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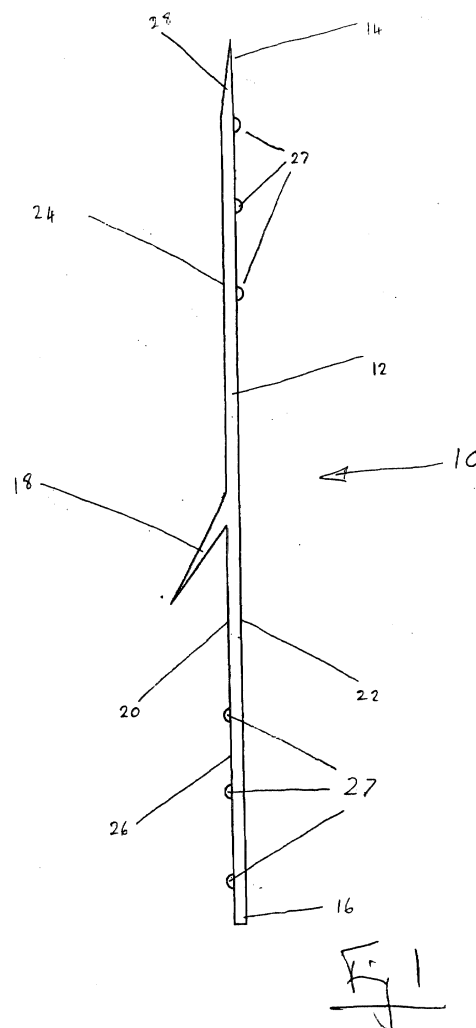
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(54) **Flexible seal**

(57) A flexible seal (10) of plasticised PVC having a Shore value of A 70 having a generally planar base portion (12) in the form of an elongate strip having top and bottom edges (14,16) and a sealing portion (18) extending along the length of the base portion intermediate to the top and bottom edges (14,16) and protruding downwardly from the base portion (12). The seal is used to provide a watertight barrier between a shower tray and a wall, for example, which is more secure and cosmetically pleasing than simple adhesive based seals. A method of using the seal is also disclosed.



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Description

[0001] The present invention relates to a seal and, in particular, to a seal which can provide a water impermeable barrier to prevent water passing down between an appliance, for example a bath, shower or work surface and an adjacent upright support such as a wall.

[0002] It is known to seal the surrounds of baths and shower trays to the tiles of an adjacent wall with a bead of sealant to prevent the passage of water from the appliance down between the appliance and the wall. This is because such an escape of water often results in a damp area which adversely affects the structural integrity of the wall or the floor on which the appliance stands. This is a major problem in older buildings which have used hygroscopic plaster rather than sand cement and where the floor is a wooden floor, as dry rot may result.

[0003] In many buildings the walls are often not exactly true and the floor may not be level throughout its entire area. In addition the walls may have one or more uneven areas, for example, convex or concave areas. The corners may also not form 90° angles.

[0004] In contrast, appliances such as baths and shower trays are made with regular features, most significantly straight sides which are often perpendicular to each other, or at another predetermined angle, at a corner.

[0005] Those skilled in the art use, where possible, a technique which involves the removal of plaster from the lower surface of the wall to help accommodate the irregularities of the wall. The appliance is then placed adjacent to the wall and a seal between the appliance and the wall, or if the wall is tiled, the tiles on the wall, is then usually formed by applying a flexible sealant. The sealant, for example silicone acetate, is applied to the gap between the appliance and the wall, or tiles, to form a barrier to prevent the passage of water down between the appliance and the wall.

[0006] This may not be possible in some cases, and where it is possible there are a large number of professionally untrained, "do-it-yourself" enthusiasts who install such appliances without using the above method. In such cases the appliance is merely abutted against the wall. This will tend to leave larger gaps than with the preferred fitting method.

