(19) DANMARK

(10) **DK/EP 3498941 T3**

(12) Oversættelse af europæisk patentskrift

Patent- og Varemærkestyrelsen

(51) Int.Cl.: ***E 05 B 13/00 (2006.01)*** *E 05 B 15/00 (2006.01)* *E 05 B 15/02 (2006.01)* *E 05 B 35/00 (2006.01)*

(45) Oversættelsen bekendtgjort den: **2023-09-18**

(80) Dato for Den Europæiske Patentmyndigheds bekendtgørelse om meddelelse af patentet: **2023-06-07**

(86) Europæisk ansøgning nr.: **18213078.1**

(86) Europæisk indleveringsdag: **2018-12-17**

(87) Den europæiske ansøgnings publiceringsdag: **2019-06-19**

(30) Prioritet: **2017-12-18 DE 102017130340**

(84) Designerede stater: **AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**

(73) Patenthaver: **HOPPE AG, Industriezone 1/5 - Eurocenter, 39011 Lana (BZ), Italien**

(72) Opfinder: **Schuberth, Oliver, Schulweg 15, 39023 Laas, Italien**

(74) Fuldmægtig i Danmark: **Plougmann Vingtoft A/S, Strandvejen 70, 2900 Hellerup, Danmark**

(54) Benævnelse: **BETJENINGSHÅNDTAG MED LÅSEINDRETNING**

(56) Fremdragne publikationer:
EP-A2- 2 752 537
GB-A- 141 475
GB-A- 886 906
GB-A- 191 503 713
US-A- 4 142 748
US-A- 4 861 084
US-A1- 2010 199 727

Description

The invention relates to an actuating handle for a door according to the preamble of claim 1.

An actuating handle usually comprises at least one stop element which is arranged on a door leaf and is configured for the swivelling mounting of a handle such as a door knob. Often such actuating handles are required to be able to block an actuating of the handle by the user of the actuating handle when so needed, for example in order to lock a room. Many possible designs are known for this in the state of the art, which either block a movement of the handle or decouple the movement of the handle from a closure mechanism provided in the door.

For example, DE 10 2007 030 655 A1 of the applicant describes one such actuating handle for a door, in which a stop element is arranged on either side of a door leaf. The stop element serves as a mount for a handle, which is connected by means of a square pin to a closure mechanism in the door leaf. In order to block the actuating of the handle and consequently the unlocking of the door when needed, a blocking device is formed between the stop elements, which blocks a movement of the handle when a blocking element is actuated. The actuating member for the actuating of the blocking device is configured here as a swivelling element, which projects out from the end face of an stop element.

GB 886 906 A shows an actuating handle with a locking device which acts directly on a polygonal pin. For this purpose, a rotatably mounted disk with a cutout that has a circular section and a narrower, arcuate section is provided. By turning the disk using an actuating element, the polygonal pin can be brought into alignment with one of the two sections for blocking or releasing the polygonal pin.

GB 03713 A A.D. 1915 discloses an actuating handle with a locking device in which a lever is engageable with a locking disc.

GB 141 475 A, US 4 142 748 A, US 2010/199727 A1, US 4 861 084 A and EP 2 752 537 A2 describe other operating handles.

The configuration of an actuating handle with a blocking device for the actuating of the handle described in the aforementioned state of the art has the drawback that the actuating member of the blocking device stands out by a distance from the end face of the stop element, resulting in a relatively large configuration height and consequently an appearance often perceived as unattractive. A reducing of the configuration height by a

shortening of the actuating member would have the drawback of making it harder to hold the actuating member, making the actuating of the blocking device more difficult.

Accordingly, the problem which the present invention proposes to solve, is to provide an actuating handle with a blocking mechanism which is characterized by a low configuration height and at the same time is easy to operate.

Main features of the invention are indicated in the characterising part of claim 1.

Embodiments are the subject matter of claims 2 to 12.

In an actuating handle for a door with a handle for actuating a locking device arranged in the door, wherein the actuating handle has two stop elements which are arrangeable on opposite sides of a door, wherein the handle for actuating the blocking device is mounted in a first stop element so as to be rotatable about a first axis of rotation, wherein the actuating handle furthermore has a blocking device, wherein the blocking device has a release position, in which rotation of the handle about the first axis of rotation is enabled, and has a blocking position, in which rotation of the handle about the first axis of rotation is blocked by the blocking device, wherein the actuating handle furthermore has an actuating mechanism for the blocking device, and wherein the actuating mechanism has a slider element which is displaceable along a circle segment that is centred about the first axis of rotation, wherein a displacement of the slider element along the circle segment effects an actuation of the blocking device, it is provided according to the invention that the actuation mechanism for the blocking device is arranged on the first stop element, and the blocking device is arranged between the first stop element and a second stop element, that the actuation mechanism has a rotary slide and at least one pinion, wherein the rotary slide is mounted on the first stop element so as to be rotatable about the first axis of rotation and carries or has the slider element, wherein the pinion is mounted on the stop element so as to be rotable about a second axis of rotation, and wherein the rotary slide is operatively connected to the pinion in such a way that a rotation of the rotary slide about the first axis of rotation effects an actuation of the blocking device from the release position into the blocking position and/or vice versa, and that the slider element projects in the direction of the first axis of rotation through an end face of the stop element that faces towards the handle.

By “actuation of the blocking device” is meant a process in which the blocking device is switched from the release position to the blocking position and vice versa. The above described use of a slider element which is displaceable along a circle segment

centred about the axis of rotation of the handle has the advantage that the slider element can be configured very flat, so that the overall configuration height of the stop element and especially that of the actuating mechanism of the blocking device can be kept low. At the same time, the use of such a slider element has the advantage that its actuation is very easy and usually is possible with only one finger, especially in the style of the modern operation of mobile radio devices or tablet computers by swiping movements. On the contrary, the rotatable actuating member described above as the state of the art must always be grasped by two fingers in order to guarantee a secure actuating.

Moreover, the configuration of the slider element in the actuating handle according to the invention also makes it possible to actuate the handle and the slider element with one hand at the same time and thus actuate the actuating mechanism with one finger of the same hand. Consequently, the handling of the configuration according to the invention of the actuating mechanism is also easier than in the state of the art.

