

(19)



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(11)

EP 1 122 393 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
26.04.2006 Bulletin 2006/17

(51) Int Cl.:
E06B 3/30 (2006.01) **E06B 3/263** (2006.01)

(21) Application number: **01200281.2**

(22) Date of filing: **29.01.2001**

(54) **Structure for wing and/or frame of a window frame**

Blend- und/oder Flügelrahmen für Fenster
Cadre de battant et/ou dormant pour fenêtres

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**
Designated Extension States:
LT LV SI

(30) Priority: **04.02.2000 IT MI200181**

(43) Date of publication of application:
08.08.2001 Bulletin 2001/32

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Description

[0001] The present invention refers to a structure for wing and/or frame of a window frame.

[0002] As is known, a window frame is an element designed to close an aperture of an external shell (walls or roof) or of internal partition walls of a building. Below, the term window frame will be used with particular reference to elements of the first type, i.e. designed to close the apertures of the external shell of buildings, of the type made of metal, usually aluminium, even though the inventive concepts that will be illustrated naturally apply to all window frames.

[0003] In order to highlight the technical problems connected with window frames, figures 1 and 2 show two typical examples of conventional window frames 11, built using known technology.

[0004] The window frames 11 comprise a frame 12, integral with a wall 14, to which a wing 18 provided with glazed surface 20 is hinged in 16.

[0005] The frame 12 consists of two distinct portions.

[0006] An internal portion 22, made of metal, is fixed to the wall 14 by means of rawl plugs 24. The portion 22 is provided with seats 26 in which first ends of bars 28, in insulating material, are fixed.

[0007] Second ends of the bars 28 are inserted in seats 30 of an outer portion 32 of the frame 12, also made of metal.

[0008] The internal portion 22 and the external portion 32 of the frame 12 are made of aluminium, while the bars 28 are usually made of plastic.

[0009] The structure of the wing 18 is the same as that of the frame 12.

[0010] In fact, the wing 18 comprises an internal portion 34 in aluminium connected via plastic bars 36 to an external portion 38 of the same wing 18, again made of aluminium. The function of the bars 28, 36 is to obstruct heat transmission, therefore acting as a thermal barrier.

[0011] Notoriously, window frames of the type described are difficult to machine and, above all, to assemble. For example, the thermal barrier bars 28, 36 have to be inserted between the respective profiles. For this purpose expensive assembly machines are necessary that also limit the composition versatility of the frame profiles.

[0012] CH330031 refers to a cooling-bridge interruption and prevention of the condensation on a light alloy window framework through plastic strips with spring-actuated lock attached to the same.

[0013] GB-A-2106579 refers to a frame member comprising a metal element having a thermal insulating covering, including an outer rigid shell defining an interior cavity into which has been extruded a foamed plastic material. The frame member and the covering have longitudinally extending formation which secure the covering and the metal element one to another.

[0014] The object of the present invention is, therefore, to eliminate the above technical problems by producing

a structure for wing and/or frame of a window frame that can be machined and assembled with extreme simplicity.

[0015] In particular the structure according to the invention does not require expensive assembly machines to join one internal portion of the frame or wing to an external portion.

[0016] Another object of the invention is to produce a window frame structure that is extremely sturdy and, at the same time, very lightweight.

[0017] A further object of the invention is to produce a window frame structure that permits considerable versatility of composition of the frame or wing profiles.

[0018] These and other purposes, according to the present invention, are achieved by producing a structure for wing and/or frame of a window frame, according to claims 1, 9, 10 and 11.

[0019] Other characteristics of the present invention are defined, furthermore, in the dependent claims.

[0020] Advantageously, the structure of a window frame, according to the invention, permits decorative motifs to be stamped on the frame and on the wing simply and cheaply and, in particular, it is possible to produce window frames in two colours. Moreover, it is also possible to provide ventilation of the glass and create water drains not exposed to view without the insertion of weatherproof guards.

[0021] Further characteristics and advantages of a structure for an external window frame, according to the present invention, will become more evident from the following description, which is intended as a non-restrictive example, referring to the attached schematic drawings in which:

- Figures 1 and 2 show schematic plan sections of a conventional window frame;
- Figure 3 shows a schematic plan section of a window frame according to the invention with joint open;
- Figure 4 shows a schematic plan section of a window frame according to the invention with sealing functions performed only by abutment seals;
- Figure 5 shows a frame positioned inside the opening of the window frame according to the invention, also shown in figures 3 and 4;
- Figure 6 shows an external ledge frame of the window frame according to the invention;
- Figure 7 shows an internal ledge frame of the window frame according to the invention;
- Figure 8 shows a chair-shaped frame of the window frame according to the invention;
- Figure 9 shows a wing for seal system with open joint seal;
- Figure 10 shows a wing for seal system with abutment seal, also shown in figure 4;
- Figure 11 shows a profile for flat central panel point;
- Figure 12 shows an assembly phase of a thermal insulation joint element on a wing and/or frame profile; and
- Figure 13 shows an assembly phase of an external

wing on an internal wing.

[0022] With reference to the figures mentioned, a structure for wing and/or frame of a window frame is shown, indicated overall by reference number 51.

[0023] The structure 51 comprises a first frame profile 52 with tubular structure. A first wing profile 56 is hinged to the first frame profile 52 by means of hinges 54 fixed to its first wall.

[0024] Corresponding to a second wall adjacent to the first wall, the first frame profile 52 is provided with a pair of appendixes that form seats 58 in which rawl plugs 60 are locked. The rawl plugs 60 are in their turn fixed, by means of screws, to a wall 62.

[0025] A square appendix 64 extends from a third wall, opposite the first one fitted with the hinges 54. The appendix 64 has a first portion integral with the first frame profile 52 and provided with a relief element 66 while a second portion of the appendix 64 is bent square in order not to interfere with the seats 58. A plain connector is provided between the first and second portion of the appendix 64.

[0026] A terminal portion not in line with said second portion in order to further ensure that it does not interfere with the first frame profile 52 is integral with the second portion of the appendix 64. A notch 68 is also positioned corresponding to the end portion, and the free end of the appendix 64 is rounded.

[0027] The appendix 64 is necessary to fit a second frame profile 70, also with the help of another square appendix 72, which extends from a corner positioned between the second and third wall of the first frame profile 52.

[0028] The second frame profile 70 features a tubular structure that forms one or more air chambers 74.

[0029] One end of the second frame profile 70 protrudes and contains a rounded groove 76 in which the rounded free end of the appendix 64 is inserted as a guide element.

[0030] Corresponding to said protruding end a groove 77 is also provided, which can be used as a seal seat.

[0031] From the other end of the second frame profile 70 a flat element 78 protrudes with free end enlarged and blocked against the protruding element 66, as engaged elements. A further two flat elements 80, 82 extend from the flat element 78.

[0032] The element 80 is fixed corresponding to the free end of the element 78 and has a back portion abutting on the appendix 72.

[0033] The appendix 82, on the other hand, blocks a seal 84 also with the help of a protruding edge 86 of the second frame profile 70.

[0034] A thermal insulating element 88, basically U-shaped, is positioned on the other side of the appendix 64.

[0035] A first end of the element 88 extends well beyond the second end. Said first end is provided with a relief element inserted inside the notch 68.

[0036] A second end of the element 88 is also provided with a relief element which engages with a square appendix 90, which extends from a corner located between the third wall and a fourth wall of the first frame profile 52. An end portion of the second end of the element 88 is bent in order to form a support for a seal element 92.

[0037] It should be noted that another important function of the element 88 is to act as a block for profile 70 (or for profile 104 which will be illustrated in further detail below), preventing them coming out of their installation position by means of reciprocal contact of parts 180 and 181.

[0038] The first wing profile 56, which is fixed to the hinge 54, features a rectangular-shaped tubular structure.

[0039] A portion 94 fitted at the end with a seal 96 abutting on the first frame profile 52 extends from a corner between a first wall facing the inside of an area limited by the window frame and a second wall facing the first frame profile 52.