[0007] Although a sealant such as silicone acetate is capable of forming a watertight seal when properly applied it is not without disadvantages. The application of sealant is not always straightforward, and although a uniform bead of sealant is desired for cosmetic reasons, it may not be easily achieved along the entire border of the appliance. Bubbles in the sealant may occur, or unsightly blobs of the sealant may be produced by an unskilled worker, and at worst, inadequate coverage of a gap with sealant may result in the gap not being filled with sealant and allow the passage of water down between the appliance and the wall.

[0008] Due to the highly humid conditions in a bath-

room, mould can form on or in the sealant causing unsightly discolouration. Attempts to clean the sealant can have detrimental effects, either by disrupting the integrity of the beading, possibly by peeling the beading from the appliance or the wall or tiles, or by the chemical cleaning reagents detrimentally affecting the sealant, for example, the action of bleach upon the sealant.

[0009] The present invention seeks to provide an improved watertight barrier for preventing the passage of water down between an appliance and the wall against which it is positioned.

[0010] Accordingly, the present invention, in a first aspect, provides a flexible seal having a generally planar base portion in the form of an elongate strip having top and bottom edges and a sealing portion extending along the length of the base portion intermediate to the top and bottom edges and protruding outwardly and downwardly from the base portion.

[0011] According to a second aspect of the invention, there is provided a method of using such a seal comprising the steps of:

- a) adhering the seal to a first object so the sealing portion contacts an upper surface of the first object;
- b) positioning the first object adjacent a wall; and
- c) fixing one or more second objects to the wall so they press the sealing portion into intimate contact with the first object.

[0012] The seal width and the position of the sealing portion is such that the generally planar base portion can be securely adhered to the outer edge of the appliance and also project above the appliance to an extent that a ceramic tile may be securely adhered to it and the wall.

[0013] Although a ceramic tile is the preferred object to be fixed to an upper portion of the base portion, another example is a water impermeable material such as a water-resistant wallpaper, or other material known to a person skilled in the art such as marble.

[0014] The flexible properties of the sealing portion allow it to be resiliently pressed down on the edge of the appliance to form a secure seal.

[0015] If desired the base portion can be textured to improve ease of application of an adhesive or cement and it also acts to improve the adhesion of the seal to, for example the side of a bath.

[0016] The top region of the strip is preferably tapered away from the side of the strip from which the sealing portion extends. This embodiment is especially useful when the appliance is a shower tray. In a shower, if water permeates a tile surface, for example through a crack to the rear wall, the tapering of the top edge of the seal acts to direct the water away from the wall down to the top surface of the sealing member and into the shower tray.

[0017] Conveniently the seal is extruded and made from a polymeric material such as plasticised poly vinyl chloride (PVC). Preferably the PVC may have a Shore

hardness value of A 70 (as manufactured by Bizetta Srl) as this gives a balance between flexibility and toughness. Alternatively other materials may be used.

[0018] The seal is particularly suited for preventing the passage of water down between an appliance, for example, a bath, a shower of a work surface and an adjacent wall.

[0019] A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which;

Figure 1 is a cross-sectional diagrammatic view through a seal;

Figure 2 is a cross-sectional diagrammatic view through a seal showing an alternative method of texturing the surface of the base portion;

Figures 3 and 4 are a schematic illustration of a method of fixing the seal to an edge of an appliance which includes a corner; and

Figure 5 is a cross-sectional diagrammatic view of the seal of Figure 2 attached to an edge of an appliance and having a tile affixed to the seal and a wall.

[0020] Figure 1 shows a seal 10 which comprises a generally planar base portion 12 having a top edge 14, a bottom edge 16 and a sealing portion 18. The sealing portion 18 extends parallel to the top edge 14 and the bottom edge 16 and divides a front face 20 into an upper portion 24 and a lower portion 26. The planar base portion 12 is textured by the provision of bumps 27 which in this embodiment cover the lower portion 26 of the front face 20 and the upper portion 24 of the rear face 22.

