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(54) **A SCREENING ARRANGEMENT FOR A ROOF WINDOW, AND A ROOF WINDOW COMPRISING SUCH A SCREENING ARRANGEMENT**

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Description

Technical Field

[0001] The invention relates to a screening arrangement according to the preamble of claim 1. The invention furthermore relates to roof window comprising such a screening arrangement.

Background Art

[0002] Screening arrangements must fulfil different requirements depending on whether they are installed in a façade window, i.e. in a substantially vertical position, or in an inclined or even horizontal surface such as a roof.

[0003] Not only are screening arrangements for roof windows configured to take into account the effects of gravity due to the resulting force being out of the general plane of the roof window, but the mounted position itself, on a roof, puts large demands to the components of the external screening arrangement.

[0004] In known prior art screening arrangement side rails and a top casing of the screening arrangement are manufactured with complementary shapes. The complementary shapes are then connected to create a near seamless connection between the top casing and the side rails. One example is shown in Applicant's WO2008/131759 A1. US patent No. 4,168,734 and EP 2 236 731 A2 describe screening devices making use of a cassette with holders and covering elements. Other examples of screening arrangements are known from EP 2 650 463 A2 and DE 10 2005 037774 B3.

[0005] Even though the connection between the top casing and the side rail is near seamless it is still vulnerable to dust and other contaminants entering the screening arrangement at the connection. This also applies to the configuration of covering elements in other prior art documents. The dust and other contaminants may have adverse effects such as increasing friction of movable parts or negatively interacting electrical components. Furthermore, the manufacturing of the complementary shapes can be expensive and cumbersome.

[0006] One of the main challenges in screening arrangements, however, is light-proofing. This applies in particular to screening arrangements mounted to cover openings exposed to larger amounts of light, such as roof windows or skylights mounted in a roof. Even very small amounts of incident light can be disturbing.

Summary of Invention

[0007] With this background, it is therefore an object of the invention to provide a screening arrangement, which overcome or at least alleviates the problems of the prior art.

[0008] This and further objects are achieved by a screening arrangement of the kind mentioned in the introduction, which is furthermore characterised in that each first and second corner cover element has such dimensions that an overlap is provided between the corner cover element and the underlying top casing and side rail in the mounted condition of the screening arrangement, and that the bottom surface of each first and second corner cover element is configured to absorb incident light on the bottom surface, by providing the bottom surface as a surface of dark colour, such as black.

[0009] Consequently, dust and other contaminants are hindered from negatively interacting with the screening arrangement, as the corner cover assembly covers an opening from which dust and other contaminants may enter and adversely affect the screening arrangement. As dust and other contaminants are hindered from entering the side rails and creating additional friction for the screening body being guided by the side rails. For the top casing dust and other contaminants are hindered from adversely interacting with electrical components arranged in the top casing.

[0010] Furthermore, by having the corner cover assembly manufacturing the side rails and the top casing may be eased. With the corner cover assembly, the side rails do not need to be manufactured with a shape complementary to that of the top casing and vice versa for the top casing. As the top casing and the side rails need not create a near seamless connection. For example, in the prior art the ends of the side rails may be tapered or mitred with a complementary shape to that of the top casing to avoid any openings in-between the side rails and the top casing. The taper of the side rails in many cases requires an additional manufacturing step. However, by providing a corner cover assembly according to the invention, this additional manufacturing step may be obviated.

[0011] The overlap between the corner cover elements and the underlying top casing and respective side rail ensures adequate light-proofing, since for instance manufacturing tolerances may easily be accommodated. In combination with the bottom surface absorbing incident light limits the reflection of light off the screening arrangement, and consequently possible glare reflected towards the interior. The bottom surface may also absorb light passing in-between the corner cover element, the side rail and/or the top casing. Especially, as light passing in-between the corner cover element, the side rail and/or the top casing will attempt to reflect off the bottom surface when trying to pass in-between the corner cover element, the side rail and/or the top casing. However, having the bottom surface absorbing incident light will stop light from reflecting off the bottom surface. The bottom surface may absorb light attempting to pass through the screening arrangement from the interior towards the exterior. The bottom surface may absorb light attempting to pass through the screening arrangement from the exterior towards the interior. The bottom surface may be provided by forming the bottom surface from a dark element, and/or by applying a dark coating to the bottom surface.

[0012] In the context of the invention an "interior" may

be the interior of a building on which the roof window to be screened by the screening arrangement is installed. The interior may for instance refer to a room in which the roof window with the screening arrangement is installed. In the context of the invention an "exterior" may be the outside of the building on which the roof window to be screened by the screening arrangement is installed. In the mounted condition of the screening arrangement, the bottom surface typically faces in a first direction towards the interior and the top surface faces in a second direction towards the exterior, wherein the first direction is opposite the second direction. During mounting of the screening arrangement in a roof window or skylight, each corner cover element is connected to the top casing and the adjacent side rail, after these elements have been assembled and are ready for mounting in the assembled state in the roof window. This is made possible in that the connection takes place in a direction perpendicular to the plane containing the exterior surfaces of the top casing and the side rails.

[0013] In a presently preferred embodiment, each first and second corner cover element has a shape adapted to the contours of the top casing and the side rails. This provides for an improved light-proofing since abutment between the corner cover elements and the top casing and side rails is ensured.

[0014] In a further development of this embodiment, each first and second corner cover element comprises at least two outer sections, each having a shape of an inverted U-shape, configured to be positioned at or near the outer perimeter of the screening device to accommodate an outer section of the top casing and the adjacent side rail and/or a structure positioned outside the outer perimeter of the screening device.

[0015] The presently preferred embodiment and its further development are particularly advantageous in cases in which the screening arrangement comprises a suspension device comprising a plurality of flanges connected to or connectable to the top casing and the side rails. This applies to an even further extent in the case in which the flanges are displaced to the exterior relative to an exterior side of the top casing and the side rails, since the two outer sections of inverted U-shape of the first and second corner cover element may then interact with the flanges. This provides for excellent light-proofing properties. In an embodiment the top surface is configured to reflect incident light on the top surface, preferably by providing the top surface as a surface of light colour, such as white. Having the top surface reflecting incident light lowers heating of the screening arrangement. Heating of the screening arrangement may wear away components, especially plastic components, thus by lowering heating the lifetime of the screening arrangement is prolonged. The top surface may be provided by forming the top surface from a bright element, and/or by applying a bright coating to the top surface.

[0016] Attachment of the first and the second corner cover element to the top casing and the side rail may in principle be carried out in any suitable way. However, in an embodiment each corner cover element comprises engagement means adapted for engagement with the top casing, preferably via a snap-fit connection, more preferably by the top casing being provided with openings for receiving legs of the first and/or the second corner cover element in a snap-fit connection. This provides for a mechanically simple, yet reliable connection.

[0017] In an embodiment the first and/or the second corner cover element comprises a protrusion for covering a connection between the roof window and the screening assembly. Consequently, the corner cover assembly protects the connection between the roof window and the screening assembly.

[0018] In an embodiment, the first and/or the second corner cover element comprises an electric grove extending in parallel with the top casing for accommodating one or more electric components extending from the top casing. This is particularly advantageous in screening arrangements powered by a solar panel, since the cable from the solar panel to a motor unit of drive means located within the top casing may then be accommodated in the electric groove.

[0019] To improve the light-proofing properties even further, the first and the second corner cover element may each comprise a cover flange extending from a perimeter of the first and the second corner cover element to minimize a clearance between the first and the second corner cover element and the two side rails and the top casing.

[0020] In an embodiment the cover assembly comprising a third and a fourth corner cover element each covering an end of the two side rails opposite the top casing. Consequently, both ends of the side rails are protected from and other contaminants entering the side rails. Although, corner cover assembly has been described comprising two corner cover elements and four corner cover elements, the corner cover assembly may comprise any number of corner cover elements, e.g. dependent on the number of corners defined by the outer perimeter of the screening arrangement, and/or dependent on the amount openings needed to be covered.

[0021] This embodiment is particularly advantageous in screening arrangements in which a bottom profile is provided, to be connected to the side rails at the opposite ends relative to the top casing. Such third and fourth corner cover element may then possess the same or corresponding features as the first and second corner cover elements, taking into account any differences between the top casing and the bottom profile.

[0022] The bottom surface and the top surface of the corner cover element may be part of the same element. Alternatively, the bottom surface and the top surface may be provided by two different elements connected to each other. In an embodiment, the corner cover elements are formed by a top component and a bottom component, which may be formed by a 2K injection moulding process, where the two components are moulded together to be

integrally connected with each other. The corner cover elements of the corner cover assembly may be manufactured from a polymer material. The corner cover elements of the corner cover assembly may be manufactured from a polyamide nylon matrix. The corner cover elements of the corner cover assembly may be manufactured from a polyamide nylon matrix reinforced with glass fibre.

[0023] In an embodiment the screening device is a blackout screening device, and wherein the screening body is an opaque screening body.

[0024] Consequently, a blackout screening device is obtained which hinders light from passing the screening arrangement. Furthermore, the corner cover assembly synergizes with the blackout screening device, as it blocks opening in the screening arrangement, thus hindering the passage of light through the screening arrangement.

[0025] In a second aspect of the invention the objects set forth are achieved by a roof window to be installed in an inclined or flat roof of a building, comprising a screening arrangement according to the first aspect of the invention.

[0026] A feature described in relation to one of the aspect may also be incorporated in the other aspect, and the advantage of the feature is applicable to all aspects in which it is incorporated.

[0027] Other presently preferred embodiments and further advantages will be apparent from the subsequent detailed description and drawings.

Brief Description of Drawings

[0028] For exemplifying purposes, the invention will be described in closer detail in the following with reference to embodiments thereof illustrated in the attached drawings, wherein:

Fig. 1 is a perspective view of a screening arrangement in a first embodiment of the invention;

Figs 2 and 3 are perspective views of screening arrangements in other embodiments of the invention;

Fig. 4 is a perspective, partially sectioned view of a screening arrangement in an embodiment of the invention installed in a roof window mounted in a roof structure;

Figs 5 is a schematic perspective top views of a corner cover element from the upper left-hand of the screening arrangement;

Fig. 6 is a schematic perspective top view of the corner cover element of Fig. 5 from a different angle;

Fig. 7 is a schematic perspective bottom view of the corner cover element from the upper left-hand of the screening arrangement;

Fig. 8 is an exploded perspective view of two components of a corner cover element in an embodiment of the screening arrangement;

Fig. 9 is a schematic, perspective and partially sectioned top view of an upper left-hand corner of a screening arrangement according to the invention;

Fig. 10 is a schematic, perspective and partially sectioned top view of the screening arrangement of Fig. 9 from a different angle;

Fig. 11 is an exploded partial perspective view of details of a screening arrangement in an embodiment of the invention;

Fig. 12 is a sectional view of a corner cover element along the line XII-XII of Fig. 6; and

Fig. 13 is a partial perspective view of a screening device in an embodiment of the screening arrangement, before mounting of the corner cover element of the cover assembly.

Description of Embodiments

[0029] In the following detailed description, preferred embodiments of the present invention will be described. However, it is to be understood that features of the different embodiments are exchangeable between the embodiments and may be combined in different ways, unless anything else is specifically indicated. It may also be noted that, for the sake of clarity, the dimensions of certain components illustrated in the drawings may differ from the corresponding dimensions in real-life implementations.

[0030] It is noted that terms such as "up", "down", "left-hand", "right-hand", "outer", "inner" are relative and refers to the viewpoint in question.

