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(11) **EP 1 516 992 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
23.03.2005 Bulletin 2005/12

(51) Int Cl.7: **E06B 1/70**

(21) Application number: **04021669.9**

(22) Date of filing: **13.09.2004**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IT LI LU MC NL PL PT RO SE SI SK TR**
Designated Extension States:
AL HR LT LV MK

(30) Priority: **19.09.2003 CN 03279795**

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(54) **Dorsill structure for out-swinging type door**

(57) A doorsill structure for out-swinging hinged door having excellent waterproof effect formed at least by a doorsill seat (20), and a rain shielding plate (30) fixed by a snap-in connecting method without using any fastening part. The doorsill structure of the invention is equipped with a soft packing strip (50) through which a tight contact between the door surface of an out-swinging hinged door (60) and the doorsill structure is

achieved when the door is closed. Since the doorsill seat (20) of the invention is higher than the bottom edge of the out-swinging hinged door (60), the doorsill structure of the invention functions like a protecting wall for shielding the winds and for preventing the water from seeping into the room.

EP 1 516 992 A2

Description

1. Field of the Present Invention

[0001] The invention relates to a doorsill structure, particularly a doorsill structure for out-swinging type door having the effect of shielding the winds and keeping off the water to prevent the water from seeping into the room.

2. Description of Prior Art

[0002] The hinged-door conventionally used by the public up to the present, when closed, always leaves gap between the bottom edge and the doorsill which is easy for the rainwater to seep into the room to cause trouble under stress of weather.

[0003] Although, in order to solve the aforesaid problem, modifications and improvements have been made by installing waterproof-plate or water baffle plate on doorsill, there is still the drawback of gap existing between the bottom edge of the hinged door and doorsill, and actually the existing problem of unsatisfied effect of wind shielding and water-seeping prevention still remain unimproved.

SUMMARY OF THE PRESENT INVENTION

[0004] The major purpose of the invention is disclosed a doorsill structure for out-swinging type door having excellent waterproof effect formed by snap-in assembling of a doorsill seat and a rain shielding plate without using any fastening part.

[0005] Another purpose of the invention is disclosed a doorsill structure for out-swinging type door can be equipped with a soft packing strip through which a tight contact between door surface of a hinged door and doorsill can be achieved, and provides the excellent effect of shielding the winds and preventing the water from seeping into the room.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0006]

Figure 1 is a schematic drawing of the first embodiment of doorsill structure of the invention.

Figure 2 is a disassembly drawing of the doorsill as depicted in Figure 1 including a doorsill seat (20), a rain shielding plate (30) a side plate (40) and a soft packing strip (50).

Figure 3 is a schematic drawing of the doorsill as depicted in Figure 1 formed by connecting the doorsill seat (20), the rain shielding plate (30), the side plate and the soft packing strip (50) by snap-in connecting method without using any fastening part.

Figure 4 is an enlarged reference drawing to illustrate the first embodiment of doorsill structure of the

invention applicable in practical use.

Figure 5 is a schematic drawing of the second embodiment of doorsill structure of the invention.

Figure 6 is a disassembly drawing of the doorsill as depicted in Figure 5 including a doorsill seat (20'), a rain shielding plate (30') and a soft packing strip (50).

Figure 7 is a schematic drawing of the doorsill as depicted in Figure 5 formed by the doorsill seat (20'), rain shielding plate (30') and soft packing strip (50) by snap-in connecting method without using any fastening part.

Figure 8 is an enlarged reference drawing to illustrate the second embodiment of doorsill structure of the invention applicable in practical use.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0007] The present invention has invented two preferred embodiments of doorsill structure for out-swinging type door particularly under stress of harsh weather having the effect of shielding the winds and keeping off the water to prevent the water from seeping into the room.

[0008] The first embodiment of doorsill (10) of the invention is depicted as Figure 1 through 4 which comprises a doorsill seat (20), a rain shielding plate (30) and a side plate (40), or even further comprising a soft packing strip (50), and all components are assembled together by using snap-in connecting method without any fastening part.

[0009] In the invention the doorsill seat (20) is made of thermoplastic foam material or thermoplastic material by extruding forming technique to form an integral structure. As shown in Figure 2, the doorsill seat (20) has a protruding ridge (21), a front-plate (22) and a back-plate (23) wherein the front-plate (22) and the back-plate (23) are respectively joined to and extended from the front and back side of the protruding ridge (21).

