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(54) **A gutter-like flashing member and a roof structure including such a flashing member**

(57) A gutter-like flashing member according to the invention is intended for use between roof penetrating structures installed in an inclined roof surface. It comprises a first sheet portion adapted to engage a side surface of a bottom member of a first roof penetrating building structure, and a second opposed sheet portion adapted to engage a side surface of a top member of a second roof penetrating building structure arranged below the first roof penetrating structure. Further it comprises a third sheet portion interconnecting the first and second sheet

portions and constituting a gutter bottom, said third sheet portion being substantially plane and arranged so that the interior angle between the first and third sheet portions is smaller 90 degrees and the interior angle between the second and third sheet portions is larger than 90 degrees, the first and second sheet portions being substantially parallel. It may further comprise end portions at the ends of the gutter, side portions adapted for interconnecting side flashings members and/or portions for guiding water on the side portions.

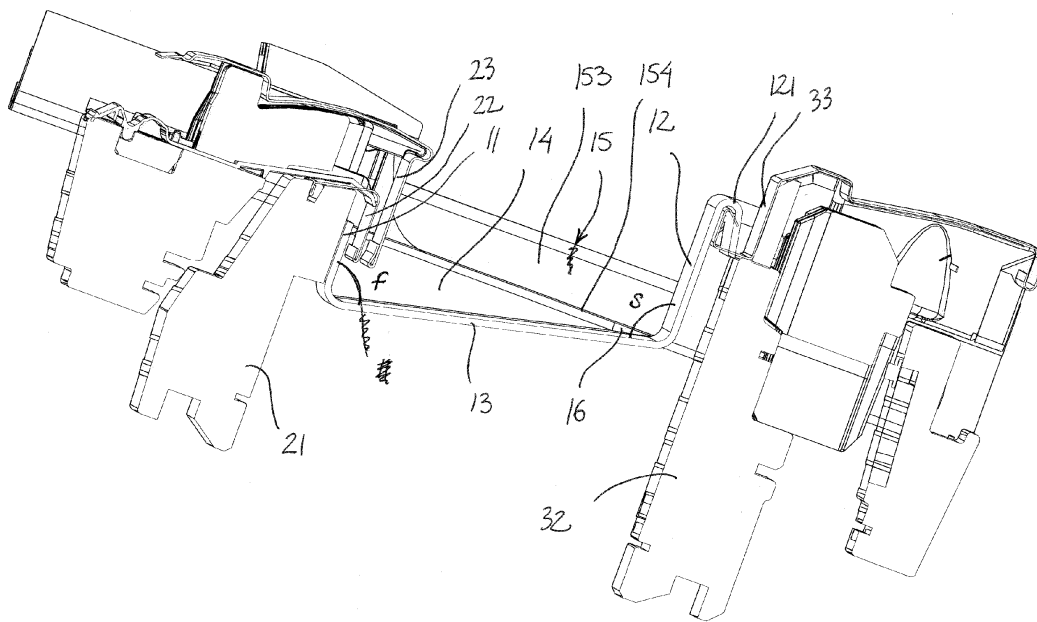


Fig. 2

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Description

[0001] The present invention relates to a gutter-like flashing member for use between roof penetrating structures installed in an inclined roof surface comprising a first sheet portion adapted to engage a side surface of a bottom member of a first roof penetrating building structure, and a second opposed sheet portion adapted to engage a side surface of a top member of a second roof penetrating building structure arranged below the first roof penetrating structure. The invention further relates to a roof structure including such a gutter-like flashing member.

[0002] When a roof window or like roof penetrating structure is mounted in solitaire, the joint between it and the roof structure is typically made water-proof by means of a flashing assembly comprising upper and lower flashing members adapted to be mounted in a horizontal position between the roof surface and the upper and lower frame portions of the window, respectively, as well as first and second side flashing members adapted to be mounted in sloping positions between the two side frame portions and the roofing. The flashing members may be said to form a collar around the window, and to waterproof the joint between this collar and the window the flashing assembly further comprises cladding or cap members. When rain etc. hits the roof above the window, water drains off from the roofing onto the upper flashing member, from there onto the side flashing members, then onto the lower flashing member and finally back onto the roofing below the window.

[0003] In some geographical areas roof windows are often mounted in the so-called "Encastrée" manner where the window does not project as far above the plane of the roofing as is normally the case. This type of mounting improves the insulation properties and is thought to be more aesthetically pleasing, but it may entail problems with drainage, particularly when two windows are to be mounted one above the other and a horizontal gutter-like flashing member is used between them. The problem is particularly related to cases, where the gutter is also used to drain off water condensing on the inside of the second, lowermost window, as it must then be located below the level of the inside of the window pane.