[0031] Referring initially to Figs 1 and 4, a first embodiment of a screening arrangement 50 is shown. The screening arrangement 50 is configured to be installed in a roof window 1 installed in an inclined or flat roof 2 of a building to cover an opening 1a of the roof window 1 in a mounted condition of the screening arrangement 50. The opening 1a of the roof window 1 is positioned opposite an opening 2a provided in the roof 2. By the term roof window is in principle meant any window suitable for being installed in a roof. By flat roof is generally meant roofs having an inclination of 0 to 5° and by inclined roofs inclinations larger than 5°, for instance up to 45° or 65°.

[0032] The screening arrangement 50 comprises a screening device 60 including a top casing 61 and a screening body 65 having two side edges, a first end portion and a second end portion. The screening body 65 is movable in a longitudinal direction between a non-screening position, in which the screening body 65 is substantially accommodated in the top casing 61, and a number of screening positions in which the screening body 65 is deployed from the top casing 61 and covers the opening partially or entirely. The screening body 65 may take the form of a flexible cloth which is rolled up when accommodated in the top casing and is substantially plane when rolled out in a deployed screening position, but may also be for instance a pleated blind, being folded up when accommodated, or a Venetian blind or other screens including a number of lamellas forming the

screening body and which are collected when accommodated in the top casing. The screening body may be opaque to form a darkening or blackout blind or admit a certain amount of incoming light in the screening position, for instance as in an awning blind. Regardless of the configuration, the screening body 65 defines a screening plane when deployed to a screening position. The first end portion of the screening body 65 is connected to a roller bar 61r or other collection device in the top casing 61 and its other end portion is in the embodiment shown connected to a bottom bar 66.

[0033] The screening device 60 furthermore comprises two side rails 63, 64 configured to extend substantially perpendicularly to the top casing 61 in the mounted condition of the screening arrangement 50 and which guide the side edges of the screening body 65 during its movement to and from its deployed positions. Together, the top casing 61 and the two side rails 63, 64 define an outer perimeter of the screening device 60. In the first embodiment shown in Figs 1 and 4, the screening device 60 comprises a bottom profile 62 which is shown in a position connected to the side rails 63, 64. The connection between the two side rails 63, 64 and the top casing 61 at one end and the bottom profile 62 at the other advantageously takes place before installing the screening device 60 in the roof window 1, as the screening device 60 may for instance be delivered in a supply condition in which the two side rails 63, 64, the top casing 61 and the bottom profile 62 are packaged in parallel with each other.

[0034] In order to move the screening body 65 from the non-screening position to a screening position and back, the screening arrangement 50 is in the first embodiment provided with a solar panel 61s placed in the top casing 61 which could be used to power the screening arrangement 50, possibly connected to a battery inside the top casing 61; however, power may also be provided from a main housing supply, as indicated in the alternative embodiments of Figs 2 and 3, where no solar panel is present. Wiring, motor control and power means for the motor are not shown in either of the embodiments.

[0035] The screening device 60 thus forms a rectangular shape having a closed configuration in the first embodiment of Figs 1 and 4. In the alternative embodiments of Figs 2 and 3, it is noted that no bottom profile is present. While the shape of the screening device 60 in each of these alternative embodiments is rectangular, the configuration is open in the form of a U. When seen in the general plane of the screening device 60 as defined by its screening body, an outer perimeter of the screening device 60 is formed by peripherally outermost surfaces of the top casing 61, the two side rails 63, 64 and, if present, the bottom profile 62, or, if no bottom profile is present, by a line extending between the free ends of the side rails 63, 64.

[0036] The screening arrangement 50 furthermore comprises a suspension device 70 connected to or connectable to the screening device 60 as will be described in further detail below. The suspension device 70 comprises means for connecting the screening device 60 to the roof window 1 in that the suspension device 70 of the screening arrangement comprises a plurality of flanges associated to a respective one of the top casing 61 and the two side rails 63, 64 of the screening device 60, and, if present, to the bottom profile 62. Throughout the drawing figures, flanges 71, 72 and 74 are visible. It is understood that a counterpart flange may be present at the other side rail 63.

[0037] The flanges of the suspension device 70 may in principle be present only at the top casing 61 and the bottom profile 62, at the top casing 61 and one of the side rails 63 or 64, at the top casing 61 and at both side rails 63, 64, or as shown at all four components of the screening device 60.

[0038] Each flange 71, 72, 74 defines at least one line of contact of the suspension device 70 intended to cooperate with a corresponding component of the roof window 1 in the mounted condition of the screening arrangement 50. In Fig. 4, three such lines of contact LC1, LC2 and LC4 are shown. It is understood that a corresponding line of contact is present at the flange connected to the other side rail 63.

[0039] It is noted that each flange 71, 72, 74 of the suspension device 70 is configured to protrude from the respective one of the top casing 61 and the two side rails 63, 64 and the bottom profile 62 such that the lines of contact LC1, LC2, LC4 are positioned to the outer side of an outer perimeter of the screening device 60 in the mounted condition of the screening arrangement, i.e. outside the outer perimeter or periphery of the components of the screening device 60 as described in the above.

[0040] The side rails 63, 64 are formed as longitudinally extending profiles which are cut transversely to the length direction to form blunt opposing ends. Due to the configuration of the top casing 61 and the width of the side rails 63, 64 an opening is formed at the corners in-between the top casing 61 and the two side rails 63, 64, when seen perpendicularly to the screening plane (cf. also for instance Figs 9 and 13).

[0041] In order to ensure that dust and other contaminants enter the top casing and/or the side rails, the screening arrangement 50 furthermore comprises a corner cover assembly 80 to interact with the screening device 60 and the suspension device 70 in the mounted condition of the screening arrangement. The corner cover assembly 80 also provides light-proofing in that it hinders light from passing the screening arrangement. This is most important in connection with blackout screening devices, as it blocks the openings formed in the screening arrangement, thus hindering the passage of light through the screening arrangement and further into the interior of the room of the building. Light may penetrate from any arbitrary direction and adequate blocking of all openings is thus fundamental in order to eliminate or at least severely reduce incident light.

[0042] In the first embodiment, the corner cover assembly 80 comprises a first and a second corner cover

element 81, 82 to interact with the top casing 61 and the two side rails 63, 64 of the screening device 60 and with a respective flange 71, 72, 74 of the plurality of flanges of the suspension device 70 such that the intersection between adjacent lines of contact LC1, LC2, LC4, or extensions of the lines of contact, is located below a respective one of the first and second cover element 81, 82 in the mounted condition of the screening arrangement. Furthermore, a third and a fourth corner cover element 83, 84 is provided to interact with the side rails 63, 64 and the bottom profile 62 of the screening device 60 and with a respective flange 73, 74 of the suspension device 70. This configuration also applies to the alternative embodiment of Fig. 2, whereas in the embodiment of Fig. 3, no third or fourth cover elements are present.

[0043] Turning now in particular to Fig. 4, the roof window 1 comprises a window portion 4 with a window sash 6 and an insulating glazing unit 5. The sash 6 comprises opposing first and second sash members 11, 12 and opposing third and fourth sash members, of which the fourth sash member 14 is shown in Fig. 4, encasing the insulating glazing unit 5. The sash 6 is connected to a frame 7 comprising four frame members 10. The shape of the sash 6 and frame 7 is thus rectangular, for instance square. The sash 6 may be openable relative to the frame 7 or fixed.

[0044] The roof window 1 furthermore comprises a weather shield 3 positioned above the insulating glazing unit 5 and comprising a weather shield pane 8 and a skirt 9. The weather shield 3 has been moved out of engagement with the window portion 4 in Fig. 4 for reasons of clarity. The weather shield pane 8 is substantially plane; however, it is conceivable to install the screening arrangement 50 also in roof windows having a curved pane. The weather shield 3 may be openable relative to the window portion 4 or fixed.

[0045] The screening arrangement 50 is arranged in a spacing between an exterior surface of the insulating glazing unit 5 of the window portion 4 and an interior surface of the weather shield pane 8 of the weather shield 3 such that the screening device 60 is located below an exterior side of the first sash member 11 in the mounted condition of the screening arrangement 50.

[0046] Referring to Figs 5 and 6 showing different schematic perspective top views of the corner cover element 82 from the upper left-hand of the screening arrangement 50. The following described in relation the corner cover element 82 from the upper left-hand may correspondingly be applied to the corner cover element 81 from the upper right-hand of the screening arrangement 50, to the corner cover element 83 from the lower right-hand of the screening arrangement 50, and/or to the corner cover element 84 from the lower left-hand of the screening arrangement 50. Furthermore, when describing the corner cover element 82 in relation to the top casing 61, this description may equally be applied to corner cover element 83, 84 in relation to the bottom profile 62, in embodiments wherein the screening arrangement 50 comprises a bottom profile 62.

[0047] The corner cover element 82 is part of the corner cover assembly 80. The corner cover assembly 80 may comprise two, three, four or more corner cover elements 81, 82, 83, 84. The amount of corner cover elements 81, 82, 83, 84 in the corner cover assembly 80 may be chosen dependent on the screening arrangement 50, and a number of corners or openings to be covered defined by the screening arrangement 50. The shown corner cover element 82 is configured for covering an opening in-between the top casing 61 and one of the two side rails 64. The corner cover assembly 80 may also comprise corner cover elements 83, 84 configured to cover an opening in-between the top casing 61 and a bottom profile 62, if the screening arrangement 50 comprises the bottom profile 62. In some embodiments the corner cover element 82 for covering the opening between the top casing 61 and the side rail 64 may substantially correspond to the corner cover element 84 for covering an opening between the bottom profile 62 and the side rail 64.

[0048] The corner cover element 82 is formed with a top surface 821a. The top surface 821a faces towards an exterior in a mounted condition of the screening arrangement 50. Extending from a perimeter of the top surface 821a is a cover flange 821. The cover flange 821 extends perpendicularly to the top surface 821a in a direction towards an interior. The cover flange 821 is configured to minimize and remove gaps between the cover element 82 and the side rail 64 and the top casing 61. By removing the gaps, light is obstructed from passing by the corner cover element 82. The extension of the cover flange 821 along the perimeter changes to adapt to the side rail 64 and the top casing 61.

[0049] Formed in the cover flange 821 is a plurality of grooves 85, 86, 87. The grooves 85, 86, 87 extends into the corner cover element 82. A first groove 85 is formed in the part of the corner flange 821 facing the side rail 64 and extends into the corner cover element 82. The first groove 85 extends substantially perpendicularly to the top casing 61 in parallel with the two side rails 63, 64. A second groove 86 is formed in the part of the corner flange 821 facing the top casing 61 and extends into the corner cover element 82. The second groove 86 extends substantially in parallel with the top casing 61 perpendicular to the two side rails 63, 64. The first groove 85 and the second groove 86 is formed facing the interior. The top surface 821a opposite the first groove 85 and the second groove 86 is elevated towards the exterior relative to the rest of the top surface 821a. By elevating the top surface 821a deeper grooves 85, 86 may be formed without breaking the top surface 821a, which may be advantageous if the grooves 85, 86 are to receive larger elements. An electric groove 87 is formed in the part of the corner flange 821 facing the top casing 61 and extends into the corner cover element 82. The electric groove 87 extends substantially in parallel with the top casing 61 perpendicular to the two side rails 63, 64. The electric groove 87 is configured to receive and accommodate

one or more electric components extending from the top casing 61, e.g. wiring to the solar panel 61s or wiring to drive means in the roller bar 61r. In that regard, reference is briefly made to Fig. 11, which shows the upper left-hand corner of the screening device 60 of an embodiment of the screening arrangement 50 according to the invention in a mounted condition. It is noted that a subjacent roof window or skylight is not shown, just as the corner cover element (82) has been removed, and the solar panel 61s is shown in an exploded view. The solar panel 61s is formed by a solar panel frame 61s1 which is positioned on top of a solar panel element 61s2 to overlap the solar panel element 61s2 in the mounted condition. A solar panel arm 61s3 is provided to position the solar panel 61s correctly relative to the top casing 61. The solar panel arm 61s3 has the additional function of acting as a guide for a solar panel cable 61s4 extending from the solar panel element 61s2 (or non-shown circuitry connected thereto) and the drive means of the screening device 60. At the end opposite the solar panel arm 61s3, the solar panel frame 61s1 is kept in abutment with the top casing 61 by means of an adhesive pad 61s5. Further elements shown include solar panel labels 61s6, and a flap 613f of an end cover 613L. The end cover 613L accommodates a motor unit of drive means, and the flap 613f may be closed following pairing of the motor control means of the motor unit with for instance a remote control unit.

