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(54) **Patio door structure**

Struktur einer Innenhoftür

Structure d' une porte pour une cour intérieure

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Description

BACKGROUND OF THE PRESENT INVENTION

1. Field of the Present Invention

[0001] The invention relates to a patio door structure, more particularly to a sliding patio door having the effects of wind shielding, water-tight and anti-lift.

2. Description of Prior Art

[0002] The basic structure of conventional prior sliding patio door, such as disclosed in EP1292748, always comprises a stationary door panel and a sliding door panel. Particularly, when the sliding patio door is closed, gap always exists between the stationary and sliding door panel which is apt to the trouble of seepage of rainwater into the room.

[0003] Besides, due to lack of improved anti-prying or anti-lift device the conventional prior sliding patio door is apt to being wrecked or dismantled by burglar to break into the house.

[0004] US-A-3530618 shows a door with all the features of the preamble of claim 1.

SUMMARY OF THE PRESENT INVENTION

[0005] The major purpose of the patio door structure of the present invention is to eliminate the drawbacks existed in the conventional prior sliding patio door and to provide a novel sliding patio door which has the improved effects of wind shielding, water-tight and anti-lift.

[0006] The minor purpose of the invention is to disclose a patio door structure comprising a door frame assembly constructed by an upper doorframe member, a vertical doorframe member, a fixed-side doorframe member and a lower doorframe member, as well as a sliding door panel freely sliding on the door frame and a stationary door panel securely installed on a bottom fixing member which is an extruded aluminum member comprising a main body having sloped bottom section with two tenon connecting rib and a positioning rib formed on the main body, when the stationery door panel is completely assembled, the positioning rib of the bottom fixing member is inserted into a connecting groove formed on the bottom rail member of the stationery door panel that can securely install the stationery door panel on the main body of the bottom fixing member to have the weight of the stationery door panel wholly carried by the bottom fixing member, and by applying the main body of the bottom fixing member the stationery door panel can be installed in a position in the same height as that of the sliding door panel.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0007]

Figure 1 is a schematic drawing of the sliding patio door of the invention installed on the wall.

Figure 2 is the aspect drawing of the sliding patio door of the invention.

Figure 3 is the disassembly drawing of the sliding patio door of the invention.

Figure 4 is an enlarged cross-section view along the cross-section line 4-4 in Figure 1.

Figure 5 is an enlarged cross-section view along the cross-section line 5-5 in Figure 1.

Figure 6 is the aspect view of the upper wind shielding block (27) of the invention in enlarged scale.

Figure 7 is an enlarged cross-section view along the cross-section line 7-7 in Figure 1.

Figure 8 is an enlarged aspect view of the lower wind shielding block (95) of the invention.

Figure 9 is the schematic drawing of the sliding patio door of the invention equipped with anti-lift device that enables the sliding door panel (61) to have the anti-burglar effect.

Figure 10 is the aspect drawing of the anti-lift device (100) of the invention in enlarged scale.

Figure 11 is the schematic drawing of the anti-lift device (100) in using state that enables the sliding door panel (61) to have the effect of anti-burglar.

Figure 12 is the enlarged cross-section view along the cross-section line 12-12 in Figure 1.

Figure 13 is the aspect view of the stopper (29) of the invention in enlarged scale.

Figure 14 is the enlarged cross-section view along the cross-section line 14-14 in Figure 1.

Figure 15 is the partially enlarged drawing of region B in Figure 14.

Figure 16 is the partially enlarged drawing of region A in Figure 2.

Figure 17 is the enlarged aspect drawing of the water drainage hole-plug (110) of the invention.

Figure 18 is the enlarged disassembly drawing of the water drainage hole-plug (110) of the invention.

Figure 19 is an enlarged cross-section view along the cross-section line 19-19 in Figure 16.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0008] As shown in Figures 1 to 3, the sliding patio door (10) of the invention is constructed by a door frame assembly provided with glass installed or without glass installed. The sliding patio door (10) of the invention comprises an upper doorframe member (20), a vertical doorframe member (30), a fixed side doorframe member (40), and a lower doorframe member (50) as well as a sliding door panel (61) and a stationary door panel (62).

[0009] The upper doorframe member (20) and the lower doorframe member (50) are shaped and structured by having the cross section as shown in Figure 4; while the vertical doorframe member (30) and the fixed side doorframe member (40) are shaped and structured by having

the cross section as shown in Figure 14.

[0010] As shown in Figures 1, 3 and 14, the vertical doorframe member (30) is provided with a door groove (31), a side groove (33) and a ridge portion (32) located in between the door groove (31) and the side groove (33). The door groove (31) formed on the vertical doorframe member (30) is used for accommodating and engaging the side portion of the sliding door panel (61) and to set the door in closed condition, and the side groves (33) formed on the vertical doorframe member (30) is provided for accommodating and engaging the side portion of a screen window (not shown in the drawings) to set the screen window in closed condition.

[0011] In addition, a water-tight soft packing strip (34) is provided on the inner wall of the door groove (31) to form tight contact with the surface of the sliding door panel (61) to enable the effect of preventing the water from seeping into the room.

[0012] As shown in Figures 1, 3 and 14, the fixed-side doorframe member (40) is provided with a ridge portion (41), a door groove (42) and a side groove (43). The ridge portion (41) of the fixed-side doorframe member (40) is used to stop the sliding door panel (61) when the sliding door panel (61) is being opened, and the side groves (43) formed on the fixed-side doorframe member (40) is provided for accommodating and engaging the side portion of a screen window (not shown in the drawings) to set the screen window in opened condition.

[0013] When the stationary door panel (62) is already installed and fixed on the door frame, its side portion is installed into and engaged with a door groove (42) of the fixed-side doorframe member (40), and a water-tight soft packing strip (44) is provided on the inner wall of the door groove (42) to form tight contact with the surface of the stationary door panel (62) to enable the effect of preventing the water from seeping into the room.

[0014] As shown in Figures 1, 3, 4, 5 and 12, the upper doorframe member (20) is provided with a sliding groove (21), a fixing groove (22) and a screen window sliding groove (25). Wherein the screen window sliding groove (25) has a guide track (26) is provided for mounting a screen window (not shown in the drawings).

[0015] The sliding groove (21) formed on the upper doorframe member (20) is used for holding and engaging with the upper portion of the sliding door panel (61) which can freely slide in a sliding groove (21) formed by two side walls (23) of the upper doorframe member (20), while another fixing groove (22) formed on the upper doorframe member (20) is provided for holding and engaging with the upper portion of the stationary door panel (62). Additionally, a water-tight soft packing strip (24) is provided on the side wall (23) to form tight contact with the surface of the stationary door panel (62) to achieve the effect of preventing water from seeping into the room.

[0016] Besides, a bottom rail member (65) of the stationary door panel (62) is installed on a bottom fixing member (75) by way of inserting a positioning rib (76) formed on the bottom fixing member (75) into a connecting groove (66) formed on the bottom rail member (65).

[0017] As shown in Figures 1, 3, 4, 7 and 16, the lower doorframe member (50) is provided with a skirting portion (51), a sliding rail (52) and a the front portion (53). The skirting portion (51) of the lower doorframe member (50) is formed as part of the interior skirting board, and the sliding rail (52) on the lower doorframe member (50) is for mounting a wheel set (90) on the bottom side of the sliding door panel (61) to allow the sliding door panel (61) freely sliding along the sliding rail (52) when it is pulled or pushed along the direction of the track for opening or closing the sliding door panel (61).

[0018] As shown in Figure 1 and 16, the front portion (53) of the lower doorframe member (50) has an inclined surface sloped down to the front side on which two tenon connecting slots (54) are provided for installing a rain shielding plate (70) and a bottom fixing member (75) to form a complete unit with the lower doorframe member (50). Further as shown in Figures 2, 3, 16 and 19, a water drainage hole (56) is provided on the lower doorframe member (50) for draining off the water away from the door; besides, further as shown in Figure 4, on the front bottom surface of the front portion (53) is a tenon connecting slot (55) for installing a connecting board (57) which is located in front of the front portion (53) to form a complete unit with the lower doorframe member (50).

[0019] The connecting board (57) is installed on the front side of the lower doorframe member (50) through the tenon connecting rib (59) with an inclined surface sloped down to the front side to facilitate the draining of water. Besides, a sliding track (58) is provided on the surface of the connecting board (57) for mounting the screen window jointly with the guide track (26) in the sliding groove (25) of the upper doorframe member (20) to enable the screen window (not shown in the drawings) to slide freely along the sliding track (58).

