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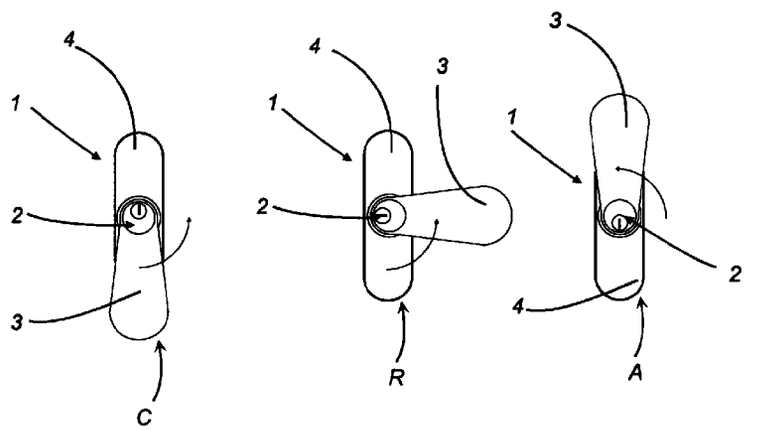
(54) Cremone bolt handle with lock

(57) The present invention relates to a cremone bolt handle with lock, of the type usable on a movable frame to allow a side hung and a top hung opening, i.e. usable to set related motion imparting organs provided and acting between movable frame and fixed frame in such a way as to position the movable frame on at least three configurations (C, A, R) corresponding to closure, side hung opening and top hung opening; the lock (2) is provided with blocking means (20) able to constrain the rotation of the cremone bolt handle (1), in correspondence with the activation of the lock (2) itself, i.e. in correspondence with closed lock, to only two (C, R) of the aforesaid configurations.

FIG.1



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Description

The present invention relates to a cremone bolt handle with lock usable, in particular, for casings with side hung and top hung opening, i.e. casings rotationally openable both on vertical and horizontal axes and it is indicated to allow utilisation under safe conditions.

The present handle is usable to prevent undesired or dangerous openings of the casing, whilst still allowing for the possibility of aerating the rooms closed by the casing fitted with the subject handle; possible applications of the handle can be had in the field of public and social construction, such as hospitals, schools, crèches and the like, or in home uses in the presence of children or disabled persons.

The opening and closure of sashes in side hung and top hung casings are allowed by the activation of a handle called a cremone bolt handle, i.e. a handle revolving around an axis perpendicular to the plane of the sash and associated to appropriate closure organs comprising rods or bars interacting, upon command, between the movable frame and fixed frame of the casing; recent solutions entail a handle comprising essentially the control grip, which acts on the underlying linkage sliding inside the section bars constituting the casing, and which is supported by a body or case able to be associated at the front to the upright of the movable frame.

Such handles can assume three positions, angularly differentiated by 90°, corresponding to the three possible functional configurations of the casing: vertical position with downward disposition for closure, horizontal position for side hung opening and vertical position with upward disposition for top hung opening.

In many cases it is opportune to prevent the opening of the casing for reasons of safety and, at the same time, it is still necessary to allow the aeration of the room closed by the casing itself.

Currently to attempt to satisfy these requirements, cremone bolt handles with lock or with detachable grip are used.

The first solution attempt solves only the requirement to close the casing since the lock allows only to block the movable frame onto the fixed frame in the closed position; in practice, exit through the window is prevented but aeration of the related rooms is also thereby prevented at the same time.

The second solution attempt allows, once the casing is on the top hung opening conformation, to detach the grip from the handle body. This feature thus entails for assigned personnel to carry the grip of the handle with them, with the deriving bulk; moreover, once the casing has been set to the open wing (top hung) position, it cannot be closed without the intervention of the aforesaid assigned personnel. Another negative aspect of such a solution derives by the poor aesthetic effect generally brought about by the handle once it is deprived of its grip.