[0050] As is apparent from the embodiments shown, each first and second corner cover element 81, 82 has a shape adapted to the contours of the top casing 61 and the side rails 63, 64. Correspondingly, the third and fourth corner cover elements 83, 84 may have shapes adapted to the contours of the bottom profile 62 and the side rails 63, 64.

[0051] It is furthermore noted that the first and second corner cover element 81, 82 comprises at least two outer sections, each having a shape of an inverted U-shape, positioned at or near the outer perimeter of the screening device 60 in the mounted condition. In this way, the inverted U-shapes accommodate an outer section of the top casing 61 and the adjacent side rail 63, 64 and/or a structure positioned outside the outer perimeter of the screening device 60. The outer sections thus extend substantially perpendicularly to each other in embodiments in which the top casing and the side rails extend perpendicularly to each other. The presence of such outer sections having an inverted U-shape is particularly relevant when the screening arrangement 50 comprises a suspension device 70, to be described in further detail below, with flanges 71, 74 displaced to the exterior relative to an exterior side of the top casing 61 and the side rails 63, 64. In this way, the two outer sections of inverted U-shape of the first and second corner cover element 81, 82 interact with the flanges 71, 74.

[0052] Also indicated in Fig. 6 is a first dimension D1 and a second dimension D2 of the corner cover element 82. The dimensions D1 and D2 may be similar or, as shown, different in that the second dimension D2 is larger than the first dimension D1. The dimensions D1 and D2 may be chosen in accordance with the shape and dimensions of the top casing 61 and the side rails 63, 64, and if relevant, the bottom profile 62. The first and second corner cover elements 81, 82 typically have the mutually the same dimensions, which may either be the same or different from the dimensions of any third and fourth corner cover elements 83, 84, if present. The dimensions D1 and D2 are chosen such that the corner cover elements 81, 82 provide an overlap with the top casing 61 and the side rails 63, 64. This also appears from comparing the views showing the opening formed between the ends of the top casing 61 and side rail 64 in Figs 11 and 13, with the mounted views shown in Figs 9 and 10. The top surface 821a is configured to reflect incident light on the top surface 821a. The top surface 821a may be provided as a surface of light colour, e.g. white, or otherwise be formed from a reflective material.

[0053] The corner cover element 82 further comprises a protrusion 89. In the shown embodiment the protrusion 89 form part of the perimeter of the corner cover element 82 and the cover flange 821 extends from the protrusion 89. The protrusion 89 away from the top casing 61 and the side rail 64. The protrusion 89 is configured to cover a connection between the roof window 1 and the screening assembly 50, e.g. by protruding over or accommodating the connection, e.g. if the connection is achieved by screw part of the screw may be accommodated in the protrusion 89.

[0054] Referring to Fig. 7 showing a schematic perspective bottom view of a corner cover element 82 from the upper left-hand of the screening arrangement 50. The corner cover element 82 is formed with a bottom surface 821b. The bottom surface 821b faces towards an interior in a mounted condition of the screening arrangement 50. The bottom surface 821b is arranged opposite the top surface 821a. The bottom surface 821b is configured to absorb incident light on the bottom surface 821b. The bottom surface 821b is provided as a surface of dark colour, such as black.

[0055] Extending from the bottom surface 821b are engagement means 89. The engagement means 89 extends towards the interior. The engagement means 89 are formed as a snap-leg 891 and a snap-guide 892. The snap-leg 891 being configured to engage a snap opening in a snap-fit connection. The snap opening may either be formed in the side rail 64 and/or in the top casing 61. The snap-guide 892 is configured to guide and/or align the corner cover element 82 when the snap-connection is made. In this way, a tight abutment with the exterior sides of the top casing and the side rails, and if present, the bottom profile, is obtained.

[0056] Common to all of the embodiments is that each corner cover element 81, 82, 83, 84 may be connected to the top casing and the adjacent side rail, and to the bottom profile, if present, and the adjacent side rail, respectively, after these elements have been assembled and possibly already mounted in the roof window, i.e.

either once the top casing and the side rails and if present the bottom profile have been brought into connection with each other and are ready for mounting, or when these elements of the screening device are already mounted in the roof window. This is made possible in that the connection takes place in a direction perpendicular to the plane containing the exterior surfaces of the top casing, the side rails, and if present, the bottom profile. Once the corner cover element has been brought into engagement with the subjacent element, i.e. the top casing, side rail, or bottom profile, the corner cover element is fixed in its position covering the opening in-between the top casing and a respective one of the two side rails, or between the bottom profile and a respective one of the two side rails. Dismounting of the corner cover element is possible by releasing the engagement, for instance by introducing a tool releasing the snap-leg 891 from its engagement with the not-shown counterpart snap element of the top casing, side rail, or bottom profile, and then retracting the corner cover element in a direction substantially perpendicularly to the general plane of the screening device 60.

[0057] Referring now also to Fig. 8, an embodiment of the corner cover element 82 composed by two components is shown, namely a top component 82T defining the top surface and a bottom component 82B defining the bottom surface. The components 82T, 82B may for instance be formed by 2K injection moulding of suitable materials. The cross-sectional view in Fig. 12 also visualizes the two components.

[0058] Referring to Figs 9 and 10 showing different schematic perspective top views of an upper left-hand corner of a screening arrangement 50 according to the invention, the shown screening arrangement 50 comprises a suspension device 70. The suspension device 70 in the shown embodiment is provided as a flange 74 connected to the side rail 64. The flange 74 is formed with a hook structure configured to cooperate with a corresponding component of a roof window 1. Furthermore, the top casing 61 is provided with a corresponding flange 71. The flange 74 connected to the side rail 64 defines at least one line of contact LC4 configured to cooperate with a corresponding component of the roof window 1 in the mounted condition of the screening arrangement 50. The flange 71 connected to the top casing 61 defines at least one line of contact LC1 configured to cooperate with a corresponding component of the roof window 1 in the mounted condition of the screening arrangement 50. The flanges 71, 74 protrude from the top casing 61 and the side rail 64, such that the lines of contact LC1, LC4 are positioned to the outer side of an outer perimeter of the screening device 60, in the mounted condition of the screening arrangement 50. The outer perimeter of the screening device 60 being defined by the side rails 63, 64 and the top casing 61. In embodiments wherein, the screening arrangement 50 further comprises a bottom profile 62, the outer perimeter of the screening device 60 is defined by the side rails 63, 64, the top casing 61 and the bottom profile 62. The corner cover element 82 interacts with the top casing 61 and the side rail 64 and with their respective flanges 71, 74.

[0059] In the shown embodiment the cover flange 821 abuts the side rail 64 and the top casing 61, thus hindering light from passing through an opening between the top casing 61 and the corner cover element 82, and the side rail 64 and the corner cover element 82. Alternatively, the cover flange 821 may hover slightly above the side rail 61, and the top casing 61. Part of the top casing 61 and the side rail 64 extends under the corner cover element 82. The part of the top casing 61 and the side rail 64 extending under the corner cover element 82 is covered by the corner cover element 82, when viewing the screening device 60 from the exterior. By having part of the top casing 61 and the side rail 64 extending under the corner cover element 82 may further obstruct light from through in-between the top casing 61 and the side rail 64. The flanges 71, 74 of the top casing 61 and the side rail 64 extends into the corner cover element 82. The flange 74 in connection with the side rail 64 extends into the first groove 85 of the corner cover element 82 and is accommodated within the first groove 85. The flange 71 in connection with the top casing 61 extends into the second groove 86 of the corner cover element 82 and is accommodated within the second groove 86. Having the flanges 71, 74 of the top casing 61 and the side rail 64 extending into the corner cover element 82 obstructs light from passing through in-between the corner cover element 82 and the flanges 71, 74.

[0060] Specific embodiments of the invention have now been described. However, several alternatives are possible, as would be apparent for someone skilled in the art. For example, the cover assembly 80 may comprise a third and a fourth corner cover element 83, 84. The third and fourth corner cover element 83, 84 covering an end of the two side rails opposite the top casing.

[0061] Such and other obvious modifications must be considered to be within the scope of the present invention, as it is defined by the appended claims.

List of reference numerals

[0062]

1	roof window 1a window opening
2	roof
2a	roof opening
3	weather shield
4	window portion
5	insulating glazing unit, IGU
6	sash
7	frame
8	weather shield pane
9	weather shield skirt
10	frame member
11	first sash member
12	second sash member

14 fourth sash member

50 screening arrangement

60 screening device
61 top casing
61r roller bar
61s solar panel
61s1 solar panel frame
61s2 solar panel element
61s3 solar panel arm
61s4 solar panel cable
61s5 solar panel adhesive pad
61s6 solar panel labels
613L end cover
613f flap
62 bottom profile
63 side rail
64 side rail
65 screening body
66 bottom bar
70 suspension device
71 top flange
72 bottom flange
74 side flange
80 corner cover assembly
81 corner cover element (upper right-hand)
82 corner cover element (upper left-hand)
82T top component
82B bottom component
821 cover flange
821a top surface
821b bottom surface
83 corner cover element (lower right-hand)
84 corner cover element (lower left-hand)
85 first groove
86 second groove
87 electric groove
88 protrusion
89 engagement means
891 snap-leg
892 snap-guide
LC1 line of contact
LC2 line of contact
LC4 line of contact

D1 first dimension
D2 second dimension

Claims

1. A screening arrangement (50) for a roof window (1) to be installed in an inclined or flat roof (2) of a building to cover an opening (1a) of the window (1) in a mounted condition of the screening arrangement (50), where the screening arrangement (50) comprises:

a screening device (60) including a top casing (61), a screening body (65) having two side edges, a first end portion and a second end portion, said screening body (65) being movable in a longitudinal direction between a non-screening position, in which the screening body (65) is substantially accommodated in the top casing (61), and a number of screening positions in which the screening body (65) is deployed from the top casing (61) and covers the opening partially or entirely, and two side rails (63, 64) configured to extend substantially perpendicularly to the top casing (61) in a mounted condition of the screening arrangement (50), the top casing (61) and the two side rails (63, 64) defining an outer perimeter of the screening device (60), and

a corner cover assembly (80) including a first and a second corner cover element (81, 82), each covering an opening in-between the top casing (61) and a respective one of the two side rails (63, 64), the first and the second corner cover element (81, 82) having a top surface (821a) and a bottom surface (821b), such that, in the mounted condition of the screening arrangement (50), the top surface (821a) faces towards an exterior and the bottom surface (821b) faces towards an interior,

characterised in that

each first and second corner cover element (81, 82) has such dimensions (D1, D2) that an overlap is provided between the corner cover element (81, 82) and the underlying top casing (61) and side rail (63, 64) in the mounted condition of the screening arrangement (50), and

that the bottom surface (821b) of each first and second corner cover element (81, 82) is configured to absorb incident light on the bottom surface (821b) by providing the bottom surface (821b) as a surface of dark colour, such as black.