[0020] The rain shielding plate (70) is made of extruded aluminum alloy which is covered on the upper side of the lower doorframe member (50) together jointly with the adjacent bottom fixing member (75).

[0021] That is, the rain shielding plate (70) is also arranged in inclined position, and is installed on the front portion (53) of the lower doorframe member (50) simply by sliding the tenon connecting rib (72) into the tenon connecting slots (54) to cover the upper side of the front portion (53) of the lower doorframe member (50) to provide the effect of shielding off the rain and rapidly draining off the rainwater away from the door.

[0022] In addition, on the higher end of the rain shielding plate (70) a water shielding rib (71) is provided for blocking the gap between the sliding door panel (61) and the rain shielding plate (70) to prevent the rain water from seeping into the room and provide the effect of wind-shielding.

[0023] Besides, to prevent the winds and rainwater from seeping into the room during rainstorm weather through the gap formed between the wheel set (90), on the bottom side of the sliding door panel (61) and the

sliding track (52) of the lower doorframe member (50) a wheel sealing strip (91) is provided in the wheel groove of the bottom rail member (67) of the lower doorframe (61) of this invention as shown in Figure 3, Figure 4 and Figure 16.

[0024] The shape of the wheel sealing strip (91) as illustrated in the Figure 3 and 4 is a longitudinal plate with two side walls (93) extended downwardly; on both ends of the longitudinal plate are two holes (92) which provide space for installing the wheel set (90) into a wheel groove formed on a bottom rail member (67) of the sliding door panel (61) when the wheel sealing strip (91) is installed in the wheel groove of the bottom rail member (67) of the sliding door panel (61). The side walls (93) on both sides of the wheel sealing strip (91) are properly arranged to shield the gap formed between the wheel set (90) on the bottom side of the sliding door panel (61) and the sliding track (52) of the lower doorframe member (50) to prevent the strong winds and rainwater from seeping into the room.

[0025] As shown in Figure 1, 7, 16 and 19, the bottom fixing member (75) is an extruded aluminum member comprising a main body having sloped bottom section and a positioning rib (76) formed on the upper surface of the main body. The bottom fixing member (75) is installed on the lower doorframe member (50) by sliding the tenon connecting rib (77) into the connecting groove (54) to cover the upper surface of the front portion (53) of the lower doorframe member (50).

[0026] When the stationery door panel (62) is completely assembled, the positioning rib (76) of the bottom fixing member (75) is inserted into the connecting groove (66) of the bottom rail member (65) of the stationery door panel (62) that can securely install the stationery door panel (62) on the main body of the bottom fixing member (75), and have its weight wholly carried by the bottom fixing member (75). Meanwhile, by applying the main body of the bottom fixing member (75) the stationery door panel (62) can be installed in a position in the same height as that of the sliding door panel (61). And then, the stationery door panel (62) is fastened by an L-shaped fastening piece (69) as shown in Figures 4 and 5 to complete the procedure for assembling the stationery door panel (62).

[0027] As shown in Figures 2, 3 and 16, an end plug (79) is inserted into the bottom fixing member (75) from the side portion to block up the side portion of the main body of the bottom fixing member (75) and make it more pleasing to the eye. Further, referring to Figure 16 through Figure 19, in order to enable the bottom fixing member (75) to have the effect of draining off the water an opening is provided on inner side of the main body of the bottom fixing member (75) to form a water drainage passage (78). When the bottom fixing member (75) is installed on the front portion (53) of the lower doorframe member (50) through snap-in connecting means, the water drainage passage (78) is connected to the water drainage hole (56) on the lower doorframe member (50), and is on the upper stream position. In case there is water seepage into the door, the water will be drained off through the water drainage passage (78) of the bottom fixing member (75) and the water drainage hole (56) on the lower doorframe member (50).

[0028] However, as for the purpose of preventing the strong winds from blowing into the room through the route formed by the water drainage passage (78) of the bottom fixing member (75) and water drainage hole (56) on the lower doorframe member (50), or preventing the strong winds from making noise through the water drainage hole (56), a water drainage hole-plug (110) as shown in Figures 17 and 18 is provided in the invention and is installed between the water drainage hole (56) on the lower doorframe member (50) and the bottom fixing member (75) and between the bottom fixing member (75) and the front portion (53) of the lower doorframe member (50) as illustrated in the drawings from Figure 16 through Figure 19 to prevent the strong winds from blowing into the room while allowing the water to be drained off.

[0029] The water drainage hole-plug (110) comprises a frame structure (111) and swinging baffle plate (114) pivotally installed on the frame structure (111) which functioned as a check valve. The frame structure has an opening (112) which serves as the inlet of the water drainage passage (78) of the bottom fixing member (75) or the outlet of the water drainage hole (56) on the lower doorframe member (50). The frame structure (111) has two pivoting holes (113) on both of its side walls for mounting the shaft (115) of the swinging baffle plate (114) which forms the gate of the opening (112) of the frame structure (111), meanwhile, the frame structure (111) is equipped with positioning rib for restricting the motion of the swinging baffled plate (114).

[0030] When the water is drained off, the swinging baffle plate (114) is pushed to swing out around the shaft (115) to open the outlet (112) of the frame structure (111) to drain off, the water, whereas, when the strong winds blow from outside, the movement of the swinging baffle plate (114) is restricted by the positioning rib on the frame structure (111) to block the outlet (112) to keep the winds out of the room.

[0031] As shown in Figures 1 through 4, and Figure 7, 8 and 16, the lower wind shielding block (95) provided by the invention is for sealing up the gap formed between the lower end of the sliding door panel (61) and the lower end of the stationary door panel (62) without affecting the sliding motion of the sliding door panel (61).

[0032] The lower wind shielding block (95) has a main body in stepwise shape which has a flat top surface (97) in horizontal direction, and an inclined bottom surface to fit the slope of the inclined surface of the front portion (53) of the lower doorframe member (50). The main body also has a L-shaped slot (96) which is for fitting and installing the L-shaped fastening piece (68) shown in Figure 3 to fix and fasten the wind shielding block (95) to the lower end of the stationery door panel (62), the inner side of the bottom fixing member (75), the front portion

(53) and the sliding track (52) of the lower doorframe member (50) and the side surface of the water shielding rib (71) of the water shielding plate (70).

[0033] When the sliding door panel (61) is in closed condition, its lower end touches the stepwise surface of the wind shielding block (95) to completely block up the gap between the lower end of the sliding door panel (61) and the stationary door panel (62).

[0034] As shown in Figures 1 through 6, the upper wind shielding block (27) of the invention has a hopper shaped slot (28) which fits and engages the front edge of the side wall (23) of the fixing groove (22) on the upper doorframe member (20), when the upper wind shielding block (27) is installed on the sliding door panel (61). However, since small gap still exists between the door panel (61) and the wind shielding block (27), the motion of the sliding door panel (61) shall not be affected by the assembly.

[0035] Moreover, when the sliding door panel (61) is in closed condition, the upper wind shielding block (27) can seal up the gap formed on the upper end of the sliding door panel (61) and the upper end of the stationary door panel (62).

[0036] As shown in Figure 2 to 5 and Figure 14 to 16, a rain shielding strip (80) is provided along the edge of the inner side of the stationary door panel (62) comprising a L-shaped strip (81) and a soft packing strip (82). The lower end of the rain shielding strip (80) is arranged to touch the top surface (97) of the lower wind shielding block (95), and, when the sliding door panel (61) is in closed condition, the upper end of the rain shielding strip (80) almost touches the upper wind shielding block (27).

[0037] Therefore, when the sliding door panel (61) is in closed condition the gap between the sliding door panel (61) and the stationary door panel (62) can be completely sealed up by the upper wind shielding block (27), the lower wind shielding block (95) and the rain shielding strip (80). Particularly, not only the tight contact formed between the soft packing strip (82) of the rain shielding strip (80) and the sliding door panel (61) provides the effect of preventing the water from seeping into the room, but also the L-shaped strip (81) of the rain shielding strip (80) of the stationary door panel (62) and another L-shaped strip (86) of the rain shielding strip (85) of the sliding door panel (61) are arranged to extend across each other to form a structure that can effectively prevent the water from seeping into the room.