[0040] A third wall, opposite the first one, is fitted with an appendix 98 identical to the appendix 64 of the first frame profile 52 and therefore the details of this appendix are indicated with the same numbers as those already used for appendix 64. From the two corners forming said third wall, two appendixes 100, 102 extend which provide for support of a second wing profile 104 and a reinforcement element the same as element 88 and not shown for the sake of simplicity.

[0041] The second wing profile 104, made of plastic, is similar to the second frame profile 70 and some numbers are therefore repeated for the sake of simplicity.

[0042] In fact, the second wing profile 104 features a tubular structure forming air chambers 106 inside. Furthermore, a portion with groove 76 that locks on the end section of appendix 98, as an engaged element, protrudes from the second wing profile 104. Said protruding portion is fitted with a seal 108 which locks on a glass panel or other element 110 supported by the first wing profile 56.

[0043] On the other side, the second wing profile 104 features a flat element 112 locked on the relief element 66 of the first wing profile 56, like engaged elements, as already indicated for the second frame profile 70. Furthermore, a flat element 114 that protrudes from the element 112 abuts on the seal 92. From the flat element 112, an element 116 extends which, when the wing is closed, is facing but not in contact with the second frame profile 70.

[0044] A fourth wall, adjacent to the first and third, is fitted with the hooking elements 118 to which a profile 120, fitted at its end with a seal 122 positioned against element 110, can be coupled.

[0045] In preferred embodiments, the first frame profile 52 and the first wing profile 56 are both made of aluminium, which guarantees sturdiness and at the same time lightness. The first frame profile 70 and the second wing profile 104, on the other hand, are made of insulating

material such as PVC, polypropylene, polyurethane or other, to ensure heat insulation with easy machining.

[0046] A second embodiment of the window frame structure, according to the present invention, is shown in figure 4, where identical or similar elements are indicated with the same numbers as those of the first embodiment described above.

[0047] In said embodiment the first frame profile 52, the second frame profile 70 and the first wing profile 56 are the same as those already described, while the second wing profile 104 differs from the one of the first embodiment shown in figure 3 and is identical to the second frame profile 70.

[0048] A seal 124 is locked inside the groove 77 of the second frame profile 70. When the wing is closed, the seal abuts against the appendix 82 of the second wing profile 104 and guarantees the window frame seal.

[0049] Figures 5 to 8 show details of the frames of the structure according to the invention where elements identical or similar to those already described are indicated by the same or similar numbers.

[0050] Figure 5 shows a frame positioned inside the opening of the window frame which is the one already described in figures 3 and 4.

[0051] Figure 6 shows an example of external ledge frame. In this case the first frame profile 52 is identical to the one of figure 5 while the second frame profile features a portion identical to the second frame profile of figure 5 and a further portion that makes its external profile symmetrical with a central axis (not shown).

[0052] Figure 7 shows an example of internal ledge frame. In this case the first frame profile is similar to the frame of figure 5 but features an elongated portion 126 which extends in the opposite direction from the appendix 64 and is provided with a seat 128 for a seal. The second frame profile 70, on the other hand, is identical to the one shown in figure 5.

[0053] Figure 8 shows an example of chair-shaped frame. In this case the first frame profile 52 is identical to the one shown in figure 7 while the second frame profile 70 is identical to the one shown in figure 6.

[0054] Figures 9 and 10 show some details of the wings of the structure according to the invention, indicating, with identical or similar numbers, elements identical or similar to the ones already described.

[0055] Figure 9 shows a wing for seal system with open joint seal. Said wing is identical to the one shown in figure 3.

[0056] Figure 10 shows a wing for a seal system with abutment seal. Said wing is identical to the one shown in figure 4.

[0057] Figure 11, on the other hand, shows a profile for flat central panel point. This features a structure identical to that of the frame or wing already described and comprises an internal element 130 in aluminium and an external element in plastic 132.

[0058] The internal element 130 has a tubular structure and features at one end an element 134 shaped similarly

to the appendix 98 so that the external element 132 can be locked on it. In practice the element 134 features a free portion 136 identical to that of the appendix 98, the latter being extended with a square element 138 fitted with a protruding element 140. Furthermore, one end of a further element that forms, together with portion 136 itself, a profile the same as that of appendix 98, is fixed to the free portion 136.

[0059] The element 132, in its turn, features a structure similar to that of the second frame profile, shown in figure 6. In particular the element 132 has a tubular structure with a portion protruding at one end provided with a seat 142 identical to seat 77.

[0060] The other end is also protruding and features an abutment element 144. A further flat element 146 with enlarged end hooked in the protruding element 140 is fixed on the external element 132.

[0061] Assembly of the second frame profile 70 on the first frame profile 52 and of the second wing profile 104 on the first wing profile 56 is very simple and quick and is performed basically as follows.

[0062] The second frame profile 70 is rested on the appendix 64 and snap-locked onto the latter. In the same way the second wing profile 104 is rested on the appendix 98 and snap-locked onto the latter.

[0063] When present, the thermal insulation elements 88 are locked in the same way.

[0064] It should be noted that the locking and thermal barrier functions of the profiles 70 and 104 are also ensured by hooking of the end portion of the flat element 78 with the relief element 66 and by contact of the flat element 80 (p 114) with the flat element 100.

[0065] Figures 12 and 13 show, for example, insertion of the thermal insulation element 88 and the second wing profile 104 on the first wing profile 56, referring to the wing in the first embodiment described.

[0066] In figure 12 the element 88 is inserted until it locks as shown by the arrows A, while in figure 13 the second frame profile 104 is rested as shown by the arrow B and pressed until it locks as shown by the arrow C.

[0067] Furthermore, it is also possible to produce alignment elements inserted directly inside the second frame profile or the second wing profile made of plastic. In the event of fire, the profile 120 is able to retain the glass 110.

[0068] In a preferred embodiment the window frames are made with "European chamber". In this way it is in fact possible to create any type of existing ledge window frame and purchase the accessories at very reasonable prices (since almost all manufacturers of accessories and sub-contractors make them); this avoids procurement from one single exclusive supplier.

[0069] In this way minimum investments can be made with a few customised accessories specifically designed for the particular type of window frame. These accessories are, for example, inversion plugs for open and ledge-ledge joints, seals and angles of open joints and any squares (Monticelli type) required. Profiles like, for example, glass retainers with their angle accessories if nec-

essary, rod profiles etc. are available from various extruded parts manufacturers.

[0070] Furthermore, specific punching machines are not necessary as parts such as squares, cremone bolts, rods, folding wings etc. are universal.

[0071] In practice it has been seen that the structure for a wing and/or frame of a window frame, according to the invention, is particularly advantageous. Furthermore, the different types of frame profiles and the different types of wing profiles are interchangeable in order to meet many different needs without having to produce an excessive number of products.

Claims

1. Structure (51) for wing and frame of a window frame comprising, for the production of the above-mentioned wing and frame, a first frame profile (52) and a first wing profile (56) made of metal, a second frame profile (70) and a second wing profile (104) made of plastic and one or two insulating elements (88) whereby said first frame profile (52) is snap-locked to said second frame profile (70) by means of first engaging elements (64, 66, 76, 78) and said first wing profile (56) is snap-locked to said second wing profile (104) by means of second engaging elements (66, 76, 98, 112), said first engaging elements (64, 66, 76, 78) comprise a first appendix (64) integral with said first frame profile (52), on which said second frame profile (70) is locked and where said appendix (64) is inserted inside at least one groove (76) of said second frame profile (70), said second engaging elements (66, 76, 98, 112) comprise a second appendix (98) integral with said first wing profile (56), on which said second wing profile (104) is locked and where said appendix (98) is inserted inside at least one groove (76) of said second wing profile (104), **characterised in that**

- the first and second appendices (64,98) have essentially an L-shape, whereby the free portion extends parallel to the plane of the frame, the second frame profile (70) covers the outer surface of the first appendix (64) and the second wing profile (104) covers the outer surface of the second appendix (98),

- first and second appendices (64,98) both feature, close to the end of their free portion, at least one notch (68),

- a third appendix (90) is integral with said first frame profile (52) and a fourth appendix (102) is integral with said first wing profile (56)

- the insulating element (88) or one of the insulating elements can cover the inner surface of the first (64) or second appendix (98) by inserting it in the respective notch (68) and locking it in the third (90) or fourth appendix (102) respec-

tively, and,

- said second frame and wing profiles (70,104) feature a tubular structure forming a set of air chambers (74, 106).

