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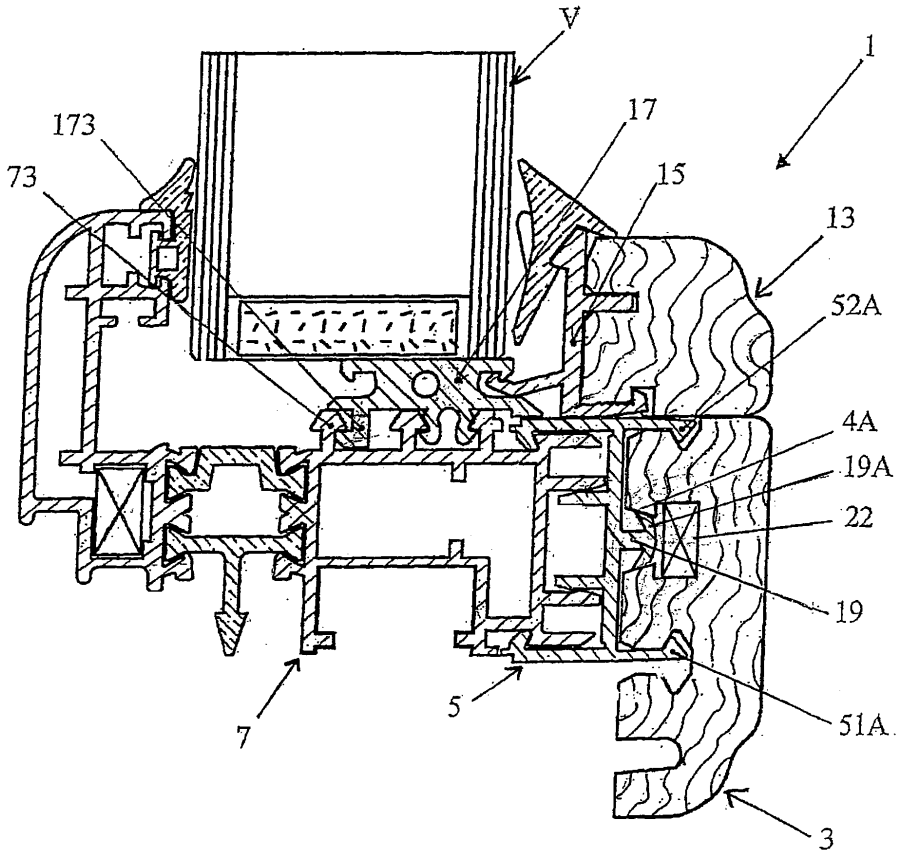
(54) Connection for composite profiles of door and window frames

(57) A composite profile for door and window frames comprising at least one coupling extrusion (5) having flexible tabs (51, 52) with teeth (51A, 52A) facing inward and which couple with respective shaped parts (55A, 55B) of a frame (3) characterized in that said coupling extrusion (5) has a further boss (19) having a shaped end which blocks inside an opening (4) produced in said frame (3).

Fig.3



EP 1 640 548 A2

Description

[0001] Various systems for connecting profiles made of different materials to obtain composite profiles for door and window frames are known.

[0002] For example, the patent EP 0.462.245 (Nigris) describes door and window frames with a wooden covering frame glued to an intermediate profile made of a different material, in particular a plastic material, and further systems for connection between this intermediate profile made of plastic material and supporting metal profiles, to firmly block a glass pane.

[0003] Another patent, EP 0.392.342, by the same applicant, describes a connection system between an intermediate profile made of plastic material and a wooden frame which does not require to be glued. In this patent the intermediate profile has two tabs with two respective teeth both facing outwards which couple with respective indentations produced in a hollow of the wooden frame.

[0004] With this embodiment optimal centering is not guaranteed during assembly; moreover, precise machining of the connecting surfaces must be guaranteed, so as not to slacken or produce clearance in the connection.

[0005] The invention refers to a connection system for a composite profile for door and window frames, produced to offer a more stable and secure assembly without requiring to use glues.

