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(54) **Homogeneous set of sections for aluminium door and window frames.**

(57) Homogeneous set of sections for aluminium frames such as window, door and shop window frames, which comprises sections having at least one height and at least one width with or without temperature-insulation joints and includes basic sections and auxiliary sections, each basic section comprising:

- at least one abutment protrusion (49) together with at least one first seating (30) and at least one recess (31),
- at least three second seatings (32),
- at least one enclosed space (40-140-240) with possible delimiting projections (41-141-241).

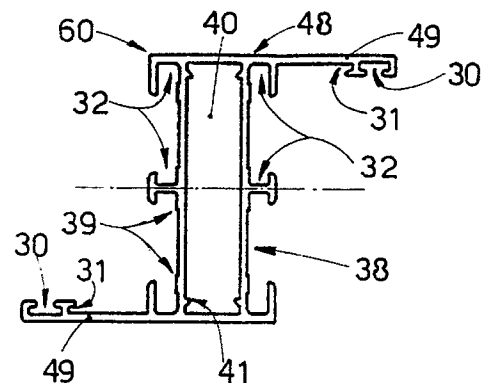


fig.1

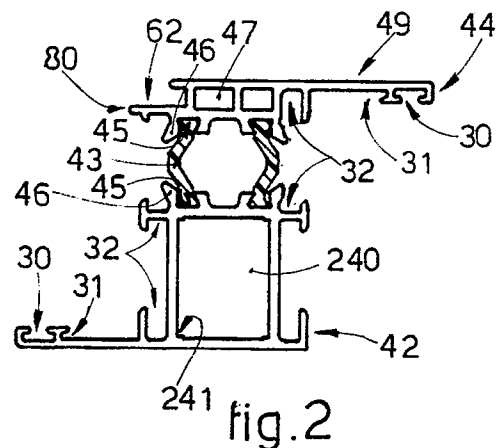


fig.2

EP 0 460 514 A1

This invention concerns a homogeneous set of sections for aluminium door and window frames as set forth in the main claim.

Various types of sections which offer this or that specific satisfactory advantage are known, but the known sections, and the sets which comprise them, are characterized only by some specific satisfactory advantages and no set includes a very great number of advantages either for the makers or for the end users of the frames.

The present applicants have set themselves the goal of embodying a homogeneous set of sections for aluminium door and window frames which offers at least the following advantages:

- as regards their stationary part, the sections can be used equally well as a stationary part or movable part;
- the specific sections for doors or windows comprise a trap to break drops of water, the trap being shaped with a terminal concentration projection, with a minimum width of about 5 mm. and a minimum depth of about 3 mm. so as to ensure that water is not drawn in;
- all the sections comprise the same hollow for insertion, either from inside or from outside, of one and the same standardized corner joint for connection and reinforcement;
- all the sections comprising a temperature-insulation system have mechanically knurled recesses to prevent sliding of the temperature-insulation joint inserted within them;
- all the knurled recesses for insertion of the temperature-insulation joints comprise clamping edges which are upset by rolling so as to compress mechanically the temperature-insulation joints when inserted;
- the temperature-insulation joints, when installed in the appropriate knurled recesses with the upset clamping edges form a plane together with these edges, so that in this way the groove in the known sections which leads to a build-up of dirt and difficult maintenance is eliminated;
- the basic sections can be reversed so that they become in fact counterparts of each other in relation to their axis; in other words, if the sections are rotated by 180° about their axis, they take up the same positions and present the same connecting and fixture portions; such an embodiment, amongst other things, enables auxiliary cutting and intermediate wastes destined for scrap to be obviated;
- the generic movable or stationary sections comprise at least three symmetrically arranged equal seatings;

- the assembled sections comprise a first chamber of considerable dimensions;
- the sections, whilst retaining their strength, have more limited profiles and cross sections and therefore lower weights per unit of length;
- the assembled sections enable frames to be made which can be opened outwards and be opened inwards;
- the frames made with such sections can be coplanar or can overlap above or below each other by merely replacing one single element;
- the mounting and fascia strip for the frames and the stationary parts can be standardized;
- the sections are already pre-arranged for the door or window to be swung open;
- the sections are made so as to enable the panes to be ventilated;
- the sections can provide frames with a central joint between two doors or windows, such meeting position being obtainable either with an insert element or with one single section;
- the sections provide a system for drainage of water;
- where the frames are coplanar, the sections enable the hinge to be retractable;
- all the sections permit a central sealing packing.

The invention is set forth and characterized in the main claim, while the dependent claims describe variants of the idea of the embodiment.

According to the invention a basic section has a symmetrical and reversible conformation. In view of the features provided, the basic section can be used for stationary frames and for movable frames.

The basic section being symmetrical and reversible, where rod for the section is cut at 45°, the cutting of the tail of one frame element constitutes also the cutting of the leading end (or viceversa) of a second frame element. This entails advantages as regards the number of cuts to be made and the avoidance of scrap.

This basic section comprises a first zone to hold the accessories of the frames, and this first zone is provided in the lateral portions of the frames and in the intermediate portions where the windows include two or three panes.

The section enables specific pane holders to be used which can be fixed to the section itself by means of catch-type anchorages, thus simplifying the installation work and reducing the costs by eliminating the need for screws, holes, etc.

The pane holders are suitable to clamp panes or panels of various thicknesses ranging from three to thirty-two millimetres in the shorter sets and up to fifty millimetres in the higher sets.

The work involved in mental design has en-

abled a pane holder to be embodied which can also be used with other sections of the set of this invention.

In intermediate portions of the frames, where it is necessary to arrange for the inversion of the abutment between the sections, the basic section cooperates with a first auxiliary section which can be anchored with a catch and possibly can be secured with a screw and which enables this inversion of abutment to be achieved while keeping the method of functioning unimpaired.

By means of the basic section it is possible to achieve the following types of opening of windows:

- with one, two, three or four panes opening inwards,
- with one or more panes opening outwards,
- with a pane swung open horizontally about either of its vertical edges,
- with a pane swung open vertically about its lower edge,
- with a pane protruding outwards,
- with displacement and successive coplanar sliding of the pane,
- with rotation of the pane horizontally or vertically about its central horizontal or vertical axis,
- with displacement of the pane and successive coplanar sliding upwards or downwards,
- pantograph-wise outwards.

By means of the basic section it is possible to achieve the following types of opening of doors:

- with one or more panels opening inwards or outwards,
- with two-way opening (of a to-and-fro type) of one or more panels opening equally well inwards or outwards.

Moreover, the basic section enables window and door frames and shop-window frames to be produced that have stationary portions and portions of the above type which can be opened.

The basic section is completed with all the auxiliary sections suitable to produce the various types of frames.

The nominal width of the basic section provides substantially for three sizes corresponding to light sections (about 13 mm.), intermediate sections (about 20 mm.) and enlarged sections (about 45 mm.).

The height of the basic section of the set may be about 46 mm., about 54 mm. or about 62 mm., depending on the type.

Furthermore, the basic section may be normal or may include a temperature-insulation system; moreover, the basic section may provide for inward opening, with an inner and outer abutment, for overlapping of sections with an inner overlapping abutment and coplanar outward positioning, or coplanar positioning on both its inside and outside.

This means that the basic section can provide for three by three by two by three variants, making a total of fifty-four variants.

The system provides for a plurality of embodiments of frames with the employment of sections or accessories or packings, thereby offering aesthetic and functional variants.