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2.

Structure (51) according to claim 1, **characterised in that** said appendixes (64, 98) are basically square-shaped.

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3.

Structure (51) according to claim 2, **characterised in that** a terminal portion of said appendixes (64, 98) is not in line with the same appendixes (64, 98) in order not to interfere with said first frame profile (52) and said first wing profile (56).

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4.

Structure (51) according to claim 3, **characterised in that** said element (88) acts as a lock for said second frame profile (70) or for said second wing profile (104), preventing them coming out of their installation position by means of mutual contact of the parts (180, 181).

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5.

Structure (51) according to claim 1, **characterised in that** said free ends of said appendixes (64, 98) and said grooves (76) are rounded.

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6.

Structure (51) according to claim 1, **characterised in that** corresponding to a protruding end of said second frame profile (70) and said second wing profile (104) at least one groove (77) is provided which can be used as a seal seat.

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7.

Structure (51) according to claim 1, **characterised in that** said first engaged elements (64, 66, 76, 78) and said second engaged elements (66, 76, 98, 112) comprise at least one flat element (78, 112) which extends from one end of said second frame profile (70) and said second wing profile (104), said flat element (78, 112) having a free end enlarged and locked against a protruding element (66) of said appendixes (64, 98).

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8.

Structure (51) according to claim 7, **characterised in that** from said flat element (78, 112) at least one other flat element (80, 114) extends, abutting on an appendix (72, 100) of said first frame profile (52) and said second wing profile (56).

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9.

Frame forming a part of a structure of a window frame comprising a first frame profile (52) made of metal, a second frame profile (70) made of plastic and an insulating element (88), whereby said first frame profile (52) is snap-locked by means of first engaging elements (64, 66, 76, 78), said first engaging elements (64, 66, 76, 78) comprise an appendix (64) integral with said first frame profile (52), on which said second frame profile (70) is locked and where said appendix (64) is inserted inside at least one

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groove (76) of said second frame profile (70), **characterised in that**

- the appendix (64) has essentially an L-shape, whereby the free portion is parallel to the plane of the frame and the second frame profile (104) covers the outer surface of the appendix (64),
- the appendix (64) feature, close to its end of its free portion, at least one notch (68)
- another appendix (90) is integral with said first frame profile (52),
- said insulating element (88) can cover the inner surface of the appendix (64) by inserting it in the respective notch (68) and locking it in the other appendix (90), and
- said second frame profile (70) feature a tubular structure forming a set of air chamber (74).

10. Wing forming a part of a structure (51) of a window frame comprising a first wing profile (56) made of metal, a second wing profile (104) made of plastic and an insulating element (88), whereby said first wing profile (56) is snap-locked to said second wing profile (104) by means of engaging elements (66, 76, 98, 112), said second engaging elements comprise an appendix (98) integral with said first wing profile (56), on which said second wing profile (104) is locked and where said appendix (98) is inserted inside at least one groove (76) of said second wing profile (104), **characterised in that**

- the appendix (98) has essentially an L-shape, whereby the free portion is parallel to the plane of the wing and the second wing profile (104) covers the outer surface of the appendix (98),
- the appendix (98) feature, close to its end of its free portion, at least one notch (68),
- another appendix (102) is integral with said first wing profile (56),
- said insulating element (88) can cover the inner surface of the appendix (64) by inserting it in the respective notch (68) and locking it in the other appendix (102) integral with said first wing profile (56), and
- said second wing profile (104) feature a tubular structure forming a set of air chamber (106).

11. Inversion profile forming a part of a structure (51) of a window frame comprising at least one internal element (130) made of metal, an external element (132) made of plastic and an insulating element (88), whereby said at least one internal element (130) is snap-locked to said external element (132) by means of first engaging elements, said first engaging elements comprise an appendix (134) integral with said at least one internal element (130), on which said external element (132) is locked and where said appendix is inserted inside at least one groove of said

external element (132), **characterised in that**

- the appendix has essentially an L-shape, whereby the free portion is parallel to the plane of the wing and the external element (132) covers the outer surface of the at least one internal element (130),
- said appendix feature, close to its end of its free portion, at least one notch
- another appendix (90) is integral with said at least one internal element (130)
- said insulating element (88) can cover the inner surface of the appendix by inserting it in the respective notch, and locking it in the other appendix (90) integral with said at least one internal element (130), and
- said external element (132) feature a tubular structure forming a set of air chamber.

Patentansprüche

1. Aufbau (51) für einen Flügel und Rahmen eines Fensterrahmens, umfassend für die Produktion des oben erwähnten Flügels und Rahmens ein erstes Rahmenprofil (52) und ein erstes Flügelprofil (56), die aus Metall hergestellt sind, ein zweites Rahmenprofil (70) und ein zweites Flügelprofil (104), die aus Kunststoff hergestellt sind, und ein oder zwei Isolierungselemente (88), wobei das erste Rahmenprofil (52) an dem zweiten Rahmenprofil (70) mittels erster Eingriffselemente (64, 66, 76, 78) durch Schnappwirkung gesichert ist und das erste Flügelprofil (56) an dem zweiten Flügelprofil (104) mittels zweiter Eingriffselemente (66, 76, 98, 112) durch Schnappwirkung gesichert ist, die ersten Eingriffselemente (64, 66, 76, 78) einen ersten Ansatz (64), der einteilig mit dem ersten Rahmenprofil (52) ist, umfassen, an dem das zweite Rahmenprofil (70) gesichert ist, und wobei der Ansatz (64) in zumindest eine Nut (76) des zweiten Rahmenprofils (70) eingesetzt ist, die zweiten Eingriffselemente (66, 76, 98, 112) einen zweiten Ansatz (98), der einteilig mit dem ersten Flügelprofil (56) ist, umfassen, an dem das zweite Flügelprofil (104) gesichert ist, und wobei der Ansatz (98) in zumindest eine Nut (76) des zweiten Flügelprofils (104) eingesetzt ist, **dadurch gekennzeichnet, dass:**

- der erste und zweite Ansatz (64, 98) im Wesentlichen eine L-Form besitzen, wobei der freie Abschnitt parallel zu der Ebene des Rahmens verläuft, das zweite Rahmenprofil (70) die Außenfläche des ersten Ansatzes (64) bedeckt und das zweite Flügelprofil (104) die Außenfläche des zweiten Ansatzes (98) bedeckt,
- der erste und zweite Ansatz (64, 98) beide nahe dem Ende ihres freien Abschnittes zumindest eine Kerbe (68) aufweisen,

