

(19)



(11)

EP 2 547 855 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
26.07.2017 Bulletin 2017/30

(51) Int Cl.:
E06B 7/02 (2006.01) **F24F 13/18** (2006.01)
E06B 7/06 (2006.01) **E06B 7/10** (2006.01)

(21) Application number: **10847682.1**

(86) International application number:
PCT/CN2010/071170

(22) Date of filing: **19.03.2010**

(87) International publication number:
WO 2011/113213 (22.09.2011 Gazette 2011/38)

(54) VENTILATION WINDOW OR DOOR

VENTILATIONFENSTER ODER VENTILATIONTÜREN

FENETRE OU PORTE VENTILÉE

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL
PT RO SE SI SK SM TR**

(43) Date of publication of application:
23.01.2013 Bulletin 2013/04

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Description

FIELD OF THE INVENTION

[0001] This invention relates to a ventilation window or door having a hinged bidirectional pivoting system for tilting roof windows and doors that includes a ventilation flap actuating a lock.

DESCRIPTION OF THE PRIOR ART

[0002] Inclined roof windows are adapted for inclined roofs, which can provide an abundance of sunshine for buildings and brighten interiors.

[0003] In the prior art, for example, a window includes an inside window frame and an outside window sash structure, i.e., a pivotally mounted glass window structure, wherein the inside window frame is mounted on the wall or the roof, while one end of the outside window sash is pivotally connected with the inside window frame, and the other end can be opened or closed by a locking stay device.

[0004] In door or window designs of the prior art, especially, for roof windows having a frame structure and a sash structure in order to have suitable ventilation when the window or door is locked, a classic design is to simultaneously set a hinge relative to a hinge set vertically or horizontally. This can be used to open or close the door or window, such that they can be adjustably placed in different positions under the hinge's actuation mechanism.

[0005] In order to allow proper and suitable ventilation between the interior and exterior areas of a building, most inclined roof windows are designed to be opened and closed at will by users.

[0006] A simple and elegant design includes that of a small door or window opening, i.e., a ventilation passage, interconnecting the interior and the exterior areas, combined with the door or window, which make it possible to open or close the ventilation opening embedded in doors or windows, so as to achieve an efficient exchange of air and ventilation between the interior and the exterior areas.

[0007] In the prior art related to roof windows, references DE6903921 as well as EP0458725B1 show known structures and mechanisms for achieving air ventilation between exterior and interior areas and as well as present cover members which can pivot in a single direction designed to be connected with a window sash by a locking device. When the window sash is on a locked position relative to the main window frame, this cover member may pivot in a single direction so as to open or close the air passage, while driving a control member connected to a specially designed lock device, allowing the control member to be placed in various positions, such as three different positions. When placed in different positions, the pawls of the lock device are driven accordingly, so as to open or close the window at the same time the

ventilation opening is opened or closed when the sash is closed.

[0008] For example, in the design described in WO2007/009685, many disadvantages are visible.

Costs are high and manufacturing processes are complicated, thus lock devices such as belonging to this design has definite disadvantages.

[0009] In this prior art design, in order to slide among three different positions, the cover member is connected with the control member by using springs on different pivot points, but in such designs, different metal components clash with each other, thus generating undesirable noise when actuated and used. Some improvements have been proposed for this type of lock device such as in EP053881157 and DKPA200600968, which invariably adds further cost and is subject to wear and tear issues with long term usage. Thus, with long term usage, the problems associated with noise may return as well.

[0010] For instance, because the pivot is set under a cover member, when the cover member is opened and on a ventilation position, the cover member is connected with the sliding control member, while the opening angle of the cover member corresponds to the sliding distance. Therefore, the ventilation angle cannot be too large, while in order to facilitate the usage, its pivot can only be arranged under the cover member. Accordingly, the cover member is positioned so that it blocks the air exchange direction between the interior and the exterior spaces, resulting in an undesirable air exchange effect and low efficiency.

[0011] Further, this design poses a native and inherent defect. Since the ventilation cover member, i.e., the top ventilation member, connected with the lock system controls the opening of the air passage between the interior and the exterior areas, it is very likely that the window can be opened by acting on the ventilation cover member with a thin steel wire or other elements through the ventilation passage. This increases the possibility of unauthorized entries and penetration such as house burglaries and the like.

[0012] The following known mechanisms (DK2002/000235, WO02/084043, WO99/51832, WO99/10610) propose to partially block the ventilation member (top member) from the exterior area, reducing the possibility of burglaries from occurring, while undesirably increasing the cost and reducing the ventilation effect.

[0013] In WO2009/141447A1, the ventilation member additionally has a self-lock function, whereas in WO2002/08043, this device should be activated manually. However, manual activation can be easily forgotten by a user, making it inconvenient to use, posing further dangers, and resulting in higher costs.

[0014] For the opening and closing processes, various types of locks and/or locking control mechanisms may be provided. The efficient and smart use of a lock has a direct impact on the efficiency of inclined roof windows.

[0015] Classically, the locking stay device contains a

bar-shaped locking element which includes a cylindrical pin and a locking device, wherein the bar-shaped locking element is pivotally connected with the outside window sash, on which there are a plurality of position pawls, and the cylindrical pin is arranged on the inside window frame, which cooperates with the position pawls to adjust the opening of a vent, when closed, the inside window frame and the outside window sash is tightly connected by turning the locking stay device with a handle.

[0016] There are some disadvantages existing in the structure mentioned above. First, the vent opening adjustment device is detached from the locking stay device which results in more parts, difficulty in assembling, higher manufacturing cost, and annoying operation. Secondly, bar-sharp locking element includes pawls which affect the mechanical strength of the locking element. Moreover, the locking element is easy to slip from the cylindrical pin thereby affecting position and the use.

[0017] Various locking devices have been proposed as well as such as one which include a tilting sash on which is mounted an actuation assembly movable in translation and including a handle bar as well as a gear mechanism which converts a translation movement of an actuator element into a rotational movement of locking elements (EP 1746232B1). Such mechanism utilizes a magnetic means to actuate the locking elements, which may pose other inherent problems of long term usage and wear and tear. Other prior art propose similar mechanisms such as EP 1762679A1, describing an assembly for securing a closure member in a closed position including the use of attractive magnets. Furthermore, prior art locking devices typically use at least two hinged levers and two return springs as linking mechanism between the actuation slider and a latching hook. However, the disadvantages of this design include the number of components and complexity of the design mechanism.

[0018] Another example of the related prior art can be found for instance in WO 2007/071262 A1 which discloses a locking assembly for a ventilating window having a sash arranged to be openable with respect to a main frame by pivotal movement about a pivot axis parallel to a pair of opposed sash members.

SUMMARY OF THE INVENTION

[0019] In light of prior art mentioned above, the technical problem that the present invention intends to solve is to provide a locking device for windows or doors, which combines a novel and inventive ventilation opening adjustment and locking mechanism that is simpler and requires fewer components.

[0020] In order to solve the aforementioned technical problems and overcome some of the inherent problems found in the prior art, the present invention, in one aspect, includes a ventilation window or door having a main frame, a glass-supporting sash that is arranged to tilt within the main frame, a ventilation passage provided in the sash, extending between an interior opening and an

exterior opening of the window, with a lock fitting adapted to lock the sash to the main frame in a closed position, with the lock having a locking mechanism mounted on the sash inside the ventilation passage. According to the invention, the window or door has a pivoting flap mounted on the sash and connected to the locking mechanism, where the pivoting flap is adapted to pivot about a first axis which is stationary relative to the sash, between a closed position in which the flap shuts the interior opening while setting the locking mechanism in a locked position and a first opened position in which the flap is pivoted to open the ventilation passage while setting the locking mechanism in an unlocked position.

[0021] Further, the present invention includes the pivoting flap adapted to pivot about a second axis which is stationary relative to the sash and parallel to the first axis, between the closed position of the flap and a second opened position in which the flap is pivoted to open the ventilation passage while keeping the locking mechanism in the locked position.

[0022] In another aspect, in the present invention, the pivoting flap is mounted on the sash via at least one articulation device. The articulation device includes a casing secured to the sash having a first arm hinged to the casing and adapted to pivot about the first axis and a second arm hinged to the casing and adapted to pivot about the second axis. Further, the first and second hinged arms include a first free end part and a second free end part respectively, which are hingedly connected to the pivoting flap so that the pivoting flap may pivot relative to the first and second hinged arms about third and fourth axis. The third and fourth axes extend along a main length of the flap and coincide with the first and second axis when the flap is in its closed position.

[0023] In yet another aspect of the invention, the arms are identical and when the pivoting flap is in its closed position, each arm is disposed as a symmetrical image of the other relative to the median plan of the first and second axis. In addition, the arms are linked to a return spring mounted inside the casing.

[0024] In another aspect, the pivoting flap includes an arc-shaped portion which is approximately 180 degrees to prevent separation with the first and second free end parts. Moreover, the first and second hinged arms have a first and second hinged end parts. The first and second hinged end parts are engaged with the arc-shaped portion of the flap, with the engagement including a gap between the arc-shaped portion and the second hinged end part.

[0025] In yet another aspect of the present invention, an actuation linking device for the locking mechanism is hinged to the flap to pivot about a third axis. The axis extends along a main length of the flap and is displaceable relative to the sash, and the third axis coincide with the second axis when the flap pivots between its closed position and its second opened position.

[0026] Furthermore, the actuation linking device includes a first rod hinged to the flap and a second rod

hinged to the first rod, with the second rod being hinged to an actuation slider of the locking mechanism.

