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(54) **Security frame with sliding armour-plate on the shutter for windows, doors or the like**

(57) This invention proposes a casing in which at least one side of a shutter (7) is fitted with a support frame (3) for a sliding armour plate (1) made in such a way as to move from a close position - where it remains contained into the said frame - to an open position where, with the shutters (7) open, it comes out from the said frame (3), and finally closes the window/door opening.

The said armour plate (1) can consist, for example, of a metal grate or armour-plating bars welded to an armour-plating case in which at least one - either upper or lower - edge is slide-mounted on the support frame by means of telescopic slides, e.g. ball-bearing slide type.

Ultimately, according to this invention, a frame (3) in which an armour plate (1) slides is applied to or fitted into the door/window frame shutters; the said case, while the shutters are open, can come out and close the window/door opening or remain held into the said case and hidden by the shutter itself.

In compliance with a preferred embodiment of the invention, this support frame (3) can be fitted with an additional panel of the shutter, in such a way as to create a double-sided shutter, inside of which both the case and the armour plate (1) are hidden, if the said armour plate, while the shutters are open, is not pulled out of the case.

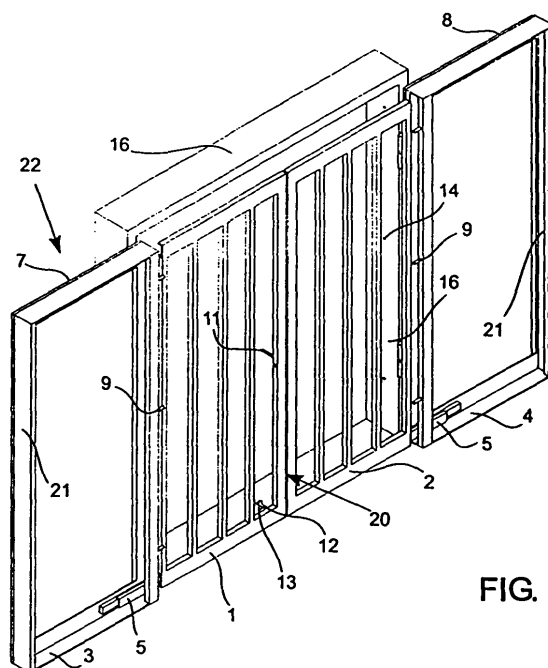


FIG. 3

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Description

[0001] This invention proposes a casing in which at least one side of a shutter is fitted with a support frame for a sliding armour plate made in such a way as to move from a close position - where it remains contained into the said frame - to an open position where, with the shutters open, it comes out from the said frame, and finally closes the window/door opening.

[0002] The said armour plate can consist, for example, of a metal grate or armour-plating bars welded to an armour-plating frame in which at least one - either upper or lower - edge (both in the preferred embodiment) is slide-mounted on the support case by means of telescopic slides, e.g. ball-bearing slide type.

[0003] Ultimately, according to this invention, a frame in which an armour plate slides is applied to or fitted into the door/window frame shutters; the said frame, while the shutters are open, can come out and close the window/door opening or remain held into the said frame and hidden by the shutter itself.

[0004] According to a preferred embodiment of the invention, this support frame can be fitted with an additional panel of the shutter, in such a way as to create a double-sided shutter, inside of which both the frame and the armour plate are hidden, if the said armour plate, while the shutters are open, is not pulled out of the case.

[0005] The considerable advantage offered by this invention is represented by the fact that, while the shutters are closed, the armour plate is always working and hidden, but, while the shutters are open, the user can choose whether to use or not the armour plate by pulling it out of its case. Furthermore, this invention can be also applied to already existing fixtures having one or more shutters, without the need of making substantial replacements and/ or modifications.

[0006] As everybody knows, home security against burglars and intruders has always been a very topical question; in order to overcome this problem, fixed grates or grille have often been used, seriously damaging the harmony of the building and impeding the user from freely using the window openings and leaning out of the windows.

[0007] The use of armour-plated doors and windows or security gates is known, but these offer protection only if closed, while when they are open, they remain visible with an unpleasant effect.

