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(54) **PACKED INSTALLATION KIT COMPRISING INSTALLATION ASSEMBLIES FOR A ROOF WINDOW SYSTEM**

(57) A packed installation kit (100) for use in the installation of a roof window system comprising two window units, said installation kit (100) comprising a number of installation assemblies (4, 5, 6, 7, 8) each including one or more components, where the components of a first set of installation assemblies (4, 5, 6, 7, 8) are accommodated in a first packaging (101) comprising a box shaped as a rectangular prism, preferably of corrugated cardboard, and the components of the first set of installation assemblies of the installation kit are accommodated in the first packaging either as they are or partially or entirely packed in a sub-packaging of cardboard or paper material. Components of some installation assemblies (6) act as positioning elements for components of one or more installation assemblies (5, 8) in the longitudinal, width and/or height direction of the first packaging (101).

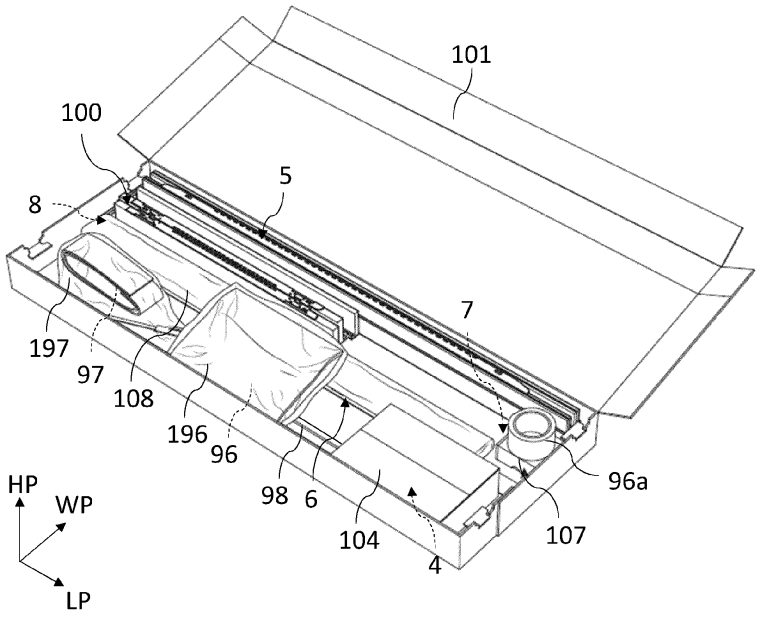

Fig. 1

EP 4 089 034 A2

Description

Technical Field

[0001] The present invention relates to a packed installation kit for use in the installation of a roof window system comprising two window units and configured to be built in side by side in an inclined roof structure such that the roof window system defines a common height and a combined width in the mounted condition, said installation kit comprising a number of installation assemblies, each including one or more components having a length, and optionally auxiliary equipment, the components of a first set of installation assemblies of the installation kit being accommodated in a first packaging comprising a box shaped as a rectangular prism, preferably of corrugated cardboard, having a length in a longitudinal direction, a width in a width direction and a height in a height direction to provide a supply condition of the installation kit.

Background Art

[0002] Roof windows to be installed in inclined roof surfaces come in a variety of types and are either installed as stand-alone window units, in which all sides of the roof window border on the roofing, or in configurations in which several window units are built together to combine into larger arrays providing a larger light influx into a room of a building, and in which only outer sides of the outermost window units border on the surrounding roofing.

[0003] Applicant's pending European patent applications with application numbers 21216869, 21216874, 21216881 and 21216882, show and describe roof window systems comprising two window units configured to be built in side by side in a roof structure. To facilitate installation, a number of assemblies are supplied, including support, insulating, stabilizing and cover assemblies. Additionally, auxiliary equipment such as underroof collars and vapour barrier collars are typically provided as well. While such assemblies are of great assistance to the installer, the various assemblies and the auxiliary equipment are typically provided separately and independently from the window units themselves. Since each assembly in turn includes a variety of differently sized components, and of widely differing weights, logistical challenges in delivery of such a roof window system are substantial.

[0004] Furthermore, when installing windows in a roof, it is vital to ensure that the window units themselves are securely attached to the roof structure and that the joint between the window units and the roof structure is properly weatherproofed. It is therefore important that all components of roof window products, such as the roof window itself or a flashing assembly for a roof window, are used and in the right way. To facilitate this, the components are typically arranged in the box in an intended order of use and small components, such as screws, are kept in plastic bags. Furthermore, blocks of expanded polystyrene or similar shock absorbing material are used for protecting the product and/or for keeping the components in the intended position within the box. An example of a packed roof window, where these principles are used, is known from EP2748071B1 and an example of a packed flashing assembly for a roof window is known from EP1710163B1.

[0005] However, combined with an ever-increasing awareness of environmental considerations and the wish to reduce or even eliminate the climate footprint of products and their packaging, there is a need for a possibility of delivering products in a more environmentally friendly way.

Summary of Invention

[0006] With this background, it is an object of the invention to provide a packed installation kit, which has a smaller climate footprint, without increasing the risk of errors in the installation of the product and maintaining a good protection of the components of the installation kit during transportation.

[0007] This and further objects are achieved with a packed installation kit of the kind mentioned in the introduction, which is furthermore characterised in that the components of the first set of installation assemblies of the installation kit are accommodated in the first packaging either as they are or partially or entirely packed in a sub-packaging of cardboard or paper material, that the length of the first packaging in the longitudinal direction is selected in accordance with a length of a longest component(s) of the first set of installation assemblies, that a first installation assembly comprises the longest component(s) having a first length, that the components of a second installation assembly have a second length which is shorter than the first length of the longest component(s) of the first set of installation assemblies, and that the components of the second installation assembly are partially packed in a sub-packaging comprising at least one open cardboard box and/or paper ribbon located at or near longitudinal ends of the components of the second installation assembly and temporarily fixated to the first packaging to allow the components of the second installation assembly and/or the sub-packagings to function as positioning elements relative to components of at least one other installation assembly in the longitudinal, width and/or height direction of the first packaging.

[0008] By the provision of a suitably shaped first packaging and by accommodating the components either as they are or packed in paper-based materials only, it has been made possible to not only reduce the total amount of packaging material, but also to render the packaging suitable for easy recycling. In practice, this has the effect that the likelihood of the packaging material actually being recycled instead of just being disposed of as combustible waste is increased significantly, thus contributing to the overall sustainability of the roof window system.

[0009] Selecting the length of the first packaging in accordance with the length of said longest component(s) of the longest component(s) of said first set of installation assemblies reduces the amount of packaging material used for the packed installation kit. When selecting the length of the first packaging in accordance with the length of the longest component(s), the length of the first packaging corresponds to or slightly exceeds the length of the longest component(s). In this way, the size of the first packaging is kept small, reducing material used for the packed installation kit.

[0010] By temporarily fixating components of an installation assembly or the sub-packaging thereof to the first packaging, the components are kept in their intended place and protected in the first packaging.

[0011] The feature that some components of one installation assembly and/or the sub-packaging accommodating these components function as positioning elements relative to other components, of other installation assemblies, in the length, width and/or height direction of the first packaging contributes to safe transportation of the components involved and also to reduce the total amount and type of packaging, since the need for e.g. elements of expanded polystyrene is made redundant. When a component or sub-packaging thereof functions as a positioning element for another component, it restricts the movement of the other component in the first packaging, keeping the component in place which reduces the risk of the components being damaged during shipment and handling. For example, one or more components of a first installation assembly may be wedged in between a side of the first packaging and a sub-packaging of a second subassembly. In a development of such an embodiment, the component or sub-packaging thereof which functions as a positioning element, may be temporarily fixated to the first packaging by at least one strip of adhesive or glue. By using some of the components as positioning elements for freely accommodated components among the installation assemblies, it is possible to reduce the use of adhesive or other packaging elements used to keep the components in place in the first packaging. This contributes to an improved recyclability of the packaging and a reduction in overall packaging material used, thus reducing the climate footprint of the packed installation kit.

[0012] It is to be understood that while paper and cardboard are usually made from wood-fibres, other plant fibres including fibres originating from straw, bamboo, bagasse, esparto, other grasses, hemp, flax, and cotton may also be used, including combinations of different types of fibres.

[0013] In presently preferred embodiments, the sub-packaging accommodating components of at least one installation assembly of said first set of installation assemblies is temporarily fixated to the first packaging by at least one strip of adhesive or glue, the amount of adhesive or glue being preferably comparatively low relative to the amount of packaging.

[0014] By using strips of adhesive, it is possible to provide a suitably secure fastening of the components to the first packaging, with a small amount of adhesive or glue. When paper-based material is recycled, certain amounts of non-paper components, such as adhesive or glue, are allowed for certain grades of recycled paper-based material. Hence, by temporarily fixing components to the first packaging using strips of adhesive, and thus low amounts of adhesive, it allows the packaging of the installation kit to be recycled as high-grade paper-based material. The amount of adhesive or glue is preferably comparatively low, e.g. the mass of adhesive or glue is low compared to the mass of packaging, such as less than 2 %, less than 1.5 %, less than 1 %, less than 0.5 % or even less than 0.1 % by weight of the packaging.

[0015] In presently preferred embodiments, the first length of a longest component(s) of the installation assemblies of said first set of installation assemblies in the supply condition substantially corresponds to or exceeds slightly the common height of the roof window system in the mounted condition. In such instances, the first packaging will have a size corresponding to the size of a packed roof window unit of the roof window system, which may be advantageous when storing, shipping and/or handling the packed installation kit along with the packed roof window units. The longest components among the components of the first set of installation assemblies may in some embodiments be the side members of an insulating frame assembly, which side members extend along the sides of the windows units of the roof window system when the roof window system is mounted in a roof structure.

[0016] In presently preferred embodiments, the installation kit furthermore comprises auxiliary equipment. By providing the auxiliary equipment in the first packaging, the risk of logistical issues in the shipping and supply of the installation kit is reduced, as fewer units need to be handled separately. Furthermore, it reduces the amount of packaging material needed compared to auxiliary equipment which is packed separately from the installation assemblies.

[0017] In presently preferred embodiments, the under-roof collar is packed in a plastic bag intended to function as a collection element for waste, in particular waste of plastic material during installation of the roof window system. The plastic bag may be provided with a label comprising a recycling logo.

[0018] Other presently preferred embodiments and further advantages will be apparent from the subsequent detailed description and drawings.

Brief Description of Drawings

[0019] In the following description embodiments of the invention will be described with reference to the drawings, in which

Fig. 1 is a perspective view of a packed installation

kit in an embodiment of the invention;
Figs 2a and 2b are perspective views of details of a packed installation kit in another embodiment of the invention;
Figs 3 to 6 are perspective views of a roof window system with components of the installation kit in various embodiments of the invention;
Fig. 7 is a perspective view of a first packaging for use with the packed installation kit according to the invention;
Fig. 8 is a perspective view of the first packaging of Fig. 7 with components of a first installation assembly accommodated in the first packaging;
Fig. 9 is a view corresponding to Fig. 8 with further components of the first installation assembly accommodated in the first packaging;
Fig. 10 is a view corresponding to Fig. 9 with components of a second installation assembly accommodated in the first packaging;
Fig. 11 is a view of detail XI of Fig. 10;
Fig. 12 is a view corresponding to Fig. 11 of another embodiment;
Fig. 13 is a view corresponding to Fig. 10 with auxiliary equipment comprising a gutter element and components of a third and a fourth installation assembly accommodated in the first packaging;
Fig. 14 is a partial sectional view showing parts of the third installation assembly and of a support assembly interacting with the roof structure;
Fig. 15 is an exploded perspective view showing the first installation assembly;
Fig. 16 is a perspective view of the second installation assembly;
Fig. 17 is a perspective view of the fourth and fifth installation assemblies;
Fig. 18 is a perspective view of auxiliary equipment comprising an underroof collar in a further embodiment of the packed installation kit, in which the sub-packaging of the underroof collar is intended for collection of waste, in particular plastic waste;
Fig. 19 is a plan view of a detail of the sub-packaging of the underroof collar in an alternative embodiment; and
Figs 20 to 23 are plan views of further alternative embodiments of the detail of Fig. 19.

