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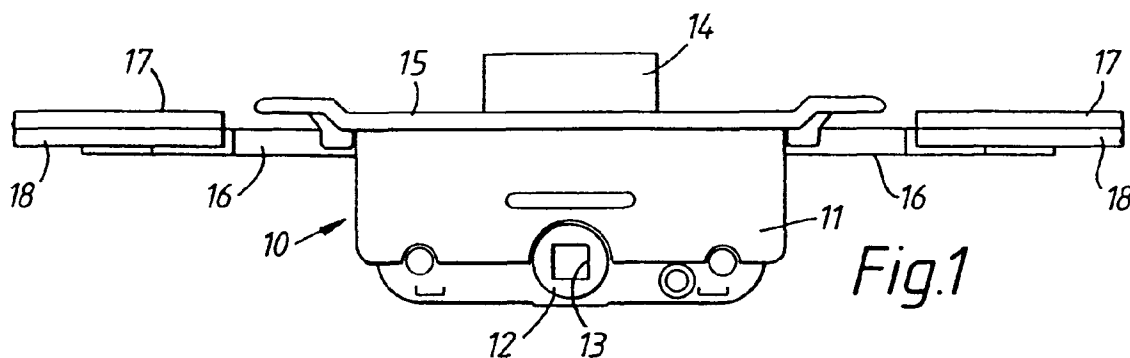
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(54) **A method of connecting a locking mechanism in a window member**

(57) A locking mechanism for a window member comprises a gearbox (10) which can be operated to extend or retract a locking bar (18) with a fixing bar (17) overlying the locking bar (18) and being connected to the window member. The fixing bar (17) and the locking bar (18) are connected to the gearbox (10) by connecting the two bars together and, after cutting the bars to

size, then attaching the locking bar (18) to a drive member (16) of the gearbox (10) in the extended position. The drive member (16) is then retracted until the ends of the fixing bar (17) and the locking bar (18) are beneath a projecting portion of a face plate (15) of the gearbox (10). The fixing bar (17) is then connected to the window member and the gearbox (10) operated to disconnect the locking bar (18) from the fixing bar (17).



EP 0 841 450 A1

Description

The invention relates to a method of connecting a locking mechanism in a window member.

A window locking mechanism comprises a gearbox mounted in a window member (a window leaf or a window frame) and operated by a handle. The gearbox has at least one (more often two) drive member that is extended and retracted on operation of the gearbox via the handle. The drive member is connected to a locking bar which runs along an edge of the window member. The locking bar may operate an espagnolette-type locking system or extend and retract a locking pin - both of which act to lock the window member to a second window member. The locking bar is overlaid by a fixing bar which protects the locking bar and is connected to the window member.

Locking mechanisms of this type must fit window members with a variety of dimensions. It is plainly impracticable to provide locking bars and fixing bars in a variety of lengths. Accordingly, it is usual practice to provide bars of greater than the maximum required length and then cut the bars to length.

In a known method of connecting such a locking mechanism in a window member the locking bar and the fixing bar are cut separately. This is time-consuming.

According to a first aspect of the invention, there is provided a method of connecting a locking mechanism in a window member so that operation of a gearbox of the mechanism extends or retracts a locking bar with a fixing bar overlying the locking bar and connected to the window member, the method comprising connecting the fixing bar and the locking bar together in register, providing the fixing bar and the locking bar with a required length, connecting the locking bar to an extended drive member of the gearbox, moving the drive member to a retracted position, connecting the fixing bar to the window member and then disconnecting the fixing bar from the locking bar to allow the locking bar to move relative to the fixing bar under the control of the gearbox.

The fixing bar and the locking bar are thus cut to length in a single operation.

The gearbox of the locking mechanism usually has a casing closed by a face plate, the face plate having a portion which projects beyond an end of the casing. In this case, an end of the fixing bar preferably lies beneath the projecting portion when the locking mechanism is connected in the window member. This has previously been achieved by removing the face plate of the gearbox, offering the fixing bar and the locking bar separately up to the remainder of the gearbox and then cutting the bars to length. The locking bar is then connected to the drive member and the fixing bar is connected to the window member. The face plate is then reconnected to the remainder of the gearbox.

This procedure is time-consuming requiring disassembly and re-assembly of the gearbox (by removal and replacement of the face plate).

Preferably, when the gearbox has a casing and a face plate, as described above, the aforementioned step of moving the drive member to the retracted position moves respective ends of the fixing bar and the locking bar to a position beneath the projecting portion of the face plate.

