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(54) A WEATHERPROOFING ASSEMBLY FOR USE WITH A GROUP OF ROOF WINDOWS COMPRISING AT LEAST TWO ROOF WINDOWS AND A METHOD FOR WEATHERPROOFING A GROUP OF ROOF WINDOWS

(57) A weatherproofing assembly for use with a group of roof windows comprising at least two roof windows mounted adjacent to each other in a sloped roof structure (4) is disclosed. It comprises a first underroof collar (1, 1a), a second underroof collar (1, 1b), and a flashing assembly (5). The flashing assembly comprises a first set of flashing members including one top flashing member (51), one bottom flashing member (52), and two side flashing members (53, 54) corresponding to those used in the installation of a single roof window, and a second set of flashing members including one middle gutter flashing member (15, 19) and a sub-set of two other flashing members, said sub-set being chosen from the group comprising an over-under sub-set including one top flashing member (51) and one bottom flashing member (52) and a sides sub-set including two side flashing members (53, 54). At least one collar member (11, 12, 13, 14) of the second underroof collar comprises a reduced amount of collar material compared to the corresponding collar member of the first underroof collar.

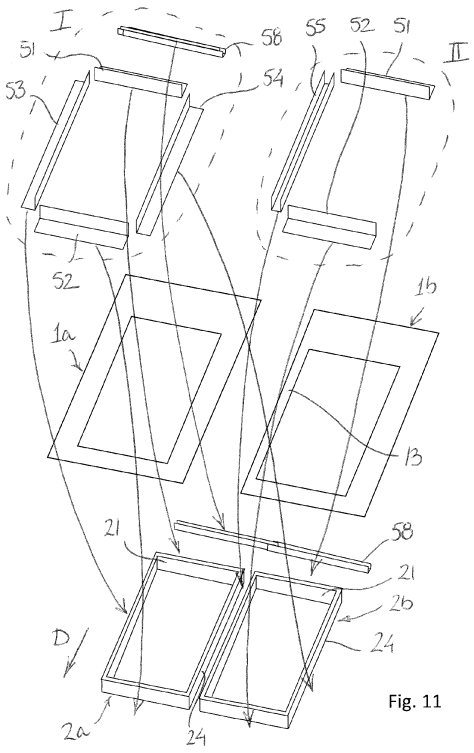

Fig. 11

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Description

Technical Field

[0001] The present invention relates to a weatherproofing assembly for use with a group of roof windows comprising at least two roof windows mounted adjacent to each other in a sloped roof structure having a slope direction, where each of said roof windows comprises a frame comprising a top frame member and a bottom frame member both extending horizontally in the mounted state of the roof window and two side frame members extending in the slope direction in the mounted state of the roof window, said weatherproofing assembly comprising a first underroof collar, a second underroof collar, and a flashing assembly; where each underroof collar comprises a top collar member configured for extending along the top frame member, a bottom collar member configured for extending along the bottom frame member, and two side collar members each configured for extending along a side frame member, said collar members being made from an underroof collar material, where said top collar member, said bottom collar member, and said side collar members delimit a collar opening, and where each collar member has a length direction extending along the collar opening and a width direction extending perpendicular to the length direction, away from the collar opening; and where said flashing assembly comprises at least one top flashing member configured for extending along a top frame member, at least one bottom flashing member configured for extending along a bottom frame member, at least two side flashing members each configured for extending along a side frame member, and at least one middle gutter flashing member configured for extending between roof windows. The invention further relates to method for weatherproofing a group of roof windows.

[0002] The terms "top" and "bottom", "higher" and "lower", "above" and "below", and "uppermost" and "lowermost" are to be understood as positions relative to the slope of the roof structure in the mounted state of the underroof collar, flashing assembly, and/or the roof window. This for example means that in the mounted state a top flashing member will be located above a bottom flashing member in a vertical direction and that a roof window mounted above another roof window will located higher than the other roof window in a vertical direction.

[0003] The terms "over" and "underneath" will be used to indicate relative positions in a direction perpendicular to the slope direction and the plane defined by the roof, "over" being used to indicate that an item is positioned further towards the exterior and "underneath" being used to indicate that an item is positioned further towards the interior of the building covered by the roof.

Background Art

[0004] In roofs covered by tiles and like roofing materials an underroof is typically provided underneath the roofing material to divert any precipitation penetrating through the roofing material, for example snow entering through small gaps between tiles, and any condensation forming on the interior side of the roofing material. In this context the term "interior" is used to indicate a direction towards the interior of a building covered by the roof, and the term "exterior" is used for the opposite direction, away from the interior of the building, towards an exterior.

[0005] When a roof window is mounted in a roof, an opening is cut in the roof structure, thereby interrupting both the underroof and the roofing. After mounting of the roof window in said opening, an underroof collar is used for sealing the joint between the roof window and the underroof, and a flashing assembly is arranged on top of the underroof collar, sealing the joint between the roof window and the roofing and protecting the roof structure and the underroof collar from weather and mechanical wear.

[0006] The underroof collars are typically made from a textile material, such as a non-woven material, which is waterproof but vapour-permeable, and comprise an inner portion, which is attached to the frame of the roof window, for example by means of staples or an adhesive, and an outer portion, also referred to as a skirt portion, overlapping with the sections of the underroof extending along the cut opening closest to the roof window. The outer portions may be attached to the roof structure, for example by means of staples, and/or to the underroof, for examples by means of adhesive tape, thereby keeping the underroof collar in its intended position. In some roof structures, laths for supporting the roofing material extend on the exterior side of the underroof. To be able to reach over such laths and down to the underroof between them, at least the outer portion of the side collar members may be provided with a surplus of material, for example being made from a pleated material. Examples of underroof collars are disclosed in EP0994992B1, EP1774118B1, EP1896673B1, and EP2284329A2.

[0007] Each flashing member typically comprises an inner portion, which is arranged to extend up along the frame of the roof window, and an outer portion, which is arranged to extend away from frame. The outer portions of side flashing members and top flashing members typically extend between the roof structure and the roofing, and the outer portions of bottom flashing members typically extend over an exterior side of the roofing to lead water off the flashing assembly and onto the roofing below the group of roof windows. Where roof windows are mounted close to each other in a group, one or more middle gutter flashing members extend from the frame of one roof window to the frame of another roof window. One or more flashing members may be attached to the frame and/or to the roof structure, for example by means of staples or nails, thereby keeping the flashing assembly in its intended position. An example of such a flashing assembly and a method for mounting it is disclosed in EP0087647A1.

[0008] Today most roof windows are sold as standardized products, which are individually packed and kept on stock for delivery upon demand. Likewise, standard underroof collars and standard flashing assemblies matching each roof window size, different types of roofing as well as different installations depths in the roof are kept on stock. Some suppliers also stock underroof collars and flashing assemblies for two roof windows mounted side by side or one above another, which are the most common constellations of a group of roof windows. This system typically results in at least five different standard flashing assemblies being kept on stock for each standard roof window, and most roof manufacturers offer more than 40 different roof window sizes. While some sizes are less used than others and all standard flashing assemblies are therefore not kept on stock at all times, the total number of standard flashing assemblies on stock easily adds up to more than 200.

[0009] When roof windows are to be mounted in larger or more complex groups, such as in a matrix constellation with roof windows mounted both side by side and above each other in the slope direction, flashing assemblies may be made on special order. Speed of delivery is, however, often of importance and it is therefore common practice to combine several standard flashing assemblies for single roof windows and supplementing them with middle gutter flashing members. For this purpose, middle gutter flashing members for use between roof windows mounted side by side and one above another are also stocked as standard products. While this works well with respect to achieving a good weatherproofing, the side flashing members and/or top and bottom flashing members of the standard flashing assemblies replaced by the middle gutter flashing members are discarded, typically ending up as scrap metal.

[0010] With larger groups of roof windows, e.g. arranged in a matrix configuration, becoming still more popular and with the increasing focus on minimizing resource consumption, this scrapping of flawless building components is a cause for increasing concern.

[0011] The use of standard underroof collars when mounting groups of roof windows has also been found to result in waste of material, as the space available between adjacent roof windows is often limited. The installer either tucks excess underroof collar material down into the roof structure, or cuts one or more collar members to size, scrapping the cut-offs. In addition to the waste of material, this involves a risk of errors in mounting, as excess material may be in the way of mounting flashing members, and as incorrect removal of underroof collar material may result in leakage.

Summary of Invention

[0012] With this background, it is an object of the invention to provide a weatherproofing assembly by which it is possible to reduce or eliminate scrapping of material without compromising weatherproofing qualities.

[0013] In a first aspect of the invention, this and further objects are achieved with a weatherproofing assembly of the kind mentioned in the introduction which is furthermore characterised in that the flashing assembly comprises a first set of flashing members including one top flashing member, one bottom flashing member, and two side flashing members corresponding to those used in the installation of a single roof window, and a second set of flashing members including one middle gutter flashing member and a sub-set of two other flashing members, said sub-set being chosen from the group comprising an over-under sub-set including one top flashing member and one bottom flashing member and a sides sub-set including two side flashing members, and

that at least one collar member of the second underroof collar comprises a reduced amount of collar material compared to the corresponding collar member of the first underroof collar.

[0014] In a second aspect of the invention, the above mentioned and further objects are achieved with a method comprising the steps of:

a) mounting a first underroof collar at a first roof window with a top collar member extending along the top frame member of a first roof window, a bottom collar member extending along the bottom frame member, and side collar members extending along the side frame members, said first underroof collar being made from an underroof collar material,

b) mounting a second underroof collar at a second roof window mounted adjacent to the first roof window with a top collar member extending along the top frame member of a second roof window, a bottom collar member extending along the bottom frame member, and side collar members extending along the side frame members, said collar members being made from an underroof collar material, and said second underroof collar having at least one collar member with a reduced amount of collar material compared to the corresponding underroof collar of the first underroof collar and being arranged so that said at least one collar member with a reduced amount of collar material extends along a frame member of the second roof window facing the first roof window,

c) providing a first set of flashing members including one top flashing member, one bottom flashing member, and two side flashing members corresponding to those used in the installation of a single roof window, and a second set of flashing members including one middle gutter flashing member and a sub-set of two other flashing members, said sub-set being chosen from the group comprising an over-under sub-set including one top flashing member and one bottom flashing member and a sides sub-set including two side flashing members, and

d) mounting three flashing members of the first set of flashing members at the first roof window and one

flashing member of the first set at the second roof window at the frame member of the second roof window opposite the frame member facing the first roof window, and

e) mounting the second set of flashing members at the second roof window with the middle gutter flashing member extending along the frame member of the second roof window facing the first roof window.

[0015] The first underroof collar can be a standard underroof collar corresponding to those used in the installation of a single roof window, and the first set of flashing members can correspond to a standard flashing assembly for a single roof window, while the adaptation needed for use in a group of roof windows is provided by the second underroof collar and the second set of flashing members. In this way, only the second underroof collar and the second set of flashing members need to be kept on stock as separate items, whereas the first underroof collar and the first set can be picked from the standard product range. While this may not reduce the number of items to be kept on stock, the second underroof collar and the second set of flashing members may replace a range of considerably larger specialized products for roof windows mounted adjacent to each other in groups. This may reduce the needed storage space and may also reduce costs in that less components need to be manufactured for storage.

[0016] Another advantage is that underroof collars and flashing members may be reused when retrofitting a new roof window next to an existing one. The flashing member(s) facing the intended position of the new roof window(s) is/are simply removed and reused at the corresponding frame member(s) on the opposite side of the new roof window(s), and only the second underroof collar and the second set of flashing members then need to be supplied.

[0017] In one embodiment, the at least one collar member of the second underroof collar comprising a reduced amount of collar material has a reduced width compared to the width of the corresponding collar member of the first underroof collar. In another the side collar members of the first underroof collar are made with a surplus of material, such as a pleating, and the at least one collar member of the second underroof collar comprising a reduced amount of collar material is a side collar member without such a surplus of material. Both reduces the amount of material present and thereby reduces the potential need for removing material. It may, however, still be advantageous to provide a cutting indication on at least one collar member to allow a precise adaptation, for example in cases where roof windows are arranged extraordinary close to each other or deep in the roof structure. Such a cutting indication is preferably provided on an interior side of the underroof collar configured for resting on the roof structure in the mounted state. This reduce the risk of an installer removing material in cases, where it is not necessary.