[0021] The upper portion 24 has a region 28 which is tapered away from the front face 20 towards the top edge 14. The tapered region 28, when covered by a tile and cement so as to be held against a wall, directs water which may have passed through cracks in the tile or grouting above the seal 10 to be directed onto the front face 20 and so onto the sealing portion 18. The water then flows into the appliance, rather than being allowed to flow to the floor between the wall and the appliance.

[0022] In this embodiment the total height of the strip is about 110mm and it is about 1.45mm thick. The base of the sealing portion is positioned about 45mm from the bottom edge of the strip 12 and which extends about 8mm outwardly from the base and downwardly about 14mm from its base. The tapered section at the top of the strip is about 10mm high.

[0023] The embodiment of Figure 2 is as the embodiment of Figure 1, with the same features being denoted by the same reference numerals, except for the texturing bumps 27 which are not present, the entire front face 20 and rear face 22 of the seal 29 being provided with fine horizontal grooves 31.

[0024] There will now be described a method of using the seal shown in Figures 1 and 2 with particular reference to that of Figure 2. As shown in Figures 3 and 4

adhesive 30, for example "sanitary grade" silicone acetate, is applied by extrusion from a sealant gun 33 to the lower portion 26 of the front face 20 of the planar base portion 12, avoiding the area immediately underneath the sealing portion 18. The adhesive 30 is applied in a zig-zag fashion, to allow more efficient spreading of the adhesive 30 on the front face 20, so that when the seal 29 is applied to a side 42 of the appliance 40 an effective seal is produced. The adhesive 30 is left for 5-10 minutes before the seal is adhered to the side 42 of an appliance 40 as shown in Figure 4, so that the underside of the sealing portion 18 is in contact with an upper portion 44 of the appliance 40 if necessary by adjusting the vertical position of the seal 29. Contact between the seal 29 and the upper portion 44 and side 42 of the appliance 40 is maintained throughout.

[0025] Referring now to Figure 5 the appliance 40 and the affixed seal 29 is then pushed against a wall 41 so that the planar base portion 12 of the seal 10 lies between the appliance 40 and the wall 41. If necessary the seal 10 is adjusted vertically so that the ceramic tiling 43 will pin the sealing portion 18 against the upper portion 44 of the appliance 40.

[0026] If the appliance 40 is a plastic bath, the bath is filled with water as far as the overflow before tiling. This will allow the bath to settle.

[0027] Next, the upper portion 24 and the wall 41 is then coated with cement or a similar fixative. A tile 43 is then applied to the wall 41 so as to substantially cover the entire height of the upper portion 24. The tile 43 is positioned so as to press down on the sealing portion 18 to form a tight seal between the sealing portion 18 and the appliance 40. If water should manage to pass between the sealing portion 18 and the appliance 40 and contact the base portion 12, the adhesive 30 fixing the seal 10 to the appliance 40 will prevent the water going down between the appliance 40 and the wall 41. For this reason a water-resistant adhesive is preferred. After the tiles 43 have been affixed along the entire length of the seal 10 the sealing portion 18 may be trimmed to remove any of the sealing portion 18 which extends from beneath the tile 43. This produces a cosmetically pleasing appearance of seal 10 and the tiles 43.

[0028] Figures 3 and 4 show the method of turning the seal 29 around a corner 46 of the appliance 40. The sides 48 and 50 of the appliance 40 are measured and the seal 29 cut to match. The position of corner 46 when the seal 10 is attached to the appliance 40 is marked on the seal 29. A first cut 52 is made in the sealing portion 18 of the seal 29 at the point at which the seal 29 which will coincide with the corner 46. The first cut 52 extends from the bottom edge 54 of the sealing portion 18 to the point 56 at which the sealing portion 18 meets the planar base portion 12. A second cut 58 is then made 5-7mm to one side of the first cut 52 and slanted to meet the first cut 52 where the sealing portion 18 joins the planar base portion 12. The angle between the first cut 52 and the second cut 58 is approximately and preferably 30°.

