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(54) Corner member and a load transmission member

(57) A corner member (10) for a building construction. The corner member (10) comprises a main body (12) and connection means on the main body (12) to co-operate with at least one laterally extending elongate support members of the building construction. The corner member (10) has an abutment face (18) to abut an end of the elongate support member, such that the abutment face (18) is arrangeable to extend, in use, substantially orthogonal to the main axis of the elongate support member.

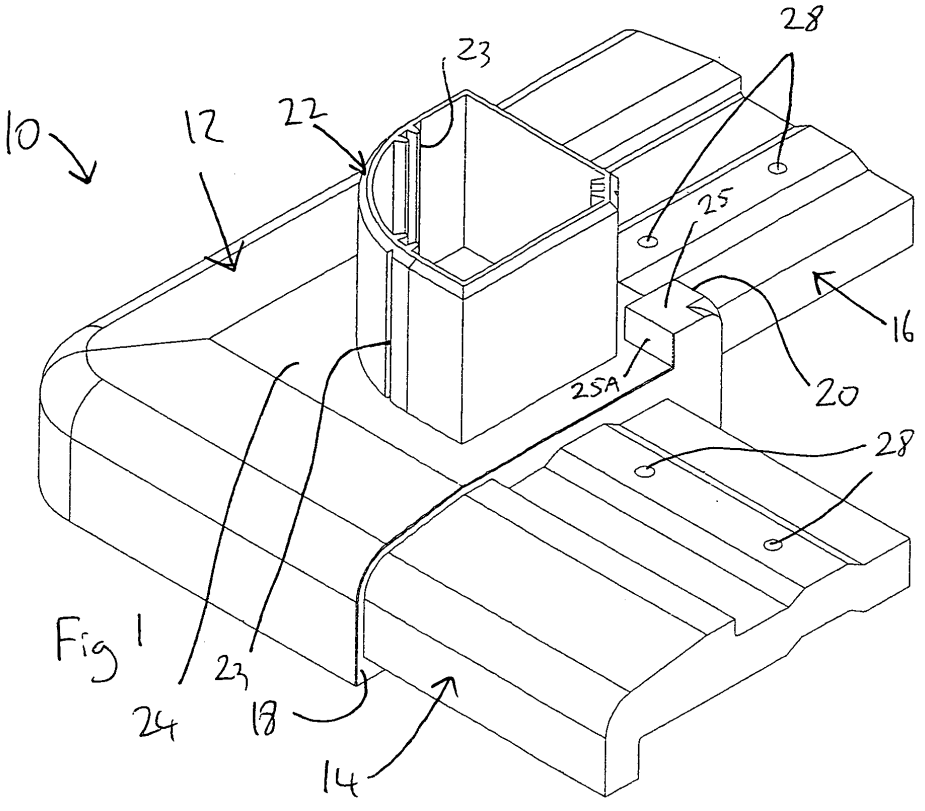

Fig 1

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Description

[0001] This invention relates to corner members. This invention also relates to load transmission members. More particularly, but not exclusively, the invention relates to corner members and load transmission members for conservatories.

[0002] A conservatory comprises a base, a sill assembly, wall panels, an eaves assembly and a roof assembly.

[0003] The sill assembly supports the dead and imposed loads of the conservatory, and provides a weatherproof junction between the base and the wall panels. The weight of the wall panels is uniformly distributed along the periphery of the sill assembly. The weight imposed by the dead and live loads of the roof are, for many conservatories, largely supported by the corner posts which are arranged at the junction of the wall panels, and are thus transmitted to the sill and the base.

[0004] It is known to form the corners of the sill and the eaves with mitred joints, but it can be difficult when assembling a conservatory to ensure that the mitred joints are closed and sealed. Moreover, since it is not generally possible to construct a base with no discrepancy in dimensions and flatness, it is likely that when the relatively flexible sill assembly is fixed to the conservatory base, the mitred joints are pulled apart to some degree as the assembly follows the line of the base including its imperfections. These imperfections are significantly detrimental to the appearance of the products.

[0005] According to one aspect of this invention, there is provided a corner member for a building construction, the corner member comprising a main body and connection means on the main body to cooperate with at least one laterally extending elongate support member of the building construction, wherein the corner member has an abutment face to abut an end face of the elongate support member, such that the abutment face is arranging to extend, in use, substantially orthogonal to the main axis of the elongate support member.

[0006] The corner member is preferably suitable for a building construction comprising a conservatory.

[0007] The feature of the abutment face extending substantially orthogonal to the main axis of the elongate support member provides an advantage in the preferred embodiment that obviates any need to mitre the abutment face and/or the end face of the elongate support member.

[0008] The connection means may comprise at least one connection element extending outwardly from the main body.

[0009] The connection means may comprise first and second connection elements extending outwardly from the main body. The, or each, connection elements may be configured to be received by the, or each respective, elongate support member, in use.

[0010] Preferably, the, or each, connection element on the main body is receivable axially by the, or each respective, elongate support member and the, or each, connection element may comprise an insertion member extending from the main body, for insertion into the, or each, respective, elongate support member.

[0011] The main body may comprise a corner portion to provide a corner region of the building construction. The main body may have larger dimensions, for example width and height dimensions than the, or each, elongate support member, thereby providing a shoulder between the main body and the, or each, elongate support member, in use.

[0012] Post support means may be provided on the main body, to support a post. The post support means may extend orthogonally relative to the, or each, connection element. Preferably, the post support means extends from an upper face or a lower face of the main body.

[0013] The corner member may be formed of a metallic material, such as aluminium, or a plastics material, such as uPVC. The corner member may be formed by casting or moulding.

[0014] According to another aspect of this invention, there is provided a constraining member for a building construction, the constraining member comprising a base part to be received by a first support member of the building construction, and an upstanding part extending substantially orthogonally from the base part to be received by a second support member of the building construction.

[0015] Preferably, the constraining member has a T-shaped profile whereby the upstanding part extends from the base part at a central region of the base part.

[0016] Preferably, the base part comprises a first generally planar member, which may be slidable along a recess in the first support member to a desired position. The first member may include a central raised region, which may extend substantially wholly across the base part.

[0017] The upstanding part may comprise a second and generally planar member. The upstanding part may extend substantially across the base part. In one embodiment, the upstanding part may extend transverse to the raised region, preferably, substantially orthogonal to the raised region.

[0018] One or more locating formations may be provided on the upstanding part. The, or each, locating formation may comprise a groove, which may extend along the upstanding part, conveniently, along a respective edge region of the upstanding part. The constraining member may include a retaining formation, which may be a hollow central region of the upstanding part.

[0019] Embodiments of the invention will now be described by way of example only, with reference to the accompanying drawings, in which:-

Fig. 1 is a diagrammatic upper perspective view of a corner member;

Fig. 2 is a diagrammatic lower perspective view of the corner member shown in Fig. 1;

Fig. 3 is an exploded view of a corner of a conservatory incorporating the corner member shown in Figs. 1 and 2;

Fig. 4 is an upper perspective view of a further embodiment of a corner member;

Fig. 5 is a lower perspective view of the corner member shown in Fig. 4;

Fig. 6 is an exploded view of a corner of a conservatory incorporating the corner member shown in Figs. 4 and 5;

Fig. 7 is an upper perspective view of a further embodiment of a corner member;

Fig. 8 is a lower perspective view of the corner member shown in Fig. 7;

Fig. 9 is an exploded view of a corner incorporating the corner member shown in Figs. 7 and 8;

Fig. 10 is an upper perspective view of a further embodiment of the corner member;

Fig. 11 is a lower perspective view of the embodiment shown in Fig. 10;

Fig. 12 is an exploded view of a corner incorporating a corner member shown in Figs. 10 and 11;

Fig. 13 is an upper perspective view of a load transmission member;

Fig. 14 is a lower perspective view of the load transmission member shown in Fig. 13;

Fig. 15 is an upper perspective view of a joint incorporating a load transmission member shown in Figs. 13 and 14 at a lower end of a support member of a building construction; and

Fig. 16 shows joint incorporating a load transmission member shown in Figs. 13 and 14 at the upper end of the elongate support member.