[0038] Also, on the inner side of the sliding door panel (61) a soft packing strip (87) is provided on the rain shielding strip (85) which has its upper end touching the upper wind shielding block (27), and, when the sliding door panel (61) is in closed condition, the lower end of the rain shielding strip (80) almost touches the top surface (97) of the lower wind shielding block (95), therefore, when the sliding door panel (61) is in closed condition the gap between the sliding door panel (61) and the stationary door panel (62) is completely sealed up by the upper wind shielding block (27), lower wind shielding block (95) and the rain shielding strip (85). Further, since the soft packing strip (87) on the rain shielding strip (85) forms tight contact with the stationary door panel (62), it also provides the effect of preventing the water from seeping into the room.

[0039] Besides, on the L-shaped strip (81) a soft gastight strip (88) is further provided to increase the gastight-effect of the rain shielding strip (80) and rain shielding strip (85) which are arranged to across each other.

[0040] As shown in Figures 1, 3, and 4 and Figures 9 to 11, on the sliding patio door (10) of the invention, an anti-lift device (100) is further installed in the sliding groove (21) of the upper doorframe member (20) to enable the sliding door panel (61) to have the effects of anti-lift and anti-burglar.

[0041] The anti-lift device (100) comprises a fastening seat (101) and a rotatable piece (104). The fastening seat (101) has an open space (102) for accommodating the rotatable piece (104). And, on both of the two side walls of the fastening seat (101), a recessions (103) is provided for fitting and holding the rotatable piece (104) after it is lifted and rotated an angle of 90 degrees to form the using state as shown in Figure 11.

[0042] Also as shown in Figure 4, a groove (64) is provided on an upper rail member (63) of the sliding door panel (61) which provides the space for accommodating the anti-lift device (100). When the rotatable piece (104) is accommodated inside the space (102), and when the sliding door panel (61) is lifted, that is, the upper rail member (63) of the sliding door panel (61) will not interfere with the anti-lift device (100) so that the sliding door panel (61) can be removed or reinstalled. Whereas, as shown in Figure 9, when the rotatable piece (104) is in using state, it will interfere with the upper rail member (63) of the sliding door panel (61) to prevent the lifting of the sliding door panel (61) that achieves the effects of anti-lift and anti-burglar.

[0043] Further as shown in Figures 1, 3, 5, 12 and 13, the sliding patio door (10) of the invention has a stopper (29) in the sliding groove (21) of the upper doorframe member (20) positioned near the fixed side doorframe member (40) used for limiting the sliding distance of the sliding door panel (61). In addition, a soft sealing cover (89), as shown in Figure 3 and Figure 14, is installed on the vertical side of the sliding door panel (61) to provide cushion effect, when the sliding door panel (61) is pulled to open the door, and hits the stopper (29) mentioned above.

Claims

1. A patio door structure comprises a door frame assembly constructed by an upper doorframe member (20), a vertical doorframe member (30), a fixed-side doorframe member (40) and a lower doorframe member (50), as well as a sliding door panel (61) freely sliding on the door frame and a stationary door panel (62) securely installed on a bottom fixing mem-

ber (75) which is installed and covered on the lower doorframe member (50) of the door frame, wherein the upper doorframe member (20) has a sliding groove (21) used for holding
and engaging with the upper portion of the sliding door panel (61), and a fixing groove (22) used for holding and engaging with the upper portion of the stationary door panel (62);
the vertical doorframe member (30) has a door groove (31) used for
accommodating and engaging the side portion of the sliding door panel (61) when in closed condition;
the fixed-side doorframe member (40) has a ridge portion (41) used to stop
the sliding door panel (61) when in opened condition, and a door groove (42) use for accommodating and engaging the side portion of the stationary door panel (62);
the lower doorframe member (50) has a skirting portion (51) as a skirting
board, a sliding rail (52) used for mounting a wheel set (90) which is installed on the bottom side of the sliding door panel (61), and a front portion (53) with an inclined surface sloped down to its front side on which two tenon connecting slots (54) are provided for installing a bottom fixing member (75);
a positioning rib (76) of the bottom fixing member (75) is inserted into the bottom rail member (65) of the stationery door panel (62), **characterised in that** the bottom fixing member (75) is an extruded aluminum member comprising a
main body having sloped bottom section with two tenon connecting rib (77) and a positioning rib (76) formed on the main body, which bottom fixing member (75) is installed and covered on the lower doorframe member (50) by sliding the tenon connecting rib (77) into the connecting groove (54) of the lower doorframe member (50),

2. The patio door structure as defined in claim 1, wherein the sliding door panel (61) and the stationary door panel (62) are provided with glass.

3. The patio door structure as defined in claim 1 or 2, wherein the door groove (31) of vertical doorframe member (30) is provided with water-tight soft packing strip (34) or the door groove (41) of the fixed-side doorframe member (40) is provided with water-tight soft packing strip (44).

4. The patio door structure as defined in claim 1, 2 or 3, wherein the lower doorframe member (50) has a connecting board (57) installed in front of its front portion (53).

5. The patio door structure as defined in claim 1, 2, 3 or 4, wherein the lower doorframe member (50) has a rain shielding plate (70) installed and covered on its front portion (53), and the rain shielding plate (70) has a water shielding rib (71) provided for blocking the gap between the sliding door panel (61) and the rain shielding plate (70).

6. The patio door structure as defined in claim 1 or 2, wherein on the bottom side of the sliding door panel (61) has a wheel sealing strip (91) installed for sealing the wheel set (90).

7. The patio door structure as defined in claim 1 or 2, wherein the lower doorframe member (50) has a water drainage hole (56) and on inner side of the main body of the bottom fixing member (75) has a water drainage passage (78).

8. The patio door structure as defined in claim 7, wherein between the water drainage hole (56) on the lower doorframe member (50) and the bottom fixing member (75) and between the bottom fixing member (75) and the front portion (53) of the lower doorframe member (50) have respectively installed a water drainage hole-plug (110) with function as a check valve comprising a frame structure (111) and swinging baffle plate (114) pivotally installed on the frame structure (111).

9. The patio door structure as defined in claim 1 or 2, wherein a lower wind shielding block (95) is used for sealing up the gap formed between the lower end of the sliding door panel (61) and the lower end of the stationary door panel (62) without affecting the sliding motion of the sliding door panel (61).

10. The patio door structure as defined in claim 1, 2, 5 or 9 wherein a upper wind shielding block (27) with hopper shaped slot (28) is used for sealing up the gap formed between the upper end of the sliding door panel (61) and the upper end of the stationary door panel (62).

11. The patio door structure as defined in claim 1 or 2, wherein a rain shielding strip (80) comprising a L-shaped strip (81) and a soft packing strip (82) is provided along the edge of the inner side of the stationary door panel (62), and a rain shielding strip (85) comprising a L-shaped strip (86) and a soft packing strip (87) is provided along the edge of the inner side of the sliding door panel (61).

12. The patio door structure as defined in claim 1 or 2, wherein an anti-lift device (100) comprises a fastening seat (101) and a rotatable piece (104) is further installed in the sliding groove (21) of the upper doorframe member (20).

13. The patio door structure as defined in claim 1 or 2, wherein a stopper (29) used for limiting the sliding

distance of the sliding door panel (61) is installed in the sliding groove (21) of the upper doorframe member (20).

14. The patio door structure as defined in claim 1 or 2, wherein a soft sealing cover (89) is installed on the vertical side of the sliding door panel (61).

15. The patio door structure as defined in claim 4, wherein upper doorframe member (20) has a sliding groove (25) with a guide track (26) and the connecting board (57) has a sliding track (58) jointly to enable a screen window installed therein.

