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(54) **Frame for flood door**

(57) A frame for receiving a flood door includes a lower cross-member (7). The lower cross-member has a recess (9) in an upper face thereof and an external face. At least one non-return valve (11) is provided in the

cross-member and communicates between the recess and the external face. The non-return valve is adapted to prevent entry of flood water through the frame in flood conditions and to allow escape of water from the recess in the absence of flood conditions.

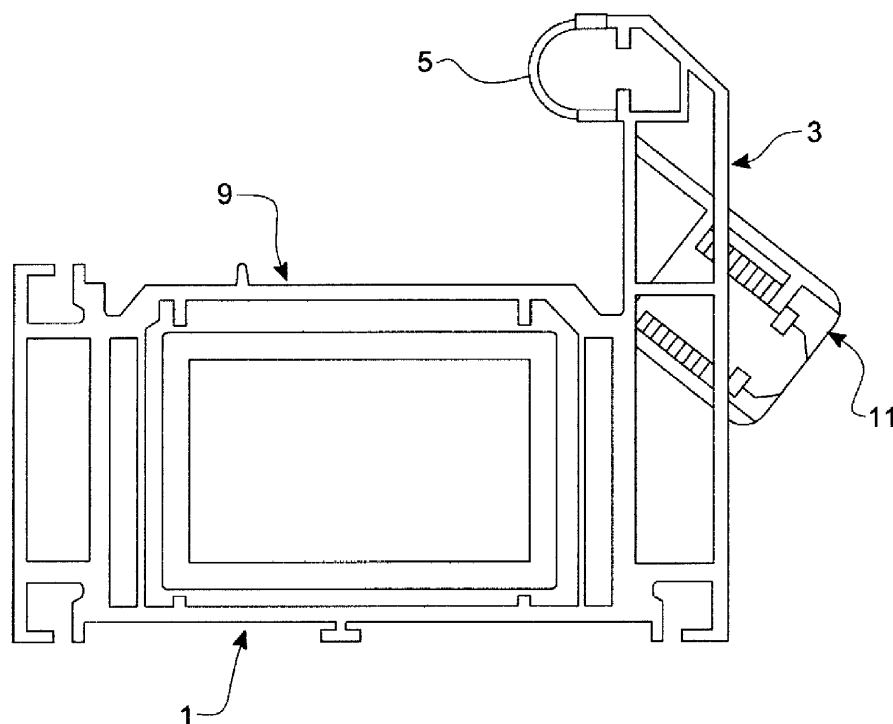


Fig. 1

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Description

[0001] This invention relates to a frame for a flood door, such as a flash flood door.

[0002] It is common practice in many door frames, especially frames of plastics, such as PVCu, or metal, such as aluminium, are provided with drain holes in the lower cross-member of the frame. The frame often has a recess in the upper face of the cross-member and this can accumulate quantities of water, for example due to opening of the door in wet weather and water dripping off the bottom of the door, or due to water finding its way between glazing panels and the remainder of the door. If the water is allowed to accumulate it can seep into the house or can stagnate in the recess. Stagnant water can cause damage to seals, discolour PVCu, and/or give off unpleasant odours.

[0003] With normal doors, the drain holes extend from the recess in the upper face of the cross-member to an external surface of the door frame to allow any water to escape.

[0004] This presents a problem with doors and frames that are intended to protect against flooding. The drain holes provide an entry point for flood water and are therefore eliminated with the result that the problem of water accumulating in the recess in the upper face of the lower frame cross-member arises once again.

[0005] It is therefore an object of the present invention to provide a frame for a flood door which overcomes, or at least ameliorates, the above-mentioned problems.

[0006] According to the present invention there is provided a frame for receiving a flood door, the frame including a lower cross-member having a recess in an upper face of the cross-member and an external face, wherein at least one non-return valve is provided in the cross-member and communicates between the recess and the external face, the non-return valve being adapted to prevent entry of flood water through the frame in flood conditions and to allow escape of water from the recess in the absence of flood conditions.

[0007] The door frame may be formed from a substantially L-shaped extrusion comprising a longitudinally extending main portion and a secondary portion positioned substantially at right angles to the main portion and adapted to extend partly across the surface of a door. The secondary portion may be provided with a seal at the free end of the secondary portion adapted to seal against a door surface. The non-return valve may be positioned at a level beneath the seal in use of the frame.

[0008] A plurality of non-return valves may be provided in the cross-member. For example, a valve may be provided in the region of the middle of the cross-member and in the region of each end of the cross-member.

[0009] The or each non-return valve may be inserted into a hole which extends substantially from a low point of the recess in a downward direction towards the external face of the lower cross-member. The hole may be formed by drilling and the non-return valve may include

a cylindrical outer surface to allow the valve to be secured in the hole. The valve may be secured with an adhesive, such as a resin material or a sealant.