[0027] According to the present invention, the pivoting flap is adapted to be opened and closed at varying ventilation opening lengths so that a user may adjust the size of the ventilation passage as desired. Further, the pivoting flap may be made from a metal, wood, or plastic material, or a combination thereof. Additionally, the glass-supporting sash may include two distinct sections.

[0028] According to an example not forming part of the claimed subject-matter, the present invention could be related to a ventilating system for tilting roof windows having a main frame, a glass-supporting sash that is arranged to tilt within the main frame, a ventilation passage provided in the sash, extending between an interior opening and an exterior opening of the window, with a lock fitting adapted to lock the sash to the main frame in a closed position, with the lock having a locking mechanism mounted on the sash inside the ventilation passage. According to the example, a ventilating system has a bidirectional pivoting flap mounted on the sash and connected to the locking mechanism, where the pivoting flap is adapted to pivot about a first axis which is stationary relative to the sash, between a closed position in which the flap shuts the interior opening while setting the locking mechanism in a locked position and a first opened position in which the flap is pivoted to open the ventilation passage while setting the locking mechanism in an unlocked position.

[0029] Further, the ventilating system includes the bidirectional pivoting flap adapted to pivot about a second axis which is stationary relative to the sash and parallel to the first axis, between the closed position of the flap and a second opened position in which the flap is pivoted to open the ventilation passage while keeping the locking mechanism in the locked position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0030]

Figure 1 is a schematic perspective diagram of an exemplary window ventilation system according to the present invention.

Figure 2 shows a schematic perspective diagram of a pivoting flap and an articulation device of the window ventilation system of Figure 1 in a close position. Figure 3 shows a schematic perspective diagram of a pivoting flap and an articulation device of the window ventilation system of Figure 1 in a first open position.

Figure 3A is a schematic diagram of the pivoting flap in operation.

Figure 3B is another schematic diagram of the pivoting flap in a closed position.

Figure 4 shows a schematic perspective diagram of a pivoting flap and an articulation device of the window ventilation system of Figure 1 in a second open

position.

Figure 5A shows a schematic perspective diagram of an exemplary window with the pivoting flap in the first open position. Figure 5B shows a cross-sectional schematic perspective diagram of the window of Figure 5A.

Figure 5C is a schematic diagram of another embodiment of a roof window having the ventilation system of the present invention.

Figure 6A shows a schematic perspective diagram of an exemplary window with the pivoting flap in the second open position. Figure 6B shows a cross-sectional schematic perspective diagram of the window of Figure 6A.

Figure 7 shows a schematic perspective diagram of the exemplary window with the sash opened.

Figure 8 shows a schematic diagram of a lock fitting of the ventilation system of Figure 1.

Figure 9 shows a schematic diagram of the locking mechanism of the lock fitting of Figure 9 in greater detail.

Figure 10 shows another view of the operation of the pivoting flap in relation to the articulation device.

Figure 11 shows a side cross-sectional view of the pivoting flap and the articulation device of Figure 1.

DETAILED DESCRIPTION OF THE INVENTION

[0031] Referring to Figure 1, a ventilation system 10 of the present invention is shown. The ventilation system 10 is mounted against a window or a door. A handle or handle bar 12 is connected to a pivoting flap 14 having a bidirectional function or mechanism, which is connected to two articulation devices 16 and 18. The articulation devices 16 and 18 are hingedly connected to the pivoting flap 14.

[0032] Referring to now Figure 2, the pivoting flap 14 and the articulation device 16 of the window ventilation system 10 of Figure 1 is shown in a close position.

[0033] Referring to Figure 3, the pivoting flap 14 and the articulation device 16 of the ventilation system 10 is shown in a first open position. Figure 3A and 3B are a schematic diagrams of the pivoting flap in operation, which will be described further below.

[0034] Referring now to Figure 4, the pivoting flap 14 and the articulation device 16 of the ventilation system 10 is shown in a second open position.

[0035] Figure 5A shows an exemplary window 100 with the pivoting flap 14 in the first open position and Figure 5B shows a cross-sectional schematic perspective diagram of the window. The main frame 102 is illustrated in relation to ventilation system 10. A glass supporting sash 104 is arranged to tilt within the main frame 102. Here, in Figures 5A and 5B, the sash 104 is shown in a closed position.

[0036] With reference to Figure 5B, a ventilation passage 106 is shown where air from an interior space and an exterior space is exchanged freely without any obsta-

cles. The ventilation passage 106 includes an interior opening 108 and an exterior opening 110 in the window 100.

[0037] Here, in the first open position, the pivoting flap 14 is opened in a way where the air exchange can occur from a bottom configuration of the flap 14 where the flap 14 is opened with the opening 108 facing downward.

[0038] Figure 6A shows an exemplary window with the pivoting flap 14 in the second open position and Figure 6B shows a cross-sectional schematic perspective diagram of the window 100. In the second open position, the pivoting flap 14 is opened in a way where the air exchange can occur from an upper configuration of the flap 14 where the flap 14 is opened with the opening 108 facing upward.

[0039] As can be seen by the arrows representing the flow of air exchanged from the outside and inside spaces via the interior opening 108 and the exterior opening 110 in the window 100, the fact that window 100 can provide bidirectional ventilation passages offers the advantage that air can be exchanged in a downward direction as shown in Figure 5B and in an upward direction in Figure 6B. That is, the user may decide that it is more desirable to open the ventilation passage 106 in a downward direction because of heat or cold or humidity control rather than in an upward direction.

[0040] The user may also adjust the size and/or length of the ventilation passage 106 by varying degrees of opening size by adjusting the amount by which the user flips open the bidirectional flap pivoting 14, as desired.

[0041] Referring to Figure 5C, the ventilation system 10 of the present invention is shown in a window 200. The window 200 includes a main frame 202 and a sash unit 204. The sash unit 204 includes a sash component 204A and sash component 204B. The sash components 204A and 204B are hingedly connected to the articulation device 300. This design and arrangement of having two distinct and separate sash components provide the added advantage of having modular components for manufacturing which can lower costs and provides ease of assembly.

[0042] Referring now to Figure 7, window 100 is shown with the sash 104 in an opened position.

[0043] Now, a more precise mechanism and operation of the bidirectional pivoting ventilation system 10 having the bidirectional pivoting flap 14 will be described in greater detail.

[0044] Referring to Figure 8, a lock fitting 112 of the ventilation system 10 of Figure 1 is illustrated. The lock fitting 112 is adapted to lock the sash 104 to the main frame 102 in a closed position. The lock fitting 112 includes a locking mechanism 114 mounted on the sash 104 inside the ventilation passage 106. The locking mechanism 114 has a single locking function.

[0045] Referring back to Figures 1, 2 and 8, the pivoting flap 14 is mounted on the sash 104 and connected to the locking mechanism 114. With reference to Figure 3, the pivoting flap 14 is adapted to pivot about a first axis (A1)

which is stationary relative to the sash 104, between a closed position in which the flap 14 shuts the interior opening 108 while setting the locking mechanism 114 in a locked position and a first opened position in which the flap 14 is pivoted to open the ventilation passage 106 while setting the locking mechanism in an unlocked position.

[0046] Further, with reference to Figure 4, the pivoting flap 14 is adapted to pivot about a second axis (A2) which is stationary relative to the sash 104 and parallel to the first axis (A1), between the closed position of the flap 14 and a second opened position in which the flap 14 is pivoted to open the ventilation passage 106 while keeping the locking mechanism 114 in the locked position.

[0047] Referring now to Figure 3A, details of the articulation 16 device are described. The pivoting flap 14 is mounted on the sash 104 via at least one articulation device 16, with the articulation device 16 having a casing 17 secured to the sash 104. Referring specifically to Figures 3A and 3B, a first arm 21 is hinged to the casing 17 and adapted to pivot about the first axis (A1) and a second arm 23 is hinged to the casing 17 and adapted to pivot about the second axis (A2).

[0048] The first and second hinged arms 21 and 23 include a first free end part 21E and a second free end part 22E respectively, which are hingedly connected to the pivoting flap 14 so that the pivoting flap may pivot relative to the first and second hinged arms about third and fourth axis (A3, A4), as illustrated in Figure 10.

[0049] Figure 10 shows another view of the operation of the pivoting flap 14 in relation to the articulation device 16. The third and fourth axis extending along a main length of the flap 14 coincide with the first and second axis (A1, A2) when the flap 14 is in its closed position, as can be seen in Figures 2 and 10.

[0050] As illustrated in these Figures, the arms 21 and 23 are identical in length. When the bidirectional pivoting flap 14 is in its closed position, the arms 21 and 23 are disposed as a symmetrical image of the other relative to the median plan of the first axis A1 and second axis A2. In certain embodiments, arms 21 and 23 are linked to a return spring mounted inside the casing 17.

[0051] Referring now to Figure 11, a side cross-sectional view of the pivoting flap 14 and the articulation device 16 illustrated in Figure 1 are shown. The pivoting flap 14 includes an arc-shaped portion 31 at each of its ends, which is approximately 180 degrees to prevent separation with the first and second free end parts (21E, 22E). As shown, the first and second hinged arms 21 and 23 include a first hinged end part 33 and a second hinged end part 35.

[0052] The first and second hinged end parts 33 and 35 are engaged with the arc-shaped portion 31 of the flap 14. As shown, there is a necessary gap 37 between the arc-shaped portion 31 and the second hinged end part 35.

