



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 478 229 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
04.04.2001 Bulletin 2001/14

(51) Int Cl.7: **E05C 9/04**

(21) Application number: **91308575.9**

(22) Date of filing: **20.09.1991**

(54) **Cremona lock actuator with a pair of racks driven by a pinion**

Bedienungsvorrichtung für Treibstangenbeschlag, mit zwei von einem Zahnrad getriebenen Stangen

Moyens d'actionnement pour crémona, comportant une paire de barres actionnés par pignon

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

(30) Priority: **24.09.1990 GB 9020720**

(43) Date of publication of application:
01.04.1992 Bulletin 1992/14

(73) Proprietor: **ARCHIBALD KENRICK & SONS
LIMITED
West Midlands B70 6DB (GB)**

(72) Inventor: **ARCHIBALD KENRICK & SONS
LIMITED
West Midlands B70 6DB (GB)**

(74) Representative: **Gee, Steven William et al
1 South Lynn Gardens,
London Road
Shipston on Stour, Warwickshire CV36 4ER (GB)**

(56) References cited:
**CH-A- 473 300 DE-C- 263 046
FR-A- 2 570 744 US-A- 3 110 512**

EP 0 478 229 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] This invention relates to a cremone lock actuator, a locking arrangement for a hinged panel including such a cremone lock actuator, and a panel having such a cremone lock actuator.

[0002] Hinged panels such as windows and doors are traditionally hung by one panel edge (panel hinge edge), and held as and when required against hinged movement by a locking mechanism carried at the opposed panel edge (panel lock edge). When so mounted the panel can pivot within a frame secured in a wall or the like, upon a frame hinge section, about a hinge axis for that panel.

[0003] A cremone lock actuator is disclosed in GB-A-2161208. This document shows a pair of racks, one of which was driven by an axially-adjustable drive element 24, by way of slot 42; the other rack was "consequentially driven" in the opposed direction by idler pinion 45.

[0004] The locking mechanism for a panel is conventionally mounted on (rather than in) the panel lock edge and traditionally includes a part able to engage one or more keepers mounted on a frame lock section (located opposite to the frame hinge section). Thus one typical locking mechanism includes a locking lever, suitably a cockspur fixed to the operating handle, and rotatable with the lock handle so as to slide behind a keeper to effect a single point lock, generally as disclosed for catch portion 26 of GB-A-1,537,251; another known locking mechanism such as that of GB-A-2,072,740 includes a so-called espagnolette, to effect two point unidirectional locking within two keepers, and which also can be operated by a rotatable handle.

[0005] One disadvantage of the above known locking arrangements is that the lock mechanism is proud of the panel and because of poor fitting or changes in temperature can foul the frame. Another disadvantage is that the panel can be prised free from the locking engagement by a burglar's lever, usually because the panel is mounted with play at the frame hinge section. One technique is to insert the burglar's lever between the opposed panel edge and the frame locking section, and to manoeuvre the lever to force the panel in a direction towards the frame hinge section i.e. perpendicular to the panel hinge axis and parallel to the frame connecting members which join the respective ends of the frame hinge section and frame locking section.

[0006] This technique is well known to and widely practised by those skilled at unlawful entry into homes, offices and factories. For obtaining unlawful entry through a window, it is not necessary to break the glass to release the locking engagement.

[0007] It has been realised that a solution to this first problem is to locate the locking mechanism within the panel, specifically within the profile of the lock edge.

[0008] It has been realised that a solution to this second problem is to provide a locking arrangement for a hinged panel wherein a locking member is movable sub-

stantially parallel to the panel hinge axis into and out of locking engagement with a keeper, and wherein the locking member is permitted to move towards and away from the hinge axis whilst in the said locking engagement.

[0009] Preferably there are two such locking members in the form of locking rods, simultaneously movable in opposed directions into and out of said locking engagement.

[0010] A lock actuator in which two such locking rods are connectable by spring clips to two racks which are driven in opposite directions is disclosed in CH-A-473,300; this document disclosing the features of the preamble of claim 1.

[0011] The problem to be solved by the present invention is to find an alternative way to fasten the rods to the racks.

[0012] According to the invention, there is provided a cremone lock actuator which includes locking rods and drive means for the locking rods, each rod having a first end and a second end defining a rod longitudinal axis, the rods being movable simultaneously in opposed directions parallel to the rod longitudinal axis, the drive means including a rotatable wheel having a drive coupling such that the wheel can be directly driven when said drive coupling is engaged, the rotatable wheel driving two racks in opposite directions parallel to the direction of movement of the sliding rods, each rack having an extension with a recess, whereby each rod can be connected to a respective rack, characterised in that each rod has a shouldered blade, and in that the end of each rod can be pushed into the respective recess and thereafter twisted to a retained position in the rack.

[0013] In a preferred embodiment the handle is also connected to a locking lever to provide three point locking, the locking lever e.g. cockspur, fitting behind a plate mounted on the frame lock section and against which it can slide parallel to the panel lock edge if the panel is levered in a direction parallel to the panel hinge axis. Thus there is security in two directions against the panel being prised free from the locking members. There is in addition further security because the three locking points are on three different frame sections i.e. the two connecting sections and the traditional frame lock section.