[0010] Besides, on the vertical portion of the protruding ridge (21) where joining to the front-plate (22) a slot shaped recession (26) and a snapping slot (27) are respectively formed along the longitudinal direction of the protruding ridge (21), and on the other vertical portion of the protruding ridge (21) where joining to the back-plate (23) a tenon-slot (28) for tenon connection purpose is formed at the junction position of the protruding ridge (21) and the back-plate (23) of the doorsill seat (20).

[0011] The front-plate (22) of the doorsill seat (20) is a plate inclined down to its front side having part of the thickness of the bottom side of its end portion cut away, or reduced, and has a slot (24) for snap-in connection purpose formed on the bottom side at the position adjoining to the portion where the thickness is reduced, so that a wedge shaped rib (25) is formed in the slot (24) to enable the front part of the front-plate (22) to be used as a means for connecting other part by snap-in method.

[0012] Further, on the bottom surface of the front end of the back-plate (23) of the doorsill seat (20) a part of the thickness is cut away, and a tenon-slot (29) for tenon connection purpose is formed in proper position to enable the front part of the back-plate (23) to be connected with another part by way of snap-in.

[0013] The rain shielding plate (30) is made of aluminum alloy or thermoplastic material by extruding forming technique, and comprises a cover plate (31), a connecting plate (32) and a baffle plate (33) to provide the effect of moisture-proof and waterproof.

[0014] The cover plate (31) of the rain shielding plate (30) is an inclined plate with inclination angle same as that of the front plate (22) of the aforesaid doorsill seat (20). The cover plate (31) has a reverse hook-rib (34) formed at the end position in greater height for the purpose of snap-in connection. When the rain shielding plate (30) is assembled together with the doorsill seat (20) the reverse hook-rib (34) will snap into the snapping slot (27) of the doorsill seat (20) to form a snap-in connecting structure, and the cover plate (31) is then installed on the upper side of the front-plate (22) of the doorsill seat (20). Therefore, the effect of moisture-proof and waterproof of the rain shielding plate (30) can prevent water from seeping into the doorsill seat (20).

[0015] The connecting plate (32) of the rain shielding plate (30) is a L-shaped plate which has a vertical portion joined to the bottom surface of the front section of the cover plate (31), and a horizontal portion with a small part of its end bended upwardly to form a reverse hook-rib (35) for snap-in connecting purpose.

[0016] When the rain shielding plate (30) is assembled together with the doorsill seat (20), the space in between the cover plate (31) and the connecting plate (32) is for accommodating the front part of the front-plate (22) of the doorsill seat (20), and in the meantime the reverse hook-rib (35) of the connecting plate (32) shall snap with the wedge shaped rib (25) of the front-plate (22) to form a snap-in assembled structure.

[0017] The baffle plate (33) of the rain shielding plate (30) is provided with a vertical portion joined to the upper surface of the cover plate (31), and a horizontal portion extended from the top end of the vertical portion.

[0018] As shown in Figure 4, when the rain shielding plate (30) is assembled with the doorsill seat (20) as a whole, the horizontal portion of the baffle plate (33) is installed into the slot shaped recession (26) of the doorsill seat (20), and an inserted slot (39) provided for installing a soft packing strip (50) shall be then formed by the gap in between the top surface of the slot shaped recession (26) and the horizontal portion of the baffle plate (33). Therefore, a soft packing strip (50) with a gripping-mounting piece (51) shall be installed onto the baffle plate (33) by way of having its gripping-mounting piece (51) wholly inserted into the inserted slot (39), and the soft packing strip (50) is then positioned on the outer side of the baffle plate (33).

[0019] With this arrangement as shown in Figure 4,

the out-swinging hinged door (60) will touch and press the soft packing strip (50) installed on the doorsill (10) of the invention to achieve a tight contact with the soft packing strip (50) when the out-swinging hinged door (60) is closed.

[0020] And, the side plate (40) is used for mounting a screen door (not shown in the drawings), and has a horizontal plate (41) and a reversed L-shaped plate (42) with its vertical part joined to the horizontal plate (41). Therefore, on the surface of the horizontal plate (41) of the side plate (40) a sliding rail (43) is formed upwardly for mounting a screen door (not shown in the drawings) which can slide on the sliding rail (43).

