial together with said engaging member brings about a pivoting motion of said lock prong between said two positions.

According to a second aspect of the present invention, there is provided a lock device adapted to be used on slide fasteners for opening and closing the same, which comprises: a slider body comprising upper and lower wings joined at their front ends by a neck so as to define therebetween a guide channel for the passage of two opposite rows of coupling elements of the slide fastener; a lock prong disposed on a top plate on said upper wing and pivotable between a lock position to engage with the coupling elements and an unlock position to disengage from the same, said lock prong having at its front end a lateral extension and being normally biased toward either one of said lock and unlock positions; a vertical recess formed at one end of a top plate on said upper wing for receiving therein a rear end of said lock prong, said recess being axially displaced toward either lengthwise direction; a pair of latch grooves disposed centrally on said upper wing; a pair of upstanding walls attached integrally on to said upper wing on opposite sides; and a dial lock mechanism slidably movable on said upper wing in supported relation to said upstanding walls, said lock mechanism comprising a base, a cover, a latch plate interposed therebetween and a dial, said base having a cam surface engaging said lateral extension of said lock prong so that a sliding motion of said lock mechanism together with said base brings about a pivoting motion of said lock prong between said two positions; said latch plate being alternatively engageable with either one of said two latch grooves defining an operative and inoperative position of said lock mechanism, said dial cooperating with said latch plate to allow or to prevent the latter from being disengaged with the selected latch groove.

The above and other objects and features of the invention will become better understood from the following description taken in conjunction with the accompanying drawings. Like reference numerals refer to like or corresponding parts throughout the several views.

Figure 1 is a side elevational view, partly sectional, of a combination lock assembly embodying a first preferred embodiment of the present invention.

Figure 2 is a top plan view of the lock assembly of Figure 1.

Figures 3 and 4 are front and rear elevational views, respectively, of the lock assembly of Figure 1.

Figure 5 is a partly broken cross-sectional view of the lock assembly of Figure 1 showing the same in unlocked position.

Figure 6 is a view similar to Figure 5 but showing the lock assembly in locked position.

Figure 7 is an exploded perspective view of the lock assembly shown in Figure 1.

Figure 8 is a schematic, fragmentary perspective view of a lock prong forming a part of the lock assembly, and shown as cooperative with an annular sleeve.

Figure 9 is a view similar to Figure 8 but showing the lock prong as engaged with and disengaged from the coupling elements of a slide fastener.

Figure 10 is an exploded perspective view of a modified form of lock assembly according to the invention.

Figure 11 is a cross-sectional view of the lock assembly of Figure 10.

Figures 12 through 18 are views similar to Figures 1 through 7, respectively, but showing a lock assembly according to a second preferred embodiment of the invention.

Figure 19 is a schematic cross-sectional view showing a latch plate as displaced from one latch groove to the other.

Figure 20 is a view similar to Figure 9 but showing a lock prong of the second embodiment.

Referring now to the drawings and Figures 1 to 11 in particular, there is shown a dial lock assembly 100 embodying a first preferred embodiment of the present invention and adapted to be used on a slide fastener F to open and close the same. The slide fastener F comprises, as viewed in Figure 9, a pair of stringer tapes T, T carrying along one of their longitudinal edges a row of coupling elements E to be meshed and unmeshed by a slider in known manner.

The lock assembly 100 comprises a slider body S including upper and lower wings 101, 102 joined at their front ends by a neck 103 so as to define therebetween a guide channel 104 for the passage of two rows of coupling elements E, E of the slide fastener F as shown in Figure 3. A ring member 105 is mounted forwardly of a top surface of the upper wing 101 and has a cutaway portion 106 directed to the rear end of the upper wing 101 on which an arcuate lug 108 is disposed to pivot-

ally connect a detachable pull tab not shown. The ring 105 has a radially extending rib 107 formed on the upper inner wall for purposes to be described. The lug 108 has one end extending into the opening 106 of the ring 105 and the other outwardly projected ends snugly fitted to two elongate grooves 109 formed edgewise of a plate 110 in the upper wing 101. The plate 110, as shown in Figures 5 and 6, is provided at one end with a vertical recess 111 located below the ring 105 and also with a similar recess 112 arranged to receive a coil spring 113 and at the opposite end with an aperture 114 into and out of which a lock prong 115 is mounted to protrude.

The lock prong 115 is generally in the form an elongate plate having an arcuate cam 115c engageable with the recess 111, a flat portion 115b extending therefrom, a projection 115d on the portion 115b and a downwardly directed pawl 115a. The lock prong 115 is normally biased by the spring 113 in unlocked position. Magnetic biasing may if necessary be done for instance by the use of a magnetically treated lock prong combined with a magnetic structure received in place of the spring 113 in the recess 112.

As is better seen from Figure 7, a dial mechanism 116 comprises an annular sleeve 117, an engaging member 118 and a disc presser 119. The sleeve 117 has a cutout 121 and an inwardly directed protrusion 120. The engaging member 118 is made up of a mount 122, a tip step 126 and an intermediate step 125 interposed therebetween, the mount 122 being provided with a cutout 123 and an outward protrusion 124. The engaging member 118 is rotatable in the sleeve 117, the rotating movement being restrictive on arrest of the protrusion 124 of the member 118 by the protrusion 120 of the sleeve 117. The cutouts 121, 123 act together for entry of the projection 115d on the lock prong 115 as the latter prong retracts out of the aperture 114 in the course of unlocking.

