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(54) **FIRE/DISASTER EVACUATION FACILITY FOR BUILDING**

FEUER-/KATASTROPHENEVAKUIERUNGSANLAGE FÜR GEBÄUDE

INSTALLATION D'ÉVACUATION EN CAS D'INCENDIE/SINISTRE DESTINÉE À UN BÂTIMENT

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EP 3 639 896 B1

Description

TECHNICAL FIELD

[0001] The present invention relates to a fire/disaster evacuation facility for building, more specifically to the fire/disaster evacuation facility for building that is used as a balcony parapet to prevent falling in ordinary day without fire risk, and whose structure is converted into a fire and a disaster evacuation facility for residents isolated by the fire to be safely evacuated to the ground when the fire occurs.

BACKGROUND ART

[0002] Commonly, the high-rise buildings are increasing in the present day in order to make effective use of a small site and to expand a living space of the building. A main entrance door for human access is usually prepared in the high-rise buildings, a veranda is installed in the opposite side of the main entrance door, and a safety parapet for preventing falling is installed on the veranda.

[0003] Such high-rise buildings have an advantage of being able to accommodate a large number of people in the small site, and it is possible to look down the scenery in the high building, and have an advantage of having various convenience facilities inside.

[0004] However, the high-rise buildings have a disadvantage of having a high frequency of fires due to the residence of many people inside the buildings soared on the small site, and have a problem that once a fire occurred, it could lead to a mass mortality event.

[0005] Meanwhile, there is a way to avoid the fire by using a descending life line installed in the veranda to solve this problem. However, the descending life line has a problem that is difficult for the general public to operate it, and the other problem of the descending life line is that people cannot overcome their anxiety of using the descending life line in addition to their fear of fire because of the burden of putting the weight of the user on one rope.

[0006] KR101055294B1 represents the closest prior art for this application. Meanwhile, as a another prior art of this invention, "A safety balustrade for fire-escaping" of Korean patent registration number "10-0927317" has been filed and registered. The safety balustrade for fire-escaping may consist of: a first frame blocking the upper glass wall in ordinary day without fire risk, and being pivoted by a hinge fixed to the outer wall of the building and facing the lower glass wall or the lower outer wall in the event of fire; a second frame being placed between the first frame and the upper glass wall to block the upper glass wall in ordinary day without fire risk, and being pivoted to direction of the lower glass wall or the lower outer wall along the first frame in the event of fire; a stepping board, wherein its two ends of one side and two ends of the other side are connected to the first frame and the second frame respectively and it is erected abreast with the upper glass wall to prevent falling accident of upper floor residents in ordinary day without fire risk, and when the first frame and the second frame are pivoted to the direction of the lower glass wall and the lower outer wall, the stepping board is unfolded in the orthogonal direction between the first frame and the second frame in a state of being connected to the first frame and the second frame to provide a stepping space at the same time as widening the gap between the first frame and the second frame; and fixing means which fixes the one side of the second frame to the upper building structure for the first frame and the second frame not to be pivoted to the lower glass wall or the lower outer wall by the hinge in ordinary day without fire risk.

DISCLOSURE

Technical Problem

[0007] An objective of the present invention is to solve such problems and is to provide the fire/disaster evacuation facility for building which allows people who are isolated in the high-rise building to descend safely to the ground through the veranda when the fire occurs in a high-rise building.

Technical Solution

[0008] In order to achieve the above objects, a fire/disaster evacuation facility for building according to claim 1 is disclosed.

Advantageous Effects

[0009] According to the present invention, the fire/disaster evacuation facility for building comprised of such structure is used as a safety parapet for preventing falling in ordinary day without fire risk, and its structure is converted to be used as an evacuation facility for fire evacuation to reduce damage for humans when the fire occurs.

BRIEF DESCRIPTION OF DRAWINGS

[0010]

FIG. 1 shows the state in which the present invention is installed in a veranda or a balcony in ordinary day without fire risk and used as a safety parapet for preventing falling.

FIG. 2 shows the state in which the structure of the present invention installed in a veranda or a balcony is converted to be used as a passageway for fire evacuation.

FIG. 3 is a view from the back of the present invention in ordinary day without fire risk.

FIG. 4 shows a side folding ascending/descending means folded (stacked) between an outer frame and a wall-fixed frame which are facing each other in or-

dinary day without fire risk.

FIG. 5 shows a side folding ascending/descending means unfolded in a straight form when the fire occurs.

FIG. 6 shows the bottom of the present invention whose structure is converted into a passageway for fire evacuation when the fire occurs.

FIG. 7 is a view from the sides of the present invention whose structure is converted into a passageway for fire evacuation.

FIG. 8 shows a reinforcement chain which is installed on the lower of an outer frame and a wall-fixed frame.

FIG. 9 shows an outer frame locking means equipped to a wall-fixed frame, a locking bar fixing bracket equipped to the outer frame and a locking bar

FIG. 10 is a view from the above of a locking bar equipped to a locking bar fixing bracket.

FIG. 11 is a view from the side of a locking bar equipped to a locking bar fixing bracket.

FIG. 12 shows an outer frame locking means holding a locking bar.

FIG. 13 shows the state of a locking bar escaped from an outer frame locking means.

FIG. 14 is a front view of an upper evacuation structure converting means.

FIG. 15 is a sectional view cut in the transverse direction of an upper evacuation structure converting means.

FIG. 16 is a sectional view cut in the longitudinal direction of an upper evacuation structure converting means.

FIG. 17 is a view of the present invention from the inside of the building in ordinary day without fire risk.

FIG. 18 is a view of the present invention from the inside of the building when the structure of the present invention is converted into a passageway for fire evacuation when the fire occurs.

* Reference numeral*

[0011]

1: a wall-fixed frame
3: an outer frame
5: a first side wall
7: a second side wall
9: a side folding ascending/descending means
11. a first lower board
13: a second lower board
15: a lower folding foothold
17: an emergency exit
19: a folding emergency exit opening and closing means
21: an upper handle
23: an upper evacuation structure converting means
25: a lower handle
27: a lower evacuation structure converting means
29: a reinforcement chain
31: a first opening and closing door
33: a second opening and closing door
35: an opening and closing door hinge
37: a stopping board
39: a lower shock absorber
41: a "⊏" shaped knob
43: a locking bar fixing bracket
45: a locking bar
47: a hanging hook
49: an outer frame locking means
51: an upper shock absorber
53: a handle bundle
55: a handle bracket
57: a rotating bolt
59: a first nut
61: a lever
63: a second nut
65: a wire
67: a handle cover
69: a circular hole
71: a circular groove
73: a first rotating bolt through-hole
75: an inner rotating plate
77: an outer rotating plate

Mode for Invention

[0012] Hereinafter, the present invention is explained in detailed with reference to the attached drawings.

[0013] As seen in figures no 1 to 7, a fire/disaster evacuation facility for building according to the present invention comprises a wall-fixed frame (1) which is fixedly installed on an outer wall of a building facing against a balcony or veranda of the building as a square frame shape; an outer frame (3) which is installed in front of the wall-fixed frame (1) as a front closed square frame shape; a side folding ascending/descending means (9) which comprises a pair of a first side wall (5) and a second side wall (7) which are installed in right and left sides of the wall-fixed frame (1) and the outer frame (3), and are folded or unfolded with hinge-combination, wherein front upper and lower sides of the first side wall (5) are axially fixed to the outer frame (3), and rear upper and lower sides of the second side wall (7) are axially fixed to the wall-fixed frame (1); a lower folding foothold (15) which comprises a first lower board (11) and a second lower board (13) which are installed under the wall-fixed frame (1) and the outer frame (3), and are folded or unfolded with hinge-combined, wherein front upper and lower sides of the first lower board (11) is axially fixed to the outer frame (3), rear upper and lower sides of the second lower board (13) is axially fixed to the wall-fixed frame (1); an emergency exit (17) which enables a man to move to a lower floor through the lower folding foothold (15) when a fire occurs; a folding emergency exit opening and closing means (19) which opens or closes the exit (17) by opening or closing in an installed state to the emergency exit (17), and is folded according to the lower fold-

ing foothold (15) when the lower folding foothold (15) is folded, and is unfolded according to the lower folding foothold (15) when the lower folding foothold (15) is unfolded; an upper evacuation structure converting means (23) which provides an evacuation passageway by unfolding the side folding ascending/descending means (9) folded (stacked) between the wall-fixed frame (1) and the outer frame (3), the lower folding foothold (15), and emergency exit opening and closing means (19) according to operating an upper handle (21), when the fire occurs, and, at the same time, by pushing the outer frame (3) to a front of a high-rise building; and

a lower evacuation structure converting means (27) which provides an evacuation passageway by unfolding the side folding ascending/descending means (9) folded (stacked) between the outer frame (3) and the wall-fixed frame (1) installed on the lower floor, the lower folding foothold (15), and the folding emergency exit opening and closing means (19) according to operating a lower handle (25) and, at the same time, by pushing the outer frame (3) installed on the lower floor to the front of the building when the fire or disaster occurs;

the side folding ascending/descending means (9) and the lower folding foothold (15) and the folding emergency exit opening and closing means (19) are stacked between the wall-fixed frame (1) and the outer frame (3) and are used for a safety parapet for preventing falling in ordinary day in a state that the wall-fixed frame (1) and the outer frame (3) face against each other, when the fire or disaster occurs, if the upper and lower handles (21, 25) are operated, the lower folding foothold (15) and the folding emergency exit opening and closing means (19), and the side folding ascending/descending means (9) which are structurally converted to the fire or disaster evacuation, and which are stacked by the upper and lower evacuation structure converting means (23, 27), and which are installed on the current floor and the lower floor, are unfolded, at the same time, and the outer frame (3) moves to the front of the building; wherein an evacuating person opens the folding emergency exit opening and closing means (19) installed on the current floor and then shelters him/herself from the fire or disaster by performing moving process in a direction of the emergency exit (17) of the lower floor through the emergency exit (17).

[0014] The first side wall (5) and the second side wall (7) installed to opens the folding emergency exit opening and closing means (19) are processed in a frame shaping a ladder form thus a man who evacuates from the fire or disaster can move to the lower floor by riding on the first side wall (5) and the second side wall (7).

[0015] As seen in Figure 6, the folding emergency exit opening and closing means (19) comprises a first opening and closing door (31) which blocks the emergency exit (17) penetrating the first lower board (11) and is hinge-combined to a front edge of the emergency exit (17), a second opening and closing door (33) which blocks the emergency exit (17) penetrating the second lower board (13), and an opening and closing door hinge (35) which connects the first opening and closing door (31) and the second opening and closing door (33).

[0016] The opening and closing door hinge (35) is placed on a continuous line with a hinge equipped to the lower folding foothold (15) and the first opening and closing door (31) and the second opening and closing door (33) are folded or unfolded according to the lower folding foothold (15).

