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(54) **FRAME AND PANEL ASSEMBLY**

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(57) **ABSTRACT**

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A frame and panel assembly comprises a frame (2, 4, 6, 8, 10) opposed inner extents of the frame (2, 4, 6, 8, 10) being recessed (16, 18) with the base portions (22) of opposed recesses (16, 18) being spaced apart a distance greater than the width of the panel (12), the free ends of the front portions (24) of opposed recesses (16, 18) being spaced apart by a distance less than the width of the panel (12), and a gasket (26, 28) within each recess (16, 18). One edge extent of a panel (12) can be located into the recess (18) against the resilience of the associated gasket (28), and the opposed edge extent of the panel (12) can then be manoeuvred into a second recess (16), the gaskets locating the panel (12) centrally within the frame to close the aperture and to urge the panel (12) towards the front portions (24) of the recesses (16, 18).

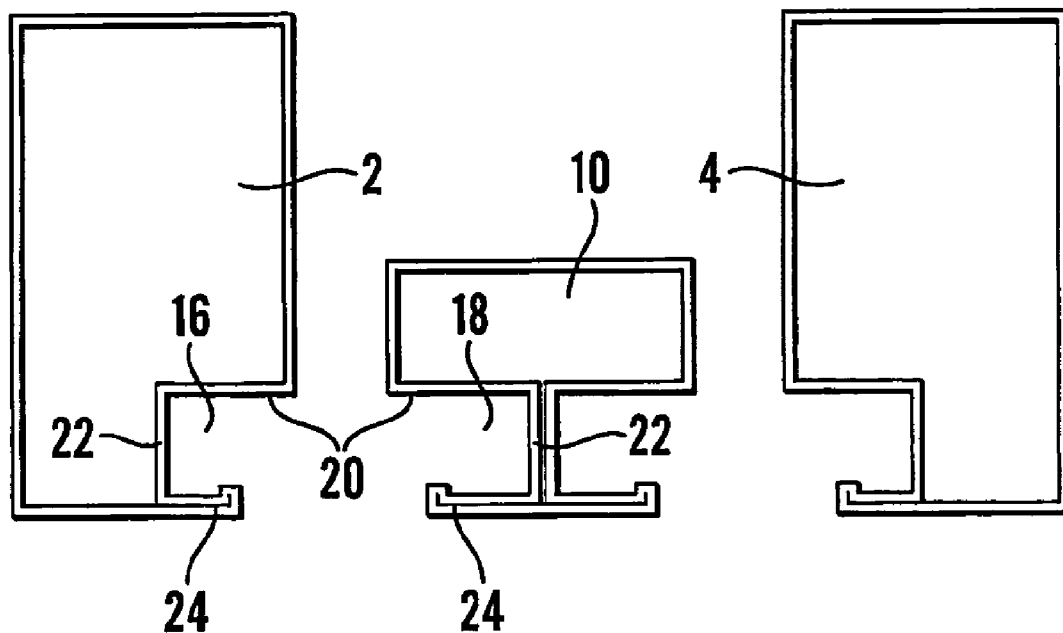
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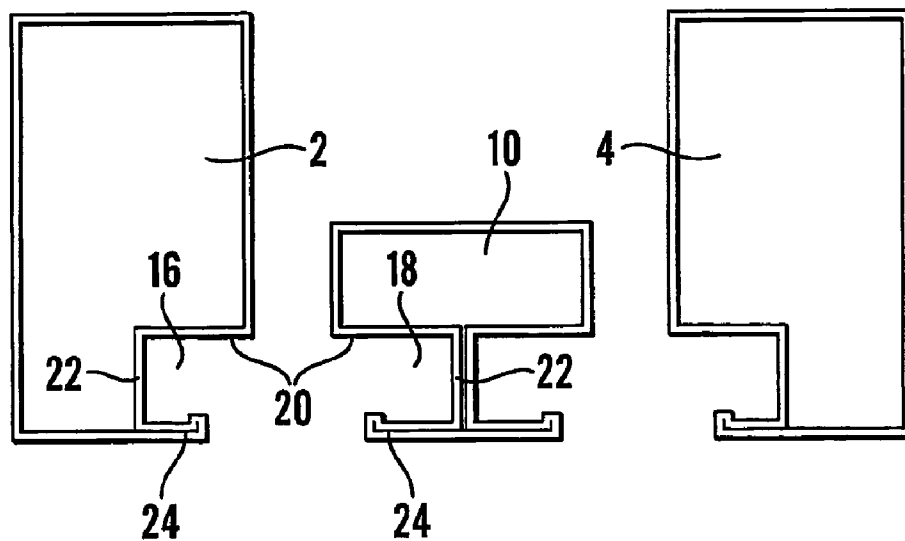


