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Description

The invention relates to a device to open and close a shutter from the inside of a house, which shutter is hinged at the outside of the house and which device comprises a driving shaft, and turning-axle and a housing in which the worm-gear is placed, which gear consists of a worm and a wheel of which the worm is fixed on the driving shaft and the wheel of the worm-gear on the turning axle and that on the turning axle is mounted a hinge-blade which blade can be connected to the shutter, for example by means of screws, and that the device is fixed to the wall of the house such that the housing can move horizontally in the longitudinal direction of the driving-shaft over a short range.

Such a device is known for a long time and described in the Swiss patent CH 103 600. A disadvantage of this known device is that the hinge-blade when it is fixed to the device, can not be moved up and down along the turning axle; it can only move over a certain distance in the direction of the driving-shaft and it could eventually turn around the axis of the driving-shaft. This means, that when the hinges of the shutter have worn out, or due to other reasons the shutter has moved down, forces will act on the device, now, that the shutter takes up another position. In general the hinge-blade is fixed in one possible position relative to the axis of the worm-gear.

The object of the invention is a device which can be used to open over at least 180 degrees a shutter from the inside of a house and to put the shutter in any desired fixed position and that the connection of the device with as well as the hinge-blade as with the house is such, that the hinge-blade can take any desired position with respect to the device, that is to say, that it can move over a short distance up and down along the axle and in a direction perpendicular to the axle.

This aim is achieved with a device according to the invention in that the hinge-blade has a single boss which can be placed on one end of the turning axle, such that it can move along the axle over a certain distance and that the boss is connected to the axle by means of for example splines so that it cannot turn about the axle but is free to move up and down over a certain distance along the axle. If such a device according to the invention is fixed to a house and a shutter, the hinge-blade when fixed to the shutter and connected to the device can move up and down the axle and together with the device in the longitudinal direction of the turning-shaft, that is to say the hinge-blade can move freely within a short distance in any direction.

In another possible embodiment of the device according to the invention the housing is mounted inside a guiding-case in which the housing can be fixed in a desired position by means of an adjusting bolt and a tapped hole and which guiding-case can be fixed to the wall, for example by means of screws, and that the guiding-case is open at one side, through which opening the

turning-shaft protrudes. This embodiment of the device according to the invention can be used not only to open and close a shutter but also as one of the hinges of the shutter, because the device is fixed to the wall of the house. Preferably the driving-shaft has a squared end on which can be placed a service handle of hand crank lever at the inside of the house.

The invention will be explained more in detail by means of the drawing in which one of the possible embodiments of the device according to the invention is represented. In the drawing show:

Fig. 1 a front-view of a worm-gear inside a case according to the invention;

Fig. 2 a cross-section according to line II—II of figure 1;

Fig. 3 in a cross-section a guiding-case together with a case according to line III—III of figure 2;

Fig. 4 a hinge-blade in front and top-view;

Fig. 5 a hand crank lever or service handle;

Fig. 6 a device according to the invention mounted on a window-frame and shutter.

Figures 1 and 2 show a turning-mechanism which consists of a case 1 in which in the usual way a turning-axle with a wheel 2 and a driving-shaft with a worm 3 are borne. The end of the turning-axle 2 is provided with edge-shaped splines 2a, on which a hinge-blade also with wedge-shaped splines (see figure 4) is mounted. The end of the driving-shaft 3 has been squared 3a. On the squared end can be mounted on operating lever 13 (see in figure 5). In the case 1 is made a tapped hole 4 for an adjusting-bolt 6 as shown in figure 3.

Figure 3 shows a guiding-case 5 with a mounting-sheet 5a which can be made of metal or another material and in which guiding-case is an open slot-hole 5b and a round hole 5c, which are placed such, that the turning-axle 2 and the driving-shaft 3 of the turning-mechanism can slide without hindrance. By means of an adjusting bolt 6 which is mounted together with the mounting sheet 5a on a window-frame 7, the case 1 inside the guiding-case 5 can be adjusted.

