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(54) **SIDE FLASHING MEMBER , FLASHING ASSEMBLY AND ROOF STRUCTURE**

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EP 1 581 706 B1

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Description

[0001] The present invention relates to a side flashing member for use with a roof penetrating structure installed in an inclined roof surface, said flashing member having a substantially U-shaped cross section to allow water to be drained off along the side of the roof penetrating structure, one arm of the U engaging the roof penetrating structure and the base of the U being substantially in plane with the roof in the mounted state. The invention further relates to a flashing assembly and a roof structure comprising such a side flashing member.

[0002] When flashing roof penetrating building structures, for example chimneys or frame structures for roof windows, in order to protect them from the weather and to provide a seal between the structure itself and the roof, it is common to use flashings of sheet metal, for instance aluminium, copper, steel or zinc. Conventionally, such flashings have been manufactured by ordinary tin man work from a plane sheet material which is profiled and formed to make a fit at the desired location. The comparatively costly adjustment and assembly work on location, which is required when using this conventional craftsmanship, may, however, be avoided by use of pre-manufactured flashing members.

[0003] Typically, a flashing assembly adapted to be used with a roof window comprises 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 above 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 cap members.

[0004] 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.

[0005] 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 roof as is normally the case. This type of mounting improves the insulation properties and is thought to be more aesthetically pleasing, but due to the fact that drainage water may gather at particularly the bottom of the window, it may entail problems with the draining off of water. This is normally solved by using a lower flashing member with a decreased slope, which may be said to "lift" the water up onto the outer surface of the roofing instead of merely "deflecting" it. An example of such a flashing is illustrated in the Danish Patent application nr. PA 2002 01847 (not published) and the same principle is employed in DE 24 22 474.

[0006] However, when two windows are to be mounted one above the other as described e.g. in DE 202 06 327

U a problem arises with getting water away from the horizontal gutter flashing member used between two such windows. The problem is particularly related to cases, where the gutter is also used to drain off water condensing on the inside of the window, as it must then be located below the level of the inside of the window pane.

[0007] A possible solution to the problem might be to give the side flashing members used with the bottom window a smaller slope than the roof, as described in GB 1 602 718, thus making them lie deeper in the roof at the top of the bottom window where they contact the gutter flashing member. Such a difference in slope between otherwise parallel parts of the window and flashing may, however, lead to lack of precision in mounting, possibly caused by a deliberate misfitting 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 too small or unnecessarily large at one end.

[0008] It is therefore the object of the present invention to provide a side flashing member which can be used regardless of the type of mounting.

[0009] The problem is solved by a side flashing member according to claim 1.

[0010] This implies that the side flashing member may be used with all types of roof windows and mountings i.e. also for Encastrée mounting, and it is especially well suited for mounting of two windows closely one above the other.

[0011] The receiving section is primarily meant to be mounted in direct contact with the gutter flashing member used between two windows mounted one above the other, i.e. as side flashing for the bottom window, and at the same time in contact with the side flashing member of the top window. The water drained off by these other flashing members thus flows onto the receiving section and from there via the lifting section onto the draining section. The receiving section thus must be located sufficiently deep in the roof structure to receive the water drained off by the contacting gutter flashing member and to keep the water from penetrating the joint between these two flashing members.

[0012] The lifting being horizontal or sloping slightly may thus be said to lift the water from the deep-lying level of the receiving section to the higher level of the draining section.

[0013] For use with typical roof penetrating structures the size of the receiving section primarily depends on the other flashing members connected thereto, i.e. the receiving section must be sufficiently long to accommodate the width of the gutter flashing member contacting the inventive flashing member from the side. In practice, the receiving section will constitute the smaller part of the flashing, while the draining section extends along the bulk of the side of the roof penetrating structure.

[0014] The slope of the lifting section preferably constitutes a horizontal angle of 0-10°, as it must prevent pools from forming between the lifting and receiving sec-

tions. For aesthetical reasons the slope should be as small as possible thereby giving the lifting section the smallest possible visual extent.

[0015] The fact, that the receiving and draining sections both have a slope corresponding to the slope of the roof, entails that the flashing does not penetrate as deeply into the roof structure as if it had had the same slope as the lifting section, thus leaving more room for e.g. insulation.

[0016] One of the most important qualities of flashing members of the present kind is watertightness and it is therefore preferred, that the flashing is formed from a single piece of material. Presupposing that the material itself is watertight and that the shaping of the material has not ruptured it, this guarantees watertightness, whereas supposedly sealing joints such as welding might be flawed or become deteriorated over time.

[0017] The inventive flashing member can be made from any suitable material such as plastic or rubber, but in a preferred embodiment is made from metal, preferably aluminium or aluminium alloys. Depending on the material, it might be given a surface coating, and different materials may be used in combination. Examples of such combinations is a sandwich structure of aluminium and bitumen as known from other types of flashings or expanded metal covered with rubber to make it watertight.

[0018] To minimize the number of items, which has to be kept in stock, it is advantageous that each flashing member can be used in different flashing assemblies, especially with different constellations of roof penetrating structures being arranged close to each other. It is therefore preferred, that the side flashing member has separation means for adaptation to different installation situations. For instance the arm of the U-shaped flashing member engaging the roof penetrating structure may be provided with separation means allowing in-situ adaptation to the gutter flashing used in each particular case. The flashing is preferably provided with separation means for more than one type of contacting flashing, only one of these sets of separation means being used in each case.

[0019] The separation means may be printed lines, grooves, notches or embedded strips, and may serve as guides for scoring the material with e.g. a knife or may enable separation without the use of tools. Which is preferred depends on other factors such as the material, thickness or shape of the flashing.

[0020] In a particularly preferred embodiment, the side flashing member is connected to or integral with another side flashing member, thus forming a double side flashing member. In this way the joint between neighbouring side flashing members that is otherwise necessary when two windows are mounted side by side may be avoided, thus leading to improved watertightness and a decreased risk of wrongful mounting. Such a side flashing member might be provided with separation means as described above, whereby all windows can be supplied with such a double side flashing member, that can be split and used as or-

dinary side flashing members when the window is to be used alone.