Let us now see the invention with the help of the attached figures, which are given as a non-restrictive example and in which:-

Fig.1 shows the cross section of a basic section having the minimum width and height and without a temperature insulation system;

Fig.2 shows the cross section of a basic section with a temperature insulation variant and with an intermediate width and minimum height;

Fig.3 shows the cross section of a basic section without temperature insulation and with the maximum width and minimum height;

Fig.4 shows the cross section of a basic section with temperature insulation and with the minimum width and height;

Fig.5 shows the cross section of a basic section with temperature insulation and with the minimum width and intermediate height;

Fig.6 shows the cross section of a basic section with temperature insulation and with the intermediate width and maximum height;

Fig.7 shows the cross section of a basic section without temperature insulation and with the minimum width and intermediate height;

Fig.8 shows the cross section of an auxiliary section for cross members or uprights of the maximum width and minimum height, without temperature insulation and with seatings for anchorage screws;

Fig.9 shows the coupling of two basic sections according to Fig.1, with one pane holder for a double window, so as to obtain a pane opening rotatably about one of its vertical edges with outer and inner overlapping abutment elements in the perimetric portions of the openable frames;

Fig.10 shows a variant complementing Fig.9 to provide central or intermediate portions of frames which can be opened with two or more panes;

Fig.11 shows the coupling between a basic section according to Fig.1 and an

- auxiliary section with an intermediate abutment for a packing to form a first chamber; this coupling is coplanar inwardly and outwardly and serves to provide an opening by swinging a pane or panel about one of its vertical edges in the perimetric portions of openable frames;
- Fig.12 shows a variant that complements Fig.9 so as to obtain central or intermediate portions of frames which can be opened with two or more panes or panels;
- Fig.13 shows the coupling between a basic section according to Fig.1 and an auxiliary section with an intermediate abutment for a packing to form a first chamber; the coupling is inwardly overlapping and outwardly coplanar and serves to provide an opening by swinging a pane or panel about one of its vertical edges in the perimetric portions of openable frames;
- Fig.14 shows a variant that complements Fig.13 so as to obtain central or intermediate portions of frames which can be opened with two or more panes or panels;
- Fig.15 shows the profile of a section which provides temperature insulation and seats for screws; this section can be used for the fascia strip of doors on cross members and uprights;
- Fig.16 shows the profile of a section that provides temperature insulation and can be used for the lower mounting strip of doors or shop windows, seats for screws being included;
- Fig.17 shows the profile of a section for use as a fascia strip on cross members or uprights, seats for screws being included but temperature insulation not being provided;
- Fig.18 shows a window with two panes which can be opened by being rotated about their outer vertical edge;
- Fig.19 shows a door with two panels which can be opened by being rotated about their outer vertical edge;
- Fig.20 shows the coupling of two basic sections according to Fig.3 with a pane holder for double-pane doors in the perimetric portion of a door, so as to obtain the opening of doors which are inwardly and outwardly coplanar;
- Fig.21 shows a variant that complements Fig.20 so as to obtain central or intermediate portions of doors;
- Fig.22 shows the embodiment of Fig.20 but includes temperature insulation;
- Fig.23 shows the embodiment of Fig.20 but includes temperature insulation and sections of the maximum height;
- Fig.24 is a variant of the embodiment of Fig.13 wherein the sections with a minimum height are provided with temperature insulation;
- Fig.25 is a variant of the embodiment of Fig.13 wherein sections of an intermediate height are provided with temperature insulation;
- Fig.26 is a variant of the embodiment of Fig.14 wherein sections of a minimum height are provided with temperature insulation.
- Let us now see in detail the specific features of the sections that form the set, and let us take as a basis the section 60 shown in Fig.1.
- In the figures a first seating 30 is comprised for the application of a packing to support a pane or to provide a seal against another section.
- A recess 31 is provided to hold a corner joint for alignment of an abutment 49 between adjacent sections coupled together, for example, by being reciprocally sheared at 45°.
- A second seating 32 is included to hold a packing 33 which forms a first chamber 76 and which comprises an edge 34 to provide adaptation and a seal engagement, as we shall see later. The second seating 32 serves also for the fitting of accessories such as, for instance, a first section 36 and a second section 35 providing inversion of abutment (Figs.10 and 12 for instance); for fixture of a pane-holder 37-137 for the various sizes; for guiding closure rods actuated by a handle or bolt; for fixture of hinges or movable, adjustable attachments for anchorage to a wall, or else for fixture of closure joints; and for holding accessories to provide frames for rotation of windows about their lower edge, etc.
- The sections include narrowed portions 38 to reduce the weight of the sections; these narrowed portions 38 cooperate with level surfaces 39 for correct use of the second seating 32.
- Next, the sections comprise an enclosed space 40-140-240-340 which owing to possible delimiting projections 41-141-241-341 respectively is standardized for use with the various types and with sections having the same width. This makes it possible to standardize the corner joints which are employed to reinforce and unite the corners of union of the frames.
- With the sections of the invention it is always possible to use the same corner joint for the inside and outside of the section.
- The sections providing temperature insulation

comprise a first inner element 42, one or more temperature-insulation joints 43 and a second outer element 44.

The temperature-insulation joints 43 are normally of two heights and are secured to the respective first inner element 42 and second outer element 44 by means of recesses 45 including a clamping edge 46 which is upset.

The section of Fig.2 is shown with the clamping edges 46 open, whereas in Fig.5 the clamping edges 46 are upset against the temperature-insulation joint 43, which thus remains clamped.

The recesses 45 according to the invention are knurled so as to prevent sliding of the temperature-insulation joints 43 when the temperature-insulation joints 43 have been inserted into the recesses 45 and before the clamping edges 46 have been upset against the temperature-insulation joints 43.

The sections according to the invention are characterized in that the temperature-insulation joints 43, when inserted between the inner element 42 and outer element 44, are coplanar with the upset clamping edges 46 (see Figs.4, 5 and 6).

This fact creates a continuous surface between the section and the temperature-insulation joint 43 and eliminates the groove present in known temperature-insulation sections between the clamping edge 46 and the temperature-insulation joint 43.

This eliminates the build-up of dirt which normally occurs in that groove in the known sections, and at the same time simplifies maintenance work.

By keeping the first 42 and second 44 elements identical and by altering the heights of the temperature-insulation joints 43 it is possible to obtain a shorter section and an intermediate section. By providing also a third height of the temperature-insulation joints 43 it is possible to obtain the highest section too.

In the case of sections of an intermediate or of the greatest height (see Figs.5 and 6) the temperature-insulation joints 43 comprise lengthwise protrusions 69 so as to recreate the second symmetrically arranged, equal seatings 32.

According to a variant the first standardized inner element 42 and the temperature-insulation joints 43 of the second size are used to obtain the highest section and the height of the second outer element 44 is altered, thus producing an enlarged second outer element 144.

The second outer element 44 too comprises a second enclosed space 47 for insertion of a connecting and reinforcing corner joint.

The sections include, besides a central body 48, one or more abutments 49, which may be T-shaped (Fig.8), Z-shaped (Fig.1), L-shaped or H-shaped.

The sections for butt joints (such as in Figs.8, 15, 16 and 17) may comprise seatings 50 for

anchorage of fixture screws.

In the event of heavy sections or greater sizes the edges forming the second seating 32 (see Fig.8 for instance) may include reinforcement projections 51.

Fig.9 shows two identical sections of the type of Fig.1, in which the section which serves to retain the pane 52, in the case of a double pane, cooperates with a pane holder 37 that is anchored with a catch in the second seating 32 owing to two teeth 53 and 54 comprised in the pane holder 37.

We have not shown the packing which cooperates with the first seating 30 and with the pane 52 and contrast section respectively, nor have we shown the packing which cooperates with the pane holder 37 and with the pane 52. Shims may be included and positioned in the interspace 55 between the pane 52 and the section.

Fig.10 shows a complementing variant in which a first section 36 for inversion of abutment with anchorage teeth 153-154 and with a support surface 56 cooperates with one of two sections 60.

The first section 36 comprises two second seatings 32 and a third second seating 132.

The first two second seatings 32 are used for installation of the usual accessories, while the third second seating 132 is employed for insertion of a possible bolt in the event that a hinge is fitted in the second twin seating 32.

The third second seating 132 has its inner end suitable to lodge a possible head of a screw to secure the first section 36 to the basic section 60 without creating any interference to the possible bolt.

