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(71) Applicant: **Keylite Roof Windows Limited**  
**Cookstown, Tyrone BT80 9LU (GB)**

(72) Inventor: **COYLE, Sean**  
**Cookstown, Tyrone BT80 9LU (GB)**

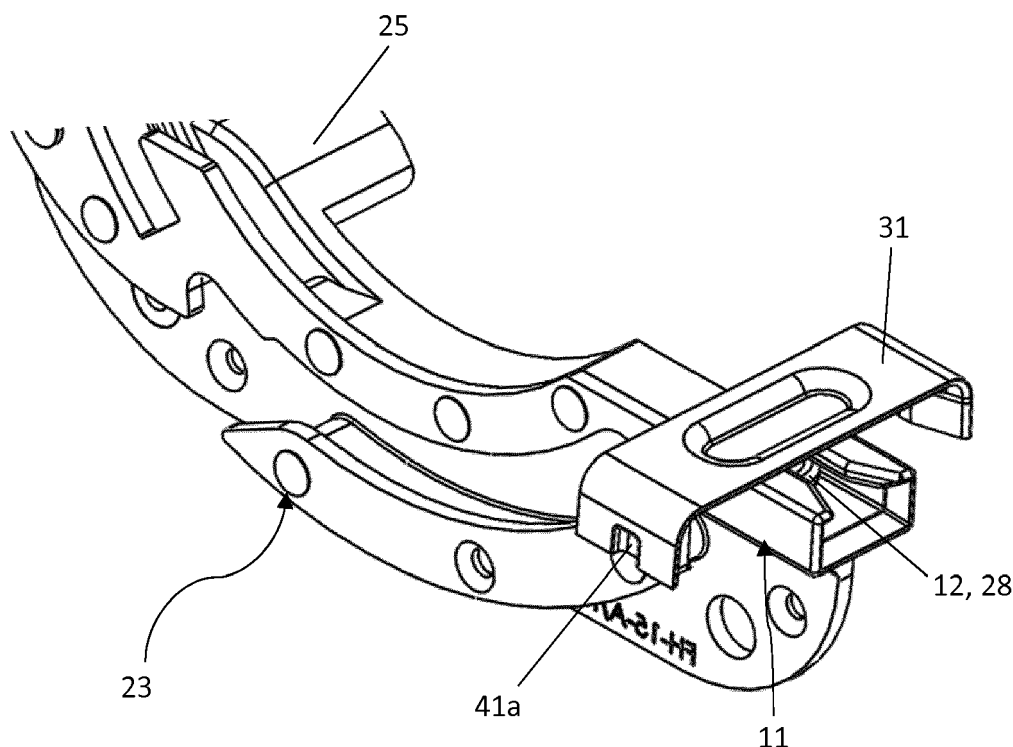
(74) Representative: **Hanna, John Philip**  
**Hanna IP**  
**4th Floor**  
**58 Howard Street**  
**Belfast BT1 6PJ (GB)**

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(54) **A ROOF WINDOW COMPRISING A COVER MEMBER**

(57) A roof window (1) having a frame (2) and an elongate frame cover member (5) having two longitudinal edge portions (19) and two lateral edge portions (17). The elongate frame cover member (5) is adaptable to cover at least part of the exterior surface of a side member of the frame (2). The roof window (1) has an elongate

frame cover member retaining arrangement with an arrangement (30) for slidably and releasably locating and retaining at least part of the elongate frame cover member (5) to the frame (2). The cover member retaining arrangement is disposed proximal the frame (2).



**Figure 4**

## Description

**[0001]** The present invention relates to roof windows, and in particular to roof windows comprising a cover member for covering at least part of the exterior facing surface of the main roof window structure.

**[0002]** In known windows, and in particular roof windows comprising a frame and a sash mounted within the frame, cover members are often screwed onto the exterior facing surfaces of the window, e.g. the exterior faces of the frame and sash, so as to protect the underlying window structure from exposure to the elements, and to prevent/reduce the ingress of water into the building via the roof window structure. While generally effective as a method of fastening, the use of screw fasteners to attach the cover member to the roof window has been found to be generally undesirable due to the screws which remain visible on the outside surface of the covering members. Furthermore, deformation occurs on the covering members as a result of creating apertures in the covering members for receiving screws. There is also the issue of time taken to attach the cover member to the window structure and remove it for maintenance. In addition, the use of screw fasteners requires that an aperture is formed in the cover member for receiving the screw fasteners, and that the screw fasteners penetrate into the window structure. This provides a route for water ingress through the aperture in the cover member and into the window structure, which can lead to the deterioration of the window structure, particularly if the frame and sash are constructed from wood based materials. Furthermore, the screw fasteners can act as a thermal bridge between the window structure and the cover members, thereby negatively affecting the thermally insulative properties of the window.

**[0003]** Prior art devices have achieved some success in reducing the requirement of penetrating screw fasteners to connect the cover member to the window structure, they require the provision of additional components to be attached to both the window structure and the cover member. These additional components require additional manufacturing steps and increase the total cost for the window. Furthermore, the prior devices require the precise alignment of engagement elements which are obscured from the view of the window installer by the presence of the cover member. The window installer has to attempt to align the engagement components effectively blindly, which complicates the installation process and increases the installation time.

**[0004]** It is an object of the present invention to obviate and/or mitigate the problems of penetrating screw fasteners used for attaching cover members to roof window structures.

**[0005]** It is a further object of the present invention to obviate and/or mitigate the problems of complicated/expensive manufacture in existing cover member attachment systems for roof windows.

**[0006]** It is yet a further object of the present invention

to obviate and/or mitigate the problems of complicated/time consuming installation of existing cover member attachment systems for roof windows.

**[0007]** Accordingly, the present invention provides a roof window comprising a frame and a sash, the frame having a top member, a bottom member and two side members extending between the top and bottom member defining a quadrangular frame having an opening for receiving the sash, the sash having a top member, a bottom member and two side members extending between the top and bottom member defining a quadrangular sash frame having an opening for receiving a pane of glass, the roof window further comprising an elongate frame cover member having two longitudinal edge portions and two lateral edge portions, the elongate frame cover member being adaptable to cover at least part of the exterior surface of a side member of the frame, the roof window further comprising an elongate frame cover member retaining means having means for slidably and releasably locating and retaining at least part of the elongate frame cover member to the frame, the cover member retaining means being disposed proximal the frame.

**[0008]** Although the term elongate frame cover member is used it will of course be appreciated that this elongate frame cover member will also cover a part of the sash coextensive with the part of the frame that this elongate frame cover member covers. Advantageously, no extraneous tools are required to locate and retain at least part of the elongate frame cover member to the frame.

**[0009]** Ideally, the means for slidably and releasably locating and retaining at least part of the elongate frame cover member to the frame comprises a first component disposed on or attached to the frame and a second co-operating component on the elongate frame cover member.

**[0010]** In another embodiment, the means for slidably and releasably locating and retaining at least part of the elongate frame cover member to the frame comprises a first component on the elongate frame cover member and a second co-operating component disposed on or attached to the frame.

**[0011]** Preferably, the first component being slidably engageable with the second co-operating component.

**[0012]** Ideally, the first component comprises at least one member defining at least one slot, the member being spaced apart from another surface for receiving at least part of a second co-operating component.

**[0013]** Preferably, the first component comprises an enclosure having a first member having at least one slot.

**[0014]** Ideally, the enclosure comprises a bottom member, side members and a first member having at least one slot with the first member above the bottom member and defining a gap therebetween for receiving at least part of the second co-operating component.

**[0015]** Ideally, the at least one slot further comprises an inlet into the first member.

**[0016]** Preferably, the inlet provides an opening in the first member towards the top or bottom member of the

frame, most preferably the top member of the frame.

**[0017]** Ideally, the second co-operating component comprises at least one projection.

**[0018]** Preferably, the at least one projection can be slidably inserted into the at least one slot.

**[0019]** Preferably, the at least one projection comprises a head and a shaft wherein the head is wider than the shaft.

**[0020]** Ideally, the at least one projection of the second co-operating component can be slidably inserted into the inlet of the slot of the first member.

**[0021]** Preferably, the shaft of the at least one projection slides into the at least one slot and the head of the at least one projection slides into the space created by the first member.

**[0022]** Ideally, the second co-operating component is restricted from substantial vertical movement when slidably engaged with the first component as the head of the at least one projection of the second co-operating component is prohibited from downward and/or upward movement due to abutting the bottom member and/or the first member.

**[0023]** Preferably, the second co-operating component is restricted from substantial lateral movement when slidably engaged with the first component as the at least one projection of the second co-operating component abuts the first member and/or side members of the slot or the at least one slot.

**[0024]** Preferably, the elongate frame cover member retaining means comprises a stop means.

**[0025]** Ideally, the stop means prevents the elongate frame cover member from moving further in the direction of insertion.