[0006] More specifically, the invention relates to connection between a wooden frame and an intermediate profile or coupling extrusion made of plastic material. Said intermediate profile has tabs with respective shaped projections both facing inwards and a further centering and thrust element. In particular, said centering element is not used for gripping, but is inserted in a shaped slot produced in the wooden frame to create a thrust in the opposite direction to said coupling, to make the connection more stable and reliable without requiring to use glues or further constraining or stabilizing elements. This element also facilitates centering during installation operations.

[0007] Another component for the composite profile, which according to the invention offers more stable and secure assembly without requiring to use glues is formed of a sealing element for a glass pane, said sealing element being assemblable with bayonet fit on a supporting profile or extrusion. This sealing element, preferably made of a plastic material or PVC, has two conventional tabs for fastening on said profile and advantageously a further shaped tab, the main function of which is to prevent uncoupling during assembly. In fact, during assembly of the composite profile this sealing element is also used to block a further wooden angular frame, which is generally assembled using a transverse external force which can cause uncoupling of the sealing element, as will be clear from the description below.

[0008] In a particularly advantageous embodiment of the invention, the supporting profile is coupled to the intermediate profile or coupling extrusion by means of tabs inclined towards each other, in order to considerably facilitate centering and assembly.

[0009] Further limit stop elements are used to prevent excessive assembly pressure from causing slackening or clearance in the connection and to produce a thrust in the opposite direction to the coupling thrust to make said connection more stable and reliable, as will be explained in greater detail hereunder.

[0010] In this way no type of glue is used to assemble the composite profile, which at the same time is more stable and secure.

[0011] Moreover, assembly is faster and more secure and the costs are lower.

[0012] Further advantageous characteristics and embodiments of the system according to the invention are indicated in the appended dependent claims and will be further described hereunder with reference to a preferred non-limiting embodiment of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] The present invention will be better understood and its numerous objects and advantages will be more apparent to those skilled in the art with reference to the accompanying schematic drawings, which show a practical, non-limiting example of the finding. In the drawing:

Figure 1 shows an assembly of profiles according to the invention during assembly;
Figure 2 shows an enlarged detail of Figure 1;
Figure 3 shows a section of said profiles in Figure 1 after assembly;
Figure 4 shows a detail of a variant of embodiment of the assembly of profiles according to the invention, during assembly;
Figure 5 shows a section of the same profiles in Figure 4 after assembly.

DETAILED DESCRIPTION OF THE INVENTION

[0014] With reference to the drawings, in which the same numbers are used for the same parts in all the different figures, an assembly of composite profiles for door and window frames according to the invention is indicated with 1.

[0015] The composite profile for door and window frames 1, see Figure 1, is generically composed of at least one coupling extrusion 5, advantageously made of plastic material (nylon or the like), having conventional flexible tabs 51 and 52 with respective end bosses 51A and 52A which extend opposite towards each other and which connect to respective shaped parts 55A and 55B of a wooden frame 3; said coupling extrusion 5 is characterized in that it has a further boss 19 having a shaped end to block on walls 4A and 4B of an opening 4 produced in said frame 3, said walls forming retaining teeth.

[0016] Said walls 4A and 4B of said opening 4 are advantageously inclined, see Figure 2, to block the shaped

end of said boss 19 before it is fully seated in the opening, i.e. preventing total insertion of said boss 19 inside said opening 4.

[0017] The end of said boss 19 has two inclined opposed tabs 19A and 19B, for example in the shape of an arrow. In this way, said two tabs 19A and 19B are inserted - see the direction indicated by the arrow F1 in Figure 1 - progressively with interference inside said opening 4 and bend to become blocked between said walls 4A and 4B, thereby creating a reaction force in the opposite direction to the insertion force, which makes the connection more stable and secure without producing slackening or clearance.

[0018] Said opening 4 advantageously terminates with a hollow 21 for optional insertion of a square metal element 22, see in particular Figure 3, conventionally used for constraining and angular centering of the composite profile. In this case said two tabs 19A and 19B of said boss 19 are blocked by said inclined walls 4A and 4B before they can penetrate inside said hollow 21, see again Figure 3.

[0019] In the preferred embodiment of the invention, said boss 19 and said opening 4 are central, i.e. positioned centrally with respect to said tabs 51 and 52 of said coupling extrusion 5.