[0020] Referring to Figs. 1 and 2, there is shown a corner member 10 comprising a main body 12 having a generally rectangular configuration and connection means in the form of outwardly extending connection elements. The connection elements 14, 16 are in the form of first and second insertion members 14, 16 and extend from respective first and second abutment faces 18, 20 of the main body 12. Each of the insertion members 14, 16 defines a pair of apertures, 28, the purpose of which is explained below. Post support means in the form of an upstanding spigot 22 extends upwardly from the main body 12. As can be seen, the main body 12 comprises a generally planar face region 24 from which the spigot 22 extends. The face region 24 is provided to abut against the end of an upstanding post, as explained below. A subsidiary face 25 is provided on a raised region 25A adjacent the face region 24. A retaining formation in the form of a groove and channel arrangement 23 is provided to receive screws and to secure to outstanding post to the spigot 22.

[0021] Referring to Fig. 2, which shows the underside of the corner member, it can be seen that reinforcing means in the form of a plurality of ribs 26 are provided to ensure the necessary strength of the corner member. Screw receiving portions 29 are provided in alignment with the apertures 28 to provide a fixing to the conservatory base.

[0022] The corner member 10 shown in Fig. 1 is suitable for use in a sill of a conservatory, and Fig. 3 is an exploded view of a corner 30 of the sill of a conservatory. The corner 30 includes the corner member 10 as described above, a first elongate support member in the form of a first sill member 32 into which the first insertion member 14 is inserted. The first sill member 32 defines a pair of apertures 36 which are provided on the first sill member 32 in position such as to correspond with the apertures 28 in the first insertion member 14. When the first insertion member 14 is inserted into the end of the first sill member 32, the end of the first sill member 32 abuts against the first abutment face 18. Insulating trim 44 is provided over inner faces of the first and second sill members 32, 38 and over the post 40. An outer trim member 46 is provided externally over the post 40. A small shoulder rises above the first sill member 32 and the trim 44, the small shoulder being formed by virtue of the height and width dimensions of the first abutment face 18 being greater than the corresponding total dimensions of the first sill member 32 and the trim 44. This features provides the advantage in the preferred embodiment that it allows for a neat corner joint, without the need for mitring or additional cover trim mouldings.

[0023] Screws 41 are screwed into the screw receiving portions 29 to secure the first sill 32 to the insertion member 14. Similarly, a second sill member 38 receives the second insertion member 16 and is secured thereto in the same way as the first sill member 32.

[0024] A corner post 40 receives the upstanding spigot 22 and is secured thereto by screws 41 received through apertures 42, only one of which is shown. The screws 41 are screwed into the groove and channel arrangement 23 in the spigot 22. The lower edge of the corner post 40 abuts against the face region 24, and a further trim 45 provided over the corner post 40 and abuts against the subsidiary face 25.

[0025] Referring to Figs. 4 to 6, there is shown a further embodiment of a corner member 110, which comprises many of the features of the embodiments shown in Figs. 1 and 2, and these have been designated with the same reference numeral. The corner member 110 forms a cor-

ner of an eaves of a conservatory.

[0026] Referring to Fig. 6, there is shown a corner 130 of the eaves of a conservatory, in which a first eaves member 132 receives the first insertion member 14 and is secured thereto by screws in the same way as shown in respect of Fig. 3. Similarly, the second insertion member 16 is received by the second eaves member 138 and is secured thereto by screws in the same way as the second sill member 38 in Fig. 3.

[0027] If desired, the corner 130 could be provided directly above the corner 30 shown in Fig. 3, in which case the upper end of the post member 40 shown in Fig. 2 receives the downwardly extending spigot 122 therein, in the same way that the lower end of the post member 40 receives the upwardly extending spigot 22. Screws 41 received in apertures 42 engage with the groove and channel arrangements 23 in the downwardly extending spigot 122 to secure the upper end of the post 40 to the downwardly extending spigot 122.

[0028] Insulating trim members 44 are provided on inner faces of the eaves members 132, 138 and the post member 40. Fig. 6 also shows a hip rafter 148 secured to the corner member 110 by screws 41, as would be understood by persons skilled in the art.

[0029] Referring to Figs. 7 to 9, there is shown a further embodiment of the corner member 10 for use at a corner of a sill of a conservatory. The embodiment shown in Figs. 7, 8 and 9 comprises all the features of the embodiment shown in Figs. 1, 2 and 3, but differs in that the angle between the insertion members 14, 16 is substantially 135°, rather than 90° as shown in Figs. 1, 2 and 3. Figs. 10, 11 and 12 show an embodiment of a corner member 110, which is similar to the embodiment shown in Figs. 4, 5 and 6, and the same features have been designated with the same reference numerals. The embodiment in Figs. 10, 11 and 12 differs from the embodiment shown in Figs. 4, 5 and 6 in that the insertion members 14, 16 are at an angle of 135° to each other rather than 90°.

[0030] The above described embodiments of the invention provide advantages over the prior art. This is particularly the case for the embodiments that relate to corner members 10 for use at corners of eaves beams in conservatories, i.e. Figs. 4 to 6 and 10 to 12.

[0031] Loads from the hip rafter of a conservatory are transmitted via the corners of the eaves to the corner supporting posts and, from the posts, to the ground. The provision of the corner members 10 shown in Figs. 4 to 6 and 10 to 12 are provided with downwardly extending spigot members 122. As described above, the spigot members 122 are received in the upper ends of the corner posts 40. The load transmitted to the corner member 10 is a turning load which would have a tendency to rotate the corner member 10 outwardly. The feature of the downwardly extending spigot 122 being received in the upper end of the corner post 40 provides the advantage that the corner member 10 is provided from being turned or rotated by this load, by the fact that the downwardly extending spigot 122 is held within the upper end of the corner post 40.

[0032] The above feature of the embodiments shown in Figs. 4 to 6 and 10 to 12 provides a further advantage of obviating the need for further reinforcement in the wall panels at the corner member, thereby reducing the amount of material required for the wall panels and also reducing labour costs.

[0033] Referring to Figs. 13 and 14, there is shown a constraining member to constrain the ends of a post which extends between the eaves and the sill at a region between adjacent corners, thereby enabling the post to resist lateral forces.

[0034] The constraining member 150 comprises a base part 152 and an upstanding part in the form of a planar upstanding plate 154.

[0035] The base part 152 is formed of two base portions 156, 158, each being attached to and extending orthogonally from the upstanding plate 154. The two base parts 156, 158 are generally co-planar with each other, and are mirror images of each other. A raised part 160 is provided on each of the base portions 156, 158 and is provided for strength. Ribs 162 to provide further strength to the base part 152.

[0036] The upstanding plate 154 comprises screw locating formations in the form of groove 164 on opposite edges of the upstanding plate 154. The upstanding plate 154 defines a hollow central region 168 to receive the ends of screws 180 as explained below. The hollow central region 168 is generally rectangular in configuration, as shown in broken lines in Fig. 13.

[0037] In Fig. 15, there is shown the assembly of a sill 170 in which a post member 172 is secured to a sill member 174 by a load transmission member 150. As can be seen, the post member 172 defines a channel 176 in which the upstanding plate 154 is received. The edge walls 178 of the channel 176 define apertures into which screws 180 are received by the locating grooves 164. The screws 180 penetrate into the hollow central region 168, such that the threads of the screw engage the side walls of the hollow central region 168 to secure the screws 180 therein, thereby securing the post member 172 to the constraining member 150.

[0038] The sill member 174 defines a channel 182 to receive the base part 152 of the load transmission member 150.

[0039] A gap 184 (see Figs. 13 and 14) is provided at the opposite edges of the upstanding member 154 between the upstanding member 154 and the base part 152. The edge walls 186 of the channel 182 comprise overhanging portions 188 which are received in the gaps 184 to secure the constraining member 150 in the channel 182. Trim members 190 are secured to the inner and outer edges of the post member 172.

