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(54) Sliding door or sliding window with an improved drain

(57) Sliding door or sliding window with an improved drain, which is provided with a hollow sill post (5) with guides (14 and 15) on which are provided sliding panels (3 and 4), whereby opposite each of these panels (3 and 4) are provided drainage holes (18, 19 respectively), in an upper wall (16) and in an outward directed wall (17) of the post (5) respectively, whereby the hollow post is divided by one or several seals (20) in at least as many compartments (21 and 22} as there are panels (3 and 4), whereby each compartment (21 and 22), together with the above-mentioned drainage holes (18 and 19), forms a separate drainage channel.

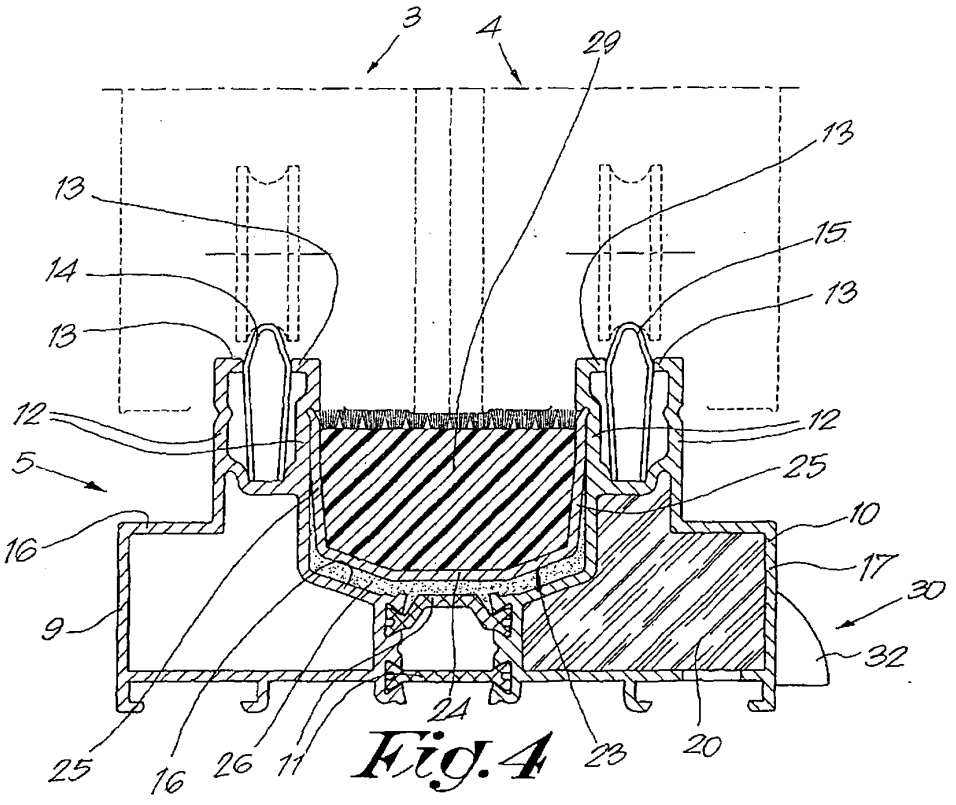

Fig.4

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Description

[0001] The present invention concerns a sliding door or sliding window with an improved drain.

[0002] In particular, the present invention concerns a sliding door or sliding window with an improved drain, which mainly consists of a sill post which is provided with guides on which are provided one or several sliding panels, whereby this sill post is a hollow post, and whereby drainage holes are provided opposite each of the above-mentioned panels when closed, in an upper wall of the post and in an outward directed wall of the post respectively.

[0003] In this manner, when the door or window is closed, there are drainage holes in the upper wall of the sill post, on the inside and on the outside of the door or window.

[0004] When rain water or the like comes into contact with an above-mentioned panel or the like, this water will run through the above-mentioned drainage holes in the upper wall of the sill post and through the hollow post to the drainage holes in the outward directed wall of the sill post via which it is drained.

[0005] A disadvantage of such known sliding doors or windows is that, as a result of weather action and the like, the pressure is often larger on the outside than on the inside, such that the water cannot flow freely out of the drainage holes and the hollow post is gradually filled with water, and water can even flow inward via the drainage holes situated on the inside of the door or window.

[0006] The present invention aims to remedy one or several of the above-mentioned and other disadvantages.

[0007] To this end, the present invention concerns a sliding door or sliding window with an improved drain, which mainly consists of a sill post which is provided with guides on which are provided one or several sliding panels, whereby this sill post is a hollow post and whereby drainage holes are provided opposite each of the above-mentioned panels when they are closed, in an upper wall of the post and in an outward directed wall of the post respectively, whereby the hollow post is divided in at least as many compartments as there are panels by one or several seals, and whereby each compartment, together with the above-mentioned drainage holes, forms a separate drainage channel opposite each panel for the panel concerned.