A compact construction of the actuating handle according to the invention is achieved in particular because the slider element passes through an end face of the stop element facing toward the handle in the direction of the first axis of rotation. By the end face is meant that surface which is arranged on the side of the stop element facing away from the door leaf and usually facing toward a user of the actuating handle. In this way, the stop element of an actuating handle according to the invention can have a very flat configuration, since the entire construction of the actuating mechanism can be recessed in the door leaf behind the stop element, wherein only the slider element protrudes slightly from the surface of the stop element.

An actuating of the slider element of the actuating mechanism is facilitated according to a further embodiment in that a surface of the slider element protruding from the stop element is roughened. In this way, it is enough for a user of the actuating handle to merely place their finger on the slider element and move the slider element with slight pressure along the circle segment. The roughened surface of the slider element will prevent the finger from slipping off the slider element.

The actuating of the slider element can be further simplified according to a further embodiment in that the stop element has a recess in its end face, through which the slider element passes through the end face and in which the slider element is guided. The recess preferably delimits the deflection of the slider element along the circle segment. Consequently, the recess through which the slider element passes through the end face

of the stop element at the same time serves as a guide block for the slider element. Moreover, the actuating mechanism may preferably be configured such that the release position of the blocking device is established on the side of a first end stop of the slider element against the recess, while the blocking position of the blocking device is established on the side of a second end stop of the slider element against the recess. This further simplifies the actuating of the slider element, since for a secure actuating of the slider element a user of the slider element only has to move from one end of the recess to the other end of the recess and there is no doubt as to the position of the slider element in which the release position or the blocking position of the blocking device is achieved.

According to a further embodiment, the blocking device comprises at least one first blocking element joined rotationally firmly to the handle and a second rotatably mounted blocking element, wherein a rotation of the second blocking element brings the second blocking element into engagement with the first blocking element such that a rotation of the handle about the first axis of rotation is hindered by the second blocking element. Thanks to this configuration, a blocking device can be realized with simple means requiring only a rotating of the second blocking element for the actuation, i.e., for a switching from a release position to a blocking position or vice versa.

In order to achieve a rotationally firm connection of the first blocking element to the handle of the actuating handle, the first blocking element may for example be shoved rotationally firmly onto a polygonal pin connected to the handle, which is provided for a coupling of the handle to a closure mechanism configured in a door leaf. The first blocking element may have a recess, for example, with which the second blocking element engages as soon as it has been moved into the blocking position.

According to the invention, it is provided that the actuating handle comprises two stop elements, which are arranged on opposite sides of a door, wherein the actuating mechanism for the blocking device is arranged on the first stop element and wherein the blocking device is arranged between the first stop element and a second stop element. Consequently, the overall construction of the blocking device can be arranged on both sides of a door, which on the whole makes possible a relatively flat construction of the blocking device and hence that of the actuating handle. In particular, it may be provided that the blocking device is arranged on the second stop element.

The actuating mechanism comprises a rotary slide and at least one pinion. The rotary slide is mounted on the stop element rotatably about the first axis of rotation and

carries or comprises the slider element. The pinion is mounted on the stop element rotatably about a second axis of rotation. The rotary slide stands in an operative connection with the pinion such that a rotation of the rotary slide about the first axis of rotation effects an actuating of the blocking device from the release position to the blocking position and/or vice versa. Consequently, basically only two elements are needed for the configuration of the actuating mechanism of the blocking device, which can be arranged in space-saving manner beneath an stop element. This further contributes to a low configuration height of the actuating handle.

Preferably, the rotary slide is connected to the pinion such that a rotation of the rotary slide about the first axis of rotation effects a rotation of the pinion about the second axis of rotation. The rotary slide is preferably a flat element, such as a metal plate, which lies flat against the back side of the stop element, so that a low configuration height results for the actuating mechanism.

According to a preferred embodiment, it is further provided that the maximum extension of the rotary slide is smaller in the radial direction of the first axis of rotation than the minimum extension of the first stop element. Consequently, the rotary slide never protrudes beyond the first stop element in the radial direction, regardless of its rotary position. Hence, the first stop element can be arranged completely flush with the surface of a door leaf, since no elements of the actuating device protrude in the radial direction beyond the first stop element.

The connection of the rotary slide to the pinion is preferably realized according to a further embodiment in that the rotary slide comprises a toothed segment on its circumference, which meshes with the pinion. For example, the rotary slide as already mentioned above can be a flat metal plate, in which teeth are provided in one region of the circumference, preferably configured in the shape of a circle segment, being matched in shape to the teeth of the pinion.

According to a preferred embodiment, the toothed segment is arranged on the rotary slide diagonally opposite the slider element with respect to the first axis of rotation. In this way, a large lever can be realized between the slider element and the toothed segment of the slider element, which makes easier an actuating of the slider element and hence an actuating of the blocking device. The circle segment of the slider element in which the toothed segment is formed is preferably likewise centred about the first axis of

rotation, so that a secure engaging of the teeth of the toothed segment with the teeth of the pinion can be assured.

Moreover, the actuating of the slider element according to another embodiment can be simplified in that the size of the pinion and the toothed segments are attuned to each other such that a rotation of the rotary slide by 15° to 25°, preferably 20°, about the first axis of rotation effects a rotation of the pinion by 90° about the second axis of rotation. In this way, a rotation of the pinion and hence a rotation of the second blocking element can be accomplished already with a slight displacement travel of the slider element, which is enough to switch the blocking element between the release position and the blocking position. This further facilitates the handling of the slider element, since only a slight effort is needed to actuate the slider element.

The transmitting of the rotation of the pinion to the second blocking element preferably occurs, according to a further embodiment, in that the pinion and the blocking device are joined together rotationally firmly by a shaft. Preferably, the blocking element of the blocking device is mounted on the shaft. It is further provided according to another embodiment that the pinion is arranged on a first bushing and the second blocking element on a second bushing, wherein the shaft engages with the first and second bushing and is mounted floating in the first and second bushing. The floating mounting of the shaft in the bushings has the advantage that the distance between pinion and second blocking element can be chosen to be variable, yet even so a secure coupling of the pinion with the second blocking element is achieved. In particular, in one embodiment, in which the second blocking element is arranged on a first stop element and the pinion on a second stop element, the actuating handle can thus be adapted to different thicknesses of a door on which the actuating handle is to be mounted. The pinion or the second blocking element can either be mounted or fastened on the respective bushings, or be configured as a single piece with the corresponding bushings. In particular, a single-piece configuration of the pinion/second blocking element with the corresponding bushing has the advantage that a good stability of the actuating mechanism is achieved in general.

