(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 1 835 114 A2**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
19.09.2007 Bulletin 2007/38

(51) Int Cl.:
E05F 15/12 *(2006.01)*

(21) Application number: **07103395.5**

(22) Date of filing: **02.03.2007**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(30) Priority: **14.03.2006 IT MI20060450**

(71) Applicant: **Fin-Men S.p.A.**
31030 Dosson di Casier (Treviso) (IT)

(72) Inventor: **Michielan, Gianni**
31021 Mogliano Veneto (Treviso) (IT)

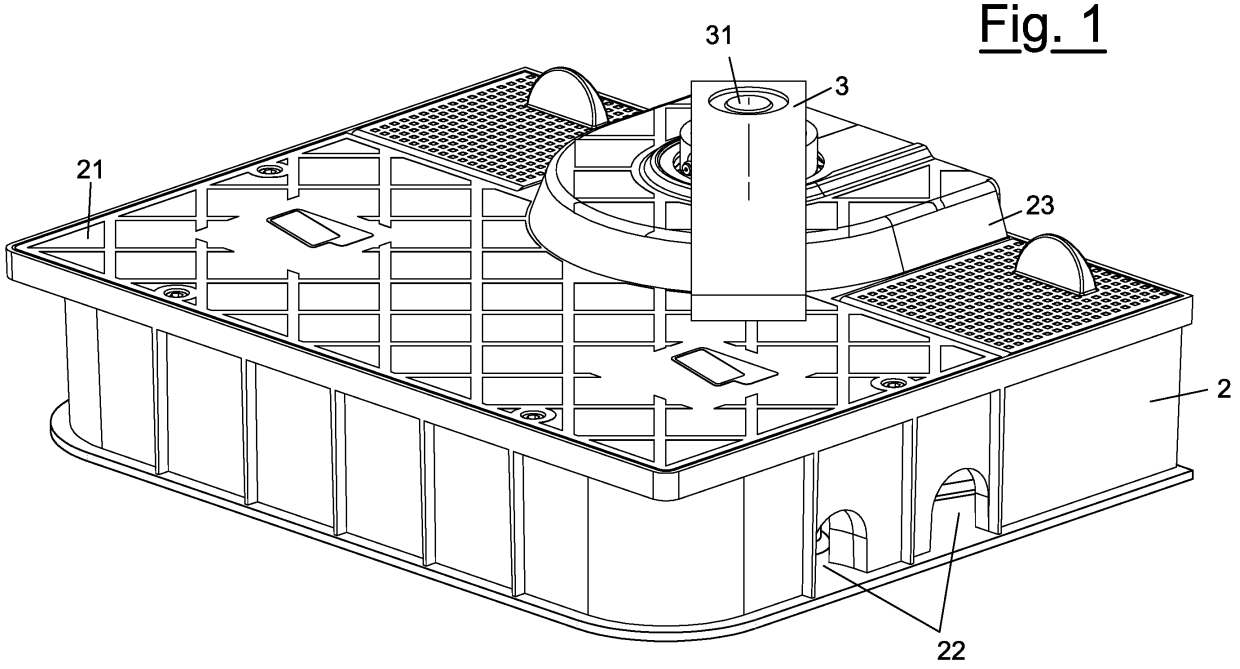
(74) Representative: **Coppo, Alessandro et al**
Ing. Barzanò & Zanardo Milano S.p.A.,
Via Borgonuovo, 10
20121 Milano (IT)

(54) Automatic mechanism for moving a bar

(57) Automatic mechanism for moving a bar suitable for being associated with the wing of a gate, comprising a box-shaped body (2) inside which the various parts of the mechanism are arranged and that can be closed up through a protective cover (21).

The box-shaped body is arranged buried and such a bar can be moved through a shaft (31) that projects out from a hump (23) located in the rear part of the box-shaped body that rises from the ground and it is firmly attached to the bottom surface of the gate.

Fig. 1



EP 1 835 114 A2

Description

[0001] The present invention refers to an automatic mechanism for moving a bar. In particular, the present invention concerns an automatic mechanism for moving a bar, which is suitably firmly attached to a gate acting as a bar for transmitting the rotation movement of the wing of the gate.

[0002] Moreover, the present invention refers to an automatic mechanism for moving a bar for supporting a wing of a gate, the support structure of which is arranged in a buried position.

