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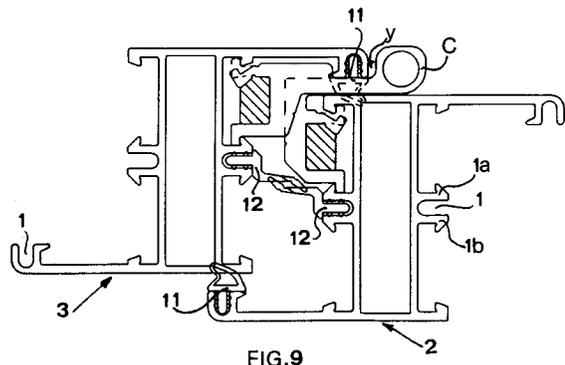
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54 **Pressure-Hooking structure for anchoring gaskets for sections and accessories suitable for door and window frames from metal and the like.**

57 Hooking and restraining structure for anchoring seal and back stop gaskets between sections and accessories for door- and window frames and the like made from extruded sections from aluminium and its alloys, constituted by a continuous channel-shaped seat, having a substantially U-shaped through-section, obtained on the sides and the flanges of an unusual section for door-and window frames and the like, and provided with a shaped flange running along the longitudinal edge of at least one of the flanges of said seat, the channel-shaped cavity of said seat being suitable to pressure-housing the peduncle or stem of a continuous gasket having the part outside the seat variously shaped, so as to provide a set of seal and back stop gaskets, said flanges protruding outwards of said seat constituting, on the contrary, as many means for the stable hooking of sections with other sections and/or accessories of door- and window frames and the like.



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Object of this invention is to provide a pressure-hooking structure for seal and back stop gaskets and for the connection of accessory to various sections, particularly suited for extruded metal sections, such as hollow sections from aluminium and its alloys, utilized for door- and window frames and the like.

As is known, metal doors and windows with openable shutters, French windows sliding on rails and the like need for the sealing between the frame and the glass pane-holding casing and between the frame and the glass full-height gaskets to allow an efficacious seal against weathering and to ensure the necessary thermal and acoustic insulation; other types of gaskets are also required as back stop elements for the shutters and for locking and sealing glass pans through various types of glass stops.

According to the known techniques, the full-height seats for the stable housing of a gasket are obtained during the extrusion of the section in various positions, i. e. either on the walls of the quadrangular hollow body of the section or on the usual flange normally protruding coplanary from the opposing walls. shorter than the through-section of the section.

Generally, said seats are constituted by grooves or throats having a substantially constant C-shaped through-section, which protrudes from the wall or flanges of the section and which develops for the whole height of the section. Therefore, the various continuous gaskets are fitted in the "C"-shaped seats, starting from an end of the section, and the restraint is ensured by the part enclosed in the seat, while the part which protrudes outside it is the real gasket which may have different shapes and sizes according to the function required.

These types of axial-plug-in gaskets have in practice the drawback that one cannot remove and replace them, when they have deteriorated, without disassembling the section from the other sections which compose the frame of the glass pane-holding casing, i.e. without separating the section which holds the gasket to allow to take it out from an end of same.

On the other hand, the "plug-in" gaskets for frames are at present nonconform with the regulations, and the plug-in hooking system must be replaced by systems that do not require the disassembly of the frame or the shutter.

Therefore, object of this invention is to provide a hooking structure for various types of continuous gaskets for metal sections and the like, so designed as to allow the hooking and the removal of the gasket from its seat, without having to disassemble the frame or the shutter or any composite structure composed by metal sections, should it

be necessary.

Another object of this invention is to provide a hooking structure of the aforementioned type, so designed as to be obtainable during the extrusion of the section, with no need for particular operations nor additional costs.

A further object of this invention is to provide a set of continuous gaskets easily and quickly anchorable in the relevant seats and easily removable and replaceable.

A further not least object of this invention is to provide a hooking structure so designed as to constitute also an efficacious restraint and locking means for accessories of door- and window frames, for various types of sections, for glass stops, for various type of hinges and the like.