[0020] Said coupling extrusion 5 can be blocked to a further metal coupling extrusion 7 (see the direction indicated by the arrow F2 in Figure 1), by means of teeth 5A and 5B and tabs 7A and 7B respectively, in a substantially known way; a sealing element 17, preferably made of a plastic material, is blocked on said extrusion 7, to block a glass pane V in position. Said sealing element 17 has two tabs 171 and 172 shaped to fit in a known way in respective shaped tabs 71 and 72 of said extrusion 7, and also has a further shaped tab 173 which blocks on a respective tab 73 of said extrusion 7.

[0021] Said sealing element 17 can advantageously be assembled with a "bayonet fit" on said extrusion 7, i.e. firstly the tab 173 is blocked on the respective tab 73, and then, with downward pressure on the sealing element 17, the tabs 172 and 171 are inserted and blocked on the respective tabs 71 and 72 of the extrusion 7; this assembly is schematized by the arrow F3 in Figure 1.

[0022] Said tab 173 performs the principal function of preventing uncoupling of the sealing element 17 during assembly. In fact, during assembly of the composite profile said sealing element 17 is also used to block a further coupling extrusion 15 and subsequently an angular wooden frame 13, see arrow F4 in Figure 1; these further components 13 and 15 are assembled by means of a transverse external force, see arrow Fe in Figure 1, which can cause uncoupling of said sealing element 17 from said extrusion 7, when an element such as the tab 173 is not provided.

[0023] In this way assembly of the composite profile is further facilitated and simplified.

[0024] Moreover, no type of glue is used to assemble the composite profile, which at the same time is more stable and secure and has lower costs.

[0025] In a further particularly advantageous embodiment of the invention said supporting profile or extrusion 7 has tabs 7C and 7D, see Figures 4 and 5, similar to those indicated with 7A and 7B in Figures 1 to 3, but inclined towards each other; in this way assembly and centering of the extrusion 7 on said coupling extrusion 5 is greatly facilitated.

[0026] In fact, these tabs 7C and 7D are inserted - see the direction indicated by the arrows F5 in Figure 4 - in a much easier way between said tabs 51 and 52 of said coupling extrusion 5 until said teeth 5A and 5B at the ends of said flexible tabs 51 and 52 block said tabs 7C and 7D to prevent uncoupling of the connection.

[0027] According to the invention, to prevent said tabs 7C and 7D from becoming fully seated in the coupling extrusion 5 - thereby producing clearance or slackening when connected to one another - limit stop elements 11A and 11 B are advantageously provided on said extrusion 7 to engage in contact with further base elements 12A and 12B respectively produced on said coupling extrusion 5.

[0028] Moreover, these limit stop elements 11A and 11 B, engaging in contact with the base elements 12A and 12B, create a thrust in the opposite direction to coupling, making said connection even more stable and secure.

[0029] In a particularly advantageous embodiment of the invention, said limit stop elements 11A and 11 B and said base elements 12A and 12B are projecting tabs having rounded or inclined ends.

[0030] Nonetheless, other embodiments for said limit stop elements 11A and 11 B or said base elements 12A and 12B would also be possible.

[0031] Further limit stop projections 14 can advantageously be produced on each of said elements 11A, 11B and 12A, 12B in order to facilitate assembly.

[0032] Moreover, shaped bosses 9A and 9B, preferably with hollows 93 and 94 respectively, can be provided on said flexible tabs 51 and 52 respectively, to accompany said inclined tabs 7C and 7D and provide further stability and rigidity for the composite profile assembly.

[0033] Contact projections 91 and 92 respectively can be provided on these shaped bosses 9A and 9B, see in particular Figure 4, which engage at the ends of said tabs 7C and 7D in order to further increase the stability and rigidity for assembly.

[0034] It is understood that the illustration only represents a possible non-limiting embodiment of the invention, which may vary in forms and arrangements without departing from the scope of the concept on which the invention is based. Any reference numbers in the appended claims are provided purely for the purpose of facilitating reading in the light of the preceding description and accompanying drawings and do not in any way limit the scope of protection.