The object of the present invention therefore is to eliminate the aforementioned drawbacks with a cremone bolt handle with lock wherein the activation of the lock (i.e. closure with a key) allows to position the handle on two configurations corresponding, respectively, to closed casing and to top hung open casing.

With the present invention it is therefore possible to prevent side hung opening of the casing whilst still leaving the freedom to close and open the casing as a side hung sash.

The technical characteristics of the invention, according to the aforesaid purposes, can be clearly seen from the content of the claims reported below and its advantages shall be made more evident in the detailed description that follows, made with reference to the accompanying drawings, which show an embodiment provided purely by way of non limiting example, in which:

- Figure 1 shows schematically, in a plan top view, three possible functional configurations assumable by a cremone bolt handle;
- Figure 2 shows, in a side view with parts shown in section the better to highlight others, an embodiment of the subject handle;
- Figures 3, 4 show, in a side view with parts in section the better to highlight others, a possible example of a grip for a handle according to the present invention;
- Figure 5 shows, in a partial plan bottom view, a lock related to the embodiment as per Figures 3 and 4;
- Figures 6, 7, 8 show a case related to the example in Figures 3 and 4, respectively in a plan top view, a plan bottom view and in an enlarged detail in plan bottom view wherein it is associated to the lock presented by the grip.

In accordance with the figures of the accompanying drawings, the handle 1 constituting the object of the invention is of the type usable on a movable frame to allow a side hung and top hung opening. The figures do not show fixed frame and movable frame and of the subject handle Figure 2 shows a slider 5 which defines the connection with the related motion imparting organs provided and acting between movable frame and fixed frame.

The cremone bolt handle 1 comprises a grip 3 and a case 4. The case 4, which in its base portion is generally closed by a bottom 6, is fastened to an upright of a fixed frame. The grip 3 is associated, stably and with the freedom to rotate, to the case 4 in correspondence with a seat 40 defined by a hole provided on the case itself.

Rotating the grip 3, the rotational motion imparted is transformed by a gear wheel - rack coupling to the slider 5 which, translating according to the directions indicated as F_1 and F_2 in Figure 2, leads the motion-imparting organs in such a way as to position the movable frame on at least three configurations C, A and R,

corresponding to closure, side-hung opening and to-hung opening.

In traditional handles the sequence of available configurations of the movable frame is accomplished as follows: closure-side hung opening-top hung opening (C-A-R).

In the case of the handle in question the sequence, as shown in Figure 1, from left to right, is: closure-top hung opening-side hung opening (C-R-A).

To obtain this opening feature, the motion-imparting organs provided on the movable frame (not shown in the accompanying figures because they are of a known type) are set in such a way as to make the closed casing configuration correspond to a vertical disposition (downward in the examples), the top hung opening configuration following immediately (i.e. obtainable with a 90° rotation from the vertical, horizontal disposition of the grip) and the side hung opening configuration in correspondence with a 180° rotation with respect to the closed position (upward vertical disposition in the examples).

In the subject cremone bolt handle 1, the grip 3 presents its own portion 30 for connection to the case 4 (and to the motion-imparting organs of the movable frame) hollow, so as to define an essentially cylindrical cavity wherein can be inserted a cylinder 2 constituting the lock 2 of the handle 1.

In particular, the cavity presented by the grip 3 presents two sections with different diameter, with the one having the smaller diameter positioned closer to the connection with the case 4.

Similarly the cylinder 2 of the lock presents corresponding sections so as to be stably insertable inside the cavity of the connecting portion 3.

To fasten the cylinder 2 more securely to the grip 3, corresponding grooves 24 and 35 can be provided respectively on the cylinder 2 and within the cavity presented by the connecting portion 30. In the grooves 25 and 35 can be inserted a cylindrical pin 23 that prevents the relative rotation between cylinder 2 and grip 3.