[0021] The inventive side flashing member and in particular the double side flashing member, may form part of a flashing assembly for use with roof penetrating structures mounted in a group comprising at least three structures, at least one structure being mounted above another and at least one structure being mounted to the side of another. Advantageously such a flashing assembly may further comprise gutter flashing members for use between structures mounted one above the other, at least one of these gutter flashing members having separation means for dividing it into a top and a bottom flashing member for use above and below the group, respectively. Such gutter flashing members are described in Danish patent application PA 2002 01919 (not published). The flashing assembly may further comprise other adaptable flashing members as for instance the ones described in Danish patent application PA 2002 01919 (not published).

[0022] A U-shaped flashing member as mentioned above can be made by a method, where angles between sections are formed by folding the material twice giving it the shape of a Z and subsequently securing at least one part of the Z-shaped fold while pulling on at least one other part to at least partly unfold the Z. By this method it is possible to make a flashing member that is sufficiently watertight and at the same time relatively cheap to manufacture. Furthermore, such a flashing may be made from a substantially rectangular piece of material by folding only, thus rendering the use of sealing joints such as weldings superfluous.

[0023] The invention will now be explained in detail with reference to the schematic drawings, in which

Fig. 1 is a perspective view showing the prior art flashing assembly for a two by two configuration of roof windows,

Fig. 2a and 2b are perspective views of a flashing member according to the present invention showing two different configurations of separation means,

Fig. 3 is a perspective view of a double side flashing member for use between windows mounted side-by-side, and

Fig. 4 is a perspective view corresponding to the one in Fig. 1 showing a flashing assembly according to the present invention.

[0024] In the figures the different components are not necessarily drawn to scale but merely serve to illustrate general principles.

[0025] Fig. 1 illustrates the different components of a prior art flashing assembly used with four roof windows 1,2 mounted two by two in an inclined roof surface. At the top of the top windows 1 upper flashing members 3 channel the water coming from the roofing above the windows out onto side flashing members 4 running in parallel with the side frame portions of the top windows.

The side flashing members 4 are substantially U-shaped to prevent water from coming into contact with the window and from penetrating into the roof next to the window. Between the top windows 1 and bottom windows 2 lay a pair horizontal gutter flashing members 5 which collect water hitting the surface of the top windows 1. The gutter flashing members 5 drains the water off onto side flashing members 6 by the bottom windows 2. Below the bottom windows 2 is a pair of lower flashing members 7, which drains off water hitting the lower windows 2. Corner portions 8 of the lower flashing member further leads the water off from the side flashing members 6 onto the roof surface below the windows.

[0026] The flashing assembly shown in Fig. 1 is a standard flashing for ordinary roof windows. In some cases the horizontal gutter flashing members 5, however, must be located deep in the structure as they are for example also used for collection water condensed on the inside of the top windows 1. When this is combined with Encastree mounting of the windows 1,2, the horizontal gutter flashing members 5 will be located beneath the level of the bottom side flashing members 6 shown in Fig. 1, thus rendering such a prior art flashing assembly unusable.

[0027] A side flashing member 100 according to the present invention for use on the left side of the window seen from the outside is illustrated in Fig. 2a. It comprises a receiving section 110, a lifting section 120 and a draining section 130. The receiving and draining sections 110,130 are inclined at substantially the same angle A, preferably the same slope as the roof (not shown), while the angle of slope B of the lifting section 120 is small or close to zero. The angle B must obviously be positive, as a pool would otherwise form between the receiving and lifting sections leading to accelerated degradation of the flashing material.

[0028] Due to the difference of slope, the receiving section 110 will be located deeper in the roof than the draining section 120, the difference in depth being indicated by the distance d in Fig. 2a. It is to be noted, that the flashing is not drawn to scale and that the distance d may well be e.g. smaller compared to other parts of the flashing member 100.

[0029] The receiving section 110 may also have a smaller angle of slope than the draining section 130, possibly even the same slope as the lifting section 120, thus making them work as one section (not shown). This will allow the horizontal gutter flashing members (not shown) to be located even deeper in the structure. However, in such an embodiment the side flashing member will penetrate deeply into the roof structure, as the distance d will increase, and there will be less room for other elements such as insulation.

[0030] Before installation the inventive side flashing 100 shown in Fig. 2a and 2b must be adapted by making a cut-out in the upright part 111 of the receiving section 110. For this purpose separation means 112, 112', 114', 114'' have been provided allowing the removal of a por-

tion 113, 113' of the flashing material.

[0031] In Fig. 2a the bottom of the portion 113 is approximately level with the underside of the roofing material (not shown) and with the opposite side portion 104 of the side flashing member. Such a side flashing member is used, when the gutter flashing is located substantially above the level of the roof.

[0032] For use with gutter flashings located deeply in the roof as previously described the separation means 112' must, however, allow the removal of a larger portion 113' as shown in Fig. 2b showing a side flashing member for use on the right side of the window. To prevent water from flowing backwards into the gutter flashing (not shown) or possibly penetrating into the underlying structure, the bottom of the portion 113' to be removed must be located at a distance above the bottom of the receiving section 110. If, for some reason, the removal of the relatively large portion 113' of the flashing member is disadvantageous a portion having no contact with the edge of the flashing may also be removed, thus leaving for example a circular hole (not shown) in the side 111. It might also be desirable, to use a side flashing member according to the present invention in connection with a single window or the upper flashing member of a group of windows. In that case the side flashing member 100 could be provide with alternative separation means 114', 114'' shown in Fig. 2a allowing the corner 111 of the side flashing member to be separated 114' and bent 114'' down to be level with the roof surface.

[0033] Each side flashing member 100 may be provided with more than one set of separation means 112, 112', 114', 114'' thus allowing the use of a standard side flashing member for many purposes. For instance it might also have separation means corresponding to two or more different widths of the gutter flashing member. When mounting the side flashing member, the appropriate set of separation means are used leaving the others untouched.

[0034] The separation means 112, 112', 114', 114'' may be printed lines indicating where to cut the material using for instance a pair of plate shears; notches that allows a part of the flashing to be separated from the rest by repeated bending; an embedded strip that may be pulled from the material thereby weakening it or separating it as known from packs of crackers; or a strip of the material itself being separated from the rest by two notches as know from beverage cans. As hinted, the separation may take place with or without the use of tools, but preferably no special tools should be necessary. The separation means may also have different colour codes or the like to help the person performing the separation to choose the right one.