[0017] Also, a stopping board (37) is additionally attached on an edge of the second opening and closing door (33) coming into contact with the emergency exit (17), so that the stopping board is projected in a backward of the second opening and closing door (33) from the second opening and closing door (33) and hangs on an edge of the emergency exit (17) and prevent the second opening and closing door (33) from being axially rotated in a downward direction of the emergency exit (17) when the second opening and closing door (33) blocks the emergency exit (17).

[0018] Also, a lower shock absorber (39) is equipped, whose one end is axially fixed to the first opening and closing door (31) and the other end is axially fixed to the first lower board (11) and pushes up an open folding emergency exit opening and closing means (19) with a power between the first lower board (11) and the first opening and closing door (31).

[0019] Also, a "⊏" shaped knob (41) is equipped on an upper side of the second opening and closing door (33).

[0020] As seen in Figure 8, both lower sides of the wall fixed frame (1) spaced by a predetermined height from the side folding ascending/descending means (9) is mounted with a reinforcement chain (29) connecting the wall fixed frame (1) and the outer frame (3).

[0021] As seen in Figures 4, 9 to 13, the upper evacuation structure converting means (23) comprises a locking bar fixing bracket (43) that is fixedly equipped to an upper side of the outer frame (3) and is projected in a direction of the wall-fixed frame (1), a locking bar (45) whose upper side is fixed and installed to a lower rear side of the locking bar fixing bracket (43) as a straight bar standing in a vertical direction, an outer frame locking means (49) that comprises a hanging hook (47) which when facing the locking bar (45), the locking bar (45) is fixed over and which is interlocked with the upper handle (21) and is elastically shaft-rotated according to operation of the upper handler (21) and releases the held locking bar (45), and that is equipped to the upper side of the wall-fixed frame (1) facing the locking bar (45), and a pair of upper shock absorber (51) whose one end is axially fixed to the upper side of the wall-fixed frame (1) and whose the other end is fixed to the second side wall (7) of the side folding ascending/descending means (9) in-

stalled to left or right side of the wall-fixed frame (1) so that if the locking bar (45) escapes from the hanging hook (47) which pushes the second side wall (7) shaft-rotating and coming into contact with the wall-fixed frame (1) to move the outer frame (3) forward, at the same time, and unfolds the side folding ascending/descending means (9), the lower folding foothold (15) and the folding emergency opening and closing means (19) that are folded.

[0022] As seen in Figures 14 to 16, the upper evacuation structure converting means (23) comprises a handle bundle (53) which is equipped with the upper handle (21) shaft-rotating clockwise or counterclockwise on a front, a handle bracket (55) which is equipped to a rear side of the handle bundle (53), a rotating bolt (57) which passes through the handle bracket (55), extends to a rear of the handle bundle (53) and rotates according to the upper handle (21), a first nut (59) which fastens to the rotating bolt (57), a lever (61) of which one side is penetrated and fixed to the rotating bolt (57), and rotates according to the rotating bolt (57) as a bar shape, a second nut (63) which holds the lever (61) fastened to the rotating bolt (57) and inserted to the rotating bolt (57) with the first nut (59), a wire (65) of which one side is fixed to the other side of the lever (61) and of which the other end is connected with the outer frame locking means (49), and a handle cover (67) which covers the handle bracket (55) equipped with the rotating volt (57), the first nut (59), the lever (61), the second nut (63), and the wire (65), wherein if the upper handle (21) is rotated in any direction, the wire (61) which is connected to the lever (61) is pulled, wherein the hanging hook (47) prepared to the outer frame locking means (49) is shaft-rotated by the pulled wire (65), at the same time, and releases the locking bar (45) which is held.

[0023] As seen in Figure 15, the handle bracket (55) is penetrated a circular hole (69) forming concentric with the rotating bolt (57), and a rear side of the handle bundle (53) is formed a circular groove (71) concentric with the circular hole (69), the circular groove (71) is inserted an inner rotating plate (75) through which a first rotating bolt through-hole (73), through which the rotating bolt (57) is penetrated, is penetrated, as a shape of rotating plate , and an outer rotating plate (77), which is combined with the inner rotating plate (75) via a bolt and which is inserted to the circular groove (71) and in whose center the rotating bolt (57) is penetrated and connected, sits on the inner rotating plate (75), as a shape of rotating plate. The inner rotating plate (75) and the outer rotating plate (77) distributes the weight applied to the rotating bolt (57), and at the same time, prevents the rotation center of the rotating bolt (57) from being disturbed.

[0024] The lower evacuation structure converting means (27) is the same as the upper evacuation structure converting means (23) in terms of general structure except that the locking bar 45, which is held by the hanging hook (47) installed on the lower floor when the lower handle (25) is operated, comes out from the hanging hook (47), therefore its detailed description is omitted.

[0025] Referring to FIGS. 1 to 18, a process of operating a fire/disaster evacuation facility in a building according to the present invention having the structure as described above is as follows.

[0026] When a fire occurs inside a high-rise building and the upper handle (21) and the lower handle (25) are operated, the locking bar (45) installed on the current floor and the lower floor is released from the hanging hook (47).

[0027] In addition, the upper shock absorber (51) installed on the current layer and the lower layer pushes the second side wall (7), and the first side wall (5) and the second side wall (7) are unfolded in a straight line shape and at the same time moves the outer frame (3) forward, the first lower plate (11), the second lower plate (13), and the first opening and closing door (31) and the second opening and closing door (33), which were folded, are unfolded in a straight form.

[0028] A man who evacuates from the fire or disaster can move downstairs through the emergency exit (17) by climbing on the first lower plate (11) and the second lower plate (13) that are unfolded, and then lifting up the" ⊏" shaped knob (41) mounted on the second opening and closing door (33) thereby opening the emergency exit 17.

[0029] The fire / disaster evacuation facility in a building according to the present invention having such a structure may be used as a safety barrier for preventing fall during normal times without a risk of fire or disaster, and may be changed to a shelter facility for evacuation when a fire or disaster occurs.

Claims

1. A fire/disaster evacuation facility for building comprising:

   a wall-fixed frame (1) which is configured to be fixedly installed on an outer wall of a building facing against a balcony or veranda of the building as a rectangular frame shape comprising a bottom side and an upper side opposite to the bottom side,

   an outer frame (3) which is installed in front of the wall-fixed frame (1) as a front closed rectangular frame shape comprising a bottom side and an upper side opposite to the bottom side,

   a side folding ascending/descending means (9) which comprises a pair of a first side wall (5) and a second side wall (7), the side walls (5, 7) comprising an upper side, a lower side opposite to the upper side, a rear side and a front side opposite to the rear side:

   wherein one first side wall (5) is pivotably connected at its upper and bottom sides of the rear side on the left side of the outer frame (3) and the other first side wall (5) is pivotably connected

at its upper and bottom sides of the rear side on the right side of the outer frame (3), and one second side wall (7) is pivotably connected at its upper and bottom sides of the front side on the left side of the wall fixed frame (1) and the other the second side wall (7) is pivotably connected at its upper and bottom sides of the front side on the right side of the wall fixed frame (1); the front side of the first side walls (5) is pivotably connected by a hinge to the rear side of the second side wall (7)

a lower folding foothold (15) which comprises a first lower board (11) wherein the first lower board (11) is hingedly connected to the bottom side of the outer frame (3), and a second lower board (13) wherein the second lower board (13) is hingedly connected to the bottom side of the wall-fixed frame (1), the side of first the lower board (11) opposite to the side connected to the outer frame (3) is hingedly connected to the side of the second lower board (13) opposite to the side connected to the wall fixed frame (3);

an emergency exit (17) which enables a man to move to a lower floor through the lower folding foothold (15) when a fire or disaster occurs;

a folding emergency exit opening and closing means (19) which opens or closes the exit (17) by opening or closing in an installed state to the emergency exit (17), and is folded according to the lower folding foothold (15) when the lower folding foothold (15) is folded, and is unfolded according to the lower folding foothold (15) when the lower folding foothold (15) is unfolded;

an upper evacuation structure converting means (23) which provides an evacuation passageway by unfolding the side folding ascending/descending means (9) folded (stacked) between the wall-fixed frame (1) and the outer frame (3), the lower folding foothold (15), and emergency exit opening and closing means (19) according to operating an upper handle (21), when the fire occurs, and, at the same time, by pushing the outer frame (3) to a front of a high-rise building; and

a lower evacuation structure converting means (27) which provides an evacuation passageway by unfolding the side folding ascending/descending means (9) folded (stacked) between the outer frame (3) and the wall-fixed frame (1) installed on the lower floor, the lower folding foothold (15), and the folding emergency exit opening and closing means (19) according to operating a lower handle (25) and, at the same time, by pushing the outer frame (3) installed on the lower floor to the front of the building when the fire or disaster occurs;

the side folding ascending/descending means (9) and the lower folding foothold (15) and the folding emergency exit opening and closing means (19) are stacked between the wall-fixed frame (1) and the outer frame (3) and are used for a safety parapet for preventing falling in ordinary day in a state that the wall-fixed frame (1) and the outer frame (3) face against each other, when the fire or disaster occurs, if the upper and lower handles (21, 25) are operated, the lower folding foothold (15) and the folding emergency exit opening and closing means (19), and the side folding ascending/descending means (9) which are structurally converted to the fire evacuation, and which are stacked by the upper and lower evacuation structure converting means (23, 27), and which are installed on the current floor and the lower floor, are unfolded, at the same time, and the outer frame (3) moves from a collapsed position in which it is resting parallel against the wall-fixed frame (1) to an extended position in which is parallel to the wall-fixed frame (1) and away from it;

wherein an evacuating person opens the folding emergency exit opening and closing means (19) installed on the current floor and then shelters him/herself from the fire or disaster by performing moving process in a direction of the emergency exit (17) of the lower floor through the emergency exit (17);

wherein the folding emergency exit opening and closing means (19) comprising

a first opening and closing door (31) which blocks the emergency exit (17) penetrating the first lower board (11) and is hinge-combined to a front edge of the emergency exit (17),

a second opening and closing door (33) which blocks the emergency exit (17) penetrating the second lower board (13), and

an opening and closing door hinge (35) which connects the first opening and closing door (31) and the second opening and closing door (33);

wherein the opening and closing door hinge (35) is placed on a continuous line with a hinge equipped to the lower folding foothold (15) and the first opening and closing door (31) and the second opening and closing door (33) are folded or unfolded according to the lower folding foothold (15);

wherein a stopping board (37) is additionally attached on an edge of the second opening and closing door (33) coming into contact with the emergency exit (17), so that the stopping board is projected in a backward of the second opening and closing door (33) from the second opening and closing door (33) and hangs on an edge of the emergency exit (17) and prevent the second opening and closing door (33) from being axially rotated in a downward direction of the emergency exit (17) when the second opening and clos-

ing door (33) blocks the emergency exit (17);
wherein a lower shock absorber (39) is equipped, whose one end is axially fixed to the first opening and closing door (31) and the other end is axially fixed to the first lower board (11) and pushes up an open folding emergency exit opening and closing means (19) with a power between the first lower board (11) and the first opening and closing door (31);
a "⊏" shaped knob (41) is equipped on an upper side of the second opening and closing door (33).