In this way, the fixing bar and the locking bar are fitted to the window member and the gearbox without having to disassemble the gearbox.

According to a second aspect of the invention, there is provided a gearbox for a window member including a casing and a face plate closing the casing, the face plate being permanently connected to the casing.

The following is a more detailed description of an embodiment of the invention, by way of example, reference being made to the accompanying drawing in which:-

Figure 1 is a side elevation of a gearbox of a window locking mechanism showing a shoot bolt and drive members of the gearbox in respective extended positions and fixing and locking bars being offered up to the drive members,

Figure 2 is a plan view of the mechanism shown in Figure 1,

Figure 3 is a similar view to Figure 1 but showing the drive members in respective retracted positions with corresponding retraction of the fixing bars and the locking bars, and

Figure 4 is a similar view to Figure 3 but showing the drive members in respective extended positions with the fixing bars connected to a frame member (not shown) and disconnected from the locking bars.

Referring first to Figure 1, the gearbox 10 is of known type and comprises a casing 11 containing a rotatable boss 12 having a central square section aperture 13 for receiving a square section rod (not shown) for connection to a handle such that rotation of the handle in one sense rotates the boss 12 in one direction and rotation of the handle in an opposite sense rotates the boss 12 in an opposite direction.

The rotation of the boss 12 is transmitted via an internal mechanism (not shown) to a shoot bolt 14 to move the shoot bolt 14 between an extended position (shown in Figure 1) in which the shoot bolt 14 projects from a face plate 15 of the gearbox 10 and a retracted position in which the shoot bolt 14 lies within the casing 11. As seen in Figure 1, the face plate 15 closes the casing and projects beyond the ends of the casing 11.

The rotation of the boss 12 in either sense is also transmitted by the internal casing mechanism to two drive members 16 that project from respective opposite ends of the casing 11 beneath respective opposite ends

of the face plate 15. This rotation causes movement of the drive members 16 between extended positions (on rotation in one sense) shown in Figure 1 and retracted positions (on rotation in an opposite sense) shown in Figure 3.

Such gearboxes are well known and are shown, for example, in GB-A-2280469. Each drive member 16 is associated with a respective fixing bar 17 and a locking bar 18. These bars are formed from metal strip of similar width and thickness and of similar length. The purpose of the locking bars 18 is to transmit movement of the drive members 16 to, for example, respective locking pins at a corner of the window member. The fixing bars 17 cover and protect the locking bars. Plainly, it is not possible to provide fixing bars 17 and locking bars 18 of all possible lengths and so the bars 17, 18 are normally provided of a length which is greater than a range of required lengths. The way in which the fixing bar 17 and the locking bars 18 are cut down and attached to the associated drive members 16 will be described below.

In use, the gearbox 10 is fitted into a cavity in a window member with the face plate 15 flush with the surface of the member. The fixing bars 17 and locking bars 18 run in respective channels along the surface of the window member from the face plate 15 to respective corners of the window member.

The fixing bars 17 and the locking bars 18 are fitted to the gearbox 10 in the following way. The description will be of the fitting of one of the fixing bars 17 and one of the locking bars 18, but it will be appreciated that the other bars 17, 18 are dealt with in the same way.

First, the fixing bar 17 and the associated locking bar 18 are placed side-by-side with their side edges and ends in register. They are then temporarily connected together. This might, for example, be by gluing or by the insertion of a plastics pin through registering holes (not shown) in the bars 17, 18. The connected bars 17, 18 are then cut to length. This is done by positioning the bars in the associated channel with the ends of the bars remote from the gearbox 10 in the correct position to connect to the associated locking pin (not shown). When so positioned, the other ends of the connected bars 17, 18 will overlie the face plate 15 of the gearbox. The bars 17, 18 are then marked and cut to the desired length. This may be helped by the provision of a sight line (not shown) on the face plate 15 which indicates the correct cutting point.

The drive members 16 are then moved to their maximum extension from the casing 11 by rotation of the handle (not shown). This is the position shown in Figure 1. The drive member 16 is then connected to the associated locking bar 18 at or near the cut end of the locking bar 18. This can be done in any convenient way but may, for example, be by the use of co-operating serrations on the locking bar 18 and the drive member 16. The provision of such serrations can provide a degree of adjustment between the locking bar 18 and the associated drive member 16.

This is the position of the parts shown in Figures 1 and 2.

Referring next to Figure 3, the handle is then rotated to rotate the boss 12 to retract the drive members 16 (and retract also the shoot bolt 14). This retracts the fixing bar 17 and the locking bar 18 so that their ends are beneath the face plate 15. This is the disposition shown in Figure 3.