**[0026]** Ideally, the first component comprises a stop means.

**[0027]** Preferably, the stop means acts as a physical stop preventing at least part of the second co-operating component from moving any further in the direction of insertion when the at least one projection of the second co-operating component abuts the stop means.

**[0028]** Ideally, the stop means locates the longitudinal position of the second co-operating component in at least one direction by providing a physical stop for the at least one projection of the second co-operating component.

**[0029]** Advantageously, when the at least one projection of the second co-operating component is slidably inserted into the at least one slot of the first component the elongate frame cover member cannot move substantially longitudinally any further in the direction of insertion, or substantially vertically and/or laterally relative to the frame.

**[0030]** Ideally, the sash side members have elongate sash cover members which extend along a part of the sash members not covered by the elongate frame cover members. Again, although the term elongate sash cover member is used it will of course be appreciated that this elongate sash cover member will also cover a part of the frame coextensive with the part of the sash that this elon-

gate sash cover member covers.

**[0031]** Ideally, a part of one end portion of the elongate frame cover member overlaps the lateral edge portion of the elongate sash cover when the sash is in a closed position.

**[0032]** Preferably, a part of the lower end portion of the elongate frame cover member overlaps the lateral edge portion of the elongate sash cover member by a distance in the range of 5 mm to 15 mm and most preferably in the range of 9 mm to 12 mm when the sash is in a closed position.

**[0033]** Ideally, the slidable and releasable locating and retaining means is cast from a metal or metal alloy material, most preferably steel. Advantageously, this allows the material to be formed and also allows the tight dimensional tolerances available to work with in this area of the roof window to be achieved.

**[0034]** Ideally, the slidable and releasable locating and retaining means is formed from material having a thickness in the range of 1 mm to 2 mm, most preferably 1.5 mm.

**[0035]** Advantageously, the present invention provides a frame or an elongate frame cover member with a first component with at least one slot and a frame or an elongate frame cover member with a second co-operating component with at least one projection that is slidably inserted into the at least one slot of the first component thereby locating and retaining the elongate frame cover member on the frame. This slidable engagement holds the elongate frame cover member in engagement with the frame, thereby preventing the elongate frame cover member from being lifted upwards and away from the frame via wind for example. The sliding engagement further allows slidable movement of the elongate frame cover member in one direction such that it can be removed for maintenance i.e., backwards in the direction opposite to which the elongate frame cover member was slid into engagement with the releasable locating and retaining means. The releasable locating and retaining means retains the elongate frame cover member in position on the frame without requiring screw fasteners to penetrate into the window structure providing a non-visible connection between the frame and the elongate frame cover member at the lower end and along the length of the elongate frame cover member. In addition, the at least one projection of the second co-operating component and the at least one slot of the first component is tangible to the window installer during installation. In use, the window installer can simply align the at least one projection of the second co-operating component with the at least one slot of the first component and slide the at least one projection into the at least one slot to secure the elongate frame cover member in place.

**[0036]** Ideally, the sliding engagement between the first component and the second co-operating component is a non-clip and/or non-snap-lock and/or non-biased engagement.

**[0037]** Preferably, the sliding engagement between

the at least one projection of the second co-operating component and the at least one slot of the first component is a non-clip and/or non-snap-lock and/or non-biased engagement.

**[0038]** Advantageously, the at least one projection of the second co-operating component can simply be slid into sliding engagement with the at least one slot of the first component, and does not require a complicated fastening arrangement.

**[0039]** Advantageously, when the at least one projection of the second co-operating component is slidably inserted into the at least one slot of the first component the elongate frame cover member has its movement restricted.

**[0040]** Preferably, the elongate frame cover member has a material thickness in the range of 0.7 mm to 1.3 mm, and is most preferably 1 mm.

**[0041]** Ideally, the elongate frame cover member is manufactured from aluminium or zinc or copper or a composite material.

**[0042]** Ideally, the elongate sash cover member comprises a top sheet member having an exterior and interior facing surface.

**[0043]** Preferably, the elongate frame cover member comprises side sheet members connected to or integrally formed with the top sheet member. By "integrally formed" as referred to above and in the forgoing, we mean that the object is designed as an integral component of the object to which it is attached/part of. In this case, we mean that the side sheet members are designed as an integral component with the top sheet member. Advantageously, having the side sheet members of the elongate frame cover member integrally formed with the top sheet member means that the elongate frame cover member can be manufactured as a single integral structure.

**[0044]** Ideally, the side sheet members and top sheet member of the elongate frame cover member form a single, unitary, structure. In other words, the side sheet members and top sheet members of the elongate frame cover member are homogenous, and can be formed from a single piece of material such as metal.

**[0045]** Preferably, the side sheet members are downwardly directed flanges.

**[0046]** Ideally, the elongate frame and/or sash cover member has a generally C-shaped cross-section.

**[0047]** Preferably, the side sheet members and top sheet members of the elongate frame cover member are substantially planar surfaces.

**[0048]** Preferably, the first component or second co-operating component being disposed on or attached to the frame at a position which enables the elongate frame cover member to sit in its final position when the at least one projection of the second co-operating component is slid into the at least one slot of the first component and abuts the stop means.

**[0049]** Preferably, the sash is pivotally engaged with the frame.

**[0050]** Ideally, the sash is pivotally engaged with the frame by a hinge.

**[0051]** Preferably, the hinge comprises a sash hinge component attachable to the sash, and a frame hinge component attachable to the frame, the sash hinge component being adaptable to hingedly engage with the frame hinge component.

**[0052]** Ideally, the elongate frame cover member retaining means is mounted on the frame hinge component and the elongate frame cover member.

**[0053]** Preferably, the first component or second co-operating component of the slidable and releasable locating and retaining means is mounted on the frame hinge component.

**[0054]** Ideally, the first component or second co-operating component is integrally formed with the frame hinge component. Advantageously, the first component or second co-operating component and the frame hinge component can be manufactured as a single, integral structure. This simple design facilitates manufacture of the frame hinge component as an integral component, and does not require the assembly or fabrication of component parts. The first component or second co-operating component does not need to be riveted or otherwise separately connected or attached to the frame hinge component during the manufacturing process or during window installation.

**[0055]** Ideally, the elongate sash cover member is partially received under the elongate frame cover member when the window is in the closed position. Advantageously, when the window is closed, the elongate frame cover member and elongate sash cover member form a water resistant barrier.

**[0056]** Accordingly, the present invention provides a hinge for a roof window, the hinge comprising a first component or a second co-operating component of an elongate frame cover member retaining means having means for slidably and releasably locating and retaining at least part of an elongate frame cover member, the first component or second co-operating component being disposed on the hinge at a location to enable slidable engagement with a first component or a second co-operating component disposed on an elongate frame cover member.

**[0057]** In one embodiment, the means for slidably and releasably locating and retaining at least part of the elongate frame cover member to the frame comprises a first component on the hinge and a second co-operating component on the elongate frame cover member.

**[0058]** In another embodiment, the means for slidably and releasably locating and retaining at least part of the elongate frame cover member to the frame comprises a first component on the elongate frame cover member and a second co-operating component on the hinge.

**[0059]** Preferably, the first component comprises at least one member defining at least one slot, the member being spaced apart from another surface for receiving at least part of a second co-operating component.

**[0060]** Preferably, the first component comprises an enclosure having a first member having at least one slot.

**[0061]** Ideally, the enclosure comprises a bottom member, side members and a first member having at least one slot with the first member above the bottom member and defining a gap therebetween for receiving at least part of the second co-operating component.

**[0062]** Ideally, the at least one slot further comprises an inlet into the first member opening towards the top or bottom member of the frame, most preferably the top member of the frame.

**[0063]** Ideally, the second co-operating component comprises at least one projection for slidable engagement.

**[0064]** Preferably, the at least one projection comprises a head and a shaft wherein the head is wider than the shaft.

**[0065]** Ideally, the at least one projection of the second co-operating component can be slidably inserted into the inlet of the of the first member.

**[0066]** Ideally, the second co-operating component is restricted from substantial vertical movement when slidably engaged with the first component as the head of the at least one projection of the second co-operating component is prohibited from downward and/or upward movement due to abutting the bottom member and/or first member.

**[0067]** Preferably, the second co-operating component is restricted from substantial lateral movement when slidably engaged with the first component as the at least one projection of the second co-operating component abuts the first member and/or side members of the enclosure.

**[0068]** Ideally, the first component and/or second co-operating component comprises a stop means.

**[0069]** Preferably, the stop means prevents the first component or second co-operating component from moving further in the direction of insertion.

**[0070]** Preferably, the stop means acts as a physical stop preventing at least part of the second co-operating component from moving any further in the direction of insertion when the at least one projection of the second co-operating component abuts the stop means.