[0014] Many windows are now made of plastics, such as uPVC, specifically being fabricated from extruded lengths of profiled plastics material, formed with a number of separate (internal) chambers. These window lengths will typically include a drainage chamber, to be located externally of the building to permit the egress of water draining from the window; a reinforcing chamber, usually carrying a metal reinforcement rod or tube and aligned with a so-called glazing chamber shaped to receive the pane or panes of glass; and an abutment, shaped to provide an upstanding rear wall, to assist in locating the glazing. The abutment is connected to the reinforcing chamber by a so-called "spare" chamber,

which may include a strengthening partition, the abutment being inwardly of the building in which the window is fixed.

[0015] A locking mechanism can be located in the spare chamber. The locking mechanism is conveniently housed in a gearbox and includes parts coupled to the oppositely movable locking rods. Usefully the locking rods are mainly located also in the spare chamber.

[0016] Conveniently an opening is milled into the lower wall (i.e. remote from the abutment) of the spare chamber and which provides the panel locking edge, with the gearbox being mounted with its lower edge within the spare chamber, or flush with this lower wall, whereby the gearbox can be permitted a substantial depth.

[0017] The invention will be further described by way of example with reference to the accompanying schematic drawings, in which:-

- Fig. 1 is a perspective view of three windows in window frame, two of the windows being casement windows suited for fitting a locking arrangement according to the invention;
- Fig. 2 is an isometric end section of a plastic window section, including one design of locking member;
- Fig. 3 is a rear elevation view of part of the Fig 2 window section;
- Fig. 4 is a partial rear view of a window of Fig. 1;
- Fig. 5 is a plan view of a part of a gearbox suitable for use in the window section of Fig. 2;
- Fig. 6 is a side view of oppositely movable drive members and part of the associated rods for the gearbox of Fig. 5
- Fig. 7 is a side view of a guide member for a locking rod;
- Fig. 8 is a side view of one embodiment of keeper plate;
- Fig. 9 is a side view of another embodiment of keeper plate;
- Fig. 10 is a side view of yet another embodiment of keeper plate;
- Fig. 11 is a side view of a multiple opening position keeper plate;
- Fig. 12 is an end view of an alternative design of guide member for locking rod;
- Fig. 13 is a schematic view of a push and twist engagement for a locking rod or bar;
- Fig. 14 is an isometric end section of part of a cover for the panel locking edge opening of Figs. 2 or 13.

[0018] Fig. 1 illustrates a rectangular window frame 1 comprising upright frame members 2,3,4, and horizontal frame members 5,6,7; other frame shapes are frequently used, as is well known, and the invention can be applied to these also. The window includes a sill 8, with rain water groove 9 in its underside.

[0019] Within frame 1 are located three panels comprising a fixed (non-openable) window 10, and casement windows 11, 12.

[0020] The window 11 is mounted and hinged at 20, 21 to pivot about a substantially horizontal axis upon horizontal member 5, and window 12 is mounted and hinged at 22, 23 to pivot about a vertical hinge axis upon vertical member 2. In an alternative embodiment the window 11 is mounted and hinged to upright frame members 2,3 in known fashion, again to pivot about a horizontal or substantially horizontal hinge axis between the open position shown in Fig. 1 and its closed position; the window 12 can similarly be mounted and hinged to horizontal frame members 5, 6 again to pivot about a vertical or substantially vertical hinge axis between the closed position shown in Fig. 1 and an open position.

[0021] The invention will be described with reference to top mounted window 11, though it applies also to side mounted window 12, and to any bottom mounted panel.

[0022] As viewed in Fig. 1, horizontal frame member 5 is the frame hinge section for window 11, and horizontal frame member 6 is the frame locking section. The window hinge axis runs parallel to and is aligned with hinges 20, 21.

[0023] As can be more clearly seen in Fig. 4, window 11 is hinged at one panel edge 42 (panel hinged edge), and has a locking arrangement mounted at the opposed panel edge 43 (panel locking edge) adapted to secure the window in the closed condition. For a window these panel edges comprise panel edge members joined by panel connecting edge members 44, 45, to define and confine a glazing area or chamber 46.

[0024] The locking arrangement includes a pair of rods 30, 31 which as shown in this rear view (from inside the building) have terminal locking parts 30a, 31a which engage behind keeper plates 32, 33 to prevent outwards opening of the window. As also indicated in Fig. 11 the rods 30, 31, are circular in cross section, but these locking rods can be of a different cross section, either throughout their length or at their ends 30a, 31a e.g. rectangular, for use with the guide member of Fig. 12. In this embodiment, these keeper plates 32, 33 are secured to upright frame members 2, 3 which for this window are the frame connecting members. If therefore an attempt is made to force the window 11 when locked, i. e. in Fig. 4 upwardly, towards the frame hinge section 5, the rods remain in locking engagement behind the keeper plates 32, 33. Thus it is not sought to constrain the window by way of its hinged mounting against such movement more than is traditional in the trade, since to do so could add unacceptably to fitting times and costs, but instead modify the locking engagement to accommodate such movement, and in certain embodiments (Fig.10, Fig. 11) design the keeper to help inhibit, but not to prevent, such movement.

