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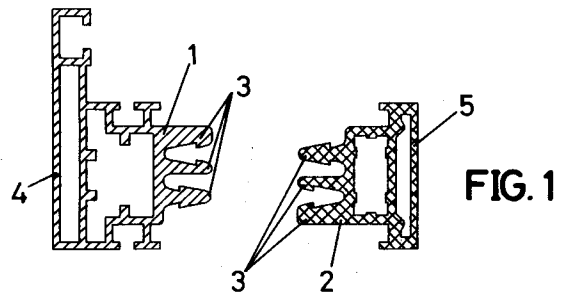
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54 **Modular system for the formation of glass-enclosed closures.**

57 The system is based on the use of two bodies (1) and (2) provided with projections (3) staggered with recesses, complementary in both bodies to permit pressure coupling of both bodies (1) and (2), with the possibility of axial movement to enable disassembly thereof. The bodies (1) and (2) can be made out of any suitable material and form together the structure corresponding to a closure of a window, door or the like, in such a way that the body (1) will constitute the part considered as external and body (2) will form the internal part of that structure, any of them being interchangeable as they are removable. In the case of structures with a thermal bridge any of the bodies (1) and (2) or both of them can constitute that which is the thermal bridge and can be fastened to the sections that will constitute the internal and/or external parts.

The possibility of this coupling of the bodies (1) and (2) permits any of the parts or bodies that form the closure to be interchanged, while the remaining ones are maintained.



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OBJECT OF THE INVENTION

As is expressed in the title of this specification, the present invention refers to a modular system for the formation of glass-enclosed closures, which may be: doors, windows, dividers, facades, furniture and/or any type of structure for purposes similar to those of the cited components.

The basic characteristic of the modular system lies on the fact that the sole section that conventionally forms the structure of, for example, a door or window frame, is defined by two parts that can be coupled together, the coupling being defined by a special shape that permits assembly or disassembly to be carried out, thus enabling the interchange and thus the inside of the structure is of a certain color or material and the outside one is different. This system even permits the change to be made whenever one so desires, even in the event that the closure has been assembled for some time.

Conventionally, steelwork closures, such as doors, windows, dividers, even facades, in the event of being simple closures, the structure or section on which the glass is mounted, is a single piece, in which the corresponding guides are formed, as well as the inside and outside surfaces of the section or structure itself. In the case of sections with a thermal bridge, there are logically two pieces, one that constitutes the inside part and the other that constitutes the outside part, with the insertion of the middle piece or pieces that define the thermal bridge itself.

The fastening of these middle pieces constituting the thermal bridge with regard to the outside and inside sections, requires the use of some special pieces or machines to carry out the fastening or assembling between the different parts or pieces that constitute the structure, so that once the fastening or assembling has been carried out it is totally impossible to disassemble the same.

Now then, for simple sections as well as for sections with a thermal bridge, irrespective of the assembly operations in the second case, the structure must be assembled at the factory and is taken to the installation site already assembled, which implies serious inconveniences when storage and transportation take place, due to the large space taken up by structures already mounted.

Besides, due to the impossibility to disassemble the parts that make up the structure, the combination of materials, concerning colors as well as the nature of the same, is not possible, since a possible change inevitably requires the need to eliminate the original structure and to install an entire new one.

DESCRIPTION OF THE INVENTION

The modular system for the formation of glass-enclosed closures object of the invention has the particularity that the basic section is divided into two parts, which may be made out of different materials and even of different colors, with the particularity that the two parts can be coupled together and taken apart in order to permit the color, material, etc. to be interchanged, by simply replacing the section or part that is to be renewed by another one, keeping the rest, which obviously cannot be done in conventional systems.

In other words, in the system of the invention, the closure structure is formed by two totally independent parts or sections, one comprising the external body and the other one constituting the internal body, with the particularity that the two bodies can form the simple section, or else they can be connected to others to form structures or sections with a thermal bridge, it being provided for that the basic bodies or parts of the system may be made out of the same or different material.

In this sense, the material used to manufacture the bodies or parts that comprise the structure or system may be steel, light-weight metals, heavy-weight metals, plastic, compound materials, processed quarry materials, etc. and bodies made of different materials may be mounted very easily, which permits combined systems to be obtained and permits a broader range of goods to be offered to consumers.