[0004] A possible solution to the problem might be to give the side flashing members used with the second, lowermost window a smaller slope than the roof, thus making them lie deeper in the roof at the top of the lowermost window where they contact the gutter flashing member. Such a difference in slope between otherwise parallel parts of the window and flashing may, however, has been seen to lead to lack of precision in mounting, possibly caused by a deliberate misplacement in the attempt to make the flashing look nice. Furthermore the overlap between the side flashing and cap members will vary corresponding to the difference in slope, thereby becoming either to small or unnecessarily large at one end.

[0005] Another solution is disclosed in the applicant's earlier patent application nr. PCT/DK03/00748, where a section of the side flashing member located at the gutter in the mounted state has a decreased slope and may be said to "lift" the water up to the normal level of side flashing members. This solution, however, requires the use of specialised side flashing members, which not only makes the flashing assembly relatively expensive, but may also involve the risk of the leakages due to wrongful mounting.

[0006] It is therefore the object of the present invention to provide for an alternative and cheaper flashing assembly for use in Encastrée mounting of roof windows one above the other.

[0007] This is achieved with a gutter-like flashing member, which further comprises a third sheet portion interconnecting the first and second sheet portions and constituting a gutter bottom, said third sheet portion being substantially plane and arranged so that the interior angle between the first and third sheet portions is smaller 90 degrees and the interior angle between the second and third sheet portions is larger than 90 degrees, the first and second sheet portions being substantially parallel. This effects an inclination of the bottom of the flashing member in relation to the pitch angle of the roof, so that the part of the third sheet portion closest to the first, uppermost roof penetrating structure comes to be located deeper in the roof than the part closest to the second, lowermost roof penetrating structure. This means that the flashing member effectively forms a pocket closest to the first, uppermost roof penetrating structure, which is capable of receiving water drained off from there. Once received, the water will run over the third sheet portion towards the second, lowermost roof penetrating structure and thus effectively be lifted in relation the plane of the roof. When eventually reaching the second roof penetrating structure it will be forced to the side and thus run out onto side flashing members, which may be of the traditional, substantially plane design. For this purpose the joint between the second and third sheet portions is preferably substantially at level with these side flashing members, but may also be located above them.

[0008] Seen from a drainage point of view, it will be optimal if the angles between the sheet portions are adapted to the pitch of the roof in which the gutter-like flashing member is to be used so that in the mounted state the third sheet portion will be horizontal. For a roof with a pitch angle of 20 degrees this means that the interior angle between the first and third sheet portions should be approximately 70 degrees and the interior angle between the second and third sheet portions should be approximately 110 degrees.

[0009] The horizontal orientation of the third sheet portion, however, requires that the exact pitch of the roof is known when picking the flashing assembly to be used and a separate flashing member must be provided for every roof pitch angle. Alternatively, the flashing member could be provided with means for adjusting the angle, but this will make it relatively complex and hence expensive.

sive. It will therefore often be preferred to install the flashing member with the third sheet portion at an angle, inclined towards the second roof penetrating structure so that the joint between the first and third sheet portions is above the joint between the second and third sheet portions. Presently, it is preferred that the angle of the third sheet portion is 0-15 degrees in relation to the horizontal, which will generally be sufficient to ensure a proper draining, 7,5 degrees being particularly preferred. A flashing member designed for being arranged with its third sheet portion horizontally in a roof with a pitch of 20 degrees will thus be useable in roofs with pitches of up to 35 degrees and only a few different versions of the gutter-like flashing members will have to be kept on stock in order to cover all roof pitches. Angles of more than 15 degrees are of course possible, but will result in the flashing member not reaching as deeply into the roof structure.

[0010] Another factor which influences the possible use of a given flashing member is the width of the third sheet portion. The wider it is, the deeper the flashing member will reach into the roof. For common type installations of roof windows mounted in traditional European roof structures a width of 120-160 mm, preferably 140 mm, is presently considered expedient, and a width of 240-280 mm, preferably 260 mm, has proven expedient when the roof pitch is less than 20 degrees. The exact optimal relationship between width and angles in a given flashing member may be determined by experiments.

[0011] In some climate zones it is expedient to have insulating material arranged along the outer sides of at least some of the window frame members. To give room for such insulation or for other necessary components such as mounting brackets, wiring, motors or the like, the gutter-like flashing member may in some embodiments comprise a fourth sheet portion interconnecting the first and third sheet portions, said fourth sheet portion being arranged at an angle to both the first sheet portion and the third sheet portion. The provision of a fourth sheet portion may also serve aesthetic purposes and it will be understood that the exact angles of the fourth sheet portion in relation to the first and third sheet portions will of course depend on its purpose.

[0012] Likewise, it should be understood that the angle between the first and third sheet portions referred to above applies even when a fourth sheet portion is provided, but that the angle is then the angle between the planes defined by the first and third sheet portions, or, in other words, between the imaginary continuations of the first and third sheet portions.