[0035] In Figs. 2a and 2b the side flashing member 100 has been shown with one arm 101 of the U being up-standing, while the base 102 is level with the roof surface. In the embodiment shown, the U-shape is one with sharp corners. It is, however, to be understood that the inventive flashing member may come in many other configuration,

as long as the overall shape is not altered significantly. For example, the U might have rounded corners or the base might be convex giving the flashing member a shape resembling a W or concave giving it a V-like shape.

[0036] The flashing members in Fig. 2a and 2b are mirror images, and when two windows are mounted side by side, the level portions of the two side flashings members are arranged in an overlapping manner. To avoid this joint between neighbouring side flashing members, the side flashing member according to the invention may also, as shown in Fig. 3, have two upstanding arms 101', 101'' each meant to engage one of the windows, one of which is indicated by a part of the window frame 10. This double side flashing member has two receiving sections 110, one on each side, and, correspondingly, two lifting sections 120 elevating the water to the level of a common draining section 130'.

[0037] Between the two receiving and lifting sections is a connecting portion 106 corresponding to the joint side portions 104 of two single side flashing members. The connecting portion 106 is substantially level with the draining section 130' and its width allows the double flashing member to "ride" on the rafter 9, the two receiving sections 110 being located on each side of the rafter.

[0038] If the neighbouring windows are mounted high in the roof or if no rafter is present between them, the double side flashing member may also be formed without the connecting portion 106, i.e. with only one receiving and one lifting section spanning the width between the two windows.

[0039] The side flashing member in Fig. 3 is provided with separation means 105 as described above allowing in-situ separation. This embodiment entails the advantage that all windows can be supplied with such a double side flashing member. When two windows are mounted side by side, one of the these double flashing members is used between them, while the other is split in two for use on the two sides of the windows facing the roof surface.

[0040] Alternatively two side flashing members according to the invention may be provided with engagement means for watertight engagement, e.g. an adhesive tape.

[0041] Preferably, the side flashing members are formed by folding a single piece of sheet material, thus obtaining an excellent watertightness. The forming is performed in three steps: First Z-shaped folds are made where angles are to occur between different portions of the flashing member; then folds are made along the length of the flashing member giving it the U-shape; and finally one or more parts of the Z-shaped folds are secured while pulling on the rest of the folds to at least partially unfold them. By the flashing members in Figs. 2a and 2b the Z-shaped fold between the receiving section 110 and lifting section 120 has been secured at the sides 141, 142 and unfolded by pulling at the middle 143, thus locally making the flashing member concave. On the contrary the fold between the lifting section 120 and

draining section 130 has been secured at the middle 153 and unfolded at the sides 151, 152 to give the flashing member a locally convex shape. As may be clearly seen the transition from the folded to the unfolded state is gradual.

[0042] It is also possible to manufacture the side flashing member 100 using other techniques, e.g. deep drawing, compression moulding or the like.

[0043] Fig. 4 shows the use of a side flashing member as described above in a flashing assembly used with four roof windows mounted in a two-by-two configuration. The flashing assembly corresponds to the prior art flashing assembly shown in Fig. 1 and like members are given like reference numbers with 10 added thereto. Thus the flashing member 14 in Fig. 4 fulfils substantially the same purposes as the flashing member 4 in Fig. 1.

[0044] At their upper ends in the mounted state the side flashing members 16 are formed as shown in Fig. 2a and 2b and the flashing member 16' as shown in Fig. 3. It is to be understood that the length of the draining section may be chosen freely as it has no essential influence on the functionality of the side flashing member.

[0045] The gutter flashing members 15 of Fig. 4 are located deeply in the roof and relatively large portions have therefore been removed from the side flashings members 16, 16'.

[0046] Whereas the present invention has been described with respect to preferred embodiments thereof, it will be understood that various changes and modifications will be suggested to one skilled in the art and it is intended to encompass such changes and modifications as fall within the scope of the appended claims. For example the inventive side flashing member may be used wherever other flashing members are installed deeply in the roof, i.e. not only with windows but also with solar panels and the like.

Claims

1. Side flashing member (16, 16', 100) for use with a roof penetrating structure installed in an inclined roof surface, said flashing member having a substantially U-shaped cross section to allow water to be drained off along the side of the roof penetrating structure, one arm (101, 101', 101'') of the U being intended to engage the roof penetrating structure and the base (102) of the U being intended to be substantially in plane with the roof in the mounted state, **characterized in that** the side flashing member comprises a receiving section (110) and a lifting section (120) at an upper end of the side flashing member and a draining section (130) adapted for leading water onto a corner portion (18) of a lower flashing member (17) arranged below the roof penetrating structure (12), the draining section (130) and the receiving section (110), in the mounted state, being inclined at substantially the same angle of slope as the roof and

the draining section (130) being positioned below said receiving section (110) seen in the direction of slope and higher than the receiving section (110) seen perpendicular to the roof surface, and the lifting section (120) being arranged between the receiving section (110) and draining section (130) to transfer water from the receiving section (110) to the draining section (130), the lifting section (120), in the mounted state, being horizontal or having a relatively small slope in the same direction as the receiving section (110) and draining section (130), and **in that** the receiving section (110) constitutes the smaller part of the flashing member, while the draining section (130) is intended to extend along the bulk of the side of the roof penetrating structure.

2. Side flashing member according to claim 1, **characterized in that** in the slope of the lifting section (120) constitutes an angle of 0-10° to horizontal.
3. Side flashing member according to one of the preceding claims, **characterized in that** it is formed from a single piece of material.
4. Side flashing member according to one of the preceding claims, **characterized in that** it is formed by folding, folding and drawing, deep drawing, compression moulding or the like.
5. Side flashing member according to one of the preceding claims, **characterized in that** it is made from metal, preferably aluminium or aluminium alloys.
6. Side flashing member according to one of the preceding claims, **characterized in that** it has separation means (112, 112', 114', 114"; 105) for adaptation to different installation situations.
7. Side flashing member according to claim 6, **characterized in that** the separation means (112, 112', 114', 114"; 105) are in the form of printed lines, grooves, notches or embedded strips.
8. Side flashing member according to one of the preceding claims, **characterized in that** it is connected to or integral with another side flashing member.
9. Side flashing member according to claim 8, **characterized in that** separation means (105) are provided for the separation of the two side flashing members.
10. Flashing assembly for use with roof penetrating structures mounted in a group comprising at least three structures, at least one structure being mounted above another and at least one structure being mounted to the side of another, **characterized in that**, the assembly comprises at least two gutter flashing members for use between structures mount-

ed one above the other, at least one of these gutter flashing members having separation means for dividing it into a top and a bottom flashing member for use above and below the group, respectively, and two double side flashing members for use between structures mounted side-by-side, each side flashing member comprising a receiving section (110), a lifting section (120) and a draining section (130) and at least one of these double side flashing members having separation means (105) for dividing it into two single side flashing members according to any of claims 1 to 9, for use to the left and right of the group, respectively.