[0003] Barriers for controlling access to defined areas, like for example private grounds, are usually actuated by the users, from fixed positions, through open/close buttons or keys or else by means of remote controls, which send a radio impulse to an electronic control unit, which takes care of actuating the bar or the gate in the desired direction.

[0004] Moreover, generally, in the case of remote radio transmissions, after having made a command to open, the subsequent closing thereof takes place through the user sending another command or else it takes place automatically after a certain predetermined time period.

[0005] Bars of this type are usually moved through electric motors connected to the normal electrical mains.

[0006] When there is an emergency condition, which occurs for example when there is a power cut or an electrical fault, said electric motor no longer operates. In this situation the bar must still be able to be moved, subject to the unlocking of the automatic moving mechanism, to allow passage through the entry even in emergency conditions. For this purpose, the electric motor that moves the bar is unlocked.

[0007] This operation usually takes place through a conventional key, which allows the electric motor to be decoupled from the bar.

[0008] The motor and the electromagnetic unlocking group of the gate are normally arranged on the ground, for example close to the barrier that the bar defines.

[0009] The arrangement of the group and of the motor must be carefully researched, since it is advantageous for it to be arranged so as to stay as much as possible out of the way of the barrier.

[0010] Moreover, known systems for unlocking a gate in emergency conditions can be troublesome, since they can require difficult manual operation, perhaps to be carried out in uncomfortable positions. In any case, the gate must be moved manually once unlocking has been carried out.

[0011] An aspect of the present invention concerns an automatic mechanism for moving a bar suitable for being associated with the wing of a gate, comprising a box-shaped body inside which the various parts of the mechanism are arranged and that can be closed up through a protective cover, characterised in that the box-shaped body is arranged buried and such a bar can be moved through a shaft that projects out from a hump located in the rear part of the box-shaped body that rises from the ground and it is firmly attached to the bottom surface of the gate.

[0012] The characteristics and advantages of the moving mechanism according to the present invention shall become clearer from the following description, given as a non-limiting example, referring to the attached schematic drawings, in which:

- figure 1 is a perspective view of the automatic mechanism for moving a bar according to the present invention;
- figure 2 is a perspective view of the mechanism of figure 1 without the closure cover;
- figure 3 is a side view of the mechanism of figure 1 and 2,
- figure 4 is a view from above of the mechanism of figure 1 and 2.

[0013] With reference to the quoted figures the automatic mechanism for moving a bar comprises a preferably parallelepiped box-shaped body 2 inside which the various parts of the mechanism are arranged and that can be closed up through a protective cover 21. On the sides of such a body there are openings 22 from which it is possible to access the inside of the box-shaped body with the power supply and command cables.

[0014] The bar 3 that can be moved by the mechanism of the present invention is firmly attached to a shaft 31 that projects out from a hump 23 located in the rear part of the box-shaped body.

[0015] Inside the box-shaped body the quoted parts are arranged so that the thickness of the box-shaped body itself is extremely low, so as to be able to be buried simply and quickly.

[0016] In particular, inside such a box-shaped body there is a substantially cylindrical geared motor 41 arranged in "laid out" position so as to reduce its vertical bulk to the minimum. Electrical contacts 42 are arranged on the rear part of the geared motor and there is a transmission group suitable for taking the rotation motion from the shaft to the bar on the front part of the geared motor from such a rotation shaft. Such a transmission group comprises a plurality of gears and at least one worm.

[0017] In the box-shaped body, in a lateral position with respect to the pin for moving the bar, a pair of cylindrical portions are arranged 24 and 25 covered by lids 26 and 27; in each of such cylindrical portions, a device for unlocking the motor from the bar is arranged enabled by a key and activated by a suitable manually actuated handle capable of decoupling, through a gear and the worm, the electric motor from the shaft for moving the bar.

[0018] The box-shaped body is arranged half-buried under the gate; advantageously, the hump 23 slightly projects from the ground and the bar is firmly attached to the bottom surface of the swinging gate so as to transmit the opening and closing movement to it. In the case in which the gate has two wings, one mechanism is buried

for each wing; the mechanisms are in this case arranged on opposite sides of the barrier.

