

(19)



(11)

EP 3 015 616 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
12.07.2017 Bulletin 2017/28

(51) Int Cl.:
E04D 13/03^(2006.01) E04D 13/14^(2006.01)

(21) Application number: **15191085.8**

(22) Date of filing: **22.10.2015**

(54) **MOUNTING UNIT**

MONTAGEEINHEIT

UNITÉ DE MONTAGE

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **29.10.2014 GB 201419231**

(43) Date of publication of application:
04.05.2016 Bulletin 2016/18

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Description

[0001] This invention concerns a mounting unit, and particularly a mounting unit for mounting a building component on a flat surface such as a roof, and particularly a membrane roof.

[0002] Membrane roofing is being increasingly used on flat or nearly flat roofs, in commercial applications, and also increasingly in residential applications. It is often required to mount building components on such roofs such as for instance a light tube to permit natural light to enter these buildings. Mounting such components extending through a membrane roof can involve a not insignificant amount of work, and it is important to ensure that such mounting is carried out properly such that no water leakage can occur.

[0003] DE 40 03 906 A discloses a mounting unit for mounting a building component on a flat surface, the unit comprising an upper member with an upstanding part defining an opening to receive a building component and a flange surrounding the upstanding part, a lower member with an opening corresponding to the opening in the upper member upstanding part and a flange surrounding the opening, and a mid member in the form of a piece of a membrane material with an opening therein corresponding to the openings in the upper and lower members, the upper member being located on the lower member with the mid member extending between the flanges of the upper and lower members, and extending outwardly beyond the flanges of the upper and lower member, the mid member being bonded to the flanges of the upper and lower members. According to the present invention there is provided a mounting unit for mounting a building component on a flat surface according to claim 1. The lower member may include an upstanding part defining the opening therein, and the upper member may be a sliding fit on the lower member.

[0004] The mid member may be bonded to the lower member by a contact adhesive.

[0005] The mid member may be bonded to the upper member by an adhesive tape, and a primer may be applied to the mid member and/or upper member prior to application of the adhesive tape.

[0006] The opening in the mid member may be such that the edge of the mid member around the opening lies adjacent the upstanding part of the lower member.

[0007] The flange on the lower member may extend for a greater extent than the flange on the upper member, such that the lower member flange extends beyond the flange on the upper member. According to the invention, an outer area of the lower member flange is not bonded to the mid member, so as to permit mechanical attachment of the lower member to the flat surface. The outer area may extend around the whole perimeter of the lower member. The outer area may be provided beyond the perimeter of the upper member.

[0008] The mid member may be made of synthetic rubber and may be made of EPDM (ethylene propylene di-

ene monomer). Alternatively the mid member may be made of PVC.

[0009] The lower member and/or upper member may be made of plastics material or metal.

[0010] An embodiment of the present invention will now be described by way of example only and with reference to the accompanying drawings, in which:-

Fig. 1 is a diagrammatic side view of a mounting unit according to the invention mounting a building component;

Fig. 2 is a cross sectional view along the line A-A of Fig. 1;

Fig. 3 is a detailed view of the circled part in Fig. 2;

Fig. 4 is a diagrammatic perspective view of the mounting unit of Fig. 1; and

Fig. 5 is a similar view to Fig. 4 but diagrammatically illustrating further features.

[0011] The drawings show a mounting unit 10 mounting a building component such as a light tube assembly 12, which assembly 12 includes a dome 14 and a mounting cap 16.

[0012] The unit 10 comprises an upper member 18, lower member 20 and mid member 22. The upper member 18 comprises a square flange 24 with an upstanding part 26 defining a central opening 28 to receive the light tube assembly 12. The upstanding part 26 has a side wall 30 which tapers upwardly, and four hollow locating outwardly extending projections 32 spaced around the side walls 30 and extending vertically.

[0013] The lower member 20 has a generally similar form to the upper member 18, with a square flange 34, but which extends for a greater extent than the upper member flange 24. Again an upstanding part 36 is provided with a side wall 38, a central opening 40, and four locating projections 42. The upper and lower members 18, 20 are such that the upper member can slidably fit together with the lower member locating projections 42 locating within the upper member locating projections 32.