Description of Embodiments

[0020] Fig. 1 shows a perspective view of an installation kit 100 packed in a first packaging 101 in an embodiment of the invention. The installation kit 100 is intended for use in the installation of a roof window system 1 as shown in Fig. 3, with two window units 11, 12 to be installed side-by-side in an inclined roof structure 2 using the components of installation assemblies and auxiliary equipment of the packed installation kit 100 according to the invention. In the configuration shown in Fig. 3, the roof structure 2 comprises a number of rafters and battens of which two rafters 21 on either side of the window units 11, 12 and one batten 22 are indicated. The roof structure 2 may include further and/or alternative parts.

[0021] The installation kit 100 comprises a first set of installation assemblies 4, 5, 6, 7, 8 which are accommodated and packed in a first packaging 101. The first set of installation assemblies includes a first installation assembly which is here an insulating assembly 5, a second installation assembly which is here a stabilizing assembly 6, a third installation assembly which is here a mounting assembly 4 including four mounting brackets, a fourth installation assembly which is here a cover assembly comprising receiver brackets 7 and a fifth installation assembly which is here a cover plate 8. Elements not visible in Fig. 1 are denoted by a broken lead line to the respective reference numeral, typically because such elements are hidden in sub-packagings.

[0022] The first packaging 101 further accommodates auxiliary equipment, here comprising an underroof collar 96, a tape roll 96a, a vapour barrier collar 97 and a gutter element 98.

[0023] The packed installation kit 100 is in Fig. 1 shown in a condition where the first packaging 101 is open, allowing the components accommodated therein to be seen. When the packed installation kit is shipped and supplied, the first packaging 101 will be closed, providing the installation kit 100 in a supply condition. The first packaging 101 is a box which in its closed condition is shaped as a rectangular prism or cuboid. The first packaging 101 is made of corrugated cardboard, which is sometimes called corrugated fibreboard. As can be seen, the insulating assembly 5 is accommodated in the first packaging 101 as is, that is the components of the assembly are not packed in a sub-packaging nor are they fixated to the first packaging 101, whereas the mounting assembly 4, receiver brackets 7 and cover plate 8 are packed in respective sub-packaging 104, 107, 108 of cardboard or paper material.

[0024] Referring now to Fig. 2a and 2b, which show perspective views of a second set of installation assemblies 3 of the installation kit 100 being packed in a second packaging 103. Fig. 2a shows a second set of installation assemblies 3 and a second packaging 103 during packing, and Fig. 2b shows the second set of installation assemblies 3 packed in the second packaging 103 in a supply condition. The second set of installation assemblies is here embodied by a support assembly 3 having two components: an upper support beam 31 and a lower support beam 32.

[0025] The support beams 31, 32 are provided with such dimensions and selected from such material that they are able to provide sufficient strength and withstand wear typical of the conditions within a roof structure. Typically, a wooden material is chosen and may include laminated wooden beams such as Glulam beams, Kerto® beams etc., which are dimensionally stable, strong and light-weight. While the support beams 31, 32 are light-weight in comparison to materials such as steel, the di-

mensions alone render them cumbersome to handle and pack. Referring again briefly to Fig. 3, it is noted that the support beams 31, 32 extend between rafters 21 on either side of the first and second window units 11, 12.

[0026] When packing the support assembly 3, the upper and lower support beams 31, 32 are positioned side-by-side extending along each other as shown in Fig. 2a, and thereby provide a rectangular unit of length L3, width B3 and height H3. In this embodiment, the height H3 is a common height and the length L3 is a common length of the upper and lower support beams 31, 32. The second packaging 103 is a rectangular telescopic tube packaging which has a first part 1031 and a second part 1032. The first and second parts 1031, 1032 of the second packaging 103 are each a hollow rectangular box with one open end for receiving the support assembly 3. The first part 1031 has a first length L1, a first width B1 and a first height H1 and the second part 1032 has a second length L2, a second width B2 and a second height H2. The internal dimensions of the first part 1031 are such that one end the components of the support assembly 3 can be inserted into the first part 1031 as shown in Fig. 2a, where the support assembly 3 is partially accommodated in the first part 1031 of the second packaging 103. Similarly, the internal dimensions of the second part 1032 are such that the opposite end of the components of the support assembly 3 can be inserted into the second part 1032 as shown in Fig. 2a, whereby the remaining part of the support assembly 3 is accommodated in the second part 1032 of the second packaging 103. Furthermore, the internal height and width of the second part 1032 are greater than the first height L1 and first width W1 of the first part 1031 respectively and the sum of the first length L1 and second length L2 is such that the two parts of the second packaging 103 overlap when the support assembly 3 with length L3 is packed therein, i.e. in the supply condition. Hence, the sum of first length L1 and second length L2 exceeds the length L3 of the support assembly L3. The internal height and internal width of the second part 1032 may be selected such that the external surfaces of the first part 1031 engages the internal surfaces of the second part 1032, providing a snug fit in the supply condition as seen in Fig. 2b. The second packaging 103 is in this embodiment made of corrugated cardboard. The packed installation kit 100 according to the invention can include both the first set of installation assemblies packed in the first packaging 101 and the second set of installation assemblies packed in the second packaging 103. Further details of the second packaging 103 may be found in Applicant's copending European patent application filed on the same day as the present application.

[0027] Referring now to Figs 3 to 6, the interaction between the installation assemblies of the installation kit 100 with the roof window system 1 will be described in more detail. In Figs 3 and 4, the roof window system 1 is shown from the exterior of a building and in Fig. 3 the first window unit 11 is mounted in the roof structure 2 and the second window unit 12 is being mounted next to the first window unit 11. In the mounted condition, the roof window system 1 has a combined width W and a common height H, both of which are seen to extend in parallel with the plane of the roof structure 2. The roof window system 1 is being installed using support assembly 3, mounting brackets 4, insulating assembly 5 and stabilizing assembly 6'. As can be seen, the insulating assembly 5 is a frame surrounding the roof window system 1 in the mounted position and the length of the side members of the frame slightly exceeds the common height H of the roof window system 1. In Fig. 4, both window units 11, 12 of the roof window system 1 are mounted in the roof structure 2 and auxiliary equipment from the packed installation kit 1 according to the invention is being installed. The auxiliary equipment is here an underroof collar 96 which is mounted around the roof window system 1 and a gutter element 98.

[0028] Figs 5 and 6 show views of the roof window system 1 of Fig. 4 as seen from the interior of the building. Fig. 5 shows the roof window system when the vapour barrier collar 97 is installed after having been unpacked from sub-packaging 197 which is here a plastic bag. Fig. 6 shows receiver brackets 7 being installed to receive and mount the cover plate 8.

[0029] Further details of the installation assemblies 4, 5, 6, 7 and 8 are shown in Figs 14 to 17.

[0030] The process of packing the installation kit 100 in the first packaging 101 will be described with references to Figs 7 to 13 which show sequential steps of packing components of a first set of installation assemblies 4, 5, 6, 7 and auxiliary equipment 98 in the first packaging 101. The figures do not necessarily represent sequential packing progression of the same installation kit 101 but may in some case demonstrate the sequential packing steps with respect to installation kits in corresponding states of the packing process. The order in which the packing of the installation kit is shown here is a suitable example and is not the only procedure for packing an installation kit according to the invention.

[0031] Fig. 7 shows a perspective view of the first packaging 101 prior to packing of installation assemblies and auxiliary equipment in an open condition of the first packaging. When the first packaging 101 is closed it will be a box shaped as a rectangular prism of corrugated cardboard with a length extending in the longitudinal direction LP, a width in the width direction WP and a height in the height direction HP. The first packaging 101 has two longitudinal side edges 1012, 1013 extending along the length of the first packaging and spaced apart in the width direction WP. Similarly, the first packaging has two end edges 1011, 1014 extending along the width of the first packaging 101 and spaced apart in the longitudinal direction LP. The first packaging 101 is folded from a sheet of corrugated cardboard, provided with folding lines for folding the sheet in and flaps locking in the box shape as shown in Fig. 7.

[0032] In Figs 8 and 9, the components of the first of the installation assemblies 5 are packed in the first pack-

aging 101. In this embodiment, the first installation assembly comprises the insulating assembly 5 which includes an insulating frame with components comprising a set of side members 52, 53 and a set of top members 511, 512 and a set of bottom members 541, 542. The insulating frame is to be installed as shown in Fig. 3 and the configuration in the mounted condition is shown in the exploded view in Fig. 15. In Fig. 8, the set of side members 52, 53 are positioned along one longitudinal side edge 1012 of the first packaging 101. As can be seen, the length of the first packaging 101 in the longitudinal direction LP has been selected in accordance to a first length L5 of the set of side members 52, 53, which is the longest component in this first set of installation assemblies. Hence, the length of the first packaging 101 exceeds the first length L5 of the set of side members 52, 53 slightly. The insulating assembly 5 is here accommodated freely in the first packaging 101 and is not packed in sub-packaging nor is it temporarily fixated to the first packaging. By the term "temporarily" it is to be understood a fixation that allows the component or sub-packaging in question to be held safely to the first packaging 101 when the installation kit 100 is in the supply condition, but which at the same time allows release of the component when preparing for installation. The remaining components of the insulating assembly 5, namely the set of top members 511, 512 and the set of bottom members 541, 452, are packed in the first packaging 101 next to each other at one end edge 1014 of first packaging 101 and next to the side members 52, 53 as shown in Fig. 9.

[0033] Fig. 9 further shows strips of adhesive 1061, 1062 for temporarily fixating components of the first set of installation assemblies and/or the sub-packaging thereof to the first packaging 101. These particular strips of adhesive 1061, 1062 are for temporarily fixating the components of the second installation assembly.

[0034] Referring now to Figs 10 to 12, where a second installation assembly 6; 6' of the first set of installation assemblies is packed in the first packaging 101. The second installation assembly 6; 6' is here a stabilizing assembly 6; 6', the components of which comprises two stabilizing rails 6a, 6b. The stabilizing assembly 6; 6' has a second length L6, see Fig. 16, which is shorter than the first length L5 of the side members 52, 53 of the first insulating assembly 5, and the distance between the strips of adhesive 1061, 1062 in the longitudinal direction in Fig. 9 is selected according to the second length L6 of the stabilizing assembly 6; 6'. The stabilizing rails 6a, 6b are at least partly composed of sturdy and robust materials, typically a metal such as steel, to reinforce respective side members of a frame of the window unit 11, 12 to which they are fastened. As such, the stabilizing rails 6a, 6b are relatively heavy in comparison with for instance the insulating assembly 5.