[0018] The weatherproofing assembly may include a tape or adhesive for interconnecting underroof collars. Such tape or adhesive may be provided on the collar member of the second underroof collar comprising a reduced amount of collar material.

[0019] For use with groups of roof windows comprising three or more roof windows, the weatherproofing assembly may further comprise a third underroof collar and the flashing assembly may further comprise a third set comprising one middle gutter flashing member and two other flashing members. As described for the second set of flashing members, the two other flashing members of the third set may be a top flashing member and a bottom flashing member or two side flashing members. If the roof windows are arranged side by side, at least one side collar member of the third underroof collar could comprise a reduced amount of collar material. If the roof windows are arranged in an L-shaped configuration, i.e. two side-by-side and on above another in the slope direction of the roof structure, the most appropriate configuration of the third underroof collar will depend on the configuration of the second underroof collar and which roof window the first underroof collar is mounted at.

[0020] For use with groups of roof windows arranged in a matrix, such as two by two, the weatherproofing assembly may comprise a fourth underroof collar and a fourth set of flashing members contained in a fourth packaging element and comprising two middle gutter flashing members, one for use between roof windows mounted side by side and one for roof windows mounted one above another.

[0021] While the underroof collars are primarily described with references to embodiments, where one collar member comprises a reduced amount of material, it is to be understood that two or more collar members of an underroof collar may comprise a reduced amount of material. This may for example apply to an underroof collar used in a lower row of a matrix configuration, where both a side collar member, possibly both side collar members and the top collar member will be overlapping with other underroof collars. These collar members may then be made with a reduced amount of material, and when two collar members are overlapping each other in the mounted state, it may even be advantageous to make both with a reduced amount of material.

[0022] In one embodiment, the first set of flashing members and/or the third set of flashing members further comprises a drainage gutter. One or both drainage gutters may be a telescopic drainage gutter configured for extending along the top frame member of one roof window in an un-extended state and for extending along the top frame members of two roof windows in an extended state. If the group of roof windows is mounted in an L-shaped configuration with a first and a second roof window side-by-side in a lowermost row and a third roof window above the first roof window seen in the slope direction of the roof structure, the flashing assembly can be mounted in a first flashing configuration, where a drain-

age gutter of the first set of flashing members and a drainage gutter of the third set of flashing members each extends along the top frame member of one roof window. I.e. one drainage gutter above the second roof window and the other drainage gutter above the third roof window. If one or both drainage gutter are telescopic drainage gutters it/they will then be mounted in an un-extended state. It is, however, also possible to take two parts of the telescopic drainage gutter apart and use each of them above one roof window.

[0023] If the group of roof windows comprises three or more roof windows arranged side by side, the flashing assembly can be mounted in a second flashing configuration, where a telescopic drainage gutter of the first set of flashing members is in an extended state and extends along the top frame members of two roof windows and a drainage gutter of the third set of flashing members extends along the top frame member of one roof window. The two drainage gutters will then extend in continuation of each other and may possibly be interconnected, so that they form one gutter. A connector piece for interconnecting drainage gutters may be provided, for example as part of the third set. The two drainage gutters may be mounted with different inclination angles, so that one drainage gutter directs water to one side of the group of roof windows and the other drainage gutter directs water to the other side of the group of roof windows.

[0024] If the group of roof windows is mounted in a two-by-two matrix configuration or in an inverted L-shaped configuration with a first and a second roof window side-by-side in an uppermost row and a third roof window below the first roof window seen in the slope direction of the roof structure, the flashing assembly can be mounted in a third flashing configuration, where a telescopic drainage gutter of the first set of flashing members is in an extended state and extends along the top frame members of two roof windows and where a drainage gutter of the third set of flashing members is not in use, or vice versa.

[0025] If the group of roof windows comprises four roof windows mounted side-by-side, two extended telescopic drainage gutter may be arranged in continuation of each other and the fourth set of flashing members will then not have to include a drainage gutter.

[0026] In one embodiment, at least one middle gutter flashing member comprises two components, each being configured for being arranged along a frame member of one of two adjacent roof windows, said frame members facing each other. This will allow adaptation to variations in the distance between roof windows by displacing the two components in relation to each other in a direction parallel to the plane of the roof structure.

[0027] The advantages and embodiments described above with reference to the first aspect of the invention also applies to the second aspect and vice versa.

Brief Description of Drawings

[0028] In the following description embodiments of the invention will be described with reference to the schematic drawings, in which

Fig. 1 is a perspective view of a prior art underroof collar,

Fig. 2 shows the underroof collar in Fig. 1 during installation,

Fig. 3 shows a prior art underroof collar as in Fig. 1 and 2 installed on a roof structure including laths,

Fig. 4 is a perspective schematic view of two roof windows mounted side by side with a prior art flashing assembly,

Fig. 5 shows a group of roof windows and a set of underroof collars for use with this group,

Fig. 6 shows a group of roof windows and a set of underroof collars for use with this group,

Fig. 7 shows the set of underroof collars in Fig. 6 mounted at the roof windows,

Fig. 8 shows a group of roof windows and a set of underroof collars for use with this group,

Fig. 9 illustrates means for adaptation and interconnection of the underroof collars shown in Fig. 8,

Fig. 10 shows steps of the adaptation and installation of a set of underroof collars,

Fig. 11 a perspective schematic view of two roof windows mounted side by side, two underroof collars, and a flashing assembly,

Fig. 12 is a perspective schematic view of three roof windows mounted side by side and a flashing assembly,

Fig. 13 is a perspective schematic view of two roof windows mounted one above the other and a flashing assembly,

Fig. 14 is a perspective schematic view of three roof windows mounted in a L-shaped configuration and a flashing assembly,

Fig. 15 is a perspective schematic view of four roof windows mounted in a two by two matrix constellation and a flashing assembly, and

Fig. 16 is a perspective schematic view of several possible combinations of packed sets of flashing members and underroof collars into packed weatherproofing assemblies.

Description of Embodiments

[0029] Referring initially to Fig. 1, a standard underroof collar 1 for use with a single roof window is shown. It comprises a top collar member 11, a bottom collar member 12, and two side collar members 13, 14, and said collar members delimit a collar opening 15.

[0030] Each collar member has a length direction L extending along the collar opening 15 and a width direction W extending perpendicular to the length direction, away from the collar opening. In Fig. 1 the length direction

L and width direction W are shown only at the bottom collar member and the right-hand side collar member, but it will be understood that such directions apply also to the top collar member and the left-hand side collar member.

[0031] Each collar member further comprises an inner portion 111, 121, 131, 141 and an outer portion 112, 122, 132, 142. The inner portions define the collar opening 15 and are here configured for extending up along the outer sides of a frame of a roof window, while the outer portions extend away from the collar opening and are configured for extending over and coming into contact with a roof structure. In this embodiment the side collar members 13, 14 are made with a pleating providing a surplus of material.

[0032] Fig. 2 shows the underroof collar 1 arranged over a frame 2 of a roof window and underneath a drainage gutter 3, and Fig. 3 shows these three elements installed in/on a sloped roof structure 4. The roof structure comprises laths 41 extending perpendicular to the slope direction D of the roof structure and an underroof 42 underneath the laths. The frame 2 is arranged in an opening 43 in the roof structure, where the laths and underroof have been removed. The underroof collar 1 is attached to the frame 2 and the pleating of the outer portions 132, 142 of the side collar members 13, 14 has been unfolded to that the underroof collar extends down between the laths 41 to the underroof 42, thereby sealing the joint between the frame 2 and the underroof 42. As may be seen in Fig. 3, a top frame member 21 and a bottom frame member 22 both extend horizontally in the mounted state and two side frame members 23, 24 extend in the slope direction D, and the top collar member 11 extends along the top frame member 21, the bottom collar member 12 along the bottom frame member 22, and two side collar members 13, 14 along the side frame members 23, 24.

[0033] Laths 41 are typically used in roof structures comprising rafters and serve to support roofing materials (not shown) consisting of smaller units, such as tiles or roofing panels. Other types of roof structures, such as concrete roofs, do not include laths and the underroof collar may then not need a surplus of material. In such cases the side collar members 13, 14 can be without pleating as shown for the top collar member 11 and bottom collar member 12.

[0034] The drainage gutter 3 is mounted on top of the top collar member 11 to drain off water coming from the underroof 42 above the roof window, whereby reducing the water-load on the top collar member. Furthermore, the top collar member 11 is wider in its width direction W than the bottom collar member 12 to facilitate proper integration with the roof structure.

[0035] Today, underroof collars 1 are mounted in substantially the same way, regardless if used on a single roof window is in Fig. 3 or if used in a group of roof windows.

[0036] A prior art flashing assembly 5 for use with two roof windows mounted adjacent to each other side by side in a sloped roof structure 4 similar to that in Fig. 3 is shown in Fig. 4. As the construction of the roof windows are not of importance, they are represented only by two frames 2a, 2b, each comprising a top frame member 21 and a bottom frame member 22 both extending horizontally in the mounted state and two side frame members 23, 24 extending in a slope direction D of the roof structure in the mounted state.

[0037] The flashing assembly 5 comprises two top flashing members 51 each configured for extending along a top frame member 21, two bottom flashing members 52 each configured for extending along a bottom frame member 22, two side flashing members 53, 54 each configured for extending along a side frame member 23, 24, and a middle gutter flashing member 55 configured for extending between the two roof windows. Common to all flashing members is that they comprise an outer portion 511, 521, 531, 541, 551 configured for extending substantially in plane with the roof structure and at least one inner portion 512, 522, 532, 542, 552 configured for extending up along a frame member of a roof window.

[0038] The top flashing members 51 and the bottom flashing members 52 are provided with corner sections, 513, 514, 523, 524 configured for establishing an overlap with the side flashing members 53, 54 and the middle gutter flashing member 55, and cover members 56, 57 are provided for interconnecting the corner sections 514 of the top flashing members above the middle gutter flashing member.

[0039] In Fig. 4, the flashing assembly 5 is configured for use with roof windows mounted deep in a roof structure, and the side flashing members 53, 54 are configured specifically for use at a left-hand side frame member 23 and at a right-hand side flashing member 54 of a roof window, respectively. The same applies to the two top flashing members 51 and the two bottom flashing members 52.

[0040] References to "right" and "left" are to be understood as references to the flashing assemblies and the frames of roof windows as shown in the drawing, and thus as seen by a person viewing them from outside a building in which they are mounted.

[0041] The present invention is concerned with providing an improved weatherproofing assembly comprising both underroof collars and flashing members for used with a group of roof windows.

[0042] Fig. 5 shows a group of two roof windows, here illustrated only by their frames 2a, 2b, arranged side by side, and a set of two underroof collars 1 for use with this group. Arrows in broken lines indicate which underroof collar goes with which roof window. The first underroof collar 1a going with the left-hand frame 2a is a standard underroof collar for use with a single roof window mounted in a roof structure with laths and has pleating at both side collar member 13, 14. In the second underroof collar 1b going with the right-hand frame 2b, only the right-hand

side collar member 14, which will be facing away from the first underroof collar and the first frame 2a in the mounted state, has pleating. The left-hand side collar member 13, which will be overlapping the right-hand side collar member 14 of the first underroof collar in the mounted state, is without pleating, thus comprising a reduced amount of collar material compared to the corresponding collar member of the first underroof collar.

[0043] Fig. 6 corresponds to Fig. 5, but here the first underroof collar 1a shown to the left is a standard underroof collar without pleating suitable for use with a single roof window mounted in a roof structure without laths. The second underroof collar 1b to the right is also without pleating, but the left-hand side collar member 13 has a reduced width, thus comprising a reduced amount of material compared to the left-hand side collar member of the first underroof collar.

[0044] Fig. 7 shows the two underroof collars 1a, 1b in Fig. 6 mounted at the roof window frames 2a, 2b. The left-hand collar member 13 of the right-hand underroof collar 1b overlaps the right-hand collar member 14 of the left-hand underroof collar 1a, which covers the entire distance between the two frames. This overlap will in itself provide an excellent watertightness, especially when flashing members (not shown) are arranged on top of the underroof collars, but to further tighten the joint between the underroof collars and ensure that the underroof collars stay in their intended positions, the joint may be taped as here illustrated by a roll of adhesive tape 6.