[0014] The mid member 22 comprises a square sheet of synthetic rubber, which in this instance is EPDM. A central circular opening 44 is provided which corresponds to the openings 28, 40.

[0015] The mounting unit 10 may be formed by the following method. The mid member 22 is located in position on the lower member 20 and then folded over on itself in half such that half of it covers the lower member flange 34. Contact adhesive is applied to the lower member flange 34 and respective part of the mid member 22, leaving an outer area 46 around the perimeter of the lower member flange 34 with no adhesive applied to. The parts of the lower member 20 and mid member 22 which have adhesive applied thereto can be pressed together, and

adhesive is applied to the other halves of the lower and mid members 20, 22 which previously did not have adhesive applied thereto, again leaving the outer area 46 around the edge of the lower member 20 with no adhesive thereof. This can be seen in Fig. 5 and in this instance extends for at least 75mm from the edge of the lower member flange 34.

[0016] The upper member 18 can be located in position on the lower member 20, with the lower member locating projections 42 locating within the upper member locating projections 32. The location of the upper member 18 on the mid member 22 can be marked and the upper member 18 removed. A priming material such as Firestone Quick Prime Plus® can be applied around an outer part of the underside of the upper member flange 24, and the corresponding location on the mid member 22. An appropriate adhesive tape for use on membrane roofs can then be applied to the part of the upper member flange 24 provided with primer. The backing paper from the tape can be removed and the upper member 18 can be located on the lower member 20 and pushed into position on the mid member 22, adhering thereto.

[0017] This therefore provides a unit 10 which can readily be mounted in an appropriate space in a membrane roof area. The mid member 22 can be peeled back to provide access to the outer 46 of the lower member flange 34 which is not adhered to the mid member 22, thereby permitting ready mechanical mounting of the lower member 20 to a roof or elsewhere. A building component such as the light tube assembly 12 can be mounted on the unit 10 by any conventional manner.

[0018] The upper and lower members 18, 20 are made of an appropriate weather resistant plastics material. As an alternative they could be formed of pressed metal.

[0019] There is thus described a mounting unit which readily permits building components to be mounted on a membrane roof, whilst providing a good seal around the mounting unit. This can avoid significant additional work being carried out on site which otherwise would be required in mounting such building components directly on to a membrane roof or similar.

[0020] It is to be realised that various modifications may be made without departing from the scope of the invention. For instance the mid member may be made of a different material, and could be made for instance of PVC. Whilst the above example has four locating projections, a different number or configuration of projections could be provided, and for instance with larger size units a greater number of projections could be provided.

[0021] The above described example mounts a light tube assembly. Units according to the invention could mount other assemblies such as for example roof lights. An insulating layer or component could be included in the unit, for instance on the underside of the lower member. The upper and lower members may be differently formed, and may mount different building components. The different parts of the unit could be bonded together by different materials or a different method.