- ein dritter Ansatz (90) einteilig mit dem ersten Rahmenprofil (52) ausgebildet ist und ein vierter Ansatz (102) einteilig mit dem ersten Flügelprofil (56) ausgebildet ist,
 - das Isolierungselement (88) oder eines der Isolierungselemente die Innenfläche des ersten (64) oder zweiten Ansatzes (98) durch Einsetzen desselben in die jeweilige Kerbe (68) und Sichern desselben an dem dritten (90) bzw. vierten Ansatz (102) bedecken kann, und
 - die zweiten Rahmen- und Flügelprofile (70, 104) einen Rohrförmigen Aufbau aufweisen, der einen Satz von Luftkammern (74, 106) bildet.
2. Aufbau (51) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Ansätze (64, 98) grundsätzlich quadratisch sind.
3. Aufbau (51) nach Anspruch 2, **dadurch gekennzeichnet, dass** ein Anschlussabschnitt der Ansätze (64, 98) nicht in Ausrichtung mit den gleichen Ansätzen (64, 98) ist, um sich nicht mit dem ersten Rahmenprofil (52) und dem ersten Flügelprofil (56) zu überlagern.
4. Aufbau (51) nach Anspruch 3, **dadurch gekennzeichnet, dass** das Element (88) als eine Verriegelung für das zweite Rahmenprofil (70) oder für das zweite Flügelprofil (104) wirkt, wodurch mittels eines gegenseitigen Kontakts der Teile (180, 181) verhindert wird, dass diese aus ihrer Montageposition kommen.
5. Aufbau (51) nach Anspruch 1, **dadurch gekennzeichnet, dass** die freien Enden der Ansätze (64, 98) und die Nuten (76) gerundet sind.
6. Aufbau (51) nach Anspruch 1, **dadurch gekennzeichnet, dass** entsprechend einem vorragenden Ende des zweiten Rahmenprofils (70) und des zweiten Flügelprofils (104) zumindest eine Nut (77) vorgesehen ist, die als ein Dichtungssitz verwendet werden kann.
7. Aufbau (51) nach Anspruch 1, **dadurch gekennzeichnet, dass** die ersten in Eingriff stehenden Elemente (64, 66, 76, 78) und die zweiten in Eingriff stehenden Elemente (66, 76, 98, 112) zumindest ein flaches Element (78, 112) umfassen, das von einem Ende des zweiten Rahmenprofils (70) und des zweiten Flügelprofils (104) wegführt, wobei das flache Element (78, 112) ein freies Ende aufweist, das vergrößert ist und an einem vorragenden Element (66) der Ansätze (64, 98) gesichert ist.
8. Aufbau (51) nach Anspruch 7, **dadurch gekennzeichnet, dass** von dem flachen Element (78, 112) zumindest ein anderes flaches Element (80, 114) wegführt, das an einen Ansatz (72, 100) des ersten Rahmenprofils (52) und des zweiten Flügelprofils (56) anstößt.
9. Rahmen, der ein Teil eines Aufbaus eines Fensterrahmens bildet, mit einem ersten Rahmenprofil (52), das aus Metall besteht, einem zweiten Rahmenprofil (70), das aus Kunststoff besteht, und einem Isolierungselement (88), wobei das erste Rahmenprofil (52) über erste Eingriffselemente (64, 66, 76, 78) durch Schnappwirkung gesichert ist, die ersten Eingriffselemente (64, 66, 76, 78) einen Ansatz (64), der einteilig mit dem ersten Rahmenprofil (52) ist, umfassen, an dem das zweite Rahmenprofil (70) gesichert ist, und wobei der Ansatz (64) in zumindest eine Nut (76) des zweiten Rahmenprofils (70) eingesetzt ist, **dadurch gekennzeichnet, dass:**
- der Ansatz (64) im Wesentlichen eine L-Form besitzt, wobei der freie Abschnitt parallel zu der Ebene des Rahmens ist und das zweite Rahmenprofil (104) die Außenfläche des Ansatzes (64) bedeckt,
 - der Ansatz (64) nahe seinem Ende seines freien Abschnittes zumindest eine Kerbe (68) aufweist,
 - ein anderer Ansatz (90) einteilig mit dem ersten Rahmenprofil (52) ausgebildet ist,
 - das Isolierungselement (88) die Innenfläche des Ansatzes (64) durch Einsetzen desselben in die jeweilige Kerbe (68) und Sichern desselben an dem anderen Ansatz (90) bedecken kann, und
 - das zweite Rahmenprofil (70) einen rohrförmigen Aufbau besitzt, der einen Satz von Luftkammern (74) bildet.
10. Flügel, der einen Teil eines Aufbaus (51) eines Fensterrahmens bildet, mit einem ersten Flügelprofil (56), das aus Metall besteht, einem zweiten Flügelprofil (104), das aus Kunststoff besteht, und einem Isolierungselement (88), wobei das erste Flügelprofil (56) an dem zweiten Flügelprofil (104) über Eingriffselemente (66, 76, 98, 112) durch Schnappwirkung gesichert ist, die zweiten Eingriffselemente einen Ansatz (98), der einteilig mit dem ersten Flügelprofil (56) ist, umfassen, an dem das zweite Flügelprofil (104) gesichert ist, und wobei der Ansatz (98) in zumindest eine Nut (76) des zweiten Flügelprofils (104) eingesetzt ist, **dadurch gekennzeichnet, dass:**
- der Ansatz (98) im Wesentlichen eine L-Form besitzt, wobei der freie Abschnitt parallel zu der Ebene des Flügels ist und das zweite Flügelprofil (104) die Außenfläche des Ansatzes (98) bedeckt,
 - der Ansatz (98) nahe seinem Ende seines freien Abschnittes zumindest eine Kerbe (68) auf-

weist,

- ein anderer Ansatz (102) einteilig mit dem ersten Flügelprofil (56) ausgebildet ist,
- das Isolierungselement (88) die Innenfläche des Ansatzes (64) durch Einsetzen desselben in die jeweilige Kerbe (68) und Sichern desselben an dem anderen Ansatz (102), der einteilig mit dem ersten Flügelprofil (56) ist, bedecken kann, und
- das zweite Flügelprofil (104) einen rohrförmigen Aufbau aufweist, der einen Satz von Luftkammer (106) bildet.

11. Inversionsprofil, das einen Teil eines Aufbaus (51) eines Fensterrahmens bildet, mit zumindest einem Innenelement (130), das aus Metall besteht, einem Außenelement (132), das aus Kunststoff besteht, und einem Isolierungselement (88), wobei das zumindest eine Innenelement (130) an dem Außenelement (132) über erste Eingriffselemente durch Schnappwirkung gesichert ist, die ersten Eingriffselemente einen Ansatz (134), der einteilig mit dem zumindest einen Innenelement (130) ist, umfassen, an dem das Außenelement (132) gesichert ist, und wobei der Ansatz in zumindest eine Nut des Außenelements (132) eingesetzt ist, **dadurch gekennzeichnet, dass:**

- der Ansatz im Wesentlichen eine L-Form besitzt, wobei der freie Abschnitt parallel zu der Ebene des Flügels angeordnet ist und das Außenelement (132) die Außenfläche des zumindest einen Innenelements (130) bedeckt,
- der Ansatz nahe seinem Ende seines freien Abschnittes zumindest eine Kerbe aufweist,
- ein anderer Ansatz (90) einteilig mit dem zumindest einen Innenelement (130) ausgebildet ist,
- das Isolierungselement (88) die Innenfläche des Ansatzes durch Einsetzen desselben in die jeweilige Kerbe und Sichern desselben an dem anderen Ansatz (90), der einteilig mit dem zumindest einen Innenelement (130) ist, bedecken kann, und
- das Außenelement (132) einen rohrförmigen Aufbau aufweist, der einen Satz von Luftkammern bildet.