2. A screening arrangement (50) according to claim 1, wherein each first and second corner cover element (81, 82) has a shape adapted to the contours of the top casing (61) and the side rails (63, 64).

3. A screening arrangement (50) according to claim 2, wherein each first and second corner cover element (81, 82) comprises at least two outer sections, each having a shape of an inverted U-shape, configured to be positioned at or near the outer perimeter of the screening device (60) to accommodate an outer section of the top casing (61) and the adjacent side rail (63, 64) and/or a structure positioned outside the outer perimeter of the screening device (60).

4. A screening arrangement (50) according to any of

the preceding claims, wherein the top surface (821a) is configured to reflect incident light on the top surface (821a), preferably by providing the top surface (821a) as a surface of light colour, such as white.

5. A screening arrangement (50) according to any of the preceding claims, wherein the screening arrangement comprises a suspension device (70) comprising a plurality of flanges (71, 73, 74) connected to or connectable to a respective one of the top casing (61) and at least one of the two side rails (63, 64) of the screening device (60), each flange (71, 73, 74) of said plurality of flanges defining at least one line of contact (LC1, LC3, LC4) configured to cooperate with a corresponding component of the roof window (1) in the mounted condition of the screening arrangement (50), each flange (71, 73, 74) of said plurality of flanges being configured to protrude from the respective one of the top casing (61) and the two side rails (63, 64) such that the lines of contact (LC1, LC3, LC4) are positioned to the outer side of an outer perimeter of the screening device (60) in the mounted condition of the screening arrangement.

6. A screening arrangement according to claim 5, wherein the first and the second corner cover element (81, 82) interacts with the top casing (61) and the two side rails (63, 64) of the screening device (60) and with a respective flange (71, 73, 74) of said plurality of flanges of the suspension device (70) such that the intersection between adjacent lines of contact (LC1, LC3, LC4), or extensions of the lines of contact, is located below a respective one of the first and second cover element (81, 82) in the mounted condition of the screening arrangement (50).

7. A screening arrangement according to any of claims 5-6, wherein the first and/or the second corner cover element (81, 82) comprises a first and a second groove (85, 86), wherein the first groove (85) extends substantially perpendicularly to the top casing (61) in parallel with the two side rails (63, 64) to accommodate at least part of the flange (73, 74) connected or connectable to the two side rail (63, 64), wherein the second groove (86) extends substantially perpendicularly to the first groove (85) in parallel with the top casing (61) to accommodate at least part of the flange (71) connected or connectable to the top casing (61).

8. A screening arrangement according to claims 3 and 7, wherein the flanges (71, 74) are displaced to the exterior relative to an exterior side of the top casing (61) and the side rails (63, 64), and the two outer sections of inverted U-shape of the first and second corner cover element (81, 82) interact with the flanges (71, 74).

9. A screening arrangement (50) according to any of the preceding claims, wherein the first and the second corner cover element (81, 82) each comprises engagement means adapted for engagement with the top casing (61), preferably via a snap-fit connection, more preferably by the top casing (61) being provided with openings for receiving legs of the first and/or the second corner cover element (81, 82) in a snap-fit connection.

10. A screening arrangement (50) according to any of the preceding claims, wherein the first and/or the second corner cover element (81, 82) comprises a protrusion (89) for covering a connection between the roof window (1) and the screening assembly (50).

11. A screening arrangement (50) according to any of the preceding claims, wherein the first and/or the second corner cover element (81, 82) comprises an electric grove (87) extending in parallel with the top casing (61) for accommodating one or more electric components extending from the top casing (61).

12. A screening arrangement (50) according to any of the preceding claims, wherein the first and the second corner cover element (81, 82) each comprises a cover flange (821) extending from a perimeter of the first and the second corner cover element (81, 82) to minimize a clearance between the first and the second corner cover element (81, 82) and the two side rails (63, 64) and the top casing (61).

13. A screening arrangement (50) according to any of the preceding claims, the cover assembly (80) comprising a third and a fourth corner cover element (83, 84) each covering an end of the two side rails (63, 64) opposite the top casing (61).

14. A screening arrangement (50) according to claim 13, wherein the screening arrangement comprises a bottom profile (62) connected to or connectable to the side rails (63, 64), wherein the top casing (61), the two side rails (63, 64) and the bottom profile (62) defines an outer perimeter of the screening device (60), wherein the third and the fourth corner cover element (83, 84) each covering an opening in-between the bottom profile (62) and the two side rails (63, 64), and wherein the screening arrangement (50) further preferably comprises a flange (72) connected or connectable to the bottom profile (62) configured to cooperate with a corresponding component of the roof window (1) in the mounted condition of the screening arrangement (50), wherein the third and fourth corner cover element (83, 84) each comprises a third and a fourth groove, wherein the third groove extends substantially perpendicularly to the bottom profile (62) in parallel with the two side rails (63, 64) to accommodate at least part of the flange

(73, 74) connected to the two side rail (63, 64), wherein the fourth groove extends substantially perpendicularly to the third groove in parallel with the bottom profile (62) to accommodate at least part of the flange (72) connected or connectable to the bottom profile (62).

15. A screening arrangement (50) according to any of the preceding claims, wherein the first and second corner cover element (81, 82), optionally the third and fourth corner cover element (83, 84), is each formed as a 2K injection moulded element formed by a top component (82T) and a bottom component (82B).

16. A screening arrangement (50) according to any one of the preceding claims, wherein each corner cover element (81, 82, 83, 84) is configured to be connected with the top casing (61) and the adjacent side rail (63, 64), optionally to the bottom profile (62) and the adjacent side rail (63, 64) when the top casing (61) and the side rails (63, 64), and optionally the bottom profile (62) have been assembled, and wherein each corner cover element (81, 82, 83, 84) is fixed in position, preferably in a releasable engagement.

17. A screening arrangement (50) according to any of the preceding claims, wherein the screening device (60) is a blackout screening device (60), and wherein the screening body (65) is an opaque screening body (65).

18. A roof window (1) to be installed in an inclined or flat roof (2) of a building, comprising a screening arrangement (50) according to any of the preceding claims.

Patentansprüche

1. Abschirmungsanordnung (50) für ein Dachfenster (1) zur Installation in einem geneigten oder flachen Dach (2) eines Gebäudes zum Abdecken einer Öffnung (1a) des Fensters (1) in einem eingebauten Zustand der Abschirmungsanordnung (50), wobei die Abschirmungsanordnung (50) umfasst:

eine Abschirmungsvorrichtung (60), umfassend ein oberes Gehäuse (61), einen Abschirmungskörper (65) mit zwei Seitenkanten, einem ersten Endteil und einem zweiten Endteil, wobei der Abschirmungskörper (65) in einer Längsrichtung zwischen einer nicht abschirmenden Position, in der der Abschirmungskörper (65) im Wesentlichen in dem oberen Gehäuse (61) aufgenommen ist, und einer Anzahl von abschirmenden Positionen, in denen der Abschirmungskörper (65) aus dem oberen Gehäuse (61) ausgezogen ist und die Öffnung teilweise oder vollständig abdeckt, beweglich ist, und zwei Seitenschienen (63, 64), die so ausgestaltet sind, dass sie sich in einem eingebauten Zustand der Abschirmungsanordnung (50) im Wesentlichen senkrecht zu dem oberen Gehäuse (61) erstrecken, wobei das obere Gehäuse (61) und die zwei Seitenschienen (63, 64) einen Außenumfang der Abschirmungsvorrichtung (60) definieren, und

eine Eckenabdeckbaugruppe (80), umfassend ein erstes und ein zweites Eckenabdeckelement (81, 82), die jeweils eine Öffnung zwischen dem oberen Gehäuse (61) und einer jeweiligen der zwei Seitenschienen (63, 64) abdecken, wobei das erste und das zweite Eckenabdeckelement (81, 82) eine obere Fläche (821a) und eine untere Fläche (821b) aufweisen, so dass im eingebauten Zustand der Abschirmungsanordnung (50) die obere Fläche (821a) einem Außenbereich zugewandt ist und die untere Fläche (821b) einem Innenbereich zugewandt ist,

dadurch gekennzeichnet, dass

jedes erste und zweite Eckenabdeckelement (81, 82) derartige Abmessungen (D1, D2) aufweist, dass im eingebauten Zustand der Abschirmungsanordnung (50) eine Überlagerung zwischen dem Eckenabdeckelement (81, 82) und dem darunter liegenden oberen Gehäuse (61) und der Seitenschiene (63, 64) bereitgestellt ist, und

dass die untere Fläche (821b) jedes ersten und zweiten Eckenabdeckelements (81, 82) dazu ausgestaltet ist, auf die untere Fläche (821b) einfallendes Licht durch Bereitstellen der unteren Fläche (821b) als eine Fläche einer dunklen Farbe, wie etwa Schwarz, zu absorbieren.

2. Abschirmungsanordnung (50) nach Anspruch 1, wobei jedes erste und zweite Eckenabdeckelement (81, 82) eine Form aufweist, die auf die Konturen des oberen Gehäuses (61) und der Seitenschienen (63, 64) ausgelegt ist.

3. Abschirmungsanordnung (50) nach Anspruch 2, wobei jedes erste und zweite Eckenabdeckelement (81, 82) mindestens zwei Außenabschnitte umfasst, die jeweils eine Form einer umgedrehten U-Form aufweisen, die dazu ausgestaltet ist, an oder nahe dem Außenumfang der Abschirmungsvorrichtung (60) angeordnet zu sein, um einen Außenabschnitt des oberen Gehäuses (61) und der angrenzenden Seitenschiene (63, 64) und/oder eine Struktur, die außerhalb des Außenumfangs der Abschirmungsvorrichtung (60) angeordnet ist, aufzunehmen.

4. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei die obere Fläche

(821a) dazu ausgestaltet ist, auf die obere Fläche (821a) einfallendes Licht, vorzugsweise durch Bereitstellen der oberen Fläche (821a) als eine Fläche einer hellen Farbe, wie etwa Weiß, zu reflektieren.

5. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei die Abschirmungsanordnung eine Aufhängungsvorrichtung (70) umfasst, die eine Mehrzahl von Flanschen (71, 73, 74) umfasst, die mit einem jeweiligen des oberen Gehäuses (61) und mindestens einer der zwei Seitenschienen (63, 64) der Abschirmungsvorrichtung (60) verbunden oder verbindbar ist, wobei jeder Flansch (71, 73, 74) der Mehrzahl von Flanschen mindestens eine Kontaktlinie (LC1, LC3, LC4) definiert, die dazu ausgestaltet ist, im eingebauten Zustand der Abschirmungsanordnung (50) mit einer entsprechenden Komponente des Dachfensters (1) zusammenzuwirken, wobei jeder Flansch (71, 73, 74) der Mehrzahl von Flanschen dazu ausgestaltet ist, von dem jeweiligen des oberen Gehäuses (61) und der zwei Seitenschienen (63, 64) derart hervorzustehen, dass die Kontaktlinien (LC1, LC3, LC4) im eingebauten Zustand der Abschirmungsanordnung zur Außenseite eines Außenumfangs der Abschirmungsvorrichtung (60) angeordnet sind.