[0040] Referring to Fig. 16, there is shown a eaves assembly comprising a eaves member 192 defining a channel 194 for receiving the base part 152 of the constraining member 150, in the same way as the channel

182 in the eaves member 174. In Fig. 16, the upstanding portion 154 extends downwardly from the base part 152 to be received in the channel 176 of the post member 172. The upper ends of the walls 178 define apertures to receive screws 180 which can be screwed into the grooves 168 to secure the upper end of the post member 172 to the upstanding member 154.

[0041] Thus, by the constraining member 10 constrains the upper and lower ends of the post 172 thereby preventing bending from lateral forces transverse to the plane of the wall of which the post 172 forms a part.

[0042] The above described embodiment has the advantage that it allows the post 172 to resist bending forces, which means that less material is needed to construct the post 172. Also, it obviates the need to reinforce the adjacent wall panels, thereby also reducing the amount of material needed and also reducing the labour costs.

[0043] Various modifications can be made without departing from the scope of the invention.

[0044] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A corner member for a building construction, the corner member comprising a main body and connection means on the main body to cooperate with at least one laterally extending elongate support member of the building construction, wherein the corner member has an abutment face to abut an end of the elongate support member, such that the abutment face is arrangeable to extend, in use, substantially orthogonal to the main axis of the elongate support member.

2. A corner member according to claim 1 wherein the connection means comprises at least one connection element extending outwardly from the main body.

3. A corner member according to claim 2 wherein the connection means comprises first and second connection elements extending outwardly from the main body, the, or each, connection element being configured to be received by the, or each respective, elongate support member, in use.

4. A corner member according to claim 2 or 3 wherein the, or each, connection element on the main body is receivable axially by the, or each respective, elongate support member and the, or each, connection element comprises an insertion member extending from the main body, for insertion into the, or each, respective, elongate support member.

5. A corner member according to any preceding claim wherein the main body comprises a corner portion to provide a corner region of the building construction.

6. A corner member according to any preceding claim wherein the main body has larger dimensions than the, or each, elongate support member, thereby providing a shoulder between the main body and the, or each, elongate support member, in use.

7. A corner member according to any preceding claim wherein post support means is provided on the main body, to support a post, the post support means extending generally orthogonally relative to the, or each, connection element.

8. A corner member according to claim 7 wherein the post support means extends from an upper face or a lower face of the main body.

9. A corner member according to any preceding claim wherein the corner member is formed of a metallic material, such as aluminium, or a plastics material, such as uPVC.

10. A corner member according to any preceding claim wherein the corner member may be formed by casting or moulding.

11. A constraining member for a building construction, the constraining member comprising a base part to be received by a first support member of the building construction, and an upstanding part extending substantially orthogonally from the base part to be received by a second support member of the building construction.

12. A constraining member according to claim 11 wherein the constraining member has a T-shaped profile whereby the upstanding part extends from the base part at a central region of the base part.

13. A constraining member according to claim 11 or 12 wherein the base part comprises a first generally planar member slidable along a recess in the first support member to a desired position.

14. A constraining member according to any of claims 11 to 13 wherein the first support member includes a central raised region, extending substantially wholly across the base part.

15. A constraining member according to claim 14 wherein the upstanding part comprises a second generally

planar member, the upstanding part extending substantially wholly across the base part.

16. A constraining member according to claim 15 wherein the upstanding part extends transverse to the raised region.

17. A constraining member according to claim 16 wherein the upstanding part extends substantially orthogonal to the raised region.

18. A constraining member according to any of claims 11 to 17 wherein one or more locating formations are provided on the upstanding part.

19. A constraining member according to claim 18 wherein the, or each, locating formation comprises a groove extending along a respective edge region of the upstanding part.

20. A constraining member according to any of claims 11 to 19 wherein the constraining member includes a retaining formation, comprising a hollow central region of the upstanding part.

