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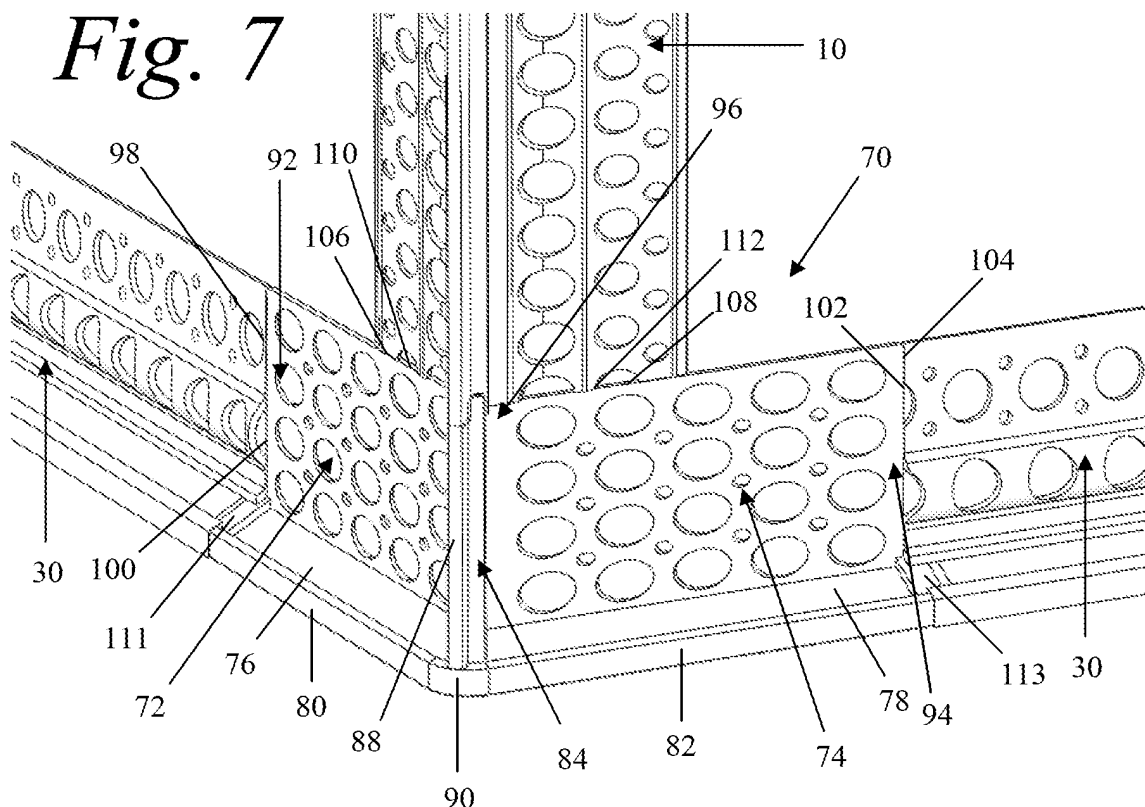
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(54) **Bead alignment means**

(57) There is provided bead alignment means arranged to facilitate alignment of a plurality of beads. The bead alignment means comprises a plurality of bead

alignment portions. Each bead alignment portion is arranged to cooperate with a bead in order to maintain it in a desired position relative to the bead alignment means.



Description

[0001] The present invention relates to bead alignment means, particularly, but not exclusively, for use with rendering beads. In this specification use of the invention within a rendering application will primarily be described. However it will be apparent to the skilled person that the invention can be implemented with the same advantages by using it with different types of bead (also known as beading). Bead is usually an elongate, preformed metal or plastic reinforcement. It is not essential that it is elongate or preformed and may be made of other materials. For external applications, such as rendering applications it is attached to an outside surface, such as an exterior wall, in order to provide a guide for render material being applied to the surface. In addition the bead can provide protection for the surface to which it is applied. The bead helps to provide a consistent rendering finish. The bead is also usually formed of a waterproof material and can act as a guide for excess water to run down to a desired location (e.g. to the ground). Render material (such as plaster or cement or any other known render composition) is generally waterproof and provides a layer of protection for a surface to which it is applied. One particular application where rendering beads are used is the rendering of exterior building surfaces, e.g. for weatherproofing.

[0002] Aspects of the invention are defined in the independent claims. Preferred features are defined in the dependent claims, and in the description.

[0003] Embodiments of the invention will now be described by way of example only with reference to the accompanying drawings in which;

Figure 1 is a sectional view through a known corner bead;

Figure 2 is a sectional view through a known drip bead;

Figure 3 is a schematic plan view showing prior art drip bead alignment;

Figure 4 is a side view showing prior art drip bead and corner bead alignment;

Figure 5 is a schematic plan view of figure 4;

Figure 6 is an expanded view of the corner portion of figure 5;

Figure 7 shows bead alignment means according to an embodiment of this invention being used to align two drip beads and a corner bead;

Figures 8a to 8d illustrate alignment of a corner bead with the bead alignment means of figure 7; and

Figure 9 is a schematic plan view showing corner and drip bead alignment according to an embodiment of this invention.

[0004] Figure 1 is a cross sectional view through a known corner bead 10. The corner bead 10 is elongate and has a generally uniform cross-section (as shown) across its length. It 10 is used at an outwardly pointing

corner of a wall. The corner bead 10 has a first surface 12 and second surface 14, which join at a corner 16 at an angle of about 90°. Corner beads having different joint angles are provided as required for walls having outwardly pointing corners, which are not 90° corners. For example, in some situations a 120° corner bead may be provided for a 120° corner wall. Similarly other angles will be apparent to the skilled person - the present invention can easily be adapted to suit such situations and protection is sought in respect of these non-90° corners.