Patentansprüche

1. Eine Terrassentürstruktur, aufweisend eine Türrahmenvorrichtung, die aufgebaut ist durch ein oberes Türrahmenelement (20), ein vertikales Türrahmenelement (30), ein Festseiten-Türrahmenelement (40) und ein unteres Türrahmenelement (50), sowie ein Schiebetürpaneel (61), das frei an dem Türrahmen gleitet, und ein stationäres Türpaneel (62), das sicher an einem unteren Befestigungselement (75) installiert ist, das an dem unteren Türrahmenelement (50) des Türrahmens installiert und bedeckt ist, wobei:

das obere Türrahmenelement (20) aufweist: eine Gleitnut (21), die zum Halten und für einen Eingriff mit dem oberen Abschnitt des Schiebetürpaneels (61) verwendet wird, und eine Befestigungsnut (22), die zum Halten und für einen Eingriff mit dem oberen Abschnitt des stationären Türpaneels (62) verwendet wird,
das vertikale Türrahmenelement (30) eine Türnut (31) aufweist, die zum Aufnehmen und für einen Eingriff mit dem Seitenabschnitt des Schiebetürpaneels (61) in einem Schließzustand verwendet wird,
das Festseiten-Türrahmenelement (40) aufweist: einen Rückenabschnitt (41), der zum Stoppen des Schiebetürpaneels (61) in einem Öffnungszustand verwendet wird, und eine Türnut (42), die zum Aufnehmen und für einen Eingriff mit dem Seitenabschnitt des stationären Türpaneels (62) verwendet wird,
das untere Türrahmenelement (50) aufweist: einen Leistenabschnitt (51) als eine Fußleiste, eine Gleitschiene (52), die zum Montieren eines Radsatzes (90) verwendet wird, der an der Unterseite des Schiebetürpaneels (61) installiert ist, und einen Frontabschnitt (53) mit einer Schrägfläche, die zu seiner Vorderseite hin nach unten geneigt ist, wo zwei Zapfen-Verbindungsschlitze (54) zum Installieren eines unteren Befestigungselements (75) vorgesehen sind, wobei eine Positionierungsrippe (76) des unteren Befestigungselements (75) in das untere Schienenelement (65) des stationären Türpaneels (62) eingesetzt ist,
dadurch gekennzeichnet, dass das untere Befestigungselement (75) ein extrudiertes Aluminiumelement ist, aufweisend einen Hauptkörper, der einen schrägen unteren Abschnitt aufweist, mit zwei Zapfen-Verbindungsrippen (77) und einer Positionierungsrippe (76), die an dem Hauptkörper ausgebildet sind, wobei das untere Befestigungselement (75) an dem unteren Türrahmenelement (50) installiert und abgedeckt ist, durch Schieben der Zapfen-Verbindungsrippe (77) in die Verbindungsnut (54) des unteren Türrahmenelements (50).

2. Die Terrassentürstruktur gemäß Anspruch 1, wobei das Schiebetürpaneel (61) und das stationäre Türpaneel (62) mit Glas versehen sind.

3. Die Terrassentürstruktur gemäß Anspruch 1 oder 2, wobei die Türnut (31) des vertikalen Türrahmenelements (30) mit einem wasserdichten Weichstoffdichtungsstreifen (34) versehen ist oder die Türnut (41) des Festseiten-Türrahmenelements (40) mit einem wasserdichten Weichstoffdichtungsstreifen (44) versehen ist.

4. Die Terrassentürstruktur gemäß Anspruch 1, 2 oder 3, wobei das untere Türrahmenelement (50) eine Verbindungsplatte (57) aufweist, die vor seinem Frontabschnitt (53) installiert ist.

5. Die Terrassentürstruktur gemäß Anspruch 1, 2, 3 oder 4, wobei das untere Türrahmenelement (50) eine Regen-Abschirmplatte (70) aufweist, die an seinem Frontabschnitt (53) installiert und abgedeckt ist, und wobei die Regen-Abschirmplatte (70) eine Wasser-Abschirmrippe (71) aufweist, die zum Blockieren der Lücke zwischen dem Schiebetürpaneel (61) und der Regen-Abschirmplatte (70) vorgesehen ist.

6. Die Terrassentürstruktur gemäß Anspruch 1 oder 2, wobei an der Unterseite des Schiebetürpaneels (61) ein Rad-Dichtungsstreifen (91) vorgesehen ist, der zum Abdichten des Radsatzes (90) installiert ist.

7. Die Terrassentürstruktur gemäß Anspruch 1 oder 2, wobei das untere Türrahmenelement (50) ein Wasser-Ablaufloch (56) aufweist, und an der Innenseite des Hauptkörpers des unteren Befestigungselements (75) ein Wasser-Ablaufdurchgang (78) vorgesehen ist.

8. Die Türrahmenstruktur gemäß Anspruch 7, wobei zwischen dem Wasser-Ablaufloch (56) an dem unteren Türrahmenelement (50) und dem unteren Be-

festigungselement (75) und zwischen dem unteren Befestigungselement (75) und dem Frontabschnitt (53) des unteren Türrahmenelements (50) jeweils ein Wasser-Ablaufloch-Stopfen (110) mit der Funktion als ein Absperrventil vorgesehen ist, der eine Rahmenstruktur (111) und eine Schwingungs-Ablenkplatte (114) aufweist, die schwenkbar an der Rahmenstruktur (111) installiert ist.

9. Die Türrahmenstruktur gemäß Anspruch 1 oder 2, wobei ein unterer Wind-Abschirmblock (95) zum Abdichten der Lücke verwendet wird, die zwischen dem unteren Ende des Schiebetürpaneels (61) und dem unteren Ende des stationären Türpaneels (62) ausgebildet ist, ohne die Gleitbewegung des Schiebetürpaneels (61) zu beeinträchtigen.

10. Die Terrassentürstruktur gemäß Anspruch 1, 2, 5 oder 9, wobei ein oberer Wind-Abschirmblock (27) mit einem trichterförmigen Schlitz (28) zum Abdichten der Lücke verwendet wird, die zwischen dem oberen Ende des Schiebetürpaneels (61) und dem oberen Ende des stationären Türpaneels (62) ausgebildet ist.

11. Die Terrassentürstruktur gemäß Anspruch 1 oder 2, wobei ein Regen-Abschirmstreifen (80), der einen L-förmigen Streifen (81) und einen Weichstoffdichtungsstreifen (82) aufweist, entlang dem Rand der Innenseite des stationären Türpaneels (62) vorgesehen ist, und ein Regen-Abschirmstreifen (85), der einen L-förmigen Streifen (86) und einen Weichstoffdichtungsstreifen (87) aufweist, entlang dem Rand der Innenseite des Schiebetürpaneels (61) vorgesehen ist.

12. Die Terrassentürstruktur gemäß Anspruch 1 oder 2, wobei eine Anti-Hebevorrichtung (100), die einen Befestigungssitz (101) und ein drehbares Teil (104) aufweist, ferner in der Gleitnut (21) des oberen Türrahmenelements (20) installiert ist.

13. Die Terrassentürstruktur gemäß Anspruch 1 oder 2, wobei ein Anschlag (29), der zum Begrenzen der Gleitentfernung des Schiebetürpaneels (61) verwendet wird, in der Gleitnut (21) des oberen Türrahmenelements (20) installiert ist.

14. Die Terrassentürstruktur gemäß Anspruch 1 oder 2, wobei eine Weichdichtungs-Abdeckung (89) an der vertikalen Seite des Schiebetürpaneels (61) installiert ist.

15. Die Terrassentürstruktur gemäß Anspruch 4, wobei das obere Türrahmenelement (20) eine Gleitnut (25) mit einer Führungsbahn (26) aufweist, und die Verbindungsplatte (57) eine Gleitbahn (58) aufweist, um gemeinsam das Installieren eines Schutzfensters darin zu ermöglichen.

Revendications

1. Structure de porte-fenêtre, comprenant un assemblage de cadre de porte, constitué d'un élément de dormant supérieur (20), d'un élément de dormant vertical (30), d'un élément de dormant de côté fixe (40) et d'un élément de dormant inférieur (50), ainsi qu'un panneau de porte coulissant (61) coulissant librement sur le dormant de porte et un panneau de porte immobile (62) solidement installé sur un élément de fixation inférieur (75) qui est installé et recouvert sur l'élément de dormant inférieur (50) du dormant de porte, dans laquelle
l'élément de dormant supérieur (20) présente une rainure de coulissement (21) utilisée pour retenir et venir en prise avec la partie supérieure du panneau de porte coulissant (61), et une rainure de fixation (22) utilisée pour retenir et venir en prise avec la partie supérieure du panneau de porte immobile (62) ;
l'élément de dormant vertical (30) présente une rainure de porte (31) utilisée pour recevoir et mettre en prise la partie latérale du panneau de porte coulissant (61) lorsqu'il se trouve en position fermée ;
l'élément de dormant de côté fixe (40) présente une partie formant crête (41) utilisée pour arrêter le panneau de porte coulissant (61) lorsqu'il se trouve en position ouverte, et une rainure de porte (42) utilisée pour recevoir et mettre en prise la partie latérale du panneau de porte immobile (62) ;
l'élément de dormant inférieur (50) présente une partie de ceinture (51) servant de plinthe, un rail coulissant (52), utilisé pour monter un ensemble de roulettes (90), qui est installé sur le côté inférieur du panneau de porte coulissant (61), et une partie avant (53) avec une surface inclinée, en pente vers sa face avant, sur laquelle deux mortaises (54) pour tenons sont prévues pour installer un élément de fixation inférieur (75) ;
une nervure de positionnement (76) de l'élément de fixation inférieur (75) est insérée dans l'élément de rail inférieur (65) du panneau de porte immobile (62) ;
caractérisée en ce que l'élément de fixation inférieur (75) est un élément en aluminium extrudé comprenant un corps principal présentant une section inférieure en pente avec deux nervures de raccordement des tenons (77) et une nervure de positionnement (76) formées sur le corps principal, lequel élément de fixation inférieur (75) est installé et recouvert sur l'élément de dormant inférieur (50) en glissant la nervure de raccordement des tenons (77) dans la rainure de liaison (54) de l'élément de dormant inférieur (50).

