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(54) Lock

(57) Closure with

a frame,

a panel, for instance a door, window or hatch, hung hingedly on one side of this frame and movable between a closed position, in which it closes the passage defined by the frame, and an open position;

locking means with a bolt which is spring-loaded to an active closing position and which co-acts with a recess present in the frame; and

an operating member which operates the locking means and which has a direction of movement corresponding to the direction of movement of the panel, which operating member is pivotable about a first pivot axis parallel to the main plane of the panel;

characterized in that

the operating member is embodied as an elongate operating profile which is situated on that side of the panel opposite the hinge side of the panel;

a transmission is present between the operating profile and the bolt in order to retract the bolt counter to the spring load or release it when the operating profile is operated.

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Description

[0001] The invention relates to a closure with

a frame,

a panel, for instance a door, window or hatch, hung hingedly on one side of this frame and movable between a closed position, in which it closes the passage defined by the frame, and an open position;

locking means with a bolt which is spring-loaded to an active closing position and which co-acts with a recess present in the frame; and

an operating member which operates the locking means and which has a direction of movement corresponding to the direction of movement of the panel, which operating member is pivotable about a first pivot axis parallel to the main plane of the panel.

[0002] Such a closure is known for instance as emergency closure device for emergency doors.

[0003] An object of the invention is to arrive at a device with which the closure can be operated in simple and ergonomically correct manner by both small and tall people, as well as healthy and disabled people.

[0004] This objective is generally realized by providing locking means on the panel with an operating device consisting of a number of components, viz.:

an operating handle embodied as an operating bar which is positioned opposite and parallel to the hinge side on the panel,

locking means for releasably locking the panel;

a transmission which converts the movement of the handle into a movement of the bolt.

[0005] Attention is drawn to the existing operating devices for opening and closing a door or window, consisting of a rotatable handle, the pivot axis of which is perpendicular to the surface of the door or window.

[0006] A drawback of this known art is that by placing the two pivot axes perpendicularly of each other, operation of the handle, and thereby opening or closing of the door, cannot take place in one smooth movement, so that opening and closing of the door by people in a wheelchair, or for instance people who have their hands full with documents or refreshments, is difficult.

[0007] Another drawback of this embodiment is that the handle can only be placed at one position on the door surface, preferably in the direct vicinity of the door bolt, usually just below the middle of the door, whereby the handle has only one point of operation, whereby the closure is difficult to operate for small people such as children or wheelchair users.

[0008] Attention is likewise drawn to existing closures for emergency and safety doors, such as are found for instance in public areas, which doors are provided with a long horizontal operating handle roughly as wide as the door itself, with a direction of movement the same as that of the door itself, and always embodied such that it covers practically the whole width of the door.

[0009] A drawback of this application is that its placing in the height usually corresponds with that of the door handle, whereby it remains difficult to operate for small people and wheelchair users.

[0010] Another drawback of this solution is that it cannot be integrated into a profile forming part of the frame or the casing of a door or window.

[0011] The invention has for its object to largely obviate all the above stated drawbacks while retaining achieved advantages and characteristics, whereby the objective is realized as fully as possible.

[0012] The stated objective is achieved according to the invention with a closure which has the feature that the operating member is embodied as an elongate operating profile which is situated on that side of the panel opposite the hinge side of the panel;

a transmission is present between the operating profile and the bolt in order to retract the bolt counter to the spring load or release it when the operating profile is operated.

[0013] A very practical and reliable solution is embodied in a manner such that the transmission co-acts with the bolt in the manner of a cam with cam follower.

[0014] A possible embodiment of this principle is drawn explicitly in the figures hereinbelow.

[0015] In a special embodiment the closure has the feature that an operating profile is present on both sides of the panel.

[0016] The panel can hereby be approached and operated from two sides. In the case where the panel can only hinge to one side from the closed position, the operating direction of the operating profile can preferably correspond to the intended direction of movement of the panel. This corresponds with the natural behaviour of a user.

[0017] A preferred embodiment has the feature that the operating profile is pivotable about a second pivot axis running at least almost parallel to said first pivot axis.

[0018] The closure according to the invention opens up the possibility that it can be operated in the most diverse conditions and by people of different height and different physical stature. To this end the closure can for instance have the feature that the operating profile extends over a substantial part of the length of the relevant side of the panel.

[0019] In this case the closure can be operated not only by hand but for instance also with the foot or the body, for instance in the case where a person is carrying a heavy object.

