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(54) Cavity closures

(57) A combined roller shutter guide and wall cavity closure consisting of a one-piece plastics extrusion of substantially uniform cross-section along its length, the extrusion having a guide channel (1) for guiding an edge portion of a roller shutter, a first insulation receiving channel (2) open in a direction opposite to that of the guide channel (1) and for retaining a length of insulation material (3), said first channel (1) sharing a wall (6) with the guide channel (1), a second insulation receiving channel (4) open in the same direction as the said first channel (2) and for retaining a length of insulation material (5), said second channel (4) sharing a wall (7) with the first channel (2), and retaining grooves (12, 15, 16) along the length of the extrusion for receiving and retaining a portion of an appropriately shaped tie for locating the extrusion in the cavity of a wall, the grooves extending in the direction of extrusion and being positioned so that ties located therein retain the extrusion in opposite sides of the wall cavity.

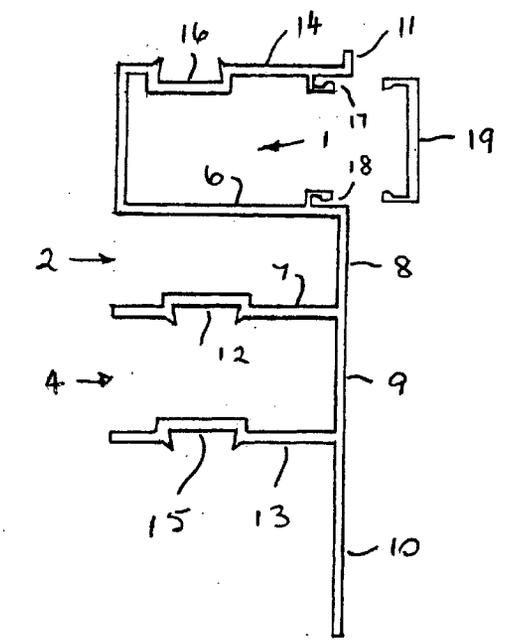

Fig. 1

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Description

This invention concerns wall cavity closures which also act as guide tracks for roller shutters.

The use of roller shutters on buildings, for example in front of doors and/or windows, is becoming increasingly popular not only because it provides added security but it can also improve insulation. Hitherto, particularly when they are installed on existing buildings, such shutters have been used with guide rails or boxes in which the edges of the shutter run, these guides being secured on the external surface of the frame of the window or door with which they are being used. Such fixing arrangements have the disadvantage that a potential burgalar can physically lever the guide rails or boxes away from the frame to which they are attached, thereby reducing the object of having the shutter.

It has also been proposed to mount the guide rails for such shutters within the wall cavity surrounding the window or door with which they are to be used, thereby preventing a potential burgalar from levering the rails away from the window or door. However, since building regulations now require the use of insulation in the cavity between the outer and inner skin of new buildings, guide rails for use in such cavities are having to be used with an insulating insert which both bridge the wall cavity and retain the guide rail for the shutter when it is closed.

A problem with such arrangements is that the use of separate guide rails for the edge of the shutter with a conventional cavity closure requires the cavity closure itself to be adapted so that it will satisfactorily retain the guide rail. Not only does this often require quite complex shaping steps to be carried out on the components used to form the combined guide and cavity closure, even if it is done accurately the resulting combination is usually not water tight, thereby allowing the ingress of water into the cavity closure.

According to the present invention there is provided a combined roller shutter guide and wall cavity closure which comprises a one-piece plastics extrusion of substantially uniform cross-section along its length, the extrusion comprising a guide channel for guiding an edge portion of a roller shutter, a first insulation receiving channel open in a direction opposite to that of the guide channel and for retaining a length of insulation material, said first channel sharing a wall with the guide channel, a second insulation receiving channel open in the same direction as the said first channel and for retaining a length of insulation material, said second channel sharing a wall with the first channel, and retaining grooves along the length of the extrusion for receiving and retaining a portion of an appropriately shaped tie for locating the extrusion in the cavity of a wall, the grooves extending in the direction of extrusion and being positioned so that ties located therein retain the extrusion in opposite sides of the wall cavity.