2. Structure de porte-fenêtre selon la revendication 1, dans laquelle le panneau de porte coulissant (61) et le panneau de porte immobile (62) sont vitrés.

3. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle la rainure de porte (31) de l'élément de dormant vertical (30) est munie d'une baguette d'enrobage souple étanche à l'eau (34) ou la rainure de porte (41) de l'élément de dormant côté fixe (40) est munie d'une baguette d'enrobage souple étanche à l'eau (44).

4. Structure de porte-fenêtre selon la revendication 1, 2 ou 3, dans laquelle l'élément de dormant inférieur (50) présente un panneau de liaison (57) installée en face de sa partie avant (53).

5. Structure de porte-fenêtre selon la revendication 1, 2, 3 ou 4, dans laquelle l'élément de dormant inférieur (50) présente une plaque de protection contre la pluie (70) installée et recouverte sur sa partie avant (53) et la plaque de protection contre la pluie (70) présente une nervure anti-pénétration d'eau (71) prévue pour bloquer l'interstice entre le panneau de porte coulissant (61) et la plaque de protection contre la pluie (70).

6. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle une baguette d'étanchéité des roulettes (91) est installé sur le côté inférieur du panneau de porte coulissant (61) afin d'étanchéifier l'ensemble de roulettes (90).

7. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle l'élément de dormant inférieur (50) présente un trou d'évacuation d'eau (56) et le côté intérieur du corps principal de l'élément de fixation inférieur (75) présente un passage d'évacuation d'eau (78).

8. Structure de porte-fenêtre selon la revendication 7, dans laquelle un cache-trou d'évacuation d'eau (110) est respectivement installé entre le trou d'évacuation d'eau (56) de l'élément de dormant inférieur (50) et l'élément de fixation inférieur (75) et entre l'élément de fixation inférieur (75) et la partie avant (53) de l'élément de dormant inférieur (50), avec une fonction de clapet de non-retour, comprenant une structure de cadre (111) et une chicane oscillante (114) installé sur la structure de cadre (111) de façon à pouvoir pivoter.

9. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle un bloc coupe-vent inférieur (95) est utilisé pour obturer l'interstice formé entre l'extrémité inférieure du panneau de porte coulissant (61) et l'extrémité inférieure du panneau de porte immobile (62) sans affecter le mouvement de coulissement du panneau de porte coulissant (61).

10. Structure de porte-fenêtre selon la revendication 1, 2, 5 ou 9, dans laquelle un bloc coupe-vent supérieur (27) avec une fente en forme de trémie (28) est utilisé pour obturer l'interstice formé entre l'extrémité supérieure du panneau de porte coulissant (61) et l'extrémité supérieure du panneau de porte immobile (62).

11. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle une baguette de protection contre la pluie (80) comprenant une baguette en forme de L (81) et une baguette d'enrobage souple (82) est prévue le long du bord du côté intérieur du panneau de porte immobile (62) et une baguette de protection contre la pluie (85) comprenant une baguette en forme de L (86) et une baguette d'enrobage souple (87) est prévue le long du bord du côté intérieur du panneau de porte coulissant (61).

12. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle un dispositif anti-soulèvement (100), comprenant une embase de fixation (101) et une pièce rotative (104) est en outre installée dans la rainure de coulissement (21) de l'élément de dormant supérieur (20).

13. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle une butée (29) utilisée pour limiter la distance de coulissement du panneau de porte coulissant (61) est installée dans la rainure de coulissement (21) de l'élément de dormant supérieur (20).

14. Structure de porte-fenêtre selon la revendication 1 ou 2, dans laquelle un couvercle d'étanchéité souple (89) est installé sur le côté vertical du panneau de porte coulissant (61).

15. Structure de porte-fenêtre selon la revendication 4, dans laquelle l'élément de dormant supérieur (20) présente une rainure de coulissement (25) avec un chemin de guidage (26) et le panneau de liaison (57) présente un chemin de coulissement (58) conjoint pour permettre d'y installer une fenêtre-moustiquaire.

