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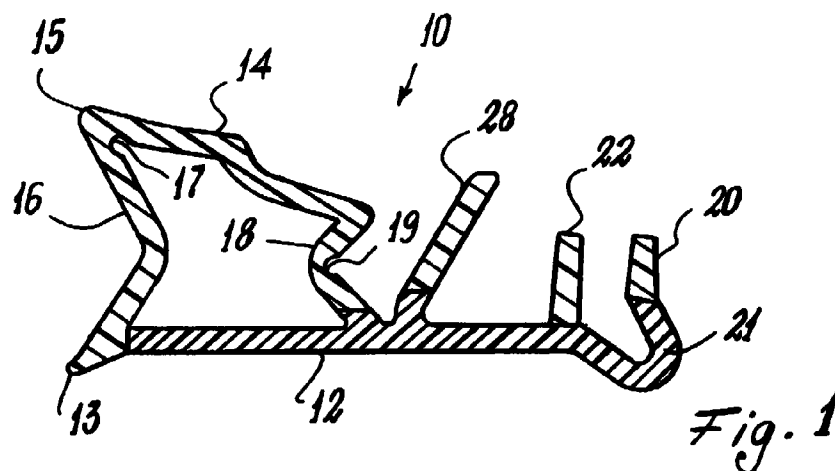
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(54) Gasket for door or window structure

(57) The gasket (10; 40) for door or window structures is of the type in which a portion (20, 21, 22; 40, 41, 42) of its cross section is forcibly inserted into a groove (24) provided in the openable door or window part (or possibly in the frame) to fix the gasket (10; 40), the remaining part of the cross-section of the gasket (10; 40) emerging from this groove (24) and having two mutually parallel or inclined walls (12, 14; 42, 44), one of which (12; 42) lies against an abutment surface (30) provided on the openable part (or on the frame) and against which, when the openable part is closed, the gasket (10; 40) is compressed by a counteracting surface provided on the frame (or on the openable part).

The gasket fixing portion (20, 21, 22; 50, 51, 52) is shaped such that, even when the openable part is open, that end (13; 43) of the wall (12; 42) lying against the abutment surface (30) which is distant from the fixing portion (20, 21, 22; 50, 51, 52) is maintained pressed against the abutment surface (30). In this manner, even when the openable part is open, the gasket (10; 40) remains in its correct position, so preventing any possibility of it becoming deformed or wrongly positioned and hence providing a perfect seal for the door or window structure.



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Description

This invention relates to gaskets for door or window structures, ie those gaskets which are inserted between the openable door or window part and the frame of a door or window structure to prevent water infiltration between them and to interrupt preferential thermal and acoustic transmission paths formed by the gaps existing between the openable part and frame. More specifically, the invention relates to those gaskets in which a portion of their cross-section is forcibly inserted into a groove provided usually in the openable part (or possibly in the frame) to fix the gasket, the remaining part of the cross-section of the gasket emerging from this groove and having two mutually parallel or inclined walls, one of which lies against a surface (known hereinafter as the abutment surface) provided on the openable part (or on the frame) and against which, when the openable part is closed, the gasket is compressed by a counteracting surface provided on the frame (or on the openable part). Said two mutually parallel or inclined walls are connected together by at least two segments.

Gaskets of this type are known having a variously shaped cross-section, obtained by extrusion and consisting of a fairly soft elastically deformable thermoplastic material.

Gaskets of this type are also known in which of the two said walls, that (which is also the larger) lying against said abutment surface is of an elastically deformable material which is much more rigid than the soft material used up to the present time to form gaskets of this type. In this case the gasket is obtained by conventional methods for coextruding (through a suitably shaped extruder) two different plastic materials to form a single section.

It has however been found that said larger wall of the gasket cross-section is unable to properly adhere to the relative abutment surface when the openable part is open, because of which it can happen that on closing the openable part the gasket becomes compressed between the abutment surface and the counteracting surface in an imperfect manner, so compromising the door or window seal.