The cylinder 2 presents a fixed part 26 and a movable part 27, positioned on top in the example shown. In the movable part 27 is provided a housing seat 28 for a key 8, whereas at the bottom the exit is provided for, from the fixed part 26, of a movable end 22 which, in correspondence with activation of the lock, positions itself in such a way as to protrude from the lower part of the grip 3 for a value that in the example shown corresponds to the stroke L2 that the movable part 27 travels along in correspondence with the activation of the lock.

The fixed part 26 of the cylinder 2 presents at the bottom a smaller section portion 21 arranged coaxially with respect to the axis X of rotation of the handle. This smaller section portion 21 presents a threaded seat 24 suitable for screwing a related screw 7 that secures the smaller section portion 21 to a gear wheel 57, shown in Figure 2, which defines the connection between the grip 3 and the slider 5 mentioned above.

In practice the stem of the cylinder 2 of the lock comprises the pin of the grip 3, i.e. the connection between grip and motion-imparting organs is defined by the lock cylinder itself: in this way the diameter of the connecting portion 30 of the grip can have a particularly compact diameter, thereby contributing to improve the ergonomic and aesthetic characteristics of the subject handle.

As stated previously, on case 4 a hole is provided which defines a seat 40 for association to the grip 3. The seat 40 extends peripherally for at least an arc of circle 41 according to an angle α essentially corresponding to the angular value of the positioning difference between two configurations whereon the handle 1 can be positioned.

The movable end 22, when the lock is activated, is inserted into the extension 41 shaped as an arc of circle presented by the seat 40 and consequently limits the rotation of the grip 30 to the angle α. The angle α, in the non-limiting example shown in the drawings, has a value of 90°.

For this reason, the angular difference between the positioning on the closure configuration C and the top-hung opening R is of 90° and, once the lock is activated, the grip can be rotated by 90° to allow the closure and only the top-hung opening of the casing.

In particular, the seat 40 can extend peripherally for two arcs of circle 41 and 41', diametrically opposed, in order to allow utilisation both on right-opening and on left-opening sashes.

Advantageously, for the subject handle a lock 2 of the cylinder type with five pistons can be used, in order to allow, with a limited size, a high number of combinations thanks to masterisation.

The invention thus conceived can be subject to numerous modifications and variations, without thereby departing from the scope of the inventive concept. Moreover, all components may be replaced with technically equivalent elements.

Claims

1. Cremone bolt handle with lock, of the type usable on a movable frame to allow a side hung and top hung opening, i.e. usable to set related motion-imparting organs provided and acting between movable frame and fixed frame in such a way as to position the movable frame on at least three configurations (C, A, R) corresponding to closure, side-hung opening and top-hung opening, characterised in that said lock (2) is provided with blocking means (20) able to constrain the rotation of said cremone bolt handle (1), in correspondence with the activation of the lock (2) itself, i.e. in correspondence with closed lock, to only to (C, R), of said configurations.

2. Cremone bolt handle according to claim 1, characterised in that said lock (2) is provided with blocking

means (20) able to constrain the rotation of said cremone bolt handle (1) only on two (C, R) of said configurations, one immediately subsequent to the other in the rotation of said handle.

3. Cremone bolt handle according to claim 1, characterised in that said lock (2) if provided with blocking means (20) able to constrain the rotation of said cremone bolt handle (1) only to the configuration of closure (C) and of top-hung opening (R).

4. Cremone bolt handle according to claim 1, wherein said handle comprises a grip and a case; said case being holed in such a way as to define a seat for the stable and rotationally free insertion of said grip, cremone bolt handle characterised in that said seat (40) presented by said case (4) extends peripherally for at least one arc of circle (41) according to an angle substantially corresponding to the angular value of the difference between said two configurations (C, R) and in that said lock (2) is of the cylinder type and presents a movable end (22), insertable into said seat (40) in correspondence with the activation of said lock (2), in such a way as to interfere with the edges thereof in correspondence with the related limit values and to limit the rotation of the handle to said two configurations (C, R).

