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(54) **A PACKED FLASHING ASSEMBLY FOR USE WITH A GROUP OF ROOF WINDOWS AND A METHOD FOR WEATHERPROOFING A GROUP OF ROOF WINDOWS**

(57) A packed flashing assembly (1) for use with a group of roof windows comprising at least two roof windows mounted adjacent to each other in a sloped roof structure (3) is disclosed. The flashing assembly comprises a first set (I) of flashing members including one top flashing member (11), one bottom flashing member (12), and two side flashing members (13, 14) contained in a first packaging element (4), and a second set (II) of flashing members including one middle gutter flashing member (15, 19) and two other flashing members (11, 12; 13, 14) contained in a second packaging element. When mounting the flashing assembly at least three flashing members of the first set are mounted at a first roof window, and at least one flashing member of the first set is mounted at a second roof window, and the second set is mounted at the second roof window.

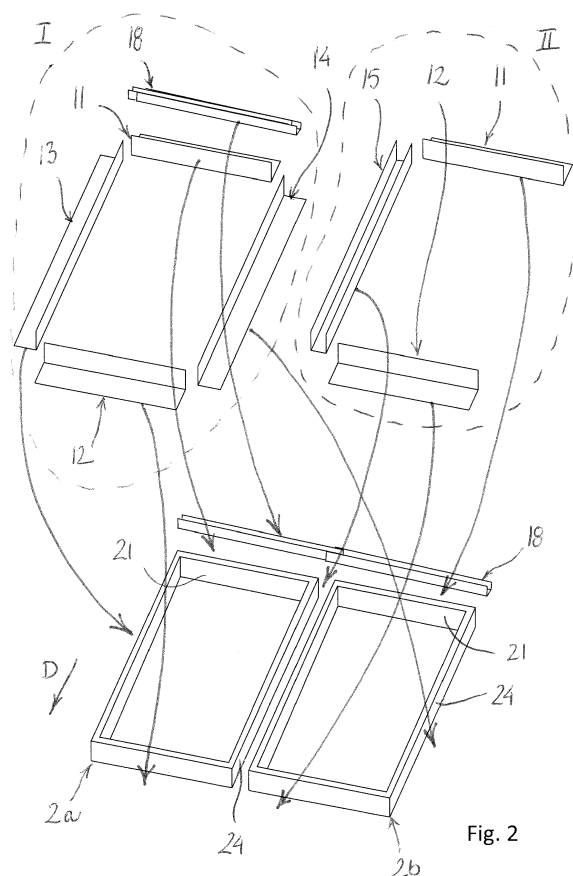


Fig. 2

Description

Technical Field

[0001] The present invention relates to a packed flashing 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, where said packed flashing assembly comprises packaging elements and 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.

[0002] The invention further relates to 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 and two side frame members extending in the slope direction, where a flashing assembly is mounted with at least one top flashing member extending along a top frame member, at least one bottom flashing member extending along a bottom frame member, at least two side flashing members extending along a side frame member, and at least one middle gutter flashing member extending between roof windows.

[0003] 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 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 be located higher than the other roof window in a vertical direction.

Background Art

[0004] When roof windows are mounted in a roof, an opening is cut in the roof structure, and the roofing, which may be made from tiles or like roofing material, is interrupted. After mounting of the roof windows in the opening, a flashing assembly is used for sealing the joints between the roof windows and the roof. 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 the

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. 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. 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.

[0005] Today most roof windows are sold as standardized products, which are individually packed and kept on stock for delivery upon demand. Likewise, 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 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.

[0006] 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.

[0007] 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.

Summary of Invention

[0008] With this background, it is an object of the invention to provide a packed flashing assembly by which it is possible to reduce or eliminate scrapping of flashing members without causing any considerable increase in the number of items to be kept on stock.

[0009] In a first aspect of the invention this and further objects are achieved with a packed flashing assembly of the kind mentioned in the introduction which is furthermore characterised in that the packed flashing assembly comprises a first set of flashing members including one top flashing member, one bottom flashing member, and two side flashing members contained in a first packaging element, and a second set of flashing members including one middle gutter flashing member and two other flashing members contained in a second packaging element.

[0010] In a second aspect of the invention the above mentioned and further objects are achieved with a method of the kind mentioned in the introduction which is furthermore characterised in that at least three flashing members of a first set of flashing members, which first set includes one top flashing member, one bottom flashing member, and two side flashing members, are mounted at a first roof window, and at least one flashing member of the first set is mounted at a second roof window, and that a second set of flashing members including one middle gutter flashing member and two other flashing members supplied in a separate packaging element is mounted at the second roof window.

[0011] The first set of flashing members corresponds to a standard flashing assembly for a single roof window, and the second set of flashing members include the additional flashing members needed for mounting two roof windows adjacent to each other. The two other flashing members may be either two side flashing members or a top flashing member and a bottom flashing, for use with roof windows mounted either one above the other in the slope direction or side by side, respectively.

[0012] When mounting the flashing assembly, the flashing members of the first set are mounted at the first roof window, except for at the frame member facing the second roof window. The flashing member, which would have been used at this frame member, had the first set been used with a single roof window, is mounted at the corresponding frame member at the opposite side of the second roof window, and the second set of flashing members is used between the roof windows and along the remaining frame members of the second roof window.

[0013] In this way, only the second set of flashing members needs to be kept on stock as a separate item, whereas the first set is a standard flashing assembly for a single window. While this may not reduce the number of items to be kept on stock, the second set may replace a considerably larger specialized flashing assembly for two roof windows mounted adjacent to each other. This may reduce the needed storage space and may also reduce costs in that less components need to be manufactured

for storage.

[0014] Another advantage is that flashing members may be reused when retrofitting a new roof window next to an existing one. The flashing member facing the intended position of the new roof window is simply removed and reused at the corresponding frame member of the new roof window, and only the second set of flashing members then needs to be supplied.

[0015] For use with a group of three roof windows, the packed flashing assembly may further comprise a third set of flashing members contained in a third packaging element and comprising one middle gutter flashing member and two other flashing members, and further similar sets may be provided for further roof windows.

[0016] For completion of a group of roof windows mounted in a matrix constellation, 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, may be provided.

