



HU000026976T2

(19) **HU****MAGYARORSZÁG**
Szellemi Tulajdon Nemzeti Hivatala(11) Lajstromszám: **E 026 976**(13) **T2****EURÓPAI SZABADALOM**
SZÖVEGÉNEK FORDÍTÁSA(21) Magyar ügyszám: **E 12 772709**(22) A bejelentés napja: **2012. 10. 04.**(51) Int. Cl.: **E04D 13/03** (2006.01)**E04D 130/35** (2006.01)

(96) Az európai bejelentés bejelentési száma:

EP 20120772709

(86) A nemzetközi (PCT) bejelentési szám:

PCT/DK 12/050377

(97) Az európai bejelentés közzétételi adatai:

EP 2751354 A1 **2013. 04. 11.**

(87) A nemzetközi közzétételi szám:

WO 13050045

(97) Az európai szabadalom megadásának meghirdetési adatai:

EP 2751354 B1 **2015. 11. 25.**

(30) Elsőbbségi adatok:

201170553**2011. 10. 04.****DK**

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Tetőtéri ablak külső takarólemez elemeinek továbbfejlesztett rögzítése

Az európai szabadalom ellen, megadásának az Európai Szabadalmi Közlönyben való meghirdetésétől számított kilenc hónapon belül, felszólalást lehet benyújtani az Európai Szabadalmi Hivatalnál. (Európai Szabadalmi Egyezmény 99. cikk(1))

A fordítást a szabadalmas az 1995. évi XXXIII. törvény 84/H. §-a szerint nyújtotta be. A fordítás tartalmi helyességét a Szellemi Tulajdon Nemzeti Hivatala nem vizsgálta.



(11) **EP 2 751 354 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:
25.11.2015 Bulletin 2015/48

(21) Application number: **12772709.7**

(22) Date of filing: **04.10.2012**

(51) Int Cl.:
E04D 13/03 (2006.01) E04D 13/035 (2006.01)

(86) International application number:
PCT/DK2012/050377

(87) International publication number:
WO 2013/050045 (11.04.2013 Gazette 2013/15)

(54) **A ROOF WINDOW WITH IMPROVED STRIKING BEAD COVERING**

DACHFENSTER MIT VERBESSERTER SCHLAGWULSTABDECKUNG

FENÊTRE DE TOIT MUNIE DE RECOUVREMENT DE BOURRELET D'IMPACT AMÉLIORÉ

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **04.10.2011 DK 201170553**

(43) Date of publication of application:
09.07.2014 Bulletin 2014/28

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Description

[0001] The present invention relates to a roof window according to the preamble of claim 1.

[0002] EP1681399A2 discloses a roof window according to the preamble of claim 1.

[0003] In known roof windows of this kind, the striking bead coverings are traditionally formed as U-shaped profiles, a first wall of which protrudes into the glass rim profile. Water and other precipitation is led in the glass rim profile and out at the bottom of the window. However, wind may cause water to move inwards into the structure thus causing water penetration.

[0004] It is therefore an object of the present invention to provide a roof window, in which the resistance against penetration of water and other precipitation is improved.

[0005] This and other objects are achieved by a window according to claim 1.

[0006] A labyrinth seal thus protects the interior of the window and provides the improved security aimed at.

[0007] Preferred embodiments and further advantages will be apparent from the following detailed description and the appended dependent claims.

[0008] The invention will be described in more detail below by means of a non-limiting example of an embodiment and with reference to the schematic drawing, in which

Fig. 1 shows a perspective view of a window according to the invention in the assembled state seen from below or inside,

Fig. 2 shows a perspective view of a window according to the invention in the assembled state seen from above or outside,

Fig. 3 shows an exploded view of a bottom sash member of a window according to the invention featuring a bottom sash covering, a pane holding device, an insulating element and a bottom sash gasket,

Figs 4a and 4b show perspective views of a guide member for a side frame covering and female parts of a snap lock fastening means,

Figs 5 and 6 show perspective views of a locking mechanism for mounting a top casing seen from two different angles,

Fig. 7 shows a perspective view of a glass rim profile according to the invention,

Fig. 8 shows a cross sectional view of a glass rim profile, a frame striking bead covering and a side frame covering in the assembled state according to the invention,

Fig. 9 shows an exploded view of a frame striking bead covering, a sash striking bead covering, and a side frame covering according to the invention,

Fig. 10 shows a perspective view of a lower end of a sash striking bead covering according to the invention,

Fig. 11 shows a perspective view of the transition

between a frame striking bead covering and a sash striking bead covering featuring a prolongation of the sash striking bead covering according to the invention,

Fig. 12 shows a perspective view of a lower end of the frame striking bead covering with a labyrinth seal provided with an inclined portion according to the invention,

Figs 13, 14 and 15 show three different steps of a process for mounting a frame striking bead covering on a window by means of a snap lock fastening means,

Fig. 16 shows a perspective view of a bottom frame covering,

Fig. 17 shows a perspective view of a bottom frame covering from another angle,

Fig. 18 shows a perspective view of an angle bracket,

Fig. 19 shows a perspective view of a side frame covering and an angle bracket,

Figs 20 and 21 show perspective views of a window in a slightly varied embodiment, and

Fig. 22 shows, on a larger scale, a detail of the window shown in Figs 20 and 21.

Fig. 1 and Fig. 2 show a preferred embodiment of a window 1 according to the invention comprising a pane 4 defining a plane, a frame 2 having a top member 5, a bottom member 6 and two side members 7, 8 defining a frame plane, and a sash 3 having a top member 9, a bottom member 10 and two side members 11, 12 defining a sash plane. In the embodiment shown, the window is centre-hung in that the sash 3 is connected to the frame 2 by a pivot hinge (200 in Fig. 4) provided between side members 7, 11; 8, 12 of the frame 2 and sash 3, respectively, to be openable by tilting the sash 3 of the window 1 about the pivot hinge axis 21 defined by the pivot hinge 200. The pivot hinge 200 comprises two parts, namely a sash part (not shown) and a frame part 20.

[0009] The hinges used are preferably of the type described in the applicant's earlier patent applications WO9928581 and GB1028251, where a curved member and a tap on one hinge part travels in a curved guide track in the other during opening and closing of the window. The radius of curvature entails that when using such hinges, the hinge axis lies at a small distance above the actual hinge parts and as the sash frame is turned first the curved member and then the tap comes out of the track. In combination this provides a pattern of movement which allows easy operation of a centre-hung window and allows the sash frame to be turned substantially entirely around.

[0010] As used in this description, a closed position of the window 1 means a position in which the frame plane and the sash plane coincide, that is form an angle of 0 degrees with each other. Similarly an open position of the window 1 as used herein generally means a position in which the sash 3 is tilted about the pivot hinge axis 21

such that the frame plane and the sash plane no longer coincide.

[0011] As seen in Fig. 1 a longitudinal axis 13 of the window 1 is defined as extending perpendicular to and between the frame top member 5 and the frame bottom member 6, a transversal axis 14 of the window is defined as extending perpendicular to and between the respective frame side members 7 and 8 and thereby perpendicular to the longitudinal axis 13 and a depth axis 15 of the window 1 is defined as extending perpendicular to both the longitudinal axis 13 and the transversal axis 14. The pivot hinge axis 21 and the transversal axis 14 are parallel, and are shown as coinciding in the figures.

[0012] The window 1 furthermore comprises a lock 17 of a type known per se for locking the frame 2 and sash 3 to each other as well as a generally circumferentially extending sealing 18 provided on the sash 3 for sealing the gap between the sash 3 and the frame 2 in the closed position of the window 1. The sealing 18 comprises at least one, preferably at least two sealing strips.

[0013] Notwithstanding the centre-hung window 1 shown in Fig. 1 the window according to the invention may in other embodiments be top-hung, with or without an intermediate frame structure, have the hinge axis somewhere between the top and the centre, be side-hung or for that matter even be bottom-hung.

[0014] The sash 3 and frame 2 of the window according to the invention may for example be made of wooden members or members made of cast or extruded polyurethane (PUR).

[0015] With reference to Fig. 3, the window 1 comprises, at the bottom sash member 10 of the sash 3, at least one, preferably at least two, pane holding devices 300 for holding the pane 4 such as to keep it from falling out of the sash 3 of the window. The pane holding device 300 is attached to a surface 307 of a bottom sash covering 319, and is shaped in such a way that it has a face 302 adapted for abutment with the pane 4. Hence the pane holding device 300 may for instance be substantially box shaped or substantially wedge-shaped. The pane holding device 300 is preferably made of a hard plastic.

[0016] As mentioned above, the window 1 further comprises a sash covering 319 above glass, which comprises a first section 320 adapted for abutment with the pane 4, a second section 321 extending substantially in extension of and in parallel with the first section 320 and adapted for covering the underlying pane holding device(s) 300, insulating element 303, bottom sash gasket 310 and bottom sash member 10 and a third section 322 extending from and substantially perpendicular to the second section 321 and adapted for shielding a surface of the bottom sash member 10 facing away from the pane 4 in the longitudinal direction 13 of the window 1.

[0017] Attached to the bottom sash member 10 is provided an insulating element 303 for providing insulation of the transition between the bottom sash member 10 and the bottom sash covering 319. The insulating element 303 comprises at least one, preferably at least two,

recesses 304 shaped such as to be adapted to accommodate a pane holding device 300. The recess 304 is preferably shaped such as to provide a close fit around the pane holding device 300, thereby providing optimum insulation conditions in the vicinity of the pane holding device 300.

[0018] The insulating element 303 is preferably made of styrene, polystyrene, expanded polystyrene (EPS) or extruded polystyrene (XPS). The insulating element 303 is preferably made as one element, but may in principle also be several elements. The insulating element 303 is attached to the bottom sash member 10 by means of attachment means (not shown), such as e.g. screws or glue, in such a way as to be placed between the bottom sash member 10 and the bottom sash covering 319. Preferably the insulating element 303 and the pane holding device(s) 300 are attached using the same attachment means, preferably a screw, extending through both elements and into the bottom sash member 10 prior to attaching the pane 4 and the bottom sash covering 319 to the window 1.

[0019] The insulating element 303 is preferably provided with a first surface 305 having a contour substantially corresponding to the contours of the surface 306 of the bottom sash covering 319 facing the bottom sash member 10 in the mounted position.

[0020] The insulating element 303 furthermore extends from the bottom sash member 10 in a direction away from the pane 4 of the window 1 in the longitudinal direction 13 of the window 1. The insulating element 303 is provided with a second surface 307, which may have profilings 308, preferably such as slots or recesses, adapted for engagement with corresponding profilings 309, such as ribs or protrusions, of a bottom sash gasket 310, which will be described in the following.

[0021] The provision of an insulating element 303 as described above is particularly preferred in the case of a window 1 having a wooden frame 2 and sash 3. In case of a window having a frame 2 and sash 3 made of polyurethane or the like the insulating element and the bottom sash member 10 may be one integral element.

[0022] Still referring to Fig. 3, the window 1 furthermore comprises a bottom sash gasket 310 attached to the bottom sash member 10, and preferably made of a rubber material. The bottom sash gasket 310 is intended for sealing the gap between the bottom sash member 10 and the bottom frame member 6 in the closed position of the window 1.

[0023] As may also be seen in Fig. 4 the bottom sash gasket 310 comprises a first part 316, a second part 317, a first surface 311 comprising a first surface part 311 a corresponding to the first part 316 and a second surface part 311 b corresponding to the second part 317, and a second surface 312 opposite the first surface 311. The first part 316 is adapted for attachment with the bottom sash member 10 and the second part 317 is extending from the bottom sash member 10 in a direction substantially away from the pane 4 in the longitudinal direction

13 of the window 1 when attached to the bottom sash member 10.

[0024] The bottom sash gasket 310 may comprise profilings 309, such as ribs or protrusions, for engagement with corresponding profilings 308, such as slots or recesses, in a surface 307 of the insulating element 303 described above. Preferably, the second surface 312 comprises the profilings 309.

[0025] The first surface part 311 a of the first surface 311 is adapted for being attached to the bottom sash member 10. The second surface part 311 b of the first surface 311 is adapted for close abutment against a bottom frame covering 237, which is mounted on the bottom frame element 6, in the closed position of the window 1 such as to seal the gap between the bottom sash member 10 and the bottom frame member 6 in the closed position of the window 1. To this end the second part 317 of the bottom sash gasket 310 is configured as described in the following.

[0026] As shown in cross section on Fig. 4, the first part 316 of the bottom sash gasket 310 is substantially plane and rectangular in cross section, whereas the second part 317 comprises a first cross sectional section 313, a second cross sectional section 314 and a third cross sectional section 315. The first cross sectional section 313 extends substantially in parallel with and in extension of the first part 316. The second cross sectional section 314 is angled, preferably 10 to 45 degrees, with respect to the first cross sectional section 313, and the third cross sectional section 315 is angled, preferably 45 to 85 degrees, with respect to the second cross sectional section 314 such that the second part 317 comprises a substantially hook shaped cross section.

[0027] The second part 317, or at least the third cross sectional section 315 of the second part 317, may, in addition to the above, be adapted for sealing abutment with the third section 322 of the bottom sash covering 319. In this connection, the hook shaped cross sectional configuration of the second part 317 has the further advantage of providing a larger abutment surface and thus better sealing properties.

[0028] The bottom sash gasket 310 may further comprise at least one flange 318 provided extending substantially in a right angle from the first surface 311, preferably at the transition between the first part 316 and the second part 317. The flange 318 is adapted for abutting the surface of the bottom sash member 10 facing away from the pane 4 in the longitudinal direction 13 of the window 1, such as to ensure that no moisture may penetrate between the bottom sash gasket 310 and the bottom sash member 10.

[0029] The bottom sash covering 319, pane holding device(s) 300, insulating element 303 and bottom sash gasket 310 may all be attached to the bottom sash member 10, preferably in the order mentioned, by means of the same attachment means, preferably at least one screw, extending through all of the elements 319, 300, 303 and 310 and into the bottom sash member 10.

[0030] The above described embodiment of the insulating element 303 and the bottom sash gasket 310 is particularly intended for windows 1 having a sash 3 and a frame 2 made of wood.

[0031] In case of windows 1 having a sash 3 and a frame 2 made of extruded, moulded or cast polyurethane (PUR) or similar materials, the bottom sash member 10 and the insulating element 303 may be made as one integral element, whereas the bottom sash gasket 310 may be provided as one or more sealing strips or similar suitable elements arranged in a groove or recess in the integral bottom sash member 10 and insulating element 303.

[0032] Referring now to Figs. 5 and 6, the window 1 further comprises a locking mechanism 535 for locking the top casing 500 to the frame 2 of the window 1. The locking mechanism is provided as at least one bracket 535 attached by means of an attachment means 536, such as preferably a screw, to each of the side frame members 7, 8 of the frame 2 of the window 1 in a position near the top frame member 5. More specifically, and particularly in connection with a PUR-window, the at least two brackets 535 are attached to the side frame members 7, 8 in the vicinity of an end of a frame abutment list (not shown in Figs 5 and 6) similar to the abutment list 430 described above, which end faces the top frame member 5. The brackets 535 are preferably made of plastic, particularly extruded plastics, but may also be made of e.g. a metal.

[0033] The bracket 535 comprises in the preferred embodiment a first section 538 and a second section 539, preferably being made as one integral element.

[0034] The first section 538 comprises at least one hole 540 for receiving the attachment means 536. The hole 540 is preferably a through hole. The first section 538 is preferably substantially plate shaped. The first section 538 furthermore comprises a structure 542 provided on a surface 545 which in the mounted position of the bracket 535 faces away from the side frame member 7 or 8. The structure 542 protrudes slightly from the first section 538 and is provided with a substantially T-shaped cross section, thus comprising two lateral incisions 542a and 542b. Thereby the structure 542, and particularly the incisions 542a, 542b, are adapted for guiding engagement with a notch 229 in the frame striking bead covering 217 as indicated by the dotted line in Fig. 5, thus facilitating mounting of the frame striking bead covering 217 and ensuring correct positioning thereof with respect to the bracket 535. In the mounted position, the surface 545 and the frame striking bead covering 217 are in abutment. The structure 542 furthermore comprises a recess 543.

