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(54) **A PACKED ROOF WINDOW, A VENTILATION FLAP RETAINER, AND USE OF A VENTILATION FLAP RETAINER**

(57) A packed roof window, said window comprising a ventilation passage and a ventilation flap, said ventilation passage extending from an interior side of the window to an exterior side of the window, said ventilation flap being provided on the interior side of the window and being moveable being a first position, where the ventilation passage is open, and a second position, where it covers the ventilation passage. Said roof window is contained in a cardboard box, and blocks of shock absorbing

materials are arranged inside the cardboard box to protect the roof window. A frame-side ventilation flap retainer made from a paper-based material is provided on or at the ventilation flap to prevent it from unintentional movement and the frame-side ventilation flap retainer is arranged between the ventilation flap and the sash. A ventilation flap retainer, and the use of a ventilation flap retainer are also disclosed.

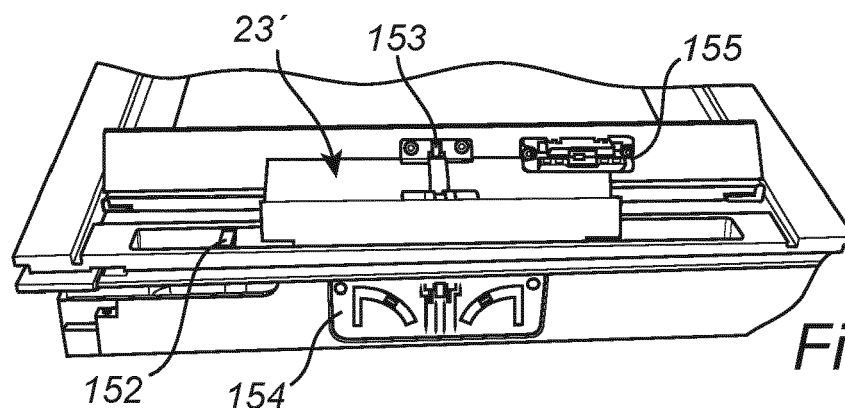


Fig. 17

Description

Technical Field

[0001] The present invention relates to a packed roof window comprising a ventilation passage and a ventilation flap, said ventilation passage extending from an interior side of the window to an exterior side of the window, said ventilation flap being provided on the interior side of the window and being moveable being a first position, where the ventilation passage is open, and a second position, where it covers the ventilation passage, where said roof window is contained in a cardboard box, and where blocks of shock absorbing materials are arranged inside the cardboard box to protect the roof window.

Background Art

[0002] When installing windows in a roof it is vital to ensure that both the roof window itself and the joint between the roof window and the roof structure is properly weather proofed. This is ensured by the use of coverings and flashing, which covers the roof window and the joint, respectively. Covering members and flashing members are usually made from sheet metal, which combines the advantages of low weight and high weather resistances, but which is sensitive to damages caused by deformation and scratching. Flashing members are typically provided in a separate packaging, but at least some of the covering members are typically pre-attached to the roof window. To protect these and other sensitive components, such as the pane of the roof window, blocks of expanded polystyrene or similar shock absorbing material are arranged inside the cardboard box. These blocks may prevent deformation of the cardboard box, thereby preventing that excessive loads affect the roof window, and/or keep components of the roof window in their intended positions within the box. One example of a packed roof window, where these principles are used, is known from EP2748071B1.

[0003] While this packaging has worked very well, there is an ever-increasing demand for delivering products that are more environmentally friendly.

Summary of Invention

[0004] With this background, it is an object of the invention to provide a packed roof window, which has a smaller climate footprint, while maintaining a good protection of the roof window during transportation.

[0005] This and further objects are achieved with a packed roof window product of the kind mentioned in the introduction, which is furthermore characterised in that a frame-side ventilation flap retainer made from a paper-based material is provided on or at the ventilation flap to prevent it from unintentional movement and that the frame-side ventilation flap retainer is arranged between the ventilation flap and the sash.

[0006] Ventilation flap retainers have previously been made from expanded polystyrene (EPS), which is cheap, light-weight, and sufficiently soft to not cause abrasive damage to other components of the roof window during handling and transportation in the packed state. The use of EPS, however, requires that the packaging material will have to be separated in different fractions for recycling. The paper-based ventilation flap retainer on the other hand belongs to the same fraction as the cardboard box, which considerably increases the likelihood of the packaging material being recycled instead of just being disposed of as combustible waste and reduces the risk of recycled material being polluted by other materials.

[0007] Roof windows are often delivered with the ventilation flap in a disengaged state where it has been swung away from the frame and/or sash of the window towards the pane in order to make it take up less space, thereby allowing the use of a smaller cardboard box. The frame-side ventilation flap retainer arranged between the ventilation flap and a sash or frame of the roof window keeps the ventilation flap in this position, preventing it from moving towards the sash or frame during handling and transportation of the packed roof window. In this way damage to the roof window, which might be caused by uncontrolled movement of the ventilation flap is prevented.

[0008] Some paper-based materials may have poorer properties than EPS when it comes to abrasion, but this may be compensated for by arranging a paper-based slip sheet between the ventilation flap retainer and potentially sensitive components of the roof window, such as the pane or a painted surface of the sash. Likewise, smudging should be avoided, either by testing the material chosen for the ventilation flap retainer or by using a slip sheet.

[0009] Another potential advantage of using a ventilation flap retainer made from a paper-based material is that it may be biologically degradable. Light-weight packaging items, such as plastic wrappings, films, and EPS, are easily caught by wind when installing a roof window product on a roof of building and may easily end up in nature or other places where it cannot be collected by the installer. While it is of course not the intention to leave packaging material behind, a biodegradable ventilation flap retainer does little harm.

[0010] A ventilation flap typically form part of a roof window further comprising a sash carrying a pane, a frame, a set of hinges allowing the sash to swing or rotated in relation to the frame, and a locking assembly for locking the sash in relation to the frame, where the locking assembly is operable by moving the ventilation flap, where in the first and second positions, the sash is locked in relation to the frame, and in a third position of the ventilation flap, the sash is moveable in relation to the frame. Such a window will typically be centre-hung, and the ventilation flap will be located at a top sash member intended to be at the top of the roof window in the mounted state.

[0011] The ventilation flap may be connected to a sash

or frame of the roof window by means of one or more hinges.

[0012] The ventilation flap may be an elongate member extending along a member of the sash or frame, in parallel therewith, and may extend over substantially the entire width or height of the roof window.

[0013] A handle may be provided on the ventilation flap for ease of operation. If the ventilation flap is an elongate member, the handle may be in the form of a rail or bar extending in parallel therewith and having substantially the same length as the ventilation flap.

[0014] In one embodiment, the frame-side ventilation flap retainer extends into the ventilation passage. If the section(s) of the frame-side ventilation flap retainer, which extend into the ventilation passage, is/are of slightly larger dimensions than the ventilation passage, the engagement between them may contribute to keeping the frame-side ventilation flap retainer in the intended position. In some roof windows the ventilation passage is provided with a grate-like structure dividing the ventilation passage into a series of openings. In such cases the frame-side ventilation flap retainer may be configured for engagement with the grate-like structure or an opening therein.

[0015] In one embodiment the frame-side ventilation flap retainer comprises a centre section configured for engagement with the ventilation flap and two wing sections configured for being inserted into the ventilation passage. The shape and size of the frame-side ventilation flap retainer will depend on the design of the roof window. Particularly the shape and position of the wing sections may have to be adapted to the shape and position of the ventilation passage in a given roof window.

[0016] In one embodiment, a pane-side ventilation flap retainer is arranged between the ventilation flap and a pane of the roof window. Such a ventilation flap retainer prevents a ventilation flap provided in a disengaged state from moving further towards the pane than intended, thus for example preventing it from pounding at the pane and potentially causing damage during handling and transportation of the packed roof window.

[0017] In one embodiment, the pane-side ventilation flap retainer is further arranged between the ventilation flap and the cardboard box. This too will contribute to keeping the ventilation flap in the intended position during handling and transportation of the packed roof window.

[0018] One ventilation flap retainer may extend from the pane to the cardboard box.

[0019] In one embodiment the roof window comprises a handle on the ventilation flap and the ventilation flap retainer is attached to the handle. This arrangement of the ventilation flap retainer is particularly advantageous in a pane-side ventilation flap retainer and may provide for easy and reliable attachment and detachment of the ventilation flap retainer as will be described in further detail below.