6. Abschirmungsanordnung nach Anspruch 5, wobei das erste und das zweite Eckenabdeckelement (81, 82) mit dem oberen Gehäuse (61) und den zwei Seitenschienen (63, 64) der Abschirmungsvorrichtung (60) und mit einem jeweiligen Flansch (71, 73, 74) der Mehrzahl von Flanschen der Aufhängungsvorrichtung (70) derart zusammenwirkt, dass sich der Schnittpunkt zwischen angrenzenden Kontaktlinien (LC1, LC3, LC4) oder Verlängerungen der Kontaktlinien im eingebauten Zustand der Abschirmungsanordnung (50) unterhalb eines jeweiligen des ersten und zweiten Abdeckelements (81, 82) befindet.

7. Abschirmungsanordnung nach einem der Ansprüche 5-6, wobei das erste und/oder das zweite Eckenabdeckelement (81, 82) eine erste und eine zweite Nut (85, 86) umfasst, wobei sich die erste Nut (85) im Wesentlichen senkrecht zu dem oberen Gehäuse (61) parallel zu den zwei Seitenschienen (63, 64) derart erstreckt, dass sie zumindest einen Teil des Flanschs (73, 74) aufnimmt, der mit den zwei Seitenschienen (63, 64) verbunden oder verbindbar ist, wobei sich die zweite Nut (86) im Wesentlichen senkrecht zu der ersten Nut (85) parallel zu dem oberen Gehäuse (61) derart erstreckt, dass sie zumindest einen Teil des Flanschs (71) aufnimmt, der mit dem oberen Gehäuse (61) verbunden oder verbindbar ist.

8. Abschirmungsanordnung nach Anspruch 3 und 7, wobei die Flansche (71, 74) relativ zu einer Außenseite des oberen Gehäuses (61) und den Seitenschienen (63, 64) zur Außenseite versetzt sind, und die zwei Außenabschnitte mit umgedrehter U-Form des ersten und zweiten Eckenabdeckelements (81, 82) mit den Flanschen (71, 74) zusammenwirken.

9. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei das erste und das zweite Eckenabdeckelement (81, 82) jeweils Eingriffsmittel umfasst, die für einen Eingriff mit dem oberen Gehäuse (61), vorzugsweise über eine Schnappverbindung, stärker bevorzugt indem das obere Gehäuse (61) mit Öffnungen zum Empfangen von Schenkeln des ersten und/oder des zweiten Eckenabdeckelements (81, 82) in einer Schnappverbindung versehen ist, ausgelegt sind.

10. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei das erste und/oder das zweite Eckenabdeckelement (81, 82) einen Vorsprung (89) zum Abdecken einer Verbindung zwischen dem Dachfenster (1) und der Abschirmungsbaugruppe (50) umfasst.

11. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei das erste und/oder das zweite Eckenabdeckelement (81, 82) eine sich parallel zu dem oberen Gehäuse (61) erstreckende elektrische Nut (87) zum Aufnehmen einer oder mehrerer sich von dem oberen Gehäuse (61) erstreckender elektrischer Komponenten umfasst.

12. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei das erste und das zweite Eckenabdeckelement (81, 82) jeweils einen Abdeckflansch (821) umfasst, der sich von einem Umfang des ersten und des zweiten Eckenabdeckelements (81, 82) derart erstreckt, dass ein Spielraum zwischen dem ersten und dem zweiten Eckenabdeckelement (81, 82) und den zwei Seitenschienen (63, 64) und dem oberen Gehäuse (61) minimiert wird.

13. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei die Abdeckbaugruppe (80) ein drittes und ein viertes Eckenabdeckelement (83, 84) umfasst, die jeweils ein Ende der zwei Seitenschienen (63, 64) gegenüber dem oberen Gehäuse (61) abdecken.

14. Abschirmungsanordnung (50) nach Anspruch 13, wobei die Abschirmungsanordnung ein unteres Profil (62) umfasst, das mit den Seitenschienen (63, 64) verbunden oder verbindbar ist, wobei das obere Gehäuse (61), die zwei Seitenschienen (63, 64) und das untere Profil (62) einen Außenumfang der Abschirmungsvorrichtung (60) definieren, wobei das dritte und das vierte Eckenabdeckelement (83, 84)

jeweils eine Öffnung zwischen dem unteren Profil (62) und den zwei Seitenschienen (63, 64) abdeckt, und wobei die Abschirmungsanordnung (50) ferner vorzugsweise einen Flansch (72) umfasst, der mit dem unteren Profil (62) verbunden oder verbindbar ist, der dazu ausgestaltet ist, im eingebauten Zustand der Abschirmungsanordnung (50) mit einer entsprechenden Komponente des Dachfensters (1) zusammenzuwirken, wobei das dritte und vierte Eckenabdeckelement (83, 84) jeweils eine dritte und eine vierte Nut umfasst, wobei sich die dritte Nut im Wesentlichen senkrecht zu dem unteren Profil (62) parallel zu den zwei Seitenschienen (63, 64) derart erstreckt, dass sie zumindest einen Teil des Flanschs (73, 74) aufnimmt, der mit den zwei Seitenschiene (63, 64) verbunden ist, wobei sich die vierte Nut im Wesentlichen senkrecht zu der dritten Nut parallel zu dem unteren Profil (62) derart erstreckt, dass sie zumindest einen Teil des Flanschs (72) aufnimmt, der mit dem unteren Profil (62) verbunden oder verbindbar ist.

15. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei das erste und zweite Eckenabdeckelement (81, 82), optional das dritte und vierte Eckenabdeckelement (83, 84), jeweils als ein 2K-Spritzgusselement ausgebildet ist, das durch eine obere Komponente (82T) und eine untere Komponente (82B) ausgebildet ist.

16. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei jedes Eckenabdeckelement (81, 82, 83, 84) dazu ausgestaltet ist, mit dem oberen Gehäuse (61) und der angrenzenden Seitenschiene (63, 64), optional mit dem unteren Profil (62) und der angrenzenden Seitenschiene (63, 64) verbunden zu sein, wenn das obere Gehäuse (61) und die Seitenschienen (63, 64), und optional das untere Profil (62) zusammengebaut wurden, und wobei jedes Eckenabdeckelement (81, 82, 83, 84) vorzugsweise in einem lösbaren Eingriff in Position fixiert ist.

17. Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche, wobei die Abschirmungsvorrichtung (60) eine Verdunkelungsabschirmungsvorrichtung (60) ist, und wobei der Abschirmungskörper (65) ein opaker Abschirmungskörper (65) ist.

18. Dachfenster (1) zur Installation in einem geneigten oder flachen Dach (2) eines Gebäudes, umfassend eine Abschirmungsanordnung (50) nach einem der vorhergehenden Ansprüche.

Revendications

1. Agencement d'écran (50) pour une fenêtre de toit (1) destinée à être installée dans un toit incliné ou plat (2) d'un bâtiment pour couvrir une ouverture (1a) de la fenêtre (1) dans un état monté de l'agencement d'écran (50), où l'agencement d'écran (50) comprend :

un dispositif d'écran (60) incluant un boîtier supérieur (61), un corps d'écran (65) ayant deux bords latéraux, une première portion d'extrémité et une deuxième portion d'extrémité, ledit corps d'écran (65) étant mobile dans une direction longitudinale entre une position de non écran, dans laquelle le corps d'écran (65) est substantiellement logé dans le boîtier supérieur (61), et un certain nombre de positions d'écran dans lesquelles le corps d'écran (65) est déployé à partir du boîtier supérieur (61) et couvre l'ouverture partiellement ou entièrement, et deux rails latéraux (63, 64) configurés pour s'étendre substantiellement perpendiculairement au boîtier supérieur (61) dans un état monté de l'agencement d'écran (50), le boîtier supérieur (61) et les deux rails latéraux (63, 64) définissant un périmètre externe du dispositif d'écran (60), et
un ensemble couverture de coin (80) incluant un premier et un deuxième élément de couverture de coin (81, 82), couvrant chacun une ouverture entre le boîtier supérieur (61) et un rail respectif parmi les deux rails latéraux (63, 64), le premier et le deuxième élément de couverture de coin (81, 82) ayant une surface supérieure (821a) et une surface inférieure (821b), de telle sorte que, dans l'état monté de l'agencement d'écran (50), la surface supérieure (821a) soit orientée vers un extérieur et la surface inférieure (821b) soit orientée vers un intérieur,
caractérisé en ce que
chaque premier et deuxième élément de couverture de coin (81, 82) a des dimensions (D1, D2) telles qu'un chevauchement est ménagé entre l'élément de couverture de coin (81, 82) et le boîtier supérieur (61) et le rail latéral (63, 64) sous-jacents dans l'état monté de l'agencement d'écran (50), et
que la surface inférieure (821b) de chaque premier et deuxième élément de couverture de coin (81, 82) est configurée pour absorber la lumière incidente sur la surface inférieure (821b) en ménageant la surface inférieure (821b) comme surface de couleur sombre, comme du noir.

2. Agencement d'écran (50) selon la revendication 1, dans lequel chaque premier et deuxième élément de couverture de coin (81, 82) a une forme adaptée aux contours du boîtier supérieur (61) et des rails latéraux (63, 64).

3. Agencement d'écran (50) selon la revendication 2, dans lequel chaque premier et deuxième élément de couverture de coin (81, 82) comprend au moins deux sections externes, chacune ayant une forme en forme de U inversé, configurées pour être positionnées au niveau ou à proximité du périmètre externe du dispositif d'écran (60) afin de loger une section externe du boîtier supérieur (61) et du rail latéral (63, 64) adjacent et/ou une structure positionnée hors du périmètre externe du dispositif d'écran (60).

4. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel la surface supérieure (821a) est configurée pour réfléchir la lumière incidente sur la surface supérieure (821a), préférablement en ménageant la surface supérieure (821a) comme surface de couleur claire, comme du blanc.

5. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, l'agencement d'écran comprenant un dispositif de suspension (70) comprenant une pluralité de brides (71, 73, 74) raccordées ou pouvant être raccordées à un élément respectif parmi le boîtier supérieur (61) et au moins un des deux rails latéraux (63, 64) du dispositif d'écran (60), chaque bride (71, 73, 74) de ladite pluralité de brides définissant au moins une ligne de contact (LC1, LC3, LC4) configurée pour coopérer avec un composant correspondant de la fenêtre de toit (1) dans l'état monté de l'agencement d'écran (50), chaque bride (71, 73, 74) de ladite pluralité de brides étant configurée pour faire saillie à partir de l'élément respectif parmi le boîtier supérieur (61) et les deux rails latéraux (63, 64) de telle sorte que les lignes de contact (LC1, LC3, LC4) soient positionnées sur le côté externe d'un périmètre externe du dispositif d'écran (60) dans l'état monté de l'agencement d'écran.

6. Agencement d'écran selon la revendication 5, dans lequel le premier et le deuxième élément de couverture de coin (81, 82) interagissent avec le boîtier supérieur (61) et les deux rails latéraux (63, 64) du dispositif d'écran (60) et avec une bride (71, 73, 74) respective de ladite pluralité de brides du dispositif de suspension (70) de telle sorte que l'intersection entre des lignes de contact (LC1, LC3, LC4) adjacentes, ou des extensions des lignes de contact, soit située au-dessous d'un élément respectif parmi le premier et le deuxième élément de couverture (81, 82) dans l'état monté de l'agencement d'écran (50).