2. The fire/disaster evacuation facility for building according to claim 1,
wherein the upper evacuation structure converting means (23) comprises:

a locking bar fixing bracket (43) that is fixedly equipped to an upper side of the outer frame (3) and is projected in a direction of the wall-fixed frame (1),
a locking bar (45) whose upper side is fixed and installed to a lower rear side of the locking bar fixing bracket (43) as a straight bar standing in a vertical direction,
an outer frame locking means (49) that comprises a hanging hook (47) which when facing the locking bar (45), the locking bar (45) is fixed over and which is interlocked with the upper handle (21) and is elastically shaft-rotated according to operation of the upper handler (21) and releases the held locking bar (45), and that is equipped to the upper side of the wall-fixed frame (1) facing the locking bar (45), and
a pair of upper shock absorber (51) whose one end is axially fixed to the upper side of the wall-fixed frame (1) and whose the other end is fixed to the second side wall (7) of the side folding ascending/descending means (9) installed to left or right side of the wall-fixed frame (1) so that if the locking bar (45) escapes from the hanging hook (47) which pushes the second side wall (7) shaft-rotating and coming into contact with the wall-fixed frame (1) to move the outer frame (3) forward, at the same time, and unfolds the side folding ascending/descending means (9), the lower folding foothold (15) and the folding emergency opening and closing means (19) that are folded.

3. The fire/disaster evacuation facility for building according to claim 2,

wherein the upper evacuation structure converting means (23) comprises
a handle bundle (53) which is equipped with the upper handle (21) shaft-rotating clockwise or counterclockwise on a front,
a handle bracket (55) which is equipped to a rear side of the handle bundle (53),
a rotating bolt (57) which passes through the handle bracket (55), extends to a rear of the handle bundle (53) and rotates according to the upper handle (21),
a first nut (59) which fastens to the rotating bolt (57),
a lever (61) of which one side is penetrated and fixed to the rotating bolt (57), and rotates according to the rotating bolt (57) as a bar shape,
a second nut (63) which holds the lever (61) fastened to the rotating bolt (57) and inserted to the rotating bolt (57) with the first nut (59),
a wire (65) of which one side is fixed to the other side of the lever (61) and of which the other end is connected with the outer frame locking means (49), and
a handle cover (67) which covers the handle bracket (55) equipped with the rotating bolt (57), the first nut (59), the lever (61), the second nut (63), and the wire (65),
wherein if the upper handle (21) is rotated in any direction, the wire (61) which is connected to the lever (61) is pulled,

wherein the hanging hook (47) prepared to the outer frame locking means (49) is shaft-rotated by the pulled wire (65), at the same time, and releases the locking bar (45) which is held.

Patentansprüche

1. Feuer-/Katastrophenevakuierungsanlage für Gebäude, umfassend:

einen wandbefestigten Rahmen (1), der dazu konfiguriert ist, fest auf einer Außenwand eines Gebäudes gegen einen Balkon oder eine Veranda des Gebäudes als eine rechteckige Rahmenform installiert zu sein, die eine Unterseite und eine obere Seite gegenüber der Unterseite umfasst,
einen Außenrahmen (3), der vor dem wandbefestigten Rahmen (1) als eine geschlossene vordere rechteckige Rahmenform installiert ist, die eine Unterseite und eine obere Seite gegenüber der Unterseite umfasst,
ein Seitenfalt-Hub-/Senkmittel (9), das ein Paar aus einer ersten Seitenwand (5) und einer zweiten Seitenwand (7) umfasst, wobei die Seitenwände (5, 7) eine obere Seite, eine untere Seite gegenüber der oberen Seite, eine Rückseite und eine Vorderseite gegenüber der Rückseite, umfassen:

wobei die erste Seitenwand (5) schwenkbar an ihrer oberen und unteren Seite der Rückseite auf der linken Seite des Außenrahmens (3) verbunden ist, und die andere erste Seitenwand (5) schwenkbar an ihrer oberen und unteren Seite der Rückseite auf der rechten Seite des Außenrahmens (3) verbunden ist, und eine zweite Seitenwand (7) schwenkbar an ihrer oberen und unteren Seite der Vorderseite auf der linken Seite des wandbefestigten Rahmens (1) verbunden ist, und die andere die zweite Seitenwand (7) schwenkbar an ihrer oberen und unteren Seite der Vorderseite auf der rechten Seite des wandbefestigten Rahmens (1) verbunden ist; die Vorderseite der ersten Seitenwände (5) schwenkbar durch ein Scharnier an der Rückseite der zweiten Seitenwand (7) verbunden ist,

einen unteren Faltständer (15), der ein erstes unteres Brett (11) umfasst, wobei das erste untere Brett (11) gelenkig mit der Unterseite des Außenrahmens (3) ist, und einem zweiten unteren Brett (13) verbunden ist, wobei das zweite untere Brett (13) gelenkig mit der Unterseite des wandbefestigten Rahmens (1) verbunden ist, die Seite des ersten unteren Brettes (11) gegenüber der Seite, die mit dem Außenrahmen (3) verbunden ist, gelenkig an der Seite des zweiten unteren Brettes (13) der Seite gegenüber dem wandbefestigten Rahmen (3) verbunden ist;

einen Notausgang (17), der es einem Mann ermöglicht, sich durch den unteren Faltständer (15) zu einer unteren Etage zu bewegen, wenn ein Feuer oder eine Katastrophe auftritt;

ein Falt-Notausgangsöffnungs- und Schließmittel (19), das den Ausgang (17) durch Öffnen oder Schließen in einem installierten Zustand zu dem Notausgang (17) öffnet oder schließt und gemäß dem unteren Faltständer (15) gefaltet ist, wenn der untere Faltständer (15) gefaltet ist, und gemäß dem unteren Faltständer (15) aufgefaltet ist, wenn der untere Faltständer (15) aufgefaltet ist;

ein oberes Evakuierungsstrukturumwandlungsmittel (23), das einen Evakuierungsweg durch Auffalten des Seitenfalt-Hub-/Senkmittels (9), das zwischen dem wandbefestigten Rahmen (1) und dem Außenrahmen (3), dem unteren Faltständer (15) gefaltet (gestapelt) ist, und eines Notausgangsöffnungs- und Schließmittels (19) gemäß dem Betätigen eines oberen Griffs (21), wenn ein Feuer auftritt, und gleichzeitig durch Schieben des Außenrahmens (3) zu einer Vorderseite eines Hochhauses, bereitstellt; und

ein unteres Evakuierungsstrukturumwandlungsmittel (27), das einen Evakuierungsweg durch Auffalten des Seitenfalt-Hub-/Senkmittels (9), das zwischen dem Außenrahmen (3) und dem wandbefestigten Rahmen (1), der auf der unteren Etage installiert ist, und dem unteren Faltständer (15) gefaltet (gestapelt) ist, und des Falt-Notausgangsöffnungs- und Schließmittels (19) gemäß dem Betätigen eines unteren Griffs (25) und gleichzeitig durch Schieben des Außenrahmens (3), der auf der unteren Etage zu der Vorderseite des Gebäudes installiert ist, wenn das Feuer oder die Katastrophe auftritt, bereitstellt;

das Seitenfalt-Hub-/Senkmittel (9) und der untere Faltständer (15) und das Falt-Notausgangsöffnungs- und Schließmittel (19) zwischen dem wandbefestigten Rahmen (1) und dem Außenrahmen (3) gestapelt sind und als eine Sicherheitsbrüstung verwendet werden, um Fallen an einem normalen Tag in einem Zustand zu verhindern, in dem der wandbefestigte Rahmen (1) und der Außenrahmen (3) einander zugewandt sind, wenn das Feuer oder die Katastrophe auftritt, falls der obere und der untere Griff (21, 25) betätigt werden, der untere Fußständer (15) und das Falt-Notausgangsöffnungs- und Schließmittel (19) und das Seitenfalt-Hub-/Senkmittel (9), die strukturmäßig in die Feuerevakuierung umgewandelt werden, und die von dem oberen und dem unteren Evakuierungsstrukturumwandlungsmittel (23, 27) gestapelt sind, und die auf der aktuellen Etage und der unteren Etage installiert sind, gleichzeitig aufgefaltet werden, und sich der Außenrahmen (3) von einer zusammengeklappten Position, in der er parallel gegen den wandbefestigten Rahmen (1) ruht, zu einer erweiterten Position bewegt, in der er zu dem wandbefestigten Rahmen (1) parallel und davon weg ist;

wobei eine evakuierende Person das Falt-Notausgangsöffnungs- und Schließmittel (19), das auf der aktuellen Etage installiert ist, öffnet und sich dann gegen das Feuer oder die Katastrophe durch Ausführen eines Bewegungsprozesses in einer Richtung des Notausgangs (17) der unteren Etage durch den Notausgangs (17) abschirmt;

wobei das Falt-Notausgangsöffnungs- und Schließmittel (19) eine erste Öffnungs- und Schließtür (31) umfasst, die den Notaus-

gang (17), der in das erste untere Brett (11) eindringt und mit einer Vorderkante des Notausgangs (17) durch ein Scharnier kombiniert ist, blockiert,
eine zweite Öffnungs- und Schließtür (33), die den Notausgang (17), der in das zweite untere Brett (13) eindringt, blockiert, und
ein Öffnungs- und Schließtürscharnier (35), das die erste Öffnungs- und Schließtür (31) und die zweite Öffnungs- und Schließtür (33) verbindet;
wobei das Öffnungs- und Schließtürscharnier (35) auf einer durchgehenden Linie mit einem Scharnier platziert ist, das an dem unteren Faltständer (15) bereitgestellt ist, und die erste Öffnungs- und Schließtür (31) und die zweite Öffnungs- und Schließtür (33) gemäß dem unteren Faltständer (15) gefaltet oder aufgefaltet werden;
wobei ein Anschlagbrett (37) zusätzlich an einer Kante der zweiten Öffnungs- und Schließtür (33) angebracht ist, mit dem Notausgang (17) derart in Kontakt kommt, dass das Anschlagbrett in eine Rückwärtsrichtung der zweiten Öffnungs- und Schließtür (33) von der zweiten Öffnungs- und Schließtür (33) nach hinten vorragt und auf einer Kante des Notausgangs (17) hängt und verhindert, dass die zweite Öffnungs- und Schließtür (33) axial in eine Abwärtsrichtung des Notausgangs (17) gedreht wird, wenn die zweite Öffnungs- und Schließtür (33) den Notausgang (17) blockiert;
wobei ein unterer Stoßfänger (39) bereitgestellt ist, von dem ein Ende axial an der ersten Öffnungs- und Schließtür (31) befestigt ist, und das andere Ende axial an dem ersten unteren Brett (11) befestigt ist und ein Falt-Notausgangsöffnungs- und Schließmittel (19) mit einer Kraft zwischen dem ersten unteren Brett (11) und der ersten Öffnungs- und Schließtür (31) nach oben schiebt;
ein "⊏"-förmiger Knauf (41) auf einer oberen Seite der zweiten Öffnungs- und Schließtür (33) bereitgestellt ist.

