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(54) Section member and fitting assembly for making high thermal insulation wood coated window and door frames

(57) The present invention relates to fixed frame section members and/or movable frame section members, each constituted by a metal outer section member (31) and a metal inner section member (32), connected to one another by thermally insulating material elements (3,4).

The metal inner section member (32) is provided, on the inner face thereof, i.e. the face thereof opposite to the metal outer section member (31), with a seat in which restraining plugs can be engaged, the latter being affixed to a wood coating strip (45). These plugs are provided with a first portion thereof which can be engaged in the seat of the metal inner section member and a second portion which can be arranged between the inner face of the metal inner section member and the wood strip, so as to space the wood strip from the metal section member.

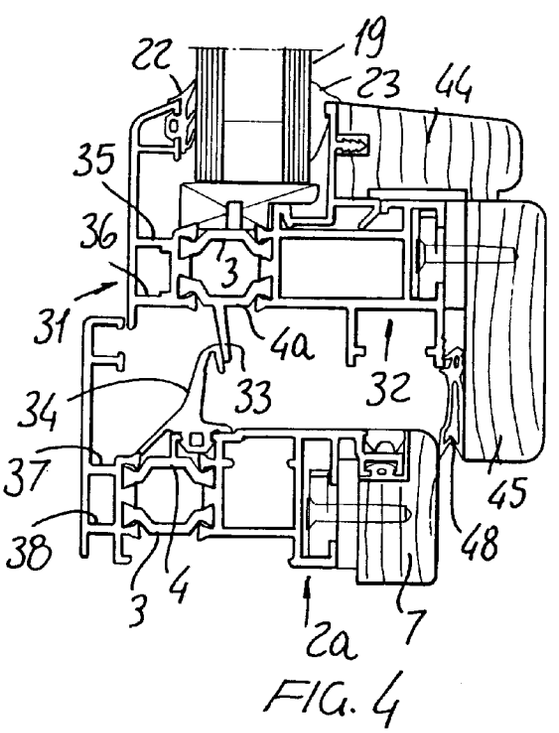

FIG. 4

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Description

BACKGROUND OF THE INVENTION

The present invention relates to a section member and fitting assembly for making high thermal insulation wood coated window and door frames.

In recent years a great success has been encountered by window and door frames made of metal section members coated, on the side thereof provided for facing the inside environment, by wood strips. These door and window frames have the advantage of possessing a high mechanical strength and resistance against the weathering agents, and, moreover, they have advantageous aesthetic characteristics which can be compared with those of the door and window frames made of wood.

However, in making window and door frames by using metal section members coated by wood strips several problems are encountered.

At first, since the window or door frame is made of two materials which are very different from one another, it can be deformed because of the different thermal expansion of the metal section members and of the wood coating material.

This anomalous deformations can negatively affect a proper connection of the movable frame of the door or window frame with the fixed frame thereof, so as to reduce the useful life of the frame.

Another problem associated with the use of the above mentioned type of window or door frames is the formation of condensate, which is usually generated on the metal portion of the frame facing the inside environment and which, if absorbed by the wood portion, would progressively physically and aesthetically damage the coating strip thereby requesting the damaged strip to be frequently replaced.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to overcome the above mentioned problems, by providing a section member and fitting assembly for making high thermal insulation wood coated window and door frames which is specifically designed to greatly reduce the condensate formation on the metal section member side facing the inside environment and which, in particular, prevents the condensate from being absorbed by the wood coating material.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a section member and fitting assembly, in which the connection of the metal portions and wood coating does not generate any anomalous deformations caused by thermal expansion effects.

Another object of the present invention is to provide such a section member and fitting assembly in which the wood coating on the inside portion of the frame section members can be carried out in a very simple and quick manner.

Yet another object of the present invention is to provide such a section member and fitting assembly in which water is prevented from collecting inside the section members.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a section member and fitting assembly for making high thermal insulation wood coated window and door frames, characterized in that said section member and fitting assembly comprises fixed frame section members and/or movable frame section members, each constituted by a metal outer section member and a metal inner section member, connected to one another by thermally insulating material elements, said metal inner section member being provided, on the inner face thereof opposite to said metal outer section member, with a seat in which restraining plug can be engaged, said restraining plug being adapted to be fixed to a wood coating strip, said restraining plug having a first portion thereof which can be engaged in said seat and a second portion thereof which can be arranged between the inner face of the metal inner section member and the wood coating strip, for spacing said wood coating strip from said metal inner section member.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the section member and fitting assembly, according to the present invention, will become more apparent hereinafter from the following detailed disclosure of some preferred, though not exclusive, embodiment thereof, which are illustrated, by way of an indicative, but not limitative example, in the accompanying drawings, where:

Figure 1 schematically illustrates a fixed wing window frame;

Figure 2 is an enlarged cross-sectional view of Figure 1, essentially taken along the section line II-II;

Figure 3 schematically illustrates a movable wing window frame;

Figure 4 is an enlarged cross-sectional view of Figure 3, essentially taken along the axis IV-IV;

Figures 5 and 6 are cross-sectional views analogous to Figure 4, with different aesthetic configurations of the exposed to the view portions of the section members constituting the frame;

Figure 7 is an enlarged cross-sectional view of Figure 3, substantially taken along the section line VII-VII;

Figure 8 is an enlarged cross-sectional view of Figure 3, substantially taken along the section line VIII-VIII;

Figures 9 and 10 are cross-sectional views analogous to Figure 8, and illustrating section members

having, on the exposed to the view side thereof, a different aesthetic configuration;

Figure 11 schematically illustrates a section member having a fixed wing and a movable wing;

Figure 12 is an enlarged cross-sectional view of Figure 11, substantially taken along the section line XII-XII;

Figure 13 is a schematic view illustrating a door or so-called window-door;

Figure 14 is an enlarged cross-sectional view of Figure 13, taken substantially along the section line XIV-XIV;

Figure 15 is an enlarged cross-sectional view of Figure 13, substantially taken along the section line XV-XV;

Figure 16 schematically illustrates an inlet or access door;

Figure 17 is an enlarged cross-sectional view of Figure 16, substantially taken along the section line XVII-XVII;

Figures 18 and 19 are cross-sectional views illustrating fixed frame cross members;

Figures 20 and 21 are cross-sectional views illustrating cross-members for movable frames, or for openable wings;

Figure 22 illustrates the same cross member shown in Figure 18, from which have been removed the glass panels, the glass restraining section members and related seals and coatings;

Figure 23 shows the same cross-member shown in Figure 19, the glass panels, glass restraining section members and related seal or gaskets and coatings being removed;

Figure 24 illustrates the same cross-member shown in Figure 20, the glass panels, glass restraining section members and related gaskets and coating being removed;

Figure 25 illustrates the same cross-member shown in Figure 21, the glass panels, glass restraining section members and related gaskets and coatings being removed;

Figure 26 is a cross-sectional view illustrating a movable frame section member of the type shown in Figure 25;

Figure 27 is another cross-sectional view illustrating a movable frame section member, of the type shown in Figure 26;

Figure 28 is yet another cross-sectional view illustrating a movable frame section member, of the type shown in Figure 14;

Figure 29 is yet another cross-sectional view illustrating a movable frame section member of the type shown in Figure 15;

Figure 30 is yet another cross-sectional view illustrating a movable frame section member of the type shown in Figure 8;

Figure 31 is yet another cross-sectional view illustrating a further section member;

Figure 32 is yet another cross-sectional view illustrating the fixed frame section member being shown in Figure 2;

Figure 33 is yet another cross-sectional view illustrating a fixed frame section member, of the type shown in Figure 4;

Figure 34 is yet another cross-sectional view illustrating a movable frame section member of the type shown in Figure 4;

Figure 35 is yet another cross-sectional view illustrating a fixed frame section member of the type shown in Figure 7;

Figure 36 is yet another cross-sectional view illustrating a fixed frame section member of the type shown in Figure 14;

Figure 37 is yet another cross-sectional view illustrating a section member of the type shown in Figure 37, with a different coating wood strip;

Figure 38 is yet another cross-sectional view illustrating a further type of section member;

Figures 39 and 40 are further crosssectional views illustrating fixed frame section members of the type shown in Figure 7, with a different type of assembled wood strip element;

Figure 41 is a perspective view illustrating a restraining plug for the connection of the wood coating strip;

Figure 42 is a cross-sectional view illustrating a glass restraining section member; and

Figures 43, 44, 45 and 46 are cross-sectional views illustrating some wood strips for coating the faces of the section members provided from facing the inside environment of a room or the like.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the number references of the figures of the accompanying drawings, the section member and fitting assembly for making high thermal insulation wood coated window and door frames according to the present invention comprises, as shown for example in figure 2, a fixed frame section member constituted by a metal outer section member 1 and a metal inner section member 2 which are connected to one another by thermally insulating material elements 3, 4.

The metal inner section member 2 is provided, on the inner face or surface thereof, opposite to the metal outer section member 1, with a seat or recess 5 in which can be engaged restraining plugs 6, which can be affixed to a wood coating strip 7.

More specifically, the restraining plugs 6 are provided with a first portions 6a, which can be engaged in the seat 5 of the metal inner section member 2 and a second portion 6s which can be arranged between the inner face of the metal inner section member 2 and the wood coating strip 7 in order to hold said wood coating strip 7

spaced from the face of the section member 2 subjected to the inside environment.