[0019] The box-shaped body, with the geared motor arranged in such a position, can be made with an extremely low thickness, for example with a thickness of about 8 centimetres. Moreover, the size of the box as a whole is also extremely small (for example a width of about 40 cm and a depth of about 35 cm). Given its characteristics, it is quick and easy to position the mechanism as a whole in the ground.

[0020] Moreover, the cylindrical portions inside of which the unlocking device is arranged are respectively positioned one outside and one inside the barrier, so that the gate can be unlocked, through the suitable key, both from outside and from inside the barrier.

Claims

1. Automatic mechanism for moving a bar suitable for being associated with the wing of a gate, comprising a box-shaped body (2) inside which the various parts of the mechanism are arranged and that can be closed up through a protective cover (21), **characterised in that** the box-shaped body is arranged buried and such a bar can be moved through a shaft (31) that projects out from a hump (23) located in the rear part of the box-shaped body that rises from the ground and it is firmly attached to the bottom surface of the gate.

2. Mechanism according to claim 1, wherein inside such a box-shaped body there is a substantially cylindrical geared motor (41) arranged in "laid out" position, so as to reduce its vertical bulk in the box-shaped body itself.

3. Mechanism according to claim 1, wherein a transmission group suitable for taking the rotation motion from such a shaft to the bar comprises a plurality of gears and at least one worm.

4. Mechanism according to claim 1, wherein in the box-shaped body, in a lateral position with respect to the pin for moving the bar, a pair of cylindrical portions are arranged (24,25) covered by lids (26,27) in each of which a device for unlocking the motor from the bar is arranged.

5. Mechanism according to claim 4, wherein such an unlocking device is enabled by a key and it is activated by a suitable manually actuated handle capable of decoupling, through a gear and the worm, the electric motor from the shaft for moving the bar.

6. Mechanism according to claim 1, wherein there are openings (22) on the sides of such a body from which it is possible to access the inside of the box-shaped body with the power supply and control cables.