[0008] An advantage of such a sliding window or such a sliding door according to the invention is that the presence of the above-mentioned seal makes sure that the water flowing in the drainage holes opposite a first panel does not entirely fill the hollow post, but only one compartment thereof, such that the water-tightness of the sliding window or the sliding door can be guaranteed much longer- and such that water cannot be blown- in via the hollow post and the drainage holes on the inside of the door or window due to the wind pressure.

[0009] In a preferred embodiment, a sliding door or sliding window according to the invention is provided with a drainage valve which can seal an above-mentioned drainage hole in the above-mentioned outward directed wall of the sill post.

[0010] This is advantageous in that, when the wind is blowing in the drainage hole in the outward directed wall of the sill post, the above-mentioned drainage hole will be sealed by means of said drainage valve, such that the wind is prevented from being blown in the hollow post and such that any raising of the water in the compartment concerned, which forms a drainage channel together with the above-mentioned drainage hole, is prevented.

[0011] In order to better explain the characteristics of the present invention, the following preferred embodiment of a sliding window according to the invention with an improved drain is given as an example only without being limitative in any way, with reference to the accompanying drawings, in which:

figure 1 represents a sliding window according to the invention with an improved drain;
figure 2 represents a section according to line II-II in figure 1 to a larger scale;
figures 3, 4 and 5 represent sections with partial omissions according to lines III-III, IV-IV and V-V in figure 2 respectively;
figure 6 represents a section according to line VI-VI in figure 3;
figure 7 represents the part indicated in figure 3 by arrow F7 to a larger scale and in perspective;
figure 8 represents the use of a sliding window according to figure 3.

[0012] Figure 1 represents a sliding window 1 according to the invention which is provided with a fixed frame or casing 2, and in this case two leaves or sliding panels 3 and 4 held in the above-mentioned casing 2.

[0013] As is represented in greater detail in figures 2 to 6, the casing 2 is mainly built of a composed sill post 5, two composed side posts 6 and 7 connected thereto and a composed upper post 8, which are in this case each provided with a hollow inner post 9 and a hollow outer post 10 which is connected to an above-mentioned inner post 9 by means of two plastic connecting posts 11 forming a thermal bridge.

[0014] The inner posts 9 and outer posts 10 of the composed sill post 5 are each provided with ribs 12 at the top with far ends 13 bent towards each other, which ribs 12 extend in the longitudinal direction of said posts 9 and 10, and in between which is clamped a lath forming a guide 14, 15 respectively.

[0015] Every above-mentioned sliding panel 3 and 4 can slide, by means of capstans or the like, in the known manner over a respective guide 14 or 15.

[0016] Opposite each of the above-mentioned panels 3 and 4, when they are closed, are provided drainage holes 18, 19 respectively, in an upper wall 16 of the above-mentioned outer post 10 of the composed sill post

5 and in an outward directed wall 17 thereof respectively.

[0017] In the hollow outer post 10 of the composed sill post 5 is provided a seal 20 according to the invention which in this case divides the post 10 in two compartments 21 and 22, so that each compartment 21 and 22, together with the above-mentioned drainage holes 18 and 19 opposite each panel 3, 4 respectively, forms a separate drainage channel for the panel 3 or 4 concerned.

[0018] In a special embodiment of a sliding window 1 according to the invention, the above-mentioned seal 20 is made of an expanding foam material which is injected at least locally in the hollow post 10, for example via an opening which is drilled in the post.

[0019] The above-mentioned seal 20 forms a watertight separation between the compartments 21 and 22.

[0020] At least between the inner post 9 and the outer post 10 of the sill post 5 and in this case also between the inner posts 9 and the outer posts 10 of the side posts 6 and 7, is clamped an almost U-shaped channel section 23 with a back wall 24 and legs 25, whereby the above-mentioned legs 25 extend almost parallel to the above-mentioned ribs 12.

[0021] In this case, the U-shaped channel sections 23 are clamped such between the posts 9 and 10 that they are situated at a distance from the connecting posts 11 and from the upper walls 16 of these posts 9 and 10 with their respective back walls 24, and such that a space is enclosed there between which is in this case locally and at the above-mentioned seal 20 filled with sealing material, such as for example silicone.

[0022] In the back wall 24 of the channel section 23 which is provided on top of the above-mentioned sill post 5 are provided openings 27 and 28 which extend opposite the above-mentioned drainage holes 18 in the upper wall 16 of the sill post 5 when the sliding window 1 is mounted, and which are also part of a drainage channel situated opposite a panel 3, 4 respectively.