Revendications

1. Structure (51) pour battant et dormant d'un cadre de fenêtre comprenant, pour la production du battant et du dormant mentionnés ci-dessus, un premier profil de dormant (52) et un premier profil de battant (56) réalisés en métal, un second profil de dormant (70) et un second profil de battant (104) réalisés en plastique et un ou deux éléments isolants (88), dans la-

quelle ledit premier profil de dormant (52) se bloque par emboîtement dans ledit second profil de dormant (70) au moyen de premiers éléments de mise en prise (64, 66, 76, 78) et ledit premier profil de battant (56) se bloque par emboîtement dans ledit second profil de battant (104) au moyen de seconds éléments de mise en prise (66, 76, 98, 112), lesdits premiers éléments de mise en prise (64, 66, 76, 78) comprennent un premier appendice (64) solidaire dudit premier profil de dormant (52), sur lequel ledit second profil de dormant (70) est bloqué et où ledit appendice (64) est inséré à l'intérieur d'au moins une rainure (76) dudit second profil de dormant (70), lesdits seconds éléments de mise en prise (66, 76, 98, 112) comprennent un second appendice (98) solidaire dudit premier profil de battant (56), sur lequel ledit second profil de battant (104) est bloqué et où ledit appendice (98) est inséré à l'intérieur d'au moins une rainure (76) dudit second profil de battant (104), **caractérisée en ce que :**

- les premier et second appendices (64, 98) ont essentiellement une forme de L, dans laquelle la partie libre s'étend parallèlement au plan du cadre, le second profil de dormant (70) recouvre la surface externe du premier appendice (64) et le second profil de battant (104) recouvre la surface externe du second appendice (98),
- les premier et second appendices (64, 98) présentent tous deux, à proximité de l'extrémité de leur partie libre, au moins une encoche (68),
- un troisième appendice (90) est solidaire dudit premier profil de dormant (52) et un quatrième appendice (102) est solidaire dudit premier profil de battant (56),
- l'élément isolant (88) ou l'un des éléments isolants peut recouvrir la surface interne du premier (64) ou du second appendice (98) en l'insérant dans l'encoche (68) respective et en le bloquant dans le troisième (90) ou quatrième appendice (102) respectivement, et
- lesdits seconds profils de dormant et de battant (70, 104) présentent une structure tubulaire formant un ensemble de chambres à air (74, 106).

2. Structure (51) selon la revendication 1, **caractérisée en ce que** lesdits appendices (64, 98) sont fondamentalement en forme de carré.

3. Structure (51) selon la revendication 2, **caractérisée en ce qu'**une partie terminale desdits appendices (64, 98) n'est pas alignée avec ces mêmes appendices (64, 98) afin de ne pas interférer avec ledit premier profil de dormant (52) et ledit premier profil de battant (56).

4. Structure (51) selon la revendication 3, **caractérisée en ce que** ledit élément (88) sert de verrou pour ledit

second profil de dormant (70) ou pour ledit second profil de battant (104), les empêchant de sortir de leur position d'installation au moyen du contact mutuel des pièces (180, 181).

5. Structure (51) selon la revendication 1, **caractérisée en ce que** lesdites extrémités libres desdits appendices (64, 98) et desdites rainures (76) sont arrondies.

6. Structure (51) selon la revendication 1, **caractérisée en ce que** correspondant à une extrémité en saillie dudit second profil de dormant (70) et dudit second profil de battant (104), on prévoit au moins une rainure (77) qui peut être utilisée en tant que siège de joint d'étanchéité.

7. Structure (51) selon la revendication 1, **caractérisée en ce que** lesdits premiers éléments mis en prise (64, 66, 76, 78) et lesdits seconds éléments mis en prise (66, 76, 98, 112) comprennent au moins un élément plat (78, 112) qui s'étend à partir d'une extrémité dudit second profil de dormant (70) et dudit second profil de battant (104), ledit élément plat (78, 112) ayant une extrémité libre élargie et bloquée contre un élément en saillie (66) desdits appendices (64, 98).

8. Structure (51) selon la revendication 7, **caractérisée en ce que** au moins un autre élément plat (80, 114) s'étend à partir dudit élément plat (78, 112), venant en butée sur un appendice (72, 100) dudit premier profil de dormant (52) et dudit second profil de battant (56).

9. Cadre faisant partie d'une structure d'un cadre de fenêtre comprenant un premier profil de dormant (52) réalisé en métal, un second profil de dormant (70) réalisé en plastique et un élément isolant (88), dans lequel ledit premier profil de dormant (52) se bloque par emboîtement au moyen de premiers éléments de mise en prise (64, 66, 76, 78), lesdits premiers éléments de mise en prise (64, 66, 76, 78) comprennent un appendice (64) solidaire dudit premier profil de dormant (52), sur lequel ledit second profil de dormant (70) est bloqué et dans lequel ledit appendice (64) est inséré à l'intérieur d'au moins une rainure (76) dudit second profil de dormant (70), **caractérisé en ce que** :

- l'appendice (64) a essentiellement une forme de L, dans laquelle la partie libre est parallèle au plan du cadre et le second profil de dormant (104) recouvre la surface externe de l'appendice (64),
- l'appendice (64) présente, à proximité de son extrémité de sa partie libre, au moins une encoche (68),

- un autre appendice (90) est solidaire dudit premier profil de dormant (52),

- ledit élément isolant (88) peut recouvrir la surface interne de l'appendice (64) en l'insérant dans l'encoche (68) respective et en le bloquant dans l'autre appendice (90), et

- ledit second profil de dormant (70) présente une structure tubulaire formant un ensemble de chambre à air (74).

10. Battant faisant partie d'une structure (51) pour un cadre de fenêtre comprend un premier profil de battant (56) réalisé en métal, un second profil de battant (104) réalisé en plastique et un élément isolant (88), dans lequel ledit premier profil de battant (56) se bloque par emboîtement dans ledit second profil de battant (104) au moyen d'éléments de mise en prise (66, 76, 98, 112), lesdits seconds éléments de mise en prise comprennent un appendice (98) solidaire dudit premier profil de battant (56), sur lequel ledit second profil de battant (104) est bloqué et dans lequel ledit appendice (98) est inséré à l'intérieur d'au moins une rainure (76) dudit second profil de battant (104) **caractérisé en ce que** :

- l'appendice (98) a essentiellement une forme de L, dans laquelle la partie libre est parallèle au plan du battant et le second profil de battant (104) recouvre la surface externe de l'appendice (98),

- l'appendice (98) présente, à proximité de son extrémité de sa partie libre, au moins une encoche (68),

- un autre appendice (102) est solidaire dudit premier profil de battant (56),

- ledit élément isolant (88) peut recouvrir la surface interne de l'appendice (64) en l'insérant dans l'encoche (68) respective et en le bloquant dans l'autre appendice (102) solidaire dudit premier profil de battant (56), et

- ledit second profil de battant (104) présente une structure tubulaire formant un ensemble de chambre à air (106).

11. Profil d'inversion faisant partie d'une structure (51) d'un cadre de fenêtre comprenant au moins un élément interne (130) réalisé en métal, un élément externe (132) réalisé en plastique, et un élément isolant (88), dans lequel ledit au moins un élément interne (130) est bloqué par emboîtement sur ledit élément externe (132) au moyen de premiers éléments de mise en prise, lesdits premiers éléments de mise en prise comprennent un appendice (134) solidaire dudit au moins un élément interne (130), sur lequel ledit élément externe (132) est bloqué et où ledit appendice est inséré à l'intérieur de la au moins une rainure dudit élément externe (132), **caractérisé en ce que** :

- l'appendice a essentiellement une forme de L, dans laquelle la partie libre est parallèle au plan du battant et l'élément externe (132) recouvre la surface externe du au moins un élément interne (130), 5
- ledit appendice présente, à proximité de son extrémité de sa partie libre, au moins une encoche,
- un autre appendice (90) est solidaire dudit au moins un élément interne (130), 10
- ledit élément isolant (88) peut recouvrir la surface interne de l'appendice en l'insérant dans l'encoche respective, et en le bloquant dans l'autre appendice (90) solidaire dudit au moins un élément interne (130), et 15
- ledit élément externe (132) présente une structure tubulaire formant un ensemble de chambre à air.