[0035] In this embodiment, the components of the stabilizing assembly 6 are partially packed in two pieces of sub-packaging 1063, 1064 at both longitudinal ends of the components. The sub-packaging is here two open cardboard boxes 1063, 1064. The cardboard boxes are open in the sense that at least one of the faces of the cardboard box is open, allowing at least part of the components of the second installation assembly 6 to be accommodated within the cardboard box. Alternatively, one or both of the open cardboard boxes could be replaced by a suitably formed paper ribbon. The two pieces of sub-packaging 1063, 1064 are temporarily fixated to the first packaging 101 by the strips of adhesive 1061, 1062 respectively, thereby in turn temporarily fixating the components of the second installation assembly 6 to the first packaging 101. As the components of the second installation assembly 6 are thus fixated to the first packaging 101 in a position where they extend along the longitudinal direction LP substantially in parallel with the side edges 1012, 1013 of the first packaging 101, the components of the second installation assembly 6 function as positioning elements with respect to the components of the first installation assembly 5, restricting their movement at least in the width direction WP of the first packaging 101. In this way, less adhesive or glue can be used compared to a packaging wherein each respective installation assembly is temporarily fixated using glue.

[0036] Figs 11 and 12 show detailed views of XI as indicated in Fig. 10 of two different sub-packagings 1063; 1063'. In Fig. 11, the sub-packaging 1063 has an inclined upper surface, the upper surface being the surface facing substantially upwards in the height direction. As the surface is inclined, the sub-packaging 1063 will have an upstanding wall portion facing the components of the first installation assembly 5, said upstanding wall portion having a greater height than the opposite wall of the sub-packaging 1063. The upstanding wall can aid in positioning the components of the first installation assembly 5 and in keeping them in place. Having an inclined surface reduces the amount of the material needed and allows for a snug fit for the components of the second installation assembly 6, while providing a tall upstanding wall. In Fig. 12, an alternative sub-packaging 1063' without an inclined upper surface is shown, but which also provides an upstanding wall facing the components of the first installation assembly 5. The alternative sub-packaging 1063' is intended for use with a stabilizing assembly 6' which has a larger width than the stabilizing assembly 6. The stabilizing assembly 6 shown in Fig. 11 has a smaller width than the stabilizing assembly 6' thus allowing a smaller gap between neighbouring window units 11, 12 than the stabilizing assembly 6'.

[0037] Fig. 10 further shows a strip of adhesive 1981 extending in the longitudinal direction LP at the side edge 1013 opposite to the first installation assembly 5. This adhesive strip 1981 is for temporarily fixating a gutter element 98, an auxiliary equipment, to the first packaging 101, which is shown in Fig. 13. In the shown supply condition, the gutter element 98 has a length in the longitudinal direction in the supply condition, which is shorter than the first length L5 of the side members 52, 53 of the

insulating assembly 5, which side members 52, 53 are the longest components among the components of the first set of installation assemblies. In order to achieve this length of the gutter element, the gutter element 98 can be provided in two parts or be telescopic.

[0038] Also visible in Fig. 13 is a cardboard box 104 which is temporarily fixated to the first packaging 101 by a strip of adhesive (not shown). The cardboard box 104 is a sub-packaging entirely containing the third installation assembly, which in this case is the mounting assembly 4, the components of which include four mounting brackets. As shown, the cardboard box 104 is located in abutment with one open cardboard box 1064 in which the components of the second installation assembly 6 is partially packed. Also shown is a sub-packaging 107 of the fourth installation assembly temporarily fixated to the first packaging 101 by a strip of adhesive (not shown). The fourth installation assembly is in this embodiment a plurality of receiver brackets 7 and preferably also a demount tool. As shown in Fig. 13, the receiver brackets 7 are entirely packed in a sub-packaging 107, which is a cardboard box. The cardboard box 107 is in this embodiment in abutment with the side members 52, 53 of the installation assembly 5, whereby it functions as a positioning element for the side members 52, 53 in the width direction WP of the first packaging 101. Hence, the side members 52, 53 are kept in place in the packed installation kit 100, even though they are accommodated freely in the first packaging 101.

[0039] By the configuration shown in Fig. 13, components of the installation kit 100 which are heavy and/or bulky are strategically positioned in the first packaging 101. The stabilizing assembly 6 is secured to the bottom of the first packaging 101, at a central position as seen in the width direction WP, by the open cardboard boxes 1063, 1064. Since the second length L6 of the stabilizing assembly 6 is smaller than the first length L5 of the insulating assembly 5, for which the length of the first packaging 101 is dimensioned, the right-hand cardboard box 1064 is positioned at a distance from the right-hand shorter side of the first packaging 101. In this way, not only is the stabilizing assembly 6 kept securely in place during transportation, but it is also possible to utilize the stabilizing assembly 6 as a dividing wall in the first packaging, keeping components and/or sub-packagings securely in place in the first packaging 101.

[0040] Following the packing situation shown in Fig. 13, further installation assemblies and auxiliary equipment are placed on top of the already packed installation assemblies as indicated in Fig. 1.

[0041] Such further installation assemblies and auxiliary equipment include a vapour barrier collar 97 which is packed in the packaging 101, the vapour barrier collar being an auxiliary equipment. The vapour barrier collar 97 is here packed in a plastic bag 197 and located at a corner of the first packaging 101 between one of the open cardboard box 1063 accommodating the components of the second installation assembly 6, and the end edge 1011.

[0042] The fifth installation assembly comprising the cover plate 8 has a length L8 shorter than the first length L5 of the side members 52, 53 of the first installation assembly 5 and is substantially the same length as the second length L6 of the stabilizing assembly 6; 6'. As seen in Fig. 1, the cover plate 8 is packed in a sub-packaging which is here a paper wrapping 108 enveloping the cover plate 8. The cover plate 8 enveloped in paper wrapping is positioned on top of the sub-packagings 1063,1064 which accommodate the components of the stabilizing assembly 6; 6'. In this way, the cover plate 8 may be at least partly kept in place between the vapour barrier collar 97 and the two sets of top and bottom members 511, 512; 541, 542 of the insulating assembly 5, as well as the cardboard box 104. In practice, the fourth and fifth installation assemblies 7, 8 constitute sub-assemblies of a common installation assembly which serves to cover the gap between the two window units 11, 12 as shown in Figs. 6.

[0043] Further auxiliary equipment packed in the first packaging 101 include a tape roll 96a provided on top of the packaging 107 accommodating the fourth installation assembly 7, an underroof collar 96 which is packed in a plastic bag 196 and an installation manual (not shown).

[0044] Fig. 1 may thus be said to constitute a final condition of the packing of the installation kit 100. In this condition, only the second, third and fourth installation assemblies 4, 6, 7 and the gutter element 98 are temporarily fixated to the first packaging 101 by strips of adhesive, while the remaining components of the first set of installation assemblies are accommodated freely in the first packaging 101. Some of the remaining components, namely the first installation assembly 5, are held in place by some of the components which are temporarily fixed, reducing the amount of adhesive in the first packaging 101. As can be seen Figs 7 to 13, the amount of adhesive used in the packaging is comparatively low relative to the amount of packaging. Keeping the amount of adhesive low can increase the recycling value of the packaging, as cardboard recycling restricts the amount of "unwanted material", such as adhesive, in the cardboard material.

[0045] The first packaging 101 may be closed and sealed by suitable means including adhesive, tape strips, clamps and/or staples. To some extent, this applies also to the second packaging 103. Opening of the packagings 101, 103 is typically carried out by tearing or cutting at suitable positions to expose the contents. It is also conceivable to include opening means in the form of tear strips to provide facilitated opening. If so, it is preferred that the tear strips are of the perforated type, i.e. not involving a thread or wire of plastic or metal material.

[0046] Fig. 18 is a view of auxiliary equipment comprising an underroof collar 96, in which the sub-packaging of the underroof collar which is a plastic bag 196, is intended for collection of waste, in particular plastic waste during unpacking of the installation kit 100 and installation of the roof window system 1. The plastic bag 196 is

provided with a label 1960 with a recycling logo 1965. The plastic bag 196 with any accommodated plastic waste may then be put into a recycling container dedicated to plastic.

[0047] Fig. 19 shows the recycling logo 1965 in more detail. Alternative embodiments of the recycling logo 1965 are shown in Figs 20 to 23.

List of reference numerals

[0048]

1 roof window system
11 first window unit
12 second window unit
2 roof structure
21 rafter
22 batten
3 support assembly
31 upper support beam
32 lower support beam
4 mounting bracket (of mounting assembly)
5 insulating assembly
511 first top member
512 second top member
52 side member
53 side member
541 first bottom member
542 second bottom member
6; 6' stabilizing assembly
6a first stabilizing rail
6b second stabilizing rail
7 receiver brackets
8 cover plate
96 underroof collar
96a tape roll
97 vapour barrier collar
98 gutter element

100 packed installation kit

101 first packaging
1011 end edge of the first packaging 101
1012 side edge of the first packaging 101
1013 side edge of the first packaging 101
1014 end edge of the first packaging 101

103 second packaging
1031 first part of second packaging 103
1032 second part of second packaging 103
104 sub-packaging for mounting brackets 4

106 -
1061 adhesive strip
1062 adhesive strip
1063; 1063' open cardboard box/paper ribbon
1064 open cardboard box/paper ribbon

107 sub-packaging for receiver brackets 7

108 sub-packaging for cover plate 8

196 sub-packaging for underroof collar 96
1960 label
1965 recycling logo
197 sub-packaging for vapour barrier collar 97
198 -
1981 adhesive strip for gutter element 98

H common height of roof window system 1 in mounted condition
W combined width of roof window system 1 in mounted condition
B1 first width (of first part 1031 of second packaging 103)
H1 first height (of first part 1031 of second packaging 103)
L1 first length (of first part 1031 of second packaging 103)
B2 second width (of second part 1032 of second packaging 103)
H2 second height (of second part 1032 of second packaging 103)
L2 second length (of second part 1032 of second packaging 103)
B3 width of second set of installation assemblies (support assembly 3)
H3 height of second set of installation assemblies (support assembly 3)
L3 length of second set of installation assemblies (support assembly 3)
L5 first length of set of side members 52, 53 of insulating assembly 5
L6 second length of stabilizing assembly 6; 6'
L8 length of cover plate 8
HP height direction of first packaging 101
LP length / longitudinal direction of first packaging 101
WP width direction of first packaging 101

Claims

1. A packed installation kit (100) for use in the installation of a roof window system (1) comprising two window units (11, 12) and configured to be built in side by side in an inclined roof structure (2) such that the roof window system (1) defines a common height (H) and a combined width (W) in the mounted condition, said installation kit (100) comprising a number of installation assemblies (3, 4, 5, 6, 7, 8), each including one or more components having a length (L3, L5, L6, L8), and optionally auxiliary equipment (96, 96A, 97, 98), the components of a first set of installation assemblies (4, 5, 6, 7, 8) of the installation kit (100) being accommodated in a first packaging

(101) comprising a box shaped as a rectangular prism, preferably of corrugated cardboard, having a length in a longitudinal direction (LP), a width in a width direction (WP) and a height in a height direction (HP) to provide a supply condition of the installation kit (100),

characterised in that

the components of the first set of installation assemblies (4, 5, 6, 7, 8) of the installation kit (100) are accommodated in the first packaging (101) either as they are or partially or entirely packed in a sub-packaging (104, 1063; 1063', 1064, 107, 108) of cardboard or paper material,

that the length of the first packaging (101) in the longitudinal direction (LP) is selected in accordance with a length of a longest component(s) of the first set of installation assemblies,

that a first installation assembly (5) of said first set of installation assemblies comprises the longest component(s) (52, 53) having a first length (L5),

that the components of a second installation assembly (6; 6') of said first set of installation assemblies have a second length (L6) which is shorter than the first length (L5) of the longest component(s) (52, 53) of the first set of installation assemblies, and

that the components of the second installation assembly (6; 6') of said first set of installation assemblies are partially packed in a sub-packaging comprising at least one open cardboard box and/or paper ribbon (1063; 1063', 1064) located at or near longitudinal ends of the components of the second installation assembly (6; 6') and temporarily fixated to the first packaging (101) to allow the components of the second installation assembly (6; 6') and/or the sub-packagings (1063; 1063', 1064) to function as positioning elements relative to components of at least one other installation assembly (5, 8) of said first set of installation assemblies in the longitudinal, width and/or height direction of the first packaging (101).