[0023] In the above-mentioned channel section 23 is also provided, in this case near the seal 20, a separating block 29 which connects to the legs 25 and the back wall 24 in a watertight manner.

[0024] Preferably, drainage valves 30 are also provided according to the invention which can each seal an above-mentioned drainage hole 19 in the above-mentioned outward directed wall 17 of the sill post 5.

[0025] Each of the above-mentioned drainage valves 30 is in this case built of a flexible lip 31 situated on the outside of the sill post 5 and which is in this case made in one piece with and is at least partly covered by a downward slanting drainage cap 32 which is provided with its upper edge against the outward directed wall 17 of the sill post 5 and which is positioned such that, between the lower side of the drainage cap 32 and the outward directed wall 17 of the sill post 5, is formed an opening 33.

[0026] In this case, the flexible lip 31 and the drainage cap 32 are connected by means of a film hinge 34, but this lip 31 can be attached to the drainage cap 32 in many ways according to the invention.

[0027] In a preferred embodiment, the above-mentioned flexible lip 31 is made in the form of a strip made of ethylene propylene diene monomer (EPDM), but the invention is not limited to such material of course.

[0028] Preferably, a drainage valve 30 according to the invention is additionally provided with fastening means with which the drainage valve 30 can be fastened to the sill post 5.

[0029] In this case, the above-mentioned fastening means are made as a snap-in system formed of two legs 35 which are provided on the drainage valve 30 and which are provided with hook-shaped far ends 36 which can snap in openings (which are not represented in the figures) in the outward directed wall 17 of the sill post 5.

[0030] The use and working of a sliding window 1 according to the invention with an improved drain is very simple and as follows.

[0031] When the sliding window 1 is closed and, for example, rain water runs down along the sliding panels 3 and 4, this water will end up in the above-mentioned channel section 23, after which it will end up in the compartment 21 via the openings 27 and the openings 18 in the upper wall 16 of the sill post 5 and on the outside of the sliding window 1.

[0032] Thanks to the presence of the above-mentioned separating block 29, the water can be prevented from running through the channel section 23 to the drainage openings 18 on the inside of the sliding window 1, such that all the water is discharged via the drainage holes 18 opposite the panel 3 and on the outside of the sliding window 1.

[0033] The seal 20 in the hollow post 9 prevents that water from the compartment 21 would end up in the compartment 22.

[0034] When there is no wind effect on the above-mentioned drainage valves, the flexible lips 30 of these valves 30 are pushed open by the water in the compartment 21, as a result of which the water can run away.

[0035] However, when there is a wind effect on the above-mentioned drainage valves 30, the flexible lip 31 is pushed in its closed position, such that the water in the compartment 21 is prevented from being pushed up and leaking in;

[0036] This considerably improves the water-tightness of a sliding window 1 according to the invention in relation to known sliding windows 1.

[0037] According to the invention, it is not excluded for the above-mentioned seal 20 to be realised in other manners than in the shape of a foam material, such as for example in the shape of a wall provided in the above-mentioned hollow post.

[0038] The present invention is not restricted to a sliding window with an improved drain, but it also concerns a sliding door which is provided with such an improved drain.

[0039] In the given example, the panels 3 and 4 are both erected in a sliding manner. It is clear, however, that

one or both of the panels can also be provided in a fixed manner in the casing 2.

[0040] Naturally, the present invention is not limited to the presence of two sliding panels 3 and 4, but a sliding window 1 can also be provided with only one such sliding panel or more than two sliding panels.

[0041] It is clear that neither the above-mentioned sill post 5, nor the posts 6, 7 or 8 must be made as a composed post, but that they can also be realised in the form of a single post, whereby at least the sill post 5 is made as a hollow post.

[0042] The present invention is by no means limited to the embodiments described above and represented in the accompanying drawings; on the contrary, a sliding window or sliding door according to the invention with an improved drain can be made in all sorts of shapes and dimensions while still remaining within the scope of the invention.

Claims

1. Sliding door or sliding window with an improved drain, which mainly consists of a sill post (5) which is provided with guides (14 and 15) on which are provided one or several sliding panels (3 and 4), whereby this sill post (5) is a hollow post (9 and/or 10) and whereby drainage holes (18, 19 respectively) are provided opposite each of the above-mentioned panels (3 and 4) in their closed position, in an upper wall (16) of the post (5) and in an outward directed wall (17) of the post (5) respectively, **characterised in that** the hollow post (9 and/or 10) is divided in at least as many compartments (21 and 22) as there are panels (3 and 4) by means of one or several seals (20), whereby each compartment (21 and 22), together with the above-mentioned drainage holes (18 and 19), forms a separate drainage channel opposite each panel (3 and 4) for the panel (3 or 4) concerned.