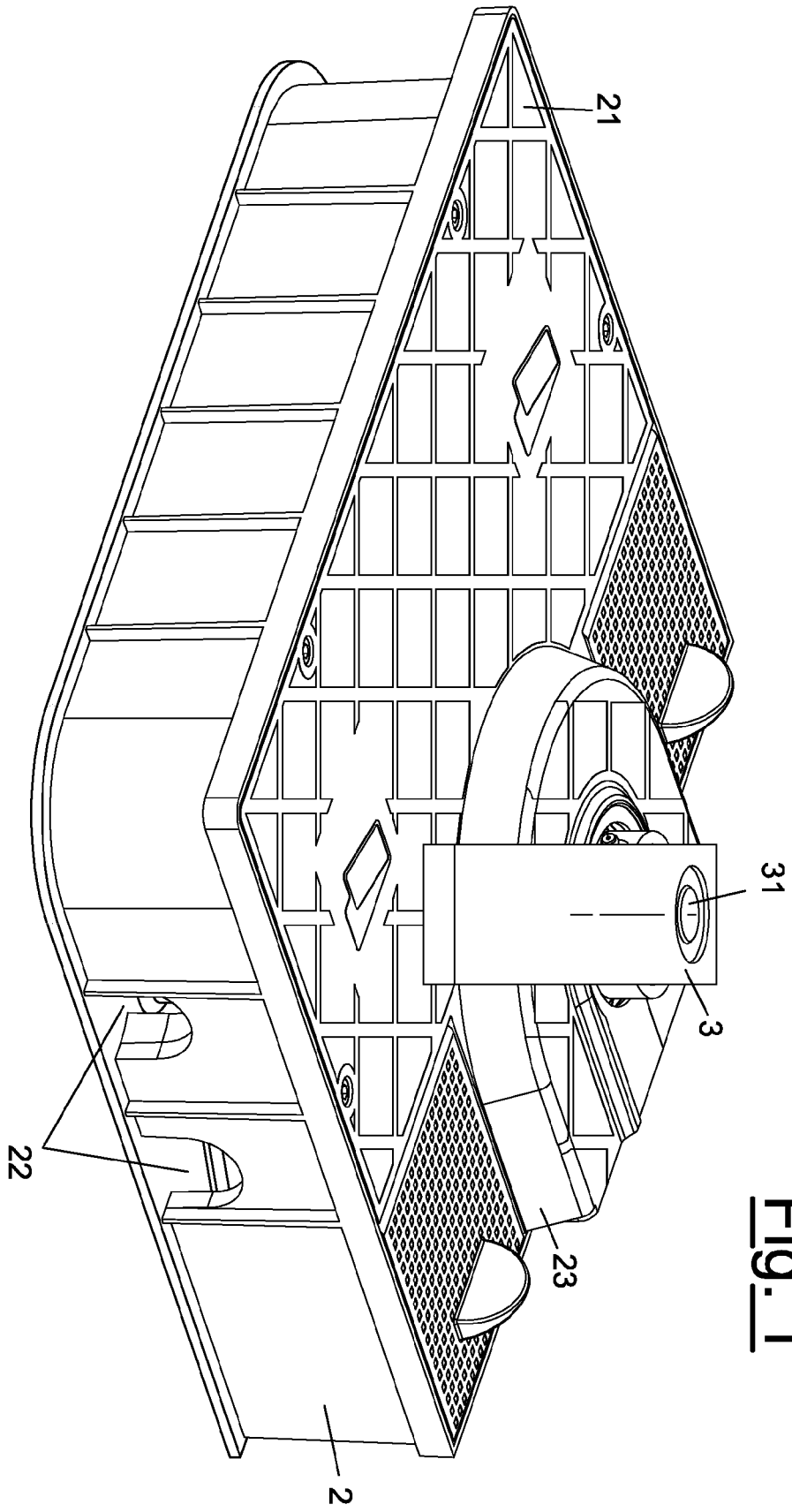


Fig. 1