Preferably, the shaft here is a polygonal pin, especially a square pin.

In order to make possible an unlocking of the blocking device even without actuating the slider element, it is provided according to a further embodiment that the second bushing passes through the second stop element along the second axis of rotation and has a receptacle for a tool. By a tool receptacle is meant a receptacle for a screwdriver

with plain slot, Phillips head, or hexagon. Thus, by inserting a corresponding tool, a rotation of the second blocking element can be accomplished, so that the blocking device can be unlocked. Preferably, the tool receptacle is arranged in an stop element in which the slider element is also not arranged at the same time. Thus, for example, a door locked on the inside can be opened from the other side of the door, for example in the case when a person has unintentionally become locked in.

In order to further simplify the actuating of the slider element by a user of the actuating handle, it is provided according to a further embodiment that the first stop element comprises a guide ring on its back side, on which the rotary slide is rotatably mounted. The guide ring here preferably forms a latching device with the rotary slide, which presents an increased resistance to a rotation of the rotary slide in at least two rotary positions of the rotary slide. In this way, a user is given sensory feedback upon actuating the slider element when the slider element has moved the blocking device into the release position, or into the blocking position.

The latching device according to a further embodiment is configured such that the actuating mechanism comprises a latching ring, which is arranged rotationally firmly on the guide ring, wherein the rotary slide is arranged rotatably on the latching ring. The latching ring has at least one latching nose, which engages with corresponding mating recesses of the rotary slide at the at least two rotary positions of the rotary slide.

For example, the latching ring may simply be mounted on the guide ring, wherein the latching ring engages in corresponding recesses of the guide ring or vice versa. It may also be provided that the latching nose is arranged in the rotary slide and the mating recesses are formed in the latching ring.

Moreover, it can be provided according to a further embodiment that the actuating mechanism comprises a mounting element which is fastened to the first stop element and fixes the rotary slide in the axial direction of the first axis of rotation on the guide ring. In this way, no separate fixation of the rotary slide on the guide ring is necessary. Moreover, with the use of a mounting element the entire construction of rotary slide, latching ring and guide ring can be fixed in its position such that no further fastening means are required. This further simplifies the overall construction of the actuating mechanism. The rotary slide is arranged preferably as a flat element, such as a metal plate, between the mounting element and the first stop element.

Preferably, the mounting element according to a further embodiment is secured on the first stop element by means of at least two fastening bushings, wherein the fastening bushings each have at least one flange. The mounting element is then held by force locking of the mounted fastening bushings between the flanges and the first stop element. According to a further embodiment, it is provided that the fastening bushings are configured so as to engage with mating elements of the second stop element, wherein the engagement produces a floating mounting. Consequently, the fastening bushings according to the above described embodiment play a dual role. On the one hand, the fastening bushings serve to secure the mounting element on the first stop element and consequently to fasten the overall actuating mechanism to the first stop element. On the other hand, the fastening bushings serve at the same time for a floating mounting of the first stop element on the second stop element, so that the spacing between stop elements arranged on different sides of a door leaf can be adapted to the thickness of the door leaf.

Further features, details and benefits of the invention will emerge from the wording of the claims as well as the following description of exemplary embodiments with the aid of the drawings. The drawings show the following:

Fig. 1 a perspective view of an actuating handle,

Fig. 2 a perspective view of a blocking device arranged between the stop elements,

Fig. 3 a perspective view of an alternative arrangement of the blocking device between the stop elements,

Fig. 4 an exploded view of the actuating mechanism,

Fig. 5 an exploded view of the same actuating mechanism from a different viewing direction,

Fig. 6 a schematic view of an actuating mechanism arranged on an stop element,

Fig. 7 a further view of Fig. 6 with a mounting element,

Fig. 8 a sectional view of a top view of an actuating mechanism arranged on an stop element, and

Fig. 9 a further sectional view of an actuating handle.

In the following, similar or identical features shall be given the same reference numbers.

Fig. 1 shows a perspective view of an actuating handle 100 with two handles 102, two stop elements 104, 104' and a recognizably indicated blocking device 106. The

actuating handle 100 shown may be arranged for example on a door leaf. For this, at first the stop elements 104, 104' are arranged on both sides of a door leaf, wherein the blocking device 106 is arranged between the stop elements 104, 104'. After this, the handles 102 are secured to the stop elements 104, 104'. For this, a polygonal pin for example is passed through corresponding recesses of the stop elements 104, 104' and a mortise lock (not shown) arranged in the door leaf. Then, the handles 102 are fastened rotationally firmly to the polygonal pin. By actuating the handles 102, it is then possible to actuate the mortise lock, so that a bolt of the mortise lock is pulled out from a corresponding door latch and the door can be opened. In the example shown in Fig. 1, the stop elements 104, 104' are disk-shaped stop elements in which the handles 102 are mounted centrally.

For such actuating mechanisms of actuating handles there is often provided a mechanism which blocks an actuation of the handle 102 when need be, so that an opening of the door on which the handle 102 is arranged is no longer possible. This is realized in the actuating handle 100 according to the invention in that the blocking device 106 hinders the polygonal pin on which the handles 102 are fastened from rotating about its longitudinal axis. The switching between this position, hereafter called the "blocking position", and a position in which the handles 102 can be actuated, hereafter called the "release position", occurs in the actuating handle 100 according to the invention by a user actuating the slider element 108. The slider element 108 is an element preferably roughened on its surface, sticking out from one end face 156 of a first stop element 104. The slider element 108 is preferably dimensioned such that only a few millimetres stick out beyond the end face 156, such as 1 to 5 mm.

The slider element 108 is mounted in the first stop element 104 such that it can be displaced along a circle segment centred about the axis of rotation of the handle 102 or a square pin connected to the handle. For this, the first stop element 104 moreover has a recess 110, in which the slider element 108 is guided. By a deflecting of the slider element 108 inside the recess 110, a switching is then possible between the blocking position and the release position of the blocking device 106. As is moreover evident from Fig. 1, the recess 110 allows a displacement of the slider element 108 along the circle segment in an angle range of around 20°. In the embodiment shown, the recess 110 acts at the same time as an end stop for the slider element 108 and thereby limits a possible displacement

of the slider element 108 along the circle segment. Preferably, the end positions of the slider element 108 in the recess correspond to the release and blocking positions.