[0045] Fig. 8 shows another group of roof windows, illustrated only by their frames 2a, 2b, 2c, 2d, 2e, 2f, arranged in a two-by-three matrix, and a set of six underroof collars 1 for use with this group. Arrows in broken lines indicate which underroof collar goes with which roof window. As may be seen the underroof collars going with the roof windows forming the left column of the matrix, i. e. the roof windows marked I and IV, have a pleating at the left-hand side collar member 13, which will be extending over the roof structure in the mounted state. The right-hand side collar member 14 of these underroof collars, which will be extending between roof windows in the mounted state is without pleating. In the following these underroof collars will be referred to as type A. Similarly, in the underroof collars going with the roof windows forming the right column of the matrix, i.e. the roof windows marked III and VI, only the right-hand side collar member 14 has a pleating. In the following these underroof collars will be referred to as type B. The underroof collars going with the roof windows forming the centre column of the matrix, i.e. the roof windows marked II and V, have no pleating as both side collar members will be extending between roof windows in the mounted state. In the following these underroof collars will be referred to as type C. The type C underroof collars thus have a reduced amount at one side collar member compared to the type A and type B underroof collars; reduced at the left-hand side collar member compared to type A and reduced at the right-hand side collar member compared to type B. The type A and B underroof collars constitute the first and second underroof collars and the type C underroof collar constitute a third underroof collar.

[0046] The type C underroof collar may be a standard underroof collar otherwise used with single roof windows mounted in roof structures where no surplus of material is needed.

[0047] The three different configurations of underroof collars shown in Fig. 8 can be used also in other combinations for other installation situations. If for example the group of roof windows include only four roof windows arranged in a two-by-two matrix, it will correspond to the roof windows marked II and V being left out, and the underroof collars of type C will then not be needed. If the group of roof windows includes eight roof windows arranged in a two-by-four matrix, it will correspond to there being two sets of the roof windows marked II and V and the set of underroof collars will then include four underroof collars of type C. If the group of roof windows includes only three roof windows arranged in an L-shaped configuration as the roof windows marked I, II and IV, a standard underroof collar with pleating at both side collar members 13, 14 can be used with the uppermost roof window as seen in the slope direction D, i.e. roof window IV, while one underroof collar of type A and one underroof collar of type B will be used with the two lowermost roof windows as seen in the slope direction D. The standard underroof collar will then constitute a third underroof collar.

[0048] Fig. 9 illustrates possible steps in the installation of the set of underroof collars in Fig. 8. Scissors 7 indicate that the collar members can be cut to size, while rolls of tape 6 indicate that the underroof collars 1 can be interconnected as described above with reference to Fig. 7. It is to be understood that the scissors and rolls of tape are only examples, and that other means can be used, such as a knife for cutting and staples or adhesive for interconnecting. At present the use of tape is, however, considered advantageous as it is relatively easy to apply and may provide a continuous interconnection, which may be water-proof.

[0049] The scissors 7 are shown at the top collar members 11 of the underroof collars 1 for use on the roof windows in the lowermost row of the matrix and in positions indicating that the width of the top collar members can be reduced. As explained with reference to Figs 1-3, the top collar member is wider than the bottom collar member to facilitate proper integration with the roof structure above a roof window, but this width is not needed at the lowermost roof window when two roof windows are arranged one above the other. Often the top collar member is simply folded or tucked in between the two roof windows but reducing the width will reduce the risk of errors in installation. It is, however, also possible to provide the underroof collars with a top collar member of reduced width, and this is presently preferred to reduce scrapping of underroof material.

[0050] Tape 6 is shown only at the right-hand side collar members 14 of four underroof collars 1 as taping along

these sides will interconnect all underroof collars of the set along the side collar members 13, 14. Additionally, or alternatively, tape may be used along the top and bottom collar members 11, 12 to interconnect underroof collars arranged one above the other in the slope direction D.

[0051] Any matrix, where roof windows are arranged side-by-side, will include a roof window corresponding to the roof window marked I in Fig. 8 and a roof window corresponding to the roof window marked III in Fig. 8. It is therefore envisaged that a roll of tape 6 and possibly a pair of scissors 5, or other means for interconnection and cutting of underroof collars, can be included with a type A underroof collar. It/they can be included with every type A underroof collar or only with one type A collar when an order includes more than one type A underroof collar. Likewise, a type C underroof collar may always be delivered with a roll of tape 6 or other means for interconnection, at least when ordered together with other underroof collars. Even though described with reference to the drawing, this applies to all embodiments of the invention.

[0052] In Figs 8-9 the side collar members 13, 14 are all shown as being of substantially the same width, but it is to be understood that the pleated side collar members may be wider than the side collar member intended for extending between roof windows. Alternatively, or in addition, the width of the side collar members may also be reduced before or during installation, but this is less preferred as it will result underroof material being scrapped.

[0053] Turning now to Fig. 10 showing another set of underroof collars 1 for use with roof windows mounted in a two-by-three matrix.

[0054] The type A underroof collar to be used with the roof window corresponding to that marked I in Fig. 8 is here marked AI, the type B underroof collar to be used with the roof window corresponding to that marked II in Fig. 8 is here marked CII, the type C underroof collar to be used with the roof window corresponding to that marked III in Fig. 8 is here marked BIII. Following the same principle, the underroof collars for use in the second row of the matrix are marked AIV, CV, and BVI.

[0055] These underroof collars 1 are shown with cutting indications 16, here in the form of broken lines, showing where they are to be cut when used in a two-by-three matrix, when roof windows are mounted close to each other. Underroof collars AI, CII, and BIII are provided with cutting indications on their top collar members 11, underroof collars AIV, CV, and BVI are provided with cutting indications on their bottom collar members 12, and underroof collars CII and CV are provided with cutting indications on their side collar members 13, 14. It is to be understood that it is presently preferred to use underroof collars made with a reduced amount of material, rather than cutting them to size at the installation site and that the cutting indications may therefor also represent a different embodiment of each underroof collar made with smaller dimensions. Cutting to size may, however, be preferred in some instances to keep the number of different underroof collars to be kept on stock at a reasonable level.

[0056] In the embodiment shown in Fig. 10 only the cutting indications 16 corresponding to the specific position in the matrix is shown, but it is to be understood that both of the type A underroof collars may have cutting indications on both the top collar member 11 and the bottom collar member 12 so that it doesn't matter which of the two underroof collars are used at which of the two windows. The same applies to the type B and type C underroof collars. In that case only some of the cutting indications will be used. Having cutting indications both at the top and at the bottom of all underroof collars would also facilitate the use of the underroof collars in a three-by-three roof window matrix or in other configurations where more roof windows are mounted above each other in the slope direction.

[0057] With the cutting indications shown in Fig. 10 the top collar member 11 of the AI, CII, and BIII underroof collars extend all the way up to the roof window at which underroof collars AIV, CV, and BVI are installed, while the bottom collar member of AIV, CV, and BVI extend only about two-thirds of the way down to the roof window at which underroof collars AI, CII, and BIII are installed. These relative distances may vary depending on the installation situation, depending for example on the flashing members to be used on top of the underroof collars.

[0058] In the embodiment in Fig. 10 only one set of cutting indications is shown, but it is to be understood that other cutting indications for one or more other installation situations, such as installation in a roof structure with a different roofing material, may be provided. The different sets of cutting indications may for example have different colours or different patterns. Even though described with reference to the drawing, this applies to all embodiments of the invention.

[0059] In Fig. 10 the type C underroof collars are standard underroof collars suitable for use with a single roof window mounted in a roof without laths, while the type A and type B underroof collars are made with side collar members of reduced width at the sides facing the type C underroof collars. This means that only the side collar members of the type C underroof collars have to be cut to size. It is, however, to be understood that the type A and type B underroof collars could also be provided with non-pleated standard width side collar member and then cut to size before or during installation.

[0060] In case only some of the cutting indications 16 are to be used, information about which to use can be provided in a separate installation guide and/or printed on the underroof collar.

[0061] In Fig. 10 the cutting indications 16 are visible on the exterior side of the underroof collars, i.e. the side facing away from the roof structure in the mounted state. It may, however, be advantageous to provide the cutting indication only on an interior side of the underroof collar configured for resting on the roof structure in the mounted state. This may prompt the installer to attempt installation

of the underroof collar in the state of delivery and only search for the cutting indications in the event that there is an inconvenient surplus of material. In that way the risk of inappropriate removal of material may be reduced.

[0062] Whereas the type A and type B underroof collars in Figs 8-9 are identical except mirror-inverted, the type A and type B underroof collars in Fig. 10 have different top collar members 11 and bottom collar member 12. In the type B underroof collars of Fig. 10 top and bottom collar members are as they would have been in a standard underroof collar for a single window, whereas the top and bottom collar members of the type A underroof collars have been cut off at the right-hand side along the same line as the side collar members 14 so that they do not project over the side collar members in the width direction of the side collar members. When installing such underroof collars, the installer starts at the lower right-hand corner of the matrix, i.e. with the underroof collar marked BIII. Then underroof collar BVI is installed so that it's bottom collar member comes to rest on top of the top collar member of the BIII underroof collar. In this way any water coming off the BVI underroof collar will drain onto the BIII underroof collar. Next the type C underroof collars are applied, with the CII underroof collar first and the CV underroof collar overlapping in the same way as described with reference to BIII and BVI. The side collar members of the CII underroof collar and the CV underroof collar now rest on top of the side collar member of BIII and BVI, and the projecting parts 113, 123 of the top and bottom collar members of the BIII underroof collar and the BVI underroof collar project underneath CII and CV, thereby contributing to keeping the type B underroof collars in place. Finally, the type A underroof collars are applied, with the AI underroof collar first and the AIV underroof collar overlapping in the same way as described with reference to BIII and BVI, and with the side collar members of the AI underroof collar and the AIV underroof collar resting on top of the side collar member of CII and CV. The overlapping side collar members of the type A and type C underroof collars can now be interconnected using one piece of tape and likewise for the type C and type B underroof collars, possibly using one piece of tape extending from the top of the matrix to the bottom for each connection.

[0063] The underroof collars of type A and type B shown in the drawing all have a surplus of material in the form of a pleating at the side collar members projecting away from the matrix of roof windows, over the roof structure, while the other side collar members are flat. As described above, a pleating allows the side collar members of the underroof collars to be unfolded and come down and around laths of a roof structure, but other roof structures may require a smaller surplus of material or no surplus at all. It will thus be understood that the pleating shown is only an example of how a side collar member may be different from a flat side collar member, and that the difference between the side collar members may be embodied differently, for example by the side collar members being of different width in a state of delivery.

[0064] Fig. 11 shows two roof window frames 2a, 2b and two underroof collars 1a, 1b as in Fig. 6 together with a flashing assembly 5 similar to that in Fig. 4. The flashing members 51, 52, 53, 54, 55 are here shown in simplified versions, where the top, bottom, and side flashing members 51, 52, 53, 54 have a simple L-shape in cross-section and the middle gutter flashing member 55 has a simple U-shape in cross-section, but it is to be understood that they represent more sophisticated flashing members, such as those shown in Fig. 4. Several possible embodiments of such flashing members are well known to the skilled person and will therefore not be described in further detail here. The same applies to Fig. 12-15.

[0065] The flashing assembly in Fig. 11 consists of two sets of flashing members; a first set I including one top flashing member 51, one bottom flashing member 52, and two side flashing members 53, 54, and a second set II including one middle gutter flashing member 55, one top flashing member 51, and one bottom flashing member 52. The broken lines encircling each set of flashing members are to be understood as an indication that the sets are package in separate packaging elements.

[0066] The first set I is a standard flashing assembly of the type used for a single roof window mounted alone in a roof structure, and it is intended that this set of flashing members will be packed together with the standard underroof collar 1a, so that this packed set will correspond to that supplied for a single standard roof window. The second set II comprises the supplementary flashing members needed for weatherproofing two roof windows mounted side by side as indicated by the two roof window frames 2a, 2b, and it is intended that this set of flashing members will be packed together with the underroof collar 1b having a reduced amount of material at the left-hand side collar member 13. In this way, this latter set will serve as a supplementary set, one or more of which can be combined with a standard set whenever roof windows are to be mounted side by side, and possibly also for matrix configurations.