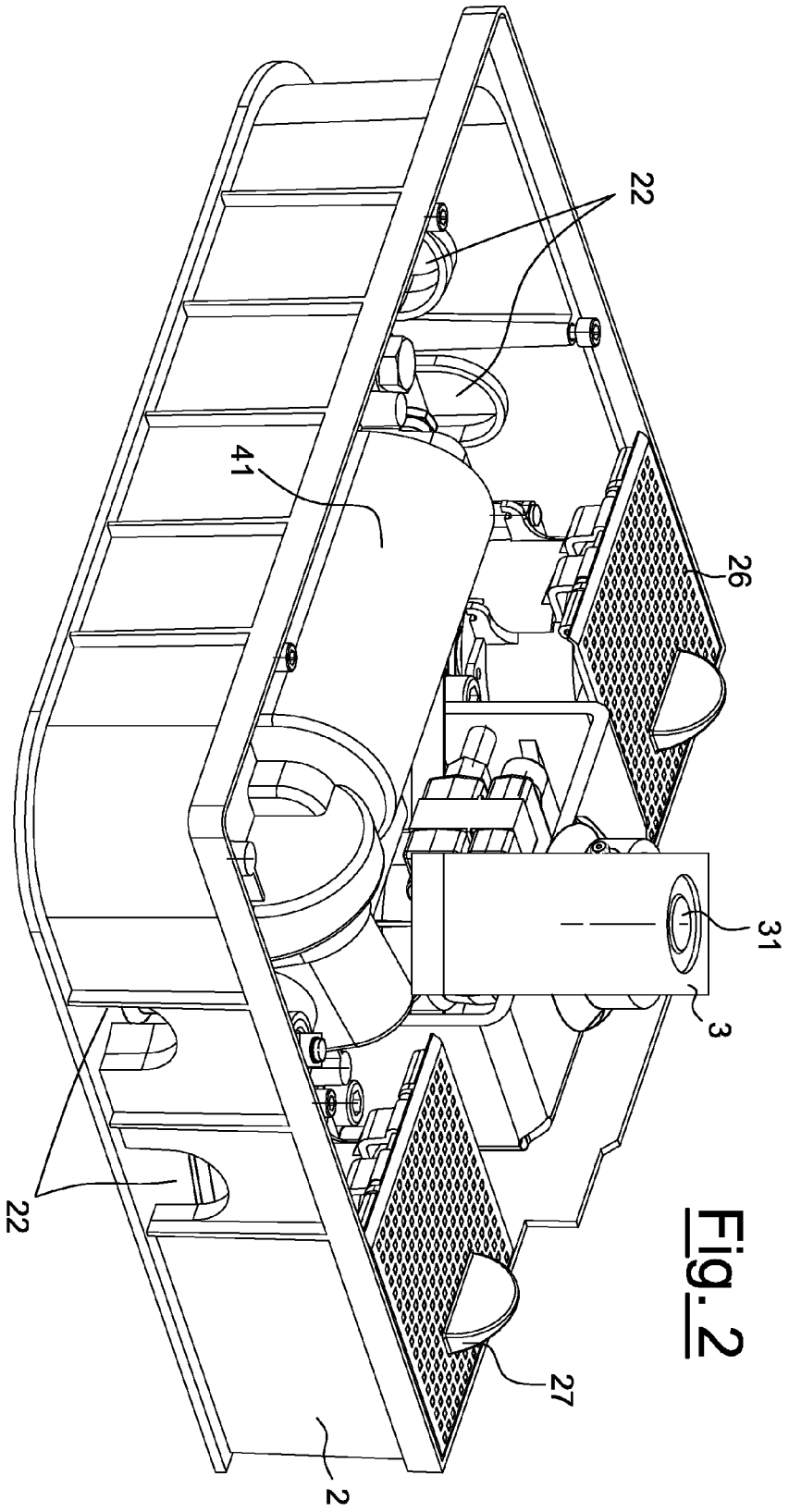


Fig. 2

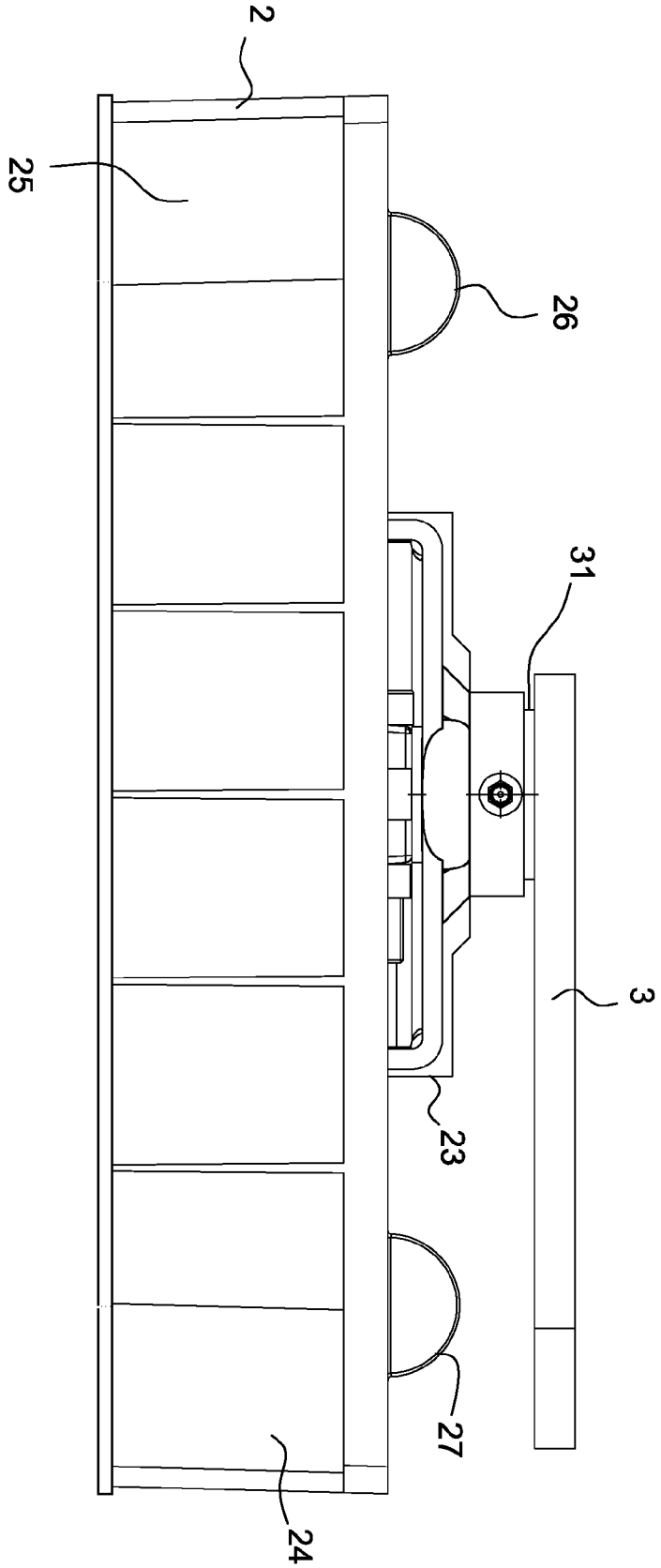