[0035] The second section 539 is adapted at least for abutment and preferably for engagement with the side frame member 7 or 8, particularly, to the side frame member 7 and 8 immediately above the frame abutment list. In the embodiment shown the second section is adapted for engagement with a side frame member 7 or 8 in that it comprises two engagement means 562 and 563 adapt-

ed for engagement with corresponding holes in the side frame member 7 or 8. Other numbers than two such engagement means - e.g. one or three - may also be provided.

[0036] The second section 539 comprises a structure comprising two abutment means 560, 561. The abutment means 560, 561 have several functions. Particularly the abutment means 560, 561 are adapted for, in the mounted position of the window, ensuring the correct distance between the side frame member 7 or 8 and the corresponding frame striking bead covering 217. Furthermore, the abutment means 560, 561 may be adapted for either abutment with an edge of a side frame covering 270, thereby ensuring correct mutual placement of the bracket 535 and the side frame covering 270, or for engagement with corresponding grooves in the side frame member 7 or 8 for correct placement of the bracket 535 on the side frame member 7 or 8. In the latter case it is possible to replace the engagement means 562 and 563 with holes for e.g. a screw or even to omit the engagement means 562 and 563 altogether.

[0037] The second section 539 furthermore comprises at least one hole 541 for receiving an attachment means (not shown) for attaching the top casing 500 to the bracket 535 and thereby - directly or indirectly according to the position of the hole 541 and the length of the attachment means - to the side frame member 7 and 8. The hole 541 is preferably a through hole. The second section 539 is preferably substantially box or cube shaped. The second section 539 preferably comprises a surface 547 adapted for guiding abutment with a corresponding structure 548, respectively 549, and particularly with a longitudinal wall 550 thereof, of the mounting bracket 510 or 511 of the top casing 500 such as to ensure correct positioning of the top casing 500 during mounting. In a preferred embodiment the surface 547 is inclined in such a way that the cross sectional area of the second section 539 increases in a direction away from a surface 546 to be described further below.

[0038] The second section 539 furthermore comprises a grating-like structure 544 provided on a surface 546, which in the mounted position of the bracket 535 faces away from the side frame member 7 or 8.

[0039] The locking mechanism has the advantage of allowing the top casing 500 to be mounted and/or dismounted from the inside of a building in which the window 1 is mounted when the window 1 is in an opened position, while not allowing the top casing 500 to be dismounted from the outside, thereby rendering intrusion by e.g. burglars through the window more difficult.

[0040] When applying the locking mechanism 535, the user proceeds as follows: Firstly, a locking mechanism 535 is mounted on each side frame member 7 and 8, e.g. by bringing the engagement means 562 and 563 into engagement with corresponding holes in the side frame members 7 and 8. Then the frame striking bead covering 217 is mounted such that the notch 229 is brought into engagement with the incisions 542a and 542b. Next, the

top casing is put in place by bringing the respective guiding structures 547 and 548 into abutment. Finally an attachment means 536, such as a screw, is inserted into and through the hole 541 and further into the hole 551 in the structure 548 thereby securing the top casing 500 to the locking mechanism 535 and thereby to the frame 2 of the window 1.

[0041] On each side sash member 11, 12 a glass rim profile 102 is provided. In the following, the glass rim profile 102 adapted to be provided on the one side sash member 11 will be described. It is understood that a similar, however mirror-inverted, glass rim profile is adapted to be provided on the other side sash member 12.

[0042] As is best seen in Fig. 7, the glass rim profile 102 has a longitudinal extension 113. The glass rim profile 102 is adapted to be mounted on a side sash member 11 so as to, in a mounted condition, extend with its longitudinal extension 113 along the longitudinal extension of the side sash member 11 and along a side rim 114 of the pane 4. The glass rim profile 102 extends essentially along the entire length of the side rim 114 so as to retain the pane 4 in the sash 3 and to keep out precipitation.

[0043] Now, with reference to Fig. 8, the glass rim profile 102 is shown viewed along its longitudinal extension 113 and in cross section. The glass rim profile 102 comprises an essentially L-shaped portion with a first wall 104 and a second wall 105, the two walls 104, 105 being substantially perpendicular to each other. A flange 103 extends from the end of the first wall 104 opposite the second wall 105 essentially parallel to and in the same direction as the second wall 105.

[0044] An essentially arc-shaped portion extends from the second wall 105, the arc-shaped portion comprising a first arc wall 106, an apex 107 and a second arc wall 108. The first arc wall 106 and second arc wall 108 are substantially parallel to the first wall 104 of the "L"-shape. The apex 107 peaks at approximately the same level as the first wall 104 of the "L"-shape.

[0045] From the second arc wall 108 a slightly arc-shaped, almost flat portion 109 extends away from the arc-shaped portion essentially parallel to the second wall 105.

[0046] From underneath the slightly arc-shaped, almost flat portion 109, a small flange 110 extends essentially perpendicular to the portion 109.

[0047] The slightly arched, almost flat portion 109 ends in a folded back portion 111, which is folded back so as to extend below the slightly arc-shaped portion 109. The bottommost part of the folded back portion 111 is at essentially the same level as the underside of the second wall 105.

[0048] The underside of the second wall 105 is adapted to abut, in a mounted condition, an upward-facing face 101 of the side sash member 11. As is best seen in Fig. 7, through holes 112 are distributed in the wall 105 along the longitudinal extension 113 of the glass rim profile 102 (only one hole 112 is visible in Fig. 7). The holes 112 are adapted to receive screws 115 or similar fastening means

for fastening the glass rim profile 102 to an upwardly-facing face 101 of the side sash member 11.

[0049] A sealing material, such as a strip of butyl rubber or the like, may be provided between the upwardly-facing face 101 of the side sash member 11 and the underside of wall 105 of the glass rim profile 102 along all or part of the longitudinal extension 113 of the glass rim profile 102 for providing a better fastening and/or sealing effect against intrusion of moisture.

[0050] Alternatively, a moulded or extruded element (now shown) may be positioned at the location in question, which has the multifunction of providing enhanced sealing, noise-dampening and fastening means.

[0051] Together, the first wall 104, the second wall 105 and the first arc wall 106 form a channel. Although part of the channel is, in a mounted condition, covered by a sash striking bead covering 201 and a frame striking bead covering 217, respectively, (as will be discussed in detail later), the channel is adapted to be able to drain off any of precipitation falling onto it. Thus, when mounted, the glass rim profile 102 serves as part of a weather shielding of the side sash member 11.

[0052] Turning now to the arc-shaped portion formed by first arc wall 106, the apex 107, and the second arc wall 108, it is adapted to allow for an insulating material to be inserted there. Insertion of an insulating material there contributes to better heat insulating properties of the sash 3 in general. Any material or combination of materials suitable for insulation may be chosen, such as for instance foam.

[0053] The slightly arc-shaped, almost flat portion 109 is, in cooperation with the flange 110 and the folded-back portion 111, adapted to retain, in a mounted position, the pane 4 against the side sash member 11.

[0054] As is best seen from Fig. 8, the slightly arc-shaped, almost flat portion 109 and the flange 110 are configured to receive a strip of sealing material 117 between them intended to abut the pane 4.

[0055] The folded-back portion 111 is also adapted to abut the pane 4 and form a close and essentially watertight transition. Also, the folded back portion 111 provides for a gentle abutment face of the glass rim profile 102 for the pane 4 so that scratches and cracks along the side rim 114 are avoided or at least mitigated.

[0056] The fact that the underside of the second wall 105 and the underside of the folded back portion 111 are at substantially the same level, enables, in a mounted condition, the upper face 4a of the window pane 4 to be at substantially the same level as the upward-facing face 101 of the side sash member 11. This has the effect that cold outside air and any precipitation is kept at a substantially uniform level relatively far away and efficiently spaced from the warmer air inside. This is beneficial for reducing thermal transport through the sash structure.

[0057] The glass rim profile 102 is made of a metal, metal alloy or combinations thereof in order to provide sufficient strength for assisting in retaining the pane 4 in the sash 3. The glass rim profile 102 is fabricated in any

suitable manner, for instance by extrusion, bending or moulding.

[0058] In another embodiment of the glass rim profile, it comprises two separate elements, namely a glass retaining element 118 and a sealing element 119. The glass retaining element 118 is adapted to serve the purpose of retaining the pane 4 in the sash 3, while the sealing element 119 is adapted to provide insulation and weather shielding. Thus, the twofold task of the glass rim profile, which in the first embodiment was carried out by one integrated glass rim profile, is in this embodiment divided between the two elements 118, 119.

[0059] Turning firstly to the glass retaining element 118, it has a clip-like cross sectional shape.

[0060] The longitudinal extension 120 of the glass retaining element 118 is much shorter than that of the first embodiment.

[0061] For retaining the pane 4 in the sash 3, more glass retaining elements 118 are provided in order to provide sufficient strength. It is expedient if approximately the same number of glass retaining elements 118 is provided as was the case for the number of through holes 112 for screws 115 in the first embodiment. In a mounted condition, the glass retaining elements 118 are distributed along the longitudinal direction of the side sash member 11, preferably evenly distributed.

[0062] The glass retaining element 118 is adapted to be fastened to the side sash member 11. Hereby a clip-like fastening of the glass retaining element 118 to the side sash member 11 is obtained. This has the effect that through holes and screws or similar fastening means are avoided. This is beneficial as to avoid intrusion of water into the sash structure via the holes and corrosion of the screws. Also it provides for a nicer, more homogeneous appearance when seen from the outside in a mounted condition. Also, in the process of mounting the pane in the sash, the clip-like mounting by means of the glass retaining elements 118 provides for easy and quick mounting of the pane without the necessity of any screwing operations or missing screws.

[0063] The glass retaining element 118 is preferably made of a metal, an alloy or combinations thereof in order to provide sufficient strength for retaining the pane in the sash.

[0064] Turning now to the sealing element 119, it has a cross sectional shape adapted to mate that of the striking bead covering 201, 217, which will be discussed in more detail below, in order to provide for a weather shielding effect and an essentially water repellent transition between the two elements..

[0065] The sealing element 119 extends along the entire side rim 114 of the pane 4 in order to provide satisfactory insulation and water tightness.

[0066] The sealing element 119 is preferably made from a non-metallic material, so that thermal transport is mitigated. Any material or combination of materials having excellent properties as to heat insulation and avoiding thermal transport are suitable, for instance a polymer or

combinations of polymers.

[0067] As mentioned above, a sash striking bead covering and a frame striking bead covering assist in weather proofing the window structure. On each side sash member 11, 12 a sash striking bead covering is provided, and on each side frame member 7, 8 a frame striking bead covering is provided.

[0068] In the following, the sash striking bead covering 201 and the frame striking bead covering 217 adapted to be provided on one side sash member 11 and one side frame member 7, respectively, will be described. It is understood that a similar, however mirror-inverted, sash striking bead covering and frame striking bead covering are adapted to be arranged on the other sash and side frame members 12, 8, respectively.

[0069] As is best seen in Fig. 9, the sash striking bead covering 201 has a longitudinal extension 259, and the frame striking bead covering 217 has a longitudinal extension 260. The sash striking bead covering 201 is adapted to be mounted on the side sash member 11 so as to, in a mounted condition, extend with its longitudinal extension 259 along the longitudinal extension of the side sash member 11. Similarly, the frame striking bead covering 217 is adapted to be mounted on the side frame member 7 so as to, in a mounted condition, extend with its longitudinal extension 260 along the longitudinal extension of the side frame member 7.

[0070] The cross sectional profiles of the sash striking bead covering 201 and the frame striking bead covering 217, when viewed along their longitudinal direction, are essentially similar. Hence, although the following description refers to the cross sectional shape of the frame striking bead covering 217, it applies for the cross sectional shape of the sash striking bead covering 201 as well.

[0071] With reference to Fig. 8, the frame striking bead covering 217 comprises a substantially flat mid portion 218. At an end thereof, a flange 219 extends so as to, in a mounted condition of the frame striking bead covering 219, sealingly engage with a water tight gasket 261 provided on the side frame covering 270.

[0072] At the other end of the mid portion 218, the frame striking bead covering 217 extends into an arrangement forming a labyrinth seal with the glass rim profile 102. The labyrinth seal is formed as an extension of a first wall 220 of the frame striking bead covering 217 in the form of a primary wall 262 and a second wall 264. In this manner a groove-like structure is formed by the first wall 220, the primary wall 262 and the second wall 264.

[0073] In the embodiment shown, the second wall 264 extends into a substantially flat portion 221 being essentially parallel to and being at substantially the same level as the mid portion 218. The flat portion 221 ends in a generally downwardly directed flange 222.

[0074] The groove-like structure forming the labyrinth seal is adapted to fit into the channel formed by the L-shape 104, 105 and the first arc wall 106 of the glass rim

profile 102 and form an essentially water repelling transition between the striking bead coverings 201, 217 and the glass rim profile 102 in a closed position of the window 1. More specifically, the flat portion 221 and the flange 222 are adapted to substantially overlap the apex 107 and the two arc walls 106, 108 of the glass rim profile 102. This has the effect that any precipitation falling on the striking bead covering 201, 217 is effectively led away either via the labyrinth seal of the striking bead covering 201, 217 or via the flange 222 onto the part of the glass rim profile 102 overlapping the pane 4 and further onto the pane 4 and away. Thus, precipitation will largely be prevented from finding its way into the channel of the glass rim profile 102 formed by the walls 104, 105 and the first arc wall 106. This is advantageous as any precipitation is thus essentially prevented from coming into contact with the through holes 112 and the screws inserted therein for fastening the glass rim profile 102 to the side sash member 11. Hence, intrusion of moisture via the screw holes into the side sash member 11 and also degradation of the screws are prevented or at least mitigated.

[0075] It is advantageous feature of the invention that the flange 222 ends at a distance from the edge of the glass rim profile 102 at the folded-back portion 111. In this manner, precipitation which flows either from the sash striking bead covering 201 and the frame striking bead covering 217 drains off in the channel formed by the glass rim profile 102 at its inner portion of the arc-shaped almost flat portion 109. This, in turn, prevents that precipitation is directed to the pane, which may be undesirable for several reasons.

[0076] The dimension of the mid portion 218 is sufficient to span the distance between the glass rim profile 102 to the gasket 261, but is in general kept as limited as possible. This is partly due to aesthetical but also practical considerations. By forming an extended portion of the covering in the manner described, a satisfactory balance has been found between these considerations, while simultaneously ensuring that precipitation is led to the glass rim profile rather than onto the pane.

[0077] Turning now towards the end 266 which is intended to be the upper end in a mounted condition of the frame striking bead covering 217, a top edge 228 is provided with a substantially rectangular notch 229 as is best seen in Fig. 14. The side edges 230 and 231 of the notch 229 are configured to mate with incisions 542a, 542b provided in side faces of the structure 542 provided on the top casing locking mechanism 535. The bottom edge 232 of the notch 229 is configured to abut an intermediate face 565 of the structure 542. Hence, the notch 229 of the frame striking bead covering 217 is configured to slidingly engage the structure 542 and its incision 542a, 542b of the top casing locking mechanism 535 in order to be properly positioned during mounting.

[0078] Turning to the sash striking bead covering 201, the end 269 that is intended to be the lower end in a mounted condition has, as is best seen in Fig. 9, a slope

280 towards a folded back portion 207 that serves as mounting means in relation to the bottom sash covering above glass 319. The mounting means 207, which are best seen in Fig. 10, and its cooperation with mating mounting means on the bottom sash covering above glass 319 takes place in a manner known per se and will therefore not be discussed in further detail here.

[0079] Turning now to Fig. 11, the end 268 that is intended to be the upper end in a mounted condition of the sash striking bead covering 201 is provided with a prolongation 281 of a part of the sash striking bead covering. The prolongation 281 of the sash striking bead covering 201 causes a better draining of precipitation away from the sash structure.

[0080] Turning now to the lower end 267 (in a mounted condition) of the frame striking bead covering 217, the part of the bottom edge 233 that is formed by first wall 220, primary wall 262 and second wall 264 is chamfered in relation to the remainder of the bottom edge 233, as is seen in Fig. 12.

[0081] The upper end 268, that is the end intended to be the upper end in a mounted condition of the sash striking bead covering 201, is provided with a corrugated section between a chamfer 234 and the upper side of the sash striking bead covering 201. This provides for a section which is able to lift precipitation that may have entered the space below the striking bead coverings up onto the outer surface of the sash striking bead covering 201.