2. A packed installation kit according to claim 1, wherein the sub-packaging (104, 1063; 1063', 1064, 107) accommodating components of at least one installation assembly (4, 6, 7) of said first set of installation assemblies is temporarily fixated to the first packaging (101) by at least one strip (1061, 1062) of adhesive or glue, the amount of adhesive or glue being preferably comparatively low relative to the amount of packaging.

3. A packed installation kit according to any one of the preceding claims, wherein the first length (L5) of the longest component(s) of the installation assemblies of said first set of installation assemblies (4, 5, 6, 7, 8) in the supply condition substantially corresponds to or exceeds slightly the common height (H) of the roof window system (1) in the mounted condition.

4. A packed installation kit according to claim 3, wherein the first installation assembly comprises an insulating assembly (5) including an insulating frame with components comprising a set of side members (52, 53) and two sets of top members (511, 512) and bottom members (541, 542), the side members (52, 53) being the longest components of the installation assemblies of said first set of installation assemblies, and the components of said first installation assembly (5) being accommodated freely in the first packaging (101), preferably at and along one longitudinal side edge (1012) of the first packaging (101).

5. A packed installation kit according to one or more of the preceding claims, wherein the second installation assembly of said first set of installation assemblies comprises a stabilizing assembly (6; 6') with components comprising two stabilizing rails (6a, 6b).

6. A packed installation kit according to claim 5, wherein the components of the second installation assembly (6) of said first set of installation assemblies are located substantially in parallel to the side edges (1012, 1013) of the first packaging (101) and function as positioning elements relative to the components of the first installation assembly (5) in the width direction (WP) of the first packaging (101).

7. A packed installation kit according to any one of the preceding claims, wherein at least one of said open cardboard box(es) (1063; 1063', 1064) and/or paper ribbon(s) is folded to form an upstanding wall portion facing the components of the first installation assembly (5) of said first set of installation assemblies.

8. A packed installation kit according to any one of the preceding claims, wherein the components of a third installation assembly (4) of said first set of installation assemblies are packed in a sub-packaging comprising a cardboard box (104), the third installation assembly preferably comprising a mounting assembly with components including four mounting brackets (4), and wherein the cardboard box (104) is temporarily fixated to the first packaging (101) by at least one strip of adhesive or glue, preferably at or near a corner of a side edge (1013) and an end edge (1011) of the first packaging (101).

9. A packed installation kit according to claim 8, wherein the cardboard box (104) accommodating the components of the third installation assembly (4) is located in abutment with one open cardboard box (1064) and/or paper ribbon packing the components

of the second installation assembly (6) of said first set of installation assemblies.

10. A packed installation kit according to any one of the preceding claims, wherein the components of a fourth installation assembly (7) of said first set of installation assemblies are packed in a cardboard box (107), the fourth installation assembly preferably comprising a cover assembly with components including a set of receiver brackets (7), more preferably also a demount tool, and wherein the cardboard box (107) is temporarily fixated to the first packaging (101) by at least one strip of adhesive or glue, preferably at or near an end edge (1011) of the first packaging (101).

11. A packed installation kit according to claim 10, wherein the cardboard box (107) accommodating the components of the fourth installation assembly (7) is located in abutment with the components of the first installation assembly (5) of said first set of installation assemblies and functions as a positioning element relative to the components of the first installation assembly (5) in the width direction (WP) of the first packaging (101).

12. A packed installation kit according to any one of the preceding claims, wherein the components of a fifth installation assembly (8) of said first set of installation assemblies are packed in a sub-packaging comprising paper wrapping (108), the fifth installation assembly preferably comprising a cover assembly with components including a cover plate (8), said cover plate (8) preferably having a length (L8) which is slightly shorter than the first length (L5) of a longest component(s) of the first set of installation assemblies.

13. A packed installation kit according to claim 12, wherein the components of the fifth installation assembly (8) of said first set of installation assemblies are positioned on top of, as seen in the height direction (HP) of the first packaging (101), the at least one open cardboard box (1063; 1063', 1064) and/or paper ribbon accommodating the components of the second installation assembly (6) of said first set of installation assemblies.

14. A packed installation kit according to any one of the preceding claims, wherein the installation kit furthermore comprises auxiliary equipment (96, 96a, 97, 98) including at least a gutter element (98) configured to assume a length in the supply condition which is shorter than the first length (L5) of a longest component(s) of the components of the first set of installation assemblies, preferably by the gutter element (98) being at least two-part, more preferably telescopic, and wherein the gutter element (98) is temporarily fixated to the first packaging (101), preferably by at least one strip of adhesive (1981) or glue, more preferably at and along a longitudinal side edge (1013) of the first packaging (101).

15. A packed installation kit according to claim 14, wherein the auxiliary equipment comprises an underroof collar (96) packed in a plastic bag (196) intended to function as a collection element for waste, in particular waste of plastic material during installation of the roof window system, the plastic bag (196) preferably being provided with a label (1960) comprising a recycling logo (1965).

