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(54) **Pitched roof with rooflight and flashing piece**

(57) A pitched roof is provided with roof deck and roof battens (26) fitted thereon, on which roof battens (26) roofing elements (2) engage. Furthermore there is a rooflight (1) with window frame (21) and an essentially L-shaped flashing piece (3) which is fitted around the window frame (21). Said flashing piece (3) extends from the window frame (21) to below the roofing elements (2). In order to prevent cold bridges or cold leaks at the location of said flashing piece, the roof battens (26) which

face the sloping sections of the window frame end some distance away from the window frame so as to create an empty space, insulating material (35) is fixed to the underside of that part of the flashing piece (3) that runs parallel to the sloping top face of the roof, which material has a thickness such that the said empty space between that part of the flashing piece (3) that runs parallel to the sloping top face of the roof and the top face of the roof deck is essentially filled.

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Description

[0001] The invention relates to a pitched roof provided with roof deck and roof battens fitted thereon, on which roof battens roofing elements engage, and with at least one rooflight with window frame and an essentially L-shaped flashing piece which is fitted around the window frame and extends from the window frame to below the roofing elements.

[0002] A pitched roof of this type is disclosed in DE-A 1 509 119.

[0003] The flashing piece, which is usually produced from thin sheet metal, bridges the gap between the roof tiles and the window frame of the rooflight. To obtain good heat insulation it is important that a cold bridge or leak is not produced at the location where the window frame of the rooflight joins the roof tiles. When the flashing piece described in DE-A 1 509 119 is used there is a cold bridge, with the result that the heat insulation of the pitched roof is adversely affected.

[0004] The aim of the invention is to avoid this drawback and to this end the pitched roof mentioned in the preamble is characterised in that the roof battens which face the sloping sections of the window frame end some distance away from said sloping sections of the window frame so as to create an empty space between that part of the flashing piece that runs parallel to the sloping top face of the roof deck and the top face of the roof deck and in that insulating material is fixed to the underside of that part of the flashing piece that runs parallel to the sloping top face of the roof deck, which insulating material essentially fills the said empty space between that part of the flashing piece that runs parallel to the sloping top face of the roof deck and the top face of the roof deck.

[0005] The insulating effect is further improved if the rooflight has been given such a low position that the bottom part of the window frame overlaps the top part of the roof deck.

[0006] Preferably, a layer of insulating material is also fixed to that part of the L-shaped flashing piece that is perpendicular to the roof deck.

[0007] It is known to fit a capping strip over the uppermost part of the flashing piece, a section running parallel to the roof deck covering the top part of the window frame. According to a preferred embodiment of the invention, a layer of insulating material is also fixed to and under that part of the capping strip that runs parallel to the roof deck.

[0008] The invention also relates to an L-shaped flashing piece and a capping strip, both provided with insulating material in the manner described above.

[0009] The invention will now be explained in more detail with reference to the figures.

[0010] The invention will be further described with reference to four figures, in which:

according to the present invention fitted in a tiled roof; Figure 2 is a cross-section of a rooflight according to the present invention fitted in a tiled roof;

Figure 3 is a diagrammatic view of assembly of the flashing pieces and the capping strip according to the present invention;

Figure 4 is a bottom view of the flashing piece according to the present invention intended for the lower end of a rooflight and a flashing piece according to the present invention intended for a side of the rooflight according to the present invention.

[0011] Figure 1 shows a rooflight 1 according to the present invention. The rooflight 1 has been fixed in a roof which has roof tiles 2 thereon, which roof tiles are shown diagrammatically in this figure. The flashing pieces 3 and the capping strips 4 of the window 1 can be seen from above. The window frame is located beneath the capping strips 4. The lower flashing piece 3 is provided with lead flashing 5 at the bottom thereof. A good joint between the rooflight and the bottom tiles 2 is achieved by means of the lead flashing 5. Raised sections 6 have been made in the flashing pieces 3, which raised sections together form channels, for example for draining rainwater from the top of the rooflight 1 to the bottom thereof. To ensure good water drainage the flashing pieces 3 have been placed on top of one another in the same way as roof tiles, or like fish scales, starting from the top. This is shown in Figure 3 and elsewhere.