It should be noticed that due to extreme variations in dimensions, particularly of existing old shutters, the length of the guiding-case should be of sufficient length. The empty space which is left at the inside of the guiding-case 5 after the case had been adjusted, should be shortened in such a way, that the outside of the guiding-case 5 should not come in touch with the inside of the turning-circle of the shutter (figure 6). After cutting off the piece 8 of the guiding-case 15, the open end of the guiding-case 5 can be covered by a lid 9, made of plastics for instance.

Figure 4 shows a so-called "third hinge-blade" 10 which shape is similar to the usual shape of most hinges, with the exception of the boss 11, which is provided with a hole with wedge-shaped splines, which can be slid on to the splined end 2a of the turning-shaft 2. The shape of the "third hinge-blade" could be changed either by means of a bend 12 or by using an adjustable hinge-joint, which hinge-joint could be fixable in such a way

that the boss 11, after the assembled mechanism is mounted on the window-frame, will lay above the ending of the turning-shaft 2 and so that the "third hinge-blade" lies closely against the shutter.

Figure 5 shows one of the possible shapes of the hand crank lever 13, with which the turning-mechanism can be put into operation.

Figure 6 shows the device according to the invention mounted on a window-frame 14 with a shutter 15 which in the drawing is shown inside the window-frame; figure 6 also shows how the turning-mechanism operates.

The driving shaft 3 is borne at the inside of the house in the window-frame 14 by means of a bearing 16, made out of plastics material, which secures the proper operation of the turning-mechanism.

Claims

1. A device to open and close a shutter (15) from the inside of a house, which shutter (15) is hinged at the outside of the house and which device comprises a driving shaft (3), a turning axle (2) and a housing (1) in which a worm-gear is placed, which gear consists of a worm and a wheel of which the worm is fixed on the driving shaft (3) and the wheel of the worm-gear on the turning axle (2) and that on the turning axle is mounted a hinge-blade (10) which blade (10) can be connected to the shutter (15), for example by means of screws and that the device is fixed to the wall of the house such that the housing can move horizontally in the longitudinal direction of the driving-shaft (3) over a short range, characterized in that the hinge-blade (10) has a single boss (11), which can be placed on one end of the turning axle (2), such that it can move along the axle (2) over a certain distance and that the boss (11) is connected to the axle (2) by means of for example splines (2a) so that it can not turn about the axle (2) but is free to move up and down over a certain distance along the axle.

2. A device according to claim 1, characterized in that the housing (1) is mounted inside a guiding-case (5) in which the housing (1) can be fixed in a desired position by means of an adjusting bolt (6) and a tapped hole 4 and which guiding-case (5) can be fixed to the wall, for example by means of screws, and that the guiding-case (5) is open at one side, through which opening (5b) the turning-shaft (2) protrudes.

3. A device according to one of the claims 1 or 2, characterized in that the driving-shaft (3) is supported inside of the house solely by means of a bearing (16).

Patentansprüche

1. Vorrichtung zum Öffnen und Schließen eines Fensterladens (15) vom Innern eines Hauses aus, welcher Fensterladen (15) außen am Haus drehbar aufgehängt ist, und welche Vorrichtung eine Antriebswelle (3), eine Drehachse (2) und eine

Gehäuse (1) umfaßt, in dem sich ein Schneckenradgetriebe befindet, das aus einer Schnecke und einem Rad besteht, von denen die Schnecke an der Antriebswelle (3) und das Rad des Schneckengetriebes an der Drehachse (2) befestigt ist, wobei auf der Drehachse ein Drehblatt (10) angebracht ist, welches Blatt (10) beispielsweise durch Schrauben mit dem Fensterladen (15) verbunden werden kann, welche Vorrichtung so an der Mauer des Hauses befestigt ist, daß das Gehäuse sich horizontal in der Längsrichtung der Antriebswelle (3) über einen kruzten Abstand bewegen kann, dadurch gekennzeichnet, daß das Drehblatt (10) eine einzige Nabe (11) hat, die auf ein Ende der Drehachse (2) geschoben werden kann, so daß sie sich entlang der Achse (2) über einen bestimmten Abstand bewegen kann, und daß die Nabe (11) mit der Achse (2) beispielsweise durch Keile (2a) so verbunden ist, daß sie sich nicht auf der Achse (2) drehen, jedoch über einen bestimmten Abstand entlang der Achse frei auf- und abbewegen kann.