[0020] In the following, whenever reference is made to "a ventilation flap retainer" or "the ventilation flap retainer"

it is to be understood that the description applies to both a pane-side ventilation flap retainer and to a frame-side ventilation flap retainer.

[0021] The ventilation flap retainer(s) may for example be made from a material chosen from the group consisting of: moulded pulp, folded cardboard, folded corrugated cardboard, multi-layer corrugated cardboard, cardboard profile, and honeycomb material, preferably a having a cell size of 22 mm and being made from paper with a weight of 140 g/m² and having a height of 20-40 mm.

[0022] A present moulded pulp, folded cardboard, or folded corrugated cardboard is considered advantageous as the strength requirement for the ventilation flap retainer(s) is usually limited and as it allows the use of the ventilation flap retainer for other purposes.

[0023] Moulded pulp can be given virtually any desired shape but has limited strength. It is thus advantageous for applications, where the ventilation flap retainer needs to have a complex three-dimensional shape, but items made from moulded pulp are generally characterized by large dimensionally tolerances. Folded cardboard and folded corrugated cardboard on the other hand can be given less complex shapes but may have higher strength and smaller tolerances. They are therefore preferred for roof windows, where the ventilation flap has been made extra heavy to balance the sash. Furthermore, folded cardboard and folded corrugated cardboard can easily be reshaped by folding, unfolding and possibly refolding in another configuration.

[0024] In one embodiment the pane-side ventilation flap retainer is a carton made from folded cardboard or folded corrugated cardboard and containing components for use when installing or operating the roof window. Examples of such components are sensitive components, such as electronic components, for example wires, photovoltaic elements, sensors, batteries, or remote controls; components, which are likely to cause damage to other components, such as mounting brackets for connecting a roof window to a roof structure and screws, nails, clamps or like fasteners; and components, which are advantageously kept in a folded and/or compressed state, such as wires, cables, sealing strips, insulating components, underroof collars, and vapour barrier.

[0025] It is presently considered particularly advantageous to provide components, which are to be used on the interior side of the roof window, in a carton used as pane-side ventilation flap retainer, examples of such components being a remote control for operating the window once installed, and a vapour barrier, which is used to seal the joint between the roof window and the roof structure, wall or sealing on the interior side.

[0026] It is also, or alternatively, possible to attach items to a ventilation flap retainer, for example using a glue, an adhesive, a paper tape or a paper ribbon. Small items such as fasteners may be arranged in a paper bag, which is attached to the ventilation flap retainer. Screws may even be attached to a ventilation flap retainer by simply being screwed into it.

[0027] Attachment of the pane-side ventilation flap retainer may be achieved by providing it with a physical structure allowing it to engage with the handle, such as one or more hook-shaped projections. These may be formed by folding the material of the ventilation flap retainer.

[0028] A shock absorbing material may be provided on the ventilation flap retainer(s). Such a shock absorbing material is preferably also made from a paper-based material.

[0029] In one embodiment, a ventilation flap retainer is configured for serving a secondary purpose after having been removed from the ventilation flap or handle. One example of such a secondary purpose is that the ventilation flap retainer is configured for being attached to a corner of a sash of the roof window after being removed from the ventilation flap. The sash of a roof window is often removed before mounting the window frame in an opening in a roof structure, and the sash then needs to be put down, for example on a floor. When doing so, particularly the corners of the sash are in danger of being scratched or smudged. As substantially the entire sash may be visible in the use state of the roof window, the possibility for protecting it without increasing the material consumption is clearly advantageous. The ventilation flap retainer is preferably attached to a corner of the sash before detaching the sash from the window frame.

[0030] The attachment to the corner of the sash may for example be achieved by inserting the corner of the sash or a projection thereon into a recess in the ventilation flap retainer or vice versa.

[0031] When the ventilation flap retainer is made from folded cardboard or folded corrugated cardboard, it may be foldable into two different configurations, one suited for retaining the ventilation flap and one suitable for sash corner protection. For this purpose, the ventilation flap retainer may have matching flaps and recesses allowing it to be retained in one or more folded states.

[0032] When the ventilation flap retainer is made from moulded pulp, it may be re-shaped by being compressible or by being provided with one or more weak zones allowing a section of the ventilation flap retainer to be broken off.

[0033] Information about the intended use of the ventilation flap retainer, about the installation of the roof window, or about items contained in or attached to the ventilation flap retainer may be printed on the ventilation flap retainer. Alternatively, at a sticker with such information may be attached to the ventilation flap retainer.

[0034] 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. In Europe, up to 5% of alternative materials, such as the glue or adhesive used for example in the formation of a corrugated cardboard or a honeycomb structure, is acceptable, but a maximum of 3% is recom-

mended.

Brief Description of Drawings

[0035] In the following description embodiments of the invention will be described with reference to the schematic drawings, in which

Fig. 1 is a perspective view of a roof window with blocks of shock absorbing packaging material arranged around it and with ventilation flap pane-side retainers attached to a handle,

Fig. 2 corresponds to a cross-section along the line A-A in Fig. 1, but showing a different embodiment arranged in a cardboard box,

Fig. 3 is a perspective view of another embodiment corresponding to the detail marked B in Fig. 1.

Fig. 4 is a perspective view of a pane-side ventilation flap retainer made from cardboard in an unfolded state,

Fig. 5 is a drawing in a perspective view of the pane-side ventilation flap retainer in Fig. 4 in a folded state, Figs 6a-6c is a sequence of perspective views showing the simultaneous folding and attachment of the pane-side ventilation flap retainer in Figs 4-5 to the handle of roof window in Fig. 3,

Fig. 7 is a perspective view of the pane-side ventilation flap retainer in Figs 4-6 in a different folded state,

Fig. 8 is a perspective view of the folded pane-side ventilation flap retainer in Fig. 7 attached to a corner of a window sash,

Figs 9 is a perspective view of another embodiment of a pane-side ventilation flap retainer made from folded corrugated cardboard,

Fig. 10 is a perspective view of another embodiment of a pane-side ventilation flap retainer made from a honeycomb material,

Fig. 11 is a front view of a frame-side ventilation flap retainer in an unfolded state,

Fig. 12 is a perspective view of the frame-side ventilation flap retainer in Fig. 11 in a folded state,

Fig. 13a-13b are perspective views showing the attachment of the frame-side ventilation flap retainer in Figs 11-12,

Fig. 14 is a perspective view showing the frame-side ventilation flap retainer in Figs 11-12 in an attached state,

Fig. 15 is a front view of another frame-side ventilation flap retainer in an unfolded state,

Fig. 16 is a perspective view of the frame-side ventilation flap retainer in Fig. 15 in an attached state,

Fig. 17 is a perspective view of the frame-side ventilation flap retainer in Fig. 15 attached to another roof window,

Fig. 18a-18d are perspective views of different stages of assembly and attachment of a carton serving as pane-side ventilation flap retainer,

Fig. 19 is a perspective view of another carton adapted for serving as a pane-side ventilation flap retainer attached to a handle of a roof window,

Fig. 20 is a front view of another frame-side ventilation flap retainer in an unfolded state, and

Fig. 21 is a perspective view of the frame-side ventilation flap retainer in Fig. 20 in a folded state.

Description of Embodiments

[0036] Referring initially to Fig. 1, a centre-hung roof window 1 comprising a frame 11 and a sash 12 carrying a pane 13 is shown. The roof window can be opened and closed and brought into an intermediate ventilation position by operating a handle bar 14 connected to ventilation flap 15, which is in turn connected to a locking assembly (not visible in Fig. 1) configured for locking the sash in relation to the frame. In the state shown in Fig. 1, the handle bar and the ventilation flap are, however, shown in a state, where they are disengaged from the locking assembly to make the roof window take up less room during storage and transportation. To prevent the disengaged handle bar and ventilation flap from moving too much during handling and transportation, ventilation flap retainers are attached to the handle bar 14, of which only pane-side ventilation flap retainers 21, 22 are visible in Fig. 1.

[0037] A set of blocks 41-45 of shock absorbing material are arranged around a frame 11 of the roof window and on the pane 13. These blocks of shock absorbing material are intended to protect the roof window when it is arranged in a cardboard box before being delivered to a customer and will not be described in further detail here.