Fig. 2 shows a perspective view of the internal configuration of the actuating handle 100. The handles 102 represented in Fig. 1 are not shown here, for reasons of clarity. As can be seen readily in Fig. 2, the blocking device 106 and an actuating mechanism 112 for the blocking device 106 are formed between the stop elements 104 and 104'. The actuating mechanism 112 is substantially arranged on the first stop element 104 depicted on the right side, while the blocking device 106 is formed in a closure tablet 114 on the opposite side on the second stop element 104' depicted at the left side. The blocking device 106 formed in the closure tablet 114 is a mechanism which can be switched by a corresponding actuation between a blocking position and a release position, as was described above. The precise functioning of the blocking device 106 will not be discussed at this time. Instead, as an example of this, refer to the above cited other application of the applicant, in which the functioning of such a closure tablet 114 has already been described.

Moreover, in Fig. 2 it is readily apparent that the second stop element 104' is connected by corresponding connecting means to the first stop element 104. The connecting means are, on the one hand, fastening bushings 116, which are arranged at the side next to a recess 118, in which a handle 102 can be mounted in the first stop element 104. These fastening bushings 116 engage with mating elements which are arranged on the opposite second stop element 104'. The mating elements are mounted floating in the fastening bushings 116, so that the distance between the first stop element 104 and the second stop element 104 is adjustable in flexible manner. Moreover, beneath the recess 118 there is formed another connection between the stop elements 104, 104', which shall be further discussed below.

Fig. 3 shows the same image cutout feature as Fig. 2, wherein, in this case, the closure tablet 114 like the actuating mechanism 112 is arranged on the first stop element 104. The question of which stop element 104, 104' should be used to arrange the closure tablet 114 depends in most instances on the layout of the mortise lock as well as the corresponding recesses in the door leaf. In theory, the closure tablet 114 can be arranged in any desired position between the two stop elements 104 and 104' by an appropriate configuration of the actuating mechanism 112. In this way, the described actuating handle 100 can be adapted in flexible manner to the prevailing conditions of the installation.

Figs. 2 and 3 moreover reveal that a receptacle 120 for a tool is provided in the second stop element 104' arranged on the left side, being in this instance a slotted screwdriver. This is located beneath the recess 118 for a handle 102. By inserting a tool into the receptacle 120 and rotating the receptacle 120, the closure tablet 114 can be moved from a blocking position to a release position or vice versa, without having to actuate the actuating mechanism 112 by means of the slider element 108. Thus, an unlocking of a door can also be done when the slider element 108 is not accessible to a user.

This may be helpful, for example, if a person is unintentionally locked in by actuating the slider element 108 and then is no longer able to unlock the door. The precise functioning or interacting of the closure tablet 114 with the receptacle 120 or the actuating mechanism 112 shall now be discussed.

For this, Fig. 4 shows an exploded view of the actuating mechanism 112 with an stop element 104, on which the actuating mechanism 112 can be arranged. Basically, the actuating mechanism 112 consists of a flat rotary slide 122, a latching ring 124, a pinion 126 and a guide ring 128, which is arranged around the recess 118 on the back side 158 of the stop element 104. Moreover, the exploded view of Fig. 4 shows a mounting element 130, two fastening bushings 116 and a shaft 132 configured as a square pin.

The stop element 104 here has the recess 110 provided for the guiding of the slider element 108 in its upper area. The recess 110 is configured as a circle segment, which is centred around the centre of the recess 118 and hence around the later axis of rotation of the installed handle 102. To the side of the recess 118 of the stop element 104 there are formed moreover two pins 144, whose function shall be explained later on. The pins 144 may be threaded pins, for example.

The rotary slide 122 is configured as a substantially flat plate, in the centre of which an approximately round circular recess 134 is formed, which is larger in its diameter than the recess 118 of the stop element 104. In the assembled condition of the actuating mechanism 112, the rotary slide lies with its back side against the back side 158 of the stop element 104. Above the recess 134 on the back side of the rotary slide 122 there is provided the slider element 108, which is preferably configured as a single piece with the rotary slide 122. The slider element 108 is particularly well seen in Fig. 5, where the exploded view of Fig. 4 is shown from the opposite direction. On the diagonally opposite end of the rotary slide 122 there is formed moreover a toothed segment 136, which is

arranged on a circle segment being centred about the centre of the recess 134. The toothed segment 136 is configured to engage with a corresponding toothing of the pinion 126. In this way, a rotation of the slider element 122 about the centre of the recess 134 is transmitted to the pinion 126, which then rotates about a second axis of rotation, corresponding to the longitudinal axis of the pinion 126.

The recess 134 of the rotary slide 122 has at its upper circumference two recesses in the form of notches 138. These are configured to form with the latching ring 124 a latching device, which presents an increased resistance to a rotation of the rotary slide 122 for defined positions of the rotary slide 122 relative to the latching ring 124. For this, a latching nose 140 is provided on the latching ring 124, which can engage with the notches 138. At the same time, the latching ring 124 serves as a rotary bearing for the rotary slide 122. For this, the latching ring 124 may be secured rotationally firmly to the guide ring 128. For this purpose, the guide ring 128 has fastening lugs on its circumference, which engage with corresponding recesses of the latching ring 124 when it is mounted on the guide ring 128.

For the assembly of the actuating mechanism 112, basically at first the latching ring 124 is mounted on the guide ring 128 and then the rotary slide 122 is mounted on the latching ring 124. The centres of the respective recesses of the elements line up in this process and all of them lie on a common first axis of rotation, which at the same time corresponds to the axis of rotation about which the one handle 102 mounted in the stop element 104 can rotate.

For the fastening of the rotary slide 122 on the latching ring 124, the mounting element 130 is further provided. This is substantially a flat metal sheet with two curved wings 160 arranged at the sides, having a total of four recesses. A first central recess 142 is arranged centrally between the wings 160 such that their midpoint, after being assembled, coincides with the first axis of rotation. Moreover, notches are provided at the sides of the first recess 142, which can engage with corresponding mating elements of the guide ring 124, so that the guide ring 124 can no longer rotate relative to the mounting element 130 once the mounting element 130 is brought into engagement with the guide ring 124.

