EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent: 05.11.1997 Bulletin 1997/45

(21) Application number: 94924880.1

(22) Date of filing: 16.08.1994

(51) Int Cl.: E05C 17/48, E05B 65/00, E05B 17/20, E05C 1/06

(86) International application number: PCT/EP94/02731

(87) International publication number: WO 95/05517 (23.02.1995 Gazette 1995/09)

(54) MECHANISM FOR LOCKING A DOOR OR DOOR LEAF TO THE FLOOR
BODENVERRIEGELUNGSMECHANISMUS FÜR TÜR ODER TÜRBLATT
MECANISME DE VERROUILLAGE D'UNE PORTE OU D'UN BATTANT DE PORTE AU PLANCHER

(84) Designated Contracting States:
AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

(30) Priority: 17.08.1993 DE 9312291 U

(43) Date of publication of application: 05.06.1996 Bulletin 1996/23

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Description

The invention relates to a mechanism for locking a door or door leaf made of glass - in particular prestressed glass - by means of a vertically displaceable latch disposed in a housing mounted to the bottom of the inner surface of the door or door leaf.

Such a mechanism for locking a door is known from the US patent US 1,436,892.

In particular doors and door leaves made of prestressed glass necessitate spaces (air gaps) between their lower edges and the floor. A burglar can insert a tool from outside into such a space in order to lift the latch and, thus, to unlock the door or door leaf.

Prior art designs to avoid this risk require a rotatable operating handle or expensive construction.

It is an object of the invention to provide a mechanism of the type mentioned above which rules out unlocking from outside by a burglar, or renders such unlocking extremely difficult, while being easy to operate and simple in design.

To achieve this object, the mechanism is characterised in that the latch is fixed to a slide block block vertically displaceable in the housing, the slide block bearing a mounting pin for an operating handle projecting inwardly, the mounting pin being pivotable in a limited range about a horizontal first pivot axle arranged parallel to the door or door leaf, that the slide block further bears a bell crank pivotable about a horizontal pivot axle disposed perpendicular to the door or door leaf, a first arm of the bell crank extending over the mounting pin and being biased downwardly by a spring, while the other arm extends downward and is provided with a hook oriented laterally for releasably engaging a latch recess in the housing, the bell crank being so arranged that, in operation, upon lifting the mounting pin in order to raise the latch from its locking position, the resultant pivoting of the mounting pin causes the bell crank to pivot, thereby releasing the hook from the latch recess.

In the design according to the invention, the latch can be unlocked by simple linear lifting of the operating handle, and locked accordingly by simple linear lowering of the operating handle. In the locked state, the latch is positively held by the hook engaging the latch recess and cannot be raised from outside, resulting in a safety lock arrangement.

In order to allow the mounting pin of the operating handle to extend horizontally in the locked state, the mechanism is preferably characterised in that the mounting pin extends from a central or lower portion of a vertically elongate base member, the upper part of which is pivotable about the first pivot axle. In order keep the mechanism compact, it is preferably characterised in that the slide block is formed with cavities for receiving the bell crank, the spring and/or the base member.

The invention will be explained in conjunction with an exemplary embodiment making reference to the accompanying drawings.

Fig. 1 is a perspective view of the mechanism in the locked state, with its front side open, Fig. 2 shows the mechanism of Fig. 1 in the unlocked state (or during unlocking), Fig. 3 is a detailed front view of the mechanism, and Fig. 4 is a sectional view taken along line IV-IV in Fig. 3.

The mechanism of the exemplary embodiment serves to lock a door 2 (or door leaf) made of prestressed glass to the floor. Adjacent to a lower edge 4 of door 2, cheek plates 10, 12 are attached to the inner surface 6 and outer surface 8 of the door, and coupled to each other by screws 68, 70 penetrating holes 64, 66 formed in door 2. The inner cheek plate 10 confines a housing 14 for a slide block 16. The slide block 16 bears a mounting pin 20 for an operating handle 22 projecting inwardly, the mounting pin 20 being pivotable in a limited range about a horizontal first pivot axle 18 arranged parallel to the door. The slide block 16 further bears an elbow lever or bell crank 26 pivotable about a horizontal pivot axle 24 disposed perpendicular to door 2; a first arm 28 of the bell crank 26 extends beyond the mounting pin 20 and is biased downwardly by a spring 30, while the other arm 32 extends downward and is provided with a hook 34 oriented laterally for releasably engaging a latch recess 36 in housing 14.

The mounting pin 20 extends from a central portion 38 of a vertically elongate base member 40, the upper part 42 of which is pivotable about the first pivot axle 18.

The slide block 16 is formed with cavities 44, 46, 48 for receiving the bell crank 26, spring 30 and base member 40.

The upward path of travel of slide block 16 is limited by headless screws 50, 52 penetrating the housing 14 to engage lateral longitudinal grooves 54, 56 of slide block 16.