The triangle of material delineated by the first cut 52 and the second cut 58 may be removed. If there is more than one corner 46, which is to have the seal 29 placed around it, the above procedure is repeated the appropriate number of times. The seal 29 can then be fixed to the appliance 40 as described earlier.

[0029] Particular attention should be paid to ensuring that the seal 29 adheres to the corners 46 of the appliance 40. If the seal 29 is tight at the corners 46, the seal 29 can be eased by cutting 20-25mm downwards from the top edge 14.

[0030] The texturing of the upper portion 24 and the lower portion 26 can be varied to provide the desired degree of adhesion to tile adhesives and silicone sealants. A convenient way to do so for an extruded sealing strip is to provide horizontal grooves at fixed or variable spacings.

[0031] The length of the sealing portion may also be selected according to the envisaged application, for example, from 15mm to 25mm according to the thickness of the tile, say, to be used with the seal, any excess length being cut off after sealing.

[0032] The thickness of the base of the sealing portion may also be varied but is ideally chosen such that for the sealants employed the lip has insufficient springiness to move the strip relative to the first object being sealed if left alone. For the above mentioned plasticised PVC with Shore hardness value A 70, a 3mm base thickness could be employed for use with typical silicone sealants.

Claims

1. A flexible seal (10) having a generally planar base portion (12) in the form of an elongate strip having top and bottom edges (14,16) and a sealing portion (18) extending along the length of the base portion intermediate to the top and bottom edges (14,16) and protruding outwardly and downwardly from the base portion (12).
2. A flexible seal according to claim 1 wherein the top region of the base portion (12) tapers away from the side from which the sealing portion (18) extends.
3. A flexible seal according to claim 1 or 2 wherein one or more surfaces of the base portion (12) are textured.
4. A flexible seal according to claim 3 wherein the texturing is at least in part provided by horizontal grooves.
5. A flexible seal according to any preceding claims wherein the seal (10) is of plasticised poly vinyl chloride having a Shore hardness value of A 70.

6. A flexible seal according to claim 5, wherein the base portion is 3mm or less thick.

7. A method of using the flexible seal of any of claims 1 to 6 to produce a seal comprising the steps of:

- a) adhering the seal (10) to a first object (40) so the sealing portion (18) contacts an upper surface (44) of the first object (40);
- b) positioning the first object adjacent an upright support, eg. a wall (41); and
- c) fixing one or more second objects (48) to the upright support so they overlap the seal and press the sealing portion (18) into intimate contact with the first object.

8. A method according to claim 7 wherein the first object is a bath, shower tray or work surface.

9. A method according to claim 7 or 8 wherein the second object (43) is a ceramic tile or of a water impermeable material.