This is the correct position for the fixing bar 17 and, when so positioned, screws (not shown) are passed through the fixing bar and into the window member to lock the fixing bar to the window member in a position in which it overlies the associated locking bar 18. The screws may pass through slots in the locking bar 18 to allow relative movement between the bars 17, 18.

Referring next to Figure 4, the handle is then rotated in the opposite direction to rotate the boss 12 to extend the drive members 16 (and the shoot bolt 14) from the casing 11. This breaks the connection between the fixing bar 17 (which is fixed to the window member) and the associated locking bar 18. For example, where the bars 17, 18 are interconnected by a plastics pin, the pin is sheared. This thus allows the locking bar 18 to move independently of the fixing bar 17 on rotation of the handle to extend and retract the associated locking pin.

This has the advantage that the fixing bar 17 and the locking bar 18 are fitted to the window member and the gearbox without having to remove the gearbox face plate 15. In addition, the fixing bar 17 and the locking bar 18 are cut to length in a single operation. The fixing bar 17 is securely trapped in engagement with the drive member 16 by the fixing bar 17 and so prevents it being easily disengaged to render the window insecure.

Claims

1. A method of connecting a locking mechanism in a window member so that operation of a gearbox (10) of the mechanism extends or retracts a locking bar (18) with a fixing bar (17) overlying the locking bar (18) and being connected to the window member, the method comprising connecting the fixing bar (17) and the locking bar (18) together in register, providing the fixing bar (17) and the locking bar (18) with the required length, connecting the locking bar (18) to an extended drive member (16) of the gearbox (10), moving the drive member (16) to a retracted position, connecting the fixing bar (17) to the window member and then disconnecting the fixing bar (17) from the locking bar (18) to allow the locking bar (18) to move relative to the fixing bar (17) under control of the gearbox (10).
2. A method according to claim 1 wherein the disconnection of the fixing bar (17) from the locking bar (18) is achieved by moving the drive member (16) from said retracted position to an extended position

and so moving the locking bar (18) relative to the fixing bar (17).