Claims

1. A mounting unit (10) for mounting a building component (12) on a flat surface such as a roof, the unit (10) comprising an upper member (18) with an upstanding part (26) defining an opening (28) to receive a building component (12) and a flange (24) surrounding the upstanding part (26), a lower member (20) with an opening (40) corresponding to the opening (28) in the upper member upstanding part (26) and a flange (34) surrounding the opening (40), and a mid member (22) in the form of a piece of a membrane material with an opening (44) therein corresponding to the openings (28, 40) in the upper and lower members (18, 20), the upper member (18) being located on the lower member (20) with the mid member (22) extending between the flanges (24, 34) of the upper and lower members (18, 20), and extending outwardly beyond the flanges (24, 34) of the upper and lower members (18, 20), the mid member (22) being bonded to the flanges (24, 34) of the upper and lower members (18, 20), except that an outer area of the lower member flange (34) is not bonded to the mid member (22), so as to permit mechanical attachment of the lower member (20) to the flat surface.
2. A mounting unit according to claim 1, **characterised in that** the lower member (20) includes an upstanding part (36) defining the opening (40) therein.
3. A mounting unit according to claim 2, **characterised in that** the upper member (20) is a sliding fit on the lower member (18).
4. A mounting unit according to claim 3, **characterised in that** a plurality of hollow outwardly extending locating projections (32) are provided on a side wall (30) of the upper member upstanding part (26), wherein said projections (32) are spaced around the side walls (30) and extend vertically, and wherein said side wall (30) tapers upwardly, and a plurality of outwardly extending locating projections (42) are provided on a side wall (38) of the lower member upstanding (36), and the lower member locating projections (42) slidably locate within the upper member locating member locating projections (32).
5. A mounting unit according to any of the preceding claims, **characterised in that** the mid member (22) is bonded to the lower member (18) by a contact adhesive.
6. A mounting unit according to any of claims 1 to 4, **characterised in that** the mid member (22) is bonded to the upper member (20) by an adhesive tape.

7. A mounting unit according to claim 6, **characterised in that** a primer is applied to the mid member (22) and/or upper member (20) prior to application of the adhesive tape.
8. A mounting unit according to claim 2, **characterised in that** the opening (44) in the mid member is such that the edge of the mid member (22) around the opening lies adjacent the upstanding part (36) of the lower member (20).
9. A mounting unit according to any of the preceding claims, **characterised in that** the flange (34) on the lower member (20) extends for a greater extent than the flange (24) on the upper member (18), such that the lower member flange (34) extends beyond the flange (24) on the upper member.
10. A mounting unit according to any of the preceding claims, **characterised in that** the outer area of the lower member flange (34) extends around the whole perimeter of the lower member (20).
11. A mounting unit according to claim 10, **characterised in that** the outer area of the lower member flange (34) is provided beyond the perimeter of the upper member (18).
12. A mounting unit according to any of the preceding claims, **characterised in that** the mid member (22) is made of synthetic rubber.
13. A mounting unit according to claim 12, **characterised in that** the mid member (22) is EPDM (ethylene propylene diene monomer).
14. A mounting unit according to any of claims 1 to 11, **characterised in that** the mid member (22) is PVC.
15. A mounting unit according to any of the preceding claims, **characterised in that** the lower member (20) and/or upper member (18) are made of plastics material or metal.

Patentansprüche

1. Montageeinheit (10) zur Montage einer Gebäudekomponente (12) auf einer flachen Oberfläche, wie zum Beispiel einem Dach, wobei die Einheit (10) ein oberes Element (18) mit einem nach oben stehenden Teil (26) umfasst, das eine Öffnung (28) definiert, um eine Gebäudekomponente (12) aufzunehmen, und einem Flansch (24), der den nach oben stehenden Teil (26) umgibt, ein unteres Element (20) mit einer Öffnung (40), die der Öffnung (28) in dem nach oben stehenden Teil (26) des oberen Elements entspricht, und einem Flansch (34), der die Öffnung

(40) umgibt, und ein mittleres Element (22) in der Form eines Stücks eines Membranmaterials mit einer Öffnung (44) darin, die den Öffnungen (28, 40) in den oberen und unteren Elementen (18, 20) entspricht, wobei das obere Element (18) auf dem unteren Element (20) angeordnet ist, wobei sich das mittlere Element (22) zwischen den Flanschen (24, 34) der oberen und unteren Elemente (18, 20) erstreckt, und sich nach außen über die Flansche (24, 34) der oberen und unteren Elemente (18, 20) erstreckt, wobei das mittlere Element (22) an die Flansche (24, 34) der oberen und unteren Elemente (18, 20) gebondet ist, außer dass eine äußere Fläche des Flansches (34) des unteren Elements nicht mit dem mittleren Element (22) gebondet ist, um so eine mechanische Anbringung des unteren Elements (20) an die flache Oberfläche zu erlauben.

