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(54) **Drainage system for a sliding window or sliding door**

(57) Drainage system (2) for a sliding window or sliding door, primarily consisting of a hollow sill profile (4) with guides (5) in which one or more sliding panels can slide, and in which at the top there is a drainage channel (12) with passages to the hollow space (13), characterised in that the drainage system (2) has a channel profile (14) that is or can be mounted against an outside wall (10) of the sill profile (4), more specifically against a wall that is on the outside in the mounted condition of the sill profile (4), and this channel profile (14) has a water collector (18) that connects to passages (11) in the aforementioned outside wall (10) of the sill profile (4), and has a passage with a drainage part for connection (3) to a sewer or similar.

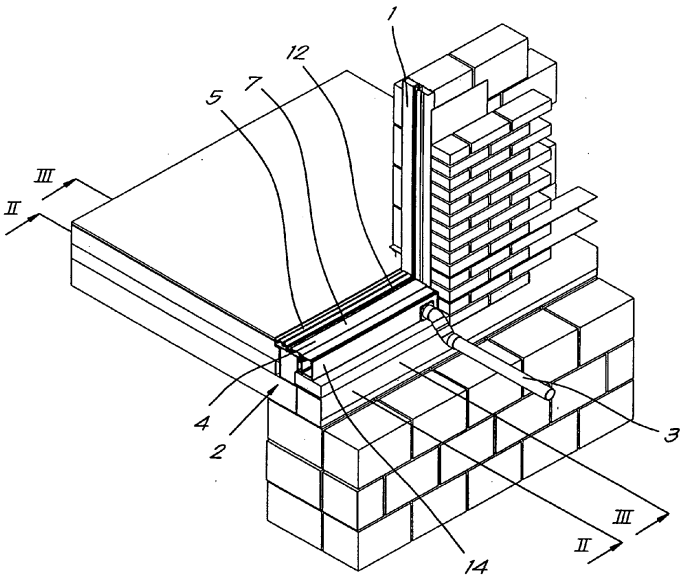

Fig. 1

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Description

[0001] The present invention relates to a drainage system for a sliding window or sliding door.

[0002] More specifically the invention is intended for a sliding window or sliding door that primarily consists of a fixed frame that includes a sill profile, whereby this sill profile has one or more guides in which one or more sliding panels are fitted and can slide.

[0003] Such a sill profile will generally be constructed as a composite profile with an inside profile and outside profile that are connected together by a thermal bridge in the form of one or more strips of insulating material.

[0004] It has long been known that with such sliding doors, there has to be a minimum height difference between the ground surface and the interior floor in order to avoid water penetration.

[0005] According to the directives on sustainable construction, a difference of 15 cm between the ground surface and the interior floor has to be taken into account.

[0006] In known buildings, to this end the sliding doors are placed on bluestone that has been built in at the right height beforehand.

[0007] The exterior profile of the sill profile is then placed on the aforementioned bluestone and supports the interior profile on a height adjustable base.

[0008] A disadvantage of such sliding doors is that the level difference between the ground surface and the interior floor is relatively large, which hampers accessibility, particularly for wheelchair users, the elderly and such, and also constitutes a risk of accident due to stumbling or similar.

[0009] Low profile sliding doors are known in which there is a smaller level difference between the interior floor and the ground surface.

[0010] A disadvantage is that because of this small level difference, the risk of water seeping in is substantial.

[0011] In practice this is solved by providing a standard sliding window or sliding door with separate drainage channels for draining off surplus water.

[0012] A disadvantage is that these drainage channels and window or door profiles are not attuned to one another, such that this solution is not reliable and the seepage of water cannot be completely ruled out.

[0013] Another disadvantage is that there is always a threshold between the interior floor and the ground surface whose height corresponds to the height of the base profile, as the base profile must also be drained, and this water must be carried away through the drainage channel.

[0014] Improved sliding windows and sliding doors are also known in which a water drainage system is integrated.

[0015] A disadvantage of these improved windows and doors is that they require specific installation methods, such that they cannot be applied everywhere.