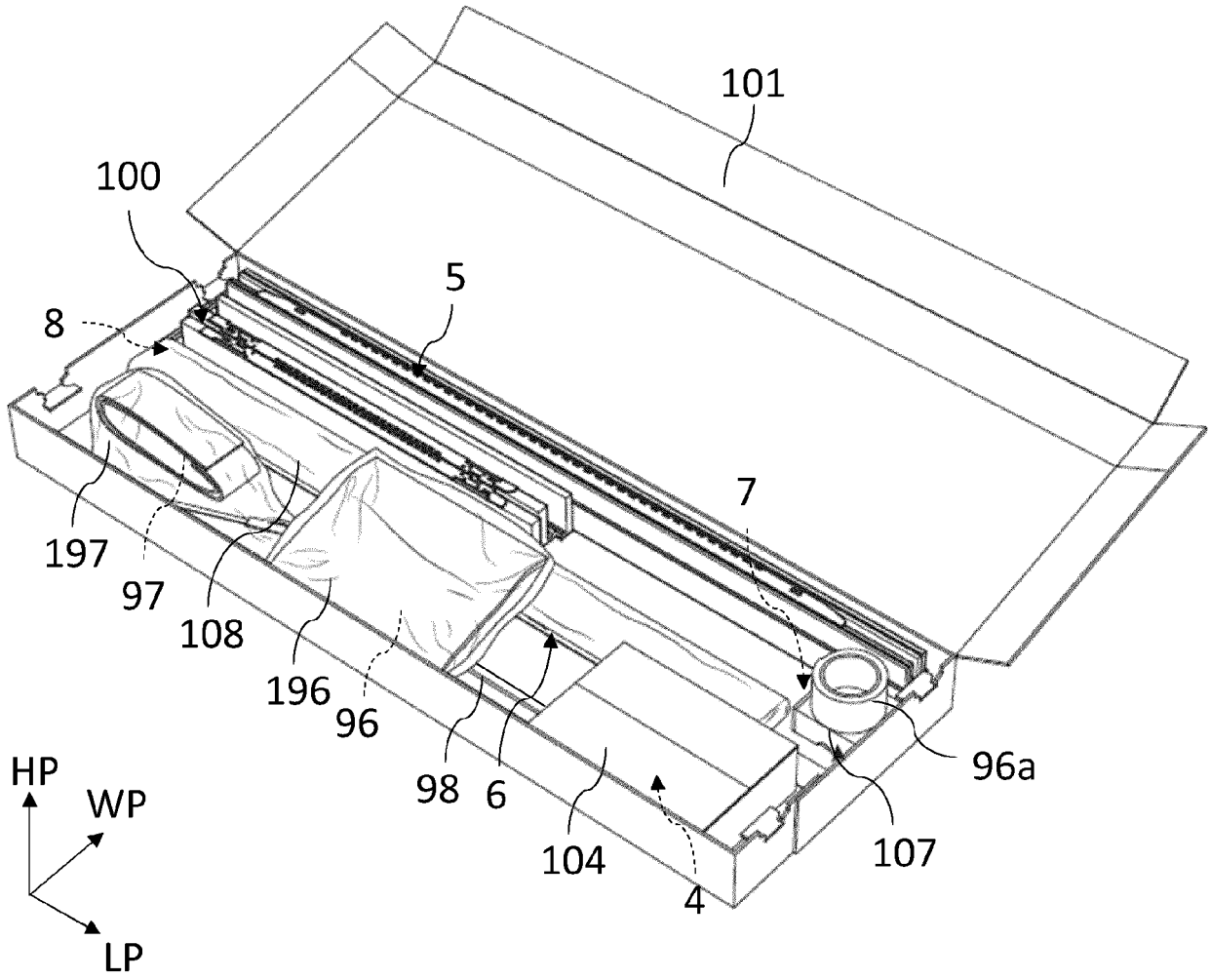

Fig. 1

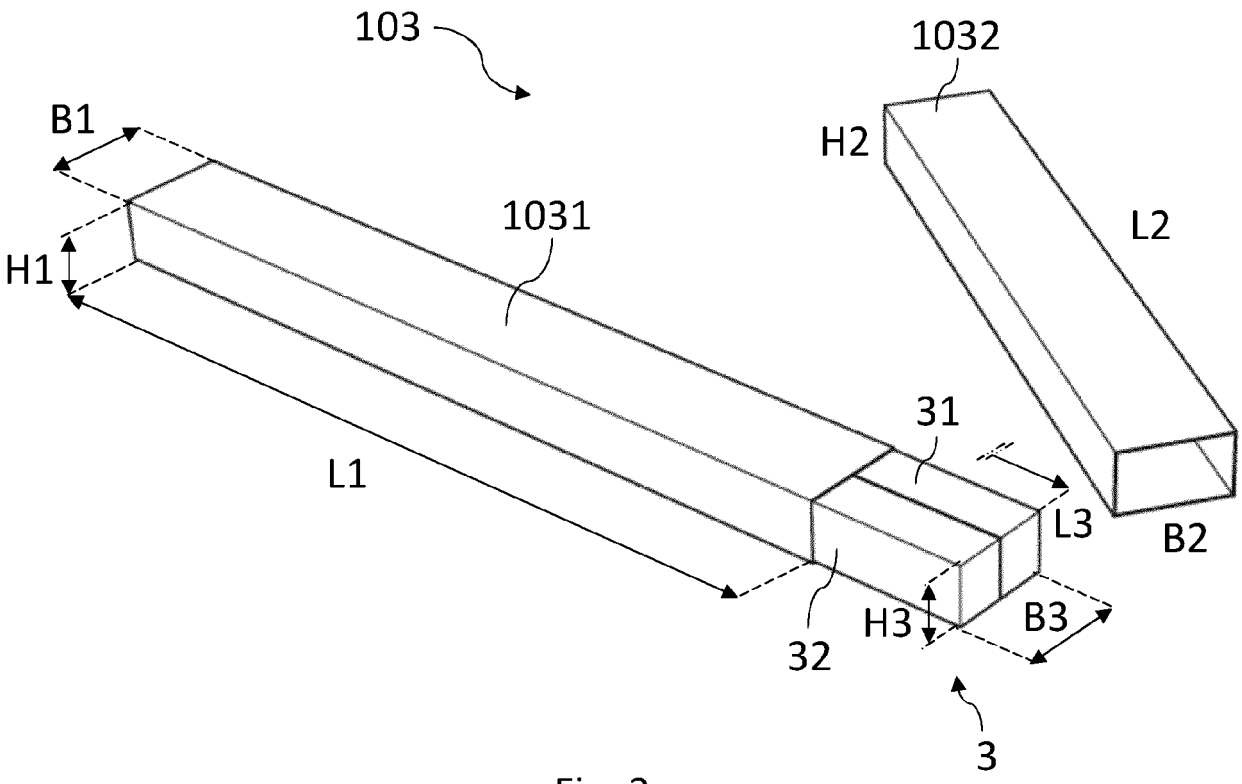

Fig. 2a

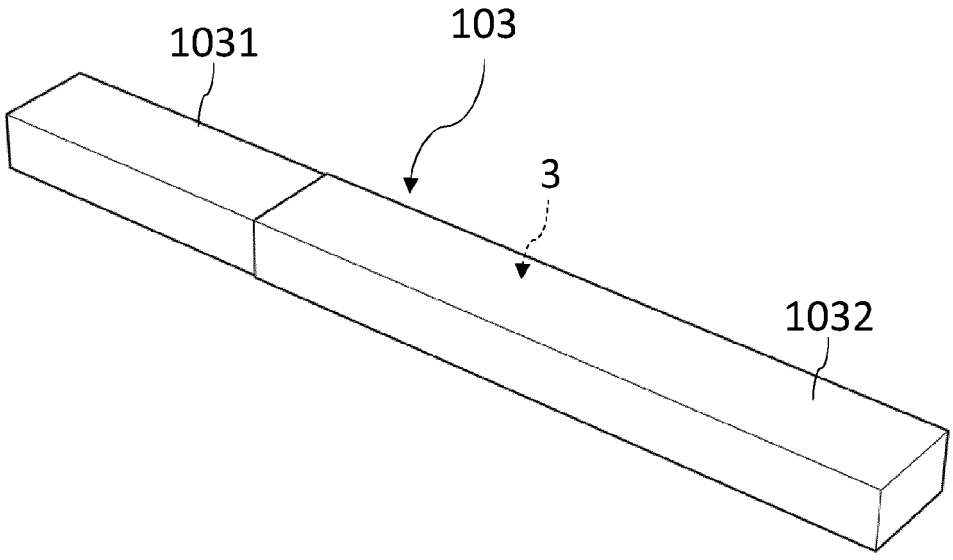

Fig. 2b

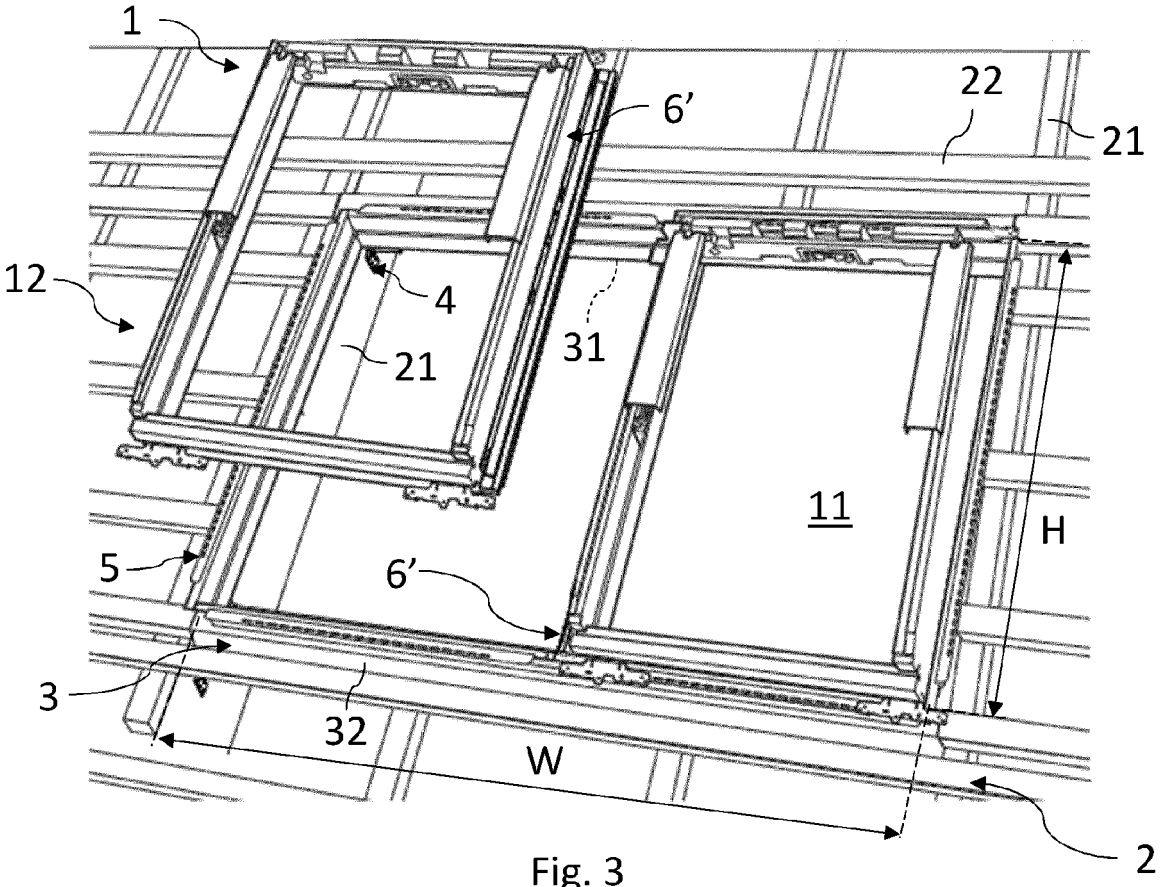

Fig. 3

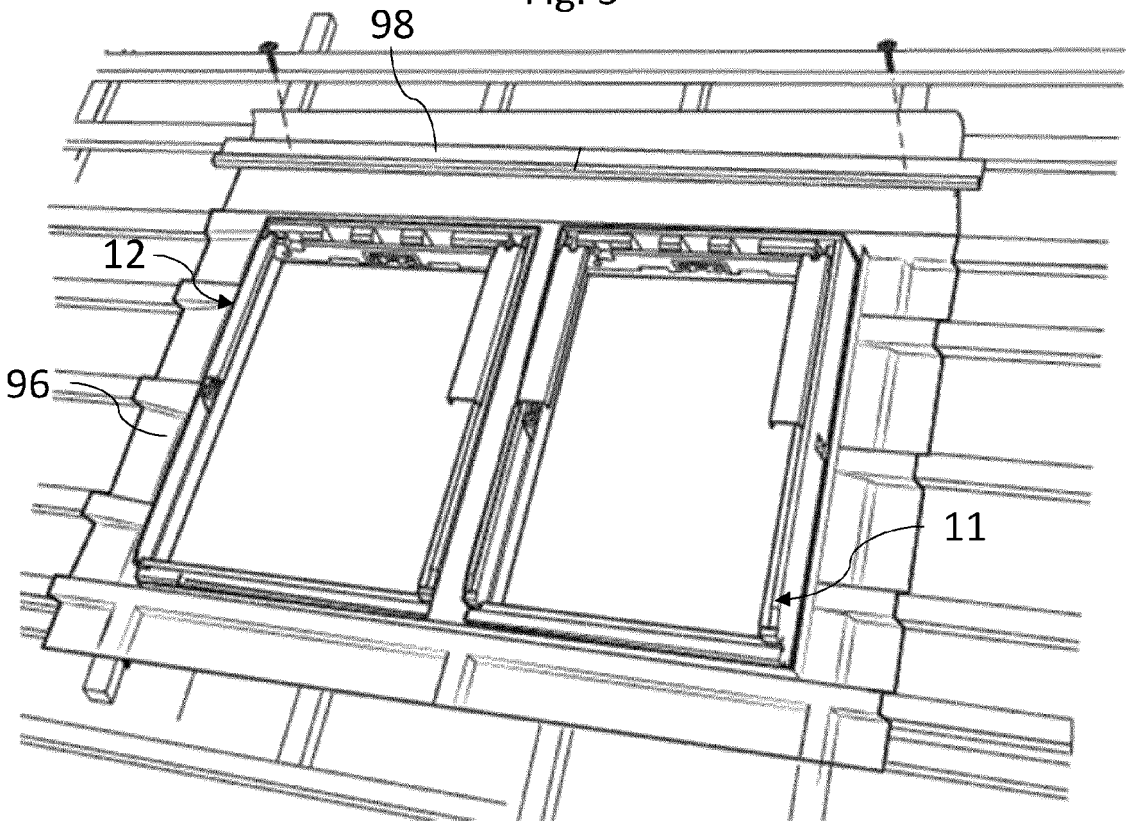

Fig. 4

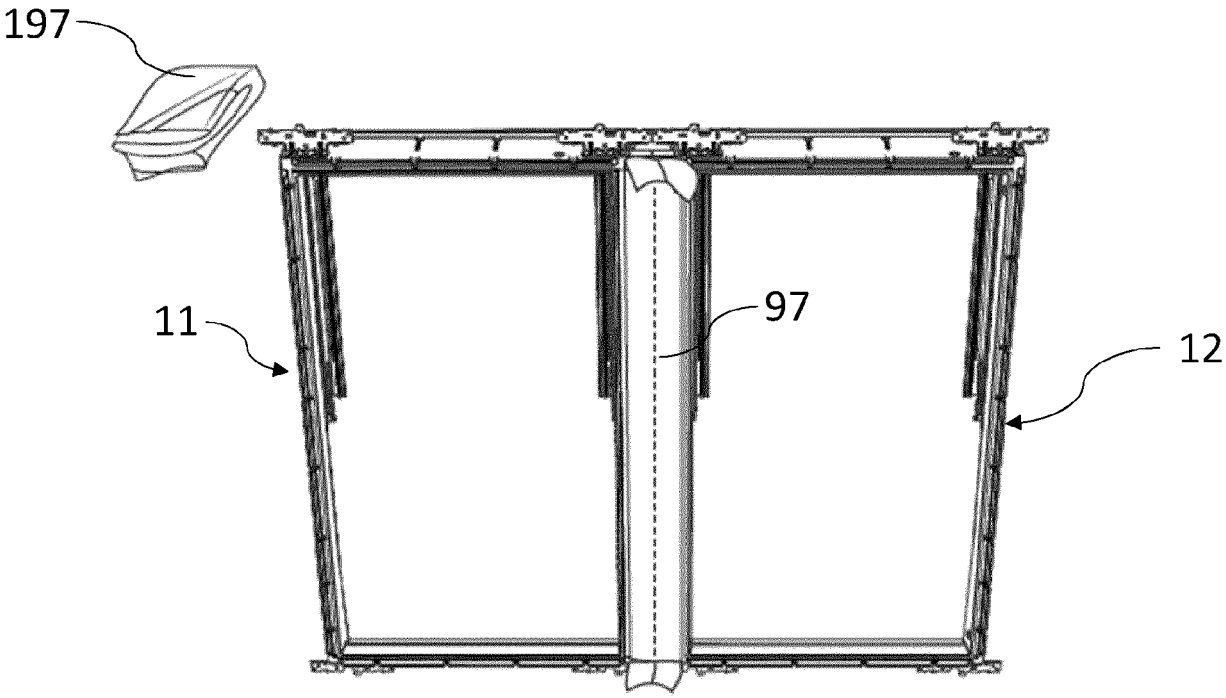

Fig. 5

