

(19)



(11)

EP 2 239 223 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

13.05.2015 Bulletin 2015/20

(51) Int Cl.:

B66B 13/30 *(2006.01)*

B66B 5/02 *(2006.01)*

(86) International application number:

PCT/JP2007/073564

(21) Application number: **07850180.6**

(22) Date of filing: **06.12.2007**

(87) International publication number:

WO 2009/072202 (11.06.2009 Gazette 2009/24)

(54) **ELEVATOR HALL DOOR**

AUFZUGSETAGENTÜR

PORTE PALIÈRE D'ASCENSEUR

(84) Designated Contracting States:

**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE
SI SK TR**

(43) Date of publication of application:

13.10.2010 Bulletin 2010/41

(73) Proprietor: **Mitsubishi Electric Corporation**

Tokyo 100-8310 (JP)

(72) Inventors:

- **SUZUKI, Toshiya**
Tokyo 100-8310 (JP)

• **GOTOU, Yoshihito**

Tokyo 102-0073 (JP)

(74) Representative: **Hoffmann Eitle**

Patent- und Rechtsanwälte PartmbB

Arabellastraße 30

81925 München (DE)

(56) References cited:

DE-A1- 10 003 661

DE-U1- 20 006 159

GB-A- 2 239 888

JP-A- 4 012 985

JP-A- 6 144 760

JP-A- H1 018 724

JP-A- H06 144 760

JP-A- 2006 124 040

JP-A- 2006 124 040

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 2 239 223 B1

Description

Technical Field

[0001] The present invention relates to, for example, elevator hall doors provided at a hall side of an elevator.

Background Art

[0002] Patent Document 1, on which the preamble of claim 1 is based, discloses a door having a glass window for an elevator in which a laminated glass made by combining a fire-resistant glass and a hardened glass using an adhesion sheet is fixed using incombustible shock-absorbing material provided around the laminated glass.

[0003] By using the laminated glass like the above for the elevator hall doors, when fire occurs at the hall side of the elevator, it is possible to prevent that the fire enters into the hoistway side of the elevator by the fire-resistant glass.

Patent Document 1: JP2006-124040A

Disclosure of the Invention

Problems to be Solved by the Invention

[0004] The present invention aims, for example, when fire occurs on a certain floor, to prevent that the fire spreads to other floors through the hoistway of the elevator because the melted adhesion sheet may drip to the hoistway together with the hardened glass and may ignite.

Means to Solve the Invention

[0005] According to the present invention, an elevator hall door includes: a hall-side panel part constituting a surface of a hall side of an elevator; a hoistway-side panel part constituting a surface of a hoistway-side of the elevator at a position separated from the hall-side panel part and; a combustible member arranged between the hall-side panel part and the hoistway-side panel part; and a receiving member arranged below the combustible member for receiving a falling object of the combustible member melted.

[0006] The combustible member is a plate-like translucent member, and the hall-side panel part and the hoistway-side panel part include a pair of window holes and hold the combustible member from a thickness direction of the combustible member so as to arrange the combustible member at the pair of the window holes.

[0007] The translucent member includes a hall-side translucent material arranged at the hall side of the elevator, a hoistway-side translucent material arranged at the hoistway side of the elevator, and an intermediate film arranged between the hall-side translucent material and the hoistway-side translucent material for adhering the hall-side translucent material and the hoistway-side

translucent material, and the receiving member receives the intermediate film melted.

[0008] The receiving member extends in a width direction of the translucent member which is almost orthogonal to the thickness direction of the translucent member.

[0009] The receiving member forms a U shape or an N shape in a cross section which is orthogonal to the extension direction.

[0010] The receiving member is jointed to an internal surface of the hall-side panel part and an internal surface of the hoistway-side panel part.

[0011] The receiving member is jointed to either of an internal surface of the hall-side panel part and an internal surface of the hoistway-side panel part.

[0012] The elevator hall door includes a plurality of the receiving members, and the plurality of the receiving members are respectively arranged vertically.

[0013] The elevator hall door includes a supporting part provided below the translucent member for supporting one part of the bottom surface of the translucent member, and as well for making the bottom surface of the translucent member excluding the one part face the receiving member.

[0014] The supporting part supports at least one of the hall-side translucent material and the hoistway-side translucent material.

[0015] The receiving member includes the supporting part at a top end.

[0016] At least one of the hall-side panel part and the hoistway-side panel part includes a projected part as the supporting part which is projected towards the thickness direction of the translucent member until just before the intermediate film below the window hole.

Effect of the Invention

[0017] According to the present invention, for example, if an intermediate film (adhesion sheet) which is a combustible member is melted and dripped, the receiving member of the inside of the elevator hall door receives the melted intermediate film, so that it is possible to prevent that the fire spreads to other floors through the hoistway because the melted intermediate film ignites.

Best Mode to Carry out the Invention

Embodiment 1.

[0018] If fire-resistant performance is required, a laminated glass is used for elevator hall doors 100 with glass windows, and a countermeasure for fire of the laminated glass of the intermediate film 112 becomes an issue.

[0019] In the first embodiment, a structure of the elevator hall doors 100 for preventing the ignition of the melted intermediate film 112 caused by heating will be explained with reference to the drawings.

[0020] Fig. 1 is a diagram showing the elevator hall doors 100 according to the first embodiment; Fig. 1 shows

the closed status of the elevator hall doors 100 using a front view (the lower drawing) viewed from the hoistway side of the elevator and a plan view (the upper drawing) showing the upper part.

[0021] The elevator hall doors 100 are doors for the elevator provided at the elevator hall.

[0022] The elevator hall doors 100 are sometimes double-swing doors, of which a left door 101 and a right door 102 open/close leftward or rightward and are sometimes single-swing doors, of which the left door 101 and the right door 102 open/close cooperatively in the same direction. Further, the elevator hall doors 100 can be a one-piece door. A plan view of Fig. 1 shows an arrangement of the left door 101 and the right door 102 when the elevator hall doors 100 are double-swing doors; the left door 101 and the right door 102 are arranged in series.

[0023] At each center of the left door 101 and the right door 102, a window glass 110 (a translucent member, a combustible member) is provided.

[0024] The window glass 110 is attached to each door using a glass fixing frame 114 including an upper mounting metal fitting A 141, a lower mounting metal fitting A 146 and a lateral mounting metal fitting 149.

[0025] The hoistway side of the left door 101 and the right door 102 are constituted by a hoistway-side panel A 136 and a hoistway-side panel B 137. The hoistway-side panel A 136 is constituted by the glass fixing frame 114 and a panel board 138.

[0026] The outer part and the inner part of the left door 101 and the right door 102 have almost the same or almost symmetrical structures.

[0027] Hereinafter, the inner structure of the elevator hall doors 100 will be explained using the left door 101 as an example. The inner structure of the right door 102 is almost the same as the inner structure of the left door 101.

[0028] Fig. 2 is a transverse sectional view showing the left door 101 according to the first embodiment, showing A-A cross section of Fig. 1. The upper part shows the hoistway side, and the lower part shows the hall side.

[0029] As shown in Fig. 2, the window glass 110 is a plate-like laminated glass forming a three-layer structure of a hall-side glass 111, an intermediate film 112 and a hoistway side glass 113.

[0030] The hall-side glass 111 (hall-side translucent material) is a plate-like hardened glass (pressure-resistant glass) (hall-side translucent material) arranged at the hall side, and the hoistway-side glass 113 is a plate-like heat-resistant glass (fire-resistant glass) (hoistway-side translucent material) arranged at the hoistway side. Further, the intermediate film 112 is a sheet to be arranged between the hall-side glass 111 and the hoistway-side glass 113 and for adhering the hall-side glass 111 and the hoistway-side glass 113.

[0031] By using the laminated glass like this, it is possible to prevent danger such as flying apart of the window glass 110 at the time of fire or earthquake and improve safeness of the user.

[0032] Here, the heat-resistant glass can be arranged at the hall side, and the hardened glass can be arranged at the hoistway side.

[0033] Further, the window glass 110 (the hall-side glass 111, the hoistway-side glass 113) can be other translucent member (for example, acrylic), not made of glass.