[0008] Other foldaway systems consist of wall-mounted gates or other sliding armour plates that, on the other hand, require for the existing buildings to comply with the safety regulations in force, since the use of the said systems implies significant renovation works.

[0009] The European Patent EP 0,971,094 teaches a window/door casing in which, at an edge of frame shutters a frame is fitted, consisting of openable slides, among which an armour-plating grille is included, in which the said slides provide for openable parts which allow the grille to come out of the frame profile and finally

close the door/window opening. This kind of frames is perfectible since it requires that the users carry out different actions, not so much instinctive and sometimes somewhat arduous for the typical user; furthermore, the opening of the armour plate is carried out by directly sliding the armour-plated grille on the slides, resulting in complications due to the strong friction among the elements.

[0010] In order to avoid that, in the course of time, the wear and the ageing of the materials make such operations more and more difficult, a constant maintenance and cleaning of the fixture is required, also in order to prevent foreign bodies from settling along the slides, thus blocking the smooth sliding of the grille.

[0011] The above-mentioned and other drawbacks can be overcome by this invention, which will be now described in detail, by way of example but without any limitation thereto, with reference to the enclosed figures, wherein:

- figures 1 and 2 are axonometric views of the window frames according to this invention with open shutters, single- and double-sided respectively;
- figures 3 and 4 show the window frames of figures 1 and 2 hereabove with open armour plate.
- figure 5 shows the window frames of figure 3 seen from the inside of the building;
- figure 6 shows the window frames according to this invention seen from the outside of the building with shutters and armour plate partially open;
- figure 7 shows the window frames according to this invention with the shutters closed;
- figure 8 is a vertical section of the armour plate according to this invention just near to the telescopic slide.

[0012] It is hereby specified that, even though the drawings annexed hereto refer to an armour-plated jalousie, the invention is not limited to this kind of frames, but has as object any kind of windows, doors and frames.

[0013] With reference to the above-mentioned figures, 1 through 8, 1 refers to the armour plate which is slide-mounted inside a frame 3 by means of ball-bearing or roller-bearing telescopic slides schematically shown by the drawings and referred to as 5.

[0014] The armour plate, in the preferred embodiment shown by the figures, represents a kind of small sliding gate consisting of vertical - or differently orientated - iron bars or tubular structures jointed to the upper and lower ends by means of a C-shaped profile 19 (fig. 8).

[0015] The telescopic slides 5 can be therefore fitted at will simply on the upper edge of the armour plate into the cavity of the C-shaped profile 19, on the lower side, or better, on both sides.

[0016] The free side 21 of the support frame 3 (figures 6 and 3) is closed and forms an end stop for the armour plate, while the hinged side is open, in such a way as to

allow the said armour plate 1 on this side to come out of the support frame 3 volume.

[0017] This embodiment of the frame 3 allows, while the shutter are closed, the inside armour plate 1 to stand still, since the said armour plate is blocked both by the closed side 21 of the frame 3 and by the presence of the fixed case or wall 16 of the window opening; only by opening the shutter, the hinged inner side of the frame 3 can turn, thus releasing the open side and therefore giving the armour plate enough clearance to come out.

[0018] The end stop of the armour plate in this direction is guaranteed by known stop devices fitted on the telescopic slides, not shown by the figures.

[0019] While the shutters are completely open, therefore running parallel to the wall, the armour plates 1 and 2 can completely come out of the respective frames 3 and 4, bring into contact their free sides 20, so closing the opening.

[0020] On the said free sides 20 of the armour plate (figures 3, 4 and 6) in order to joint together the two armour plates 1 and 2, there is a plurality of projecting pins 10 made in such a way as to fit into their corresponding holes 15 provided on the corresponding side of the other case 20.

[0021] Also the support frames 3 and 4, on the side near to the frame hinges, are fitted with projecting pins 9 which, when the jalousie is completely closed to darken a room, will fit into in the corresponding seats 14 on the wall of the building or in the fixed case 16, thus creating an impediment to any attempt of forcing.

[0022] The shutters may consist of a single cover plate 7, fitted on the external side of the support frame 3, or a double-cover plate, the latter created by putting a second cover plate 17 over the other side of the frame 3.