2. Sliding door or sliding window according to claim 1, **characterised in that** the above-mentioned seal (20) is formed of an expanding foam material which is injected at least locally in the hollow post (9 and/or 10).

3. Sliding door or sliding window according to claim 1 or 2, **characterised in that** the above-mentioned seal (20) forms a watertight separation between the above-mentioned compartments (21 and 22).

4. Sliding door or sliding window according to one or several of the preceding claims, **characterised in that** it is provided with a drainage valve (30) which can seal the above-mentioned drainage hole (19) in the above-mentioned outward directed wall (17) of the sill post (5).

5. Sliding door or sliding window according to claim 4, **characterised in that** the above-mentioned drainage valve (30) is provided with a flexible lip (31) which is situated on the outside of the sill post (5) and which, when in rest, seals the above-mentioned drainage hole (19) in the outward directed wall (17) of the sill post (5) and which makes it possible for water to be drained from the hollow sill post (5).

6. Sliding door or sliding window according to claim 5, **characterised in that** the above-mentioned flexible lip (31) is at least partly covered by a downward slanting drainage cap (32) which is provided with its upper edge against said outside of the sill post (5).

7. Sliding door or sliding window according to claim 6, **characterised in that** there is an opening (33) between the bottom side of the drainage cap (32) and the outside of the sill post (5).

8. Sliding door or sliding window according to claim 6 or 7, **characterised in that** the above-mentioned flexible lip (31) and the drainage cap (32) are made in one piece.

9. Sliding door or sliding window according to one or several of claims 5 to 8, **characterised in that** the above-mentioned flexible lip (31) is formed of a strip.

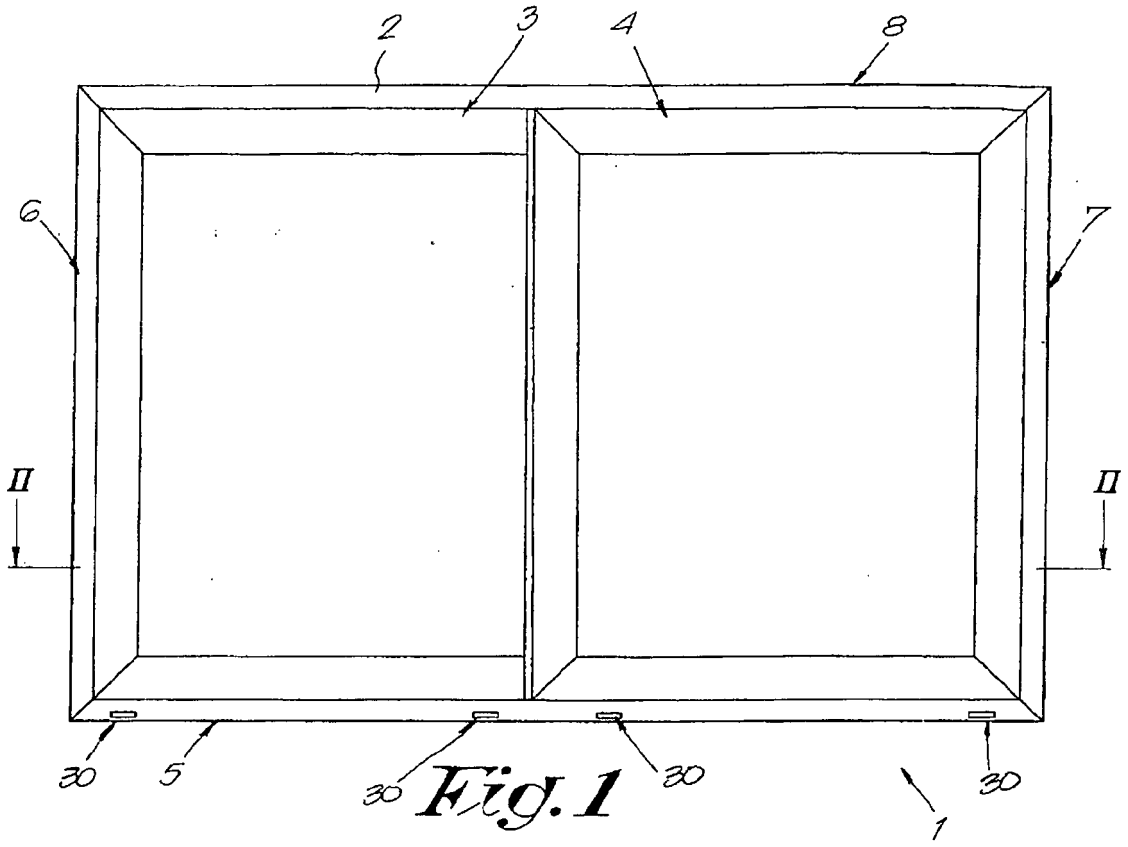
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Fig. 1