[0005] Extending outwardly from the corner 16 of the corner bead 10 is a render guide 18 in the form a regular rectangular surface 20 having a rounded end 22. The rounded end 22 provides a smooth exterior exposed surface. Smooth exposed surfaces are more desirable than angled exterior surfaces due to the higher risk of damage to an exterior angled surface.

[0006] Extending from the guide surface 20 at a position between the end 22 and the corner 16 are two further projections 24, 26 and these extend in a direction substantially parallel to the first surface 12 and the second surface 14 respectively along the length of the corner bead 10. The purpose of the render guide 18 is primarily to provide a guide to the depth of render material which should be applied by a person rendering a wall. For example if render material is being applied by use of tool such as a trowel, then the trowel is placed along the guide end 22 and run down the elongate guide end 22 to provide a consistent depth for the render material from the wall.

[0007] The projections 24, 26 provide, amongst other things, structural stability to the render guide 18. They 24, 26 prevent excessive undesired bending of the guide surface 20. The projections 24, 26 can also be used as aids in the rendering process. Often a person applying render material to a wall will apply a first layer of render up to the level of the projections 24, 26 before applying a further layer up to the level of the guide end 22.

[0008] The corner bead 10 (and beads in general) are preformed such that their shape can be altered slightly upon installation if required. For example, the corner bead 10 of figure 1 is used when rendering an outwardly pointing corner having an angle of 90° or about 90° since the angle between its first surface 12 and its second surface 14 can be altered slightly by applying a force and bending it.

[0009] Figure 2 shows a cross sectional view through a known drip bead 30. The drip bead 30 is elongate and has a generally uniform cross section across its length. The profile of the drip bead 30 (as seen in figure 2) comprises a generally planar first surface 32. The planar surface 32 has a lower end 34 towards which a hump 36 is formed extending generally outwardly relative to a wall against which the drip bead 30 would be placed in use.

[0010] The hump 36 is provided in order to strengthen the surface 32 structurally. In addition the hump 36 provides a gap in which render material can be located between the drip bead and wall which is being rendered in order to increase adhesion of the drip bead 30 in its lo-

cation relative to the wall. The hump 36 includes render holes (described in more detail below) through which the render material is able to pass.

[0011] Extending from the lower end 34 of the drip bead 30 is a render guide 38. The render guide 38 comprises a generally rectangular portion 40 which is sloped to extend downwardly from the lower end 34 of the drip bead 30. From an outer end of this downwardly sloped portion 40, there is an upwardly extending wall 42, which is substantially parallel to the surface 32 of the drip bead 30. This wall 42 provides a depth guide for a person applying render to the wall. A tool such as a trowel can be run along this wall 42 in order to provide a consistent depth of render material against the wall.

[0012] A projection 44 is provided extending generally parallel to the surface 40 from the uppermost point of the wall 42 and a projection 46 is provided extending outwardly 32 in a direction substantially parallel to the surface 40 at a similar distance from the surface 40. These projections 44, 46 provide strength to the drip bead 30 at its lower end - in particular to support the wall 42 and prevent undesirable deformation of the drip bead 30. The projections 44, 46 can also provide surfaces for render to move into and, as it dries, provide enhanced gripping of the bead by the render in use.

[0013] The surface 40 is downwardly sloped in order to allow moisture (e.g. rainwater), which runs down the rendered surface to be directed onto the wall 42 and then towards the ground. The downward slope ensures that the moisture drips to the ground and does not travel back (against the effect of gravity) towards the surface, which has been rendered upon.

[0014] Traditionally, bead is fixed to a wall upon which a render material is to be applied by nailing the bead to the wall or by a process called dobbing on. Dobbing on involves applying a small amount of render to the wall before pushing the bead into the render to hold the bead against the wall in a desired location before applying further render or aligning other bead relative to the first bead and applying further render.

[0015] There are problems associated with aligning one bead relative to another as part of the rendering process. It is difficult to obtain the exact desired alignment of adjoining beads. For example, referring to figure 3, if we consider a situation in which an outwardly pointing 90° corner wall 50 is being rendered and two drip beads are being used, the two drip beads will meet at the corner. Figure 3 schematically shows a plan view of the profile of the drip beads near to the corner. The drip beads have downwardly sloping surfaces 40' and 40" (corresponding to the downwardly sloping surface 40 of the drip bead shown in figure 2) which need to be mitred by cutting in order to provide a suitable join between them. Currently this mitring is carried out by a renderer manually and there is inevitably a gap G1 which is left due to imprecise mitring caused by natural human error.

[0016] Referring to figures 4 to 6, we consider the situation at the same wall 50 where, in addition to the two

drip beads which have downwardly sloping surfaces 40' and 40", there is also a corner bead 10' of the type shown in figure 1 being applied vertically at the corner. As seen in figure 4, the corner bead 10' overlaps the two drip beads 30', 30" at a lower end. As a result of the humps 36', 36" on the drip beads 30', 30" the lower part of the corner bead 10' is caused to flare outwards in the overlapping region. A certain amount of flaring would occur even if the beads have no humps as one profile overlaps another. The undesirable result is shown schematically in figures 5 and 6. The lower portion of the corner bead 10' no longer runs truly vertically due to this outward flaring. This means that the render guide 18 no longer runs directly vertically but instead is sloped. Therefore the guide end 22' is also sloped as are the projections 24', 26'. Ideally these would be as close as possible to vertical such that their cross-sections are uniform when viewed from above. Figures 5 and 6 show that this is clearly not the case.