[0023] In this way the frame 3 is held between the two sides 7 and 17 or 8 and 18 which cover the shutter, referred to, as a whole, as 22, and also the armour plate, when this is completely hidden into the case, is completely invisible both from the outside and the inside without any effect on the outward appearance of the building.

[0024] The method of utilisation is the following.

[0025] According to the known utilisation of the door/window frames, the armour plate 1 remains completely inside the shutter 22 and is not visible at all, as if it was common door/window frames, as shown by figure 7.

[0026] When the shutters are closed, the door/window frames have the advantage of the internal armour plate offered by the armour plate 1, with the pins 9 of the case 3 which fit into the corresponding holes 14 of the wall or the fixed case 16, thus preventing any attempt of forcing open.

[0027] By opening the shutters in the usual manner without opening the internal armour plate, the opening remains free, and the user can easily, as if it was a common fixture without any security element, lean out.

[0028] The frame appears as shown by figures 1 and

2.

[0029] In order to protect the apartment or the building against unwelcome intrusions, leaving the shutters open, it is sufficient to simply pull out the sliding armour plates 1 and 2, engaging one against the other to fill the opening.

[0030] The frame appears as shown by figures 3, 4 and 5.

[0031] A known release system, not shown by the figure, locks the sliding of the armour plate when it reaches the correct position of maximum extension.

[0032] The locking of the armour plate in close position of the door/window opening may occur according to the known method, e.g. by means of a hook 12 that, controlled by a handle 11, comes out from the lower edge 19 of the armour plate 1 to engage a projecting pin 13 fitted on the windowsill or on the case 16.

[0033] A skilled in the art may provide for other means of locking fitted on both closed and open frames, which must be considered included within the competence of this invention.

[0034] A remarkable advantage offered by the door/window frames according to this invention compared with the known methods, in addition to the ones mentioned above as to appearance and versatility of the usability of the frames, is represented by the utmost user-friendliness, since no complicated devices must be activated.

[0035] The activation and the sliding of the armour plate does not require any effort, since the telescopic linear slides 5, of the same kind as the ones used for sliding drawers, offer a high smoothness.

[0036] A skilled in the art may make changes and different versions which must be considered included within the competence of this invention.

Claims

1. Security frame providing for an armour plate 1 sliding, inside a support frame 3 fitted on a shutter 7, between a close position, in which it is held within the volume of the shutter, and an open position in which it comes out to close the opening, **characterised by** the fact that the said armour plate is mounted on telescopic supports fitted to the said case.
2. Security frame according to claim 1 **characterised by** the fact that the said sliding armour plate 1 comes out of the support frame 3 from an open side which is placed on the hinge edge of the shutter.
3. Security frame according to any of the previous claims, **characterised by** the fact that the said armour plate 1 is slide-mounted on the said frame by means of ball-bearing or roller-bearing telescopic slides 5.

4. Security frame according to any of the previous claims, **characterised by** the fact that the upper and/or lower sides or edges of the said armour plate consist of C-shaped profiles 19 lodging the telescopic slides 5. 5
5. Security frame according to any of the previous claims, **characterised by** the fact that on the support frame 3, on the hinged side, at least one 'unhinging-proof' pin 9, is fitted, the said pin entering into a corresponding hole 14 on the vertical side of the opening or fixed case 16 when the shutter 22 is closed. 10
6. Security frame, double-shutter type, according to any of the previous claims, **characterised by** the fact that the sliding armour plate 1 of or shutter is fitted, on the vertical edge coming out of the shutter 20, with at least one pin 10 made in such a way as to be inserted into a corresponding hole 15 made in the corresponding edge 20 of the sliding armour plate 2 connected to the other shutter. 15 20
7. Security frame according to any of the previous claims, **characterised by** the fact that locking devices of the armour plate in the close position of the window opening are fitted. 25
8. Security frame according to claim 7 **characterised by** the fact that the said locking devices of the said armour plate are fitted with at least one locking hook 12 hinged in such a way as to pivot around a substantially horizontal plane, apt to engage a vertically projecting pin 13 and fitted on the lower side of the opening, said hook being controlled by a handle 11 fitted on one edge of the said armouring. 30 35