7. Agencement d'écran selon l'une quelconque des revendications 5 à 6, dans lequel le premier et/ou le deuxième élément de couverture de coin (81, 82) comprend une première et une deuxième rainure (85, 86), la première rainure (85) s'étendant substantiellement perpendiculairement au boîtier supérieur (61) en parallèle avec les deux rails latéraux (63, 64) pour loger au moins une partie de la bride (73, 74) raccordée ou pouvant être raccordée au deux rails latéraux (63, 64), la deuxième rainure (86) s'étendant substantiellement perpendiculairement à la première rainure (85) en parallèle avec le boîtier supérieur (61) pour loger au moins une partie de la bride (71) raccordée ou pouvant être raccordée au boîtier supérieur (61).

8. Agencement d'écran selon les revendications 3 et 7, dans lequel les brides (71, 74) sont déplacées vers l'extérieur relativement à un côté extérieur du boîtier supérieur (61) et des rails latéraux (63, 64), et les deux sections externes en forme de U inversé du premier et du deuxième élément de couverture de coin (81, 82) interagissent avec les brides (71, 74).

9. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel le premier et le deuxième élément de couverture de coin (81, 82) comprennent chacun des moyens de mise en prise adaptés pour une mise en prise avec le boîtier supérieur (61), préférablement par l'intermédiaire d'un raccordement par encliquetage, plus préférablement par le fait de ménager dans le boîtier supérieur (61) des ouvertures pour recevoir des pattes du premier et/ou du deuxième élément de couverture de coin (81, 82) dans un raccordement par encliquetage.

10. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel le premier et/ou le deuxième élément de couverture de coin (81, 82) comprend une saillie (89) pour couvrir un raccordement entre la fenêtre de toit (1) et l'ensemble écran (50).

11. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel le premier et/ou le deuxième élément de couverture de coin (81, 82) comprend une rainure électrique (87) s'étendant en parallèle avec le boîtier supérieur (61) pour loger un ou plusieurs composants électriques s'étendant à partir du boîtier supérieur (61).

12. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel le premier et le deuxième élément de couverture de coin (81, 82) comprennent chacun une bride de couverture (821) s'étendant à partir d'un périmètre du premier et du deuxième élément de couverture de coin (81, 82) pour minimiser un espace libre entre le premier et le deuxième élément de couverture de coin (81, 82) et les deux rails latéraux (63, 64) et le boîtier supérieur (61).

13. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, l'ensemble couverture (80) comprenant un troisième et un quatrième élément de couverture de coin (83, 84) couvrant chacun une extrémité des deux rails latéraux (63, 64) en regard du boîtier supérieur (61).

14. Agencement d'écran (50) selon la revendication 13, l'agencement d'écran comprenant un profil inférieur (62) raccordé ou pouvant être raccordé aux rails latéraux (63, 64), le boîtier supérieur (61), les deux rails latéraux (63, 64) et le profil inférieur (62) définissant un périmètre externe du dispositif d'écran (60), le troisième et le quatrième élément de couverture de coin (83, 84) couvrant chacun une ouverture entre le profil inférieur (62) et les deux rails latéraux (63, 64), et l'agencement d'écran (50) comprenant en outre préférablement une bride (72) raccordée ou pouvant être raccordée au profil inférieur (62) configurée pour coopérer avec un composant correspondant de la fenêtre de toit (1) dans l'état monté de l'agencement d'écran (50), le troisième et le quatrième élément de couverture de coin (83, 84) comprenant chacun une troisième et une quatrième rainure, la troisième rainure s'étendant substantiellement perpendiculairement au profil inférieur (62) en parallèle avec les deux rails latéraux (63, 64) pour loger au moins une partie de la bride (73, 74) raccordée aux deux rails latéraux (63, 64), la quatrième rainure s'étendant substantiellement perpendiculairement à la troisième rainure en parallèle avec le profil inférieur (62) pour loger au moins une partie de la bride (72) raccordée ou pouvant être raccordée au profil inférieur (62).

15. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel le premier et le deuxième élément de couverture de coin (81, 82), facultativement le troisième et le quatrième élément de couverture de coin (83, 84), sont chacun façonnés comme un élément moulé par injection 2K façonné par un composant supérieur (82T) et un composant inférieur (82B) .

16. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel chaque élément de couverture de coin (81, 82, 83, 84) est configuré pour être raccordé au boîtier supérieur (61) et au rail latéral (63, 64) adjacent, facultativement au profil inférieur (62) et au rail latéral (63, 64) adjacent lorsque le boîtier supérieur (61) et les rails latéraux (63, 64), et facultativement le profil inférieur (62), ont été assemblés, et chaque élément de couverture de coin (81, 82, 83, 84) étant fixé en position, préférablement en une mise en prise pouvant être libérée.

17. Agencement d'écran (50) selon l'une quelconque des revendications précédentes, dans lequel le dispositif d'écran (60) est un dispositif d'écran occultant (60), et dans lequel le corps d'écran (65) est un corps d'écran opaque (65).

18. Fenêtre de toit (1) destinée à être installée dans un toit incliné ou plat (2) d'un bâtiment, comprenant un agencement d'écran (50) selon l'une quelconque des revendications précédentes.