In order to latch the slide block 16 in its raised position, the slide block 16 comprises a ball 60 biased by a spring 58 and arranged to be pushed substantially horizontally and laterally into a corresponding spring latch recess 62 in housing 14.

Claims

1. A mechanism for locking a door (2) or door leaf made of glass - in particular prestressed glass - by means of a vertically displaceable latch (3) disposed in a housing (14) when mounted at the bottom of the inner surface (6) of the door (2) or door leaf, characterised in that

the latch (3) is fixed to a slide block (16) vertically displaceable in the housing (14), the slide block (16) bearing a mounting pin (20) for an operating handle (22) projecting inwardly, the mounting pin (20) being pivotable in a limited
range about a horizontal first pivot axle (18) arranged parallel to the door or door leaf, that the slide block (16) further bears a bell crank (26) pivotable about a horizontal pivot axle (24) disposed perpendicular to the door (2) or door leaf, a first arm (28) of the bell crank (26) extending over the mounting pin (20) and being biased downwardly by a spring (30), while the other arm (32) extends downward and is provided with a hook (34) oriented laterally for releasably engaging a latch recess (36) in the housing (14), the bell crank (26) being so arranged that, in operation, upon lifting the mounting pin (20) in order to raise the latch (3) from its locking position, the resultant pivoting of the mounting pin causes the bell crank to pivot, thereby releasing the hook (34) from the latch recess (36).

2. The mechanism according to claim 1, characterised in that the mounting pin (20) extends from a central or lower portion (38) of a vertically elongate base member (40), the upper part (42) of which is positionable about the first pivot axle (18).

3. The mechanism according to claim 1 or 2, characterised in that the slide block (16) is formed with cavities (44, 46, 48) for receiving the bell crank (26), the spring (30) and/or the base member (40).

Reivendungen

1. Mechanismus zum Verriegeln einer Tür (2) oder eines Türblatts aus Glas - insbesondere vorgespanntem Glas - mittels eines vertikal verlagerbaren Riegels (3) in einem unten an der Innenseite (6) der Tür (2) oder des Türblatts angebrachten Gehäuse (14), dadurch gekennzeichnet, daß der Riegel (3) an einem in dem Gehäuse (14) vertikal verlagerbaren Schlitten (16) befestigt ist, wobei an dem Schlitten (16) ein Befestigungszapfen (20) für einen nach innen vorstehenden Betätigungsgriff (22), gelagert ist und wobei der Befestigungszapfen (20) um eine horizontale, parallel zu der Tür oder demTürblatt verlaufende erste Schwenkachse (18) beschränkt schwenkbar ist, und daß an dem Schlitten (16) ferner ein Winkelhebel (26) gelagert ist, welcher um eine horizontale, rechtwinklig zu der Tür (2) oder dem Türblatt verlaufende Schwenkachse (24) schwenkbar ist, wobei ein erster Arm (28) des Winkelhebels (26) den Befestigungszapfen (20) übergeht und mittels einer Feder (30) nach unten vorgespannt ist, wobei der andere Arm (32) nach unten weist und mit einem zur Seite gerichteten Haken (34) zum lösbar eingriff in eine Rastverteilung (36) in dem Gehäuse (14) versehen ist, und wobei der Winkelhebel (26) derart angeordnet ist, daß, bei Betätigung, auf Anheben des Befestigungszapfens (20) zum Hochheben des Riegels (3) von dessen Verriegelungsstellung aus, das daraus resultierende Schwenken des Befestigungszapfens bewirkt, daß der Winkelhebel schwenkt, wodurch der Haken (34) aus der Rastverteilung (36) gelöst wird.

2. Mechanismus nach Anspruch 1, dadurch gekennzeichnet, daß sich der Befestigungszapfen (20) von einem mittleren oder unteren Abschnitt (36) eines vertikal langgestreckten Sockelelements (40) aus erstreckt, dessen oberer Teil (42) um die erste Schwenkachse (18) schwenkbar ist.

3. Mechanismus nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß der Schlitten (16) zum Aufnehmen des Winkelhebels (26), der Feder (30) und/oder des Sockelelements (40) mit Ausnehmungen (44, 46, 48) versehen ist.

Patentansprüche
le loquet.

2. Mécanisme selon la revendication 1, caractérisé en ce que la tige de montage (20) s'étend depuis une portion (38) centrale ou inférieure d'un organe de base allongé verticalement (40), la partie supérieure (42) de celui-ci étant rotative autour du premier arbre de pivot (18).

3. Mécanisme selon la revendication 1 ou 2, caractérisé en ce que le bloc coulissant (16) est formé avec des cavités (44, 46, 48) pour recevoir le levier coudé (26), le ressort (30) et/ou l'organe de base (40).