5. Cremone bolt handle according to claim 4, characterised in that said limit value is substantially 90°.

6. Cremone bolt handle according to claim 4 and/or 5, characterised in that said seat (40) extends peripherally for two arcs of circle (41, 41') diametrically opposed, in order to allow utilisation both on right side opening sashes and on left side opening sashes.

7. Cremone bolt handle according to claim 1, characterised in that said lock (2) is of the cylinder type and in that the pin of said handle, i.e. the tang for connection to a related gear wheel of said motion-imparting organs, comprises the stem of the cylinder of said lock (2).

8. Cremone bolt handle according to claim 1, characterised in that said lock (2) is of the cylinder type with five pistons.

FIG.1

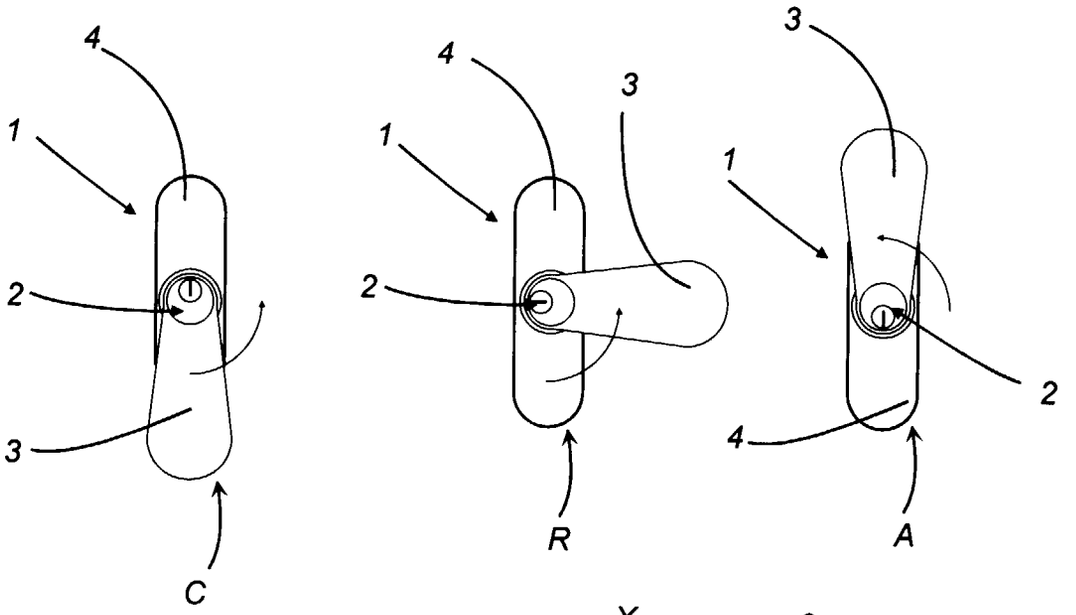


FIG.2

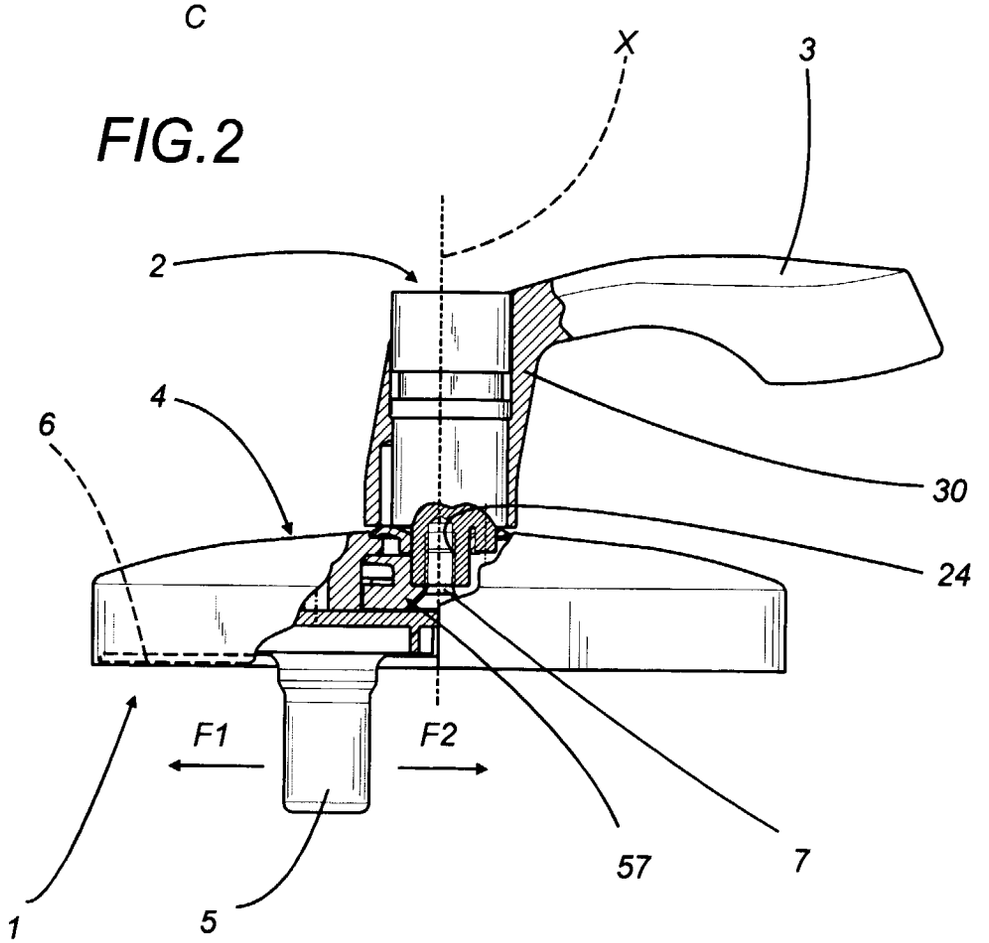


FIG.3

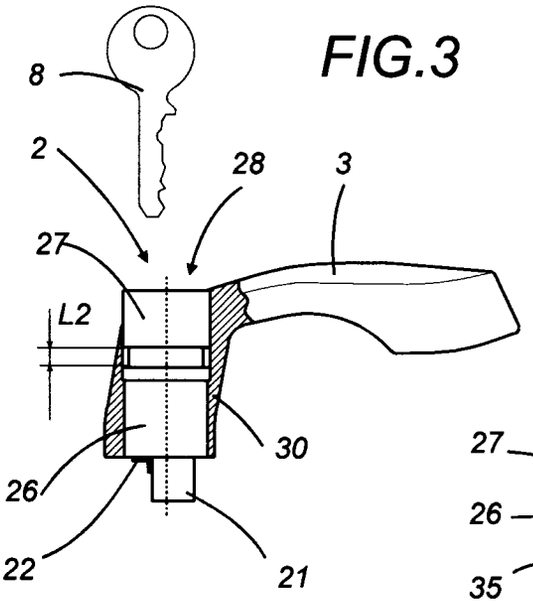


FIG.4

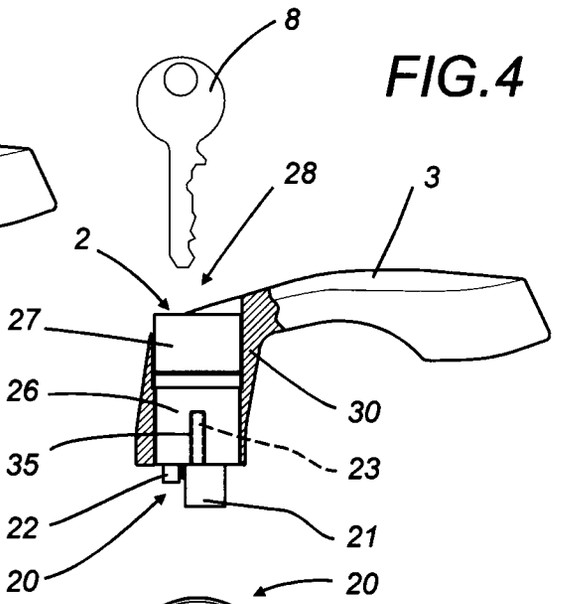


FIG.5

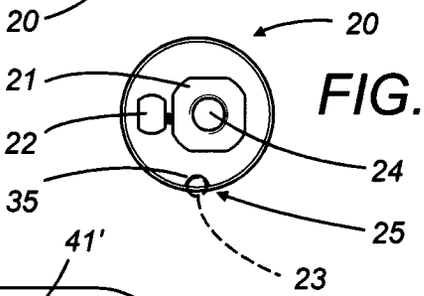


FIG.6

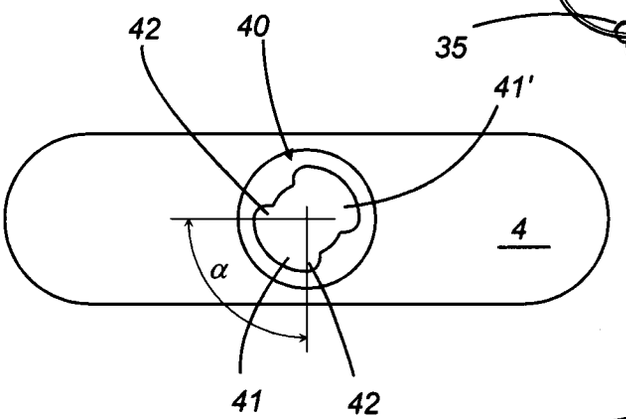


FIG.8

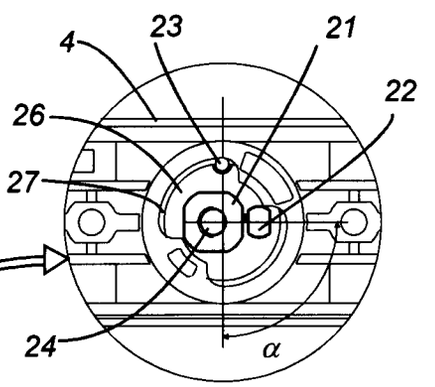