[0053] Referring now to Figure 9, this diagram shows the locking mechanism 114 of the lock fitting 112 of Figure

8 in greater detail. An actuation linking device 70 for the locking mechanism 114 is hinged to the flap 14 to pivot about a third axis A3. The axis A3 extends along a main length of the flap 14 and is displaceable relative to the sash 104 (not shown).

[0054] Moreover, the third axis A3 coincides with the second axis A2 when the flap 14 pivots between its closed position and its second opened position. The actuation linking device 70 further includes a first rod 71 hinged to the flap 14 and a second rod 72 hinged to the first rod 71. The second rod 72 is further hinged to an actuation slider 80 of the locking mechanism 114.

[0055] The pivoting flap 14 of the ventilation window may be made from a metal material as well as a wood or plastic material. The flap may also be made from a combination of metal, wood, or plastic material depending on the commercial design and requirements of the window or doors. The articulation device 16 may also be used in a modular fashion whereby the articulation device may be made from mostly a metal material and be positioned on pivoting flaps made from different materials and manufactured separately. In this fashion, the articulation devices are manufactured in a more efficient and economical manner. Further, the flaps may be designed to suit the desirable design and material requirements of the user with regards to the overall window or door design such as in wood or plastic materials as well as colour and shapes.

Claims

1. A ventilation window or door comprising:

- a main frame (102),
 - a glass-supporting sash (104), the sash arranged to tilt within the main frame,
 - a ventilation passage (106) provided in the sash, extending between an interior opening (108) and an exterior opening (110) of the window,
 - a lock fitting (112) adapted to lock the sash to the main frame (102) in a closed position, comprising a locking mechanism (114) mounted on the sash inside the ventilation passage (106),
 - a pivoting flap (14) mounted on the sash and connected to the locking mechanism, the pivoting flap adapted to pivot about a first axis (A1) which is stationary relative to the sash, between a closed position in which the flap shuts the interior opening (108) while setting the locking mechanism in a locked position and a first opened position in which the flap is pivoted to open the ventilation passage (106) while setting the locking mechanism in an unlocked position,
- characterized in that**
- the pivoting flap is adapted to pivot about a second axis (A2) which is stationary relative to

the sash and parallel to the first axis (A1), between the closed position of the flap and a second opened position in which the flap is pivoted to open the ventilation passage while keeping the locking mechanism in the locked position.

2. The ventilation window or door of claim 1 **characterized in that**

the pivoting flap (14) is mounted on the sash via at least one articulation device (16), the articulation device comprising a casing (17) secured to the sash, a first arm (21) hinged to the casing and adapted to pivot about the first axis (A1) and a second arm 23 hinged to the casing and adapted to pivot about the second axis (A2), the first and second hinged arms (21, 23) comprising a first free end part 21E and a second free end part 23E respectively, which are hingedly connected to the pivoting flap so that the pivoting flap may pivot relative to the first and second hinged arms about third and fourth axis (A3, A4), and the third and fourth axis extending along a main length of the flap and coinciding with the first and second axis (A1, A2) when the flap is in its closed position.

3. The ventilation window or door of claims 1 or 2 **characterized in that** the arms (21, 23) are identical.

4. The ventilation window or door of any of the preceding claims **characterized in that** when the pivoting flap (14) is in its closed position, each arm is disposed as a symmetrical image of the other relative to the median plan of the first and second axis (A1, A2).

5. The ventilation window or door of any of the preceding claims **characterized in that** the arms (21, 23) are linked to a return spring mounted inside the casing.

6. The ventilation window or door of any of the preceding claims **characterized in that** the pivoting flap comprises an arc-shaped portion (31) which is approximately 180 degrees to prevent separation with the first and second free end parts (21E, 22E).

7. The ventilation window or door of any of the preceding claims **characterized in that** first and second hinged arms comprise a first and second hinged end parts (33, 35).

8. The ventilation window or door of any of the preceding claims **characterized in that** the first and second hinged end parts are engaged with the arc-shaped portion of the flap, the engagement comprising a gap (37) between the arc-shaped portion and the second hinged end part.

9. The ventilation window or door of any of the preceding claims **characterized in that** an actuation linking device (70) for the locking mechanism (114) is hinged to the flap (14) to pivot about a third axis (A3), the axis extending along a main length of the flap and being displaceable relative to the sash, the third axis coinciding with the second axis (A2) when the flap pivots between its closed position and its second opened position. 5
10. The ventilation window or door of any of the preceding claims **characterized in that** the actuation linking device (70) comprises a first rod (71) hinged to the flap (14) and a second rod (72) hinged to the first rod (71), the second rod (72) being hinged to an actuation slider (80) of the locking mechanism (114). 10
11. The ventilation window or door of any of the preceding claims **characterized in that** the pivoting flap is adapted to open and close at varying ventilation opening lengths so that a user may adjust the size of the ventilation passage as desired. 20
12. The ventilation window or door of any of the preceding claims **characterized in that** the pivoting flap is made from a metal material. 25
13. The ventilation window or door of claims 1-11 **characterized in that** the pivoting flap is made from a wood material. 30
14. The ventilation window or door of claims 1-11 **characterized in that** the pivoting flap is made from a plastic material. 35
15. The ventilation window or door of claims 1-11 **characterized in that** the pivoting flap is made from a combination of wood, metal, and plastic materials. 40
16. The ventilation window or door of any of the preceding claims **characterized in that** the glass-supporting sash (204) comprises two distinct sash components (204A, 204B), which are hingedly connected to the articulation device (300). 45
17. The ventilation window or door of claim 1, wherein the pivoting flap (14) is a bidirectional pivoting flap (14). 50

Patentansprüche

1. Ventilationsfenster oder -tür, das bzw. die Folgendes umfasst:
- einen Hauptrahmen (102),
 - einen Glasträgerflügel (104), wobei der Flügel zum Kippen in dem Hauptrahmen angeordnet

ist,

- einen in dem Flügel vorgesehenen Ventilationskanal (106), der sich zwischen einer inneren Öffnung (108) und einer äußeren Öffnung (110) des Fensters erstreckt,
- einen Verriegelungsanschluss (112), der zum Verriegeln des Flügels mit dem Hauptrahmen (102) in einer geschlossenen Stellung geeignet ist und der einen Verriegelungsmechanismus (114) umfasst, der in dem Ventilationskanal (106) an dem Flügel befestigt ist,
- eine Schwenkklappe (14), die an dem Flügel befestigt und mit dem Verriegelungsmechanismus verbunden ist, wobei die Schwenkklappe zum Schwenken um eine erste Achse (A1), die bezüglich des Flügels feststehend ist, zwischen einer geschlossenen Stellung, in der die Klappe die innere Öffnung (108) schließt, während der Verriegelungsmechanismus in eine verriegelte Stellung versetzt wird, und einer ersten geöffneten Stellung, in der die Klappe zum Öffnen des Ventilationskanals (106) geschwenkt wird, während der Verriegelungsmechanismus in eine nicht verriegelte Stellung versetzt wird, ausgeführt ist,

dadurch gekennzeichnet, dass

- die Schwenkklappe zum Schwenken um eine zweite Achse (A2), die bezüglich des Flügels feststehend und parallel zur ersten Achse (A1) ist, zwischen der geschlossenen Stellung der Klappe und einer zweiten geöffneten Stellung, in der die Klappe zum Öffnen des Ventilationskanals geschwenkt wird, während der Verriegelungsmechanismus in der verriegelten Stellung gehalten wird, ausgeführt ist.

2. Ventilationsfenster oder -tür nach Anspruch 1,

dadurch gekennzeichnet, dass

die Schwenkklappe (14) über mindestens eine Gelenkvorrichtung (16) an dem Flügel befestigt ist, wobei die Gelenkvorrichtung ein an dem Flügel gesichertes Gehäuse (17), einen ersten Arm (21), der an dem Gehäuse angelenkt und zum Schwenken um die erste Achse (A1) ausgeführt ist, und einen zweiten Arm (23), der an dem Gehäuse angelenkt und zum Schwenken um die zweite Achse (A2) ausgeführt ist, umfasst, wobei der erste und der zweite angelenkte Arm (21, 23) einen ersten freien Endteil 21E bzw. einen zweiten freien Endteil 23E umfassen, die mit der Schwenkklappe schwenkbar verbunden sind, so dass die Schwenkklappe bezüglich des ersten und des zweiten angelenkten Arms um eine dritte und eine vierte Achse (A3, A4) schwenken kann, und sich die dritte und die vierte Achse entlang einer Hauptlänge der Klappe erstrecken und mit der ersten

und der zweiten Achse (A1, A2) zusammenfallen, wenn sich die Klappe in ihrer geschlossenen Stellung befindet.