[0021] The horizontal plate (41) of the side plate (40) has a hook-rib (44) formed at its front end and the reversed L-shaped plate (42) of the side plate (40) also has a reverse hook-rib (45) formed at front end of its horizontal portion.

[0022] As shown in Figure 3 and 4, when the side plate (40) is assembled together with the back-plate (23) of the doorsill seat (20), the hook-rib (44) of the side plate (40) will snap into the tenon-slot (28) of the doorsill seat (20) and the reverse hook-rib (45) of the side plate (40) will simultaneously snap into another tenon-slot (29) of the doorsill seat (20) to form a snap-in connecting structure without using any fastening part.

[0023] Accordingly, by using the snap-in structure provided on the doorsill seat (20), the rain shielding plate (30) and the side plate (40) mentioned above, the first embodiment of doorsill (10) of the invention can be easily and rapidly constructed by assembling these parts together.

[0024] The second embodiment of doorsill (10) of the invention is depicted as in Figure 5 through 8 which is without a side plate (40) and which comprises a doorsill seat (20') and a rain shielding plate (30'), or even further comprising a soft packing strip (50), and the three components of the doorsill seat (20'), the rain shielding plate (30') and the soft packing strip (50) are assembled together by using snap-in connecting method without any fastening part.

[0025] The detailed structure of the doorsill seat (20') of the second embodiment of doorsill (10), due to almost same as that of the doorsill base (20) of the first embodiment of doorsill (10) of the invention, may refer to and understand from the aforesaid description to that of doorsill seat (20) of the first embodiment of doorsill (10) of the invention.

[0026] In addition, the rain shielding plate (30') is made of aluminum alloy or thermoplastic material by extruding forming technique, and comprises a cover plate (31), a connecting plate (32) and a holding plate (33) to provide the effect of moisture-proof and waterproof.

[0027] The function and detailed structure of the cover plate (31) and the connecting plate (32) of the rain shielding plate (30') of the second embodiment of doorsill (10), due to same as that of the rain shielding plate (30) of the first embodiment of doorsill (10) of the inven-

tion, may refer to and understand from the aforesaid description to that of the cover plate (31) and the connecting plate (32) of the rain shielding plate (30) of the first embodiment of doorsill (10) of the invention.

[0028] The holding plate (36) of the rain shielding plate (30') is provided with a vertical portion joined to the upper surface of the cover plate (31), and a bending portion (37) with an inserted slot (38) formed on the vertical portion of the holding plate (36). When the rain shielding plate (30') is assembled with the doorsill seat (20') as a whole, the bending portion (37) of the holding plate (36) is inserted and installed into the slot shaped recession (26) of the doorsill seat (20').

[0029] Therefore, a soft packing strip (50) with a gripping-mounting piece (51) shall be installed onto the holding plate (36) of the rain shielding plate (30') by way of having its gripping-mounting piece (51) wholly inserted into the inserted slot (38) of the holding plate (36), and the soft packing strip (50) is then positioned on the outer side of the holding plate (36).

[0030] With this arrangement as shown in Figure 8, the out-swinging hinged door (60) will touch and press the soft packing strip (50) installed on the doorsill (10) of the invention to achieve a tight contact with the soft packing strip (50) when the out-swinging hinged door (60) is closed.

[0031] Accordingly, by using the snap-in structure provided on the doorsill seat (20') and the rain shielding plate (30') mentioned above, the second embodiment of the doorsill (10) of the invention may be easily and rapidly constructed by assembling these parts together.

PRACTICAL APPLICATION OF THE INVENTION

[0032] As shown in Figure 4 and 8, the first or second embodiment of doorsill (10) of the invention may be assembled with two jamb (15) installed on both sides of the doorsill (10) and a transom (not shown in the drawings) installed above and parallel to the doorsill (10) to form a doorframe assembly for installing an out-swinging hinged door (60), and by this way to separate the interior (70) and exterior (80). Therefore, the manner to open the out-swinging hinged door (60) is to push the out-swinging hinged door (60) from the interior (70) to the exterior (80), or to pull the out-swinging hinged door (60) from the exterior (80).