11. An inclined roof structure including at least one roof penetrating structure and a side flashing member (16, 16', 100) according to any of claims 1-9, where one arm (101, 101', 101'') of the U engages the roof penetrating structure and the base (102) of the U is substantially in plane with the roof, where a corner portion (18) of a lower flashing member (17) arranged below the roof penetrating structure (12) is arranged to lead water off from the side flashing member (16) onto the roof surface, where the draining section is inclined at substantially the same angle of slope as the roof and positioned below said receiving section seen in the direction of slope and higher than the receiving section seen perpendicular to the roof surface, where the lifting section (120) is arranged between the receiving and draining sections to transfer water from the receiving section to the draining section, where the lifting section is horizontal or having a relatively small slope in the same direction as the receiving and draining sections, and where the receiving section constitutes the smaller part of the flashing member, while the draining section extends along the bulk of the side of the roof penetrating structure.

Patentansprüche

1. Seitliches Verkleidungselement (16, 16', 100) zur Verwendung mit einem ein Dach durchdringenden Aufbau, der in einer geeigneten Dachfläche installiert ist, wobei das Verkleidungselement einen im Wesentlichen U-förmigen Querschnitt hat, um Wasser zu ermöglichen, entlang der Seite des das Dach durchdringenden Aufbaus abgeführt zu werden, wobei ein Arm (101, 101', 101'') des U's vorgesehen ist, mit dem das Dach durchdringenden Aufbau einzugreifen, und die Basis (102) des U's vorgesehen ist, in dem montierten Zustand im Wesentlichen in einer Ebene mit dem Dach zu sein, **dadurch gekennzeichnet, dass** das seitliche Verkleidungselement einen Aufnahmeabschnitt (110) und einen Anhebeabschnitt (120) an einem oberen Ende des seitlichen Verkleidungselements und einen Abführab-

- schnitt (130) aufweist, der angepasst ist, Wasser auf einen Eckabschnitt (18) eines unteren Verkleidungselements (17) zu leiten, das unter dem das Dach durchdringenden Aufbau (12) angeordnet ist, wobei der Abführabschnitt (130) und der Aufnahmeabschnitt (110) in dem montierten Zustand im Wesentlichen unter demselben Neigungswinkel wie das Dach geneigt sind und der Abführabschnitt (130) unter dem Aufnahmeabschnitt (110) in Richtung der Neigung gesehen und höher als der Aufnahmeabschnitt (110) senkrecht zu der Dachoberfläche gesehen angeordnet ist und wobei der Anhebeabschnitt (120) zwischen dem Aufnahmeabschnitt (110) und dem Abführabschnitt (130) angeordnet ist, um Wasser von dem Aufnahmeabschnitt (110) zu dem Abführabschnitt (130) zu führen, wobei der Anhebeabschnitt (120) in dem montierten Zustand horizontal ist oder eine relativ geringe Neigung in derselben Richtung wie der Aufnahmeabschnitt (110) und der Abführabschnitt (130) hat, und dass der Aufnahmeabschnitt (110) den kleineren Teil des Verkleidungselements bildet, während der Abführabschnitt (130) vorgesehen ist, sich entlang des Hauptteils der Seite des das Dach durchdringenden Aufbaus zu erstrecken.
2. Seitliches Verkleidungselement nach Anspruch 1, **dadurch gekennzeichnet, dass** die Neigung des Anhebeabschnitts (120) einen Winkel von 0 - 10° zur Horizontalen bildet.
 3. Seitliches Verkleidungselement nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es aus einem einzigen Materialstück gebildet ist.
 4. Seitliches Verkleidungselement nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es durch Abkanten, Abkanten und Ziehen, Tiefziehen, Druckformen oder Ähnliches gebildet ist.
 5. Seitliches Verkleidungselement nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es aus Metall, vorzugsweise Aluminium oder Aluminiumlegierungen, hergestellt ist.
 6. Seitliches Verkleidungselement nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es Abtrennmittel (112, 112', 114', 114"; 105) zum Anpassen an unterschiedliche Installationssituationen hat.
 7. Seitliches Verkleidungselement nach Anspruch 6, **dadurch gekennzeichnet, dass** die Abtrennmittel (112, 112', 114', 114"; 105) in Form von gedruckten Linien, Nuten, Kerben oder eingebetteten Streifen sind.
 8. Seitliches Verkleidungselement nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** es verbunden mit oder integral mit einem anderen seitlichen Verkleidungselement ist.
 9. Seitliches Verkleidungselement nach Anspruch 8, **dadurch gekennzeichnet, dass** Abtrennmittel (105) zum Trennen der zwei seitlichen Verkleidungselemente vorgesehen sind.
 10. Verkleidungsanordnung zur Verwendung mit ein Dach durchdringenden Aufbauten, die in einer Gruppe mit wenigstens drei Aufbauten montiert sind, wobei wenigstens ein Aufbau über einem anderen und wenigstens ein Aufbau an der Seite eines anderen montiert ist, **dadurch gekennzeichnet, dass** die Anordnung wenigstens zwei Rinnenverkleidungselemente zur Verwendung zwischen Aufbauten, die übereinander montiert sind, aufweist, wobei wenigstens eines dieser Rinnenverkleidungselemente Abtrennmittel aufweist, um es in ein oberes und ein unteres Verkleidungselement zur Verwendung über bzw. unter der Gruppe zu verwenden, und zwei Doppelseitenverkleidungselemente zur Verwendung zwischen Aufbauten, die nebeneinander montiert sind, wobei jedes Seitenverkleidungselement einen Aufnahmeabschnitt (110), einen Anhebeabschnitt (120) und einen Abführabschnitt (130) aufweist, und wobei wenigstens eines dieser Doppelseitenverkleidungselemente Abtrennmittel (105) aufweist, um es in zwei einzelne Seitenverkleidungselemente nach einem der Ansprüche 1 bis 9 zur Verwendung links bzw. rechts von der Gruppe aufzuteilen.
 11. Geneigter Dachaufbau mit wenigstens einem ein Dach durchdringenden Aufbau und einem seitlichen Verkleidungselement (16, 16', 100) nach einem der Ansprüche 1 bis 9, wobei ein Arm (101, 101', 101") des U's mit dem das Dach durchdringenden Aufbau eingreift und die Basis (102) des U's im Wesentlichen in einer Ebene mit dem Dach ist, wobei ein Eckabschnitt (18) eines unteren Verkleidungselements (17), das unter dem das Dach durchdringenden Aufbau (12) angeordnet ist, angeordnet ist, um Wasser von dem seitlichen Verkleidungselement (16) auf die Dachfläche abzuleiten, wobei der Abführabschnitt im Wesentlichen unter demselben Neigungswinkel wie das Dach geneigt ist und unter dem Aufnahmeabschnitt gesehen in der Neigungsrichtung und höher als der Aufnahmeabschnitt gesehen senkrecht zu der Dachfläche angeordnet ist, wobei der Anhebeabschnitt (120) zwischen dem Aufnahme- und dem Abführabschnitt angeordnet ist, um Wasser von dem Aufnahmeabschnitt zu dem Abführabschnitt zu leiten, wobei der Anhebeabschnitt horizontal ist oder eine relativ geringe Neigung in derselben Richtung wie der Aufnahme- und der Abführabschnitt hat und wobei der Aufnahmeabschnitt