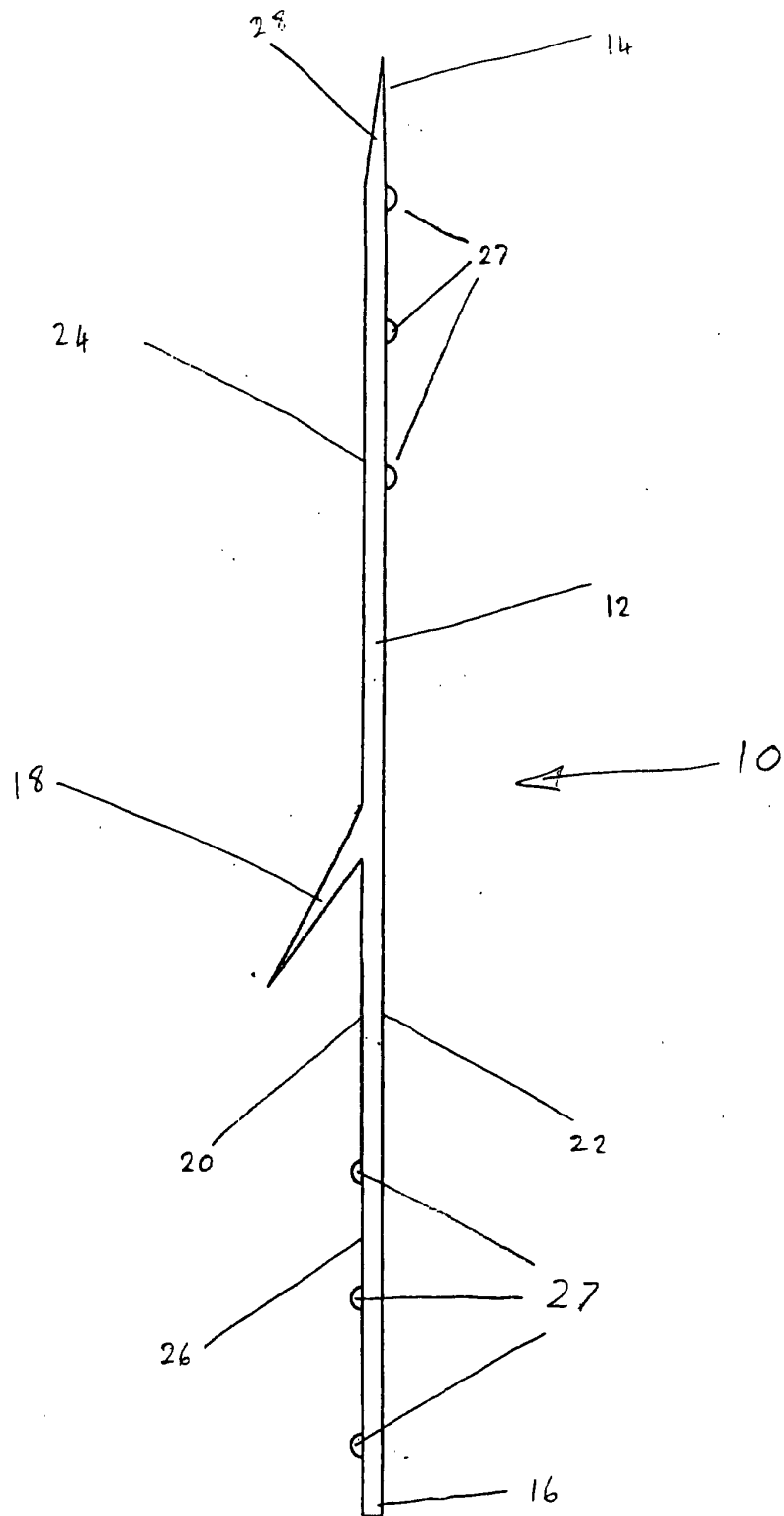