[0016] Separate from the specific installation methods these improved windows and doors have the additional disadvantage that they are quite expensive to purchase.

[0017] The purpose of the present invention is to provide a solution to one or more of the aforementioned disadvantages and/or other disadvantages, by providing a drainage system for a sliding window or sliding door, primarily consisting of a hollow sill profile with guides in which one or more sliding panels can slide, and in which at the top there is a drainage channel with passages to the hollow space, whereby the drainage system has a channel profile that is or can be mounted against an outside wall of the sill profile, more specifically against a wall that is on the outside in the mounted condition of the sill profile, and this channel profile has a water collector that connects to passages in the aforementioned outside wall of the sill profile, and has a passage with a drainage part for connecting to a sewer or similar.

[0018] An advantage is that the drainage system enables a sliding door with a low threshold to be realised without the risk of water seeping in, all such that there is only a small or no level difference between the inside floor and the ground surface, and such that the accessibility to the area is greatly improved and the risk of accidents due to stumbling is reduced.

[0019] The reduced threshold not only ensures improved access for wheelchair users and the elderly, but of course also fosters the aesthetic appearance.

[0020] Another advantage is that the drainage system can be applied everywhere, not only in new frames, but also in existing sliding windows and sliding doors of ground floor terraces or balconies, irrespective of the presence of insect screens and/or roll-down shutters.

[0021] Indeed, the invention enables watertight constructional connections to be realised simply and cheaply.

[0022] Another advantage is that the drainage system only contains a small number of components, which of course has a favourable effect on the cost price and simplifies the installation of the sliding door, and also helps with the necessary storage space.

[0023] The invention also enables the drainage system to be largely assembled beforehand, all such that the number of operations on site, when installing the sliding door or sliding window, is greatly reduced.

[0024] The channel can be completely assembled beforehand so that the installation of the window or door can be done in the usual way.

[0025] Another advantage is that the water-retaining rib can be put behind the channel profile, all such that no extra ribs have to be attached.

[0026] An additional advantage is that the invention can also be applied to sliding doors or sliding windows whose fixed frame has a roll-down shutter guide and/or windows or doors with an insect screen.

[0027] Preferably the top wall of the channel profile is a separate detachable grid profile.

[0028] An advantage is that the channel profile can be easily maintained and cleaned.

[0029] With the intention of better showing the charac-

teristics of the invention, a few preferred applications are described hereinafter by way of an example, without any limiting nature, of the drainage system according to the invention, with reference to the accompanying drawings, wherein:

figure 1 schematically shows in perspective a cutaway part of a building in which a frame of a sliding door has a drainage system according to the invention.

figure 2 shows a cross-section along the line II-II of figure 1, whereby in this case there is a door panel in the aforementioned frame.

figure 3 shows on a larger scale the part designated as F3 in figure 2.

figure 4 shows a cross-section similar to that of figure 3, but along the line IV-IV in figure 1.

[0030] Figures 1 and 2 schematically show the constructional connection and the frame 1 of a sliding door with drainage system 2 on which a drainpipe is connected to a sewer.

[0031] As shown in more detail in figures 2 to 4, the sliding window or sliding door contains a sill profile 4, on which, as is known, there are guides 5 in which one or more sliding panels can be fitted and slid - these sliding panels are not shown in figure 1 for simplicity of description.

[0032] In the drawings shown, the sill profile 4 is a composite sill profile constructed from a hollow interior profile 6 and a hollow exterior profile 7, that are connected together by means of two insulating plastic connecting profiles to form a thermal bridge 8.

[0033] The external profile 7 contains, on the one part, an interior wall 9 that is connected via the thermal profiles 8 to the interior profile 6 and, on the other part, an outside wall 10, more specifically a wall that is on the outside of the building in the mounted condition of the sill profile 4, and which in this case is a vertical outside wall 10, and whereby this outside wall 10 has passages 11 for the drainage of water.

[0034] Furthermore, at the top of the sill profile 4 there is a drainage channel 12 with passages to the hollow space 13 of the sill profile 4.