2. Feuer-/Katastrophenevakuierungsanlage für Gebäude nach Anspruch 1, wobei das obere Evakuierungsstrukturumwandlungsmittel (23) umfasst:

einen Verriegelungsstangen-Befestigungswinkel (43), der fest auf einer oberen Seite des Außenrahmens (3) bereitgestellt ist und in einer Richtung des wandbefestigten Rahmens (1) vorragt,
eine Verriegelungsstange (45), deren obere Seite befestigt und an einer unteren Rückseite des Verriegelungsstangen-Befestigungswinkels (43) als eine gerade Stange, die in einer vertikalen Richtung steht, installiert ist,
ein Außenrahmenverriegelungsmittel (49), das einen Aufhängehaken (47) umfasst, der, wenn er der Verriegelungsstange (45) zugewandt ist, die Verriegelungsstange (45) darüber befestigt ist und mit dem oberen Griff (21) in Eingriff steht und elastisch gemäß der Betätigung des oberen Griffs (21) wellengedreht ist und die gehaltene Verriegelungsstange (45) freigibt, und an der oberen Seite des wandbefestigten Rahmens (1), der Verriegelungsstange (45) zugewandt, bereitgestellt ist, und
ein Paar oberer Stoßfänger (51), von welchen ein Ende axial an der oberen Seite des wandbefestigten Rahmens (1) befestigt ist, und von welchen das andere Ende an der zweiten Seitenwand (7) des Seitenfalt-Hub-/Senkmittels (9), das an der linken oder rechten Seite des wandbefestigten Rahmens (1) installiert ist, derart befestigt ist, dass, falls die Verriegelungsstange (45) aus dem Hängehaken (47) entkommt, was die zweite Seitenwand (7) wellendrehend schiebt und mit dem wandbefestigten Rahmen (1) in Berührung kommt, um den Außenrahmen (3) gleichzeitig vorwärts zu bewegen, und das Seitenfalt-Hub-/Senkmittel (9), den unteren Faltständer (15) und das Falt-Notausgangsöffnungs- und Schließmittel (19), die gefaltet sind, auffaltet.

3. Feuer-/Katastrophenevakuierungsanlage für Gebäude nach Anspruch 2,

wobei das obere Evakuierungsstrukturumwandlungsmittel (23)
ein Griffbündel (53) umfasst, das mit dem oberen Griff (21) wellendrehend im Uhrzeigersinn oder gegen den Uhrzeigersinn auf einer Vorderseite bereitgestellt ist,
einen Griffwinkel (55), der an einer Rückseite des Griffbündels (53) bereitgestellt ist,
einen Drehbolzen (57), der durch den Griffwinkel (55) durchgeht, sich zu einer Rückseite des Griffbündels (53) erstreckt und gemäß dem oberen Griff (21) dreht,
eine erste Mutter (59), die an dem Drehbolzen (57) befestigt ist,
einen Hebel (61), von dem eine Seite von dem Drehbolzen (57) durchdrungen und daran befestigt ist und gemäß dem Drehbolzen (57) als eine Stangenform dreht,
eine zweite Mutter (63), die den Hebel (61) hält, der an dem Drehbolzen (57) befestigt und zu dem Drehbolzen (57) mit der ersten Mutter (59) eingefügt ist,

einen Draht (65), von dem eine Seite an der anderen Seite des Hebels (61) befestigt ist, und von dem das andere Ende mit dem AußenrahmenVerriegelungsmittel (49) verbunden ist, und
eine Griffabdeckung (67), die den Griffwinkel (55), der mit dem Drehbolzen (57), der ersten Mutter (59), dem Hebel (61), der zweiten Mutter (63) und dem Draht (65) bereitgestellt ist, abdeckt,
wobei, falls der obere Griff (21) in einer beliebigen Richtung gedreht wird, der Draht (61), der mit dem Hebel (61) verbunden ist, gezogen wird, wobei der Hängehaken (47), der an dem AußenrahmenVerriegelungsmittel (49) vorbereitet ist, von dem gezogenen Draht (65) gleichzeitig wellengedreht wird und die Verriegelungsstange (45), die gehalten wird, freigibt.

Revendications

1. Installation d'évacuation en cas d'incendie/de sinistre pour bâtiment comprenant :

un cadre fixé à une paroi (1) qui est configuré pour être installé de manière fixe sur une paroi externe d'un bâtiment faisant face à un balcon ou une véranda du bâtiment sous la forme d'un cadre rectangulaire comprenant un côté de fond et un côté supérieur opposé au côté de fond,
un cadre externe (3) qui est installé en face du cadre fixé à une paroi (1) sous la forme d'un cadre rectangulaire avant fermé comprenant un côté de fond et un côté supérieur opposé au côté de fond,
un moyen de montée/descente pliable de côté (9) qui comprend une paire d'une première paroi de côté (5) et d'une seconde paroi de côté (7), les parois de côté (5, 7) comprenant un côté supérieur, un côté inférieur opposé au côté supérieur, un côté arrière et un côté avant opposé au côté arrière :

dans laquelle une première paroi de côté (5) est reliée de manière pivotante à ses côtés supérieur et de fond du côté arrière sur le côté gauche du cadre externe (3) et l'autre première paroi de côté (5) est reliée de manière pivotante à ses côtés supérieur et de fond du côté arrière sur le côté droit du cadre externe (3), et une seconde paroi de côté (7) est reliée de manière pivotante à ses côtés supérieur et de fond du côté avant sur le côté gauche du cadre fixé à une paroi (1) et l'autre la seconde paroi de côté (7) est reliée de manière pivotante à ses côtés supérieur et de fond du côté avant sur le côté droit du cadre fixé à une paroi (1) ;
le côté avant des premières parois de côté (5) est relié de manière pivotante par une charnière au côté arrière de la seconde paroi de côté (7)
un marchepied pliable inférieur (15) qui comprend
une première planche inférieure (11) dans laquelle la première planche inférieure (11) est reliée par charnière au côté de fond du cadre externe (3), et une seconde planche inférieure (13) dans laquelle la seconde planche inférieure (13) est reliée par charnière au côté de fond du cadre fixé à une paroi (1), le côté de la première planche inférieure (11) opposé au côté relié au cadre externe (3) est relié par charnière au côté de la seconde planche inférieure (13) opposé au côté relié au cadre fixé à une paroi (3) ;
une issue de secours (17) qui permet à un homme de se déplacer vers un étage inférieur à travers le marchepied pliable inférieur (15) lorsqu'un incendie ou un sinistre se produit ;
un moyen d'ouverture et de fermeture d'issue de secours pliable (19) qui ouvre ou ferme l'issue (17) en s'ouvrant ou se fermant dans un état installé sur l'issue de secours (17), et est plié selon le marchepied pliable inférieur (15) lorsque le marchepied pliable inférieur (15) est plié, et est déplié selon le marchepied pliable inférieur (15) lorsque le pied pliable inférieur (15) est déplié ;
un moyen de conversion de structure d'évacuation supérieur (23) qui fournit un passage d'évacuation en dépliant le moyen de montée/descente pliable de côté (9) plié (empilé) entre le cadre fixé à une paroi (1) et le cadre externe (3), le marchepied pliable inférieur (15), et le moyen d'ouverture et de fermeture d'issue de secours (19) selon l'actionnement d'une poignée supérieure (21), lorsque l'incendie se produit, et, en même temps, en poussant le cadre externe (3) vers une face d'un bâtiment de grande hauteur ; et
un moyen de conversion de structure d'évacuation inférieur (27) qui fournit un passage d'évacuation en dépliant le moyen de montée/descente pliable de côté (9) plié (empilé) entre le cadre externe (3) et le cadre fixé à une paroi (1) installé sur l'étage inférieur, le marchepied pliable inférieur (15), et le moyen d'ouverture et de fermeture d'issue de secours pliable (19) selon l'actionnement d'une poignée inférieure (25) et, en même temps, en poussant le cadre externe

(3) installé sur l'étage inférieur vers la face du bâtiment lorsque l'incendie ou le sinistre se produit ;
le moyen de montée/descente pliable de côté (9) et le marchepied pliable inférieur (15) et le moyen d'ouverture et de fermeture d'issue de secours pliable (19) sont empilés entre le cadre fixé à une paroi (1) et le cadre externe (3) et sont utilisés pour un parapet de sécurité pour empêcher toute chute un jour ordinaire dans un état dans lequel le cadre fixé à une paroi (1) et le cadre externe (3) se font face, lorsque l'incendie ou le sinistre se produit, si les poignées supérieure et inférieure (21, 25) sont actionnées, le marchepied pliable inférieur (15) et le moyen d'ouverture et de fermeture d'issue de secours pliable (19), et le moyen de montée/descente pliable de côté (9) qui sont structurellement convertis en évacuation en cas d'incendie, et qui sont empilés par les moyens de conversion de structure d'évacuation supérieur et inférieur (23, 27), et qui sont installés sur l'étage actuel et l'étage inférieur, sont dépliés, en même temps, et le cadre externe (3) se déplace d'une position rabattue dans laquelle il repose parallèlement au cadre fixé à une paroi (1) à une position déployée dans laquelle il est parallèle au cadre fixé à une paroi (1) et loin de celui-ci ;
dans laquelle une personne en cours d'évacuation ouvre le moyen d'ouverture et de fermeture d'issue de secours pliable (19) installé sur l'étage actuel puis se met à l'abri de l'incendie ou du sinistre en effectuant un processus de déplacement dans une direction de l'issue de secours (17) de l'étage inférieur à travers l'issue de secours (17) ;
dans laquelle le moyen d'ouverture et de fermeture d'issue de secours pliable (19) comprenant
une première porte d'ouverture et de fermeture (31) qui bloque l'issue de secours (17) pénétrant dans la première planche inférieure (11) et est articulée à un bord avant de l'issue de secours (17),
une seconde porte d'ouverture et de fermeture (33) qui bloque l'issue de secours (17) pénétrant dans la seconde planche inférieure (13), et
une charnière de porte d'ouverture et de fermeture (35) qui relie la première porte d'ouverture et de fermeture (31) et la seconde porte d'ouverture et de fermeture (33) ;
dans laquelle la charnière de porte d'ouverture et de fermeture (35) est placée sur une ligne continue avec une charnière pourvue sur le marchepied pliable inférieur (15) et la première porte d'ouverture et de fermeture (31) et la seconde porte d'ouverture et de fermeture (33) sont pliées ou dépliées selon le marchepied pliable inférieur (15) ;
dans laquelle une planche d'arrêt (37) est en outre accrochée sur un bord de la seconde porte d'ouverture et de fermeture (33) venant en contact avec l'issue de secours (17), de sorte que la planche d'arrêt est projetée dans une direction vers l'arrière de la seconde porte d'ouverture et de fermeture (33) depuis la seconde porte d'ouverture et de fermeture (33) et se suspend sur un bord de l'issue de secours (17) et empêche la seconde porte d'ouverture et de fermeture (33) d'être tournée axialement dans une direction vers le bas de l'issue de secours (17) lorsque la seconde porte d'ouverture et de fermeture (33) bloque l'issue de secours (17) ;
dans laquelle un amortisseur inférieur (39) est pourvu, dont une extrémité est fixée axialement à la première porte d'ouverture et de fermeture (31) et l'autre extrémité est fixée axialement à la première planche inférieure (11) et pousse vers le haut un moyen d'ouverture et de fermeture d'issue de secours pliable (19) ouvert avec une puissance entre la première planche inférieure (11) et la première porte d'ouverture et de fermeture (31) ;
un bouton en forme de « ⊏ » (41) est pourvu sur un côté supérieur de la seconde porte d'ouverture et de fermeture (33).