[0025] For additional security, the locking arrangement in this embodiment includes the traditional arrangement of a locking lever 35 having a terminal por-

tion 35a which as shown can slide behind metal keeper plate 36 screwed or otherwise affixed to the frame horizontal member 6; thus the locking lever can be rotated through a specified angle upon rotation of handle 37, into and out of location behind keeper plate 36; in an alternative embodiment the keeper can be of U-form with legs between which the locking lever can fit for locking, and in another embodiment can be of the known double U-form with an entrance opening i.e. for use with either clockwise or anti-clockwise rotation locking levers, perhaps with a cam section requiring the window to be pressed (further) in the closed direction before normal rotational movement of the handle to open the window is permitted, as child safety feature.

[0026] In this embodiment lever 35 is integral with pinion 76; it thus has a hole aligned with the recess in the pinion defining the drive coupling means adapted to receive the handle portion 37a (Fig. 5).

[0027] Fig. 2 is a section through a length of extruded uPVC, cut to length for each of the four side pieces of a typical profiled rectangular plastics window panel. The section shown is the lower horizontal section in use, viewed from below, but the profile is the same for the other three panel sections. It includes internal drainage chamber 50, internal reinforcing chamber 52, external abutment 54 and an internal spare chamber 56 (in part defined by outer wall 55) connecting the abutment 54 to the reinforcing chamber 52. There is also an external so-called glazing chamber 58 in which an edge of one (or more) glazing panels is positioned. The drainage chamber receives rainwater and the like from the front face (i.e. outwards of the wall or building in which the panel is fixed) of the glazing, and includes drainage holes (not shown) so that rain water can normally run away down the front face 57. In higher quality windows, reinforcing chamber 52 includes a metal support rod or the like, to help withstand the weight of the glazing without substantial deformation of the chamber walls.

[0028] In Fig. 2, the major length of locking member in the form of rod 31 is located in the spare chamber 56. Usefully the rod end which projects from the panel is slidingly located in an annular guide member 60 (Fig. 7), externally threaded for releasable securement in the panel connecting edge member 44; guide member 60 has a cap 62 of pleasing appearance since it can be seen when the window is opened. A guide member 160 (Fig. 12) can alternatively be used, fixed by a screw to the panel edge connecting member 44 through screw opening 161, and receiving a rod of rectangular cross section through guide aperture 163.

[0029] In figure 6 a known way of securing a locking rod to a lock actuating piece is shown. The rod 31 is threaded at its inner end 31a, as is rod 30, and so can be secured in circular recess 72 in extension 73 of rack 71. In such a design recess 72 is tapped. This part of the figure 6 design is known from the state of the art and does not form part of the present invention. According to the invention (Fig. 13) both opposed rods terminate

at their inward ends in a shouldered blade 31b which can be pushed into a recess 73b in the extension 73 and twisted to the retained condition.

[0030] In the design of Fig. 6, the rack 71 is part of a gearbox 75, as is rack 70. Between the racks 70, 71 is a pinion 76 rotatable by handle 37, having a drive part 37a secured by either a fixed press-fit into the pinion, or releasably. The pinion is annular, with a central recess in the form of a blind bore, or alternatively a through recess, shaped in accordance with drive part 37a of handle portion 37b so that upon handle rotation, the racks 70, 71 and thus the rods 30, 31 respectively connected thereto are driven directly and thus simultaneously in opposite directions, away from pinion 76 into locking engagement behind the keeper plates 32, 33, or drawn towards the pinion 76 to release the locking engagement. The central recess provides a drive coupling means for the drive wheel e.g. pinion 76.

[0031] According to an important feature herein disclosed the racks and pinion are mounted in a gearbox 75 which is located within the spare chamber 56. It can be so located either after fabrication of the panel i.e. for retro-fit to existing windows, or after joining of frame profile lengths but prior to fitting of the glazing for newly-made panels. It can also be fitted (as by the plastics extruder) to one frame profile length, prior to this formed panel locking section being joined as by welding a mitre end to panel connecting sections, but then the rods 32, 33 would need to be fitted after such joining.

[0032] Usefully the gearbox is fed through an opening in the bottom wall of the spare chamber. The gearbox is mounted by means of screws 90 in tapped projections 92. To avoid the locking lever fouling one or other of screws 90, according to a further feature of this invention this locking lever is specially shaped, with a cranked offset portion 35a. The locking lever can act through the central region of the lower rack, as indicated in Fig. 6 or it can act to one or other side of the racks.

[0033] An advantage of this location of the operating mechanism 75, as compared for instance to a location in the drainage chamber 52, is that the operating mechanism does not need to break through into the glazing chamber 58. The spare chamber remains isolated from the glazing chamber i.e. there is no water communication channel or conduit therebetween. The operating mechanism 75 is inaccessible until the window is opened (or removed in toto).

[0034] A further advantage is that the handle support or base 37c can be coupled to gearbox 75 through the wall 55 (Fig. 2) i.e. the outer wall of the spare chamber 56 of the lock edge 43. Thus there is a firm fitting, upon alignment of the gearbox with the base 37c, with a part of the wall 57 sandwiched therebetween. Wall 57 is not significantly weakened by the fitting of handle 37.

[0035] Another advantage is that the vertical position of the cremone lock actuator can be selected within a particular profile in accordance with the proprietary handle to be used; and within the different profiles of differ-

ent manufacturers in accordance with the size and disposition of the spare chamber.