Claims

1. A composite profile for door and window frames comprising at least one coupling extrusion (5) having flexible tabs (51, 52) with teeth (51A, 52A) facing inward and which couple with respective shaped parts (55A, 55B) of a frame (3) **characterized in that** said coupling extrusion (5) has a further boss (19) having a shaped end which blocks inside an opening (4) produced in said frame (3).

2. Composite profile for door and window frames as claimed in claim 1, **characterized in that** said shaped end of said boss (19) is blocked inside said opening (4) in order to create a thrust in the opposite direction to said coupling.

3. Composite profile for door and window frames as claimed in claim 1 and/or 2, **characterized in that** said opening (4) has inclined walls (4A, 4B), to block the shaped end of said boss (19) before it is fully seated.

4. Composite profile for door and window frames as claimed in claim 3, **characterized in that** said shaped end of said boss (19) is formed of two inclined opposed tabs (19A, 19B), for example in the shape of an arrow.

5. Composite profile for door and window frames as claimed in claims 1 to 3, **characterized in that** said opening (4) terminates with a hollow (21).

6. Composite profile for door and window frames as claimed in claim 5, **characterized in that** tabs (19A, 19B) are blocked by said inclined walls (4A, 4B) before they can penetrate inside said hollow (21).

7. Composite profile for door and window frames as claimed in at least one of the previous claims, **characterized in that** said boss (19) and said opening (4) are central, i.e. positioned centrally with respect to said tabs (51, 52).

8. Composite profile for door and window frames as claimed in claim 1, **characterized in that** said inner frame (3) is made of wood or the like.

9. Composite profile for door and window frames as claimed in claim 1, **characterized in that** said coupling extrusion (5) is made of a plastic material such as nylon or the like.

10. Composite profile for door and window frames as claimed in claim 1, **characterized in that** it comprises a supporting profile (7) which couples with said coupling extrusion (5) by means of tabs (7C, 7D) inclined towards each other.

11. Composite profile for door and window frames as claimed in claim 10, **characterized in that** at least one limit stop element (11A; 11 B) is provided on the supporting profile (7) to engage in contact with at least one base element (12A; 12B) produced on the coupling extrusion (5).

12. Composite profile for door and window frames as claimed in claim 11, **characterized in that** said limit stop element (11A; 11 B) and said base element (12A; 12B) are composed of projecting tabs having rounded ends.

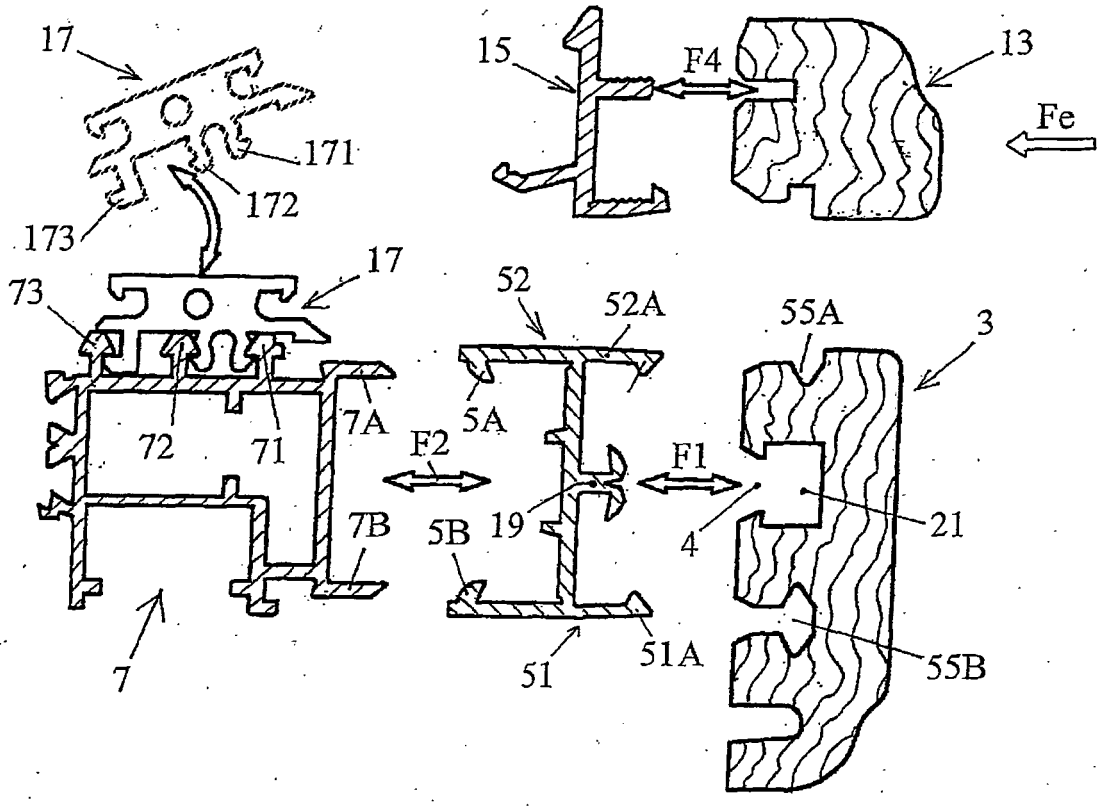
13. Composite profile for door and window frames as claimed in claim 11 and/or 12, **characterized in that** limit stop projections (14) are produced on said base and/or limit stop elements 12A, 12B; 11A, 11 B).