Fig.11 shows two sections, of which the first 60 is of the type of Fig.1, whereas the second 61 includes a central abutment 57 having an inclined edge 58 that cooperates during closure with the edge 34 of the packing 33 of the first chamber 76 so as to obtain correct positioning of the edge 34 of the packing 33 and, when the frame is closed, with the same edge 34 for a better airtight and watertight seal.

A reduced inner abutment 59 of the second section 61 has a shorter length and does not include the first seating 30 but comprises instead a recess 31.

Moreover, the section 61 includes a protrusion/recess 62 on which is temporarily rested the end of the normal abutment 49 of the first section 60.

Owing to the packing 33 of the first chamber 76 having its body displaced, a broad first chamber 76 is obtained, the purpose of which is to improve an airtight and watertight engagement.

Fig.12 shows two sections 61, both of which are oriented in the same way but as counterparts and are coplanar; one of these sections cooperates

with a second section 35 for inversion of abutment; the second section 35 comprises anchorage teeth 253-254 and support surfaces 156.

This section 35 to provide inversion of abutment, like the section 36 of Fig.10, includes second seatings 32 and 132.

Fig.13 shows a coupling of a section 60 to a section 63 which includes an abutment 64 modified to obtain coplanar positioning with the section 60. The abutment 64 too comprises a recess 62 where the end of the normal abutment 49 is lodged temporarily. The abutment 64 has its end 65 turned downwards and bearing a terminal first seating 30. By means of this conformation the space for lodging the pane 52 is reduced and the use of the pane holder 37 is made possible since the distance of the first seating 30f is brought back to a standardized distance, namely a defined and constant distance.

Fig.14 shows two coplanar counterpart sections 63, one of the two including the section 36 of Figs.10 that inverts abutment.

In the case of specific sections for doors and windows (see Fig.14), these sections comprise at least three seatings 32 which according to the invention are identical to each other, whereas the generic sections, as regards their stationary or movable part, comprise at least four identical second seatings (see Figs.1, 2, 3, 4, 5 and 6).

Fig.15 shows a section 66 for use on the fascia strips of doors with two coplanar abutments 49, two temperature-insulation joints 43 and seatings 50 for screws.

Fig.16 shows a section 67 for the lower mounting element of doors and shop windows, which in addition to the elements of the section 66 comprises a further abutment 49 which is the twin of that on the other side of the section 67.

Fig.17 shows the section 66 of Fig.15 but without a temperature-insulation joint 43.

Fig.18 shows a window frame with its perimetric portions 82 and intermediate or central portions 83.

Fig.19 shows a door frame with its perimetric portions 82, intermediate or central portions 83 and lower mounting element 84.

Fig.20 shows two sections 160 of a type with a minimum height and maximum width; these sections 160 differ from the section 60 of Fig.1 only by their greater width. Between the two sections 160 there are a first element 70 and a second element 71 capable of being combined together; when assembled together, these elements 70-71 provide for the application of the accessories and the creation of projections 162, which, unlike the projections 62 of Fig.14, serve to cooperate with packings located in the first seatings 30.

Fig.22 differs from Fig.20 by including

temperature-insulation joints 43. Fig.23 differs from Fig.22 only as regards the greater height of the section, which is the maximum.

In Fig.23 the second combinable element 171 has a greater height than the corresponding element 71 of Figs.20 and 22.

Fig.21 corresponds substantially to Fig.20 but the coupling is intended for central or intermediate portions 83 of doors and also comprises accessories. The sections consist of a section 160 and a section corresponding to that of Fig.8 but without seatings 50 for screws. In cooperation with a first 70 and second 71 combinable elements is included a lock 72 with three closures with a frontal catch 73, which cooperates with a stationary pawl 74 and with rods 75 to actuate the upper and lower closures. The shaft 175 of the bolts is also included.

Fig.24 shows a coupling between sections 77-78 comprising temperature-insulation joints, where a section 77 (Fig.4) is coupled with a section 78. The insulation joint 143 of the section 78 includes means 157-158 corresponding to the means 57-58 of Fig.11 and suitable to cooperate with the edge of the packing 33 of the first chamber 76.

In Fig.25 the sections 177-178 are obtained by changing the height of the temperature-insulation joint 43. In this case the packing 33 and the means 157 are displaced to enlarge the first chamber 76.

Fig.26 shows two sections 78 with a first section 136 for inversion of abutment; it also shows a screw 79 and shaft 175. It should be noted that the specific sections for doors and windows include an extension 80 to break up drops of water (see for instance, Figs.14, 24 and 26).

It should also be noted that in the sections according to the invention the trap 80 to break up drops of water is shaped with a terminal concentration projection and has a minimum width of about 5 mm. and a minimum depth of about 3 mm. so as to fulfil its functions in the required manner even when the rain is beating at an angle.

The shape of the trap 80 may vary and/or have greater dimensions according to the type of section employed.

Moreover, in view of the size of the second chamber 81 it is possible to apply there a retractable hinge by fixing it to the second seatings 32, which substantially face each other.

The various sections and various couplings thereof can be readily embodied by a person skilled in this field after reading the above description.

Claims

1. Homogeneous set of sections for aluminium frames such as window, door and shop window frames, which comprises sections having at

- least one height and at least one width with or without temperature-insulation joints and includes basic sections and auxiliary sections, each basic section comprising:
- at least one abutment protrusion (49) with at least one first seating (30) and at least one mating recess (31) for the insertion and positioning of corner joints,
 - at least three equal second seatings (32),
 - at least one enclosed space (40-140-240) with possible delimiting projections (41-141-241).
2. Set as claimed in Claim 1, in which the section comprises two coplanar counterpart protrusions (49) and a twin H-shaped protrusion (49) (Fig.16).
 3. Set as claimed in any Claim hereinbefore, in which the basic section is a symmetrical counterpart in relation to the axes "x" and "y" and is reversible.
 4. Set as claimed in any Claim hereinbefore, in which the section comprises narrowed portions (38) along its sidewalls.
 5. Set as claimed in any Claim hereinbefore, in which the section comprises a recess created by the abutment protrusion (62-162), which is formed by the protrusion (62) or is formed by a combination of elements (162) (see Fig.20).
 6. Set as claimed in any Claim hereinbefore, in which the section with a temperature-insulation joint comprises also a second enclosed space (47).
 7. Set as claimed in any Claim hereinbefore, in which at least two heights of sections providing temperature insulation can be obtained by changing the temperature-insulation joints (43) alone.
 8. Set as claimed in any Claim hereinbefore, in which the temperature-insulation joint (43) comprises a lengthwise protrusion (69) to form a sidewall of at least one seating (32).
 9. Set as claimed in any of Claims 1 to 6 inclusive, in which a second element (44) is replaced by an enlarged second element (144) to obtain the maximum height of sections providing temperature insulation.
 10. Set as claimed in any Claim hereinbefore, in which the section including the temperature-insulation joint (43) comprises mechanically knurled recesses (45).
 11. Set as claimed in any Claim hereinbefore, in which the section including the temperature-insulation joint (43) comprises clamping edges (46) to be upset mechanically so as to clamp the temperature-insulation joints (43) within the knurled recesses (45).
 12. Set as claimed in any Claim hereinbefore, in which the temperature-insulation joints (43) have an arcuate conformation, and the section with temperature-insulation joints (43) has a coplanar positioning of the temperature-insulation joints (43) and the upset clamping edges (46).
 13. Set as claimed in any Claim hereinbefore, in which the specific section for doors or windows has a shaped extension (80) to break up drops of water, the extension (80) having a minimum width of about 5 mm. and a minimum depth of about 3 mm. and forming part of the protrusion/recess (62).
 14. Set as claimed in any Claim hereinbefore, in which the connecting and reinforcing corner joints can be used for the inner or outer part of the section.
 15. Set as claimed in any Claim hereinbefore, which comprises at least one section (35-36-136) for inversion of abutment with anchorage teeth (53-153-253-54-154-254) and at least one support surface (56-156).
 16. Set as claimed in any Claim hereinbefore, in which the section comprises an abutment (57) with at least one inclined edge (58).
 17. Set as claimed in any of Claims 1 to 15 inclusive, in which the temperature-insulation joint (43-143) comprises an abutment (157) with at least one inclined edge (158).
 18. Set as claimed in any Claim hereinbefore, in which a packing (33) of a first chamber (76) is installed in a second seating (32) and cooperates with the inclined edge (58) and creates a first chamber (76) between two neighbouring cooperating sections.
 19. Set as claimed in any Claim hereinbefore, in which the section (35-36) for inversion of abutment includes at least one second seating (32) and at least one third second seating (132).
 20. Set as claimed in any Claim hereinbefore, in

which the inner end of the third second seating (132) comprises a lodgement for a fixture screw (79).

