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(54) **A roof window with a mounting bracket**

Dachfenster mit Montageklammer

Fenêtre de toiture avec support de montage

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(56) References cited:
EP-A1- 2 055 859 EP-A2- 2 213 824
WO-A1-88/04348 US-A- 4 920 713
US-B1- 6 446 409 US-B1- 6 629 391

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Description

[0001] The present invention relates to a roof window comprising a window frame of a substantially rectangular outline having four longitudinal frame members, wherein at least one frame member is provided with at least one longitudinal mounting groove extending along the external surface of this member in the neighbourhood of its end, a window sash mounted in the frame, and at least one corner bracket for mounting said window frame to a roof construction.

[0002] Various techniques of mounting roof windows in various roof constructions, in particular in wooden constructions comprising rafters and horizontal battens, are known from the state of art.

[0003] For example a Simpson Strong-Tie® corporation based in UK (<http://www.strongtie.co.uk>) provides Rigid Tie Angle (RTA) bracket for rectangular frame constructions that works as a gusset wrapping around two adjacent perpendicular members of the frame construction. Angle bracket of a similar construction for installing a window in a roof structure is also disclosed in international publication WO 99/35355. This bracket comprises a first leg portion for connection with an associated window frame member and a second leg portion which is essentially perpendicular to the first leg portion and is to be fastened to the roof structure, wherein said first leg portion is formed as two leg sections essentially perpendicular to each other for connection with adjacent frame members at the joint hereof.

[0004] Polish utility model PL 65 207 Y1 (app. no. 117857) discloses a corner bracket having two arms to be fastened to a roof structure, wherein each arm is provided with overpressed projections to be fixed to a mounting groove in a window frame member and perpendicular member to be fastened to an external surface of the window frame member.

[0005] EP 2 055 859 A1 discloses a roof window with mounting brackets arranged on the edges of the window frame. Although the brackets described above improve positioning of the window within the roof construction, there is still a need of providing a roof window having a bracket of a simpler construction, more economical and easier to manufacture which would also require less material to be produced and these issues have been an object of the present invention.

[0006] Another object of the present invention has been to provide a roof window having brackets that would enable for mounting at least two windows in an adjacent manner with their side frame members adjacent to each other and/or would enable for mounting roof windows in narrow clearances provided with insufficient space to employ known mounting brackets.

[0007] In accordance with the invention these objects are accomplished by providing a roof window as defined in claim 1. By manufacturing of the bracket as a single-unit spatial (3D) frame, a product of uniform and compact structure is obtained, which in turn increases the strength

of the bracket and enables manufacturing of the bracket from a raw material with low specific rigidity, e.g. aluminium, with no need of forming drawing beads.

[0008] Preferably the thickness of said corner bracket corresponds substantially to the height of said frame member mounting groove and/or the width of said projection is equal or smaller than the depth of the mounting groove.

[0009] Preferably at least one substantially rectangular projection is coplanar to said second member. In this embodiment substantially rectangular projection may also be connected with the second member.

[0010] Advantageously of said corner bracket comprises more than one rectangular projection, wherein the distances between the projections correspond to the distances between the mounting grooves of the window frame.

[0011] In the preferred embodiment of the bracket the second bracket member is provided with at least one flap to stabilise the position of the window frame.

[0012] The invention is illustrated below with reference to the preferred exemplary embodiments thereof and with reference to the attached drawings on which:

Fig. 1 shows a perspective view of two roof window frames according to the present invention being mounted in a roof construction;

Fig. 2 is an enlarged view of the area A shown in Fig. 1;

Fig. 3 is a cross-sectional view along the line B-B shown in Fig. 1;

Fig. 4 shows an embodiment of the corner mounting bracket according to the present invention respectively in side, top and perspective view;

Fig. 5 shows another embodiment of the corner mounting bracket according to the present invention respectively in side, top and perspective view;

Fig. 6 shows further embodiment of the corner mounting bracket according to the present invention respectively in side and perspective view;

Fig. 7 shows yet another embodiment of the corner mounting bracket according to the present invention respectively in side and perspective view, and

Fig. 8 shows a plane view of a prefabricated metal sheet for manufacturing brackets according to the embodiment shown in Fig. 7.

[0013] Fig. 1 shows a fragment of a typical roof construction 2 on which roof windows are being mounted adjacently to each other. The roof construction 2 comprises of a set of oblique rafters 21 parallel to each other and a set of horizontal battens 22, 23 parallel to each other and perpendicular to the rafters 21. Rafters 21 are fixedly connected with battens in a typical manner e.g. by means of nails or woodscrews. Each window frame 1 is of a rectangular outline and comprises two side members 11, 12 extending parallel to the rafters 21 and two horizontal members 13, 14 extending parallel to the bat-

tens 22, 23. Each window frame member 11-14 is provided with two mounting grooves 15, each extending circumferentially along the external surface of the window frame 1. Two sets of the mounting grooves 15 enable to differentiate the position of the frame within the roof construction along the normal axis perpendicular to the plane defined by the frame members.