An object of this invention is therefore to provide a seal gasket for door or window structures which does not present the aforesaid drawbacks.

This object is attained by the gasket according to the invention, characterised in that the gasket fixing portion is shaped such that, even when the openable part is open, that end of the wall lying against the abutment surface which is distant from the fixing portion is maintained pressed against the abutment surface. In this manner, even when the openable part is open, the gasket remains in its correct position, so preventing any possibility of it becoming deformed or wrongly positioned and hence providing a perfect seal for the door or window structure.

Preferably, to achieve this effect, of the wall lying

against the abutment surface, that piece which forms part of the fixing portion is shaped as a hump projecting towards the abutment surface.

The invention will be more apparent from the ensuing description of two embodiments thereof. In this description reference is made to the accompanying drawing, on which:

Figure 1 is a cross-section, considerably enlarged compared with the actual dimensions, of a first embodiment of the gasket;

Figure 2 shows the same gasket, slightly enlarged compared with the actual dimensions, arranged in position on a relative frame of a door or window structure; and

Figure 3 is similar to Figure 1, but shows a modified embodiment of the gasket.

From Figure 1 it can be seen that the gasket 10 for door or window structures comprises two mutually inclined walls 12 and 14, of which the first 12 is of much greater size than the second 14. The two walls 12 and 14 are connected together by two segments 16 and 18 shaped at an angle, the vertices of the two angles facing each other. As the segment 18 is of smaller length, to facilitate its deformation a small recess 19 is provided.

As can be seen from Figure 1, the combination of the two walls 12 and 14 and the two segments 16 and 18 form a type of closed bellows profile which extends longitudinally (perpendicular to the plane of the page) to the gasket 10, the bellows being compressed when the openable part is closed.

At that end of the major wall 12 distant from that from which the segment 16 extends there is provided a third segment 20 which extends, in the manner of a shelf, substantially perpendicular to the wall 12. From this latter there also extends outwards, parallel to the third segment 20, a fourth segment 22 projecting to the same extent as the third segment 20.

A fifth segment 28 extends from the major wall 12 with a certain inclination, such as to form a V together with that part of the segment 18 closest to the wall 12.

That cross-sectional portion of the gasket 10 formed by the two segments 20 and 22, together with the relative part of the wall 12 shaped as a hump 21, constitute the so-called fixing portion of the gasket 10. In this respect, as can be seen from Figure 2 this fixing portion is intended to be inserted with slight force into a groove 24 provided in a frame 26 of a door or window structure (and which in this specific case is of wood, but could be of any other suitable material). Consequently the wall 12 is located adjacent to an abutment surface 30 provided on the frame 26 and, precisely by virtue of the hump 21, is pressed against the abutment surface 30, so that the gasket 10 cannot separate from the abutment surface 30 even when the openable part is open. This prevents any withdrawal of the gasket from the abutment surface, which could lead to incorrect defor-

mation of the gasket when the openable part is closed and which in the long term could prejudice the sealing of the door or window structure.

As can be seen from Figure 2, the inclined segment 28 seals against a surface 32 also provided on the frame 26 and orientated perpendicular to the abutment surface 30.

From Figure 1 it can be seen that a large part of the wall 12 is formed of a material different from that of the rest of the gasket, and in particular a material which is again elastically deformable, but substantially more rigid than the rest of the gasket.

From Figure 1 it can also be seen that that end of the major wall 12 at the segment 16 is of soft material and has a projecting lip 13 which enables a better seal to be obtained (it can be seen in Figure 2 that the lip 13 is compressed against the abutment surface 30 by virtue of the presence of the hump 21). Again for the purpose of improving the seal, the projecting corner 15 (of soft material) between the segment 16 and the minor wall 14 is shaped as an acute angle, an internal cavity 17 facilitating the required deformation of the segment 16.