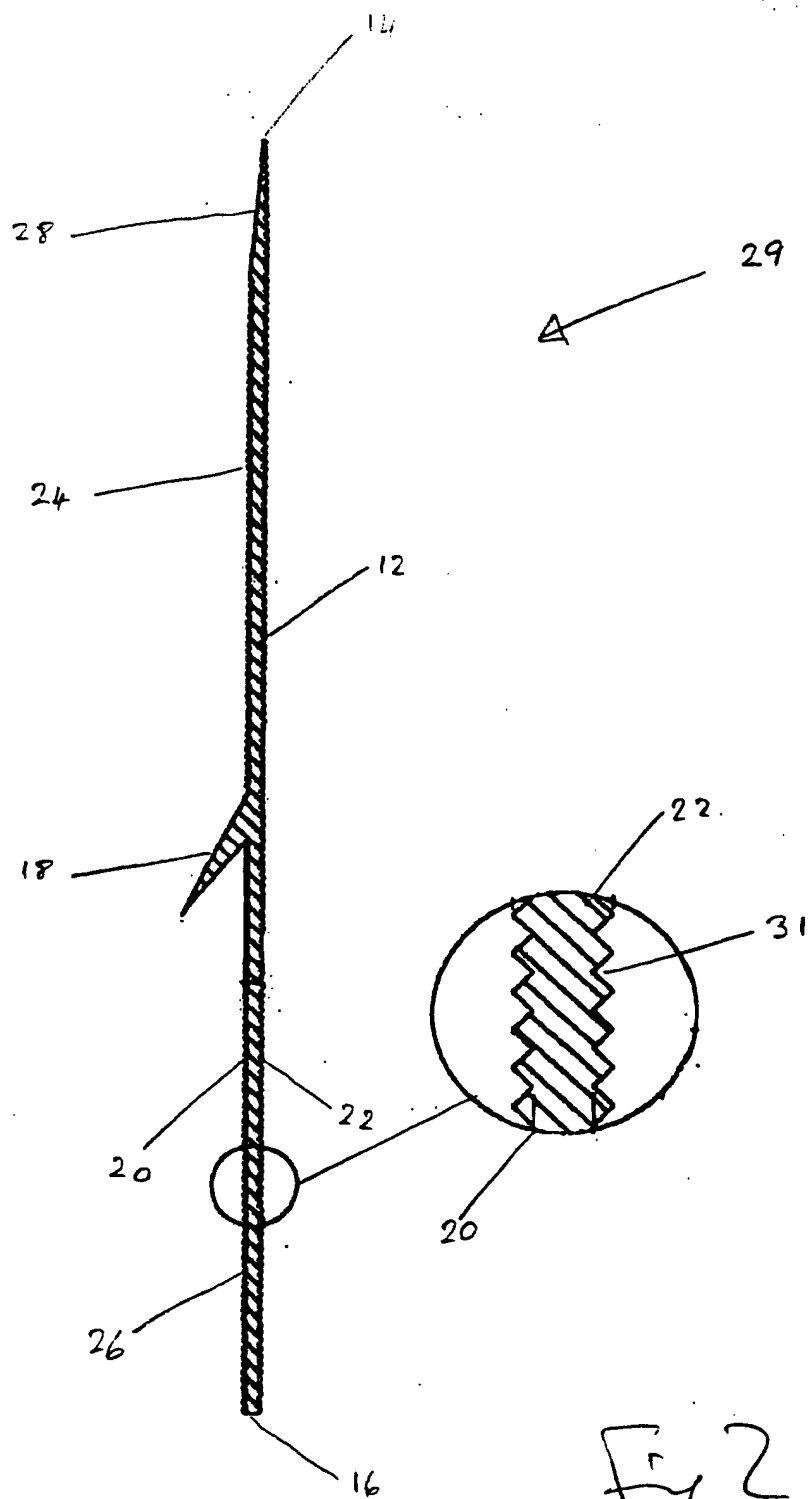