These and still further objects which shall be more clearly stressed by the following description are obtained by a hooking structure for continuous seal gasket and for accessories and various types of hollow metal sections, in particular extruded section from aluminium and its alloys, which structure is constituted, according to this invention, by a continuous channel-shaped seat, having a constant substantially U-shaped through-section, obtained on the sides and the flanges of an usual section for door-and window frames and the like, and provided with a shaped flange running along the longitudinal edge of at least one of the flanges of said seat, the channel-shaped cavity of said seat being suitable to pressure-house the peduncle or stem of a continuous gasket having the part outside the seat variously shaped, so as to provide a set of seal and back stop gaskets, said flanges protruding towards the outside of said seat constituting means for the stable hooking of sections with other sections and/or accessories of door-and window frames and the like.

More particularly, the peduncle of said gasket, which has to be pressure-inserted in the seat, is provided peripherally with protrusions having a substantially rounded shape, or a saw-teeth shape or a dovetail shape or the like.

Besides, these gaskets are partly made from polyvinylchloride (PVC), polyethylene, polypropylene, ABS, fluorinated rubbers and the like, and partly constituted by a peduncle from PVC or the like, coextruded, for the external bent part, with flexible rubber or the like.

Further characteristics and advantages of this invention shall be stressed by the following description, made with reference to the attached drawings, which are given by mere way of example, wherein:

Figs. 1 and 9 show, by way of example, two hollow sections forming a frame, provided with a "U"-shaped seat realized according to the invention and with continuous variously shaped

gaskets, which are also realized according to the invention, while

Figs. 2 through 8 show the through-view of some types of gaskets of various shape and size realized according to the invention and which can be inserted into the "U"-shaped seats shown on Figs. 1 or 9.

With special reference to Fig. 1 or Fig. 9, the pressure-hooking structure subject matter of this invention is substantially constituted by the combination of a particular continuous seat with a set of gaskets also continuous and differently shaped as concerns their external part, i.e. the part that protrudes from said seat.

The restraint seat, obtained, for instance, on the various sides and flanges of the two sections 2 and 3 to be hooked with one another to form, for instance, a frame made up by two hollow sections from aluminium or its alloys, is constituted, according to the invention, by a groove or throat 1 developed along the full-height of the section, and having a substantially "U"-shaped through-section, whose side flanges are parallel to one another; therefore the stem or peduncle of a gasket can be inserted into said "U"-shaped channel by simple lateral pressure-insertion and stably kept therein by the particular conformation of the stem or peduncle of said gasket, as will be better explained further on.

The free ends of the opposing flanges of each "U"-shaped seat 1 are provided with at least a flange 1a (or with two flanges 1a and 1b), bent towards the outside or having a substantially triangular through-section. Said external flanges are as many useful means for snap-hooking and restraining a section with another section, provided with corresponding protrusions or with an accessory, for instance a hinge, to form door-and window frames, as shown by way of example on Fig. 1 (and on Fig. 9).

The gaskets, shown in through-view on Figs. 2 through 8, have all a same stem or peduncle 4, whose size allows it to be stably housed in the "U"-shaped seat by lateral pressure plug-in; to ensure the stability of the plug, stem 4 is provided with transversal protrusions or ribs 5, having a rounded shape, a saw teeth shape, a dovetail shape, a spiral shape or the like, suitable to prevent the risk of the gasket coming out from the relevant seat.

The types of continuous gaskets shown on Figs. 2 through 8 and inserted, by way of example, in seats 1 obtained in the two sections 2 and 3 forming a frame, have the parts outside the seat variously shaped according to the function they have to perform.

Therefore, gasket 6 of Fig. 2 has a flat part 6a integral with stem 4, which rests against the edge

of the "U"-shaped seat and then a continuous bent part 6a, elastically yielding under pressure, whose function is to constitute an efficacious back stop between the various sections matching with one another, as indicated, for instance, on Fig. 1 in the space between section 2 and section 3, mobile around hinge C, and also a sealing means in the space Y between said sections.

Gasket 11 of Fig. 7 has the same function as the gasket of Fig. 6, i.e. that of constituting a ledge between sections matching with one another, and has the flat part 11a, which rests against the edge of the "U"-shaped seat, and the tubular part 11a, which is a sealing element yielding under pressure and provided also with a recess 11a suitable to help the squashing of the tubular part in the wished direction and the relevant sealing, as shown on Fig. 9.

Gasket 7, shown on Fig. 3, is provided with two angle-flanges 7a-7b, integral with stem 4, which rest on the external inclined surfaces of flanges 1a-1b of the "U"-shaped seat, as shown in the middle of Fig. 1, and a tail 7c ending with a hook-bent part 7d. Its function is that of constituting a seal against another gasket, as illustrated, for instance, also in the middle region of Fig. 1.