[0017] As a result of the above mentioned non-alignment, the aesthetic finish of the rendering process is damaged as well as the structural finish of the rendering process. In the gaps, discontinuities in the external render surface can result. These are difficult to avoid and it is a time consuming and skilful job to avoid them. In particular weak points can be formed at the joints of the bead, especially at the triple meeting point 60 at the base of the corner bead 10'. Other weak points include the lines of overlap where the corner bead 10' overlaps the drip beads 30', 30" (since the distance between the corner bead and the drip beads varies due to the outward flaring). Other weak points include the gap previously mentioned with reference to figure 3. Also, referring to figure 4, it is difficult for render applied to the lower part of the wall to pass through the two, overlapping beads and achieve contact and grip with the wall (especially since one of them is flared out). This is another potential weak point for the render.

[0018] At these discontinuities, where there are bad joints, the render material is liable to crumble and come apart. Moisture is liable to encroach in gaps where it should not, since there should not be gaps. As a result, degradation of the render can occur and may in some instances result in an open pathway between the wall and the outside atmosphere, which the render material was intended to cover. This problem can be amplified at outwardly pointing corners such as shown with respect to the wall 50 as these are liable to come into contact with objects, more frequently than other surfaces or corners, and have undesirable forces imparted upon them as a result.

[0019] The beads 10, 30, 10', 30', 30" include render holes 54 through which render material is able to pass as it is being applied to promote adhesion of the render and the drip bead to the surface being rendered. The beads also include fixing holes 56. These are sized such that they can receive the shaft of a nail or a screw (but not the head of the nail or the screw). The fixing holes

56 can be used (optionally) to fix a bead to the surface being rendered by nailing or screwing.

[0020] Referring to figure 7, a bead alignment means 70 according to an embodiment of this invention is shown. The bead alignment means 70 is used to help align the corner bead 10 and two identical drip beads 30 at the outwardly pointing 90° corner wall 50.

[0021] The bead alignment means 70 comprises a first generally planar rectangular surface 72 and a second generally planar rectangular surface 74. Fixing holes and render holes are formed on these surfaces 72, 74 in a similar manner to those formed on the bead as mentioned above. Towards a lower end of each rectangular surface 72, 74 there is provided a downwardly extending render guide slope 76, 78 respectively. The angle of the slope 76, 78 matches the angle of the slope 40 on each drip bead 30. Upwardly extending walls 80, 82 are provided extending from the slopes 76, 78 respectively and these walls 80, 82 correspond in shape, size and location to the upwardly extending walls 42 of the drip beads 30.

[0022] At the joint between the two rectangular surfaces 72, 74 there is provided a render guide 84 which includes a generally rectangular surface 86 and a rounded bead end 88 which corresponds to the surface 20 and end 22 of the corner bead 10 respectively. When fitted together the exposed bead ends 88, 22 are flush with each other and form a continuous surface. Similarly, the walls 80, 82 form continuous exposed surfaces with the walls 42 of their attached drip beads 30.

[0023] At the outer extremity of the corner of the bead alignment means 70, the elongate bead end 88 is located (see Figures 7 and 8). At the lower end of the bead end 88, there is provided an additional outwardly curved, smooth base corner piece 90. The corner piece 90 provides a smooth join between the upstanding walls 80 and 82 and also the vertically extending curved end 88. Therefore there is no gap or discontinuity at this potentially weak point. As previously discussed, this can be a particular problem with existing bead alignment techniques (i.e. manual techniques) and the bead alignment means 70 of this invention therefore provides a significant advantage in this respect.

[0024] The bead alignment means 70 comprises a first bead alignment portion 92 at which the bead alignment means 70 is aligned with the first drip bead 30. The bead alignment means 70 further comprises a second bead alignment portion 94 at which the bead alignment means 70 is aligned with the second drip bead 30. The bead alignment means 70 further comprises a third bead alignment means 96 at which it is aligned with the corner bead 10. Each bead alignment portion 92, 94, 96 is arranged to cooperate with its respective bead in order to maintain the respective bead in a desired position relative to the bead alignment means 70. The first bead alignment portion 92 comprises a straight surface 98. The first drip bead 30 comprises a straight surface 100. Similarly the second bead alignment portion 94 comprises a straight surface 102 and the second drip bead 30 comprises a

straight surface 104. Therefore the first alignment mechanism which the bead alignment means 70 of this invention offers is that its straight surfaces 98, 102 abut closely and tightly against the straight surfaces 100, 104 respectively of the drip beads 30. The need for mitring is eliminated and a close connection with substantially no gaps between the bead alignment means and the relevant beads is obtained. The absence of such gaps means that there are no discontinuous joints which, as previously discussed, can be problematic.

[0025] The skilled person will appreciate that in other embodiments the alignment mechanism may be substantially similar but the surfaces of the bead alignment means may be different shapes (e.g. not straight or straight and angled) in order to closely match the profile of a bead which is required to be aligned with it.

[0026] Similarly the third bead alignment portion 96 comprises straight surfaces 106, 108 on upper edges of the first rectangular surface 72 and the second rectangular surface 74 respectively near its corner and these correspond to straight bottom edges 110, 112 of the corner bead 10.

[0027] In some embodiments this may be the only alignment mechanism which is provided. However in this embodiment further alignment mechanisms are provided. The bead alignment means 70 also includes a first projection 111 extending outwardly from the first sloped surface 76. This first projection 111 is shaped and profiled to be receivable within the recess formed in the first drip bead 30, the recess being defined by the downwardly extending slope 40 and the inwardly extending projections 44 and 46. Similarly, in this embodiment (but not in all embodiments), a substantially identical second projection 113 extends from the downwardly extending slope 78 on the second rectangular surface 74 in order to be receivable within the similar recess on the second bead 30. In this embodiment the projections 111, 113 are fairly loosely receivable within their respective recesses on the beads 30. However in other embodiments the projections may be of a different form (in shape or size as will be apparent to the skilled person) such that a tight friction fit is formed between the projections and the recesses and thus between the bead alignment means 70 and the beads 30. In yet a further embodiment the alignment mechanism may include a clip fit arrangement between the bead alignment means and the beads such that a snap fit is provided between them - this would provide yet further stability as the bead alignment means is being aligned with the respective beads.