[0010] For a better understanding of the present invention and to show more clearly how it may be carried into effect reference will now be made, by way of example, to the accompanying drawings in which:

[0011] Figure 1 is a cross-sectional view of one embodiment of a lower cross-member of a frame for a flood door; and

[0012] Figure 2 is a perspective view of a frame including the lower cross-member of Figure 1.

[0013] The figures show a door frame which is formed from a generally L-shaped extrusion comprising a longitudinally extending main portion 1 and a secondary portion 3 positioned substantially at right angles to the main portion and designed to extend partly across the surface of a door (not shown). The secondary portion 3 is provided with a seal 5 at the free end of the secondary portion and adapted to seal against a door surface to prevent water entering between the frame and the door. The frame includes a lower cross-member 7 which includes a recessed region 9 in an upper surface of the main portion of the cross-member and an external face.

[0014] In order to allow water to drain from recessed region 9 formed in the upper surface of the lower cross-member the lower cross-member is provided with a plurality, three as illustrated, of non-return valves 11. One valve is provided in the region of the middle of the cross-member, while the others are provided one in the region of each end of the cross-member. Each non-return valve 11 is inserted into a hole which extends substantially from a low point of the recessed region 9 in a downward direction towards an external face of the lower cross-member 7. That is, the non-return valve is positioned at a level beneath the seal 5 in use of the frame. The hole is formed by drilling and the non-return valve 11 includes a cylindrical outer surface which allows the valve to be secured in the hole with a suitable adhesive, such as a resin material or a sealant, conventionally used in such circumstances.

[0015] The non-return valves 11 allow water to flow away from the lower cross-member in normal weather conditions, but do not allow entry of water in flood conditions.

[0016] The use of non-return valves is not restricted to frames for single doors, but can be employed in frames for multiple doors, such as double doors. It may be desirable, though, to increase the number of non-return valves for larger frames.

Claims

1. A frame for receiving a flood door, the frame including a lower cross-member (7) having a recess (9) in an upper face of the cross-member and an external face, wherein at least one non-return valve (11) is

provided in the cross-member and communicates between the recess and the external face, the non-return valve being adapted to prevent entry of flood water through the frame in flood conditions and to allow escape of water from the recess in the absence of flood conditions. 5

2. A frame as claimed in claim 1, wherein the door frame is formed from a substantially L-shaped extrusion comprising a longitudinally extending main portion (1) and a secondary portion (3) positioned substantially at right angles to the main portion and adapted to extend partly across the surface of a door. 10
3. A frame as claimed in claim 2, wherein the secondary portion (3) is provided with a seal (5) at the free end of the secondary portion adapted to seal against a door surface. 15
4. A frame as claimed in claim 3, wherein the non-return valve is positioned at a level beneath the seal (5) in use of the frame. 20
5. A frame as claimed in any preceding claim, wherein a plurality of non-return valves (11) are provided in the cross-member (7). 25
6. A frame as claimed in claim 5, wherein a valve (11) is provided in the region of the middle of the cross-member (7) and in the region of each end of the cross-member. 30
7. A frame as claimed in any preceding claim, wherein the or each non-return valve (11) is inserted into a hole which extends substantially from a low point of the recess (9) in a downward direction towards the external face of the lower cross-member (7). 35
8. A frame as claimed in claim 7, wherein the hole is formed by drilling and the non-return valve (11) includes a cylindrical outer surface to allow the valve to be secured in the hole. 40
9. A frame as claimed in claim 7 or 8, wherein the valve (11) is secured with an adhesive. 45
10. A frame as claimed in claim 9, wherein the adhesive is selected from a resin material and a sealant. 50