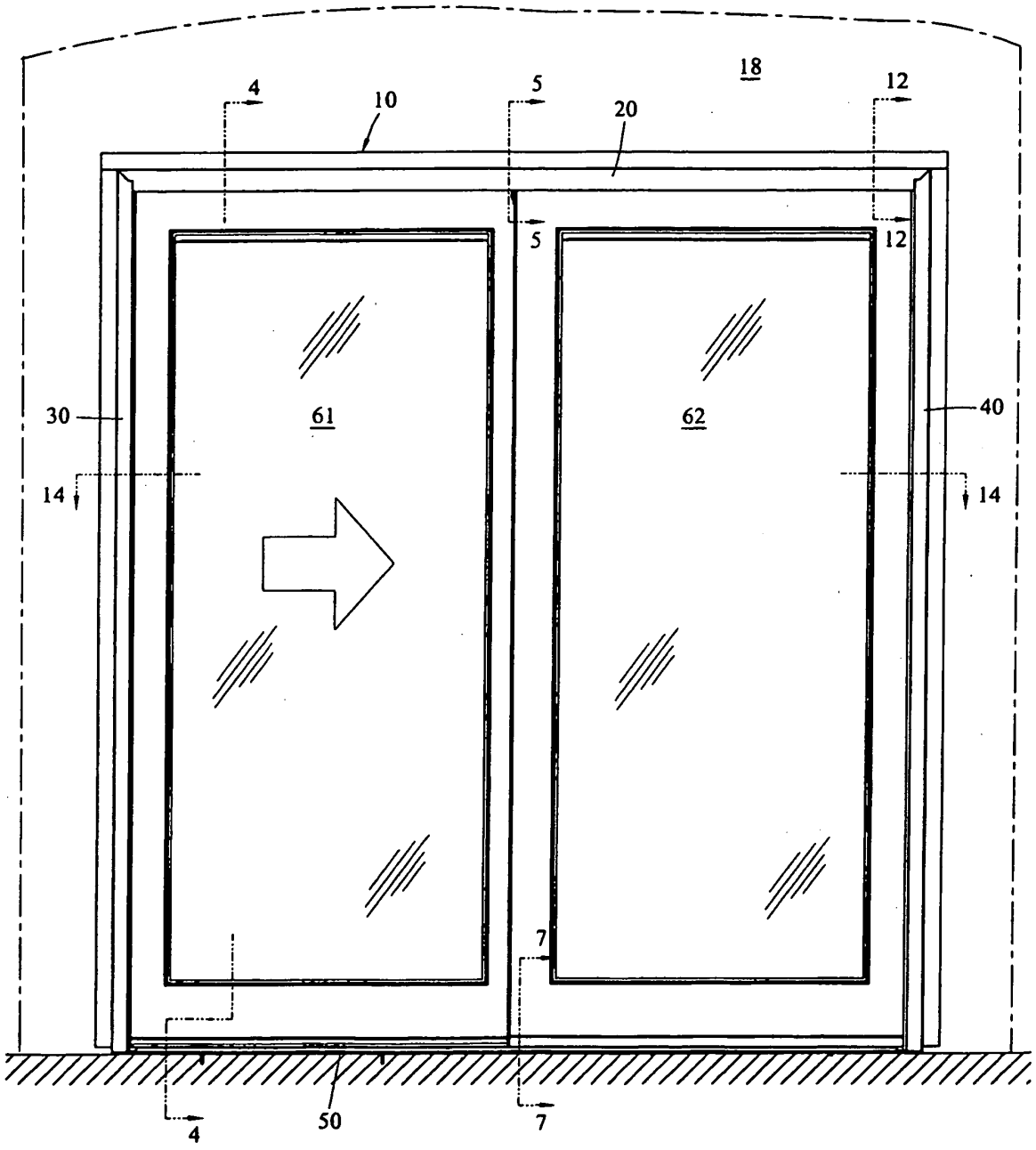

FIG. 1

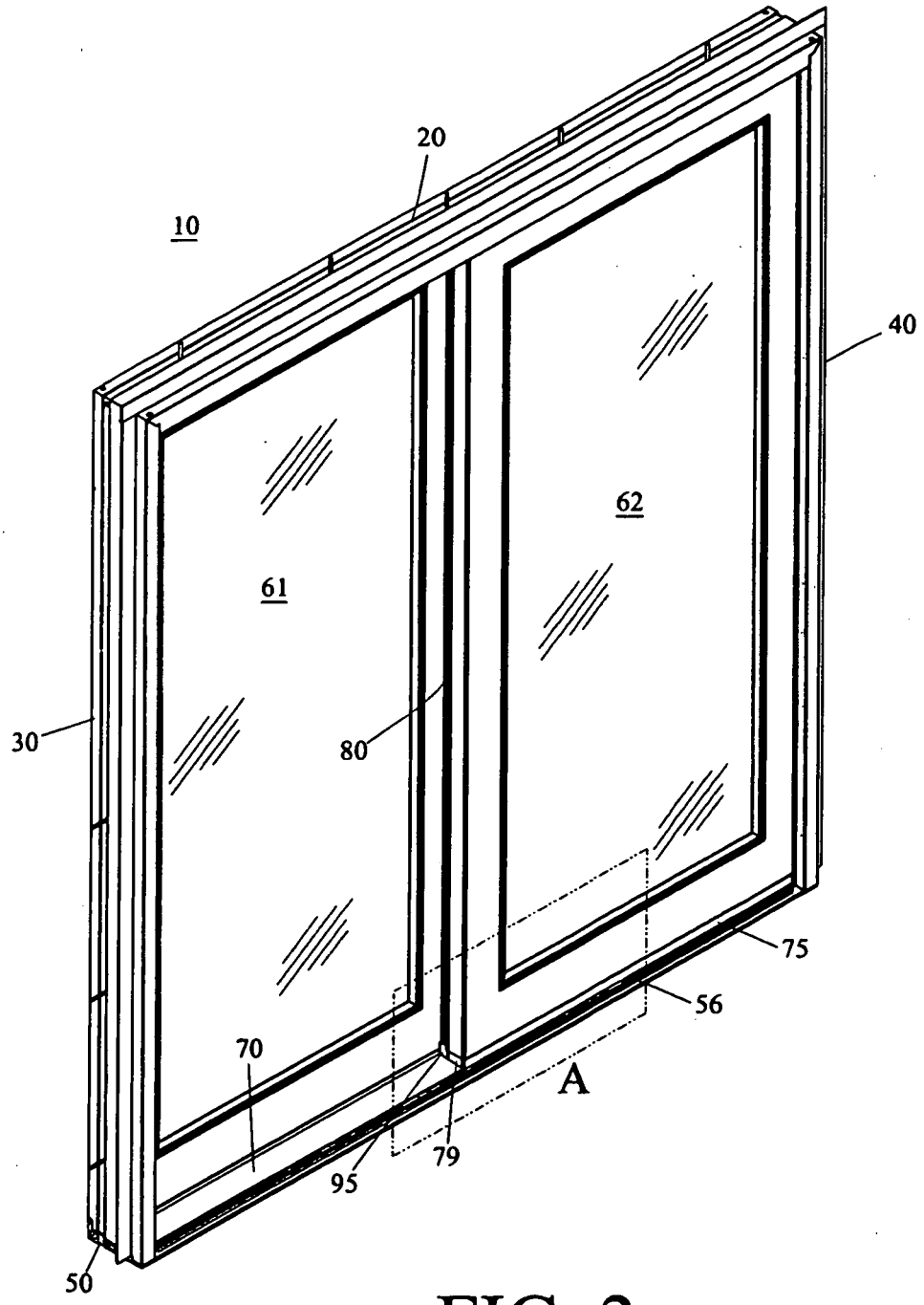

FIG. 2

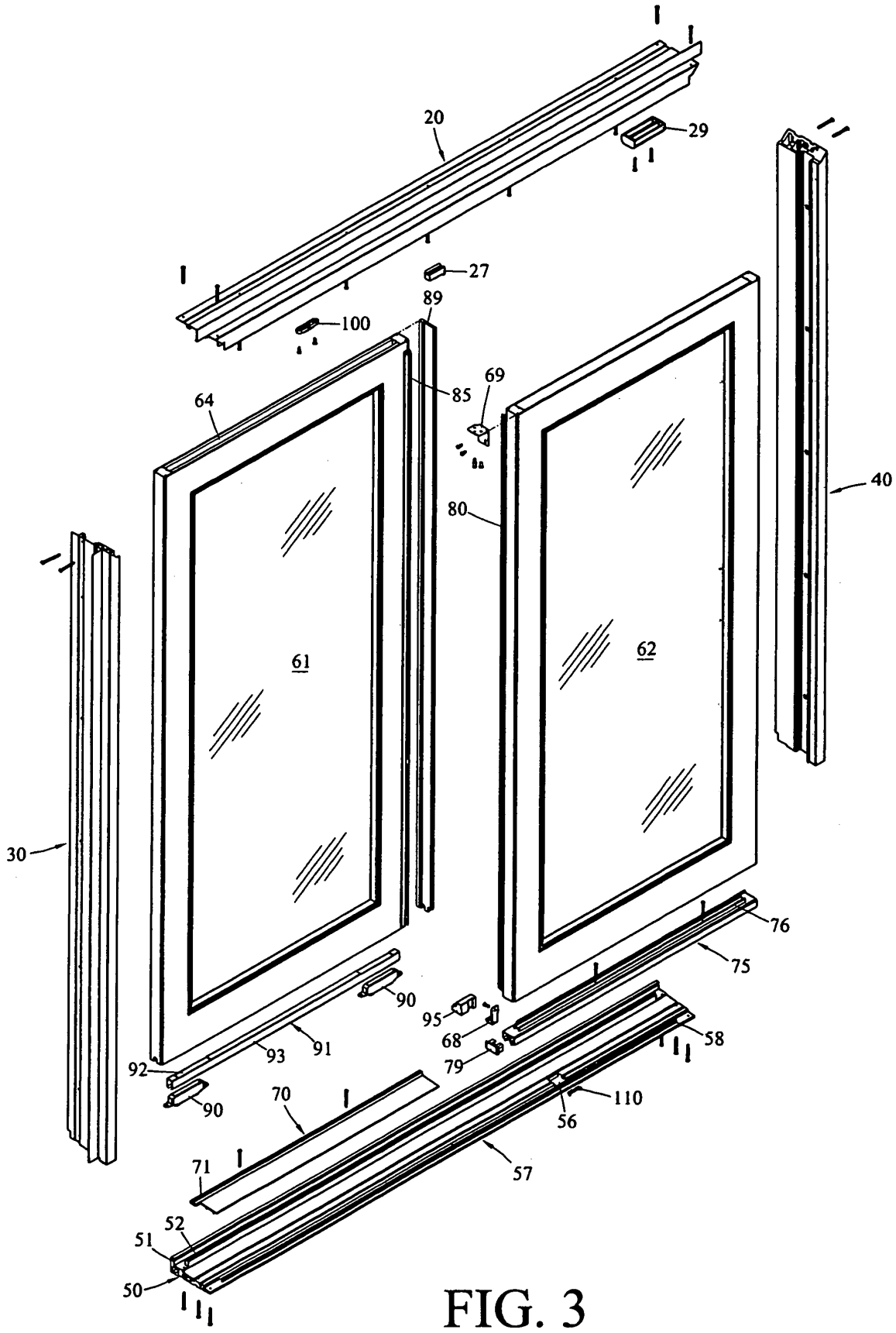
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FIG. 3