21. Set as claimed in any Claim hereinbefore, in which a pane-holder (37-137) is secured with a catch in a second seating (32). 5
22. Set as claimed in any Claim hereinbefore, in which the abutment protrusion (49) has a downwardly turned end (65) bearing a terminal first seating (30). 10
23. Set as claimed in any Claim hereinbefore, which includes an extension (80) to break up drops of water. 15
24. Set as claimed in any Claim hereinbefore, in which the second seatings (32) in the second chamber (81) substantially face each other. 20

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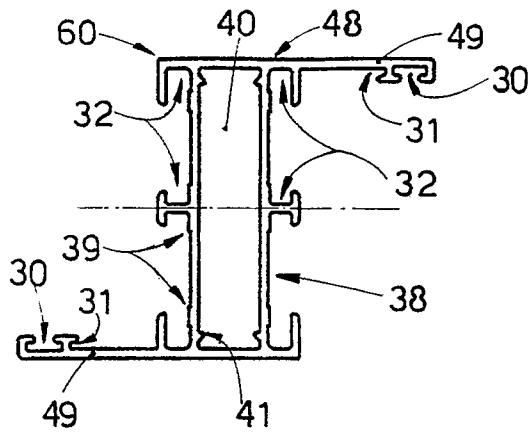


fig. 1

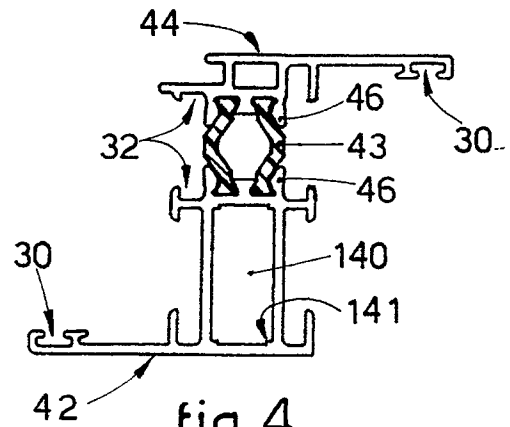


fig. 4

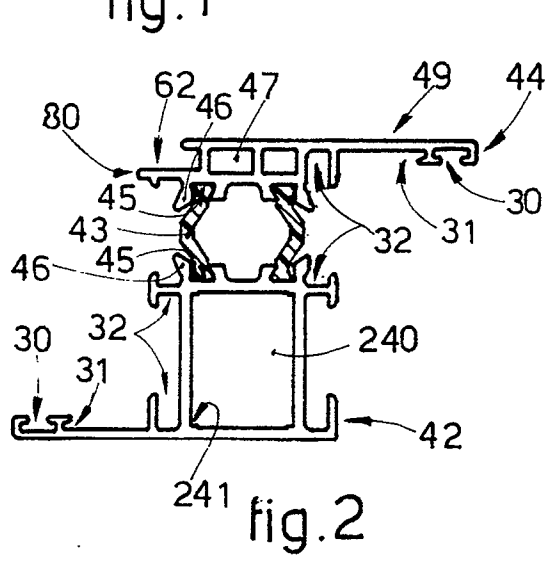


fig. 2

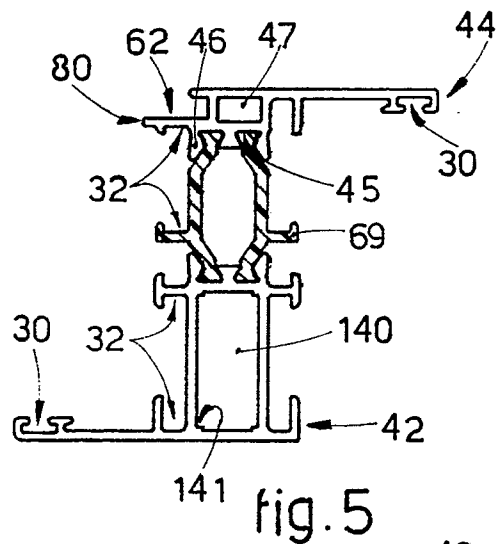


fig. 5

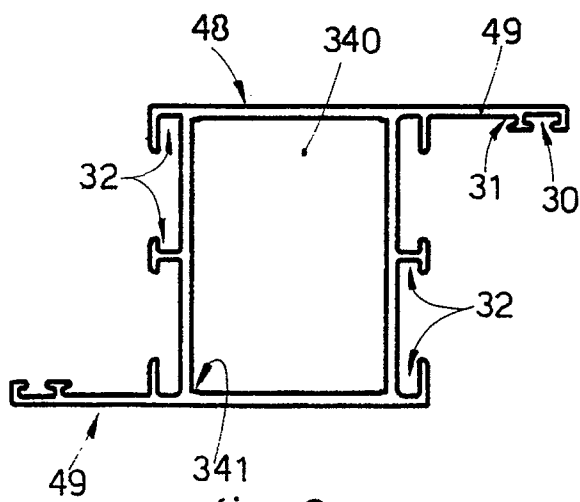


fig. 3

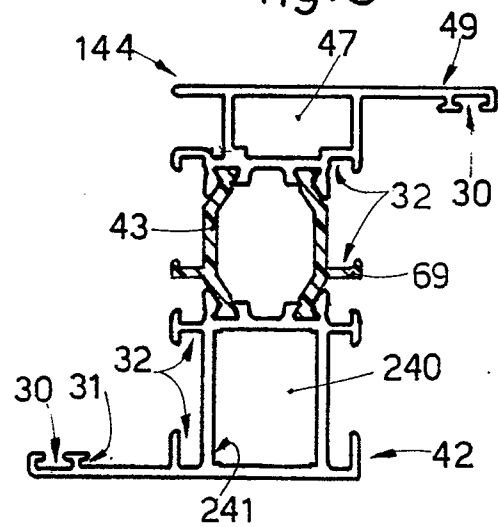
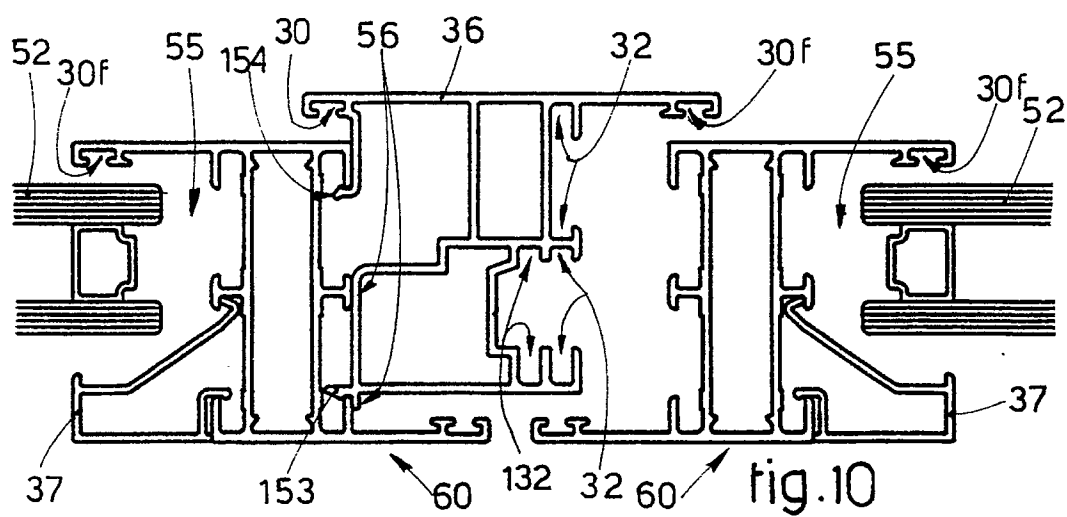
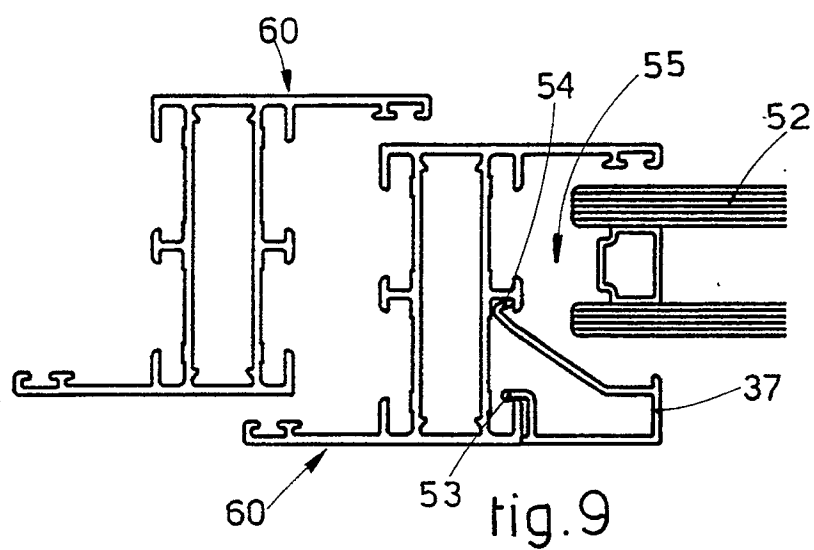