2. Montageeinheit nach Anspruch 1, **dadurch gekennzeichnet, dass** das untere Element (20) einen nach oben stehenden Teil (36) umfasst, der die Öffnung (40) darin definiert.
3. Montageeinheit nach Anspruch 2, **dadurch gekennzeichnet, dass** das obere Element (20) ein Gleitsitz auf dem unteren Element (18) ist.
4. Montageeinheit nach Anspruch 3, **dadurch gekennzeichnet, dass** eine Mehrzahl an hohlen, sich nach außen erstreckenden Positioniervorsprüngen (32) auf einer Seitenwand (30) des nach oben stehenden Teils (26) des oberen Elements bereitgestellt sind, wobei die Vorsprünge (32) um die Seitenwände (30) beabstandet sind und sich vertikal erstrecken, und wobei die Seitenwand (30) sich nach oben verjüngt, und eine Mehrzahl an sich nach außen erstreckenden Positioniervorsprüngen (42) auf einer Seitenwand (38) des nach oben stehenden Teils (36) des unteren Elements bereitgestellt sind, und die Positioniervorsprünge (42) des unteren Elements in den Positioniervorsprüngen (32) des oberen Elements gleitend positioniert sind.
5. Montageeinheit gemäß einem der voranstehenden Ansprüche, **dadurch gekennzeichnet, dass** das mittlere Element (22) mit dem unteren Element (18) durch einen Kontaktkleber gebondet ist.
6. Montageeinheit nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** das mittlere Element (22) mit dem oberen Element (20) durch ein Klebeband gebondet ist.
7. Montageeinheit nach Anspruch 6, **dadurch gekennzeichnet, dass** ein Primer auf das mittlere Element (22) und/oder obere Element (20) vor dem Applizieren des Klebebands aufgetragen ist.

8. Montageeinheit nach Anspruch 2, **dadurch gekennzeichnet, dass** die Öffnung (44) in dem mittleren Element so ist, dass die Kante des mittleren Elements (22) um die Öffnung neben dem nach oben stehenden Teil (36) des unteren Elements (20) liegt. 5
9. Montageeinheit nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet, dass** der Flansch (34) auf dem unteren Element (20) sich weiter erstreckt als der Flansch (24) auf dem oberen Element (18), sodass sich der Flansch des unteren Elements (34) jenseits des Flansches (24) des oberen Elements erstreckt. 10
10. Montageeinheit gemäß einem der voranstehenden Ansprüche, **dadurch gekennzeichnet, dass** sich der äußere Bereich des Flansches (34) des unteren Elements um den ganzen Umfang des unteren Elements (20) erstreckt. 15
11. Montageeinheit nach Anspruch 10, **dadurch gekennzeichnet, dass** der äußere Bereich des Flansches (34) des unteren Elements außerhalb des Umfangs des oberen Elements (18) bereitgestellt ist. 20
12. Montageeinheit nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet, dass** das mittlere Element (22) aus synthetischem Gummi gefertigt ist. 25
13. Montageeinheit nach Anspruch 12, **dadurch gekennzeichnet, dass** das mittlere Element (22) EPDM (Ethylen-Propylen-Dien-Monomer) ist. 30
14. Montageeinheit nach einem der Ansprüche 1 bis 11, **dadurch gekennzeichnet, dass** das mittlere Element (22) PVC ist. 35
15. Montageeinheit nach einem der voranstehenden Ansprüche, **dadurch gekennzeichnet, dass** das untere Element (20) und/oder obere Element (18) aus Kunststoffmaterial oder Metall gefertigt sind. 40