[0020] The stated advantage is particularly apparent in the case where the part is at least practically the whole length.

[0021] Aesthetically very attractive is an embodiment in which the operating profile is integrated into a bar forming part of the panel or wherein specially designed operating means are mounted on the operating profile.

[0022] A possible product embodiment is a door,

which will be described with reference to figures 1, 2, 3 and 4.

[0023] Figure 1 shows the door 1 which is hung hingedly in frame 2. The door is provided with a bolt 3 which in the closed position locks the door in the frame. In order to open the door the bolt is operated by the operating profile 4.

[0024] In figure 2 is shown how the two operating profiles 4 placed on either side of door 1 are mounted pivotally on the door by means of the rotation positions 5, wherein the two operating profiles are mutually connected by a strip 6 which co-acts by means of curve path 7 with bolt 3 such that when the operating profiles are moved the bolt is retracted into the door out of the recess 8 of frame 2 and counter to the spring pressure of spring 9.

[0025] Figure 3 shows an embodiment of door 1 with operating profiles 4, wherein special operating means 13 are fixed to these operating profiles for functional or design reasons.

[0026] In figure 4 is shown a possible embodiment of a window 9, wherein the window is provided with a frame 10 in which are received the glass 11 of the window and its seals 12, and wherein the operating profile 4 is received in one side of the frame such that the top part of the operating profile coincides with the top part of the frame of the window.

Claims

1. Closure with

a frame,

a panel, for instance a door, window or hatch, hung hingedly on one side of this frame and movable between a closed position, in which it closes the passage defined by the frame, and an open position;

locking means with a bolt which is spring-loaded to an active closing position and which co-acts with a recess present in the frame; and

an operating member which operates the locking means and which has a direction of movement corresponding to the direction of movement of the panel, which operating member is pivotable about a first pivot axis parallel to the main plane of the panel;

characterized in that

the operating member is embodied as an elongate operating profile which is situated on that side of the panel opposite the hinge side of the panel;

a transmission is present between the operating profile and the bolt in order to retract the bolt counter to the spring load or release it when the operating profile is operated.

2. Closure as claimed in claim 1,

characterized in that

the transmission co-acts with the bolt in the manner of a cam with cam follower.

3. Closure as claimed in claim 2,

characterized in that

an operating profile is present on both sides of the panel.

4. Closure as claimed in claim 1,

characterized in that

the operating profile is pivotable about a second pivot axis running at least almost parallel to said first pivot axis.

5. Closure as claimed in claim 1,

characterized in that

the operating profile extends over a substantial part of the length of the relevant side of the panel.

6. Closure as claimed in claim 5,

characterized in that

said part is at least practically the whole length.

7. Closure as claimed in claim 6,

characterized in that

the operating profile is integrated into a bar forming part of the panel.