The assembling system between the two basic parts or bodies is based on some complementary projections and recesses that are coupled by pressure, thus avoiding use of specific machinery for the assembly operation as is required in conventional systems, so that this coupling may be done "in situ", which makes it possible to take the bodies, sections or parts that form it separately, with the subsequent advantages when said structures are handled, stored and transported.

These complementary projections and recesses for assembly of the two parts or bodies permit axial movement in terms of each other in order to carry out the corresponding disassembly, an operation which will be done manually, permitting any body or part to be replaced by another one of a different nature, color, etc.

The fact that the structures that constitute the duly assembled sections permit injection of insulating products to meet the requirements of thermal insulation, soundproofing or they even permit a sheet of steel to be inserted in order to make the closure "reinforced" is also worth mentioning.

DESCRIPTION OF THE INVENTION

In order to complement the description that is going to be made hereinafter and for the purpose of providing a better understanding of the characteristics of the invention, a set of drawings in which the innovations and advantages of the modular system for the formation of glass-enclosed closures object of the invention will be more easily understood is attached to the present specification.

Figure 1.- It shows a cross-section view of the two separated bodies which are to form a section, for example, of a frame or leaf of a window.

Figure 2.- It shows a section view of the two bodies represented in the above figure coupled together forming the section of the frame or lead of a window or the like.

Figures 3, 4 and 5.- They show other views corresponding to separated sections and assembled sections of a section provided with a thermal bridge.

Figures 6, 7 and 8.- They likewise show separated sections and assembled sections of two bodies constituting a section complemented by external finishing sections to form a structure that may or may not have a thermal bridge.

Figure 9.- It shows a section view of the embodiment corresponding to the structure of a pivoting window made in accordance with the modular system object of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In view of the figures commented on, and referring specifically to figures 1 and 2, one can observe how a section for the formation of a leaf or frame corresponding to a glass-enclosed closure, is comprised of two parts (1) and (2) that can be coupled together by means of "clipping", for which purpose body (1) as well as body (2) are provided with complementary projections (3) and a special shape between which recesses are logically made, so that confronting the projections and recesses (3) of bodies (1) and (2) permits the corresponding coupling by pressure connection, in other words by the above-mentioned "clipping", both bodies (1) and (2) remaining perfectly assembled, all so that bodies (1) and (2) are complemented with the corresponding suitable shape for forming that which corresponds to the external part (4) and the internal part (5) of the corresponding closure.

These two bodies (1) and (2) constitute in their coupling or assembly a section as is clearly shown in figure 2, a section that may be made out of aluminum or any other suitable material. These may be the same or different from each other, so that the external part (4) may be of a color different

from that of the internal part (5) or even out of different material.

Therefore, the above mentioned bodies (1) and (2) coupled together constitute the metal section defining a simple structure, forming in these bodies (1) and (2) the external part (4) and the internal part (5) of the structure itself, the projections (3) being formed with their corresponding recesses so that the bodies (1) and (2) can move axially to each other and thus disassembly may be carried out.

As one can see the projections (3) are made exactly in the same manner in both bodies, but in a reverse manner, thus making the coupling reversible, since it suffices to reverse the positioning of these bodies (1) and (2) to form that which is called the external part or the internal part of the general structure.

Besides the simple structure that bodies (1) and (2) can form, structures with a thermal bridge like the one shown in figures (3) (4) and (5) can be formed, where the internal part can be comprised of the same body (2), while the external part (4) will be defined by the coupling of two bodies (1') and (4'), coupled together, so that the unit can be likewise coupled to the body (2) in the above mentioned manner. In other words, in this case bodies (1') and (2) have the same projections (3) for pressure coupling and their possibility of axial movement in order to carry out disassembly, with the particularity that the body (1') will be of a different material than body (2) in order to make the corresponding thermal bridge defined by these three bodies (1') (2) and (4') coupled together as shown in figure 5.

In this case it is also possible to carry out the interchange of any of the three cited bodies (1'), (2) and (4'), either to replace the thermal body, or to change the color or material of body (2) forming the internal part, or else to interchange the external part (4), by means of interchanging the corresponding body (4'), and all on the basis of the possible disassembly by axial movement of some bodies with regard to each other.