[0067] As shown by the arrows in Fig. 11, the top flashing member 51, the bottom flashing member 52, and the left-hand side flashing member 53 of the first set I are mounted at the left-hand frame 2a in the same way as they would have been if used with a single roof window. Had the left-hand roof window been a single roof window, the right-hand side flashing member 54 of the first set I would have been mounted along the right-hand side frame member 24 of frame 2a. In this case, however, the right-hand side flashing member 54 is mounted at the right-hand side frame member 24 of the right-hand frame 2b, i.e. at the corresponding frame member of the second roof window, on the opposite side of the second roof window compared to its intended position on a single roof window.

[0068] The middle gutter flashing member 55 of the second set II is mounted between the two roof window frames 2a, 2b, covering the gap between them, and the

top flashing member 51 and the bottom flashing member 52 of the second set II are mounted at the top and bottom of the right-hand roof window frame 2b.

[0069] It is to be understood that it would work equally well to mount the top flashing member 51, the bottom flashing member 52, and the right-hand side flashing member 54 of the first set I at the right-hand frame 2b and the flashing members of the second set II at the left-hand frame 2a.

[0070] In the embodiment shown in Fig. 11, the first set I comprises a telescopic drainage gutter 58 supplied in an un-extended state and mounted in an extended state, where it extends along the top frame members 21 of both roof window frames 2a, 2b. In the mounted state the drainage gutter 58 is inclined with one end, here the right-hand end, located slightly lower in the slope direction D than the other end so that the water entering the drainage gutter will be drained off at the right-hand side of the group of roof windows. While Fig. 11 shows two drainage gutters it is to be understood that they represent one and the same drainage gutter shown in an un-extended state of delivery and in a mounted state.

[0071] In Fig. 12 three roof window frames 2a, 2b, 2c are arranged side by side and the flashing assembly further comprising a third set III of flashing members comprising one middle gutter flashing member 55, one top flashing member 51, one bottom flashing member 52 and a telescopic drainage gutter 58. For the sake of simplicity, the underroof collars are not shown in Figs 12-15, but it is to be understood that they will be mounted before mounting the flashing members.

[0072] The first set I of flashing members and the second set II of flashing members in Fig. 12 are mounted in the same way as described with reference to Fig. 4, i.e. with the right-hand side flashing member 54 of the first set I at the right-most side frame member 24. Here the right-most side frame member 24 is that of the frame 2c of the third roof window of the group, whereas it belonged to the frame 2b of the second roof window in Fig. 11.

[0073] The middle gutter flashing member 55, top flashing member 51, and bottom flashing member 52 of the third set III are mounted at the frame 2c of the third roof window as indicated by the arrows in Fig. 12, i.e. in the same way as described with reference to the second set II in Fig. 11.

[0074] The drainage gutter 58 of the third set III is depicted as a telescopic drainage gutter, but in this situation the telescopic function in not necessary, as the drainage gutter of the first set I is capable of extending along both the first frame 2a and the second frame 2b. The drainage gutter 58 of the third set III may therefore be mounted so that it extends along the top frame member of third frame 2c in an un-extended state. It is, however, also possible to provide the third set III of flashing members with a simpler, non-extendable drainage gutter, or to extend the telescopic drainage gutter of the third set to also extend over the second frame 2b and leave the drainage gutter of the first set I un-extended. The drainage gutters of the first set I and the third set III will typically be inclined in opposite directions, so that one drains off water at one side of the group of roof windows and the other drains off water at the other side. They may, however, also be arranged in continuation of each, possibly interconnected, so that they form one gutter. A connector piece for interconnecting drainage gutters may be provided, for example as part of the third set.

[0075] Another embodiment of a group of roof windows, represented by two frames 2a, 2d mounted one above the other in the slope direction D, is shown in Fig. 13. Here the second set II of flashing members comprises one middle gutter flashing member 59 and two side flashing members 53, 54. As shown by the arrows, the second set II is mounted at the uppermost frame 2d with the middle gutter flashing member 59 extending between the two frames 2a, 2d, and the top flashing member 51 of the first set I is mounted at the uppermost frame 2d. The method of mounting the flashing assembly thus corresponds to that described with reference to Fig. 11, except for the fact that it is the top flashing member 51 of the first set I being used at the second frame 2d instead of a side flashing member. Furthermore, the drainage gutter 58 of the first set can be mounted in its un-extended state, as it only needs to cover the width of one roof window.

[0076] A further embodiment of a group of roof windows, represented by three frames 2a, 2b, 2d mounted in a L-shaped configuration, is shown in Fig. 14. Here the top flashing member 51 and the drainage gutter 58 of the first set I of flashing members are mounted above the frame 2d in the same way as described with reference to Fig. 13, and the side flashing member 54 of the first set I is mounted at the frame 2b in the same way as described with reference to Fig. 11. The second set II is mounted at the frame 2d as described with reference to Fig. 13 and the third set III is mounted at the frame 2b as described with reference to Fig. 12. Here both drainage gutters 58 are mounted in the un-extended state as each will only have to cover the width of one roof window. It is, however, also possible to provide the third set without a drainage gutter if the drainage gutter of the first set is composed of two parts, which can be separated and used as single non-telescopic drainage gutters.

[0077] A still further embodiment of a group of roof windows, represented by four frames 2a, 2b, 2d, 2e mounted in a two by two matrix configuration, is shown in Fig. 15. Here the flashing assembly further comprises a fourth set IV of flashing members comprising two middle gutter flashing members 55, 19, one for use between roof windows mounted side by side and one for roof windows mounted one above another.

[0078] When mounting this flashing assembly, the first flashing member 54 of the first set I is mounted at the right-most side frame member 24 of the lowermost row of roof windows as described with reference to Fig. 11 and Fig. 12, here at the frame 2b, and the top flashing member 51 and the drainage gutter 58 of the first set I is mounted at the uppermost frame 2d of the left-hand col-

umn of roof windows as described with reference to Fig. 13 and Fig. 14, here at the frame 2d. As compared to the Fig. 14, the addition of a fourth roof window, here represented by frame 2e, entails that there is no longer room for the right-hand side flashing member 54 of the second set II and the top flashing member 51 of the third set III at the second and third frames 2b, 2d, and they are therefore used at the fourth frame 2e as shown by the arrows in Fig. 15. The remaining flashing members of the second and third sets are used as described with reference to Fig. 14, and the middle gutter flashing members 55, 19 of the fourth set IV are used at the fourth frame 2e where it faces the frames 2d and 2b, respectively.

[0079] As will be understood by the skilled person, any group of roof windows can be weatherproofed using a combination of the sets of flashing members shown in the drawing, as long as the frames 2a, 2b, 2c, 2d, 2e are aligned horizontally and in the slope direction D.

[0080] Fig. 16 shows five sets I, IIa, IIb, III, IV of flashing members, each packed in a separate packaging elements 8 together with an underroof collar, a separately packed drainage gutter 584, and six examples of packed weatherproofing assemblies 102, 103, 104, 105, 106, 107.

[0081] Set I comprises a top flashing member, a bottom flashing member, two side flashing members, possibly a drainage gutter, and a standard underroof collar.

[0082] Set IIa and set IIb each comprises one middle gutter flashing member, two other flashing members, and an underroof collar. In set IIa the two other flashing members are a top flashing member and a bottom flashing member, corresponding to the sets of flashing members marked II in Fig. 11 and Fig. 12, and one side collar member of the underroof collar comprises a reduced amount of material. In set IIb the two other flashing members are side flashing members, corresponding to the sets of flashing members marked II in Fig. 13, Fig. 14, and Fig. 15, and either the top collar member or the bottom collar member of the underroof collar comprises a reduced amount of material.

[0083] Set III comprises a middle gutter flashing member, a top flashing member, a bottom flashing member, possibly a drainage gutter, and one side collar member of the underroof collar comprises a reduced amount of material.

[0084] Set IV comprises two middle gutter flashing members, one for use between roof windows mounted side by side and one for roof windows mounted one above another, and one side collar member and either the top collar member or the bottom collar member of the underroof collar comprises a reduced amount of material.

[0085] The first weatherproofing assembly 502 is composed of sets I and IIa, corresponding to the situation shown in Fig. 11.

[0086] The second weatherproofing assembly 504 is composed of sets I and IIb, corresponding to the situation shown in Fig. 13.

[0087] The third weatherproofing assembly 503 is composed of sets I, IIa, and III, corresponding to the situation shown in Fig. 12.

[0088] The fourth weatherproofing assembly 505 is composed of sets I, IIb, and III, corresponding to the situation shown in Fig. 14.

[0089] The fifth weatherproofing assembly 506 is composed of sets I, IIb, III, and IV, corresponding to the situation shown in Fig. 15.

[0090] The sixth weatherproofing assembly 507 is composed of set I, two other sets, and a separately packed drainage gutter 584. This is intended to illustrate that set III does not need to include a drainage gutter, and that it is also possible to provide the first set I without a drainage gutter. As drainage gutters are only used with some roofing materials and in certain roof structures, this may allow a broader use of set I and/or set III, and avoid or reduce scrapping of drainage gutters.

[0091] The separately packed sets forming a weatherproofing assembly may be interconnected using straps 9, as shown on the last weatherproofing assembly 507, or an adhesive.

[0092] In Fig. 7 the sets I, IIa, IIb, III, IV are shown as being packed in the packaging elements of substantially the same size. This need not be the case, but it may facilitate handling of the flashing assemblies.

[0093] Above the invention has been described primarily with reference to new installations of groups of roof windows, but it is to be understood that it is also advantageous when adding one or more new roof windows adjacent to an existing roof window. In the example shown in Fig. 2, the left-hand frame 2a might represent an existing roof window mounted with a standard flashing assembly, which would then constitute the first set I. In that case it would only be necessary to de-mount the right-hand side flashing member 54 and move it to the right-hand side of the frame 2b of the new roof window and then mount the second set II of flashing members as well as possibly extending the drainage gutter 58.

Claims

1. A weatherproofing assembly for use with a group of roof windows comprising at least two roof windows mounted adjacent to each other in a sloped roof structure having a slope direction, where each of said roof windows comprises a frame comprising a top frame member and a bottom frame member both extending horizontally in the mounted state of the roof window and two side frame members extending in the slope direction in the mounted state of the roof window, said weatherproofing assembly comprising a first underroof collar, a second underroof collar, and a flashing assembly,

   where each underroof collar comprises a top collar member configured for extending along the top frame member, a bottom collar member con-

figured for extending along the bottom frame member, and two side collar members each configured for extending along a side frame member, said collar members being made from an underroof collar material, where said top collar member, said bottom collar member, and said side collar members delimit a collar opening, and where each collar member has a length direction extending along the collar opening and a width direction extending perpendicular to the length direction, away from the collar opening, and

where said flashing assembly comprises at least one top flashing member configured for extending along a top frame member, at least one bottom flashing member configured for extending along a bottom frame member, at least two side flashing members each configured for extending along a side frame member, and at least one middle gutter flashing member configured for extending between roof windows,

characterised in

that the flashing assembly comprises a first set of flashing members including one top flashing member, one bottom flashing member, and two side flashing members corresponding to those used in the installation of a single roof window, and a second set of flashing members including one middle gutter flashing member and a sub-set of two other flashing members, said sub-set being chosen from the group comprising an over-under sub-set including one top flashing member and one bottom flashing member and a sides sub-set including two side flashing members, and

that at least one collar member of the second underroof collar comprises a reduced amount of collar material compared to the corresponding collar member of the first underroof collar.

2. A weatherproofing assembly according to claim 1, where the at least one collar member of the second underroof collar comprising a reduced amount of collar material has a reduced width compared to the width of the corresponding collar member of the first underroof collar.

3. A weatherproofing assembly according to claim 1, where the side collar members of the first underroof collar are made with a surplus of material, such as a pleating, and where the at least one collar member of the second underroof collar comprising a reduced amount of collar material is side collar member without such a surplus of material.

4. A weatherproofing assembly according to one or more of the preceding claims, further comprising a third underroof collar and where the flashing assembly further comprises a third set comprising one middle gutter flashing member and two other flashing members.

5. A weatherproofing assembly according to claim 4, where the two other flashing members of the third set are a top flashing member and a bottom flashing member or two side flashing members.

6. A weatherproofing assembly according to one or more of the preceding claims, further comprising a fourth underroof collar and where the flashing assembly comprises a fourth set contained in a fourth packaging element and comprising two middle gutter flashing members, one for use between roof windows mounted side by side and one for roof windows mounted one above another.