Fig. 1

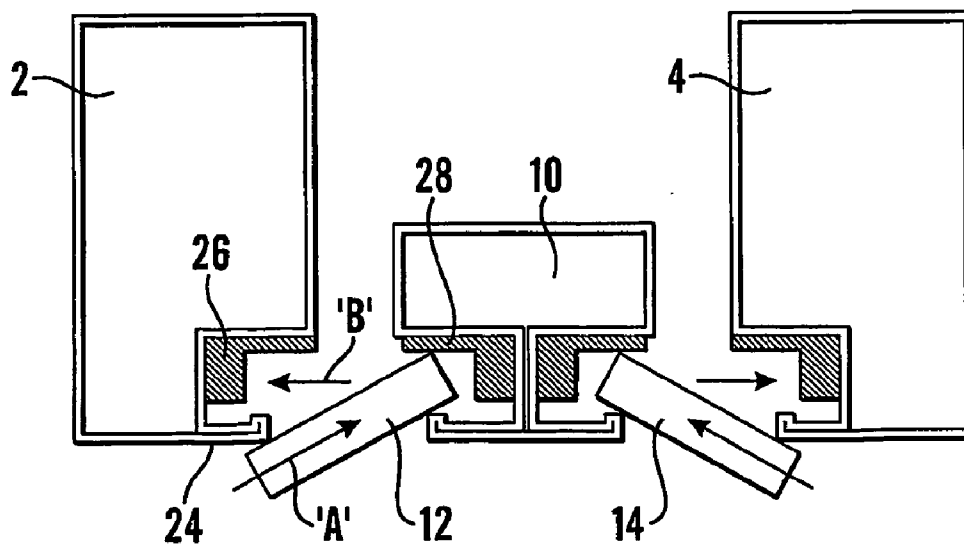


Fig. 2

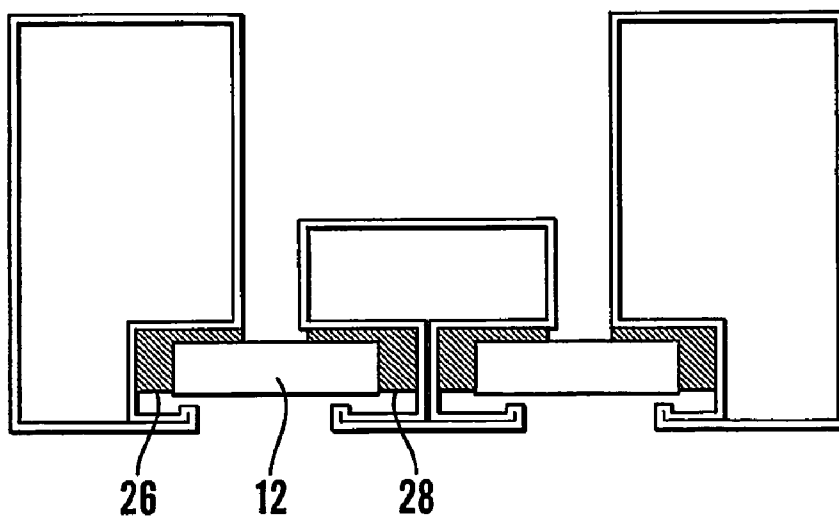


Fig.3

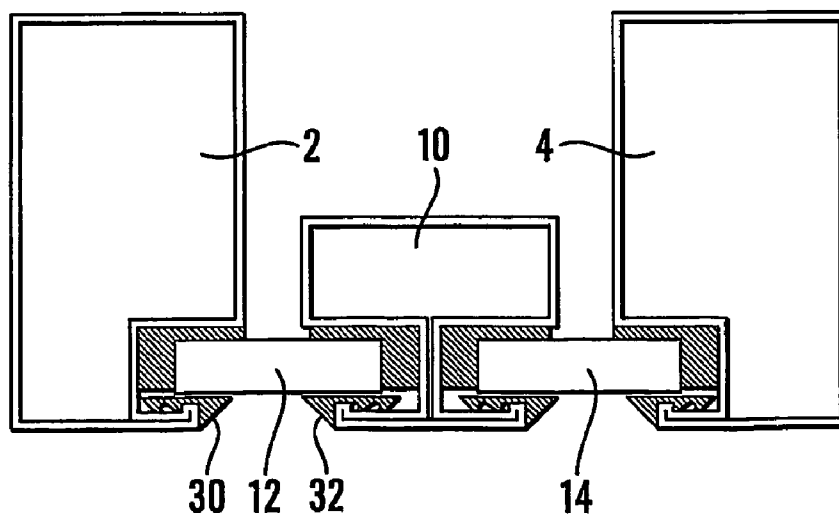


Fig.4

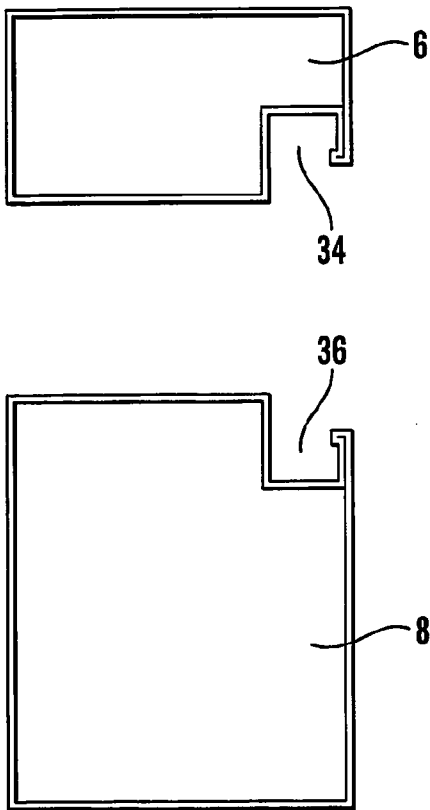


Fig.5

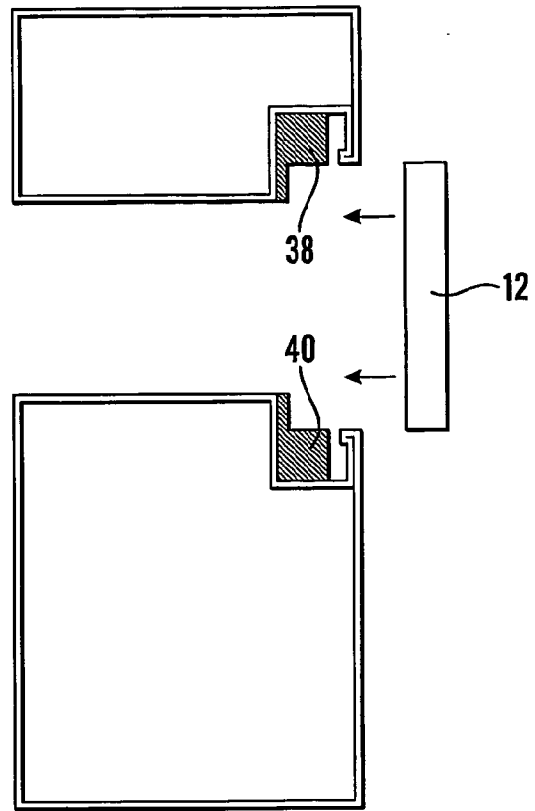


Fig.6

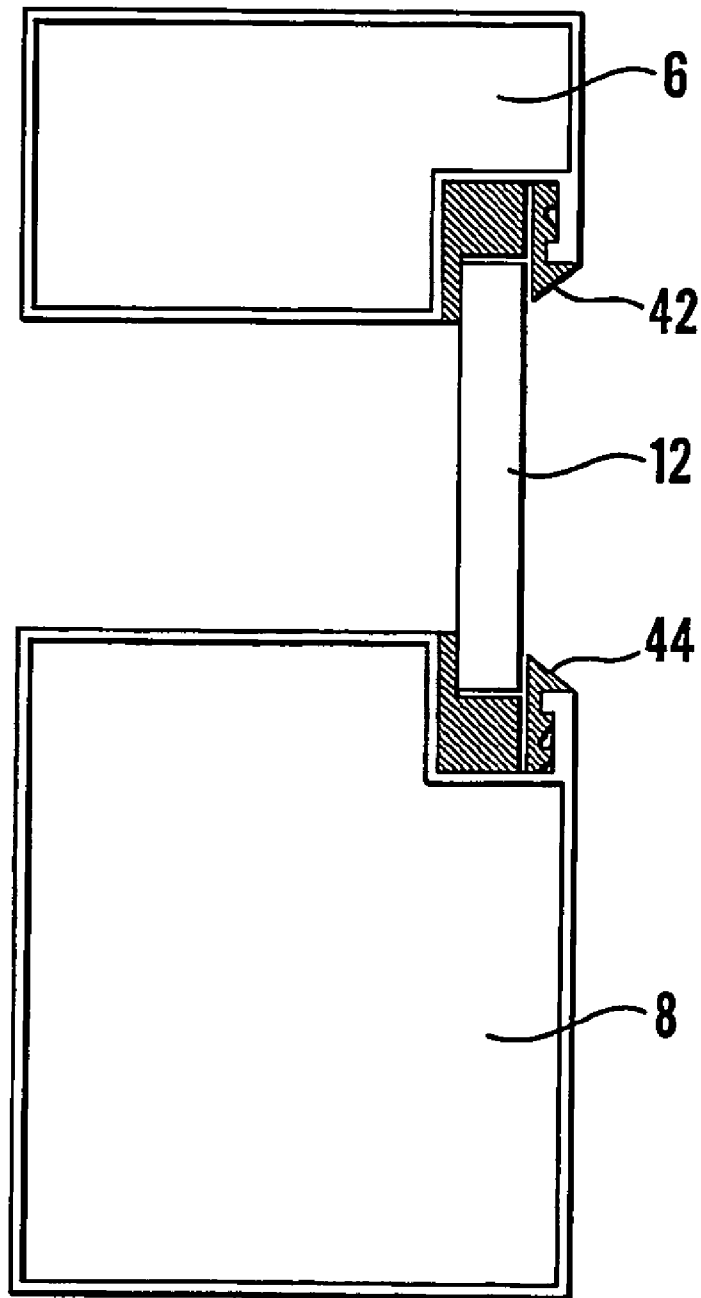


Fig. 7

FRAME AND PANEL ASSEMBLY

TECHNICAL FIELD

[0001] This invention relates to a frame and panel assembly, and has particular though not exclusive application to glazed window and door frames as well as curtain walling, rooflights, skylights and screens.

BACKGROUND ART

[0002] When glazing frames such as door frames and window frames, it is conventional practice to locate the glass in position in the frame and then to retain the glass in the frame using glazing beads. Such a procedure is appropriate regardless of the material of the frame, which may be aluminium, stainless steel, mild steel, pvc, grp, timber or the like.