The presser 119 includes a disc plate 127 provided centrally with an opening 128 and on the top surface with a plurality of equally spaced radial slots 129. This presser 119 is fixedly secured in a horizontal posture to the front wall of the lug 108 (Figure 7). The presser 119 is adapted to mount on the engaging member 118 with the disc plate 127 engaged through the opening 128 with the intermediate step 125 of the member 118. After assembling of the lock mechanism 116, the presser 119 is held in interengaged relation to the radial rib 107 in the ring 105.

Mounted on the presser 119 is a leaf spring 130 registerable with a tip step 126 of the engaging member 118 and corotatable with a dial 131 on the lock mechanism 116. This contributes to good clicking.

The dial 131 carries on its top surface a series of indicia such as numerical figures. The lock mechanism 116 is rotatable about a phantom axis 132.

Designated at 133 is an indicator mark shaped like the lug 108 and at 134 is a link of a pull tab not shown.

The dial mechanism 116 is assembled with the ring 105 by locating the coil spring 113 in the recess 112 and subsequently by registering the pawl 115a and the cam 115c of the lock prong 115, respectively, with the aperture 114 and the recess 111. Thereafter, the components parts 117, 118, 119, 130 and 131 are superposed in this order.

With the above construction, the lock assembly 100 can be locked and unlocked with reliability. When the dial 131 is turned to set at a given index, both cutouts 121 and 123 of the sleeve 117 and the engaging member 118 are oriented to communicate with each other, as viewed in Figure 5 which represents the unlocked position of the lock prong 115, thereby allowing entry of the projection 115d of the lock prong into the cutouts 121 and 123. In such instance, the lock prong 115 is pushed upwardly under the tension of the spring 113 as shown by the arrow in Figure 8 so that it moves to retract out of the guide channel 104 and thus returns to its unlocked position.

To lock the lock assembly 100, as the dial 131 is turned toward either direction, the projection 115d of the lock prong 115 is brought into frictional contact with the cutouts 121, 123 of the engaging member 118. The lock prong 115 is urged by the spring 113 to thrust at its pawl 115a through the aperture 114 into the guide channel 104 for interengagement with either row of coupling elements E. The lock assembly 100 is thus locked in position against movement on the coupling elements E (Figure 9) even if it is forcibly pulled toward a fastener-opening direction indicated by the arrow A in Figures 6 and 9. The lock prong 115 when locked is normally pushed downwardly by the action of the engaging member 118 alone or of both the latter member and the sleeve 117.

A modified form of the lock assembly 100 shown in Figures 10 and 11 is similar in all structural details except for the shape of the sleeve 117 and engaging member 118. A projected portion 135 is formed in place of the cutout 121 in the sleeve 117 and a similar portion 136 in place of the cutout 123 in the mount 122 of the member 118. The lock prong 115 is arranged to hold its pawl 115a remained in the aperture 114 under normal bias.

Turning next to Figures 12 to 20, there is shown a lock assembly according to a second preferred embodiment of the invention. Like parts are designated by the same reference numerals as

in the first embodiment.

A slider body S comprises an upper wing 101 having on its top surface an upper plate 110. A vertical recess 200 is formed at one end of the plate 110 to support a cam end 115c of a lock prong 115, and a similar recess 201 is disposed in spaced relation to the recess 200 so as to receive a coil spring 113. An aperture 114 is arranged in alignment with both recesses 200, 201 at the other end of the plate 110. The recesses 200, 201 and the aperture 114 are axially displaced toward either lengthwise direction. The lock prong 115 is mounted to protrude at its pawl 115a into and out of the aperture 114. The lock prong of this embodiment is provided above its pawl 115a with a lateral extension 115e coplanar with a flat portion 115b in place of the projection 115d as is in the first embodiment.

Designated at 204, 205 are latch grooves positioned centrally of the upper plate 110 and spaced apart at a predetermined distance, as viewed in Figure 19, for registry with a lock mechanism later described. A pair of upstanding walls 206, 207 are fixed firmly to the upper wing 101 on opposite sides, the walls being adapted to support that lock mechanism.

The lock prong 115 is normally placed in biased condition toward either one of the upward and downward directions. Magnet biasing may be substituted for spring biasing as above noted in connection with the first embodiment.

A lock mechanism 208 is mounted slidably on the plate 110 in supported relation to the walls 206, 207 and comprises a base 209, a cover 211 and a latch plate 210 interposed therebetween.

The base 209 is generally of a plate-like shape having a mount 212 and an engaging portion 213 extending upwardly at one end of the mount 212. Located at the other end of the mount 212 is an axially displaced angular projection 214 frictionally engageable with the extension 115e of the lock prong 115. The mount 212 is further provided substantially centrally with a rectangular opening 215 for insertion of the latch plate 210 and at selected positions with a plurality of fixture holes 216 (two in Figure 18).