2. Installation d'évacuation en cas d'incendie/de sinistre pour bâtiment selon la revendication 1, dans laquelle le moyen de conversion de structure d'évacuation supérieur (23) comprend :

un support de fixation de barre de verrouillage (43) qui est pourvu de manière fixe sur un côté supérieur du cadre externe (3) et est projeté dans une direction du cadre fixé à une paroi (1),
une barre de verrouillage (45) dont le côté supérieur est fixé et installé sur un côté arrière inférieur du support de fixation de barre de verrouillage (43) en guise de barre droite se tenant dans une direction verticale,
un moyen de verrouillage de cadre externe (49) qui comprend un crochet de suspension (47) qui lorsqu'il fait face à la barre de verrouillage (45), la barre de verrouillage (45) est fixée par-dessus et qui est imbriqué avec la poignée supérieure (21) et est entraîné en rotation élastiquement selon l'actionnement de la poignée supérieure (21) et libère la barre de verrouillage (45) main-

tenue, et qui est pourvu sur le côté supérieur du cadre fixé à une paroi (1) faisant face à la barre de verrouillage (45), et
une paire d'amortisseurs supérieurs (51) dont une extrémité est fixée axialement au côté supérieur du cadre fixé à une paroi (1) et dont l'autre extrémité est fixée à la seconde paroi de côté (7) du moyen de montée/descente pliable de côté (9) installé sur un côté gauche ou droit du cadre fixé à une paroi (1) de sorte que si la barre de verrouillage (45) s'échappe du crochet de suspension (47) qui pousse la seconde paroi de côté (7) entraînée en rotation et venant en contact avec le cadre fixé à une paroi (1) pour déplacer le cadre externe (3) en avant, en même temps, et déplie le moyen de montée/descente pliable de côté (9), le marchepied pliable inférieur (15) et le moyen d'ouverture et de fermeture de secours pliable (19) qui sont repliés.

3. Installation d'évacuation en cas d'incendie/de sinistre pour bâtiment selon la revendication 2,

dans laquelle le moyen de conversion de structure d'évacuation supérieur (23) comprend
un faisceau de poignée (53) qui est pourvu de la poignée supérieure (21) entraînée par rotation dans le sens des aiguilles d'une montre ou dans le sens inverse des aiguilles d'une montre sur une face,
un support de poignée (55) qui est pourvu sur un côté arrière du faisceau de poignée (53),
un boulon rotatif (57) qui passe à travers le support de poignée (55), s'étend vers un arrière du faisceau de poignée (53) et tourne selon la poignée supérieure (21),
un premier écrou (59) qui s'attache au boulon rotatif (57),
un levier (61) dont un côté est pénétré et fixé au boulon rotatif (57), et tourne selon le boulon rotatif (57) sous la forme d'une barre,
un second écrou (63) qui maintient le levier (61) attaché au boulon rotatif (57) et inséré sur le boulon rotatif (57) avec le premier écrou (59),
un fil (65) dont un côté est fixé à l'autre côté du levier (61) et dont l'autre extrémité est reliée au moyen de verrouillage de cadre externe (49), et
un couvercle de poignée (67) qui couvre le support de poignée (55) pourvu du boulon rotatif (57), le premier écrou (59), le levier (61), le second écrou (63), et le fil (65),
dans laquelle si la poignée supérieure (21) est tournée dans l'une quelconque direction, le fil (61) qui est relié au levier (61) est tiré,
dans laquelle le crochet de suspension (47) préparé sur le moyen de verrouillage de cadre externe (49) est entraîné en rotation par le fil (65) tiré, en même temps, et libère la barre de verrouillage (45) qui est maintenue.