[0038] In the following the same reference numbers will be used for elements having substantially the same function, even if not identical.

[0039] Turning now to Fig. 2, which corresponds to a cross-section along the line A-A in Fig. 1, only without the frame-side ventilation flap retainer 21, the roof window 1 has been arranged in a cardboard box 3. As may be seen, the frame-side ventilation flap retainer 22 hooks over the handle bar 14 and extends from the interior side 131 of the pane 13 to the section 31 of the cardboard box extending in parallel therewith. In this way the frame-side ventilation flap retainer not only retains the handle bar and the ventilation flap to which the handle bar is connected but also contributes to preventing deformation of the cardboard box, thus protecting the window as such. In a similar manner the block 45 of insulating material provided on the exterior side 132 of the pane 13 keeps a distance between the pane and the section 32 of the cardboard box extending along it.

[0040] A frame-side ventilation flap retainer 23 is seen between the ventilation flap 15 and the top frame member 111 of the roof window 1 in Fig. 2, extending into the ventilation passage 151. This frame-side ventilation flap retainer may both retain the ventilation flap and support the top sash member 121 of the roof window.

[0041] Turning now to Fig. 3, which a perspective view corresponding to the detail marked B in Fig. 1 but taken from the interior side of a roof window 1 and showing a carton 24 instead of the pane-side ventilation flap retainer 21 made from moulded pulp. Here it is seen that both the handle bar 14 and the ventilation flap 15 are elongate extending in parallel with the top sash member 121 and extending over substantially the entire width of the roof window. This need not be the case, but the ventilation flap should be able to cover the entire opening of the ventilation passage 151, which in this case is divided into a series of openings by a grate-like structure 152.

[0042] As may be seen the pane-side ventilation flap retainers 22, 23, which were shown in Fig. 2, are both made from folded cardboard and the carton 24 attached to the handle bar 14 also serves as a pane-side ventilation flap retainer. Whereas the ventilation flap retainers 22, 23 are made from recycled unbleached cardboard, the carton 24, which contains items to be used in the installation or operation of the roof window, is made from white cardboard to make draw attention to it, ensuring the items inside are not unintentionally discarded.

[0043] The pane-side ventilation flap retainer 22 is shown in more detail in Fig. 4-6, Fig. 4 showing the ventilation flap retainer in an unfolded state and Fig. 5 showing it in the folded state also seen in Fig. 3. A bone-shaped cut-out 221 is configured for attachment of the handle bar 14 of the roof window, and fold lines 222 extend perpendicular to the longest dimension of the cut-out. As shown in Figs 6a-6c the pane-side ventilation flap retainer 22 is attached to the handle bar 14 by first arranging the unfolded or slightly folded ventilation flap retainer on top of the handle bar so that the straight section 2211 of the cut-out extends in parallel with the handle bar. When then folding the ventilation flap retainer 22 along the fold lines 222, the straight sections 2211 pass over the handle bar, which becomes arranged in the wider end sections 2212 of the cut-out 221. The slight elasticity of the cardboard at the fold lines 222, which urges the pane-side ventilation flap retainer 22 back towards the unfolded state, now presses the ends of the cut-out 221 against the handle bar 14, as may also be seen in Fig. 3, keeping it in place.

[0044] When the roof window has been unpacked, the pane-side ventilation flap retainer 22 is no longer needed and may be removed. At the same time the sash of the roof window often needs to be removed to facilitate installation of the frame in the roof structure, and the pane-side ventilation flap retainer may then be folded further and used for protecting the sash. The further folded pane-side ventilation flap retainer is shown in Fig. 7, and the further folded ventilation flap retainer attached to a corner of the sash is seen in Fig. 8. As is best seen in Fig. 8, the ventilation flap retainer 22 remains folded at the original fold lines 222 and is further folded along a secondary folding line 223, which is located at the indentation 2231 seen in Figs 4-5 and extending in parallel with the original fold lines 222. The ventilation flap retainer is fixated in

the further folded state by folding the V-shaped sections 224, and the cut-out 221 now fits over a projecting edge 122 of the sash of the roof window as shown in Fig. 8. The cut-out 221 is preferably slightly smaller than the projecting edge 122 of the sash, so that the further folded ventilation flap retainer 22 is kept in place on the sash by friction.

[0045] In this embodiment the V-shaped sections 224 are delimited by pre-made cuts in the material, but it is also possible to use weak zones, which can be interrupted when the V-shaped sections are to be used, or printed lines indicating where to cut the cardboard.

[0046] Furthermore, information 225 about the intended use of the pane-side ventilation flap retainer 22 is printed on its surface as seen in Fig. 4.

[0047] Two alternative pane-side ventilation flap retainers 22 are shown in Figs 9 and 10. In Fig. 9 the pane-side ventilation flap retainer 22 is pre-folded with a pipe-shape cross-sectional shape instead of the U-shape resulting from the folding shown in Figs 6a-6c, and in Fig. 10 the pane-side ventilation flap retainer 22 is made from a honeycomb material. Both of these ventilation flap retainers are stronger and more stable than the one in Figs 3-6, but not immediately useable for sash corner protection.

[0048] Turning now to Figs 11-14, the frame-side ventilation flap retainer 23 arranged between the ventilation flap 15 and the top frame member of the roof window 1 and extending into the ventilation passage 151 is shown in more detail. Two fold lines 232 separate two wing sections 233 from a centre section 234. The wing sections are configured for being inserted into the ventilation passage 151 as shown in Fig. 13a-13b and the centre section is configured for abutting the ventilation flap 15 as shown in Fig. 14.

[0049] The shape and size of the frame-side ventilation flap retainer 23 will depend on the design of the roof window. Particularly the shape of the ventilation passage 151 and hence the shape and position of the wing sections 233 may therefore need to be different from what is shown in Figs 11-14.

[0050] An alternative to the frame-side ventilation flap retainer 23 shown in Figs 11-14 is shown in Figs 15-17. This frame-side ventilation flap retainer 23' is folded along fold lines 232 so that the cut-out 231 at the centre gets a T-shape fitting over the bracket assembly 153 connecting the ventilation flap 15 to the locking assembly 154 (only visible in Fig. 17) of the roof window. At the same time other cut-outs 236 and recesses 237, which overlap in the folded state, fit over the grate-like structure 152 at the entrance to the ventilation passage 151, and the elasticity resulting from the folding keeps the frame-side ventilation flap retainer 23' in place. A further recess 235 allows the frame-side ventilation flap retainer to also be used with an electrically operated window comprising a further bracket 155 attached to the ventilation flap as shown in Fig. 17.

[0051] The shape and size of this frame-side ventila-

tion flap retainer 23' too will depend on the design of the roof window. Particularly the shape of the cut-outs 236 and recesses 235, 237 may need to be different from what is shown.

[0052] Compared to the embodiment in Figs 11-14, the embodiment in Figs 15-17 has proven to be stronger and more stable in use.

[0053] Turning now to Figs. 18a-18d, a series of perspective views show how a cardboard blank is folded into a carton 24 and attached to the handle bar 14 of a roof window. This carton may serve both to hold items for use in the installation or operation of the window and as a pane-side ventilation flap retainer. It corresponds to the one shown in Fig. 3, except for being provided with information of its content and having a slightly different shape. The perspective view in Fig. 3 is seen from the interior side of the roof window, whereas the perspective views in Figs 18c-18d are seen for the exterior side of the roof window.

[0054] As is best seen in Fig. 3, the carton 24 engages with the interior side of the pane 13, but does not project above the handle bar in the opposite direction. It is, however, possible to make the carton bigger so that it could potentially extend out to the cardboard box 3 in the same way as the pane-side ventilation flap retainer 22 in Fig. 2. An example of such a bigger carton 24' is shown in Fig. 19.

[0055] Turning now to Figs 19-20, a further development of the frame-side ventilation flap retainer 23 in Fig. 11-14 is shown.