[0028] In addition, the bead alignment means 70 of this embodiment at the third bead alignment portion 96 comprises two alignment projections 114, 116 extending from the guide surface 86 outwardly at a similar angle to that at which the projections 24, 26 extend outwardly from the guide surface 20 of the corner bead 10. The projections 114, 116 are offset further away from the corner joint line than the projections 24, 26 are. They are offset by a distance which is about the same as the width of

the projections 24, 26 so that when the corner joint of the bead alignment means 70 and the corner joint of the corner bead 10 are aligned (i.e. when the surfaces 106, 108 of the bead alignment means 70 are aligned with the surfaces 110, 112 of the corner bead 10), the outer surface of the projections 24, 26 sit flush in contact with the inner surfaces of the projection 114, 116.

[0029] The projections 114, 116 extend upwardly beyond the upper extent of the rest of the bead alignment means, and in particular beyond the upper extent of the render guide 84. The parts of the projections 114, 116 which extend beyond the upper extent of the render guide 84 form alignment tabs 114', 116' respectively (the purpose of these is described in more detail below).

[0030] In use, when it is desired to render the wall 50, the renderer places the bead alignment means 70 in its desired position at the base of the corner of the wall 50 and fixes the bead alignment means 70 there by dobbling on (as previously described) or by nailing or screwing the bead alignment means to the wall 50 in its desired position via the fixing holes. The beads to be aligned, i.e. the corner bead 10 and the drip beads 30 can then be bought into alignment with the straight surfaces of the bead alignment means 70 and further engaged into place using the projections 111, 113 respectively for the drip beads and the alignment tabs 114', 116' for the corner bead 10.

[0031] Figures 8a to 8d schematically show how the corner bead 10 is bought into close alignment with the bead alignment means 30 at the third bead alignment portion 96. The corner bead 10 is lowered towards the third bead alignment portion 96 while keeping the projections 24, 26 closer to the wall 50 than the alignment tabs 114', 116'. This may be aided by slight orientation away from the vertical as shown in figure 8b. At the lower end of the corner bead 10 the projections 24, 26 are then pushed out away from the wall 50 so that their outer surfaces come into contact with the inner surfaces of the alignment tabs 114', 116'. When they 24, 26 are in alignment with the tabs 114', 116' and the corner bead 10 is substantially vertical, the straight surfaces 106, 108 of the bead alignment means 70 will also be in alignment with the straight surfaces 110, 112 of the corner bead 10. In this position the bead end 22 will also be in close alignment with the bead end 88 to effectively form a contiguous single bead end.

[0032] It will be appreciated that there are then substantially no gaps between the bead alignment means 70 and any of the beads 10, 30 being aligned at the corner joint. Therefore the risk of having weak points within the render material are greatly minimized. The joints between the surfaces are substantially continuous since the front profile of the surfaces 72, 74 substantially match the front profile of the surface 32 of the drip beads 30 and that of the first surface 12 and second surface 14 of the corner bead 10. Additionally the front profile of the bead end 88 matches the front profile of the bead end 22. Referring to figure 9, a schematic plan view is shown of the arrangement of figure 7 and illustrates that there

is no bending of the corner bead 10 when the bead alignment means 70 of the present invention is used. Therefore the corner bead 10 remains substantially vertical as desired in order to provide a good guide for the renderer (i.e. it does not flare out as the prior art systems described with reference to figures 4 to 6).

[0033] Various modifications may be made to the present invention without departing from its scope. For example in some embodiments there may be more or less bead alignment portions provided. The bead alignment portions may be used to align more than one bead. More than one bead alignment portion may be required to align a single bead.

[0034] The bead alignment means may take any other suitable form. In some embodiments the alignment mechanism may not include the provision of a surface of the bead alignment means, which is arranged to be substantially flush with a surface of the bead to be aligned. In such embodiments other alignment mechanisms may be provided as an alternative. In such embodiments there maybe a gap between the bead alignment means and the beads but the beads are still retained in a desired position relative to the bead alignment means.

[0035] In other embodiments the bead alignment means may be used to align beads at joints which are not at or near a corner. For example a bead alignment means according to this invention may be used to align two identical beads in simple series relationship next to each other - the advantage of using the bead alignment means of this invention in such a scenario is that quicker and easier consistent, quality alignment can be obtained. It will be apparent to the skilled person that many other joints can be facilitated using the bead alignment means of this invention - for example other rectangular, square, triangular or irregularly shaped (e.g. curved) joints.

Claims

1. Bead alignment means arranged to facilitate alignment of a plurality of beads, the bead alignment means comprising a plurality of bead alignment portions, each bead alignment portion being arranged to cooperate with a bead in order to maintain it in a desired position relative to the bead alignment means.
2. The bead alignment means of claim 1 wherein the or each bead alignment portion comprises a bead alignment surface having a bead alignment surface profile and its cooperating bead comprises a bead surface having a bead surface profile corresponding to the bead alignment surface profile, wherein the bead alignment surface is arranged to abut against the bead surface in order to maintain the bead in a desired position relative to the bead alignment portion.