[0017] In this way, a flashing assembly for any group of roof windows may be provided by combining a standard flashing assembly for a single roof window with only a few supplementary sets, picking one or more of each of the supplementary sets depending on the constellation of the group. As the supplementary sets are packed separately, they can be kept on stock and combined quickly and easily, for example by interconnecting them using straps or adhesive. While this may increase the number of items to be kept on stock, this is considered acceptable in view of the highly increased versatility and the decreased scrapping of flashing members.

[0018] The packaging elements may for example be cardboard boxes, which are widely used for packaging flashing assemblies as they are easy to handle and provide good protection of the flashing members. It is, however, also envisaged that the packaging elements use for at least the second, third and fourth sets, also referred to as the supplementary sets, are paper bags or wrappings to reduce the material consumption. The supplementary sets needed for a particular group of roof windows may then be picked from the storage and collected in a cardboard box for protection during transport to the installation site or simply attached to a cardboard box containing the first set of flashing members. The fact that sets of flashing members are contained in separate packaging elements does not exclude that all sets can subsequently be arranged in one common packaging element, such as a cardboard box.

[0019] In one embodiment, the second set includes a middle gutter flashing member configured for extending between roof windows mounted one above another and two side flashing members, and the third set includes a middle gutter flashing member configured for extending between roof windows mounted side by side, a top flashing member, and a bottom flashing. The resulting flashing assembly will be configured for use with three roof win-

dows mounted in an L-shaped configuration.

[0020] In one embodiment, the first set further comprises 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. A drainage gutter is mounted along the top frame member of a roof window with a slight inclination and used to drain water coming off an underroof above the roof window onto an intact part of the underroof extending along a side of the roof window. With a telescopic drainage gutter included in the first set of flashing members, the drainage gutter may be extended to cover the width of two roof windows, and further drainage gutters are then not necessary as long as a group of roof windows does not include more than two roof windows side by side. If the group of roof windows comprises three or more roof windows side by side, such as three roof windows in a row, the third set of flashing members may include a drainage gutter, and if this drainage gutter is also telescopic, a total of four roof windows mounted side by side may be covered. In a matrix constellation, which includes three or more roof windows mounted side by side, the fourth set may also include a drainage gutter, which may also be telescopic. By providing a drainage gutter only in some of the sets, the scrapping of drainage gutters may be reduced.

[0021] For use in an L-shaped configuration, it may be advantageous that the telescopic drainage gutter provided with the first set is composed of two parts, which can be separated and used individually, one over each of two roof windows.

[0022] Drainage gutters may also or alternatively be provided separately, as they are usually not dependent on the installation depth of the roof windows and the type of roofing used. Such a separately provided drainage gutter may be provided in a packaging element matching those of the sets of flashing members described above. In this way the drainage gutter may serve as a fifth supplementary set or unit, which, on demand, can easily be combined with appropriate sets of flashing members as described above. Furthermore, drainage gutters are not necessary for all installation situations and by providing them separately, scrapping of drainage gutter may be avoided.

[0023] The flashing members will be at least partially visible in the mounted state. They may for example be made from aluminium, cobber, steel, a polymer, or a combination of polymers, and they may be lacquered.

[0024] The drainage gutter will be hidden underneath the roofing above the roof window and will have to carry the load of the roofing material and possible traffic on the roof, for example in connection with cleaning and maintenance. It may for example be made from steel or a polymer.

[0025] Side flashing members may be identical, so that they may be used at either side of a roof window, or they may be configured for use either at a right-hand side or

at a left-hand side of a roof window. Top flashing members and bottom flashing members can typically only be used in one position relative to a roof window and the same applies to middle gutter flashing members.

[0026] In one embodiment, a 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. Such a middle gutter flashing member may be mounted by arranging one component along a frame member of one roof windows, and then arranging the other component along a frame member of the other roof windows.

[0027] In one embodiment two components of a middle gutter flashing member are interconnected in a telescopic manner, allowing the middle gutter flashing member to adapt to the distance between the two roof windows. A telescopic interconnection may be established during mounting of the middle gutter flashing member by insertion one component into the other. A telescopic middle gutter flashing member may initially be mounted in an un-extended state and then extended until in contact with the frames of both roof windows.

[0028] 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

[0029] In the following description embodiments of the invention will be described with reference to the schematic drawings, in which

Fig. 1 is a perspective schematic view of two roof windows mounted side by side with a prior art flashing assembly,

Fig. 2 is a perspective schematic view of two roof windows mounted side by side with a flashing assembly,

Fig. 3 is a perspective schematic view of three roof windows mounted side by side with a flashing assembly,

Fig. 4 is a perspective schematic view of two roof windows mounted one above the other with a flashing assembly,

Fig. 5 is a perspective schematic view of three roof windows mounted in a L-shaped configuration with a flashing assembly,

Fig. 6 is a perspective schematic view of four roof windows mounted in a two by two matrix constellation with a flashing assembly, and

Fig. 7 is a perspective schematic view of several possible combinations of packed sets of flashing members into packed flashing assemblies.

Description of Embodiments

[0030] Referring initially to Fig. 1, a prior art flashing

assembly 1 for use with two roof windows mounted adjacent to each other side by side in a sloped roof structure 3 is shown. As the construction of the roof windows are not of importance, they are here represented only by two frames 2, 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 of the roof structure in the mounted state. Likewise, the roof structure 3 is represented only by a single rafter and a few laths and the slope direction is indicated by the arrow D.

[0031] The flashing assembly 1 comprises two top flashing members 11 each configured for extending along a top frame member 21, two bottom flashing members 12 each configured for extending along a bottom frame member 22, two side flashing members 13, 14 each configured for extending along a side frame member 23, 24, and a middle gutter flashing member 15 configured for extending between the two roof windows. Common to all flashing members is that they comprise an outer portion 111, 121, 131, 141, 151 configured for extending substantially in plane with the roof structure and at least one inner portion 112, 122, 132, 142, 152 configured for extending up along a frame member of a roof window.

[0032] The top flashing members 11 and the bottom flashing members 12 are provided with corner sections, 113, 114, 123, 124 configured for establishing an overlap with the side flashing members 13, 14 and the middle gutter flashing member 15, and cover members 16, 17 are provided for interconnecting the corner sections 114 of the top flashing members above the middle gutter flashing member.

[0033] In Fig. 1, the flashing assembly 1 is configured for use with roof windows mounted deep in a roof structure, and the side flashing members are configured specifically for use at a left-hand side frame member 13 and at a right-hand side flashing member 14 of a roof window, respectively. The same applies to the two top flashing members 11 and the two bottom flashing members 12.