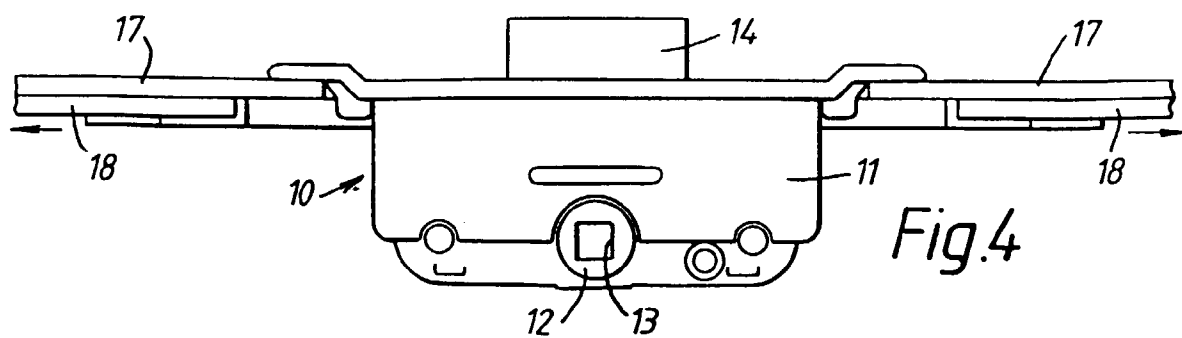
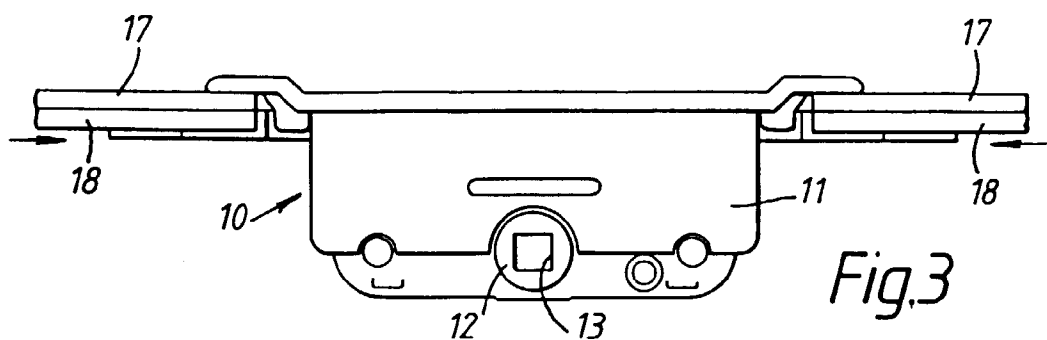
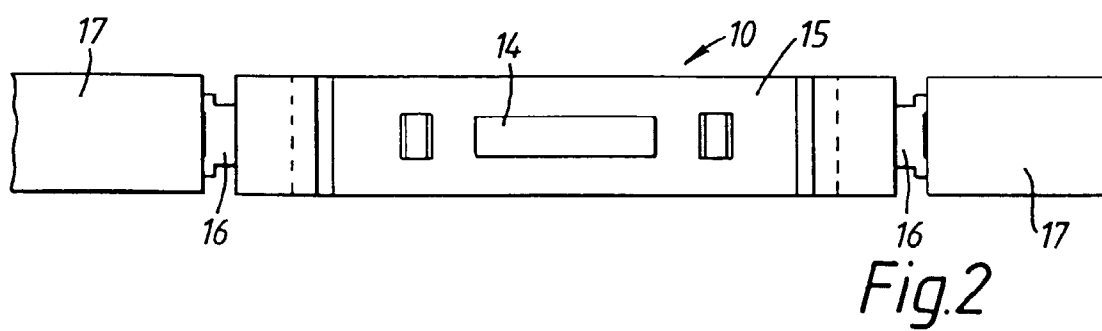
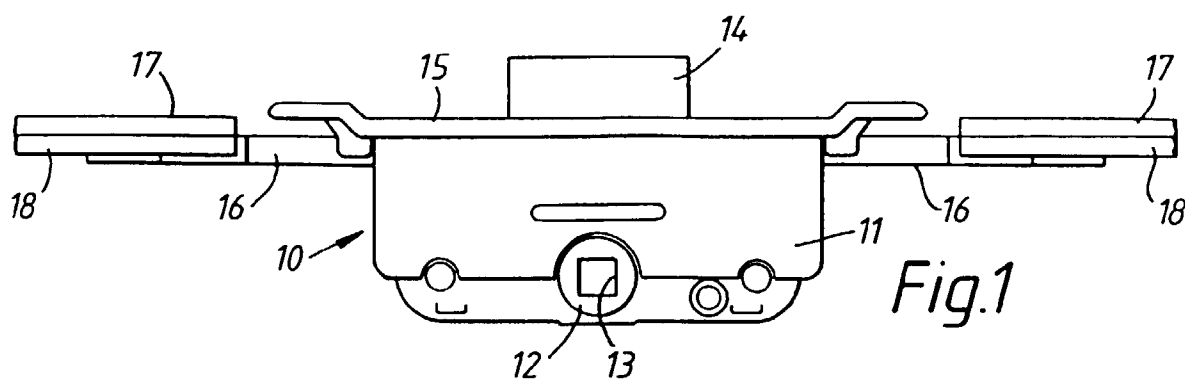
3. A method according to claim 1 or claim 2 wherein the locking bar (18) is connected to the fixing bar (17) by a frangible pin. 5
4. A method according to claim 3 wherein the pin is of a plastics material. 10
5. A method according to any one of claims 1 to 4 wherein the gearbox (10) includes a casing (11) closed by a face plate (15), the face plate (15) having a portion which projects beyond an end of the casing (11), the movement of the drive member (16) to the retracted position moving respective ends of the fixing bar (17) and the locking bar (18) to a position beneath said projecting portion of the face plate (15). 15 20
6. A method according to any one of claims 1 to 5 wherein the fixing bar (17) acts to maintain engagement between the locking bar (18) and the drive member (16). 25
7. A gearbox (10) for a window member including a casing (11) and a face plate (15) closing the casing (11), the face plate (15) being permanently connected to the casing (11). 30
8. A gearbox (10) according to claim 7 wherein the face plate (15) includes at least one projection extending beyond the casing (11), the projecting including a marking for use in cutting, fixing and locking bars (17, 18). 35

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EUROPEAN SEARCH REPORT

Application Number
EP 97 30 8350

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 A	EP 0 740 039 A (SIEGENIA FRANK KG) * the whole document * ---	7 1,8	E05C9/20
A	FR 2 222 519 A (SIEGENIA FRANK KG) * the whole document * ---	1-4,7	
A	EP 0 322 510 A (MAYER & CO) * the whole document * ---	1,3,4	
A	DE 87 02 415 U (HAUTAU GMBH) * the whole document * -----	1,3	
			E05C E05B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 17 February 1998	Examiner Henkes, R
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