**[0071]** Ideally, the stop means locates the longitudinal position of the second co-operating component in at least one direction by providing a physical stop for the at least one projection of the second co-operating component.

**[0072]** Advantageously, when the at least one projection of the second co-operating component is slidably inserted into the at least one slot of the first component the elongate frame cover member cannot move substantially longitudinally any further in the direction of insertion, vertically and/or laterally relative to the hinge.

**[0073]** Ideally, the slidable and releasable locating and retaining means is cast from a metal or metal alloy material, most preferably steel. Advantageously, this allows the material to be formed and also allows the tight dimensional tolerances available to work with in this area of the

roof window to be achieved.

**[0074]** Ideally, the slidable and releasable locating and retaining means is formed from material having a thickness in the range of 1 mm to 2 mm, most preferably 1.5 mm. Advantageously, the present invention provides a hinge or an elongate frame cover member with a first component with at least one slot and a hinge or an elongate frame cover member with a second co-operating component with at least one projection that is slidably inserted into the at least one slot of the first component thereby locating and retaining the elongate frame cover member on the hinge. This slidable engagement holds the elongate frame cover member in engagement with the hinge, thereby preventing the elongate frame cover member from being lifted upwards and away from the hinge via wind for example. The sliding engagement further allows slidable movement of the elongate frame cover member in one direction such that it can be removed for maintenance i.e., backwards in the direction opposite to which the elongate frame cover member was slid into engagement with the releasable locating and retaining means. The releasable locating and retaining means retains the elongate frame cover member in position on the hinge and therefore the frame of the roof window without requiring screw fasteners to penetrate into the window structure providing a non-visible connection between the hinge and the elongate frame cover member at the lower end and along the length of the elongate frame cover member. In addition, the at least one projection of the second co-operating component and the at least one slot of the first component is tangible to the window installer during installation. In use, the window installer can simply align the at least one projection of the second co-operating component with the at least one slot of the first component and slide the at least one projection into the at least one slot to secure the elongate frame cover member in place.

**[0075]** Preferably, the sliding engagement between the at least one projection of the second co-operating component and the at least one slot of the first component is a non-clip and/or non-snap-lock and/or non-biased engagement.

**[0076]** Advantageously, the at least one projection of the second co-operating component can simply be slid into sliding engagement with the at least one slot of the first component, and does not require a complicated fastening arrangement.

**[0077]** Advantageously, when the at least one projection of the second co-operating component is slidably inserted into the at least one slot of the first component the elongate frame cover member has its movement restricted.

**[0078]** Preferably, the first component or second co-operating component being locatable on the hinge at a position which enables the elongate frame cover member to sit in its final position when the at least one projection of the second co-operating component is slid into the at least one slot of the first component.

**[0079]** Ideally, the hinge comprises a sash hinge component attachable to the sash, and a frame hinge component attachable to the frame, the sash hinge component being adaptable to hingedly engage with the frame hinge component.

**[0080]** Ideally, the first component or second co-operating component of the cover member retaining means having means for slidably and releasably locating and retaining at least part of an elongate frame cover member is mounted on the frame hinge component. Ideally, the first component or second co-operating component is integrally formed with the frame hinge component. Advantageously, the first component or second co-operating component and the frame hinge component can be manufactured as a single, integral structure. This simple design facilitates manufacture of the frame hinge component as an integral component, and does not require the assembly or fabrication of component parts. The first component or second co-operating component does not need to be riveted or otherwise separately connected or attached to the frame hinge component during the manufacturing process or during window installation.

**[0081]** Ideally, the first component or second co-operating component extends from a channel section bracket.

**[0082]** Preferably, the channel section bracket is dimensioned to nest within the internal surface of the elongate frame cover member.

**[0083]** Preferably, the channel section bracket is dimensioned to form an interference fit with the internal surface of the elongate frame cover member.

**[0084]** Ideally, in use, the interference fit being non-visible.

**[0085]** Preferably, non-penetrative fastening means are provided between the channel section bracket and the elongate frame cover member for fastening the channel section bracket to the elongate frame cover member.

**[0086]** Ideally, the non-penetrative fastening means do not penetrate the elongate cover member.

**[0087]** Preferably, the non-penetrative fastening means being provided by the interference fit.

**[0088]** In one embodiment, the non-penetrative fastening means comprising adhesive substances.

**[0089]** Ideally, locating means are provided between the channel section bracket and elongate frame cover member for locating the channel section bracket at the elongate frame cover member.

**[0090]** Preferably, the locating means being provided by the interference fit.

**[0091]** Ideally, the channel section bracket comprising at least one indentation.

**[0092]** Preferably, the elongate frame cover member comprising at least one inward protrusion.

**[0093]** Ideally, the at least one inward protrusion being positioned at a lateral edge portion of the elongate frame cover member.

**[0094]** Advantageously, the at least one inward protrusion is non-visible or at least barely visible.

**[0095]** Preferably, the at least one inward protrusion

being dimensioned to correspond to the at least one indentation.

**[0096]** Ideally, in use, the at least one inward protrusion being located within the at least one indentation such that the channel section bracket is located and fastened against the elongate frame cover member.

**[0097]** The skilled man will appreciate that all preferred or optional features of the invention described with reference to only some aspects or embodiments of the invention may be applied to all aspects of the invention.

**[0098]** It will be appreciated that optional features applicable to one aspect of the invention can be used in any combination, and in any number. Moreover, they can also be used with any of the other aspects of the invention in any combination and in any number. This includes, but is not limited to, the dependent claims from any claim being used as dependent claims for any other claim in the claims of this application.

**[0099]** The invention will now be described with reference to the accompanying drawings which shows by way of example only one embodiment of an apparatus in accordance with the invention.

**[0100]** In the drawings:

Figure 1 is a perspective view of a roof window comprising a sash, frame and cover members;

Figure 2 is a partial perspective view of an elongate frame cover member and a frame hinge component when the elongate frame cover member retaining arrangement is engaged according to illustrated arrangements of the present invention;

Figure 3 is a partial perspective view of an elongate frame cover member and a frame hinge component showing a first component of an elongate frame cover member retaining arrangement disposed on the frame hinge component;

Figure 4 is a partial perspective view of a second co-operating component and a frame hinge component when the elongate frame cover member retaining arrangement is engaged according to illustrated arrangements of the present invention;

Figure 5 is a top plan view of an elongate frame cover member retaining arrangement when the elongate frame cover member retaining arrangement is engaged according to illustrated arrangements of the present invention;

Figure 6 is a partial bottom view of an elongate frame cover member showing a second co-operating component of the elongate frame cover retaining arrangement according to illustrated arrangements of the present invention;

Figure 7 is an end view of an elongate frame cover member comprising a second co-operating component of the elongate frame cover retaining arrangement according to illustrated arrangements of the present invention;

Figure 8 is a front elevation view of a hinge with a first component of the elongate frame cover retaining

arrangement showing an enclosure with a bottom member, side members and a first member with a slot according to illustrated arrangements of the present invention;

Figure 9 is a plan view of the hinge in Figure 8;

Figure 10 is an end view of an elongate frame cover member retaining arrangement showing a hinge with a first component and an elongate frame cover member with a second co-operating component in slidable engagement according to illustrated arrangements of the present invention.

**[0101]** In Figure 1, there is shown a roof window indicated generally by the reference numeral 1 comprising a frame 2 and a sash 3 received in the frame 2. The frame 2 comprises a top member 2a, bottom member 2b, and two side members 2c, 2d extending between the top member 2a and the bottom member 2b defining a quadrangular frame 2. The quadrangular frame 2 has an opening 2f sized to receive the sash 3. The sash 3 comprises a top member 3a, bottom member 3b and side members 3c, 3d extending between the top member 3a and bottom member 3b and defines a quadrangular sash 3. The quadrangular sash 3 has an opening 3f sized to receive a pane of glass. The roof window 1 is a centre-hung roof window 1 where the sash 3 is pivotally received in the frame 2 by a hinge component (not shown) positioned at or about the centre of the window 1. The sash 3 is shown in an open position where a ventilation passage is provided through the roof window 1 and into the building structure via the quadrangular opening 2f in the frame 2. The sash 3 is moveable between this and, optionally, other open positions to a closed position where the ventilation passage is sealed. Other roof window structures not expressly discussed above are also included within the scope of the present invention. Although the present invention is particularly suited to roof windows, other arrangements and locations of windows are also included within the scope of the present invention.