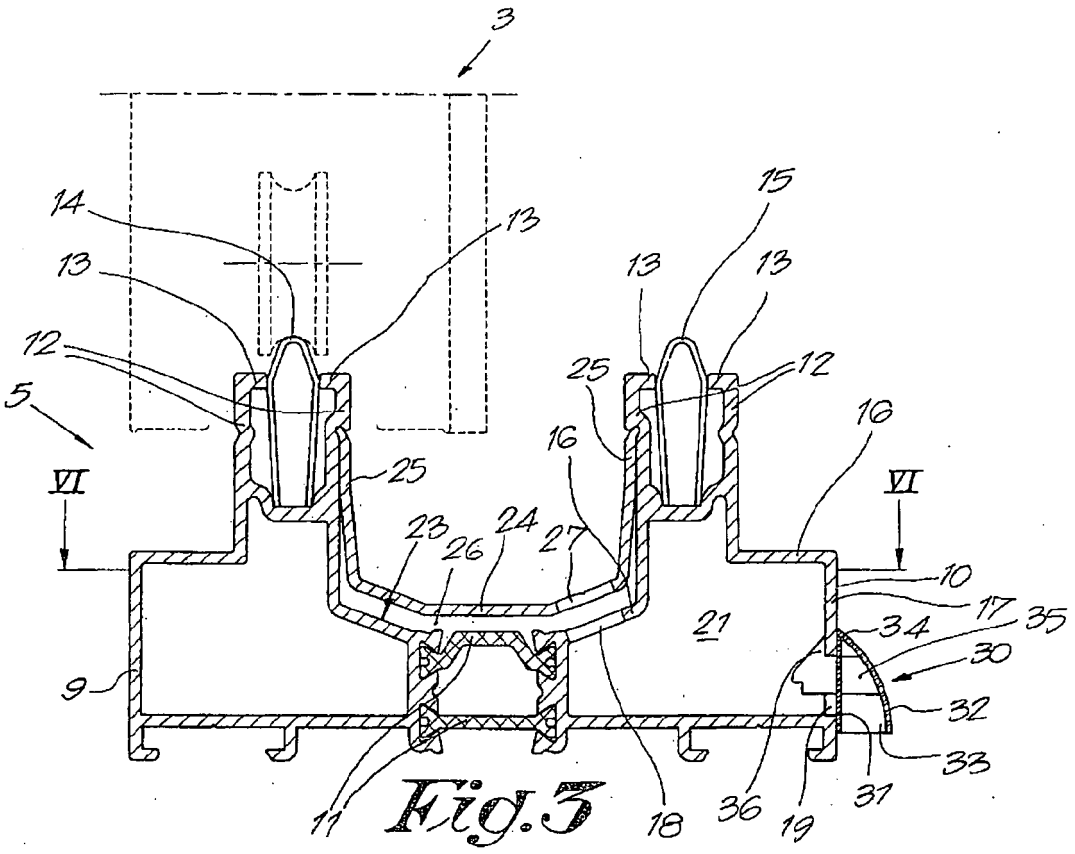
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Fig. 3