The cover 211 comprises a horizontal wall 217 and a slant wall 218 coextensive therewith, the wall 217 having on the top surface a window 219 and on the bottom surface a projection 220 for interfitting with a dial later described. A cylindrical casing 221 is provided in the slant wall 218 to accommodate a ball 222 and a coil spring 223 both for clicking purposes. The cover 211 is adapted to be attached firmly with the base 209 as on a suitable tool by registering the holes 216, 216 of the base 209 with two projections 224, 224 extending downwardly of the walls 217, 218.

against the tension of the spring 113, whereby the pawl 115a is moved to retract from the guide channel 1104 into the aperture 114. In the course of retraction, the latch plate 210 turns counterclockwise against the leaf spring 227 and hence slides out of one groove 204 into the other groove 205 with a click, after which the lock assembly gets fully unlocked for sliding movement on the row of coupling elements E of the slide fastener F.

To put the lock prong 115 into a locked position, the lock mechanism 208 is moved toward a direction opposed to the arrow B (Figure 17) until it is matched endwise with the slider body S. In this instance, the latch plate 210 makes an up-and-down motion, displacing from one groove 204 to the other groove 205.

Claims

1. A lock device adapted to be used on slide fasteners for opening and closing the same which comprises: A slider body (S) comprising upper and lower wings (101, 102) joined at their front ends by a neck (103) so as to define therebetween a guide channel (104) for the passage of two opposite rows of coupling elements (E, E) of the slide fastener (F); a lock prong (115) disposed on a top plate (110) in said upper wing (101) and pivotable between a lock position to engage with the coupling elements (E) and an unlock position to disengage from the same, said lock prong (115) being normally biased toward either one of said lock and unlock positions; a dial lock mechanism (116) mounted integrally on a front end of a top surface of said upper wing (101) and adapted to move said lock prong (115) in said lock and unlock positions, said lock mechanism (116) comprising a ring member (105), an annular sleeve (117), an engaging member (118), a disc presser (119) and a dial (116) superposed in this order, and an arcuate lug (108) extending in opposed relation to said lock mechanism (116) from a rear end of said upper wing (101) and having one end secured to said upper wing (101) and an opposite end connected to said lock mechanism (116), said lug (108) being adapted to pivotally mount a pull tab, said engaging member (118) having a cam surface (123; 136) engaging a portion (115d) of said lock prong (115), so that rotation of said dial (116) together with said engaging member (118) brings about a pivoting motion of said lock prong (115) between said two positions.

A latch plate 210 is constituted by an integral latch axis 225 adapted to be guided into the cover 211, an end portion 226 for engagement into and out of the grooves 204, 205 on the plate 110 and a leaf spring 227. The latch plate is normally biased by the spring 227 in a position to interfit with either one of the latch grooves 204, 205.

A dial 228 is arranged between the latch plate 210 and the cover 211 to lock the lock mechanism 208 in locked and unlocked positions. The dial 228 is comprised of a dial plate 229 and a disc plate 230. Formed in the dial plate 229 is a circular portion 231 provided at its lower end with an annular groove 232 having a driving protrusion 233 (Figures 16 and 17). The dial plate 229 carries on its top surface a set of indicia as in the first embodiment. The disc plate 230 is provided centrally with an opening 234 and on the top surface with a driven projection 235 engageable with the driving protrusion 233 (Figures 16 and 17). In the circular portion 231 and also in the disc plate 230, cutouts 236, 237 are provided to allow entry of the latch plate 210.

This arrangement ensures reliable locking operation of the lock assembly on a slide fastener F. When the lock mechanism 208 is placed in locked position as shown in Figure 17, the projection 214 of the base 209 is pushed to ride on the extension 115e of the lock prong 115 so that the pawl 115a of the lock prong is allowed under the tension of the spring 113 to protrude through the aperture 114 toward the guide channel 104. The extension 115e is in turn thrust into a gap between the coupling elements E, E as seen from Figure 20. Even on exposure to intense force tending to pull the lock assembly in a fastener-opening direction (the arrow A in Figures 17 and 20), the lock prong 115 can block the lock assembly against movement on the slide fastener with the extension 115e held in interengaged relation with the coupling elements E, E.

In the case of the cutouts 236, 237 of the dial plate 229 and disc plate 230 facing with the latch plate 210, the lock mechanism 208 is in unlocked position and the lock prong 115 in locked position. This means that the lock assembly per se is in provisionally locked position. To attain full locking, the dial plate 229 can only be rotated toward either direction.

To unlock the lock prong 115, the dial plate 229 is rotated to set at a given index to thereby register both cutouts 236, 237 for entry of the latch plate 210 and thus unlock the lock mechanism 208. Subsequent sliding movement of the lock mechanism in a direction shown in Figure 17 causes the projection 214 of the base 209 to become disengaged from the extension 115e of the lock prong 115; that is, the lock prong is pushed upwardly



A latch plate 210 is constituted by an integral latch axis 225 adapted to be guided into the cover 211, an end portion 226 for engagement into and out of the grooves 204, 205 on the plate 110 and a leaf spring 227. The latch plate is normally biased by the spring 227 in a position to interfit with either one of the latch grooves 204, 205.