Figures 6, 7 and 8 show the two bodies (1) and (2) with their projections (3) defining the means for coupling together, and that can constitute on the whole a thermal bridge, either because they are made out of the same or different material, and in any case materials different from some complementary sections (4'') and (5'') that are going to constitute the external part (4) and the internal part (5), respectively, and whose complementary sections (4'') and (5'') can also be interchangeable and which are made from sheets of metal material that are formed by folding in order to define the corresponding sections. In other words, these sections (4'') and (5''), instead of being obtained by mechanization, as usual, they are obtained from

sheets that pass through suitable tools in order to make the suitable folds and to obtain the different shapes of the sections.

In figure 9 one can see a practical embodiment of a pivoting window with the sections (4) defining the external part and sections (5) defining the internal part, and whose window has the corresponding leaf (6) for assembling the glass (7) and frame (8) with regard to which the leaf turns, the leaf (6) as well as the frame (8) being provided with bodies (1) and (2) with the projections (3) and corresponding recesses for pressure coupling or "clipping" of such bodies (1) and (2), joining together, once sections (4) and (5) that comprise the external part and the internal part, respectively, have been conveniently fastened to bodies (1) and (2), being complemented with other inside sections (9) for connecting the different parts to form the structure of said pivoting window unit.

As it has already been said above, in the sections with thermal break bridge, one of the bodies (1) or (2), or both of them, may be made out of the same or different material, while sections (4) and (5) that constitute the inside part and the outside part and that are connected to bodies (1) and (2) may also be of identical or different material.

Finally it is to be said that a structure like the one represented in figure 9 can be complemented with the injection of insulating material such as polyurethane, providing the unit with thermal insulation and/or sound-proofing and it can even be complemented with the insertion of a sheet of steel in order to make the same reinforced.

Claims

1. Modular system for the formation of glass-enclosed closures, which are to be used in the formation of frames, leaves and the like, of doors, windows, dividers or any other structure formed by means of a metal section with the corresponding shape for assembling glass and sealing molding, in the case of simple structures, or else the structure is formed by two section between which there is a middle piece of a different material, defining a thermal break bridge, essentially characterized in that the metal section comprising the simple structure is formed by two bodies (1) and (2) that can be coupled together with a removable nature, said bodies (1) and (2) forming the internal part (5) and the external part (4) of the structure itself, the latter having the possibility to be interchanged with others by virtue of the removable nature of the bodies (1) and (2) that form them; with the particularity that said two bodies have their coupling fronts provided with complemen-

tary recesses and projections (3), which adjust and link together by pressure in order to permit their disassembly by axial movement of one body with regard to the other; it also being provided for that these coupling projections (3) and recesses are materialized antagonistically in both bodies, making the coupling reversible, reversing the positioning of the body in its arrangement on either side of the structure that they form.

2. Modular system for the formation of glass-enclosed closures, according to claim 1, characterized in that in structures with a thermal break bridge, one of the two pieces or both of them which constitute the bridge is/are materialized by the body or bodies (1) and (2) which, being of a different material, have the corresponding coupling means formed by the complementary recesses and projections (3).
3. Modular system for the formation of glass-enclosed closures, according to the above claims, characterized in that the two bodies (1) and (2) of different material, for the formation of the thermal break bridge, provided with complementary coupling projections (3) and recesses, are linked to both sections (4'') and (5'') that are identical to each other or different from each other, forming the inside part (5) and outside part (4) of the structure.
4. Modular system for the formation of glass-enclosed closures, according to the above claims, characterized in that the two bodies (1) and (2) that can be coupled of the simple structure are metallic.
5. Modular system for the formation of glass-enclosed closures, according to the above claims, characterized in that the body constituting the thermal break bridge (1') is made of different material than the opposite body (2) and can be coupled to it, that body (1') being connected to a section (4') of a nature identical to or different from that of the opposite body (2) and forming the other section.
6. Modular system for the formation of glass-enclosed closures, according to the above claims, characterized in that the two bodies (1) and (2) that can be coupled together that form the thermal break bridge have an identical or a different nature, and in both cases of a nature different from that of the sections (4'') and (5'') connected to them and constituting the inside part (5) and outside part (4) of the structure, said sections either being of the same or a

different nature.