More particularly, the seat 5 is defined by a pair of fins 8a and 8b, having a substantially L-shape configuration and opposite to one another, which extend on that side of the section member 2 provided for facing the inside environment.

As shown in particular in figure 41, the restraining plug 6 is substantially constituted by the first portion 6a, having a substantially parallelepipedal configuration, and the second portion 6b, also having a substantially parallelepipedal configuration.

These portions are facing one another, are substantially parallel and are connected by a tapering region 6c.

Two opposite side corners of the portion 6a of the restraining plug 6 are suitably cut-out or beveled, so as to allow the restraining plug 6, after having engaged the first portion 6a in the seat 5, to tun in a plane which is substantially parallel to the laying plane of the face of the section member 2 facing te inside environment, so as to lock the restraining plug in the seat or recess 5.

The coating wood strips 7 are affixed by applying a plurality of restraining plugs 6, for example by screws 10, spaced from one another on the face of the strip 7 provided for facing the section member 2.

The screws 10 pass through a throughgoing hole 11, formed in the restraining plugs 6, so that, notwithstanding the application on the related strip 7, the several restraining plugs 6 can turn about the screw 10.

More specifically, the restraining plugs 6 are accordingly so oriented as to pass through the access opening of the seat 5 and, upon arranging inside the seat 5, they are turned, by a suitable not shown tool, through 90°, about the axis of the screw 10, so as to firmly engage said plugs inside the seat 5.

The locking of the restraining plugs 6 in said seat 5 will allow anyhow to perform a sliding displacement of the restraining plugs 6 with respect to the section member 2, so as to prevent stresses from occurring between the section member 2 and wood strip 7 because of the different thermal expansions of the two materials of these elements.

Such a sliding possibility of the restraining plugs 6 and section member 2 will be facilitated by the specifically designed configuration of the restraining plugs 6 and the material, preferably nylon, making them.

The elements 3 and 4 are formed by small bars which are preferably made of polyamide, and which can be made by an extruding method, and which are provided with enlarged thickness side end portions so as to engage in seats or recesses 12 formed by fins 13 projecting from the mutually facing section member 1 and 2 sides.

The bars 3 and 4 have the portion thereof extending outside of the seats 12 which is bent away from an adjoining bar, so as to be substantially coplanar with the two fins 13 arranged outside of the bar pair 3 and 4.

Thus, a substantially continuous arrangement of the fins 13 and bars 3 and 4 is obtained, so as to efficiently prevent water from being collected in this region.

The section member assembly further comprises a glass restraining or detent section member 15 which can be bayonet locked on the metal inner section member 2.

The glass restraining section member 15, in particular, as is shown in figure 42, is provided with a lug 16 which can be engaged under a shoulder defined by a fin of the metal inner section member 2 and a fin 17 providing a resting or bearing portion 17a which can be abutted against a shoulder 18 defined by the section member 2.

The glass restraining section member 15 is moreover provided, on the side thereof opposite to the glass panel or plate 19, with a fin 20 for supporting a wood coating strip 21.

The metal outer section member 1 and glass restraining section member 15 face the two opposite surfaces of the glass panel or plate 19 and bear thereagainst, through the interposition of gaskets 22, 23.

This connection of the glass restraining section member 15 and metal inner section member 2 will provide a very good sealing property, the tightness of which increases as the pressure on the glass panel exerted from the outside toward the inside increases.

Moreover, owing to the provision of the fin 20, the glass restraining section member 15 will allow the wood strip 21 to be mounted, through the interposition of the gasket 24, and without using exposed to the view screws.

Owing to the section member and fitting assembly according to the present invention, it is possible to make fixed type of window or door frames, or movable-wing window or door frames, or frames provided either with a fixed type or a movable type of wings, as is shown in the several figures of the drawings.

For making movable wing window frames, one of the thermally insulating elements connecting to one another the metal outer section member 31 and metal inner section member 32, and which has been indicated in figure 4 by the reference number 4a, is provided with a fin 33 facing the fixed frame section member, for which the same reference number as those of figure 2 have been used, and thereagainst bears a sealing gasket 34 providing a connection between the fixed frame section member and the movable frame section member, of an open joint type, and being supported by the bar 4 arranged on the fixed frame section member.

The frame made by the section member assembly according to the present invention, as shown for example in figure 4, has all of the metal inner section members arranged on a same side, with respect to the tightness or sealing plane identified by the coupling of the gasket 34 with the fin 33.

Thus, the metal inner section members both of the fixed frame and of the movable frame are optimally insulated from the outer environment.

The gasket 34 is so designed as to nearly fully coat

the bar 4 to which it is connected, and so as to convey to the outside a possibly penetrated water.

Thus, because of this reason, laterally of the bars 3, 4, 4a and toward the outer face of the frame, in the outer metal section members channels 35, 36, 37 and 38 have been defined for collecting penetrated water.

The above mentioned channels 35, 36, 37 and 38 are coupled to one another and with the outside environment by either vertical or horizontal holes, which have been not shown, therethrough the penetrated water is evacuated to the outside of the frame.

Between the metal inner section member of the movable frame and the wood coating strip an abutment gasket 48 can be arranged.

Figures 5 and 6 illustrate, in cross-sectional views, the side of the movable-wing frame which is substantially made as the side shown in figure 4, with the difference that the wood coating strips 40, 41, 42, 43 have a different aesthetical configuration, with respect to the coating strips 44, 45 shown in figure 4.

Likewise, the metal outer section member 46, 47 has an aesthetic configuration different from that of the coating strips 44, 45 shown in figure 4.

Likewise, the metal outer section member 46, 47 has an aesthetic configuration different from that of the metal outer section member 31 of the movable frame shown in figure 4.

Figure 7 illustrates a cross-sectional view of a frame upright, constituted by fixed frame section members and movable frame section members, which are the same section members shown in figure 4, and which have been indicated by the same reference numbers.

Figure 8 illustrates a cross-sectional view of the central upright of a two-wing window, in which the outer top portion is formed by a section member 50 coupled to the metal inner and outer section members 31 and 32 of the movable frame.

The section member 50 is also constituted by a metal outer section member 51 and a metal inner section member 52, which are connected to one another by bars 3 and 4.

The metal inner section member 52 is coated, on its inner or inside face, by coating wood strips, of the type shown in figure 4 and which have been indicated by the same reference numbers.

The side of the window frame shown in figures 9 and 10 can be considered analogous to that side of the window frame shown in figure 8, with the difference that in figure 9 have been used metal outer section members 46, of the type shown in figure 5 and, on the inner or inside side have been used covering strips 40, 41 and 7 like those shown in that same figure 5.

In figure 10, as metal outer section members have been used section members 47 and, on the inside side, have been used coating strips 42, 43 of the type shown in figure 6.

Figure 12 is a cross-sectional view illustrating a central upright of a window constituted by a fixed portion and an openable portion.

The movable frame is constituted by the same movable frame section members shown in figure 7, and the coating on the inside side is obtained by covering strips of the same type, and which have been indicated by the same reference number.

The side of the fixed portion of the window frame is constituted by a metal outer section member 53, which is connected to a metal inner section member 54 by means of two bars 4.

The bar 4 facing the movable frame is connected to a gasket or seal 34 bearing against a fin 33 of the bar 4a supported by the movable frame, as already disclosed with reference to figure 4.

For the several elements of figure 12 which are analogous to the already disclosed elements illustrated in the preceding figures, the same reference numbers have been used.

Figure 14 illustrates a cross sectional view of the lateral side of a door or window door including a fixed frame which is constituted by a metal outer section member 55 connected to the metal inner section member 56 by means of bars of a thermally insulating material 3 and 4.

The movable frame is constituted by a metal outer section member 57 and a metal inner section member 58 which are connected to one another by means of thermally insulating material bars or rods 4a and 3.

The inner side of the fixed frame and movable frame is coated by coating wood strips 59 and 60, which are connected to the metal inner section members 56 and 58 by plugs 6.

Figure 15 illustrates a cross-sectional view of that same door or window-door, taken substantially at the bottom side.

The movable frame is constituted by section members 57 and 58 with the addition, at the central portion of the door, of a further frame section member, also constituted by a metal outer section member 61 and a metal inner section member 52 which is coated, on its inner side, by a wood strip 63.

To the section member 57 is applied a "tile" section member 64, whereas the fixed frame section member is replaced by an open contour section member 65, on which is mounted the gasket or seal 34 engaging against the fin 33 of the bar or rod 4a assembled between the section members 57 and 58.

The section member 65 is also subdivided into a portion 67 which is subjected to the inner or inside environment, and into a portion 68 which is affected by the outside environment, a bar or rod 4 on which is assembled the gasket 34 being arranged therebetween.

Figure 17 illustrates a cross-sectional view of the bottom side of an access door which is constituted substantially by the same section members shown in figure 15 and for which the same reference numbers have been held, with the addition of a bottom box-like section member 69 provided with a tightness or sealing brush

element 70.

Figures 18 and 19 illustrates respective cross-sectional views of cross-members for a fixed type of window or door frames.

