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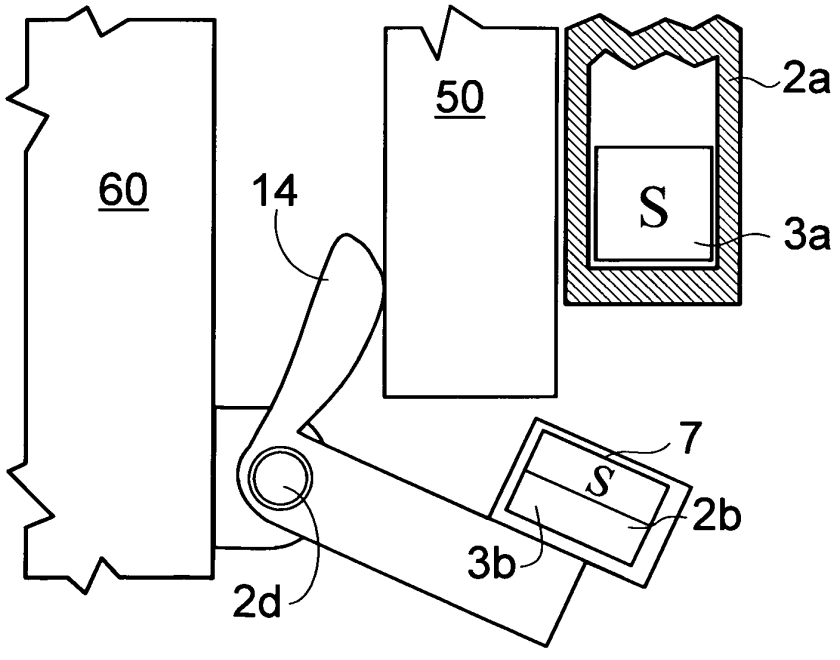
(54) **Locking device for door and window shutters and the like**

(57) Locking device (1) for door and window shutter (50) and the like, positionable in an engaged configuration, in which it is suitable to temporarily constrain the shutter (50) in proximity to a supporting surface (60), and in a disengaged configuration, in which it is suitable to allow movement of the shutter (50) and comprising: a movable coupling element (2a), constrained to said shutter (50) and comprising at least a first magnet (3a), a fixed coupling element (2b), constrained to said supporting surface (60) and comprising at least a second magnet (3b) and wherein said magnets (3a, 3b) reciprocally attract each other in the engaged configuration and reciprocally repel each other in the disengaged configuration.

Fig. 10b



EP 1 950 370 A1

Description

[0001] The present invention refers to a locking device for door and window shutters and the like of the type described in the preamble of Claim 1.

[0002] There are currently known locking devices for door and window shutters and the like, in particular for window shutters.

[0003] In fact, as it is known, windows or doors can have external shutters which, once opened, are positioned against the external walls of the building in which they are installed.

[0004] These external shutters are also often fastened to the external walls of buildings by means of specific locking devices.

[0005] Said locking devices prevent the shutters from being closed or moved by the wind or by other atmospheric agents and the like.

[0006] In particular, there are used locking devices realized by mechanical couplings of various types which constrain the outermost portion of the shutter to the external wall of the building.

[0007] These devices must be removed or modified to close or to move the shutter.

[0008] The aforesaid known art has some important drawbacks.

[0009] In fact, the use of known locking devices, although essential, is relatively complex and tiresome.

[0010] It is in fact necessary to combine the movement to open or close the shutter with application of the locking device, which is often complicated and requires time.

[0011] Moreover, the locking devices are placed in positions that are difficult to reach from the inside of the buildings on which they are installed.

[0012] In fact, often they are positioned in proximity to the corner farthest from the pivot pins of the shutter, so that they have maximum resistance.

[0013] Other locking devices are based on the attraction of magnetic elements placed on the external wall and on the shutter itself, suitable to generate a magnetic force that constrains the shutter to this external wall.

[0014] These devices are not always fully reliable and, when they are, their use requires a certain amount of effort.

[0015] In this situation the technical aim of the present invention is to devise a locking device for door and window shutters and the like capable of substantially overcoming the aforesaid drawbacks.

[0016] Within said technical aim, an important object of the invention is to obtain a locking device for door and window shutters and the like capable of allowing easy closing and opening of these shutters.

[0017] Another object of the invention is to obtain a locking device for door and window shutters and the like capable of allowing easy engaging and disengaging of the shutters with and from the wall or the building.

[0018] A further important object of the invention is to obtain locking device for door and window shutters and the like having a high resistance to wind and other atmospheric agents.

[0019] The technical aim and objects specified are achieved by a locking device for door and window shutters and the like as described in the appended Claim 1.

[0020] Preferred embodiments are described in the sub-claims.

[0021] Preferred embodiments of the invention are shown by way of example in the accompanying drawings. In particular:

Fig. 1a shows an overall view of the device according to the invention in a first position;

Fig. 1b shows an overall view of the device according to the invention in a second position;

Fig. 2a shows a portion of the device according to the invention in a first position;

Fig. 2b shows a portion of the device according to the invention in a second position;

Fig. 3 shows a second portion of the device according to the invention;

Fig. 4 shows the section IV- IV of the device according to the invention, indicated in Fig. 1a;

Fig. 5 shows a second example of embodiment of the device according to the invention;

Fig. 6a shows a front view of a third type of device according to the invention in a first position;

Fig. 6b shows a front view of the device shown in Fig. 6a in a second position;

Fig. 7a shows a side section of the device shown in Fig. 6a in a first position;

Fig. 7b shows a side section of the device shown in Fig. 6a in a second position;

Fig. 8a shows an overall view of the device according to the invention in a first position;

Fig. 8b shows an overall view of the device according to the invention in a second position;

Fig. 8c shows an overall view of the device according to the invention in a third position;

Fig. 9a shows a front view of a further type of device according to the invention in a first position;

Fig. 9b shows a front view of the device shown in Fig. 9a in a second position;

Fig. 10a shows a side section of the device shown in Fig. 9a in a first position;

Fig. 10b shows a side section of the device shown in Fig. 9a in a second position.

[0022] With reference to the Figures, the device according to the invention is indicated as a whole with the number **1.**

[0023] It is placed on the shutters **50** of doors and windows and the like. The term shutter identifies any type of element, extending substantially along a plane, suitable to close or free an opening **51,** part of a wall, of a piece of furniture or the like.

[0024] The shutter 50 is preferably movable by means of rotation about one or more pivot pins **52,** defining an

axis of rotation **52a.**

[0025] The shutter 50 can also be positioned against a supporting surface **60,** realized in particular by the external wall of the building on which the door or window is placed.

[0026] In particular, the shutter 50 can be disposed in a first closed position, in which it is suitable to close the opening 51, shown in Fig. 1a, or in the open position, shown in Figs. 1b, 8a and 8b, in which it is adjacent to the supporting surface 60.

[0027] The locking device 1 is suitable to lock the shutter 50 in an open position, in particular in the position adjacent to the supporting surface 60.

[0028] The locking device 1 comprises a movable coupling element **2a,** constrained to the shutter 50, and a fixed coupling element **2b,** constrained to the supporting surface 60.

[0029] The coupling elements 2a and 2b respectively comprise at least a first and a second magnet **3a** and **3b.**

[0030] These magnets 3a and 3b are substantially positioned side by side when the shutter 50 is in the open position.

[0031] The device 1 can be disposed in an engaged configuration, in which it is suitable to lock the shutter 50 in the open position, and in a disengaged position, in which it allows and preferably facilitates closing of the shutter 50.

[0032] Variation of the configuration of the device 1 takes place through specific handling means **4** suitable to vary the reciprocal position of the magnets 3a and 3b and consequently of the coupling elements 2a and 2b between said engaged and disengaged configurations or positions.

[0033] The engaged and disengaged configurations are such that, when the shutter 50 is in the open position, the magnets 3a and 3b in the engaged position reciprocally attract each other, while the magnets 3a and 3b in the disengaged configuration reciprocally repel each other.