A dial 228 is arranged between the latch plate 210 and the cover 211 to lock the lock mechanism 208 in locked and unlocked positions. The dial 228 is comprised of a dial plate 229 and a disc plate 230. Formed in the dial plate 229 is a circular portion 231 provided at its lower end with an annular groove 232 having a driving protrusion 233 (Figures 16 and 17). The dial plate 229 carries on its top surface a set of indicia as in the first embodiment. The disc plate 230 is provided centrally with an opening 234 and on the top surface with a driven projection 235 engageable with the driving protrusion 233 (Figures 16 and 17). In the circular portion 231 and also in the disc plate 230, cutouts 236, 237 are provided to allow entry of the latch plate 210.

This arrangement ensures reliable locking operation of the lock assembly on a slide fastener F. When the lock mechanism 208 is placed in locked position as shown in Figure 17, the projection 214 of the base 209 is pushed to ride on the extension 115e of the lock prong 115 so that the pawl 115a of the lock prong is allowed under the tension of the spring 113 to protrude through the aperture 114 toward the guide channel 104. The extension 115e is in turn thrust into a gap between the coupling elements E, E as seen from Figure 20. Even on exposure to intense force tending to pull the lock assembly in a fastener-opening direction (the arrow A in Figures 17 and 20), the lock prong 115 can block the lock assembly against movement on the slide fastener with the extension 115e held in interengaged relation with the coupling elements E, E.

In the case of the cutouts 236, 237 of the dial plate 229 and disc plate 230 facing with the latch plate 210, the lock mechanism 208 is in unlocked position and the lock prong 115 in locked position. This means that the lock assembly per se is in provisionally locked position. To attain full locking, the dial plate 229 can only be rotated toward either direction.

To unlock the lock prong 115, the dial plate 229 is rotated to set at a given index to thereby register both cutouts 236, 237 for entry of the latch plate 210 and thus unlock the lock mechanism 208. Subsequent sliding movement of the lock mechanism in a direction shown in Figure 17 causes the projection 214 of the base 209 to become disengaged from the extension 115e of the lock prong 115; that is, the lock prong is pushed upwardly

against the tension of the spring 113, whereby the pawl 115a is moved to retract from the guide channel 104 into the aperture 114. In the course of retraction, the latch plate 210 turns counterclockwise against the leaf spring 227 and hence slides out of one groove 204 into the other groove 205 with a click, after which the lock assembly gets fully unlocked for sliding movement on the row of coupling elements E of the slide fastener F.

To put the lock prong 115 into a locked position, the lock mechanism 208 is moved toward a direction opposed to the arrow B (Figure 17) until it is matched endwise with the slider body S. In this instance, the latch plate 210 makes an up-and-down motion, displacing from one groove 204 to the other groove 205.

Claims

1. A lock device adapted to be used on slide fasteners for opening and closing the same which comprises: A slider body (S) comprising upper and lower wings (101, 102) joined at their front ends by a neck (103) so as to define therebetween a guide channel (104) for the passage of two opposite rows of coupling elements (E, E) of the slide fastener (F); a lock prong (115) disposed on a top plate (110) in said upper wing (101) and pivotable between a lock position to engage with the coupling elements (E) and an unlock position to disengage from the same, said lock prong (115) being normally biased toward either one of said lock and unlock positions; a dial lock mechanism (116) mounted integrally on a front end of a top surface of said upper wing (101) and adapted to move said lock prong (115) in said lock and unlock positions, said lock mechanism (116) comprising a ring member (105), an annular sleeve (117), an engaging member (118), a disc presser (119) and a dial (116) superposed in this order; and an arcuate lug (108) extending in opposed relation to said lock mechanism (116) from a rear end of said upper wing (101) and having one end secured to said upper wing (101) and having one end secured to said upper wing (101) and an opposite end connected to said lock mechanism (116), said lug (108) being adapted to pivotally mount a pull tab, said engaging member (118) having a cam surface (123; 136) engaging a portion (115d) of said lock prong (115), so that rotation of said dial (116) together with said engaging member (118) brings about a pivoting motion of said lock prong (115) between said two positions.



2. The lock device of claim 1 wherein said ring member (105) has on its upper inner wall a radially extending rib (107).

3. The lock device of claim 1 wherein said annular sleeve (117) has a cutout (121) and an inward protrusion (120).

4. The lock device of claim 1 wherein said engaging member (113) is composed of a mount (122) having a cutout (123) and an outward protrusion (124), an intermediate step (125) and a tip step (126), said cutout (123) cooperative with the cutout (121) of said annular sleeve (117) for entry of a rear end of said lock prong (115) when the same is placed in unlocked position, said protrusion (120) engageable with the protrusion (124) of said sleeve (117) to thereby limit the rotation of said engaging member (118) in said sleeve (117).

5. The lock device of claim 1 wherein said disc presser (119) has a disc plate (127) provided centrally with an opening (128) and on the top surface with a plurality of radial slots (129), said disc plate (127) being fixed to a front wall of said arcuate lug (108) and mounted on the intermediate step (125) of said engaging member (118), said presser (119) being held in interengaged relation to the radial rib (107) in said ring member (105).

6. The lock device of claim 1 further including a leaf spring (130) registerable with the tip step (126) of said engaging member (122) and corotatable with the disc plate (129) of said disc presser (119).