7. A weatherproofing assembly according to one or more of the preceding claims, where at least one of the first set of flashing members and the third set of flashing members comprises a drainage gutter.

8. A weatherproofing assembly according to claim 7, where at least one drainage gutter is a telescopic drainage gutter configured for extending along the top frame member of one roof window in an un-extended state and for extending along the top frame members of two roof windows in an extended state.

9. A method for weatherproofing a group of roof windows comprising at least two roof windows mounted adjacent to each other in a sloped roof structure having a slope direction, where each of said roof windows comprises a frame comprising a top frame member and a bottom frame member both extending horizontally in the mounted state of the roof window and two side frame members extending in the slope direction in the mounted state of the roof window, said method comprising the steps of:

a) mounting a first underroof collar at a first roof window with a top collar member extending along the top frame member of a first roof window, a bottom collar member extending along the bottom frame member, and side collar members extending along the side frame members, said first underroof collar being made from an underroof collar material,

b) mounting a second underroof collar at a second roof window mounted adjacent to the first roof window with a top collar member extending along the top frame member of a second roof window, a bottom collar member extending along the bottom frame member, and side collar members extending along the side frame members, said collar members being made from an underroof collar material, and said second un-

derroof collar having at least one collar member with a reduced amount of collar material compared to the corresponding underroof collar of the first underroof collar and being arranged so that said at least one collar member with a reduced amount of collar material extends along a frame member of the second roof window facing the first roof window,

c) providing a first set of flashing members including one top flashing member, one bottom flashing member, and two side flashing members corresponding to those used in the installation of a single roof window, and a second set of flashing members including one middle gutter flashing member and a sub-set of two other flashing members, said sub-set being chosen from the group comprising an over-under subset including one top flashing member and one bottom flashing member and a sides sub-set including two side flashing members, and

d) mounting three flashing members of the first set of flashing members at the first roof window and one flashing member of the first set at the second roof window at the frame member of the second roof window opposite the frame member facing the first roof window, and

e) mounting the second set of flashing members at the second roof window with the middle gutter flashing member extending along the frame member of the second roof window facing the first roof window.

10. A method according to claim 9, further comprising f) mounting a third underroof collar at a third roof window mounted adjacent to at least one of the first roof window and the second roof window, and g) mounting a third set of flashing members comprising one middle gutter flashing member, and two other flashing members.

11. A method according to claim 9 or 10, further comprising h) mounting at least one drainage gutter along the top frame member of at least one roof window.

12. A method according to claim 11, further comprising:

i) depending on the configuration of the group of roof windows, choosing between a first flashing configuration, where each of the telescopic drainage gutter of the first set of flashing members and the drainage gutter of the third set of flashing members extends along the top frame member of one roof window, second flashing configuration, where the telescopic drainage gutter of the first set of flashing members extends along the top frame members of two roof windows and the drainage gutter of the third set of flashing members extends along the top frame member of one roof window, and a third flashing configuration, where the telescopic drainage gutter of the first set of flashing members extends along the top frame members of two roof windows and where the drainage gutter of the third set of flashing members is not in use,

j) if having chosen the first flashing configuration in step i), mounting the telescopic drainage gutter of the first set of flashing members in an unextended state, and, if having chosen the second flashing configuration or the third flashing configuration in step i), mounting the telescopic drainage gutter of the first set of flashing members in an extended state, and

k) if having chosen the first flashing configuration or the second flashing configuration in step i), mounting the drainage gutter of the third set of flashing members

13. A method according to claim 11 and 12, where at least one drainage gutter is a telescopic drainage gutter, which is brought into an extended state before or during step j) or k).

14. A method according to one or more of claims 9-13, further comprising

l) interconnecting underroof collars after at least one of step b) and step c).