[0034] In particular, the magnets 3a and 3b are realized by permanent magnets made of ferromagnetic material.

[0035] As it is known, permanent magnets comprise a north pole **N** and a south pole **S** and opposite poles attract each other, while identical poles repel each other. They are thus selectively positionable in a position of reciprocal attraction or repulsion.

[0036] In particular, the magnets 3a and 3b each comprise a North pole N and a South pole S both facing the contact surface 3c, or alternatively one of the two magnets 3a or 3b, and in particular the fixed magnet 3a, can utilize a single pole, for the objects described below.

[0037] In particular, in the engaged configuration of the device 1, poles of opposite polarity of the first and second magnets 3a and 3b are facing, while in the disengaged configuration of the device 1 poles of the same polarity of the first and second magnet 3a and 3b are facing.

[0038] The force of reciprocal attraction of the magnets 3a and 3b is thus suitable to reciprocally engage the movable coupling element 2a and the fixed coupling element 2b, and consequently the shutter 50 with the supporting surface 60.

[0039] In particular, the force of reciprocal attraction of the magnets 3a and 3b can be the direct cause of this engagement, as shown in Figs. 1 a to 5 and as indicated in example 1 below.

[0040] Alternatively, there is provided a locking element 7, integral with the fixed coupling element 2b and suitable to constrain the shutter 50, as shown in Figs. 6a - 10b and as indicated in examples 2 and 3 below.

[0041] Three examples of embodiment are indicated below.

EXAMPLE 1

[0042] A first example of embodiment of the device 1 is shown in Figs. 1a to 5.

[0043] In this example the force of reciprocal attraction of the magnets 3a and 3b is the direct cause of this engagement.

[0044] In particular, each magnet 3a or 3b comprises two poles, a pole N and a pole S. In the engaged configuration of the device 1, the North pole N of the first magnet 3a is facing the South pole S of the second magnet 3b and, vice versa, the South pole S of the first magnet 3a is facing the North pole N of the second magnet 3b.

[0045] Differently, in the disengaged configuration of the device 1, the North pole N of the first magnet 3a is facing the North pole N of the second magnet 3b and, vice versa, the South pole S of the first magnet 3a is facing the South pole S of the second magnet 3b.

[0046] There can also be a plurality of magnets 3a disposed on the movable coupling element 2a and a plurality of second magnets 3b disposed on the fixed coupling element 2b. Preferably, the number of first magnets 3a is the same as the number of second magnets 3b.

[0047] These magnets 3a and 3b are preferably all facing each other according to opposite polarities in the engaged position and according to the same polarities in the disengaged position, as described above.

[0048] The magnets 3a and 3b are also preferably circular and realized by magnetic disks having two semicircles, divided diametrically, of opposite polarities, as shown in Figs. 2a, 2b and 3.

[0049] These preferably have a thickness of approximately 2.5 cm and a diameter of 2.5 cm and are suitable to magnetically support maximum loads of about 20 kg in weight.

[0050] Alternatively, there are a plurality of magnets 3a and 3b, the overall shape of which is circular and divided radially into a plurality of poles N and S, for example in 4, 6 or more poles.

[0051] In a further alternative, the magnets 3a and 3b have a rectangular plan and are divided into two or more poles in a longitudinal or vertical direction.

[0052] The reciprocal position of the magnets 3a and

3b is varied by the handling means 4 that dispose these magnets 3a and 3b in the engaged or disengaged configuration.

[0053] These handling means 4 are preferably disposed on only one of the coupling elements 2a and 2b, and in particular on the movable coupling element 2a.

[0054] They are also preferably realized by a rotational hinge **5** suitable to allow rotation of the magnets 3a in the direction **5a,** perpendicular to the contact surface 3a.

[0055] The handling means 4 also comprise a control lever **6,** suitable to manually operate rotation of the magnets 3a. In particular, the lever 6 is placed on the face of the shutter 50 opposite the face closest to the contact surface 3c.

[0056] These handling means 4 are suitable to allow rotation of the magnets 3a by an angle of approximately 180° in the case in which the magnets are circular and divided into two portions, otherwise in the case in which the magnets are in turn composed of several magnets, rotations of smaller angles are sufficient.

[0057] Alternatively, and in particular in the case of rectangular magnets, handling means 4 comprising linear hinges or the like can be disposed.

[0058] Fig. 4 shows handling means 4 comprising a hinge 5 realized by a first cylindrical bushing **5b,** containing the first magnet 3a, rotatable about a second cylindrical bushing **5c,** fixed to the shutter 50 by means of bearings **5d.**

[0059] Fig. 5 shows handling means 4 comprising a different lever 6 with respect to the lever shown in Figs. 2a and 2b.

[0060] This lever 6 in fact comprises a plurality of rods **6a** and hinges **6b** suitable to actuate the rotation movement of the hinge 5. This lever 6 has both ends fastened to the shutter 50 and is also positioned in proximity to the axis of rotation 52a to allow fast and easy use.

[0061] The handling means 4 finally comprise an elastic return element **8a,** suitable to maintain the device 1 in the engaged position, and a limit stop element **8b.** These are preferably realized by a circular spring and a limit stop pin respectively.

[0062] Moreover, the coupling elements 2a and 2b, which contain the magnets 3a and 3b, comprise covering surfaces of these magnets 3a and 3b, suitable to prevent direct reciprocal contact of the magnets 3a and 3b.

[0063] The coupling elements 2a and 2b also comprise constraining means 9, relative respectively to the shutter 50 and to the supporting surface 60.

[0064] These constraining means 9 are preferably constituted by flanges and expansion screws or plugs, while said covering surfaces 8 are preferably made of brass, or of polymer material, to give the coupling elements 2a and 2b an appealing external appearance.

[0065] The movable coupling element 2a is preferably positioned on the shutter 50 at a distance of between 10 cm and 30 cm from the axis of rotation 52a thereof and on the lower side of the shutter 50 to allow the lever 6 to be grasped comfortably.

[0066] Moreover, the fixed coupling element 2b can be placed aligned with the supporting surface 60 or separated therefrom.

[0067] In the latter case the fixed coupling element 2b is placed at a suitable distance from the supporting surface 60, for example to prevent the handle on the side facing the surface 60 of the shutter 50 from coming into contact with said surface 60.

[0068] Finally, this distance of the fixed coupling element 2b from the surface 60 can be adjustable.

EXAMPLE 2

[0069] A second example of embodiment of the device 1 is shown in Figs. 6a to 8c.

[0070] In this example, the fixed coupling element 2b comprises a locking element 7, suitable to constrain the shutter 50.

[0071] Moreover, the first magnet 3a comprises a North pole N and a South pole S that can be selectively placed adjacent to a pole of a polarity, i.e. South, of the second magnet 3b.

[0072] In particular, in the engaged position of the device 1, the North pole N of the first magnet 3a is facing the South pole S of the second magnet 3b, while in the disengaged position of the device 1, the South pole S of the first magnet 3a is facing the South pole S of the second magnet 3b.

[0073] There can also be a plurality of magnets 3a disposed on the movable coupling element 2a and a plurality of second magnets 3b disposed on the fixed coupling element 2b.

[0074] These magnets 3a and 3b are preferably all facing each other according to opposite polarities in the engaged position and according to the same polarities in the disengaged position, as described above.

[0075] The first magnets 3a preferably have a rectangular median section, in the plane parallel to the principal plane of extension of the shutter 50, as shown in Figs. 6a and 6b. They are also divided into two or more poles in a longitudinal direction **1a.**

[0076] The second magnets 3b can be realized of any shape and type. In particular, it is sufficient for a single polarity of the second magnets 3b to be facing the first magnets 3a, as shown in Figs. 6a-7b.

[0077] Nonetheless, it is also possible for the second magnets also to comprise a plurality of poles N and S facing the first magnets and also divided in a longitudinal direction 1a.

[0078] At least one of the magnets 3a and 3b is movable inside the coupling elements 2a and 3a.

[0079] In particular, the first magnets 3a are movable in a substantially longitudinal direction 1a with respect to the first coupling element 2a.