[0014] Each window frame 1 is mounted by means of four corner mounting brackets 3 fixed to the battens 23. In this embodiment each roof window comprises two "left" brackets (bottom left and top right corners of the frame 1 shown in Fig. 1) and two symmetrical "right" brackets (bottom right and top left corners of the frame 1 shown in Fig. 1). The brackets 3 enable to mount roof window frames 1 in an adjacent manner with their side members 11, 12 almost in contact with each other thus enabling for forming continuous panels of adjacent roof windows.

[0015] As shown in Fig. 2, the bracket 3 is a single-element metal shape of substantially the same thickness and comprises a flat first member 31 connected to the external surface of the window frame 1 side member 11 and a flat second member 32, perpendicular to said first member 31, and connected to the battens 23 of the roof construction 2. Bracket members 31, 32 are fastened respectively to the roof construction 2 and to the frame member 11 by means of screws 16 passing through openings 311, 321. The second bracket member 32 is also provided with two punched rectangular flaps 322.

[0016] As shown in Fig. 3 the flaps 322 define the clearance between the frame members 14 and the battens 23 and stabilise the position of the window frame 1 prior screwing the brackets to the battens 23.

[0017] Additional stabilization is provided by the thickness (t) of the bracket 3 that substantially corresponds to the height (h) of the mounting groove 15.

[0018] Fig. 4 shows details of the "right" bracket of Figs. 1-3. The first member 31 comprises a main part 313 and a linking part 312. The main part 313 is of a substantially rectangular shape with rounded corners while the linking part 312 comprises rectangular section 3121 having constant height and a section 3122 with a height increasing arcuately toward the main part 313 starting from a height of the section 3121 to a height of the main part 313. The second bracket member 32 extends perpendicularly from the linking part 312 of the first bracket member 31 over the whole length of this edge. The second bracket member 32 is also of a rectangular shape with rounded corners.

[0019] As shown in Fig. 4a and Fig. 4c the main part 313 is provided with a longitudinal, rectangular projection 3131 formed in a central section of the bottom edge of the main part 313 and bent off perpendicularly relative to the surface of the main part 313 in the direction of and coplanarly relative to the second member 32. The width (w) of the projection 3131 is slightly smaller than the depth (d) of the mounting groove 15 (cf. Fig. 3).

[0020] Alternative and non-limiting embodiments of a corner mounting bracket according to the present inven-

tion are discussed below with reference to Figs. 5-8. If not indicated otherwise, numerical references of elements performing the same functions remain the same as in Figs. 1-4, wherein suffixes (a-c) were added, where appropriate, to distinct elements of the same functionality but having a different construction.

[0021] Fig. 5 depicts an embodiment of the corner mounting bracket 3a according to the present invention, which comprises an additional projection 3132a located below the bottom surface of the second member 32, however, similarly as in embodiment of Fig. 4, this projection is bent off perpendicularly relative to the surface of the first member main part 313a and in the direction of the second member 32. The second projection 3131a is formed here as a longitudinal rectangular flap punched in the central section of the surface of the main part 313a of the first member 31a and perpendicularly bent off from the surface in the direction of and coplanarly relative to the bracket second member 32. As shown the bottom-most edge of the main part 313a of the first member 31 is located below the bottom surface of the additional projection 3132a. The distance (d) between projection 3131a and 3132a corresponds to the distance (s) between adjacent mounting grooves 15 of each window frame member 11-14.

[0022] The linking part 312a of the first member 31a extends over the whole length of an edge of the second member 32 and comprises two sections 3121a, 3123a having constant but different heights, wherein the upper edge of the section 3123a is collinear with the upper edge of the main part 313a, and an inner section 3122a arcuately linking sections 3121a and 3123a.

[0023] Another embodiment of the bracket according to the present invention, shown in Fig. 6 comprises the linking part 312b that extends on about 70% of a length of an edge of the second member 32b and comprises a section 3121b of a constant height and a section 3122b with a height increasing linearly toward a main part 313b of the first member 31b. The main part 313b is provided with only one projection 3131b formed as a longitudinal rectangular flap punched in the surface of the main part 313b of the first member 31b and perpendicularly bent off from the surface in the direction of and coplanarly relative to the bracket second member 32b. Also the second member 32b has only one centrally positioned punched flap 322b.

[0024] Production of the corner mounting brackets according to the present invention may in a simple implementation comprise only two stages: in the first stage a prefabricated sheet defining outlines of the first and second bracket members is cut out from a metal sheet, and in the second stage such a prefabricated sheet is folded along a line separating first and second members to provide its perpendicular relationship relative to the second member. Obviously the line of fold may be additionally grooved in the first stage of the production process.

[0025] Fig. 7 shows an embodiment of the bracket 3c having the shape that has been optimised with respect

to byproduct minimization during the above described manufacturing process.

[0026] The optimisation has been obtained by appropriate construction of the main part 313c of the first member 31c. A projection 3131c protrudes perpendicularly relative to the first member 31c and coplanarly relative to the second member 32c over the whole length of the bottom edge of the main part 313c. The projection 3131c has perpendicular shape and joins with the second member 32c.

[0027] As shown in Fig. 8 part of the shape of the bottom edge of the main part 313c combined with the shape of the end part of the projection 3131c substantially matches the shape of the upper edge of the linking part 312c. Such a structure enables to distribute flat prefabricates 3c' for producing brackets 3c in an adjacent manner within a rectangular sheet of metal 41.