The use of a one-piece extrusion to provide a combined roller shutter guide and cavity closure avoids the problems with accurate shaping required in hitherto proposed arrangements using separate guide rails and cavity closures. Furthermore, the use of a one-piece extrusion which assists in preventing the ingress of water which hitherto occurred between the guide rail and the cavity closure into which it was fitted.

Combined roller shutter guide and wall cavity closures in accordance with the present invention are preferably provided with a removable closure member for the guide channel, especially against the ingress of water, thereby enabling this channel to be kept closed if, for example, a roller shutter has not been installed at the time when the combined roller shutter guide and wall cavity closure is installed in a building.

Embodiments of combined roller shutter guide and wall cavity closures in accordance with the present invention will now be described with reference to the accompanying diagrammatic drawings in which:-

Fig. 1 is an end view of a first embodiment with a closure member about to be located in its guide channel;

Fig. 2 is a cut away perspective view of the embodiment of Fig. 1 cut to fit a wall cavity and with securing ties attached;

Fig. 3 is a cut away perspective view of the embodiment as shown in Fig. 2, mounted in a window frame;

Fig. 4 is a view similar to that of Fig. 1 but part cut away and with a pair of resilient seals located in its guide channel;

Fig. 5 is a view similar to that of Fig. 4 but with a roller shutter between the pair of seals;

Fig. 6 is an end view of a second embodiment with insulation inserted; and

Fig. 7 is a plan view of a tie for use with the embodiment of Fig. 6.

Referring to Fig. 1, the illustrated combined roller shutter guide and cavity closure has a guide channel 1 for guiding a roller shutter (not shown), a first insulation receiving channel 2 for holding a strip 3 of expanded polystyrene insulation, and a second insulation receiving channel 4 for holding a strip of expanded polystyrene insulation 5. The guide channel 1 shares a wall 6 with the first insulation receiving channel 2, and the first insulation receiving channel 2 shares a wall 7 with the second insulation receiving channel 4. The guide channel 1 therefore has its opening pointing in the opposite direction to that of the first and second insulation channels 2 and 4.

The end walls 8 and 9 of the channels 2 and 4, re-

spectively, join to form plane surface which extends into a cover strip 10 extending beyond the channels 2 and 4 and away from the guide channel 1.

A lip 11 along the edge of the guide channel 1 opposite to the wall 8 serves in use to prevent the extrusion from being pushed into the wall cavity into which the extrusion has been located. The strip 10 can serve a similar purpose that of the lip 11.

The wall 7 between the first and second insulation receiving channels 2 and 4 is provided with a groove 12 which extends down the length of the extrusion. Walls 13 and 14 of the second insulation receiving channel 4 and the guide channel 1 have similar grooves 15 and 16, respectively, which also extend down the length of the extrusion. The grooves 12 and 15 open in the same direction away from the guide channel 1, and the groove 16 opens in the opposite direction to the grooves 12 and 15.

Within the guide channel 1 are two locating channels 17 and 18 extending down the length of the extrusion and into which either a blanking strip 19 can be clipped to close the channel 1, for example if a shutter has yet to be installed, or brush strips or other flexible guide members can be clipped into the channels 17 and 18 in order to guide the shutter in the channel 1 when the shutter is moved in the channel 1.

As can be seen from Figs. 2 and 3, when installed in a window or door frame, the extrusion is held in place by clips 20 and 21 which are clipped into the groove 16 and either groove 15 or groove 12, as will subsequently be described in more detail. The clips 20 and 21 are held in mortar between adjacent courses of building blocks 22, the course on top of the clips having been removed for clarity.