[0035] According to the invention the drainage system 2 contains a channel profile 14 that is mounted or can be mounted against or under the outside wall 10 of the sill profile 4.

[0036] In the embodiment shown the channel profile 14 primarily consists of a horizontal base 15 and at least two parallel vertical walls 16-17, respectively a first upright wall 16 that is at the level of the outside wall 10 of the sill profile 4, and a second upright wall 17 that is at a greater distance from the sill profile 4.

[0037] The first vertical wall 16 connects to the aforementioned outside wall 10 with passages 11 so that water can be drained from the hollow space 13 of the sill profile 4 through these passages 11.

[0038] In the example shown the water collector 18 is constructed as an opening in the channel profile 14 that occurs above the first vertical wall 16 through this vertical wall 16 being lower than the opposite second vertical wall 17.

[0039] This first wall 16 preferably has a rib 19 on the top oriented towards the inside that acts as a support for the sill profile 4 at the location of the outside wall 10.

[0040] In the most preferable embodiment, between this rib 19 and the lowest outside wall 20 of the sill profile 4 there is a seal 21.

[0041] In a practical embodiment, the aforementioned first wall 16 has a detail of clips 22 that enable the channel profile 14 and the sill profile 4 to be clipped together securely.

[0042] In the most practical embodiment, this detail 22 enables the wall 16 of the channel profile 4 to be clipped securely under the lowest wall 20 of the sill profile 14.

[0043] As can be clearly seen in figure 3, the channel profile 14 and the sill profile 4 are fastened together by one or more connecting pieces 23, for example in the form of small blocks that are affixed against the outside wall 10 of the sill profile 4, and to the rib 19 oriented towards the inside.

[0044] Thus the connecting piece 23 can be screwed with one or more screws 24 against the outside wall 10 and against the rib 19.

[0045] Of course other versions of securing methods are not excluded.

[0046] According to the invention the channel profile 14 has a passage against which there is a drainage part 3 that can be connected to a sewer.

[0047] In a preferred embodiment this passage is provided in the second vertical wall 17.

[0048] It is thereby possible for the connection to the sewers to be realised by a separate connecting piece 25 with a passage that is located at the side of the second wall 17 oriented to the outside.

[0049] In the embodiment shown, this connecting piece 25 has a plate-shaped base and the connecting piece 25 is secured with this base to the channel profile 14 by means of screws 26.

[0050] In figure 3 the height of the second wall 17 is greater than the height of the first wall 16, all such that the second wall 17 projects out with respect to the first wall 16 by a distance that primarily corresponds to the height of the connecting piece 23.

[0051] The channel profile 14 preferably has a separate grid profile 27 on the top, whereby one of the long edges 28 of the grid profile 27 rests on the connecting piece 23, and its other long edge 29 on a rib 30 oriented towards the inside of the second vertical wall 17.

[0052] The last-mentioned rib 30 is preferably close to the top free edge of the second vertical wall 17.

[0053] According to a variant of the invention not shown, the channel profile 14 can contain a top wall that runs in parallel to the base 15 of the channel profile 14, and in which the necessary openings 28 are provided to

form a grid profile 27.

[0054] Preferably the grid profile 27 is a separate profile on the channel profile 14, and there are suitable fasteners so that the grid profile 27 is easily detachable, all such that the aforementioned advantages relating to ease of maintenance are obtained.

[0055] Thus the grid profile 27 can have a pair of clips 31 on the underside with which the grid profile 27 can be secured between one or more connecting pieces 23 and the aforementioned rib 30.

[0056] Of course other securing methods and clamping means are not excluded.

[0057] According to a preferable characteristic of the invention there is a seal between the channel profile 14 and the sill profile 4, for example in the form of a sealing strip 21 that can be easily pressed in.

[0058] In the embodiment shown, this strip 21 is affixed with a close fit between the lowest wall 20 of the sill profile 4 and the rib 19 oriented towards the inside on the first vertical wall 16 of the channel profile 14.