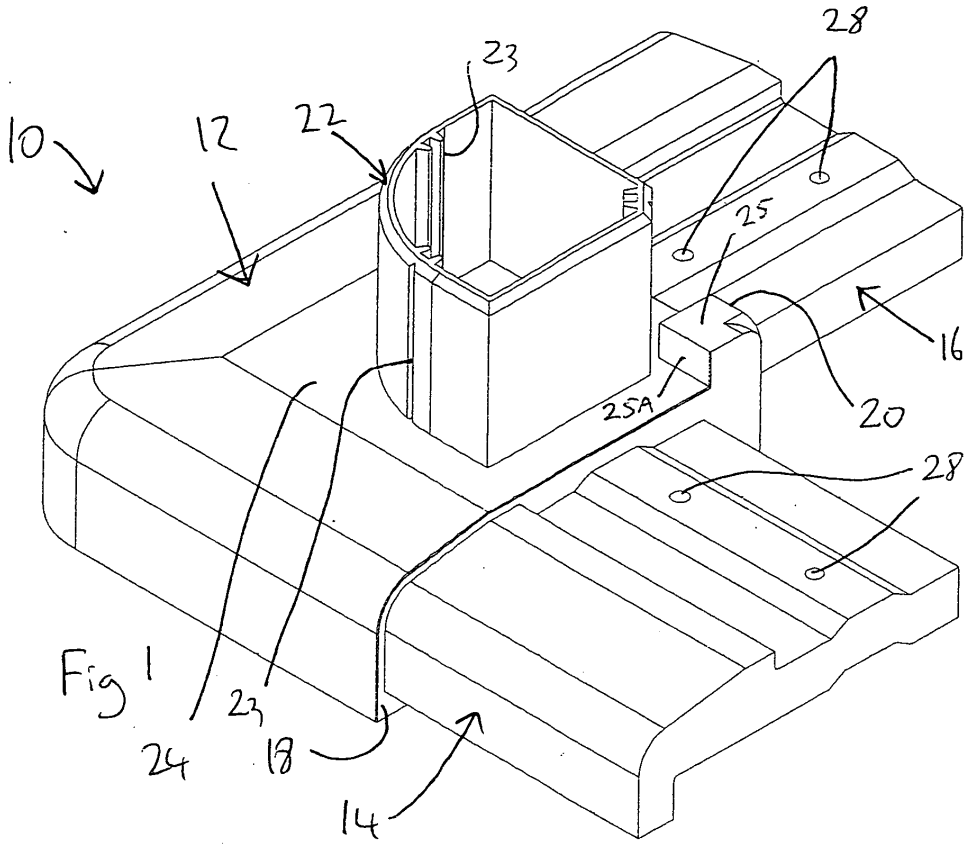


Fig 1

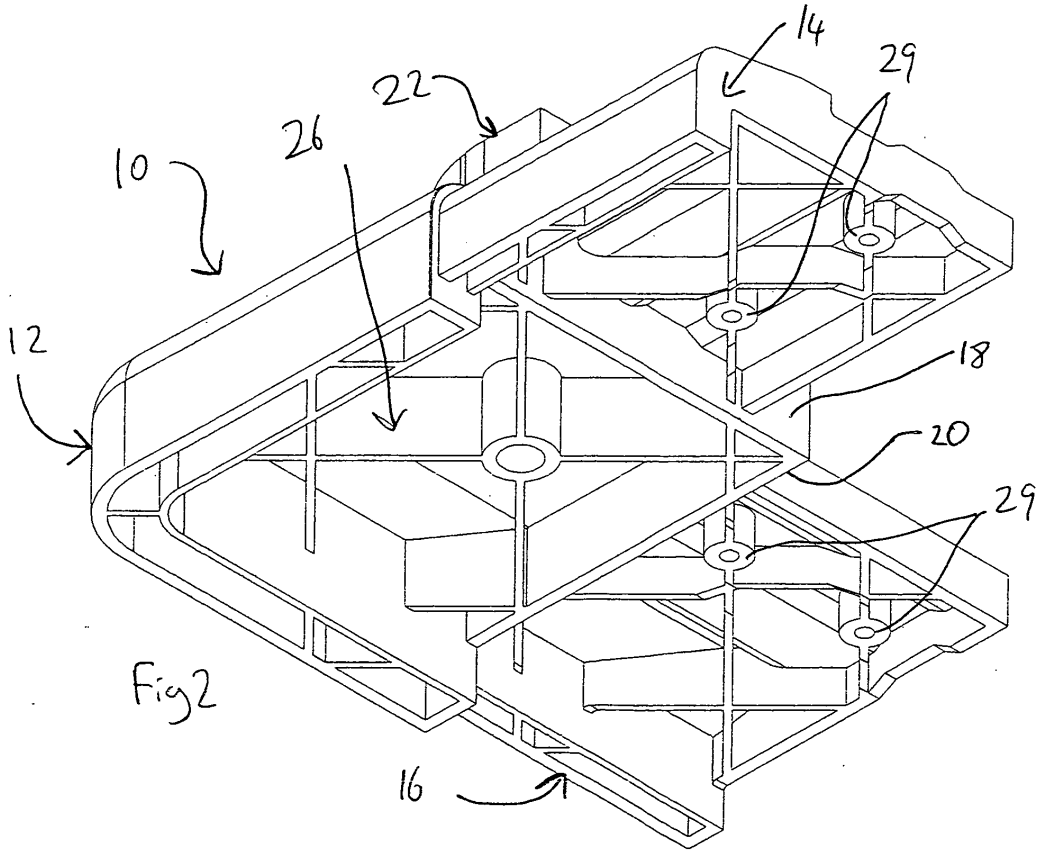
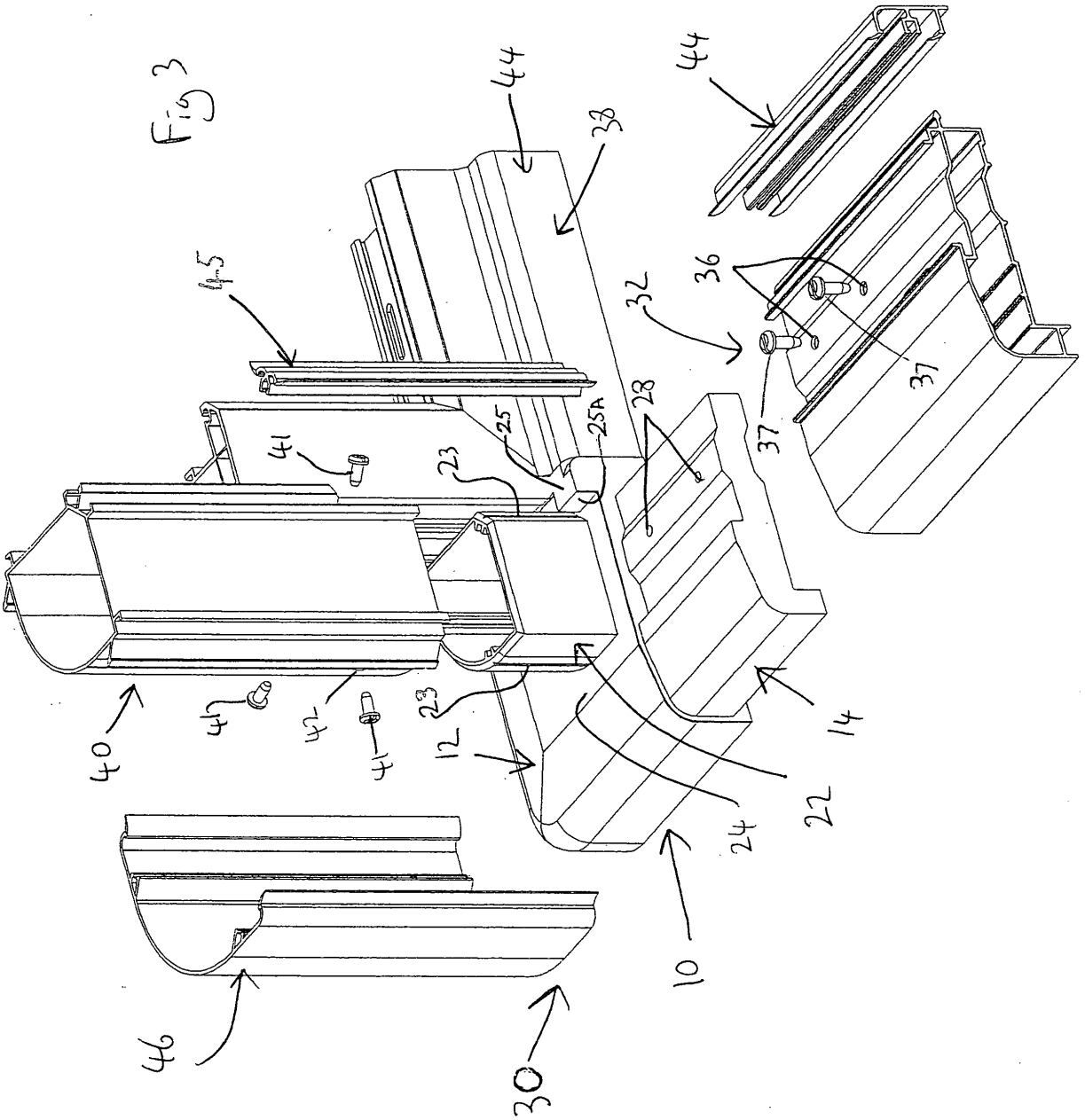


Fig2

Fig 3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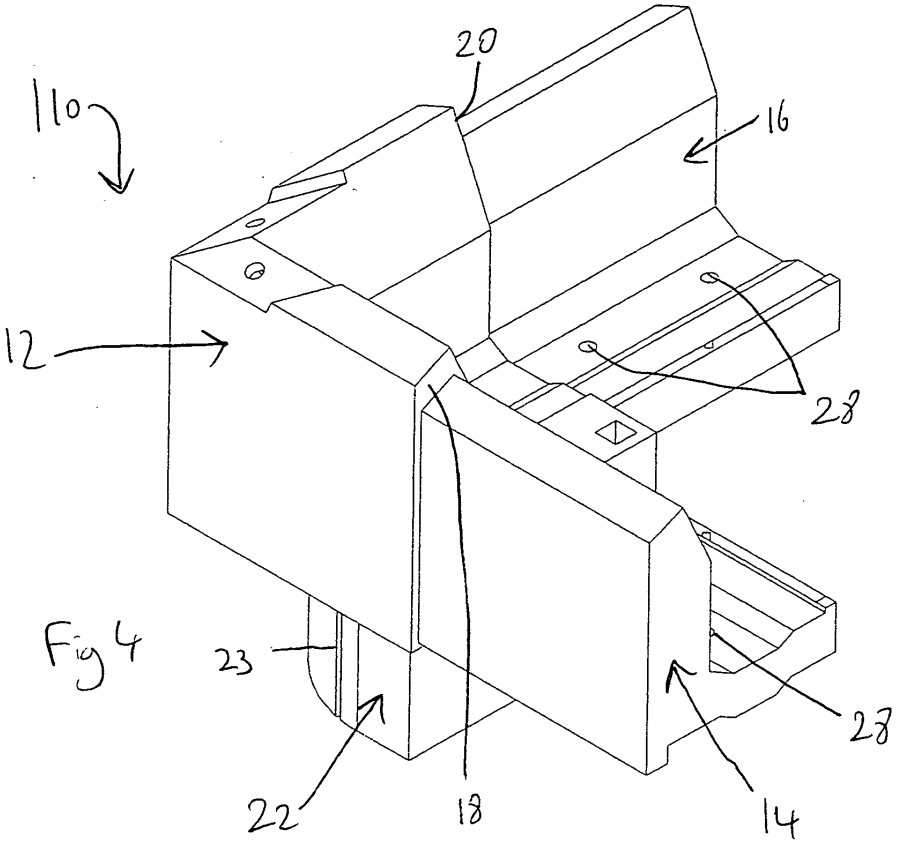