7. A lock device adapted to be used on slide fasteners for opening and closing the same, which comprises: a slider body (S) comprising upper and lower wings (101, 102) joined at their front ends by a neck (103) so as to define therebetween a guide channel (104) for the passage of two opposite rows of coupling elements (E, E) of the slide fastener (F); a lock prong (115) disposed on a top plate (110) on said upper wing (101) and pivotable between a lock position to engage with the coupling elements (E) and an unlock position to disengage from the same, said lock prong (115) having at its front end a lateral extension (115e) and being normally biased toward either one of said lock and unlock positions; a vertical recess (200) formed at one end of a top plate (110) on said upper wing (101) for receiving therein a rear end of said lock prong (115), said recess (200) being axially displaced to-

ward either lengthwise direction; a pair of latch grooves (204, 205) disposed centrally on their upper wing (101); a pair of upstanding walls (206, 207) attached integrally on to said upper wing (101) on opposite sides; and a dial lock mechanism (208) slidably movable on said upper wing (101) in supported relation to said upstanding walls (206, 207), said lock mechanism (208) comprising a base (209), a cover (211), a latch plate (210) interposed therebetween and a dial (228), said base (209) having a cam surface (214) engaging said lateral extension (115e) of said lock prong (115) so that a sliding motion of said lock mechanism (208) together with said base (209) brings about a pivoting motion of said lock prong (115) between said two positions; said latch plate (210) being alternatively engageable with either one of said two latch grooves (204, 205) defining an operative and inoperative position of said lock mechanism (208), said dial (228) cooperating with said latch plate (210) to allow or to prevent the latter from being disengaged with the selected latch groove (204, 205).

8. The lock device of claim 7 wherein said base (209) being generally in the form of a plate having a mount (212), an engaging portion (213) extending upwardly at one end of thereof, an axially displaced angular projection (214) at an opposite end thereof and a rectangular opening (215) substantially at a central portion thereof, said angular projection (214) engageable with the extension (115e) of said lock prong (115) and said rectangular opening (215) receptive of said latch plate (210).

9. The lock device of claim 7 wherein said cover (211) is provided with a horizontal wall (217) and a slant wall (218) coextensive therewith, said slant wall (218) having disposed therein clicking means (222, 223).

10. The lock device of claim 7 wherein said latch plate (210) has a latch axis (225) guided in said cover (211), an end portion (226) registered with said latch grooves (204, 205) and a leaf spring (227), said latch plate (210) being normally biased in engagement with either one of said latch grooves (204 or 205).

11. The lock device of claim 7 wherein said dial (228) is disposed between said latch plate (210) and said cover (211) and provided with a dial plate (229) and a disc plate (230), said dial (228) having at its inner lower end a cutout (236) and a driving protrusion (203), said disc plate having on the side wall a cutout (237)



and on the top surface a driven protrusion (235), the first-mentioned cutout (236) cooperative with the last-mentioned cutout (237) for entry of said latch plate (115), said driving and driven protrusions (235, 236) coengageable to limit the rotation of the dial (228).