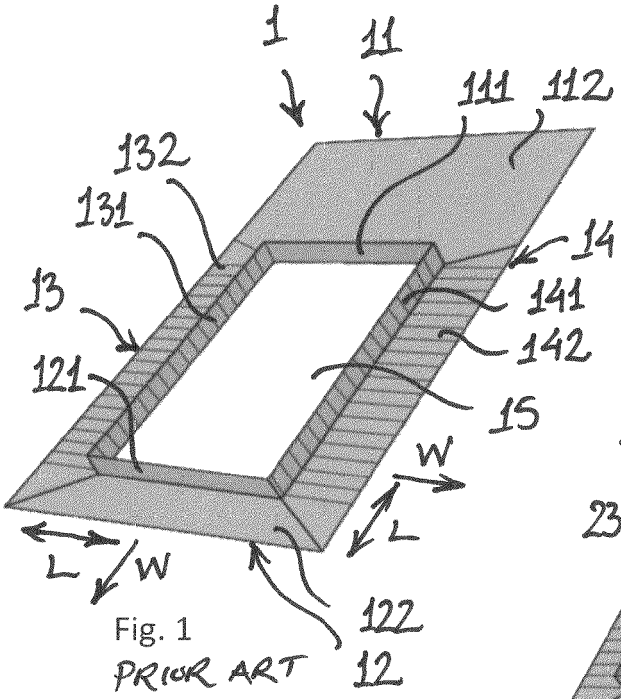


Fig. 1
PRIOR ART

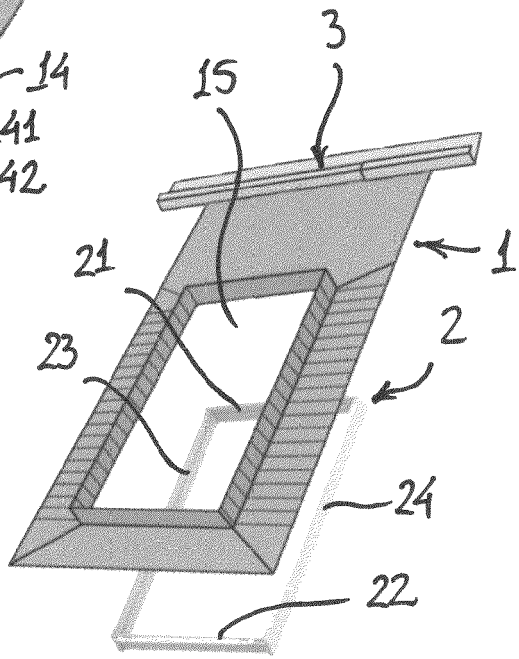


Fig. 2
PRIOR ART

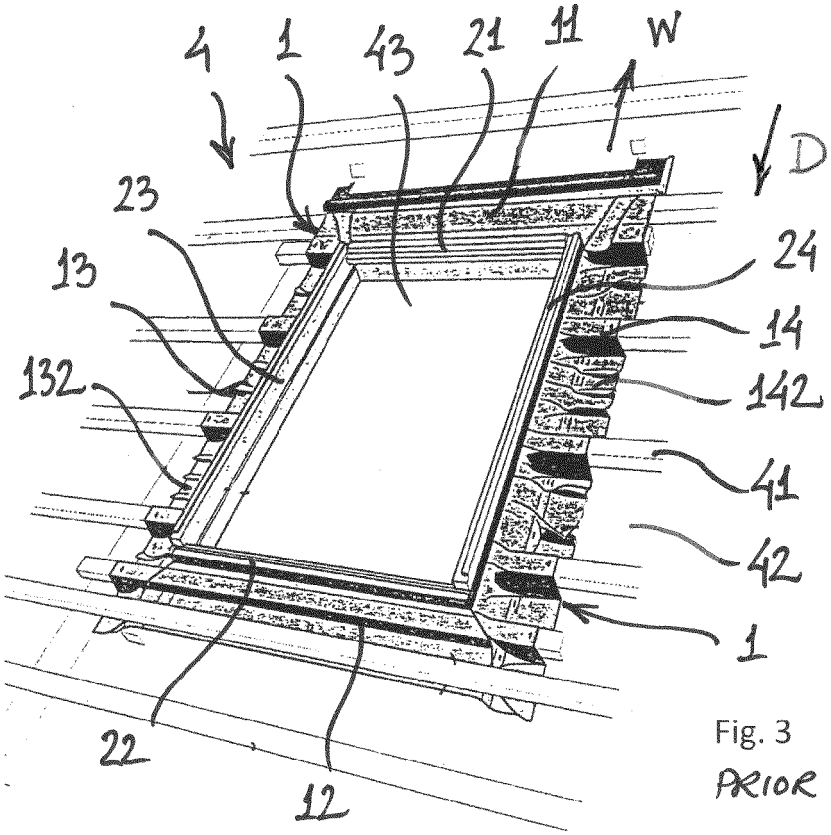


Fig. 3
PRIOR ART

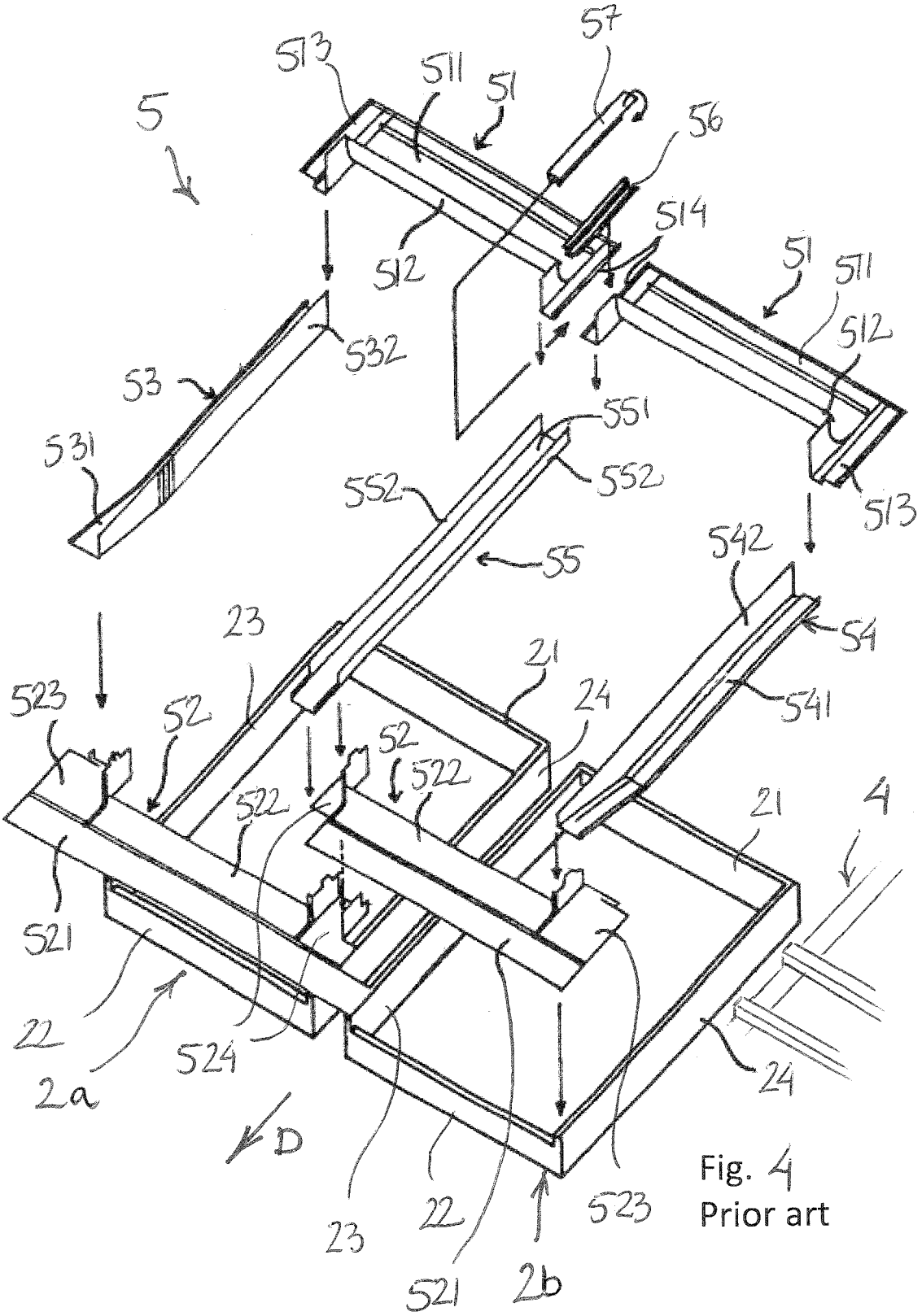


Fig. 4
Prior art

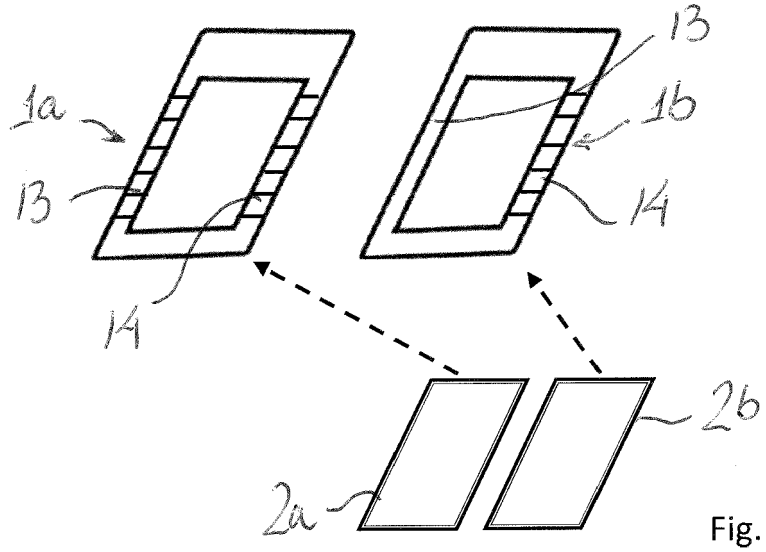


Fig. 5

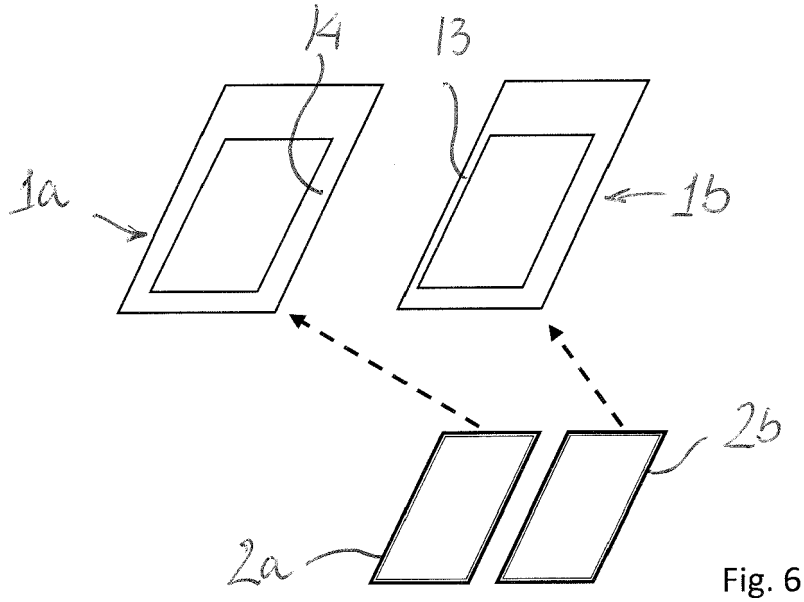
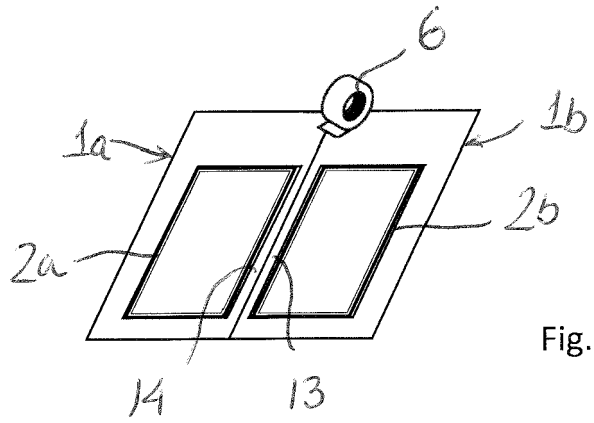


Fig. 6



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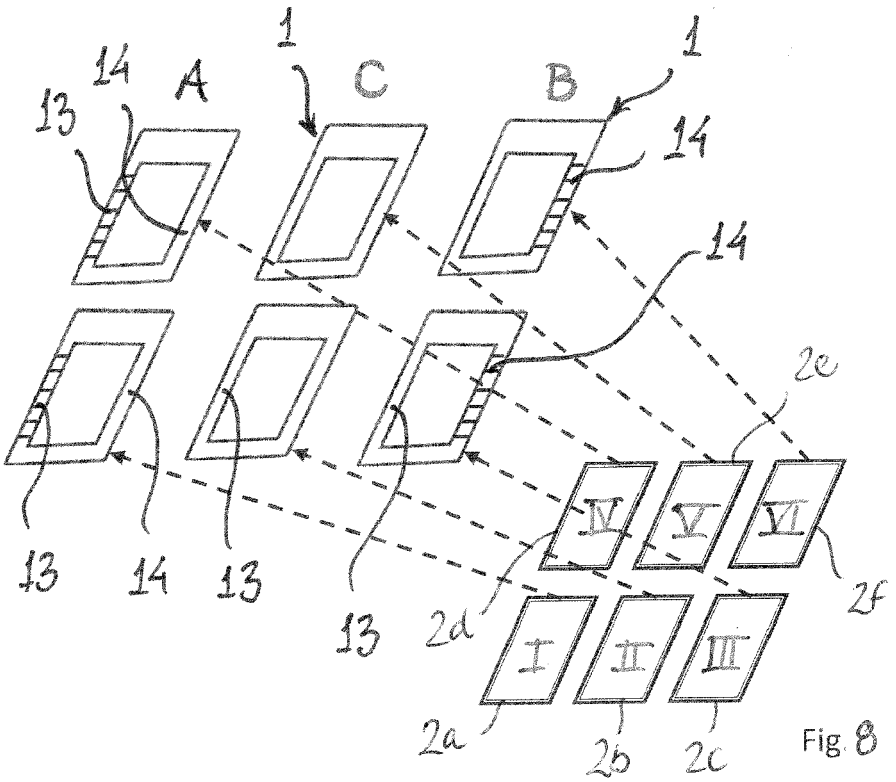
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Fig. 8

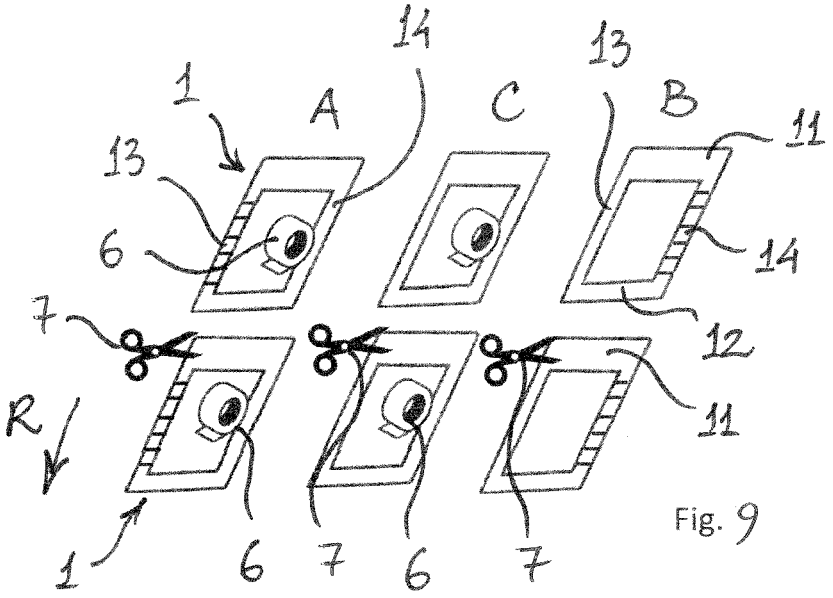
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Fig. 9

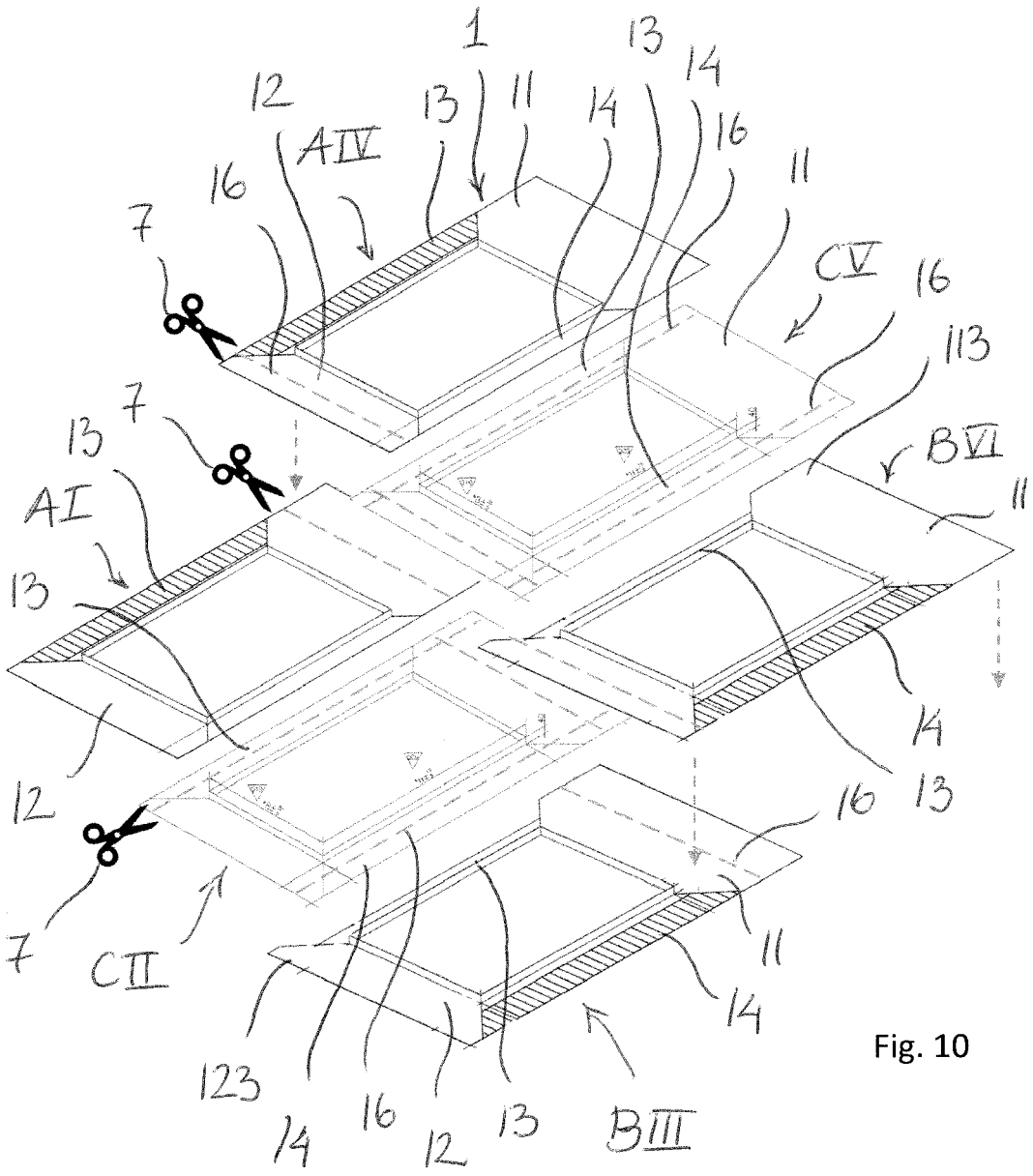
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Fig. 10