[0080] The movable coupling element 2a then comprises an external body **2c** suitable to contain the first magnets 3a and to allow sliding thereof in a substantially longitudinal direction 1a. This external body 2c is prefer-

ably substantially parallelepiped in shape and made of metal, preferably brass, or alternatively of polymer material.

[0081] Differently, the fixed coupling element 2b comprises second magnets 3b which preferably maintain their fixed position with respect to this coupling element 2b.

[0082] This fixed coupling element 2b can preferably be disposed in two different engaged (Figs. 6a and 7a) and disengaged (Figs. 6b and 7b) positions, in said engaged and disengaged configurations of the device 1.

[0083] In particular, the movable coupling element 2a is rotatable in a direction parallel to the longitudinal direction 1a about a pin **2d,** integral with the supporting surface 60 (Figs. 3 and 4) and is disposed with two different angles in said engaged and disengaged positions.

[0084] It can then comprise the locking element 7, preferably realized by a plate or the like, suitable to prevent movement of the shutter 50 about the pivot pins 52, when the fixed coupling element 2b is disposed in the engaged position, and to allow movement of the shutter 50 about the pivot pins 52, when the fixed coupling element 2b is disposed in the disengaged position.

[0085] The reciprocal position of the magnets 3a and 3b is varied by the handling means 4 that dispose these magnets 3a and 3b in the engaged or disengaged position.

[0086] These handling means 4 are preferably disposed on only one of the coupling elements 2a and 2b, and in particular on the first coupling element 2a.

[0087] They are therefore preferably suitable to move the movable coupling element 2a in a substantially longitudinal direction **1a,** as shown in Figs. 6a, 6b, 7a, 7b. Moreover, the handling means 4 are preferably suitable also to perform closing of the shutter 50.

[0088] In a first embodiment (Figs. 6a and 6b), the handling means 4 are realized by a system **4a** of rods and hinges.

[0089] In particular, the system 4a comprises a first and a second rod **10a** and **10b** reciprocally constrained by a first rotational hinge **11a.**

[0090] The first rod 5a is placed in proximity to the pivot pins 52 of the shutter 50, is constrained to this shutter 50 by means of a second rotational hinge **11 b and** comprises a handle **11c,** suitable to allow manual rotation of this first rod 5a about the second rotational hinge 6b.

[0091] The second rod 10b is instead constrained to the movable coupling element 2a.

[0092] In particular, this rod 10b comprises the first magnets 3a and is inserted inside the external body 2c, part of the movable coupling element 2a.

[0093] The external body 2c is suitable to allow sliding in a substantially longitudinal direction 1a of the first magnets 2a.

[0094] The direction is substantially longitudinal 1 a because the second rod 10b performs a slight rotation with respect to the longitudinal direction 1a, as shown in Fig. 6b. Therefore, the external body 2c does not constrain the second rod 10b tightly, but allows it to rotate by a few degrees in a direction perpendicular to the longitudinal direction 1a.

[0095] Finally, there is provided an elastic element **12,** suitable to maintain the first magnets in the engaged position (Fig. 6a).

[0096] In a second embodiment (Figs. 8a, 8b and 8c), the handling means 4 are realized by a cord **4b,** chain or the like.

[0097] In this case, the first magnets 3a are constrained to a rod **10** suitable to slide in a substantially longitudinal direction 1a inside the constraining body 1c in opposition to the elastic element 8.

[0098] Traction of said cord 4b is suitable to move said rod 10.

[0099] It is also preferable for this cord 4b to join two different coupling elements 2a of two different shutters 50 placed in a same opening 51, as shown in Figs. 8a, 8b and 8c.

EXAMPLE 3

[0100] A further example of embodiment of the device 1 is shown in Figs. 9a to 10b. It is very similar to the device 1 in example 2.

[0101] Also in this case, the fixed coupling element 2b comprises a locking element 7, suitable to constrain the shutter 50 and also the handling means 4 are substantially identical and comprise a system 4a of rods and hinges or a cord or chain 4b, as shown in Figs. 8a-8c.

[0102] However, in the present example the handling means 4 are suitable to allow rotation at least of the first magnets 3a and in particular of a portion of the movable coupling element 2a including the first magnets 3a, as shown in Figs. 9a and 9b.

[0103] For this purpose, the handling means comprise a rotational hinge 13 suitable to allow rotation of the magnets 3a in a direction perpendicular to the contact surface.

[0104] Moreover, the movable coupling element 3a comprises, in proximity to the fixed coupling element 3b and in particular to the locking element 7, a surface with a shape suitable to move the fixed coupling element 3b away when the device 1 is in the released position, as shown in Fig. 9b.

[0105] The fixed coupling element 3b of the present example is similar to the fixed coupling element 3b of the previous example. However, it can include some variants.

[0106] For example, it can be provided with a supporting body **14,** realized by a body disposed in the lower portion of the fixed coupling element 3b and shown in Figs. 10 and 10b.

[0107] It is suitable to realize a stop element for the shutter 50, when it is opened, and to allow automatic positioning of the coupling element 3a when this shutter is placed in the open configuration (Fig. 10a). It is also suitable to partly close the shutter 50 when the device 1 is placed in the disengaged configuration, as shown in

Fig. 10b.

[0108] Moreover, the fixed coupling element 3b comprises a second magnet 2b positioned directly in the locking element 7.

[0109] Operation of the locking device 1 for door and window shutters 50 and the like, the structure of which is described above, is as follows.

[0110] The shutter 50 is in the closed position (Fig. 1a) and closes the opening 51.

[0111] Subsequently it is placed in the open position (Fig. 1b) by means of rotation about the pivot pins 52.

[0112] The device 1 is in the engaged configuration (Figs. 2a, 6a, 9a, 10a) and the magnets 3a and 3b are reciprocally attracted.

[0113] Therefore, the magnets 2a and 2b maintain the shutter 50 in the open position by means of the force of magnetic attraction or by means of maintaining the fixed coupling element in the engaged position.

[0114] The force of reciprocal attraction, or the locking element 7, maintains the shutter 50 in the open position also in the case of wind or other atmospheric events and the like.

[0115] At a subsequent time the shutter 50 must once again be placed in the closed position.

[0116] In this case it is sufficient to act on the handling means 4.

[0117] The device 1 is thus positioned in the disengaged configuration.

[0118] In this position, the magnets 3a and 3b repel each other and the shutter 50 is closed, due to the force of repulsion, of the action on the handling means 4 or of the action of the supporting body 14.

[0119] In particular, activation of the supporting means 14 by means of the described control lever 6, handle 11c or cord 4b, facilitates closing of the shutter 50.

[0120] The shutter 50 is released and pushed rapidly toward the closed position.

[0121] The invention achieves important advantages.

[0122] In fact, the device 1 is capable of allowing easy disengagement and closing of the shutter 50 or, vice versa, easy opening and engagement of said shutter 50.

[0123] In fact, it is unnecessary to perform two separate operations for disengagement and closing, but with a single movement opening and engaging of the shutter 50 and, vice versa, disengagement and closing of the shutter 50 are achieved.

[0124] Moreover, the rotational movement required to disengage and close the shutter is very fast and easy, as is the opening and engaging movement, which involves a simple push of the shutter 50.

[0125] The device 1 then comprises comfortable use of the handling means 4 described, in particular if performed according to the descriptions indicated.

[0126] Last but not least advantage is realized by the fact that the device 1 is aesthetically pleasing and that is can be applied substantially to all types of shutters.

[0127] The invention is susceptible to modifications and variants falling within the inventive concept.

[0128] For example, the handling means 4 can be automatic, electric or the like, instead of manual.

Claims

1. Locking device (1) for door and window shutter (50) and the like, positionable in an engaged configuration, in which it is suitable to temporarily constrain said shutter (50) in proximity to a supporting surface (60), and in a disengaged configuration, in which it is suitable to allow movement of said shutter (50) and **characterized in that** it comprises: a movable coupling element (2a), constrained to said shutter (50) and comprising at least a first magnet (3a), a fixed coupling element (2b), constrained to said supporting surface (60) and comprising at least a second magnet (3b) and **in that** it comprises handling means (4) suitable to reciprocally move said magnets (3a, 3b) alternatively to a position of reciprocal attraction or reciprocal repulsion.