[0012] A cross-section of the rooflight along the line II-II in Figure 1 can be seen in Figure 2. The window is made up of a window frame 21 that is firmly joined to the roof. The rooflight can be opened and to this end the rooflight has a pivoting window section 22 that is able to rotate independently of the window frame 21, relative to the latter. The window frame 21 is connected to a roofing sheet 24 with the aid of a cleat 23. The battens 25, on which the roof battens 26 have been fitted, have been fixed on the roofing sheets. Finally the roof tiles 2 are placed on the roof battens 26. Usually these roof tiles 2 have been provided with retaining nibs (not shown), with the aid of which the roof tiles 2 are able to engage on the roof battens 26. The rafter 27 forming part of the roof construction, can also be seen in Figure 2. The rafter 27 usually extends around the opening that has been made in the roof for fitting the rooflight 1. A fascia board 28 is usually fitted against the rafter 27. A layer of insulation 29 can have been fitted between the two. Sheeting 30 can have been fitted on the inside of the roof construction, that is to say against the rafter 27. The inside of said sheeting 30 can have been provided with a layer of insulation 31. The sheeting 30, the insulating material 31, the roof sheeting 24 and the rafter 27 form part of the roof deck.

[0013] The window frame 21 is provided on the top with a capping strip 4. Said capping strip 4 butts onto a flashing piece 3. Said flashing piece 3 has a first section

Figure 1 is a diagrammatic view of a rooflight ac-

that extends essentially parallel to the window frame 21 and a second section that extends essentially from the window frame 21 to the roof tile 2. That section of the flashing piece 3 that extends from the window frame 21 to the roof tile 2 is also provided with a collar 38. The collar 38 is usually made of foam. As a result of the presence of the collar a good seal is obtained between the flashing piece 3 and the roof tile 2 since the collar 38 can be deformed to some extent by the roof tile 2. By this means the flashing piece 3 provides bridging of the essentially empty space between the window frame 21 and the roof tile 2. In Figure 2 it can be seen that it would be possible for heat transfer to take place relatively easily between the essentially empty space between the roof tile and the window frame 21 and the interior space, indicated in the figure by B. In order to provide a good barrier to such a heat transfer, that section of the flashing piece 3 that extends from the window frame 21 to the roof tile 2 is provided on the underside thereof with an insulating layer 35 that is integrated with the flashing piece. The roof battens 26 facing the jambs of the window frame have been shortened by about 15 cm (at least 10 cm). Furthermore, that section of the flashing piece that extends essentially parallel to the window frame 21 is provided on the inside thereof with a further insulating layer 36 that is integrated with the flashing piece. By this means, heat transport from the relatively open section between the roof tile 2 and the window frame 21 and the interior space, indicated by B, is impeded to a much better extent than in the case of rooflights according to the prior art, which do not have such an insulating layer. The insulating layers 35 and 36 are firmly attached to the flashing piece and can, for example, be glued to the flashing piece 3 or foamed onto the flashing piece 3.

[0014] The window frame 21 has been given such a low position that it overlaps the rafter 27 of the roof deck to some extent.

[0015] In Figure 2 it can also be seen that the advantage of the measure according to the present invention is that it is possible to work with standard components for the rooflight 1. The flashing piece used as the flashing piece 3 according to the present invention can be a flashing piece according to the prior art provided on two sides with an insulating layer 35, 36. Ancillary expensive measures for assembly and/or production are therefore avoided.

[0016] Finally, it can also be seen in Figure 2 that the capping strip 4 can also be provided with an insulating layer 37 on the underside thereof. By this means further transport of heat from the metal strip sections to the window frame 21 is further prevented.

[0017] The way in which the various flashing pieces 3 can be assembled to form a unit that can be fitted all round the window 1 can be seen in Figure 3. It can be seen in Figure 3 that a first flashing piece 3 that forms a corner section is so constructed that it can be slid over the end of a second flashing piece 3. A join somewhat

similar to that of roof tiles is obtained by this means. Leakage water or rainwater and the like can thus be carried away over the successive roof components 3 without any leakage occurring. It can also be seen in Figure 3 that the flashing pieces 3 are provided with a layer of insulating material 35 on the underside thereof. Said insulating material can consist of a foam or, for example, an insulating wool. Furthermore, the additional insulating layer 36 has been applied to the inside of the upright section of the flashing piece 3. Said additional insulating layer 36 can, for example, consist of a plastic foam, preferably a closed-cell foam. It can also be seen in Figure 3 that the elevations 6 together form channels, with the aid of which water can be carried away. The fixing of the capping strip 4, with the insulating layer 37 on the underside thereof, can also be seen.