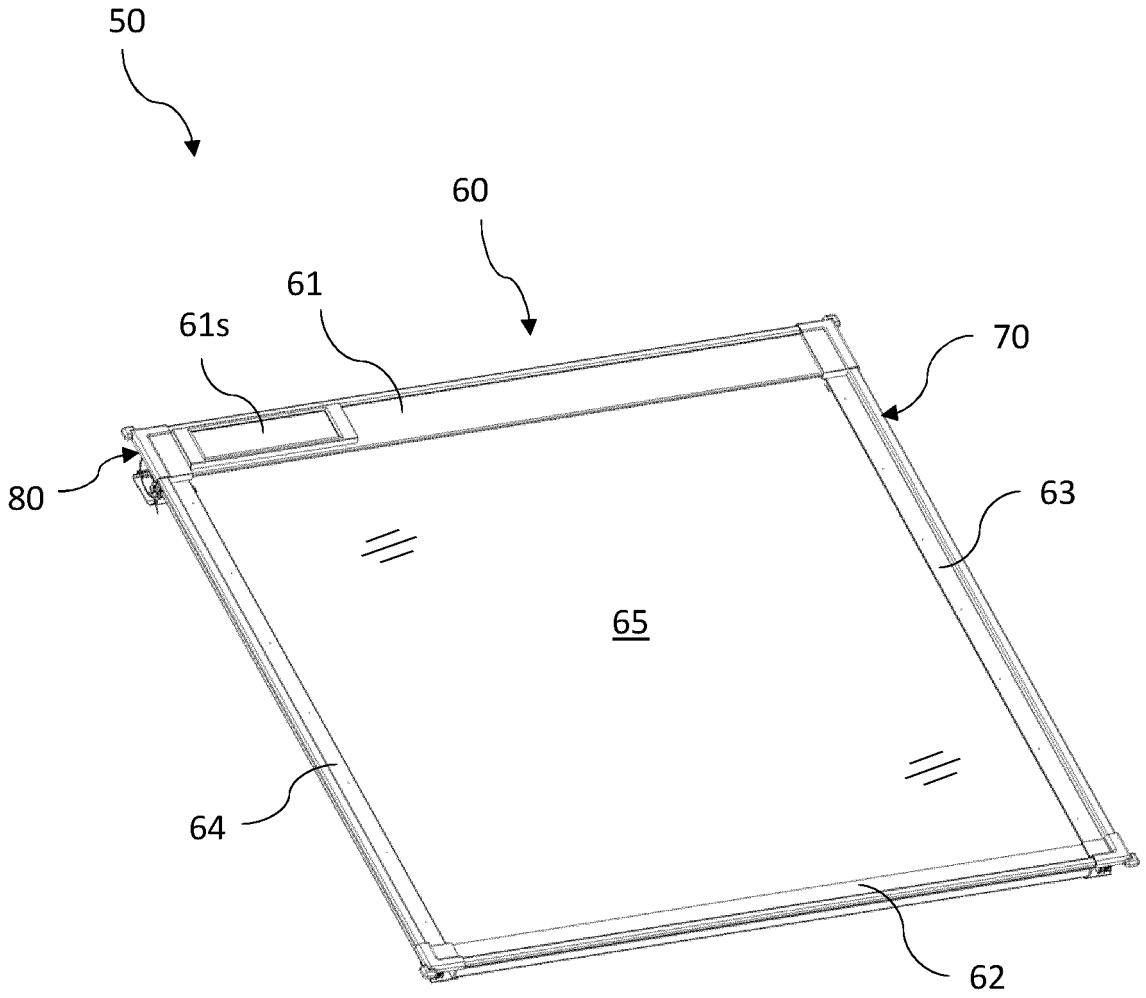

Fig. 1

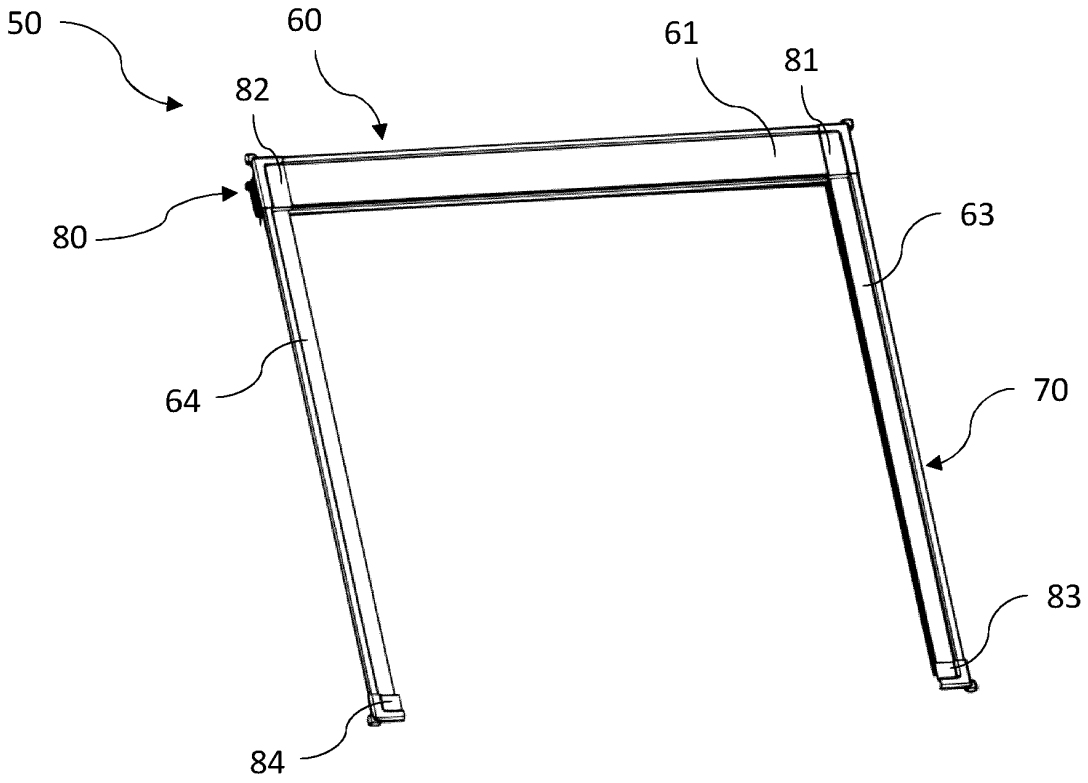

Fig. 2

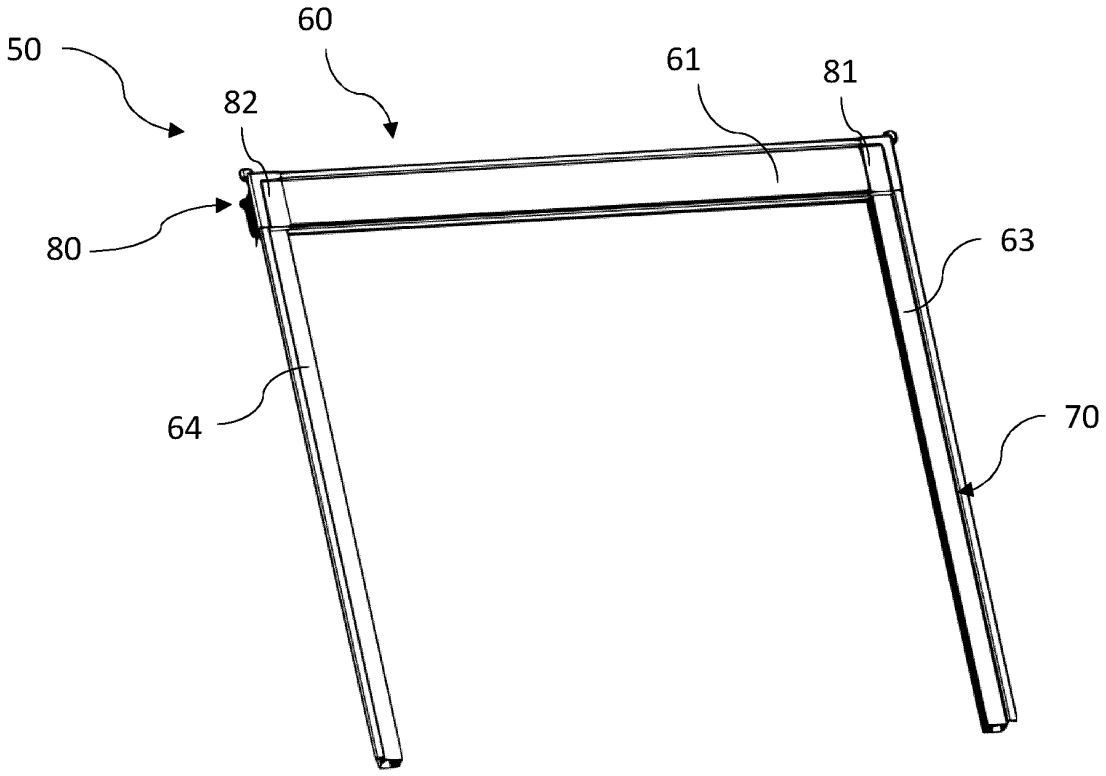

Fig. 3

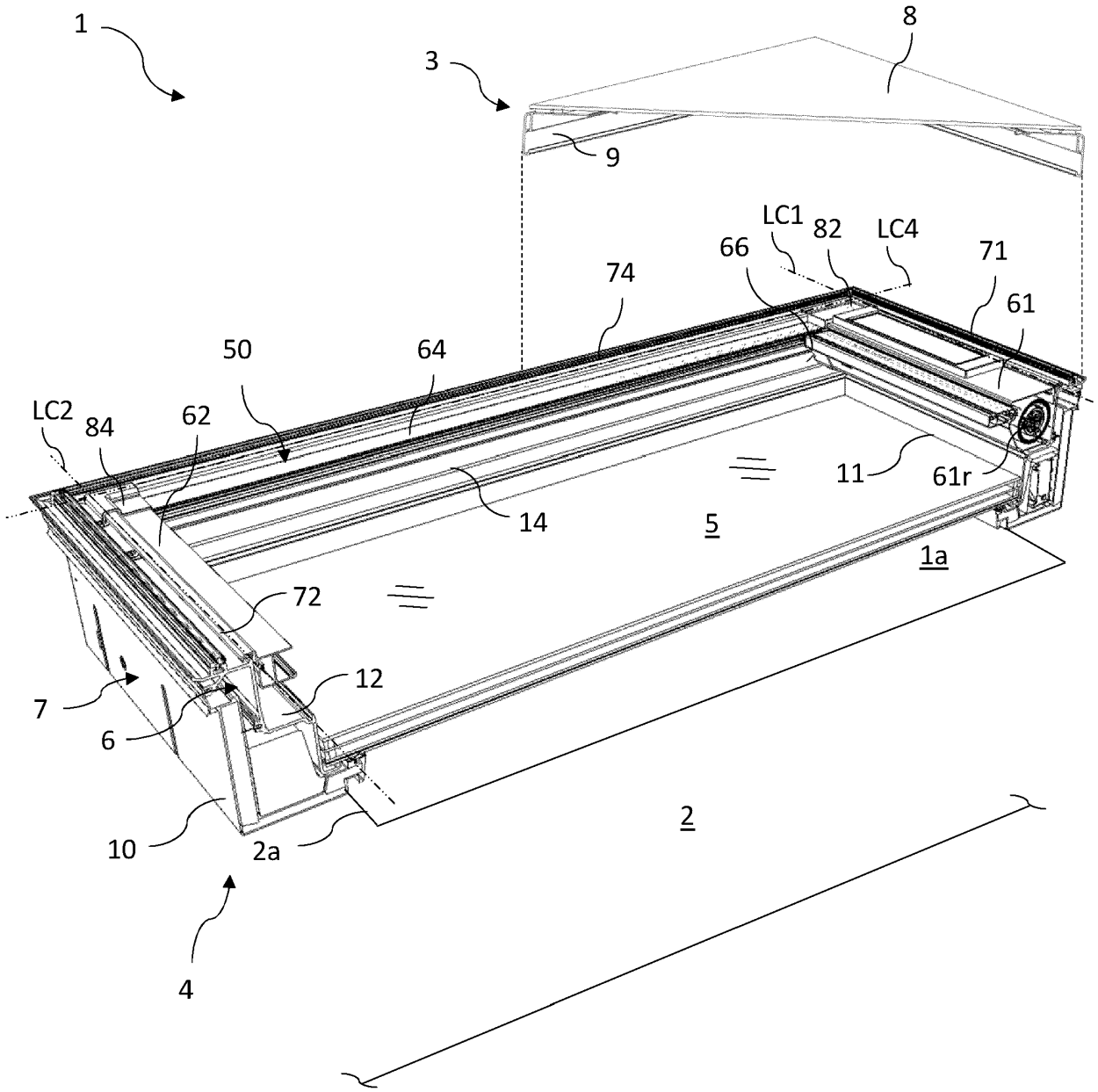
1
3
8
9
LC1
82
LC4
66
71
74
61
50
64
LC2
84
62
11
61r
14
5
1a
72
12
7
6
10
2a
2
4