[0034] 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.

[0035] Fig. 2 shows a flashing assembly 1 similar to that in Fig. 1. The flashing members 11, 12, 13, 14, 15 are here shown in simplified versions, where the top, bottom, and side flashing members 11, 12, 13, 14 have a simple L-shape in cross-section and the middle gutter flashing member 15 has a simple U-shape in cross-section, but it is to be understood that they may represent more sophisticated flashing members, such as those shown in Fig. 1. 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. 3-6.

[0036] The flashing assembly in Fig. 2 consists of two

sets of flashing members; a first set I including one top flashing member 11, one bottom flashing member 12, and two side flashing members 13, 14, and a second set II including one middle gutter flashing member 15, one top flashing member 11, and one bottom flashing member 12. The first set I is a standard flashing assembly of the type used for a single roof window mounted alone in a roof structure, whereas the second set II comprises the supplementary flashing members needed for weather-proofing two roof windows mounted side by side as indicated by the two roof window frames 2a, 2b.

[0037] 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.

[0038] As shown by the arrows in Fig. 2, the top flashing member 11, the bottom flashing member 12, and the left-hand side flashing member 13 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 14 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 14 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.

[0039] The middle gutter flashing member 15 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 11 and the bottom flashing member 12 of the second set II are mounted at the top and bottom of the right-hand roof window frame 2b.

[0040] It is to be understood that it would work equally well to mount the top flashing member 11, the bottom flashing member 12, and the right-hand side flashing member 14 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.

[0041] In the embodiment shown in Fig. 2, the first set I comprises a telescopic drainage gutter 18 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 18 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. 2 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.

[0042] In Fig. 3 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 15, one top

flashing member 11, one bottom flashing member 12 and a telescopic drainage gutter 18.

[0043] The first set I of flashing members and the second set II of flashing members are mounted in the same way as described with reference to Fig. 1, i.e. with the right-hand side flashing member 14 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. 2.

[0044] The middle gutter flashing member 15, top flashing member 11, and bottom flashing member 12 of the third set III are mounted at the frame 2c of the third roof window as indicated by the arrows in Fig. 3, i.e. in the same way as described with reference to the second set II in Fig. 2.

[0045] The drainage gutter 18 of the third set III is depicted as a telescopic drainage gutter, but in this situation the telescopic function is 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 18 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.

[0046] 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. 4. Here the second set II of flashing members comprises one middle gutter flashing member 19 and two side flashing members 13, 14. As shown by the arrows, the second set II is mounted at the uppermost frame 2d with the middle gutter flashing member 19 extending between the two frames 2a, 2d, and the top flashing member 11 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. 2, except for the fact that it is the top flashing member 11 of the first set I being used at the second frame 2d instead of a side flashing member. Furthermore, the drainage gutter 18 of the first set can be mounted in its un-extended state, as it only needs to cover the width of one roof window.

[0047] 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. 5. Here the top flashing member 11 and the drainage gutter 18 of the

first set I of flashing members are mounted above the frame 2d in the same way as described with reference to Fig. 4, and the side flashing member 14 of the first set I is mounted at the frame 2b in the same way as described with reference to Fig. 2. The second set II is mounted at the frame 2d as described with reference to Fig. 4 and the third set III is mounted at the frame 2b as described with reference to Fig. 3. Here both drainage gutters 18 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.

[0048] 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. 6. Here the flashing assembly further comprises a fourth set IV of flashing members comprising two middle gutter flashing members 15, 19, one for use between roof windows mounted side by side and one for roof windows mounted one above another.

[0049] When mounting this flashing assembly, the first flashing member 14 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. 2 and Fig. 3, here at the frame 2b, and the top flashing member 11 and the drainage gutter 18 of the first set I is mounted at the uppermost frame 2d of the left-hand column of roof windows as described with reference to Fig. 4 and Fig. 5, here at the frame 2d. As compared to the Fig. 5, 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 14 of the second set II and the top flashing member 11 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. 6. The remaining flashing members of the second and third sets are used as described with reference to Fig. 5, and the middle gutter flashing members 15, 19 of the fourth set IV are used at the fourth frame 2e where it faces the frames 2d and 2b, respectively.

[0050] 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.

[0051] Fig. 7 shows five such sets I, IIa, IIb, III, IV of flashing members packed in separate packaging elements 4, a separately packed drainage gutter 184, and six examples of packed flashing assemblies 102, 103, 104, 105, 106, 107.

[0052] Set I comprises a top flashing member, a bottom flashing member, two side flashing members and possibly a drainage gutter.

[0053] Set IIa and set IIb each comprises one middle gutter flashing member and two other flashing members. In set IIa the two other flashing members are a top flash-

ing member and a bottom flashing member, corresponding to the sets of flashing members marked II in Fig. 2 and Fig. 3, and in set IIb the two other flashing members are side flashing members, corresponding to the sets of flashing members marked II in Fig. 4, Fig. 5, and Fig. 6.

[0054] Set III comprises a middle gutter flashing member, a top flashing member, a bottom flashing member, and possibly a drainage gutter.

[0055] 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.

[0056] The first packed flashing assembly 102 is composed of sets I and IIa, corresponding to the flashing assembly shown in Fig. 2.

[0057] The second packed flashing assembly 104 is composed of sets I and IIb, corresponding to the flashing assembly shown in Fig. 4.

[0058] The third packed flashing assembly 103 is composed of sets I, IIa, and III, corresponding to the flashing assembly shown in Fig. 3.

[0059] The fourth packed flashing assembly 105 is composed of sets I, IIb, and III, corresponding to the flashing assembly shown in Fig. 5.

[0060] The fifth packed flashing assembly 106 is composed of sets I, IIb, III, and IV, corresponding to the flashing assembly shown in Fig. 6.

[0061] The sixth packed flashing assembly 107 is composed of set I, two other sets, and a separately packed drainage gutter 184. 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.

[0062] The separately packed sets forming a packed flashing assembly may be interconnected using straps 5, as shown on the last packed flashing assembly 107, or an adhesive.

[0063] 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.

[0064] 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 14 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 18.