[0033] Particularly, the rain shielding plate (30) or (30') of the doorsill (10) is made of aluminum alloy and possesses the effect of moisture-proof and waterproof. Besides, since the doorsill (10) itself is also higher than the bottom edge of the out-swinging hinged door (60), the doorsill (10) of the invention will form a wall for keeping off the water from the interior (70).

[0034] In addition, when the out-swinging hinged door (60) is closed, the out-swinging hinged door (60) shall touch and press the soft packing strip (50) on the doorsill (10) to form a tight contact to seal up the gap which might exist between the bottom edge of the door (60) and the

floor surface of the interior (70) to achieve a dual protecting structure, so that the first or second embodiment of doorsill (10) of the invention shall provide the effect of preventing the water from seeping into the interior (70) under stress of weather..

Claims

1. A doorsill structure for out-swinging type door formed by snap-in connecting a doorsill seat, and a rain shielding plate wherein the doorsill seat is formed by a longitudinal protruding ridge, a front-plate joined to the bottom section on one side of the protruding ridge and a back-plate joined to the bottom section on the other side of the protruding ridge; and the front-plate is an inclined plate which bottom side of its front end is reduced thickness where a slot is formed; and the rain shielding plate comprises at least a cover plate and a connecting plate, wherein the cover plate is a inclined plate with the inclination angle same as that of the front plate of the doorsill base, and the connecting plate is a L-shaped plate with its vertical portion joined to the cover plate and the end of its horizontal portion has a reverse hook-rib formed upwardly.
2. The doorsill structure as defined in claim 1, further comprising a side plate by snap-in connection joined to the back-plate of the doorsill seat, and the side plate has a horizontal plate on which surface has a sliding rail.
3. The doorsill structure as defined in claim 1 or claim 2, wherein the doorsill seat has a slot shaped recession formed on the vertical portion of the protruding ridge where joining to the front-plate.
4. The doorsill structure as defined in claim 3, wherein the rain shielding plate further comprises a baffle plate which has a vertical portion joined to the cover plate and a horizontal portion extended from the top end of the vertical portion, and the baffle plate is positioned into the slot shaped recession of the doorsill seat to form an inserted slot provided for installing a soft packing strip.
5. The doorsill structure as defined in claim 4, further comprising a soft packing strip with a gripping-mounting piece inserted into the inserted slot.
6. The doorsill structure as defined in claim 3, wherein the rain shielding plate further comprises a holding plate which has a vertical portion joined to the cover plate and a bending portion with an inserted slot, and the holding plate is positioned into the slot shaped recession of the doorsill seat.

7. The doorsill structure as defined in claim 6, further comprising a soft packing strip with a gripping-mounting piece inserted into the inserted slot of the holding plate of the rain shielding plate.

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8. The doorsill structure as defined in any of claim 1 to 7, wherein the doorsill seat has a snapping slot formed at the junction of the protruding ridge and the front-plate, and the cover plate of the rain shielding plate has a reverse hook-rib formed upwardly at the higher end.

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9. The doorsill structure as defined in any of claim 1 to 7, wherein the doorsill seat is formed by thermoplastic foam material or thermoplastic material.

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10. The doorsill structure as defined in any of claim 1 to 7, wherein the rain shielding plate is made of aluminum alloy or thermoplastic material.