More specifically, figure 18 illustrates a section member constituted by an outer section member 71 and a metal inner section member 72 which are connected to one another by means of bars or rods 4 made of a thermally insulating material.

On the inner metal section member 72 are assembled two glass panel restraining section members 15, and the inner side of the metal inner section member 72 is coated by wood coating strips 73, 74, 75.

Figure 19 illustrates a section member which is constituted by a metal outer section member 76 and a metal inner section member 77, connected to one another by bars or rods made of a thermally insulating material 4.

On the metal inner section member 77 are assembled, even in this case, two glass panel restraining section members 15, of the above disclosed type.

The inner side of the metal inner section member 77 is coated by wood coating strips 78, 79, 80.

Figure 20 illustrates a cross-sectional view of cross members for openable wings, which are constituted by a metal outer section member 80 and a metal inner section member 81 connected to one another by bars of a thermally insulating material 3.

On the metal inner section member are assembled two glass panel restraining section member 15, and the inner side of the metal section members 81 is coated by wood strips 82, 83 and 84.

Figure 21 illustrates a cross-sectional view of a cross member for openable wings, which is constituted by a metal outer section member 85, a metal inner section member 86 connected to one another by means of thermally insulating material bars or rods 3.

The metal inner section member 86 is coated, on the inner side thereof, by coating wood strips indicated by the reference numbers 87, 88 and 89.

Figures 23 to 30 relate to details or features shown in figures which have been already disclosed and for which the same reference numbers have been used.

The section member shown in figure 31 is also constituted by a metal outer section member 90 connected to a metal inner section member 91, by means of thermally insulating material bars or rods 3 and 4.

The metal inner section member is coated, on the face thereof affected by the inside environment, by a wood strip 92 connected to the section member 91 by restraining plugs 6.

Figures 32 to 37 are also related to section members or section member variations, which have been already disclosed with reference to the preceding figures, and for which the same reference numbers have been held.

Figure 38 illustrates a further section member constituted by a metal outer section member 100 and a metal inner section member 101, connected to the metal outer section member by means of bars or rods 3 and 4a.

Even in this case, the metal inner section member 101 is coated, on its inside or inner side, by a coating wood strip 102, coupled to the section member 101 by means of a restraining plug 106.

Figures 39 and 40 relate to the fixed frame section member, already illustrated in figure 4 and figure 7, with the difference that the coating wood strips, indicated by the reference numbers 103 and 104, have been changed.

Figures 43 to 46 illustrate separately the wood strips, as transversely cross-sectioned, and already illustrated in the preceding figures at the reference numbers 40, 42, 21 and 44.

Accordingly to the several shown assembling methods, the coating wood strip arranged on the inner or inside side of the metal inner section member, is completely insulated from the metal section member since, in addition to the restraining plug 6, between the metal section member and wood strip is arranged a further gasket 108.

From the above disclosure and the observation of the figures of the accompanying drawings, it should be apparent that the invention fully achieves the intended aim and objects.

In particular, the fact is to be pointed out that a section member and fitting assembly has been provided, which allows to make window and door frames providing an optimum thermal insulation and which, because of this reason, greatly reduce the formation of condensate material on the section member side affected by the inner environment, and also preventing possible formed condensate from being absorbed by the wood coating.

The thus disclosed section member and fitting assembly is susceptible to several modifications and variations, all of which will come within the scope of the invention.

Moreover, all of the details can be replaced by other technically equivalent elements.

In practicing the invention, the used materials, as well as the contingent size and shapes, provided that they are compatible to the intended use, can be any, depending on requirements.

Claims

1. A section member and fitting assembly for making high thermal insulation wood coated window and door frames, characterized in that said section member and fitting assembly comprises fixed frame section members and/or movable frame section members, each constituted by a metal outer section member and a metal inner section member, connected to one another by thermally insulating material elements, said metal inner section member being provided, on the inner face thereof opposite

to said metal outer section member, with a seat in which restraining plug can be engaged, said restraining plug being adapted to be fixed to a wood coating strip, said restraining plug having a first portion thereof which can be engaged in said seat and a second portion thereof which can be arranged between the inner face of the metal inner section member and the wood coating strip, for spacing said wood coating strip from said metal inner section member.

2. A section member and fitting assembly, according to Claim 1, characterized in that said seat or recess is defined by a pair of fins of the inner section member, having a substantially L-shape configuration and opposite to one another, said first portion of the plug being provided for insertion through the open side of said seat and being adapted to be locked in said seat by causing said plug to turn in a plane substantially parallel to the laying plane of the inner face of the inner section member.

3. A section member and fitting assembly, according to one or more of the preceding claims, characterized in that the first portion and second portion of said plug have substantially a parallelepipedal shape and being mutually facing one another, said first and second portions being connected by a tapering region.

4. A section member and fitting assembly, according to one or more of the preceding claims, characterized in that said plug are made of nylon and can slide inside the seat of the inner section member, in order to fit the different thermal expansion of said wood strip and of said metal inner section member.

5. A section member and fitting assembly, according to one or more of the preceding claims, characterized in that said thermally insulating material elements are constituted by pairs of adjoining bars engaging with their opposite end portions in pairs of seats defined by fins, on the mutually facing sides of said inner section member said bars or rods having an outer portion outside of said seats bent away from the adjoining bar in order to be substantially coplanar with two mutually facing fins.

6. A section member and fitting assembly, according to one or more of the preceding claims, characterized in that said assembly further comprises glass panel restraining section members which can be bayonet engaged on the fixed frame and/or movable frame section members.

7. A section member and fitting assembly, according to one or more of the preceding claims, characterized in that said glass panel restraining section members are provided, on the side thereof opposite to the glass panel, with a supporting fin for supporting a coating wood strip.

8. A window or door frame made by the section member and fitting assembly, according to one or more of the preceding claims, comprising a fixed frame and a movable frame, connected to one another and with an interposed sealing member providing an open joint closure, characterized in that the metal inner section members of the movable frame and fixed frame are all arranged toward the inner side of the window or door frame, with respect to the closure plane defined by the sealing member.

9. A window or door frame, according to Claim 8, characterized in that the sealing or tightness member is constituted by a central gasket, connected to said thermally insulated material bars, interposed between the metal inner section member and metal outer section member of the fixed frame section member, said central gasket engaging against a fin of the thermally insulating material bars, arranged between metal inner section member and metal outer section member of the movable frame section member.

10. A window or door frame, according to one or more of the preceding claims, characterized in that the central gasket substantially fully coats the face of the related thermally insulating bar to which it is connected, and the fins of the adjoining section members with which said bar engages.

11. A window or door frame, according to one or more of the preceding claims, characterized in that in said metal outer section member, laterally of the region connected to the thermally insulating material bars, are defined water collecting channels, said water collecting channels being coupled to one another and to the outside environment by perforations through the section members.