3. Ventilationsfenster oder -tür nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Arme (21, 23) identisch sind. 5
4. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass**, wenn sich die Schwenklappe (14) in ihrer geschlossenen Stellung befindet, jeder Arm als ein symmetrisches Abbild des anderen bezüglich der Mittelebene der ersten und der zweiten Achse (A1, A2) angeordnet ist. 10
5. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Arme (21, 23) mit einer Rückstellfeder verbunden sind, die in dem Gehäuse befestigt ist. 15
6. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Schwenklappe einen bogenförmigen Abschnitt (31), der ungefähr 180 Grad beträgt, zur Verhinderung einer Trennung von dem ersten und dem zweiten freien Endteil (21E, 22E) umfasst. 20
7. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** ein erster und ein zweiter angelenkter Arm einen ersten und einen zweiten angelenkten Endteil (33, 35) umfassen. 25
8. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der erste und der zweite angelenkte Endteil mit dem bogenförmigen Abschnitt der Klappe in Eingriff stehen, wobei der Eingriff einen Spalt (37) zwischen dem bogenförmigen Abschnitt und dem zweiten angelenkten Endteil umfasst. 30
9. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** eine Betätigungsverbindungsvorrichtung (70) für den Verriegelungsmechanismus (114) dahingehend an der Klappe (14) angelenkt ist, um eine dritte Achse (A3) zu schwenken, wobei sich die Achse entlang einer Hauptlänge der Klappe erstreckt und bezüglich des Flügels verschiebbar ist, wobei die dritte Achse mit der zweiten Achse (A2) zusammenfällt, wenn die Klappe zwischen ihrer geschlossenen Stellung und ihrer zweiten geöffneten Stellung schwenkt. 35
10. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Betätigungsverbindungsvorrichtung (70) 40

eine erste Stange (71), die an der Klappe (14) angelenkt ist, und eine zweite Stange (72), die an der ersten Stange (71) angelenkt ist, umfasst, wobei die zweite Stange (72) an einem Betätigungsschieber (80) des Verriegelungsmechanismus (114) angelenkt ist.

11. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Schwenklappe zum Öffnen und Schließen mit variierenden Belüftungsöffnungslängen ausgeführt ist, so dass ein Benutzer die Größe des Ventilationskanals je nach Bedarf einstellen kann. 45
12. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Schwenklappe aus einem Metallmaterial hergestellt ist. 50
13. Ventilationsfenster oder -tür nach Anspruch 1-11, **dadurch gekennzeichnet, dass** die Schwenklappe aus einem Holzmaterial hergestellt ist. 55
14. Ventilationsfenster oder -tür nach Anspruch 1-11, **dadurch gekennzeichnet, dass** die Schwenklappe aus einem Kunststoffmaterial hergestellt ist.
15. Ventilationsfenster oder -tür nach Anspruch 1-11, **dadurch gekennzeichnet, dass** die Schwenklappe aus einer Kombination aus Holz-, Metall- und Kunststoffmaterial hergestellt ist.
16. Ventilationsfenster oder -tür nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Glasträgerflügel (204) zwei individuelle Flügelkomponenten (204A, 204B) umfasst, die mit der Gelenkvorrichtung (300) schwenkbar verbunden sind.
17. Ventilationsfenster oder -tür nach Anspruch 1, wobei die Schwenklappe (14) eine bidirektionale Schwenklappe (14) ist.

Revendications

1. Fenêtre ou porte ventilée, comprenant :

- un cadre principal (102),
- un châssis de support de vitre (104), le châssis étant agencé pour s'incliner à l'intérieur du cadre principal,
- un passage de ventilation (106) fourni dans le châssis, s'étendant entre une ouverture intérieure (108) et une ouverture extérieure (110) de la fenêtre,
- un accessoire de verrouillage (112) adapté pour verrouiller le châssis contre le cadre prin-

- cipal (102) dans une position fermée, comprenant un mécanisme de verrouillage (114) monté sur le châssis à l'intérieur du passage de ventilation (106),
- un rabat pivotant (14) monté sur le châssis et relié au mécanisme de verrouillage, le rabat pivotant étant adapté pour pivoter autour d'un premier axe (A1) qui est fixe par rapport au châssis, entre une position fermée dans laquelle le rabat ferme l'ouverture intérieure (108) tout en mettant le mécanisme de verrouillage dans une position verrouillée et une première position ouverte dans laquelle le rabat est pivoté pour ouvrir le passage de ventilation (106) tout en mettant le mécanisme de verrouillage dans une position déverrouillée, **caractérisée en ce que**
 - le rabat pivotant est adapté pour pivoter autour d'un deuxième axe (A2) qui est fixe par rapport au châssis et parallèle au premier axe (A1), entre la position fermée du rabat et une seconde position ouverte dans laquelle le rabat est pivoté pour ouvrir le passage de ventilation tout en maintenant le mécanisme de verrouillage dans la position verrouillée.
2. Fenêtre ou porte ventilée selon la revendication 1, **caractérisée en ce que** le rabat pivotant (14) est monté sur le châssis par l'intermédiaire d'au moins un dispositif d'articulation (16) le dispositif d'articulation comprenant un boîtier (17) arrimé au châssis, un premier bras (21) monté à charnière sur le boîtier et adapté pour pivoter autour du premier axe (A1) et un second bras (23) monté à charnière sur le boîtier et adapté pour pivoter autour du deuxième axe (A2), les premier et second bras à charnière (21, 23) comprenant une première partie d'extrémité libre (21E) et une seconde partie d'extrémité libre (23E) respectivement, qui sont reliées à charnière au rabat pivotant de sorte que le rabat pivotant puisse pivoter par rapport aux premier et second bras à charnière autour d'un troisième et d'un quatrième axe (A3, A4), et les troisième et quatrième axes s'étendant le long d'une longueur principale du rabat et coïncidant avec les premier et deuxième axes (A1, A2) lorsque le rabat est dans sa position fermée.
 3. Fenêtre ou porte ventilée selon les revendications 1 ou 2, **caractérisée en ce que** les bras (21, 23) sont identiques.
 4. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** lorsque le rabat pivotant (14) est dans sa position fermée, chaque bras est disposé comme une image symétrique de l'autre par rapport au plan médian des premier et second axes (A1, A2).
 5. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les bras (21, 23) sont reliés à un ressort de rappel monté à l'intérieur du boîtier.
 6. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le rabat pivotant comprend une portion en forme d'arc (31) qui est approximativement de 180 degrés pour empêcher la séparation avec les première et seconde parties d'extrémité libres (21E, 22E).
 7. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les premier et second bras à charnière comprennent des première et seconde parties d'extrémité à charnière (33, 35).
 8. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** les première et seconde parties d'extrémité à charnière sont mises en prise avec la portion en forme d'arc du rabat, la mise en prise comprenant un espacement (37) entre la portion en forme d'arc et la seconde partie d'extrémité à charnière.
 9. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'un** dispositif de liaison d'actionnement (70) pour le mécanisme de verrouillage (114) est monté à charnière sur le rabat (14) pour pivoter autour d'un troisième axe (A3), l'axe s'étendant le long de la longueur principale du rabat et étant déplaçable par rapport au châssis, le troisième axe coïncidant avec le deuxième axe (A2) lorsque le rabat pivote entre sa position fermée et sa seconde position ouverte.
 10. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le dispositif de liaison d'actionnement (70) comprend une première tige (71) montée à charnière sur le rabat (14) et une seconde tige (72) montée à charnière sur la première tige (71), la seconde tige (72) étant montée à charnière sur un coulisseau d'actionnement (80) du mécanisme de verrouillage (114).
 11. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le rabat pivotant est adapté pour s'ouvrir et se fermer à diverses longueurs d'ouverture de ventilation de sorte qu'un utilisateur puisse ajuster la taille du passage de ventilation comme souhaité.
 12. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le rabat pivotant est fait d'un matériau métallique.

13. Fenêtre ou porte ventilée selon les revendications 1 à 11, **caractérisée en ce que** le rabat pivotant est fait d'un matériau de bois.
14. Fenêtre ou porte ventilée selon les revendications 1 à 11, **caractérisée en ce que** le rabat pivotant est fait d'un matériau plastique. 5
15. Fenêtre ou porte ventilée selon les revendications 1 à 11, **caractérisée en ce que** le rabat pivotant est fait d'une combinaison de matériaux de bois, métalliques et plastiques. 10
16. Fenêtre ou porte ventilée selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le châssis de support de vitre (204) comprend deux composants de châssis distincts (204A, 204B), qui sont reliés à charnière au dispositif d'articulation (300). 15
17. Fenêtre ou porte ventilée selon la revendication 1, dans laquelle le rabat pivotant (14) est un rabat pivotant bidirectionnel (14). 20

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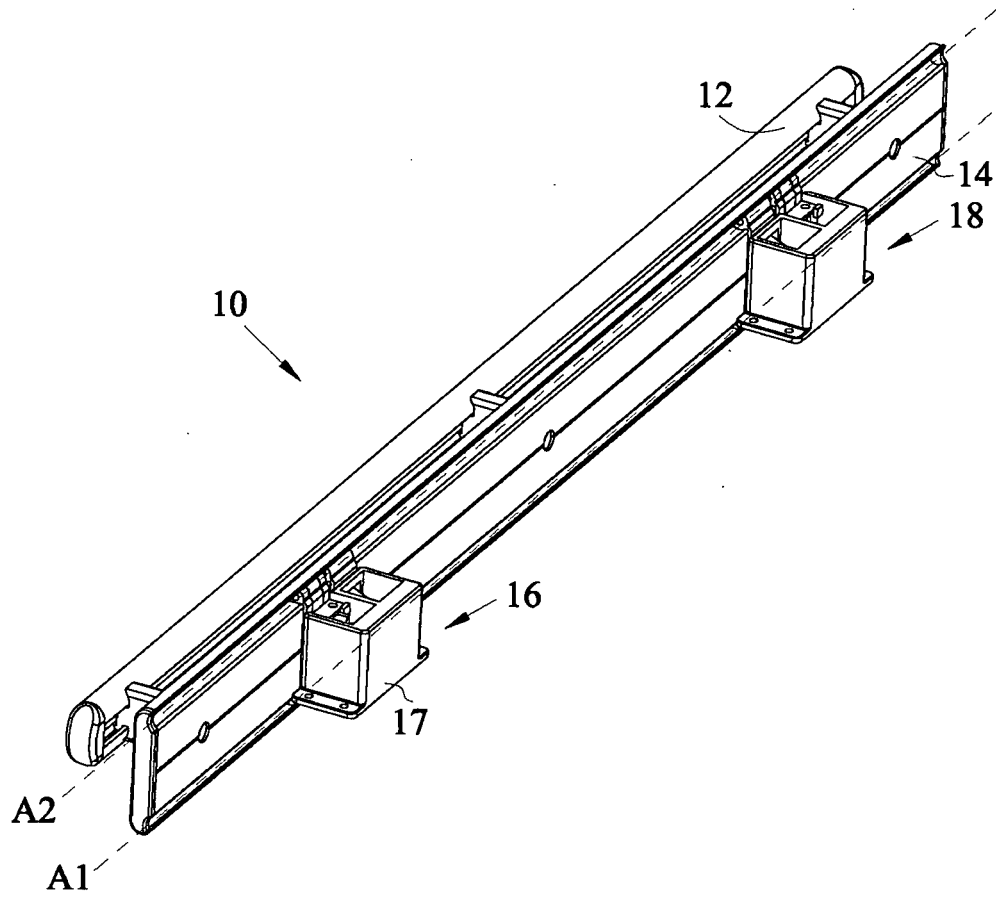