[0028] The above embodiments of the present invention are merely exemplary. The figures are not necessarily to scale, and some features may be exaggerated or minimized. These and other factors however should not be considered as limiting the spirit of the invention, the intended scope of protection of which is indicated in appended claims.

Claims

1. A roof window comprising a window frame of a substantially rectangular outline having four longitudinal frame members (11-14), wherein at least one frame member is provided with at least one longitudinal mounting groove (15) extending along the external surface of this member in the neighbourhood of its end, a window sash mounted in the frame, and at least one corner bracket (3) for mounting said window frame to a roof construction (2), wherein said corner bracket (3) has a form of a single-element metal shape of substantially the same thickness and comprises a substantially flat first bracket member (31, 31a, 31b, 31c) fastened to the window frame and a substantially flat second bracket member (32, 32b, 32c), perpendicular to said flat first bracket member (31, 31a, 31b, 31c), adapted to be fastened to the roof construction (2), wherein said flat first bracket member (31, 31a, 31b, 31c) comprises a main part (313, 313a, 313b, 313c) fastened to the window frame member and a linking part (312, 312a, 312b, 312c) extending coplanarly from the main part (313, 313a, 313b, 313c) outside of the periphery of the window frame and having, at least partially, a height smaller than a height of the main part (313, 313a, 313b, 313c), wherein said flat second bracket member (32, 32b, 32c) extends perpendicularly from said linking part (312, 312a, 312b, 312c) of said flat first bracket member (31, 31a, 31b, 31c), wherein said main part (313, 313a, 313b, 313c) of said flat first bracket member (31, 31a, 31b, 31c) is provided with at least one substantially rectangular projection (3131, 3132) protruding parallelly to and in at the same direction as said flat second bracket member (32, 32b, 32c) adapted to be fastened to said roof construction (2) and being inserted into said at least one longitudinal mounting groove (15) of said window frame member (11-14), **characterized in that** the linking part (312b) extends about 70% of a length of an edge of said flat second bracket member (32b) and comprises a section (3121b) of a constant height and a section (3122b) with a height increasing linearly toward said main part (313b) of said flat first bracket member (31b), or wherein said flat second bracket member (32, 32c) extends perpendicularly from said linking part (312, 312a, 312c) of said flat first bracket member (31, 31a, 31c) along an edge thereof and over the whole length of said edge, wherein said linking part (312) either comprises a rectangular section (3121) having constant height and a section (3122) with a height increasing arcuately toward the main part (313), starting from a height of the rectangular section (3121) to a height of said main part (313, 313a, 313b, 313c), or wherein said linking part (312a) comprises two sections (3121a, 3123a) having constant but different heights, an upper edge of one of these sections (3123a) being collinear with the upper edge of the main part (313a), with an inner section (3122a) arcuately linking said two sections (3121a, 3123a).
2. The roof window according to claim 1, **characterised in that** the thickness (t) of said corner bracket (3) substantially corresponds to the height (h) of said frame member mounting groove (15).
3. The roof window according to claim 1 or 2, **characterised in that** the width (w) of said projection (3131, 3132) of said corner bracket (3) is equal or smaller than the depth (d) of the mounting groove (15).
4. The roof window according to claim 1, **characterised in that** said at least one substantially rectangular projection (3131) of said corner bracket (3) is coplanar to said flat second bracket member (32, 32a, 32b, 32c).
5. The roof window according to claim 4, **characterised in that** said substantially rectangular projection (3131c) of said corner bracket (3c) is connected with the flat second bracket member (32c).
6. The roof window according to any one of the preceding claims **characterised in that** said corner bracket (3) comprises more than one rectangular projection (3131, 3132), wherein the distances between the projections (3131, 3132) correspond to the distances between the mounting grooves (15) of the window frame (1).

7. The roof window according to any one of the preceding claims **characterised in that** the flat second bracket member (32, 32a, 32b, 32c) is provided with at least one flap (322).