[0082] When seen along a direction perpendicular to the longitudinal extension, the chamfer 234 extends at an angle different from 0° in relation to the remainder of the bottom edge 233, i.e. the bottom edge 233 of the mid portion 218 and the flange portions 219, 222 of the frame striking bead covering 217. In the shown embodiment, the angle 282 of the chamfer 234 in relation to the remainder of the bottom edge 233 is substantially 45°.

[0083] The chamfer 234 is adapted to avoid that the bottom edge 233 of the frame striking bead covering 217 comes into harmful contact with the upper end 268 of the sash striking bead covering 201 during opening and closing of window 1, so that grating and scratching of both the frame and sash striking bead covering 201, 217 is avoided.

[0084] With reference to Figs 4 and 13 - 15, the window 1 furthermore comprises a sash striking bead covering 201 as well as a frame striking bead covering 217. The sash striking bead covering 201 as well as the frame striking bead covering 217 is provided with a male part 208 of a snap lock fastening means for fastening the sash or frame striking bead covering 201 or 217 to the sash 3 or the frame 2.

[0085] In the following, the male part 208 of the snap lock fastening means will be described with reference to the frame striking bead covering 217, but it is understood that the male part of the snap lock fastening means on the sash striking bead covering 201 is similar.

[0086] With reference to Fig. 13, the male part 208

comprises a first leg 210 and a second leg 211, both of which extend from underneath and substantially perpendicular to the mid portion 218 of the frame striking bead covering 217. The first leg 210 is shorter than the second leg 211 and preferably approximately 1/4-3/4 of the length of the second leg 211.

[0087] The first leg 210 is of a thickness that allows it to contain fastening means, preferably a pop rivet 212, for fastening the male part 208 to the frame striking bead covering 217.

[0088] The second leg 211 is flexible along a direction 283 perpendicular to its own longitudinal extension and towards and away from the first leg 210. A protrusion 216 is provided on a face of the second leg 211 that faces away from the first leg 210.

[0089] The male part 208 is adapted to engage in a snap-locking way with a female part 209 of the snap lock fastening means. A female part 209 is provided on the sash 3 and the frame 2, respectively, for the male part 208 on the sash and frame striking bead coverings, respectively.

[0090] As is best seen from Fig. 4, the female part 209 that is adapted to receive the male part that is provided on the frame striking bead covering 217 is configured to be fastened to the frame part 20 of the pivot hinge. Likewise, the female part 209' that is adapted to receive the male part that is provided on the sash striking bead covering 201 is configured to be fastened to the sash part (not shown) of the pivot hinge 200. It is understood that the female parts 209 and 209' do not necessarily have to be fastened to the respective parts of the pivot hinge. It is envisaged that the female parts are fastened to the side sash member 11 and side frame member 7, respectively, directly. The female part 209 indicated in Figs 14 and 15 is that adapted to engage with the frame striking bead covering 217 and is fastened on the side frame member 7.

[0091] The female part 209 of the snap lock fastening means has the general shape of an angle bracket. One leg 213 thereof is adapted for fastening to a hinge part 19, 20 or side member 7, 11. Another leg 214 thereof is provided with an opening 215 (as is seen in Fig. 14) configured to receive a male part 208 of the kind described above. The hinge parts of the pivot hinge 200 may have elements that assist in forming the female parts 209 of the snap lock fastening means. The female parts 209 of the snap lock fastening means may be integrally formed in the hinge parts.

[0092] The shape of the opening 215 is substantially such that the male part 208 is retained in the female part 209 once inserted. To this end, the flexibility and the protrusion 216 of the second leg 211 assist so that a snap locking effect is obtained.

[0093] To release the male part 208 from its snap lock engagement with the female part 209, the second leg 211 of the male part 208 is pressed towards the first leg 210 of the male part 208 until the protrusion 216 on the second leg 211 can pass through the opening 215 to-

gether with the rest of the male part 208. Now, the male part 208 can be retracted from the female part 209.

[0094] Fastening the striking bead covering with the above described snap-lock fastening means is advantageous over the prior art fastening by the aid of screws, since the fastening means are fastened to the striking bead coverings and does not get lost as easily as screws. Also, there are no through holes in the striking bead coverings for insertion of mounting screws. Hence, the risk of water intrusion into the frame and sash structure is reduced. Also, a nicer and more homogeneous appearance is obtained. Furthermore, this embodiment provides for a safer mounting in relation to break-ins, as there are no screws that are accessible from the outside. Furthermore, the snap lock engagement can only be released from the inside of a building in which the window 1 is mounted, as the protrusion 216 on the second leg 211 of the male part 208 is to be pressed from inside in order to release from engagement.

[0095] Both the male part 208 and female part 209 of the snap lock fastening means is made of POM. Using a polymer is beneficial, as it has poor heat conductive properties. Hence, the risk of forming a thermal bridge is reduced. Furthermore, POM has sufficiently high tensile strength to provide a secure and robust fastening of the striking bead coverings.

[0096] It is envisaged, however, that the male and female part of the snap lock fastening means can be made of any suitable material with a sufficiently high tensile strength. For instance, the male part of the snap lock fastening means may be in the form of a leaf spring made from a suitably flexible and strong metal or alloy or combination thereof. The female part may be made of any material adapted to suitably mate the leaf spring material as regards avoiding formation of a heat bridge and robustness.

[0097] In another embodiment, the female part of the snap lock fastening means is provided on the sash and/or frame striking bead covering, while the male part of the snap lock fastening means is provided on the sash and/or frame.

[0098] A bottom frame covering 237 is provided. As is best seen in Figs 9 and 27, the bottom frame covering 237 is adapted to extend, in a mounted condition, with its longitudinal extension 249 along the longitudinal extension of the bottom frame member 6. The bottom frame covering 237 is configured to extend essentially along the entire length of the bottom frame member 6 so as to cover it from intrusion of precipitation.

[0099] The bottom frame covering 237 is essentially symmetrical around a plane perpendicular to its longitudinal extension 249. In the following, focus will be on the end 238 of bottom frame covering 237 that is adapted to cooperate with the one side frame member 7 and the elements cooperating with that end 238. It is understood, however, that the same considerations apply to the opposite end of the bottom frame covering 237 and those elements cooperating therewith.

[0100] The end region 238 of the bottom frame covering 237 is adapted to serve, via an intermediate member 245 that will be described in further detail below, as mount for an angle bracket 239. The angle bracket 239 forms part of a fitting set adapted to be connected to the frame side member and to the side frame covering.

[0101] The angle bracket 239 has a longitudinal extension 240 and is adapted to extend, in a mounted condition, with its longitudinal extension 240 along the longitudinal extension of the side frame member 7. To this end, the side frame member 7 is provided with a recess (not shown in detail).

[0102] As is best seen from Fig. 18, the angle bracket 239 comprises a first wall 241 and a second wall 242, the two walls being essentially perpendicular to each other.

[0103] An inner face of the first wall 241 of the angle bracket 239 is adapted to abut (directly and indirectly, as will be elaborated later) on an outer side face 7a of the side frame member 7. Also, the inner face of the first wall 241 abuts on an end edge 244 of the bottom frame covering 237 as well (not clearly discernible on any of the figures).

[0104] An inner face of the second wall 242 of the angle bracket 239 is adapted to abut (directly and indirectly) on an upper face 7b of the side frame member 7, possibly in the above-mentioned recess. Also, the inner face of the second wall 242 is adapted to abut (indirectly) an upward-facing face 274 of the bottom frame covering 237.

[0105] An outer face of the first wall 241 of the angle bracket 239 is adapted to abut an inner face of a first wall 272 of the side frame covering 270. An outer face of the second wall 242 of the angle bracket 239 is adapted to abut an inner face of a second wall 273 of the side frame covering 270.

[0106] As is best seen in Fig. 18, at an end 243 of the angle bracket 239 the walls 241, 242 extend into grooves 246 and 247, respectively. The grooves 246, 247 are adapted to fit into mating folded-back portions 276, 277 of the first 272 and second 273 wall, respectively, of the side frame covering 270 (cf. Fig. 19).

[0107] The dimensions of the folded-back portions 276, 277 and the grooves 246, 247 are configured so as to effect a snap-locking engagement of the side frame covering 270 to the angle bracket 239. This eases the mounting process of the side frame covering 270 in that the mounting takes place without further mounting means such as screws.

[0108] The angle bracket 239 is nevertheless provided with a through hole 278 intended for passage of a screw for any subsequent mounting of optional equipment, such as shutters or other forms of sun screening.

[0109] The risk of dropping the side frame covering 270 from the roof during mounting is reduced, since it is retained once snap-lock engaged with the angle bracket 239.

[0110] Also, the longitudinal extension 240 of the angle

bracket 239 ensures a good guidance of the side frame covering 270 a stretch up along the side frame covering 270 in relation to the bottom frame covering 237 and in relation to the side frame member 7. In a mounted condition the result is increased stability and robustness of the corner between the bottom frame covering 237 and the side frame covering 270.

[0111] An intermediate element 245 (most clearly discernible on fig. 18) is provided and is adapted to be positioned at the end region 238 of the bottom frame covering 237. It is intended for being positioned between the angle bracket 239 and the side frame member 7 and the bottom frame covering 237, respectively.

[0112] Intermediate members in this field are known. Therefore, only the points on which this intermediate member 245 differs from the known types of intermediate members will be discussed here. The differences relate to the fact that the prior art intermediate member is adapted to link the bottom frame covering with the side frame covering directly, while the present intermediate member 245 is adapted to link the bottom frame covering 237 with the side frame covering 270 via the angle bracket 239.

[0113] Hence, a slit 248 is provided in the wall 250 of the intermediate member 245 that is configured to be parallel to the upper face 251 of the bottom frame covering 237 in a mounted condition. The slit 248 is adapted to receive an essentially T-shaped protrusion 252 extending from the second wall 242 of the angle bracket 239 in a direction parallel to the first wall 241 of the angle bracket 239 (see Fig. 19). The T-shape of the protrusion 252 is intended to function as a barb and retain the angle bracket 239 in the intermediate member 245 once inserted.

[0114] An L-shaped flange 253 protrudes from the wall 250 of the intermediate member 245 with its first wall 254 being essentially perpendicular to the wall 250 and its second wall 255 being essentially parallel to the wall 250. The flange is adapted to sealingly abut its counterpart of the sash striking bead covering 201 in a mounted condition of both, when the sash 3 is closed against the frame 2.

[0115] The primary purpose of the intermediate member is to provide a water tight connection.

[0116] Turning to the aspect of guiding the side frame covering 270, a guide member 256 is provided. The guide member 256 is essentially hook shaped and is adapted to be fastened to the frame part 20 of the pivot hinge with its base part 257 and to grip around a flange 271 of the side frame covering 270 with its hook part 258. This further assists in providing a screw-less, yet robust, mounting of the side frame covering 270.

[0117] Referring to Figs 20-22, a slightly different embodiment of the window according to the invention is shown.

[0118] It should be noted that the above description of preferred embodiments serves only as an example, and that a person skilled in the art will know that numerous variations are possible without deviating from the scope of the claims.

Claims

1. A roof window (1) comprising a frame (2) with a top member (5), a bottom member (6) and two side members (7, 8), and a sash (3) having a top member (9), a bottom member (10) and two side members (11, 12), the sash (3) holding a pane (4) and a glass rim profile (102) being provided on each side sash member (11, 12), said glass rim profile (102) comprising an essentially L-shaped portion with a first wall (104) and a second wall (105), the two walls (104, 105) being substantially perpendicular to each other, a flange (103) extending from the end of the first wall (104) opposite the second wall (105) essentially parallel to and in the same direction as the second wall (105), an essentially arc-shaped portion extending from the second wall (105), the arc-shaped portion comprising a first arc wall (106), an apex (107) and a second arc wall (108), said apex (107) peaking at approximately the same level as the first wall (104) of the L-shaped portion, from the second arc wall (108) a slightly arc-shaped, almost flat portion (109) extending away from the arc-shaped portion essentially parallel to the second wall (105), from underneath the slightly arc-shaped, almost flat portion (109), where said slightly arched, almost flat portion (109) ends in a folded back portion (111), which is folded back so as to extend below the slightly arc-shaped portion (109), the roof window (1) further comprising a covering (201, 217) comprising a substantially flat mid portion (218) and further including a sash striking bead covering (201) and a frame striking bead covering (217), wherein the substantially flat mid portion (218) of the sash striking bead covering (201) and the frame striking bead covering (217) each extends into an arrangement forming a labyrinth seal with the glass rim profile (102), **characterized in that,** the first arc wall (106) and second arc wall (108) are substantially parallel to the first wall (104) of the L-shaped portion of said glass rim profile (102), a small flange (110) extends essentially perpendicular to said slightly arc-shaped, almost flat portion (109) of said glass rim profile (102), the bottommost part of the folded back portion (111) is at essentially the same level as the underside of the second wall (105) of said glass rim profile (102), and where the labyrinth seal is formed as an extension of a first wall (220) of said sash striking bead covering (201) and of said frame striking bead covering (217) in the form of a primary wall (262) and a second wall (264), in this manner a groove-like structure is formed by the first wall (220), the primary wall (262) and the second wall (264), said second wall (264) extending into a substantially flat portion (221) being essentially parallel to and being at substantially the same level as the mid portion (218) and ending in a

generally downwardly directed flange (222), said groove-like structure forming the labyrinth seal being adapted to fit into the channel formed by said L-shaped portion with a first wall (104) and a second wall (105) and the first arc wall (106) of the glass rim profile (102) and to form an essentially water repelling transition between the striking bead coverings (201, 217) and the glass rim profile (102) in a closed position of the window (1), and that the generally downwardly directed flange (222) ends at a distance from the edge of the glass rim profile (102) at the folded-back portion (111).

2. A window according to any one of the preceding claims, wherein a sealing member is positioned between the glass rim profile (102) and the labyrinth seal.
3. A window according to any one of the preceding claims, wherein the generally downwardly directed flange (222) ends at or near said second arc wall (108).
4. A window according to any one of the preceding claims, wherein the end (268) that is intended to be the upper end in a mounted condition of the sash striking bead covering (201) is provided with a prolongation (281) of a part of the sash striking bead covering.
5. A window according to any one of the preceding claims, wherein the end (268) that is intended to be the upper end in a mounted condition of the sash striking bead covering (201) is provided with a corrugated section between a chamfer (234) and the upper side of the sash striking bead covering (201).
6. A window according to any one of the preceding claims, wherein at least one fastening means (208, 209) for fastening the covering (217, 201) to the roof window (1) is provided, and that the at least one fastening means comprises a male (208) and a female (209) part arranged one on the covering (217, 201) and the other on the roof window (1) and adapted for mutual snap locking engagement