[0013] To minimize the risk of water penetrating into the roof structure, the flashing member may further comprise a fifth sheet portion arranged at the end of the gutter perpendicularly to the general longitudinal orientation of the flashing member, fifth sheet portions preferably being provided at both ends of the gutter. It is noted, that these end portions must of course leave a sufficient drainage passage, allowing water to get out of the gutter even during heavy rain, so that it does not penetrate up under-

neath the cladding members on the roof penetrating structures or into the roof structure itself.

[0014] A particularly watertight structure is achieved by using a flashing member with a sixth sheet portion at the end of the gutter and projecting in continuation of the gutter, said sixth sheet portion being substantially perpendicular to the first and second sheet portions and adapted for interconnecting side flashings members used along the sides of the first and second roof penetrating structures, sixth sheet portions preferably being provided at both ends of the gutter. In this way there will be no joint between flashing members at the end of the gutter and the water-tightness will hence be improved.

[0015] Each sixth sheet portion is preferably provided with engagement means adapted for engagement with side flashing members. This will not only contribute to a tight and durable joint between the gutter-like flashing member and the side flashing members, but may also serve a guiding function during mounting. As an example, the sixth sheet portion may be provided with longitudinally extending flanges made by bending or pressing the flashing material up into ridges as is well known from side flashing members. By arranging these ridges of the side flashing members and gutter-like flashing member to ride on top of each other, where the respective flashing members overlap, the respective flashing members are positioned precisely in relation to each other and the risk of wrongful mounting is considerably reduced.

[0016] To further secure the tightness of the flashing assembly, the second sheet portion may have a section adapted for overlapping an exterior upwards facing surface of the second roof penetrating structure. The height of the second sheet portion then preferably corresponds substantially to the distance between this exterior upwards facing surface and the level of side flashing members used along at least one side members of the second roof penetrating structure. Moreover, sixth sheet portions may be made to extend up along the outer sides of one or both of the roof penetrating structures, so that they extend up underneath cladding members arranged thereon.

[0017] To prevent water already at level with the side flashing members from entering the gutter, the flashing member may further comprising a seventh sheet portion arranged at the end of the gutter perpendicularly to the general longitudinal orientation of the sheet flashing member and being adapted for being arranged along a side surface of the first roof penetrating structure and extending past the first sheet portion to partially span over the gutter, seventh sheet portions preferably being provided at both ends of the gutter. The part extending along the side surface of the roof penetrating structure will protect the roof penetrating structure from the water and contribute to keeping the flashing member in place, and the part extending over the gutter will guide the water downwards towards the side flashing member of the second, lowermost roof penetrating structure, away from the gutter. This may be particularly advantageous under

windy conditions.

[0018] It is to be understood that the functions of the fourth, fifth, sixth and seventh sheet portions are independent and that a flashing member according to the invention may have any combination of such additional sheet portions, including for example only two types, such as fourth and seventh sheet portions, or that it may be provided without any of them.

[0019] The flashing member according to the invention may be made in several ways as will be readily imaginable to the skilled person, but is preferably formed from a single piece of material, preferably by folding, folding and drawing, deep drawing, compression moulding or the like. In many cases this will result in rounded corners where the first and second sheet portions meet the third sheet portions and possibly also elsewhere on the flashing member. In such cases the reference to for example the position of "the joint between the first and third sheet portions" is to be understood as the position where these plate sections would have met had they been straight and jointed in a sharp edge, i.e. where their imaginary continuations would intersect.

[0020] The material used for the flashing member is preferably a polymer or metal, such as aluminium or aluminium alloys, which has proven well suited for use in the harsh conditions occurring on a roof.

[0021] It is noted that even though the gutter-like flashing member is primarily described as used between a pair of roof windows it may equally well be used between other types of roof penetrating structures such as for example solar collectors, the windows serving only as examples.

[0022] In the following the invention will be described with reference to the drawing, where:

Fig. 1 is a perspective, partially cut-away view of a pair of roof windows mounted one above the other with a gutter-like flashing member between them,
 Fig. 2 is cross-sectional and slightly perspective view along the line B-B in Fig. 1, where the side members of the sash and frame with associated cladding and covering members as well as pane, gaskets and hardware have been removed for clarity,
 Fig. 3 is a closer view from a slightly different angle of the detail marked C in Fig. 1,
 Fig. 4 shows a flashing member according to the invention seen from the exterior side,
 Fig. 5 shows the flashing member in Fig. 4 from the lower end,
 Fig. 6 shows the flashing member in Fig. 4 from the upper end,
 Fig. 7 shows the flashing member in Fig. 4 from the left side,
 Fig. 8 shows the flashing member in Fig. 4 in cross-section along the line A-A in Fig. 4, and
 Fig. 9 shows a cross-sectional sketch of a different embodiment of the flashing member having a fourth sheet portion.

[0023] In Fig. 1 a gutter-like flashing member 1 is shown mounted between two roof windows 2, 3 of which only the lowermost and uppermost part, respectively, is shown for the sake of simplicity.