2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Gehäuse (1) in einem Führungskasten (5) montiert ist, in dem das Gehäuse (1) mittels einer Stellschraube (6) und einer Gewindebohrung (4) in einer gewünschten Position festgestellt werden kann, und welcher Führungskasten (5) an der Mauer beispielsweise mit Schrauben befestigt werden kann, sowie dadurch, daß der Führungskasten (5) an einer Seite offen ist, aus welcher Öffnung (5b) die Drehachse (2) herausragt.

3. Vorrichtung nach einem der Ansprüche 1 oder 2, dadurch gekennzeichnet, daß die Antriebswelle (3) im Innern des Hauses nur durch ein Lager (16) gestützt wird.

Revendications

1. Dispositif de command d'ouverture et de fermeture d'un volet (15) à partir de l'intérieur d'un bâtiment, ce volet (15) étant articulé à l'extérieur du bâtiment, ce dispositif comprenant un arbre d'entraînement (3), un axe rotatif (2) et un carter (1) dans lequel est placé un engrenage à vis sans fin, cet engrenage étant constitué d'une vis sans fin et d'une roue parmi lesquelles la vis sans fin est fixée à l'arbre d'entraînement (3) et la roue de l'engrenage est fixée à l'axe rotatif (2), un bras articulé (10) étant monté sur l'axe rotatif et ce bras pouvant être fixé un volet (15), par exemple au moyen de vis, le dispositif étant fixé à la paroi de bâtiment de telle façon que son carter puisse être déplacé horizontalement sur une courte distance dans la direction longitudinale de l'arbre d'entraînement (3), caractérisé en ce que le bras articulé (10) comporte un bossage unique (11) qui peut être placé sur une extrémité de l'axe rotatif (2) de telle façon qu'il puisse être déplacé sur une certaine distance le long de l'axe (2) et en ce que le bossage (11) est accouplé à l'axe (2) par exemple au moyen de cannelures (2a) de telle façon qu'il ne puisse pas tourner autour de l'axe (2) tout en étant libre de se déplacer vers le haut et

vers le bas sur une certaine distance le long de l'axe.

2. Dispositif suivant la revendication 1 caractérisé en ce que le carter (1) est monté à l'intérieur d'un boîtier de guidage (5) dans lequel la carter peut être fixé dans une position désirée au moyen d'une vis de réglage (6) et d'un trou taraudé (4), le boîtier de guidage (5) pouvant être fixé à la paroi,

par exemple au moyen de vis, et en ce que le boîtier de guidage (5) est ouvert sur une de ses faces, l'axe rotatif (2) faisant saillie à travers l'ouverture (5b) prévue dans cette face.

3. Dispositif suivant l'une quelconque des revendications 1 ou 2 caractérisé en ce que l'arbre d'entraînement (3) est supporté, à l'intérieur du bâtiment uniquement au moyen d'un palier (16).

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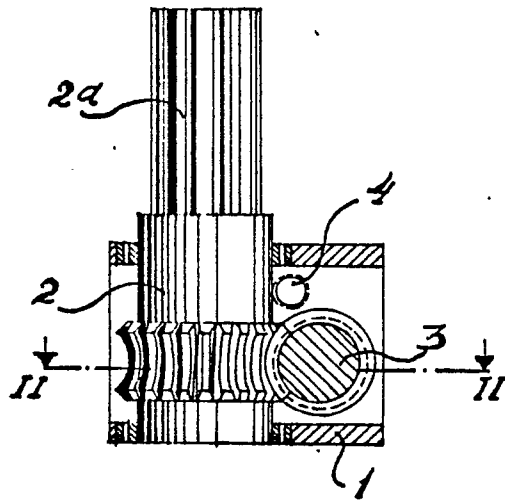