[0036] Our preferred locking arrangement permits a simple assembly method. A slot is milled in the bottom wall of the handle stile of the window frame, and then three holes are drilled in spare chamber wall 55 (Fig. 2) of panel lock edge 43, one for the handle portion 37a and two for screws 90. The assembled gearbox 75 (with racks 70, 71 and pinion 76) is fitted into the slot, and the handle portion 37a located in pinion 76 within the gearbox, and the screws 90 tightened, to clamp wall 55 between gearbox 75 and handle base 37c. Rods 30, 31 are then fitted through the rod guides 60 to couple with respective racks 70, 71.

[0037] To retain the strength of the spare chamber frame section, a cover plate 84 such as that shown in Fig. 14 is used, having fins 86 which extend into the slot up towards the gearbox 75 and engage the internal faces of opposed walls defining the spare chamber 56, whereby to replace the strength previously provided to the profile by that portion of the panel locking edge milled away. The gearbox 75 is screwed to that wall of the spare chamber which is internal of the frame in use (the left hand wall as viewed in Fig. 2, which adds rigidity to that wall, but the chamber wall opposed thereto without the support provided by fins 86 can be flexible and flimsy. In the alternative embodiment, the cover plate can have projections extending fore and aft in use and which stand proud of the panel locking edge both to ease removal when needed, and to locate the fins the required distance into the slot or opening in the bottom wall. If in addition a locking lever is used, as described for Figs. 4 and 6, the cover plate can include a V-groove disposed so that the locking lever in the locking condition is located in the narrower gap groove portion.

[0038] In the embodiment of Fig. 8, the keeper plate 32 is secured to the frame connecting member 2 by screws in apertures 39 in upstanding outwardly offset lugs 38. The apertures 39 can if required be spaced from the plate 32 by a selected distance chosen to provide a keeper which is dedicated to one panel. The lugs 38 can be connected to form a rear stop against which the rod can abut when in the locking condition (as viewed, rod moved into the paper), both to provide extra friction against lateral sliding (left-right as viewed in Fig. 8 when forcibly moved as above mentioned, as by a burglar's lever, and to conceal the rod tip; in an alternative embodiment and for the same purposes, the keeper can be U-shaped, with its open side facing the glazing.

[0039] As in Fig. 9, for extra security, fixing lugs 38 can be provided to both sides of the keeper plate; in an alternative application, this arrangement has the additional advantage of avoiding extra inventory by permitting the use of one pair of securement lugs on one frame connecting section and the other pair on the other frame connecting section. As previously mentioned, the keeper plate can be shaped to provide a non-removable ramp 34 (Fig 10), and this can be cast with the keeper

or secured as by welding the ramp to the lugs 38 (Fig. 11); alternatively the ramp can be made removable, as is ramp 34a of Fig. 11 and which can be connected by the use of resilient studs, conveniently carried by the ramp member, and which are pressed into recesses or through holes, either in the lugs 38 or in the keeper 32. In particular these removable studs can be of a different material to the remainder of the keeper e.g. plastics, or keeper 32 can be of metal and ramp 34a of plastics.

[0040] The ramp 34a of Fig. 11 is domed, and can be located such that the rod 30 approaches (into the paper) below the dome apex level; however, if the keeper is intended simply for firmer panel engagement during locking movement and not also for extra lateral resistance (left-right as viewed in Fig. 11) against unlawful movement, the rod can be guided towards the dome apex.

[0041] The arrangement of Fig. 11 with a gap between keeper and ramp can be used for locking a panel in two positions e.g. closed and partly open, by the alternative use of keeper plate 32 and ramp 34a, with ramp 34a being used for a partly open or day-vent position. A combination keeper arrangement such as Fig. 11 is thus appropriate for use with a locking lever 35, 35a, and will then be mounted on the frame locking edge.

[0042] For security doors and the like, a locking arrangement according to the invention can alternatively or additionally be mounted in one or preferably both of the panel connecting members.

Claims

1. A cremone lock actuator which includes locking rods (30,31) and drive means (76,70,71) for the locking rods (30,31), each rod having a first end and a second end defining a rod longitudinal axis, the rods being movable simultaneously in opposed directions parallel to the rod longitudinal axis, the drive means including a rotatable wheel (76) having a drive coupling (77,79) such that the wheel can be directly driven when said drive coupling is engaged, the rotatable wheel (76) driving two racks (70,71) in opposite directions parallel to the direction of movement of the sliding rods (30,31), each rack (70,71) having an extension (73) with a recess (73b), whereby each rod can be connected to a respective rack characterised in that each rod has a shouldered blade (31b), and in that the blade (31b) of each rod (30,31) can be pushed into the respective recess (73b) and thereafter be twisted to a retained position in the rack.
2. A cremone lock actuator according to claim 1 characterised in that the rotatable wheel (76) is formed as a pinion, the pinion being located between and in operative engagement with the two racks (70,71) such that the racks (70,71) are slidable in said op-

posite directions upon rotation of the pinion, each rack having the said recess (73b) shaped to receive the said first shouldered blade (31b) of a rod (30,31) so as to permit the said shouldered blade (31b) to be rotated about the longitudinal axis of the rod (30,31) between a non-retained and a retained condition.