Beneath the recess 142, there is provided a further recess 146, which serves to receive and support the pinion 126. Moreover, at the side of the recess 142 there are

provided further recesses 162 in the wings 160, which serve for the fastening of the mounting element 130 on the stop element 104, as will be further explained below.

Fig. 6 shows the result of a first partial step in the assembly of the actuating mechanism 112. Here, first of all the latching ring 124 was mounted on the guide ring 128. Next, the rotary slide 122 was mounted on the latching nose 140 and the pinion 126 was arranged beneath the rotary slide 122 such that the toothed segment 136 engages with the toothing of the pinion 126, i.e., meshes with it. In the condition of the assembly process shown in Fig. 7, moreover the mounting element 130 has been mounted on the latching ring 124, so that a rotation of the latching ring 124 is blocked by the corresponding recesses in the recess 142 of the mounting element 130. Moreover, the fastening bushings 116 have been placed on the pins 144 passing through the side recesses 162 and through the mounting element 130, so that the mounting element 130 is secured on the stop element 104.

In this condition, the rotary slide 122 can no longer be displaced along the first axis of rotation, but only rotated about this first axis of rotation. Upon rotating the rotary slide 122 about the first axis of rotation, because of the toothed segment 136, the rotation of the rotary slide 122 is transmitted to the pinion 126, which in this way rotates about a second axis of rotation. The pinion is led here through the recess 146 of the mounting element 130. The rotating of the pinion 126 about the second axis of rotation is transmitted by means of the square pin 132 to the blocking mechanism of the closure tablet 114. This shall be further explained below with reference to Fig. 9. The distance between the first axis of rotation and the second axis of rotation can be for example 21.5 mm.

Fig. 8 shows yet again a top view of the subject of Fig. 7, wherein moreover a cross section through the fastening bushings 116 is shown. It can be seen that the fastening bushings are mounted on the pins 144 and thus fixed at the stop element. Moreover, an encircling flange 148 is formed on the fastening bushings 116 near the stop element 104. The mounting element 130 is clamped between this flange 148 and the stop element 104 when the fastening bushings 116 are mounted on the pins 144. The mounting element 130 rests only with the curved wings 160 against the back side 158 of the stop element 104. Thanks to the S-shape curved form of the wings, a space is formed between the stop element 104 and the mounting element 130, in which the rotary slide 122 is arranged.

The fastening bushings 116, as already mentioned above, are configured here at the same time for mounting a mating element of an oppositely situated stop element 104. Consequently, the fastening bushings 116 play a dual role, since on the one hand they serve for securing the mounting element 130 at the stop element 104 and on the other hand produce a connection of a first stop element 104 to an oppositely situated stop element 104.

This dual role is well seen in Fig. 9, where the overall construction that was previously discussed is once more represented in a lateral cross section view. It can clearly be seen that the actuating mechanism 112 and especially the fastening bushings 116 as well as the pinion 126 are arranged at the right-hand first stop element 104. Both the fastening bushings 116 and the pinion 126 are configured to receive a connection element. For this, the pinion 126 is formed on a first bushing 150, which has a receiving space for a connection element 132. The connection element is the square pin 132, which is mounted floating in the bushing of the pinion 126. On the oppositely situated second stop element 104' there is arranged a mating second bushing 152, with which the square pin 132 likewise engages. The second bushing 152 is connected to the closure tablet 114 such that a rotation of the second bushing 152 effects an actuating of the blocking mechanism formed in the closure tablet 114. Moreover, the receptacle 120 for a tool is formed at the left side of the second bushing 152 and connected rotationally firmly to this bushing. The second receiving element 104' passes through the receptacle 120, so that the blocking mechanism can be actuated from this side.

Moreover, connecting pins 154 are arranged on the second stop element 104', which engage with the fastening bushings 116 and thus establish the relative position of the second stop element 104' to the first stop element 104. The stop elements 104, 104' can be displaced relative to each other along the first axis of rotation, making possible an adapting of the actuating handle 100 to the thickness of a door or a door leaf.

The above described configuration of the actuating handle 100 makes it possible to arrange the entire mechanism of the blocking device in a door leaf, so that the stop elements 104, 104' can terminate smoothly with the surface of a door leaf. Only the slider element 108 for actuating the blocking device 106, besides the handles 102 themselves, protrudes out from the first stop element 104. Thus, an overall very compact appearance results, since only a few elements protrude from the door leaf.

The invention is not confined to one of the above described embodiments, but instead can be modified in diverse ways.

For example, the slider element 108 may also be arranged at the side or underneath the recess 118 to receive the handles 102.

The described specific configuration of the latching mechanism can also be modified so that the latching nose is arranged on the rotary slide 122, while the mating recesses are provided in the latching ring 124.

List of reference numerals

100	Actuating handle	132	Shaft/Square pin
102	Handle	134	Recess
104	First stop element	136	Toothed segment
104‘	Second stop element	138	Recess/Notch
106	Blocking device	140	Latching nose
108	Slider element	142	Recess
110	Recess	144	Pin
112	Actuating mechanism	146	Recess
114	Closure tablet	148	Flange
116	Fastening bushing	150	First bushing
118	Recess	152	Second bushing
120	Receptacle	154	Connecting pin
122	Rotary slide	156	End face
124	Latching ring	158	Backside
126	Pinion	160	Wing
128	Guide ring	162	Recess
130	Mounting element		

Patentkrav

1. Betjeningshåndtag (100) til en dør med et håndtag (102) til betjening af en i døren anbragt lukkeindretning,
hvor betjeningshåndtaget (100) har to anslagselementer (104, 104'), der kan anbringes på over for hinanden liggende sider af en dør,