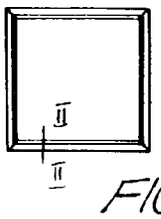


FIG. 1

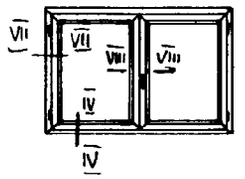


FIG. 3

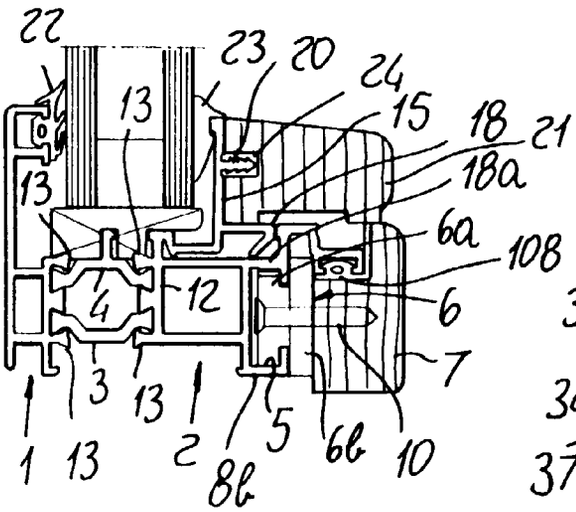


FIG. 2

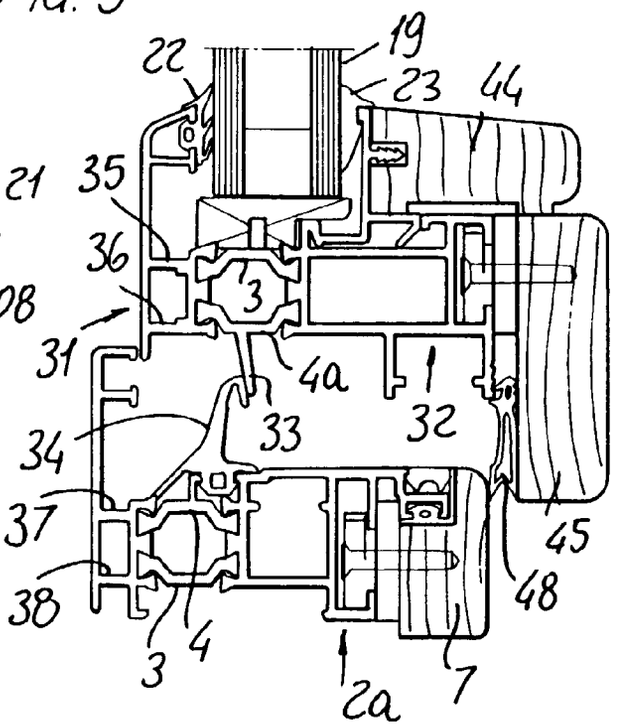


FIG. 4

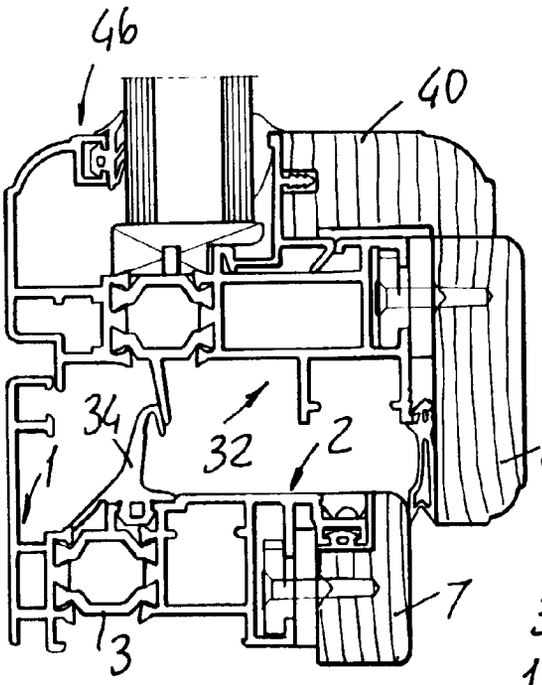


FIG. 5

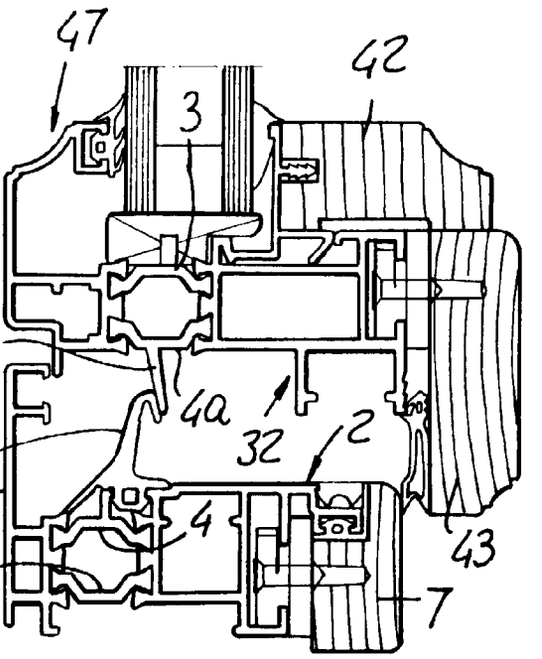
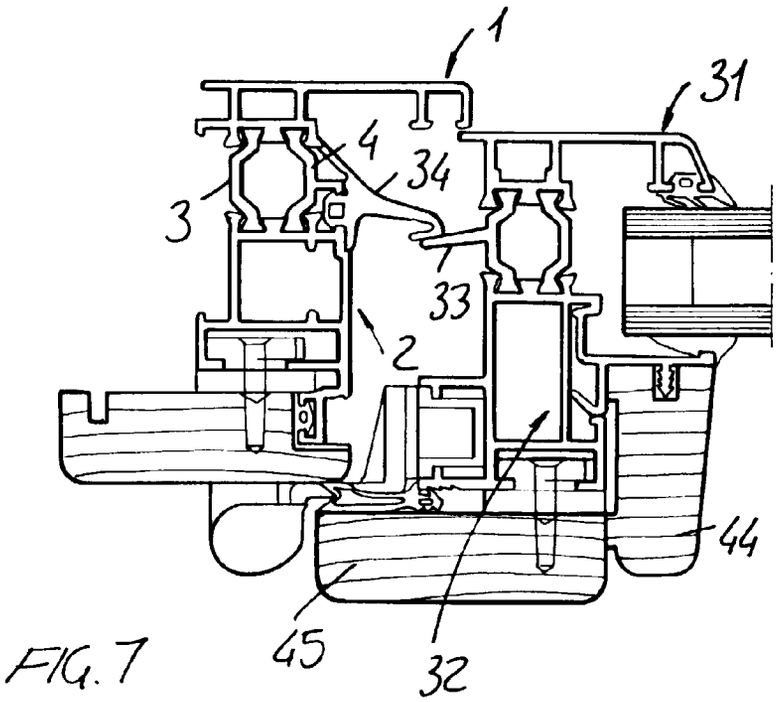


FIG. 6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45
32

FIG. 7

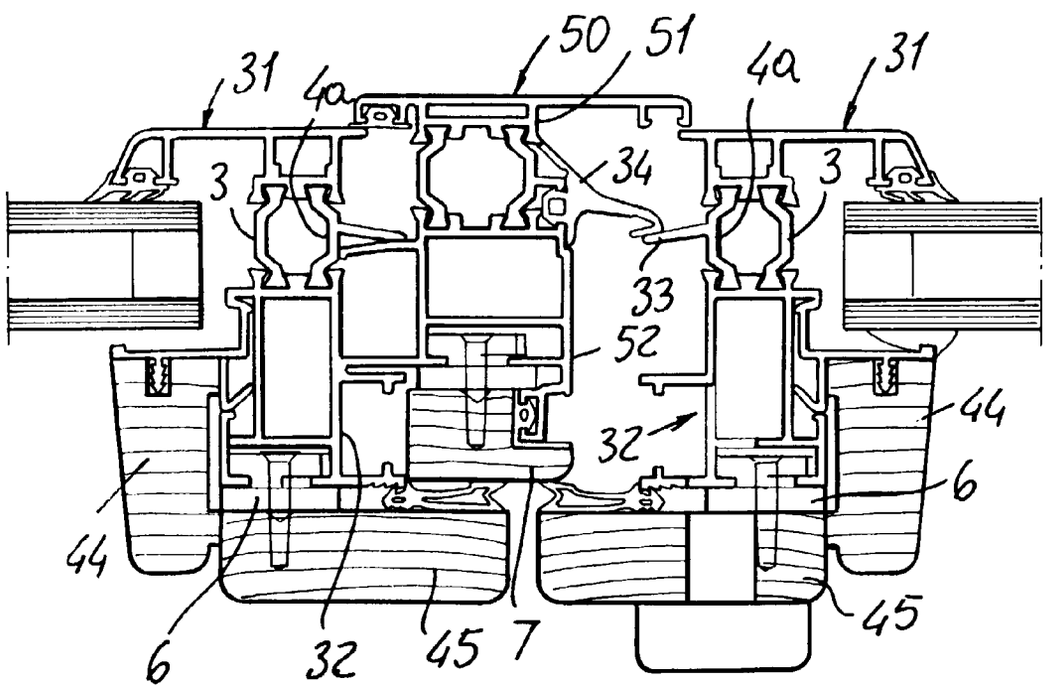
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FIG. 8