FIG. 1

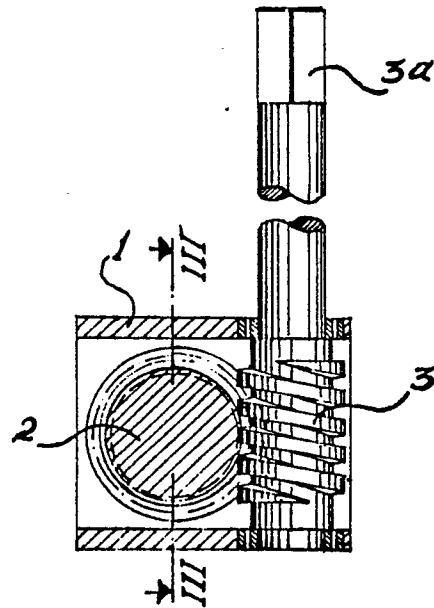


FIG. 2

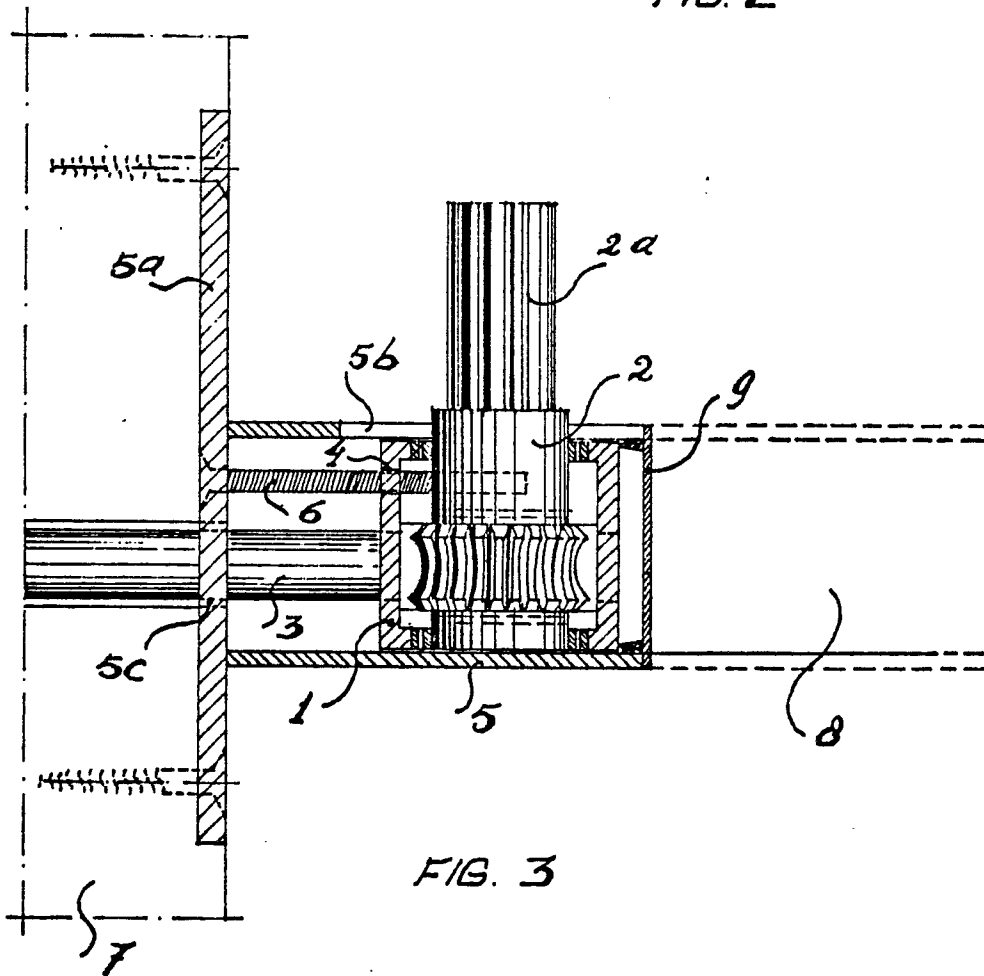


FIG. 3