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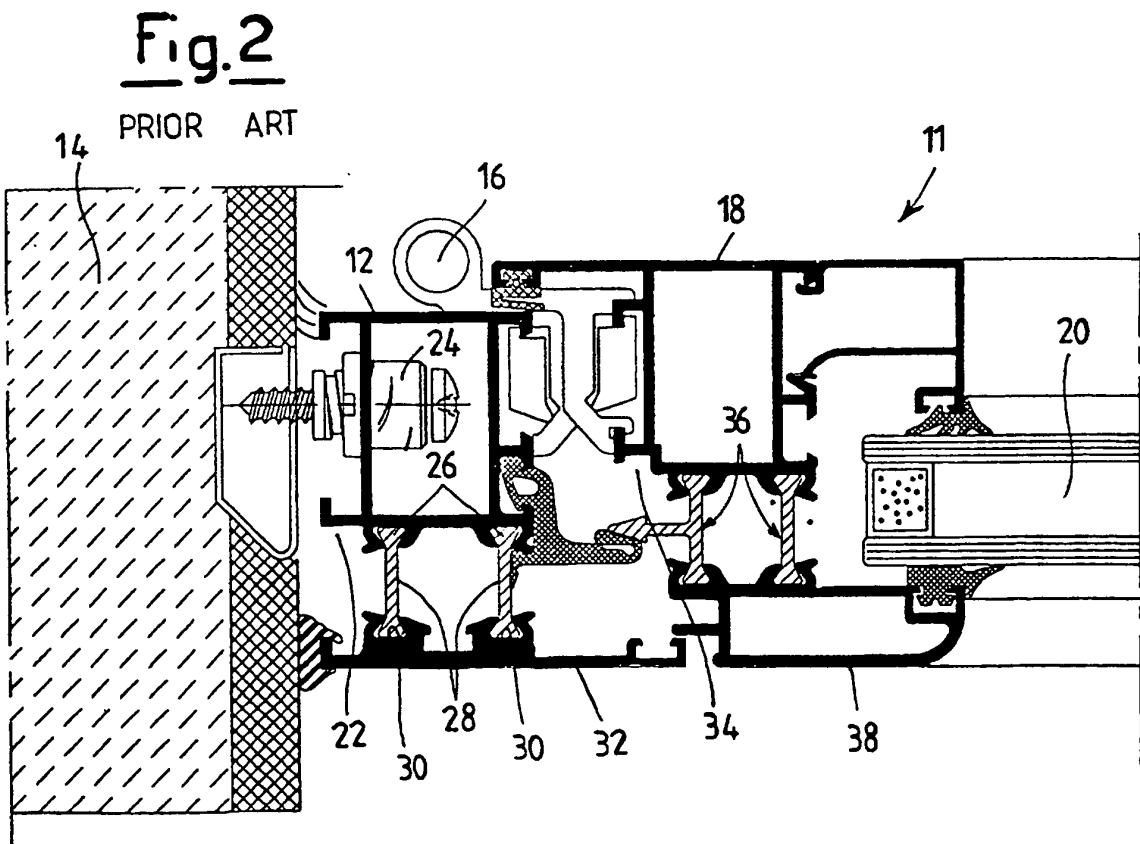
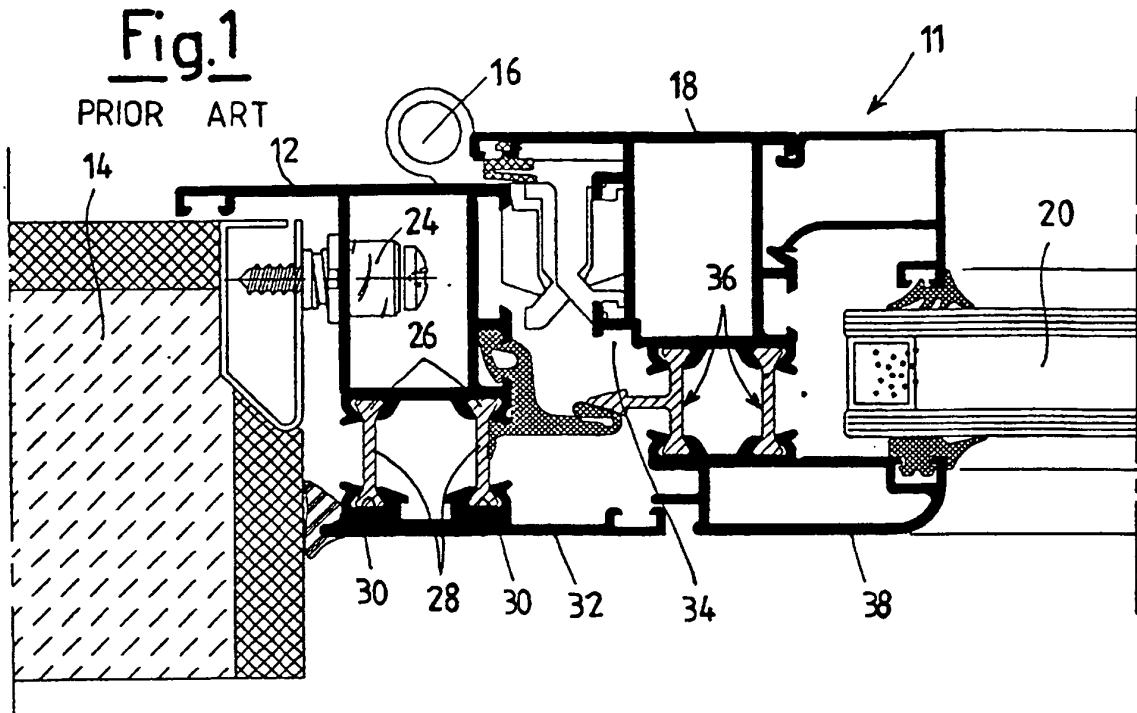
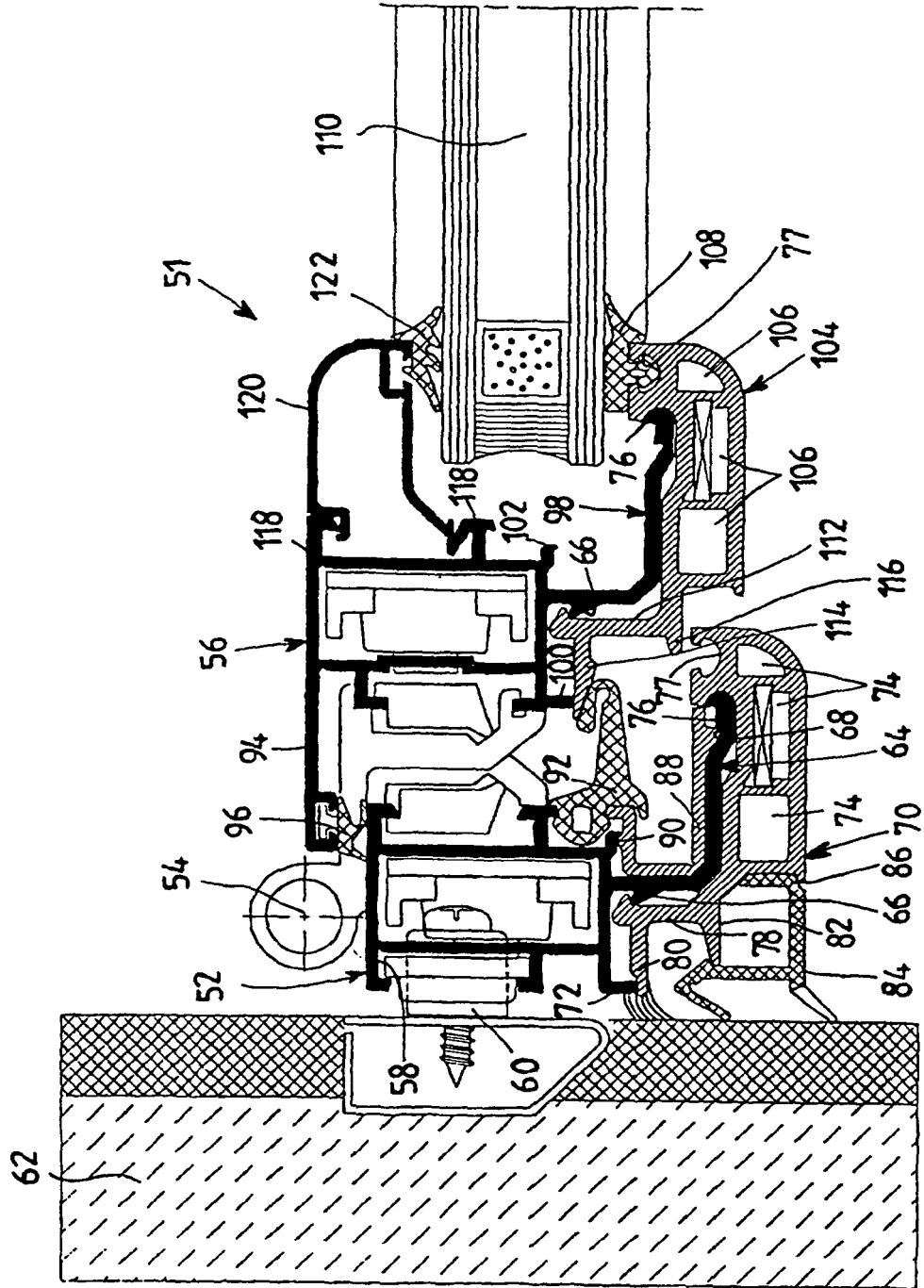