[0059] Although in the drawings shown, the aforementioned passages 11 are in the vertical outside wall 10 of the sill profile 4, it is not ruled out that these passages can also be in the horizontal outside wall 10 that forms the base 20 of the sill profile 4, and this in combination with passages 11 in the vertical wall 10 or otherwise.

[0060] The connection in the second vertical wall 17 of the channel profile 4 for connection to the sewers can just as well be at any other place of the channel profile 14, such as for example in the first vertical wall 16 of the channel profile 14, or in the base 15 of the channel profile 14 and/or in an end wall at an end of the channel profile 14.

[0061] It is clear that the water that seeps into the hollow space 13 of the sill profile 4 via the drainage channel 12 can flow out to the channel profile 14 through the passages 11 in the outside wall 10, and thus ultimately will flow to the sewers via the passages in the channel profile 14.

[0062] Water is also carried away by the channel profile 14 that penetrates through the grid profile 27.

[0063] The present invention is by no means limited to the embodiment described as an example and shown in the drawings, but a drainage system according to the invention can be realised in all kinds of variants, without departing from the scope of the invention.

Claims

1. Drainage system (2) for a sliding window or sliding door, primarily consisting of a hollow sill profile (4) with guides (5) in which one or more sliding panels can slide, and in which at the top there is a drainage channel (12) with passages to the hollow space (13), **characterised in that** the drainage system (2) has a channel profile (14) that is or can be mounted against an outside wall (10) of the sill profile (4), more specifically against a wall that is on the outside in the mounted condition of the sill profile (4), and this channel profile (14) has a water collector (18) that connects to passages (11) in the aforementioned outside wall (10) of the sill profile (4), and has a passage with a drainage part for connection (3) to a sewer or similar.

2. Drainage system (2) for a sliding window or sliding door according to claim 1, **characterised in that** the water collector (18) is formed by one or more passages or openings in a wall of the channel profile (14).

3. Drainage system (2) according to claim 1 or 2, **characterised in that** the top wall of the channel profile (14) is formed by or has a grid profile (27).

4. Drainage system (2) according to claim 3, **characterised in that** the grid profile (27) is detachable.

5. Drainage system (2) according to one of the foregoing claims, **characterised in that** there is a seal between the channel profile (14) and the sill profile (4).

6. Drainage system (2) according to one of the foregoing claims, **characterised in that** the channel profile (14) has two upright walls (16-17) connected together by a base (15) whereby the first of these walls (16) has a rib (19) oriented towards the inside that acts as a support for the sill profile (4) at the aforementioned outside wall (10), while the second vertical wall (17) is located towards the outside at a distance from the aforementioned outside wall (10).

7. Drainage system (2) according to claim 6, **characterised in that** the channel profile (14) on the first vertical wall (16) has an additional detail of clips (22) that enables the channel profile (14) to be clipped securely below the sill profile (4) at the aforementioned outside wall (10).

8. Drainage system (2) according to claim 6 or 7, **characterised in that** the channel profile (4) and sill profile (14) are connected together by means of one or more connecting pieces (23) that are secured respectively to the aforementioned outside wall (10) of the sill profile (4) and on the aforementioned rib (19) oriented towards the inside.

9. Drainage system (2) according to any one of the claims 6 to 8, **characterised in that** there is a seal between the rib (19) and the underside of the sill profile (4).

10. Drainage system (2) according to claims 8 or 9, **characterised in that** the second vertical wall (17) protrudes upwards with respect to the first vertical wall

(16) by a distance that mainly corresponds to the height of the connecting piece (23), whereby one long edge (28) of the aforementioned grid profile (27) rests on one or more connecting pieces (23) and the other long edge (29) rests on a rib (30) oriented to the inside on the top free edge of the second vertical wall (17).

11. Drainage system (2) according to claim 10, **characterised in that** the grid profile (27) has clips (31) underneath with which the grid profile (27) can be clipped securely between one or more connecting pieces (23) and a rib (30) on the top free edge of the second vertical wall (17).