FIG. 1

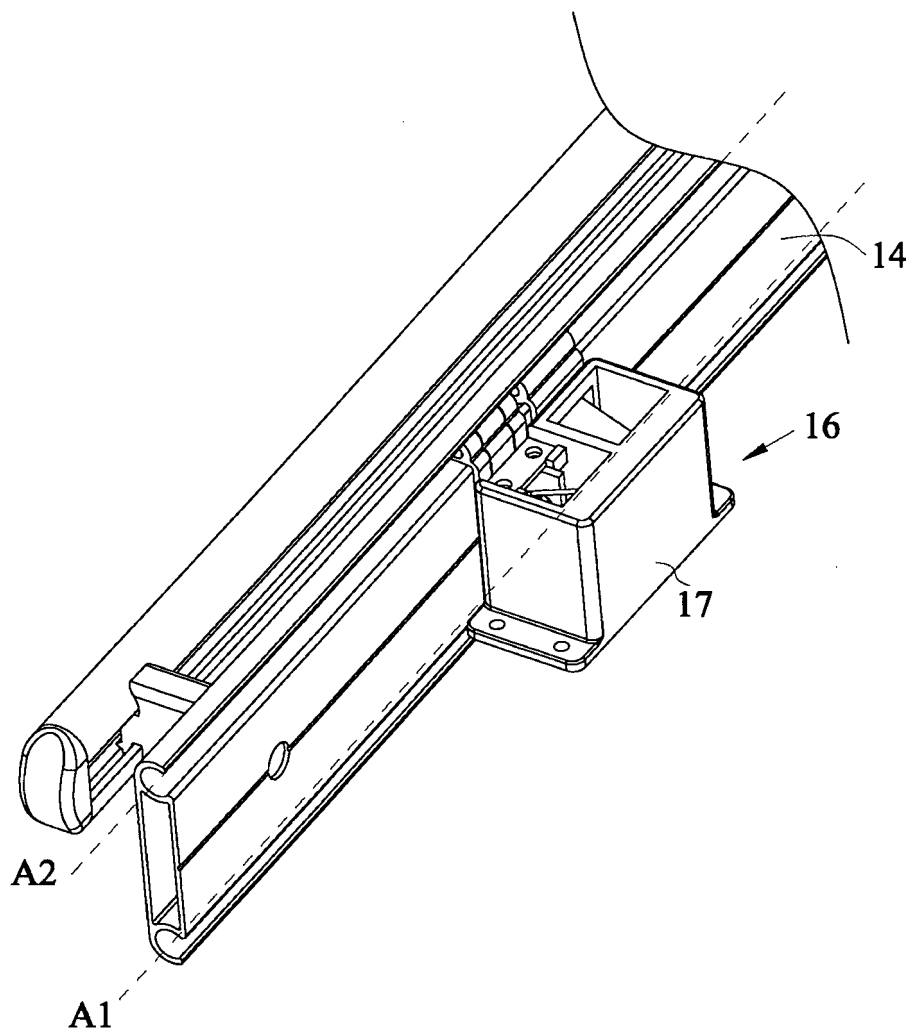


FIG. 2

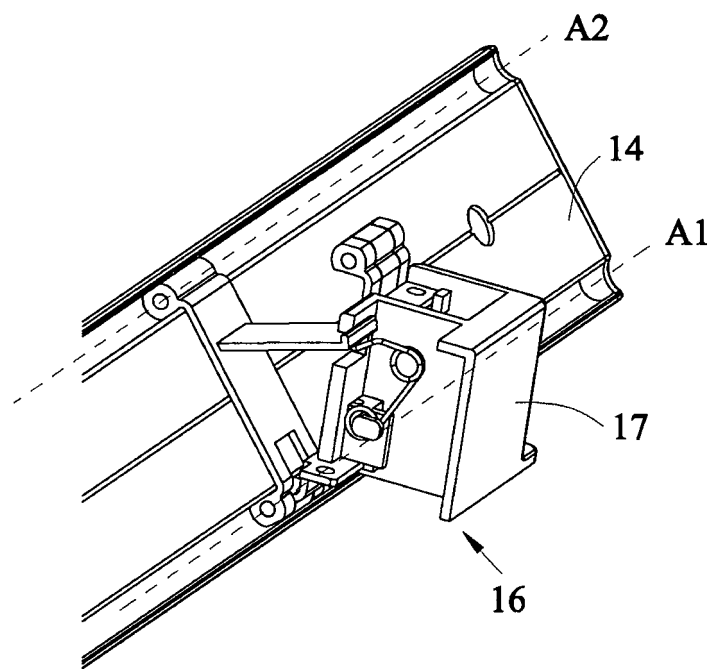


FIG. 3

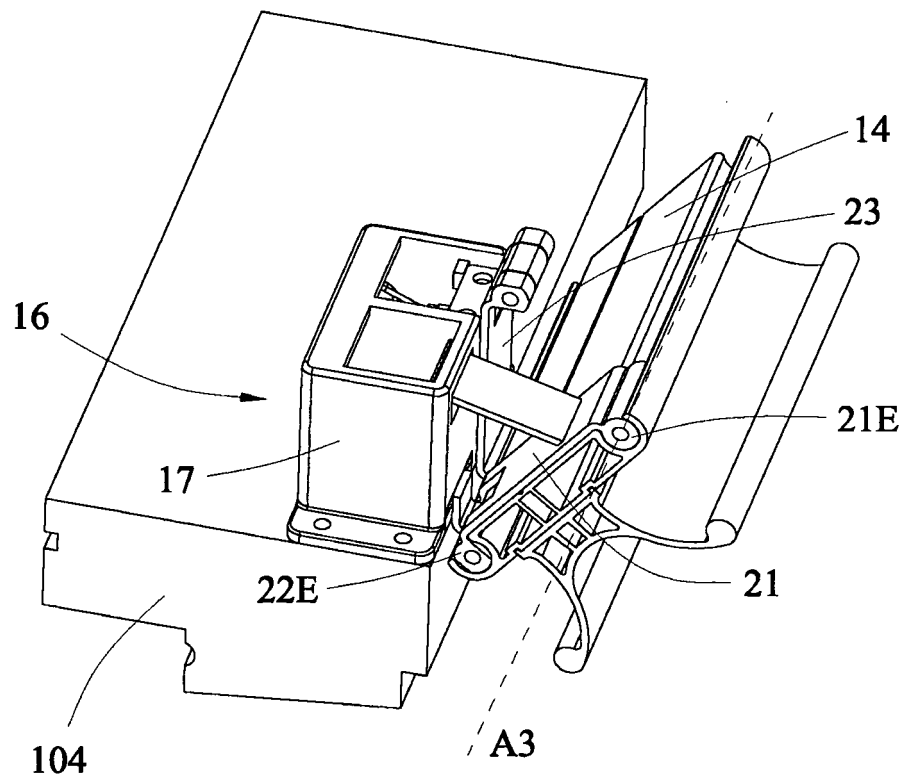


FIG. 3A

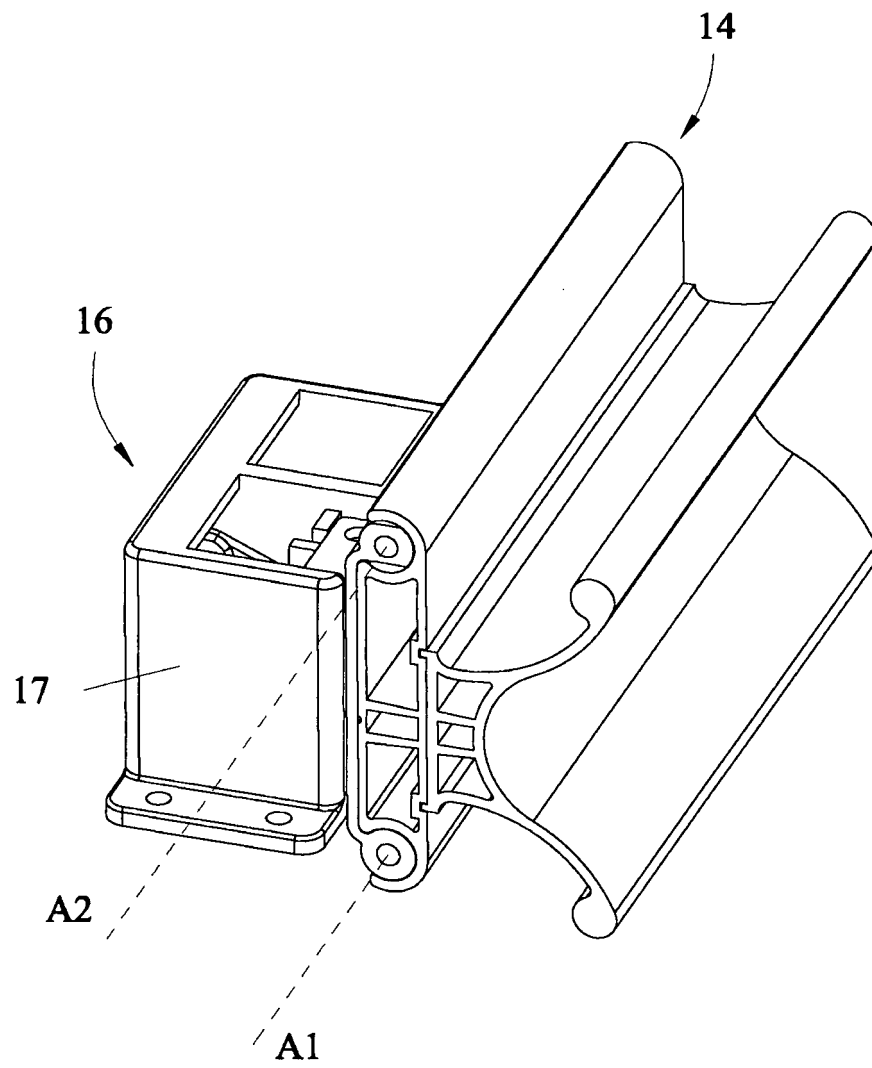


FIG. 3B