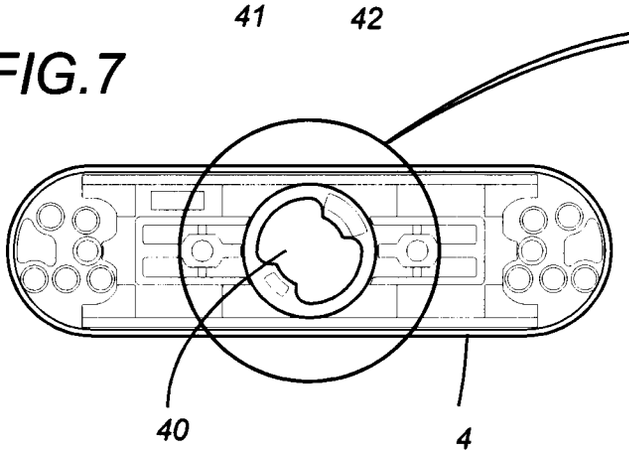


FIG.7



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EUROPEAN SEARCH REPORT

Application Number
EP 98 10 0264

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	DE 295 14 774 U (HOPPE AG) * the whole document *	1-6,8	E05B1/00 E05B13/10
X	CH 471 960 A (GRETSCH-UNITAS GMBH) * the whole document *	1-5,8	
X	DE 38 40 183 A (GEBRÜDER GOLDSCHMIDT BAUBESCHLÄGE GMBH) * the whole document *	1-5,8	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22 April 1998	Westin, K

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