Patentansprüche

1. Dachfenster (1) umfassend einen Rahmen (2) mit einem oberen Element (5), einem unteren Element (6) und zwei Seitenelementen (7, 8), und einen Flügel (3) mit einem oberen Element (9), einem unteren Element (10) und zwei Seitenelementen (11, 12), wobei der Flügel (3) eine Scheibe (4) und ein Glaseinfassungsprofil (102) hält, das an jedem seitlichen Flügelelement (11, 12) vorgesehen ist, wobei das Glaseinfassungsprofil (102) einen im Wesentli-

chen L-förmigen Abschnitt mit einer ersten Wand (104) und einer zweiten Wand (105), wobei die zwei Wände (104, 105) im Wesentlichen senkrecht zueinander sind, einen Flansch (103), der sich von dem Ende der ersten Wand (104) gegenüber der zweiten Wand (105) im Wesentlichen parallel zu und in derselben Richtung wie die zweite Wand (105) erstreckt, einen im Wesentlichen bogenförmigen Abschnitt umfasst, der sich von der zweiten Wand (105) erstreckt, wobei der bogenförmige Abschnitt eine erste Bogenwand (106), eine Spitze (107) und eine zweite Bogenwand (108) aufweist, wobei sich die Spitze (107) bis zu etwa demselben Niveau wie die erste Wand (104) des L-förmigen Abschnitts erstreckt, wobei sich von der zweiten Bogenwand (108) ein leicht bogenförmiger, fast ebener Abschnitt (109) weg von dem bogenförmigen Abschnitt im Wesentlichen parallel zu der zweiten Wand (105) erstreckt, wobei von der Unterseite des leicht bogenförmigen, fast ebenen Abschnitts (109) der leicht bogenförmige, fast ebene Abschnitt (109) in einem zurückgebogenen Abschnitt (111) endet, der so zurückgebogen ist, um sich unter den leicht bogenförmigen Abschnitt (109) zu erstrecken, wobei das Dachfenster (1) ferner eine Abdeckung (201, 217) aufweist, die einen im Wesentlichen ebenen Mittelabschnitt (218) aufweist und ferner eine Flügelanschlagleistenabdeckung (201) und eine Rahmenanschlagleistenabdeckung (217) umfasst, wobei der im Wesentlichen ebene Mittelabschnitt (218) der Flügelanschlagleistenabdeckung (201) und der Rahmenanschlagleistenabdeckung (217) sich jeweils in eine Anordnung erstreckt, die eine Labyrinthdichtung mit dem Glaseinfassungsprofil (102) bildet, **dadurch gekennzeichnet, dass** die erste Bogenwand (106) und die zweite Bogenwand (108) im Wesentlichen parallel zu der ersten Wand (104) des L-förmigen Abschnitts des Glaseinfassungsprofils (102) sind, ein kleiner Flansch (110) sich im Wesentlichen senkrecht zu dem leicht bogenförmigen, fast ebenen Abschnitt (109) des Glaseinfassungsprofils (102) erstreckt, der unterste Teil des zurückgebogenen Abschnitts (111) im Wesentlichen auf demselben Niveau wie die Unterseite der zweiten Wand (105) des Glaseinfassungsprofils (102) ist, und wobei die Labyrinthdichtung als ein Vorsprung einer ersten Wand (220) der Flügelanschlagleistenabdeckung (201) und der Rahmenanschlagleistenabdeckung (217) in Form einer Primärwand (262) und einer Sekundärwand (264) gebildet wird, wobei auf diese Weise eine nut-ähnliche Struktur durch die erste Wand (220), die Primärwand (262) und die Sekundärwand (264) gebildet wird, wobei sich die Sekundärwand (264) in einen im Wesentlichen ebenen Abschnitt (221) erstreckt, der im Wesentlichen par-

- allel zu und im Wesentlichen auf demselben Niveau wie der Mittelabschnitt (218) ist und in einem allgemein nach unten gerichteten Flansch (222) endet, wobei die nut-ähnliche Struktur, die die Labyrinthdichtung bildet, angepasst ist, um in den Kanal zu passen, der durch den L-förmigen Abschnitt mit einer ersten Wand (104) und einer zweiten Wand (105) und der ersten Bogenwand (106) des Glaseinfassungsprofils (102) gebildet wird, und um einen im Wesentlichen wasserabweisenden Übergang zwischen den Anschlagleistenabdeckungen (201, 217) und dem Glaseinfassungsprofil (102) in einer geschlossenen Stellung des Fensters (1) zu bilden, und dass der im Allgemeinen nach unten gerichtete Flansch (222) in einem Abstand von der Kante des Glaseinfassungsprofils (102) an dem zurückgebo- genen Abschnitt (111) endet.
2. Fenster nach dem vorgehenden Anspruch, wobei ein Dichtungselement zwischen dem Glaseinfassungsprofil (102) und der Labyrinthdichtung angeordnet ist.
 3. Fenster nach einem der vorhergehenden Ansprüche, wobei der allgemein nach unten gerichtete Flansch (222) an oder nahe der zweiten Bogenwand (108) endet.
 4. Fenster nach einem der vorhergehenden Ansprüche, wobei das Ende (268), das vorgesehen ist, das obere Ende in einem montierten Zustand der Flügelanschlagleistenabdeckung (201) zu sein, mit einer Verlängerung (281) eines Teils der Flügelanschlagleistenabdeckung versehen ist.
 5. Fenster nach einem der vorhergehenden Ansprüche, wobei das Ende (268), das vorgesehen ist, in einem montierten Zustand der Flügelanschlagleistenabdeckung (201) das obere Ende zu sein, mit einem gewellten Abschnitt zwischen einer Abschrägung (234) und der oberen Seite der Flügelanschlagleistenabdeckung (201) versehen ist.
 6. Fenster nach einem der vorhergehenden Ansprüche, wobei wenigstens ein Befestigungsmittel (208, 209) zum Befestigen der Abdeckung (217, 201) an dem Dachfenster (1) vorgesehen ist, und dass das wenigstens eine Befestigungsmittel einen Stecker- teil (208) und einen Buchsenteil (209) aufweist, wobei einer an der Abdeckung (217, 201) und der andere an dem Dachfenster (1) angeordnet ist, und die für ein gegenseitiges Einrasten angepasst sind.
- Revendications**
1. Fenêtre de toit (1) comprenant un cadre (2) comportant un élément supérieur (5), un élément inférieur

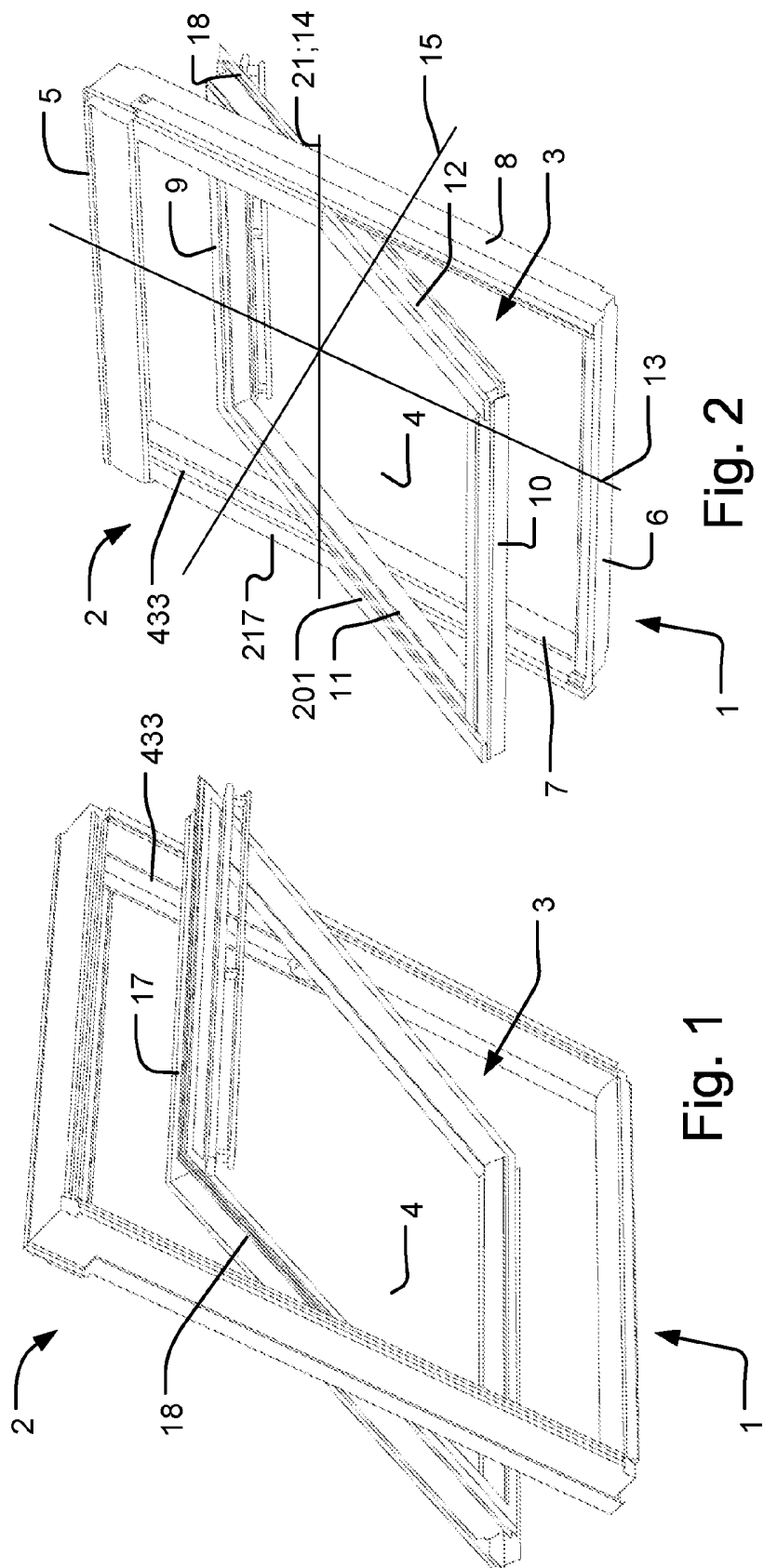
(6) et deux éléments latéraux (7, 8), et un battant (3) présentant un élément supérieur (9), un élément inférieur (10) et deux éléments latéraux (11, 12), le battant (3) supportant une vitre (4) et un profilé pour bordure de verre (102) fourni sur chaque élément de battant latéral (11, 12), ledit profilé pour bordure de verre (102) comprenant une partie essentiellement configurée en forme de L, dotée d'une première paroi (104) et d'une deuxième paroi (105), les deux parois (104, 105) étant essentiellement perpendiculaires l'une à l'autre, un rebord (103) s'étendant à partir de l'extrémité de la première paroi (104) opposée à la deuxième paroi (105) essentiellement parallèle à, et dans la même direction que, la deuxième paroi (105), une partie essentiellement configurée en arc s'étendant à partir de la deuxième paroi (105), la partie en arc comprenant une première paroi en arc (106), un sommet (107) et une deuxième paroi en arc (108), ledit sommet (107) pointant approximativement au même niveau que la première paroi (104) de la partie configurée en L, à partir de la deuxième paroi en arc (108), une partie presque plate légèrement arquée (109), s'étendant à distance de la partie configurée en arc essentiellement parallèle à la deuxième paroi (105), à partir du dessous de la partie presque plate légèrement arquée (109), dans laquelle ladite partie presque plate légèrement arquée (109) se termine dans une partie repliée (111), laquelle est repliée de façon à s'étendre en dessous de la partie légèrement arquée (109), la fenê- tre de toit (1) comprenant de plus un recouvrement (201, 217) comprenant une partie médiane essentiellement plate (218) et comprenant de plus un re- couvrement de bourrelet d'impact de battant (201) et un recouvrement de bourrelet de cadre (217), dans laquelle les parties médianes essentiellement plates (218) du recouvrement de bourrelet d'impact de battant (201) et du recouvrement de bourrelet d'impact de cadre (217) s'étendent, chacune, suivant un agencement constituant un joint d'étanchéité en labyrinthe avec le profilé pour bordure de verre (102),

caractérisée en ce que

la première paroi en arc (106) et la deuxième paroi en arc (108) sont essentiellement parallèles à la première paroi (104) de la partie configurée en L dudit profilé pour bordure de verre (102), un petit rebord (110) s'étend essentiellement de façon perpendiculaire à ladite partie presque plate légèrement arquée (109) dudit profilé pour bordure de verre (102), la partie la plus basse de la partie repliée (111) se trouve essentiellement au même niveau que le des- sous de la deuxième paroi (105) dudit profilé pour bordure de verre (102) et dans laquelle le joint d'étanchéité en labyrinthe est formé comme une extension d'une première paroi (220) dudit recouvrement de bourrelet d'impact de

- battant (201) et dudit recouvrement de bourrelet d'impact de cadre (217) sous la forme d'une paroi primaire (262) et d'une deuxième paroi (264), une structure en forme de gorge est formée de cette manière par la première paroi (220), la paroi primaire (262) et la deuxième paroi (264), ladite deuxième paroi (264) s'étendant dans une partie essentiellement plate (221) essentiellement parallèle à, et se trouvant essentiellement au même niveau que, la partie médiane (218) et se terminant en un rebord globalement dirigé vers le bas (222), ladite structure en forme de gorge formant le joint d'étanchéité en labyrinthe étant conçue pour s'ajuster dans le canal formé par ladite partie configurée en L, dotée d'une première paroi (104) et d'une deuxième paroi (105) et la première paroi en arc (106) du profilé pour bordure de verre (102) et pour former une transition conçue essentiellement pour repousser l'eau entre les recouvrements de bourrelet d'impact (201, 217) et le profilé pour bordure de verre (102) dans une position fermée de la fenêtre (1), et **en ce que** le rebord essentiellement dirigé vers le bas (222) se termine à une certaine distance du bord du profilé pour bordure de verre (102) au niveau de la partie repliée (111).
2. Fenêtre de toit selon l'une quelconque des revendications précédentes, dans laquelle un élément d'étanchéité est placé entre le profilé pour bordure de verre (102) et le joint d'étanchéité en labyrinthe.
 3. Fenêtre de toit selon l'une quelconque des revendications précédentes, dans laquelle le rebord globalement dirigé vers le bas (222) se termine au niveau, ou à proximité, de ladite deuxième paroi en arc (108).
 4. Fenêtre de toit selon l'une quelconque des revendications précédentes, dans laquelle l'extrémité (268) qui est conçue pour devenir l'extrémité supérieure, à l'état monté, du recouvrement de bourrelet d'impact de battant (201), est fournie avec un prolongement (281) d'une partie du recouvrement du bourrelet d'impact de battant.
 5. Fenêtre de toit selon l'une quelconque des revendications précédentes, dans laquelle l'extrémité (268) qui est conçue pour devenir l'extrémité supérieure, à l'état monté, du recouvrement de bourrelet d'impact de battant (201), est fournie avec une section ondulée entre un biseau (234) et le côté supérieur du recouvrement de bourrelet d'impact de cadre (201).
 6. Fenêtre de toit selon l'une quelconque des revendications précédentes, dans laquelle au moins un moyen de fixation (208, 209) pour attacher le recouvrement (217, 201) à la fenêtre de toit (1) est prévu, et dans laquelle le, au moins un, moyen de fixation

comporte une partie mâle (208) et une partie femelle (209) disposées, l'une sur le recouvrement (217, 201) et l'autre sur la fenêtre de toit (1) et qui sont conçues pour un engagement de verrouillage mutuel par encliquetage.