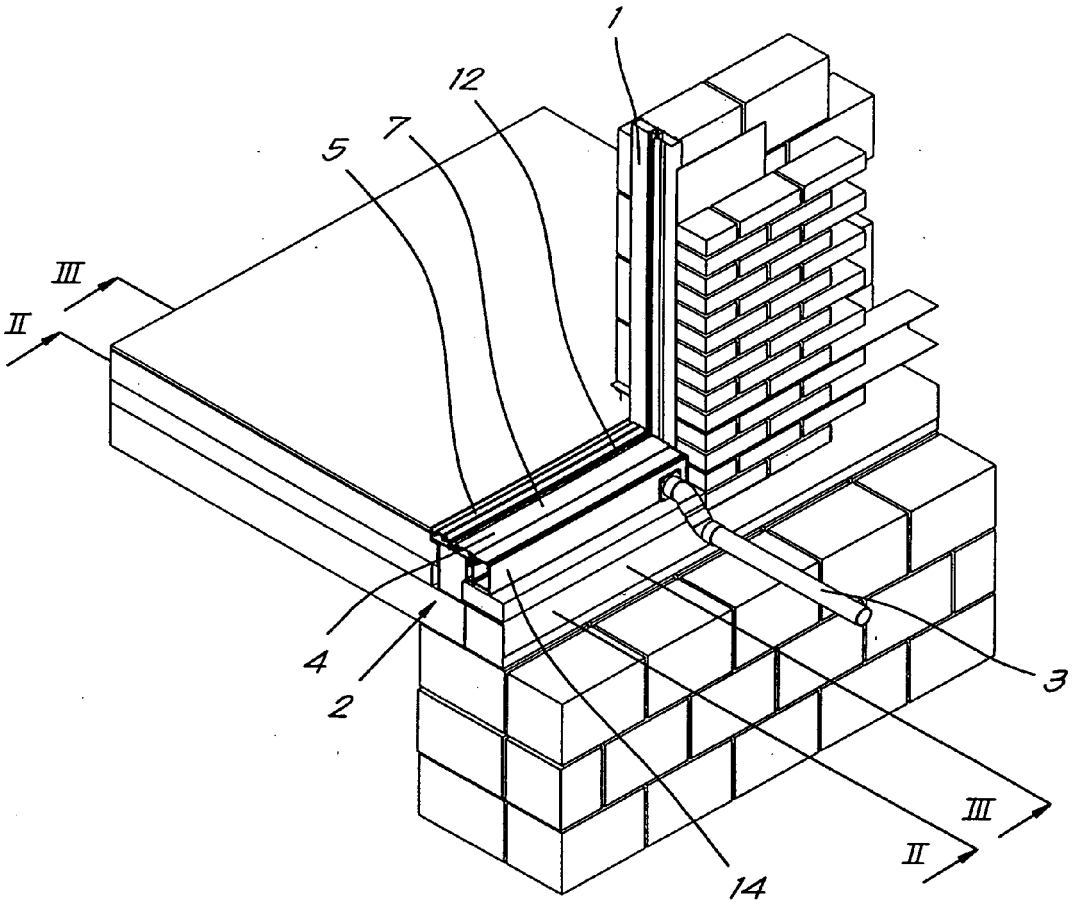

Fig. 1

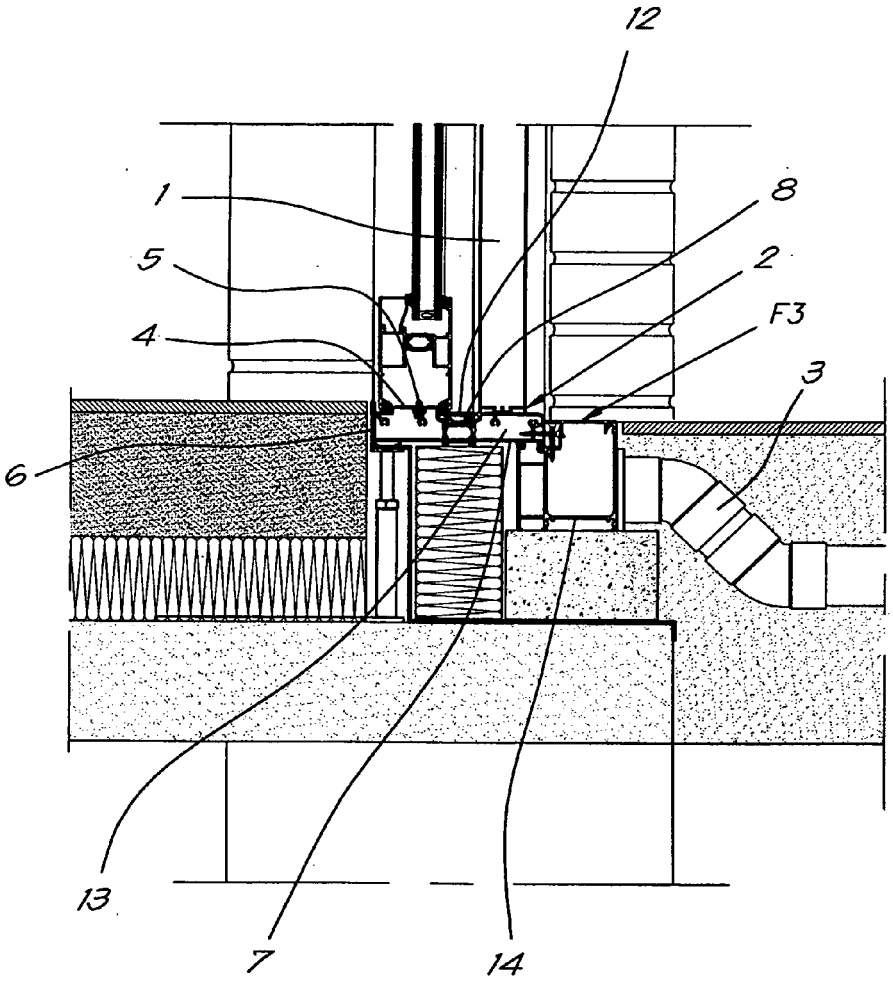

Fig.2