[0018] A bottom view of two flashing pieces 3 of the window according to the present invention can be seen in Figure 4. One of the flashing pieces 3 (on the right in the drawing) forms the lower flashing piece 3 of the rooflight 1 in use. Both flashing pieces are provided on the underside thereof with an insulating layer of material 35 and on the inside of the upright section with the additional insulating layer 36. Furthermore, the flashing piece 3 that is intended for the lower end of the rooflight 1 is provided with a flap 5, for example lead flashing, with the aid of which a good join between the flashing pieces and the roof tiles located below the rooflight can be produced.

Claims

1. Pitched roof provided with roof deck and roof battens (26) fitted thereon, on which roof battens (26) roofing elements (2) engage, and with at least one rooflight (1) with window frame (21) and an essentially L-shaped flashing piece (3) which is fitted around the window frame and extends from the window frame to below the roofing elements, characterised in that the roof battens (26) which face the sloping sections of the window frame end some distance away from said sloping sections of the window frame so as to create an empty space between that part of the flashing piece that runs parallel to the sloping top face of the roof deck and the top face of the roof deck and in that insulating material (35) is fixed to the underside of that part of the flashing piece that runs parallel to the sloping top face of the roof deck, which insulating material essentially fills the said empty space between that part of the flashing piece that runs parallel to the sloping top face of the roof deck and the top face of the roof deck.
2. Pitched roof according to Claim 1, characterised in that the window frame (21) has been given such a low position that the bottom part of the window frame overlaps the top part of the roof deck.

3. Pitched roof according to Claim 1 or 2, characterised in that a layer of insulating material (36) is also fixed to that part of the L-shaped flashing piece that is perpendicular to the roof deck. 5
4. Pitched roof according to one of the preceding claims, wherein a capping strip (4) is fitted over the uppermost part of the flashing piece (3) and, with a section running parallel to the roof deck, covers the top face of the window frame, characterised in that a layer of insulating material (37) is also fixed to and under that part of the capping strip that runs parallel to the roof deck. 10
5. L-shaped flashing piece, in particular intended for the pitched roof with rooflight according to one of the preceding claims, characterised in that a first layer of insulating material (35) is fixed to the underside of that flange of the flashing piece that is to be fitted parallel to the roof deck of the roof. 15 20
6. L-shaped flashing piece according to Claim 5, characterised in that a second layer of insulating material (36) is fixed to that flange of the flashing piece that is to be fitted perpendicular to the roof deck of a pitched roof. 25
7. Capping strip, in particular intended for the pitched roof with rooflight according to one of Claims 1 to 4 and intended to cover a flashing piece with respect to the top edge of the window frame, characterised in that that part of the capping strip that runs parallel to the roof deck is provided with a layer of insulating material (37) integrated therewith. 30 35