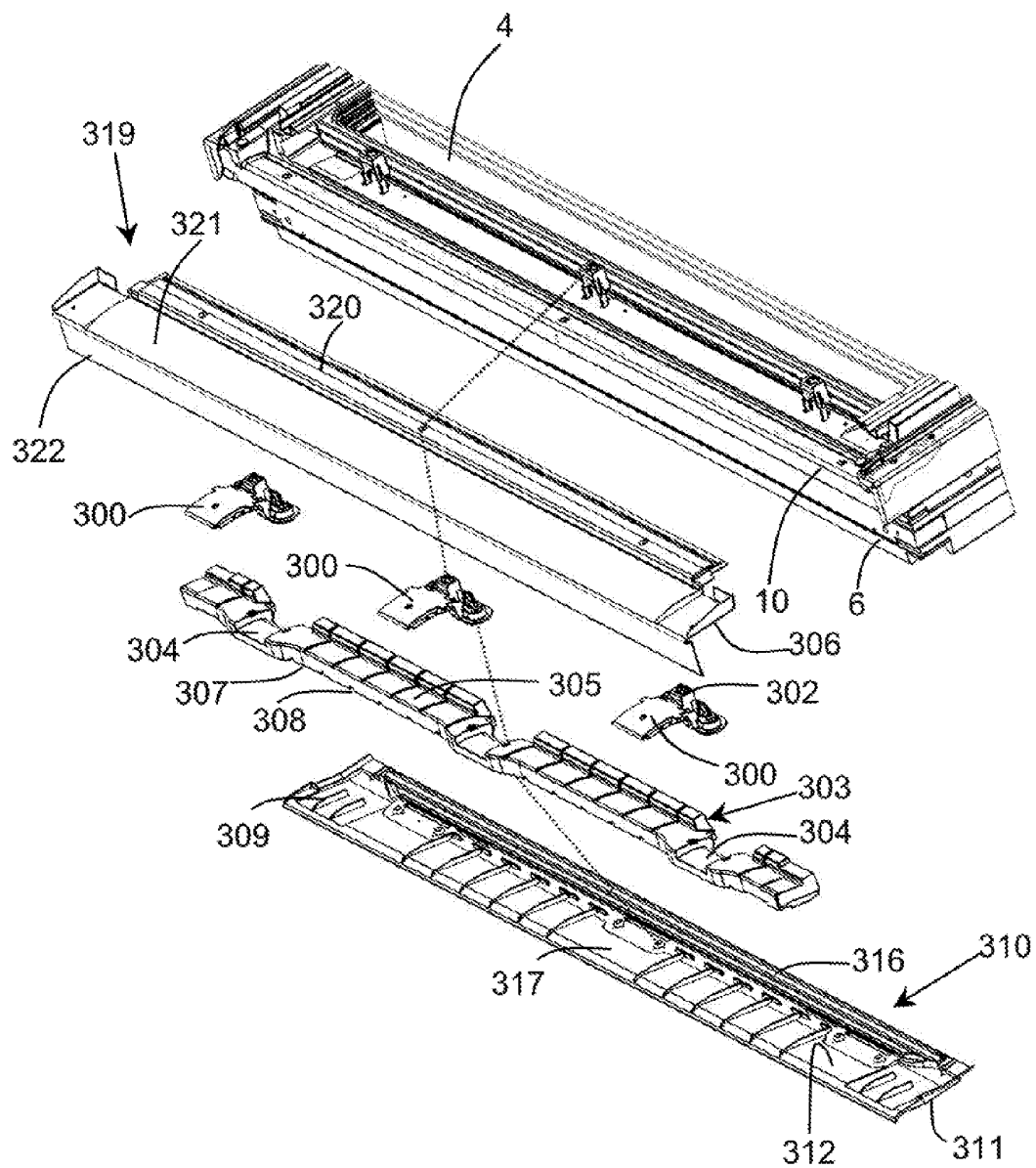


Fig. 3

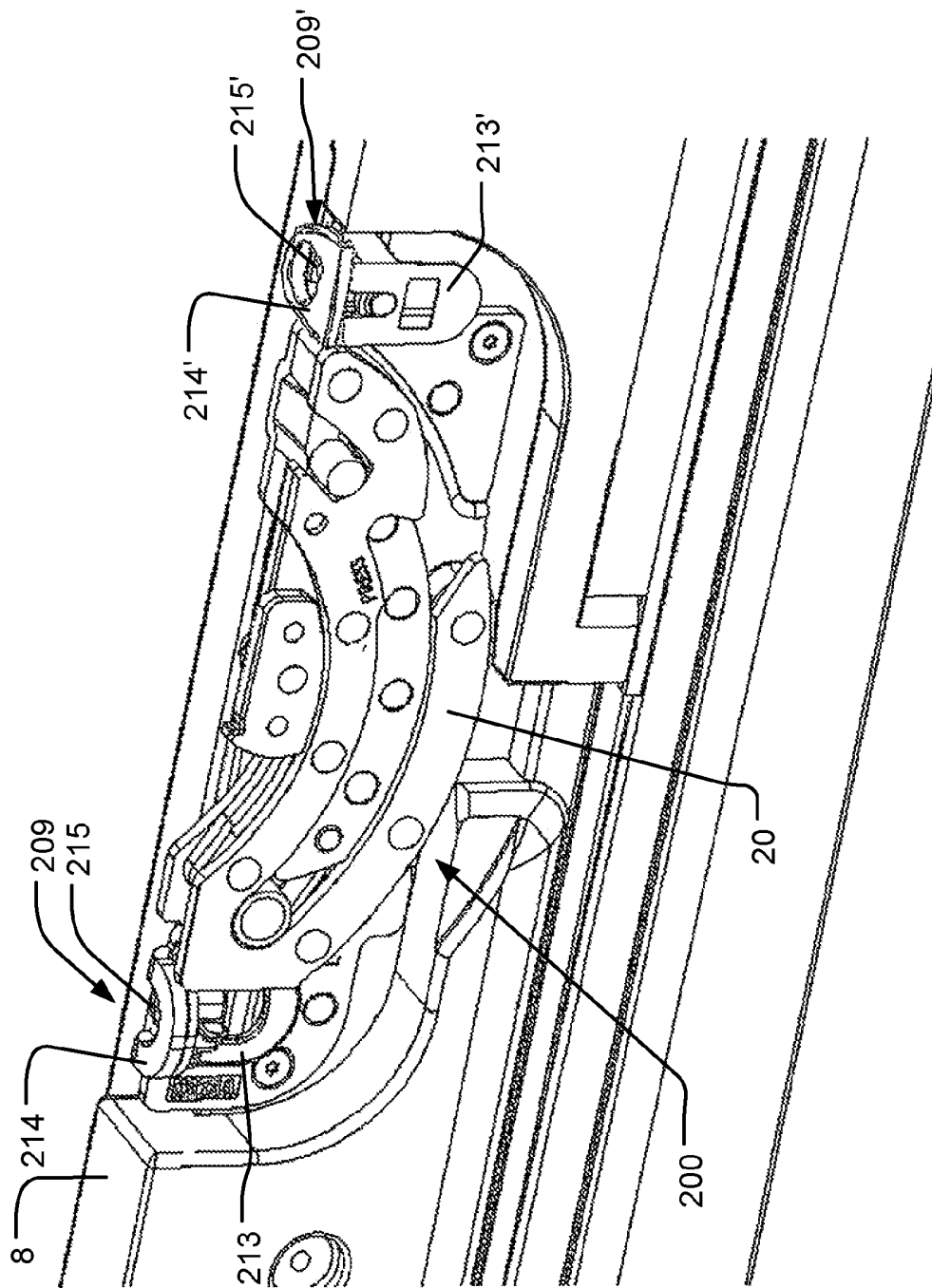


Fig. 4a

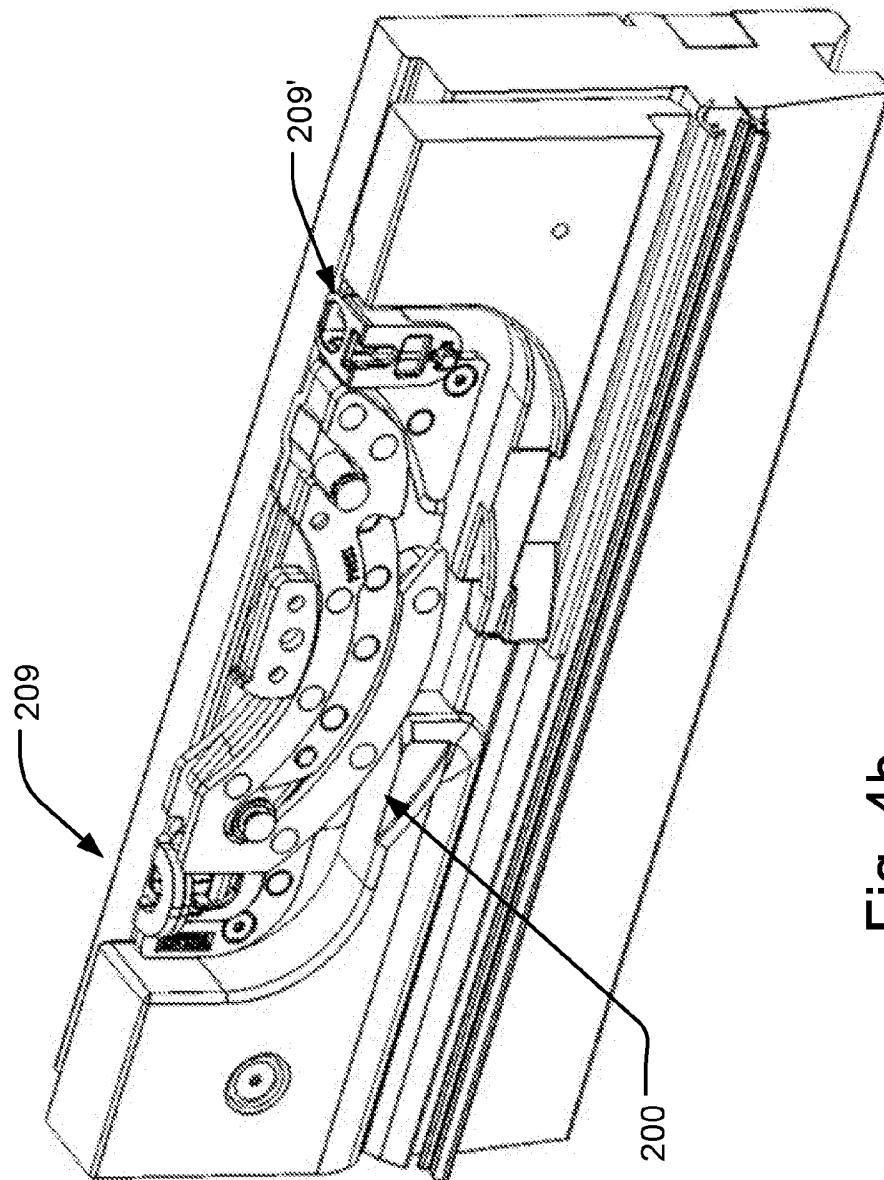


Fig. 4b

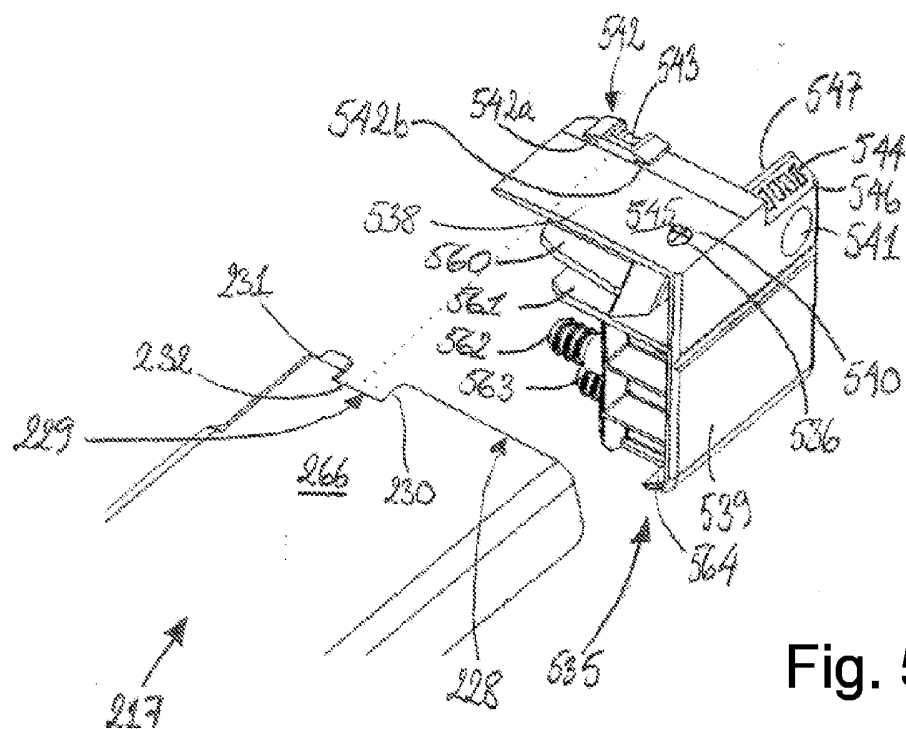


Fig. 5

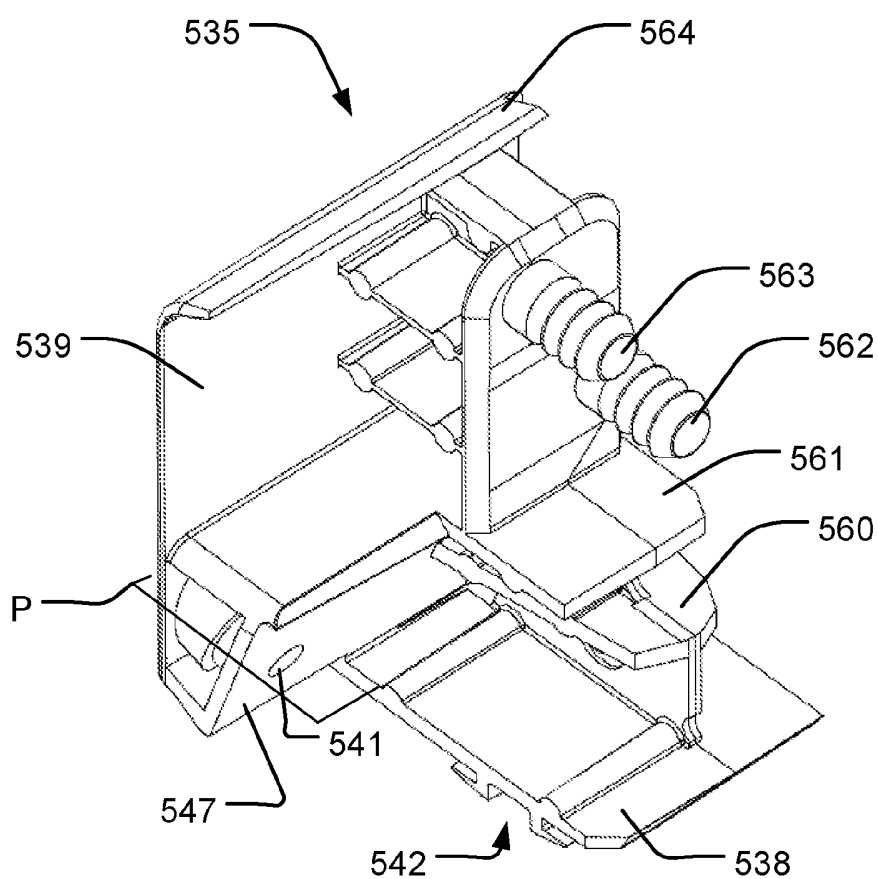


Fig. 6