Patentansprüche

1. Schloß zur Verwendung bei Reißverschlüssen zum Öffnen und Schließen derselben, umfassend: einen Schieberkörper (S) mit einem Oberschild (101) und einem Unterschild (102), die an ihren Vorderenden durch einen Schieberkeil (103) verbunden sind, um dazwischen einen Führungskanal (104) für den Durchgang von zwei gegenüberliegenden Kuppelgliederreihen (E, E) des Reißverschlusses (F) zu begrenzen; eine Sperrklaue (115), die auf einer oberen Platte (110) in dem Oberschild (101) angeordnet und zwischen einer Sperrstellung zum Eingriff mit den Kuppelgliedern (E) und einer Freigabestellung verschwenkbar ist, um mit denselben außer Eingriff zu gelangen, wobei die Sperrklaue (115) normalerweise in die Sperrstellung oder in die Freigabestellung vorgespannt ist; einen Wählscheibenmechanismus (116), der auf einem Vorderende einer Oberseite des Oberschildes (101) einstückig angeordnet und geeignet ist, die Sperrklaue (115) in die Sperr- und Freigabestellung zu bewegen, wobei der Wählscheibenmechanismus (116) ein Ringteil (105), eine ringförmige Hülse (117), ein Eingriffsteil (118), ein Scheiben-Andrückteil (119) und eine Wählscheibe (116) (richtig: 131) umfaßt, die in dieser Reihenfolge übereinanderliegend angeordnet sind; und eine gekrümmte Schieberkappe (108), die sich in gegenüberliegender Beziehung zu dem Wählscheibenmechanismus (116) von einem hinteren Ende des Oberschildes (101) erstreckt und deren eines Ende an dem Oberschild (101) befestigt ist und deren gegenüberliegendes Ende mit dem Wählscheibenmechanismus (116) verbunden ist, wobei an der Schieberkappe (108) ein Griff anlenkbar ist, wobei das Eingriffsteil (118) eine Steuerkurvenfläche (123; 136) aufweist, die mit einem Bereich (115d) der Sperrklaue (115) in Eingriff steht, so daß eine Verdrehung der Wählscheibe (116) (richtig: 131) zusammen mit dem Eingriffsteil (118) eine Schwenkbewegung der Sperrklaue (115) zwischen den besagten zwei Stellungen bewirkt.
2. Schloß nach Anspruch 1, wobei das Ringteil (105) an seiner oberen Innenwand eine sich radial erstreckende Rippe (107) aufweist.
3. Schloß nach Anspruch 1, wobei die ringförmige Hülse (117) einen Ausschnitt (121) und einen nach innen ragenden Vorsprung (120) aufweist.
4. Schloß nach Anspruch 1, wobei das Eingriffsteil (118) von einem Gehäuse (122) gebildet ist, das einen Ausschnitt (123) und einen äußeren Vorsprung (124), eine mittlere Abstufung (125) und eine obere Abstufung (126) hat, wobei der Ausschnitt (123) mit dem Ausschnitt (221) der ringförmigen Hülse (117) zusammenwirkt zur Aufnahme eines hinteren Endes der Sperrklaue (115), wenn diese in der Freigabestellung angeordnet ist, wobei der Vorsprung (124) mit dem Vorsprung (120) der Hülse (117) in Eingriff bringbar ist, um dadurch die Verdrehung des Eingriffsteils (118) in der Hülse (117) zu begrenzen.
5. Schloß nach Anspruch 1, wobei das Scheiben-Andrückteil (119) eine Scheibenplatte (127) aufweist, die in der Mitte mit einer Öffnung (128) und an der Oberseite mit mehreren Radialschlitzten (129) versehen ist, wobei die Scheibenplatte (127) an einer Vorderwand der gewölbten Schieberkappe (108) befestigt und auf der mittleren Abstufung (125) des Eingriffsteils (118) gelagert ist, wobei das Andrückteil (119) mit der radialen Rippe (107) des Ringteils (105) in Eingriff gehalten ist.
6. Schloß nach Anspruch 1, ferner umfassend eine Blattfeder (130), die mit der oberen Abstufung (126) des Eingriffsteils (122) (richtig: 118) zur Deckung bringbar und zusammen mit der Scheibenplatte (129) (richtig: 127) des Scheiben-Andrückteils verdrehbar ist.
7. Schloß zur Verwendung bei Reißverschlüssen zum Öffnen und Schließen derselben, umfassend: einen Schieberkörper (S) mit einem Oberschild (101) und einem Unterschild (102), die an ihren Vorderenden durch einen Schieberkeil (103) verbunden sind, um dazwischen einen Führungskanal (104) für den Durchgang von zwei gegenüberliegenden Kuppelgliederreihen (E, E) des Reißverschlusses (F) zu schaffen; eine Sperrklaue (115), die auf einer oberen Platte (110) auf dem Oberschild (101) angeordnet und zwischen einer Sperrstellung zum Eingriff mit den Kuppelgliedern (E) und einer Freigabestellung verschwenkbar ist, um mit denselben außer Eingriff zu gelangen, wobei die Sperrklaue (115) an ihrem vorderen Ende eine seitliche Verlängerung (115e) aufweist und normalerweise in die Sperrstellung oder in die Freigabestellung vorgespannt ist;



eine vertikale Ausnehmung (200), die an einem Ende der oberen Platte (110) auf dem Oberschild (101) ausgebildet ist, um darin ein hinteres Ende der Sperrklaue (115) aufzunehmen, wobei diese Ausnehmung (200) in Längsrichtung axial versetzt ist; zwei Verriegelungsnuten (204, 205), die mittig auf dem Oberschild (101) angeordnet sind; zwei aufrechte Wände (206, 207), die mit dem Oberschild (101) auf gegenüberliegenden Seiten einstückig ausgebildet sind; und einen Wählscheiben-Schloßmechanismus (208), der auf dem Oberschild (101) in abgestützter Beziehung zu den aufrechten Wänden (206, 207) verschiebbar ist, wobei der Wählscheiben-Schloßmechanismus (208) eine Basis (209), eine Abdeckung (211), eine dazwischen angeordnete Sperrplatte (210) und einen Wählscheibenmechanismus (228) umfaßt, wobei die Basis (209) eine Steuerkurvenfläche (214) aufweist, die mit der seitlichen Verlängerung (115e) der Sperrklaue (115) in Eingriff bringbar ist, so daß eine Gleitbewegung des Wählscheiben-Schloßmechanismus (208) zusammen mit der Basis (209) eine Schwenkbewegung der Sperrklaue (115) zwischen den besagten zwei Stellungen bewirkt; wobei die Sperrplatte (210) wahlweise mit einer der beiden Verriegelungsnuten (204, 205) in Eingriff bringbar ist, die eine wirksame und eine unwirksame Stellung des Wählscheiben-Schloßmechanismus (208) bestimmen, wobei der Wählscheibenmechanismus (228) mit der Sperrplatte (210) zusammenwirkt, damit diese mit der ausgewählten Verriegelungsnut (204, 205) außer Eingriff bringbar ist oder nicht.