figure 1

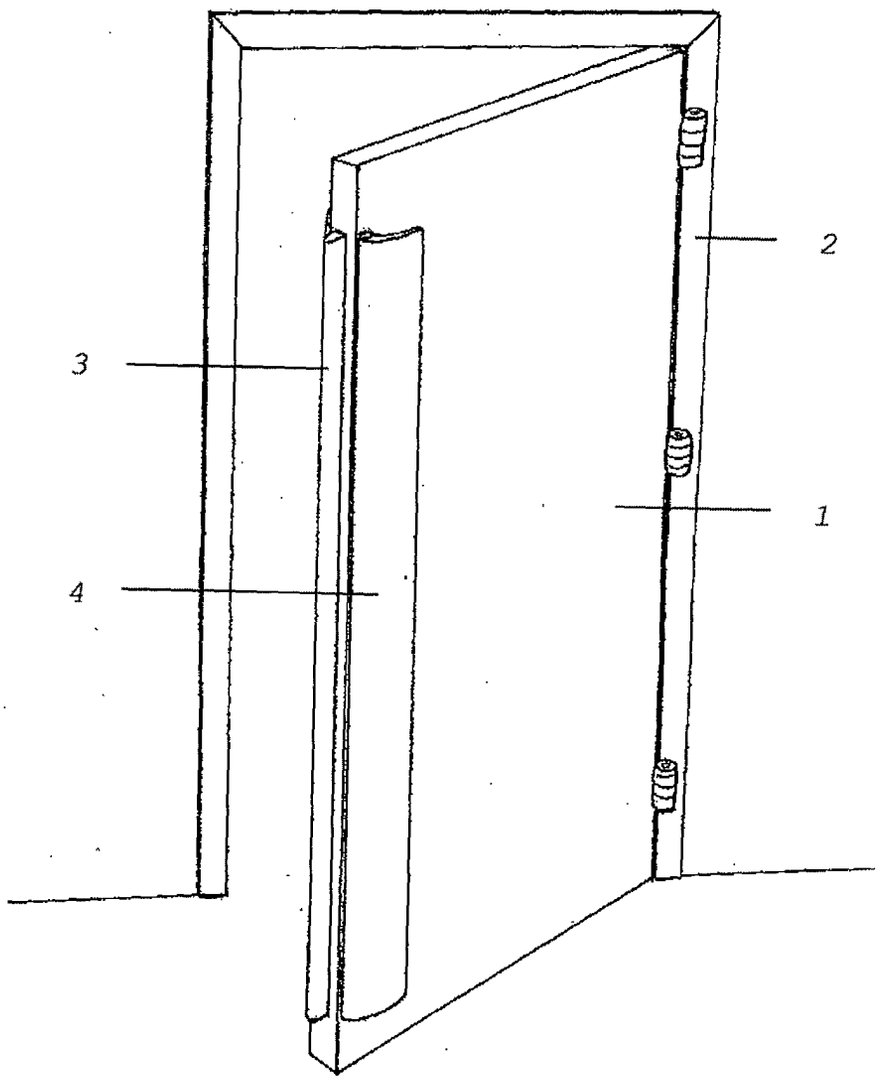


figure 2

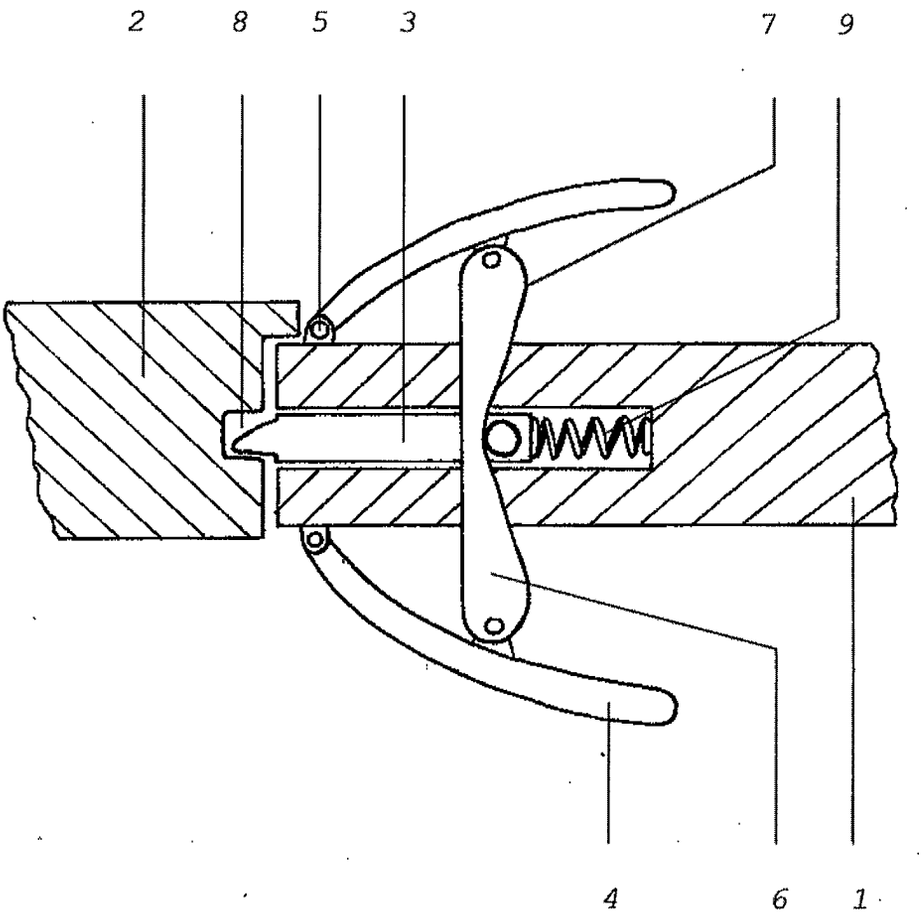