Gasket 12, shown on Fig. 8, has a flat part 12a, integral with stem 4, which rests against the edge of the "U"-shaped seat, and then an extended part 12b elastically yielding and ending with the inclined part 12c, which forms a seal against part 12b of a similar gasket positioned in opposing position within the matching section, as shown on Fig. 9, or against a special protrusion, not shown on Fig. 9, obtained on the extruded section. As one sees, two gaskets 12, equal and in combination with one another, may be used instead of the combination of gaskets 7 and 8, with obvious advantages of cost and installation simplicity.

Gasket 8, shown on Fig. 4, has a flat rest surface 8a, integral with stem 4, having the function of a levelled back stop or the like against a section, a glass pan or the like.

Gasket 9 of Fig. 5 is provided with a tail 9a integral with stem 4, which tail is bent according to a wide bending radius and rests as a seal against a glass pan or also against a wide section surface; besides, its part 9b, bent parallelly to the stem, seats astride a flange 1a or 1b of the "U"-shaped seat, to ensure the plug stability of the gasket, when it is mounted.

Gasket 10, shown on Fig. 6, is a composite gasket, i.e. constituted by the coextrusion of a rigid plastic material, for instance PVC, for stem 4 and the external part 10a, and by a bent part 10b from flexible plastic material, for instance flexible rubber; part 10b has substantially a function of seal against air infiltrations or the like in a structure of sections,

as shown by way of example in the middle part of Fig. 1.

The special "U" conformation of the restraint seat for the gaskets together with the relevant flanges 1a and 1b, which flanges are hooking means between the various sections produced by the Applicant, has also been the subject matter of an application for the registration of a figurative mark, application nr. MI93C004492, filed on 17.06.1993 on behalf of the same Applicant.

From the above description and the drawings it is obvious that the shape, size, materials and colours utilized for the realization of the seat and the gasket may in practice change as one wishes or according to needs, without exceeding the protection scope of this invention.

### Claims

1. Hooking and restraining structure for gaskets and for the connection of metal sections and/or accessories for door- and window frames composed by extruded hollow sections from aluminium and its alloys, characterized in that it is constituted by a continuous channel-shaped seat having a constant substantially "U"-shaped through-section, obtained on the sides and the flanges of an usual section for door- and window frames and the like, and provided with a shaped flange running longitudinally along the edge of at least one of the flanges of said seat, the channel-shaped cavity of said seat being suitable to pressure-house the peduncle or stem of a continuous gasket whose part outside the seat is variously shaped, so as to provide a set of seal and back stop gaskets, said flanges protruding towards the outside of said seat constituting means for the stable hooking of the sections with other sections and/or accessories of door- and window frames and the like. 20 25 30 35 40
2. Hooking structure according to claim 1, characterized in that said gaskets are provided all with the relevant peduncles or stems, pressure-insertable into said "U"-shaped seat, provided peripherally with transversal protrusions having a substantially rounded shape, a saw teeth shape, a dovetail shape or the like. 45 50
3. Hooking structure according to claim 1, characterized in that some of these gaskets have the part that protrudes from the relevant stem shaped as a yielding arch or have a tubular shape or the like, so as to constitute a back stop or seal element against other sections or accessories of a structure composed of hollow sections. 55
4. Hooking structure according to claim 2, characterized in that said gaskets are made from plastic material chosen among polyvinylchloride, polyethylene, polypropylene, ABS, fluorinated rubbers, combinations of same and the like. 5
5. Hooking structure according to claim 1, characterized in that at least one of said gaskets is constituted by a peduncle from plastic material coextruded with a flexible rubber as concerns the external bent part of said gasket. 10
6. Hooking structure according to claim 1, characterized in that said seal and back stop gaskets have structurally the shape shown on the attached Figs. 2 through 8. 15