[0003] The use of such beads has a number of disadvantages not the least of which is the cost associated with their manufacture and installation. Furthermore, glazing beads are prone to vandalism, their forcible removal enabling illegal access to buildings and the like.

[0004] Attempts have been made to overcome this latter problem by modifying the beads to make them more secure and more difficult to remove. However such modifications add further to the overall cost of the assembly.

SUMMARY OF THE INVENTION

[0005] It would be desirable to be able to provide a frame and panel assembly that is relatively economic to manufacture and is less prone to vandalism than heretofore.

[0006] According to a first aspect of the present invention, there is provided a frame and panel assembly comprising a frame defining an aperture therein, opposed inner extents of the frame being recessed to receive therein associated edge extents of a panel, characterised in that the recesses are each of channel section with the base portions of opposed recesses being spaced apart a distance greater than the width of the panel, the free ends of the front portions of opposed recesses being spaced apart by a distance less than the width of the panel, and a gasket within each recess lining the rear and base portions of the associated recess whereby one edge extent of a panel can be located into the recess in one inner extent of the frame against the resilience of the associated gasket, and the opposed edge extent of the panel can then be manoeuvred into the recess in the opposed inner extent of the frame, the gaskets reacting between the panel and the recesses to locate the panel centrally within the frame to close the aperture and to urge the panel towards the front portions of the recesses.