The illustrated extrusion can be adjusted to be located and retained in a variety of widths of wall cavity. The extrusion as shown in Fig. 1 can be used in a very wide cavity, the clips 21 being located in the groove 15 and strip 10 then being retained in its full width to cover the of the cavity itself. In narrower cavities the strip 10 can be reduced in width whilst still using the clips 21 in the groove 15, and it can even be removed completely, as shown in Figs 2 and 3.

If the cavity with which the extrusion is to be used is narrower still, the strip 10 and the wall 13 can be removed, thereby removing the channel 4, but as will be appreciated, the clips 21 will then have to be located in the groove 12. In this case, the wall 8 of the second channel 4 can be retained in full, or it too can be cut down as required for the cavity being filled.

In narrower cavities still, where the gap between the inner and outer walls is less than the combined widths of the guide channel 1 and the first insulation receiving channel 2, the wall 7 can be removed, with or without some or all of the wall 8.

Once the extrusion has been mounted in a wall cavity, the associated window or door frame can be installed leaving the guide channel 1 exposed. This will often result in the frame 23 being placed over the walls 8 and 9, and also over the strip 10 if it has been retained.

The use with a roller shutter with a combined roller shutter guide and wall cavity closure in accordance with the present invention can be seen with reference to Figs. 5 and 6.

As shown in Fig. 5, when it is to be used with a roller shutter, instead of the blanking strip 19, resilient seals 24 and 25 are inserted into the locating channels 17 and 18. The seals 24 and 25 extend along substantially the length of the channel 1 and also towards each other so that they substantially close the opening to the guide channel 1.

As can be seen from Fig. 6, when a roller shutter 26 is pulled down in the channel 1 between the seals 24 and 25, the latter flex into the channel 1 on displacement by the shutter 26 and they create a seal between themselves and the roller shutter 26.

Referring to Fig. 6, the illustrated combined roller shutter guide and cavity closure has a guide channel 31 for guiding a roller shutter (not shown), a first insulation receiving channel 32 for holding a strip 33 of expanded polystyrene insulation, and second and third receiving channels 34 and 34' for holding strips of expanded polystyrene insulation 35 and 35'. The guide channel 31 shares a wall 36 with the first insulation receiving channel 32, the first insulation receiving channel 32 shares a wall 37 with the second insulation receiving channel 34 and the second insulation receiving channel 34 shares a wall 37' with the third insulation receiving channel 34'. The guide channel 31 therefore has its opening pointing in the opposite direction to that of the first, second and third insulation receiving channels 32, 34 and 34'.

In addition to the insulation strips 35 and 35', the channels 34 and 34' also include optional securing strips 49 and 49', for example of a plastics material, into which screws or other fixing means can be positively located. If the strips 49 and/or 49' are omitted, the insulation strips 35 and 35' preferably are of a size to replace the space left by the omitted strips 49 and/or 49'.

The end walls 38, 39 and 39' of the channels 32, 34 and 34', respectively, join to form a plane surface which extends into a cover strip 40 extending beyond the channels 32 , 34 and 34' and away from the guide channel 31.

A lip 41 along the edge of the guide channel 31 opposite to the wall 38 serves in use to prevent the extrusion from being pushed into the wall cavity into which the extrusion has been located. The strip 40 can serve a similar purpose to that of the lip 41.

The walls 37, and 37' between the first and second and the second and third insultaion receiving channels 32, 34 and 34' are provided with grooves 42 and 42' respectively which extend down the length of the extrusion. Walls 42 and 44 of the third insulation receiving channel 34' and the guide channel 31 have similar grooves 45 and 46, respectively, which also extend down the length of the extrusion. The grooves 42, 43'

and 45 open in the same direction away from the guide channel 31, and the grooves 46 opens in the opposite direction to the grooves 42 and 45.

Within the guide channel 31 are two locating channels 47 and 48 extending down the length of the extrusion and into which brush strips or other flexible guide members can be slid or clipped. in order to guide the shutter in the channel 31 when the shutter is moved in the channel 31.