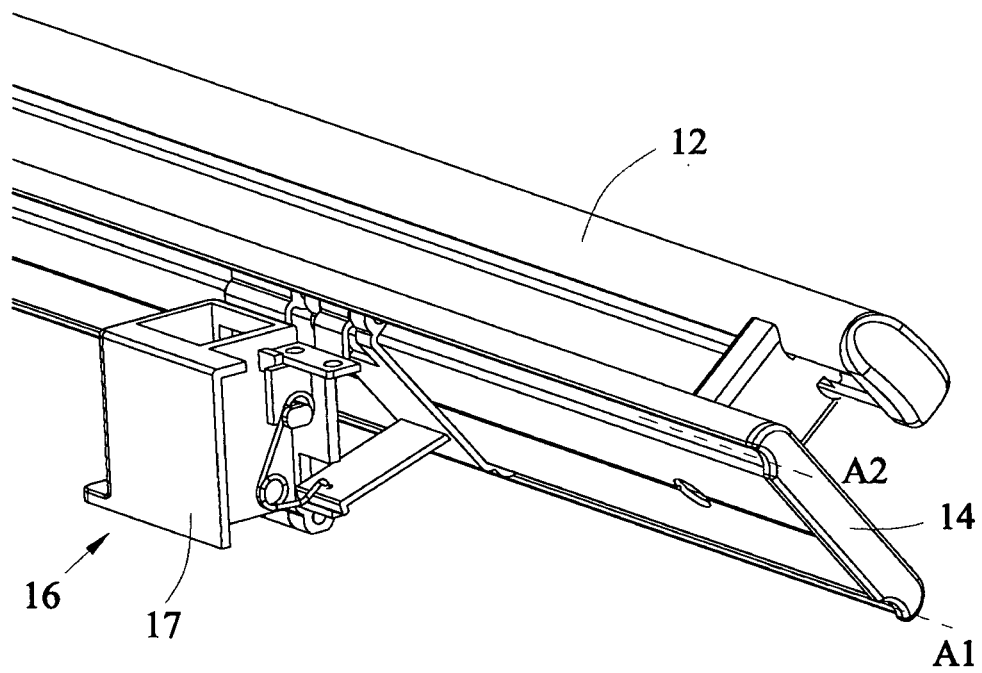


FIG. 4

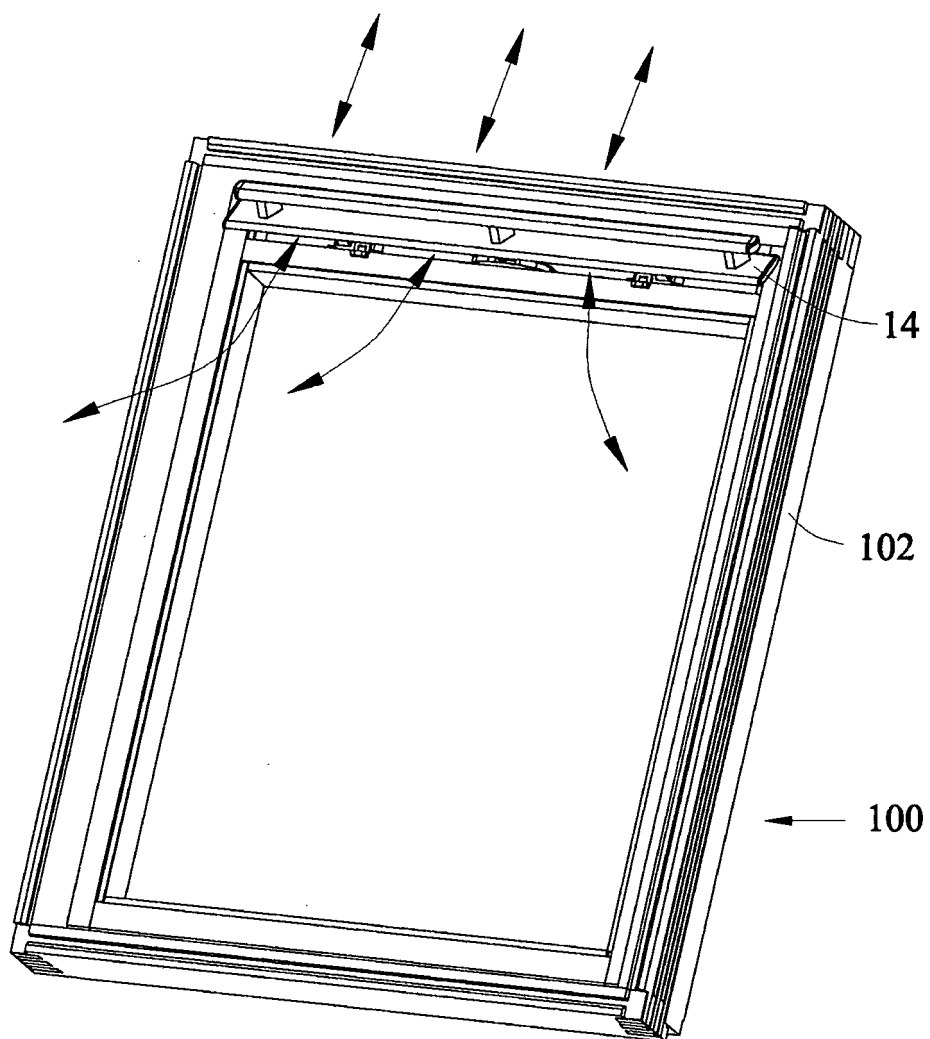


FIG. 5A

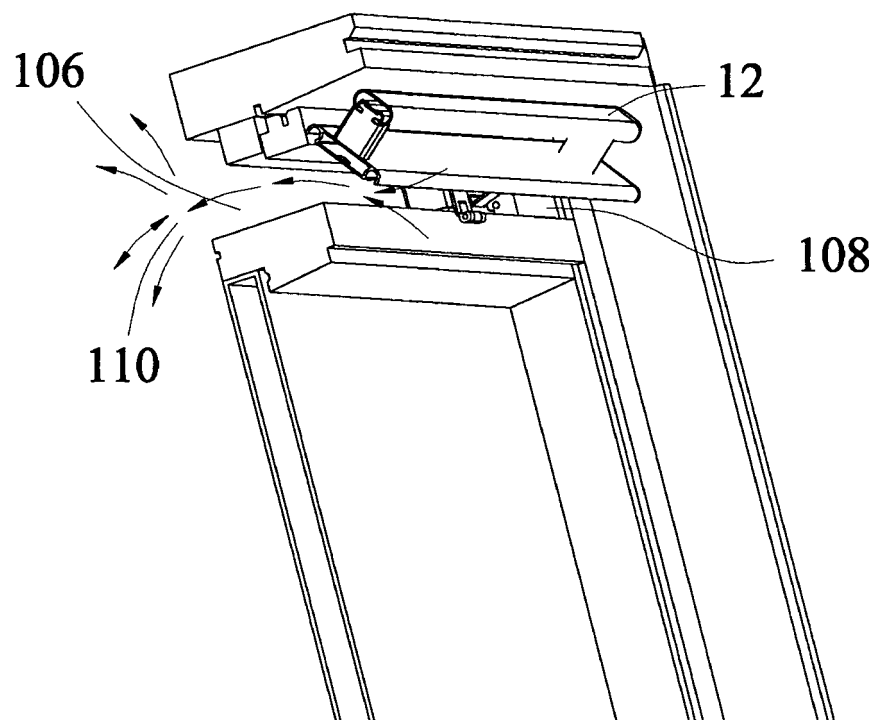


FIG. 5B

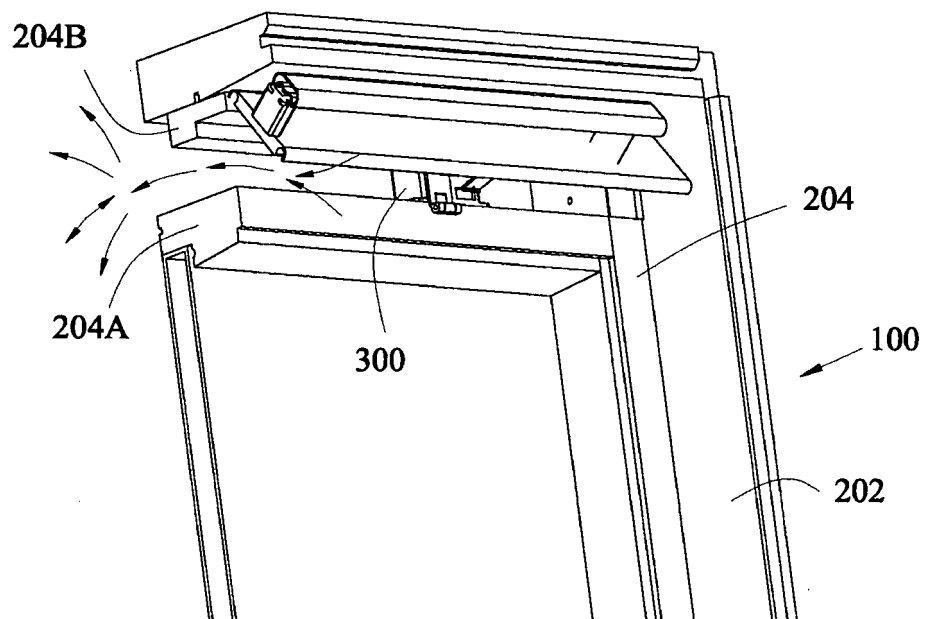


FIG. 5C