[0007] With such an arrangement it will be appreciated that the rear portions of the recesses within the opposed inner extents of the frame provide support for the rear of the edge extents of the panel, by way of the gaskets therebetween, and the front portions of the recesses within the opposed inner extents of the frame serve to retain the panel within the frame without the requirement for additional beads to be applied subsequently.

[0008] In a preferred embodiment of the invention the assembly further comprises, for each recess, a second gasket

reacting between the front portion of the recess and the panel to seal the panel in the aperture.

[0009] According to a second aspect of the invention there is provided a method of assembling a frame and panel assembly, the frame defining an aperture therein to receive a panel, characterised by providing channel section recesses in opposed inner extents of the frame with the base portions of opposed recesses being spaced apart a distance greater than the width of the panel, and the free ends of the front portions of the opposed recesses being spaced apart by a distance less than the width of the panel, locating a gasket in each recess to line the rear and base portions thereof, locating one edge extent of the panel into the recess in one inner extent of the frame and compressing the associated gasket therewith, manoeuvring the other edge extent of the panel into the recess in the opposed inner extent of the frame, and centralising the panel within the frame.

[0010] In such a method, it will be appreciated that the resilience of the gaskets enables shuffling of the panel into the frame and subsequently serves to locate the panel centrally within the frame.

[0011] The method may further include the step of locating a second gasket to react between the front portion of each recess and the panel thereby to seal the panel in the aperture.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIGS. 1 to 4 are horizontal sections through opposed side members of a frame and panel assembly according to the invention at various stages during the assembly process, and FIGS. 5 to 7 are vertical sections through the upper and lower members of a frame and panel assembly according to the invention at various stages during the assembly process.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0013] Referring to the drawings, there is shown a main window frame to be glazed which includes opposed side members 2,4 (FIGS. 1 to 4), a top member 6 and a bottom member 8 (FIGS. 5 to 7). A mullion 10 divides the window frame into two sub-frames each of which is to receive an associated glass panel 12,14.

[0014] The resultant assemblies and the method of assembly are the same for both sub-frames, and only one will be described in detail hereinafter.

[0015] The side member 2 and the opposed side of the mullion 10 are formed with recesses 16,18 respectively along the full lengths thereof, each recess 16,18 being of generally channel shape in transverse section and including a rear defining wall 20, a base wall 22 and a front wall 24.

[0016] The distance between the opposed base walls 22 is greater than the width of the panel 12, the distance between the free ends of the front walls 24 is less than the width of the panel 12, and the spacing between the front and rear walls 24,20 is greater than the thickness of the panel 12.

[0017] Located in each recess 16,18 is an associated gasket 26,28 respectively, each gasket being of generally L-shape in transverse section, with the arms of the gaskets 26,28 lining the rear walls 20 and the base walls 22 of the

recesses 16,18 as clearly seen in FIGS. 2 to 4. The spacing between opposed faces of those parts of the gaskets 26,28 lining the base walls 22 of the recesses 16,18 is less than the width of the panel 12.

[0018] The panel 12 is located in the sub-frame as follows. One edge extent of the panel 12 is inserted at an angle into the recess 18 in the mullion 10 as indicated by arrow 'A' in FIG. 2 and is urged against, to compress, the gasket 28 until the other edge extent of the panel 12 can be manoeuvred past the free end of the front wall defining the recess 16 in the side member 2. The panel 12 is then moved in the direction of arrow 'B' in FIG. 2 until it is centrally located in the sub-frame gripped between the opposed, partially compressed arms of the gaskets 26,28 as shown in FIG. 3.

[0019] The resilience of the gaskets 26,28 may be such as to urge the front face of the panel 12 against the front walls 24 of the recesses 16,18. In the illustrated embodiment, however, further gaskets 30,32 are inserted between the panel 12 and the front walls 24 of the recesses 16,18 to provide a weatherproof seal to the installation as shown in FIG. 4.