[0056] Each of the two wing sections 233 are here formed by folding a first sub-section 233a onto a second sub-section 233b before folding along the two fold lines 232, and likewise the centre section 234 is formed by folding a first sub-section 234a onto a second sub-section 234b. Flaps 238 help the frame-side ventilation flap retainer 23 to remain in the folded state shown in Fig. 21. In this embodiment the centre section 234 further comprises a third sub-section 234c, which is angled in relation to the first and second subsections 234a, 234b in the folded state shown in Fig. 21 and extending between the wing sections 233. As will be understood by comparing to Figs 12 and 14, the wing sections 233 of this embodiment too extend into the ventilation passage 151 and the third sub-section 234c will extend over ventilation passage 151. In this way the wing sections will be kept from moving towards each other, thus contributing to keeping them in engagement with the ventilation passage. Further, since both the centre section 234 and the wing sections 233 are made by folding, they are in themselves stronger than in the embodiment in Fig. 11-14, and hence the entire frame-side ventilation flap retainer 23 is stronger. This embodiment may therefore be preferred if the ventilation flap itself is very heavy, or if having weight is attached to it, for example in the form of cartons as shown in Figs 18-19.

[0057] As mentioned above with reference to Figs 11-14, the shape and size of the frame-side ventilation

flap retainer 23 will depend on the design of the roof window. Particularly the shape of the ventilation passage 151 and hence the shape and position of the wing sections 233, and sub-section 234c may therefore need to be different from what is shown in Figs 20-21.

[0058] Common to the embodiments shown in Figs. 3-9 and 11-21 is that cardboard or corrugated cardboard has been used. These materials are considered advantageous due to the combination of low price and high precision in dimensions, but other paper-bases materials may be used. The fold lines 222, 232 may be pre-defined by printed lines, compressed lines or weak zones in the material, in this case by the cardboard being partially cut through along the intended fold lines.

List of reference numerals

[0059]

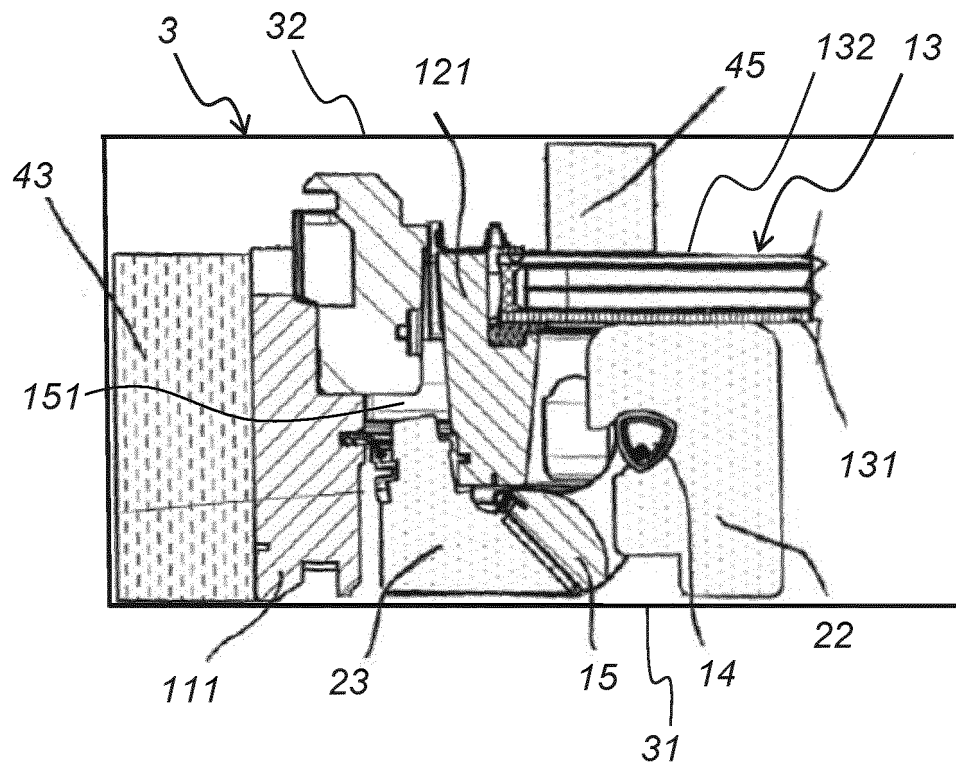
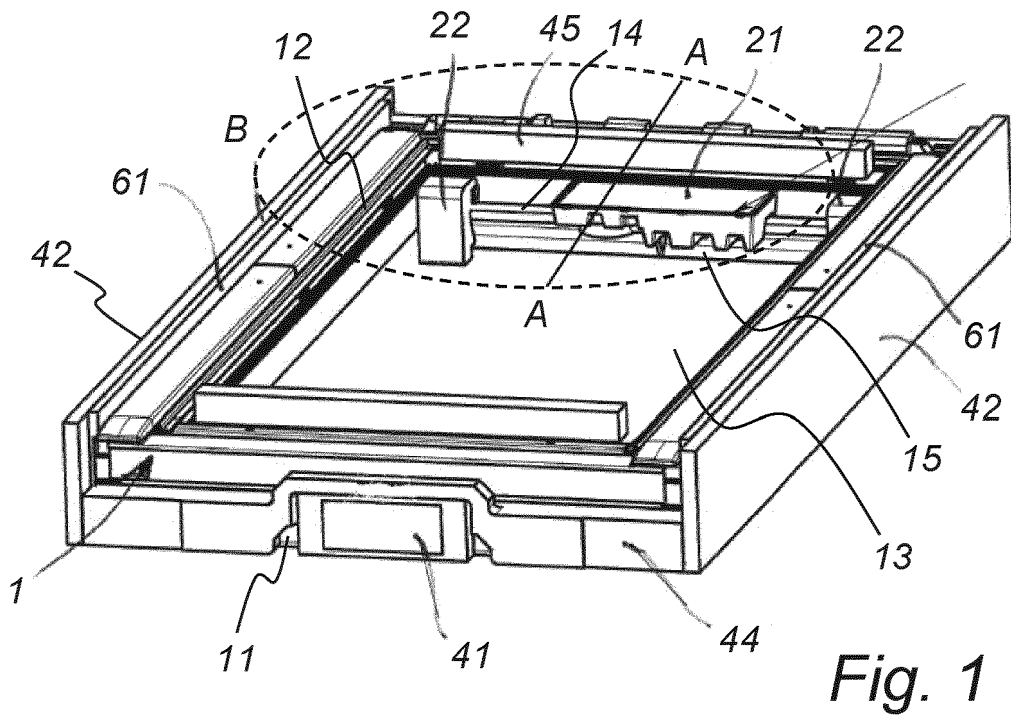
1	Roof window
11	Frame
111	Top frame member
12	Sash
121	Top sash member
13	Pane
131	Interior side
132	Exterior side
14	Handlebar
15	Ventilation flap
151	Ventilation passage
152	Grate-like structure
153	Bracket assembly
154	Bracket
21	Ventilation flap retainer
22	Ventilation flap retainer
221	Cut-out
2211	Straight section
2212	End section
222	Fold line
223	Fold line
224	V-shaped section
225	Information
23	Ventilation flap retainer
231	Cut-out
232	Fold line
233	Wing section
234	Centre section
235	Recess
236	Cut-out
237	Recess
238	Flap
23'	Ventilation flap retainer
24	Ventilation flap retainer
24'	Ventilation flap retainer
3	Cardboard box
31	Section of the cardboard box
32	Section of the cardboard box
41 -45	Blocks of shock absorbing material

Claims

1. A packed roof window, said window comprising a ventilation passage and a ventilation flap, said ventilation passage extending from an interior side of the window to an exterior side of the window, said ventilation flap being provided on the interior side of the window and being moveable being a first position, where the ventilation passage is open, and a second position, where it covers the ventilation passage, where said roof window is contained in a cardboard box, and where blocks of shock absorbing materials are arranged inside the cardboard box to protect the roof window,
characterised in that
a frame-side ventilation flap retainer made from a paper-based material is provided on or at the ventilation flap to prevent it from unintentional movement, and that the frame-side ventilation flap retainer is arranged between the ventilation flap and the sash.
2. A packed roof window according to claim 1, wherein the frame-side ventilation flap retainer extends into the ventilation passage.
3. A packed roof window according to claim 2, wherein the section(s) of the frame-side ventilation flap retainer, which extend into the ventilation passage, is/are of slightly larger dimensions than the ventilation passage.
4. A packed roof window according to claim 2 or 3, wherein the frame-side ventilation flap retainer is in engagement with a grate-like structure dividing the ventilation passage of the roof window into a series of openings or with an opening therein.
5. A packed roof window according to one or more of claims 2-4, wherein the frame-side ventilation flap retainer comprises a centre section, which is in engagement with the ventilation flap, and two wing sections, which are inserted into the ventilation passage.
6. A packed roof window according one or more of the preceding claims, wherein a pane-side ventilation flap retainer is arranged between the ventilation flap and a pane of the roof window.
7. A packed roof window according to claim 6, wherein the pane-side ventilation flap retainer is arranged between the ventilation flap and the cardboard box.
8. A packed roof window according to claim 6 or 7, wherein the roof window comprises a handle on the ventilation flap and wherein the pane-side ventilation flap retainer is attached to the handle.
9. A packed roof window according to one or more of

the preceding claims, wherein the frame-side ventilation flap retainer and possibly the pane-side ventilation flap retainer, if any, is made from a material chosen from the group consisting of: moulded pulp, folded cardboard, folded corrugated cardboard, multi-layer corrugated cardboard, cardboard profile, and honeycomb material, preferably a having a cell size of 22 mm and being made from paper with a weight of 140 g/m² and having a height of 20-40 mm.