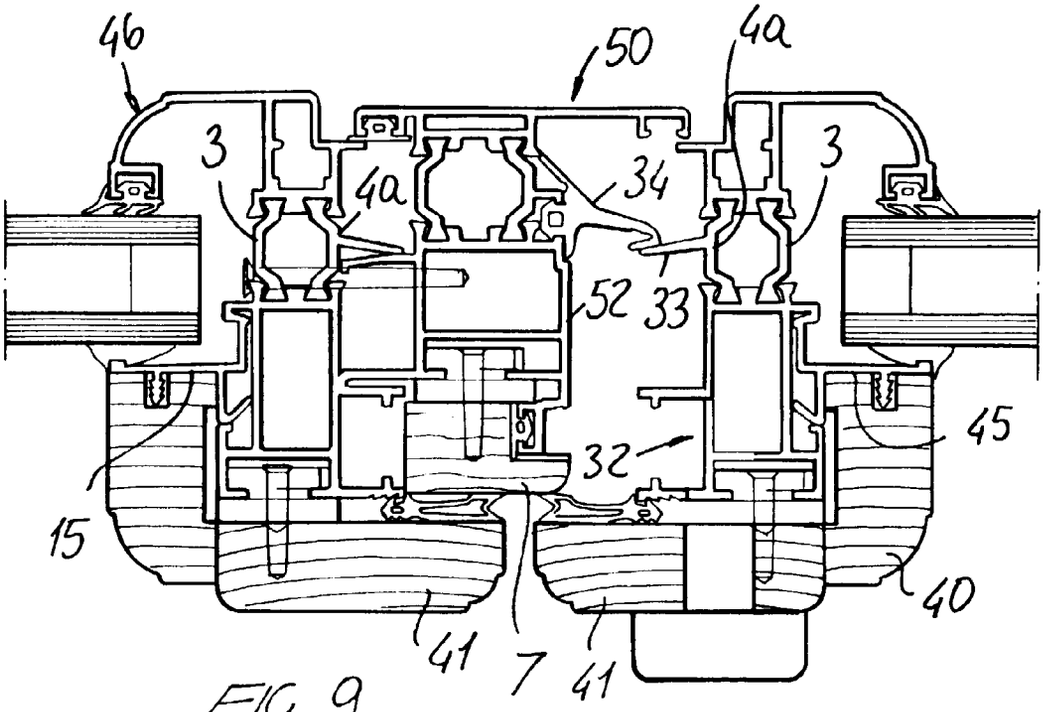
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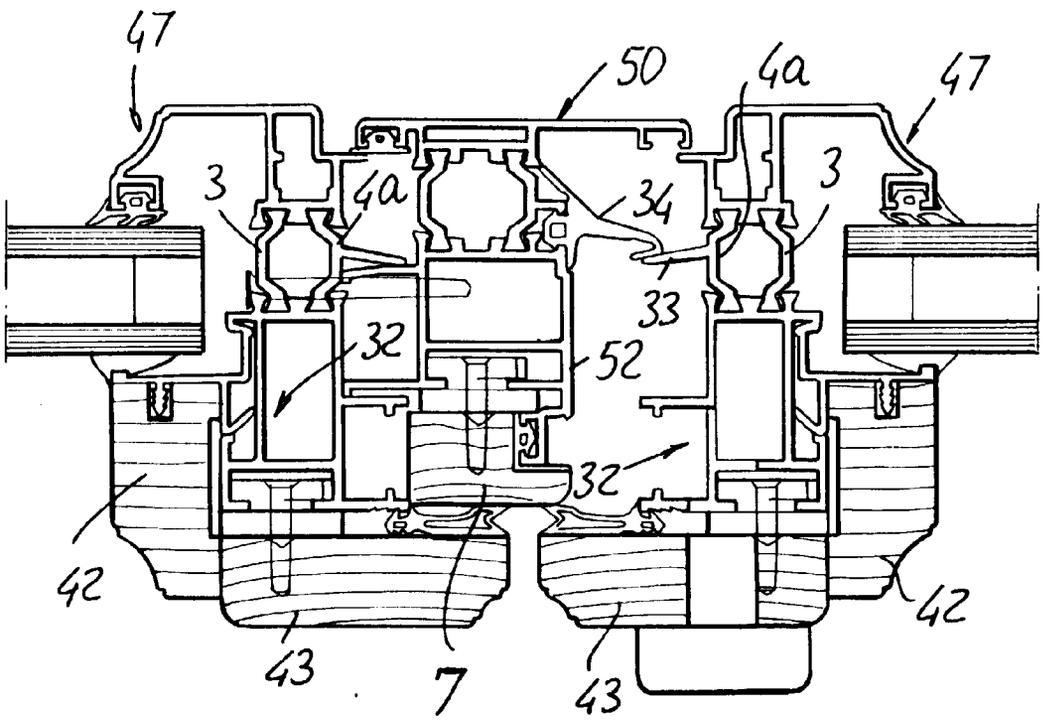
FIG. 9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43