Patentansprüche

1. Dachfenster bestehend aus einem grundsätzlich rechteckigen Fensterrahmen, enthaltend vier Längselemente des Fensterrahmens (11-14), wobei mindestens ein Fensterrahmenelement mindestens ein Montageloch (15) entlang der Außenfläche des Elementes in der Nähe dessen Ende verläuft, einen am Fensterrahmen montierten Fensterflügel sowie mindestens einen Winkelträger (3) zur Befestigung des Fensterrahmens an der Dachkonstruktion (2) hat, wobei der Eckträger (3) die Form eines Metallelementes mit einer grundsätzlich gleichen Stärke hat und grundsätzlich ein flaches am Fensterrahmen befestigtes Stützelement des ersten Typs (31, 31a, 31b, 31c) aufweist sowie grundsätzlich ein flaches am Fensterrahmen befestigtes Stützelement des zweiten Typs (32, 32b, 32c) aufweist, das zum ersten Stützelement (31, 31a, 31b, 31c) senkrecht liegt und zur Befestigung an der Dachkonstruktion (2) geeignet ist, wobei das erste Stützelement (31, 31a, 31b, 31c) einen Hauptteil (313, 313a, 313b, 313c) aufweist, der am Fensterrahmenelement befestigt ist sowie einen Verbindungsteil (312, 312a, 312b, 312c) aufweist, der sich vom Hauptteil (313, 313a, 313b, 313c) über die Fensterrahmenränder komplanar erstreckt und dessen Höhe mindestens teilweise kleiner als Höhe des Hauptteiles (313, 313a, 313b, 313c) ist, das zweite flache Stützelement (32; 32b; 32c) erstreckt sich dagegen senkrecht vom Verbindungsteil (312, 312a, 312b, 312c) des flachen Stützelementes des ersten Typs (31, 31a, 31b, 31c), und der Hauptteil (313, 313a, 313b, 313c) des flachen Stützelementes des ersten Typs (31, 31a, 31b, 31c) weist mindestens einen grundsätzlich rechteckigen Vorsprung (3131, 3132) auf, der zum ersten Stützelement parallel und in dieselbe Richtung (32, 32b, 32c) hinausragt und zur Befestigung an der Dachkonstruktion (2) geeignet und in mindestens ein längliches Montageloch (15) am Fensterrahmen (11-14) eingesteckt ist, **dadurch gekennzeichnet, dass** der Verbindungsteil (312b) zu ca. 70% der Länge des Randes des flachen zweiten Stützelementes (32b) hinausragt und ein Segment (3121b) mit einer konstanten Höhe und ein Segment (3122b) mit einer linear in Richtung des Hauptteiles (313b) am flachen Stützelement des ersten Typs (31b) steigenden Höhe aufweist bzw. dass sich ein flaches Stützelement des zweiten Typs (32; 32c) vom Verbindungsteil (312, 312a, 312c) des flachen Stützelementes des ersten Typs (31, 31a, 31c) entlang dessen Randes und auf der gesamten Länge dieses Randes er-

streckt, der Verbindungsteil (312) weist dagegen ein rechteckiges Segment (3121) mit einer konstanten Höhe und ein Segment (3122) mit einer bogenartig in Richtung des Hauptteiles (313) steigenden Höhe auf, beginnend von der Höhe des rechteckigen Elementes (3121) bis zur Höhe des Hauptteiles (313, 313a, 313b, 313c) bzw. der Verbindungsteil (312a) weist zwei Segmente (3121a, 3123a) mit einer konstanten oder unterschiedlichen Höhe, wobei der obere Rand dieser Segmente (3123a) mit dem oberen Rand des Hauptteiles (313a) in einer Flucht liegt, das innere Segment (3122a) verbindet dagegen zwei Segmente (3121a, 3123a) bogenartig.

2. Dachfenster nach Anspruch 1 **dadurch gekennzeichnet, dass** die Stärke (t) des Eckträgers (3) grundsätzlich der Höhe (h) des Montageloches am Fensterrahmenelement (15) entspricht.
3. Dachfenster nach Anspruch 1 bzw. 2 **dadurch gekennzeichnet, dass**, die Breite (w) des Vorsprungs (3131, 3132) des Eckträgers (3) gleich bzw. kleiner als Tiefe (d) des Montageloches (15) ist.
4. Dachfenster nach Anspruch 1 **dadurch gekennzeichnet, dass** sich mindestens ein grundsätzlich rechteckiger Vorsprung (3131) des Winkelträgers (3) mit dem fachen Stützelement des zweiten Typs (32, 32a, 32b, 32c) in einer Flucht liegt.
5. Dachfenster nach Anspruch 4 **dadurch gekennzeichnet, dass** ein grundsätzlich rechteckiger Vorsprung (3131c) des Eckträgers (3c) mit dem flachen Stützelement des zweiten Typs (32c) verbunden ist.
6. Dachfenster nach einem der vorhergehenden Ansprüche **dadurch gekennzeichnet, dass** der Eckträger (3) mehr als einen rechteckigen Vorsprung (3131, 3132) aufweist, wobei Abstände zwischen den Vorsprüngen (3131, 3132) einem Abstand zwischen den Befestigungslöchern (15) des Fensterrahmens (1) entsprechen.
7. Dachfenster nach einem der vorhergehenden Ansprüche **dadurch gekennzeichnet, dass** das flache Stützelement des zweiten Typs (32, 32a, 32b, 32c) mindestens eine Klappe (322) aufweist.