Fig 4

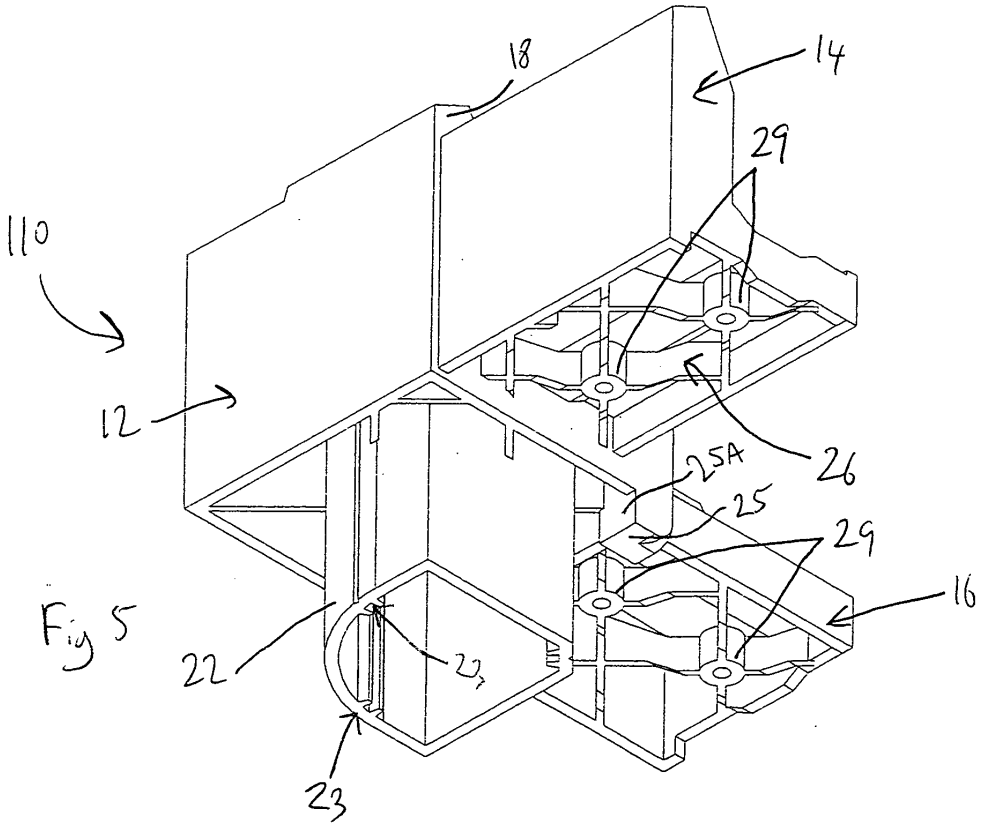

Fig 5

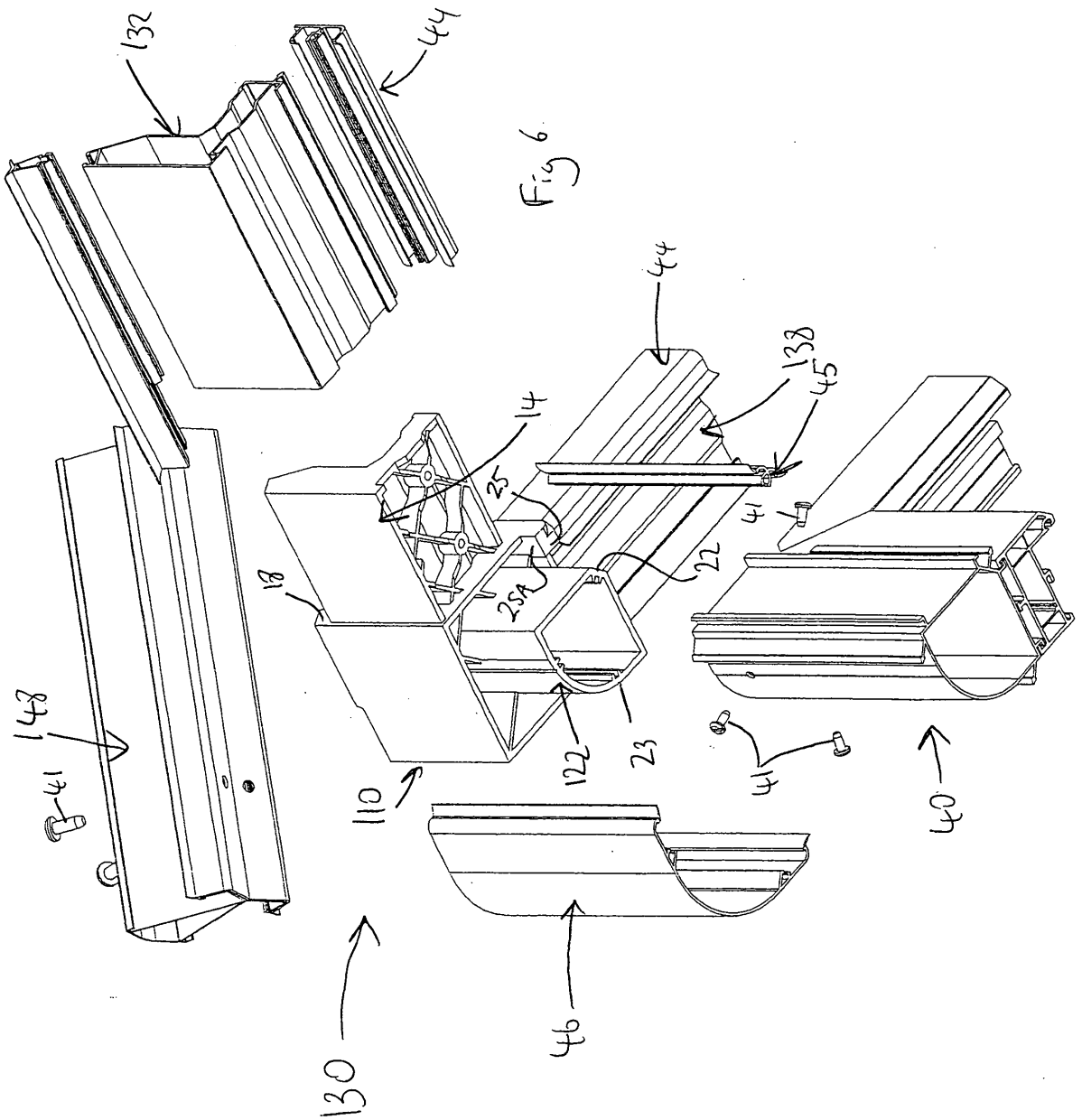

Fig 6

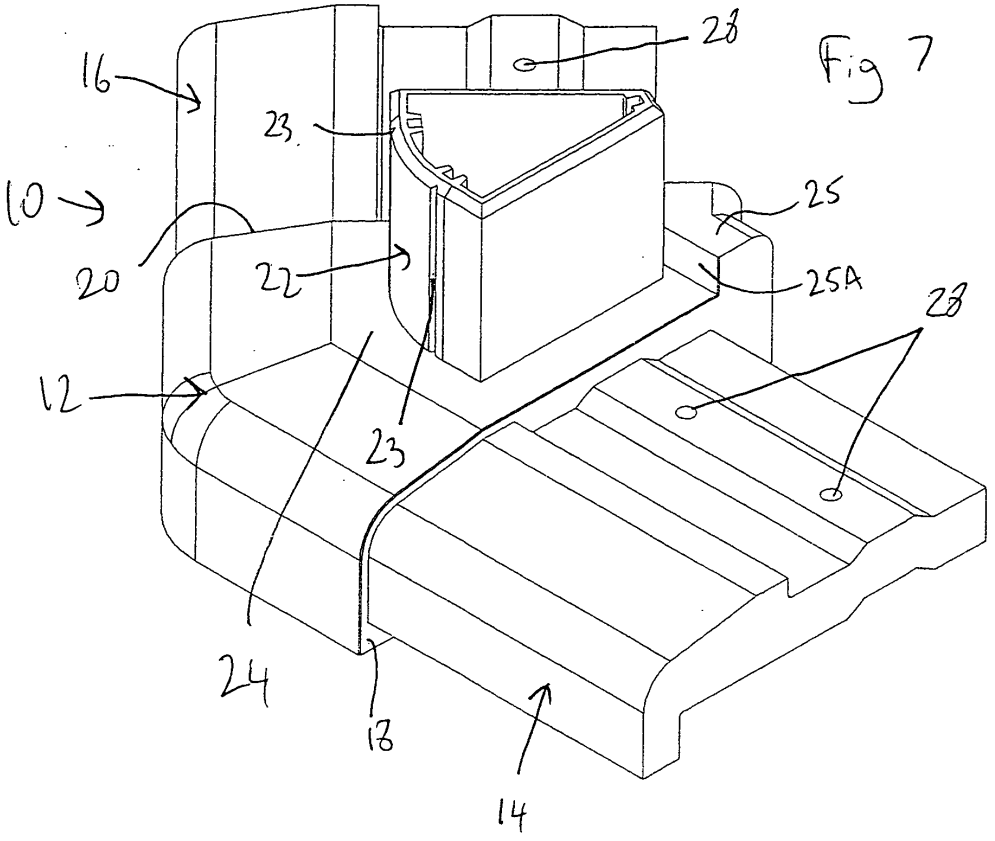
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Fig 7