**[0102]** At least part of the exterior surface of the frame 2 and/or sash 3 of the roof window 1 is covered with cover members 4, 5a, 5b, 6, 10a and 10b. As will be understood, "exterior surface" refers to the exterior faces of the frame 2 and/or sash 3 which face the outside, rather than the interior surface which refers to the interior faces of the frame 2 and/or sash 3 which face inside the building to which the roof window 1 is attached. The cover members 4, 5a, 5b, 6, 10a and 10b protect the frame 2 and/or sash 3 from exposure to the elements, and prevent/reduce the ingress of water into the building via the frame 2 and/or sash 3. The particular arrangement in Figure 1 includes a hood 4 to cover the top member 2a of the frame 2 and also the top member 3a of the sash 3 when the sash 3 is in the closed position. In addition, elongate frame cover members 5a, 5b are provided to cover the upper region (i.e. the region above the hinge component) of the side members 2c, 2d of the frame 2, and also the upper region of the side members 3c, 3d of the sash 3 when the sash

3 is in the closed position. The elongate frame cover members 5a, 5b are also known as frame striking bead coverings 5a, 5b. Further, elongate sash cover members 10a, 10b are provided to cover the lower region of the side members 3c, 3b of the sash 3, and also the lower region of the side members 2c, 2d of the frame 2 when the sash 3 is in the closed position. The elongate sash cover members 10a, 10b are also known as sash striking bead coverings. In further addition, bottom cover member 3b is provided to cover the bottom member 3b of the sash 3, and also the bottom member 2b of the frame 2 when the sash 3 is in the closed position. Other arrangements of cover members, such as including some of the cover members referred to above or extra cover members not expressly mentioned above are also included within the scope of the present invention.

**[0103]** In Figures 2, 3, 6, 7 and 10 there is shown an elongate frame cover member 5 according to the present invention, it will of course be appreciated that this elongate frame cover member 5 will also cover a part of the sash 3 coextensive with the part of the frame 2 that this elongate frame cover member 5 covers. The elongate frame cover member 5 has two longitudinal edge portions 19 and two lateral edge portions 17. The elongate frame cover member 5 is adaptable to cover at least part of the exterior surface of a side member of the frame 2, the roof window 1 further has an elongate frame cover member retaining arrangement having an arrangement indicated generally by the reference numeral 30 for slidably and releasably locating and retaining at least part of the elongate frame cover member 5 to the frame 2, the cover member retaining arrangement being disposed proximal the frame 2.

**[0104]** The arrangement 30 for slidably and releasably locating and retaining the elongate frame cover member 5 to the frame 2 has a first component 11 attached to the frame 2 and a second co-operating component 12 on the elongate frame cover member 5, as illustrated in Figures 3 and 6 to 10. In Figures 3 to 5 and 8 to 10 there is shown a first component 11 with a member 15 defining a slot 26, the member 15 being spaced apart from another surface for receiving at least part of the second co-operating component 12. The first component 11 has an enclosure having a first member 15 having at least one slot 26. The enclosure has a bottom member 13, side members 14 and a first member 15 having at least one slot 26 with the first member 15 above the bottom member 13 and defining a gap therebetween for receiving at least part of the second co-operating component 12.

**[0105]** In Figures 4 to 7 and 10 there is shown a second co-operating component 12 having a projection 28 with a head 16 and a shaft 18, wherein the head 16 is wider than the shaft 18. The projection 28 of the second co-operating component 12 can be slidably inserted into the inlet of the slot 26 of the first component 11 and more specifically the shaft 18 can be slidably inserted into the slot 26. The second co-operating component 12 is restricted from substantial vertical movement when slidably

engaged with the first component 11 as the head 16 of the projection 28 of the second co-operating component 12 is prohibited from downward and/or upward movement due to abutting the first member 15 and/or the bottom member 13 of the slot. The second co-operating component 12 is restricted from substantial lateral movement when slidably engaged with the first component 11 as the projection 28 of the second co-operating component 12 abuts at least one side member 14. The first component 11 has a stop arrangement 20. The stop arrangement 20 acts as a physical stop preventing at least part of the second co-operating component 12 from moving any further in the direction of insertion when the projection 28 of the second co-operating component 12 abuts the stop arrangement 20. The stop arrangement 20 locates the longitudinal position of the second co-operating component 12 in at least one direction by providing a physical stop for the projection 28 of the second co-operating component 12. When the projection 28 of the second co-operating component 12 is slidably inserted into the slot of the first component 11 the elongate frame cover member 5 cannot move substantially longitudinally any further in the direction of insertion, vertically and/or laterally relative to the frame 2.

**[0106]** The sash side members 3c, 3d have elongate sash cover members 10 which extend along a part of the sash members 3c, 3d not covered by the elongate frame cover members 5. Again, although the term elongate sash cover member is used it will of course be appreciated that this elongate sash cover member 10 will also cover a part of the frame 2 coextensive with the part of the sash 3 that this elongate sash cover member 10 covers. A part of one end portion of the elongate frame cover member 5 overlaps the lateral edge portion of the elongate sash cover member 10 by a distance in the range of 5 mm to 15 mm when the sash 3 is in a closed position.

**[0107]** The slidable and releasable locating and retaining arrangement 30 is cast from steel. Advantageously, this allows the material to be formed and also allows the tight dimensional tolerances available to work with in this area of the roof window 1 to be achieved. The slidable and releasable locating and retaining arrangement 30 is formed from material having a thickness in the range of 1 mm to 2 mm. The frame 2 is attached to a first component 11 having a slot 26, the elongate frame cover member 5 has a second co-operating component 12 with at least one projection 28 that is slidably inserted into the slot 26 of the first component 11 thereby locating and retaining the elongate frame cover member 5 on the frame 2; see Figures 3 and 10.

**[0108]** This slidable engagement holds the elongate frame cover member 5 in engagement with the frame 2, thereby preventing the elongate frame cover member 5 from being lifted upwards and away from the frame 2 via wind for example. The sliding engagement further allows slidable movement of the elongate frame cover member 5 in one direction such that it can be removed for maintenance i.e., backwards in the direction opposite to which

the elongate frame cover member 5 was slid into engagement with the releasable locating and retaining arrangement 30. The releasable locating and retaining arrangement 30 retains the elongate frame cover member 5 in position on the frame 2 without requiring screw fasteners to penetrate into the window structure providing a non-visible connection between the frame 2 and the elongate frame cover member 5 at the lower end and along the length of the elongate frame cover member 5. In addition, the projection 28 of the second co-operating component 12 and the slot 26 of the first component 11 is tangible to the window installer during installation. In use, the window installer can simply align the projection 28 of the second co-operating component 12 with the slot 26 of the first component 11 and slide the projection 28 into the slot 26 to secure the elongate frame cover member 5 in place. The sliding engagement between the projection 28 of the second co-operating component 12 and the slot 26 of the first component 11 is a non-clip and/or non-snap-lock and/or non-biased engagement. The projection 28 of the second co-operating component 12 can simply be slid into sliding engagement with the at least one slot 26 of the first component 11, and does not require a complicated fastening arrangement. Advantageously, when the projection 28 of the second co-operating component member 12 is slidably inserted into the slot 26 of the first component 11 the elongate frame cover member 5 has its movement restricted.

**[0109]** In Figures 2, 3, 6, 7 and 10, there is shown an elongate frame cover member 5 manufactured from aluminium and having a material thickness of 1.0 mm. The elongate sash cover member 5 comprises a top sheet member 21 having an exterior and interior facing surface. The elongate frame cover member 5 has side sheet members 22 connected to or integrally formed with the top sheet member 21. By "integrally formed" as referred to above and in the forgoing, we mean that the object is designed as an integral component of the object to which it is attached/part of. In this case, we mean that the side sheet members 22 are designed as an integral component with the top sheet member 21. Advantageously, having the side sheet members 22 of the elongate frame cover member 5 integrally formed with the top sheet member 21 arrangement that the elongate frame cover member 5 can be manufactured as a single integral structure. Ideally, the side sheet members 22 and top sheet member 21 of the elongate frame cover member 5 form a single, unitary, structure. In other words, the side sheet members 22 and top sheet members 21 of the elongate frame cover member 5 are homogenous, and can be formed from a single piece of material such as metal. The side sheet members 22 are downwardly directed flanges. The elongate frame and/or sash cover member 10, 5 has a generally C-shaped cross-section. The side sheet members 22 and top sheet members 21 of the elongate frame cover member 5 are substantially planar surfaces.

**[0110]** The first component 11 is located on the frame

3 at a position which enables the elongate frame cover member 5 to sit in its final position when the projection 28 of the second co-operating component 12 is slid into the slot 26 of the first component 11 and abuts the stop arrangement 20. The sash 3 is pivotally engaged with the frame 2 by a hinge 23. The hinge 23 has a sash hinge component (not shown) attachable to the sash 3, and a frame hinge component 25 attachable to the frame 2, the sash hinge component being adaptable to hingedly engage with the frame hinge component 25. The elongate frame cover member 5 retaining arrangement is mounted on the frame hinge component 25 and the elongate frame cover member 5. The first component 11 of the slidable and releasable locating and retaining arrangement 30 is mounted on the frame hinge component 25. Advantageously, the first component 11 and the frame hinge component 25 can be manufactured as a single, integral structure. This simple design facilitates manufacture of the frame hinge component 25 as an integral component, and does not require the assembly or fabrication of component parts. The first component 11 does not need to be riveted or otherwise separately connected or attached to the frame hinge component 25 during the manufacturing process or during window installation. The elongate sash cover member 10 is partially received under the elongate frame cover member 5 when the window is in the closed position. Advantageously, when the window is closed, the elongate frame cover member 5 and elongate sash cover member 10 form a water resistant barrier.