3. A cremone lock actuator according to claim 2 characterised in that the pinion has a periphery carrying teeth, some of the teeth being in gear engagement with the first rack (70) and others of the teeth being in engagement with the second rack (71), the drive coupling being radially inwards of the teeth and defining an axial recess in which a handle portion (37a) can be received, the handle portion being part of a manually rotatable handle (37), the racks and pinion being located in a gearbox (75) having an access hole (93) for the handle portion and access holes (94) for the respective rods.
4. A panel having a hollow lock section or lock edge (43) opposite to a hinge section (42), having a cremone lock actuator according to claim 1, and having a rotatable lock handle (37) carried by the lock section and operatively connected to the oppositely movable locking rods (30,31) by way of a drive arrangement intermediate the handle (37) and locking rods (30,31), at least part of the drive arrangement which is provided by said cremone lock actuator being located within the lock section and each rod having its second end guided in a guide member (60, 160) secured to the panel.
5. A panel according to claim 4 characterised in that each rod is of rectangular cross section and in that the second ends which are guided in the guide members (160) have a rectangular guide opening (163) for the rod.
6. A panel according to claim 4 characterised in that the lock section includes an internal spare chamber (56), in that the drive arrangement includes a gear arrangement, in that at least part of the gear arrangement is located in a gearbox (75), in that the gearbox is located within the spare chamber (56), in that the panel is a glazing panel, in that the lock section is of extruded plastics material providing a glazing chamber (58), and in that the spare chamber is isolated from the glazing chamber (58).
7. A locking arrangement for a panel (10,11) and a frame (1), said locking arrangement including a cremone lock actuator according to claim 1, and further including opposed keepers (32,33) carried by the frame, a panel hinge edge (42) hingedly mounting the panel to the frame, a panel lock edge or lock section (43) having the oppositely movable locking

rods (30,31), each having a locking part (30a,31a) movable linearly from a first non-locking position into a second locking position, each locking part when in said first position being spaced from its respective keeper and when in said second position being in engagement with its keeper for securement of the panel to the frame.

8. A locking arrangement according to claim 7 characterised in that it includes a locking handle (37), which is receivable in the drive coupling (77) of the rotatable wheel (76), and in that the locking handle also controls a rotatable locking lever (35) whereby to provide point locking of the panel at a third position (36) on the frame (1), and in that the oppositely movable locking rods (30,31) are solid.

Patentansprüche

1. Basküle-Verschlusssteller, der Riegelbolzen (30, 31) und Antriebsmittel (76, 70, 71) für die Riegelbolzen (30, 31) aufweist, wobei jeder Bolzen ein erstes Ende und ein zweites Ende hat, die eine Bolzenlängsachse definieren, wobei die Bolzen gleichzeitig in entgegengesetzten Richtungen parallel zur Bolzenlängsachse beweglich sind, wobei die Antriebsmittel ein drehbares Rad (76) mit einer Antriebskupplung (77, 79) aufweisen, so daß das Rad direkt angetrieben werden kann, wenn die genannte Antriebskupplung in Eingriff ist, wobei das drehbare Rad (76) zwei Zahnstangen (70, 71) in entgegengesetzten Richtungen parallel zur Bewegungsrichtung der Schiebepbolzen (30, 31) antreibt, wobei jede Zahnstange (70, 71) eine Verlängerung (73) mit einer Aussparung (73b) hat, wodurch jeder Bolzen mit einer betreffenden Zahnstange verbunden werden kann, dadurch gekennzeichnet, daß jeder Bolzen eine mit Schulter versehene Klinge (31b) hat, und dadurch, daß die Klinge (31b) jedes Bolzens (30, 31) in die betreffende Aussparung (73b) geschoben und danach auf eine festgehaltene Position in der Zahnstange verdreht werden kann.
2. Basküle-Verschlussstellglied nach Anspruch 1, dadurch gekennzeichnet, daß das drehbare Rad (76) als ein Ritzel geformt ist, wobei das Ritzel zwischen den beiden Zahnstangen (70, 71) und mit ihnen in treibendem Eingriff angeordnet ist, so daß die Zahnstangen (70, 71) bei Drehung des Ritzels in den genannten entgegengesetzten Richtungen verschiebbar sind, wobei bei jeder Zahnstange die genannte Aussparung (73b) zum Aufnehmen der genannten ersten mit einer Schulter versehenen Klinge (31b) eines Bolzens (30, 31) geformt ist, damit die genannte mit einer Schulter versehene Klinge (31b) zwischen einem nicht festgehaltenen und einem festgehaltenen Zustand um die Längsachse

des Bolzens (30, 31) gedreht werden kann.