8. Schloß nach Anspruch 7, wobei die Basis (209) im allgemeinen die Form einer Platte hat, die ein Gehäuse (212), einen Eingriffsbereich (213), der sich an einem Ende derselben nach oben erstreckt, einen axial versetzten abgewinkelten Vorsprung (214) am gegenüberliegenden Ende derselben und eine rechteckige Öffnung (215) im wesentlichen in einem mittigen Bereich derselben aufweist, wobei der abgewinkelte Vorsprung (214) mit der Verlängerung (115e) der Sperrklaue (115) in Eingriff bringbar ist und die rechteckige Öffnung (215) die Sperrplatte (210) aufnimmt.

9. Schloß nach Anspruch 7, wobei die Abdeckung (211) mit einer horizontalen Wand (217) und mit einer sich an diese anschließenden geneigten Wand (218) versehen ist, wobei in der geneigten Wand Rastmittel (222, 223) angeordnet sind.

10. Schloß nach Anspruch 7, wobei die Sperrplatte (210) eine in der Abdeckung (211) geführte Sperrachse (225), einen mit den Verriegelungsnuten (204, 205) fluchtenden Endbereich (226) und eine Blattfeder (227) aufweist, wobei die Sperrplatte (210) normalerweise zum Eingriff mit einer der Verriegelungsnuten (204 oder 205) vorgespannt ist.

11. Schloß nach Anspruch 7, wobei der Wählscheibenmechanismus (228) zwischen der Sperrplatte (210) und der Abdeckung (211) angeordnet und mit einer Wählscheibe (229) und einer Scheibenplatte (230) versehen ist, wobei der Wählscheibenmechanismus (228) an seinem inneren unteren Ende einen Ausschnitt (236) und einen Antriebsvorsprung (203) (richtig: 233) aufweist, wobei die Scheibenplatte (230) an der Seitenwand einen Ausschnitt (237) und an der Oberseite einen angetriebenen Vorsprung (235) aufweist, wobei der erstgenannte Ausschnitt (236) mit dem letztgenannten Ausschnitt (237) zur Aufnahme der Verriegelungsplatte (115) (richtig: 210) zusammenwirken, und wobei der Antriebsvorsprung (233) und der angetriebene Vorsprung (235) miteinander in Eingriff bringbar sind, um die Verdrehung des Wählscheibenmechanismus (228) zu begrenzen.

Revendications

1. Dispositif de verrouillage, apte à être utilisé sur des fermetures à glissière pour les ouvrir et les fermer, qui comprend :

- un corps de curseur (S) comprenant des ailes supérieure et inférieure (101, 102) réunies en leur extrémité frontale par un col (103) de façon à définir entre elles un canal de guidage (104) destiné au passage de deux rangées en vis-à-vis d'éléments d'accouplement (E, E) de la fermeture à glissière (F),
- une griffe de verrouillage (115), placée sur une plaque du dessus (110) dans ladite aile supérieure (101) et pivotable entre une position verrouillée pour être en prise avec les éléments d'accouplement (E) et une position déverrouillée pour libérer ceux-ci, ladite griffe de verrouillage (115) étant normalement poussée vers l'une ou l'autre desdites positions de verrouillage ou de déverrouillage,
- un mécanisme (116) de verrou à cadran, intégré sur l'extrémité frontale de la surface du dessus de ladite aile supérieure (101) et apte à déplacer ladite griffe de