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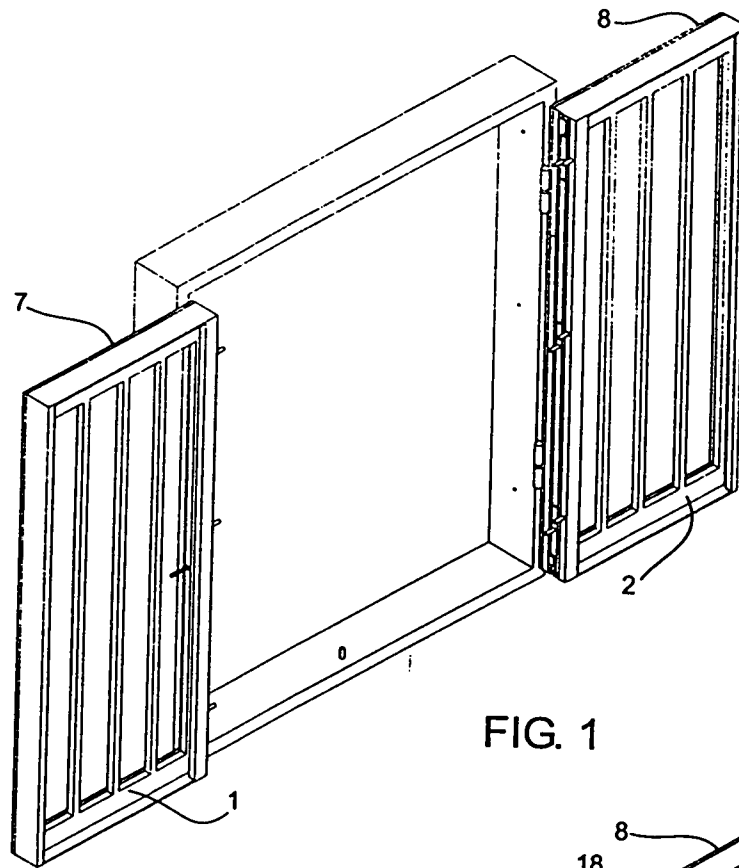