FIG. 10

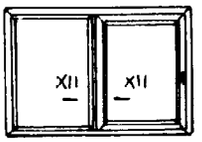

FIG. 11

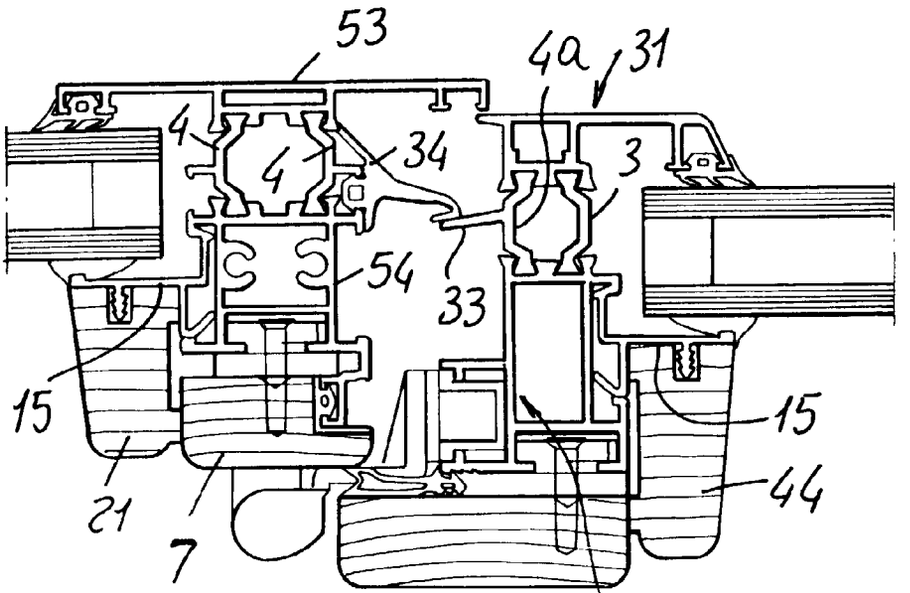

FIG. 12

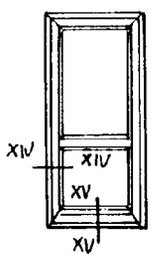

FIG. 13

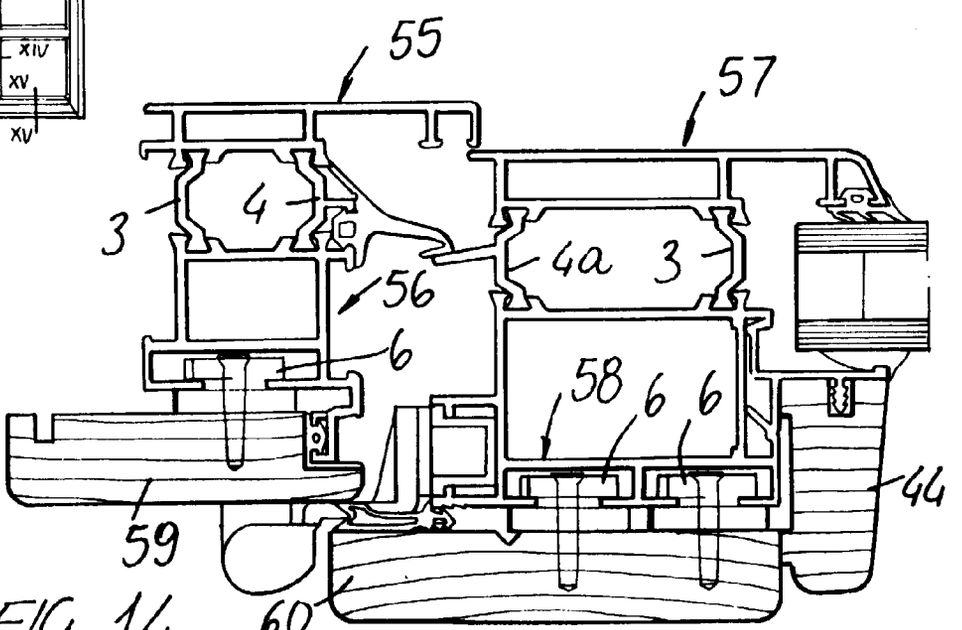

FIG. 14

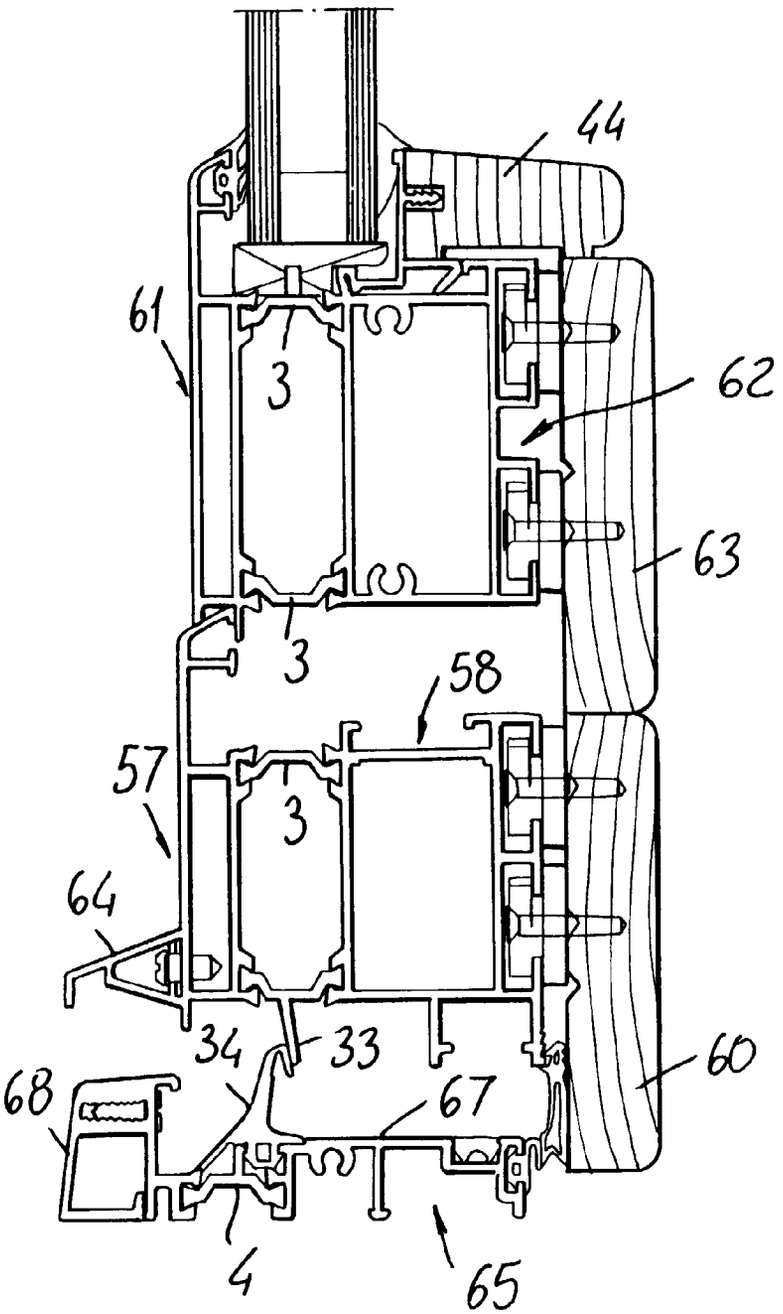

FIG. 15

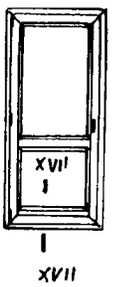

FIG. 16

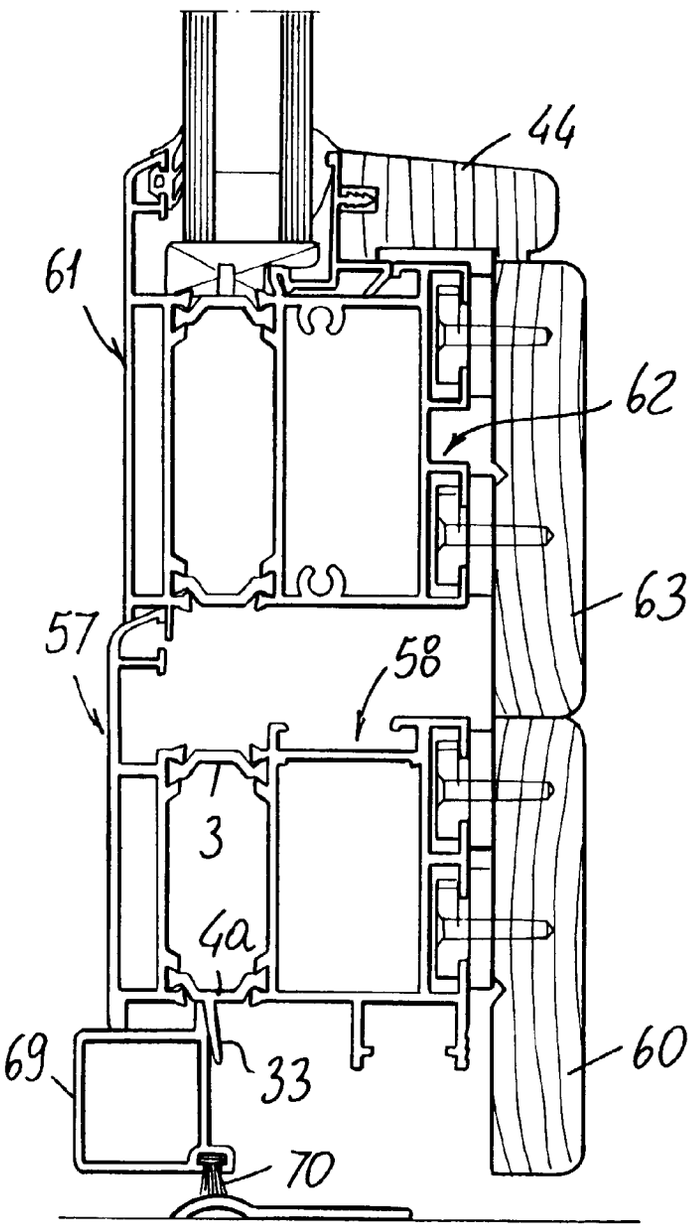

FIG. 17

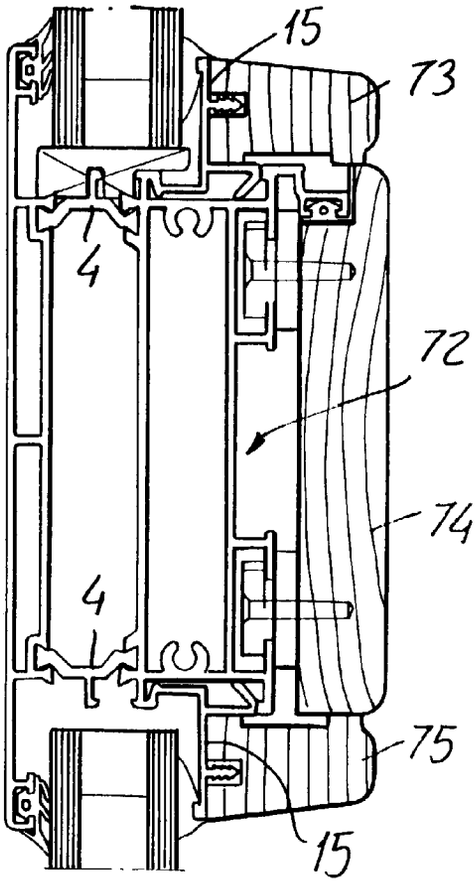

FIG. 18

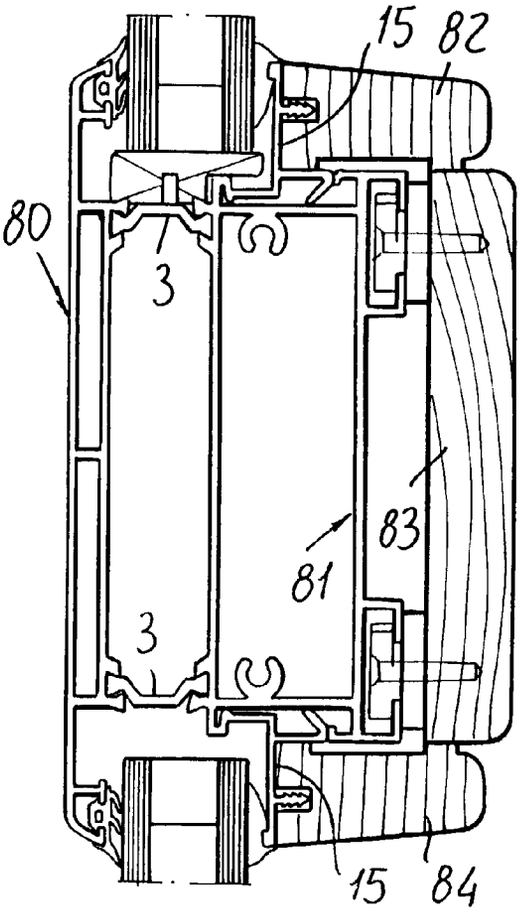

FIG. 20

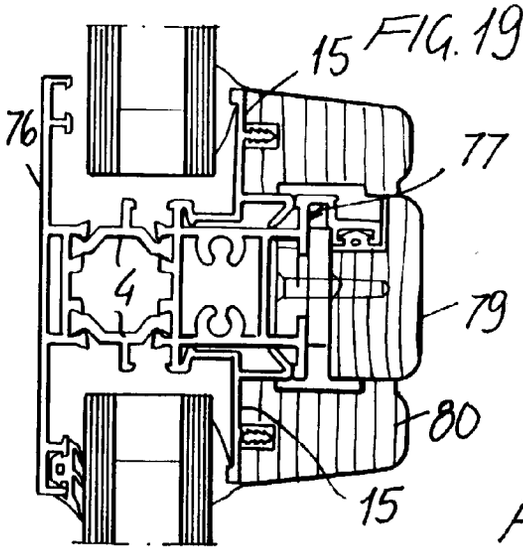

FIG. 19

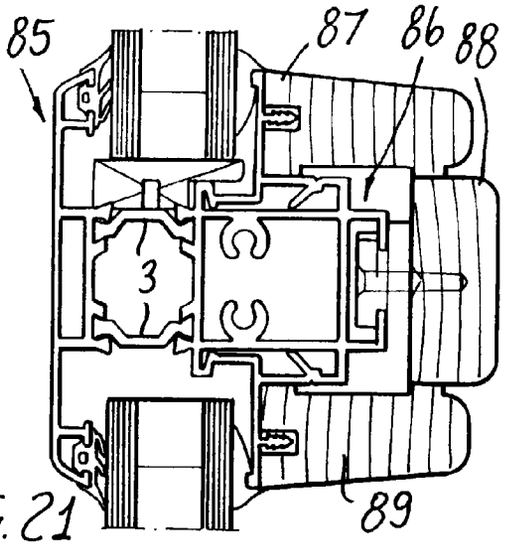

FIG. 21

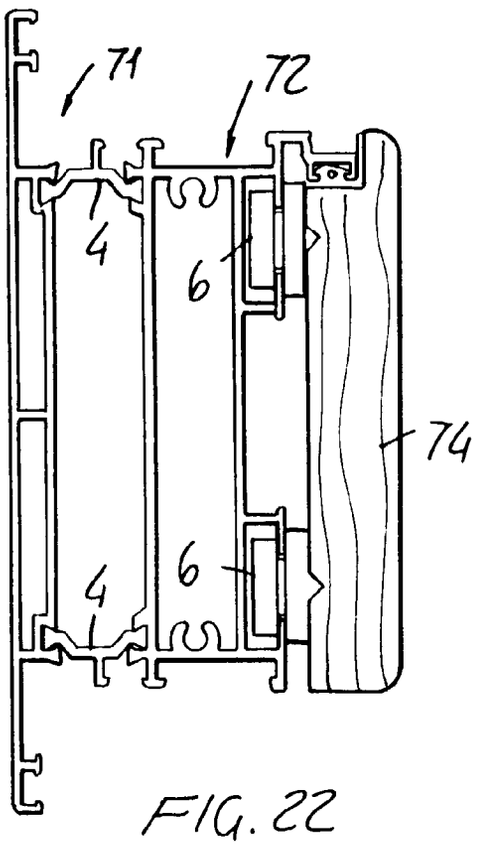

FIG. 22

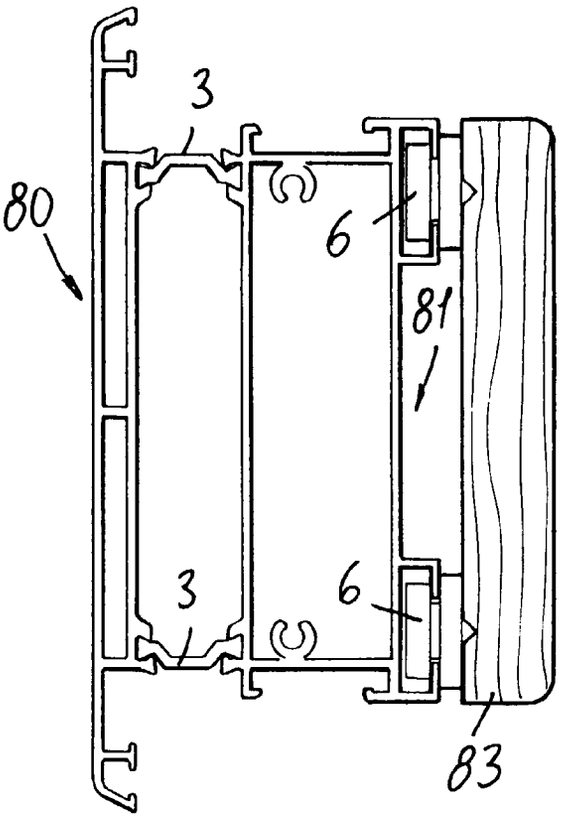

FIG. 24

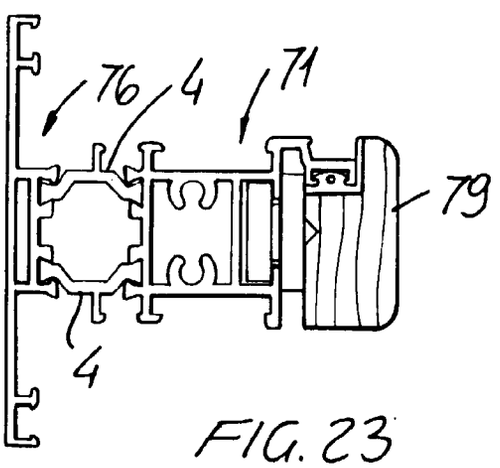

FIG. 23

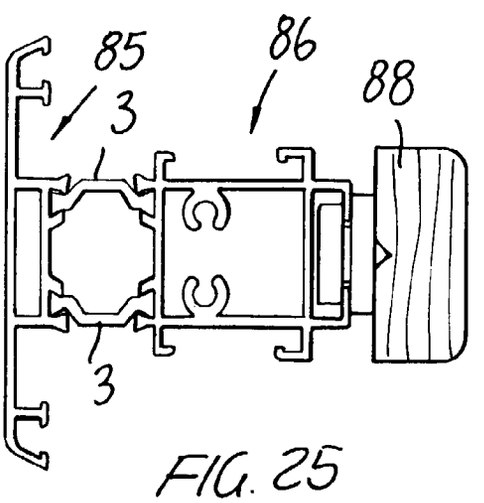

FIG. 25

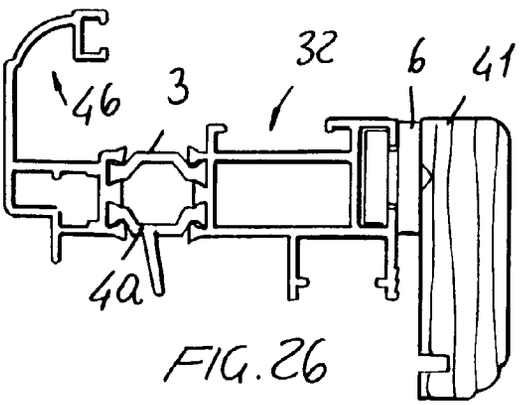

FIG. 26

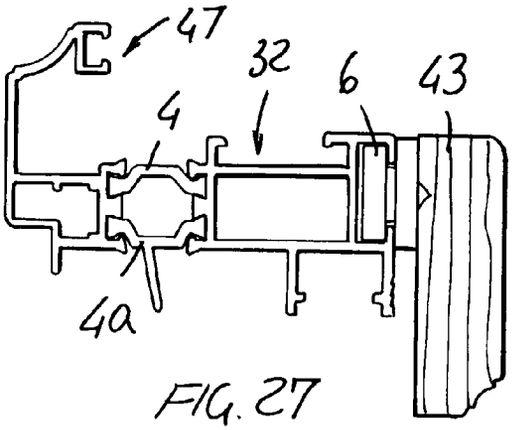

FIG. 27

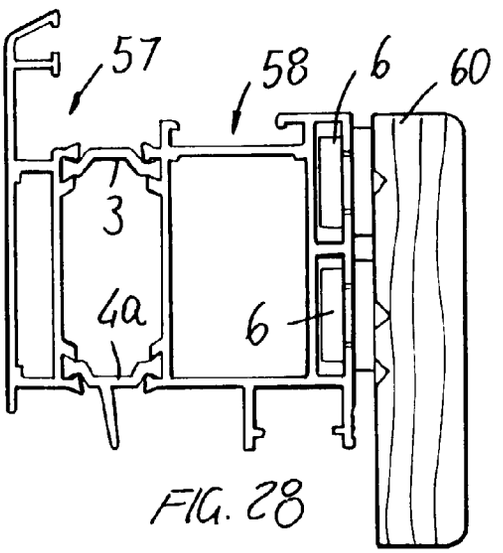

FIG. 28

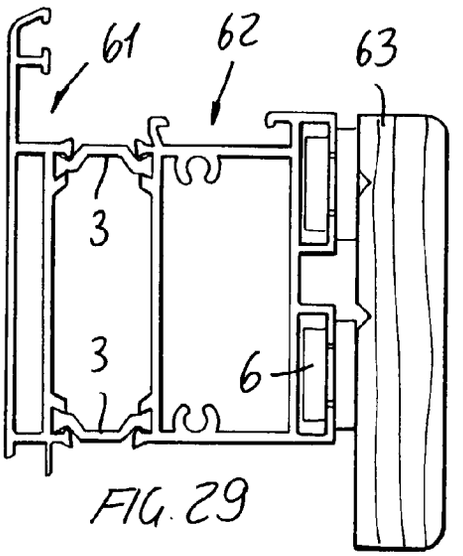

FIG. 29

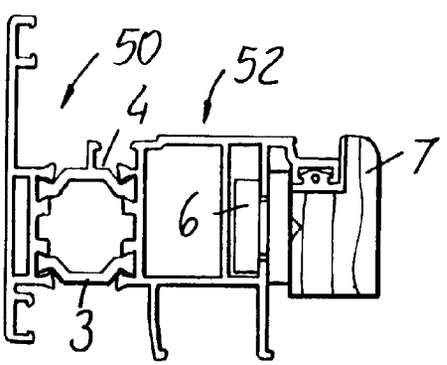

FIG. 30

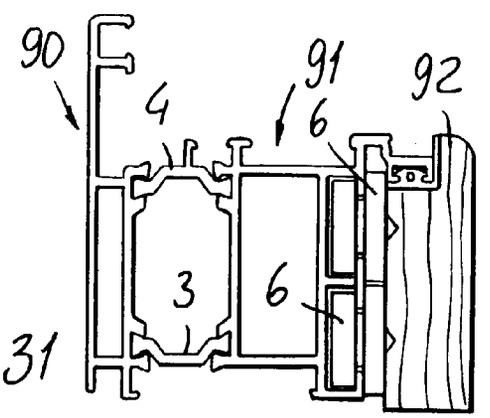

FIG. 31

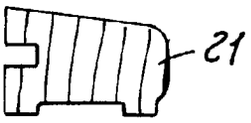

FIG. 43

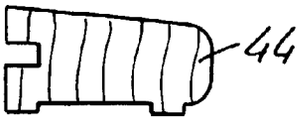

FIG. 44

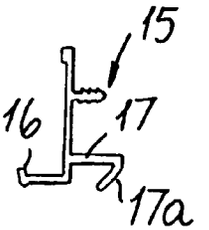

FIG. 42

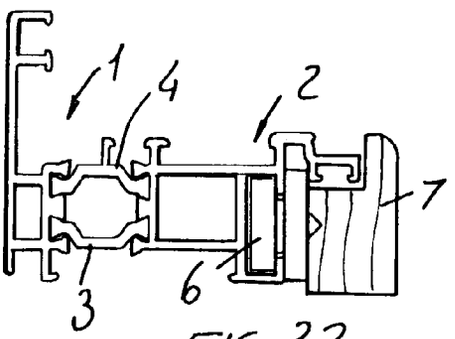

FIG. 32

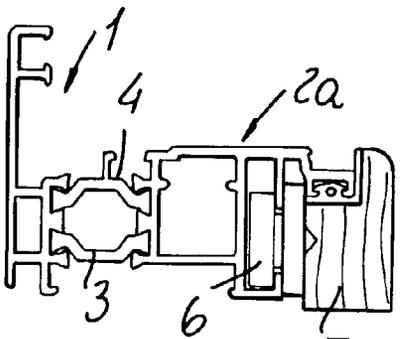

FIG. 33