In a similar manner to that described for the embodiment of Figs 2 and 3, when installed in a window or door frame this extrusion is held in place by generally flat ties or clips 50 (Fig.7) which are clipped into the groove 46 and one of grooves 42' or 42 in a similar manner to the clips 20 and 21 in Figs. 2 and 3, for example by inserting the generally "T" shaped end 51 of the clips 50 edgeways on into the particular groove and then twisting the clip 50 so that the plane of the clip 50 is essentially perpendicular to the groove.

The ties or clips 50 preferably have a rough surface and/or projections to facilitate bonding to mortar forming the skins of the cavity wall into which the closure is fitted.

As with the embodiment of Figs. 1 to 5, the embodiment of Fig. 6 can be adjusted to be located and retained in a variety of widths of wall cavity. The extrusion as shown in Fig. 6 can be used in a very wide cavity, the ties or clips 50 being located in the grooves 45 and strip 40 then being retained in its full width to cover the width of the cavity itself. In narrower cavities the strip 40 can be reduced in width whilst still using the ties or clips 50 in the groove 45, and it can even be removed completely in a similar manner to that shown in Figs 2 and 3.

If the cavity with which the extrusion is to be used is narrower still, the strip 40 and the wall 43 can be removed, thereby removing the channel 34', but as will be appreciated, the clips 50 will then have to be located in the grooves 42'. In this case, the wall 39' of the third channel34' can be retained in full, or it too can be cut down as required for the cavity being filled. A further restriction to fit narrower cavities can be effected by removal of the wall 37' in a similar manner to that described for the wall 43.

In narrower cavities still, where the gap between the inner and outer walls is less than the combined widths of the guide channel 31 and the first insulation receiving channel 322, the wall 37 can be removed, with or without some or all of the wall 38.

Once the extrusion has been mounted in a wall cavity, the associated window or door frame can be installed leaving the guide channel 31 exposed. This will often result in the frame (not shown) being placed over the walls 38 and 39, and also over the strip 40 if it has been retained.

The use of a roller shutter with this embodiment of roller shutter guide and wall cavity closure will be understood from the description of the use of the first embodiment with reference to Figs. 5 and 6.

In a similar manner to that shown in Fig. 5, resilient seals or brush strips can be inserted into the locating channels 47 and 48. The seals or brushes then extend towards each other across the open side and along the length of the channel 31 so that they substantially close the guide channel 31 when the roller shutter is retracted. When the shutter is pulled down in the channel 31 between the seals, the latter flex and allow the shutter to pass between them and at the same time they create a seal between themselves and the shutter.

The illustrated combined roller shutter guide and wall cavity closure is very versatile in that a single extrusion can be used for a wide variety of wall cavities.

Claims

1. A combined roller shutter guide and wall cavity closure which comprises a one-piece plastics extrusion of substantially uniform cross-section along its length, the extrusion comprising a guide channel for guiding an edge portion of a roller shutter, a first insulation receiving channel open in a direction opposite to that of the guide channel and for retaining a length of insulation material, said first channel sharing a wall with the guide channel, a second insulation receiving channel open in the same direction as the said first channel and for retaining a length of insulation material, said second channel sharing a wall with the first channel, and retaining grooves along the length of the extrusion for receiving and retaining a portion of an appropriately shaped tie for locating the extrusion in the cavity of a wall, the grooves extending in the direction of extrusion and being positioned so that ties located therein retain the extrusion in opposite sides of the wall cavity.

2. A combined roller shutter guide and wall cavity closure according to claim 1, including a removable closure member for closing the guide channel.

3. A combined roller shutter guide and wall cavity closure according to claim 1 or claim 2, including flexible means for providing a seal between the guide channel and the roller shutter.

4. A combined roller shutter guide and wall cavity closure according to any of the preceding claims, including a third insulation receiving channel sharing a wall with the said second channel.

5. A combined roller shutter guide and wall cavity closure according to any of the preceding claims, including securing strips within at least one of the first, second and third channels for engaging a screw or other securing device.

