(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 015 616 A1**

(12) **EUROPEAN PATENT APPLICATION**

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

(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**

(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
Designated Extension States:
BA ME
Designated Validation States:
MA

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

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(54) **MOUNTING UNIT**

(57) A mounting unit (10) for mounting a building component such as a light tube assembly (12) on a flat surface. The unit (10) comprises an upper member (18) with an upstanding part (26) defining an opening (28) to receive the assembly (12), and a flange (24) surrounding the upstanding part (26). A lower member (20) is provided with a generally similar form to the upper member (18) but with a flange (34) extending for a greater extent. An upstanding part (36) is provided on the lower member (20), which slidingly fits within the upstanding part (26). A mid member (22) in the form of a square sheet of synthetic rubber with a central circular opening (44) locates between the upper and lower members (18, 20). The mid member (22) is bonded to the flanges (24, 34), and extends outwardly therebeyond.

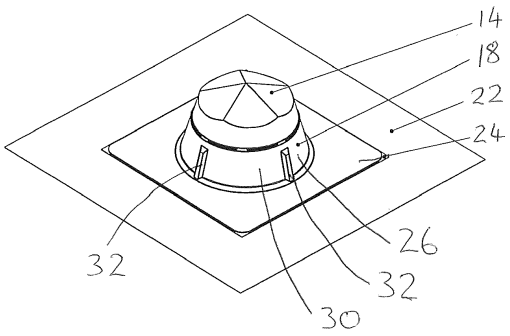

FIG. 4

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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] According to the present invention there is provided 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 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.

[0004] 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.

[0005] The mid member may be bonded to the lower member by a contact adhesive.

[0006] 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.

[0007] 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.

[0008] 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.

[0009] An outer area of the lower member flange may not be bonded to the mid member, so as to permit mechanical attachment of the lower member to the flat surface, and 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.

[0010] The mid member may be made of synthetic rubber and may be made of EPDM (ethylene propylene diene monomer). Alternatively the mid member may be made of PVC.

[0011] The lower member and/or upper member may be made of plastics material or metal.

[0012] 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.

[0013] 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.

[0014] 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 an side wall 30 which tapers upwardly, and four hollow locating outwardly extending projections 32 spaced around the side walls 30 and extending vertically.

[0015] 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 slidingly fit together with the lower member locating projections 42 locating within the upper member locating projections 32.

[0016] 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.

[0017] 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 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.

[0018] 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.

[0019] 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.

[0020] 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.

[0021] 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 onto a membrane roof or similar.

[0022] 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.

[0023] 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.

[0024] 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 mounting unit (10) for mounting a building component (12) on a flat surface, 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).

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 any of the preceding claims, **characterised in that** the mid member (22) is bonded to the lower member (18) by a contact adhesive.

5. A mounting unit according to any of claims 1 to 3, **characterised in that** the mid member (22) is bonded to the upper member (20) by an adhesive tape.

6. A mounting unit according to claim 5, **characterised in that** a primer is applied to the mid member (22) and/or upper member (20) prior to application of the adhesive tape.

7. A mounting unit according to any of the preceding claims, **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).

8. 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.

9. A mounting unit according to any of the preceding claims, **characterised in 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.

10. A mounting unit according to claim 9, **characterised in that** the outer area extends around the whole perimeter of the lower member (20).

11. A mounting unit according to claim 10, **characterised in that** the outer area 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.

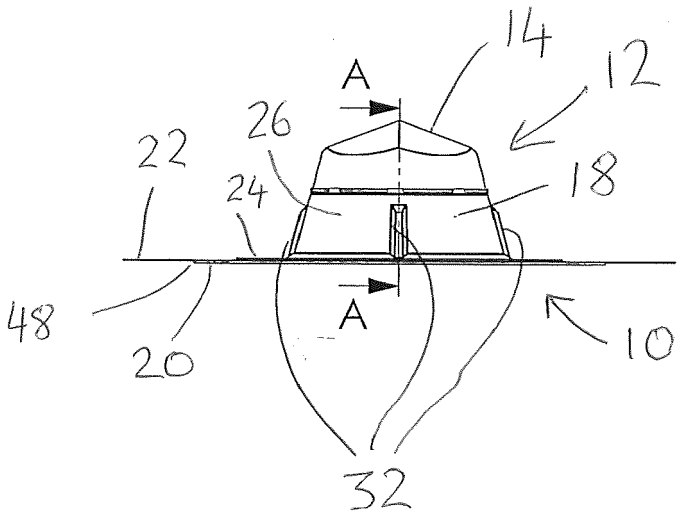

FIG. 1.