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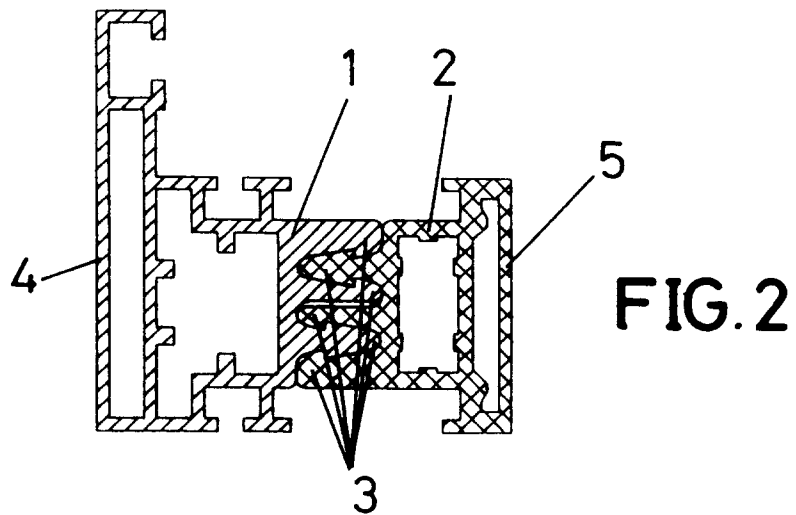
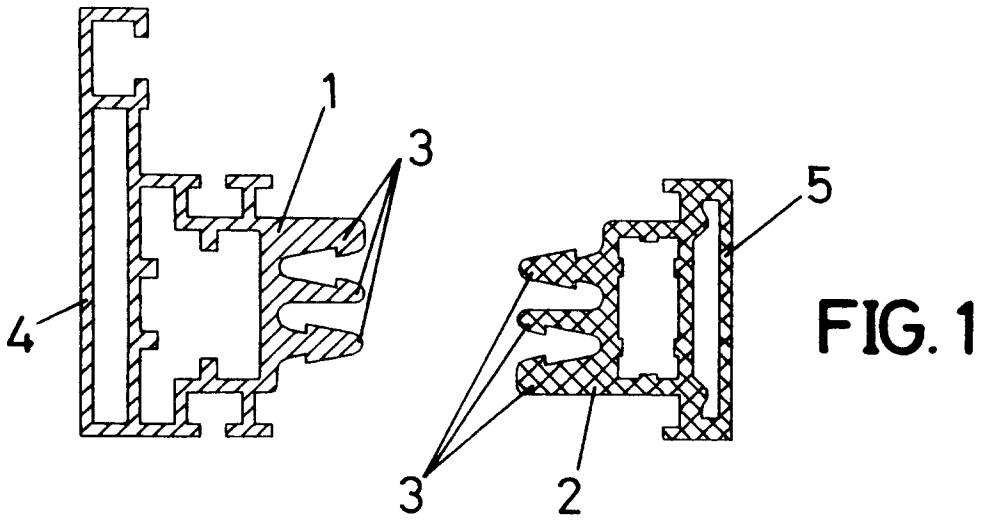
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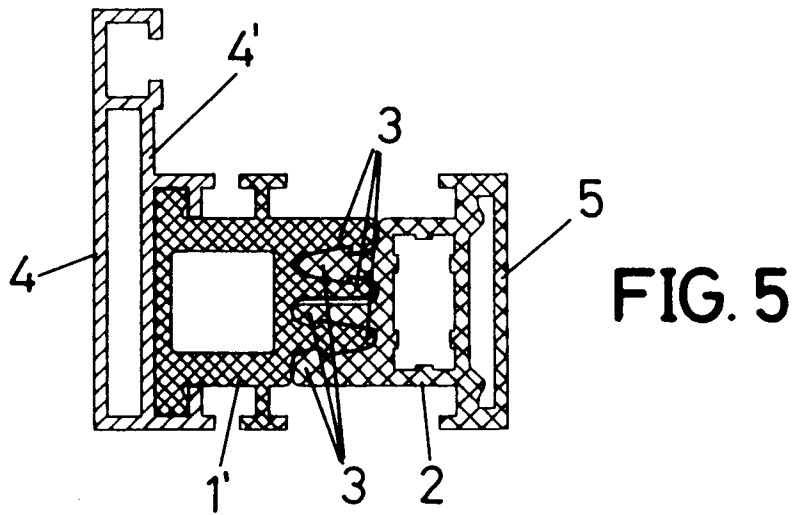
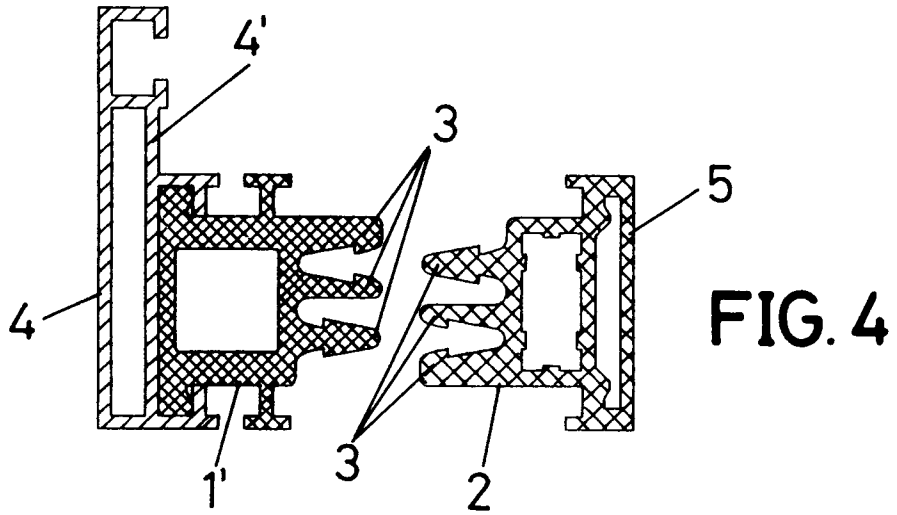
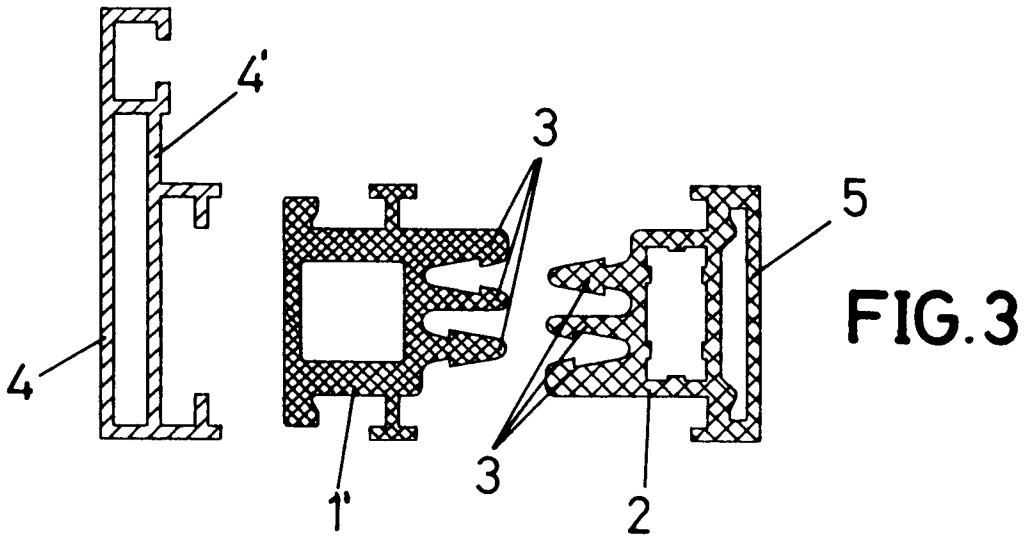
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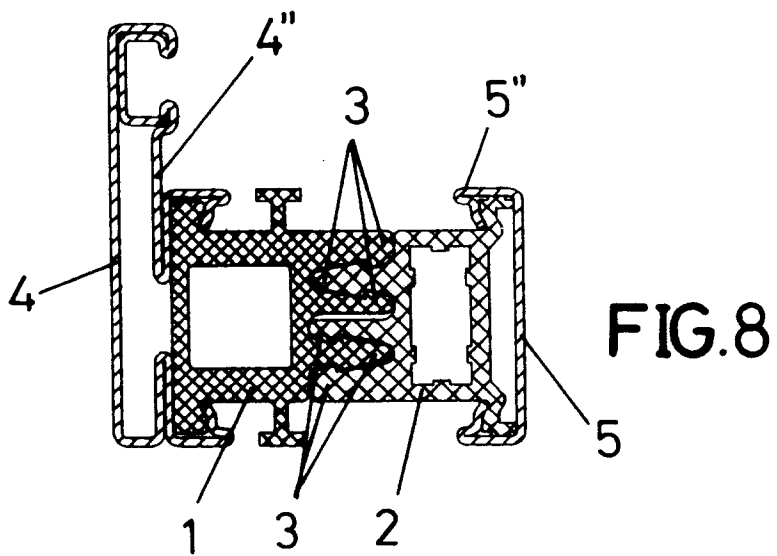