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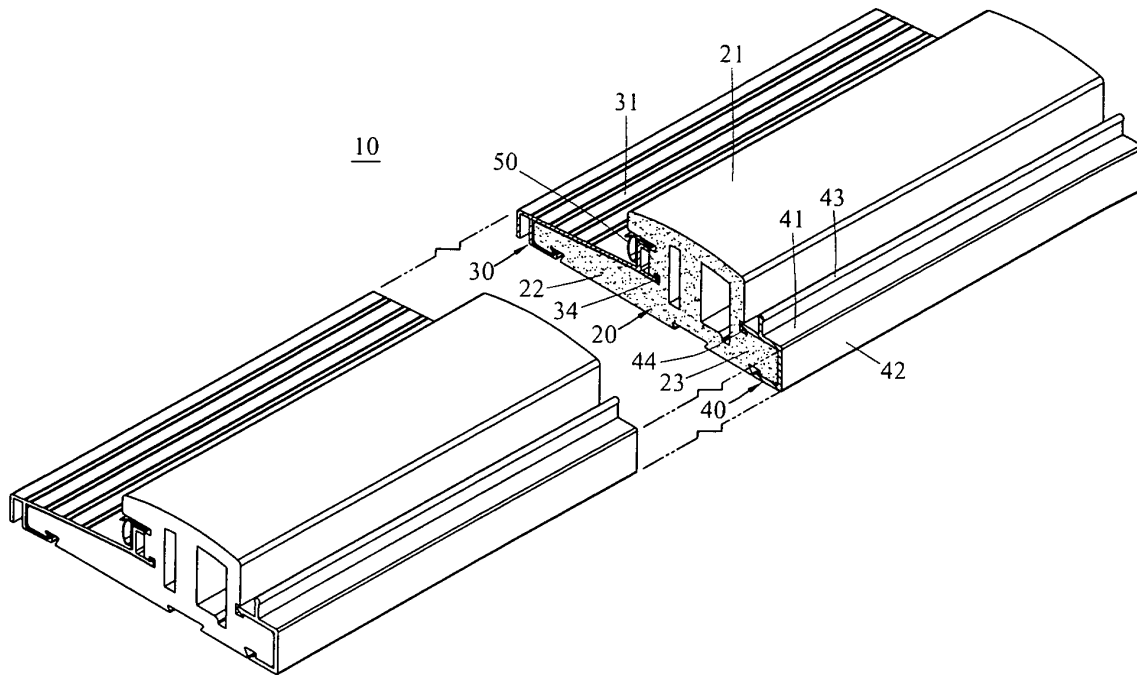