6. A roller shutter system including a combined roller shutter guide and wall cavity closure according to

any of the preceding claims.

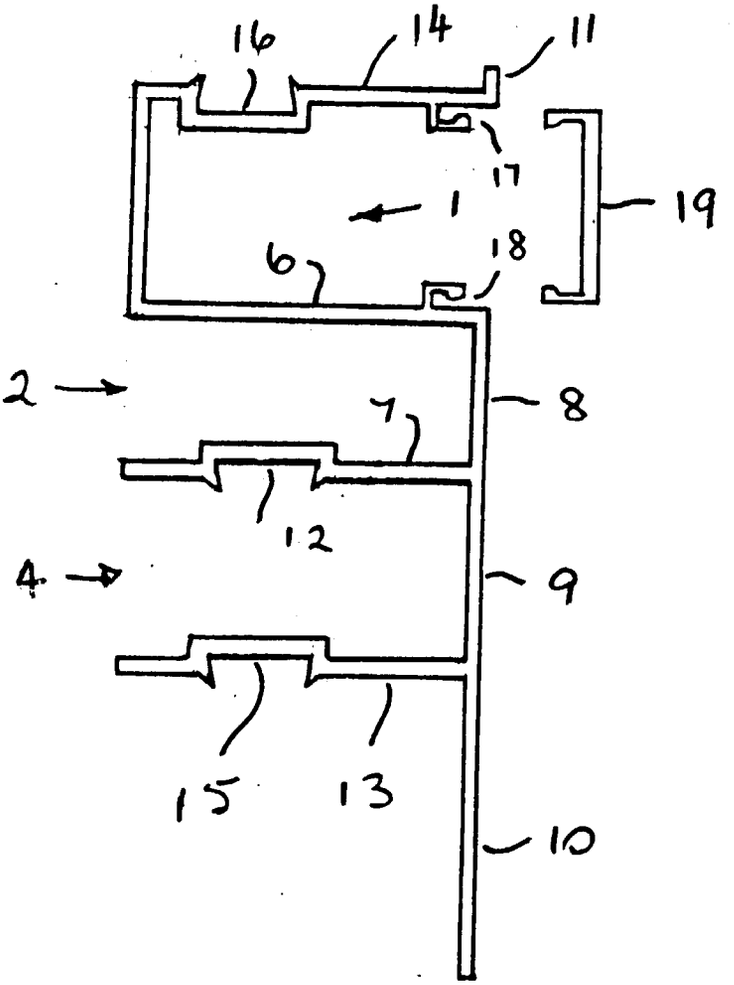

Fig. 1

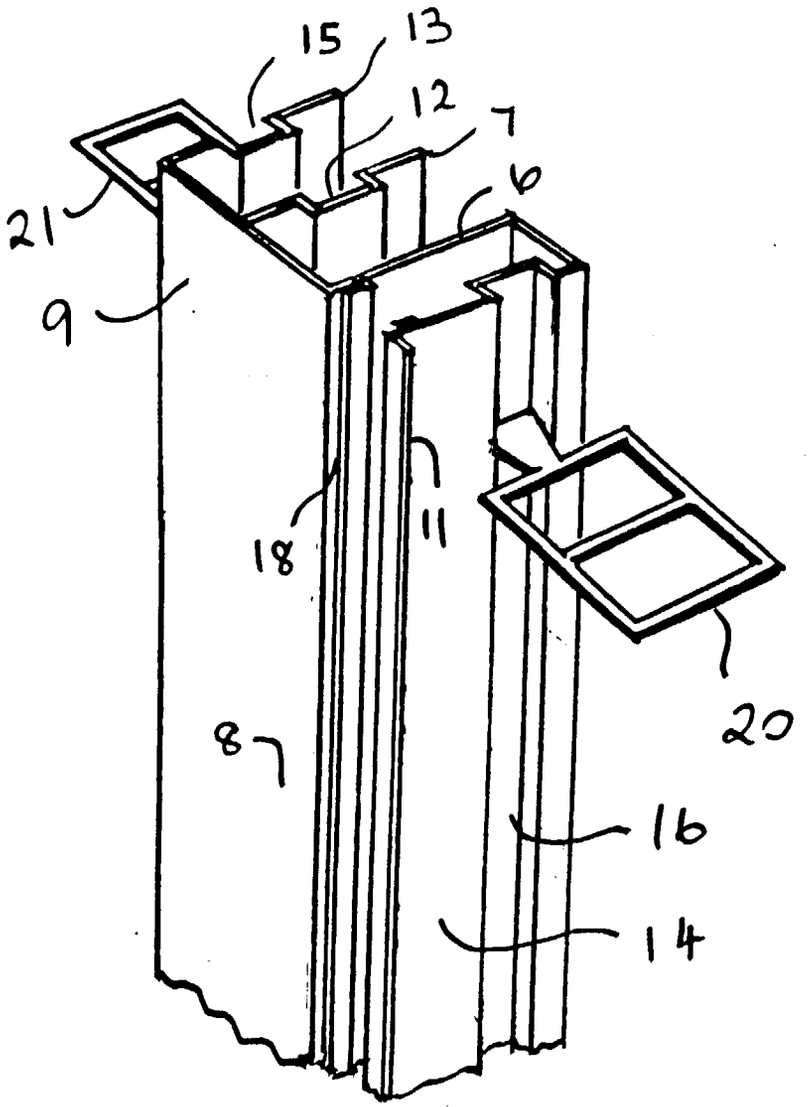

Fig. 2

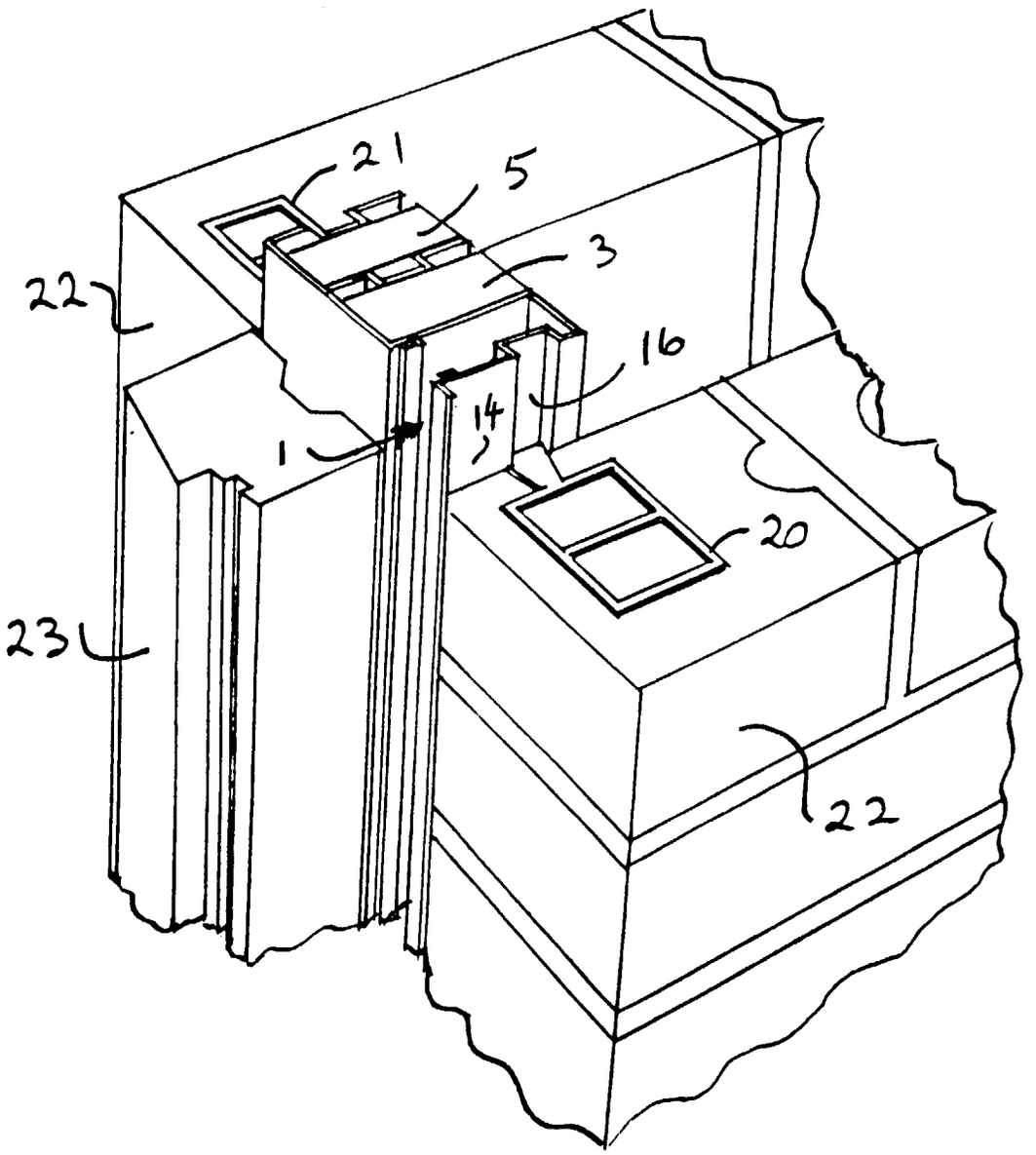

Fig.3