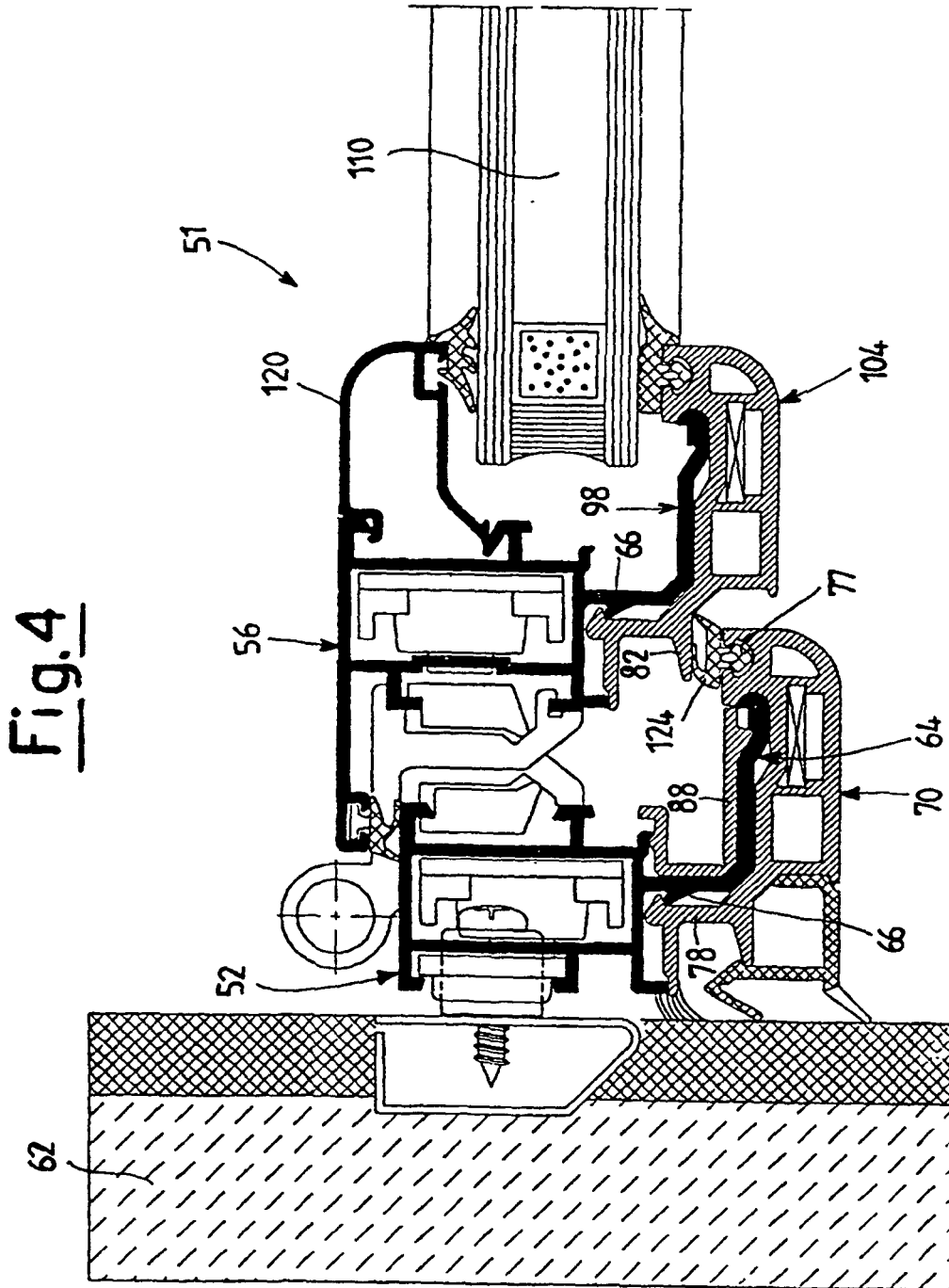
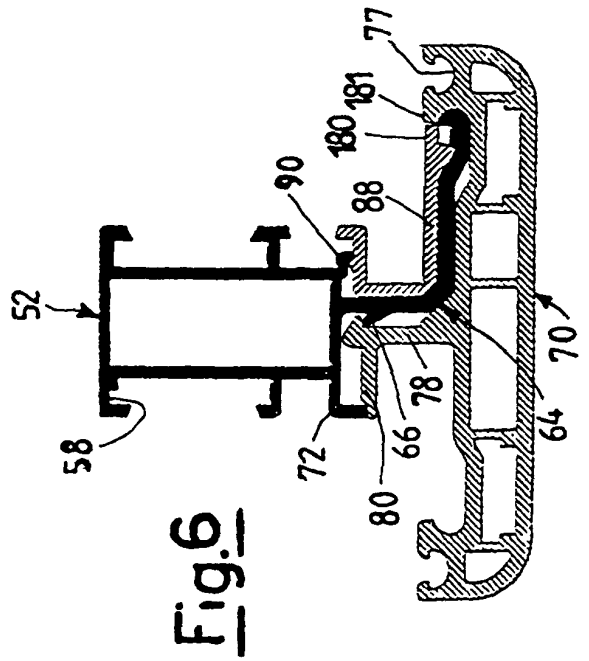
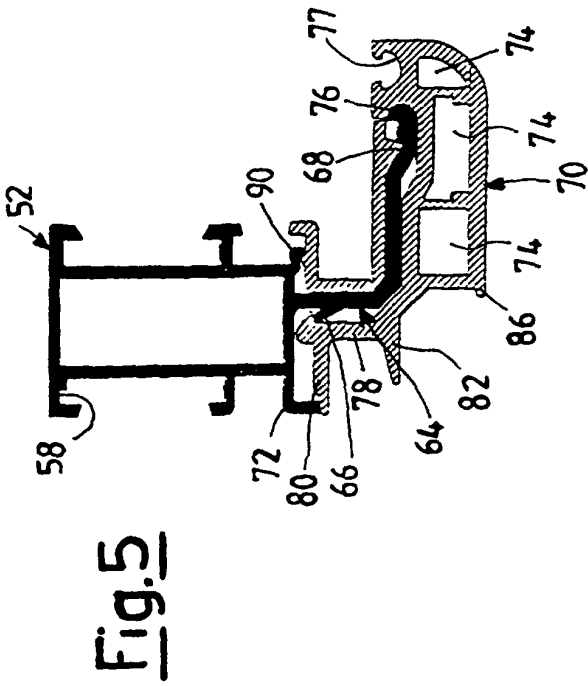
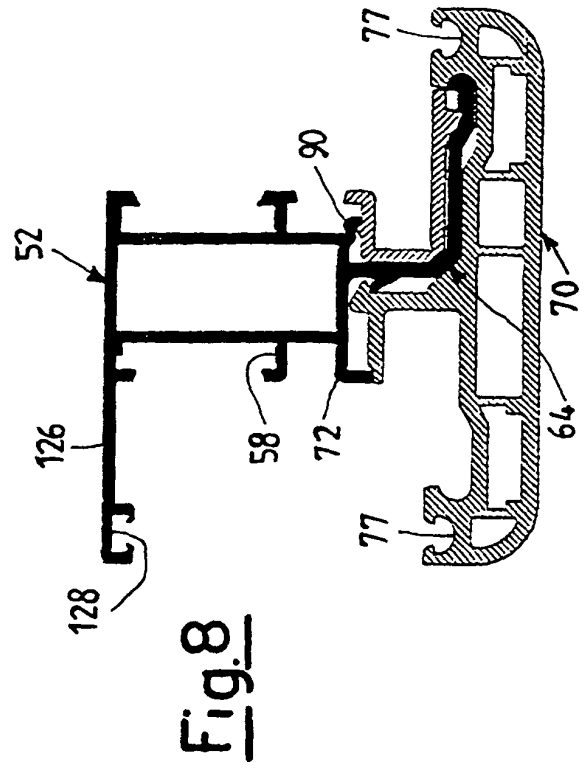
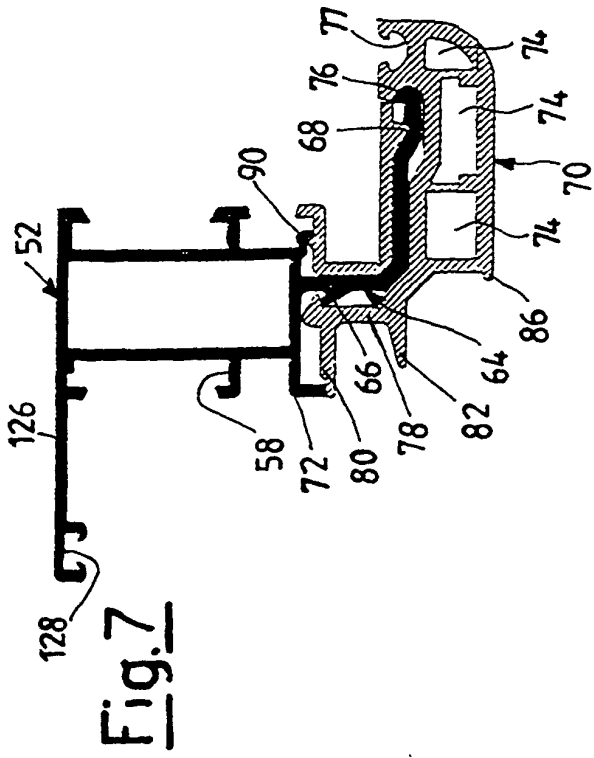