den kleineren Teil des Verkleidungselements bildet, während der Abführabschnitt sich entlang des Hauptteils der Seite des das Dach durchdringenden Aufbaus erstreckt.

Revendications

1. Elément de solin latéral (16, 16', 100) pour une utilisation avec une structure pénétrant dans un toit et installée dans une surface de toit inclinée, ledit élément de solin ayant une section transversale sensiblement en forme de U, pour permettre à l'eau d'être évacuée le long du côté de la structure pénétrant dans le toit, une branche (101, 101', 101'') de la section en U étant prévue pour s'engager dans la structure pénétrant dans le toit, la base (102) de la section en U étant prévue pour être sensiblement dans le même plan que le toit, à l'état monté, **caractérisé en ce que** l'élément de solin latéral comprend une section réceptrice (110) et une section de remontée (120) au niveau d'une extrémité supérieure de l'élément de solin latéral, et une section de drainage (130) adaptée pour faire passer l'eau sur une partie angulaire (18) d'un élément de solin inférieur (17) agencé au-dessous de la structure (12) pénétrant dans le toit, la section de drainage (130) et la section réceptrice (110), à l'état monté, étant inclinées suivant sensiblement le même angle de pente que le toit, la section de drainage (130) étant positionnée au-dessous de ladite section réceptrice (110) vue dans la direction de la pente, et plus haute que la section réceptrice (110) vue perpendiculairement à la surface du toit, la section de remontée (120) étant agencée entre la section réceptrice (110) et la section de drainage (130), pour transférer jusqu'à la section de drainage (130) l'eau provenant de la section réceptrice (110), la section de remontée (120), à l'état monté, étant horizontale ou ayant une pente relativement faible dans la même direction que la section réceptrice (110) et la section de drainage (130), et **en ce que** la section réceptrice (110) constitue la plus petite partie de l'élément de solin, tandis que la section de drainage (130) est prévue pour s'étendre le long de la plus grande partie du côté de la structure pénétrant dans le toit.
2. Elément de solin latéral selon la revendication 1, **caractérisé en ce que** la pente de la section de remontée (120) forme un angle de 0° à 10° par rapport à l'horizontale.
3. Elément de solin latéral selon l'une ou l'autre des revendications précédentes, **caractérisé en ce qu'il** est formé à partir d'une seule pièce de matériau.
4. Elément de solin latéral selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il**

est formé par pliage, par pliage et emboutissage, par emboutissage profond, par moulage par compression ou par un processus analogue.

5. Elément de solin latéral selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** est en métal, de préférence en aluminium ou en alliages d'aluminium.
6. Elément de solin latéral selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend des moyens de séparation (112, 112', 114', 114'' ; 105) pour une adaptation à différentes situations d'installation.
7. Elément de solin latéral selon la revendication 6, **caractérisé en ce que** les moyens de séparation (112, 112', 114', 114'' ; 105) sont sous la forme de lignes d'impression, de rainures, d'encoches ou de bandes encastrées.
8. Elément de solin latéral selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** est relié à un autre élément de solin latéral ou solidaire de celui-ci.
9. Elément de solin latéral selon la revendication 8, **caractérisé en ce que** des moyens de séparation (105) sont prévus pour la séparation des deux éléments de solin latéral.
10. Ensemble de solin pour une utilisation avec des structures pénétrant dans le toit et montées dans un groupe comprenant au moins trois structures, au moins une structure est montée au-dessus d'une autre, et au moins une structure est montée sur le côté d'une autre, **caractérisé en ce que** l'ensemble comprend au moins deux éléments de solin de gouttière pour une utilisation entre des structures montées l'une au-dessus de l'autre, au moins l'un de ces éléments de solin de gouttière ayant des moyens de séparation pour le diviser en un élément de solin du dessus et du dessous, pour une utilisation, respectivement, au-dessus et au-dessous du groupe, et deux éléments doubles de solin latéral pour une utilisation entre des structures montées côte à côte, chaque élément de solin latéral comprenant une section réceptrice (110), une section de remontée (120) et une section de drainage (130), et au moins l'un de ces éléments doubles de solin latéral a des moyens de séparation (105), pour le diviser en deux éléments simples de solin latéral selon l'une quelconque des revendications 1 à 9, pour une utilisation, respectivement, à gauche et à droite du groupe.
11. Structure de toit inclinée comprenant au moins une structure pénétrant dans le toit et un élément de solin latéral (16, 16', 100) selon l'une quelconque des re-