2. Device according to claim 1, wherein said handling means (4) are suitable to move said first magnet (3a).

3. Device according to claim 2, wherein said handling means (4) are suitable to move said movable coupling element (2a) by means of a rotation.

4. Device according to claim 3, wherein said handling means (4) are suitable to move said movable coupling element (2a) by means of a translation.

5. Device according to one or more of the preceding claims, wherein said fixed coupling element (2b) comprises a locking element (7), suitable to constrain said shutter (50) when positioned in said engaged configuration.

6. Device according to one or more of the preceding claims, suitable to constrain said shutter (50), when positioned in said engaged configuration, by means of the force of reciprocal attraction between said magnets (3a, 3b).

7. Device according to one or more of the preceding claims, wherein said handling means (4) are suitable to move said shutter (50).

8. Device according to one or more of the preceding claims, wherein said handling means (4) are realized by a system of rods and hinges (4a).

9. Device according to one or more of the preceding claims, wherein said handling means (4) are realized by a cord (4b).

10. Shutter (50) for doors and windows and the like,

characterized in that it comprises a locking device (1) according to one or more of the preceding claims.

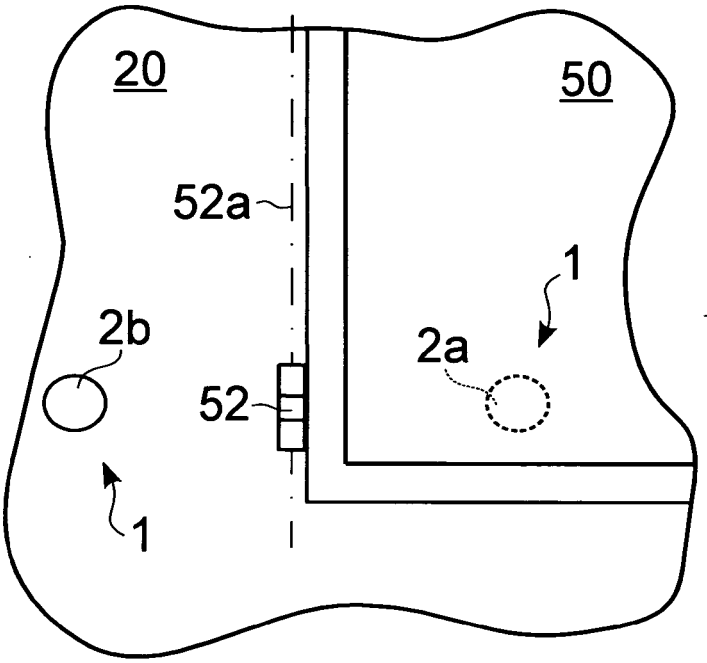


Fig. 1a

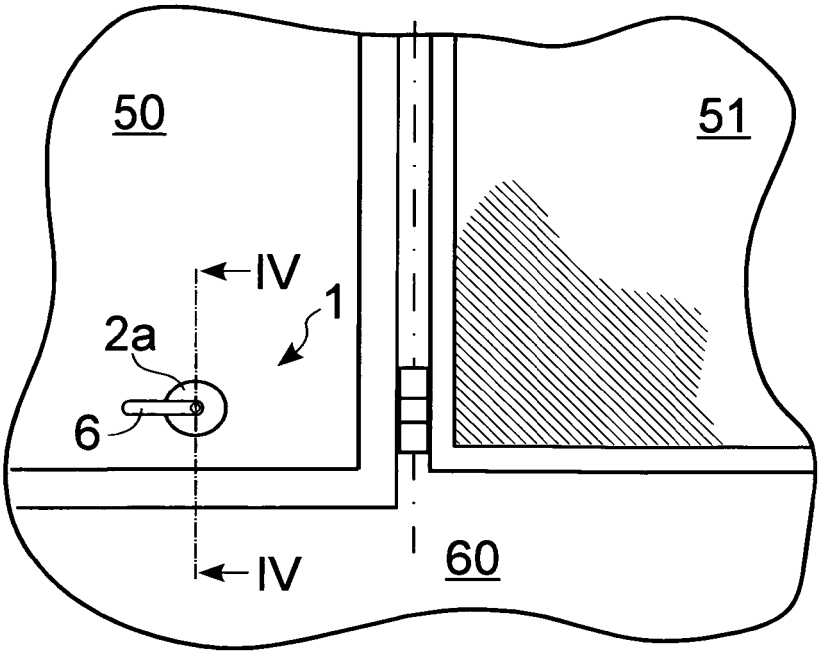


Fig. 1b

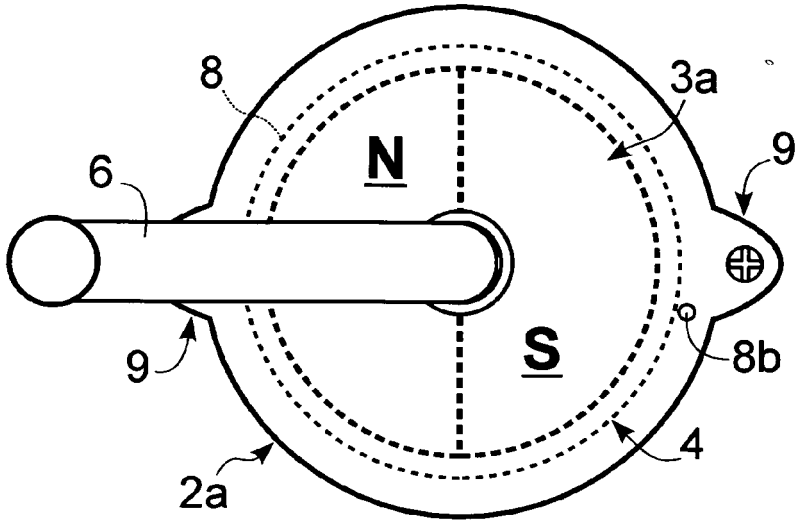


Fig. 2a

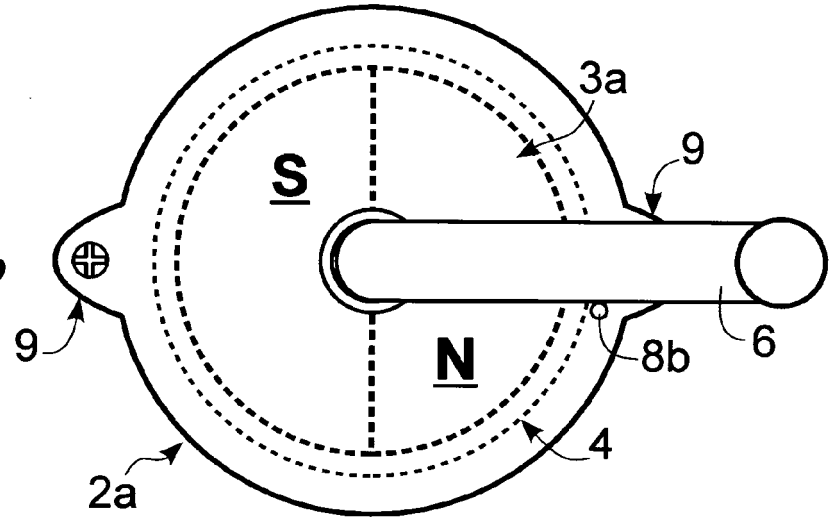


Fig. 2b

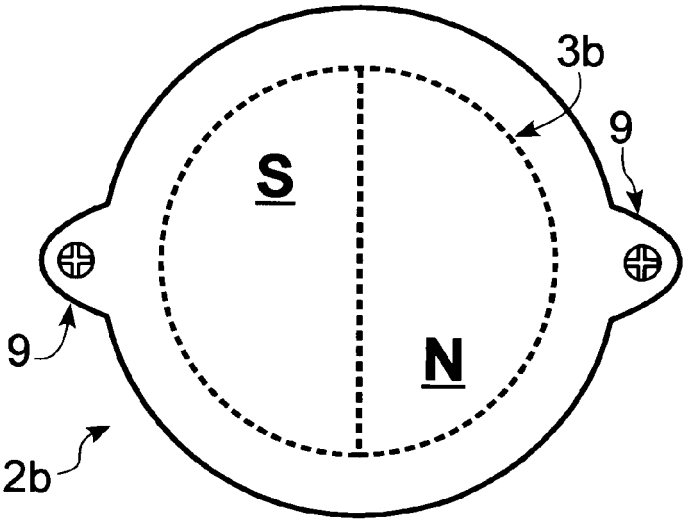


Fig. 3

Fig. 4

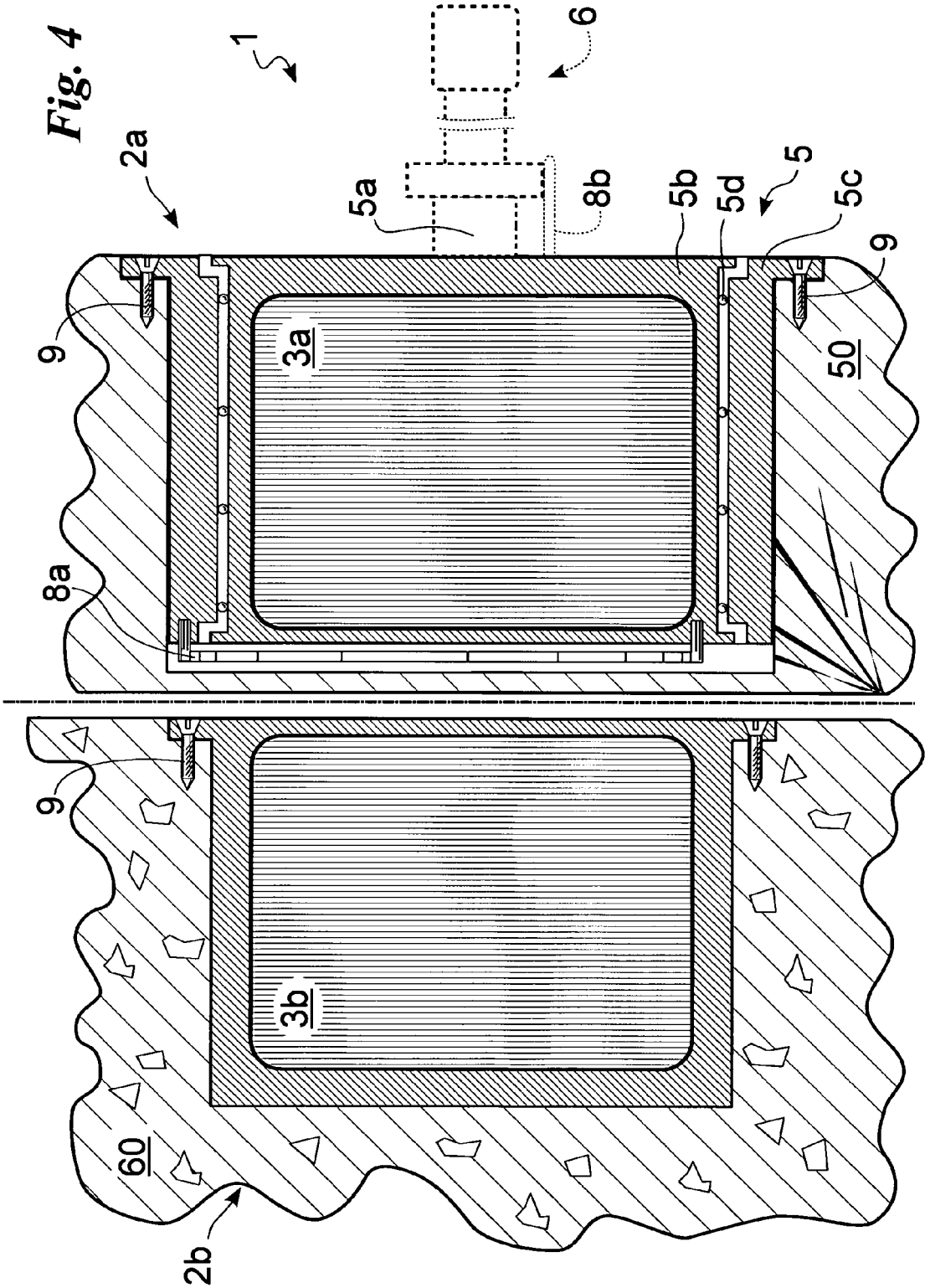


Fig. 5

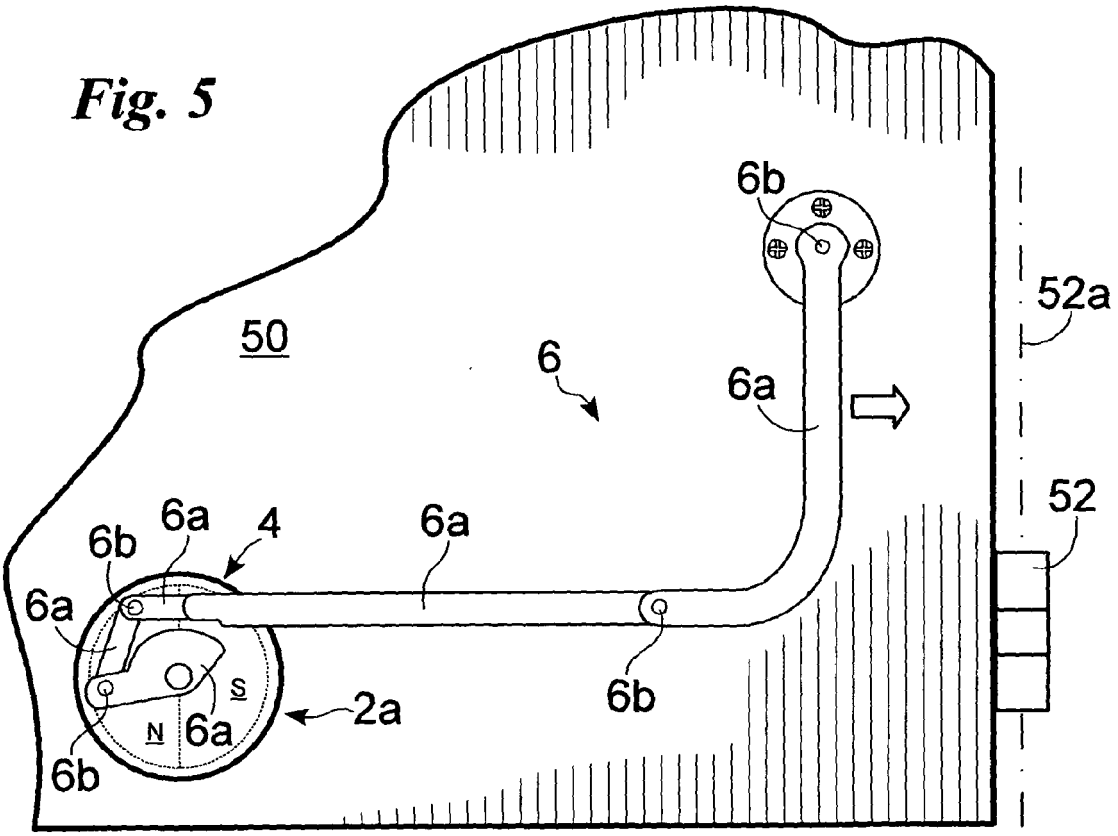
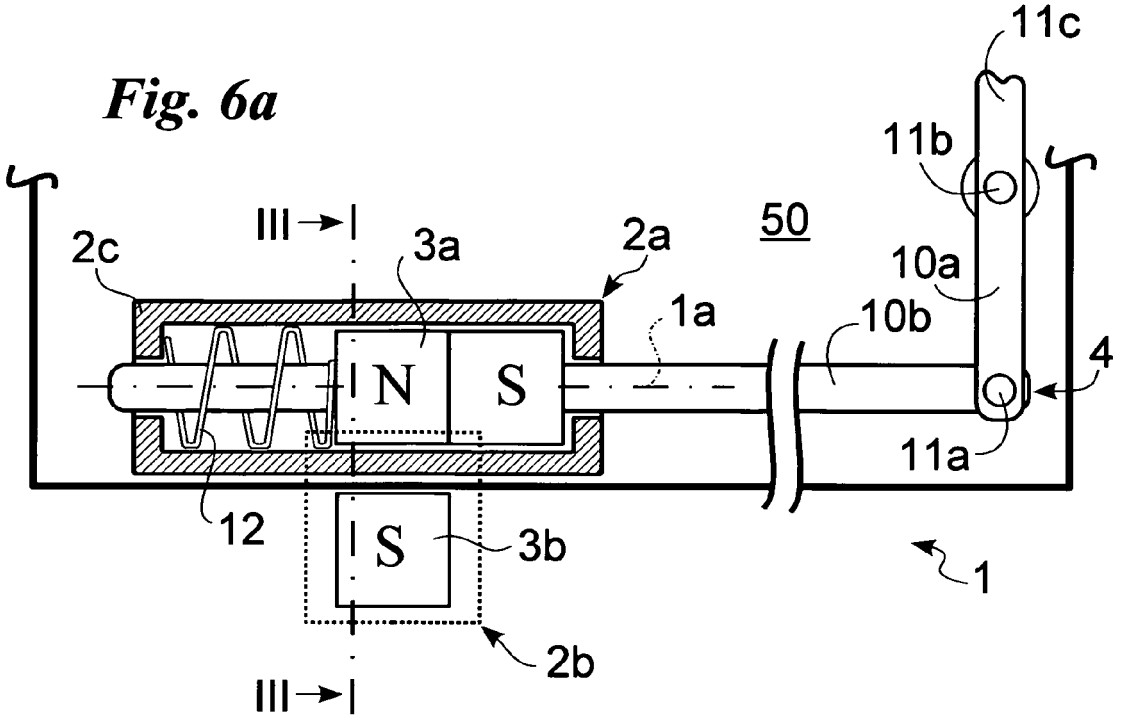