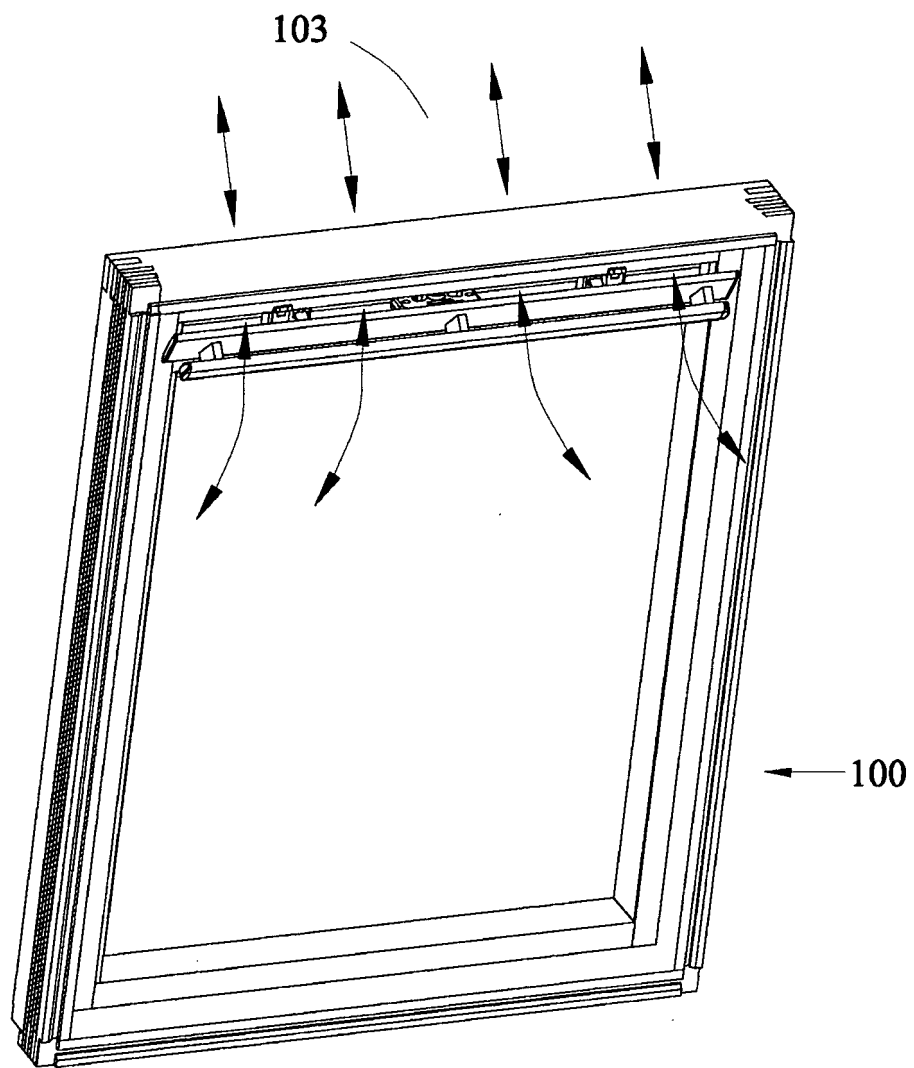


FIG. 6A

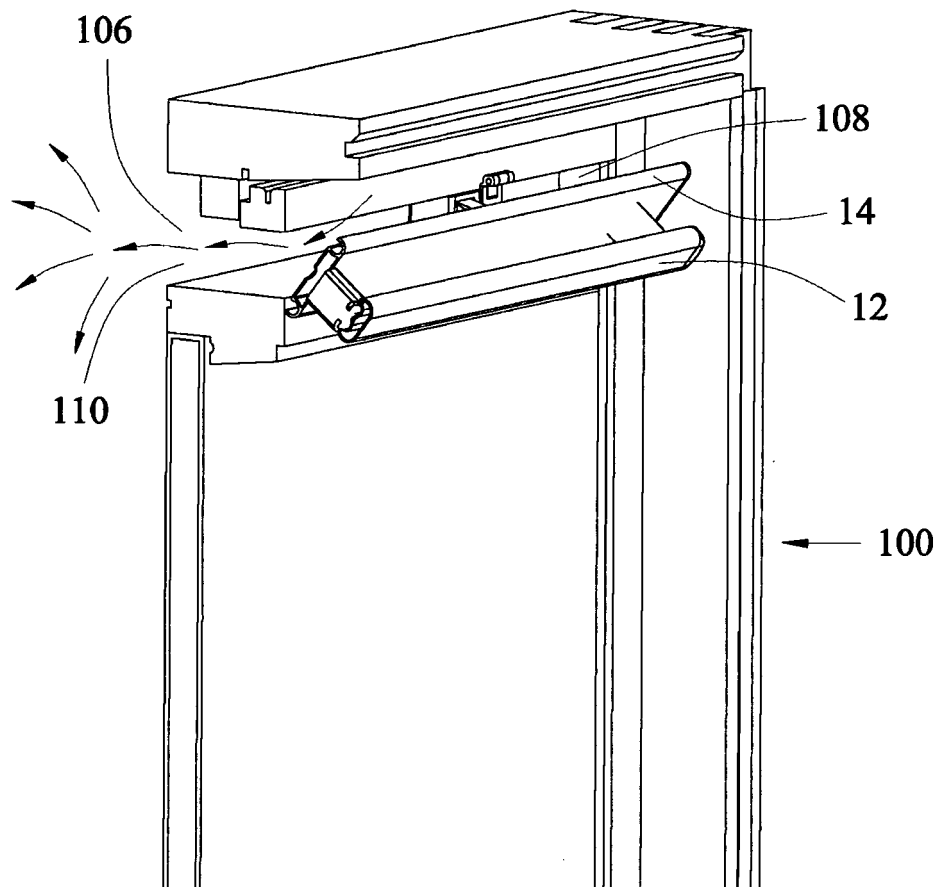


FIG. 6B

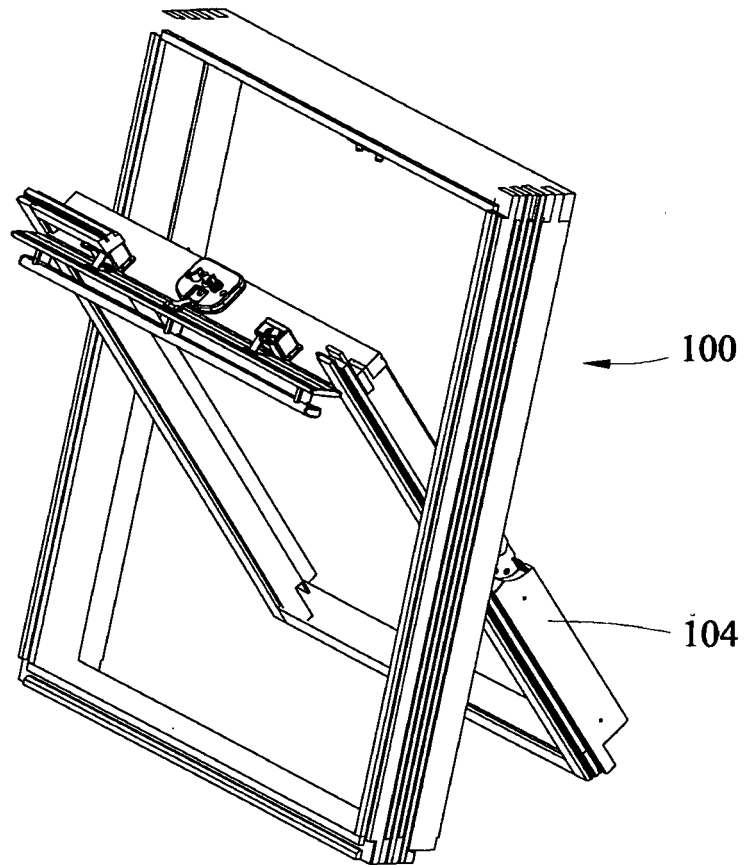


FIG. 7

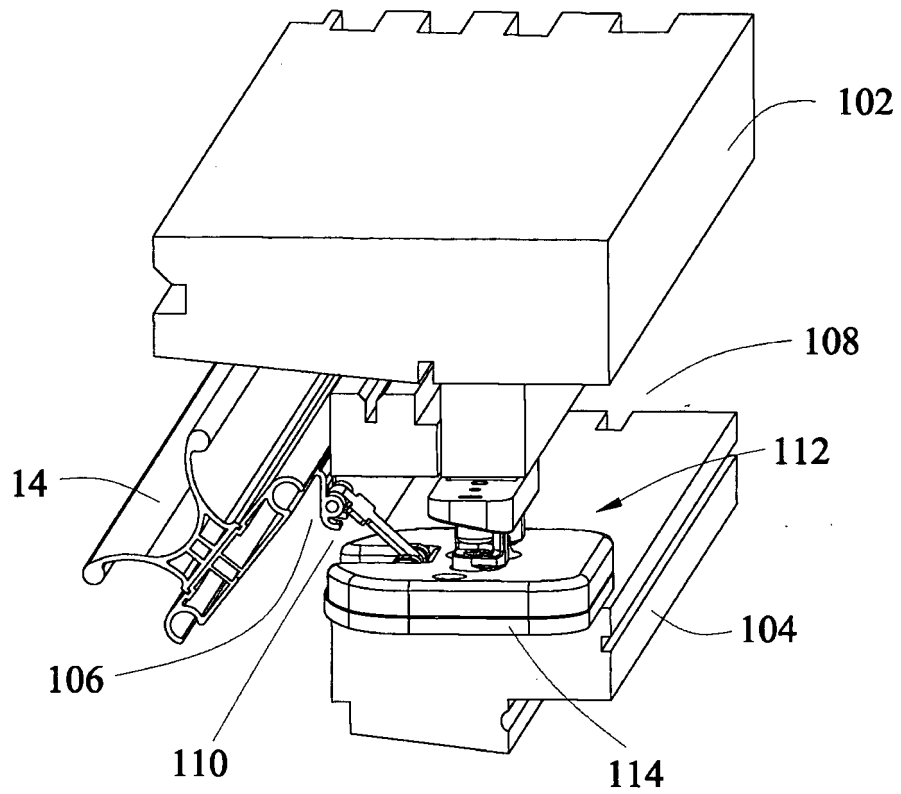


FIG. 8

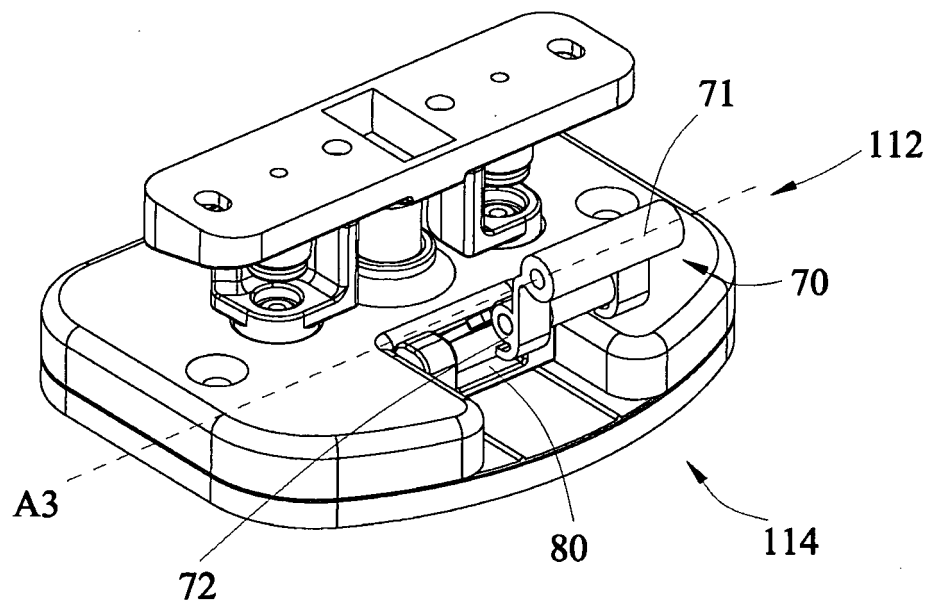