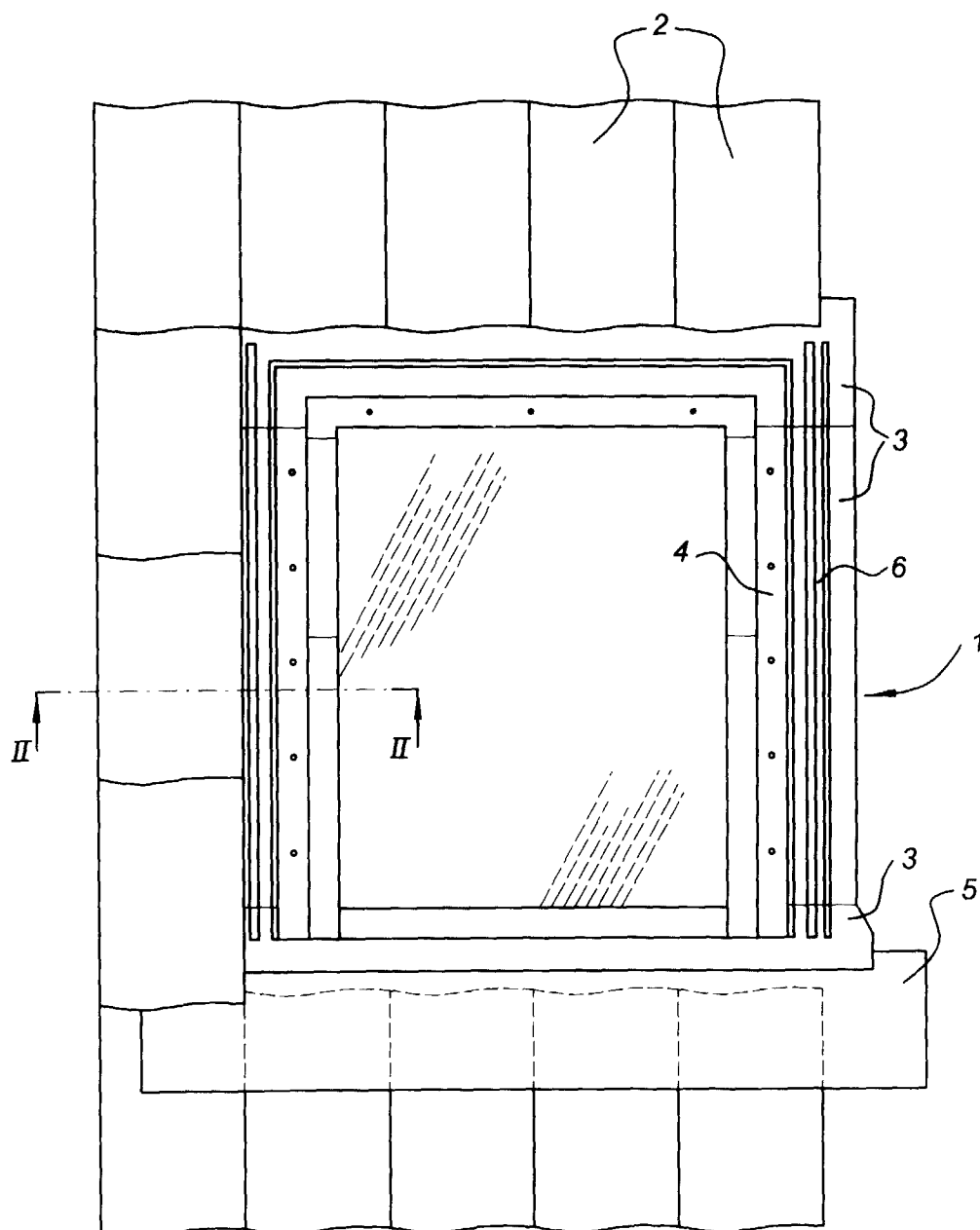
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Fig 1