10. A packed roof window according to one or more of the preceding claims, wherein the pane-side ventilation flap retainer is a carton containing components for use when installing or operating the roof window.
11. A packed roof window according to one or more of the preceding claims, wherein the frame-side ventilation flap retainer and/or the pane-side ventilation flap retainer is configured for serving a secondary purpose after having been removed from the ventilation flap.
12. A packed roof window according to claim 11, wherein the frame-side ventilation flap retainer and/or the pane-side ventilation flap retainer is configured for being attached to a corner of a sash of the roof window.
13. A ventilation flap retainer made from a paper-based material configured for being provided on or at the ventilation flap of a roof window comprising a ventilation passage extending from an interior side of the window to an exterior side of the window, said ventilation flap being provided on the interior side of the window and being moveable being a first position, where the ventilation passage is open, and a second position, where it covers the ventilation passage, where said roof window is contained in a cardboard box, and where blocks of shock absorbing materials are arranged inside the cardboard box to protect the roof window, said ventilation flap retainer being configured for preventing the ventilation from unintentional movement at least in a packed state of the roof window.
14. Use of a ventilation flap retainer according to claim 13 for protection of a window sash during installation of a roof window, wherein the ventilation flap retainer is removed from the ventilation flap and attached to a corner of the window sash before detaching the window sash from a window frame of the roof window.