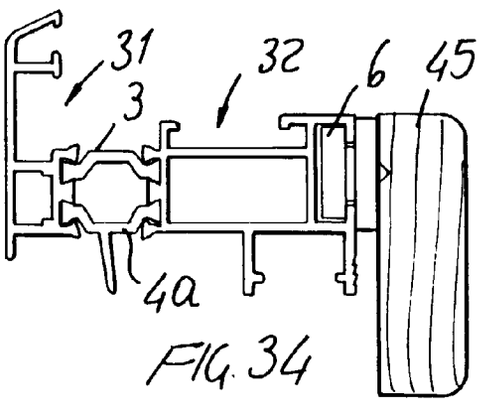

FIG. 34

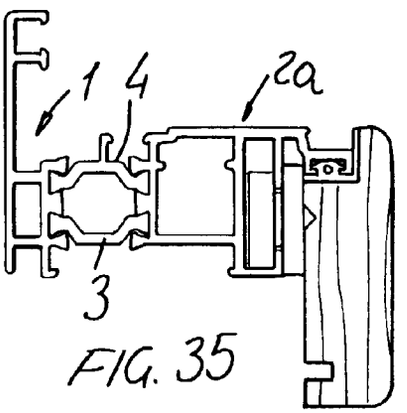

FIG. 35

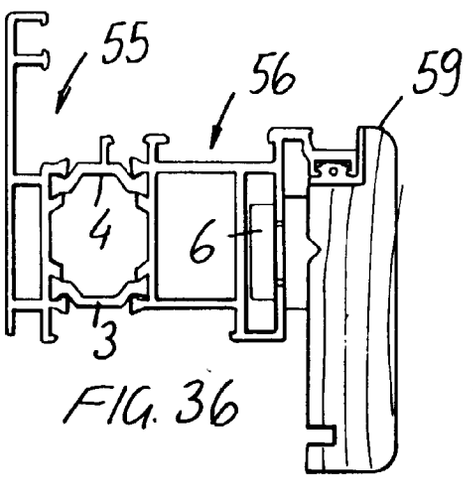

FIG. 36

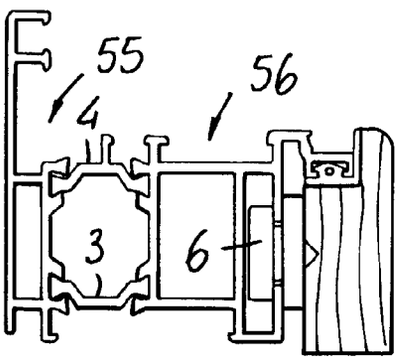

FIG. 37

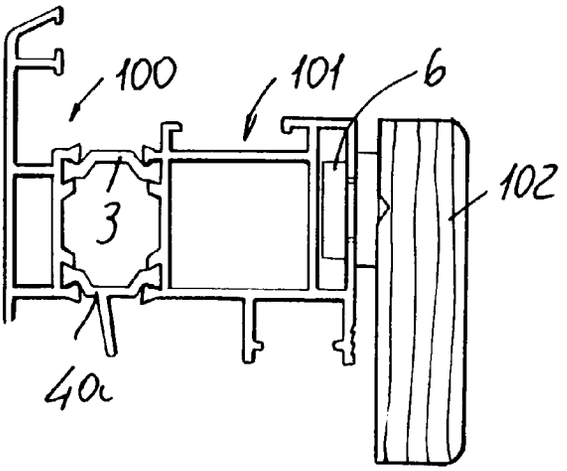

FIG. 38

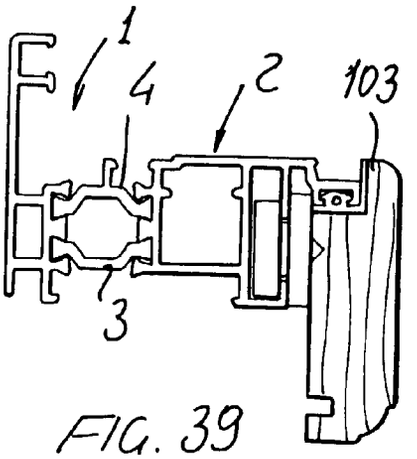

FIG. 39

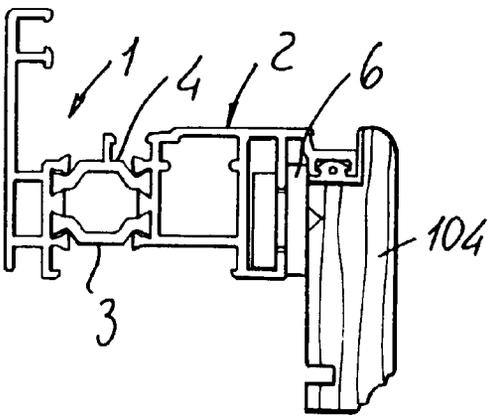

FIG. 40

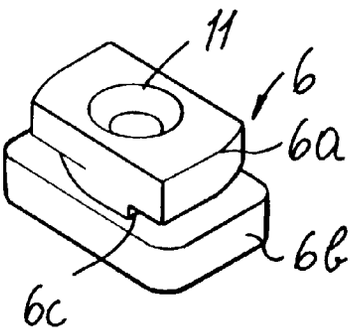

FIG. 41

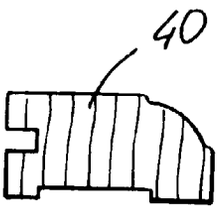

FIG. 45

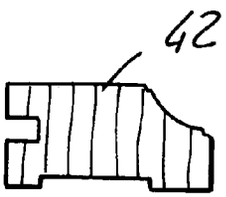

FIG. 46

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 83 0118

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.6)
X	NUOVA FINESTRA, vol. 15, no. 5, May 1994, MILANO, IT, pages 116-126, XP002007080 BRAICOVICH & SCHIAVOCAMPO: "VOGLIA DI MISTO"	1,8	E06B3/30 E06B3/273
Y	* page 124, column 1: Misto si ma a doppio tt ; related figure *	2-7	

X	NUOVA FINESTRA, vol. 15, no. 12, December 1994, MILANO, IT, page 41 XP002007081 "NOTIZIE FINESTRA: SISTEMI: Misto, normale o a tt"	1,8,9	
Y	* the whole article *	10,11	

Y	NUOVA FINESTRA, vol. 13, no. 11, 1 November 1992, pages 141-143, 145 - 147, XP000411593 SCHIAVOCAMPO G: "UN "MISTO" PROGETTATO IN OFFICINA"	2-4	
A	* figures pages 145-147 * * page 142, column 2, paragraph 2 - page 145, column 2, paragraph 1 *	10,11	TECHNICAL FIELDS SEARCHED (Int.Cl.6) E06B

Y	DE-U-92 03 189 (SLIM) * page 4, line 16 - page 7, line 8; figures *	5,10,11	

Y	GB-A-2 269 622 (CARADON EVEREST) * page 5, paragraph 2 - page 6, paragraph 1 * * page 6, line 32 - page 7, line 14 * * figure *	6,7	

	-/--		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 June 1996	Depoorter, F

CATEGORY OF CITED DOCUMENTS

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D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

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EUROPEAN SEARCH REPORT

Application Number
EP 96 83 0118

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.6)
A	WO-A-91 19877 (TEMA FÖNSTER) * page 3, line 32 - page 8, line 8; figures * ---	1,5-7	
A	NUOVA FINESTRA, vol. 15, no. 3, 1 March 1994, pages 176-179, XP000440074 BRAICOVICH E: "METTER D'ACCORDO LEGNO E ALLUMINIO" * page 178, right-hand column: Sistema d'accoppiamento; figures pages 177 and 178 * ---	2-4	
A	EP-A-0 109 471 (ZAPP) * column 7, line 2 - column 13, line 29; figures * ---	2-4	
A	EP-A-0 143 745 (SCHWEIZERISCHE ALUMINIUM) * page 5, line 28 - page 7, line 21; figures 1,2 * -----	10,11	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 June 1996	Depoorter, F

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L : document cited for other reasons

& : member of the same patent family, corresponding document

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