Fig. 6a


11c
11b
III
2c
3a
2a
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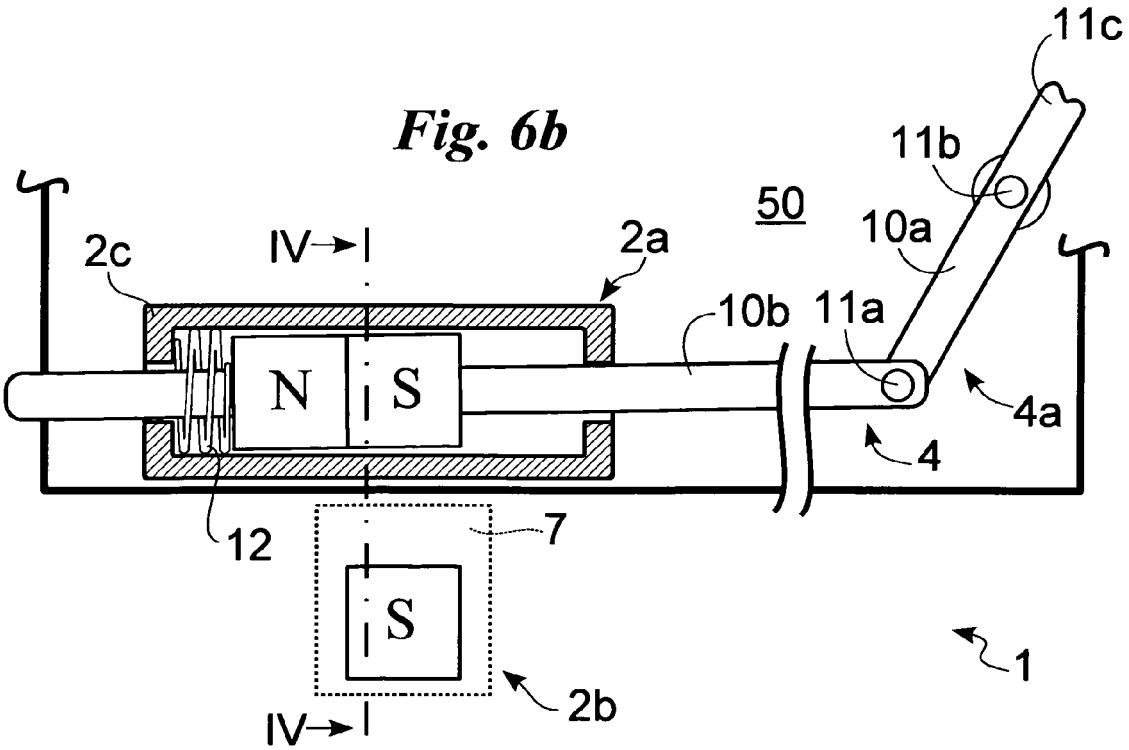
1a
10b
4
N
S
11a
12
S
3b
1
2b
III