Fig. 1

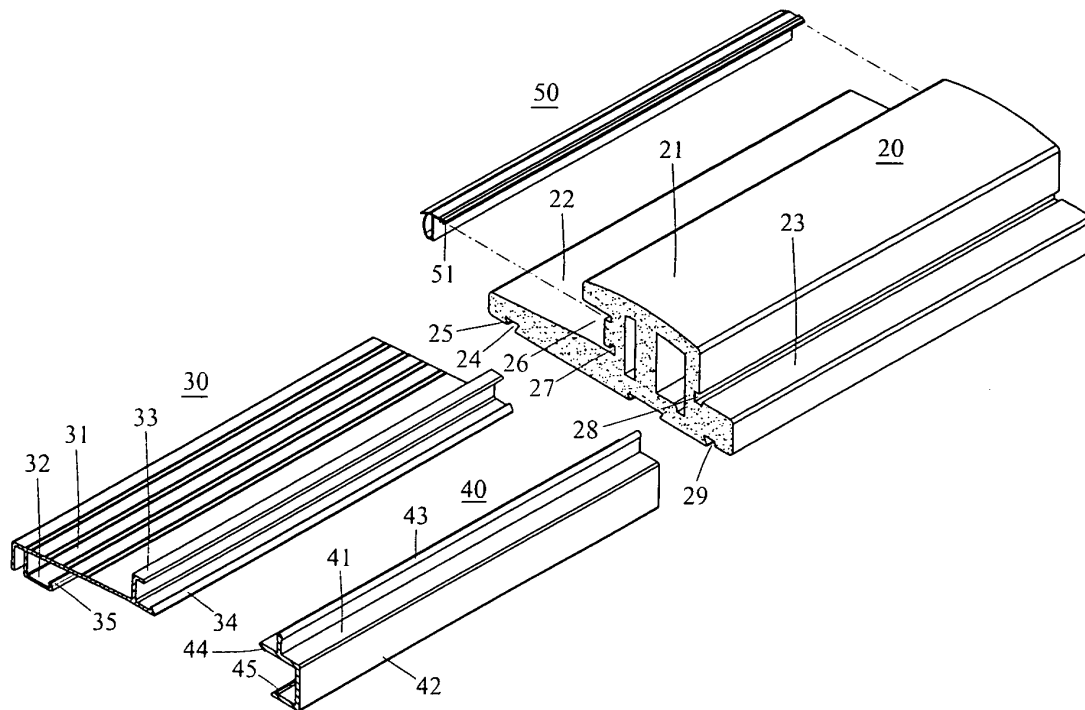


Fig. 2

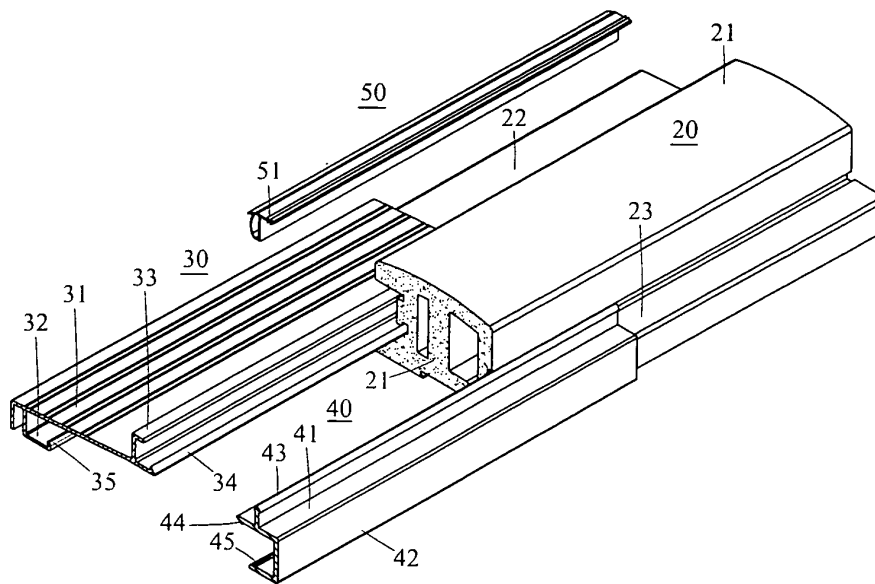


Fig. 3