Fig. 1



Fig. 2

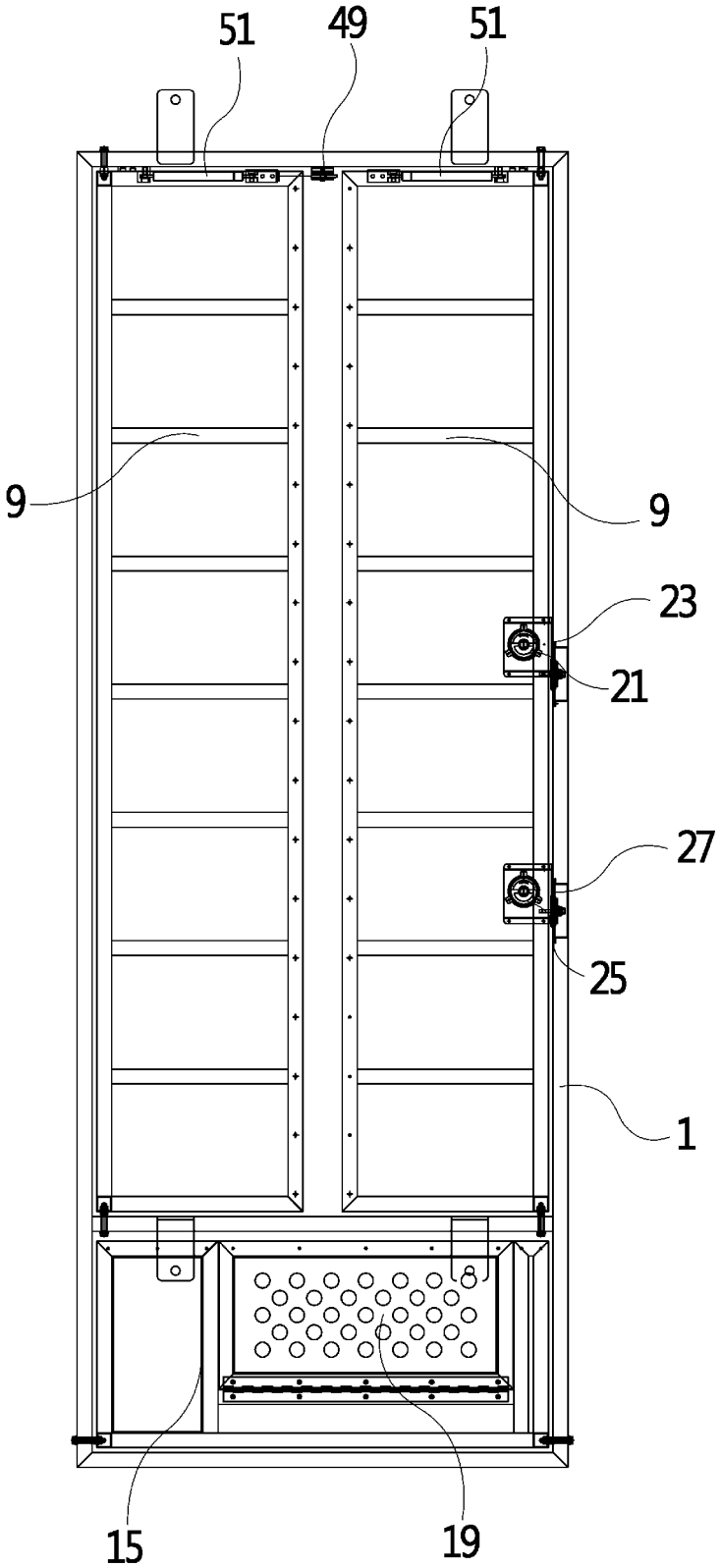


Fig. 3

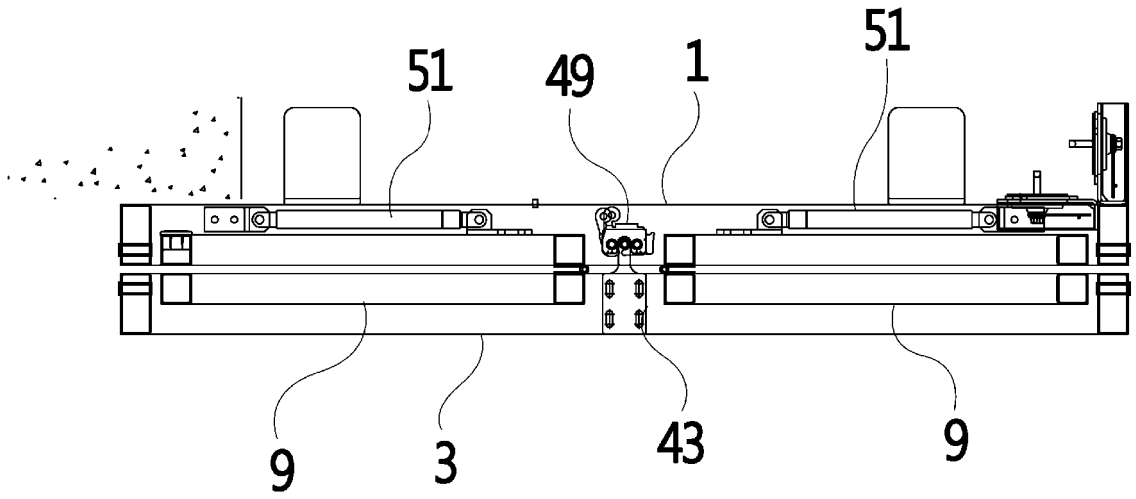


Fig. 4

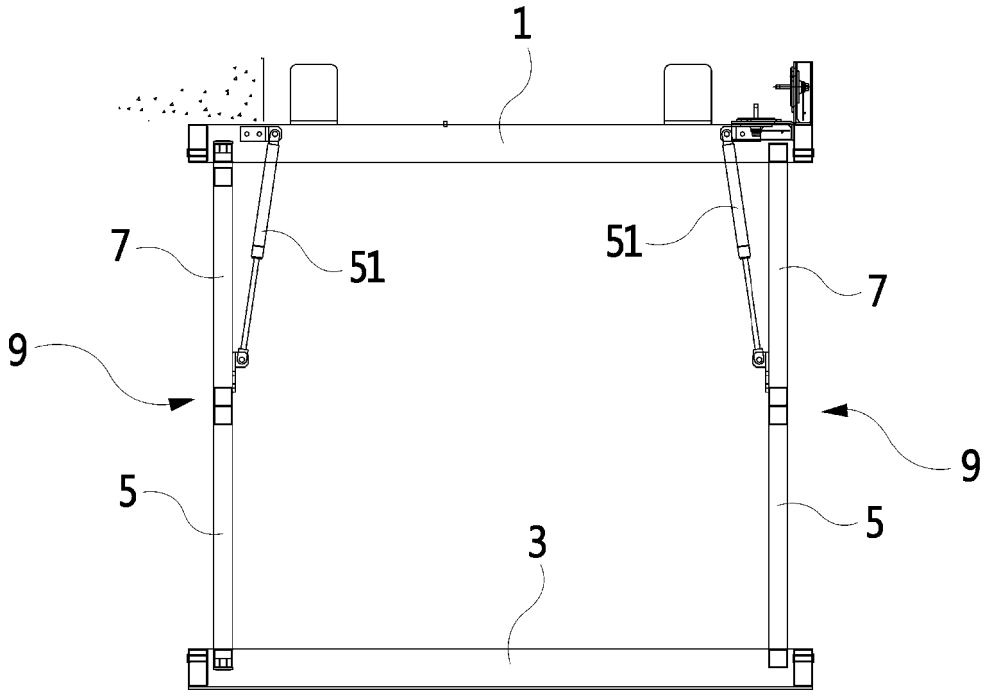


Fig.5

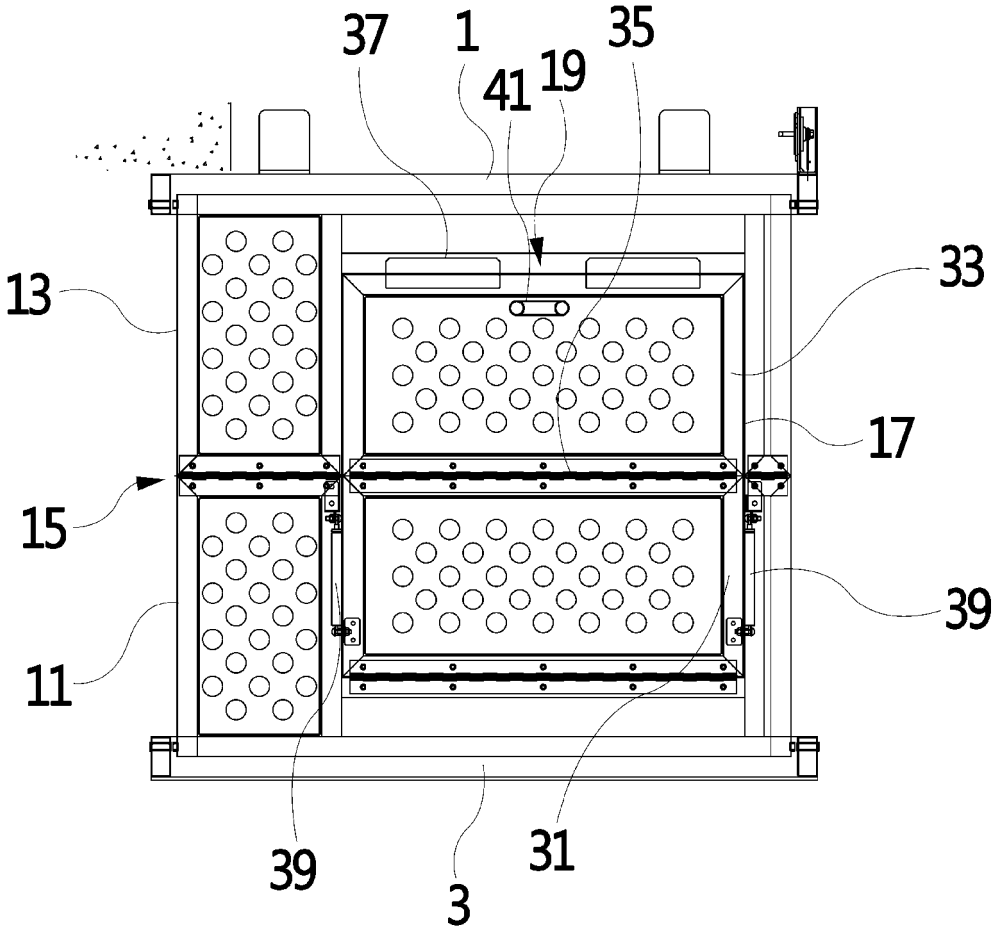


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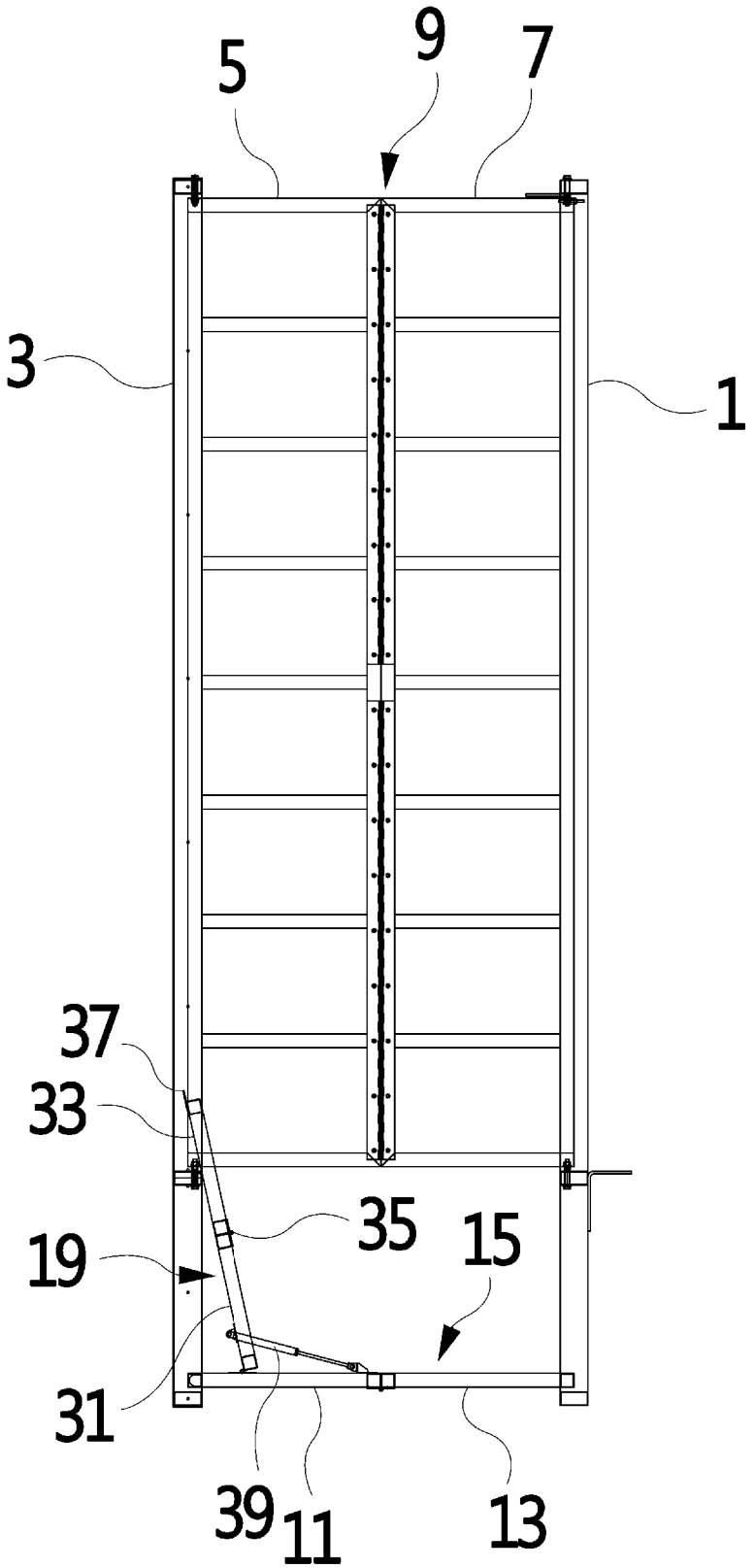