3. Basküle-Verschlusssteller nach Anspruch 2, dadurch gekennzeichnet, daß das Ritzel eine Zähne tragende Außenfläche hat, wobei einige der Zähne mit der ersten Zahnstange (70) in Getriebeeingriff sind und andere der Zähne mit der zweiten Zahnstange (71) in Eingriff sind, wobei die Antriebskupplung von den Zähnen radial nach innen liegt und eine axiale Aussparung definiert, in welche ein Griffteil (37a) aufgenommen werden kann, wobei der Griffteil Teil eines von Hand drehbaren Griffs (37) ist, wobei die Zahnstangen und das Ritzel in einem Getriebe (75) mit einem Zugangsloch (93) für den Griffteil und Zugangslochern (94) für die jeweiligen Bolzen angeordnet sind.
4. Platte mit einem hohlen Verschlussabschnitt oder Schließrand (43) gegenüber einem Scharnierteil (42), die einen Baskülen-Verschlusssteller nach Anspruch 1 und einen drehbaren Verschlussgriff (37) hat, der vom Schließabschnitt getragen wird und durch eine Antriebsanordnung, die zwischen dem Griff (37) und den Riegelbolzen (30, 31) angeordnet ist, mit den entgegengesetzt beweglichen Riegelbolzen (30, 31) treibend verbunden ist, wobei wenigstens ein Teil der Antriebsanordnung, die von dem genannten Baskülen-Verschlussstellglied bereitgestellt wird, innerhalb des Schließabschnitts angeordnet ist und das zweite Ende jedes Bolzens in einem an der Platte befestigten Führungselement (60, 160) geführt wird.
5. Platte nach Anspruch 4, dadurch gekennzeichnet, daß jeder Bolzen einen rechteckigen Querschnitt hat und daß die zweiten Enden, die in den Führungselementen (160) geführt werden, eine rechteckige Führungsöffnung (163) für den Bolzen haben.
6. Platte nach Anspruch 4, dadurch gekennzeichnet, daß der Schließabschnitt eine innere unbelegte Kammer (56) aufweist, daß die Antriebsanordnung eine Getriebeanordnung aufweist, daß wenigstens ein Teil der Getriebeanordnung in einem Getriebe (75) angeordnet ist, daß sich das Getriebe in der unbelegten Kammer (56) befindet, daß die Platte ein Verglasungsfeld ist, daß der Schließabschnitt aus extrudiertem Plastikmaterial ist, das eine Verglasungskammer (58) bereitstellt, und daß die unbelegte Kammer von der Verglasungskammer (58) isoliert ist.
7. Verschlussanordnung für eine Platte (10, 11) und einen Rahmen (1), wobei die genannte Verschlussanordnung einen Baskülen-Verschlusssteller nach Anspruch 1 aufweist und des weiteren folgendes aufweist: einander gegenüberliegende, vom Rahmen

getragene Streichbleche (32, 33), einen Plattenscharnierrand (42), mit dem die Platte gelenkig am Rahmen montiert ist, einen Plattenschließrand oder -schließabschnitt (43) mit den entgegengesetzt beweglichen Riegelbolzen (30, 31), die jeweils ein Riegelteil (30a, 31a) haben, das linear aus einer ersten nicht sperrenden Position in eine zweite Sperposition bewegbar ist, wobei jedes Riegelteil in der genannten ersten Position von seinem betreffenden Streichblech absteht und in der genannten zweiten Position mit seinem Streichblech zur Befestigung der Platte am Rahmen in Eingriff ist.

8. Verschlussanordnung nach Anspruch 7, dadurch gekennzeichnet, daß sie einen Verschlussgriff (37) hat, der in der Antriebskupplung (77) des drehbaren Rads (76) aufnehmbar ist, und daß der Verschlussgriff auch einen drehbaren Verschlusshebel (35) betätigt, um dadurch eine Punktverriegelung der Platte an einer dritten Position (36) des Rahmens (1) bereitzustellen, und daß die entgegengesetzt beweglichen Riegelbolzen (30, 31) fest sind.

Revendications

1. Actionneur de verrou à crémonne qui comporte des tiges de verrouillage (30, 31) et un moyen d'entraînement (76, 70, 71) pour les tiges de verrouillage (30, 31), chaque tige ayant une première extrémité et une deuxième extrémité définissant un axe longitudinal de tige, les tiges étant capables de se déplacer simultanément dans des directions opposées parallèlement à l'axe longitudinal de la tige, le moyen d'entraînement incluant une roue rotative (76) ayant un accouplement d'entraînement (77, 79) de sorte que la roue peut être entraînée directement lorsque ledit accouplement d'entraînement est engagé, la roue rotative (76) entraînant deux crémaillères (70, 71) dans des directions opposées parallèlement à la direction de mouvement des tiges coulissantes (30, 31), chaque crémaillère (70, 71) ayant une extension (73) avec un évidement (73b), grâce auquel chaque tige peut être connectée à une crémaillère respective caractérisé en ce que chaque tige possède une lame à épaulement (31b) et en ce que la lame (31b) de chaque tige (30, 31) peut être poussée dans l'évidement respectif (73b) et peut ultérieurement être soumise à un mouvement de torsion jusqu'à une position de retenue dans la crémaillère.
2. Actionneur de verrou à crémonne, selon la revendication 1, caractérisé en ce que la roue rotative (76) se présente sous la forme d'un pignon, le pignon étant positionné entre les deux crémaillères (70, 71), et étant en engagement opérationnel avec cel-