3. The bead alignment means of claim 2 wherein the or each bead alignment portion comprises an edge having the bead alignment surface thereon.
4. The bead alignment means of claim 2 or claim 3 wherein the or each bead comprises an edge having the bead surface thereon.
5. The bead alignment means of any preceding claim comprising one or more attachment means arranged to provide attachment between the or each bead and its corresponding bead alignment portion, and optionally wherein the or each attachment means comprises a projection and recess attachment between the bead and its cooperating bead alignment portion, and optionally wherein the projection and recess attachment comprises a friction fit or a snap fit or a combination thereof.
6. The bead alignment means of any preceding claim wherein the or each bead comprises a front bead face, which has a front bead face profile and whose cooperating bead alignment portion comprises a bead alignment portion face having a bead alignment portion face profile, which corresponds to the front bead face profile such that when the bead is maintained in its desired position relative to the bead alignment means, the front bead face is contiguous with the bead alignment portion face.
7. The bead alignment means of any preceding claim wherein when the or each bead is maintained in its desired position relative to the bead alignment means, there is no gap between the or each bead and the bead alignment means.
8. The bead alignment means of any preceding claim wherein the or each bead comprises;
a corner bead;
a drip bead; or
any combination of the above.
9. The bead alignment means of any preceding claim comprising fixing means arranged to facilitate the fixing of the bead alignment means to a surface, and optionally wherein the fixing means comprises one or more fixing holes arranged to receive a shaft of a nail or a screw.
10. The bead alignment means of claim 9 wherein the fixing means comprises one or more render holes arranged to promote adhesion to the surface by rendering.
11. The bead alignment means of any preceding claim comprising an angular joint from which different parts of the bead alignment means extend, wherein there is no gap between the different parts of the bead at the angular joint, and optionally wherein the different parts of the bead alignment means are integrally formed at the angular joint.
12. The bead alignment means of claim 11 wherein the angular joint comprises a corner joint, such as a 90° corner joint.
13. The bead alignment means of any preceding claim comprising a first bead alignment portion which is substantially planar and a second bead alignment portion which is substantially planar, wherein the first bead alignment portion is oriented at about 90° relative to the second bead alignment portion.
14. The bead alignment means of claim 13 comprising a third bead alignment portion which is substantially planar and which is oriented at about 90° relative to both the first bead alignment portion and the second bead alignment portion.
15. The bead alignment means of claim 14 comprising a generally L-shaped member having two substantially rectangular surfaces extending at about 90° from each other, wherein the first bead alignment portion points out from one end of the "L" shape, the second bead alignment portion points out from the opposite end of the "L" shape and the third bead alignment portion is oriented in a mutually perpendicular direction, the first and second bead alignment portions being defined by end faces of the rectangles and the third bead alignment portion being defined, at least in part, by a side face of one or both of the rectangles.