Fig. 7

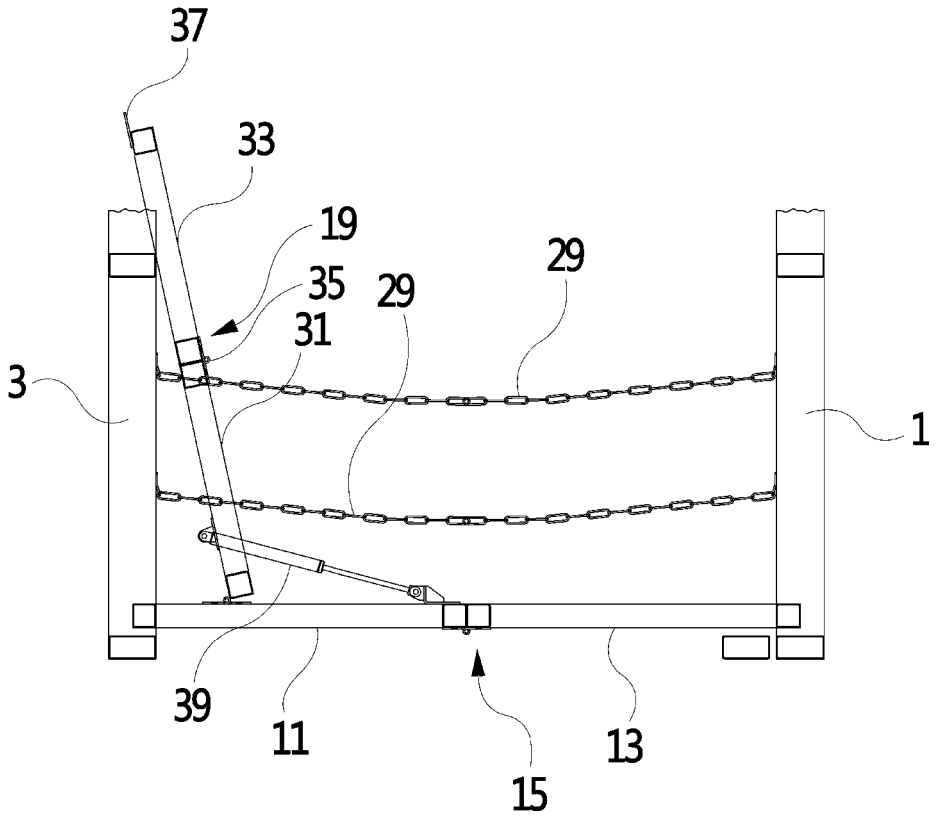


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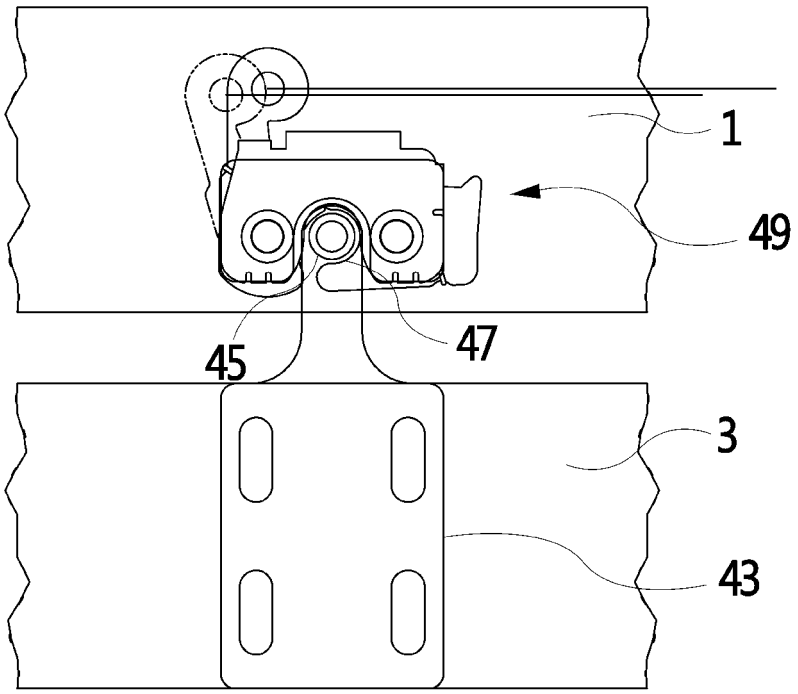