- hvor håndtaget (102) er monteret i et første anslagselement (104) drejeligt om en første omdrejningsakse til betjening af lukkeindretningen,
- hvor betjeningshåndtaget (100) endvidere har en låseindretning (106),
- hvor låseindretningen (106) har en frigjort stilling, i hvilken en drejning af håndtaget (102) om den første omdrejningsakse er frigjort, og en låsestilling, i hvilken en drejning af håndtaget (102) om die første omdrejningsakse er blokeret af låseindretningen (106),
- hvor betjeningshåndtaget (100) endvidere har en betjeningsmekanik (112) til låseindretningen (106), og
- hvor betjeningsmekanikken (112) har et skydeelement (108), der kan forskydes langs et om den første omdrejningsakse centreret cirkelafsnit, idet en forskydning af skydeelementet (108) langs cirkelafsnittet bevirker en betjening af låseindretningen (106),

kendetegnet ved,

- **at** betjeningsmekanikken (112) til låseindretningen (106) er anbragt på det første anslagselement (104), og låseindretningen (106) er anbragt mellem det første anslagselement (104) og et andet anslagselement (104'),
- **at** betjeningsmekanikken (112) har en drejeskyder (122) og mindst et tanddrev (126), hvor drejeskyderen (122) er monteret på det første anslagselement (104) drejeligt om den første omdrejningsakse og bærer eller omfatter skydeelementet (108), hvor tanddrevet (126) er monteret på anslagselementet (104) drejeligt om en anden omdrejningsakse, og hvor drejeskyderen (122) står således i funktionel forbindelse med tanddrevet (126), at en drejning af drejeskyderen (122) om den første omdrejningsakse bevirker en betjening af låseindretningen (106) fra den frigjorte stilling til låsestillingen og/eller omvendt, og

- **at** skydeelementet (108) stikker gennem en mod håndtaget (102) vendende endeflade (156) af anslagselementet (104) i den første omdrejningsakses retning.

2. Betjeningshåndtag (100) ifølge krav 1, **kendetegnet ved, at** anslagselementet (104) i sin endeflade (156) har en udsparing (110), gennem hvilken skydeelementet (108) stikker gennem endefladen (156), og i hvilken skydeelementet (108) ledes.

3. Betjeningshåndtag (100) ifølge et af de foregående krav, **kendetegnet ved, at** låseindretningen (106) har mindst et udrejeligt med håndtaget (102) forbundet første låseelement og et drejeligt monteret andet låseelement, hvor en drejning af det andet låseelement bringer det andet låseelement således i indgreb med det første låseelement, at en drejning af håndtaget (102) om den første omdrejningsakse forhindres af det andet låseelement.

4. Betjeningshåndtag ifølge et af de foregående krav, **kendetegnet ved, at** den maksimale udstrækning af drejeskyderen (122) i den første omdrejningsakses radiale retning er mindre end den minimale udstrækning af det første anslagselement (104).

5. Betjeningshåndtag (100) ifølge et af de foregående krav, **kendetegnet ved, at** drejeskyderen (122) på omkredssiden har et tandsegment (136), der griber ind i tanddrevet (126).

6. Betjeningshåndtag (100) ifølge et af de foregående krav, **kendetegnet ved, at** tanddrevet (126) og låseindretningen (106) er udrejeligt med hinanden over en aksel (132).

7. Betjeningshåndtag (100) ifølge krav 3 og 6, **kendetegnet ved, at** tanddrevet (126) er anbragt på en første bøsning (150) og det andet låseelement på en anden bøsning (152), idet akslen (132) griber ind i den første og den anden bøsning (150, 152) og er monteret svømmende i den første og den anden bøsning (150, 152).

8. Betjeningshåndtag (100) ifølge krav 7, **kendetegnet ved, at** den anden bøsning (150) stikker gennem det andet anslagselement (104') langs den anden omdrejningsakse og har en udsparing (120) til et værktøj.

9. Betjeningshåndtag (100) ifølge et af de foregående krav, **kendetegnet ved, at** det første anslagselement (104) på bagsiden (158) har en styrering (128), på hvilken drejeskyderen (122) er monteret drejeligt.

10. Betjeningshåndtag ifølge krav 9, **kendetegnet ved, at** styreringen (128) sammen med drejeskyderen (122) danner en indgrebsindretning, der i mindst to drejestillinger af drejeskyderen (122) giver forøget modstand mod en drejning af drejeskyderen (122).

11. Betjeningshåndtag (100) ifølge krav 10, **kendetegnet ved, at** betjeningsmekanikken (112) har en indgrebsring (124), der er anbragt udrejeligt på styreringen (128), idet drejeskyderen (122) er anbragt drejeligt på indgrebsringen (124), og idet indgrebsringen (124) har mindst en indgrebsnæse (140), der griber ind i tilsvarende modstående udsparinger (138) i drejeskyderen (122) ved drejeskyderens (122) mindst to drejestillinger.

12. Betjeningshåndtag (100) ifølge et af kravene 10 eller 11, **kendetegnet ved, at** betjeningsmekanikken (112) har et monteringselement (130), der er fastgjort på det første anslagselement (104) og fikserer drejeskyderen (122) på styreringen (128) i den første omdrejningsakses aksiale retning.