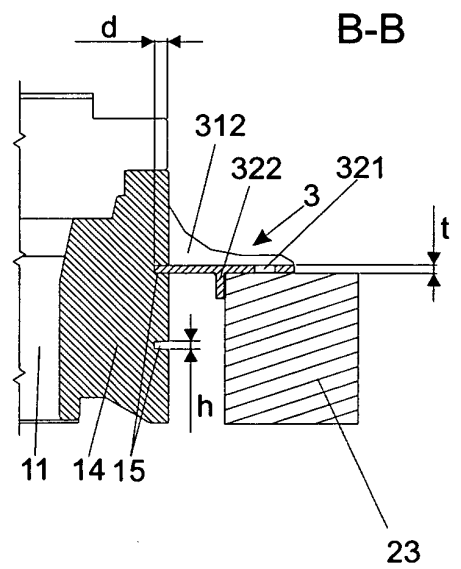
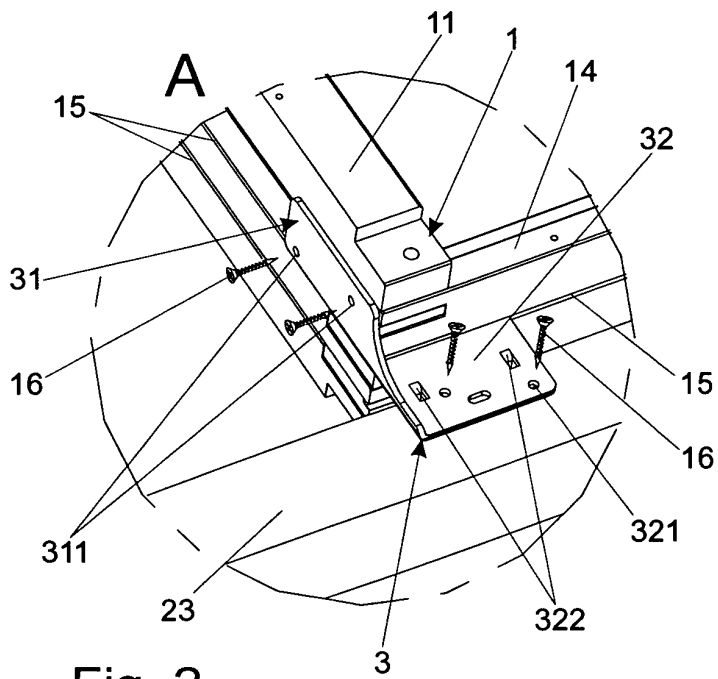
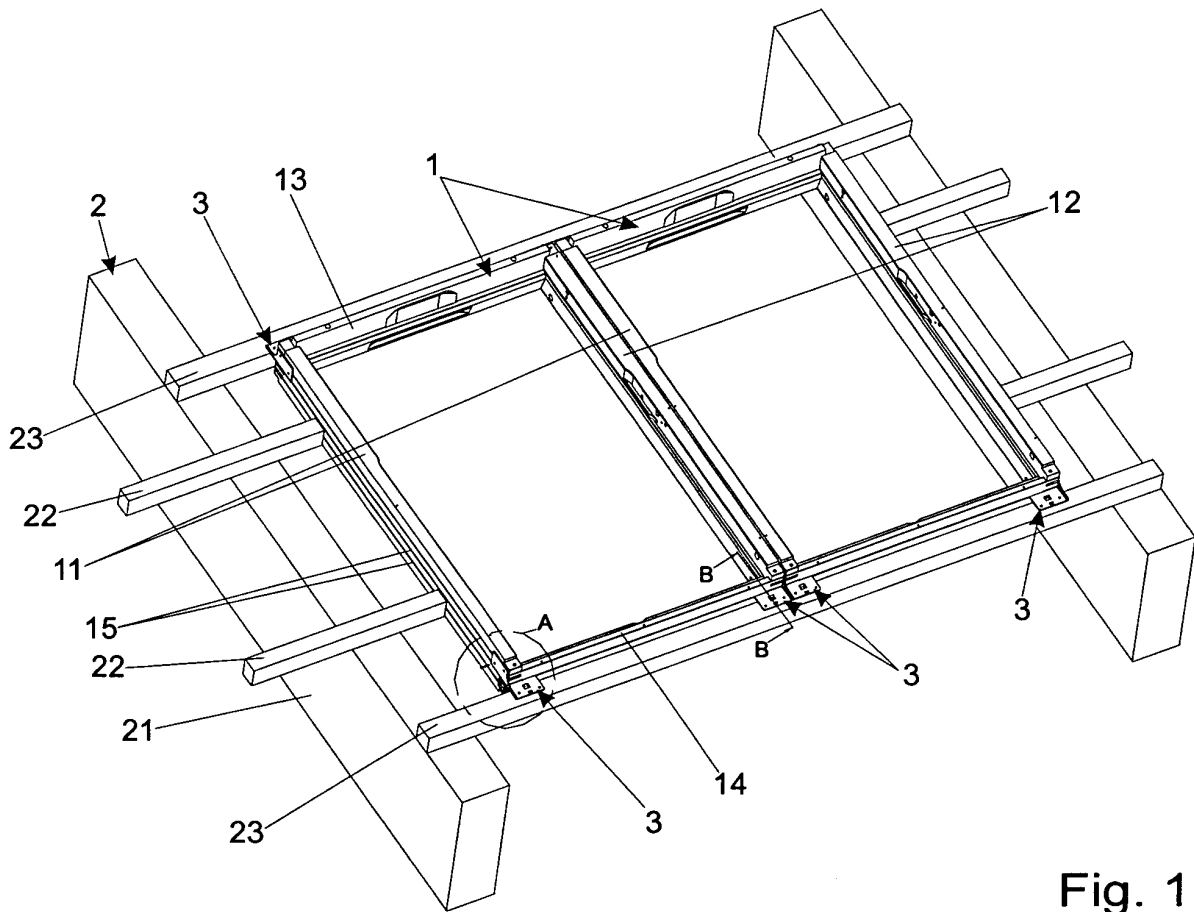
Revendications