Fig.9

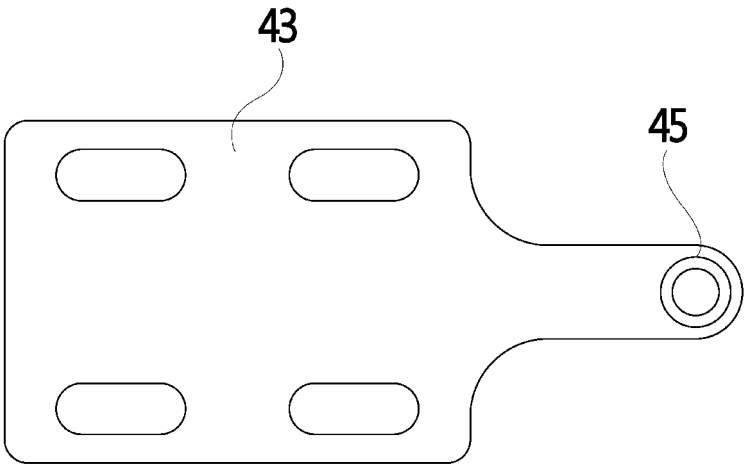


Fig. 10

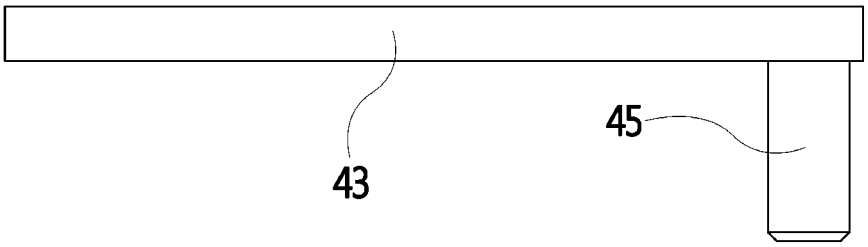


Fig. 11

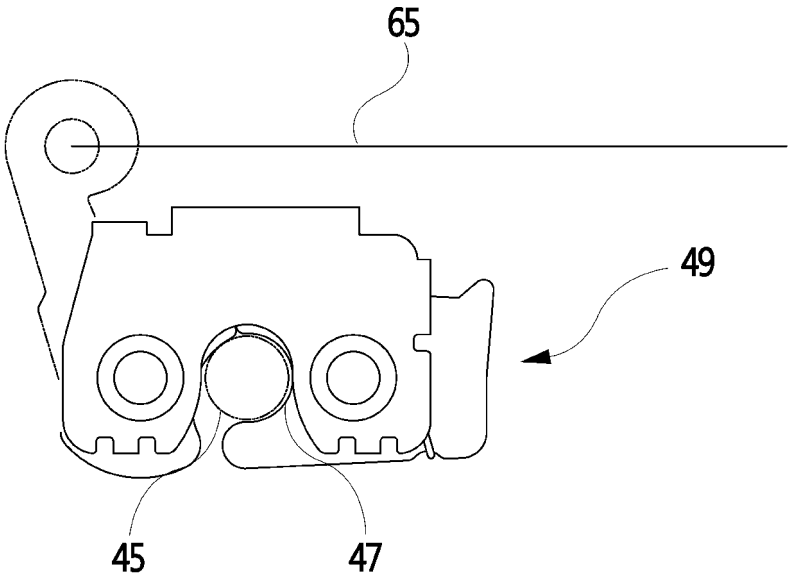


Fig. 12

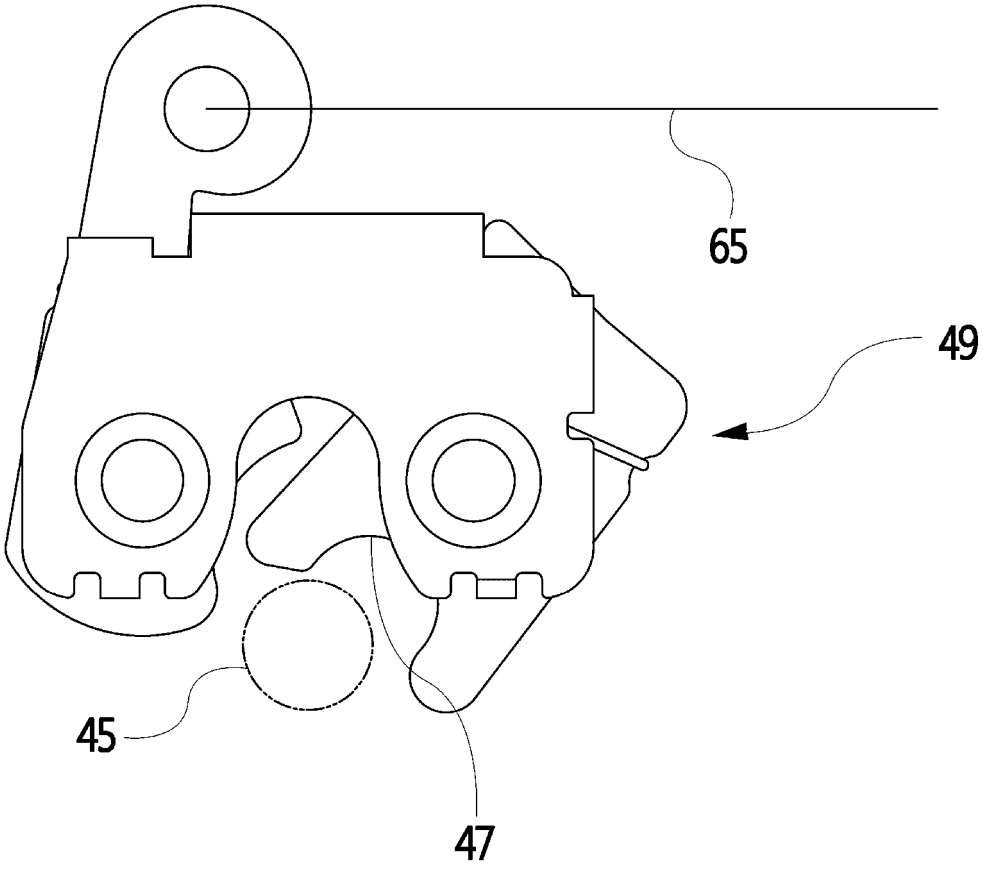


Fig. 13

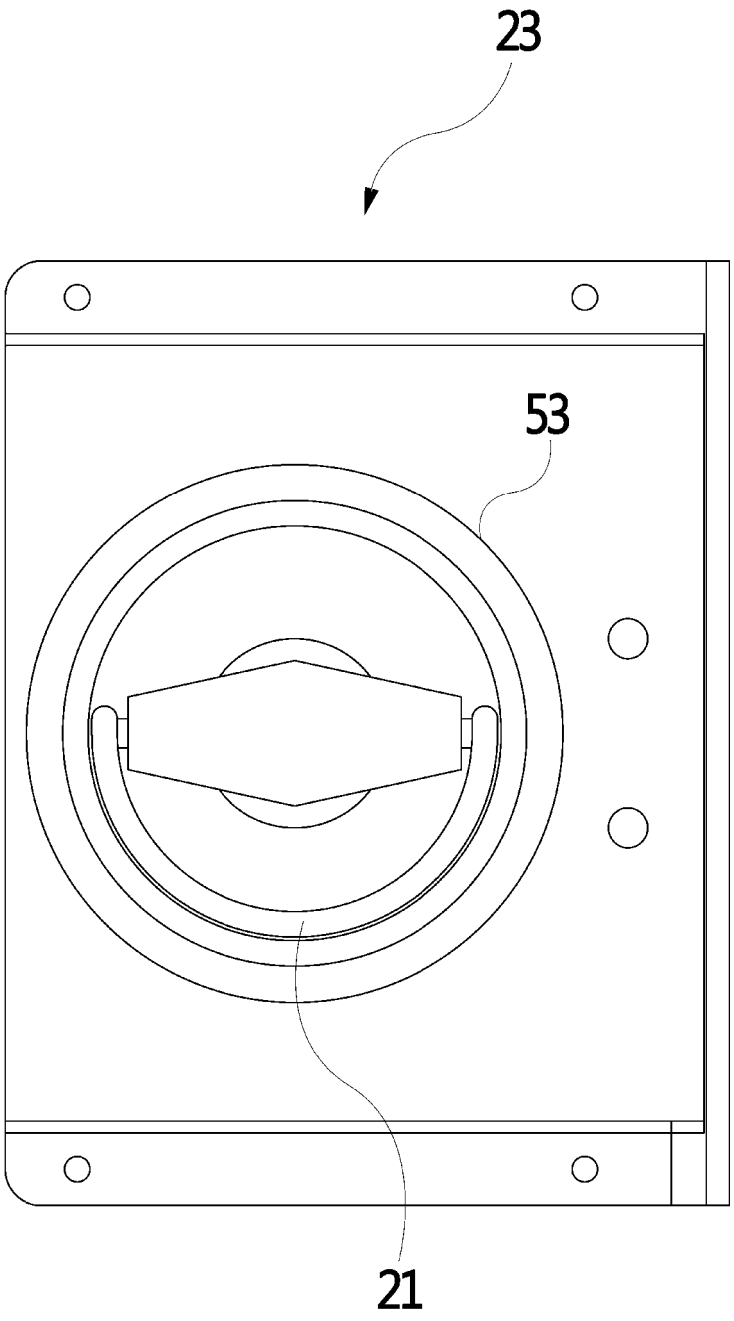


Fig. 14

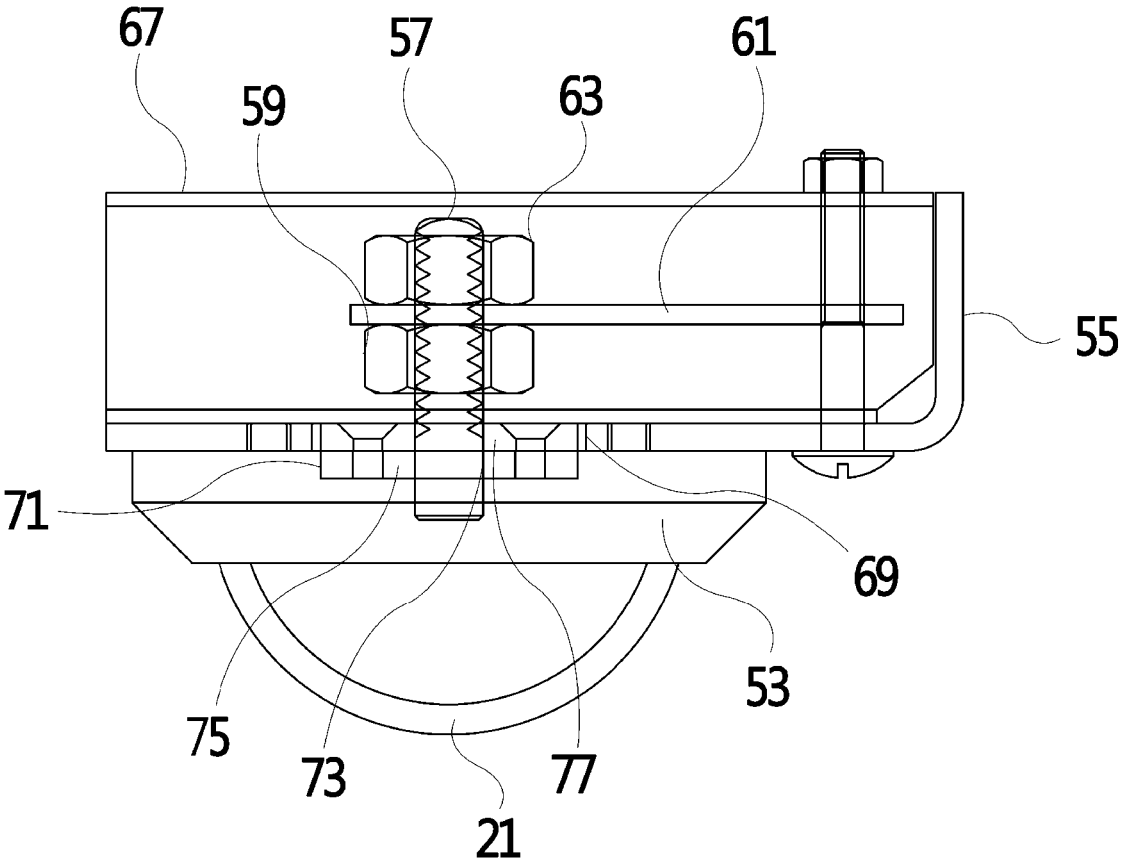


Fig. 15

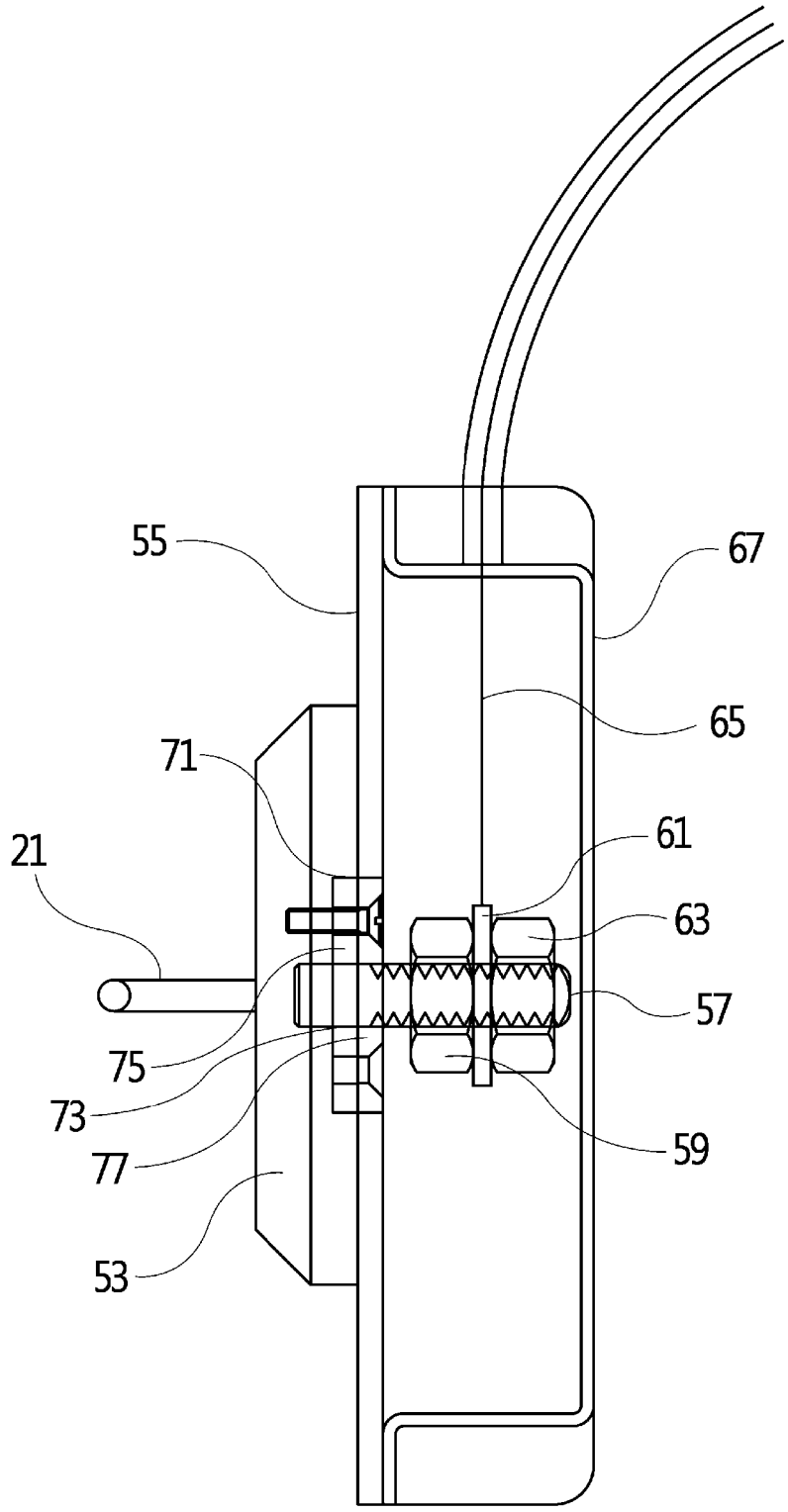


Fig. 16



Fig. 17

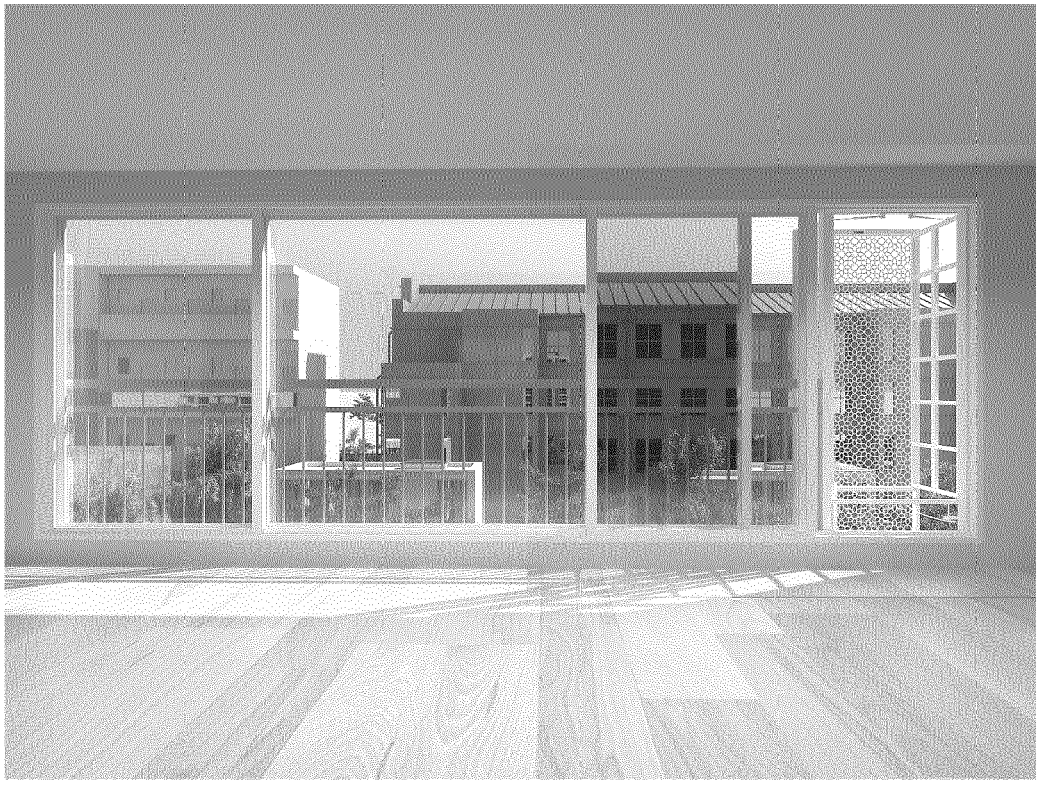


Fig. 18

REFERENCES CITED IN THE DESCRIPTION

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