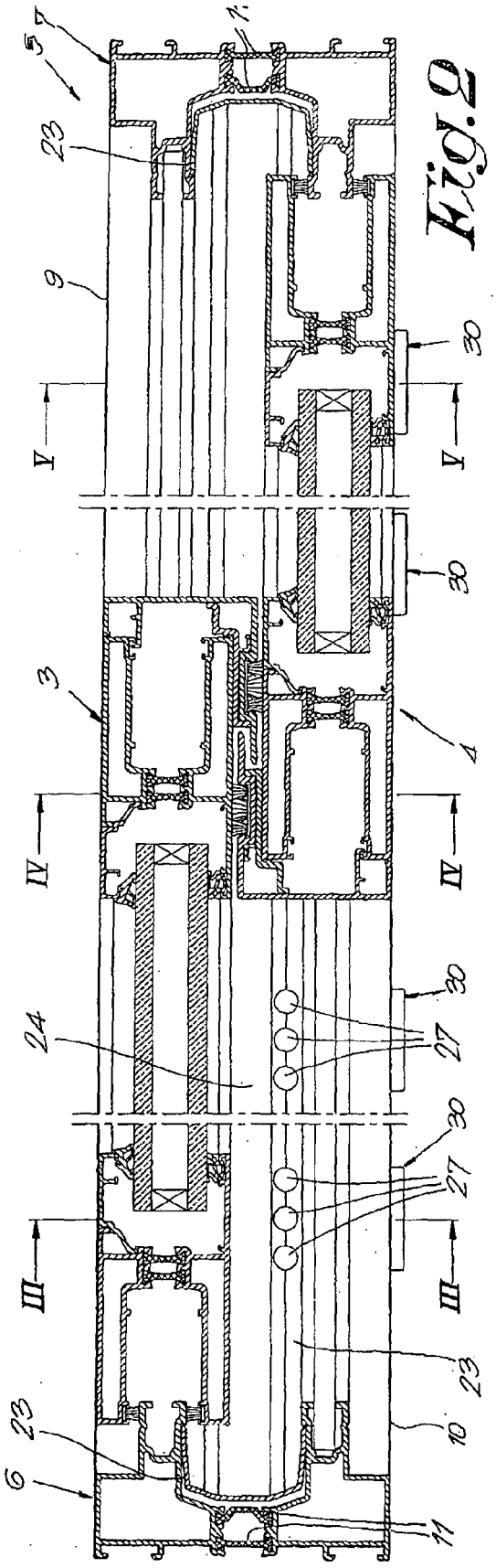
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Fig.8

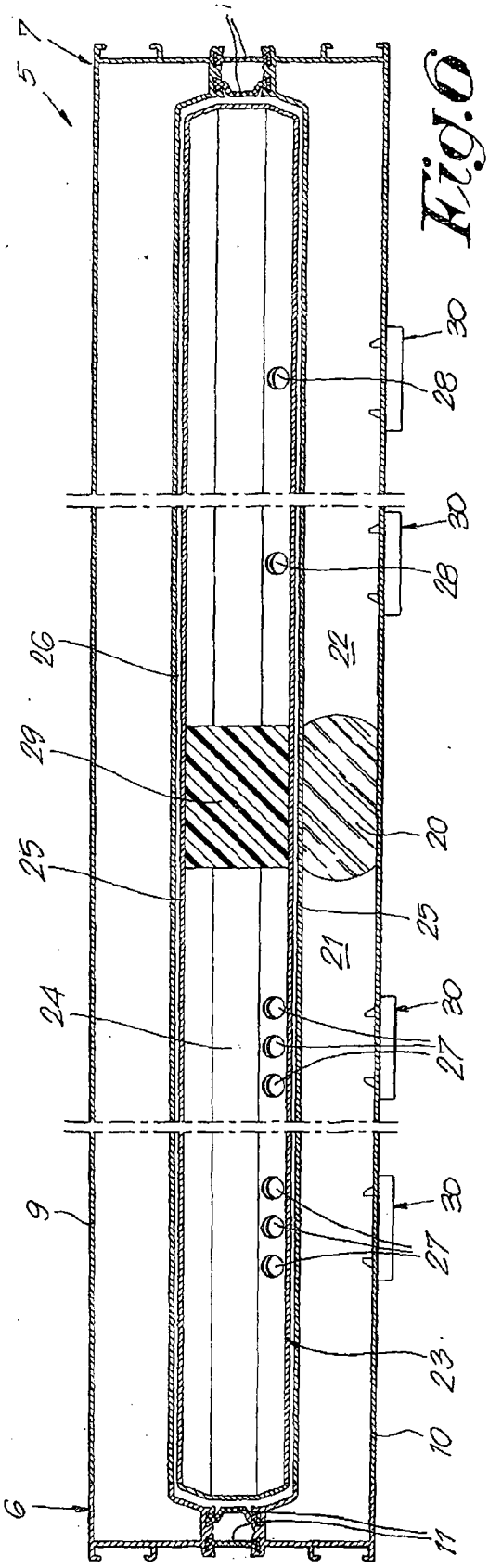
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Fig.9