**[0111]** In Figures 2 to 4 and 8 to 10, there can be seen a hinge 23 for a roof window 1, the hinge 23 having a first component 11 of a cover member retaining arrangement 30 having means for slidably and releasably locating and retaining at least part of an elongate frame cover member 5, the first component 11 being disposed on the hinge 23 at a location to enable slidable engagement with a second co-operating component 12 disposed on an elongate frame cover member 5. The first component 11 has a member 15 defining a slot 26, the member 15 being spaced apart from another surface for receiving at least part of a second co-operating component 12. The first component 11 has an enclosure having a first member 15 having at least one slot 26. The enclosure having a bottom member 13, side members 14 and a first member 15 having a slot 26 with the first member 15 above the bottom member 13 and defining a gap therebetween for receiving at least part of the second co-operating component 12. The slot 26 further comprises an inlet into the first member 15 opening towards the top or bottom member of the frame 2, most preferably the top member of the frame 2.

**[0112]** In Figures 4 to 7 and 10 there is shown a second co-operating component 12 having at a projection 28. The projection 28 has a head 16 and a shaft 18 wherein the head 16 is wider than the shaft 18. The projection 28 of the second co-operating component 12 can be slidably inserted into the inlet of the of the first member 15. The

second co-operating component 12 is restricted from substantial vertical movement when slidably engaged with the first component 11 as the head 16 of the projection 28 of the second co-operating component 12 is prohibited from downward and/or upward movement due to abutting the bottom member 13 and/or first member 15. The second co-operating component 12 is restricted from substantial lateral movement when slidably engaged with the first component 11 as the projection 28 of the second co-operating component 12 abuts the first member 15 and/or side members 14 of the enclosure. The first component 11 has a stop arrangement 20. The stop arrangement 20 acts as a physical stop preventing at least part of the second co-operating component 12 from moving any further in the direction of insertion when the projection 28 of the second co-operating component 12 abuts the stop arrangement 20. The stop arrangement 20 locates the longitudinal position of the second co-operating component 12 in at least one direction by providing a physical stop for the projection 28 of the second co-operating component 12. Advantageously, when the projection 28 of the second co-operating component 12 is slidably inserted into the at least one slot of the first component 11 the elongate frame cover member 5 cannot move substantially longitudinally any further in the direction of insertion, vertically and/or laterally relative to the hinge 23. The slidable and releasable locating and retaining arrangement is cast from steel. The slidable and releasable locating and retaining arrangement 30 is formed from material having a thickness of 1.5 mm.

**[0113]** The hinge 23 has a first component 11 with a slot and the elongate frame cover member 5 has a second co-operating component 12 with a projection 28 that is slidably inserted into the slot of the first component 11 thereby locating and retaining the elongate frame cover member 5 on the hinge 23. This slidable engagement holds the elongate frame cover member 5 in engagement with the hinge, thereby preventing the elongate frame cover member 5 from being lifted upwards and away from the hinge 23 via wind for example. The sliding engagement further allows slidable movement of the elongate frame cover member 5 in one direction such that it can be removed for maintenance i.e., backwards in the direction opposite to which the elongate frame cover member 5 was slid into engagement with the releasable locating and retaining arrangement 30.

**[0114]** The releasable locating and retaining arrangement 30 retains the elongate frame cover member 5 in position on the hinge 23 and therefore the frame 3 of the roof window 1 without requiring screw fasteners to penetrate into the window structure providing a non-visible connection between the hinge 23 and the elongate frame cover member 5 at the lower end and along the length of the elongate frame cover member 5. In addition, the projection 28 of the second co-operating component 12 and the slot of the first component 11 is tangible to the window installer during installation.

**[0115]** In use, the window installer can simply align the

projection 28 of the second co-operating component 12 with the slot 26 of the first component 11 and slide the projection 28 into the slot 26 to secure the elongate frame cover member 5 in place. The sliding engagement between the projection 28 of the second co-operating component 12 and the slot 26 of the first component 11 is a non-clip and/or non-snap-lock and/or non-biased engagement. Advantageously, the projection 28 of the second co-operating component 12 can simply be slid into sliding engagement with the slot of the first component 11, and does not require a complicated fastening arrangement. When the projection 28 of the second co-operating component 12 is slidably inserted into the slot of the first component 11 the elongate frame cover member 5 has its movement restricted. The first component 11 being locatable on the hinge 23 at a position which enables the elongate frame cover member 5 to sit in its final position when the projection 28 of the second co-operating component 12 is slid into the slot of the first component 11.

**[0116]** The hinge 23 has a sash hinge component (not shown) attachable to the sash 2, and a frame hinge component 25 attachable to the frame 3, the sash hinge component being adaptable to hingedly engage with the frame hinge component 23. The first component 11 or second co-operating component 12 of the cover member retaining arrangement having means for slidably and releasably locating and retaining at least part of an elongate frame cover member 5 is mounted on the frame hinge component 25. The first component 11 or second co-operating component 12 is integrally formed with the frame hinge component 25.

**[0117]** The first component 11 and the frame hinge component 25 can be manufactured as a single, integral structure. This simple design facilitates manufacture of the frame hinge component 25 as an integral component, and does not require the assembly or fabrication of component parts. The first component 11 does not need to be riveted or otherwise separately connected or attached to the frame hinge component 25 during the manufacturing process or during window installation.

**[0118]** The second co-operating component 12 extends from a channel section bracket 31 as shown in Figures 4 to 7 and 10. The channel section bracket 31 is dimensioned to nest within the internal surface of the elongate frame cover member 5 and form an interference fit with the internal surface of the elongate frame cover member 5. The interference fit is non-visible and provides a non-penetrative fastening and locating arrangement 40 between the channel section bracket 31 and the elongate frame cover member 5. The channel section bracket 31 has two indentations 41a, 41 b and the elongate frame cover member 5 has two inward protrusions 42a, 42b that correspond, in terms of dimensions, with the two indentations 41a, 41 b of the channel section bracket 31. The inward protrusions 42a, 42b are located at the lateral edge portions 19 of the elongate frame cover member 5. The two inward protrusions 42a, 42b are located within

the two indentations 41a, 41b thereby fastening and locating the channel section bracket 31 against the elongate frame cover member 5.