vendications 1 à 9, où un bras (101, 101', 101'') de la forme en U s'engage dans la structure pénétrant dans le toit, et la base (102) de la forme en U est sensiblement dans le même plan que le toit, où une partie angulaire (18) d'un élément de solin inférieur (17) agencé au-dessous de la structure pénétrant dans le toit (12) est disposée pour évacuer sur la surface du toit, l'eau provenant de l'élément de solin latéral (16), où la section de drainage est inclinée suivant sensiblement le même angle de pente que le toit et positionnée au-dessous de ladite section réceptrice vue dans la direction de la pente, et plus haute que la section réceptrice vue perpendiculairement à la surface du toit, où la section de remontée (120) est agencée entre les sections réceptrice et de drainage, pour transférer jusqu'à la section de drainage l'eau provenant de la section réceptrice, la section de remontée étant horizontale ou ayant une pente relativement faible dans la même direction que les sections réceptrice et de drainage, et où la section réceptrice constitue la plus petite partie de l'élément de solin, tandis que la section de drainage s'étend le long de la plus grande partie du côté de la structure pénétrant dans le toit.

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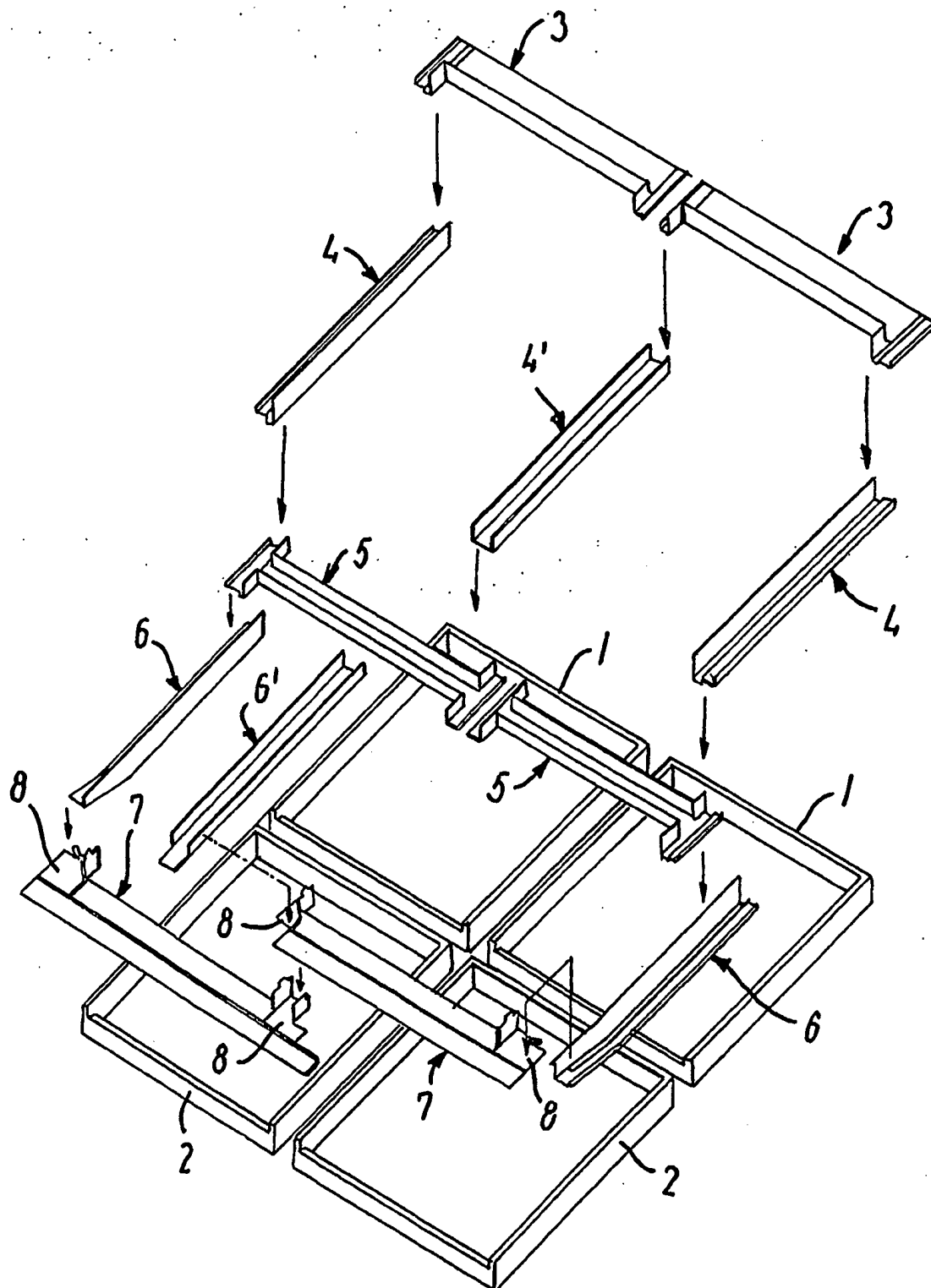
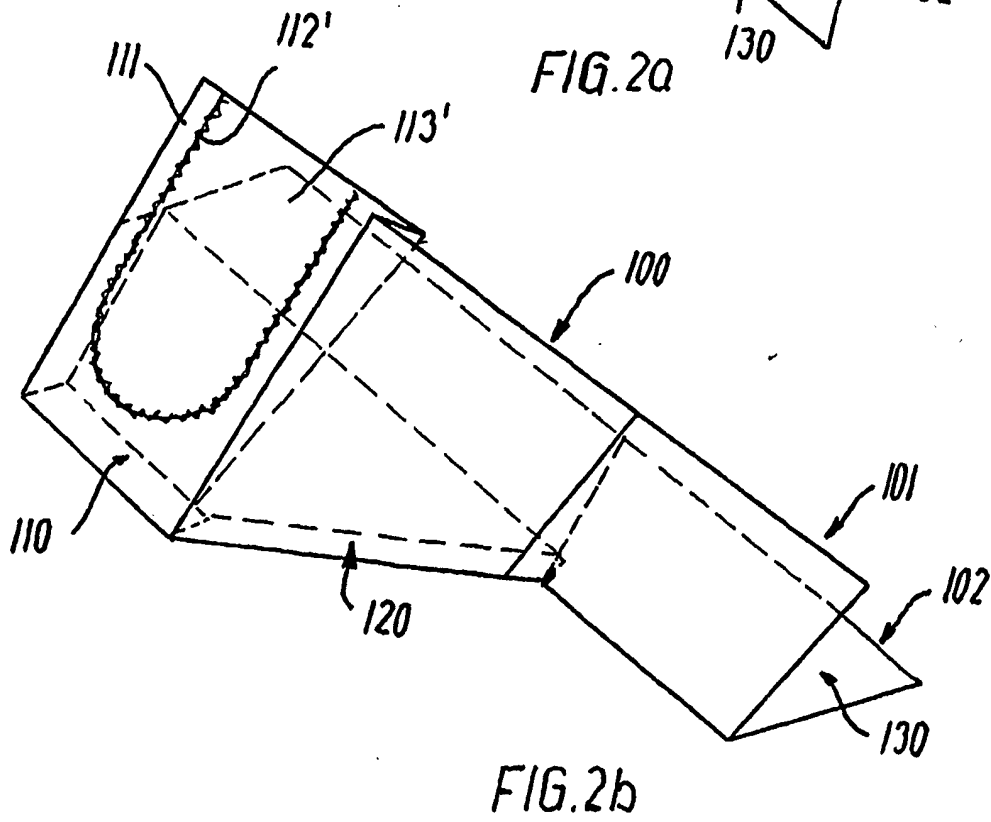
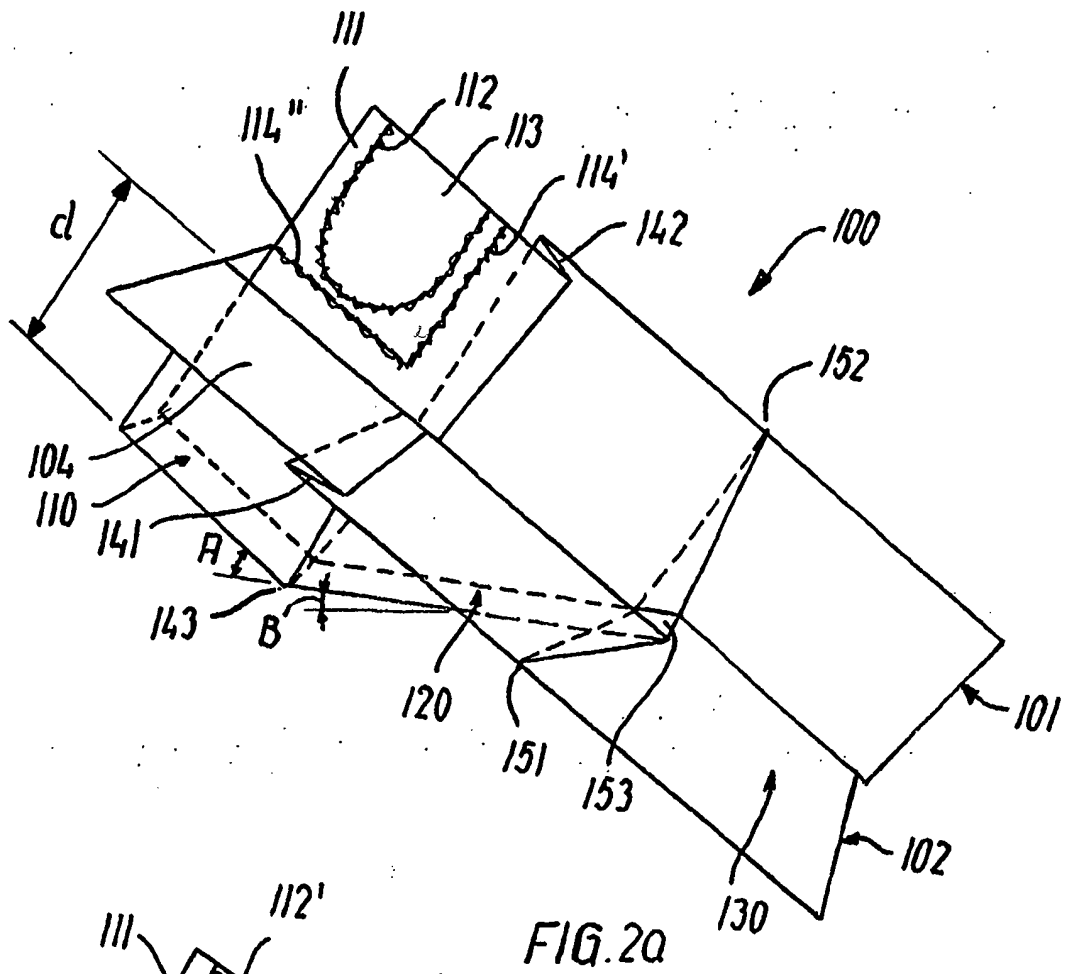