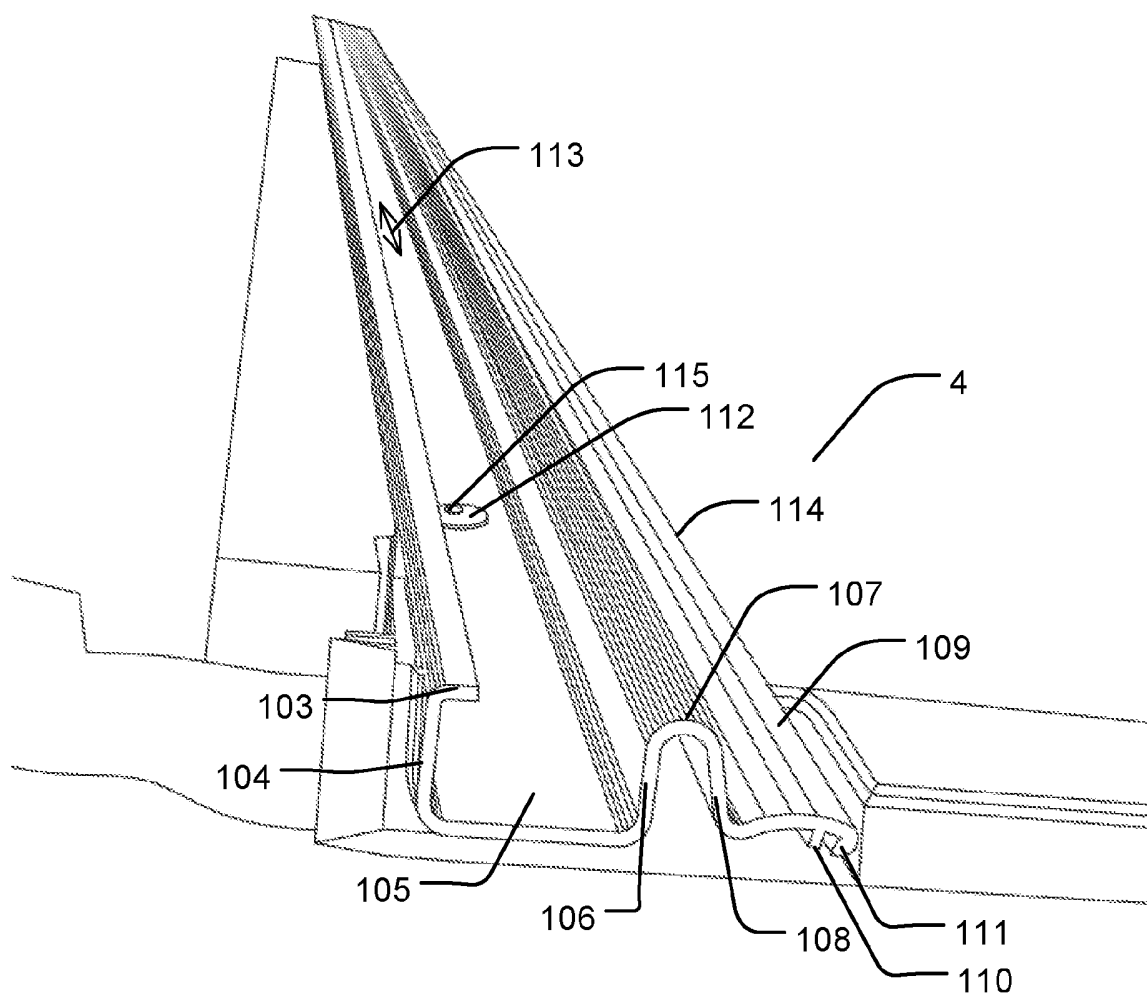


Fig. 7

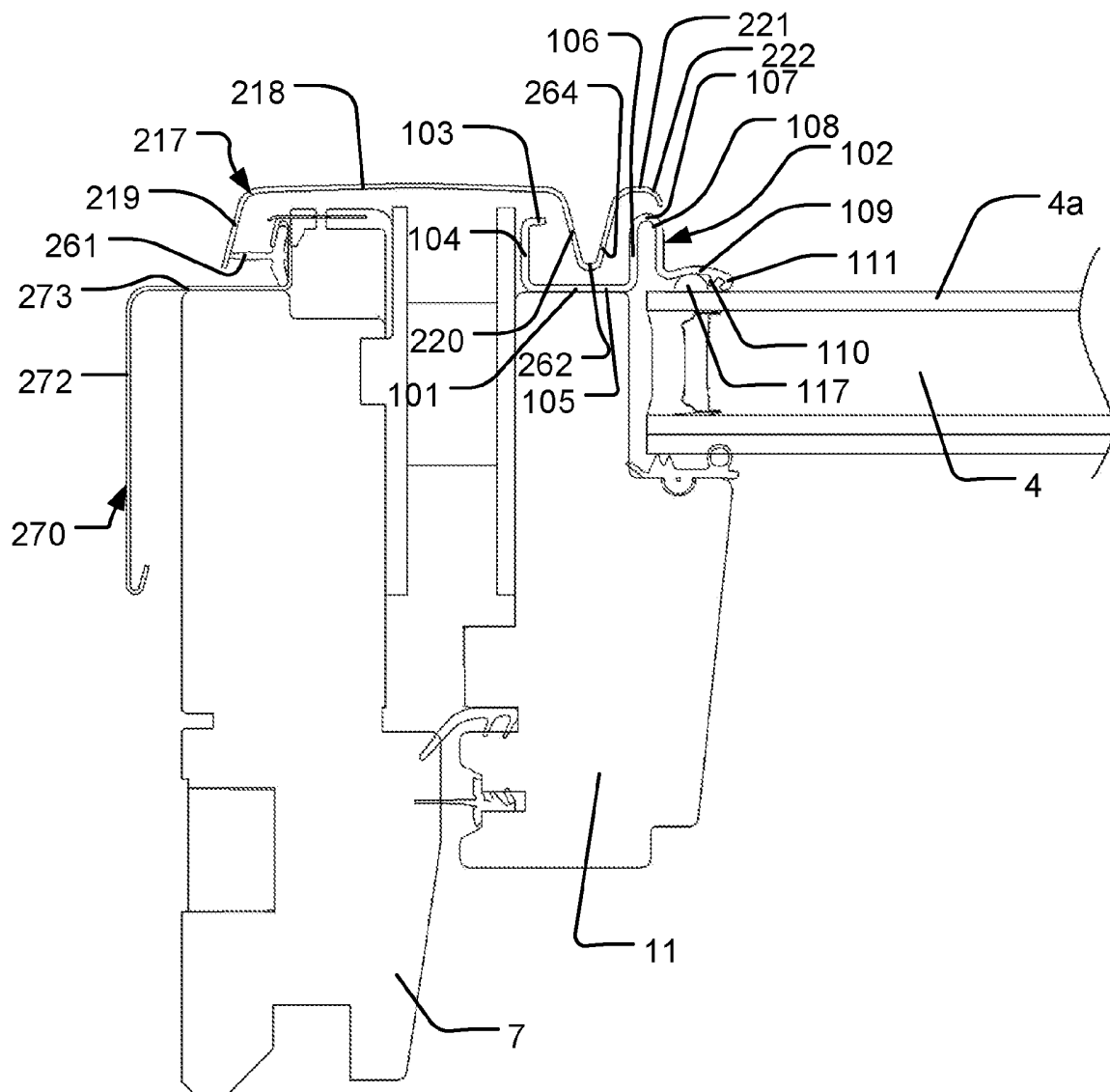


Fig. 8

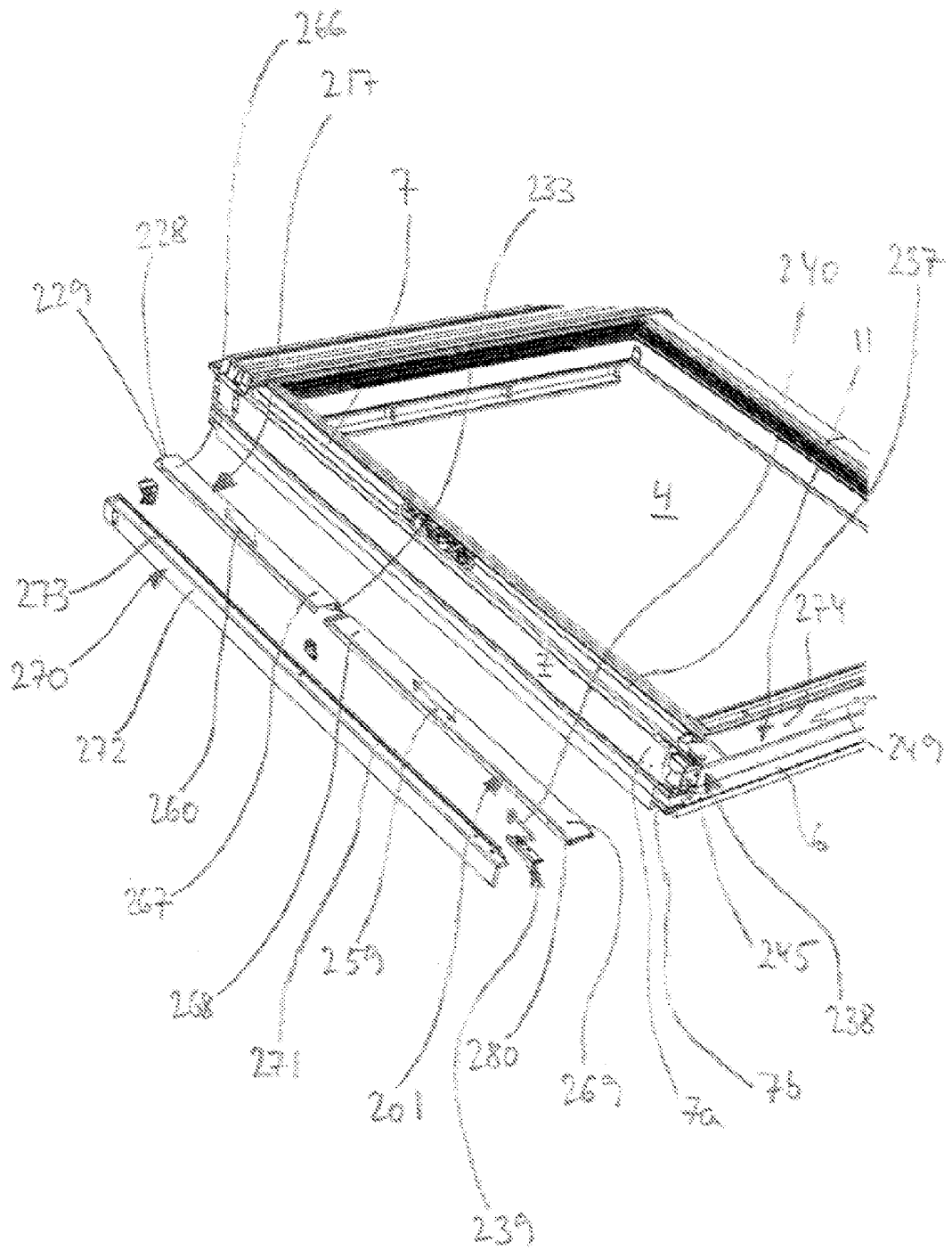


Fig. 9

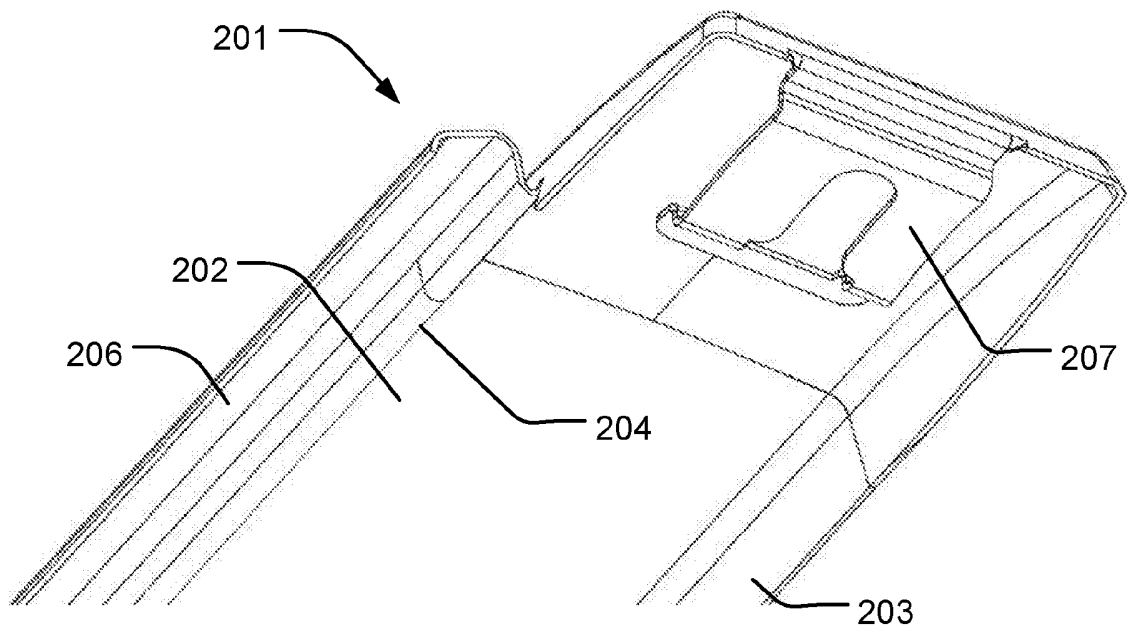


Fig. 10

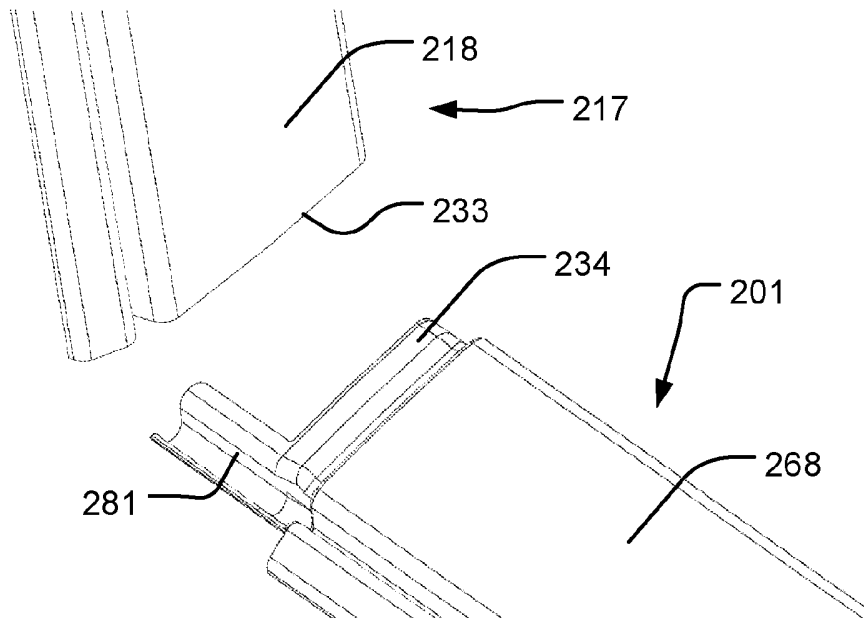


Fig. 11

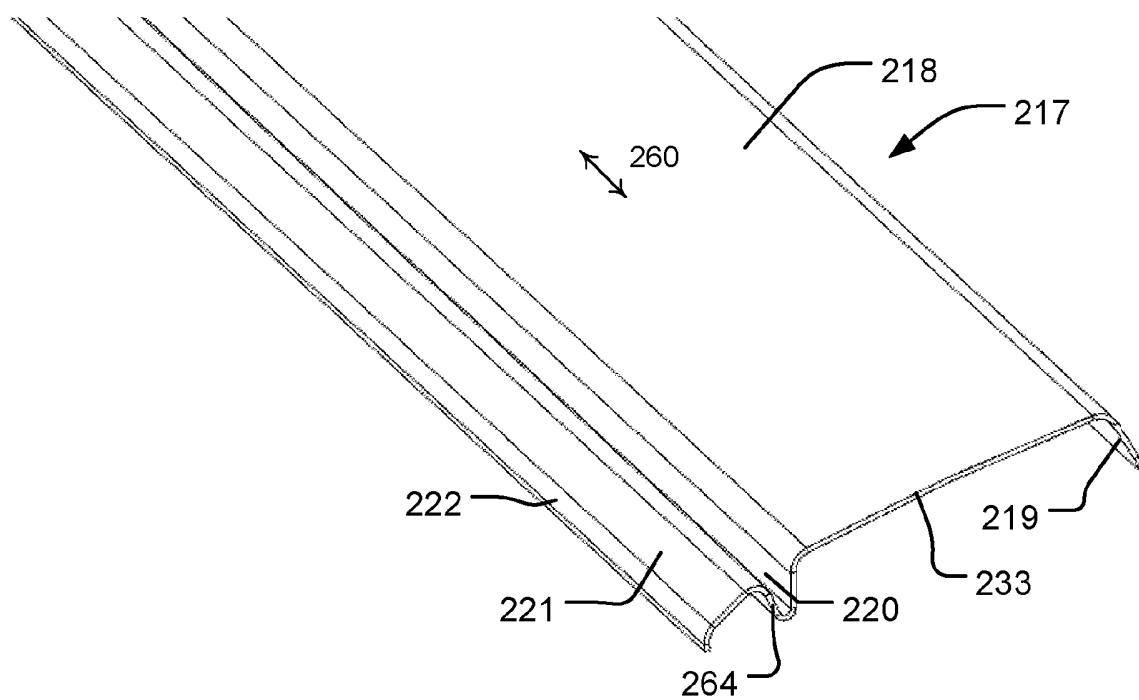