It is known that by providing the gasket 10 with a more rigid portion (that part of the wall 12 shown with denser hatching, being formed of material which is elastically deformable but substantially more rigid than the rest of the gasket), a gasket can be obtained by coextrusion having a narrower dimensional tolerance than a gasket of soft material, so obtaining a product of more constant characteristics.

Thermoplastic materials suitable for forming both the more flexible parts and the more rigid part of the gasket are for example thermoplastic or polyvinylchloride rubber, these materials being available with different rigidity.

The gasket 40 shown in Figure 3 differs from the gasket 10 only in the different shape of that portion which is to be compressed between the openable part and the frame of the door or window structure. In Figure 3, elements equal or similar to those of the gasket 10 of Figure 1 are indicated by the same reference numerals increased by 30. The minor wall 44 is connected to the relative major wall 42 again by two segments 46 and 48 respectively (but which could also be more than two in number), of which the first is substantially rectilinear and the second is of S shape. The gasket 40 is again provided with a hump 51, having the same function as the hump 21 of the gasket 10 of Figures 1 and 2.

It should be noted that the invention can also be applied to gaskets of the type described in the simultaneous utility model application entitled "Gaskets for door or window structures, of controlled deformability" of the present applicant, in which gaskets both the walls of the gasket are formed wholly or partly of elastically deformable material of substantially greater rigidity than the rest of the gasket.

Claims

1. A gasket (10; 40) for door or window structures, of the type in which a portion (20, 21, 22; 50, 51, 52) of its cross-section is forcibly inserted into a groove (24) provided usually in the openable door or window part (of possibly in the frame) to fix the gasket (10; 40), the remaining part of the cross-section of the gasket (10) emerging from this groove (24) and having two mutually parallel or inclined walls (12, 14; 42, 44), one of which lies against an abutment surface (30) provided on the openable part (or on the frame) and against which, when the openable part is closed, the gasket (10; 40) is compressed by a counteracting surface provided on the frame (or on the openable part), characterised in that the gasket fixing portion (20, 21, 22; 50, 51, 52) is shaped such that, even when the openable part is open, that end (13; 43) of the wall (12; 42) lying against the abutment surface (30) which is distant from the fixing portion (20, 21, 22; 40, 41, 42) is maintained pressed against the abutment surface (30).
2. A gasket (10; 40) as claimed in claim 1, wherein of the wall (12; 42) lying against the abutment surface (30), that piece which forms part of the fixing portion (20, 21, 22; 40, 41, 42) is shaped as a hump (21; 51) projecting towards the abutment surface (30).
3. A gasket (10; 40) as claimed in claim 2, wherein the wall (12; 42) lying against the abutment surface (30) is formed partly of a substantially rigid first material and partly of a second material which is more rigid than the first.
4. A gasket (10; 40) as claimed in claim 3, wherein from that part of the wall (12; 42) lying against the abutment surface (30) which is formed of more rigid plastic material there extend stems also formed of substantially rigid plastic material and forming part of the segments.
5. A gasket (10, 40) as claimed in claim 1, wherein that end distant from the fixing portion (20, 21, 22; 50, 51, 52) comprises a flexible lip (13; 43) arranged to be pressed against the abutment surface (30).