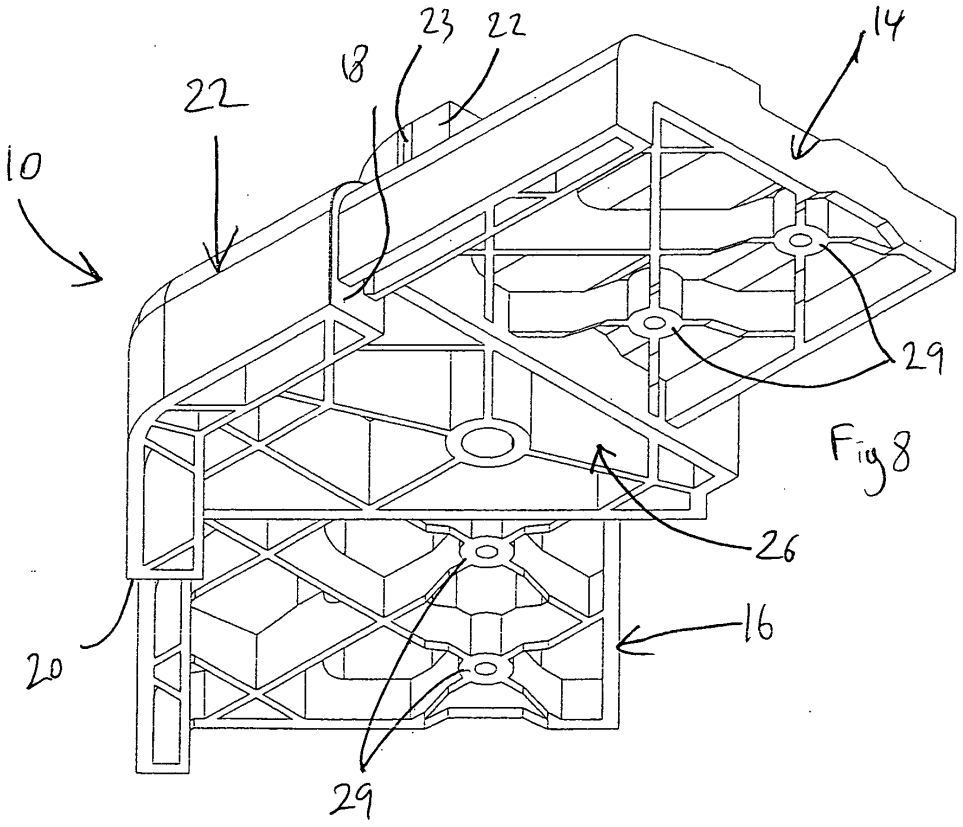
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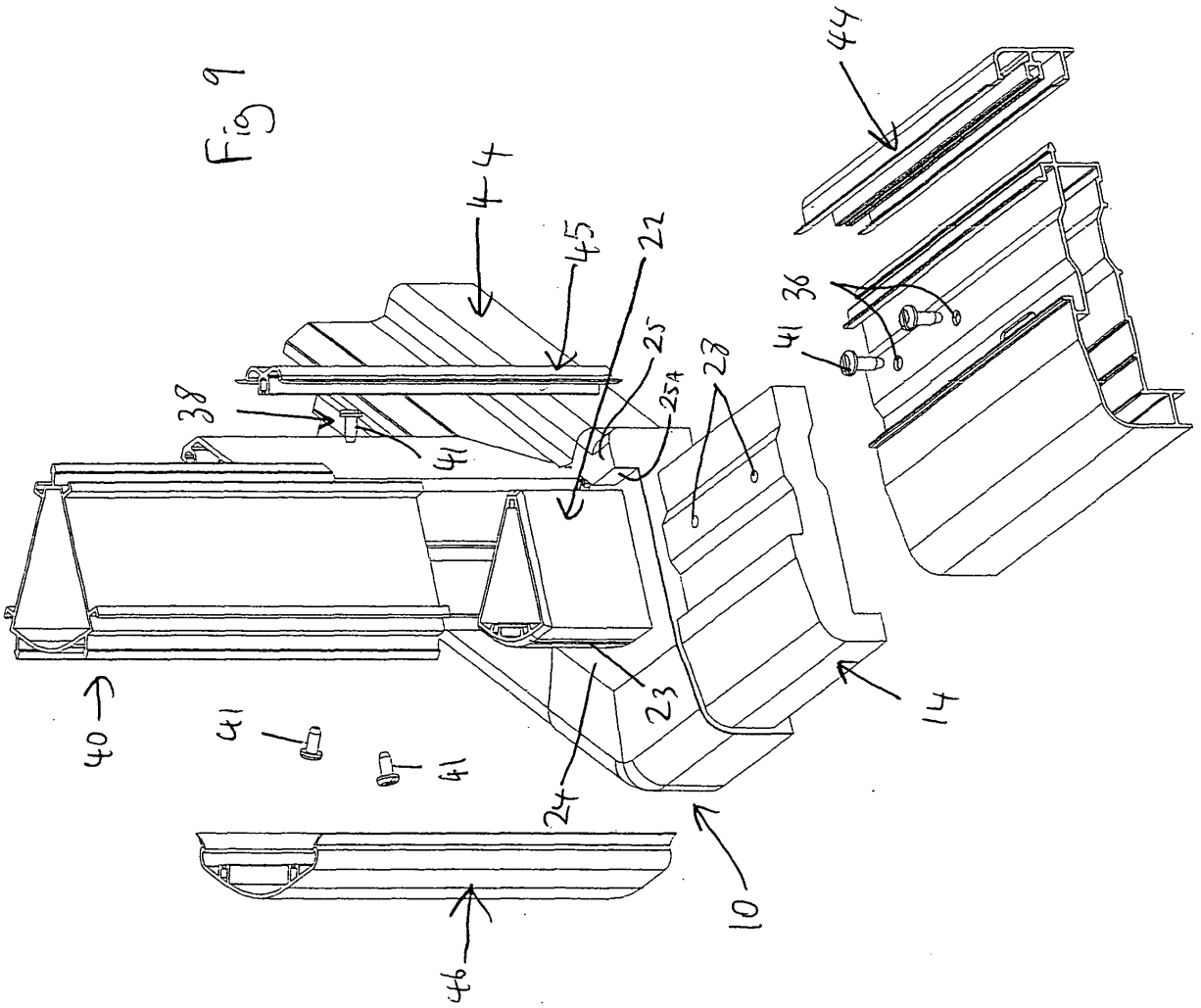
Fig 8