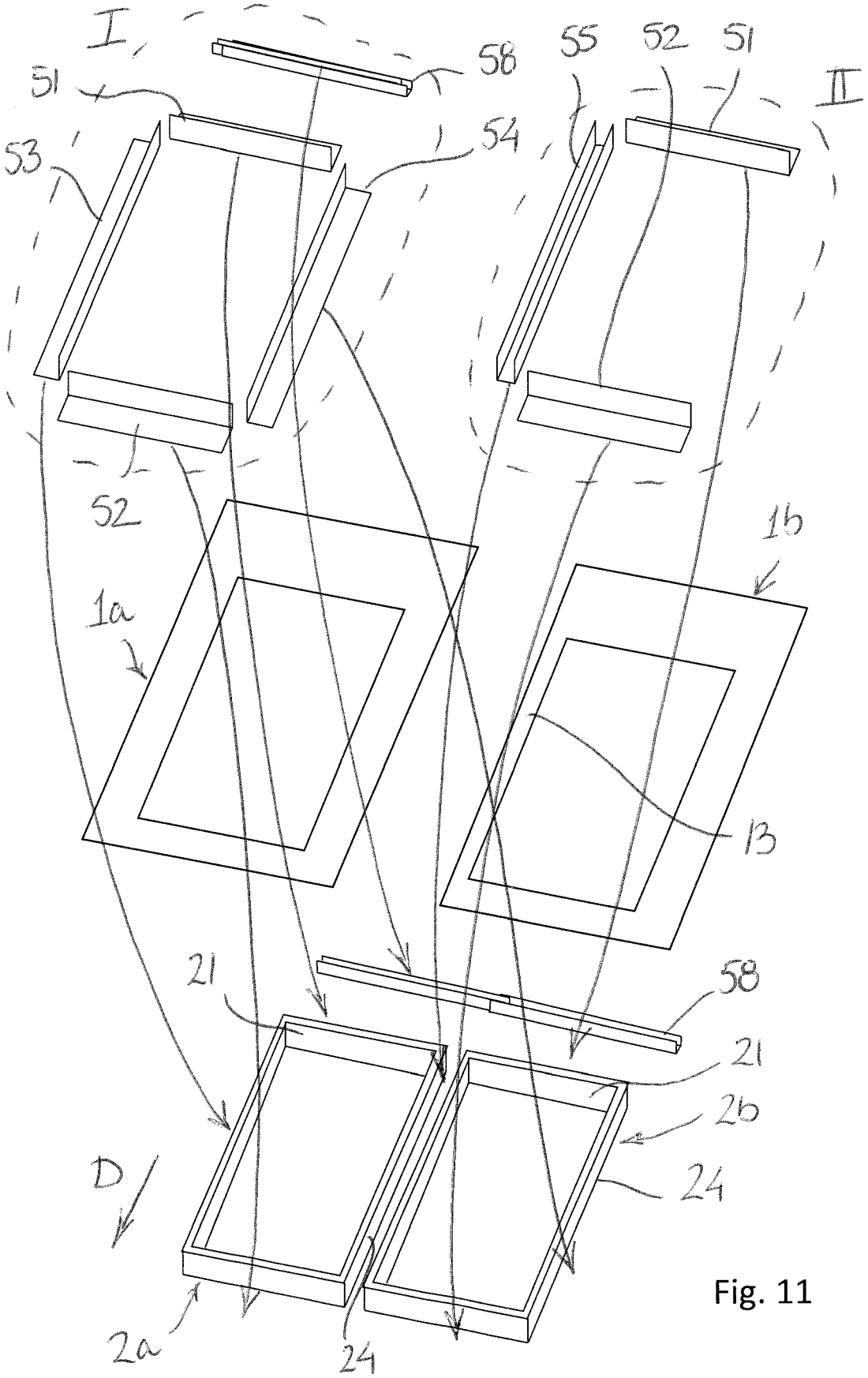

Fig. 11

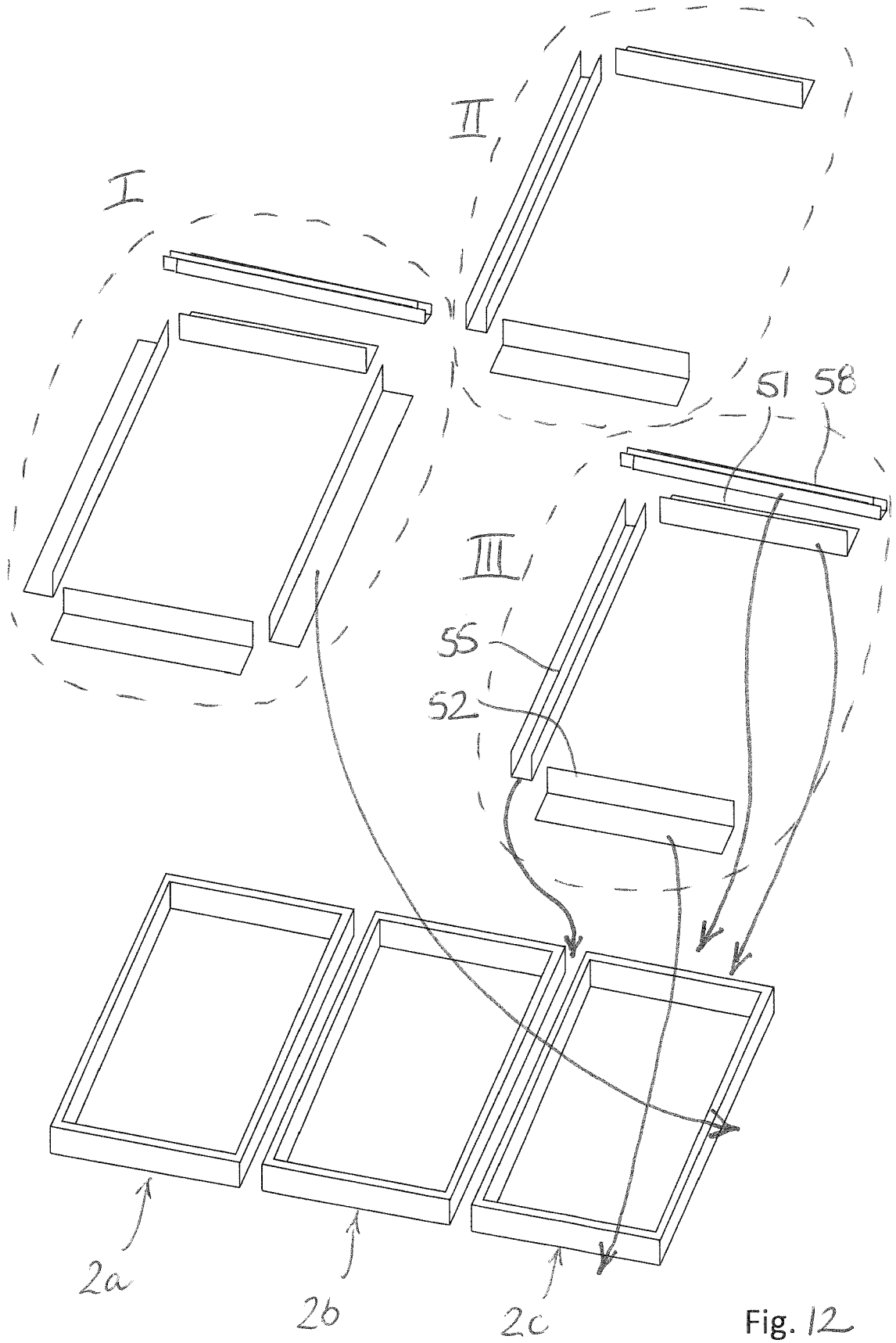

Fig. 12

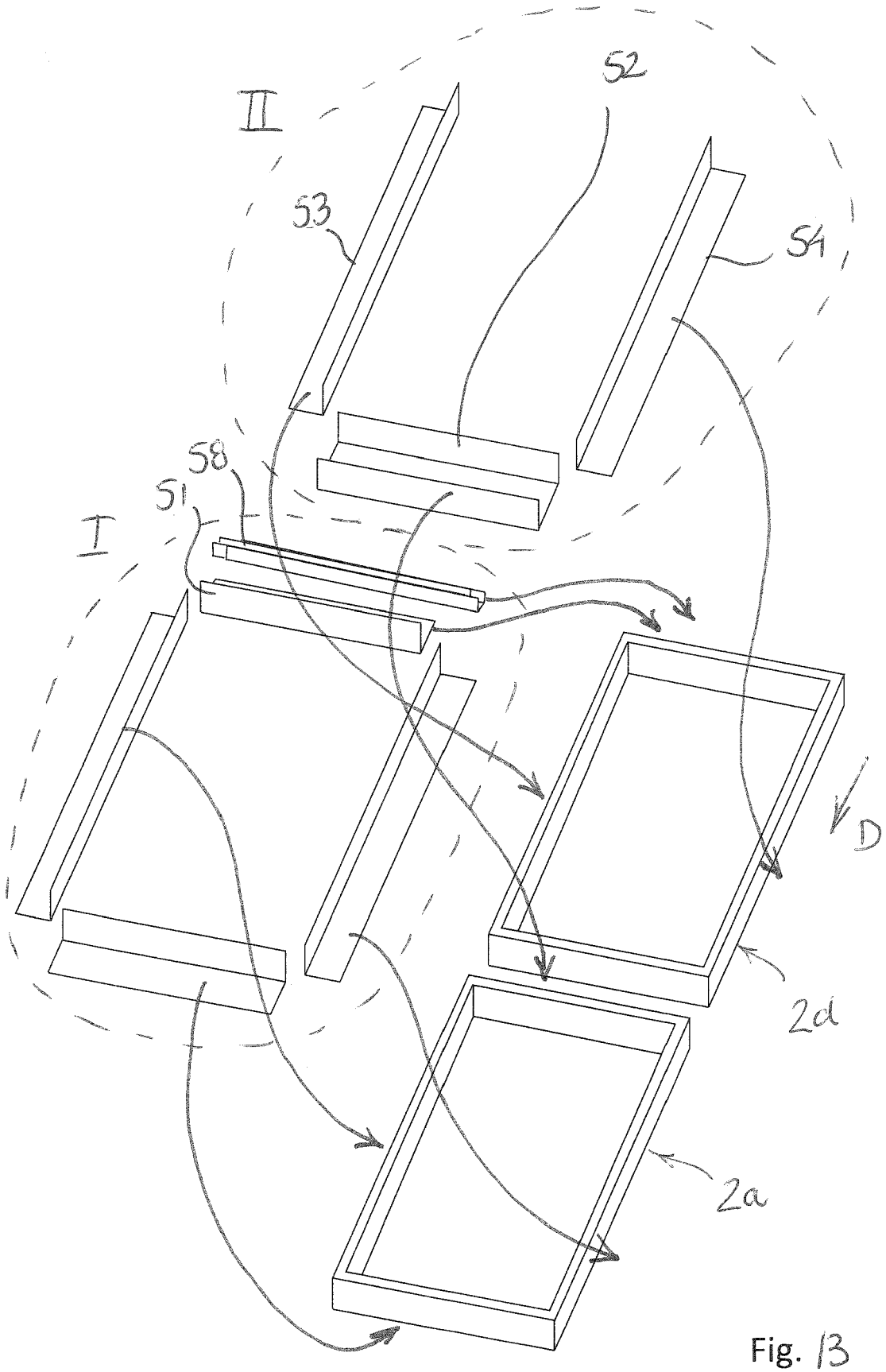

Fig. 13

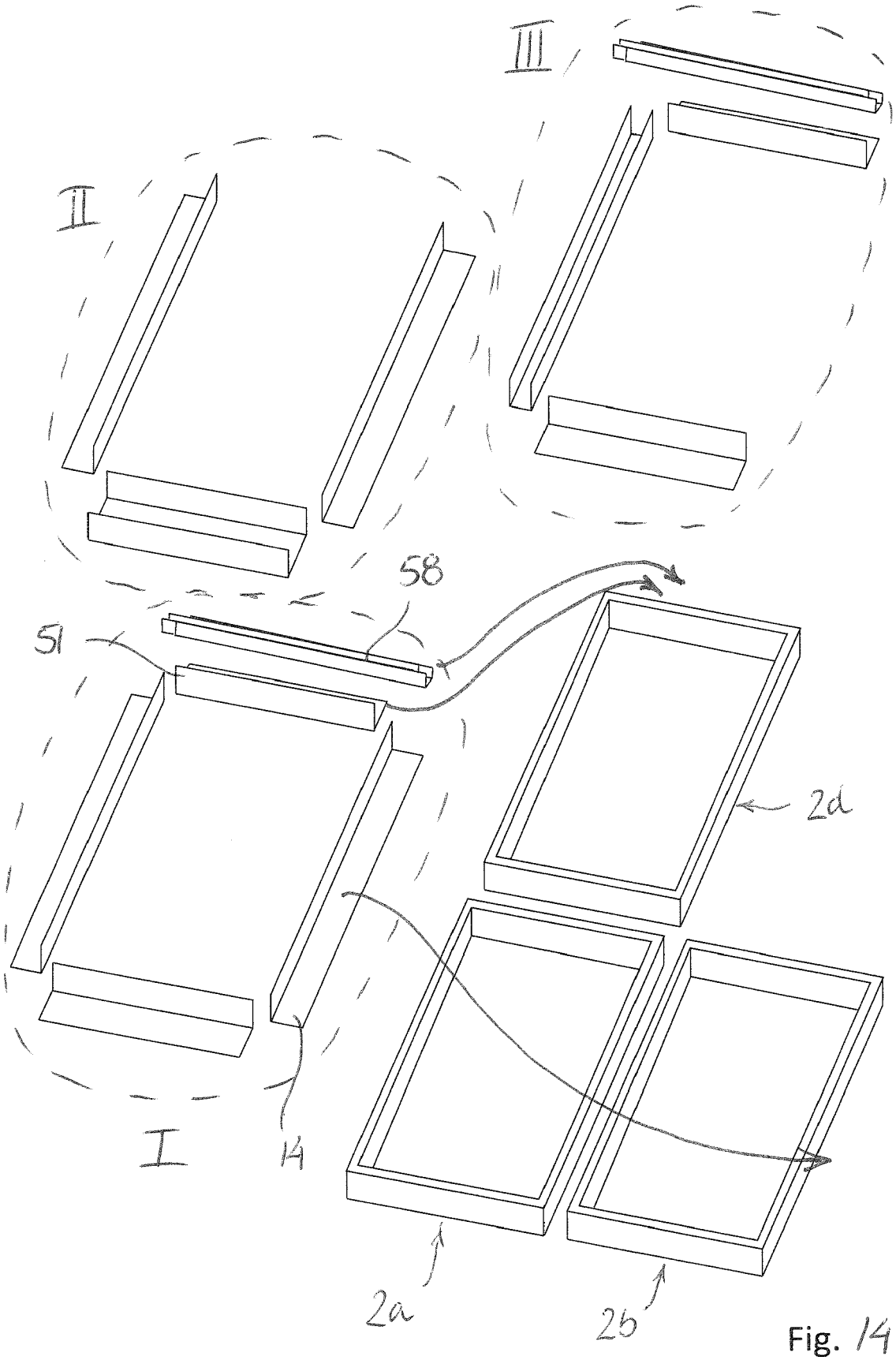

Fig. 14

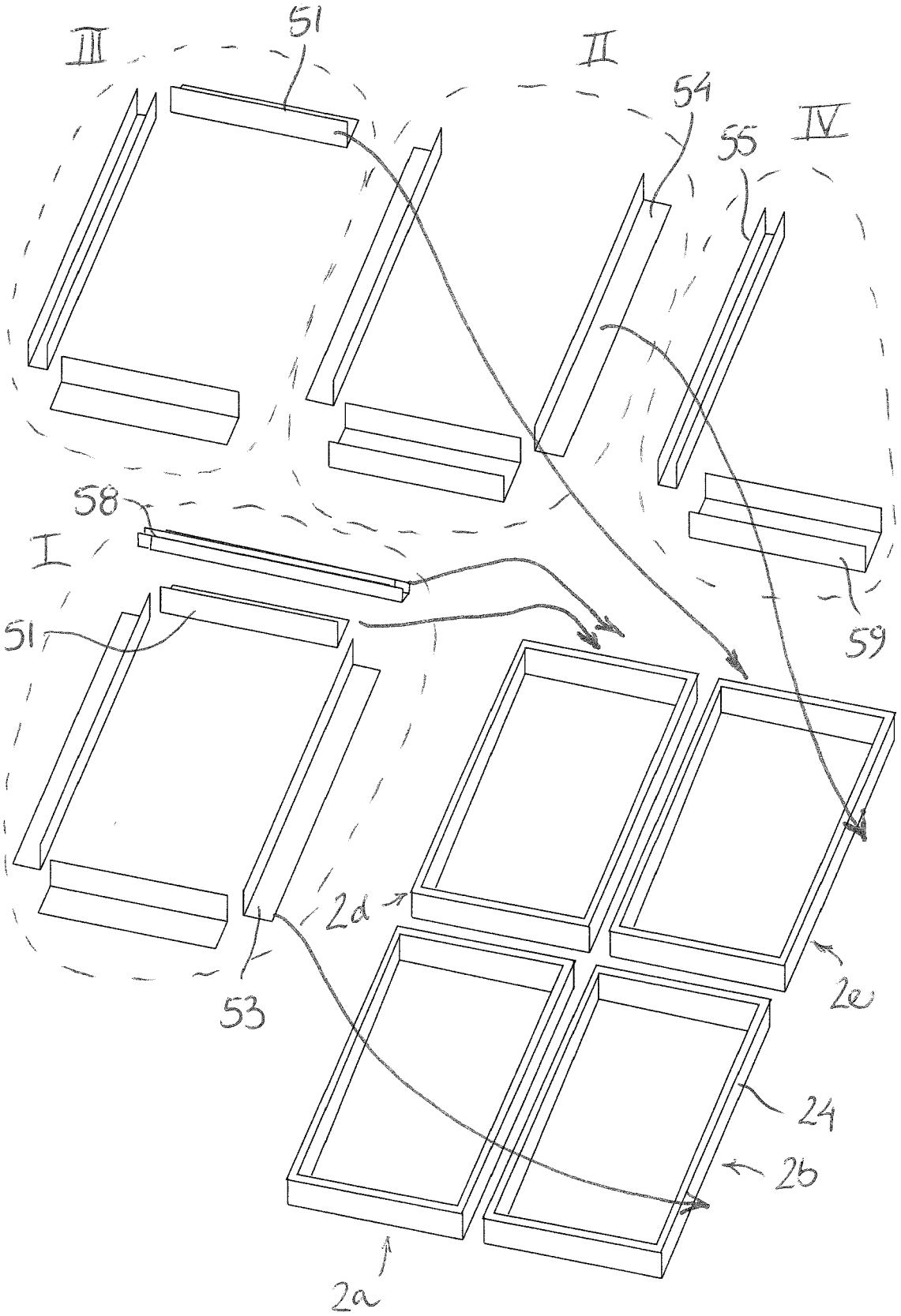

Fig. 15

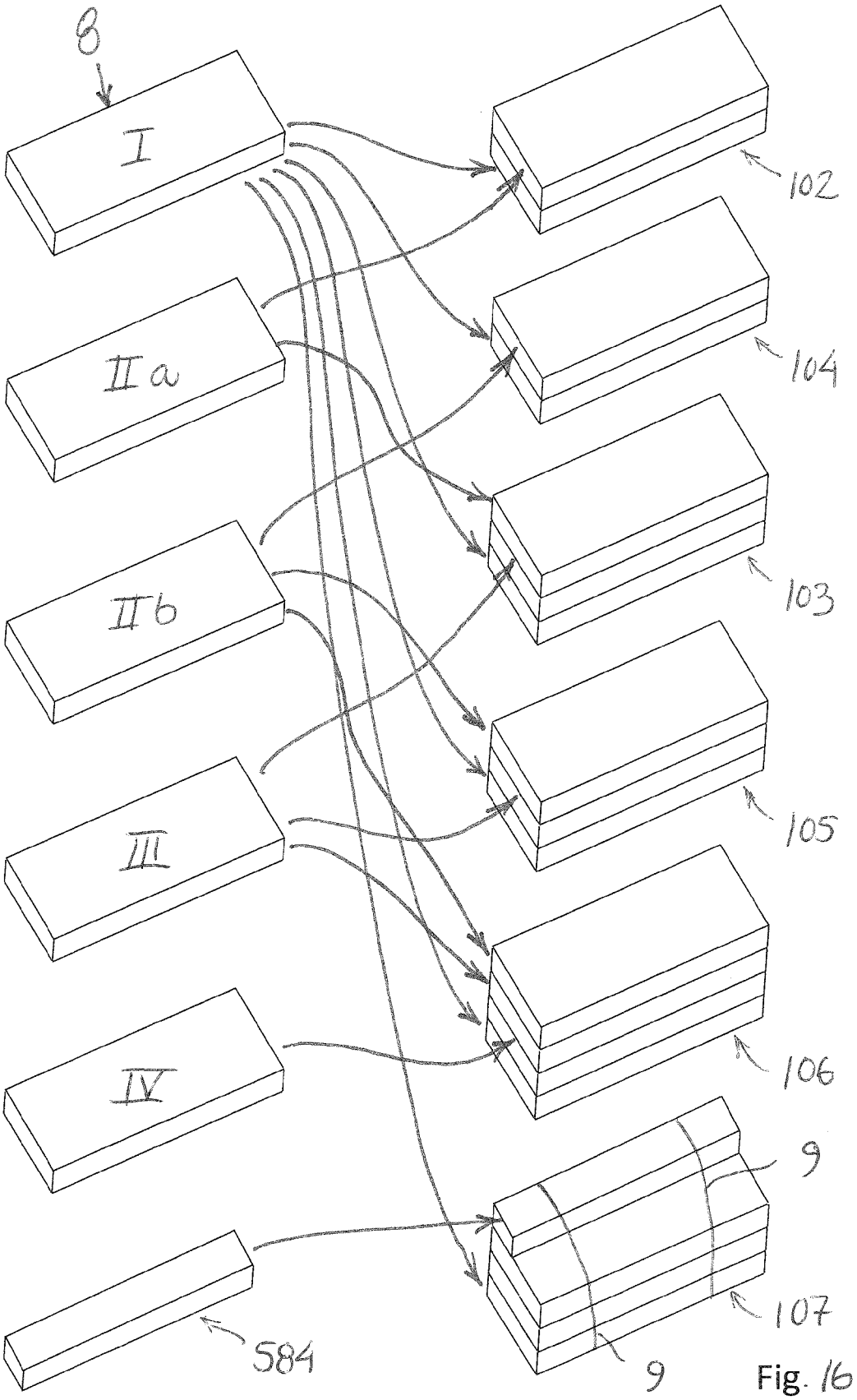

Fig. 16

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EUROPEAN SEARCH REPORT

Application Number
EP 24 15 8070

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	Velux A/s: "VELUX Side-by-side installation pack EK4021-E", , 2022, pages 1-20, XP093173261, Retrieved from the Internet: URL:https://contenthub.velux.com/api/public/content/product-guide_454729 * page 2 *	1-14	INV. E04D13/03 E04D13/147
X	Velux: "Skylights - Roof Windows - Sun Tunnels - Blinds", , 2011, pages 1-96, XP093178378, Retrieved from the Internet: URL:https://www.rainbowwindows.com.au/wp-content/uploads/VELUX-Product_Information.pdf * page 3.12 - page 3.16 *	1-14	
A	EP 3 404 164 B1 (VKR HOLDING AS [DK]) 6 October 2021 (2021-10-06) * paragraph [0017] *	1-14	TECHNICAL FIELDS SEARCHED (IPC) E04D