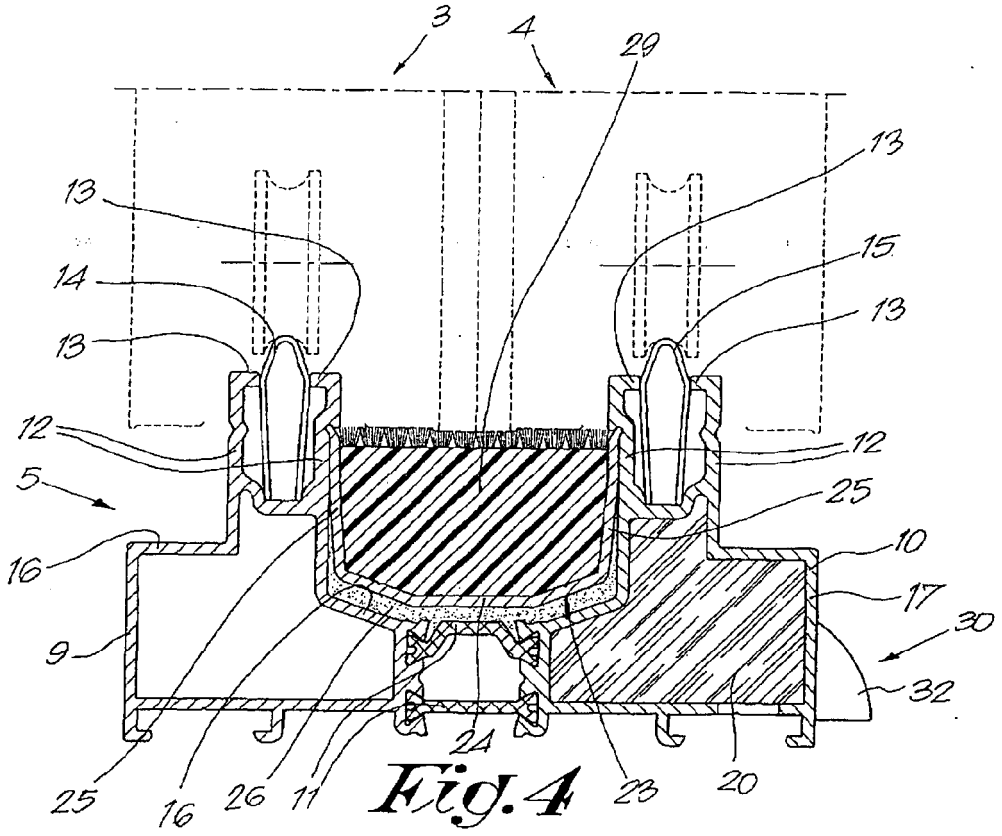
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Fig.4

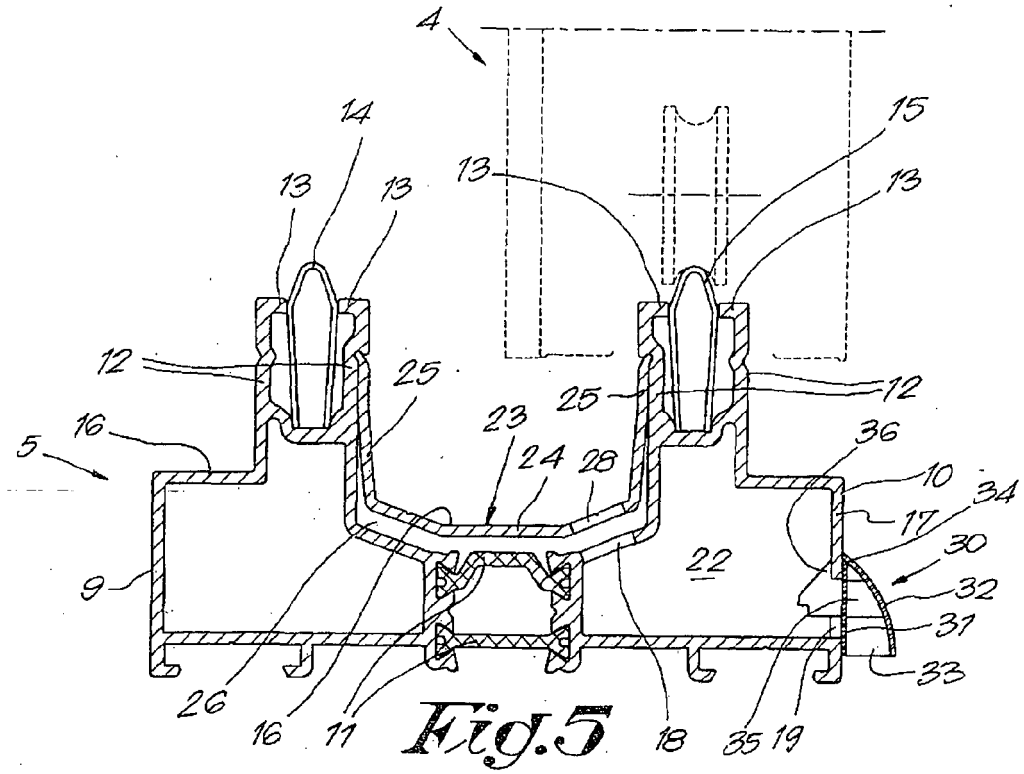
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Fig.5