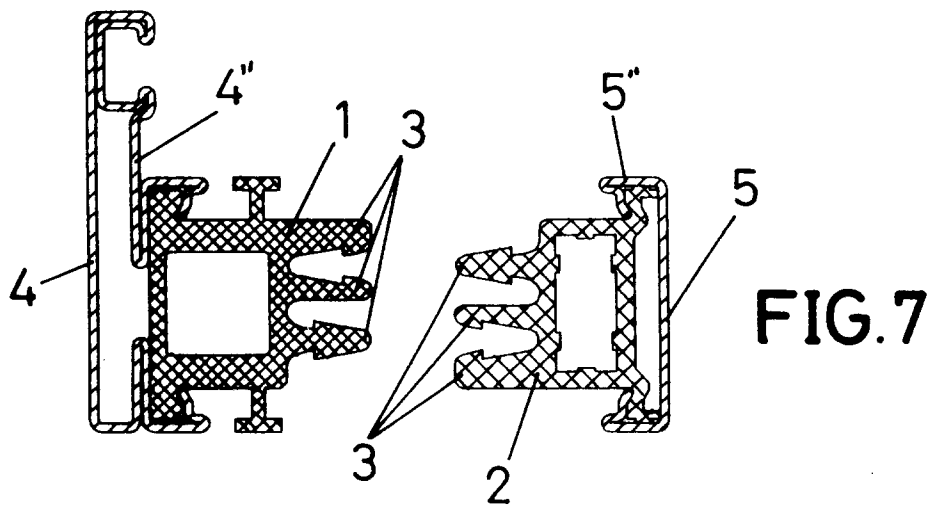
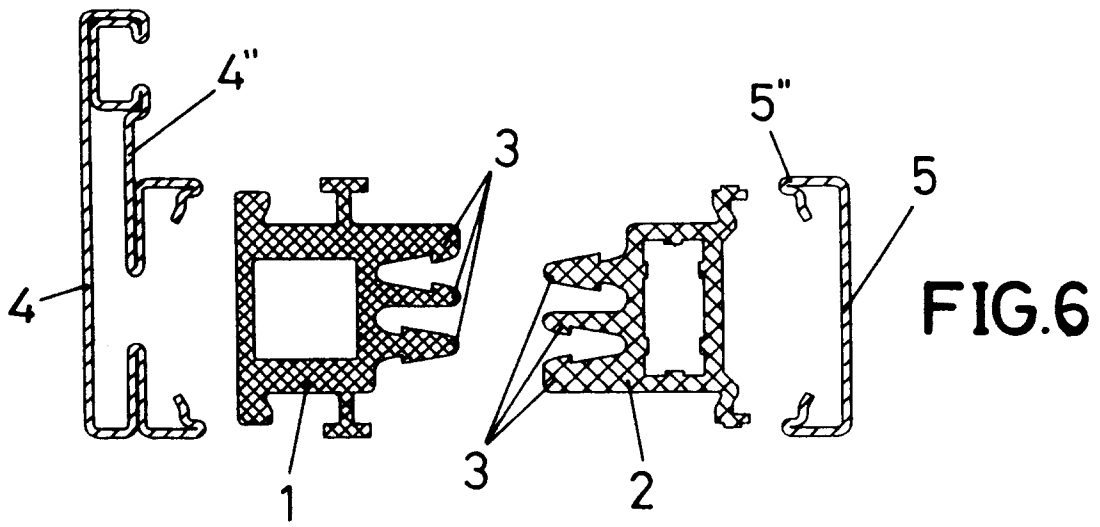
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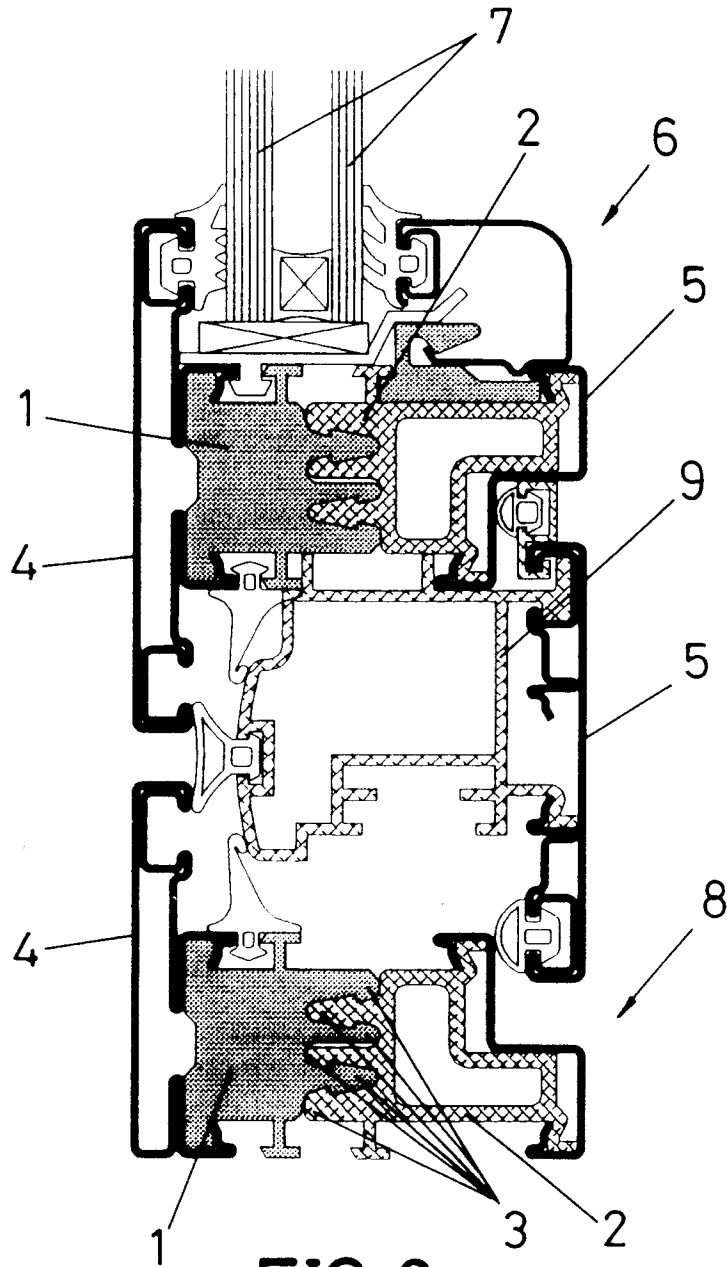


FIG. 9



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EUROPEAN SEARCH REPORT

Application Number
EP 94 20 1879

DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
Y	DE-A-29 08 950 (TEGTMEIER UND SCHÜCO) * page 4, line 1 - page 6, line 32; figures *	1-3,5,6
Y	WO-A-91 10801 (GASSER METALLBAU) * page 7, line 28 - page 10, line 5 * * claims 1,7 * * figures *	1-3,5,6
A	GB-A-1 036 480 (THE META-PHRONTS COMPANY) * page 2, line 20 - page 3, line 45; figures *	1-6
A	FR-A-2 372 304 (BIERLICH)	
A	GB-A-2 107 774 (DURAFLEX HOUSECRAFTS)	
The present search report has been drawn up for all claims		
Place of search		Date of completion of the search
THE HAGUE		13 March 1995
		Examiner
		Depoorter, F
CLASSIFICATION OF THE APPLICATION (Int.Cl.6)		
E06B3/263		
TECHNICAL FIELDS SEARCHED (Int.Cl.6)		
E06B		
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons & : member of the same patent family, corresponding document		

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