FIG. 1

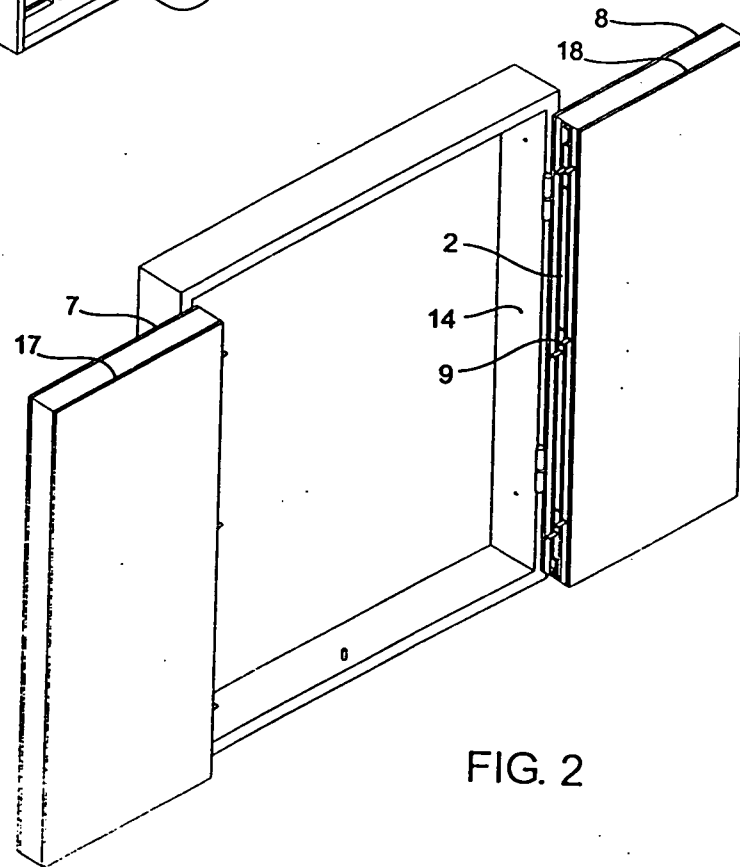


FIG. 2

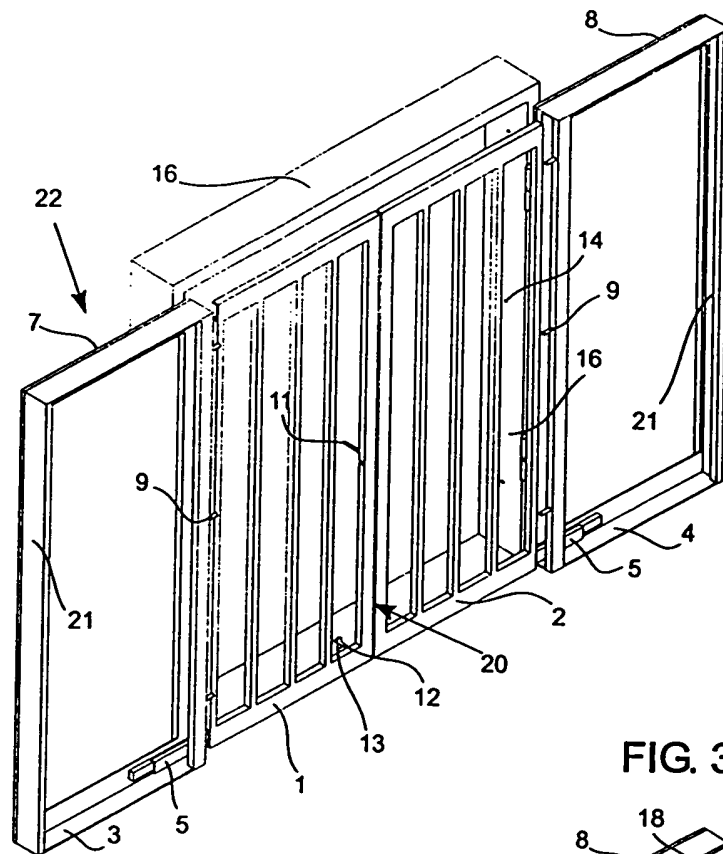


FIG. 3

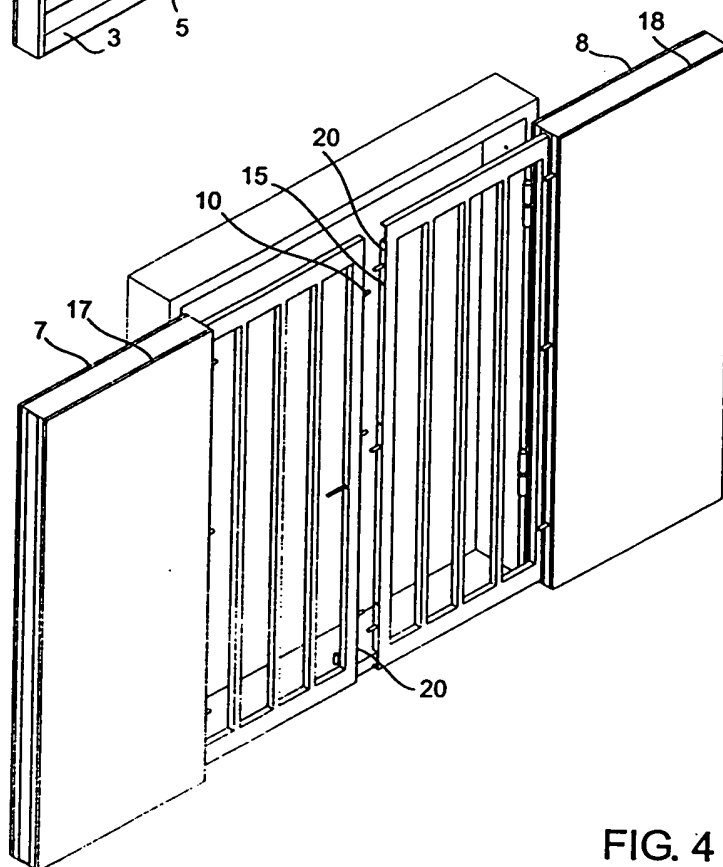