14. Composite profile for door and window frames as claimed in at least claim 10, **characterized in that** shaped bosses (9A, 9B) are produced on flexible tabs (51, 52) to accompany said inclined tabs (7C, 7D).

15. Composite profile for door and window frames as claimed in claim 15, **characterized in that** contact projections (91, 92) are produced on said shaped tabs (9A, 9B), which projections engage at the ends of said tabs (7C, 7D).

16. Composite profile for door and window frames as claimed in at least claim 10 or 11, **characterized in that** said supporting profile (7) is made of metal.

Fig. 1


17
171
172
173
17
73
72
71
7A
7B
7
15
F4
13
Fe
52
52A
5A
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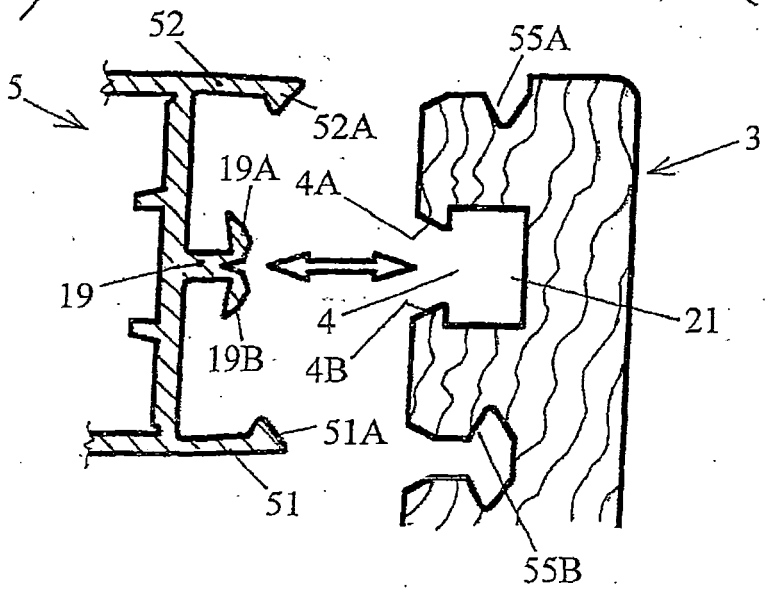
F2
F1
5B
19
4
21
51
51A
55B