[0034] In the left door 101, a hall-side panel 131 which constitutes the surface of the hall side and a hoistway-side panel A 136 which constitutes the surface of the hoistway-side are arranged separated with each other, a hollow is included inside. The internal surface of the hall-side panel 131 and the internal surface of the hoistway-side panel A 136 are separated.

[0035] The hall-side panel 131 and the hoistway-side panel A 136 have a pair of window holes 115 and hold the window glass 110 from the thickness direction of the window glass 110 so as to arrange the window glass 110 at the pair of window holes 115. The window glass 110 is arranged between the hall-side panel 131 and the hoistway-side panel A 136.

[0036] Both left and right sides of the window glass 110 are protected by incombustible lateral shock-absorbing material 159.

[0037] The left door 101 is reinforced by a lateral reinforcing metal fitting 169 attached to the inside of the box-like not to be crushed.

[0038] Fig. 3 is a vertical cross sectional view showing the left door 101 according to the first embodiment, showing a B-B cross section of Fig. 1. The right part shows the hall side, and the left part shows the hoistway side.

[0039] Inside of the left door 101, a receiving metal fitting A 121 (receiving member) is placed below the window glass 110 for receiving the intermediate film 112 which is melted and dripped at the time of fire, etc.

[0040] The receiving metal fitting A 121 forms a rodlike shape which extends towards the width direction of the window glass 110. The width direction of the window glass 110 is the direction being almost orthogonal to the thickness direction of the window glass 110, the cross direction of Figs. 1 and 2, and the direction from the near side towards the rear side of Fig. 3. Fig. 3 shows a cross section being orthogonal to the extension direction of the receiving metal fitting A 121. Further, the width direction of the receiving metal fitting A 121 is the direction being orthogonal to the extension direction of the receiving metal fitting A 121, the thickness direction of the window glass 110, and the cross direction of Fig. 3.

[0041] The length of the receiving metal fitting A 121 (of the extension direction) is at least the width of the window glass 110. The receiving metal fitting A 121 has the length being at least the width of the window glass 110, and thus the receiving metal fitting A 121 can receive the intermediate film 112 which is dripped from any portion of the window glass 110.

[0042] Further, it is preferable that the receiving metal fitting A 121 has the almost same length as the width of the left door 101 and both ends of the extension direction

are contacted to both left and right sides of the left door 101. By this, it is possible to prevent that the intermediate film 112 runs along the extension direction of the receiving metal fitting A 121 and is dripped from both ends of the receiving metal fitting A 121.

[0043] The receiving metal fitting A 121 has a hall-side lateral part 121a, a hoistway-side lateral part 121b, and a bottom part 121c, and forms a U shape (a J shape, a concave shape, a C shape sideways) which has an opening at the upper part in the vertical cross section. The receiving metal fitting A 121 forms the U shape in the vertical cross section to cause to have walls at the hall side and the hoistway side, and a grooved shape is formed by closing the hall side and the hoistway side, so that it is possible to prevent that the intermediate film 112 is dripped from the hall side and the hoistway side of the receiving metal fitting A 121. Further, the receiving metal fitting A 121 can form an H shape in the vertical cross section or a V shape in the vertical cross section to cause to have walls at the hall side and the hoistway side.

[0044] The bottom part 121c forms a plate-like shape below and separately from the bottom surface of the window glass 110, extends in parallel to the bottom surface of the window glass 110 in the width direction of the window glass 110, faces the bottom surface of the window glass 110, and receives the intermediate film 112.

[0045] The hall-side lateral part 121a forms a plate-like shape extending in the width direction of the window glass 110, and extends upwardly from the lateral side of the hall side of the bottom part 121c.

[0046] The hoistway-side lateral part 121b forms a plate-like shape extending in the width direction of the window glass 110, and extends upwardly from the lateral side of the hoistway side of the bottom part 121c.

[0047] The receiving metal fitting A 121 is jointed to an internal surface of the hall-side panel 131 at the external surface of the hall-side lateral part 121a, and is jointed to an internal surface of the hoistway-side panel A 136 at the external surface of the hoistway-side lateral part 121b.

[0048] The left door 101 further includes a receiving metal fitting B 122 (receiving member) having the same or similar shape as the receiving metal fitting A 121. The receiving metal fitting B 122 is located below the receiving metal fitting A 121, and the receiving metal fitting A 121 and the receiving metal fitting B 122 are arranged in parallel in the vertical direction. By providing the receiving metal fitting B 122 below the receiving metal fitting A 121, it is possible to receive the melted intermediate film 112 leaked from the receiving metal fitting A 121 by the receiving metal fitting B 122.

[0049] The receiving metal fitting B 122 which is arranged below the receiving metal fitting A 121 can be one or plural. Further, the left door 101 does not need to include the receiving metal fitting B 122.

[0050] A panel board 138, an upper reinforcing metal fitting A 161, an upper mounting metal fitting A 141, a lower mounting metal fitting B 147, and a lower mounting

metal fitting A 146 constitute a hoistway-side panel A 136.

[0051] The panel board 138 is a base for the hoistway-side panel A 136, the upper reinforcing metal fitting A 161 reinforces the upper part of the left door 101 together with an upper reinforcing metal fitting B 162, the upper mounting metal fitting A 141, the lower mounting metal fitting B 147 and the lower mounting metal fitting A 146 constitute the glass fixing frame 114, and fix the window glass 110 to the window hole 115 part. Further, the lower reinforcing metal fitting 166 reinforces the lower part of the left door 101.

[0052] The lower mounting metal fitting A 146 extends towards the hall side from the hoistway side until just before the intermediate film 112 at almost the same height of the bottom surface of the window glass 110 (the supporting part 146a, the projected part), and supports the bottom surface of the hoistway side glass 113. The up side and the down side of the window glass 110 are protected by an incombustible upper shock-absorbing material 151 and an incombustible lower shock-absorbing material 156, and the lower mounting metal fitting A 146 supports the bottom surface of the hoistway-side glass 113 through the lower shock-absorbing material 156.

[0053] A gap 119 is provided between a top edge of the lower mounting metal fitting A 146 directed to the hall side and the internal surface of the hall-side panel 131, and the bottom surface of the window glass 110 (a part of the hall-side glass 111 and the intermediate film 112) and the bottom part 121c of the receiving metal fitting A 121 face with each other via the gap 119. Then, the melted intermediate film 112 is dripped from the gap 119 to the bottom part 121c of the receiving metal fitting A 121.

[0054] By providing the gap 119 below the intermediate film 112 of the window glass 110, the melted intermediate film 112 is dripped to the receiving metal fitting A 121, so that it is possible to prevent that the melted intermediate film 112 stays at the glass fixing frame 114 and ignites. Further, if the intermediate film 112 which is dripped to the receiving metal fitting A 121 ignites, the intermediate film 112 burns inside of the elevator hall doors 100.

[0055] By this, if the intermediate film 112 of the window glass 110 is melted when fire occurs at a certain floor, the melted and ignited intermediate film 112 does not fall to the hoistway, so that it is possible to prevent that the fire spreads to other floors through the hoistway.

[0056] In the first embodiment, the following elevator hall doors 100 have been explained.

[0057] The elevator hall doors 100 have the glass windows (the window hole 115) at parts of the hall door panels, the laminated glasses (the window glass 110) made by combining the heat-resistant glass and the non-heat-resistant glass are attached to the glass windows. Further, the laminated glass is attached so that the non-heat-resistant glass is placed at the hall side where firing may occur, and the heat-resistant glass is placed at the hoistway side which is the non-heating surface side.

[0058] By this, when the fire occurs at the hall, the in-

intermediate film of the laminated glass is burnt out together with the burnt-out of the non-heat-resistant glass. Then, it is possible to prevent that the intermediate film is melted, dripped to the non-heating surface side (the hoistway side), and ignites.

[0059] Further, the elevator hall doors 100 have the member (the receiving metal fitting A 121) having a C shape in the vertical cross section (or a shape similar to the C in the vertical cross section) at the lower side of the fixing reinforcing part of the glass (the glass fixing frame 114). An opening side of the member provided at the lower side of the glass fixing frame 114 is directed to the upper surface of the door. Further, the elevator hall doors 100 include a back board (the hoistway-side panel A 136).