Claims

1. A packed flashing 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, where said packed flashing assembly comprises packaging elements and 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 packed flashing assembly comprises a first set of flashing members including one top flashing member, one bottom flashing member, and two side flashing members contained in a first packaging element, and a second set of flashing members including one middle gutter flashing member and two other flashing members contained in a second packaging element.
2. A packed flashing assembly according to claim 1, where the two other flashing members are side flashing members.
3. A packed flashing assembly according to claim 1, where the two other flashing members are a top flashing member and a bottom flashing.
4. A packed flashing assembly according to one or more of the preceding claims, further comprising a third set of flashing members contained in a third packaging element and comprising one middle gutter flashing member and two other flashing members.
5. A packed flashing assembly according to one or more of the preceding claims, further comprising 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.
6. A packed flashing assembly according to one or more of the preceding claims, where the first set further comprises 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.

7. A packed flashing assembly according to claim 4, where the third set further comprises a drainage gutter. 5
8. A packed flashing assembly according to one or more of the preceding claims, where a 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. 10
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 and two side frame members extending in the slope direction, where a flashing assembly is mounted with at least one top flashing member extending along a top frame member, at least one bottom flashing member extending along a bottom frame member, at least two side flashing members extending along a side frame member, and at least one middle gutter flashing member extending between roof windows, 15
characterised in that at least three flashing members of a first set of flashing members, which first set includes one top flashing member, one bottom flashing member, and two side flashing members, are mounted at a first roof window, and at least one flashing member of the first set is mounted at a second roof window, and that a second set of flashing members including one middle gutter flashing member and two other flashing members supplied in a separate packaging element is mounted at the second roof window. 20
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10. A method according to claim 9, where the first and second roof windows are arranged one above the other in the slope direction and where the two other flashing members are side flashing members. 45
11. A method according to claim 9, where the first and second roof windows are arranged side-by-side and where the two other flashing members are a top flashing member and a bottom flashing. 50
12. A method according to one or more of claims 9-11, where a third set of flashing members including one middle gutter flashing member and two other flashing members and supplied in a separate packaging element is mounted at a third roof window of the group of roof windows. 55
13. A method according to one or more of claims 9-12,

where a fourth set of flashing members including two middle gutter flashing members and supplied in a separate packaging element is mounted at a fourth roof window of the group of roof windows with one middle gutter flashing member extending between roof windows mounted side by side and one middle gutter flashing member extending between roof windows mounted one above another.

14. A method according to one or more of claims 9-13, where a telescopic drainage gutter belonging to the first set is extended and mounted along the top frame members of two roof windows arranged side-by-side.
15. A method according to claim 12, where a drainage gutter of the third set is mounted along the top frame member of the third roof window of the group of roof windows.
16. A method according to one or more of claims 9-15, where a middle gutter flashing member comprises two components, where one component is arranged along a frame member of one of two adjacent roof windows, and where the other component is then arranged along a frame member of the other of the two adjacent roof windows, said frame members facing each other.