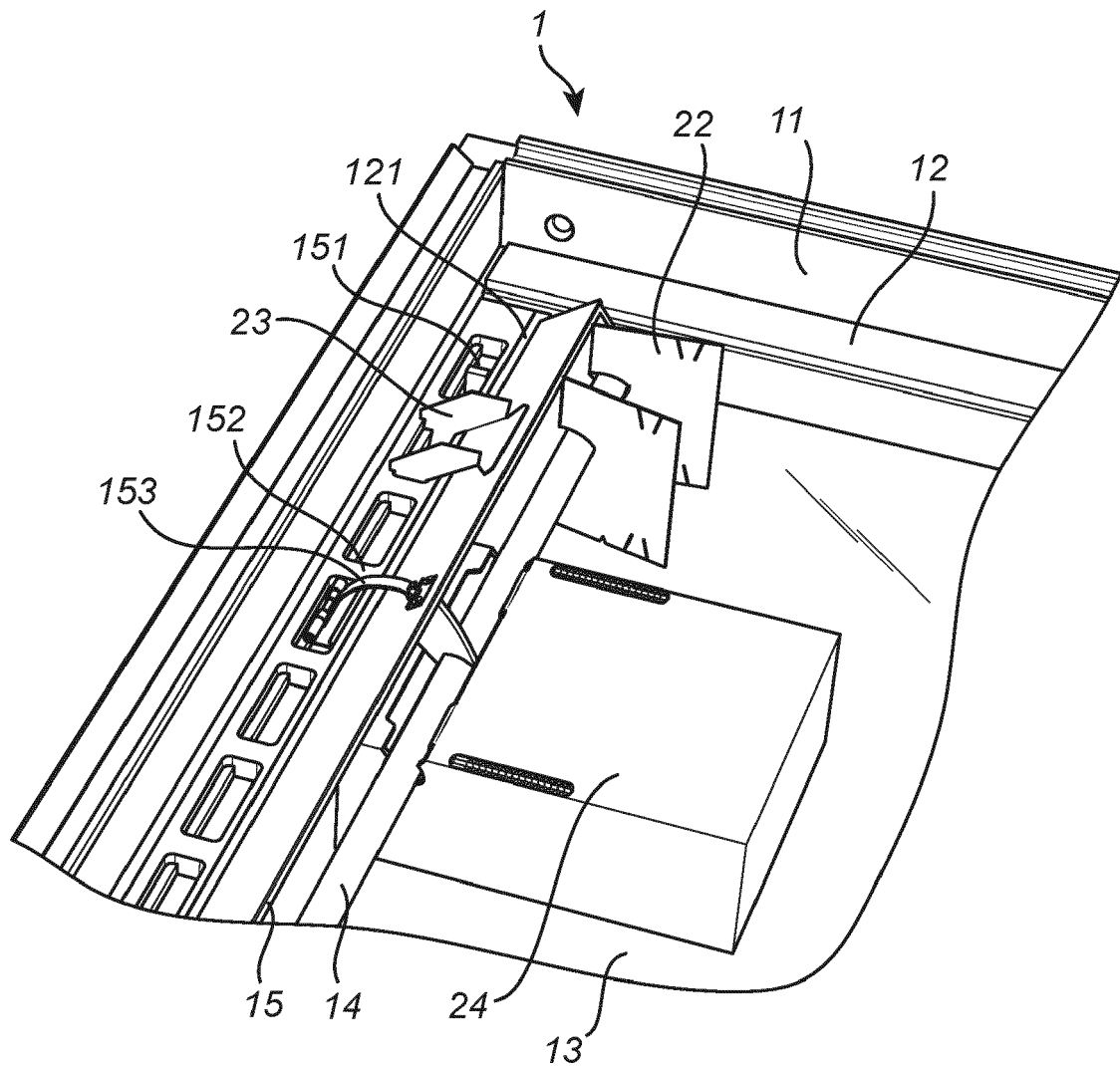


Fig. 3

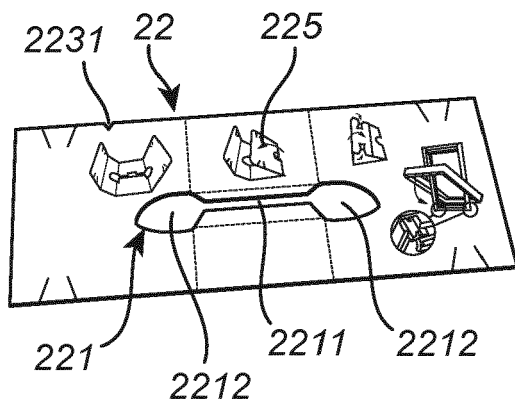


Fig. 4

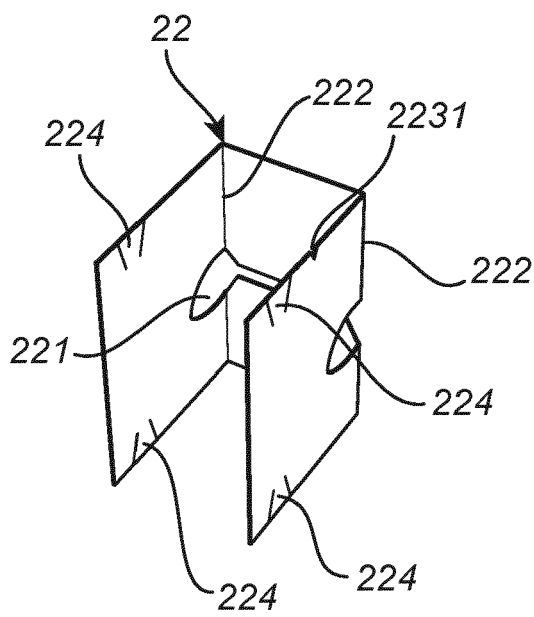


Fig. 5

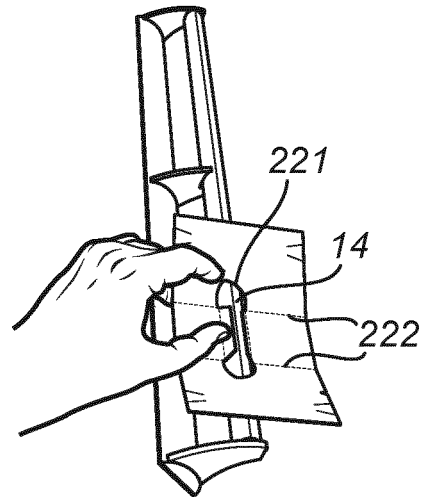


Fig. 6a

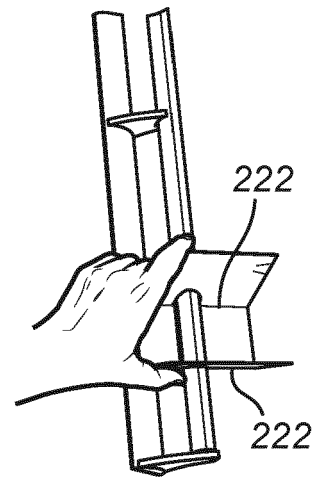


Fig. 6b

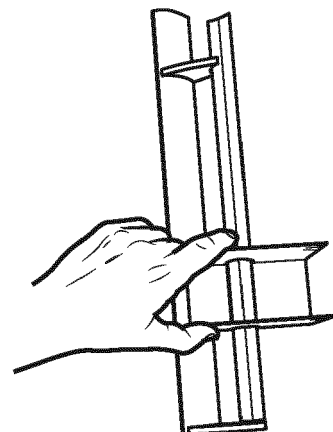


Fig. 6c

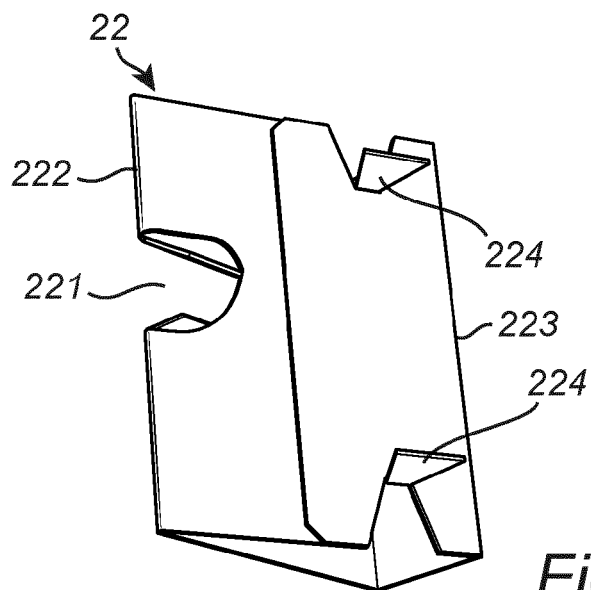


Fig. 7

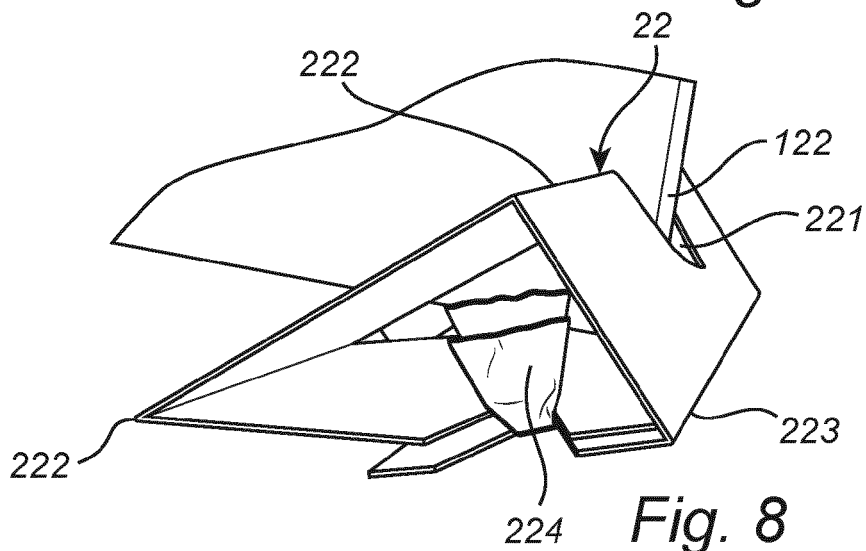


Fig. 8

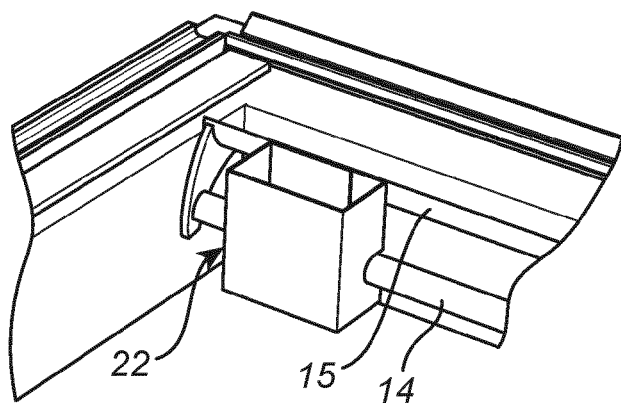