- les-ci, de telle sorte que les crémaillères (70, 71) peuvent être coulissées dans lesdites directions opposées lors de la rotation du pignon, chaque crémaillère possédant ledit évidement (73b) façonné de manière à recevoir ladite première lame à épaulement (31b) d'une tige (30, 31) de façon à permettre à ladite lame à épaulement (31b) d'être tournée autour de l'axe longitudinal de la tige (30, 31) entre un état de non-retendue et un état de retenue.
3. Actionneur de verrou à crémone, selon la revendication 2, caractérisé en ce que le pignon possède une périphérie portant une denture, certaines de ces dents étant en engagement d'engrènement avec la première crémaillère (70), alors que d'autres dents sont engagées avec la deuxième crémaillère (71), l'accouplement d'entraînement se trouvant radialement à l'intérieur des dents et définissant un évidement axial dans lequel une section poignée (37a) peut être reçue, la section poignée faisant partie d'une poignée (37) capable d'être tournée manuellement, les crémaillères et le pignon étant logés dans une boîte d'engrenages (75) muni d'un trou d'accès (93) pour la section poignée et d'autres trous d'accès (94) pour les tiges respectives.
4. Panneau possédant une section de verrou creuse ou un bord de verrou (43) en face d'une section de charnière (42), possédant un actionneur de verrou à crémone conformément à la revendication 1, et possédant une poignée de verrou rotative (37) portée par la section de verrou et reliée de façon opérationnelle aux tiges verrouillables (30, 31) capables de se déplacer dans des sens opposés par l'intermédiaire d'un agencement d'entraînement intermédiaire entre la poignée (37) et les tiges de verrouillage (30, 31), au moins une partie de l'agencement d'entraînement qui est prévu par ledit actionneur de verrou à crémone étant situé à l'intérieur de la section de verrou, alors que la deuxième extrémité de chaque tige est guidée dans un élément de guidage (60, 160) fixé sur le panneau.
5. Panneau, selon la revendication 4, caractérisé en ce que chaque tige présente une coupe transversale rectangulaire, et en ce que les deuxièmes extrémités, qui sont guidées dans les éléments du guide (160) possèdent une ouverture de guide rectangulaire (163) pour la tige.
6. Panneau, selon la revendication 4, caractérisé en ce que la section de verrou comprend une chambre interne de réserve (56), en ce que l'agencement d'entraînement inclut un dispositif à engrenages, en ce qu'une partie au moins du dispositif à engrenages est abritée dans une boîte à engrenages (75), en ce que la boîte à engrenages est placée à l'intérieur de la chambre de réserve (56), en ce que le panneau est un panneau de vitrage, en ce que la section de verrou est réalisée en matière plastique extrudée offrant une chambre de vitrage (58), et en ce que la chambre de réserve est isolée de la chambre de vitrage (58).
7. Agencement de verrouillage pour un panneau (10, 11) et un cadre (1), ledit agencement de verrouillage comprenant un actionneur de verrou à crémone selon la revendication 1, et comprenant en outre des montures opposées (32, 33) portées par le cadre, un bord à charnières (42) dont les charnières fixent le panneau sur le cadre, un bord de verrou de panneau ou une section de verrou (43) possédant les tiges de verrouillage capables de se déplacer dans des directions opposées (30, 31), chacune ayant un élément de verrouillage (30a, 31a) capable de se déplacer dans le plan linéaire depuis une première position non-verrouillée vers une deuxième position verrouillée, chaque élément de verrouillage, lorsqu'il se trouve dans ladite première position, étant espacé de sa monture respective et, lorsqu'il se trouve dans ladite deuxième position, étant engagé avec sa monture en vue de la fixation du panneau au cadre.
8. Agencement de verrouillage, selon la revendication 7, caractérisé en ce qu'il inclut une poignée de verrouillage (37), qui peut être acceptée dans l'accouplement d'entraînement (77) de la roue rotative (76), et en ce que la poignée de verrouillage contrôle également un levier de verrouillage rotatif (35), dans le but d'offrir un verrouillage ponctuel du panneau en une troisième position (36) sur le cadre (1), et en ce que les tiges de verrouillage mobiles dans des directions opposées (30, 31) sont solides.