figure 3

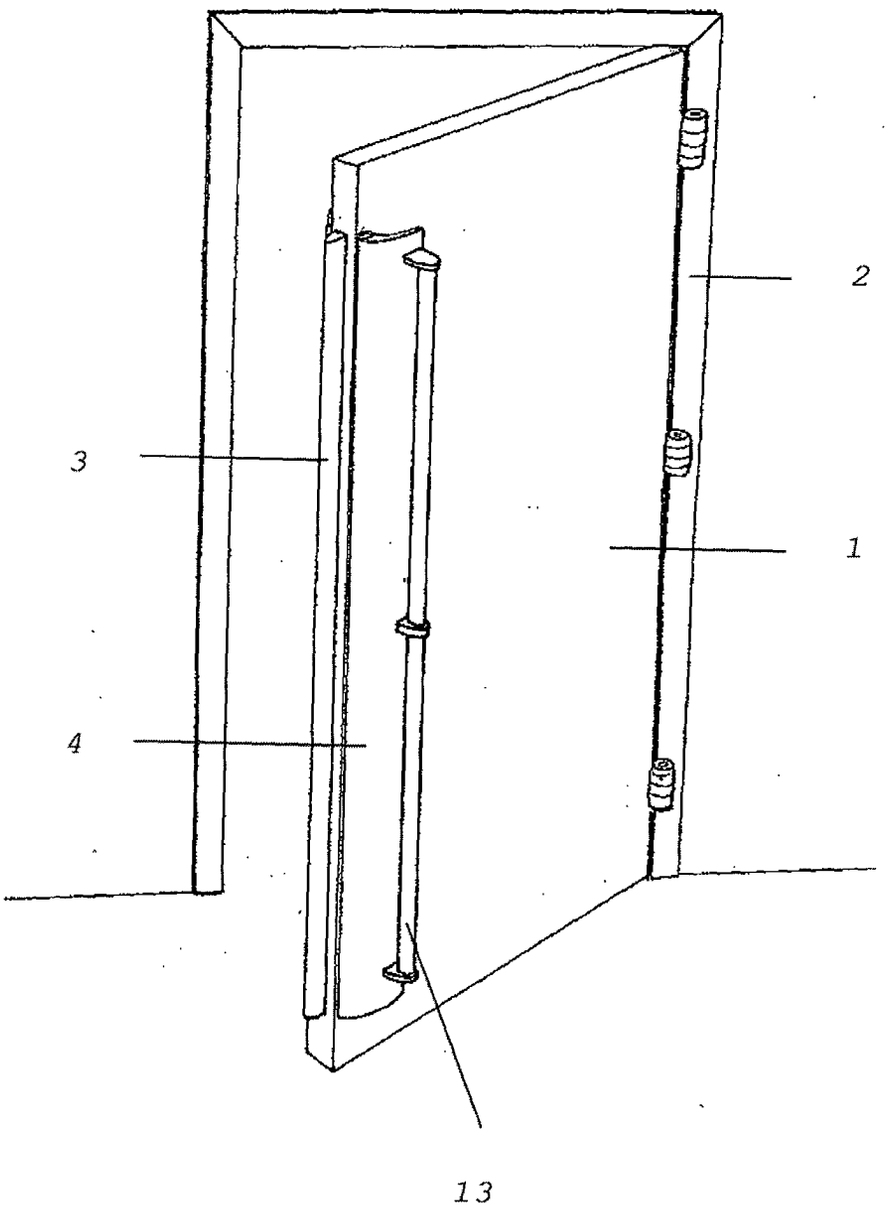
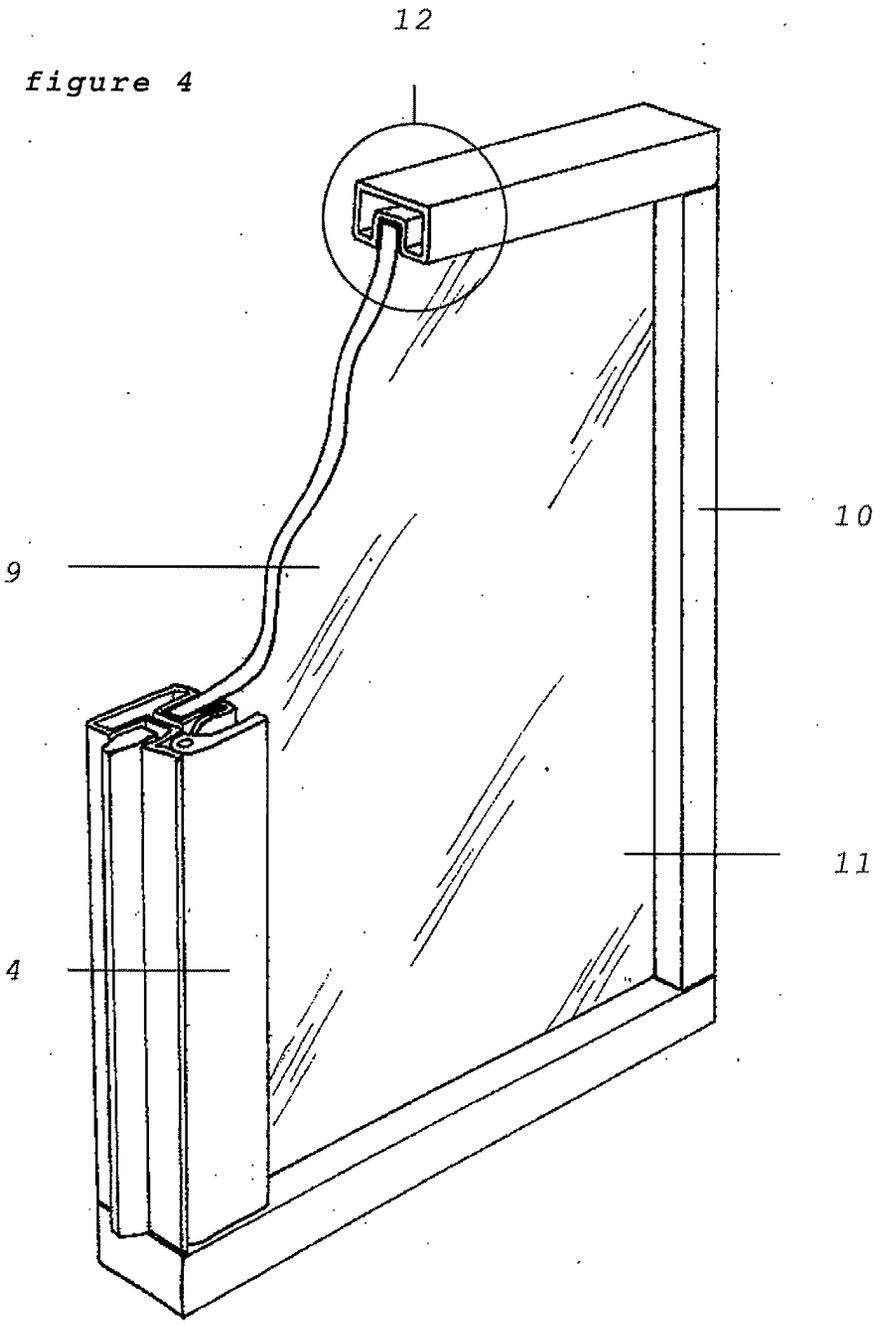