[0024] As may be seen most clearly from Fig. 2, the gutter-like flashing member comprises a first sheet portion 11 arranged against the bottom frame member 21 of the uppermost window 2 and a second sheet portion 12 arranged against the top frame member 32 of the lowermost window 3. A third sheet portion 13 extends between the first and second sheet portions 11, 12 and hence between the two windows 2, 3, forming the bottom of the gutter.

[0025] The third sheet portion 13 is perpendicular neither to the first sheet portion 11 nor to the second sheet portion 12, but arranged at an angle, which at least partially neutralizes the pitch of the roof so that the third sheet portion is close to horizontal, while the first and second sheet portions are substantially perpendicular to the plane of the roof. In the embodiment shown in Fig. 2, the interior angle f between the first and third sheet portions is approximately 77 degrees and the angle s between the second and third sheet portions is approximately 103 degrees. With a roof pitch of approximately 20 degrees, this results in the angle of the third sheet portion being approximately 7 degrees.

[0026] The width of the third portion 13, i.e. the distance between the first 11 and second 12 sheet portions, may vary depending amongst others on the overall size of the roof penetrating structures, their installation dept, the pitch of the roof and the amount of water to be expected in the climate zone, where the flashing member is to be used. For standard size roof windows mounted as shown in Figs. 1-3 the width will typically be 110-150 mm, preferably 125-140 mm, when the roof pitch is above 20 degrees, and 220-300 mm, preferably about 260 mm if the pitch is lower.

[0027] At the ends of the gutter fifth sheet portions 14 closing off the ends of the gutter and sixth sheet portions 15 intended to be connected with side flashing members (not shown) running along the sides of both windows 2, 3 are provided. These portions are also referred to as end portions and side portions, respectively. In Figs. 1 and 2 only one end portion 14 is visible, but it is to be understood that end portions are provided at both ends of the gutter, the flashing member being symmetric as may also be seen from Figs. 4-6.

[0028] To provide a smooth and water-proof joint with the side flashing members, the side portions 15 are arranged at level with these in the mounted state and furthermore provided with three flanges 151, 152, 153 corresponding to those found on traditional side flashing members. The original purpose of these flanges is to prevent water from flowing sideways off the side flashing members and into the roof structure, but they may also serve to keep individual flashing members in place in relation to each other. Particularly the flanges 152, 153, which are here formed by folding or pressing longitudinal

U-shaped projections, are well-suited for this purpose, since the flange of an upper flashing member may be arranged to ride over the corresponding flange on a flashing member arranged further down the roof. If designed ap-properly, this may even result in a press-fitting, which will effectively lock the flashing members together.

[0029] The end portions 14 extend up to the level of the side portions 15 and hence the side flashing members (not shown). This means that a pocket is formed at the first sheet portion 11, where the third sheet portion 13 forming the bottom of the gutter is located deeper in the roof. In the embodiment shown the dept of the gutter measured from the level of the side portion 15 to the joint between the first and third sheet portions of approximately 30 mm.

[0030] At the joint with the second sheet portions 12 the third sheet portion 13 is at level with the flat section 154 of the side portion, leaving an exit passage 16 for water, which will run through the gutter substantially as indicated with the arrows in Fig. 3. During heavy rain or when large amounts of melt water passes down over the roof, the gutter may, however, be filled and water may then pass over the upper edges of the end portions 14 and onto the side portions 15, thus effectively widening the exit passage to cover a larger area.

[0031] To control the flow pattern of the water within the gutter-like flashing member, water-guides may be provided, here illustrated by a raised section 17 a centre of the third sheet portion 13. In this case the raised section will prevent or at least hinder a flow in the longitudinal direction of the gutter and hence contribute to an even distribution of the water on the two sides of the lowermost window. Other possible embodiments of such water-guides are angled projections or grooves leading the water outwards towards the exit passages 16.

[0032] In the embodiment shown in Figs 1-8 the flashing member is shown with a constant cross-sectional shape over the entire length of the gutter between the two end portions 14, but it will be understood that this need not be the case. As an example, the third sheet portion 13 be curved at least at the ends so as to form a smooth transition with side portions 15 of the flashing member, in which case there would be no end portions, and/or the width of the third sheet portion might gradually degrees towards the ends so as to guide water towards the exit passages 16.

[0033] It is also important to make sure that water does not penetrate into the roof structure along the longitudinal sides of the gutter formed by the first and second sheet portions 11, 12 during such peak load situations. Here, the second sheet portion 12 is therefore provided with a section 121, which overlaps the exterior surface of the lowermost window 3. In the embodiment shown, the overlapping section 121 is formed as a bend edge hooking onto a top covering 33 on the lowermost window 3. It is of course also possible to let the second sheet covering project over the exterior side of the frame top member 32, but this involves two potential problems: Firstly, the

mounting of the gutter-like flashing member will be more complicated as roof windows are normally supplied with pre-fitted top covering and, secondly, water overflowing the second sheet portion will penetrate into the structure instead of being led up onto the covering of the lowermost window.