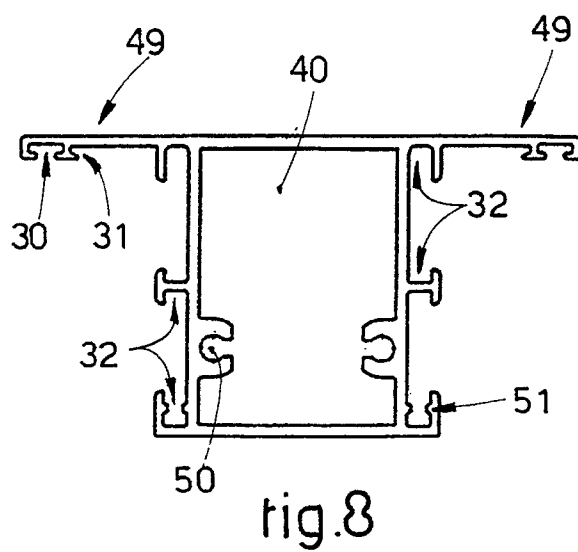
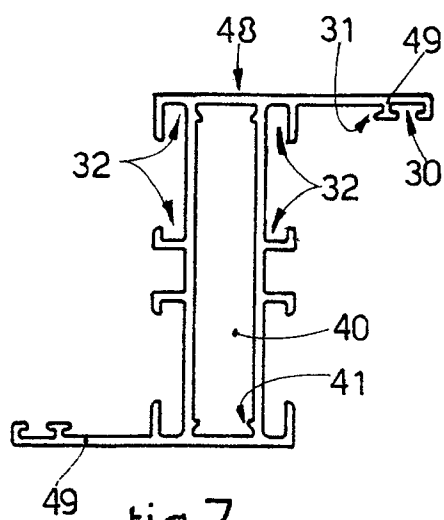
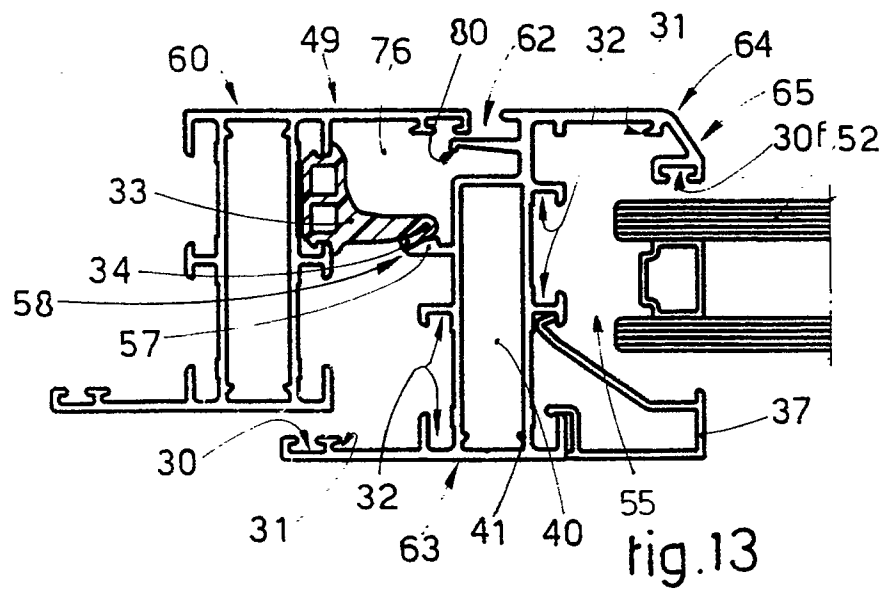
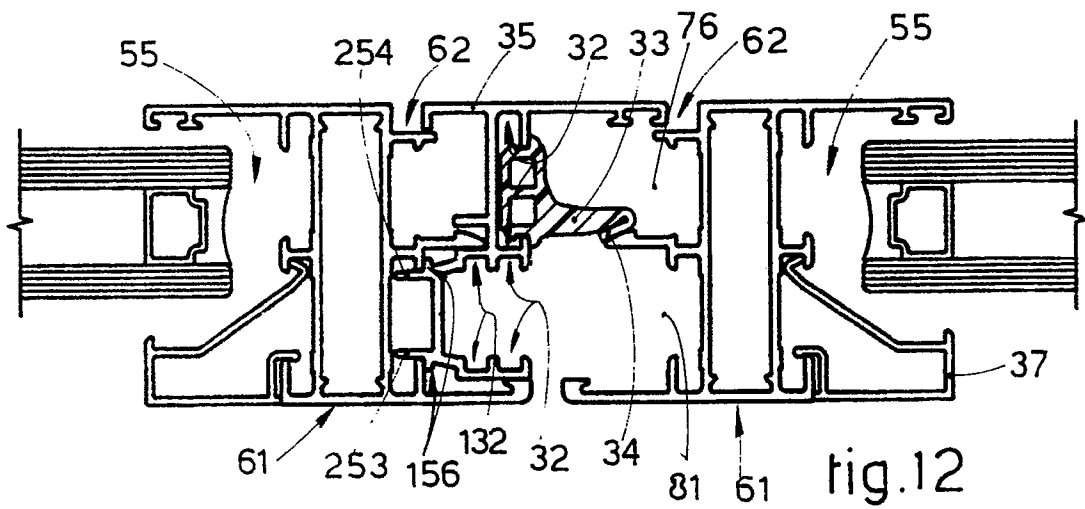
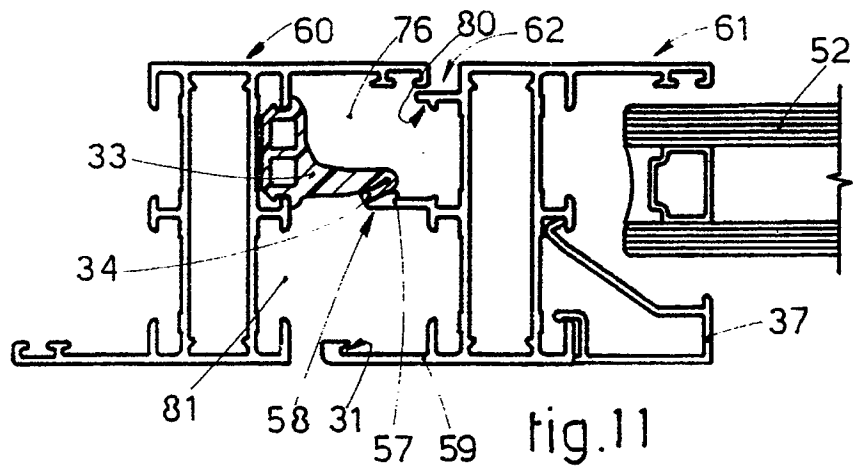
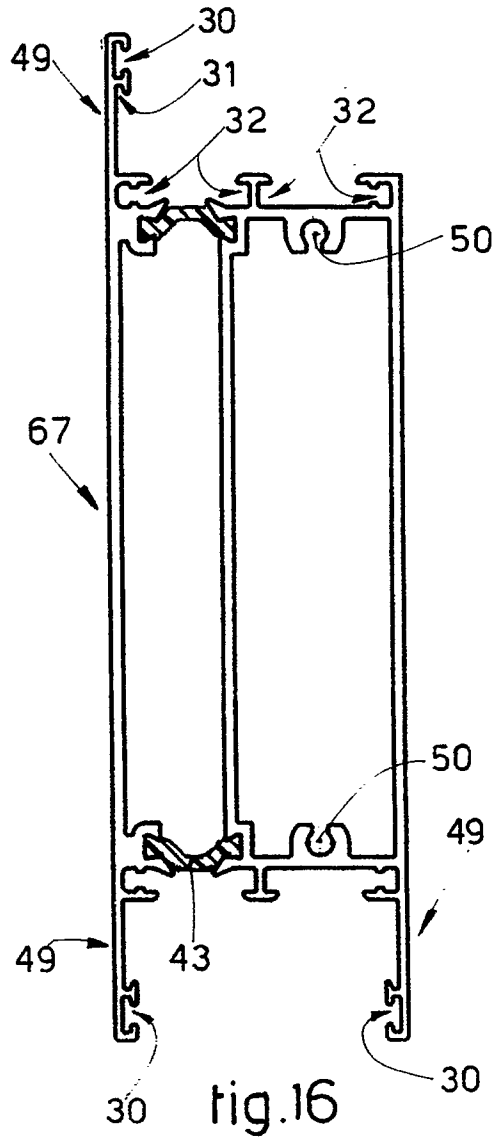
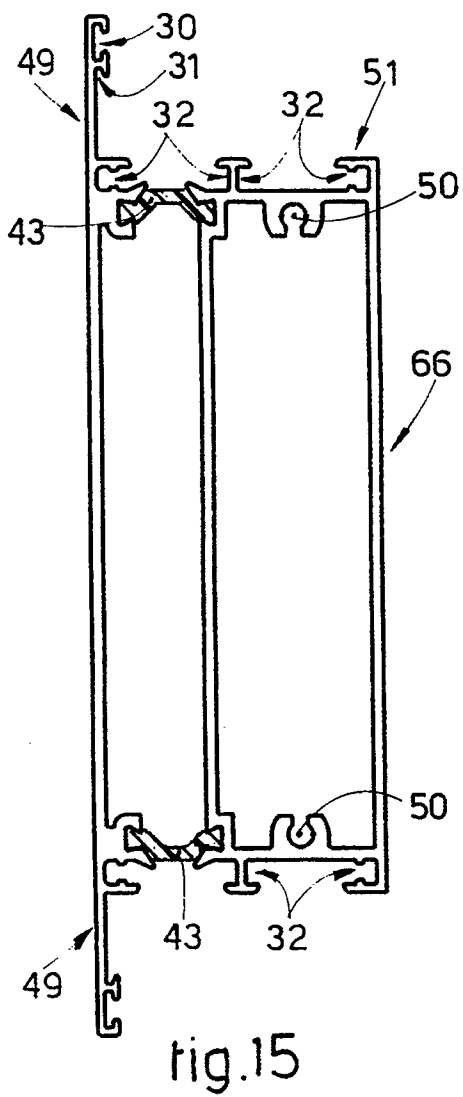
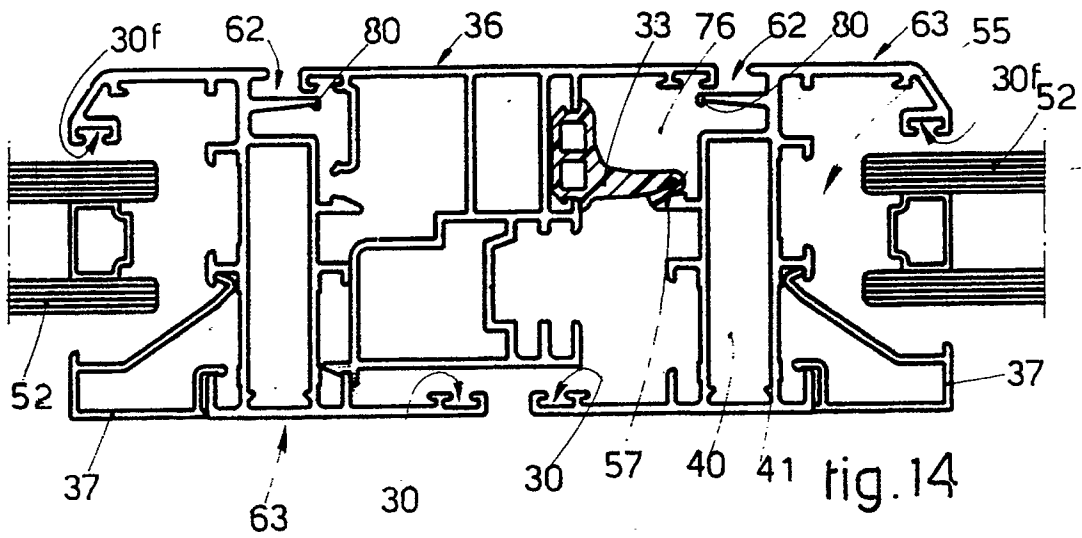
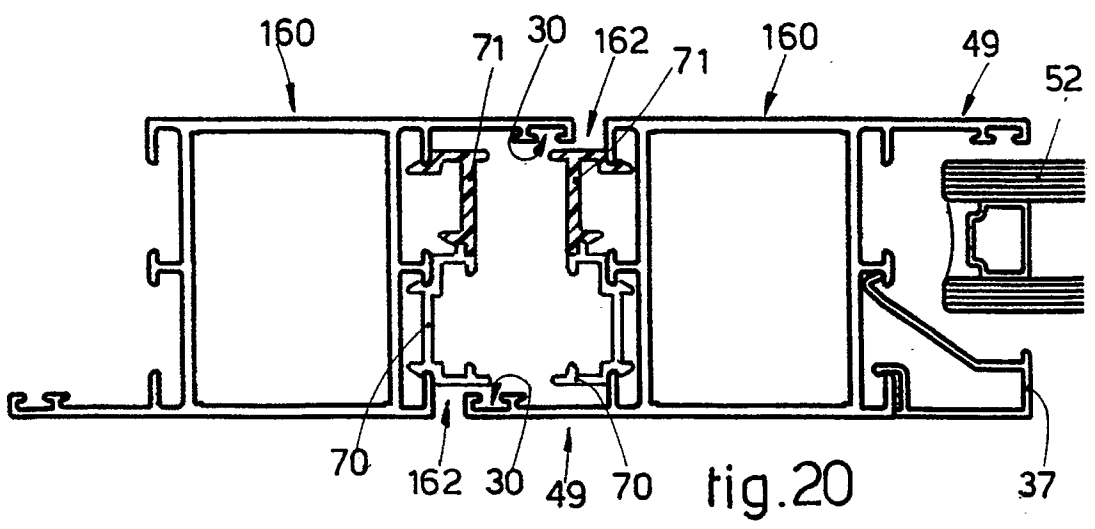
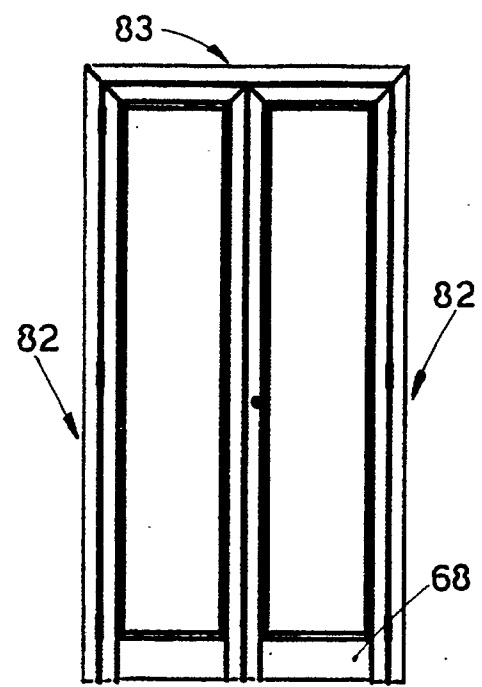
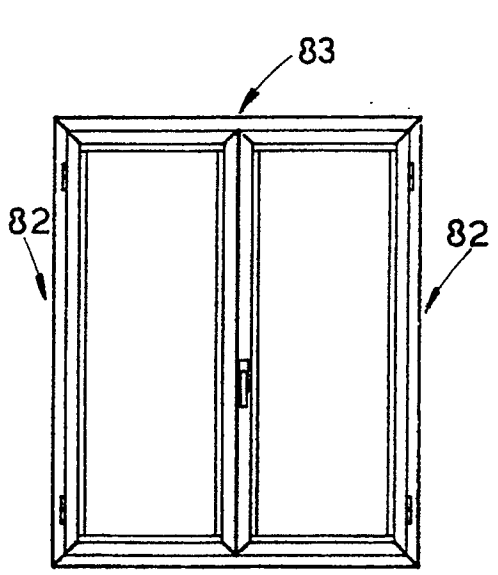
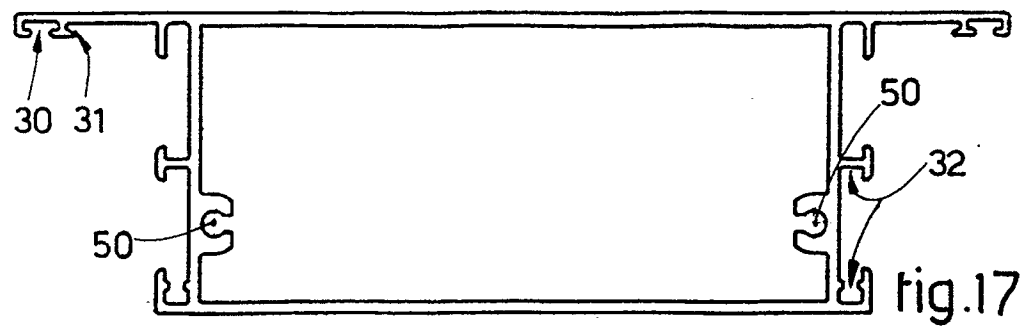