Fig. 3

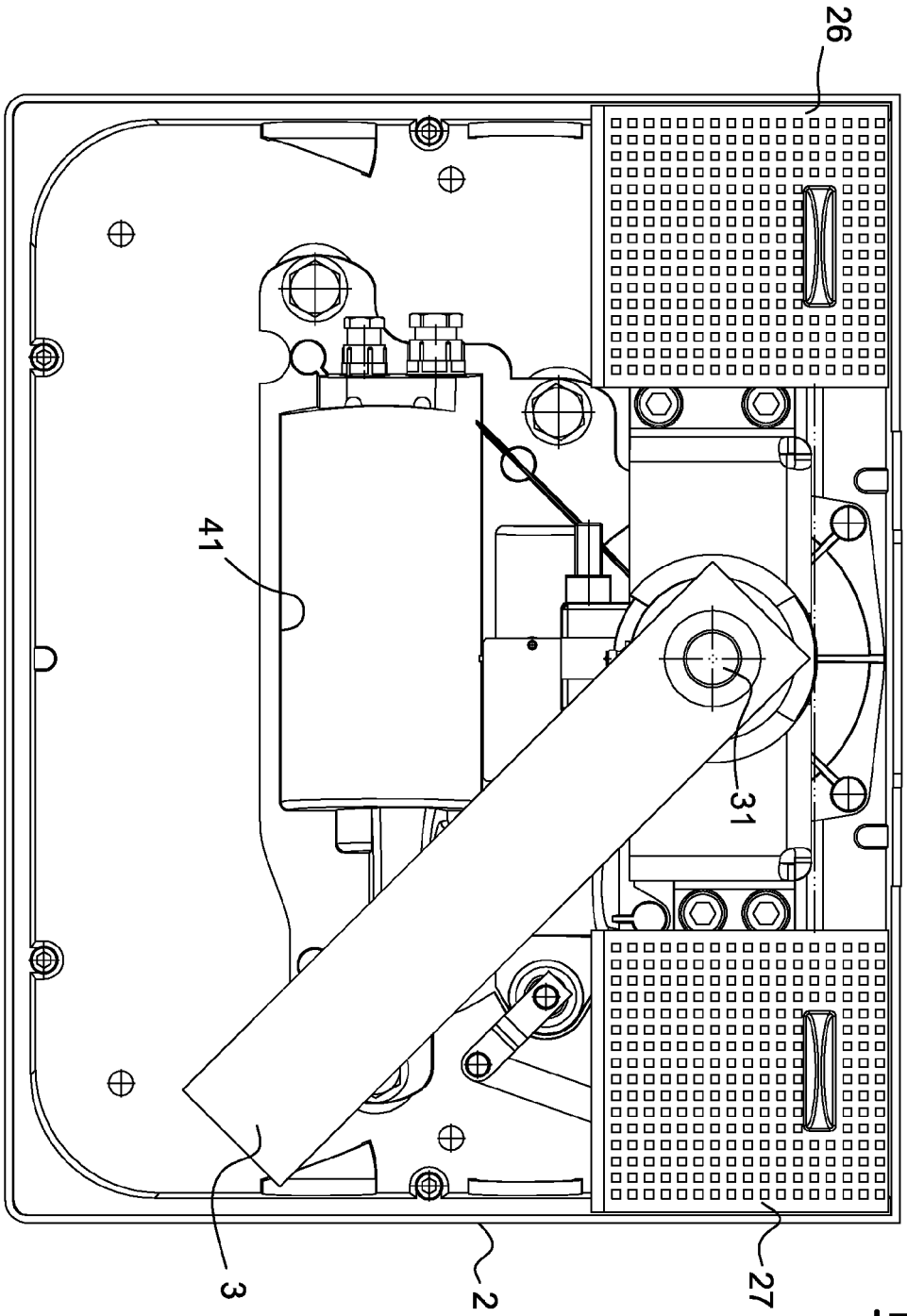


Fig. 4