Fig. 6b


11c
11b
50
2c
IV
2a
10a
10b
11a
4a
N
S
4
12
7
S
1
2b
IV

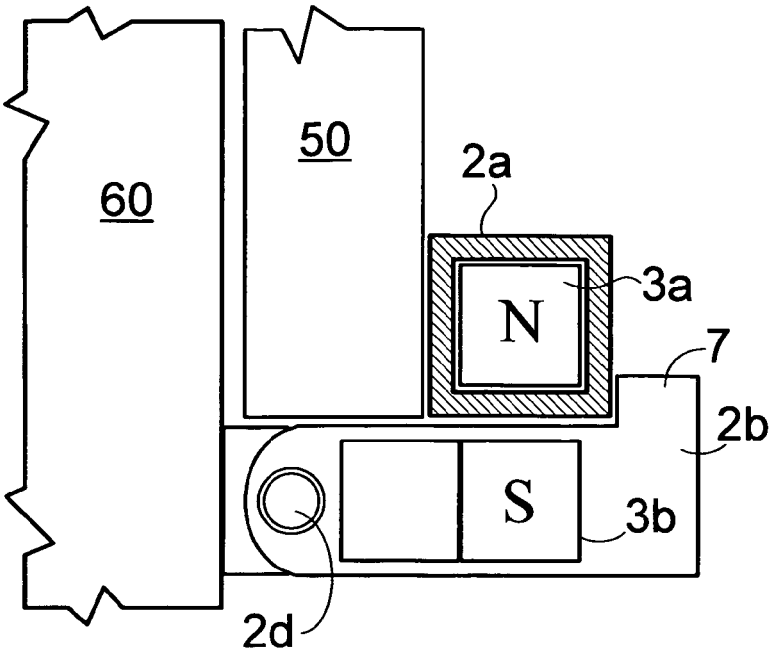


Fig. 7a

Fig. 7b

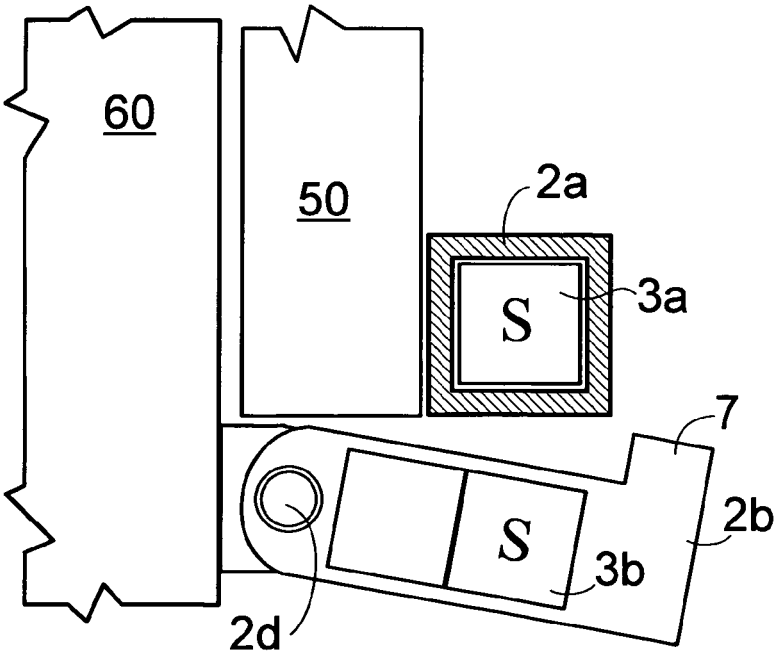


Fig. 8a

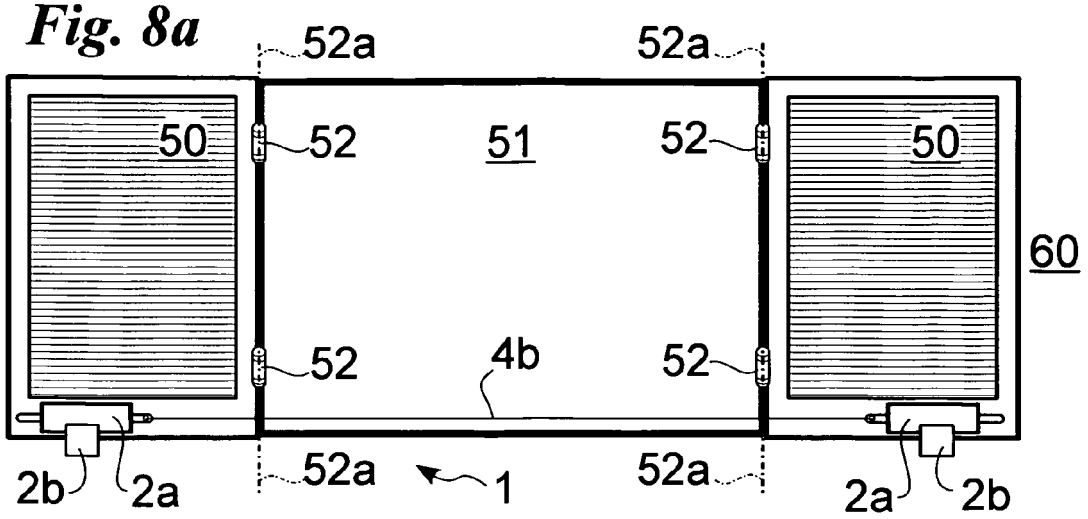


Fig. 8b

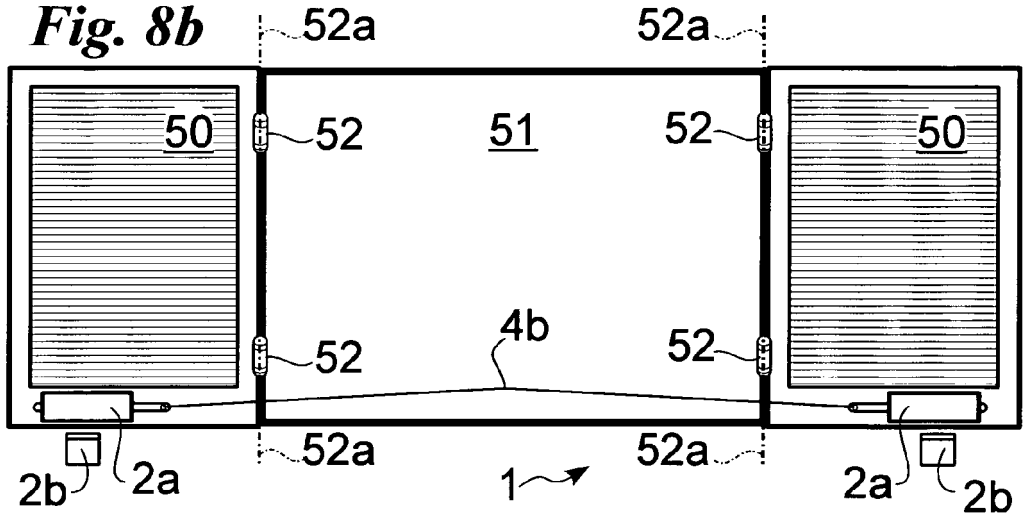
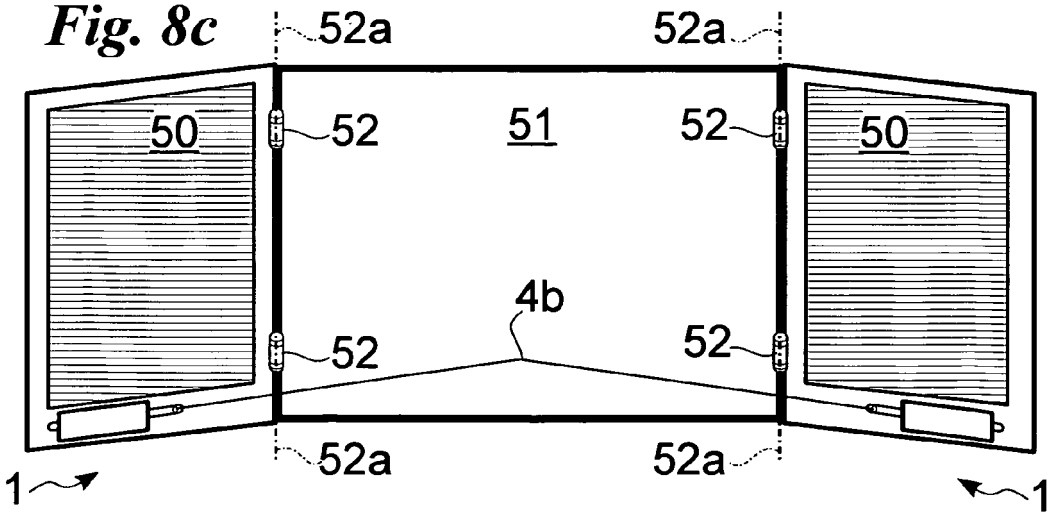