Fig 9



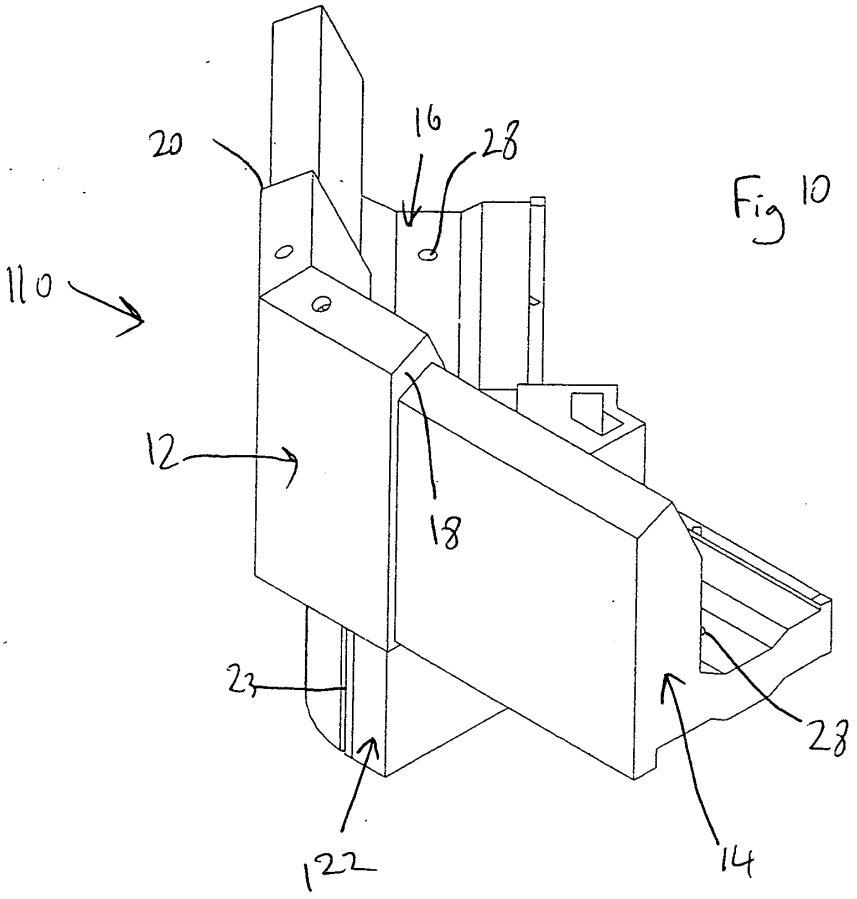


Fig 10

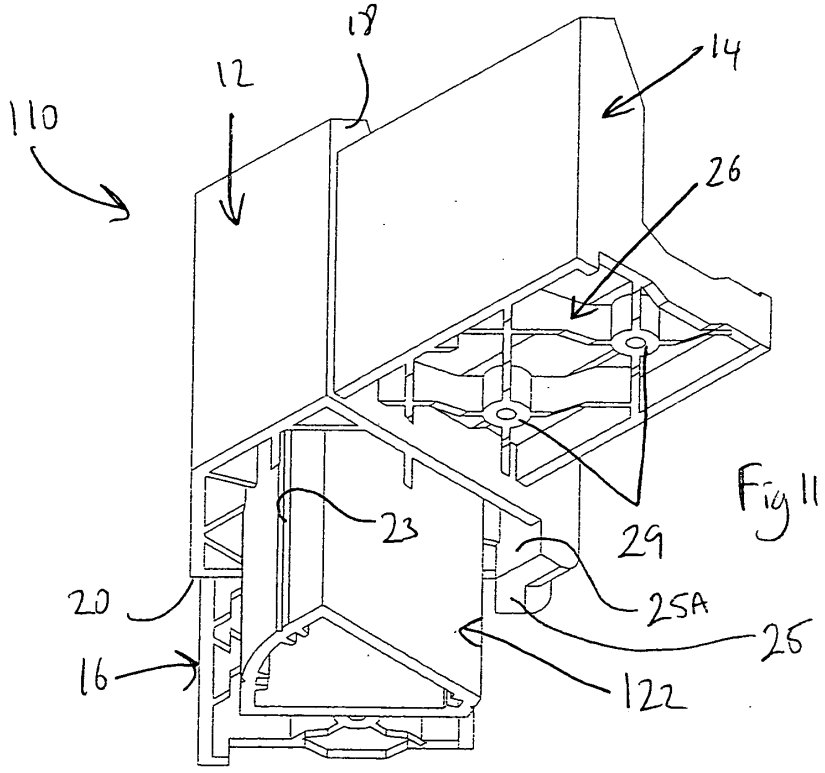


Fig 11

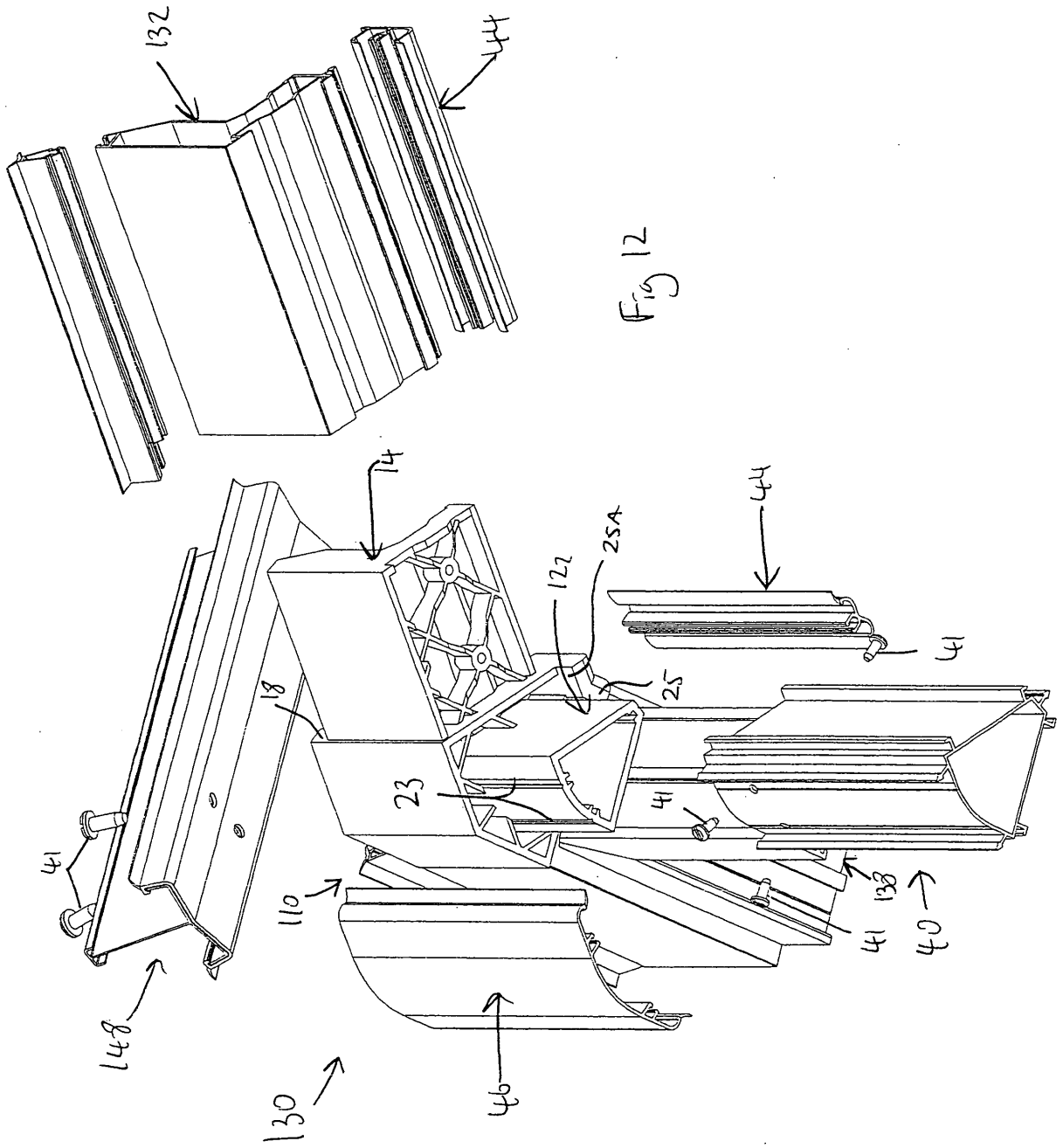


Fig 12

Fig 13

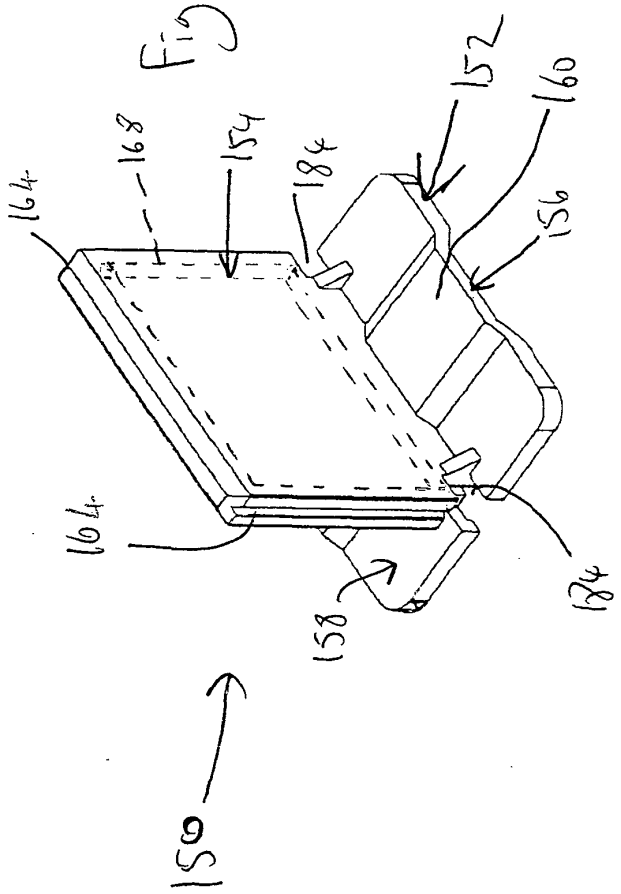