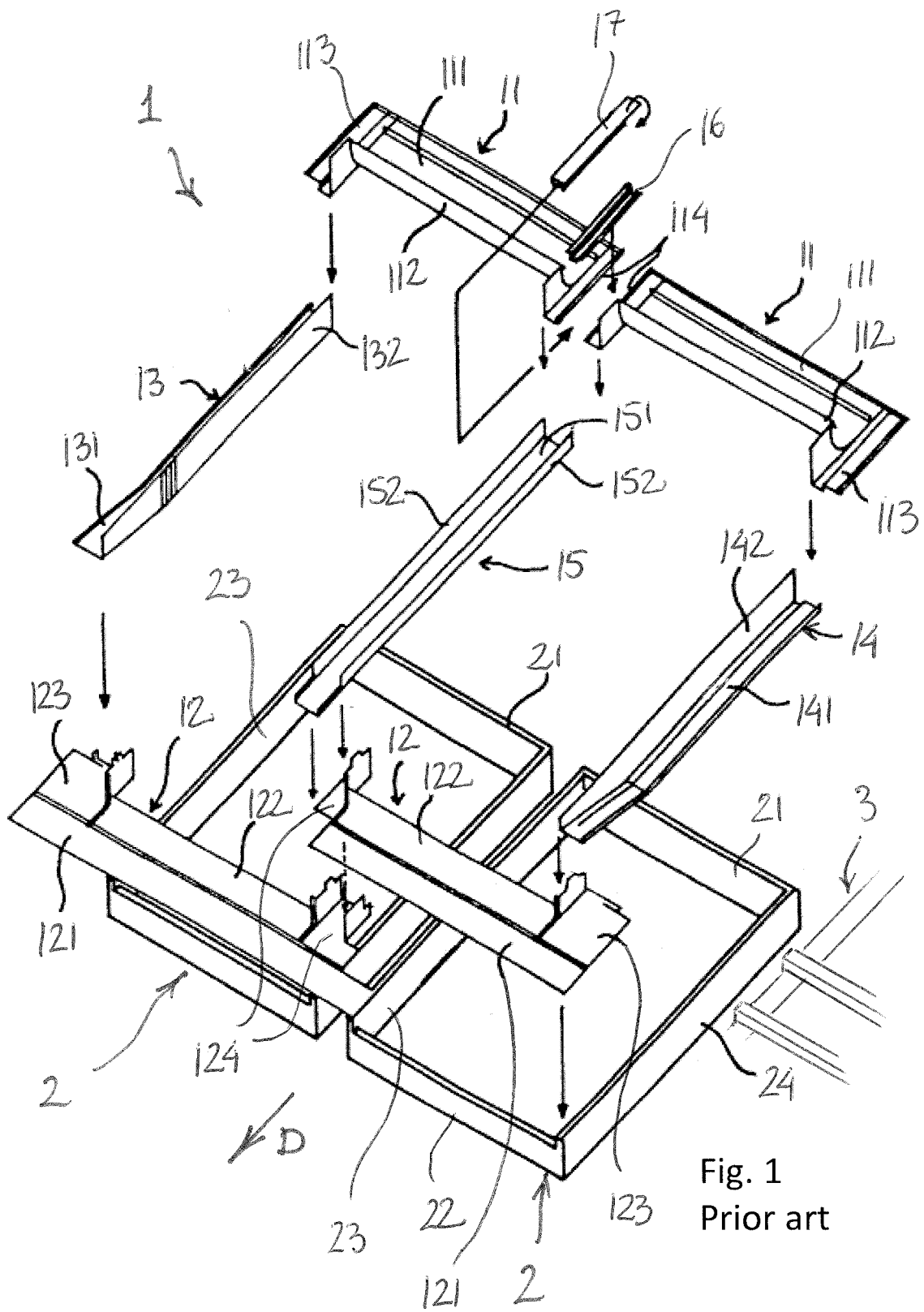


Fig. 1
Prior art

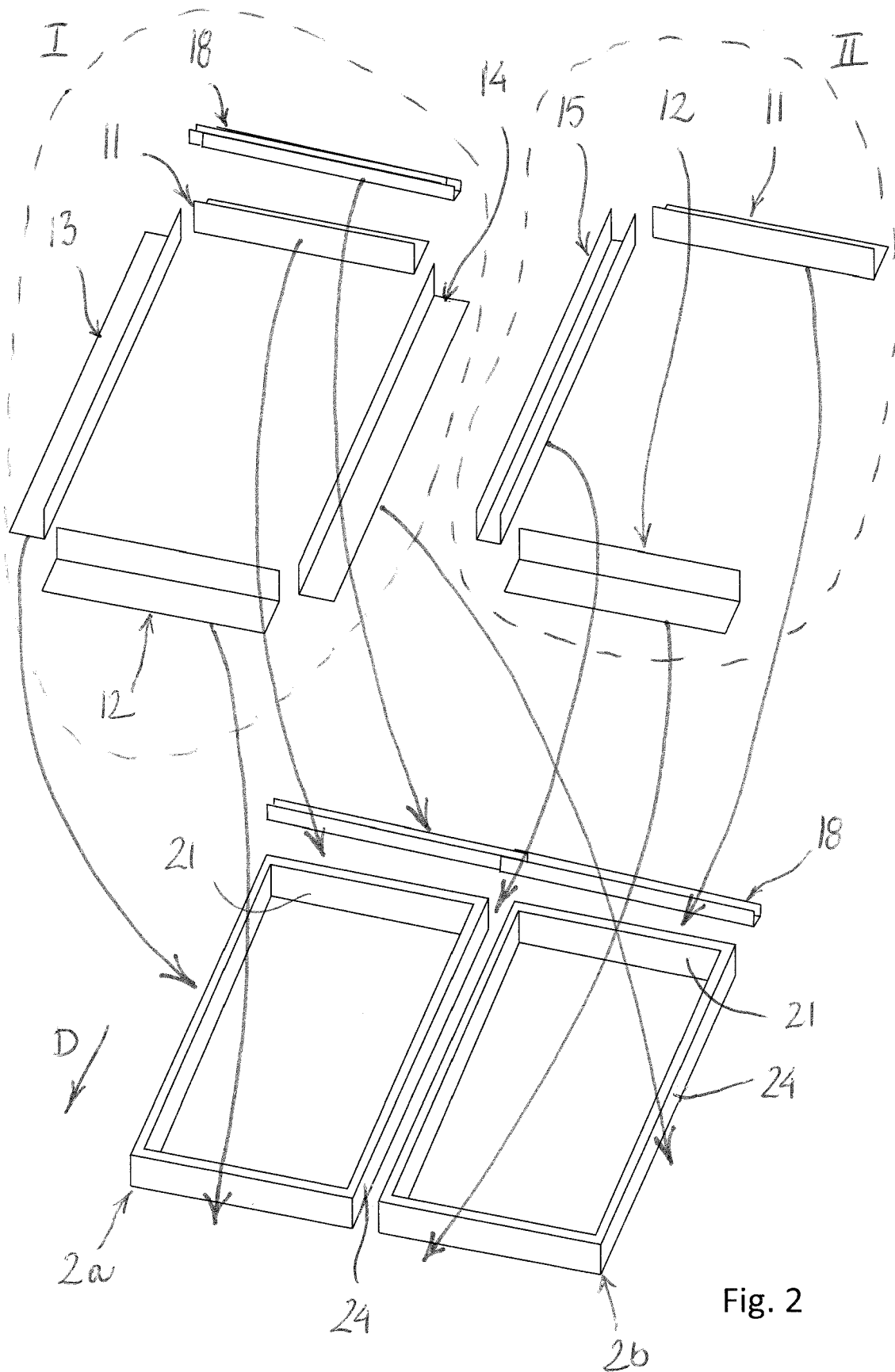


Fig. 2

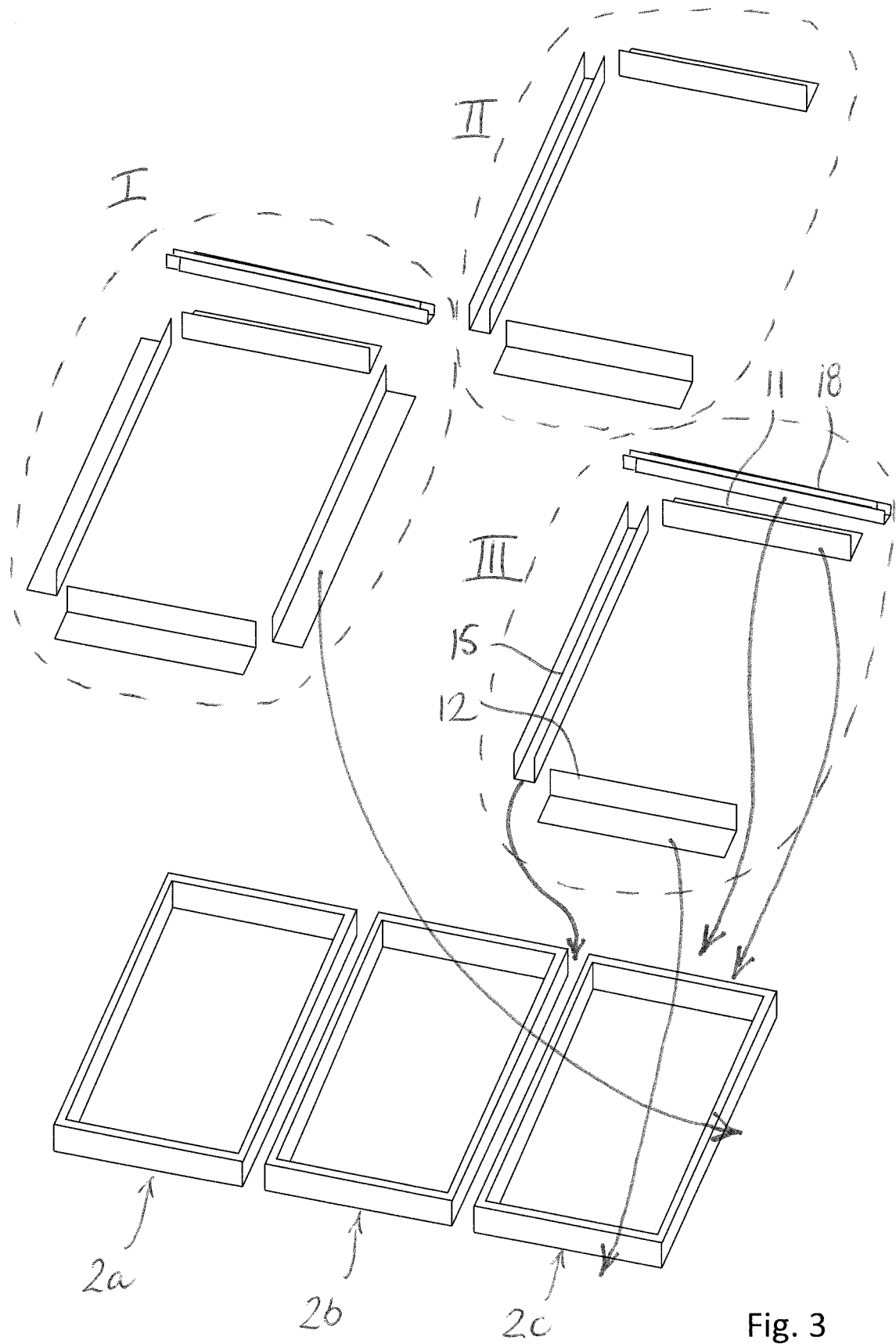


Fig. 3

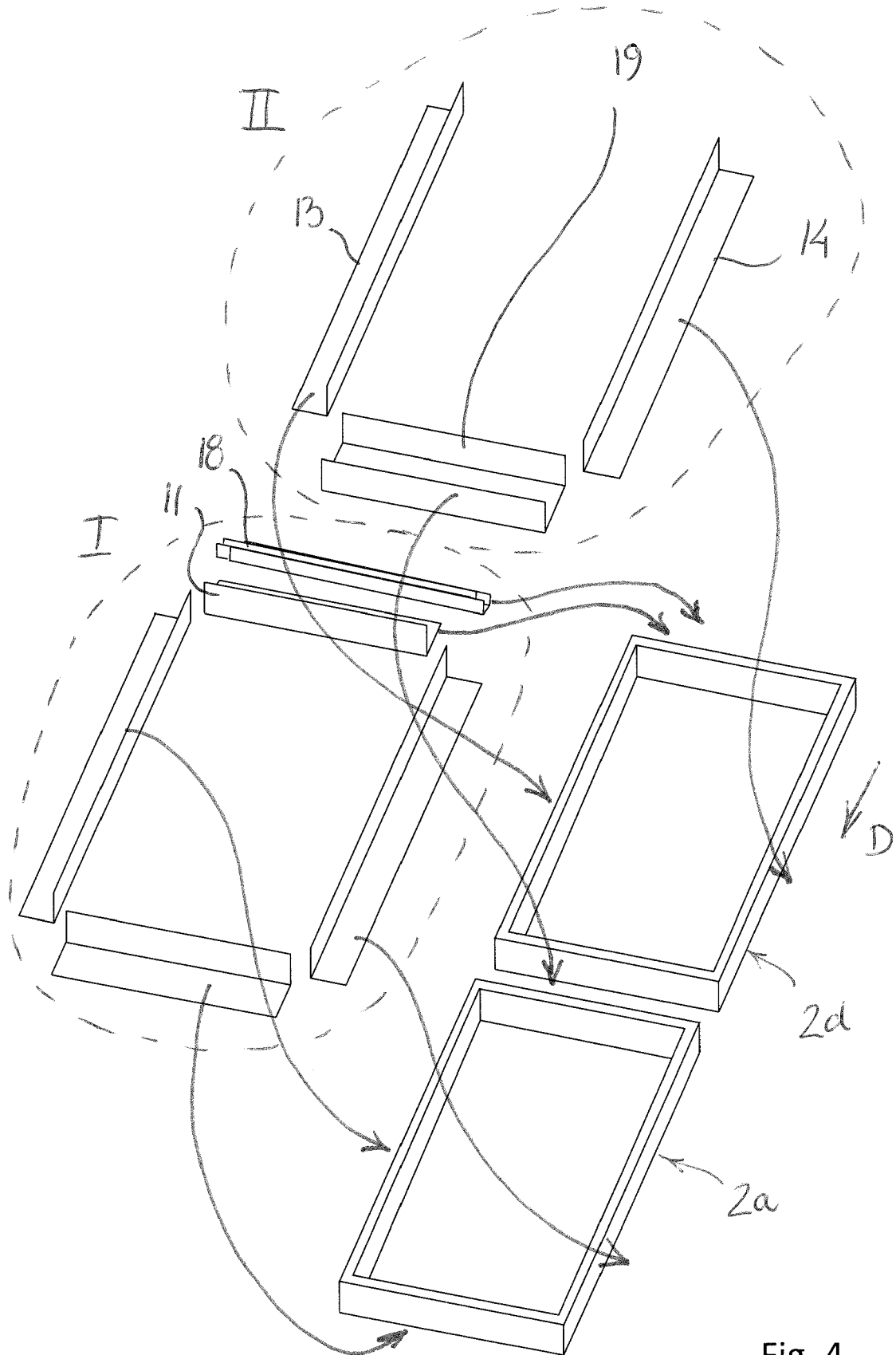


Fig. 4

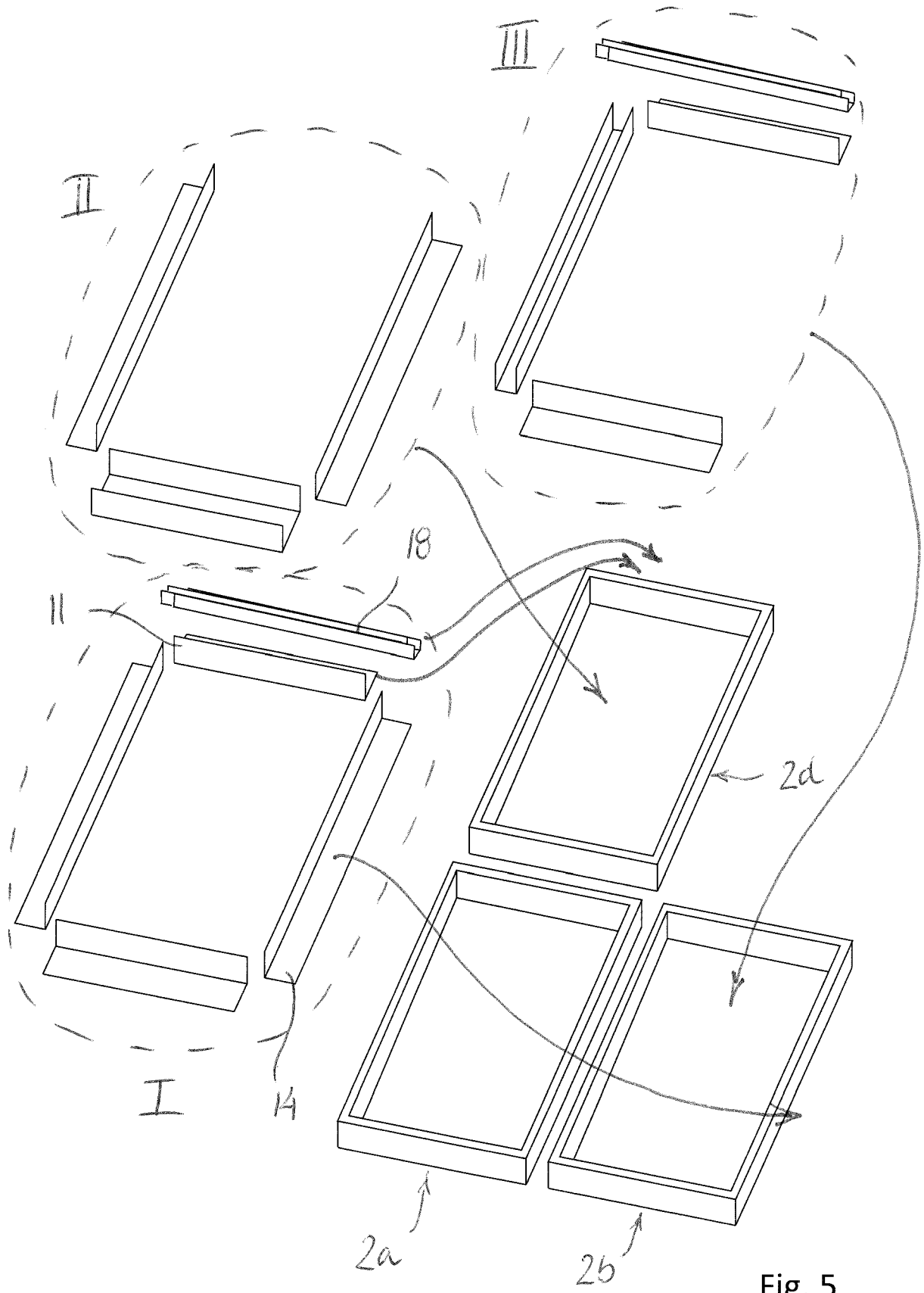


Fig. 5

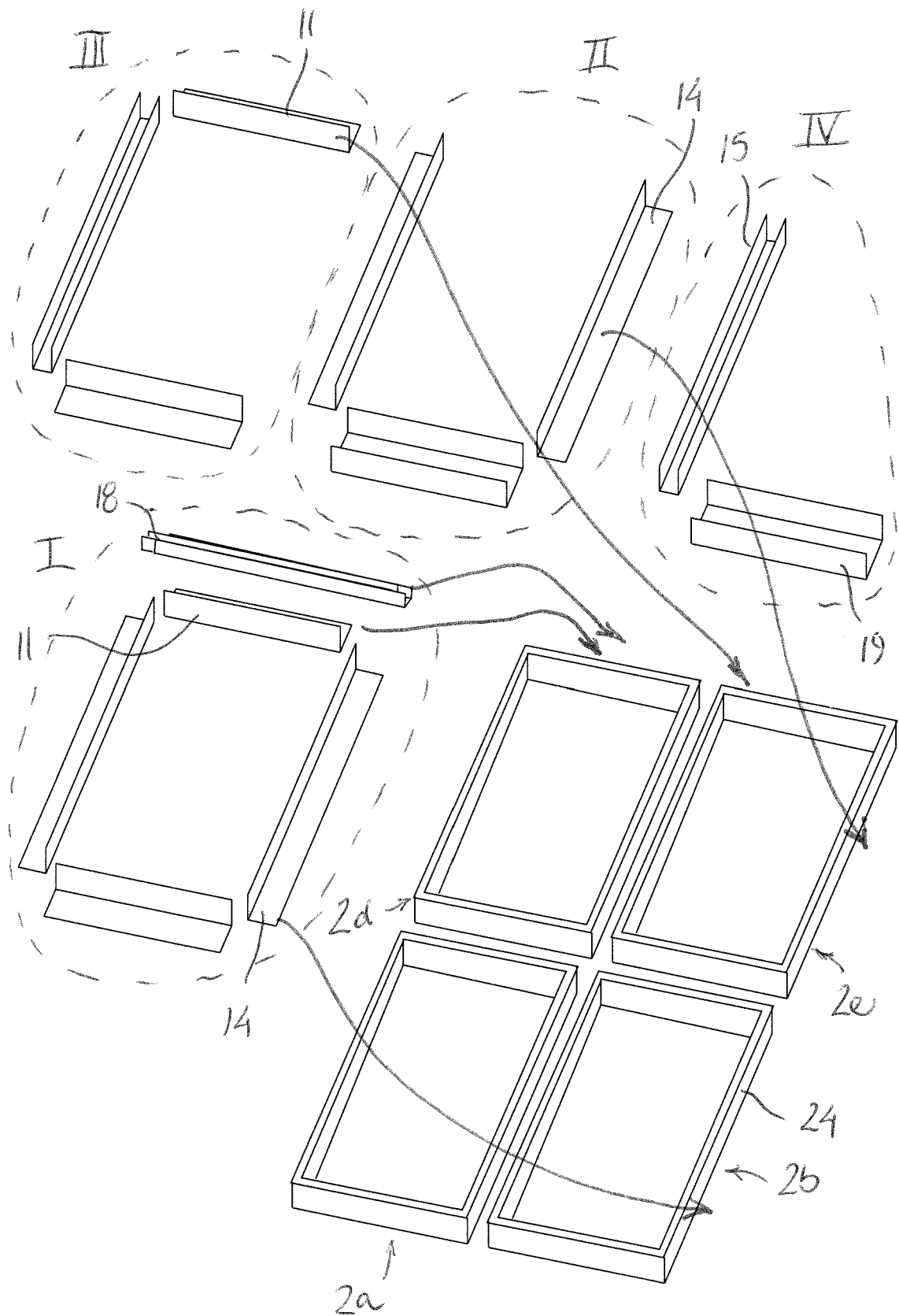


Fig. 6

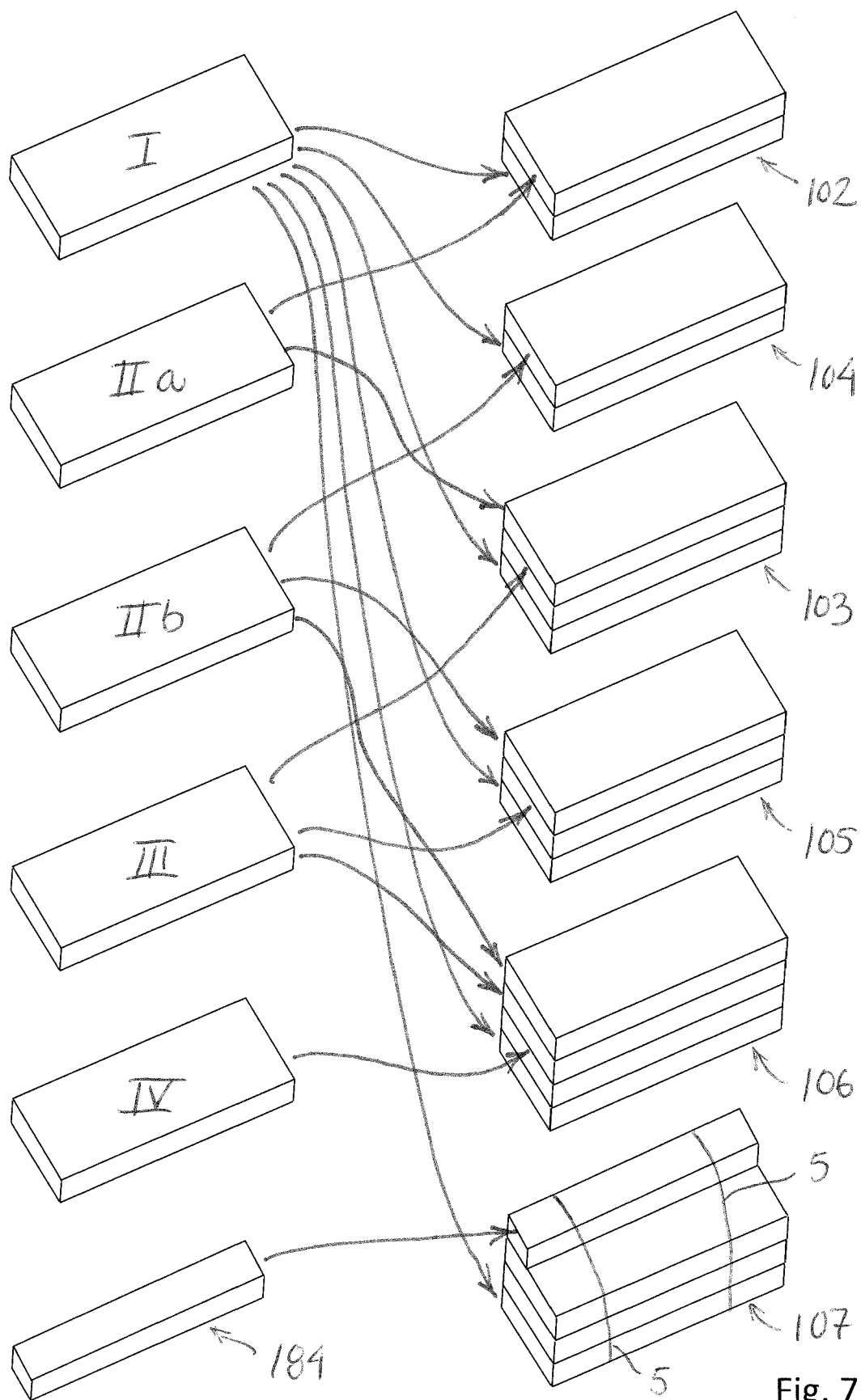


Fig. 7



EUROPEAN SEARCH REPORT

Application Number

EP 24 15 8069

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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: "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 312 - page 314 * -----	1-16	INV. E04D13/03 E04D13/147
A	EP 3 231 956 A1 (FAKRO PP SP Z O O [PL]) 18 October 2017 (2017-10-18) * figures 1, 4 * -----	1-16	TECHNICAL FIELDS SEARCHED (IPC) E04D
A	EP 1 485 547 A1 (VKR HOLDING AS [DK]) 15 December 2004 (2004-12-15) * figures 6-7f * -----	1-16	
A,D	EP 0 087 647 A1 (RASMUSSEN HOLDING AS V KANN [DK]) 7 September 1983 (1983-09-07) * figures * -----	1-16	
A	EP 2 752 531 A2 (VKR HOLDING AS [DK]) 9 July 2014 (2014-07-09) * figure 1 * -----	1-16	
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
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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ON EUROPEAN PATENT APPLICATION NO.**

EP 24 15 8069

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 3231956 A1	18-10-2017	EP 3231956 A1	18-10-2017
		PL 125043 U1	23-10-2017
EP 1485547 A1	15-12-2004	AT E528458 T1	15-10-2011
		AU 2003218953 A1	16-09-2003
		CN 1639432 A	13-07-2005
		DK 1485547 T3	30-01-2012
		EP 1485547 A1	15-12-2004
		PL 205337 B1	30-04-2010
		WO 03074812 A1	12-09-2003
EP 0087647 A1	07-09-1983	AT E12960 T1	15-05-1985
		DE 3206871 C1	01-06-1983
		DK 87083 A	27-08-1983
		EP 0087647 A1	07-09-1983
		US 4543753 A	01-10-1985
		US 4621466 A	11-11-1986
EP 2752531 A2	09-07-2014	DE 202014000149 U1	20-05-2014
		DK 177601 B1	18-11-2013
		EP 2752531 A2	09-07-2014
		PL 2752531 T3	31-03-2020

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0087647 A1 [0004]