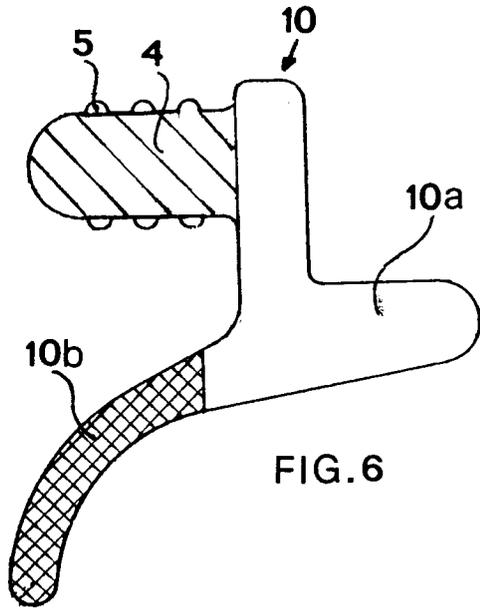


FIG. 6

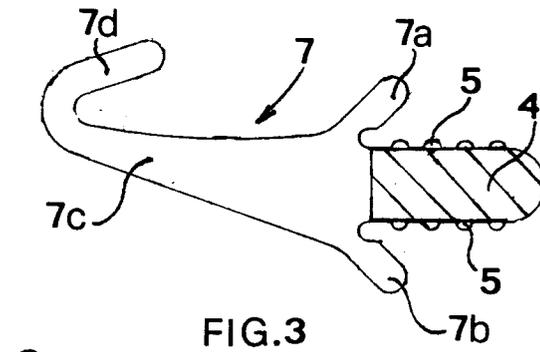


FIG. 3

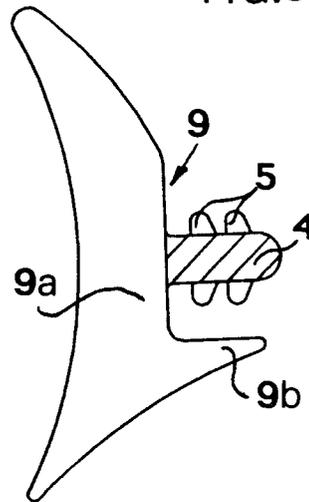


FIG. 5

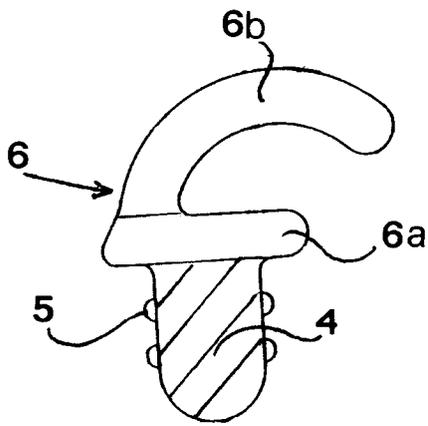


FIG. 2

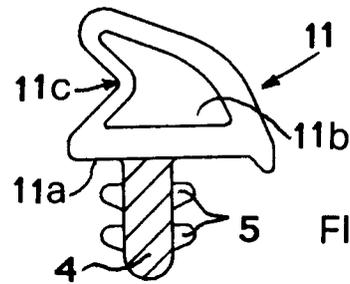


FIG. 7

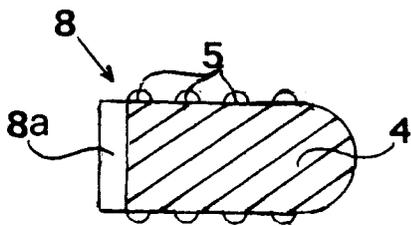


FIG. 4

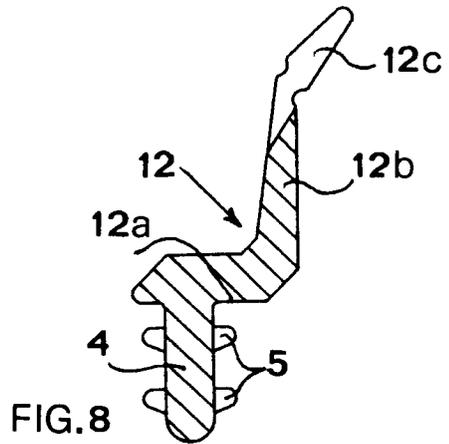


FIG. 8



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EUROPEAN SEARCH REPORT

Application Number  
EP 94 11 4330

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	CH-A-406 592 (KUENTZ) * the whole document *	1-4,6	E06B1/00 E06B7/23
Y	---	5	
X	US-A-3 229 332 (KOLLER) * figures 1,3 *	1-4,6	
Y	---	5	
Y	FR-A-2 166 486 (PELLERIN) * page 2, line 27 - line 39; figures 1,5 *	5	
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E06B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		20 January 1995	Peschel, G
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