[0060] By this, at the time of fire, the melted intermediate film 112 is received by the member having the C shape in the vertical cross section, and further, a blind alley is made by the back board to prevent ignition of the intermediate film 112. Yet further, even if the intermediate film 112 ignites, since the fire of the intermediate film 112 does not escape to the back surface of the door by the back board, it is possible to reduce the fear of fire spreading to other floors.

[0061] Further, the elevator hall doors 100 include the gap 119 between the fixing reinforcing part (the lower mounting metal fitting A 146) of the glass and the hall-side door panel (the hall-side panel 131).

[0062] By this, at the time of fire, melted intermediate film 112 can be flown to the back surface of the doors through the gap 119, so that it is possible to prevent that the intermediate film 112 stays at the window part (the glass fixing frame 114) and ignites.

Embodiment 2.

[0063] Another embodiment of the elevator hall doors 100 being different from the first embodiment will be explained using an example of the left door 101. Items of which explanation is omitted are the same as the ones of the first embodiment.

[0064] Fig. 4 is a vertical cross sectional view showing a left door 101 according to the second embodiment, which corresponds to Fig. 3.

[0065] The receiving metal fitting A 121 includes the hall-side lateral part 121 a, the hoistway-side lateral part 121 b, and the bottom part 121 c similarly to the first embodiment, the hoistway-side lateral part 121 b extends downwardly from the lateral side of the hoistway-side of the bottom part 121 c and forms an N shape in the vertical cross section (a Z shape sideways).

[0066] Further, the receiving metal fitting A 121, similarly to the first embodiment, is jointed to the internal surface of the hall-side panel 131 at the external surface of the hall-side lateral part 121a, and is jointed to the internal surface of the hoistway-side panel A 136 at an external surface of the hoistway-side lateral part 121b.

[0067] The receiving metal fitting A 121 closes the hall

side and the hoistway side by the hall-side lateral part 121 a and the lower mounting metal fitting A 146(a part of the hoistway-side panel A 136).

[0068] One of the features of the elevator hall doors 100 according to the second embodiment is that at least one of the hall side and the hoistway side of the receiving metal fitting A 121 is closed by the panel (the hall-side panel 131, the hoistway-side panel A 136) of the elevator hall doors 100.

[0069] For example, the receiving metal fitting A 121 can form a left-right reversal L shape in the vertical cross section and can close the hall side and the hoistway side by the hall-side lateral part 121a of the receiving metal fitting A 121 and the hoistway-side panel A 136.

[0070] Further, for example, the receiving metal fitting A 121 can form an L shape or a left-right reversal N shape in the vertical cross section and can close the hall side and the hoistway side by the hall-side panel 131 and the hoistway-side lateral part 121b of the receiving metal fitting A 121.

[0071] Further, for example, the receiving metal fitting A 121 can form a horizontal-line shape (1 shape sideways) in the vertical cross section and can close the hall side and the hoistway side by the hall-side panel 131 and the hoistway-side panel A 136.

[0072] Further, in the receiving metal fitting A 121, the hall-side lateral part 121 a extends until almost the same height of the bottom surface of the hall-side glass 11, a top end part (the supporting part 121 d) of the hall-side lateral part 121a is projected from the hall side towards the hoistway side until just before the intermediate film 112, and the top end part of the hall-side lateral part 121 a supports the bottom surface of the hall-side glass 111 through the lower shock-absorbing material 156. However, the top end part of the hall-side lateral part 121a does not need to extend towards the hoistway-side as long as it can support the bottom surface of the hall-side glass 111.

[0073] One of the features of the elevator hall doors 100 according to the second embodiment is to support a part of the bottom surface (excluding the intermediate film 112) of the window glass 110 by a top end part of the receiving metal fitting A 121.

[0074] It is preferable that the left door 101, as well as the first embodiment, includes at least one receiving metal fitting B 122 which has the same or similar shape as the receiving metal fitting A 121 below the receiving metal fitting A 121. The receiving metal fitting B 122, as well as the first embodiment, can also form a U shape in the vertical cross section. Further, the receiving metal fitting A 121, as well as the first embodiment, can form a U shape in the vertical cross section and the receiving metal fitting B 122, as well as the second embodiment, can form an N shape in the vertical cross section. Further, the left door 101 does not need to include the receiving metal fitting B 122.

[0075] The effect of the elevator hall doors 100 according to the second embodiment is the same as the first

embodiment; the melted and dripped intermediate film 112 is received by the receiving metal fitting A 121, and thereby it is possible to prevent that the fire spreads to other floors because the melted intermediate film 112 falls to the hoistway.

Embodiment 3.

[0076] Another embodiment of the elevator hall doors 100 being different from the first embodiment will be explained using an example of the left door 101. Items of which explanation is omitted are the same as the ones of the first embodiment.

[0077] Fig. 5 is a vertical cross sectional view showing the left door 101 according to the third embodiment, which corresponds to Fig. 3.

[0078] The receiving metal fitting A 121, as well as the first embodiment, includes the hall-side lateral part 121a, the hoistway-side lateral part 121b and the bottom part 121c, and forms a U shape in the vertical cross section.

[0079] As for the receiving metal fitting A 121, the hall-side lateral part 121a is jointed to the internal surface of the hall-side panel 131, the bottom part 121c has the width being the same as the thickness of the window glass 110, and the hoistway-side lateral part 121b is not jointed to the internal surface of the hoistway-side panel A 136.

[0080] As for the receiving metal fitting A 121, the bottom part 121c does not need to have the width from the hall-side panel 131 to the hoistway-side panel A 136 like the first embodiment, but it is sufficient that the bottom part 121c is placed at least vertically below the intermediate film 112.

[0081] The effect according to the third embodiment is the same as the first embodiment; the melted and dripped intermediate film 112 is received by the receiving metal fitting A 121, and thereby it is possible to prevent that the fire spreads to other floors because the melted intermediate film 112 falls to the hoistway.

Embodiment 4.

[0082] Another embodiment of the elevator hall doors 100 being different from the first through third embodiments will be explained using an example of the left door 101. Items of which explanation is omitted are the same as the ones of the first through third embodiments.

[0083] <Embodiment Example 1>

[0084] Fig. 6 is a vertical cross sectional view showing the left door 101 according to the fourth embodiment, which corresponds to Fig. 3.

[0085] According to the fourth embodiment, in the left door 101, the window glass 110 is arranged at the hoistway-side panel A 136 side, which is different from the first through third embodiments, where the window glass 110 is arranged at the hall-side panel 131 side.

[0086] In the left door 101, the hall-side panel 131 extends from the hall side towards the hoistway side until

just before the intermediate film 112 (the supporting part 131a the projected part) at almost the same height of the bottom surface of the window glass 110, and supports the bottom surface of the hall-side glass 111.

[0087] Further, the receiving metal fitting A 121, as well as the second embodiment, can support the bottom surface of the window glass 110 with the top end. Namely, in the receiving metal fitting A 121, the hoistway-side lateral part 121b extends until almost the same height of the bottom surface of the hoistway-side glass 113, a top end part of the hoistway-side lateral part 121b (the supporting part) is projected from the hoistway side towards the hall side until just before the intermediate film 112 and can support the bottom surface of the hoistway side glass 113.

[0088] Further, in the receiving metal fitting A 121, as well as the third embodiment, only one of the hall side and the hoistway side can be jointed to the internal surface of the panel (the hall-side panel 131, the hoistway-side panel A 136) of the elevator hall doors 100. Namely, in the receiving metal fitting A 121, the hall-side lateral part 121a does not need to be jointed to the internal surface of the hall-side panel 131.

[0089] <Embodiment Example 2>

Fig. 7 is a vertical cross sectional view showing the left door 101 according to the fourth embodiment, which corresponds to Fig. 3.

[0090] In the left door 101 according to the fourth embodiment, the window glass 110 is arranged in the middle of the hall-side panel 131 and the hoistway-side panel A 136, which is different from the first through third embodiments where the window glass 110 is arranged at the hall-side panel 131 side. The left door 101 can also form a rectangular solid of which an interval between the hall-side panel 131 and the hoistway-side panel A 136 is almost the same as the thickness of the window glass 110, which is different from a sand clock shape having a narrow part around the window glass 110 as shown in Fig. 7.