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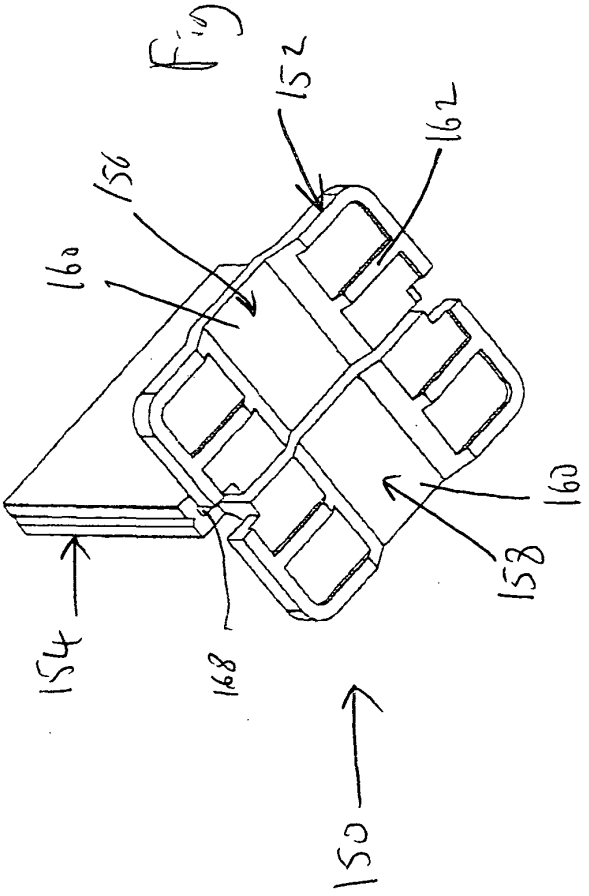
Fig 14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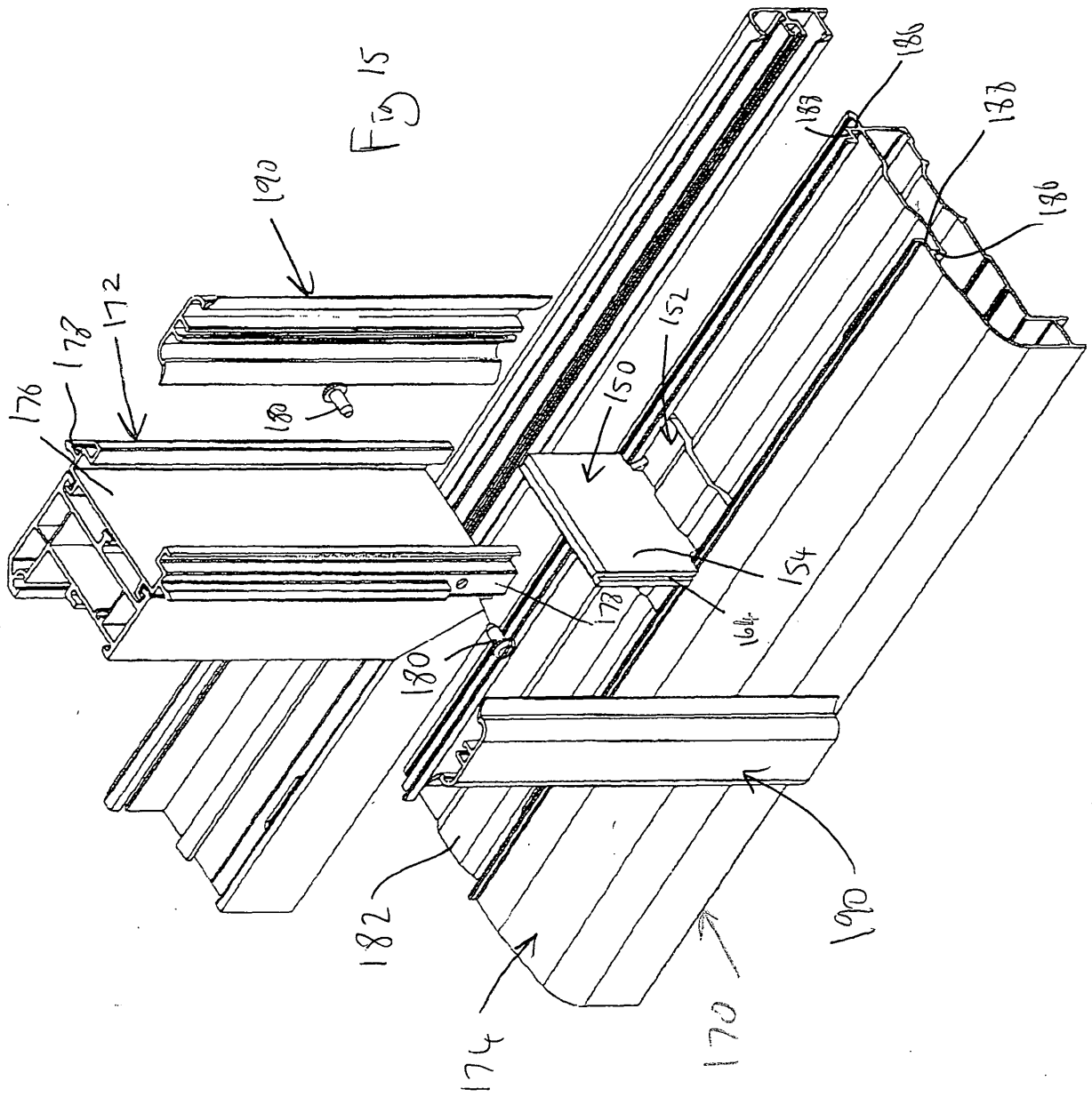
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Fig 15

Fig 16