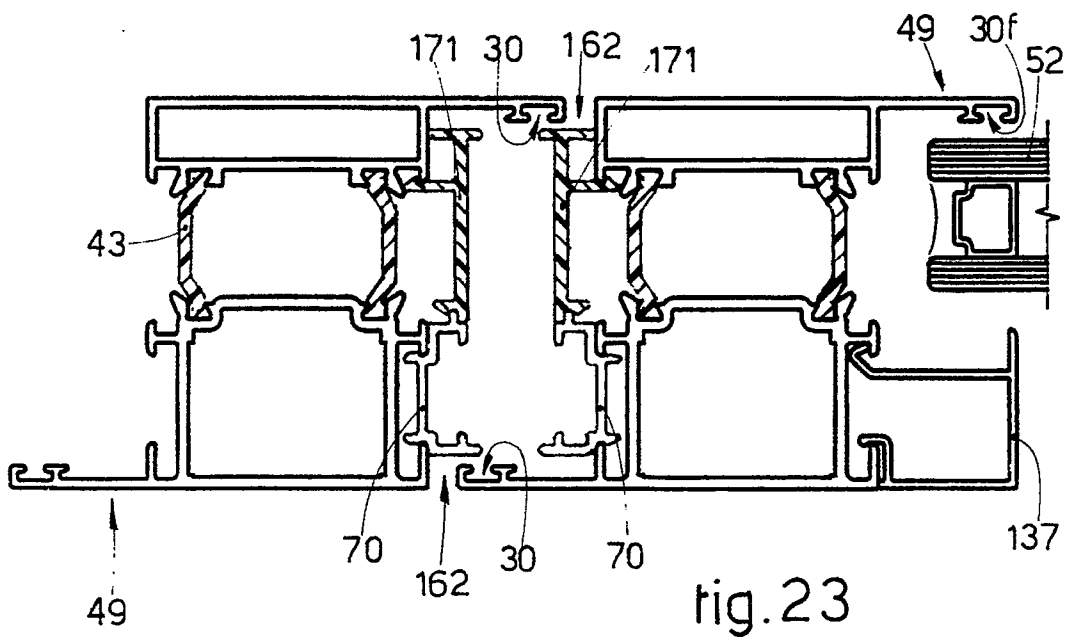
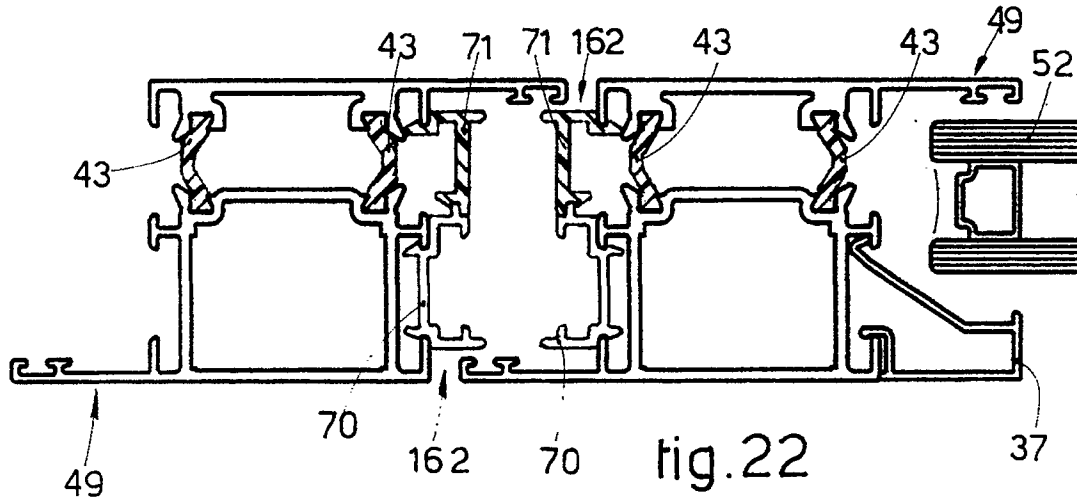
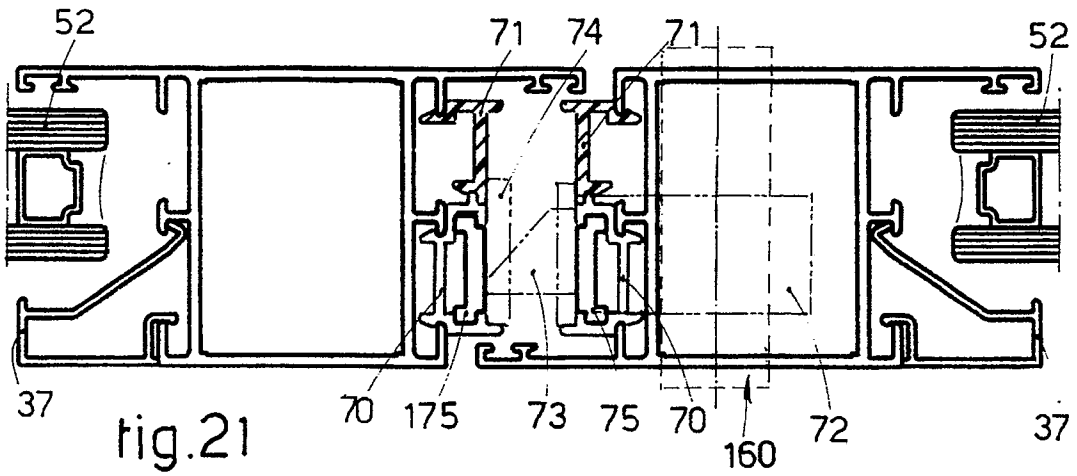
fig. 6