Fig. 12

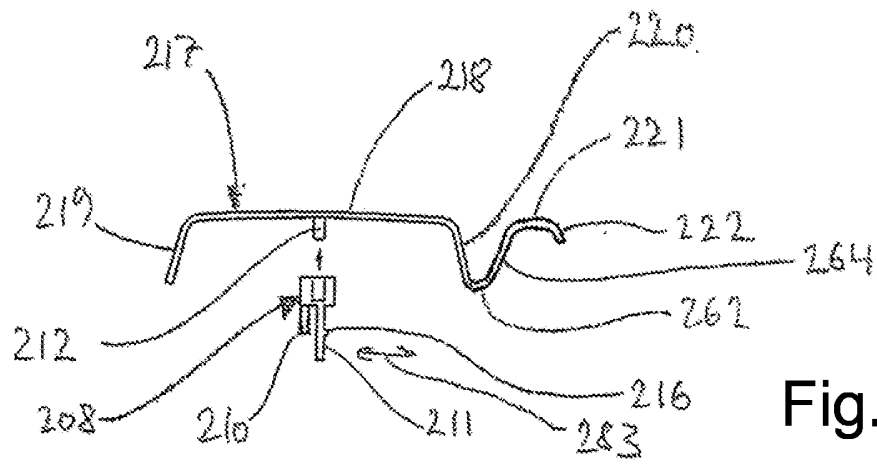


Fig. 13

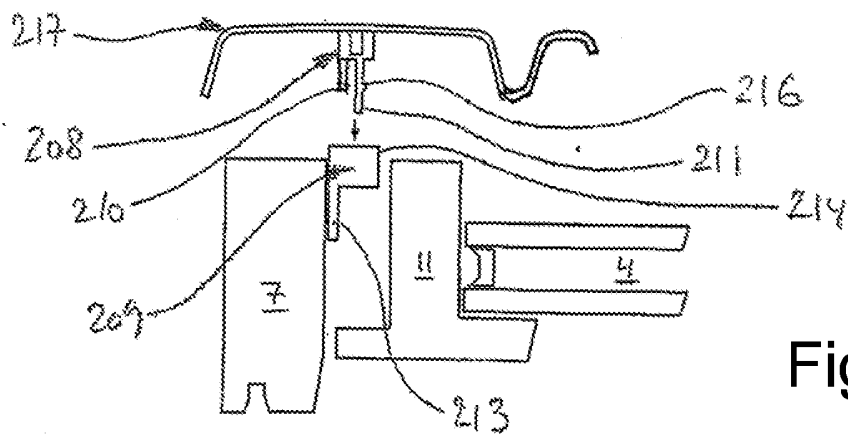


Fig. 14

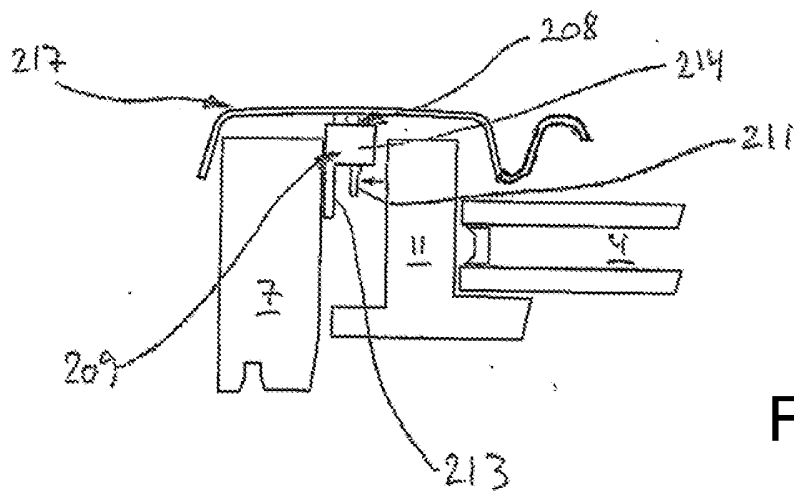


Fig. 15

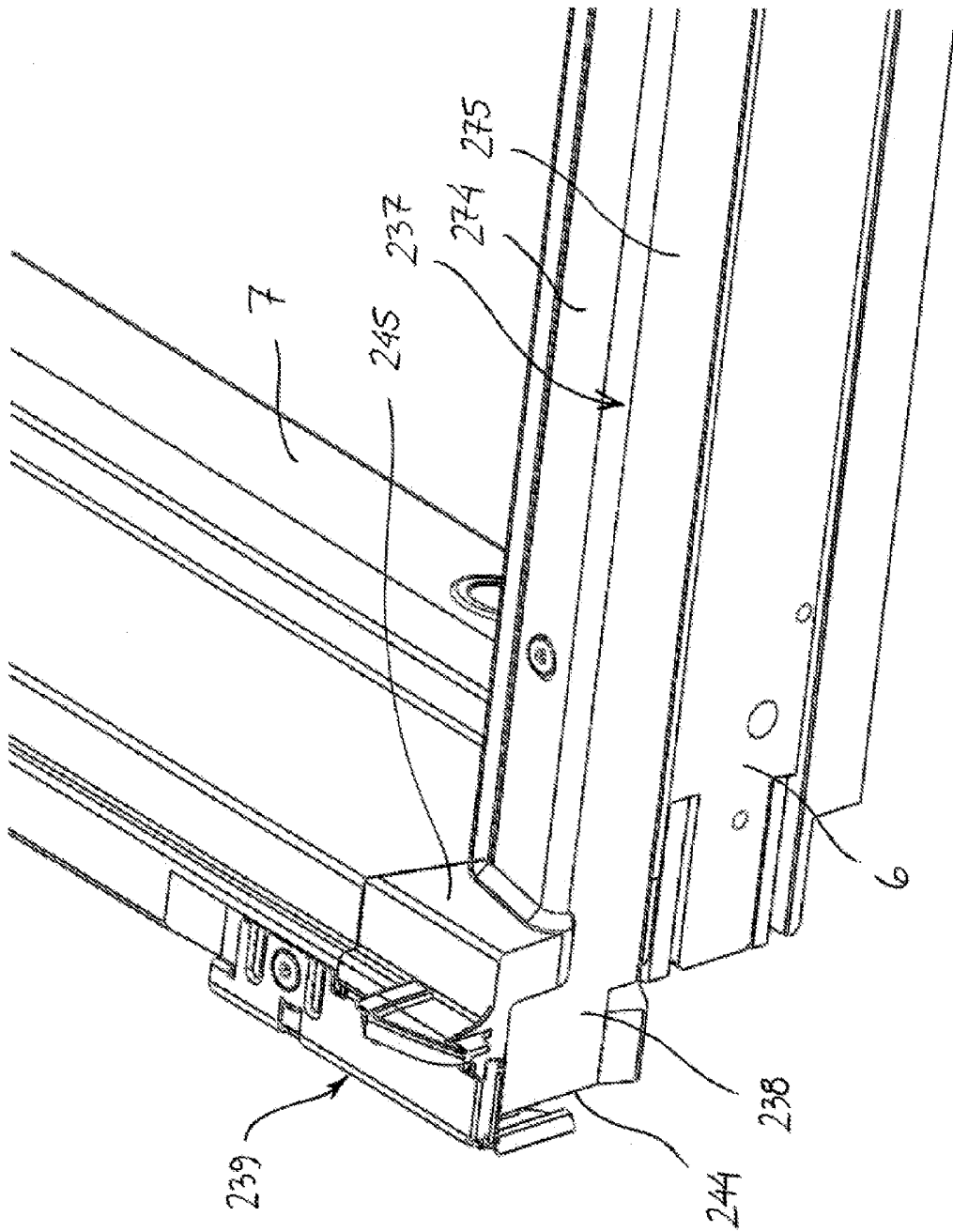
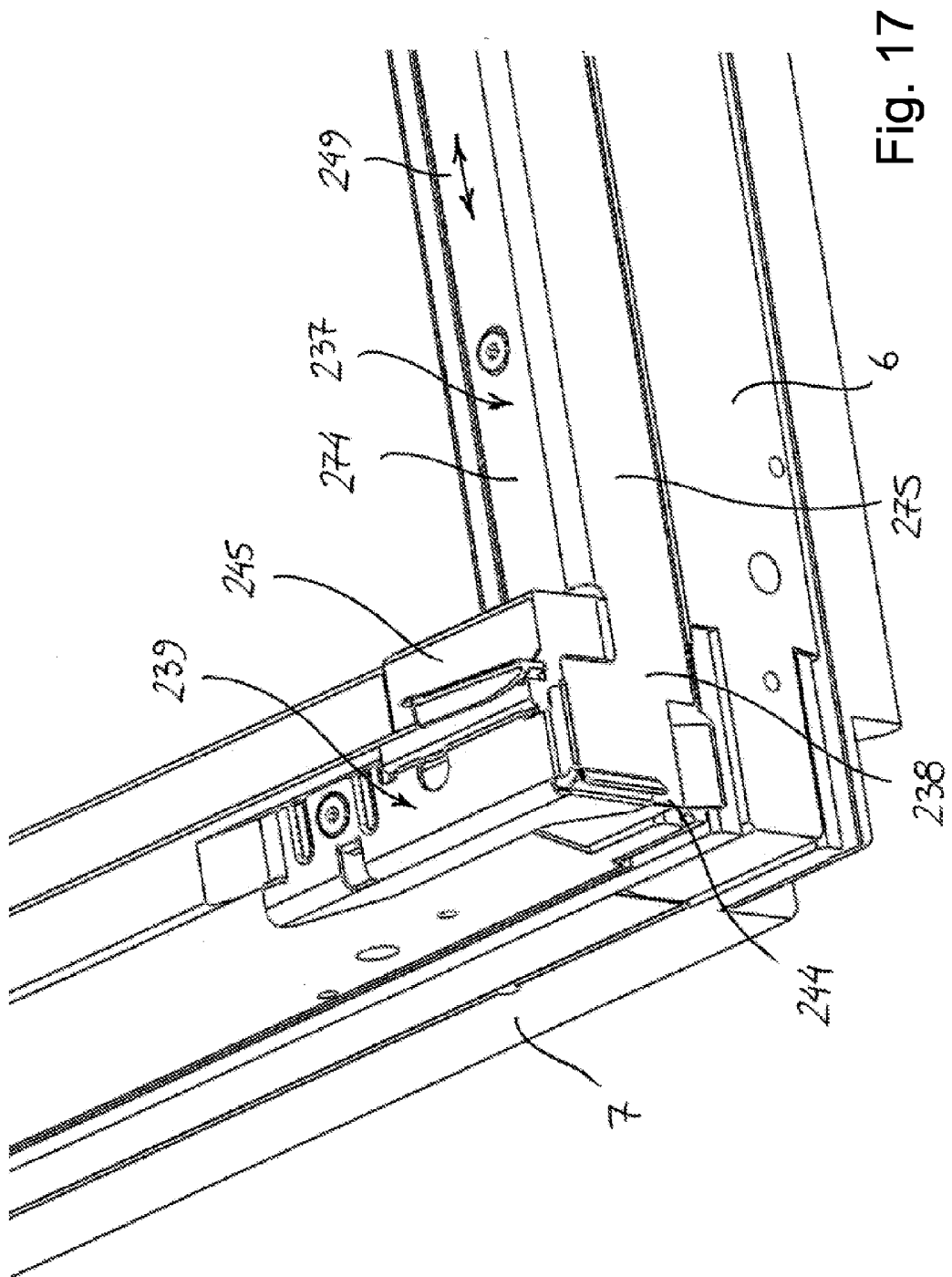