[0020] The top and bottom members 6,8 of the frame are provided with recesses 34,36 therein of similar shape to those in the side member 2 and in the mullion 10, as best seen in FIG. 5, gaskets 38,40 being located in the recesses 34,36 as shown in FIG. 6. However the outer, opposed faces of those parts of the gaskets 38,40 lining the base walls of the recesses 34,36 are substantially aligned with the free ends of the front walls of said recesses 34,36 the spacing between said faces, and between the free ends of the front walls of the recesses in the top and bottom members being substantially equal to the length of the panel 12.

[0021] Thus, as the panel 12 is located between the side member 2 and the mullion 10, the upper and lower ends thereof are received in the gaskets 38,40 as shown in FIG. 7. Further gaskets 42,44 provide weatherproof/seals at the top and the bottom of the panel 12.

[0022] It will be appreciated that, with the panel 12 closing the aperture in the sub-frame, the rear side edge extents of the panel 12 are supported, through the gaskets 26,28, by the rear walls 20 of the recesses 16,18, while the front side edge extents of the panel are retained in the recesses 16,18 by the front walls 24 of the recesses 16,18. These walls 20,24 are integrally formed with the sub-frame whereby the panel 12 is located and retained without the requirement for separate beads either internally or externally of the panel.

[0023] The frames to be panelled may be of any suitable material dependent upon the particular application, location, degree of security required and the like, and may be of, for example, aluminium, stainless steel, mild steel, pvc, grp, timber and the like.

[0024] The panels may be glass, wood, steel, plastic or other rigid material.

[0025] The gaskets are of any conventional material such as rubber, silicone, neoprene and the like.

[0026] The frame to be panelled may be a single frame or may include a plurality of sub-frames therein, and may be a window frame, a door frame, curtain walling, a rooflight, a skylight, a screen or the like.

1. A frame and panel assembly comprising a frame (2,4,6,8,10) defining an aperture therein, opposed inner extents of the frame (2,4,6,8,10) being recessed (16,18) to receive therein associated edge extents of a panel (12), characterised in that the recesses (16,18) are each of channel section with the base portions (22) of opposed recesses (16,18) being spaced apart a distance greater than the width of the panel (12), the free ends of the front portions (24) of opposed recesses (16,18) being spaced apart by a distance less than the width of the panel (12), and a gasket (26,28) within each recess (16,18) lining the rear and base portions (20,22) of the associated recess (16,18) whereby one edge extent of a panel (12) can be located into the recess (18) in one inner extent of the frame against the resilience of the associated gasket (28), and the opposed edge extent of the panel (12) can then be manoeuvred into the recess (16) in the opposed inner extent of the frame, the gaskets (26,28) reacting between the panel (12) and the recesses (16,18) to locate the panel (12) centrally within the frame to close the aperture and to urge the panel (12) towards the front portions (24) of the recesses (16,18).

2. An assembly as claimed in claim 1 and further comprising, for each recess (16,18), a second gasket (30) reacting between the front portion (24) of the recess (16,18) and the panel (12) to seal the panel (12) in the aperture.

3. A method of assembling a frame and panel assembly, the frame (2,4,6,8,10) defining an aperture therein to receive a panel (12), characterised by providing channel section recesses (16,18) in opposed inner extents of the frame (2,4,6,8,10) with the base portions (22) of opposed recesses (16,18) being spaced apart a distance greater than the width of the panel (12), and the free ends of the front portions (24) of the opposed recesses (16,18) being spaced apart by a distance less than the width of the panel (12), locating a gasket (26,28) in each recess (16,18) to line the rear and base portions (20,22) thereof, locating one edge extent of the panel (12) into the recess (18) in one inner extent of the frame (2,4,6,8,10) and compressing the associated gasket (28) therewith, manoeuvring the other edge extent of the panel (12) into the recess (16) in the opposed inner extent of the frame, and centralising the panel (12) within the frame (2,4,6,8,10).

4. A method as claimed in claim 3 and further including the step of locating a second gasket (30) to react between the front portion (24) of each recess (16,18) and the panel (12) thereby to seal the panel (12) in the aperture.

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