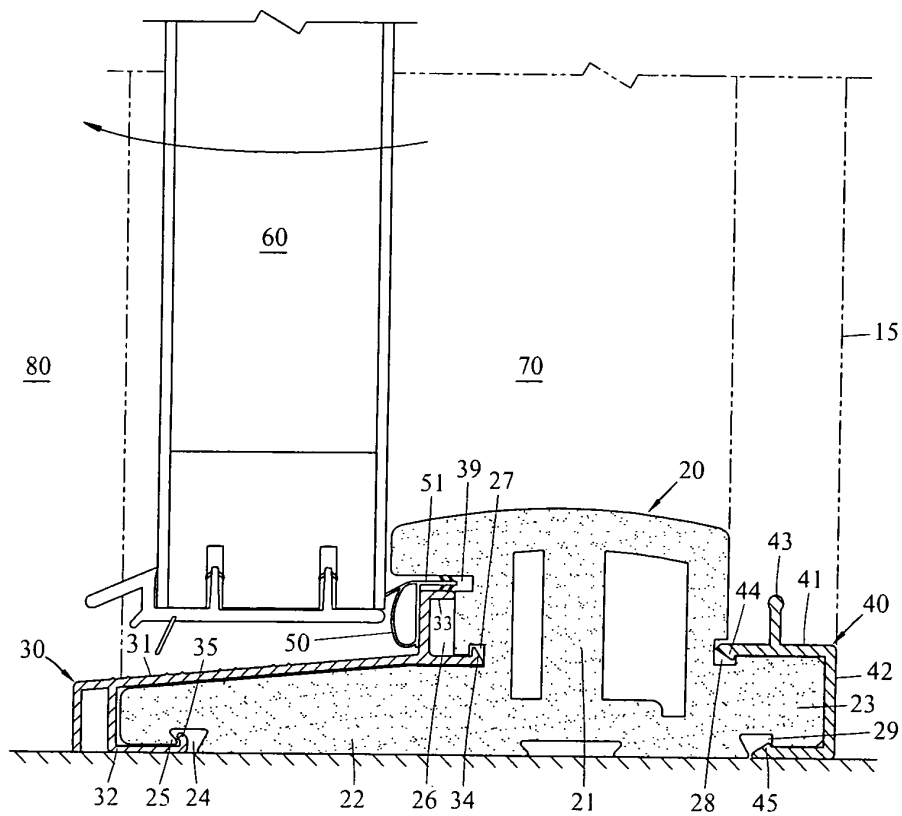


Fig. 4

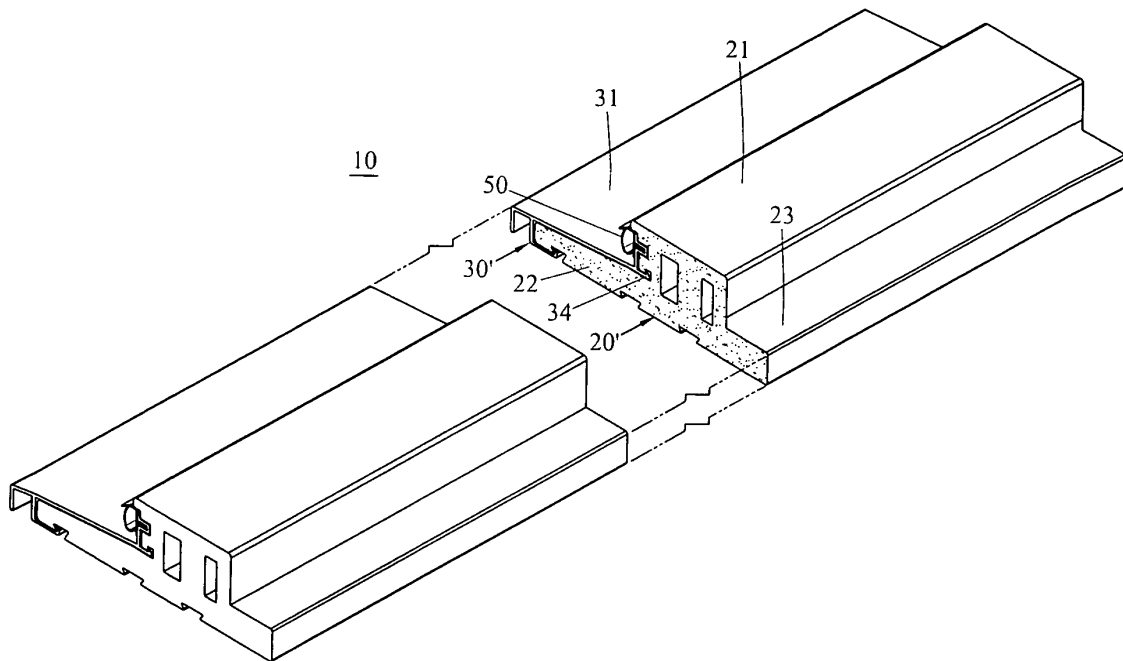


Fig. 5

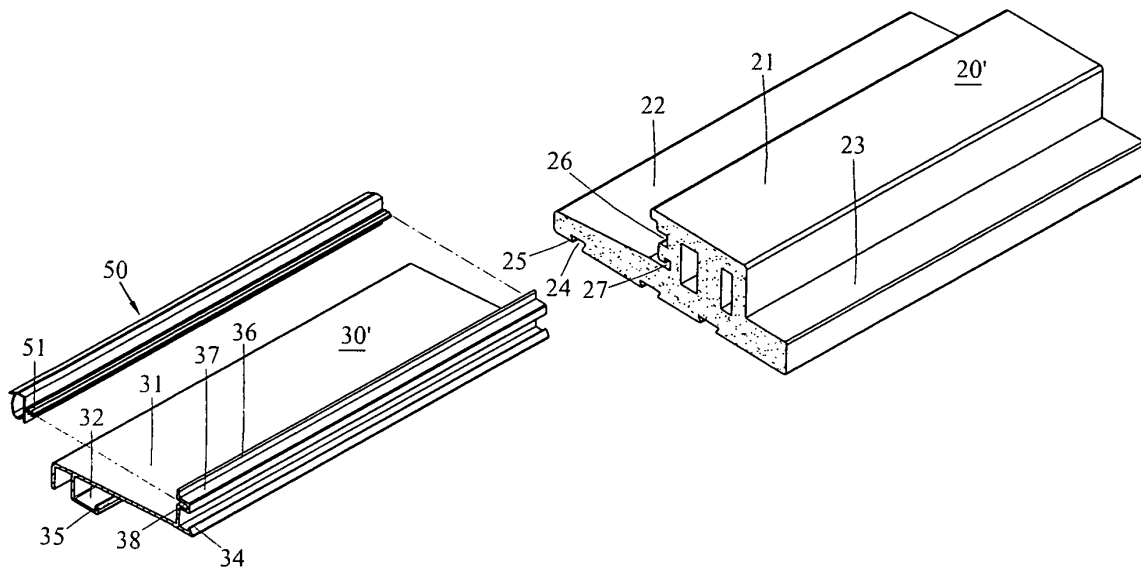