Fig. 2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52A
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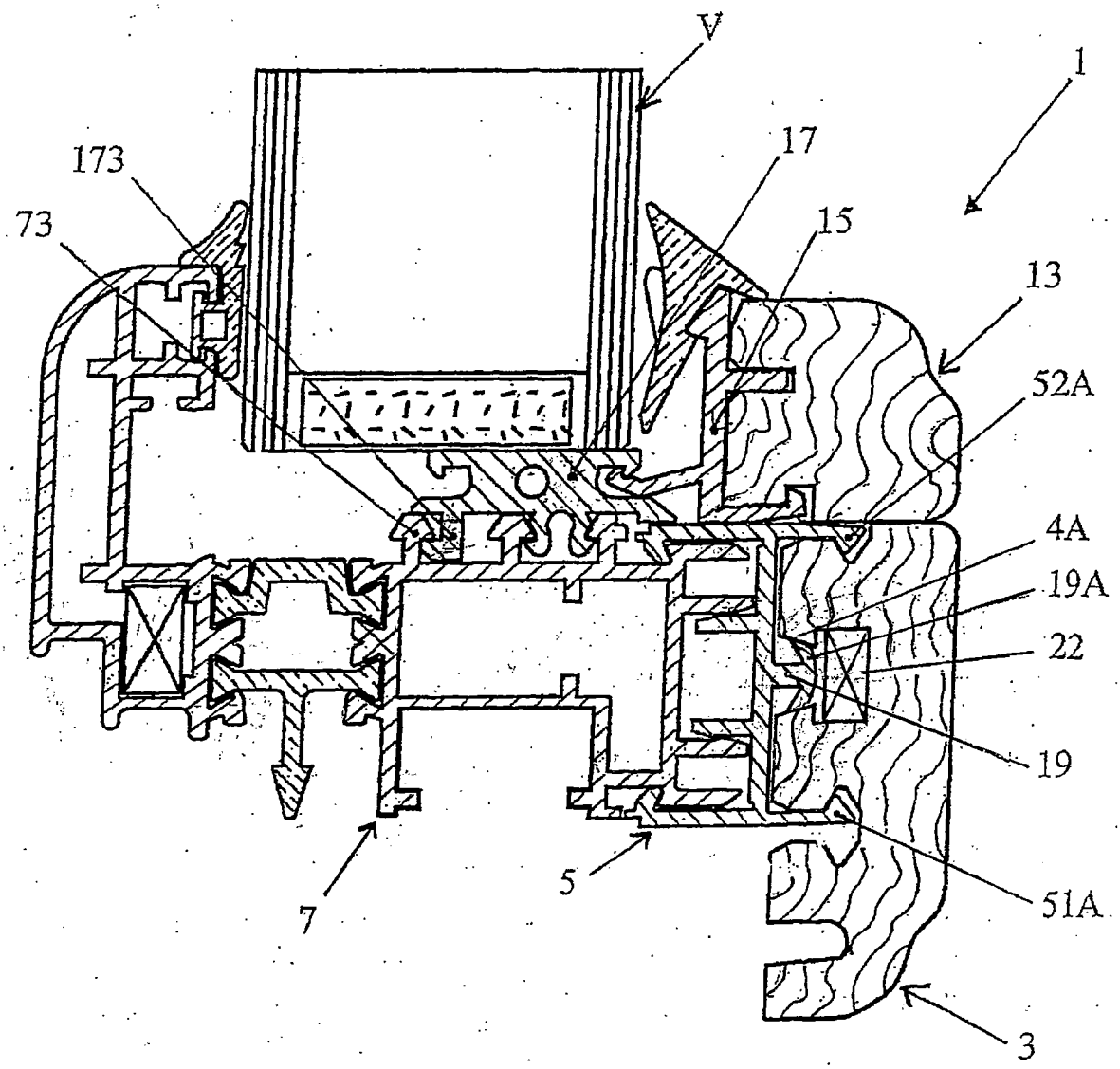
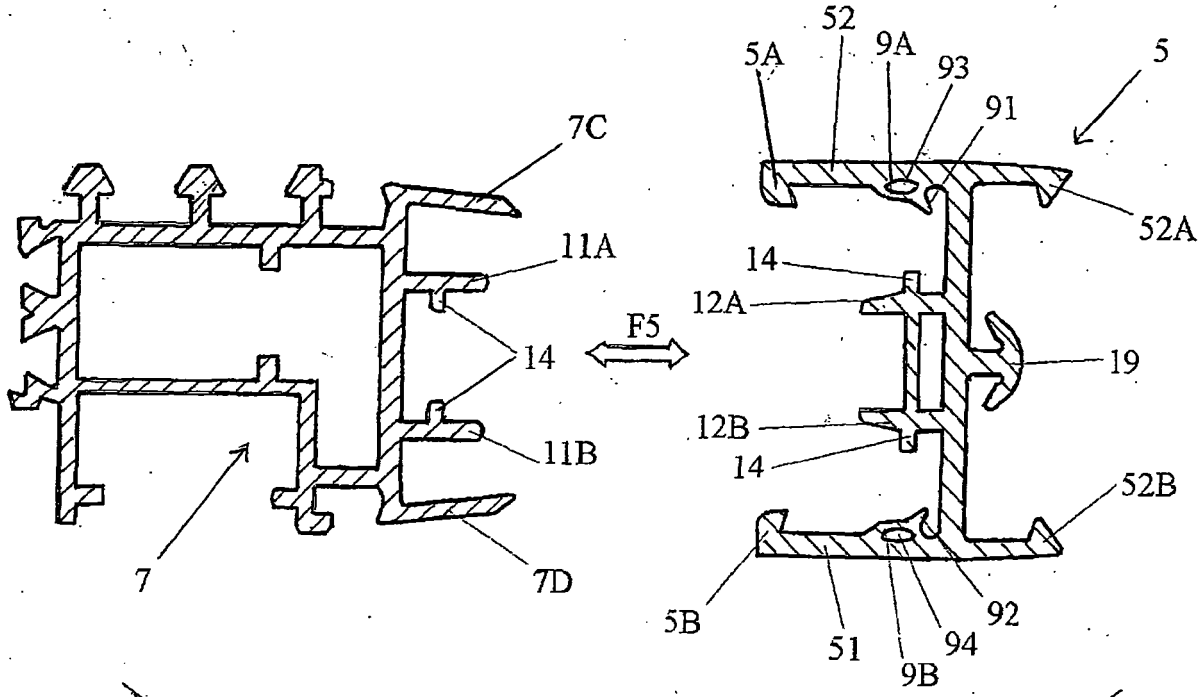
55A
3
19A
4A
19
4
21
19B
4B
51A
51
55B