- verrouillage (115) dans lesdites positions de verrouillage et de déverrouillage, ledit mécanisme de verrou (116) comprenant une partie bague (105), un manchon annulaire (117), un élément de mise en prise (118), un disque presseur (119) et un cadran (116), superposés dans cet ordre, et
- une patte courbe (108) s'étendant à l'opposé dudit mécanisme de verrou (116) depuis l'extrémité arrière de ladite aile supérieure (101) et ayant une extrémité solidarisée de ladite aile supérieure (101) et une extrémité opposée reliée audit mécanisme de verrou (116), ladite patte (108) étant apte à soutenir de façon pivotante une tirette, ledit élément de mise en prise (118) ayant une surface formant came (123, 136) en contact avec une partie (115d) de ladite griffe de verrouillage (115) si bien que la rotation dudit cadran (116) en même temps que dudit élément de mise en prise (118) conduit à un déplacement pivotant de ladite griffe de verrouillage (115) entre lesdites deux positions.
2. Dispositif de verrouillage selon la revendication 1, dans lequel ladite partie bague (105) comporte, sur sa paroi supérieure interne, une nervure (107) qui s'étend radialement.
 3. Dispositif de verrouillage selon la revendication 1, dans lequel ledit manchon annulaire (117) comprend une découpe (121) et une saillie (120) dirigée vers l'intérieur.
 4. Dispositif de verrouillage selon la revendication 1, dans lequel ledit élément de mise en prise (118) se compose d'une monture (122) comportant une découpe (123) et une saillie (124) dirigée vers l'extérieur, une marche intermédiaire (125) et une marche de bout (126), ladite découpe (123) coopérant avec la découpe (121) dudit manchon annulaire (117) pour l'entrée de l'extrémité arrière de ladite griffe de verrouillage (115) lorsque celle-ci se trouve dans la position de déverrouillage, ladite saillie (120) touchant la saillie (124) dudit manchon (117) pour limiter de ce fait la rotation dudit élément de mise en prise (118) dans ledit manchon (117).
 5. Dispositif de verrouillage selon la revendication 1, dans lequel ledit disque presseur (119) comprend une plaque formant disque (127) munie en son centre d'une ouverture (128) et sur sa surface supérieure d'une pluralité de fentes radiales (129), ladite plaque formant disque (127) étant fixée à la paroi frontale de ladite patte courbe (108) et montée sur la marche intermédiaire (125) dudit élément de mise en prise (118), ledit disque presseur (119) étant maintenu en relation d'accrochage sur la nervure radiale (107) se trouvant dans ladite partie bague (105).
 6. Dispositif de verrouillage selon la revendication 1, comportant en outre un ressort à lame (130) pouvant être mis en correspondance avec la marche (126) du bout dudit élément de mise en prise (122) et pouvant tourner de coeur avec la plaque formant disque (129) dudit disque presseur (119).
 7. Dispositif de verrouillage, apte à être utilisé sur des fermetures à glissière pour les ouvrir et les fermer, qui comprend :
 - un corps de curseur (S) comprenant des ailes supérieure et inférieure (101, 102) réunies en leur extrémité frontale par un col (103) de façon à définir entre elles un canal de guidage (104) destiné au passage de deux rangées en vis-à-vis d'éléments d'accouplement (E, E) de la fermeture à glissière (F),
 - une griffe de verrouillage (115), placée sur une plaque du dessus (110) dans ladite aile supérieure (101) et pivotable entre une position verrouillée pour être en prise avec les éléments d'accouplement (E) et une position déverrouillée pour libérer ceux-ci, ladite griffe de verrouillage (115) comportant en son extrémité frontale une extension latérale (115e) et étant normalement poussée en direction de l'une ou l'autre desdites positions de verrouillage ou de déverrouillage,
 - un évidement (200) vertical formé en une extrémité de la plaque du dessus (110) de ladite aile supérieure (101) pour y recevoir une extrémité arrière de ladite griffe de verrouillage (115), ledit évidement (200) étant déplacé axialement vers l'une ou l'autre des directions dans le sens de la longueur,
 - une paire de rainures de verrouillage (204, 205) disposées de façon centrale sur l'aile supérieure (101),
 - une paire de parois verticales (206, 207) fixées en étant intégrées sur les côtés opposés de ladite aile supérieure (101), et
 - un mécanisme (208) de verrou à cadran déplaçable par coulissement sur ladite



aille supérieure (101) en étant supporté par lesdites parois verticales (206, 207), ledit mécanisme de verrou (208) comprenant une base (209), un capot (211), une plaque de verrou (210) intercalée entre eux et un cadran (228), ladite base (209) comportant une surface formant came (214) qui touche ladite extension latérale (115e) de ladite griffe de verrouillage (115) de telle sorte qu'un déplacement coulissant dudit mécanisme de verrouillage (208) en même temps que de ladite base (209) provoque un déplacement pivotant de ladite griffe de verrouillage (115) entre lesdites deux positions,

ladite plaque de verrou (210) étant alternativement engageable avec l'une ou l'autre desdites deux rainures de verrouillage (204, 205) en définissant une position opérante et une position non-opérante du mécanisme de verrou (208), ledit cadran (228) coopérant avec ladite plaque de verrou (210) pour permettre ou empêcher celle-ci de se libérer de la rainure de verrouillage (204, 205) sélectionnée.

8. Dispositif de verrouillage selon la revendication 7, dans lequel ladite base (209) a globalement la forme d'une plaque avec une monture (212), une partie de mise en prise (213) qui s'étend vers le haut en une extrémité de celle-ci, une saillie angulaire (214) décalée axialement en son extrémité opposée et une ouverture rectangulaire (215) se trouvant sensiblement dans sa partie centrale, ladite saillie angulaire (214) coopérant avec l'extension (115e) de ladite griffe de verrouillage (115) et ladite ouverture rectangulaire (215) pouvant recevoir ladite plaque de verrou (210).

9. Dispositif de verrouillage selon la revendication 7, dans lequel ledit capot (211) est pourvu d'une paroi horizontale (217) et d'une paroi oblique (218) prolongeant celle-ci, ladite paroi oblique (218) comportant des moyens formant cliquets (222, 223).

10. Dispositif de verrouillage selon la revendication 7, dans lequel ladite plaque de verrou (210) comprend un axe de verrou (225) guidé dans ledit capot (211), une partie d'extrémité (226) en correspondance avec lesdites rainures de verrouillage (204, 205) et un ressort à lame (227), ladite plaque de verrou (210) étant normalement poussée en engagement avec l'une ou l'autre desdites rainures de verrouillage (204 ou 205).

11. Dispositif de verrouillage selon la revendication 7, dans lequel ledit cadran (228) est placé entre ladite plaque de verrou (210) et ledit capot (211) et est muni d'une plaque de cadran (229) et d'une plaque formant disque (230), ledit cadran (228) ayant sur son extrémité interne inférieure une découpe (236) et une saillie menante (203), ladite plaque formant disque comportant sur sa paroi latérale une découpe (237) et sur sa surface supérieure une saillie menée (235), la première découpe (236) coopérant avec la deuxième découpe (237) pour l'entrée de ladite plaque de verrou (115), lesdites saillies menante et menée (235, 236) s'accrochant pour limiter la rotation du cadran (228).

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