[0091] In the left door 101, the hall-side panel 131 (the supporting part 131a) supports the bottom surface of the hall-side glass 111, and as well the lower mounting metal fitting A 146 (the supporting part 146a) which constitutes the hoistway-side panel A 136 supports the bottom surface of the hoistway-side glass 113.

[0092] Further, as well as the second embodiment, the receiving metal fitting A 121 can support the bottom surface of the window glass 110 with the top end. Namely, instead that the hall-side panel 131 and the hoistway-side panel A 136 support the bottom surface of the window glass 110, the hall-side lateral part 121a of the receiving metal fitting A 121 supports the bottom surface of the hall-side glass 111 with the top end part (the supporting part), and as well the hoistway-side lateral part 121b of the receiving metal fitting A 121 supports the bottom surface of the hoistway side glass 113 with the top end part (the supporting part). At this time, the hall-

side lateral part 121 a of the receiving metal fitting A 121 extends until almost the same height of the bottom surface of the hall-side glass 111, and as well extends towards the hoistway side until just before the intermediate film 112. Further, the hoistway-side lateral part 121b of the receiving metal fitting A 121 extends until almost the same height of the bottom surface of the hoistway side glass 113, and as well extends towards the hall side until just before the intermediate film 112.

[0093] The effect according to the fourth embodiment is the same as the first embodiment; the melted and dripped intermediate film 112 is received by the receiving metal fitting A 121, and thereby it is possible to prevent that the fire spreads to other floors because the melted intermediate film 112 falls to the hoistway.

Brief Explanation of the Drawings

[0094]

Fig. 1 shows elevator hall doors 100 according to the first embodiment.

Fig. 2 is a transverse sectional view showing a left door 101 according to the first embodiment.

Fig. 3 is a vertical cross sectional view showing a left door 101 according to the first embodiment.

Fig. 4 is a vertical cross sectional view showing a left door 101 according to the second embodiment.

Fig. 5 is a vertical cross sectional view showing a left door 101 according to the third embodiment.

Fig. 6 is a vertical cross sectional view showing a left door 101 according to the fourth embodiment.

Fig. 7 is a vertical cross sectional view showing a left door 101 according to the fourth embodiment.

Explanation of Signs

[0095] 100: elevator hall doors; 101: a left door; 102: a right door; 110: a window glass; 111: a hall-side glass; 112: an intermediate film; 113: a hoistway-side glass; 114: a glass fixing frame; 115: a window hole; 119: a gap; 121: a receiving metal fitting A; 121 a: a hall-side lateral part; 121b: the hoistway-side lateral part; 121c: a bottom part; 121 d: a supporting part; 122: a receiving metal fitting B; 131: a hall-side panel; 131 a: a supporting part; 136: a hoistway-side panel A; 137: a hoistway-side panel B; 138: a panel board; 141: an upper mounting metal fitting A; 146: a lower mounting metal fitting A; 146a: a supporting part; 147: a lower mounting metal fitting B; 149: a lateral mounting metal fitting; 151: an upper shock-absorbing material; 156: a lower shock-absorbing material; 159: a lateral shock-absorbing material; 161: an upper reinforcing metal fitting A; 162: an upper reinforcing metal fitting B; 166: a lower reinforcing metal fitting; and 169: a lateral reinforcing metal fitting.

Claims

1. An elevator hall door (100, 101, 102) comprising:
 - 5 a hall-side panel part (131) constituting a surface of a hall side of an elevator and;
 - a hoistway-side panel part (136, 137) constituting a surface of a hoistway-side of the elevator at a position separated from the hall-side panel part, further comprising:
 - 10 a combustible member (112) arranged between the hall-side panel part and the hoistway-side panel part; and **characterized by**
 - 15 a receiving member (121, 122) arranged below the combustible member for receiving a falling object of the combustible member melted.
2. The elevator hall door of claim 1,
 - 20 wherein the combustible member is a plate-like translucent member, and wherein the hall-side panel part and the hoistway-side panel part include a pair of window holes (115) and hold the combustible member from a thickness direction of the combustible member so as to arrange the combustible member at the pair of window holes.
3. The elevator hall door of claim 2,
 - 25 wherein the translucent member includes a hall-side translucent material (111) arranged at the hall side of the elevator, a hoistway-side translucent material (113) arranged at the hoistway side of the elevator, and an intermediate film (112) arranged between the hall-side translucent material and the hoistway-side translucent material for adhering the hall-side translucent material and the hoistway-side translucent material, and
 - 30 wherein the receiving member receives the intermediate film melted.
4. The elevator hall door of claim 3, wherein
 - 35 the receiving member extends in a width direction of the translucent member which is almost orthogonal to the thickness direction of the translucent member.
5. The elevator hall door of claim 4, wherein
 - 40 the receiving member forms a U shape or an N shape in a cross section which is orthogonal to the extension direction.
6. The elevator hall door of claim 5, wherein
 - 45 the receiving member is jointed to an internal surface of the hall-side panel part and an internal surface of the hoistway-side panel part.
7. The elevator hall door of claim 5, wherein
 - 50 the receiving member is jointed to either of an internal surface of the hall-side panel part and an internal surface of the hoistway-side panel part.

8. The elevator hall door of one of claims 1 through 7, wherein the elevator hall door includes a plurality of the receiving members, and wherein the plurality of the receiving members are respectively arranged vertically. 5
9. The elevator hall door of one of claims 3 through 7, wherein the elevator hall door includes a supporting part (121d, 131 a, 146a) provided below the translucent member for supporting one part of a bottom surface of the translucent member, and as well for making the bottom surface of the translucent member excluding the one part face the receiving member. 10 15
10. The elevator hall door of claims 9, wherein the supporting part supports at least one of the hall-side translucent material and the hoistway-side translucent material. 20
11. The elevator hall door of claim 10, wherein the receiving member includes the supporting part at a top end. 25
12. The elevator hall door of claim 10, wherein at least one of the hall-side panel part and the hoistway-side panel part includes a projected part as the supporting part which is projected towards the thickness direction of the translucent member until just before the intermediate film below the window hole. 30

Patentansprüche

1. Aufzugschachtabschlussstür (100, 101, 102), aufweisend: 35
- einen flurseitigen Verkleidungsteil (131), der eine Oberfläche einer Flurseite eines Aufzugs bildet, und 40
- einen schachtseitigen Verkleidungsteil (136, 137), der eine Oberfläche einer Schachtseite des Aufzugs an einer Position bildet, die von dem flurseitigen Verkleidungsteil getrennt ist, ferner aufweisend: 45
- ein brennbares Element (112), das zwischen dem flurseitigen Verkleidungsteil und dem schachtseitigen Verkleidungsteil angeordnet ist; und 50
- gekennzeichnet durch**
- ein Empfangselement (121, 122), das unterhalb des brennbaren Elements zum Aufnehmen eines fallenden Objekts des geschmolzenen brennbaren Elements angeordnet ist. 55
2. Aufzugschachtabschlussstür nach Anspruch 1, wobei das brennbare Element ein plattenähnliches

transparentes Element ist und wobei der flurseitige Verkleidungsteil und der schachtseitige Verkleidungsteil ein Paar von Fensteraussparung (115) beinhalten und das brennbare Element von einer Dickenrichtung des brennbaren Elements aus halten, sodass das brennbare Element an dem Paar von Fensteraussparungen angeordnet ist.