[0034] Overflow is not as much of a problem at the uppermost window 2 due to the influence of gravity and it will therefore usually be sufficient that the first sheet portion 11 is overlapped by the bottom frame covering 22 and bottom sash covering 23 of the uppermost window 2 as shown in Fig. 2.

[0035] To further increase water-tightness the side portions 15 of the gutter-like flashing member 1 are also provided with upstanding sections 155 and 156 extending along the side frame members of the uppermost and lowermost windows 2, 3, respectively.

[0036] As may be seen particularly well in Fig. 1, the upstanding section 156 extending along the lowermost window 3 is simply a continuation of the part of the second sheet portion extending above the level of the side flashing members.

[0037] The upstanding section 155 extending along the uppermost window 2, however, may be regarded as a seventh sheet portion, which protects the side frame member of window and provides an overlap with a leg of the side flashing member (not shown) extending along the side frame member. As may be seen in Figs. 1, 4 and 8 this upstanding section 155 also projects past the first sheet portion 11. The projecting part 157 guides water coming from the side flashing member (not shown) at the uppermost window 2, so that it does not enter the gutter but continues down the over the side section 15 of the gutter-like flashing member 1 and from there onto the side flashing member at the lowermost window 3. This will be particularly advantageous during windy conditions and the shape of the projecting part 157 may even be designed to help provide an advantageous aerodynamic pattern at the lowermost corner of the uppermost window.

[0038] As may be seen in Figs 1, 3 and 4 the side portions 15 of the flashing members shown on the drawing are wider at the end arranged opposite the uppermost window 2 than at the end arranged opposite the lowermost window 3. This is to allow the use of traditional standardized side flashing members, which are sometimes wider at the lowermost end in order to allow a suitable discharge of water to the bottom flashing member or skirt used at the bottom of a window arranged in solitaire or lowermost in a group. If, however, side flashing members are of the same width at their top and bottom ends, the side portions 15 of the gutter-like flashing member 1 may be of a constant width. This may even be advantageous as the concentration of the flow of water, which results from the narrowing cross-section of the side portions shown in the drawing and which may force some of the water into the gutter, will then be avoided.

[0039] A different embodiment of the gutter-like flashing member 1' is shown in Fig. 9. This flashing member

too has a first sheet portion 11', a second sheet portion 12' and a third sheet portion 13' corresponding in function to those in the embodiments described above. In this embodiment, however, the first and third sheet portions are interconnected by a fourth sheet portion 113'. This results in the formation of a space 4' between the bottom frame member 21' of the uppermost window and the flashing member. This space may be filled with insulating material and/or be used for housing hardware, electrical components or the like (not shown).

[0040] The provision of the fourth sheet 113' of course also influences the overall appearance of the flashing member 1' and the exact angles f' , f'' of the fourth sheet portion in relation to the first and third sheet portions 11', 13' may therefore be chosen based on aesthetical considerations if not technical.

[0041] As indicated by the broken lines, the angle f between the first and second sheet portions 11', 13' is still the same regardless of the provision of the fourth sheet portion 113'.

[0042] In the above the invention has been explained with reference to the drawing showing gutter-like flashing members 1, 1' used between two roof windows, but it is to be understood that a similar flashing member may also be used between other roof penetrating structures, such as solar collectors, as well as between two roof penetrating structures of different types. Likewise, it is to be understood that a flashing member according to the invention may also be made for use in groups, where roof penetrating structures are arranged side-by-side, for example in a two-by-two configuration. In such cases two flashing members may be arranged with overlapping side portions or one unitary flashing member with two third sheet portions arranged end-to-end and a common side portion between them may be provided.

Claims

1. A gutter-like flashing member for use between roof penetrating structures installed in an inclined roof surface comprising:
 - a first sheet portion adapted to engage a side surface of a bottom member of a first roof penetrating building structure,
 - a second opposed sheet portion adapted to engage a side surface of a top member of a second roof penetrating building structure arranged below the first roof penetrating structure, **characterized in that** it further comprises:
 - a third sheet portion interconnecting the first and second sheet portions and constituting a gutter bottom, said third sheet portion being substantially plane and arranged so that the interior angle between the first and third sheet portions is smaller 90 degrees and the interior angle between the second and third sheet portions is

larger than 90 degrees, the first and second sheet portions being substantially parallel.