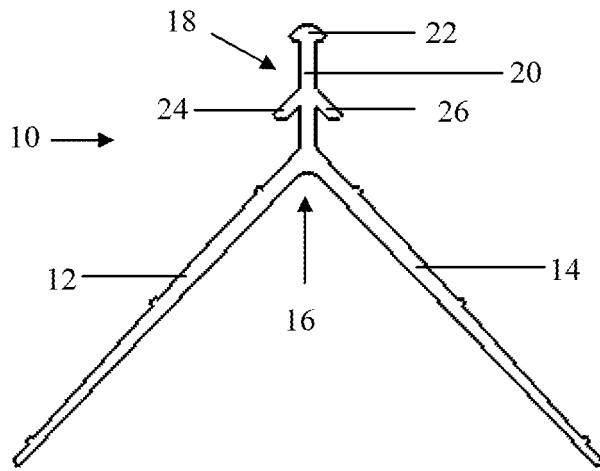


Fig. 1

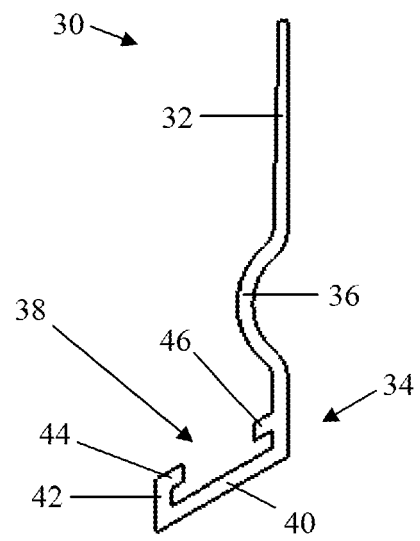


Fig. 2

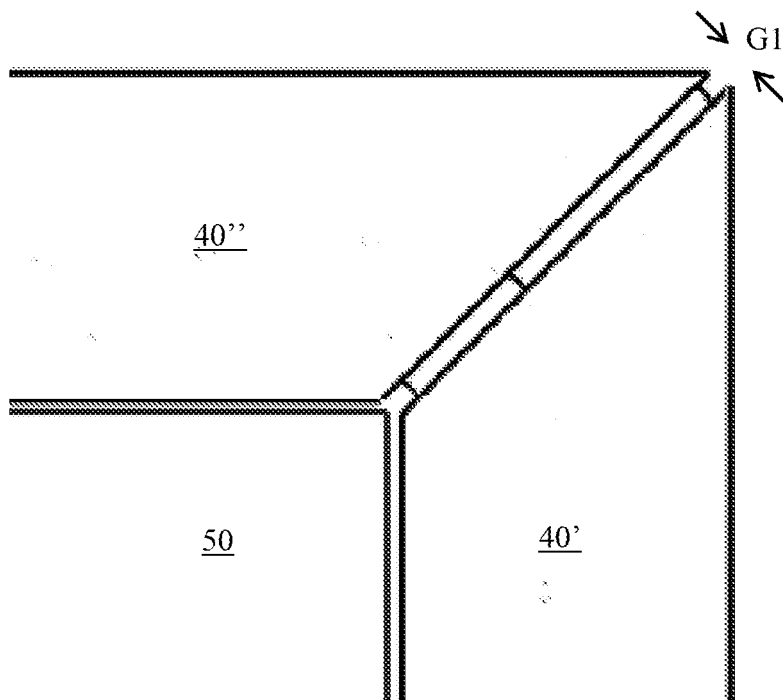


Fig. 3

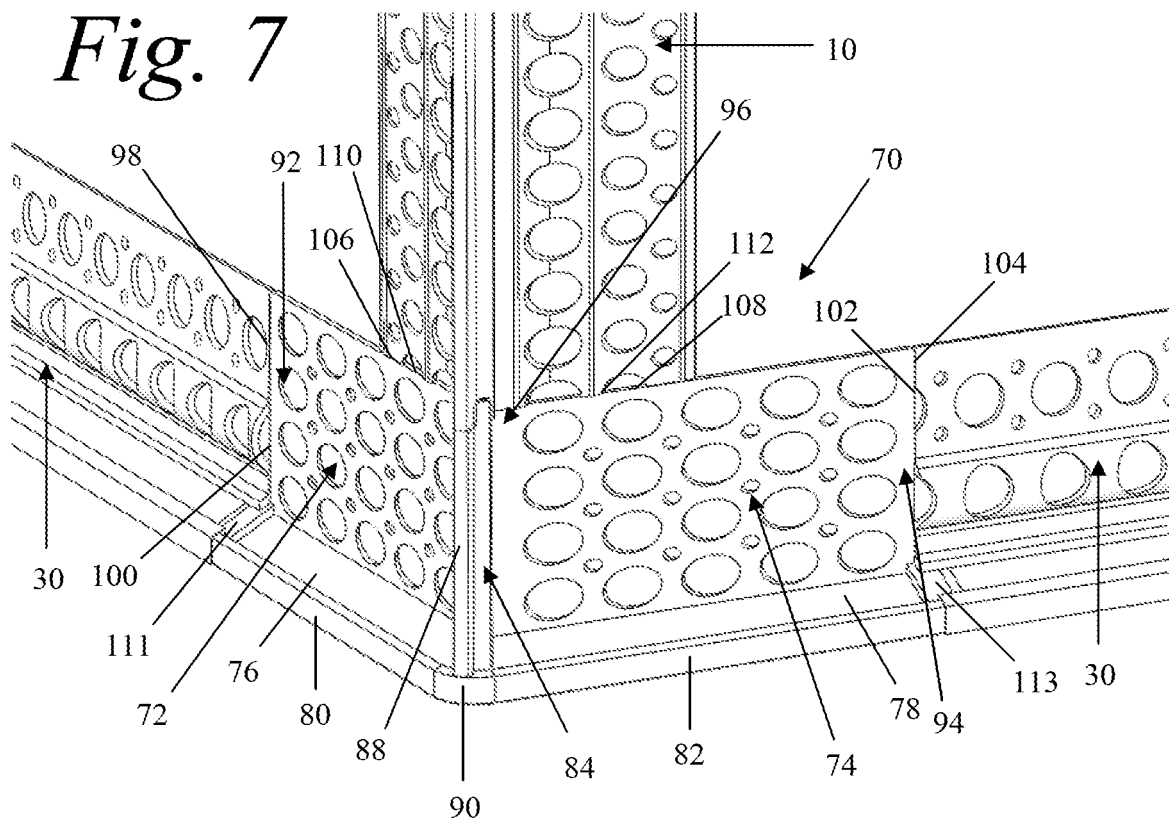
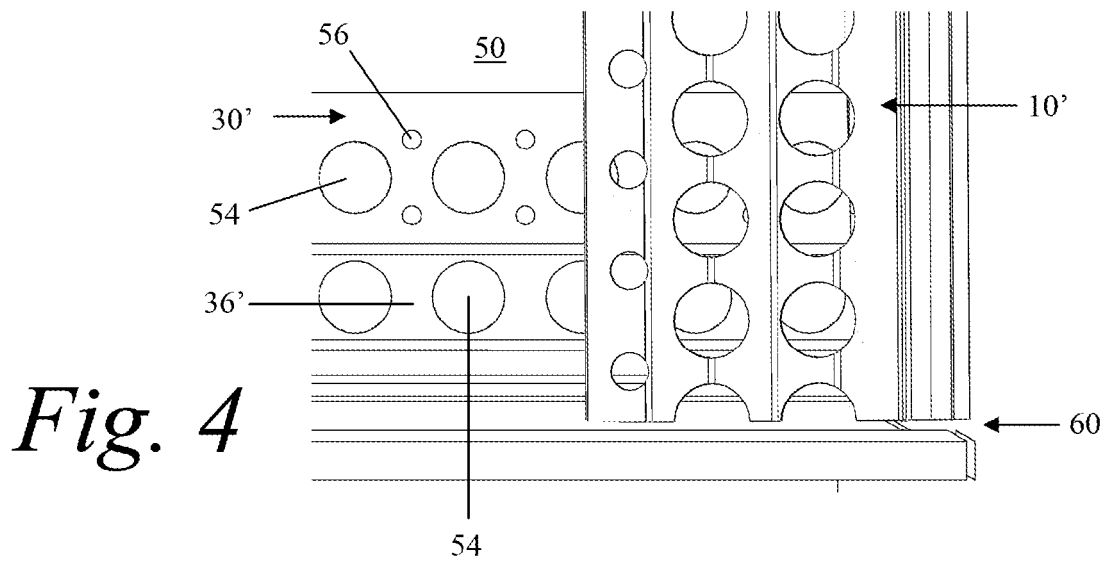