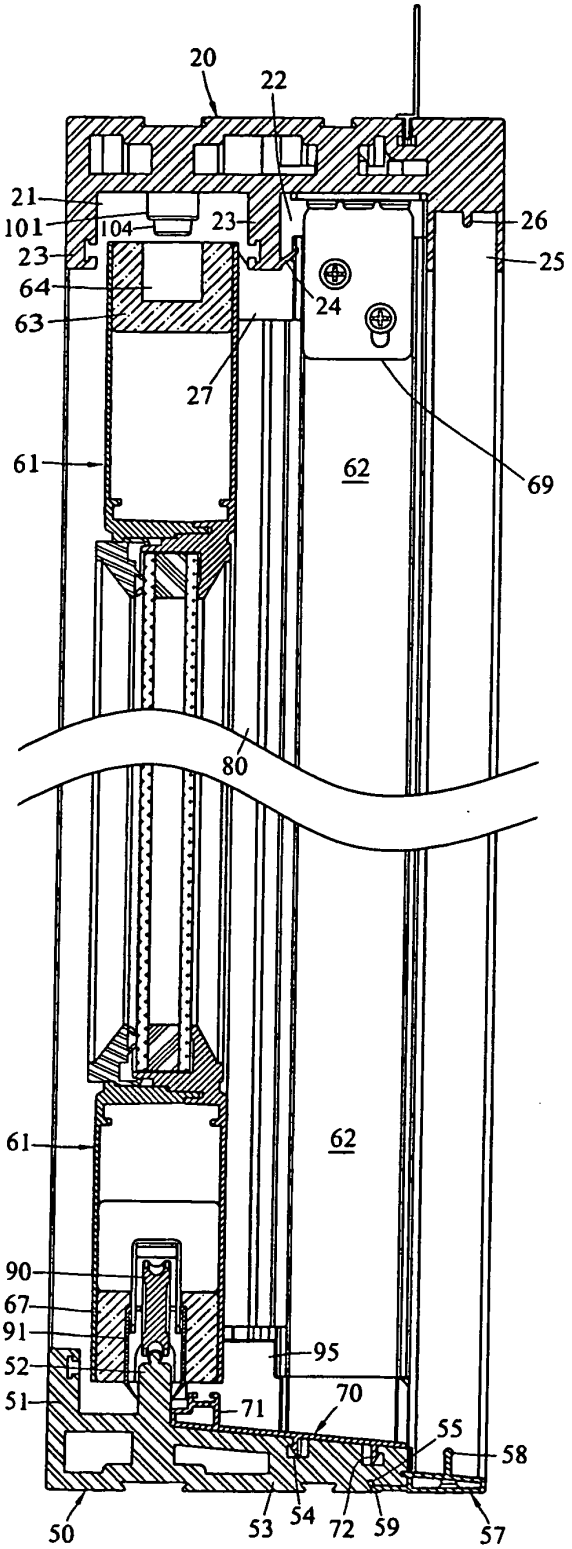

FIG. 4

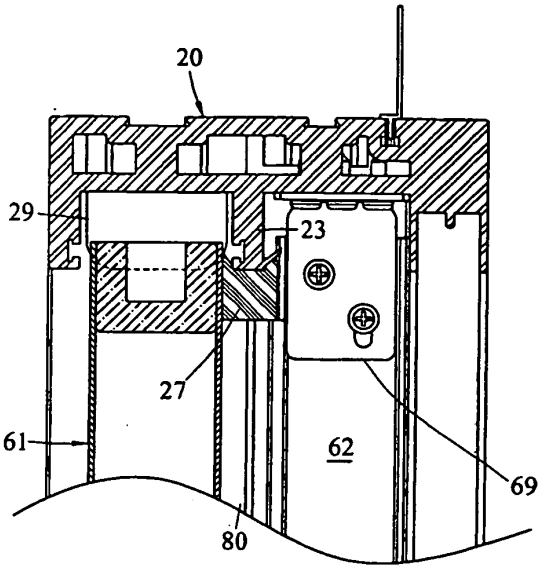

FIG. 5

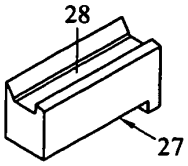

FIG. 6

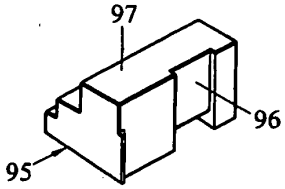

FIG. 8

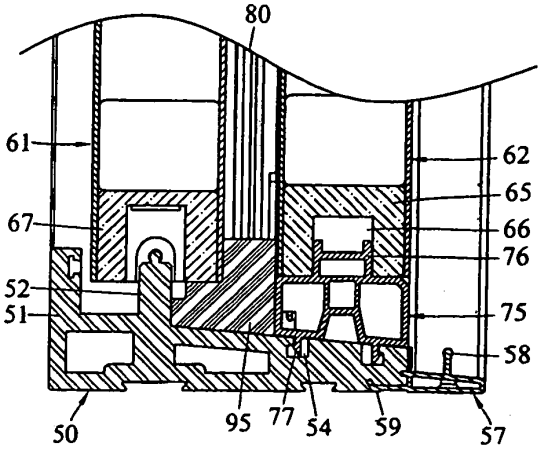

FIG. 7

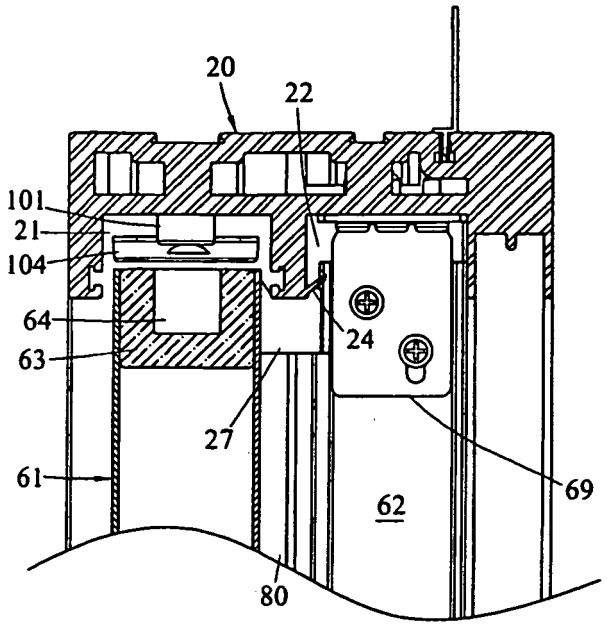

FIG. 9

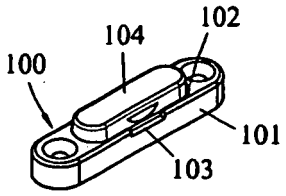

FIG. 10

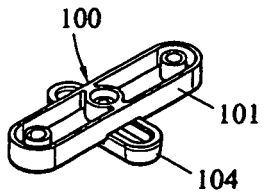

FIG. 11

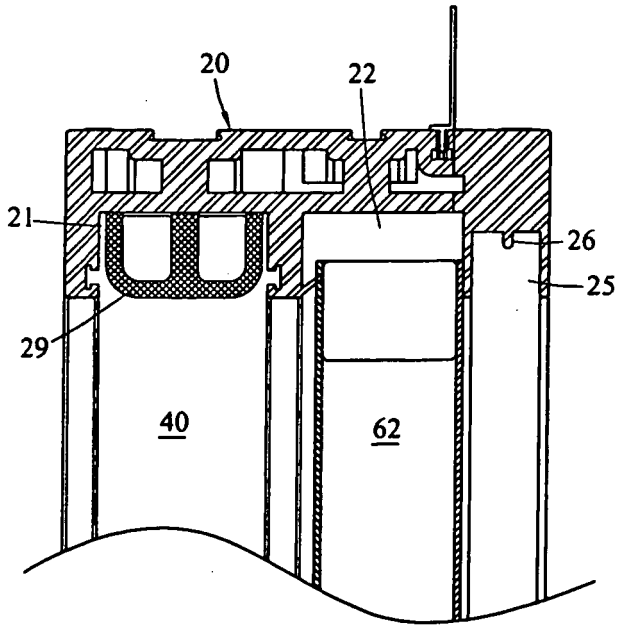

FIG. 12

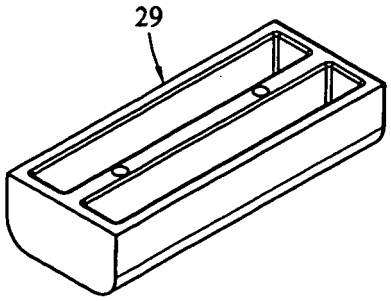

FIG. 13

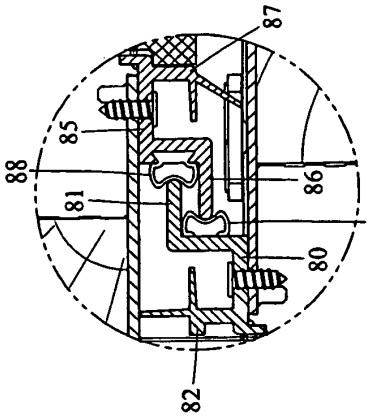
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FIG. 15