FIG.1 (PRIOR ART)



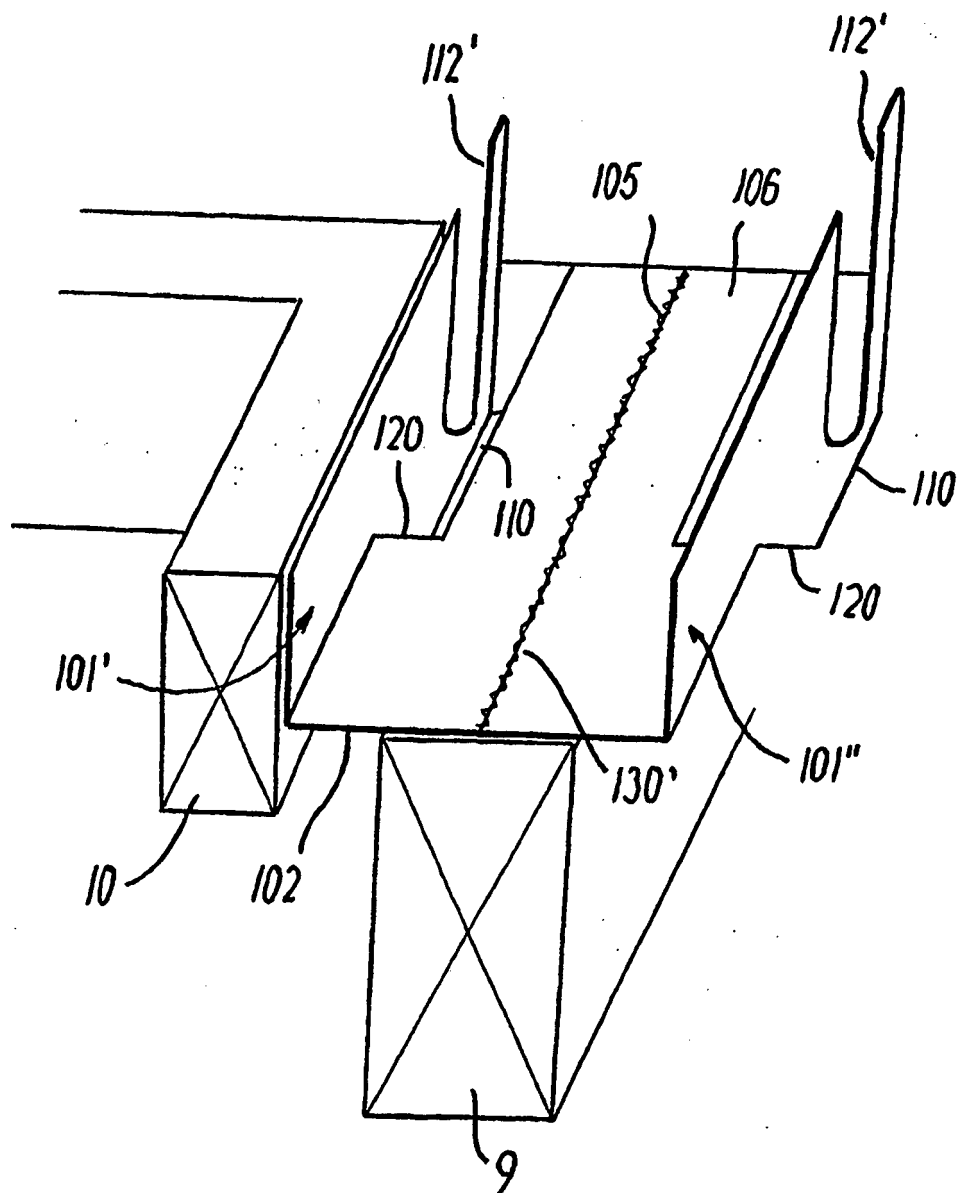


FIG. 3

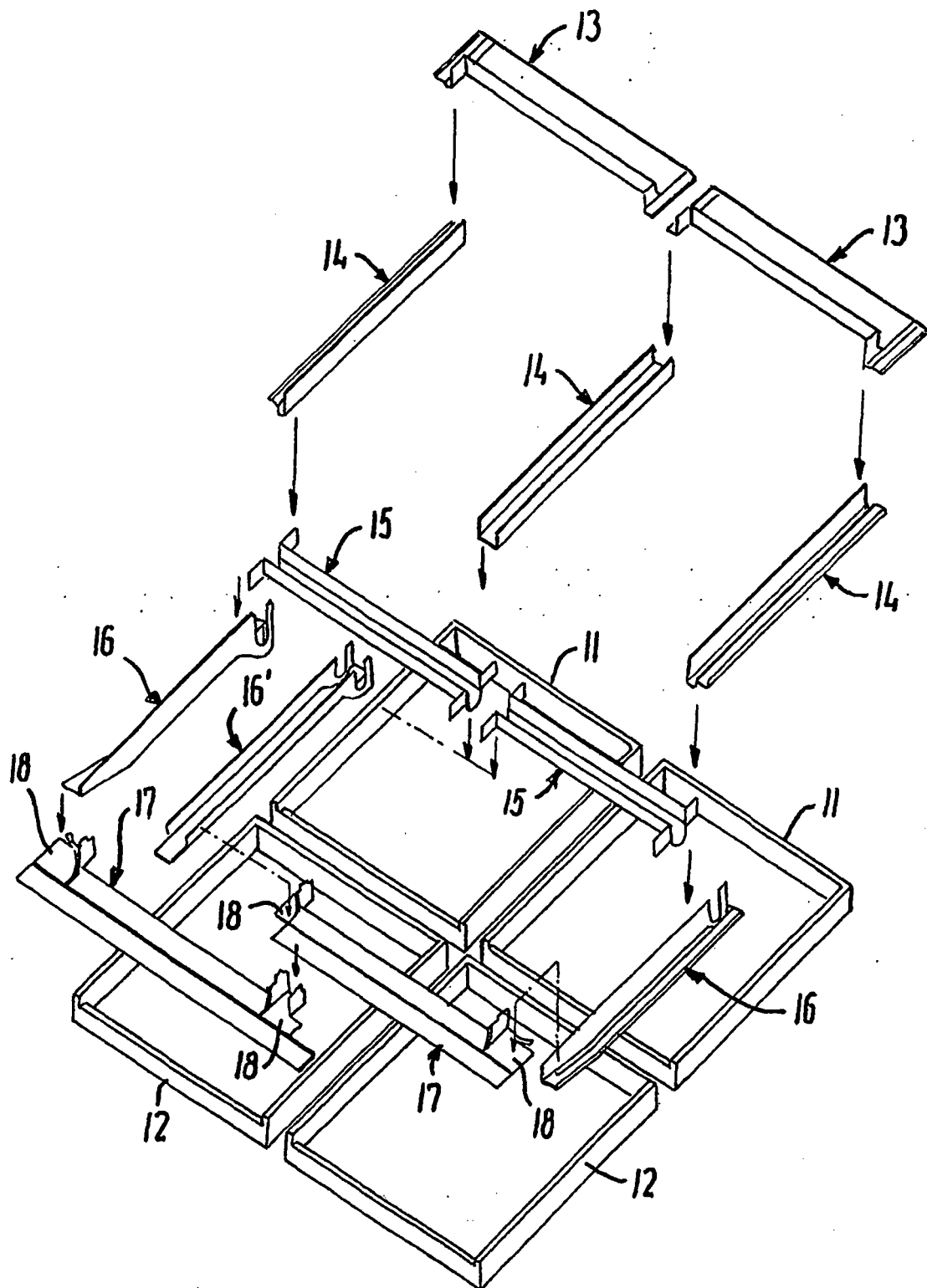


FIG. 4

REFERENCES CITED IN THE DESCRIPTION

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