3. Aufzugschachtabschlussstür nach Anspruch 2, wobei das transparente Element ein flurseitiges Material (111) beinhaltet, das an der Flurseite des Aufzugs angeordnet ist, ein schachtseitiges transparentes Material (113) beinhaltet, das an der Schachtseite des Aufzugs angeordnet ist, und eine Zwischenschicht (112) beinhaltet, die zwischen dem flurseitigen transparenten Material und dem schachtseitigen transparenten Material zum Anhaften des flurseitigen transparenten Materials und des schachtseitigen transparenten Materials angeordnet ist, und wobei das Aufnahmeelement die geschmolzene Zwischenschicht aufnimmt.
4. Aufzugschachtabschlussstür nach Anspruch 3, wobei das Aufnahmeelement sich in einer Breitenrichtung des transparenten Elements erstreckt, die nahezu orthogonal zu der Dickenrichtung des transparenten Elements ist.
5. Aufzugschachtabschlussstür nach Anspruch 4, wobei das Aufnahmeelement eine U-Form oder eine N-Form in einem Querschnitt ausformt, der orthogonal zu der Erstreckungsrichtung ist. 35
6. Aufzugschachtabschlussstür nach Anspruch 5, wobei das Aufnahmeelement mit einer inneren Oberfläche des flurseitigen Verkleidungsteils und an einer inneren Oberfläche des schachtseitigen Verkleidungsteils verbunden ist.
7. Aufzugschachtabschlussstür nach Anspruch 5, wobei das Aufnahmeelement entweder mit einer inneren Oberfläche des flurseitigen Verkleidungsteils oder mit einer inneren Oberfläche des schachtseitigen Verkleidungsteils verbunden ist.
8. Aufzugschachtabschlussstür nach einem der Ansprüche 1 bis 7, wobei die Aufzugschachtabschlussstür eine Vielzahl der Aufnahmeelemente beinhaltet, und wobei die Vielzahl der Aufnahmeelemente jeweils vertikal angeordnet ist.

9. Aufzugschachtabschlussstür nach einem der Ansprüche 3 bis 7, wobei die Aufzugschachtabschlussstür einen Stützteil (121d, 131a, 146a) beinhaltet, der unterhalb des transparenten Elements vorgesehen ist, um einen Teil einer Bodenoberfläche des transparenten Elements zu stützen und die Bodenoberfläche des transparenten Elements mit Ausnahme des einen Teils dazu zu bringen, sich dem Aufnahmeelement zuzuwenden. 5
10. Aufzugschachtabschlussstür nach Anspruch 9, wobei der Stützteil das flurseitige transparente Material und/oder das schachtseitige transparente Material stützt. 10
11. Aufzugschachtabschlussstür nach Anspruch 10, wobei das Aufnahmeelement den Stützteil an einem oberen Ende beinhaltet. 15
12. Aufzugschachtabschlussstür nach Anspruch 10, wobei der flurseitige Verkleidungsteil und/oder der schachtseitige Verkleidungsteil einen hervorstehenden Teil als den Stützteil beinhaltet, der in der Dickenrichtung des transparenten Elements bis kurz vor die Zwischenschicht unterhalb der Fensterausparung hervorsteht. 20

Revendications

1. Porte palière d'ascenseur (100, 101, 102) comprenant : 35
- une partie panneau côté palier (131) constituant une surface d'un côté palier d'un ascenseur ; et une partie panneau côté gaine (136, 137) constituant une surface d'un côté gaine de l'ascenseur en une position séparée de la partie panneau côté palier, 40
- comprenant en outre :
- un élément combustible (112) agencé entre la partie panneau côté palier et la partie panneau côté gaine ; et **caractérisée par** un élément de réception (121, 122) agencé sous l'élément combustible pour recevoir un objet tombant de l'élément combustible fondu. 50
2. Porte palière d'ascenseur selon la revendication 1, dans laquelle l'élément combustible est un élément translucide en forme de plaque, et dans laquelle la partie panneau côté palier et la partie panneau côté gaine incluent une paire de trous de 55

fenêtre (115) et maintiennent l'élément combustible à partir d'une direction de l'épaisseur de l'élément combustible de façon à agencer l'élément combustible au niveau de la paire de trous de fenêtre.

3. Porte palière d'ascenseur selon la revendication 2, dans laquelle l'élément translucide comprend un matériau translucide côté palier (111) agencé au niveau du côté palier de l'ascenseur, un matériau translucide côté gaine (113) agencé au niveau du côté gaine de l'ascenseur, et un film intermédiaire (112) agencé entre le matériau translucide côté palier et le matériau translucide côté gaine pour faire adhérer le matériau translucide côté palier et le matériau translucide côté gaine, et dans laquelle l'élément de réception reçoit le film intermédiaire fondu.
4. Porte palière d'ascenseur selon la revendication 3, dans laquelle l'élément de réception s'étend dans une direction de la largeur de l'élément translucide qui est presque orthogonale à la direction de l'épaisseur de l'élément translucide.
5. Porte palière d'ascenseur selon la revendication 4, dans laquelle l'élément de réception est en forme de U ou en forme de N dans une section transversale qui est orthogonale à la direction d'extension.
6. Porte palière d'ascenseur selon la revendication 5, dans laquelle l'élément de réception est relié à une surface interne de la partie panneau côté palier et une surface interne de la partie panneau côté gaine.
7. Porte palière d'ascenseur selon la revendication 5, dans laquelle l'élément de réception est relié à l'une ou l'autre d'une surface interne de la partie panneau côté palier et d'une surface interne de la partie panneau côté gaine.
8. Porte palière d'ascenseur selon l'une des revendications 1 à 7, dans laquelle la porte palière d'ascenseur comprend une pluralité des éléments de réception, et dans laquelle la pluralité des éléments de réception de la pluralité sont respectivement agencés verticalement. 45
9. Porte palière d'ascenseur selon l'une des revendications 3 à 7, dans laquelle la porte palière d'ascenseur comprend une partie de support (121d, 131a, 146a) agencée sous l'élément translucide pour supporter une partie d'une surface inférieure de l'élément translucide, ainsi que pour 50

réaliser la surface inférieure de l'élément translucide à l'exclusion de la une partie en face de l'élément de réception.

10. Porte palière d'ascenseur selon la revendication 9, dans laquelle la partie de support supporte au moins l'un du matériau translucide côté palier et du matériau translucide côté gaine. 5
- 10
11. Porte palière d'ascenseur selon la revendication 10, dans laquelle l'élément de réception inclut la partie de support au niveau d'une extrémité supérieure. 15
12. Porte palière d'ascenseur selon la revendication 10, dans laquelle au moins l'une de la partie panneau côté palier et de la partie panneau côté gaine inclut une partie en saillie en tant que partie de support qui fait saillie vers la direction d'épaisseur de l'élément translucide jusqu'à juste avant le film intermédiaire sous le trou de fenêtre. 20