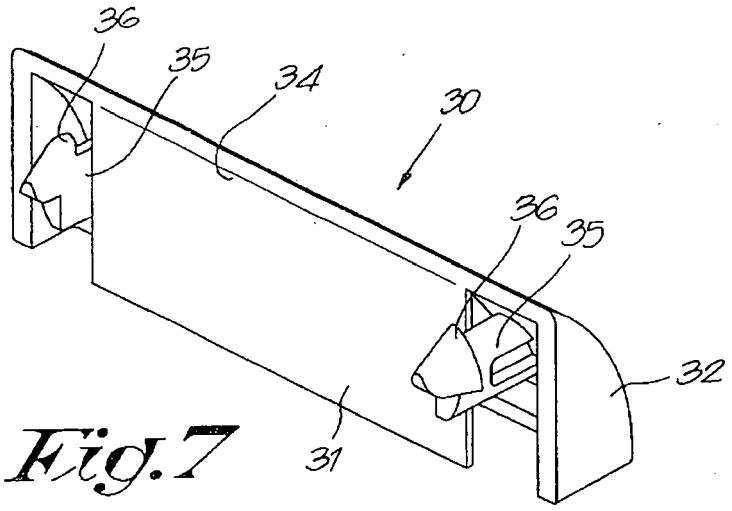
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Fig.7

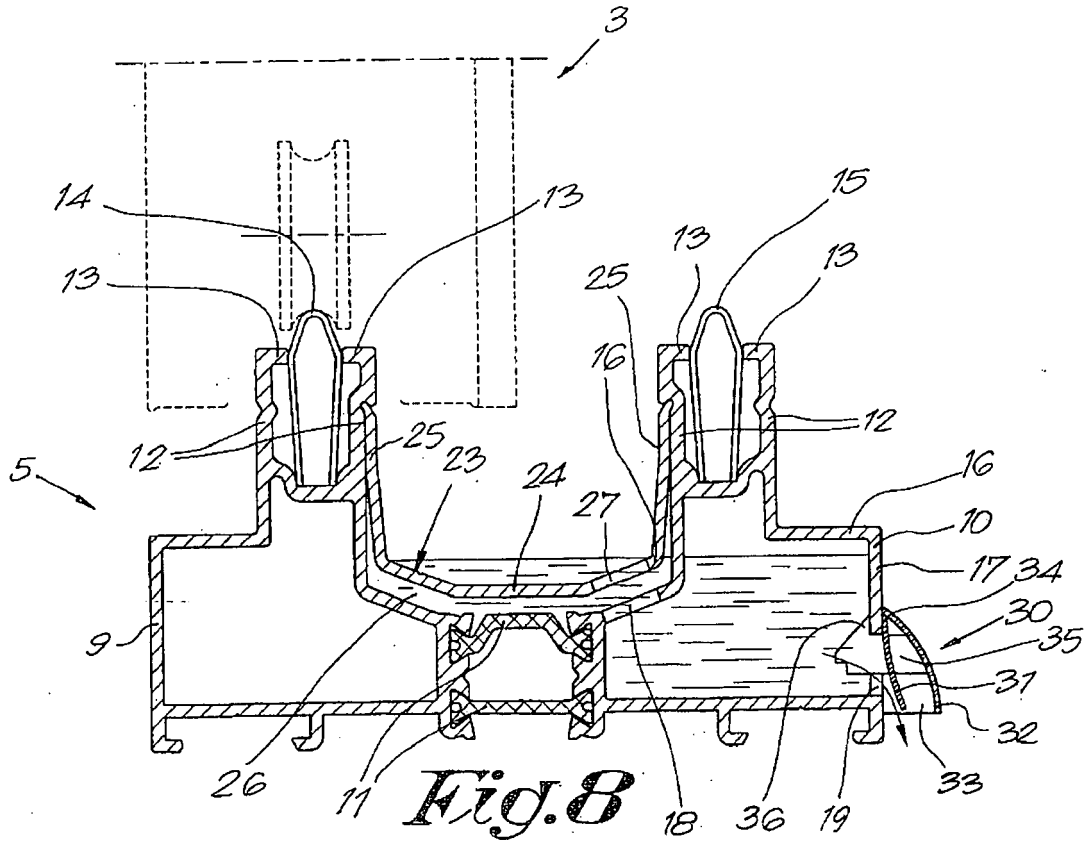
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Fig.8

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EUROPEAN SEARCH REPORT

Application Number
EP 06 00 9410

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A	FR 2 277 966 A (VENDOME FERMETURES FMB) 6 February 1976 (1976-02-06) * figures 2-5 *	4-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	26 September 2006	Merz, Wolfgang

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26-09-2006

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