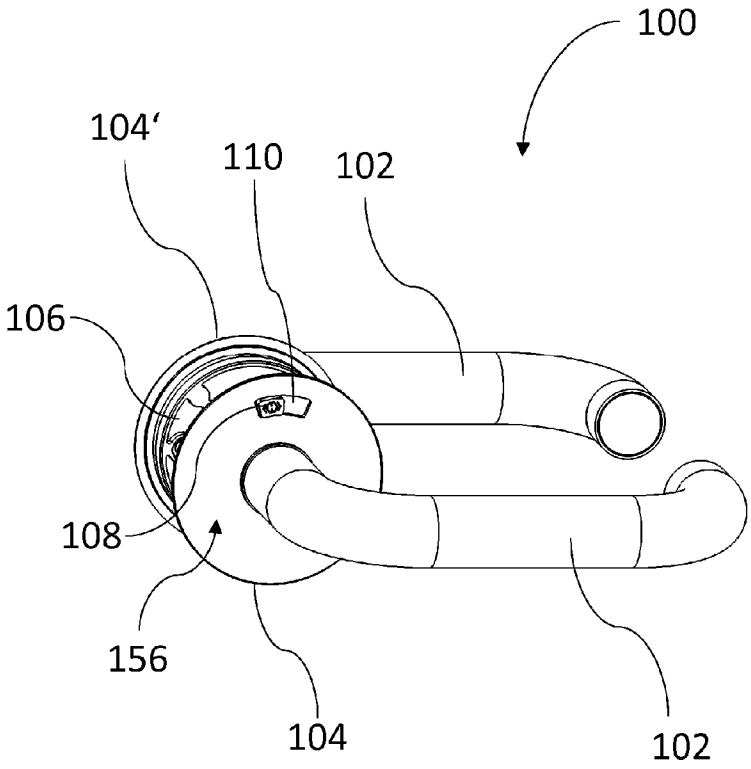

Figure 1

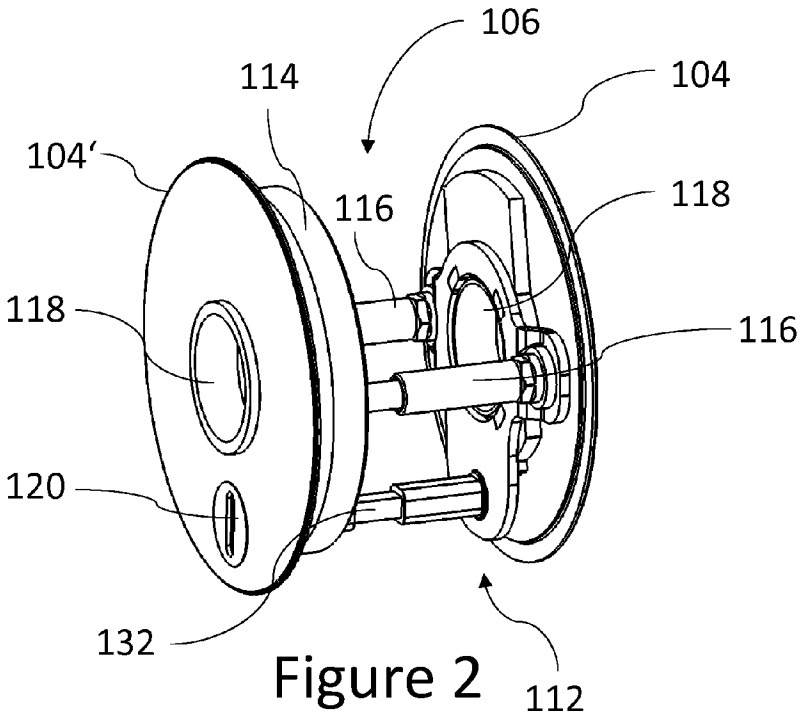

Figure 2

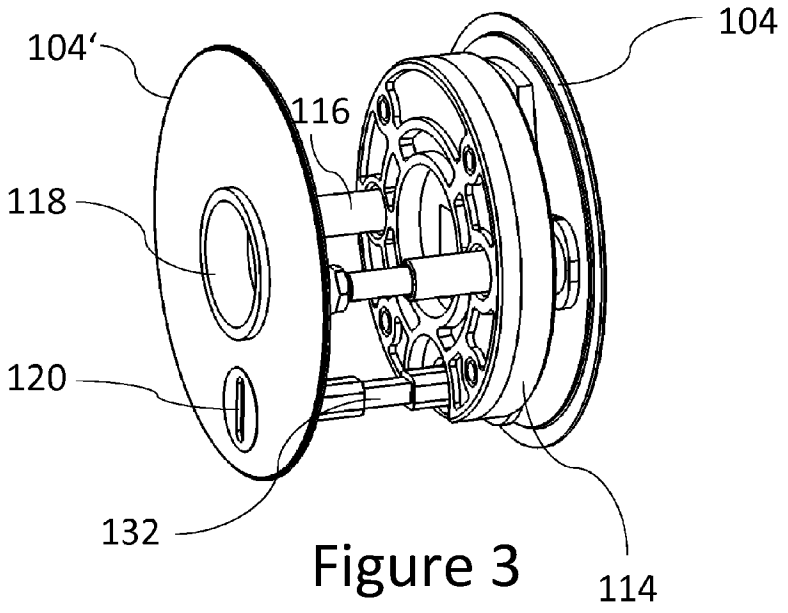

Figure 3

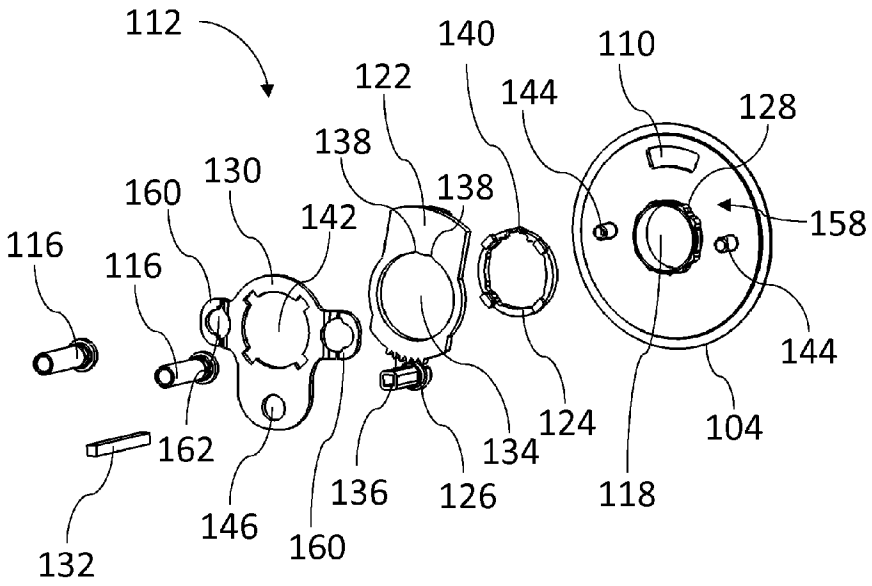

Figure 4

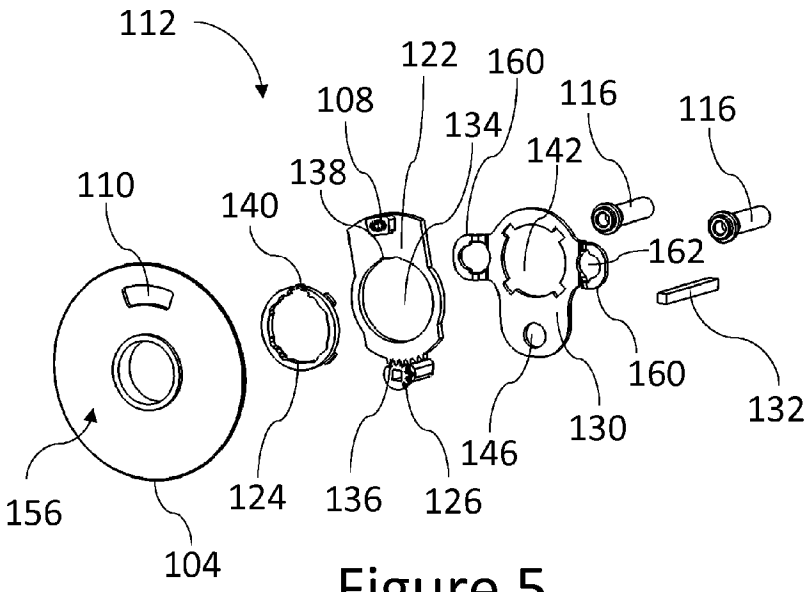