2. A gutter-like flashing member according to claim 1, where the angles between the sheet portions are adapted to the pitch of the roof in which the gutter-like flashing member is to be used, so that in the mounted state the third sheet portion will be horizontal or inclined towards the second roof penetrating structure.
3. A gutter-like flashing member according to claim 1 or 2, where the width of the third sheet portion is 120-160 mm, preferably approximately 140 mm, if the flashing member is intended for use in a roof with a pitch of 20 degrees or more, and 240-280 mm, preferably 260 mm, if intended for use in a roof with a pitch of less than 20 degrees.
4. A gutter-like flashing member according to any of the preceding claims, further comprising a fourth sheet portion interconnecting the first and third sheet portions, said fourth sheet portion being arranged at an angle to both the first sheet portion and the third sheet portion.
5. A gutter-like flashing member according to any of the preceding claims, further comprising a fifth sheet portion arranged at the end of the gutter perpendicularly to the general longitudinal orientation of the sheet flashing member, fifth sheet portions preferably being provided at both ends of the gutter.
6. A gutter-like flashing member according to any of the preceding claims, further comprising a sixth sheet portion at the end of the gutter and projecting in continuation of the gutter, said sixth sheet portion being substantially perpendicular to the first and second sheet portions and adapted for interconnecting side flashings members used along the sides of the first and second roof penetrating structures, sixth sheet portions preferably being provided at both ends of the gutter.
7. A gutter-like flashing member according to claim 6, where the joint between the second sheet portion and the third sheet portion is substantially at level with the sixth sheet portion(s).
8. A gutter-like flashing member according to claim 6 or 7, where the/each sixth sheet portion is provided with engagement means adapted for engagement with side flashing members.
9. A gutter-like flashing member according to any of the preceding claims, where the second sheet portion has a section adapted for overlapping an exterior upwards facing surface of the second roof penetrat-

ing structure and where the height of the second sheet portion corresponds substantially to the distance between this exterior upwards facing surface and the level of side flashing members used along at least one side member of the second roof penetrating structure. 5

10. A gutter-like flashing member according to any of the preceding claims, further comprising a seventh sheet portion arranged at the end of the gutter perpendicularly to the general longitudinal orientation of the sheet flashing member and being adapted for being arranged along a side surface of the first roof penetrating structure and extending past the first sheet portion to partially span over gutter, seventh sheet portions preferably being provided at both ends of the gutter. 10
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11. A gutter-like flashing member according to any of the preceding claims formed from a single piece of material, preferably by folding, folding and drawing, deep drawing, compression moulding or the like and the material preferably being a polymer or metal, such as aluminium or aluminium alloys. 20
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12. An inclined roof structure including a first roof penetrating structure, a second roof penetrating structure arranged below the first roof penetrating structure and a gutter-like flashing member according to any of claims 1-11 arranged between these roof penetrating structures, where the third sheet portion of the flashing member is arranged at an angle of 0-10 degrees in relation to the horizontal, the joint between the first and third sheet portions being located at level with or above the joint between the second and third sheet portions. 30
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13. An inclined roof structure according to claim 12, further including side flashing members arranged along the sides of the first and/or second roof penetrating structure and being in engagement with the gutter-like flashing member. 40

14. An inclined roof structure according to claim 12 or 13, further including cladding members arranged on the first and/or second roof penetrating structure and overlapping the gutter-like flashing member. 45

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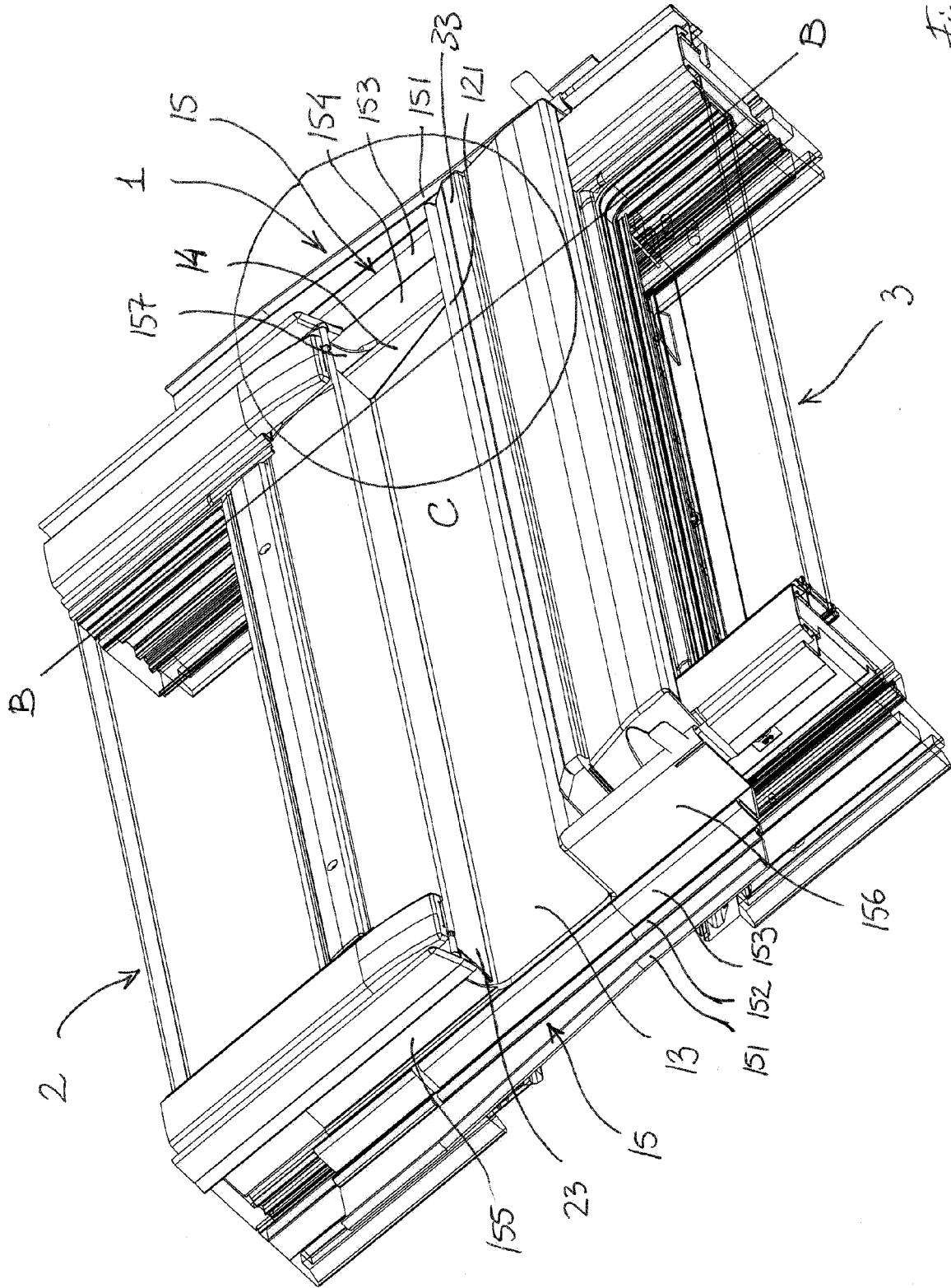