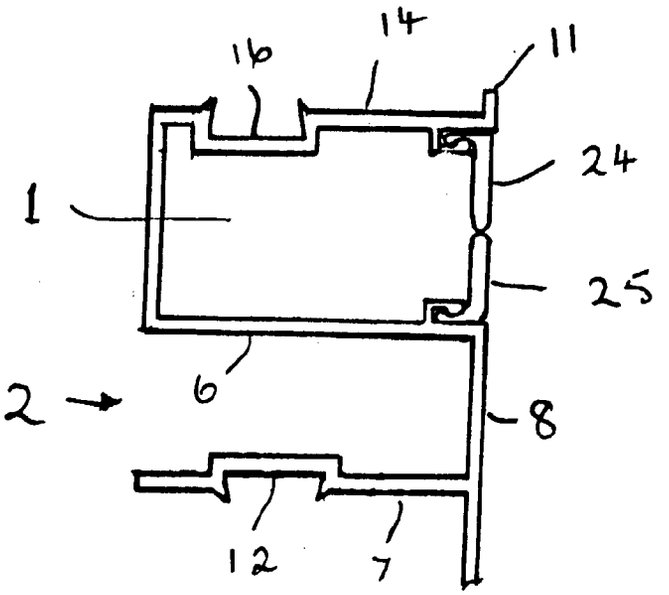

Fig. 4

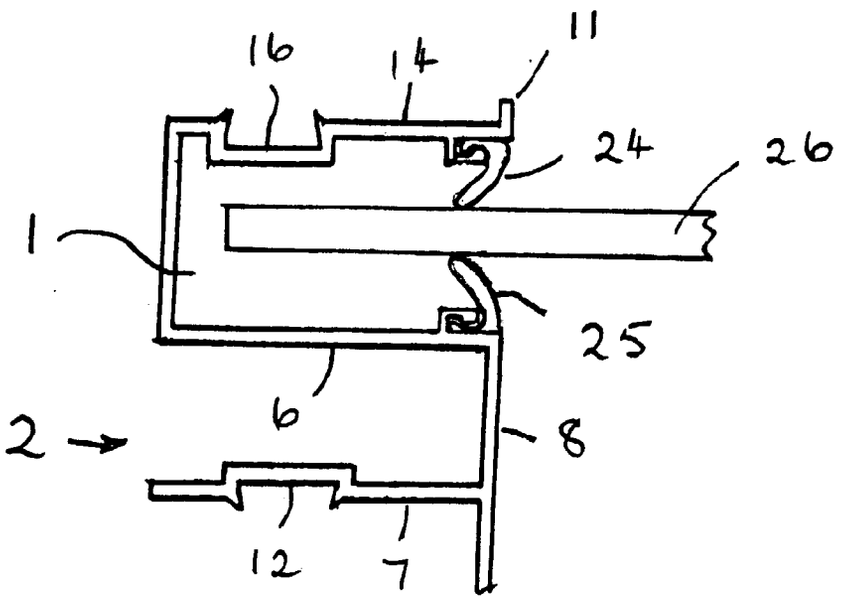

Fig. 5

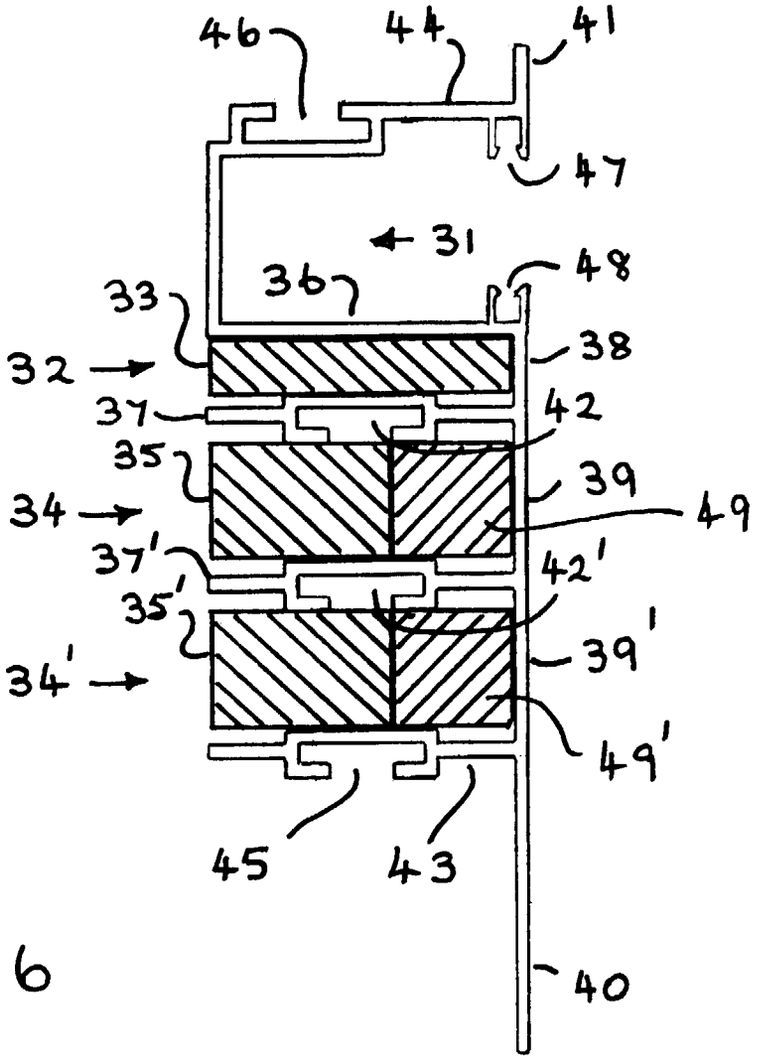
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Fig.6

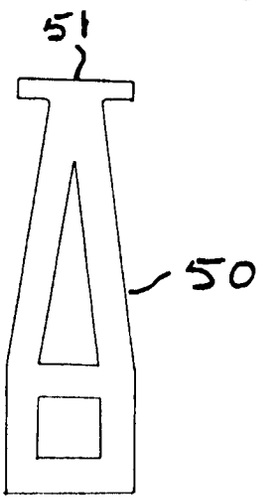
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Fig.7