X	Velux Group: "Handboek voor de installatie van VELUX dakvensters", , 2014, pages 1-89, XP055500356, Retrieved from the Internet: URL:https://velcdn.azureedge.net/~/media/marketing/uk/brochures/installer_handbook.pdf [retrieved on 2018-08-16] * page 41 - page 42 *	1-14	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	25 June 2024	Demeester, Jan

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25-06-2024

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 3404164 B1	06-10-2021	CN 212317336 U	08-01-2021
		DK 201770342 A1	19-12-2018
		EP 3404164 A1	21-11-2018
		EP 3625406 A1	25-03-2020
		EP 3725971 A1	21-10-2020
		HU E057699 T2	28-05-2022
		HU E058282 T2	28-07-2022
		LT 3625406 T	10-06-2022
		LT 3725971 T	10-06-2022
		PL 3404164 T3	07-02-2022
		PL 3625406 T3	06-06-2022
		PL 3725971 T3	01-08-2022
		US 2020181912 A1	11-06-2020
		WO 2018210937 A1	22-11-2018

EPO FORM P0459

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Patent documents cited in the description

- EP 0994992 B1 **[0006]**
- EP 1774118 B1 **[0006]**
- EP 1896673 B1 **[0006]**
- EP 2284329 A2 **[0006]**
- EP 0087647 A1 **[0007]**