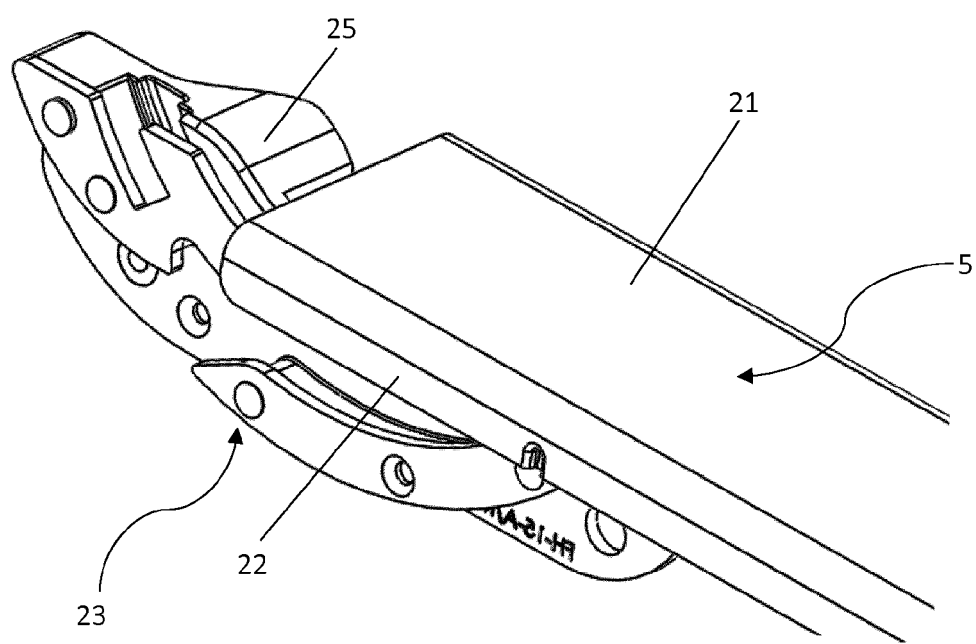
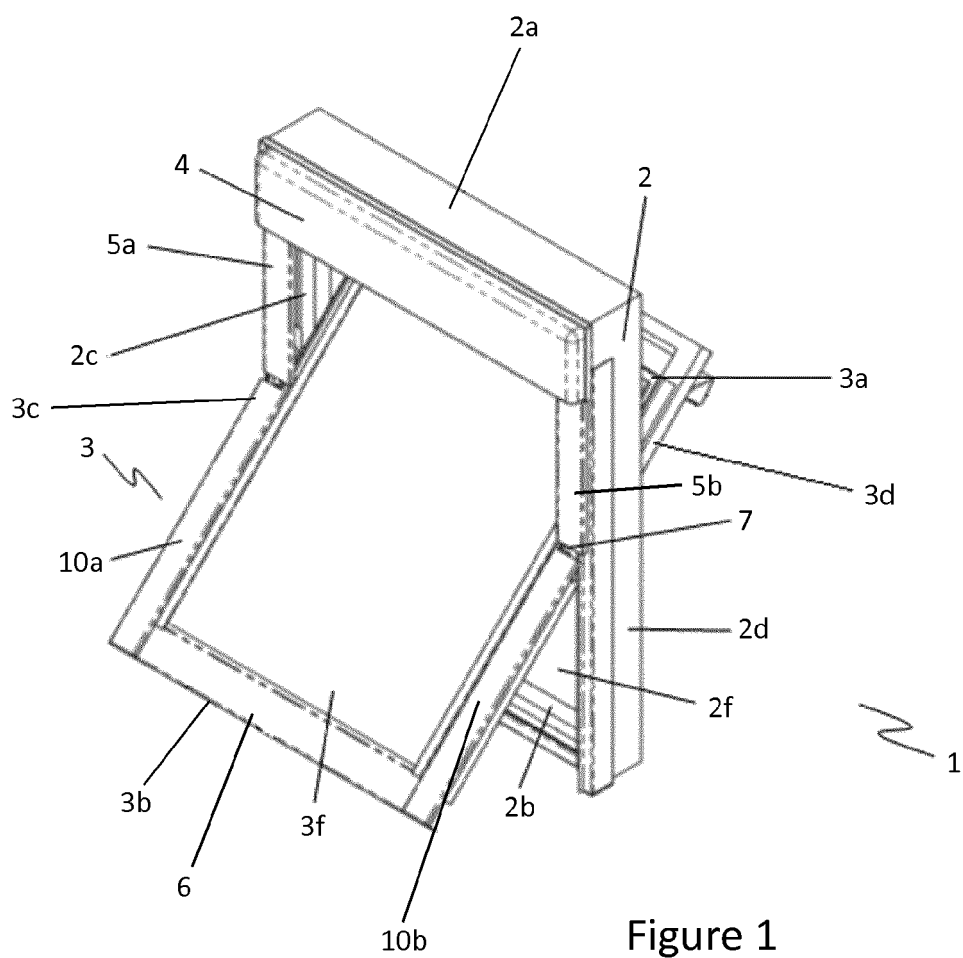
**[0119]** In the preceding discussion of the invention, unless stated to the contrary, the disclosure of alternative values for the upper or lower limit of the permitted range of a parameter, coupled with an indication that one of the said values is more highly preferred than the other, is to be construed as an implied statement that each intermediate value of said parameter, lying between the more preferred and the less preferred of said alternatives, is itself preferred to said less preferred value and also to each value lying between said less preferred value and said intermediate value.

**[0120]** The features disclosed in the foregoing description or the following drawings, expressed in their specific forms or in terms of a means for performing a disclosed function, or a method or a process of attaining the disclosed result, as appropriate, may separately, or in any combination of such features be utilised for realising the invention in diverse forms thereof as defined in the appended claims.

## Claims

1. A roof window (1) comprising a frame (2) and a sash (3), the frame (2) having a top member (2a), a bottom member (2b) and two side members (2c, 2d) extending between the top (2a) and bottom member (2b) defining a quadrangular frame (2) having an opening (2f) for receiving the sash (3), the sash (3) having a top member (3a), a bottom member (3b) and two side members (3c, 3d) extending between the top (3a) and bottom member (3b) defining a quadrangular sash frame (3) having an opening (3f) for receiving a pane of glass, the roof window (1) further comprising an elongate frame cover member (5) having two longitudinal edge portions (19) and two lateral edge portions (17), the elongate frame cover member (5) being adaptable to cover at least part of the exterior surface of a side member of the frame (2), the roof window (1) further comprising an elongate frame cover member retaining means having means (30) for slidably and releasably locating and retaining at least part of the elongate frame cover member (5) to the frame (3), the cover member retaining means (30) being disposed proximal the frame (3).
2. A roof window (1) as claimed in claim 1 wherein the elongate frame cover member retaining means comprises a stop means (20) for preventing the elongate frame cover member (5) from moving further in the direction of insertion.
3. A roof window (1) as claimed in claims 1 or 2 wherein the sash (3) is pivotally engaged with the frame (2) by a hinge (23), the hinge (23) comprising a sash

- hinge component attachable to the sash (3), and a frame hinge component (25) attachable to the frame (2), the sash hinge component being adaptable to hingedly engage with the frame hinge component (25), the elongate frame cover member retaining means being mounted on the frame hinge component (25) and the elongate frame cover member (5).
4. A roof window (1) as claimed in any preceding claim wherein the means (30) for slidably and releasably locating and retaining at least part of the elongate frame cover member (5) to the frame (2) comprises a first component (11) disposed on or attached to the frame (2) and a second co-operating component (12) on the elongate frame cover member (5), or a first component (11) on the elongate frame cover member (5) and a second co-operating component (12) disposed on or attached to the frame (2), the first component (11) being slidably engageable with the second co-operating component (12).
  5. A roof window (1) as claimed in claim 4 wherein the sliding engagement between the first component (11) and the second co-operating component (12) is a non-clip and/or non-snap-lock and/or non-biased engagement.
  6. A roof window (1) as claimed in claims 4 or 5 when dependent on claim 3 wherein the first component (11) or second co-operating component (12) of the slidable and releasable locating and retaining means (30) is mounted on the frame hinge component (25).
  7. A roof window (1) as claimed in any one of claims 4 to 6 wherein the first component (11) comprises at least one member (15) defining at least one slot (26), the member (15) being spaced apart from another surface for receiving at least part of a second co-operating component (12).
  8. A roof window (1) as claimed in claim 7 wherein the second co-operating component (12) comprises at least one projection (28) for slidable insertion into the at least one slot (26).
  9. A roof window (1) as claimed in claim 8 wherein the first component (11) or second co-operating component (12) is locatable on the frame (2) at a position which enables the elongate frame cover member (5) to sit in its final position when the at least one projection (28) of the second co-operating component (12) is slid into the at least one slot (26) of the first component (11).
  10. A roof window (1) as claimed in any one of claims 4 to 9 wherein the first component (11) or second co-operating component (12) extends from a channel section bracket (31), the channel section bracket (31) being dimensioned to nest within the internal surface of the elongate frame cover member (5).
  11. A roof window (1) as claimed in claim 10 comprising non-penetrative fastening means (40) and/or locating means for fastening and/or locating the channel section bracket (31) to the elongate frame cover member (5).
  12. A hinge (23) for a roof window (1), the hinge (23) comprising a first component (11) or a second co-operating component (12) of an elongate frame cover member retaining means having means (30) for slidably and releasably locating and retaining at least part of an elongate frame cover member (5), the first component (11) or second co-operating component (12) being disposed on the hinge (30) at a location to enable slidable engagement with a first component (11) or a second co-operating component (12) disposed on an elongate frame cover member (5).
  13. A hinge (23) as claimed in claim 12 wherein the first component (11) comprises at least one member (15) defining at least one slot (26), the member (15) being spaced apart from another surface for receiving at least part of a second co-operating component (12).
  14. A hinge (23) as claimed in claim 12 wherein the second co-operating component (12) comprises at least one projection (28) for slidable engagement.
  15. A hinge (23) as claimed in claims 12 or 13 wherein the first component (11) and/or second co-operating component (12) comprises a stop means (20) for preventing the first component or second co-operating component (12) from moving further in the direction of insertion.