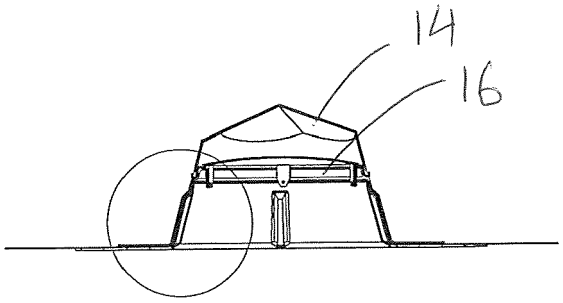

FIG. 2.

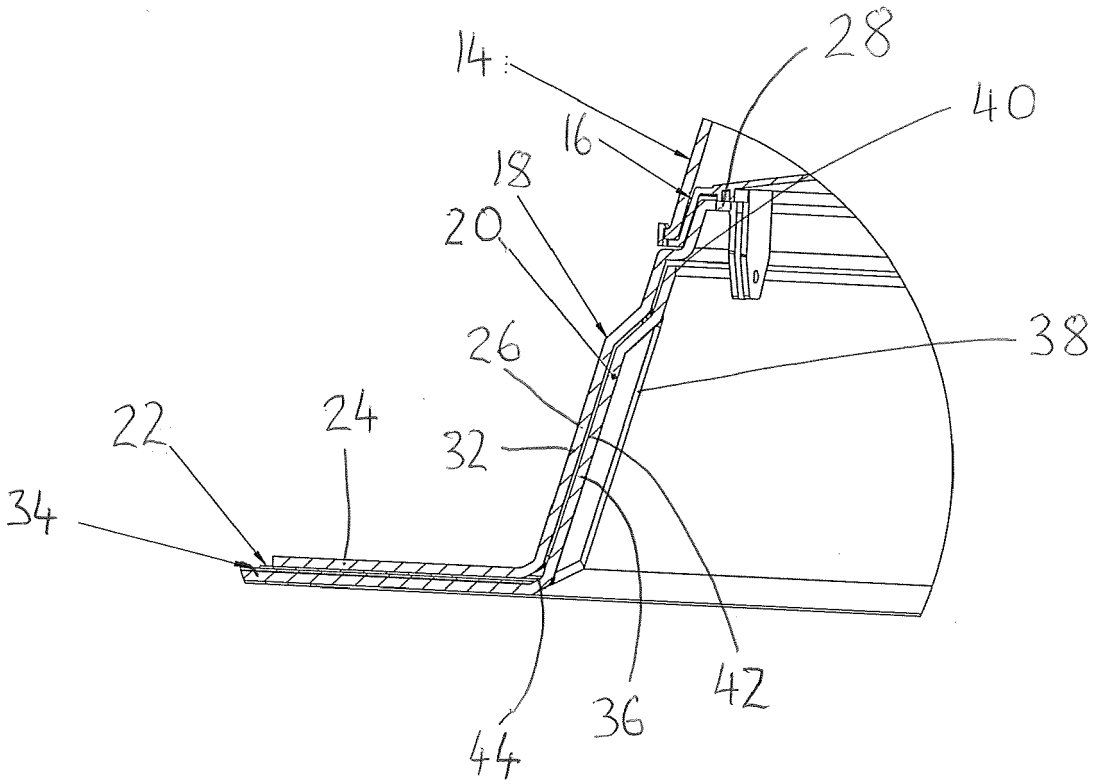

FIG. 3.