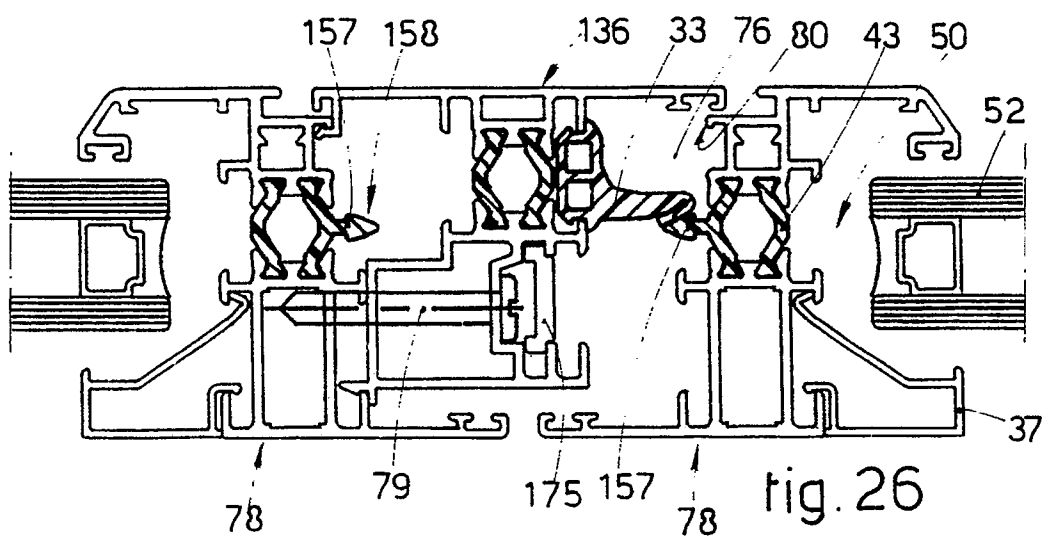
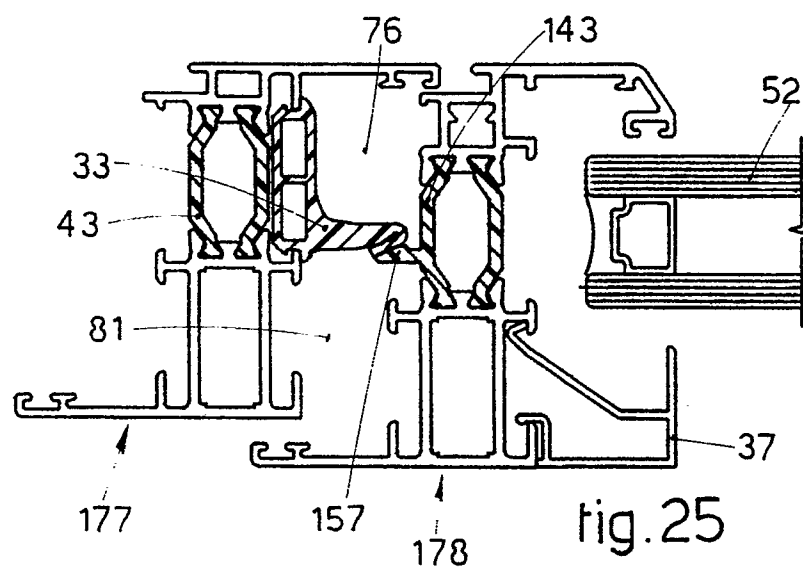
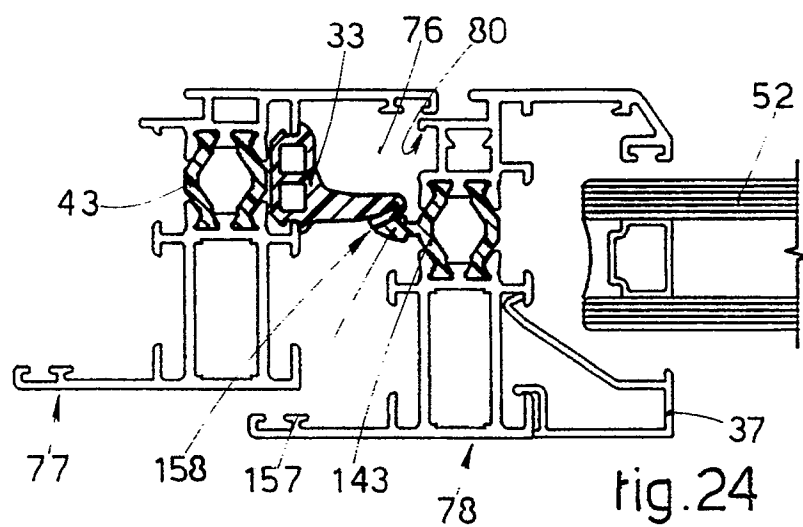














Application Number

EP 91 10 8750

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X,Y	EP-A-0 320 463 (METALLURGICA METRA TRAFILATI) * column 3, line 5 - column 5, line 11; figures *	1,2,5,6, 16-18,21, 24,8, 10-12,15, 20,22	E 06 B 3/12 E 06 B 3/26
X	FR-A-2 628 786 (HYDRO ALLUMINIO ORNAGO) * page 3, line 1 - page 5, line 29; figures 1,2 *	1,5,6, 16-18,21, 24	
X	DE-A-2 235 392 (SCHÖNINGER) * page 8, line 15 - page 16, line 18; figures *	1-7,9,13	
X	EP-A-0 283 983 (ALPROGETTI) * column 2, line 24 - column 4, line 14; figures 1-3 *	1,3	
X,Y	DE-A-2 002 804 (WIELAND-WERKE) * page 7, line 1 - page 10, line 18; figures 1-3 *	1,4,19	
Y	DE-A-2 810 630 (HARTMANN) * figures 1-4,6 *	8	
Y	DE-A-3 301 906 (SCHÜCO) * page 5, line 10 - page 6, line 7; figures *	10,11	
Y	EP-A-0 200 171 (ABOJOZ) * claim 1; figures *	12	
Y	DE-U-8 900 567 (HOCOPLAST) * page 3, line 8 - page 4, line 22; figure *	15,20	
Y	FR-A-2 283 293 (WILH. FRANK) * page 4, line 29 - page 7, line 10; figure *	19	
		-/-	
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		12 September 91	DEPOORTER F.
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	FR-A-2 147 900 (HOHBINDER) * page 7, line 17 - line 18; figures 1-11 * - - -	22	
A	EP-A-0 049 694 (R.A.I.-REYNOLDS ALUMINIUM ITALIA) * page 5, line 10 - page 13, line 12; figures 1-10 * - - -	1,3,5,6, 15,16,18, 21	
P,X	EP-A-0 379 471 (METALLURGICA METRA TRAFILATI) * column 3, line 38 - column 5, line 12; figures 1-15 * - - - - -	1,5-7,9, 16-18,21, 22	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
Place of search		Date of completion of search	Examiner
The Hague		12 September 91	DEPOORTER F.
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