25

30

35

40

45

50

55

Fig. 1

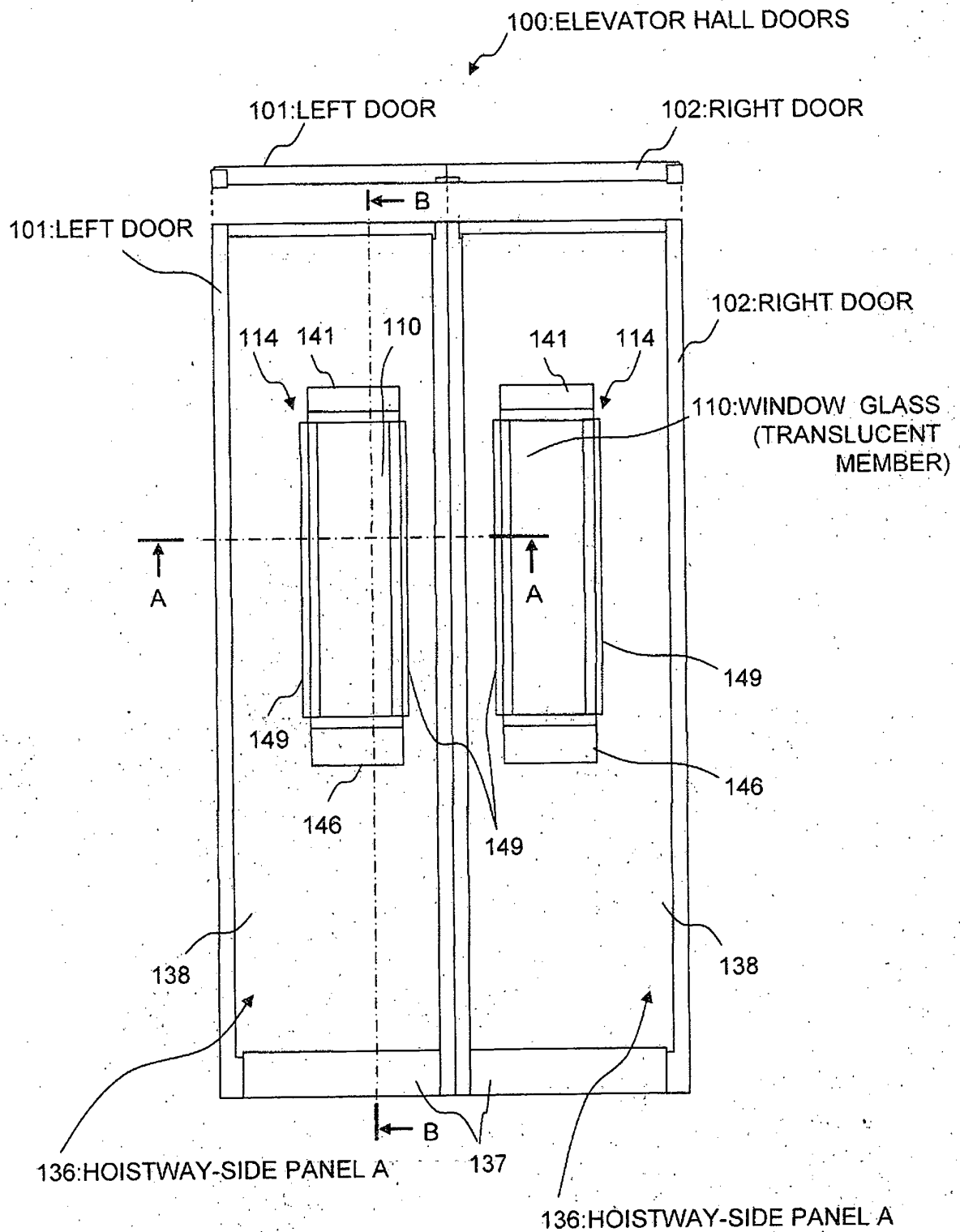


Fig. 2

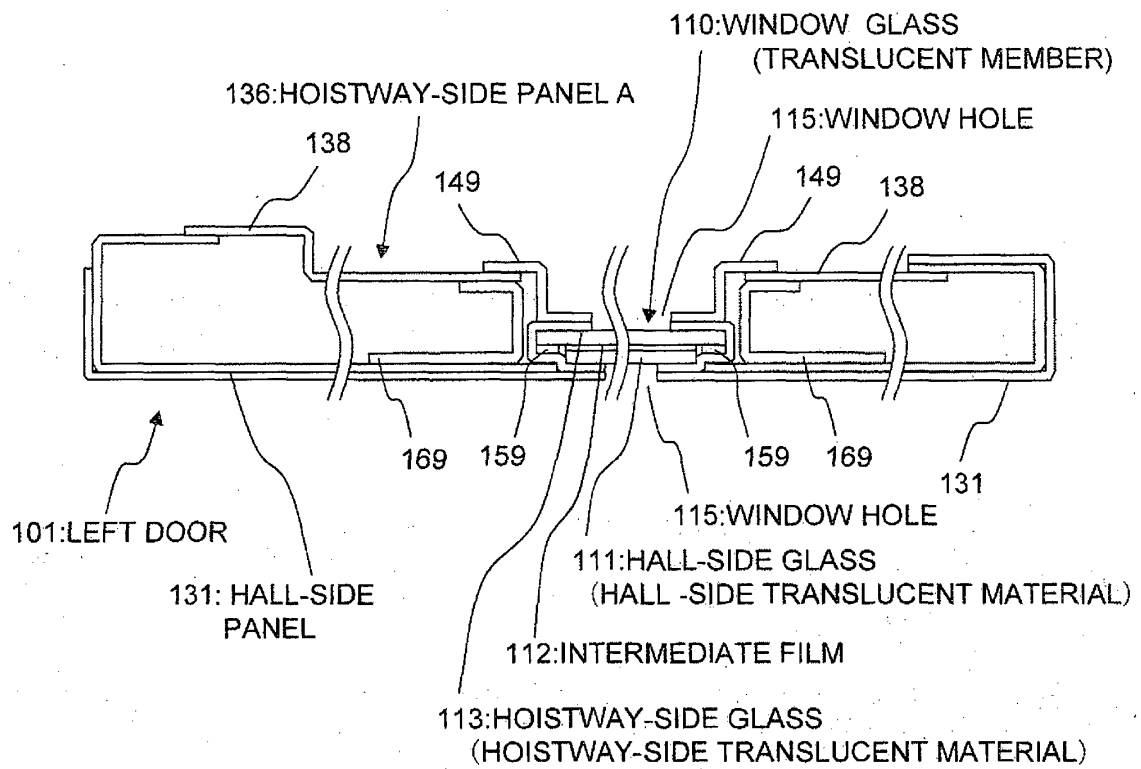


Fig. 3