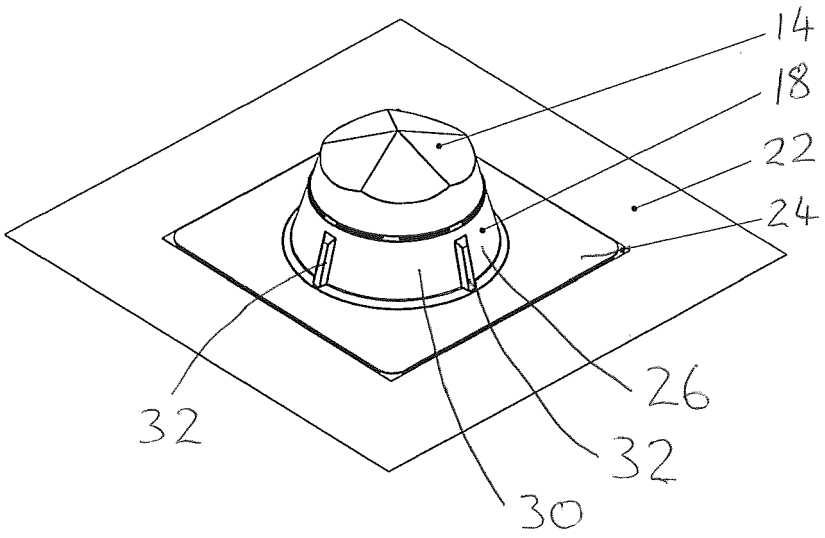

FIG. 4

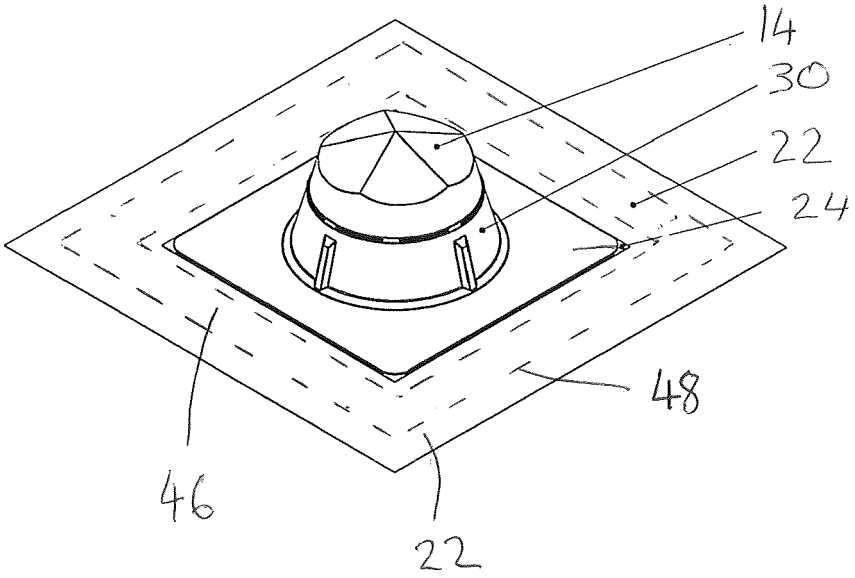

FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 15 19 1085

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 710 365 A1 (ODCO [FR]) 11 October 2006 (2006-10-11) * figures 3,6,8,9 * * paragraphs [0006], [0048], [0053] *	1-3,7, 12-15	INV. E04D13/03 E04D13/14
X	DE 40 03 906 A1 (FLECK OSKAR [DE]) 25 October 1990 (1990-10-25) * figures 1,2 * * column 1, lines 42-44 * * column 2, line 63 - column 3, line 5 *	1-15	
X	DE 10 2011 003805 A1 (POCHERT CHRISTIAN [DE]) 9 August 2012 (2012-08-09) * figure 1b *	1,8,12, 15	
X	DE 10 2004 025565 A1 (FLECK OSKAR [DE]) 24 February 2005 (2005-02-24) * figures 1,2,8 *	1	

TECHNICAL FIELDS SEARCHED (IPC)

E04D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	29 February 2016	Tran, Kim Lien

CATEGORY OF CITED DOCUMENTS

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29-02-2016

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1710365 A1	11-10-2006	DK 1710365 T3	24-02-2014
		EP 1710365 A1	11-10-2006
		ES 2447775 T3	12-03-2014
		FR 2883585 A1	29-09-2006
		PT 1710365 E	24-02-2014
DE 4003906 A1	25-10-1990	DE 4003906 A1	25-10-1990
		DE 8904850 U1	01-06-1989
DE 102011003805 A1	09-08-2012	NONE	
DE 102004025565 A1	24-02-2005	DE 20310926 U1	13-11-2003
		DE 102004025565 A1	24-02-2005

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82