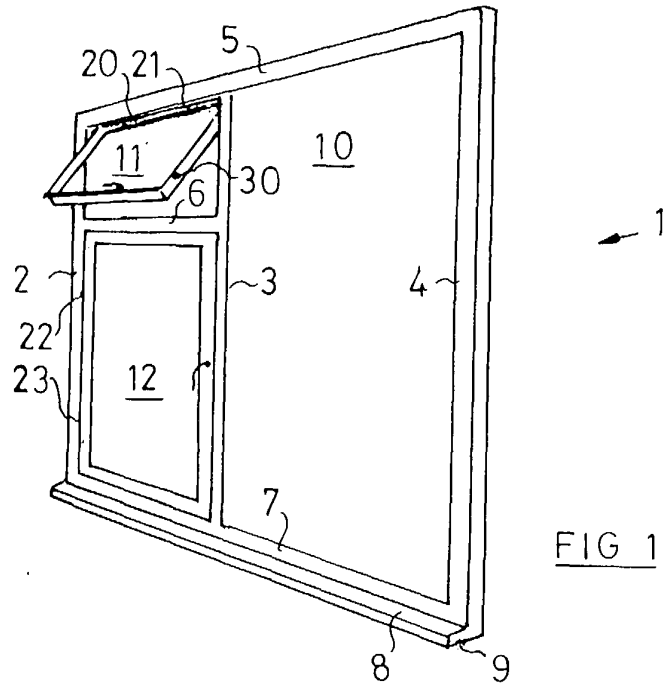


FIG 1

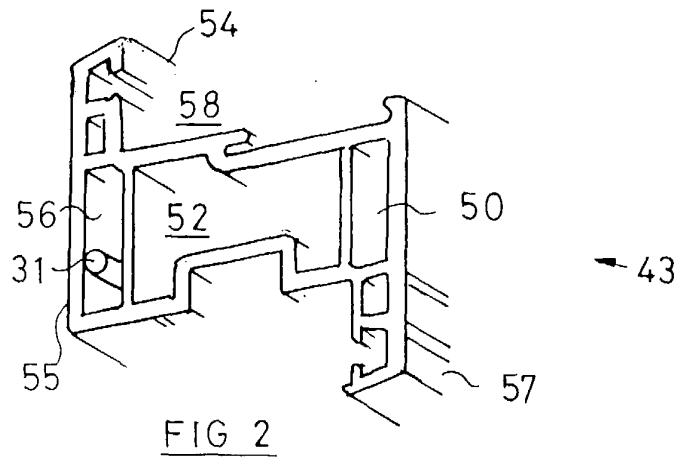


FIG 2

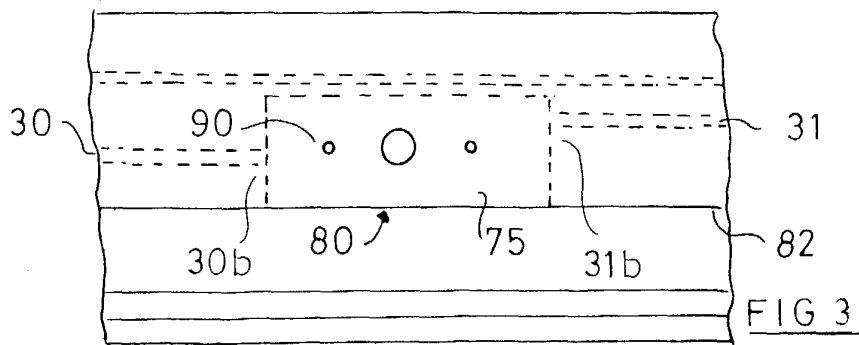


FIG 3

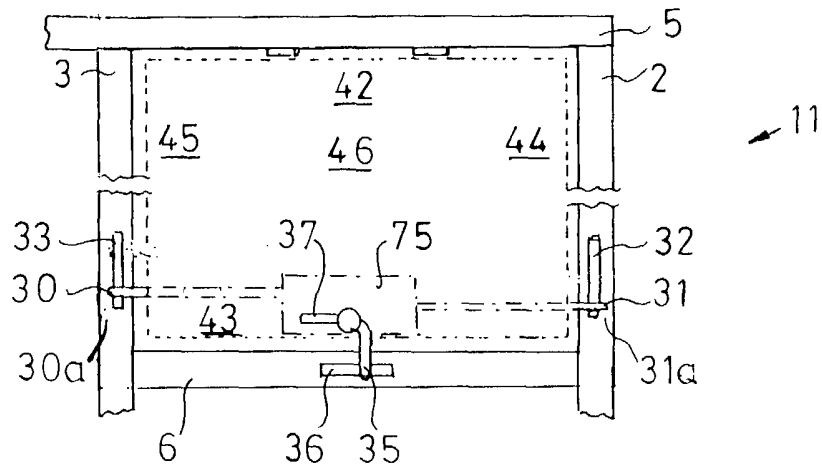


FIG 4

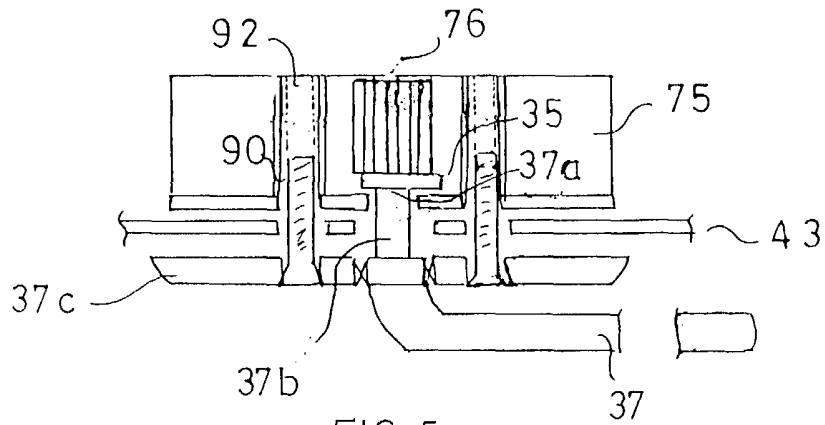


FIG 5

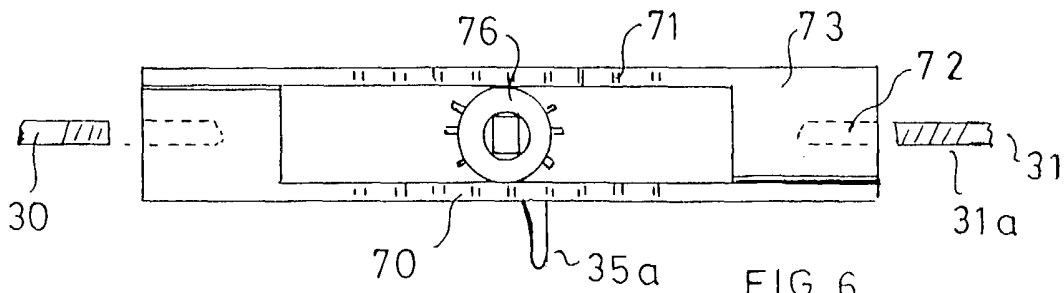


FIG 6

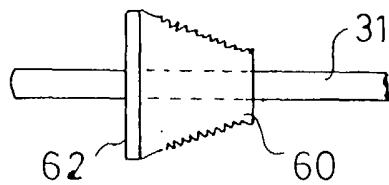


FIG 7