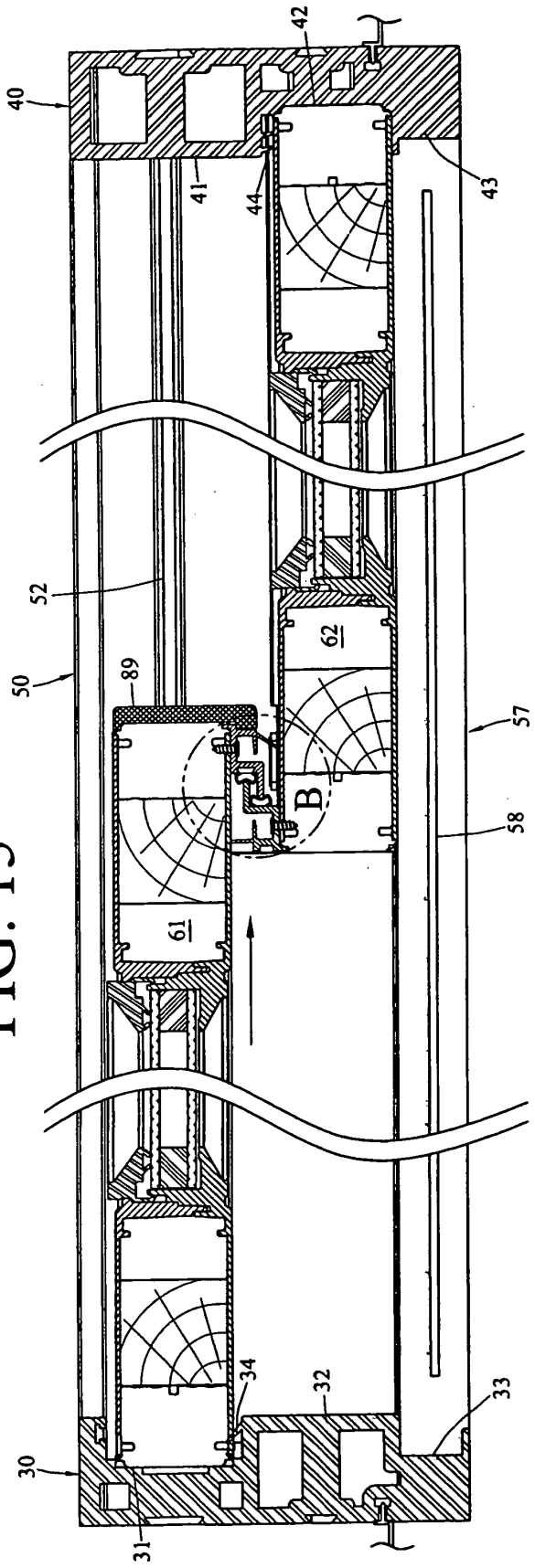
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FIG. 14

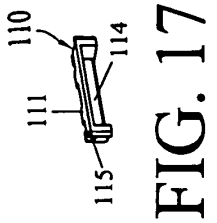

FIG. 17

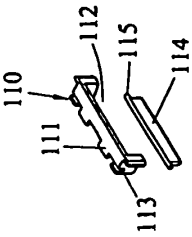

FIG. 18

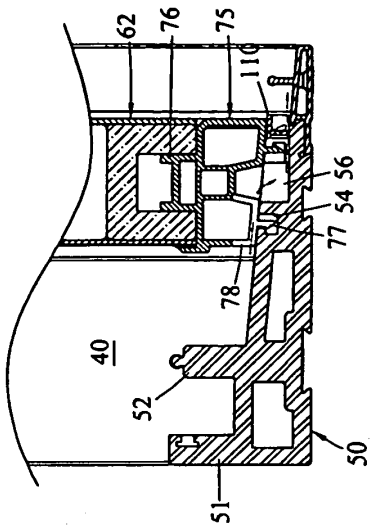

FIG. 19

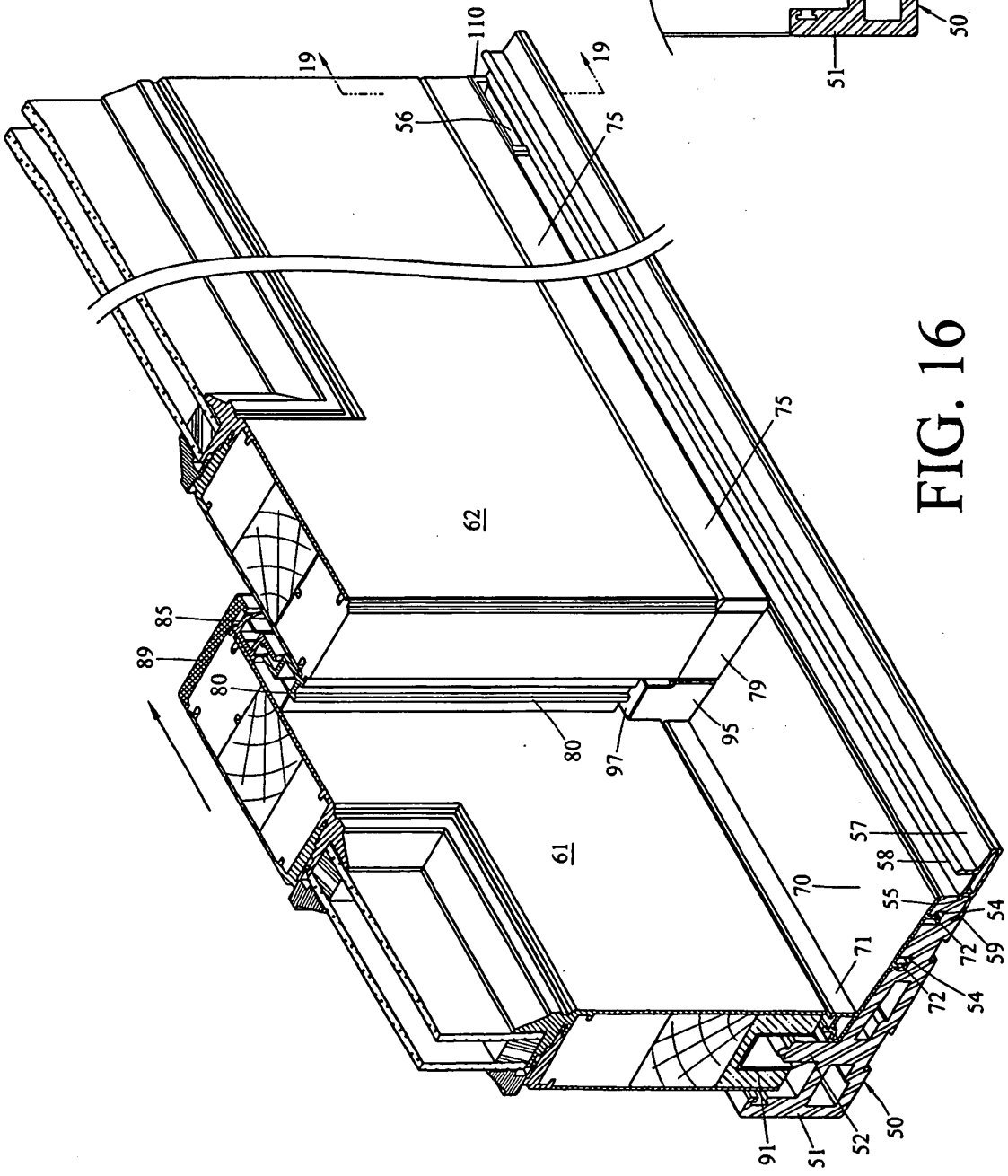

FIG. 16

REFERENCES CITED IN THE DESCRIPTION

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- EP 1292748 A **[0002]**
- US 3530618 A **[0004]**