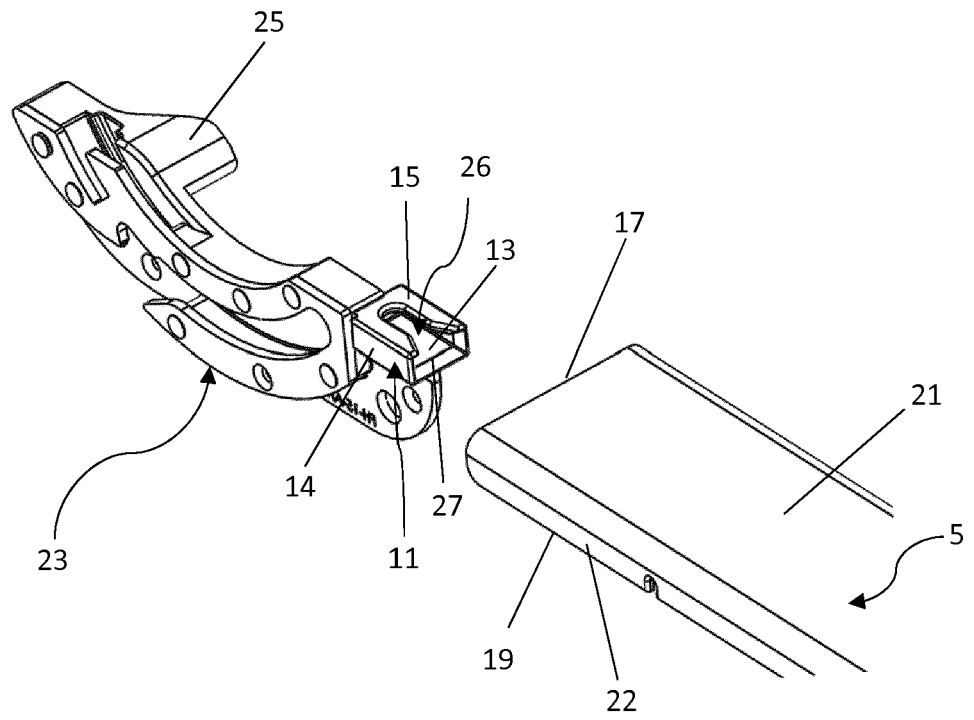


Figure 3

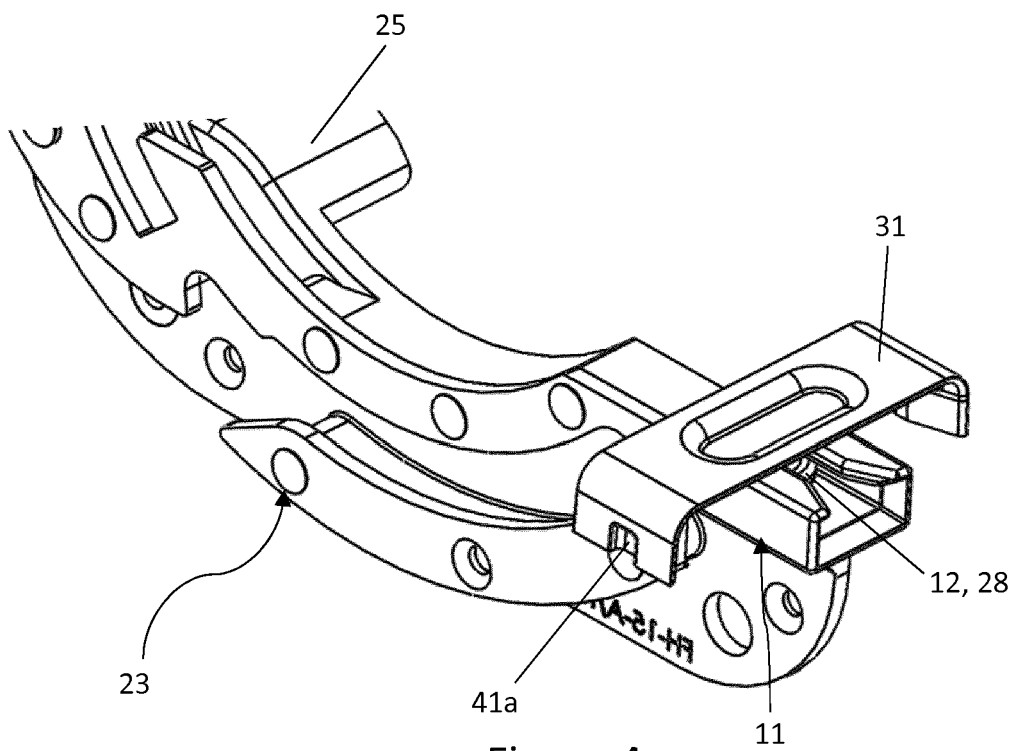


Figure 4

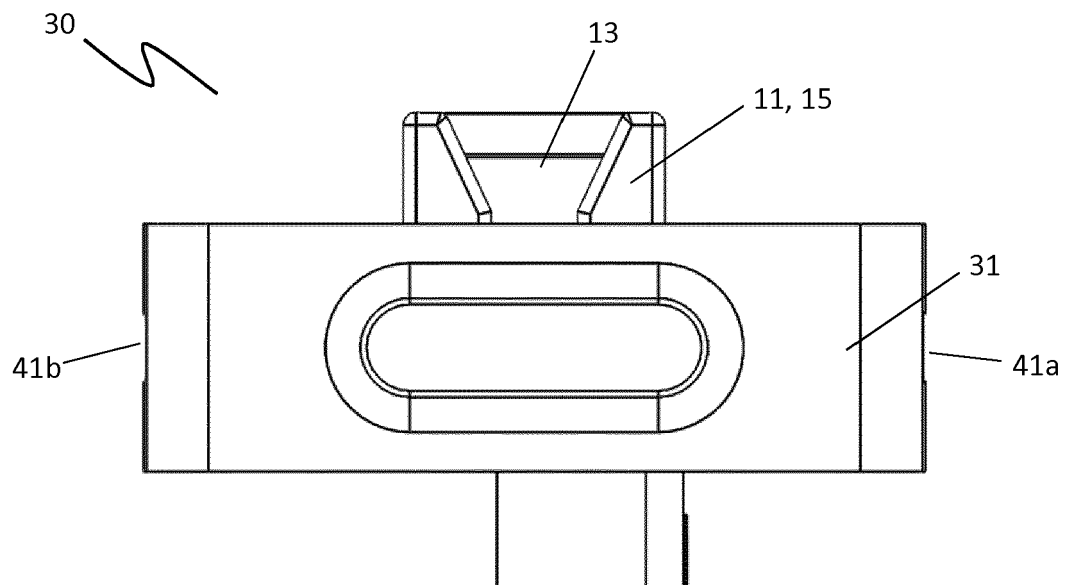


Figure 5

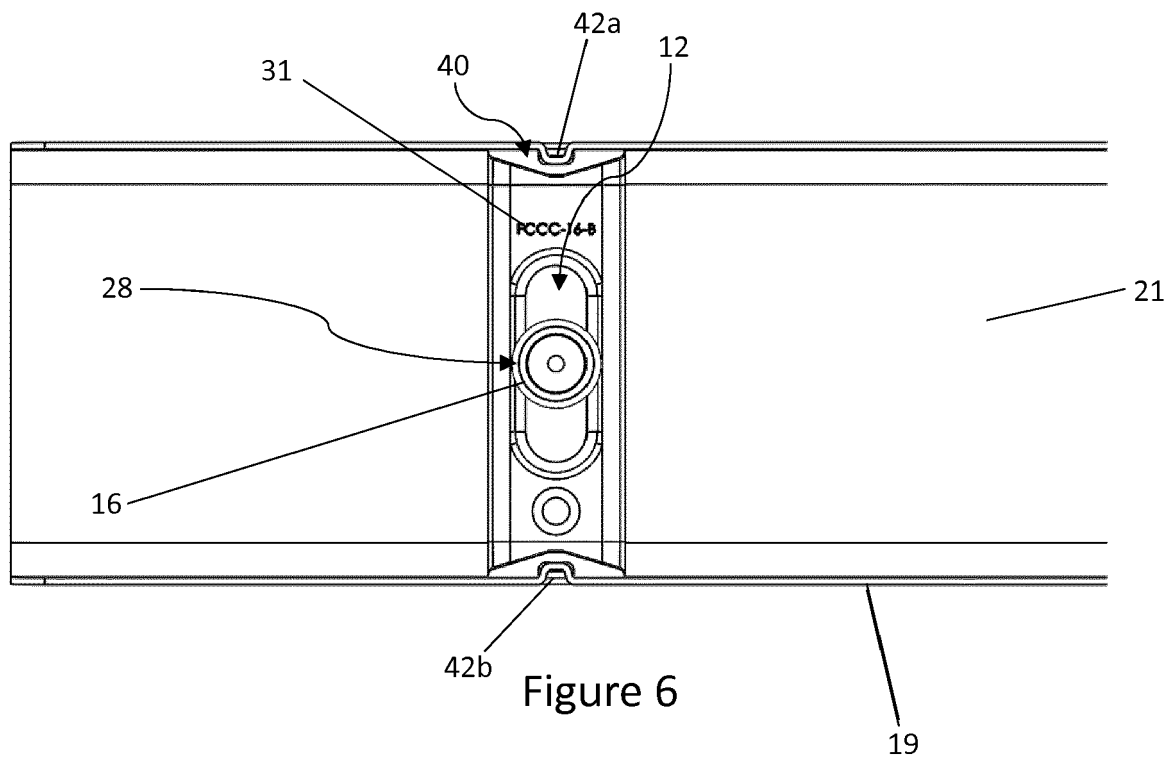


Figure 6

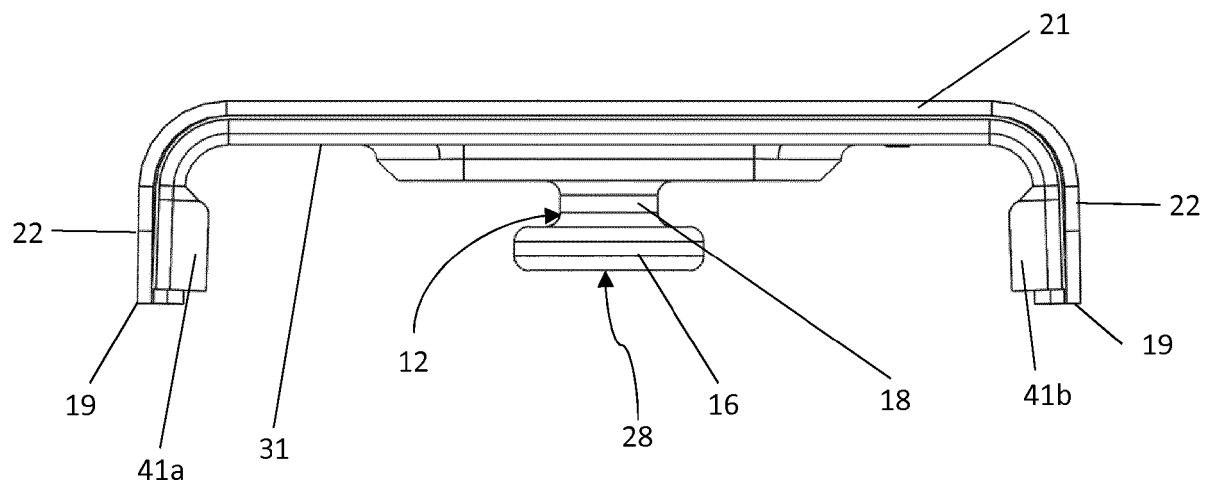


Figure 7

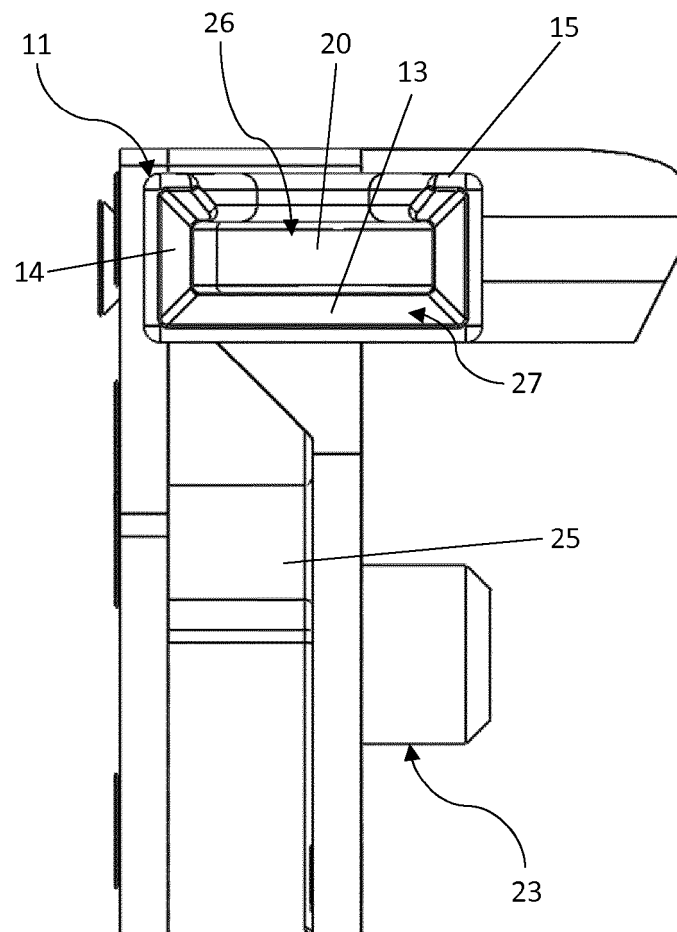


Figure 8

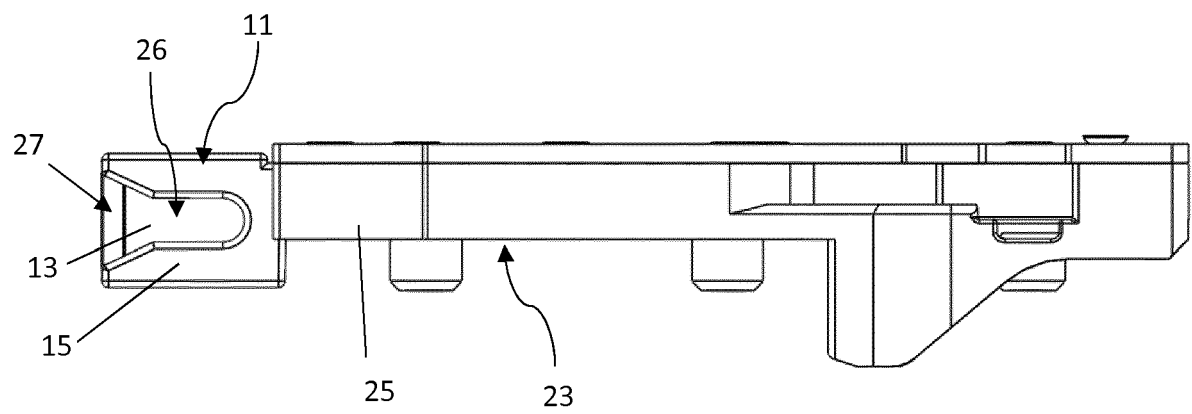


Figure 9

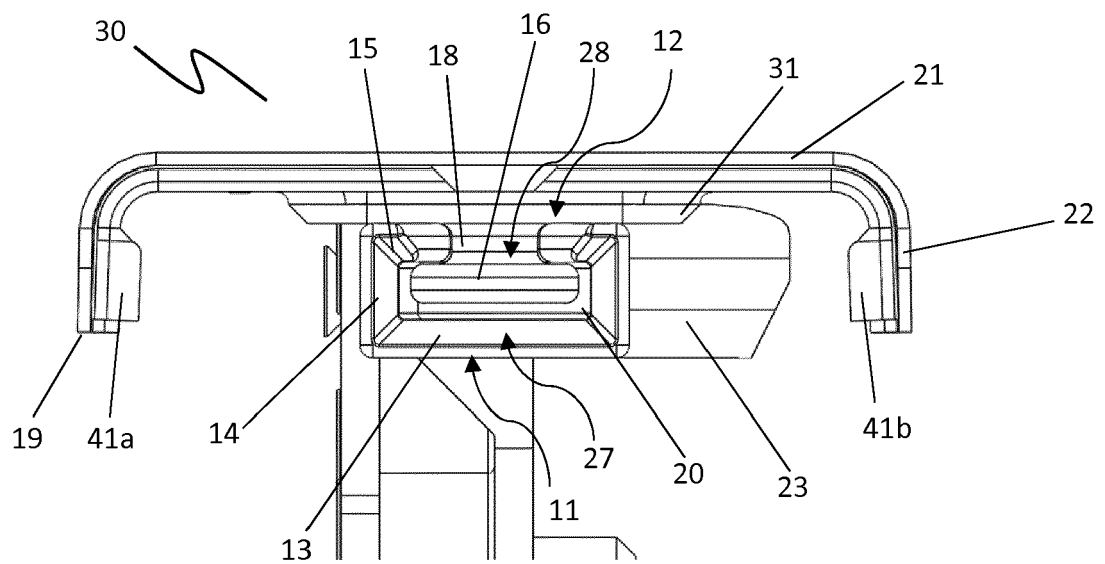


Figure 10



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| DOCUMENTS CONSIDERED TO BE RELEVANT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                      |                                                   |                                                 |
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| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                      |                                                   |                                                 |
| Place of search<br>The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                      | Date of completion of the search<br>17 April 2018 | Examiner<br>Tran, Kim Lien                      |
| CATEGORY OF CITED DOCUMENTS<br>X : particularly relevant if taken alone<br>Y : particularly relevant if combined with another document of the same category<br>A : technological background<br>O : non-written disclosure<br>P : intermediate document<br>T : theory or principle underlying the invention<br>E : earlier patent document, but published on, or after the filing date<br>D : document cited in the application<br>L : document cited for other reasons<br>& : member of the same patent family, corresponding document |                                                                                                                                                                                                      |                                                   |                                                 |

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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