Fig. 1.

Fig. 2

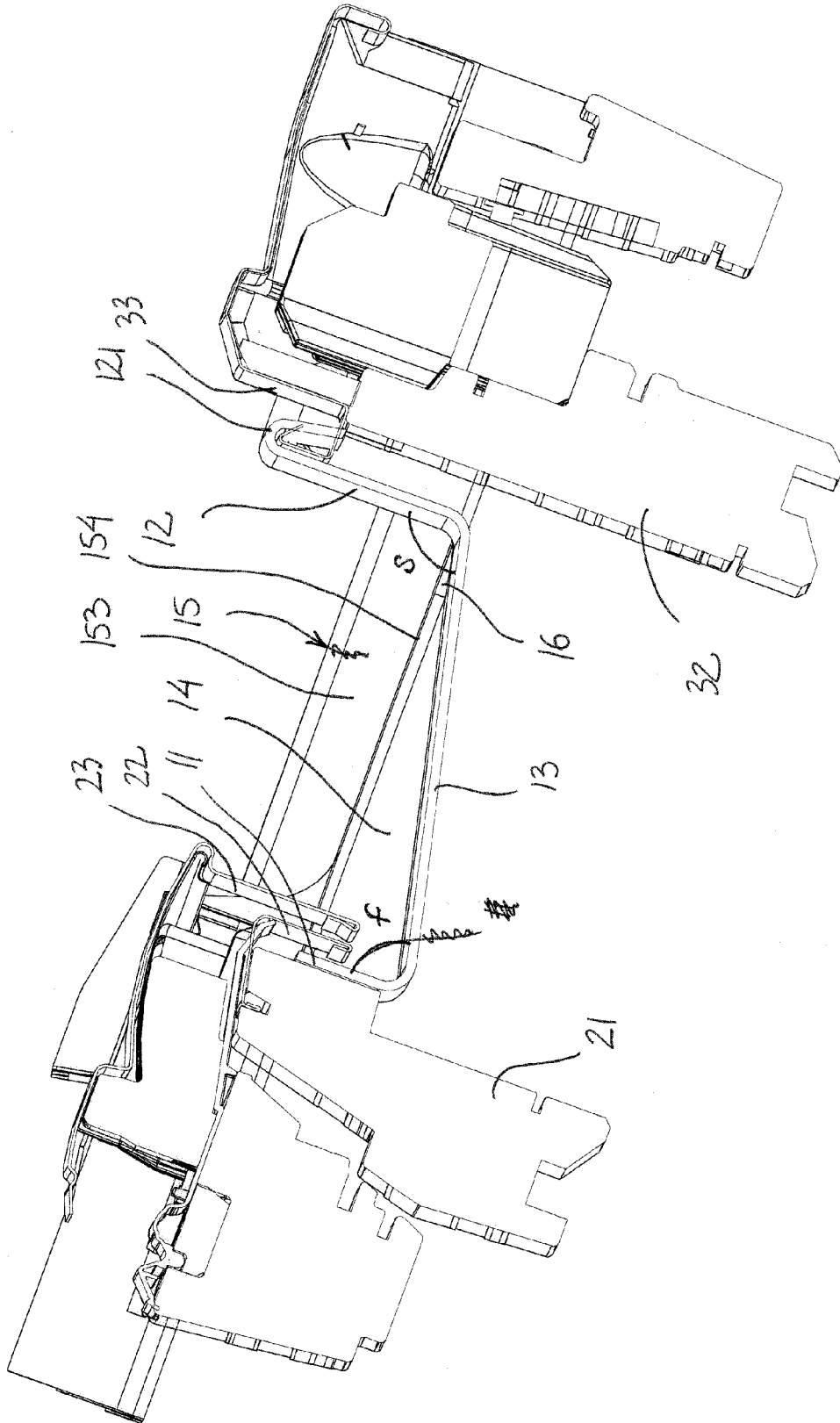
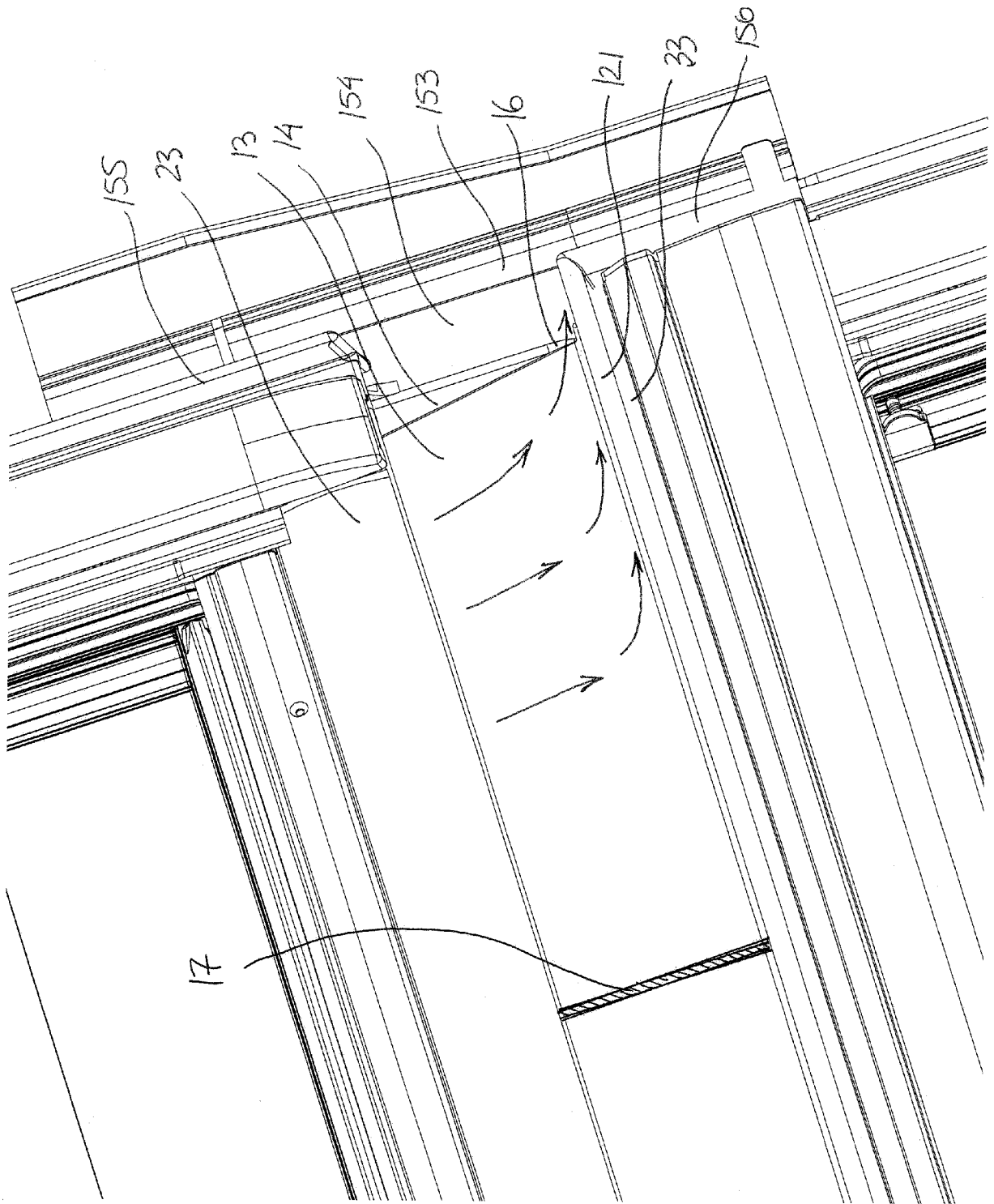


Fig. 3



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- DK 0300748 W [0005]