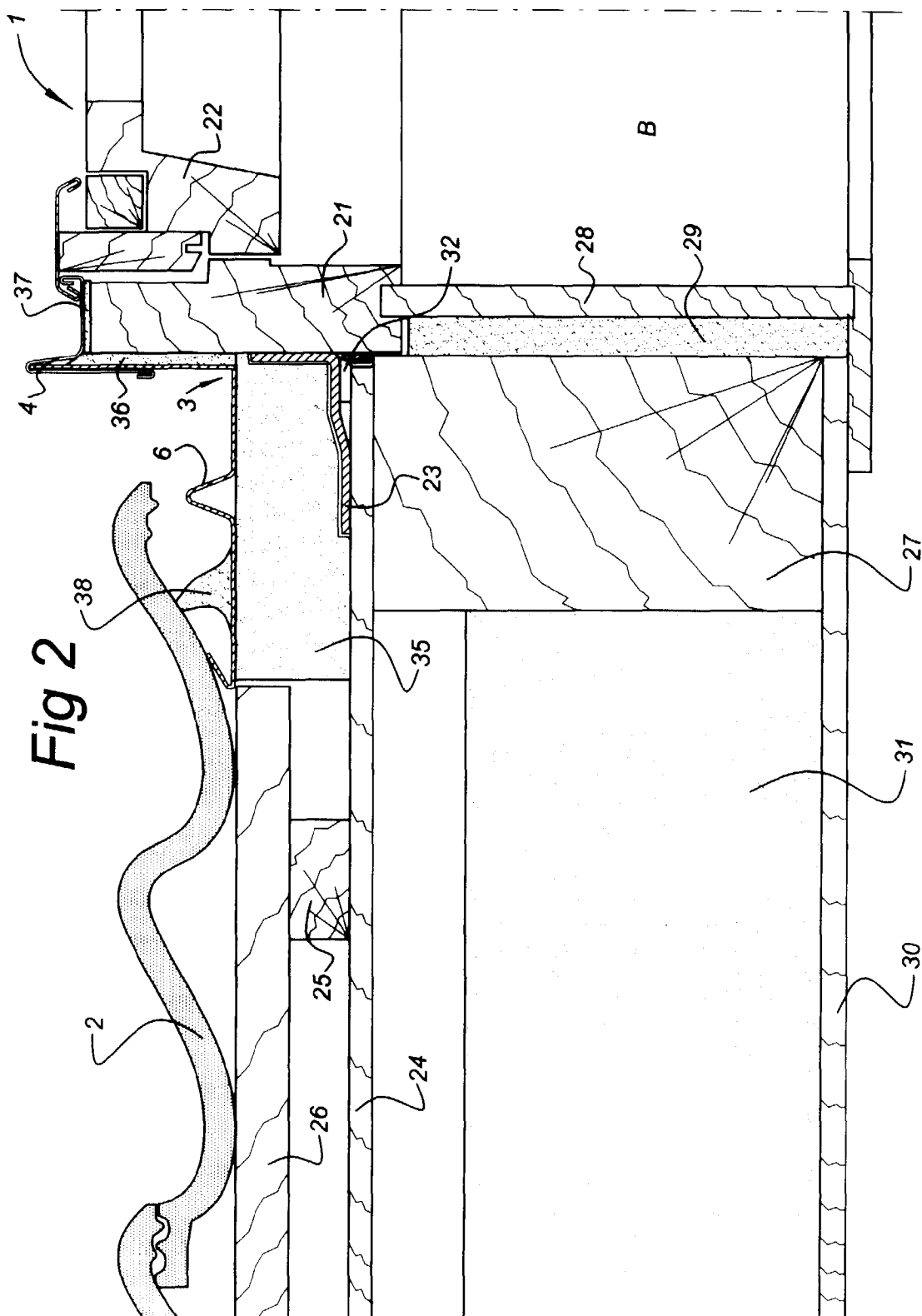


Fig 3

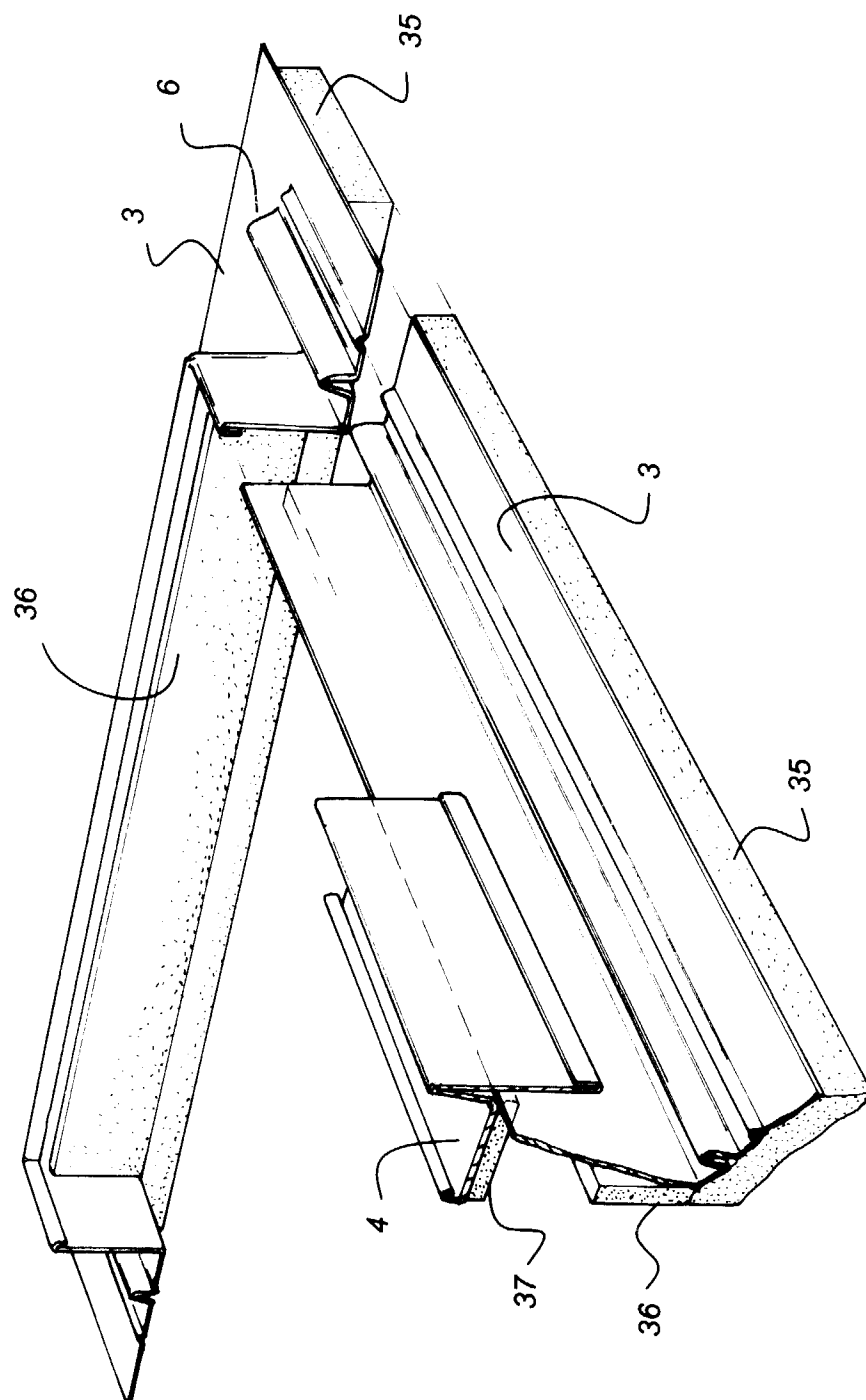
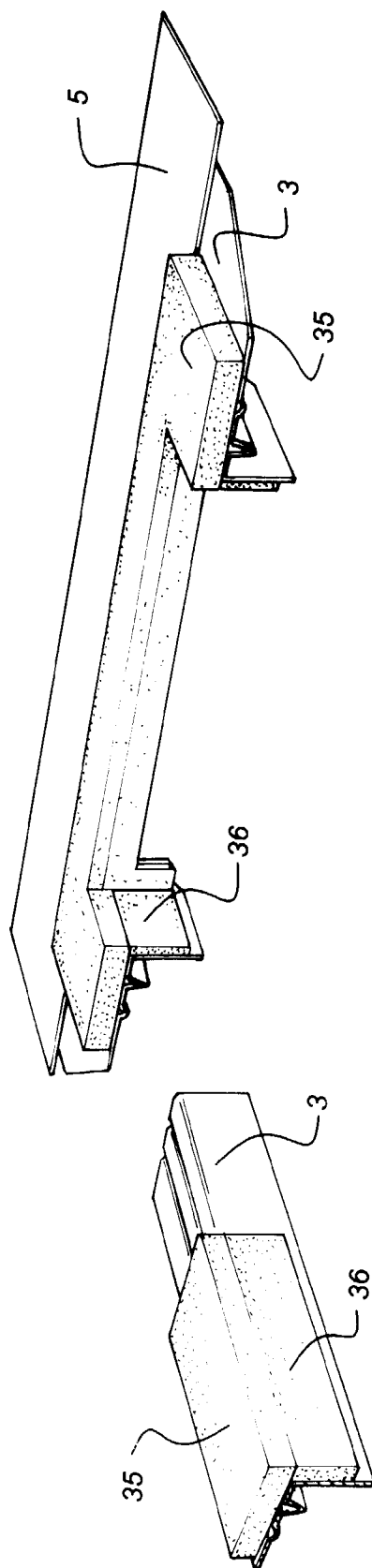


Fig 4





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EUROPEAN SEARCH REPORT

Application Number
EP 99 20 1779

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y,D	DE 15 09 119 A (RASMUSSEN) 12 June 1969 (1969-06-12) * the whole document *	1-3,5-7	E04D13/14 E04D13/02
Y	US 4 413 450 A (BROWER) 8 November 1983 (1983-11-08) * column 3, line 22 - column 3, line 49 * * column 4, line 7 - column 4, line 10 * * figures 1-4 *	1-3,5-7	
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A	DE 29 46 514 A (BLEFA) 27 May 1981 (1981-05-27) * figure 1 *	1,5-7	
A	US 3 521 414 A (MALISSA) 21 July 1970 (1970-07-21) * column 3, line 32 - column 3, line 45 * * figure 5 *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		14 September 1999	Hendrickx, X
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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