Revendications 45

1. Unité de montage (10) pour le montage d'un élément de construction (12) sur une surface plane telle qu'un toit, l'unité (10) comprenant un élément supérieur (18) avec une partie verticale (26) définissant une ouverture (28) pour recevoir un élément de construction (12) et une bride (24) entourant la partie verticale (26), un élément inférieur (20) avec une ouverture (40) correspondant à l'ouverture (28) dans la partie verticale de l'élément supérieur (26) et une bride (34) entourant l'ouverture (40), et un élément intermédiaire (22) sous la forme d'une pièce en matériau de membrane avec une ouverture (44) corres-

pondant aux ouvertures (28, 40) dans les éléments supérieur et inférieur (18, 20), l'élément supérieur (18) étant situé sur l'élément inférieur (20) avec l'élément intermédiaire (22) s'étendant entre les brides (24, 34) des éléments supérieur et inférieur (18, 20), et s'étendant vers l'extérieur au-delà des brides (24, 34) des éléments supérieur et inférieur (18, 20), l'élément intermédiaire (22) étant collé aux brides (24, 34) des éléments supérieur et inférieur (18, 20), sauf qu'une surface extérieure de la bride de l'élément inférieur (34) n'est pas collée à l'élément intermédiaire (22), de manière à permettre une fixation mécanique de l'élément inférieur (20) sur la surface plane.

2. Unité de montage selon la revendication 1, **caractérisée en ce que** l'élément inférieur (20) comprend une partie verticale (36) définissant l'ouverture (40) dans celle-ci.
3. Unité de montage selon la revendication 2, **caractérisée en ce que** l'élément supérieur (20) est en ajustement glissant sur l'élément inférieur (18).
4. Unité de montage selon la revendication 3, **caractérisée en ce qu'**une pluralité de saillies de positionnement creuses (32) s'étendant vers l'extérieur sont prévues sur une paroi latérale (30) de la partie verticale (26) de l'élément supérieur, dans lequel lesdites saillies (32) sont espacées autour des parois latérales (30) et s'étendent verticalement, et dans lequel ladite paroi latérale (30) se rétrécit vers le haut à la manière d'un cône, et une pluralité de saillies de positionnement (42) s'étendant vers l'extérieur sont prévues sur une paroi latérale (38) de la partie verticale (36) de l'élément inférieur, et les saillies de positionnement de l'élément inférieur (42) se positionnent de manière coulissante dans les saillies de positionnement de l'élément de positionnement de l'élément supérieur (32).
5. Unité de montage selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élément intermédiaire (22) est collé à l'élément inférieur (18) par un adhésif de contact.
6. Unité de montage selon l'une quelconque des revendications 1 à 4, **caractérisée en ce que** l'élément intermédiaire (22) est collé à l'élément supérieur (20) par un ruban adhésif.
7. Unité de montage selon la revendication 6, **caractérisée en ce qu'**une couche primaire est appliquée à l'élément intermédiaire (22) et / ou à l'élément supérieur (20) avant l'application du ruban adhésif.
8. Unité de montage selon la revendication 2, **caractérisée en ce que** l'ouverture (44) dans l'élément

intermédiaire est telle que le bord de l'élément intermédiaire (22) autour de l'ouverture est adjacent à la partie verticale (36) de l'élément inférieur (20).

9. Unité de montage selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la bride (34) sur l'élément inférieur (20) s'étend sur une plus grande étendue que la bride (24) sur l'élément supérieur (18), de sorte que la bride de l'élément inférieur (34) s'étend au-delà de la bride (24) sur l'élément supérieur. 5
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10. Unité de montage selon l'une quelconque des revendications précédentes, **caractérisée en ce que** la surface extérieure de la bride de l'élément inférieur (34) s'étend autour du périmètre entier de l'élément inférieur (20). 15
11. Unité de montage selon la revendication 10, **caractérisée en ce que** la surface extérieure de la bride de l'élément inférieur (34) est prévue au-delà du périmètre de l'élément supérieur (18). 20
12. Unité de montage selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élément intermédiaire (22) est en caoutchouc synthétique. 25
13. Unité de montage selon la revendication 12, **caractérisée en ce que** l'élément intermédiaire (22) est en EPDM (monomère éthylène-propylène-diène). 30
14. Unité de montage selon l'une quelconque des revendications 1 à 11, **caractérisée en ce que** l'élément intermédiaire (22) est en PVC. 35
15. Unité de montage selon l'une quelconque des revendications précédentes, **caractérisée en ce que** l'élément inférieur (20) et/ou l'élément supérieur (18) sont en matière plastique ou en métal. 40