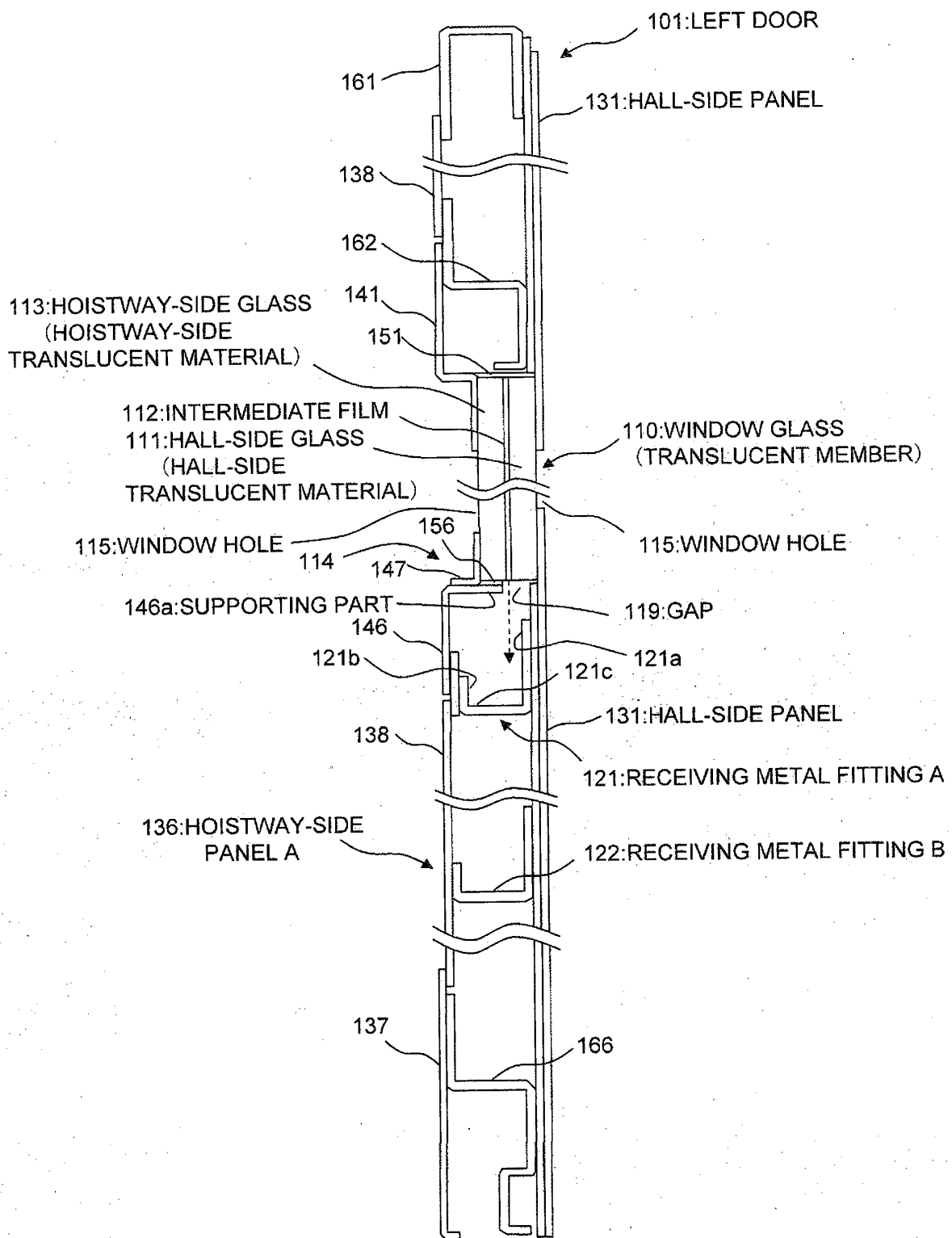


Fig. 4

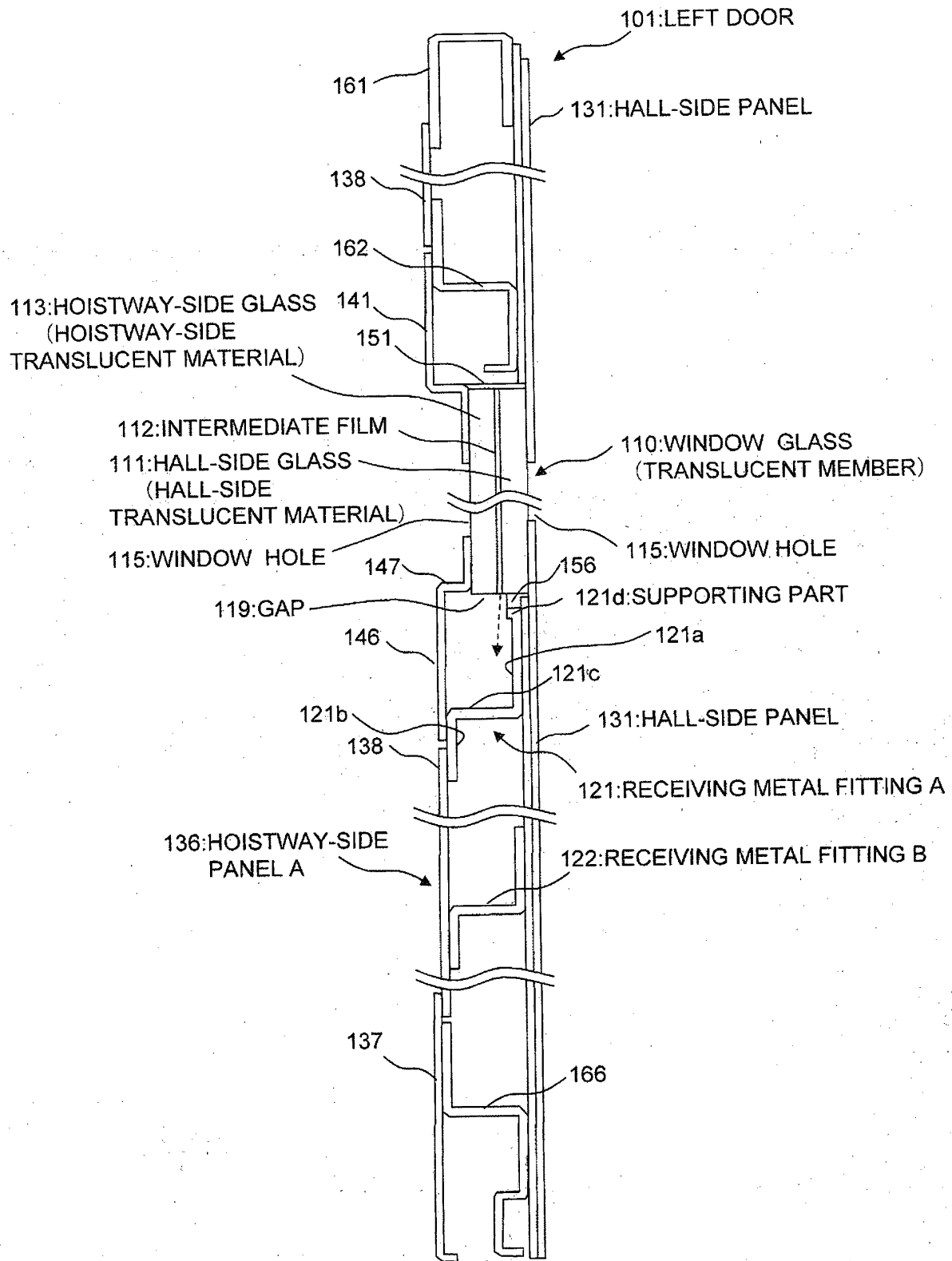


Fig. 5

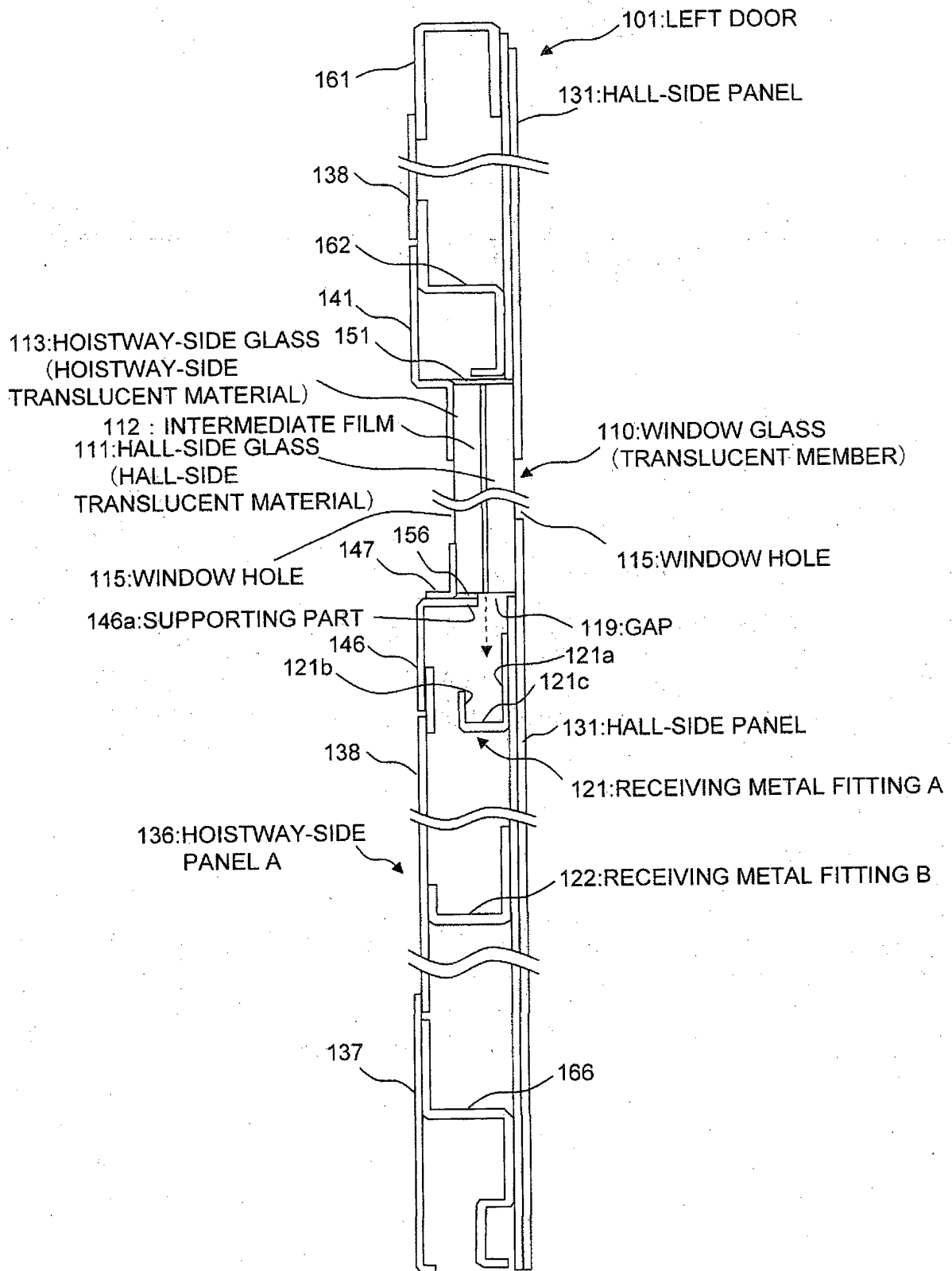


Fig. 6