Fig. 9

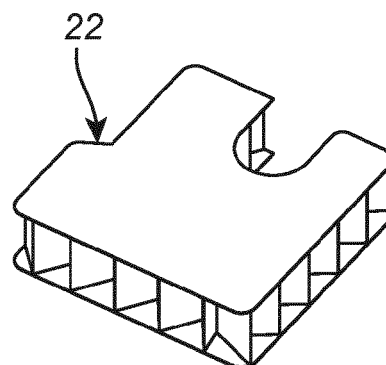


Fig. 10

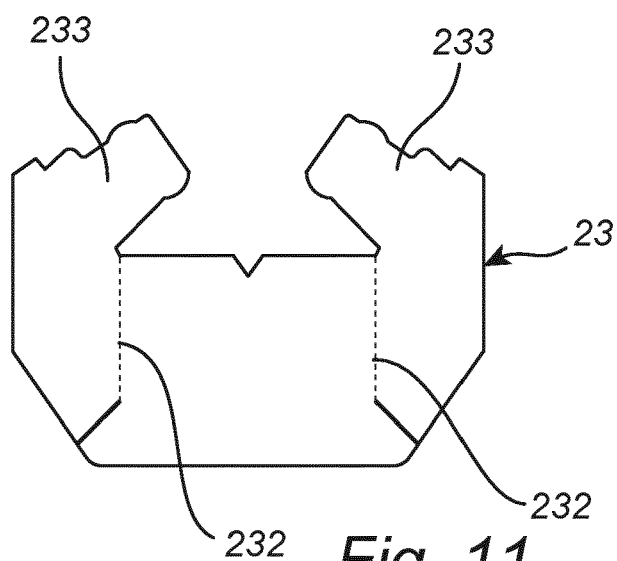


Fig. 11

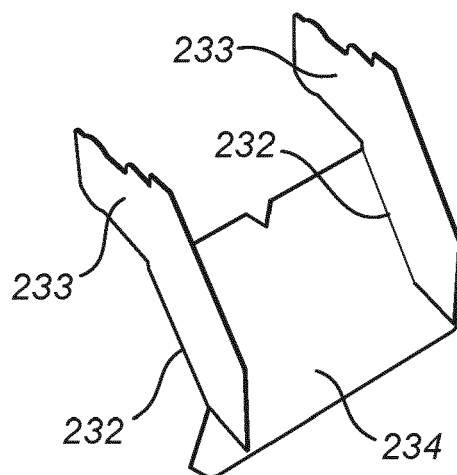


Fig. 12

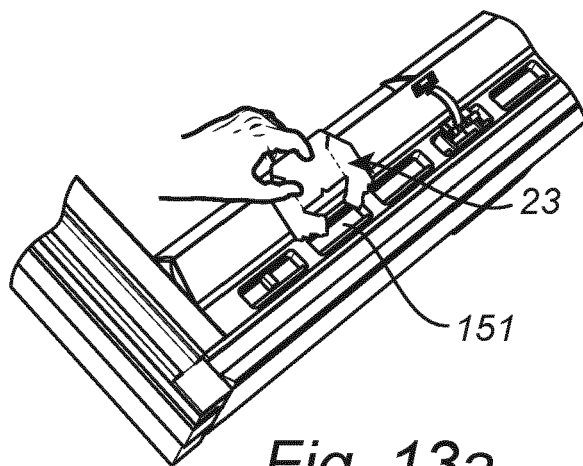


Fig. 13a

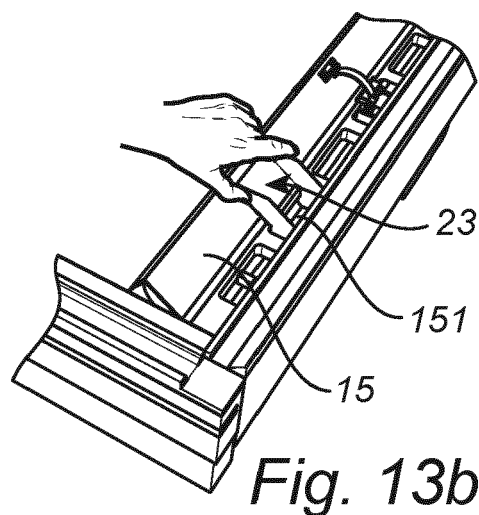


Fig. 13b

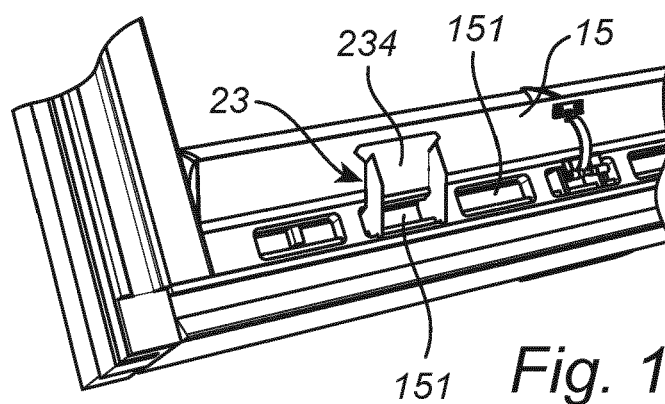
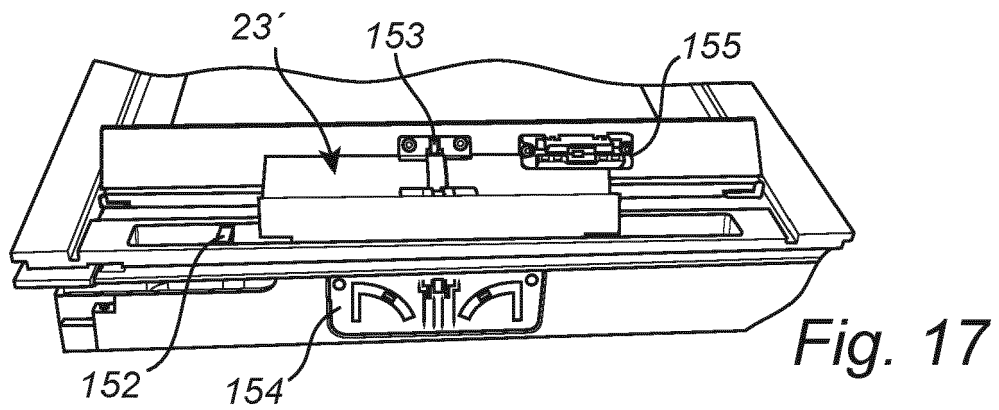
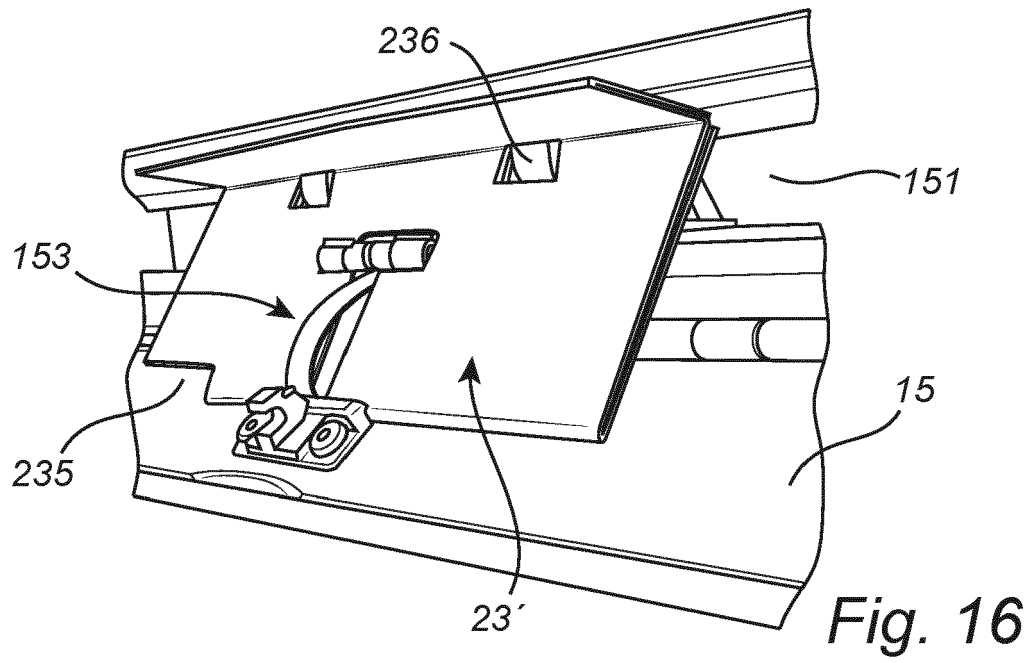
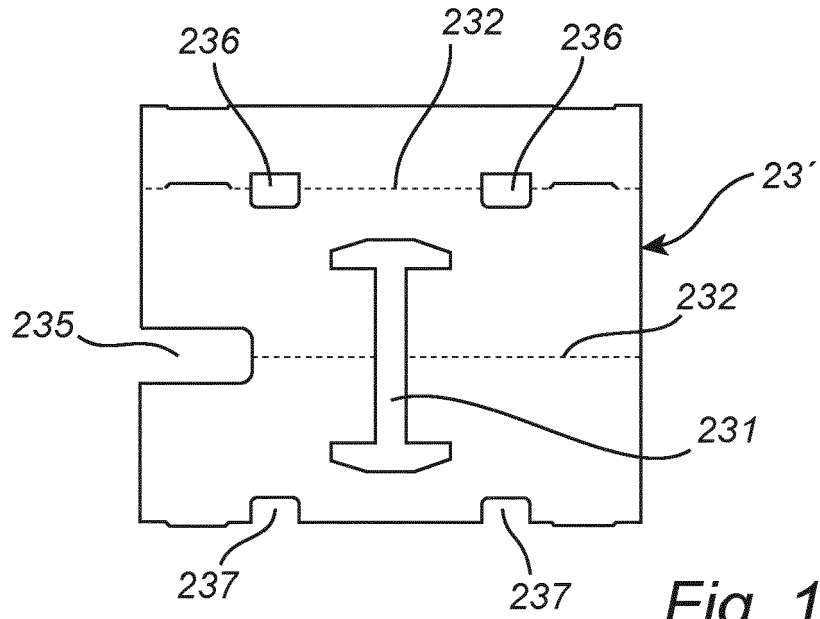