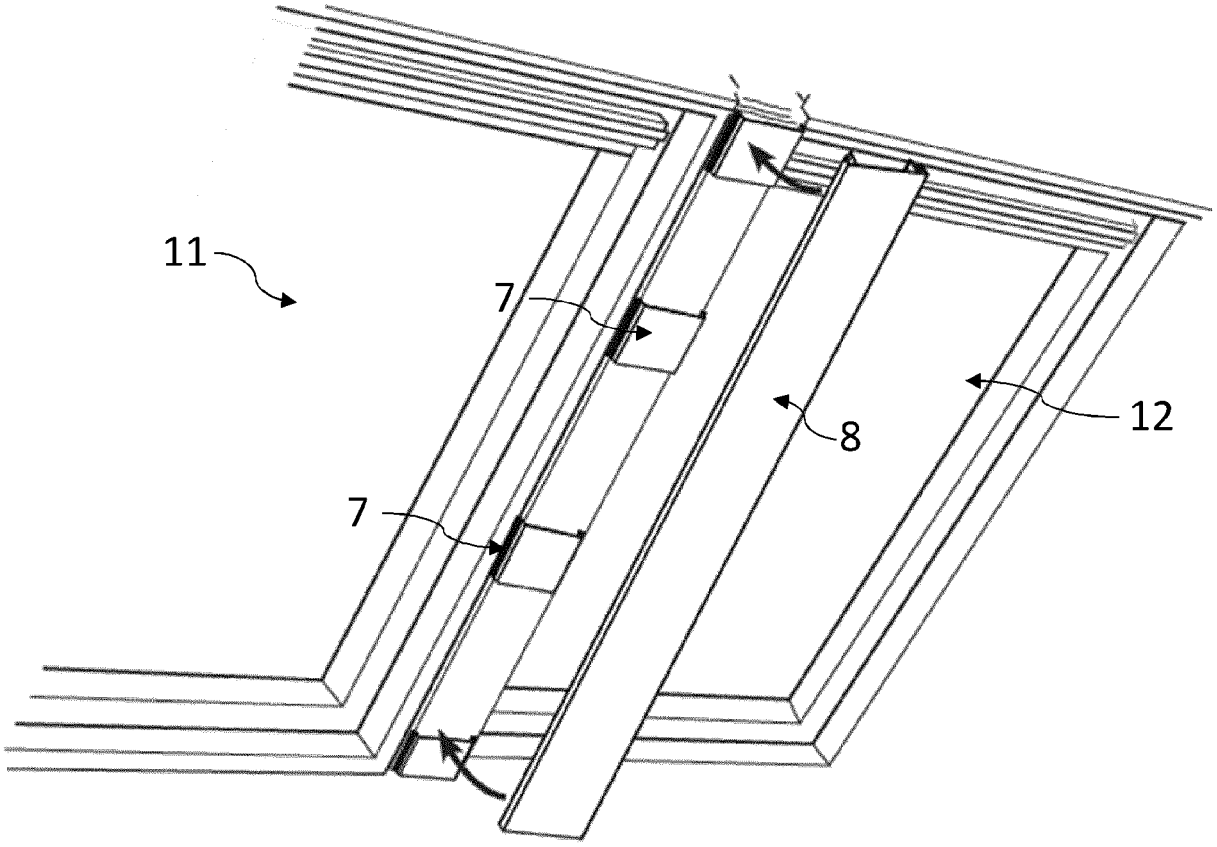

Fig. 6

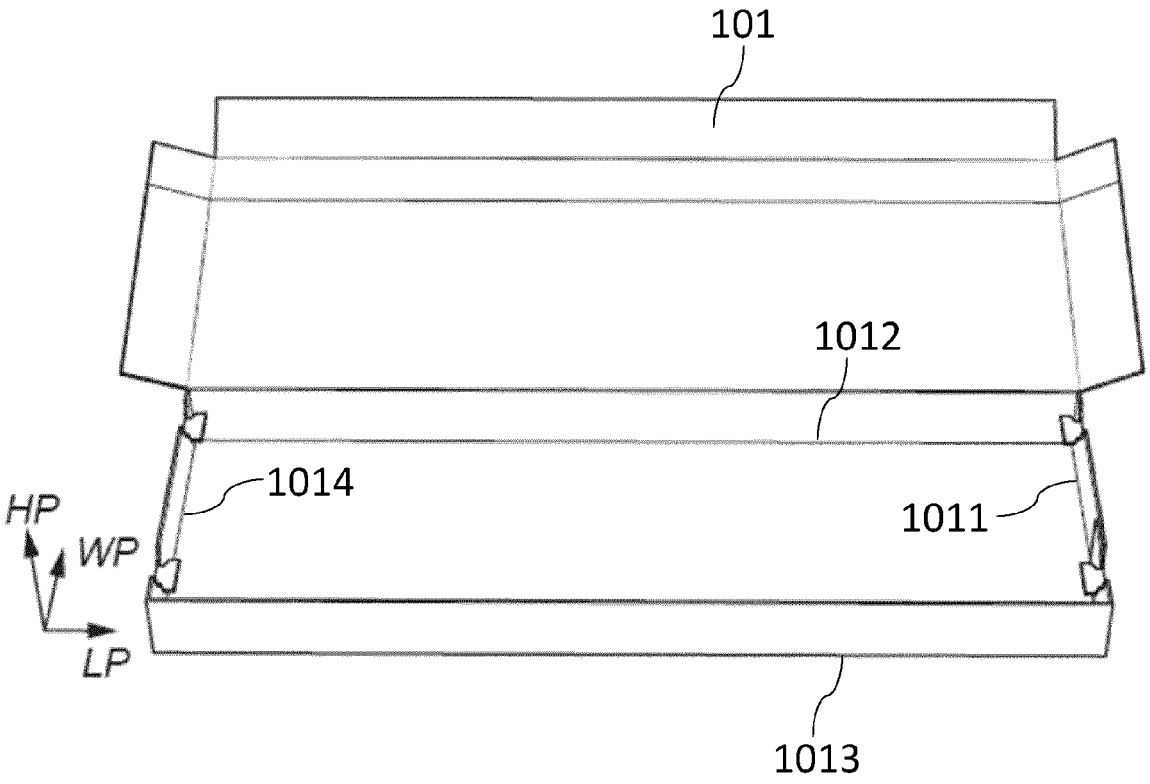

Fig. 7

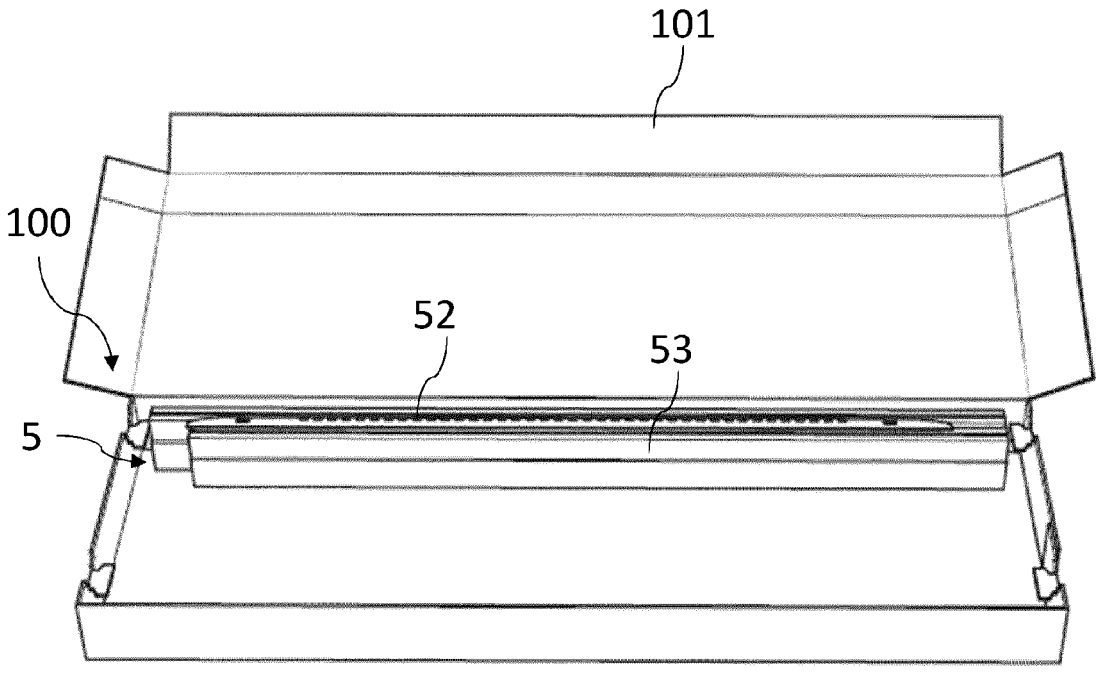

Fig. 8

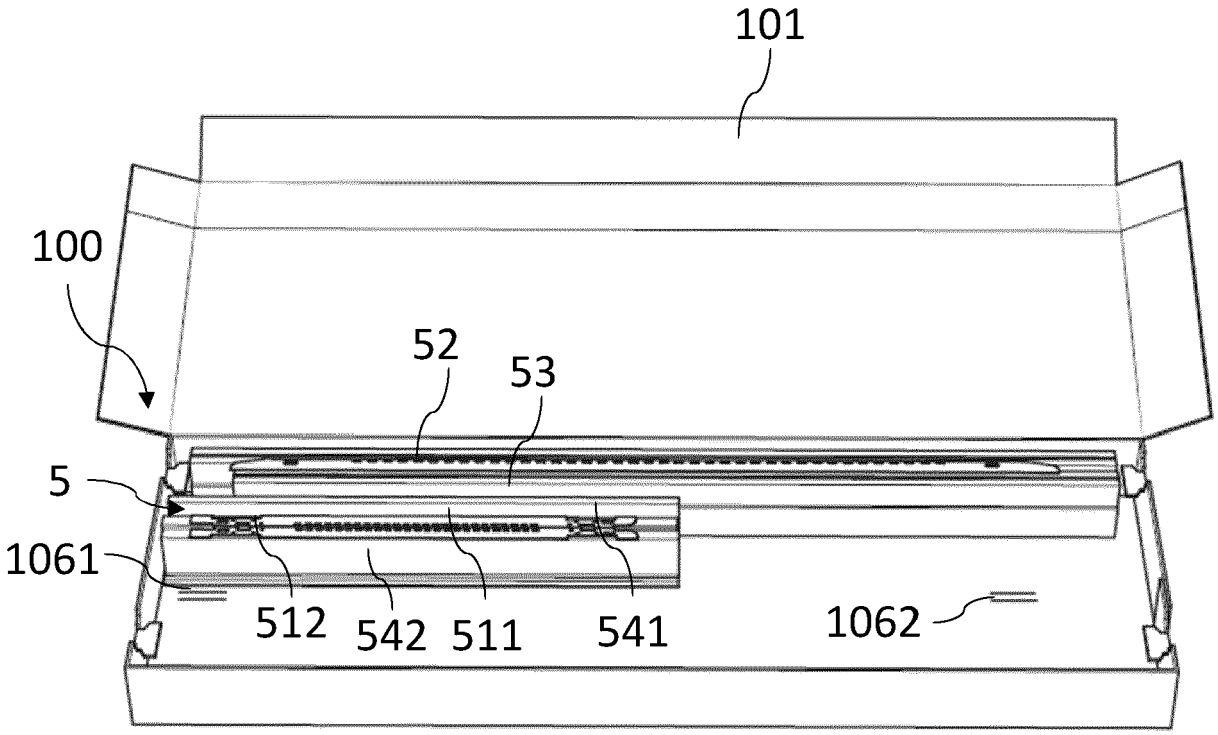

Fig. 9

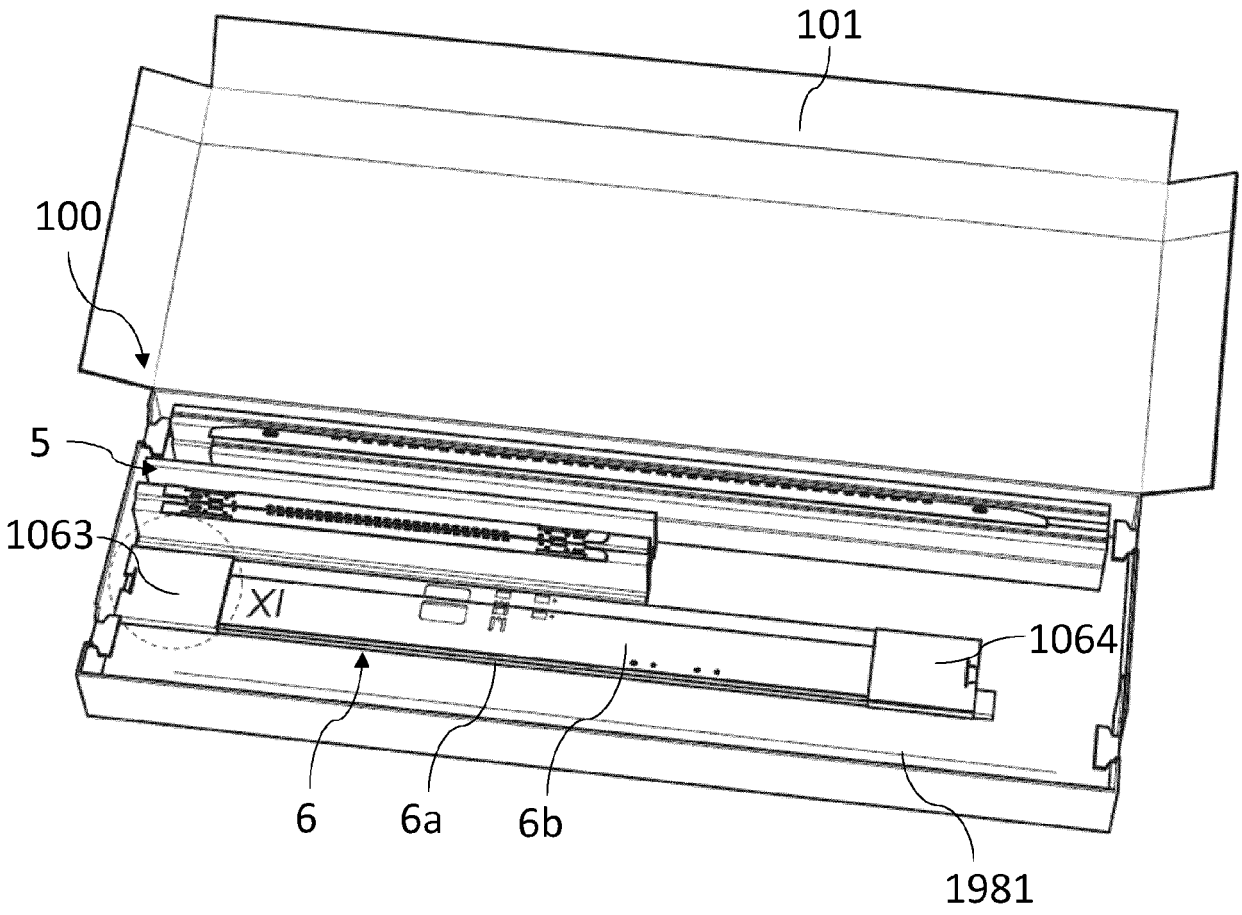

Fig. 10

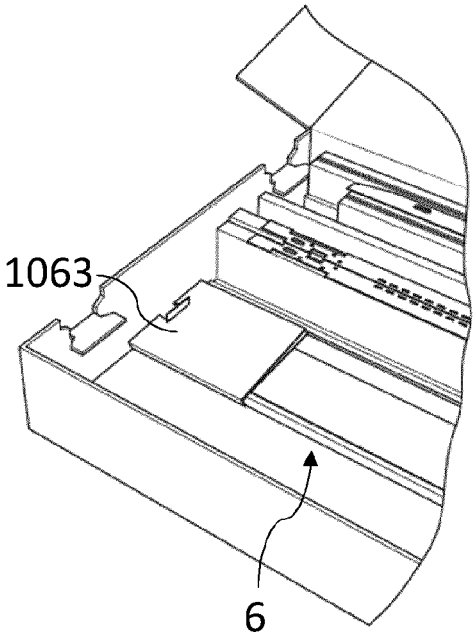

Fig. 11