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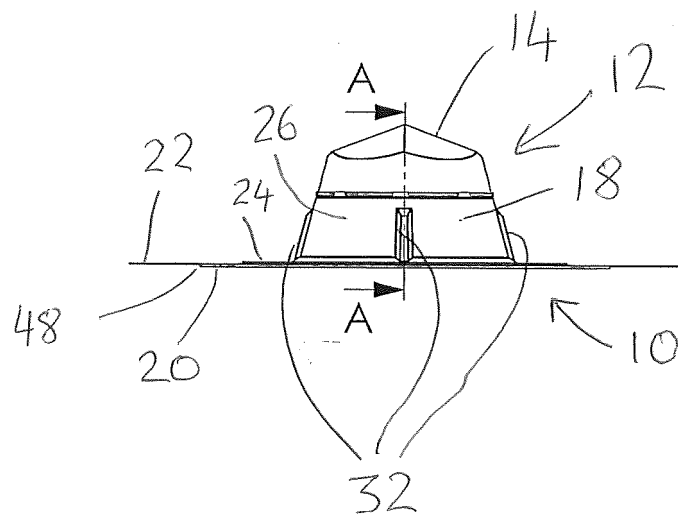


FIG. 1.

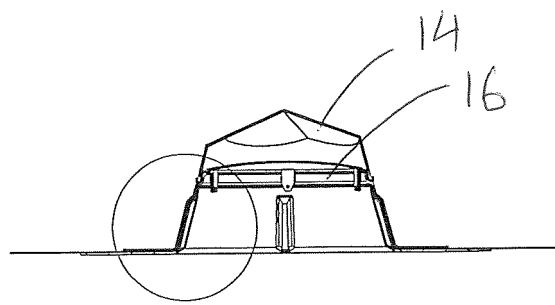


FIG. 2.