Fig. 14



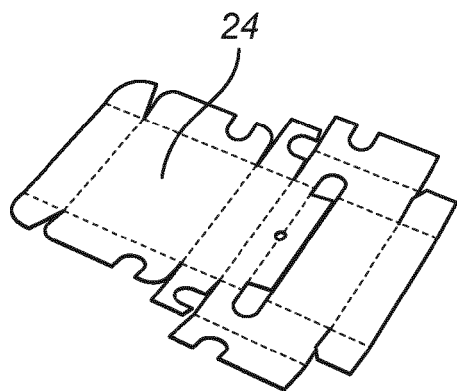


Fig. 18a

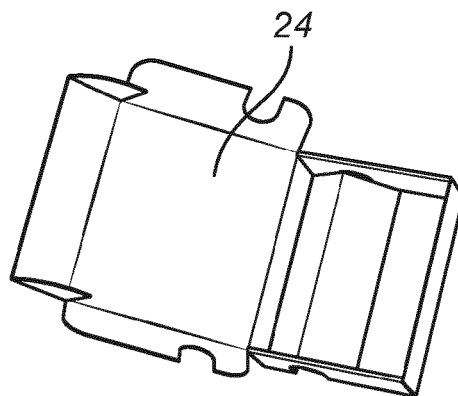


Fig. 18b

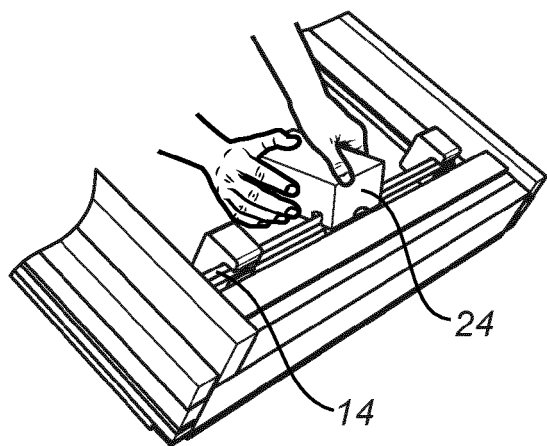


Fig. 18c

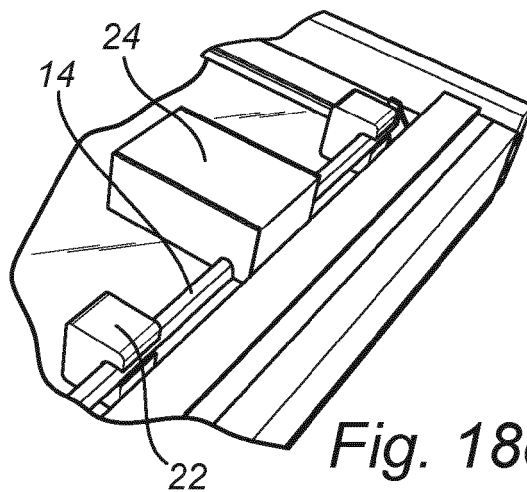


Fig. 18d

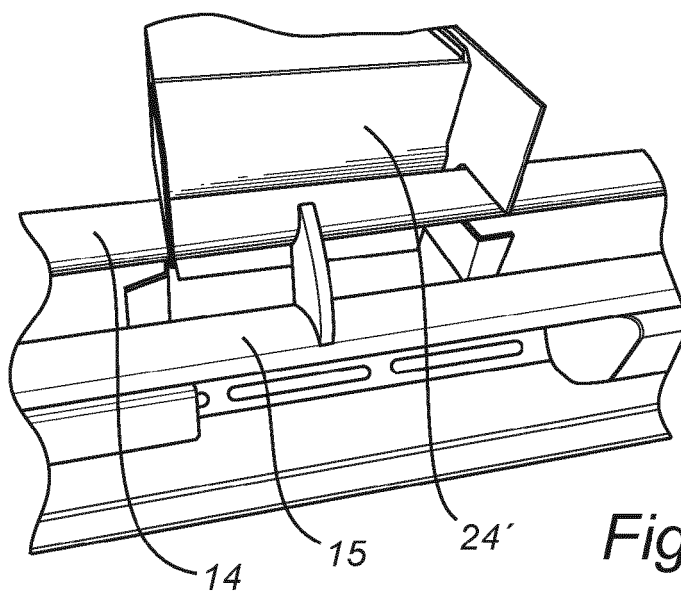
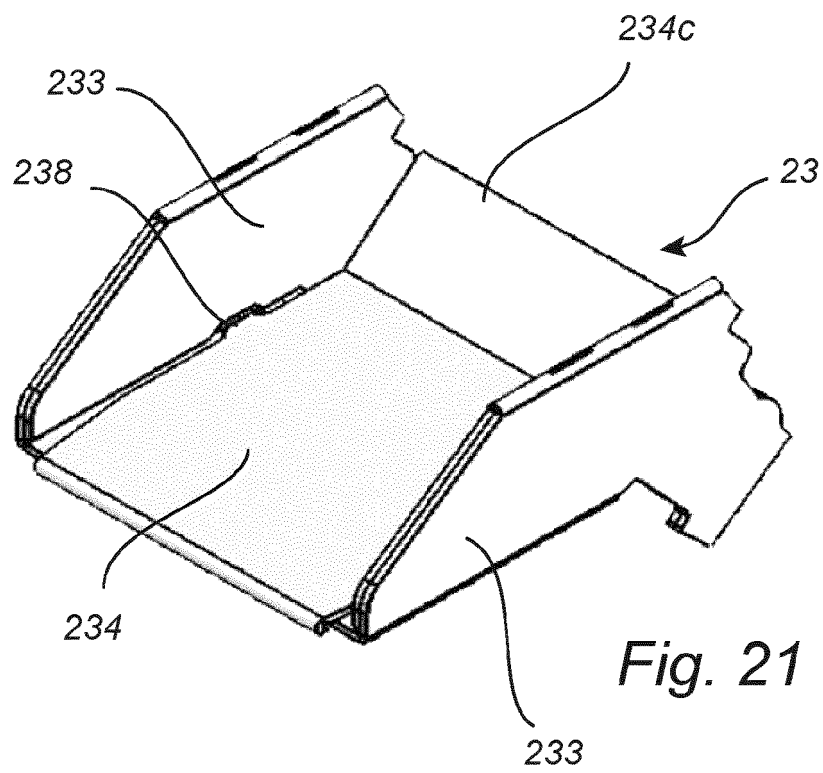
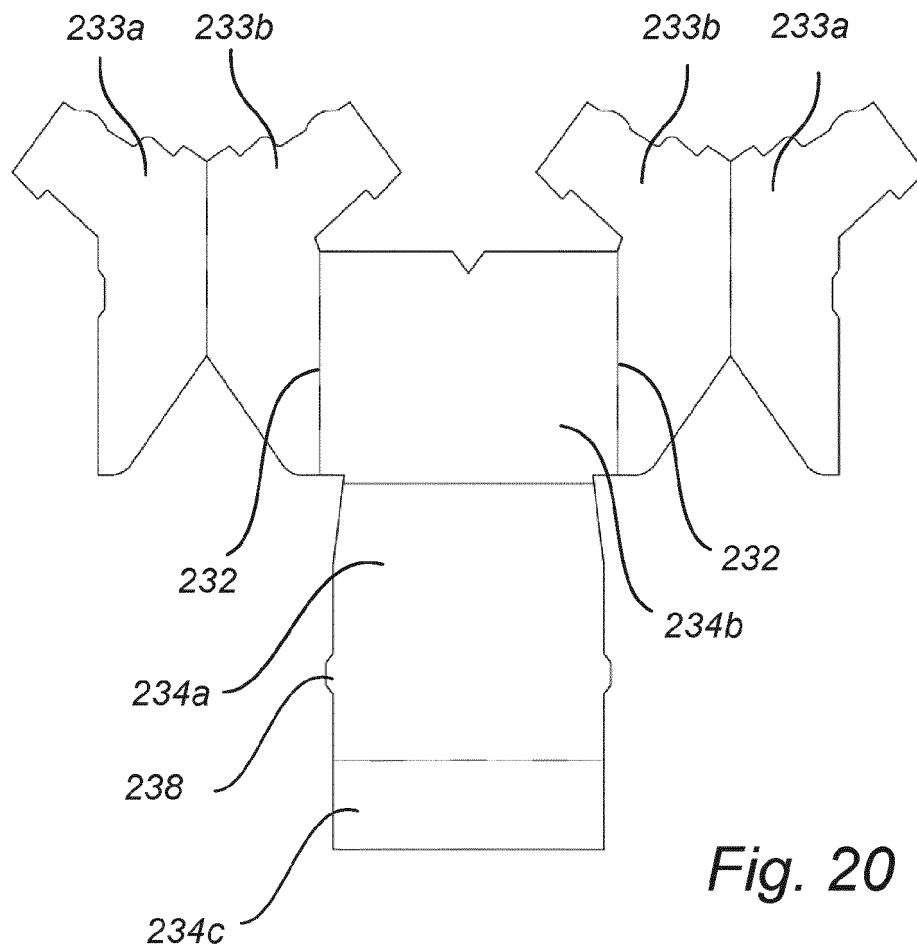


Fig. 19





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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 October 2022	Examiner Derrien, Yannick
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	

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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