Fig. 4

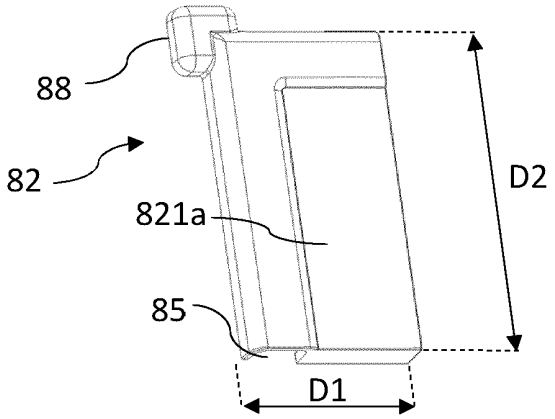

Fig. 5

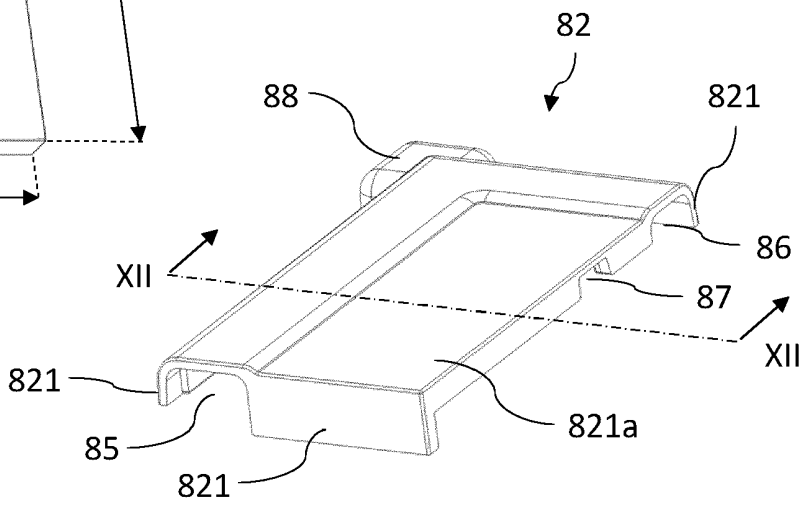

Fig. 6

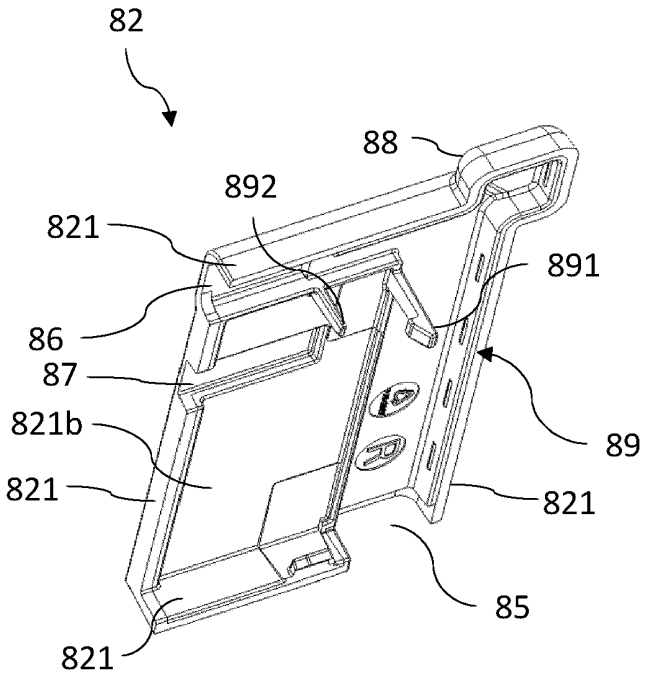

Fig. 7

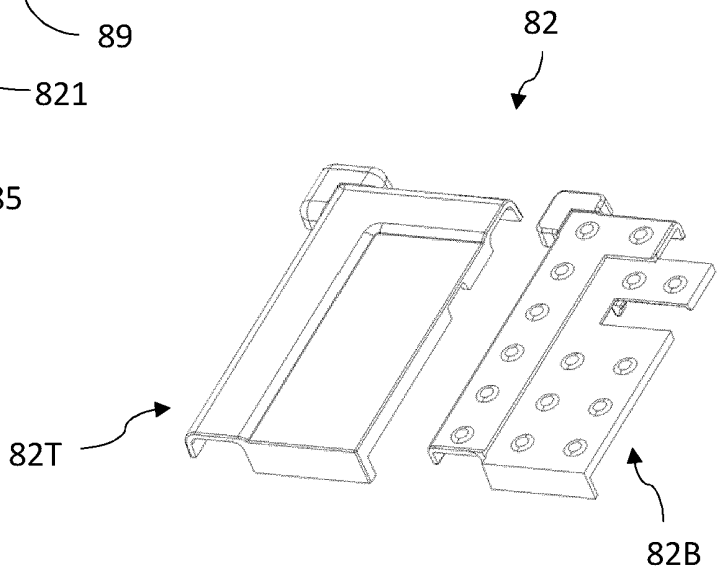

Fig. 8

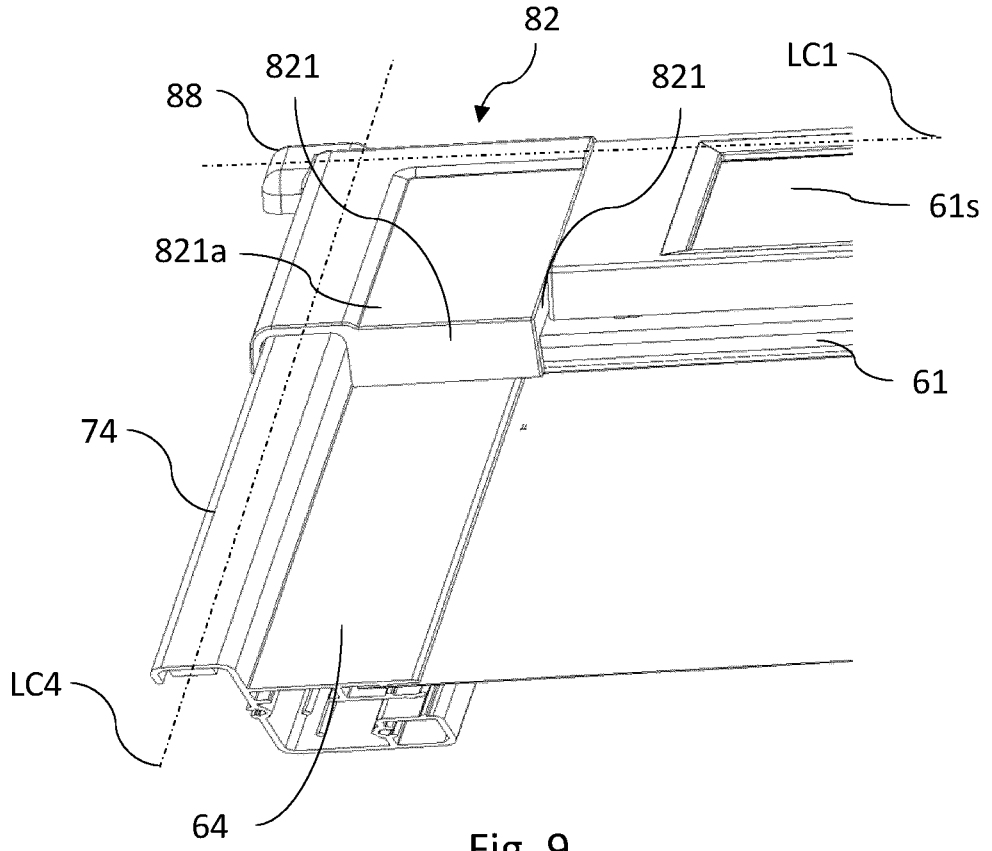
82
821
821
LC1
88
61s
821a
61
74
LC4
64

Fig. 9

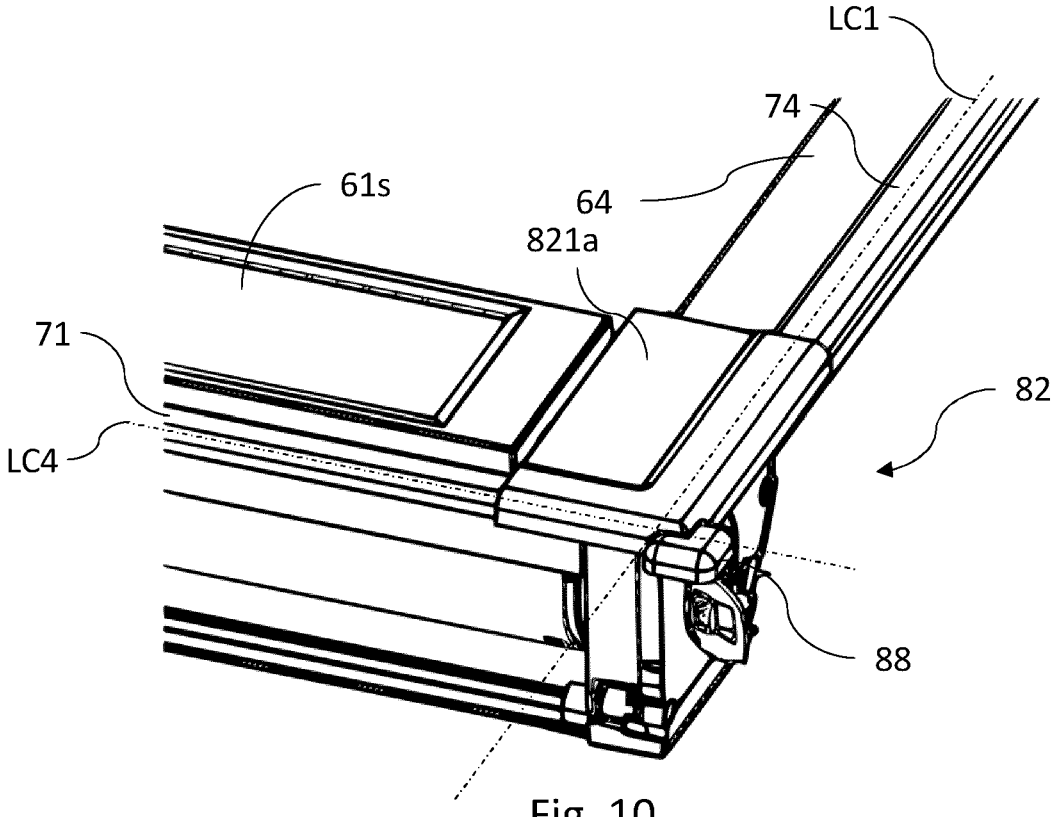
LC1
74
61s
64
821a
71
82
LC4
88

Fig. 10

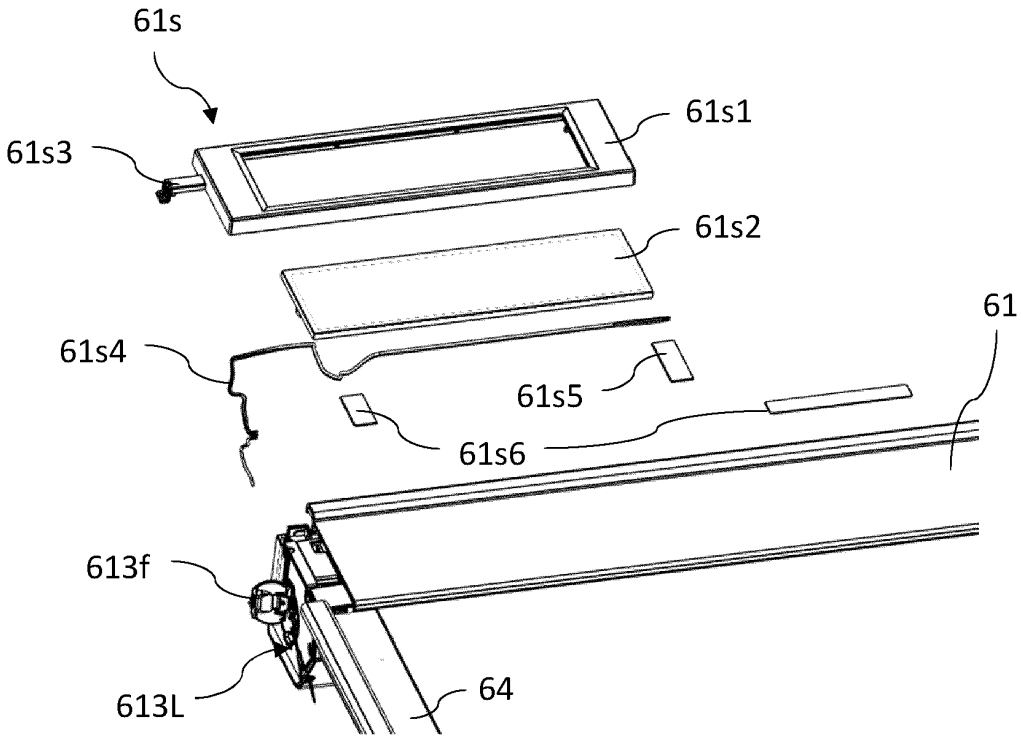

Fig. 11

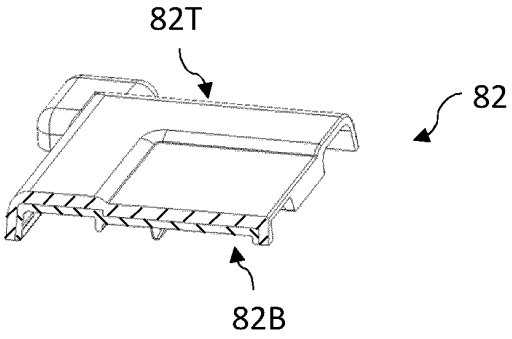

Fig. 12

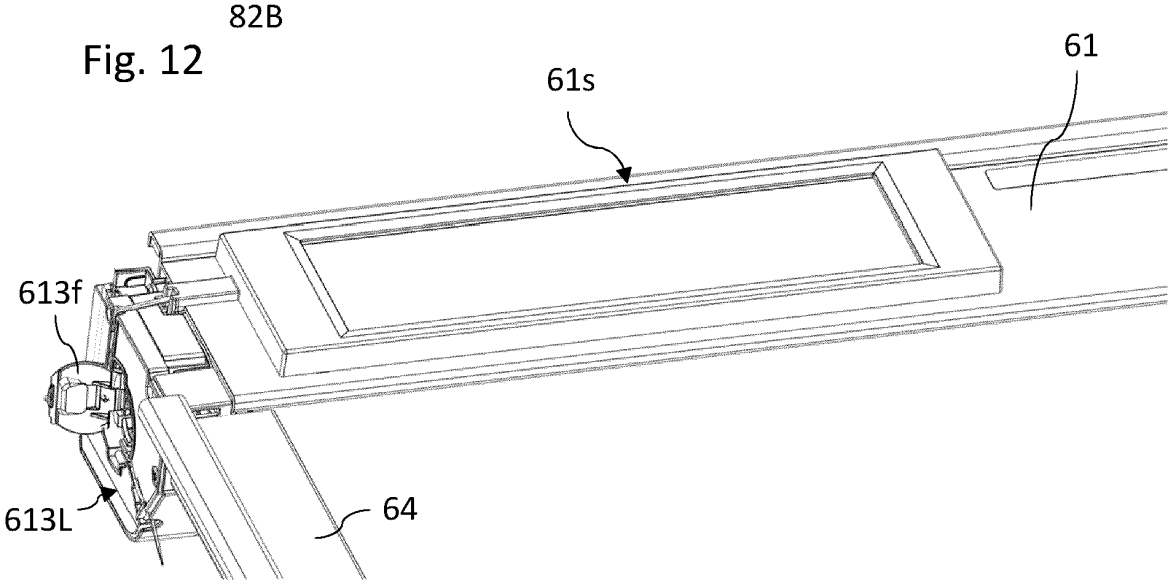

Fig. 13

REFERENCES CITED IN THE DESCRIPTION

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