Fig. 6

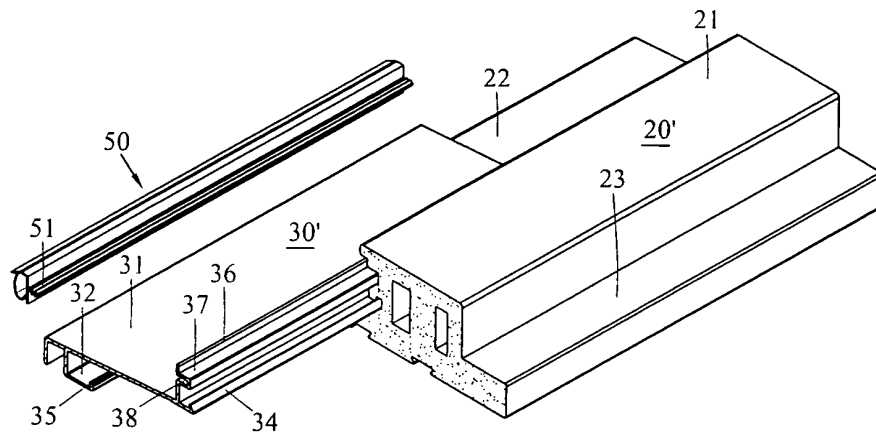


Fig. 7

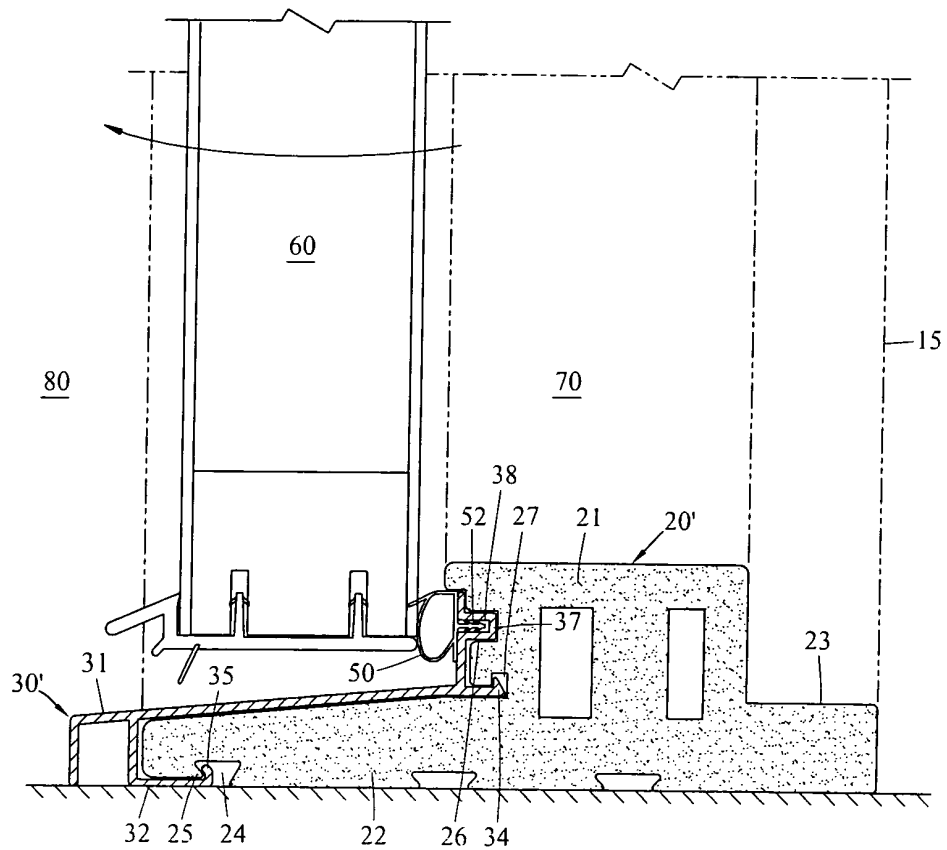


Fig. 8