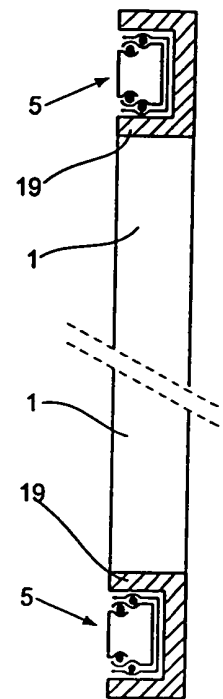
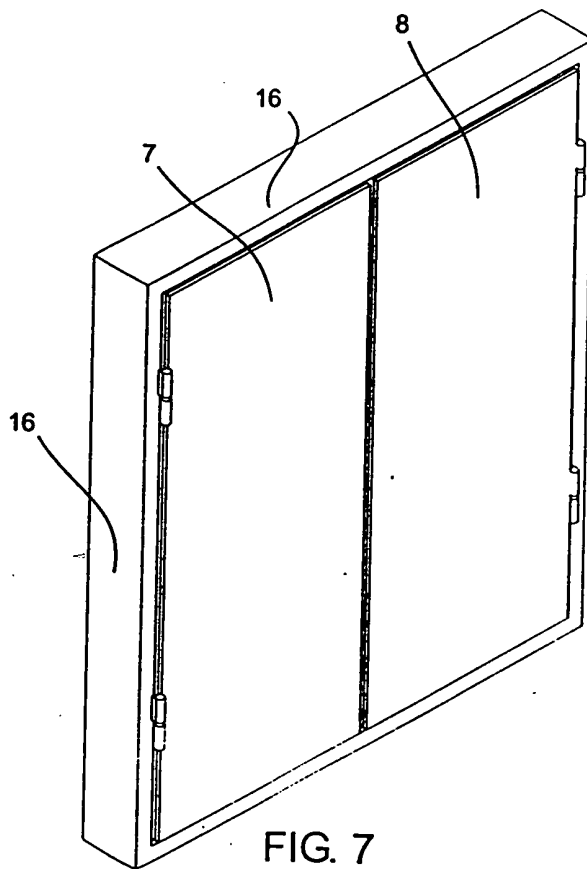
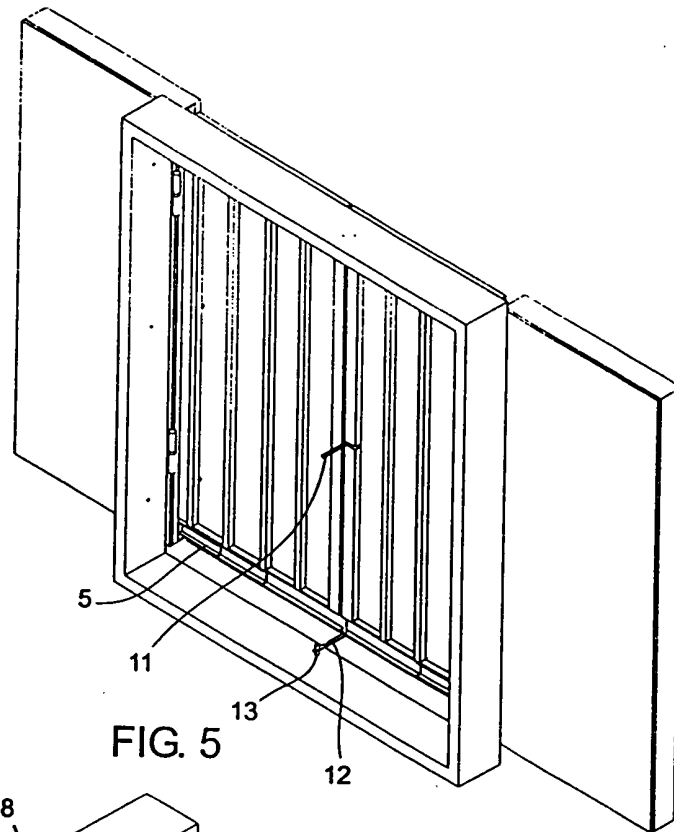