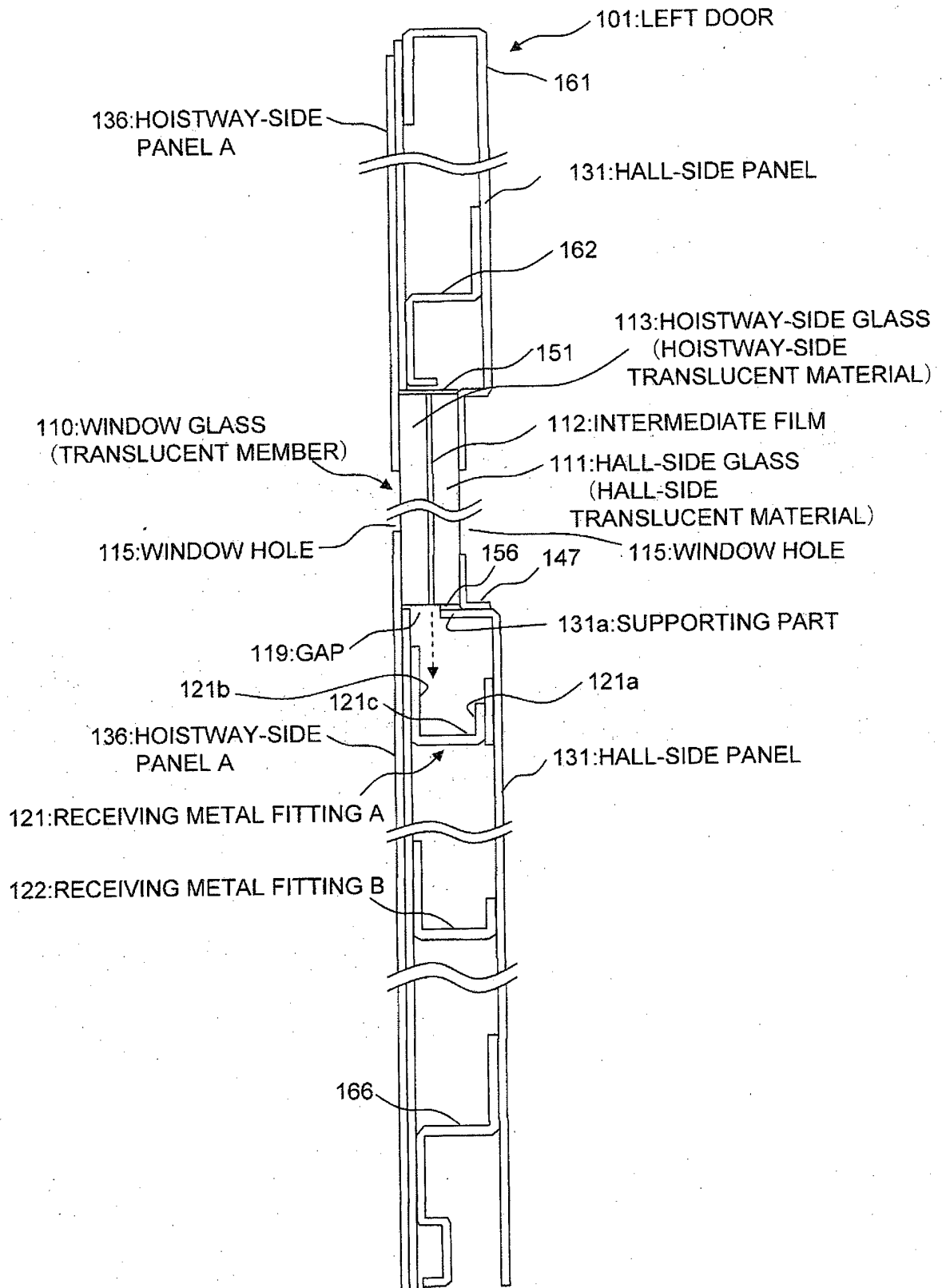
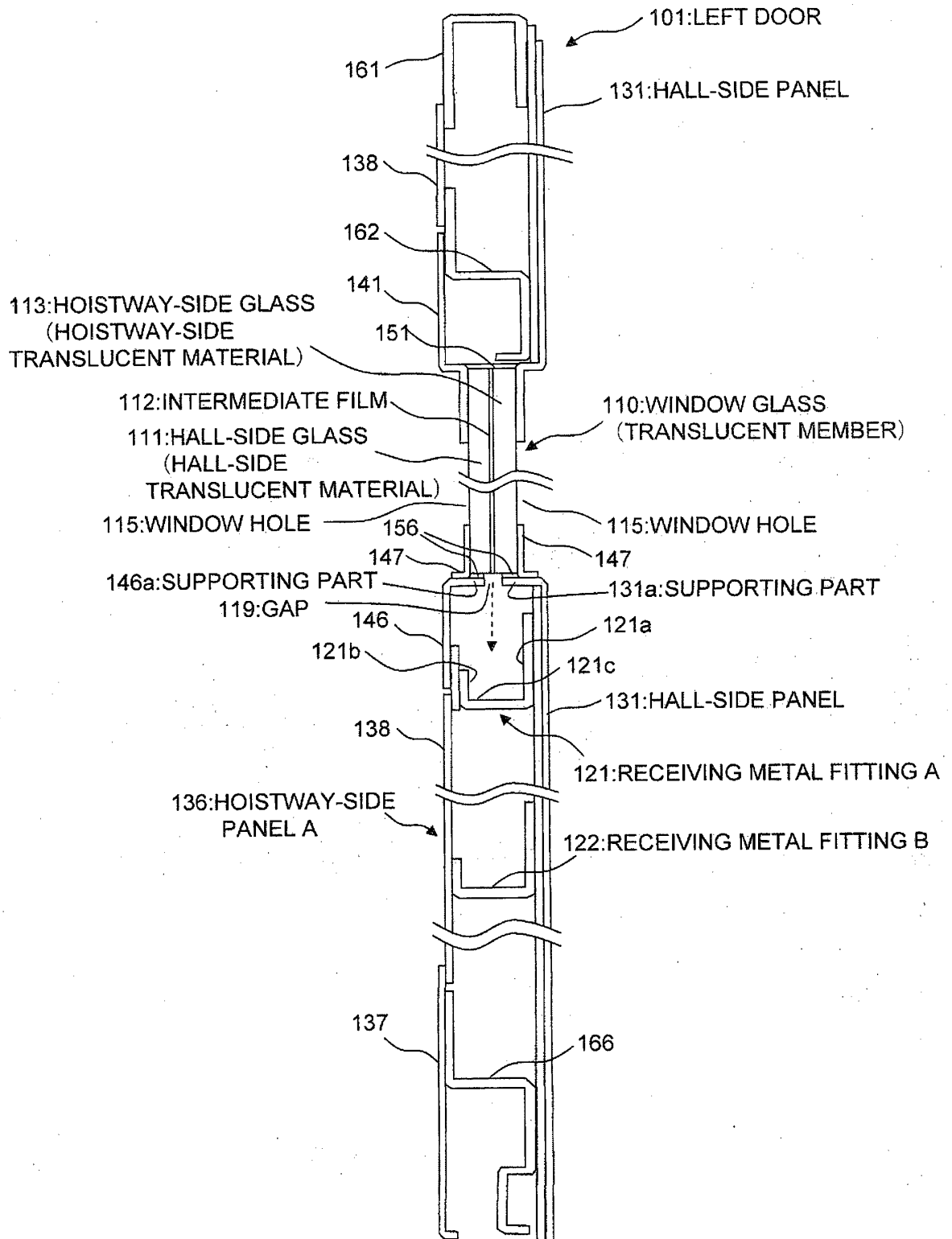


Fig. 7



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP 2006124040 A [0003]