Fig. 5

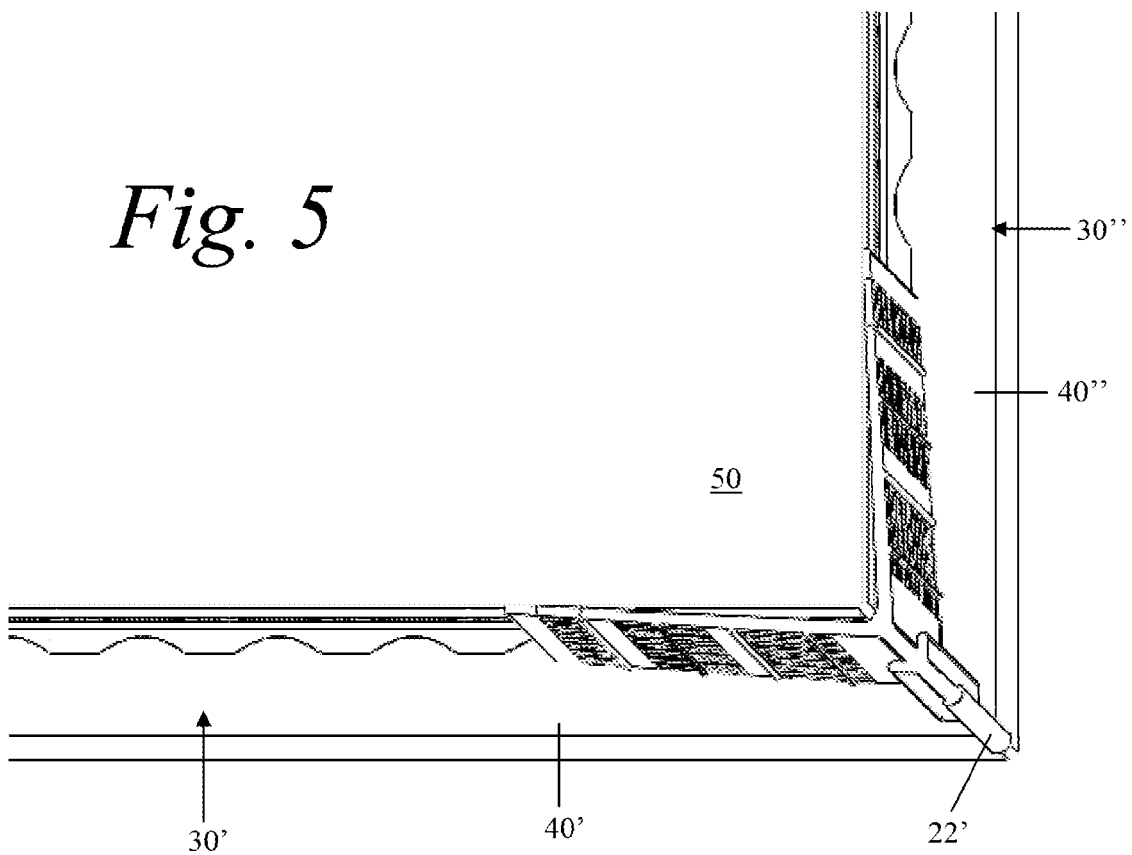
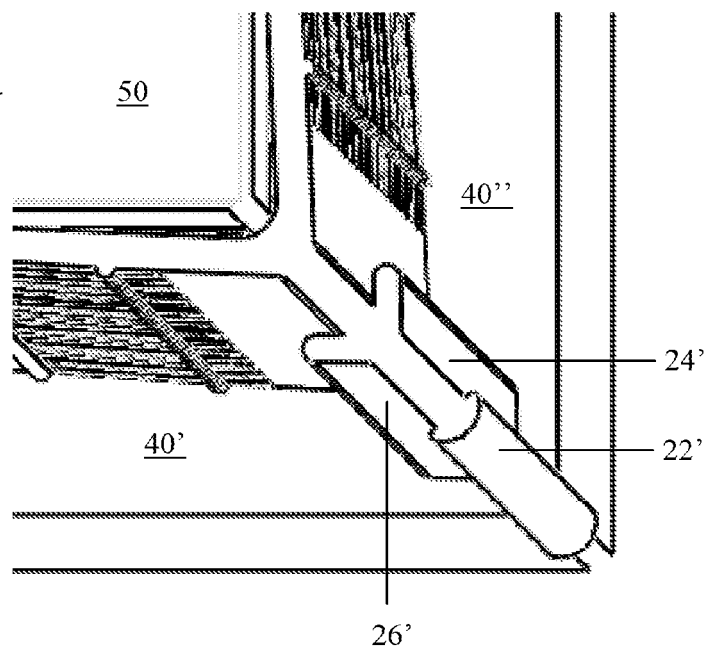