FIG. 4



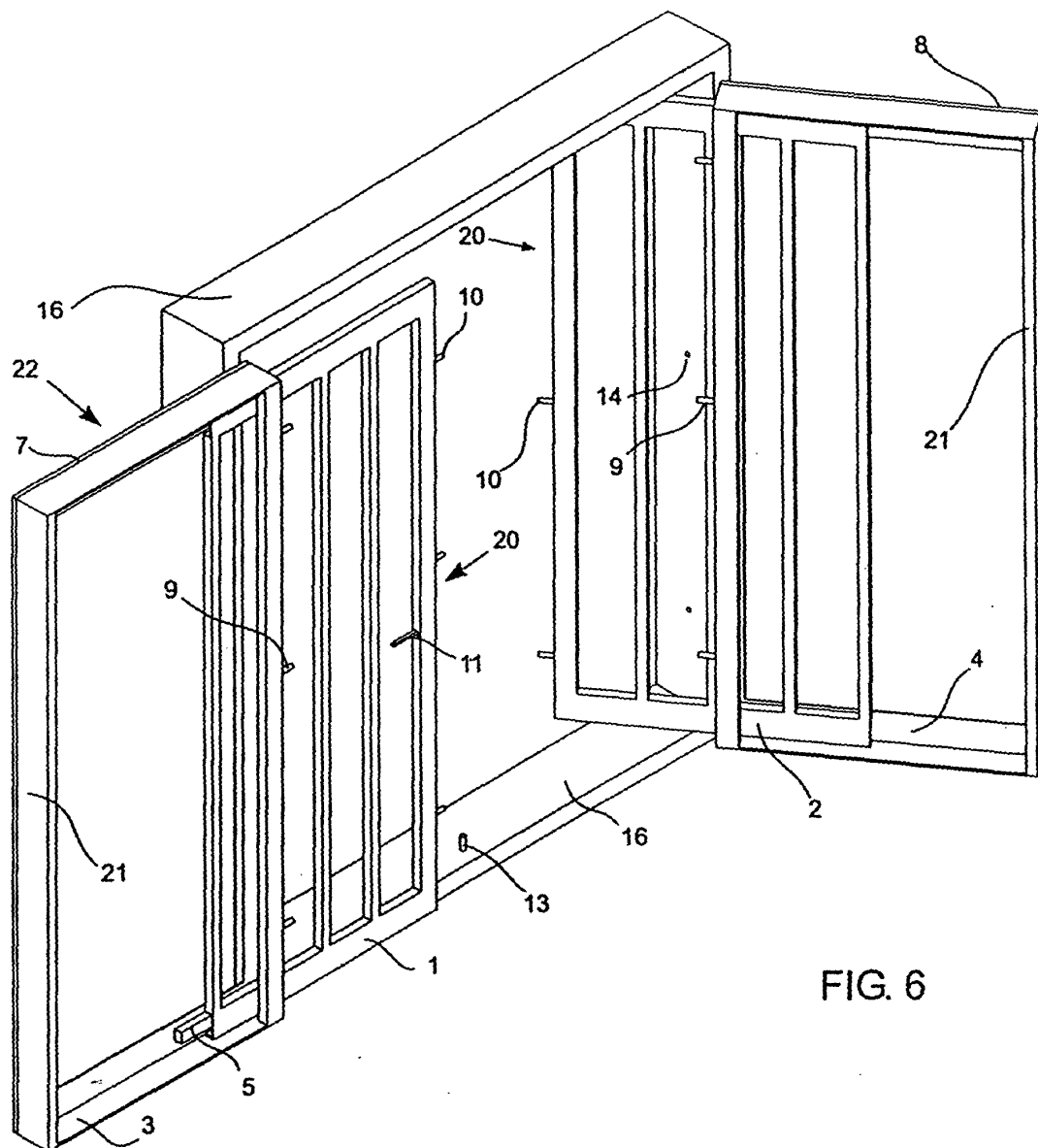


FIG. 6