Fig. 3







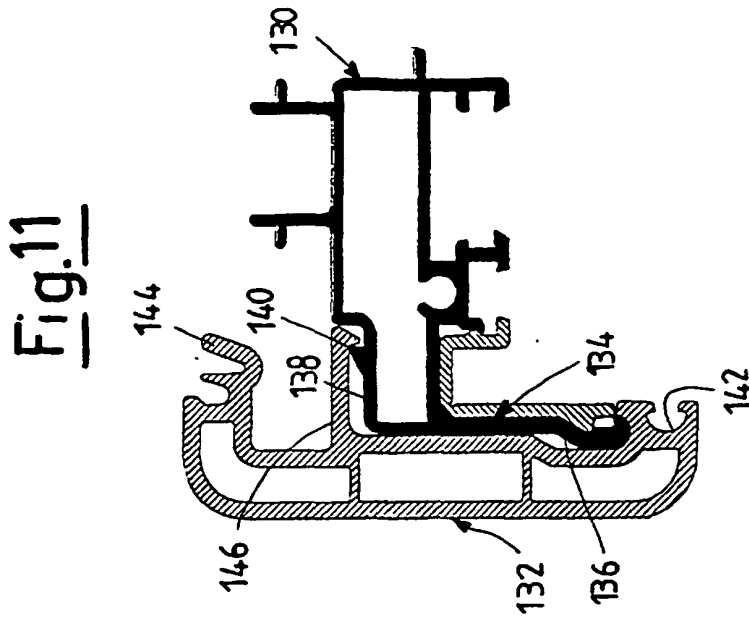
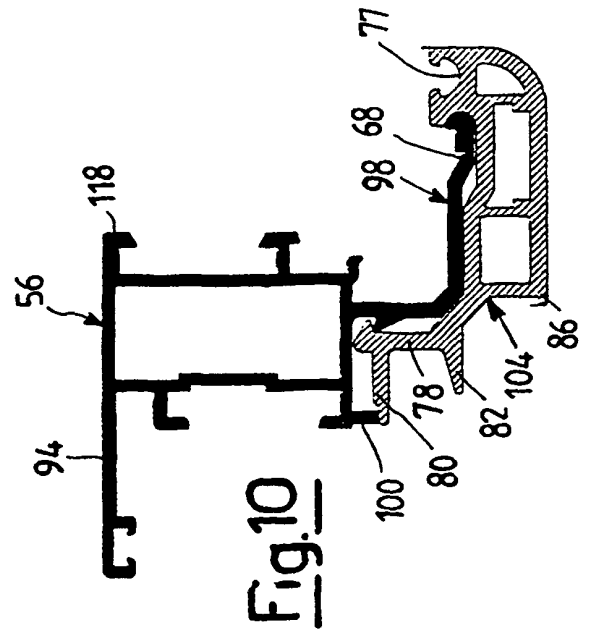
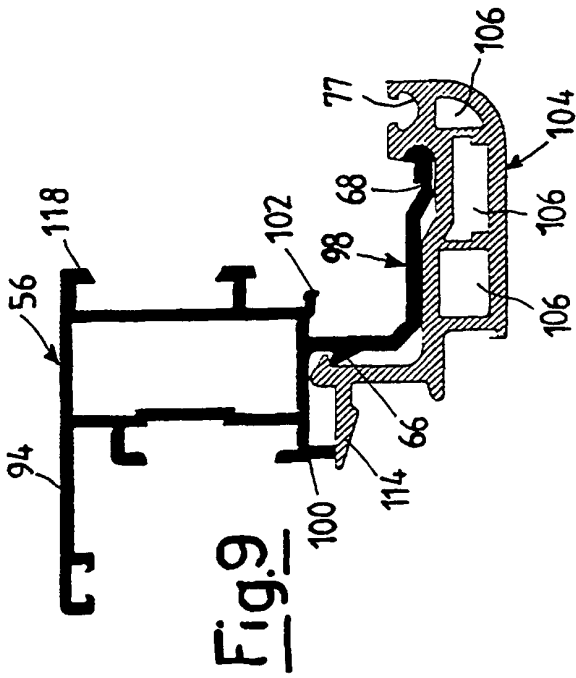


Fig.12

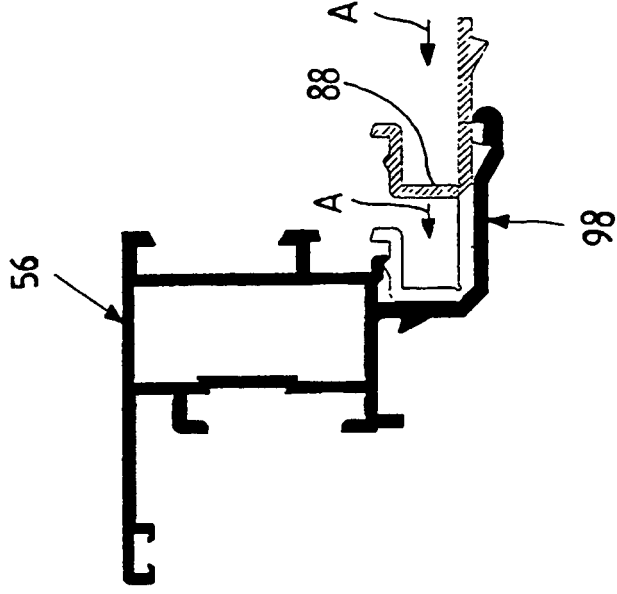


Fig.13