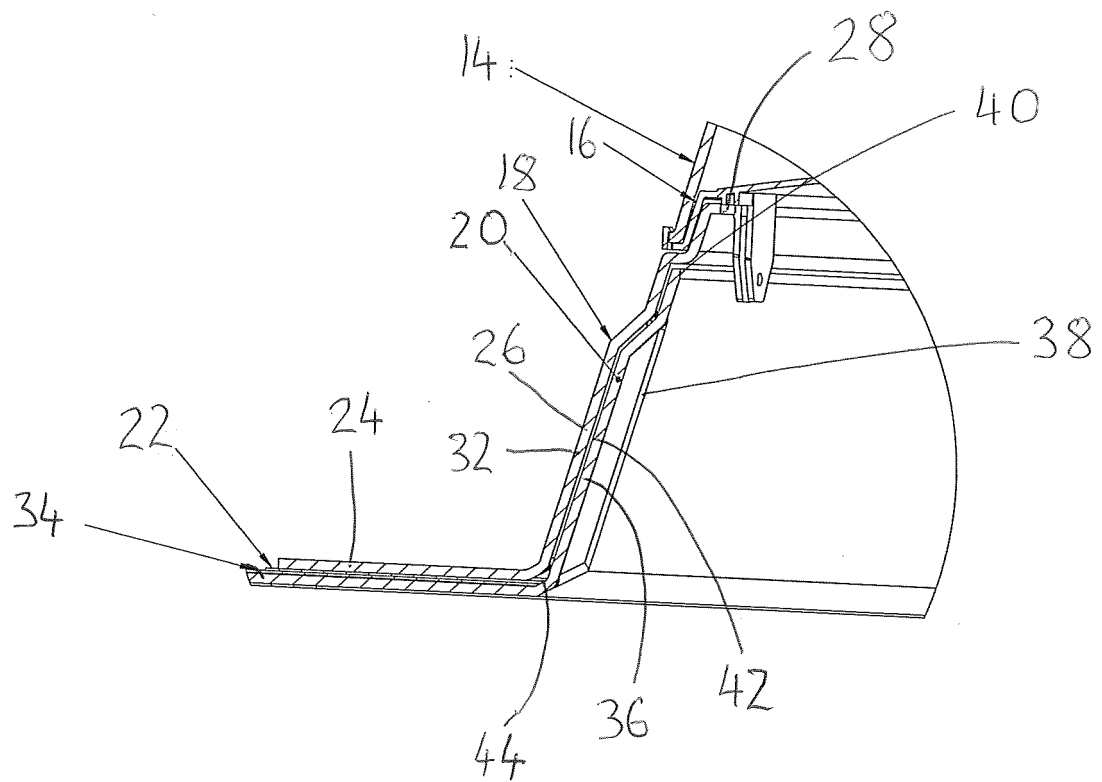


FIG. 3.

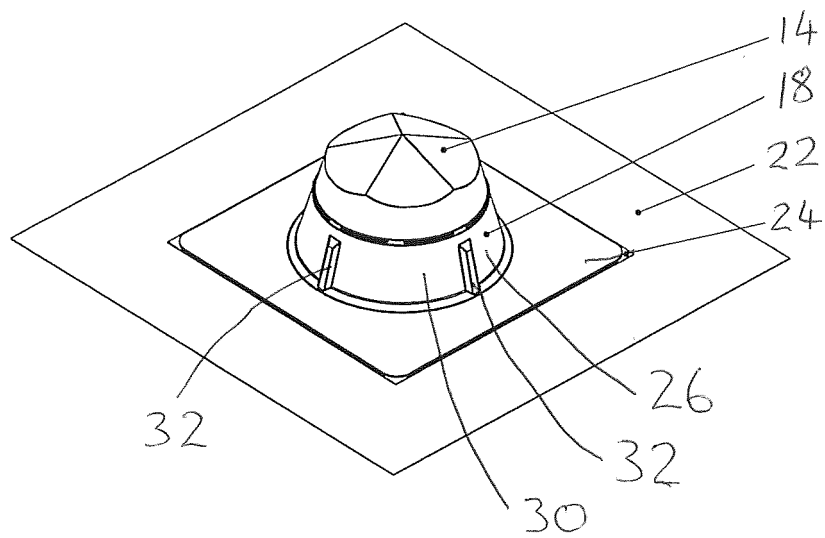


FIG. 4

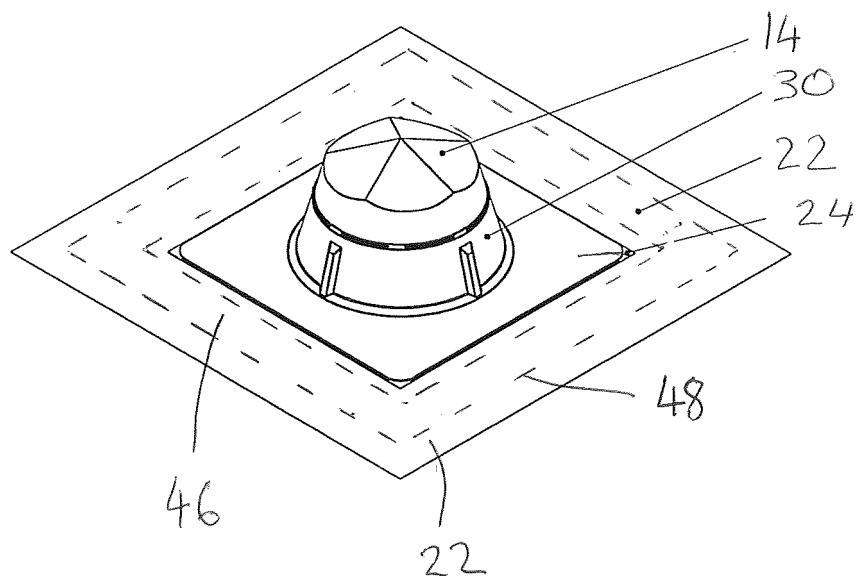


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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