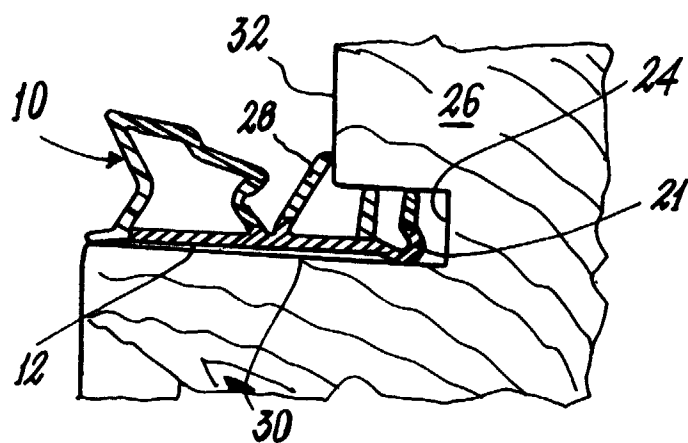
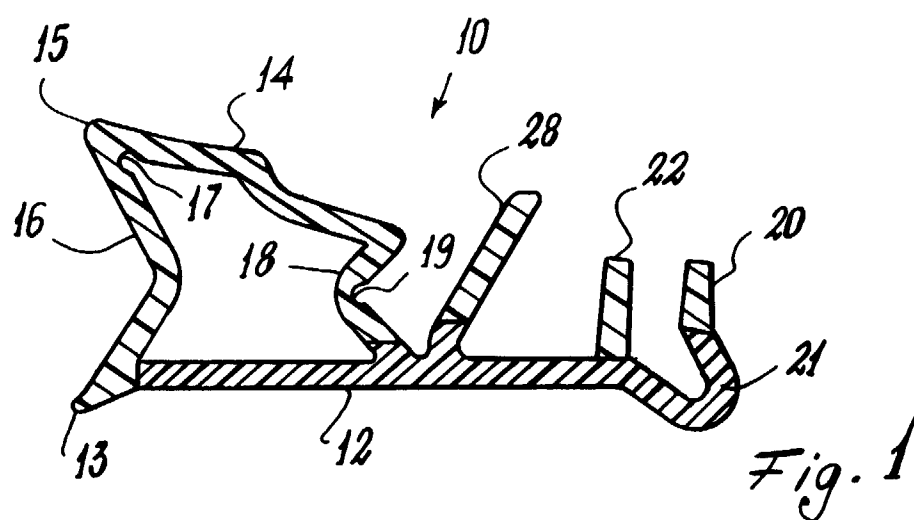


Fig. 2

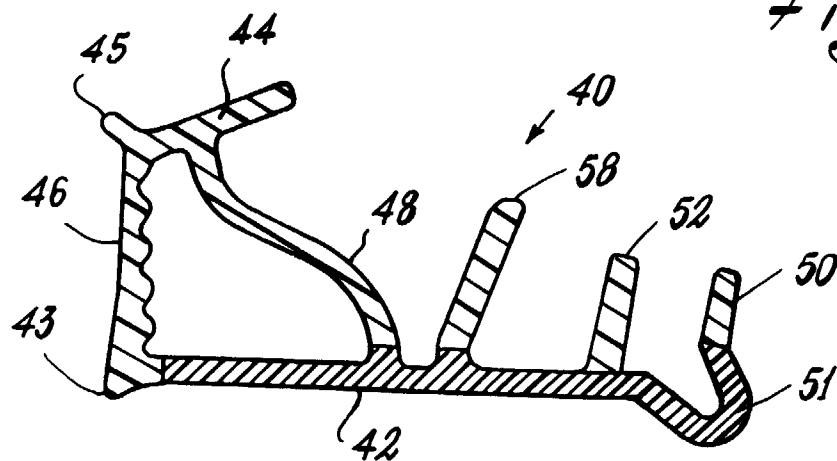


Fig. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 98 11 1832

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	DE 42 00 624 C (DEVENTER PROFILE) 24 June 1993	1-3	E06B7/23
Y	* column 6, line 41 - column 6, line 46; claim 16; figure 1 *	4	
X	EP 0 489 372 A (SAAR-GUMMIWERK) 10 June 1992 * the whole document *	1,2,5	
Y	DE 295 09 733 U (BRÜGMANN FRISOPLAST) 24 August 1995 * claim 40; figure 1 *	4	
Y	US 4 617 220 A (DRAFTEX) 14 October 1986 * column 2, line 8 - column 2, line 14; figure 1 *	4	
X	EP 0 436 810 A (BRÜGMANN FRISOPLAST) 17 July 1991	1-3	
Y	* the whole document *	4	
			E06B
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 12 October 1998	Examiner Knerr, G
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