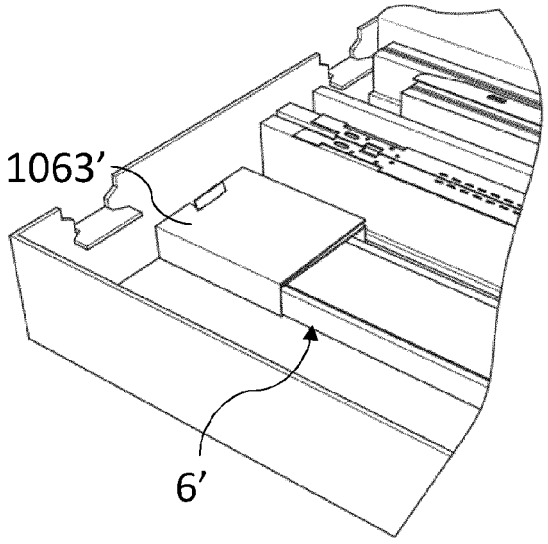

Fig. 12

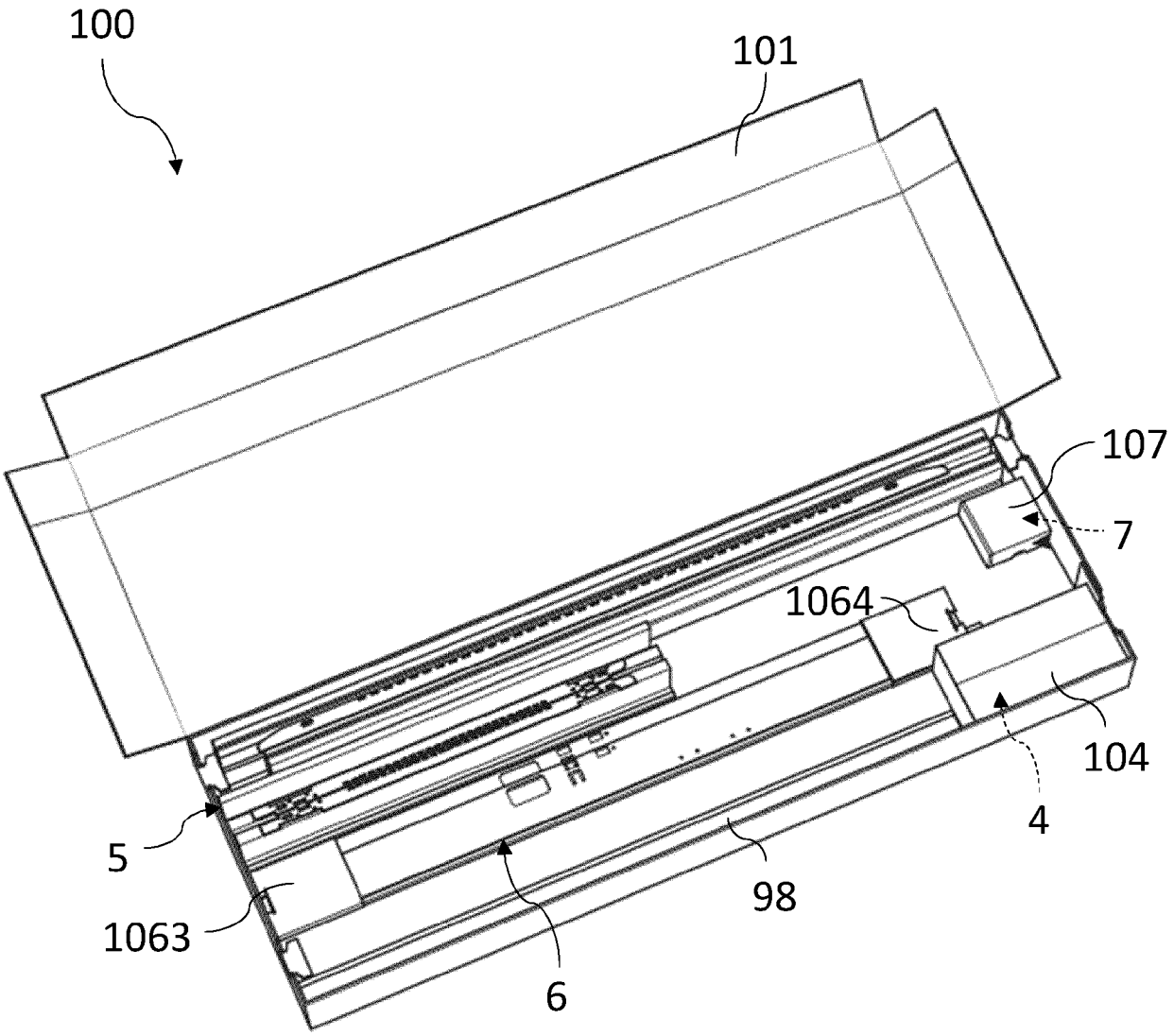

Fig. 13

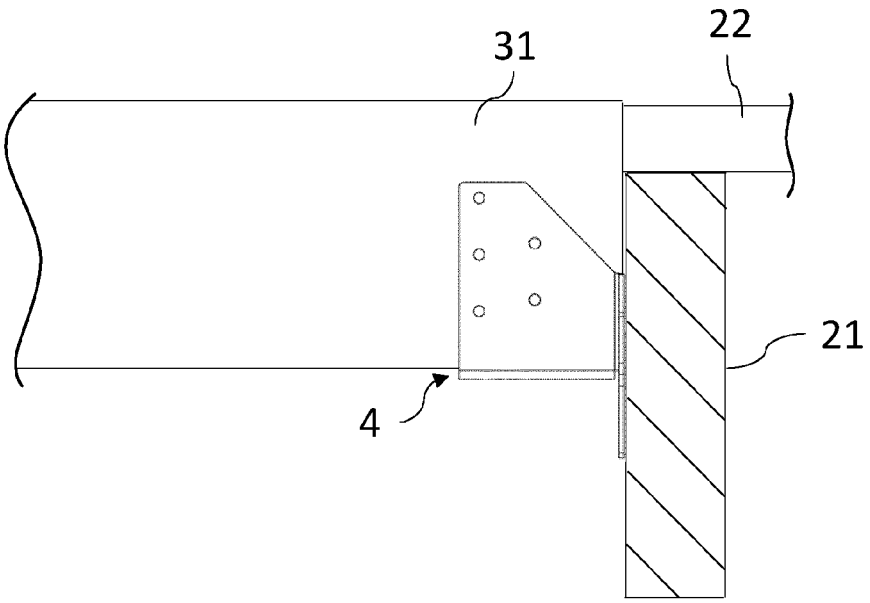

Fig. 14

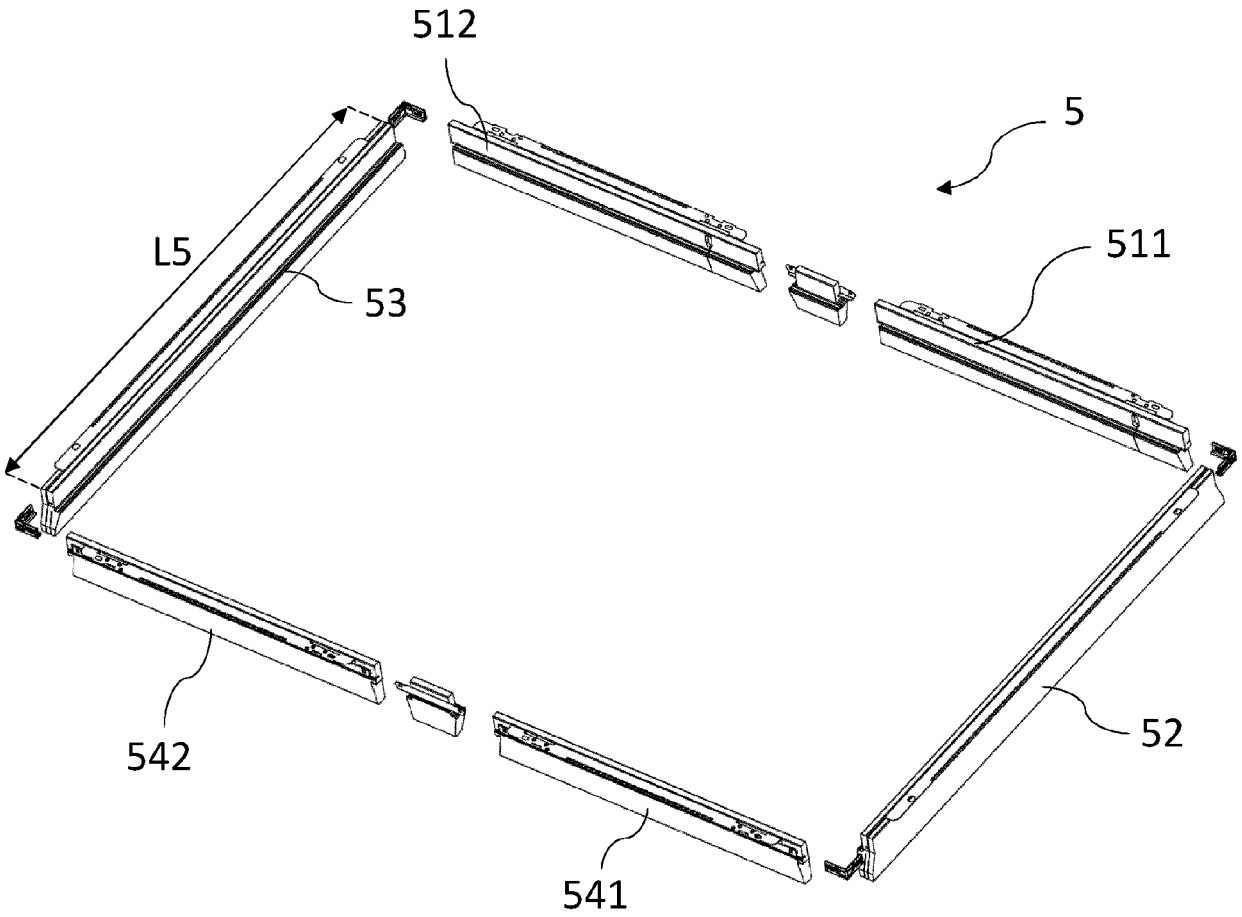

Fig. 15

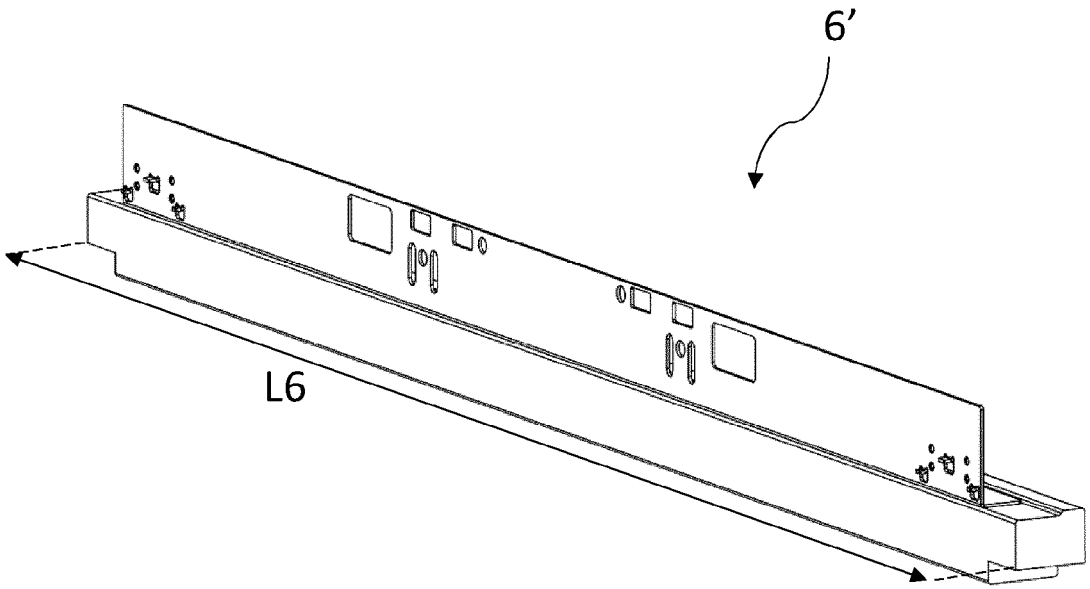

Fig. 16

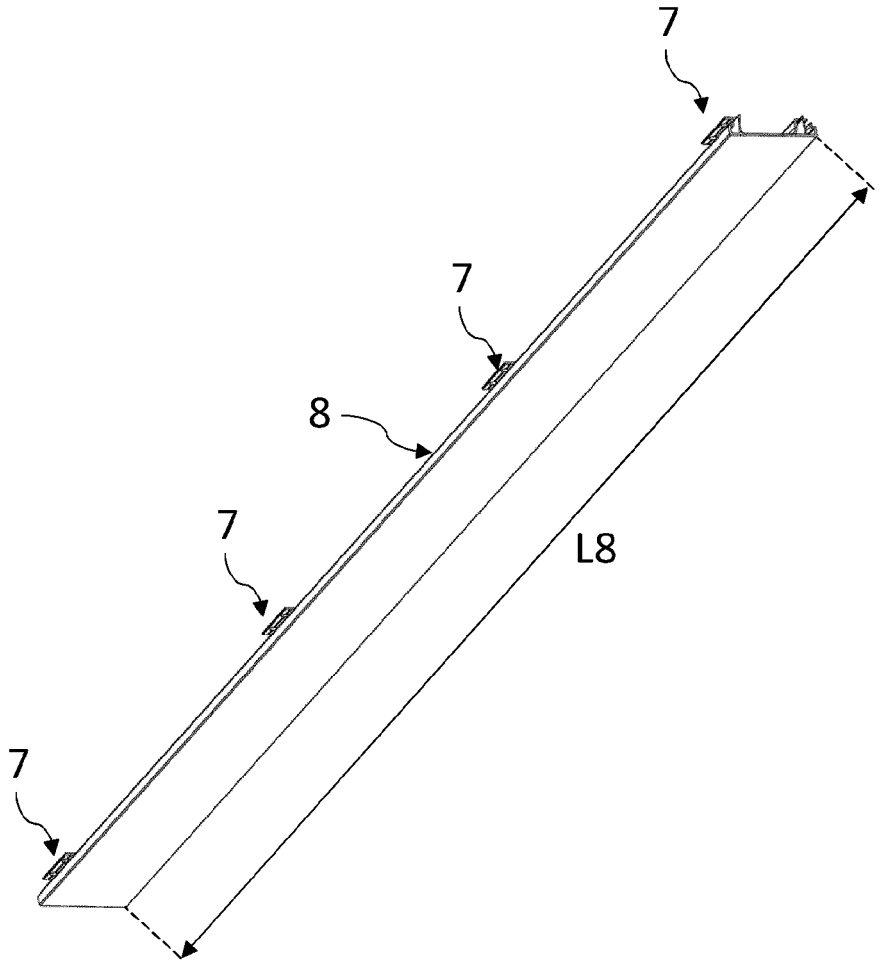

Fig. 17