Fig. 8c



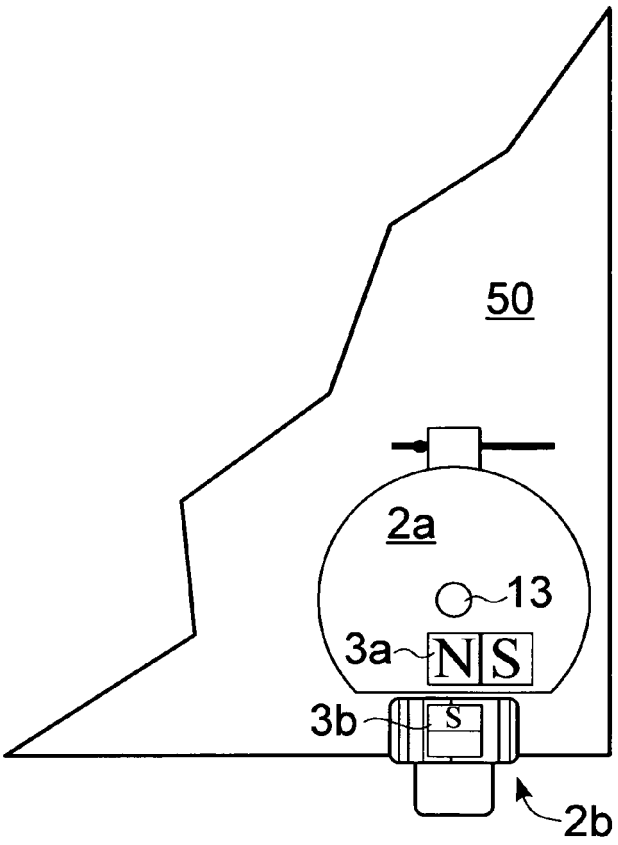


Fig. 9a

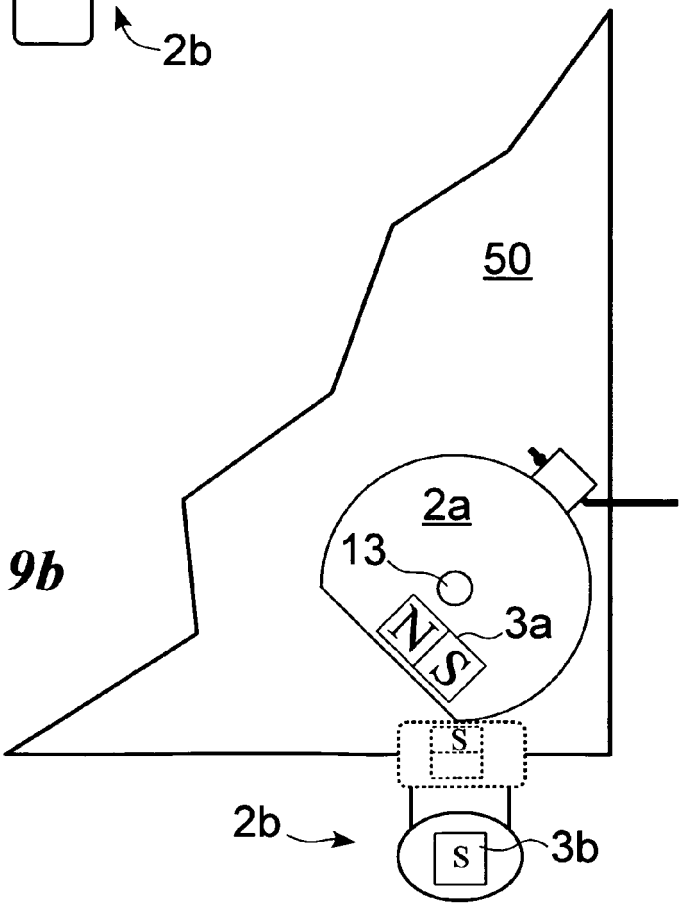


Fig. 9b

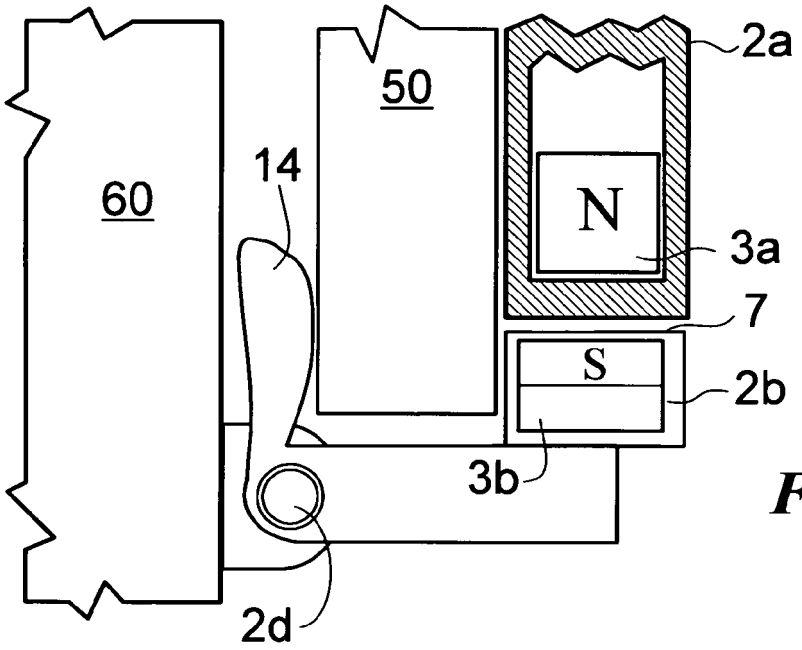
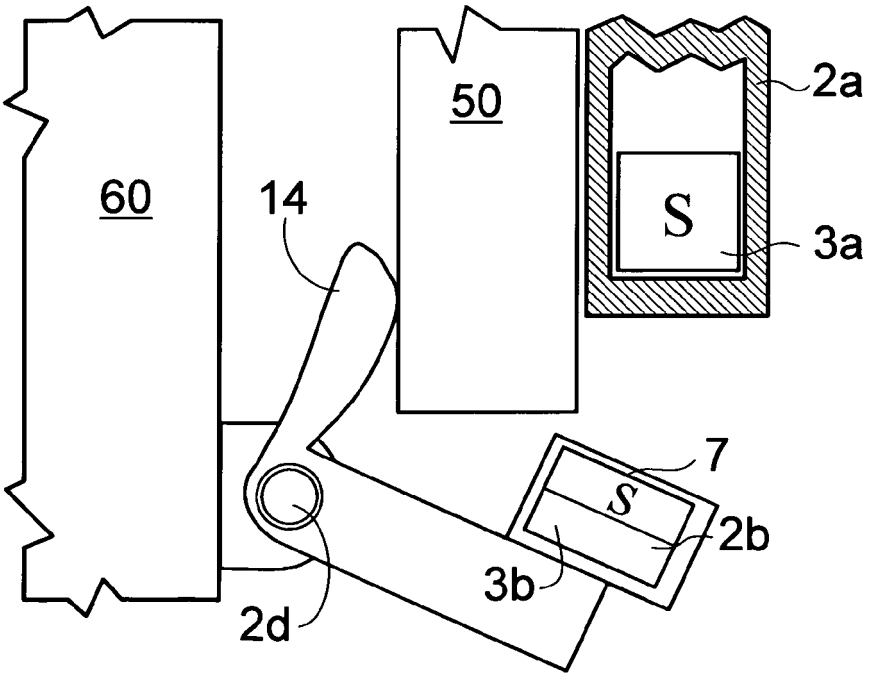


Fig. 10a

Fig. 10b



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EUROPEAN SEARCH REPORT

Application Number
EP 08 00 1155

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 1 179 194 A (PHILIPS NV) 21 May 1959 (1959-05-21) * the whole document *	1-3,7-10	INV. E05C17/56 E05C17/50 E05B53/00
X	FR 1 201 673 A (HILAIRE COLOMBIER) 4 January 1960 (1960-01-04) * page 1, column 1, line 29 - page 2, column 2, line 4; figures 2-6 *	1-4,6,7, 10	
X	DE 15 53 544 A1 (BAERMANN MAX) 24 July 1969 (1969-07-24) * page 5, line 18 - page 11, line 29; figures 1-7 *	1-3,5,7, 10	
X	FR 329 464 A (RICHARD DOLGE) 17 February 1903 (1903-02-17) * the whole document *	1-3,5,7, 8	
X	DE 24 55 520 A1 (COCKBURN GORDON) 26 May 1976 (1976-05-26) * page 5, line 23 - page 7, line 16; figures 1-8 *	1-4,6-8, 10	
X	US 6 588 811 B1 (FERGUSON EDWARD B) 8 July 2003 (2003-07-08) * column 3, line 13 - column 6, line 59; figures 1-18 *	1-4,6,7, 10	TECHNICAL FIELDS SEARCHED (IPC) E05C E05B
X	DE 296 22 577 U1 (SCHNEIDER ROMAN) 30 April 1997 (1997-04-30) * the whole document *	1-3,6,10	
A	FR 2 667 647 A (MIDI MOULAGES PLAST) 10 April 1992 (1992-04-10) * figures 1-9 *	1,8-10	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	4 June 2008	Perez Mendez, J

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04-06-2008

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 1179194 A	21-05-1959	NONE	
FR 1201673 A	04-01-1960	NONE	
DE 1553544 A1	24-07-1969	NONE	
FR 329464 A		NONE	
DE 2455520 A1	26-05-1976	NONE	
US 6588811 B1	08-07-2003	US 2004104584 A1	03-06-2004
DE 29622577 U1	30-04-1997	NONE	
FR 2667647 A	10-04-1992	NONE	

EPO FORM P0459

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