Fig.3




52
5A
9A
93
5
91
7C
52A
11A
14
12A
F5
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14
12B
52B
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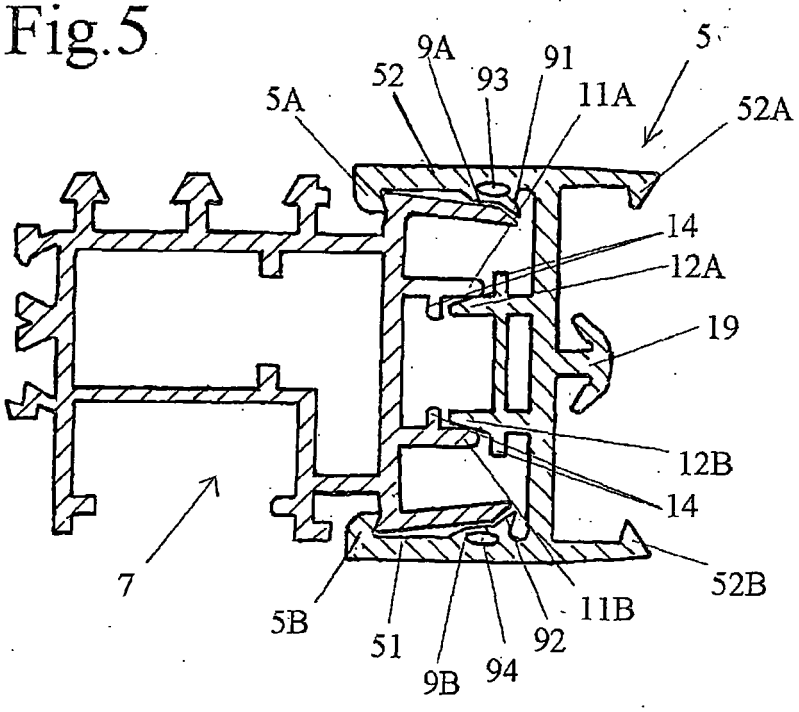
92
51
94
9B
7
7D

Fig.4

Fig.5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5
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93
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12B
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7
5B
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92
9B
94