Fig 1



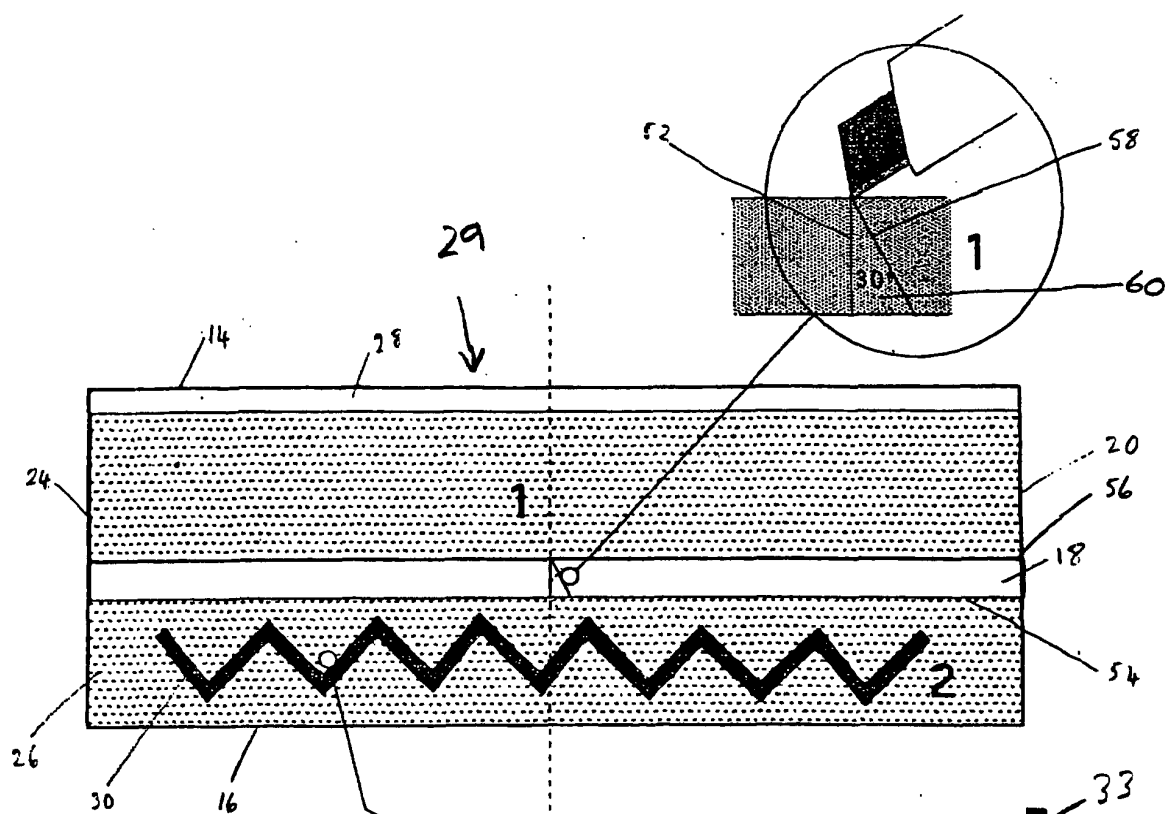


Fig. 3

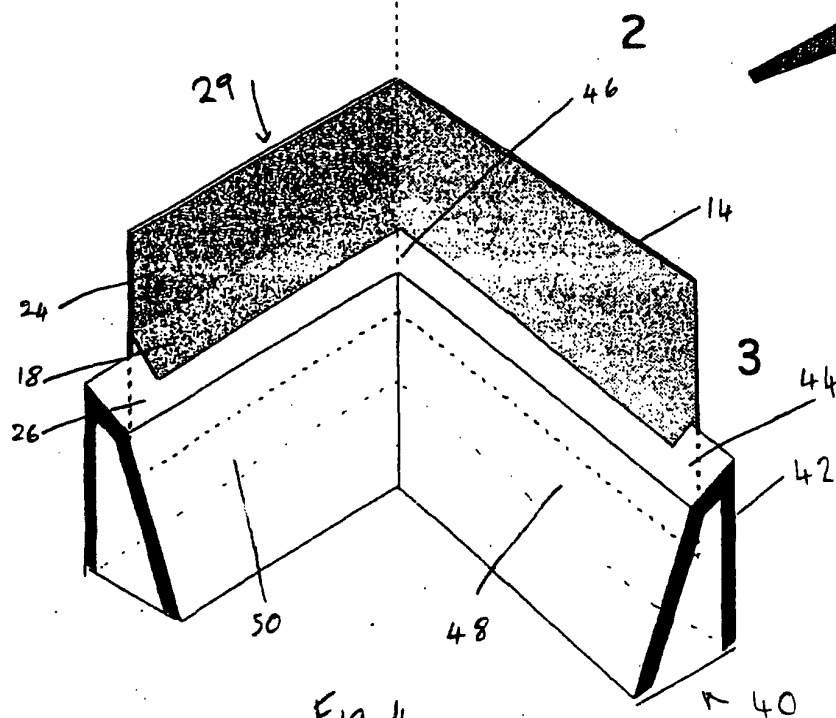


Fig. 4