1. Une fenêtre de toit comprenant un cadre de fenêtre d'un contour sensiblement rectangulaire comportant quatre éléments de cadre longitudinaux (11-14), dans lequel au moins un élément de cadre est pourvu d'au moins une rainure de montage longitudinale (15) s'étendant le long de la surface externe de cette dans le voisinage de son extrémité, un volet de fe-

nêtre monté dans le cadre et au moins un support de coin (3) pour monter ledit cadre de fenêtre sur une construction de toit (2), dans lequel ledit support d'angle (3) a une forme de forme métallique à élément unique sensiblement de même épaisseur et comprend un premier élément de support sensiblement plat (31, 31a, 31b, 31c) fixé au cadre de fenêtre et un deuxième élément de support sensiblement plat (32, 32b, 32c) perpendiculaire audit premier élément de support plat (31, 31a, 31b, 31c), adapté pour être fixé à la construction de toit (2), dans lequel ledit premier élément de support plat (31a, 31b, 31c) comprend une partie principale (313, 313a, 313b, 313c) fixée au cadre de fenêtre et une partie de liaison (312, 312a, 312b, 312c) s'étendant coplanairement à partir de la partie principale (313, 313a, 313b, 313c) à l'extérieur de la périphérie du cadre de fenêtre et ayant au moins en partie une hauteur inférieure à une hauteur de la partie principale (313, 313a, 313b, 313c), dans lequel ladite seconde plate l'élément de support (32, 32b, 32c) s'étend perpendiculairement à partir de ladite partie de liaison (312, 312a, 312b, 312c) dudit dit élément de liaison premier élément de support plat (31, 31a, 31b, 31c), dans lequel ladite partie principale (313, 313a, 313b, 313c) dudit premier support plat Membre (31, 31a, 31b, 31c) est pourvu d'au moins une saillie sensiblement rectangulaire (3131, 3132) faisant saillie parallèlement à et dans la même direction que ledit plat deuxième élément de support (32, 32b, 32c) adapté pour être fixé à ladite construction de toit (2) et être inséré dans ladite au moins une rainure de montage longitudinale (15) dudit élément de châssis de fenêtre (11 à 14), **caractérisé en ce que** la partie de liaison (312b) s'étend d'environ 70% d'une longueur d'un bord dudit second élément de support plat (32b) et comprend une section (3121b) d'une hauteur constante et une section (3122b) avec une hauteur augmentant linéairement vers ladite partie principale (313b) dudit premier élément de support plat (31b), ou dans lequel ledit second élément de support plat (32, 32c) s'étend perpendiculairement à partir de ladite partie de liaison (312, 312a, 312c) dudit premier élément de support plat (31, 31a, 31c) le long d'un bord de celui-ci et sur toute la longueur dudit bord, dans lequel ladite partie de liaison (312) comprend soit une section rectangulaire (3121) ayant une hauteur constante et une section (3122) avec une hauteur de plus en plus courante vers la partie principale (313), à partir d'une hauteur de la section rectangulaire (3121) à une hauteur de ladite partie principale (313, 313a, 313b, 313c), ou dans lequel ladite partie de liaison (312a) comprend deux sections (3121a, 3123a) ayant des hauteurs constantes mais diffé-

rentes, un bord supérieur de l'une de ces sections (3123a) étant colinéaire avec le bord supérieur de la partie principale (313a), avec une section interne (3122a) reliant de manière arquée lesdites deux sections (3121a, 3123a).

2. La fenêtre de toit selon la revendication 1, **caractérisée en ce que** l'épaisseur (t) dudit support de coin (3) correspond sensiblement à la hauteur (h) de ladite rainure de montage d'élément de cadre (15).
3. La fenêtre de toiture selon la revendication 1 ou 2, **caractérisée en ce que** la largeur (w) de ladite saillie (3131, 3132) dudit support d'angle (3) est égale ou inférieure à la profondeur (d) de la rainure de montage (15).
4. La fenêtre de toit selon la revendication 1, **caractérisée en ce que** ladite au moins une saillie sensiblement rectangulaire (3131) dudit support de coin (3) est coplanaire audit second élément de support plat (32, 32a, 32b, 32c).
5. La fenêtre de toit selon la revendication 4, **caractérisée en ce que** ladite saillie sensiblement rectangulaire (3131c) dudit support de coin (3c) est reliée au deuxième élément de support plat (32c).
6. La fenêtre de toit selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ledit support d'angle (3) comprend plus d'une projection rectangulaire (3131, 3132), dans lequel les distances entre les saillies (3131, 3132) correspondent aux distances entre les rainures de montage (15) du cadre de fenêtre (1).
7. La fenêtre de toit selon l'une quelconque des revendications précédentes, **caractérisée en ce que** le deuxième élément de support plat (32, 32a, 32b, 32c) est pourvu d'au moins un volet (322).