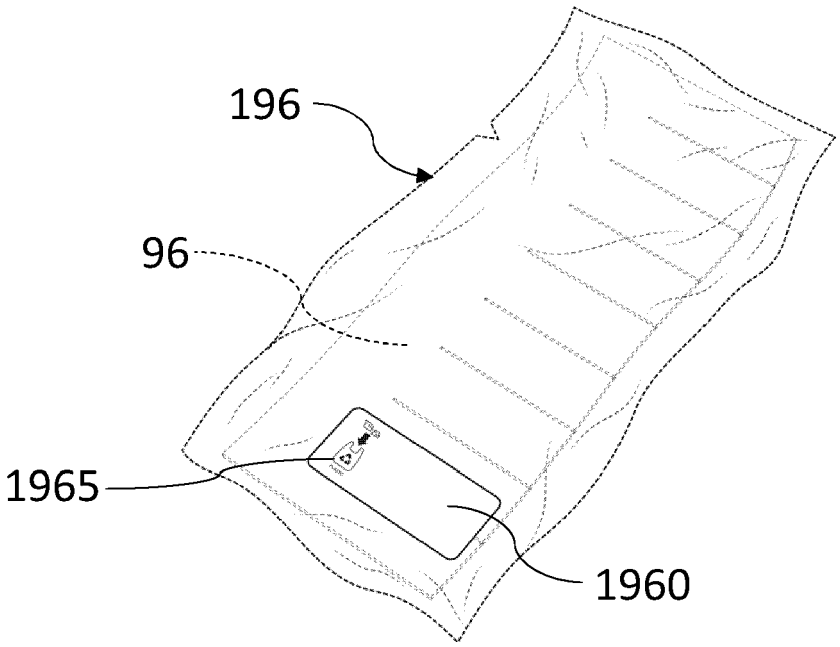

Fig. 18

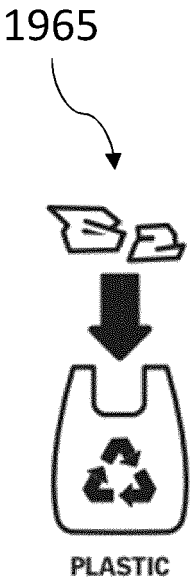

Fig. 19

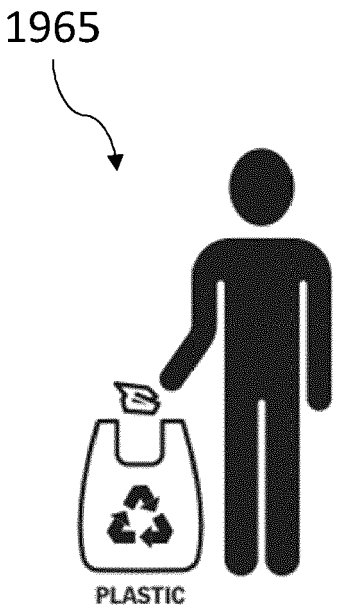

Fig. 20

Fig. 21

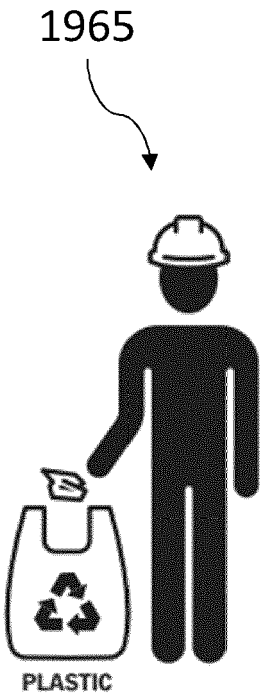

Fig. 22

Fig. 23

REFERENCES CITED IN THE DESCRIPTION

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