Figure 5

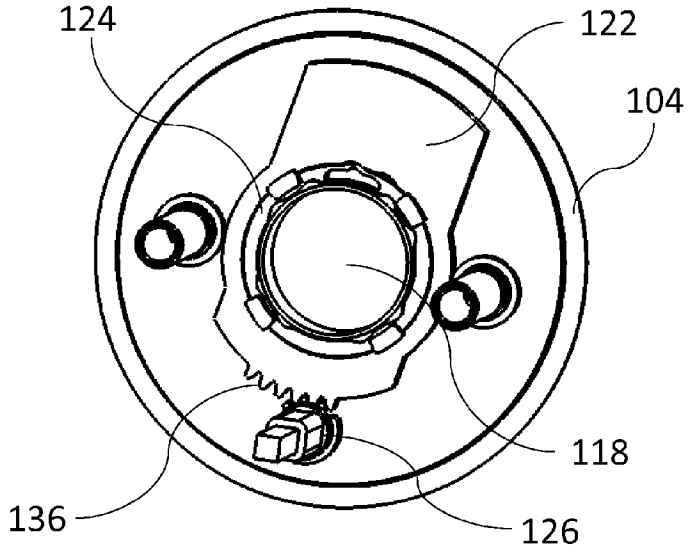

Figure 6

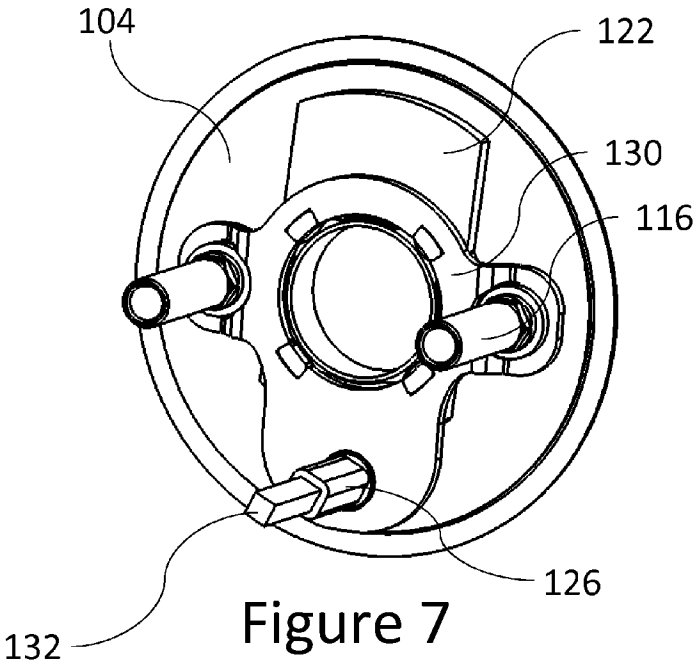

Figure 7

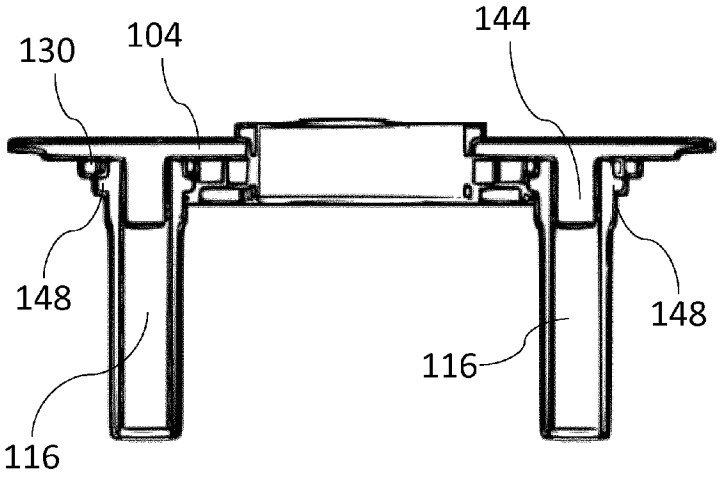

Figure 8

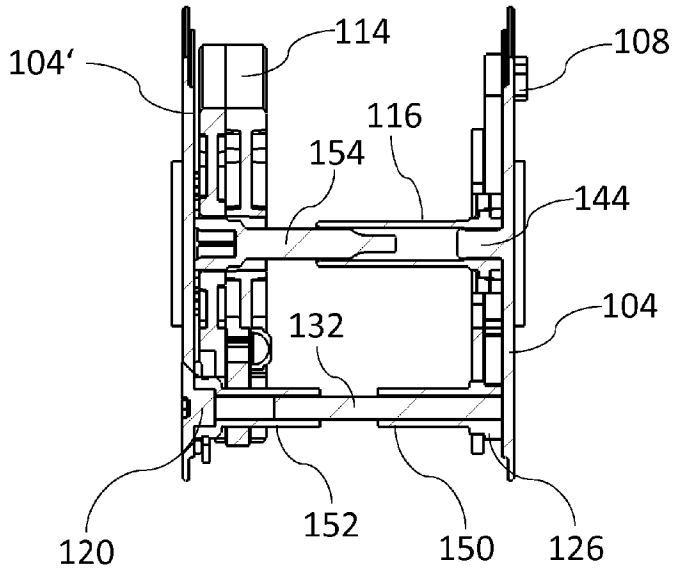

Figure 9