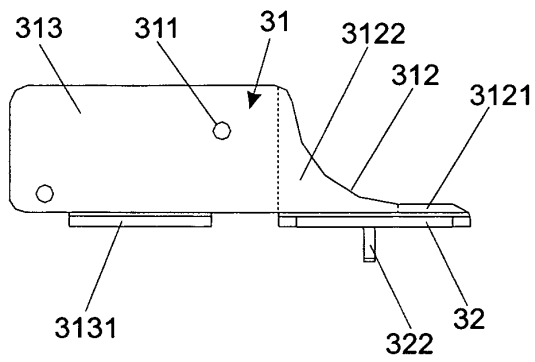


Fig. 4a

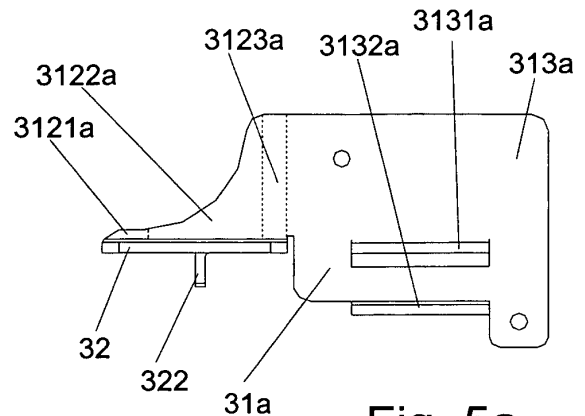


Fig. 5a

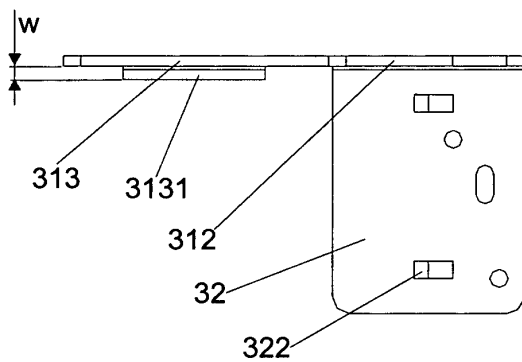


Fig. 4b

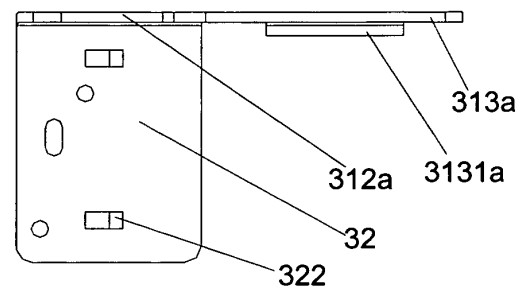


Fig. 5b

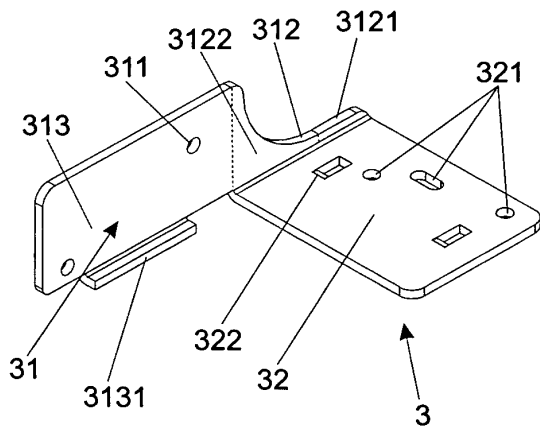


Fig. 4c

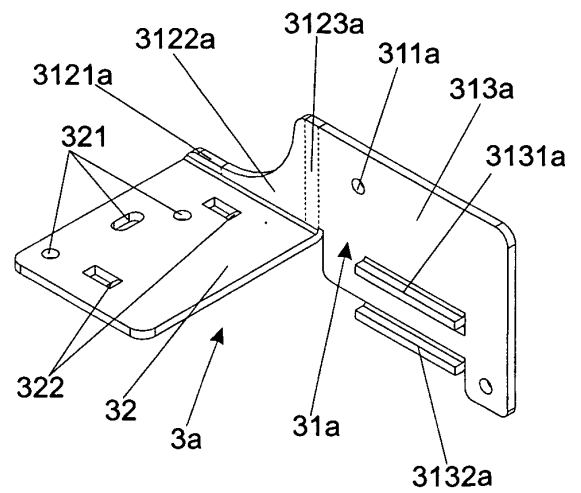