Fig. 6



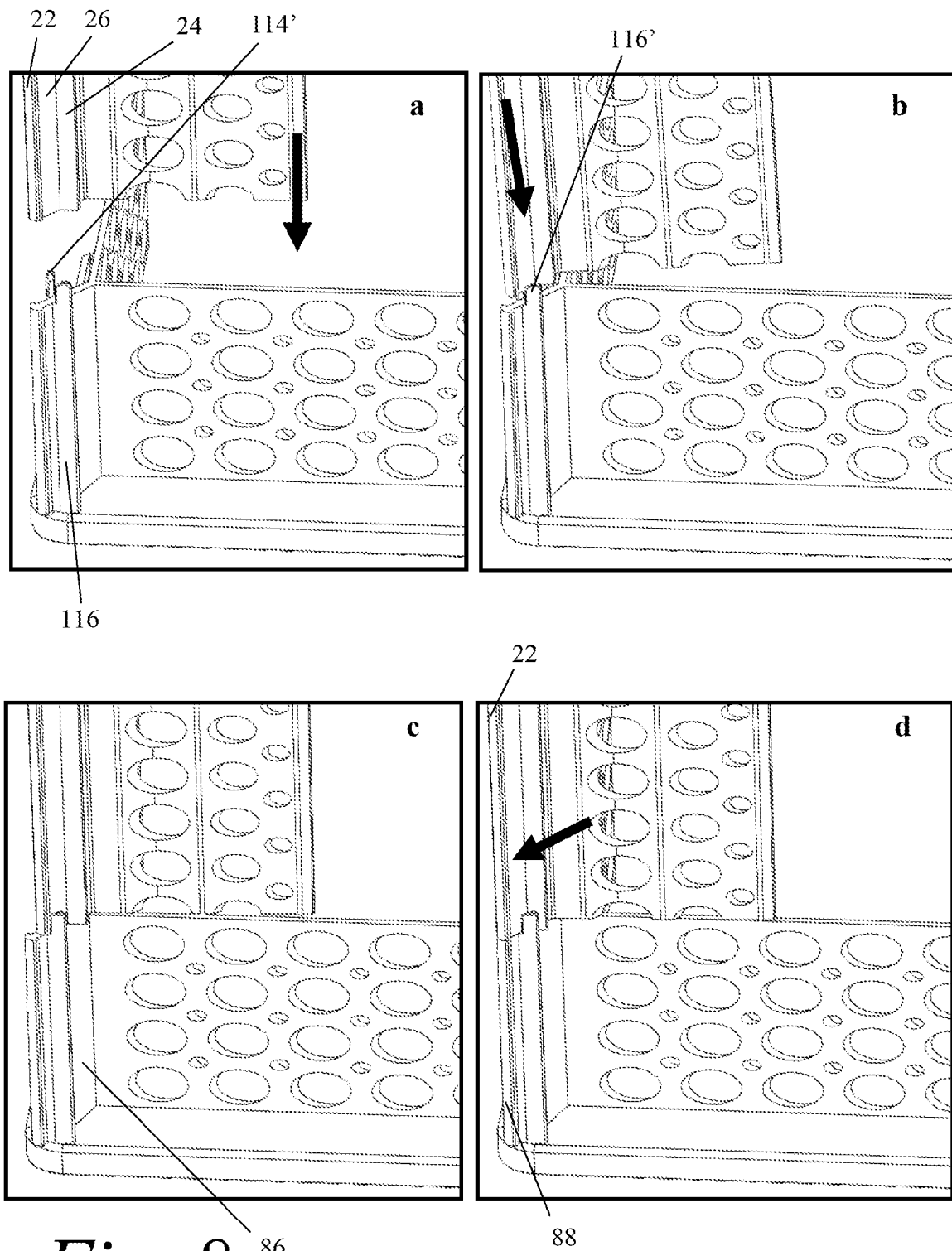


Fig. 8 86

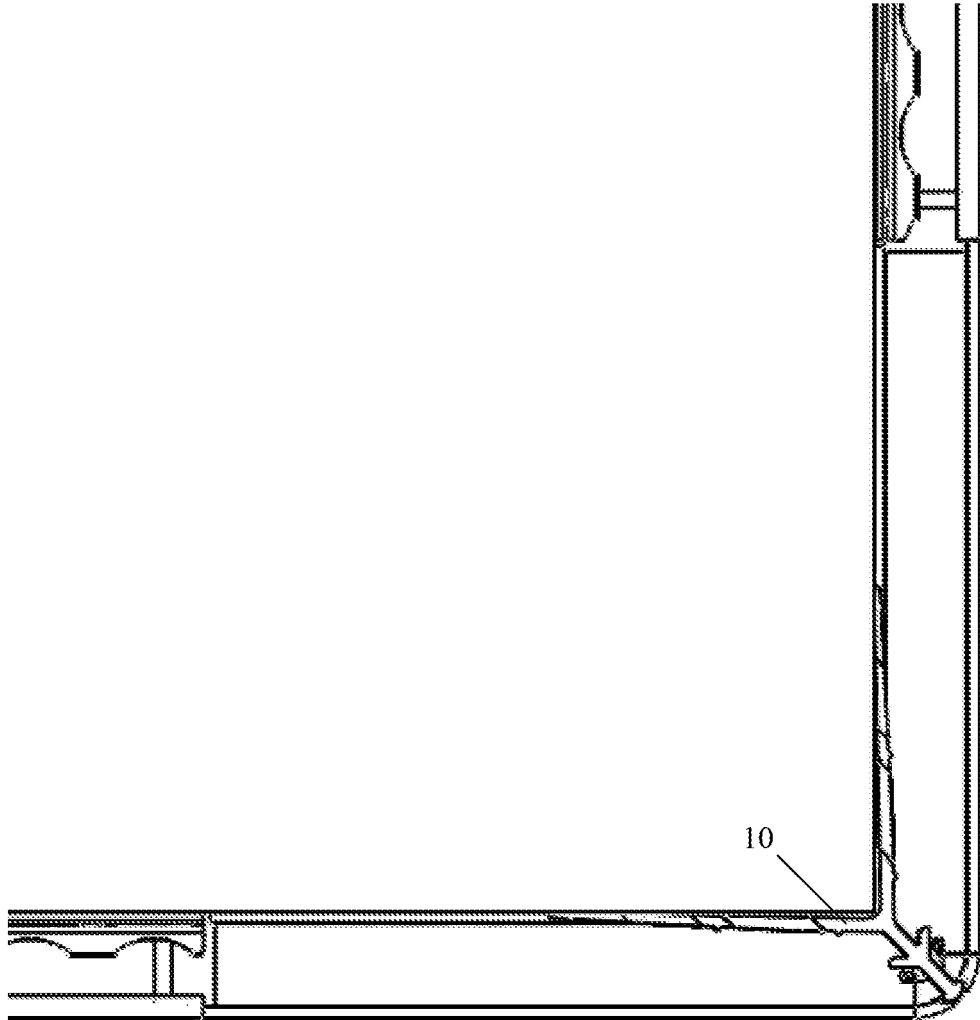


Fig. 9