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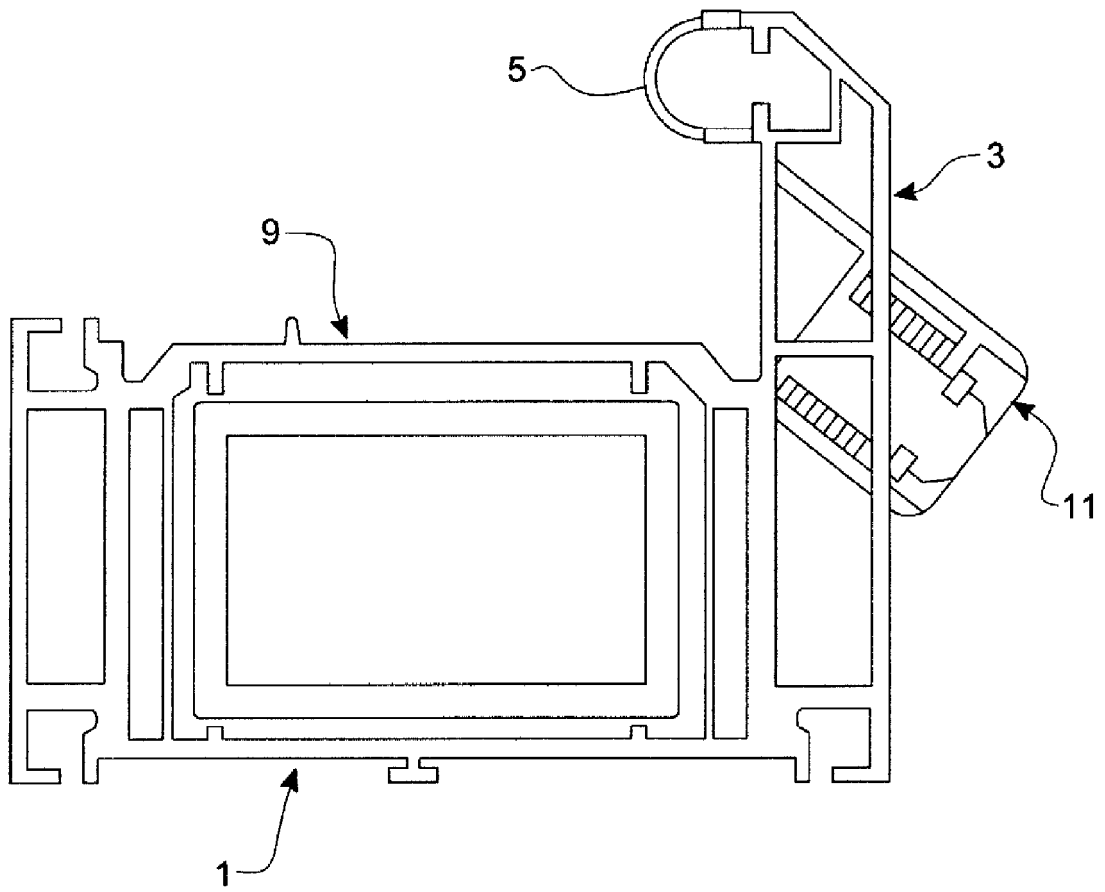


Fig. 1

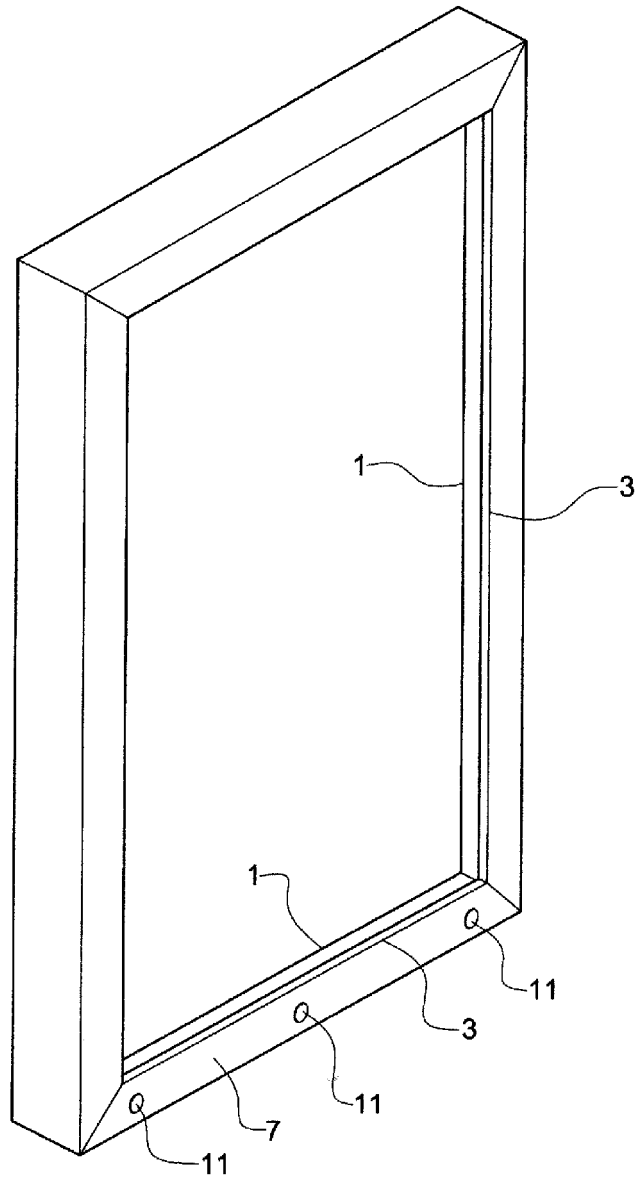


Fig. 2