Fig. 16



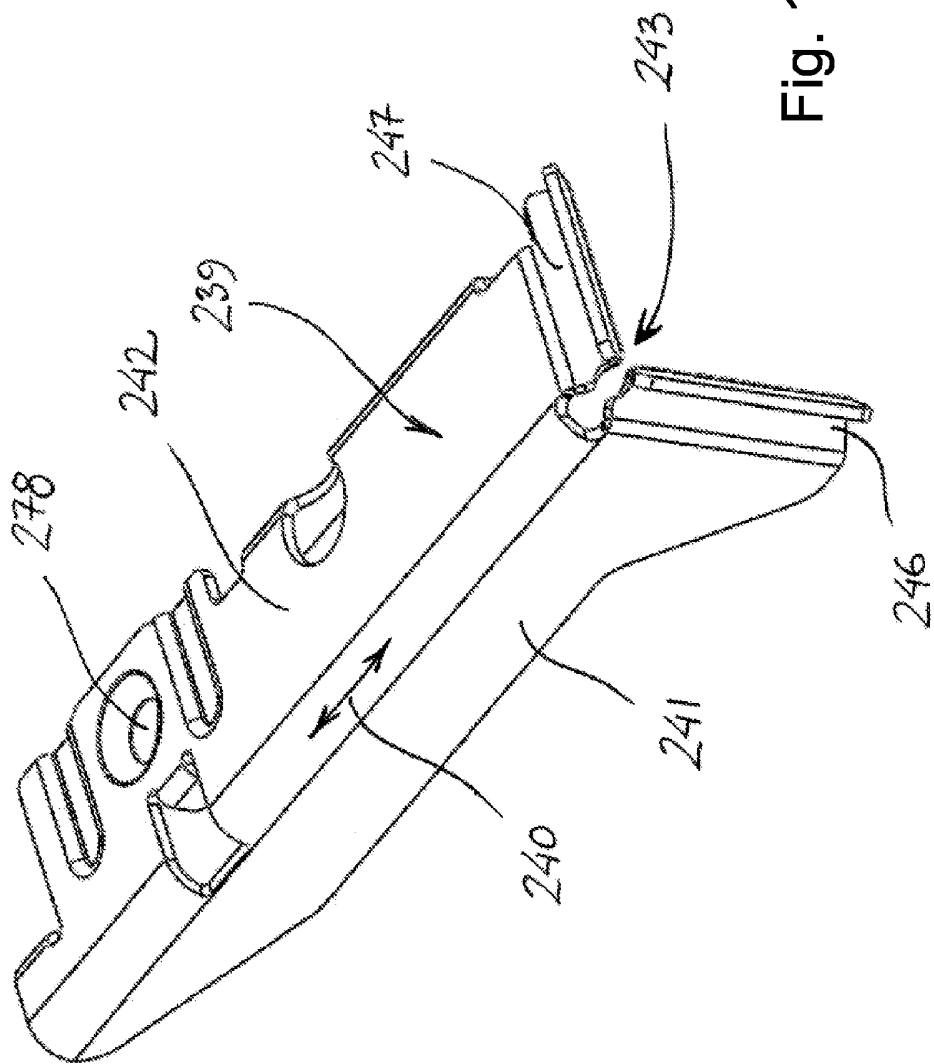


Fig. 18

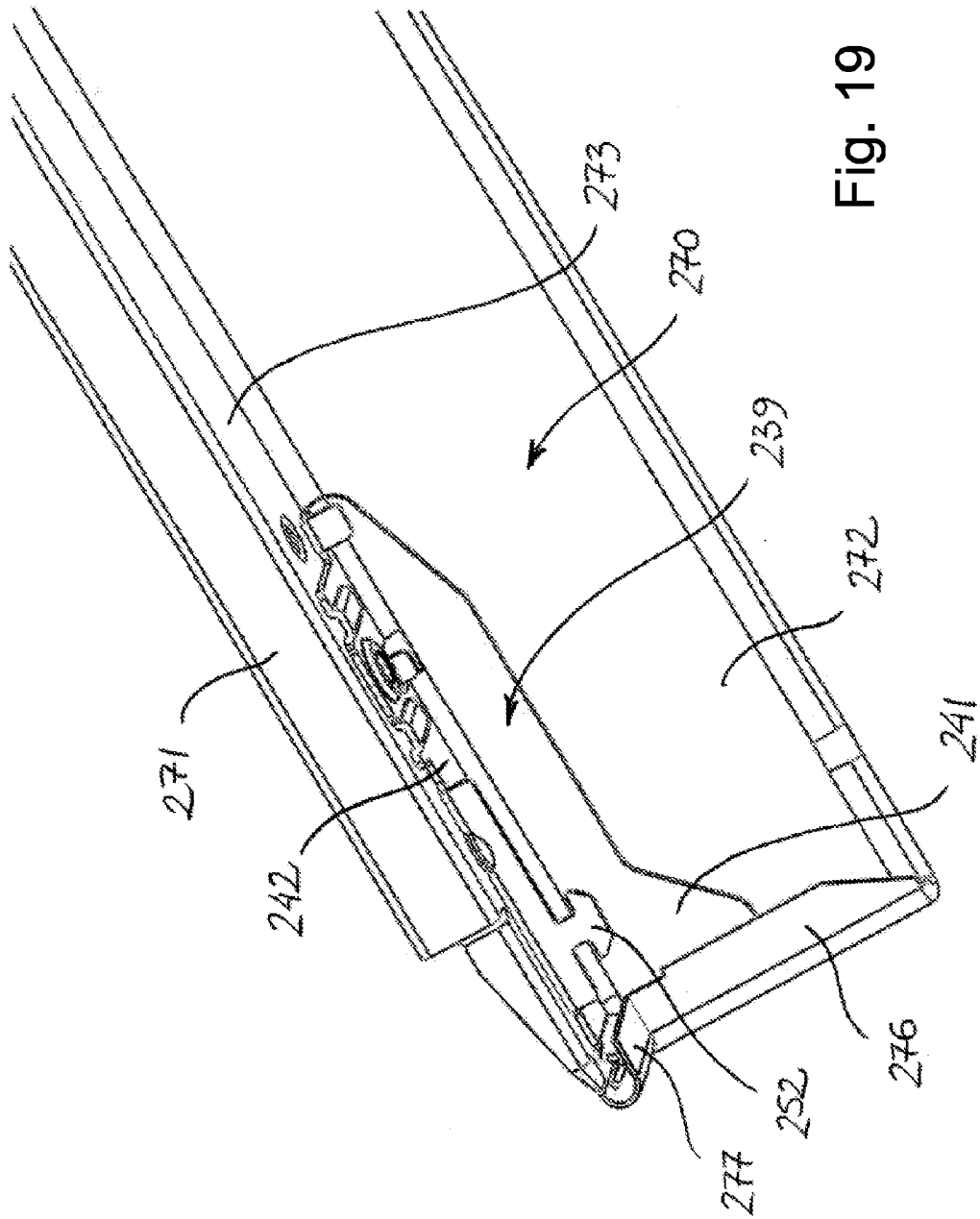


Fig. 19

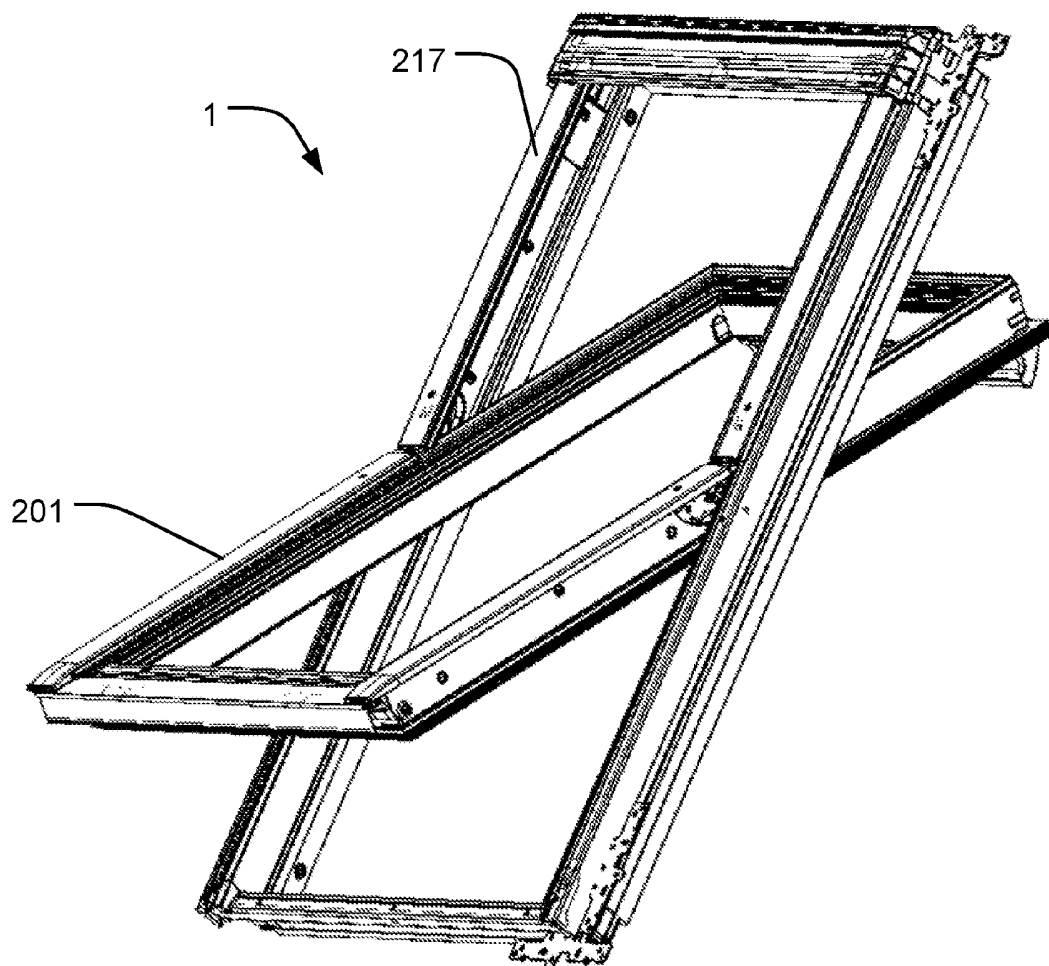


Fig. 20

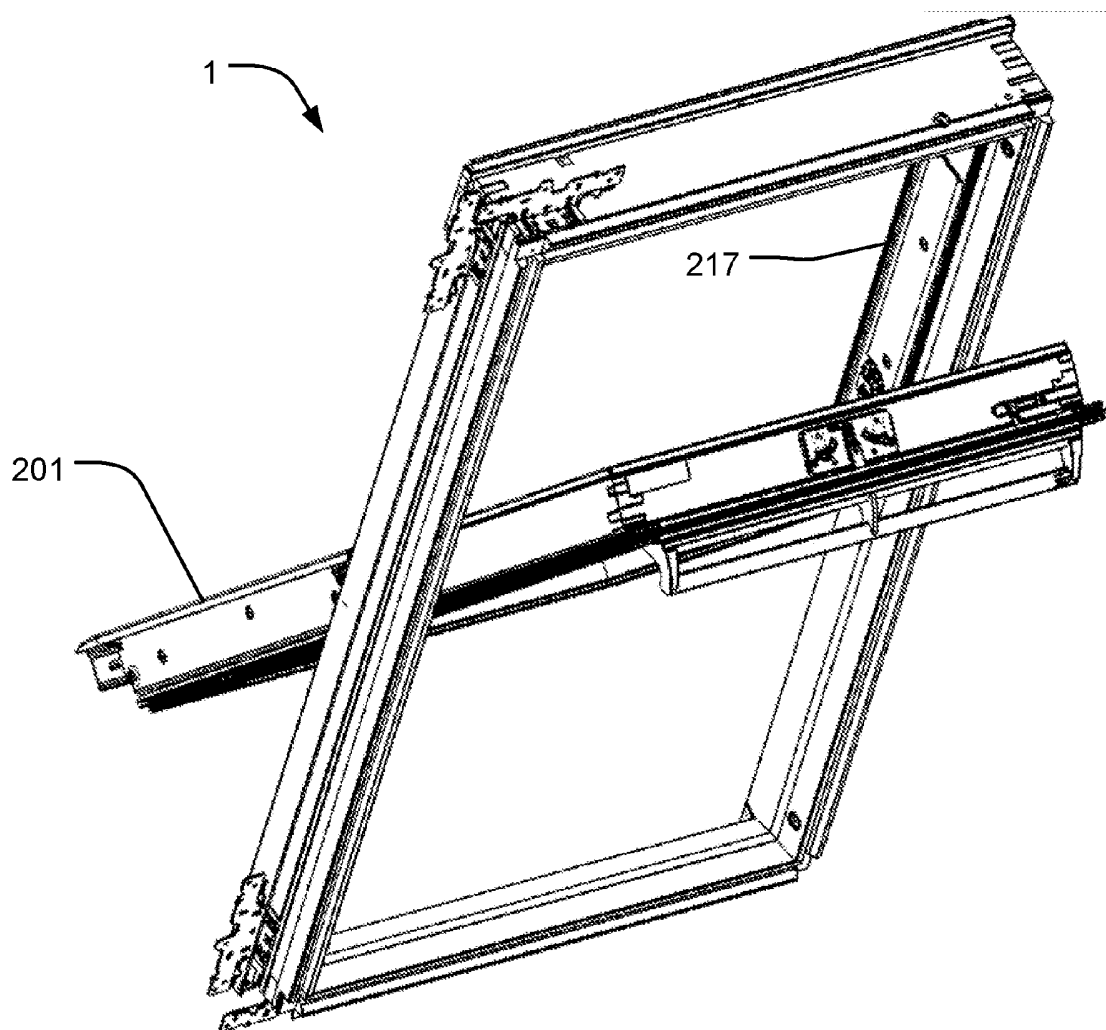


Fig. 21

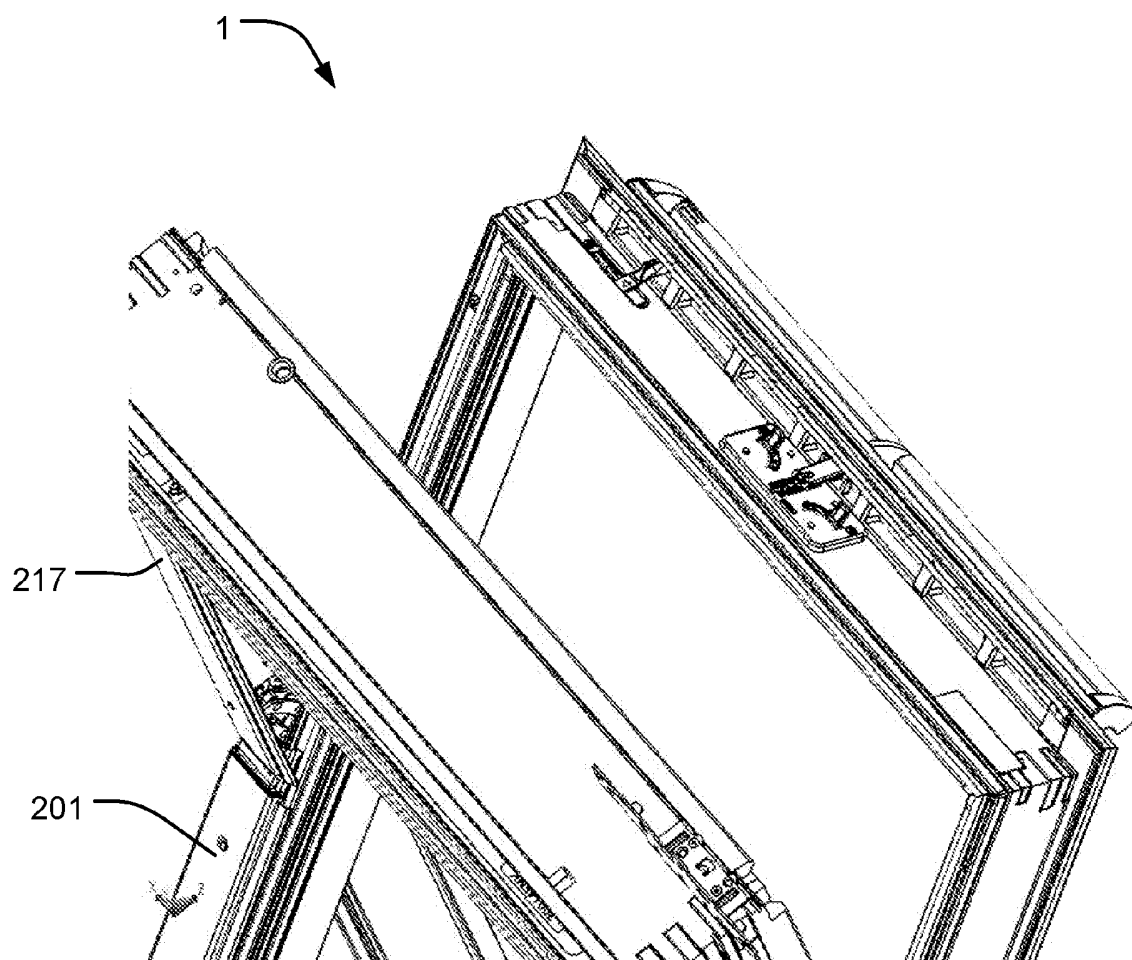


Fig. 22

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 1681399 A2 [0002]
- WO 9928581 A [0009]
- GB 1028251 A [0009]

Igénypontok

1. Tetőablak (1), amely ablaktok síkot meghatározó felső taggal (5), alsó taggal (6) és két oldalsó taggal (7, 8) rendelkező ablaktokot (2), valamint ablakszárny síkot meghatározó, felső taggal (9), alsó taggal (10) és két oldalsó taggal (11, 12) rendelkező ablakszárnyat (3) tartalmaz, amely ablakszárny (3) üvegtáblát (4) hordoz, és az oldalsó ablakszárny tagok (11, 12) mindegyikén üveg keret profilt (102) biztosítunk, amely üveg keret profil (102) első falat (104) és második falat (105) tartalmazó, lényegében L-alakú részt tartalmaz, és a két fal (104, 105) lényegében merőleges egymásra, a tetőablak (1) továbbá az első fal végéből (104) kinyúló a második fallal (105) szemben lévő, a második fallal (105) lényegében párhuzamos és egy irányba álló karimát (103) tartalmaz, valamint egy lényegében ív-alakú, a második falból (105) kinyúló részt, amely ív-alakú rész első ív falat (106), csúcspontot (107), és második ív falat (108) tartalmaz, és a csúcspont (107) lényegében az első fal (104) L-alakú részével egy vonalba emelkedik, a második ív falból (108) enyhén ívelt, lényegében lapos rész (109) nyúlik ki a második fallal (105) lényegében párhuzamosan az ív-alakú résztől elfelé, az enyhén ívelt, lényegében lapos rész (109) aljából, amely enyhén ívelt, lényegében lapos rész (109) visszahajlított részben (111) végződik, amely vissza van hajlítva, ezáltal túlnyúlik az enyhén ívelt részen (109), a tetőablak (1) továbbá lényegében lapos középrész (218), továbbá oldalsó szárnytakaró lemezt (201) és felső toktakaró lemezt (217) tartalmazó burkolatot (201, 217) tartalmaz, és a felső toktakaró lemez (217), valamint az oldalsó szárnytakaró lemez (201) lényegében lapos középrésze (218) az üveg keret profillal (102) együtt labirint tömitést alkotnak, **azzal jellemezve**, hogy az első ív fal (106) és a második ív fal (108) az üveg keret profil (102) L-alakú részének első falával (104) lényegében párhuzamos, az üveg keret profil (102) enyhén ívelt, lényegében lapos részére lényegében merőlegesen kis karima (110) töremkedik ki, a visszahajlított rész (111) legalsó része az üveg keret profil (102) második falának (105) aljával egy vonalban van, és amely labirint tömités az oldalsó szárnytakaró lemez (201) és a felső toktakaró lemez (217) első falának (220) kinyúlásaként, elsődleges fal (262) és másodlagos fal (264) formájában van kialakítva, ezáltal az első fal (220), az elsődleges fal (262) és a másodlagos fal által meghatározott vájat-szerű szerkezet van kialakítva, az említett másodlagos fal (264) a középrésszel lényegében párhuzamos és egy vonalban lévő, lényegében lapos részbe (221) nyúlik bele, és egy általánosan lefelé irányuló peremben (222) végződik, és az említett, labirint tömitést létrehozó vájat-szerű szerkezet alkalmas az első fallal (104) és második fallal (105) rendelkező L-alakú

rész és az üveg keret profil (102) első ív fala (106) által kialakított csatornába történő illeszkedésre, és a tetőablak (1) zárt állapotában a lemezek (201, 217) és az üveg keret profil (102) között lényegében víztesztítő átmenetet hoz létre, és hogy az általánosan lefelé irányuló perem (222) üveg keret profil (102) visszahajlított részénél (111) lévő peremétől távol ér véget.

2. Az 1. igénypont szerinti tetőablak (1), **azzal jellemezve**, hogy az üveg keret profil (102) és a labirint tömítés között tömítő elem van elhelyezve.

3. Az 1. vagy 2. igénypont szerinti tetőablak (1), **azzal jellemezve**, hogy az általánosan lefelé irányuló perem (222) a második ív falnál, vagy annak közelében ér véget.

4. Az 1 - 3. igénypontok bármelyike szerinti tetőablak (1), **azzal jellemezve**, hogy az oldalsó szárnytakaró lemez (201) beszerelt állapotában annak felső végeként kialakított határoló (268) az oldalsó szárnytakaró lemez (201) részét képező meghosszabbítással (281) van ellátva.

5. Az 1 - 4. igénypontok bármelyike szerinti tetőablak (1), **azzal jellemezve**, hogy az oldalsó szárnytakaró lemez (201) beszerelt állapotában annak felső végeként kialakított határoló (268) az oldalsó szárnytakaró lemez (201) felső oldala és egy lesarkítás (234) közötti kialakított bordázott szakasszal van ellátva.

6. Az 1 - 5. igénypontok bármelyike szerinti tetőablak (1), **azzal jellemezve**, hogy a burkolat (201, 217) tetőablakhoz (1) történő rögzítésére szolgáló legalább egy rögzítő eszközt (208, 209) biztosítunk, és a legalább egy rögzítő eszköz a burkolaton (217, 201), illetve a tetőablakon (1) elrendezett, csappantyú záras összekapcsolásra szolgáló dugó részt (208) és aljzat részt (209) tartalmaz