figure 4



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EUROPEAN SEARCH REPORT

Application Number
EP 02 07 9842

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.7)
X Y	FR 1 294 001 A (MARZOCCHI LORENZO) 18 May 1962 (1962-05-18) * column 2, line 7-20 - column 3, line 31-52; claim 1; figures 1-3 *	1-5 6,7	E05B7/00
X	CA 991 222 A (DECALOCK LTD) 15 June 1976 (1976-06-15) * page 4, line 15 - page 6, line 24 * * page 7, line 9 - page 8, line 4 * * page 12, line 30 - page 13, line 19; figures 1,5 *	1-5	
X Y	FR 2 790 275 A (JPM SA) 1 September 2000 (2000-09-01) * page 3, line 4 - page 5, line 11; figures 1,3 * * page 1, line 20 - page 2, line 24 * * page 3, line 4-22; figures 1-3 *	1-5 6,7	
X	GB 1 556 280 A (SPECIALTY HARDWARE SERVICE PTY) 21 November 1979 (1979-11-21) * column 2, line 65 - column 4, line 79; figures 1,2 *	1-3	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

E05B
E05C
E05D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	28 March 2003	Balice, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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28-03-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 1294001 A	18-05-1962	NONE	
CA 991222 A	15-06-1976	CA 966534 A1	22-04-1975
		CA 991222 A2	15-06-1976
		US 3785686 A	15-01-1974
FR 2790275 A	01-09-2000	FR 2790275 A1	01-09-2000
GB 1556280 A	21-11-1979	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82