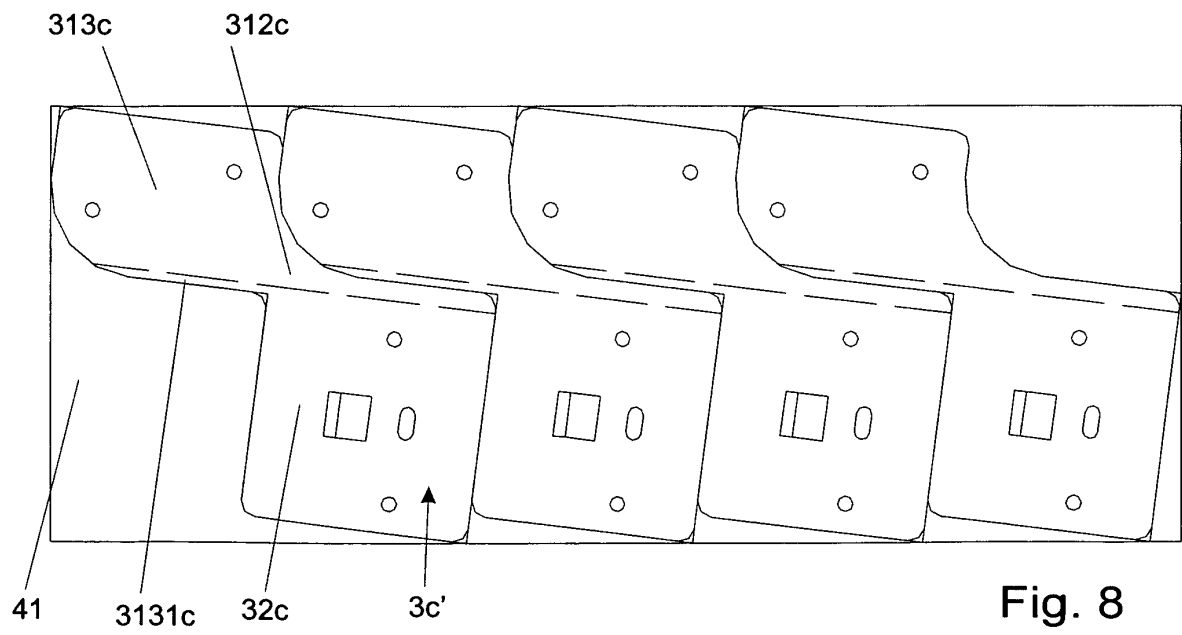
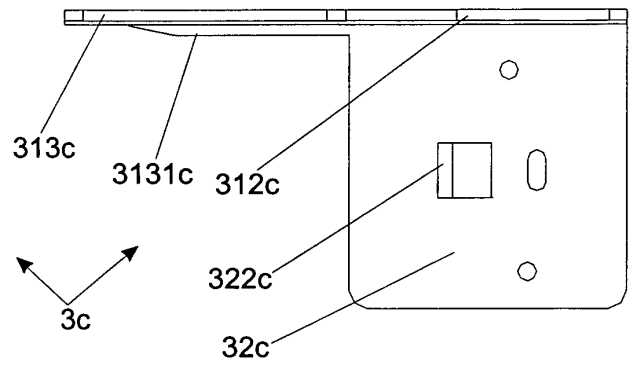
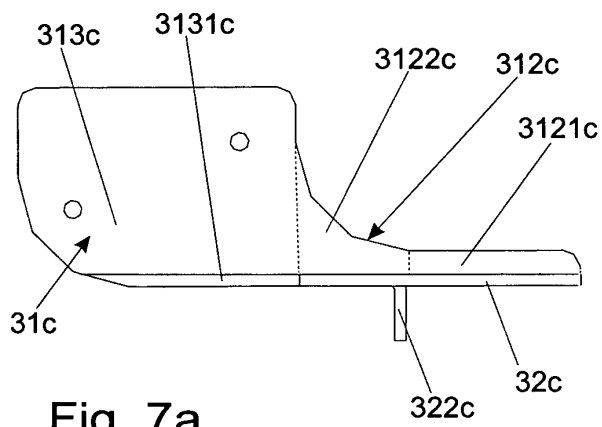
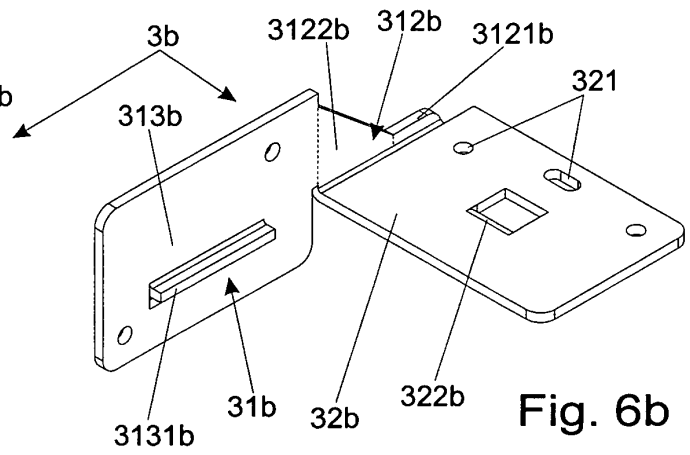
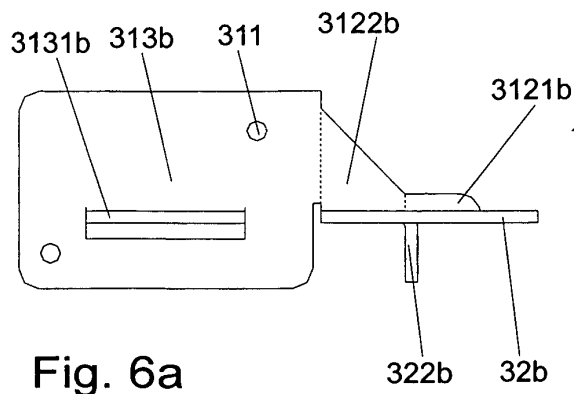


Fig. 5c



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 9935355 A [0003]
- PL 65207 Y1 [0004]
- EP 2055859 A1 [0005]