FIG. 9

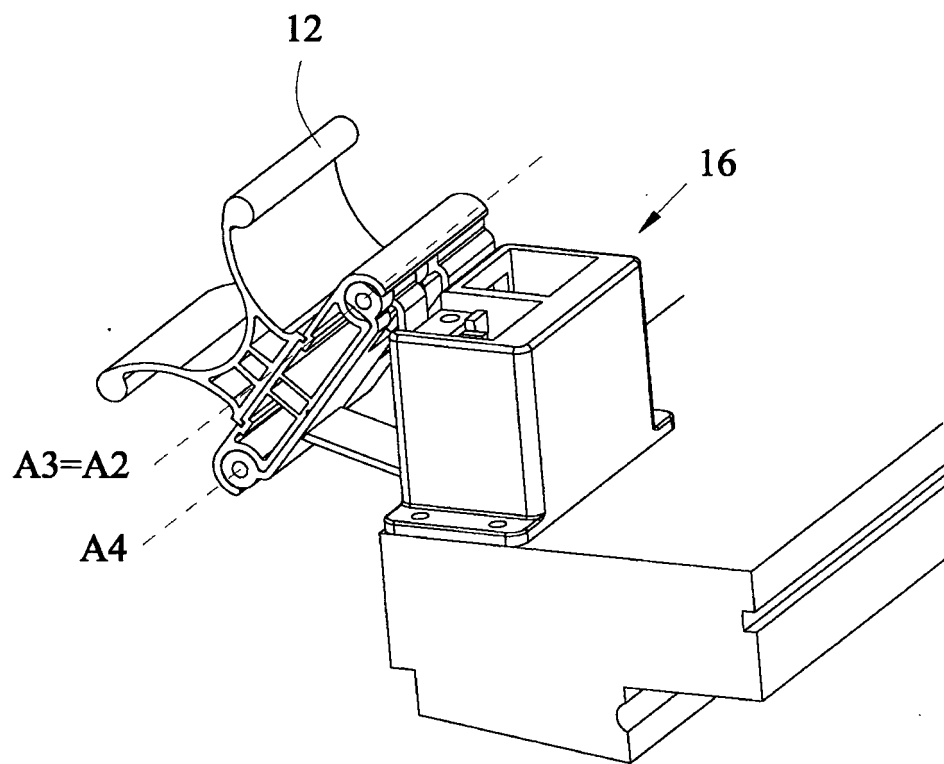


FIG. 10

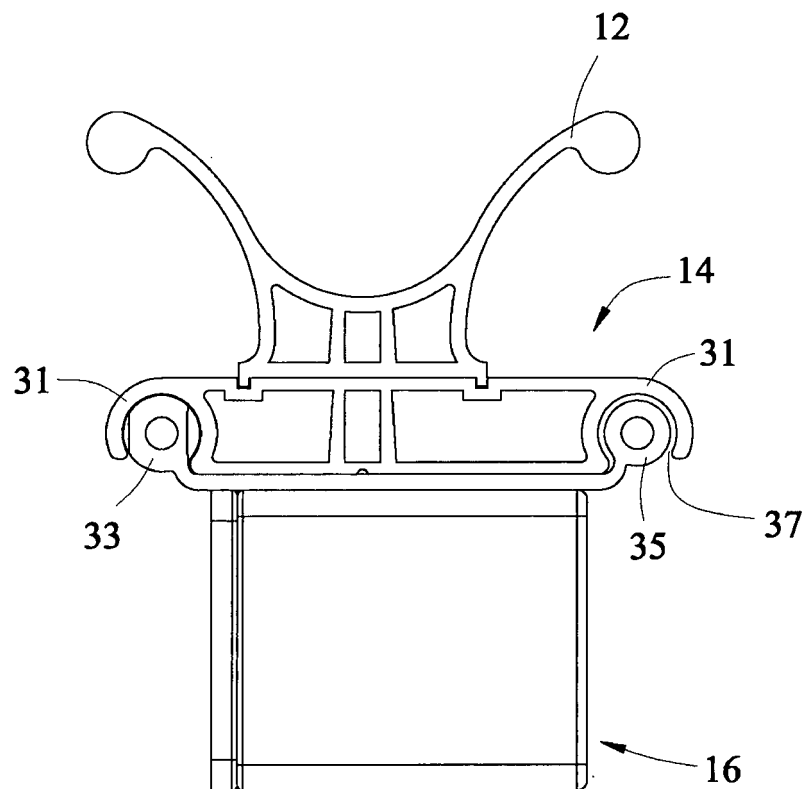


FIG. 11

REFERENCES CITED IN THE DESCRIPTION

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