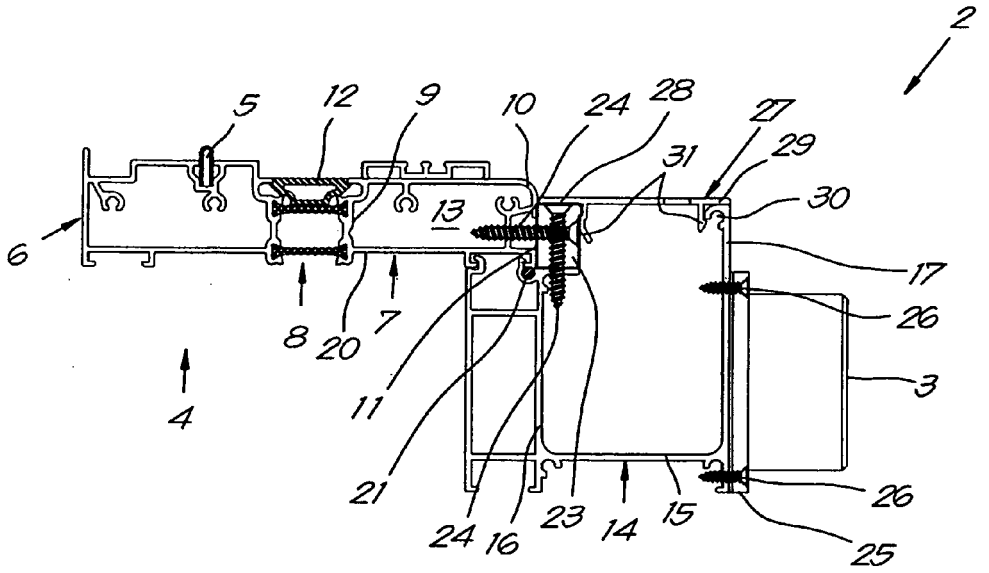
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Fig.3

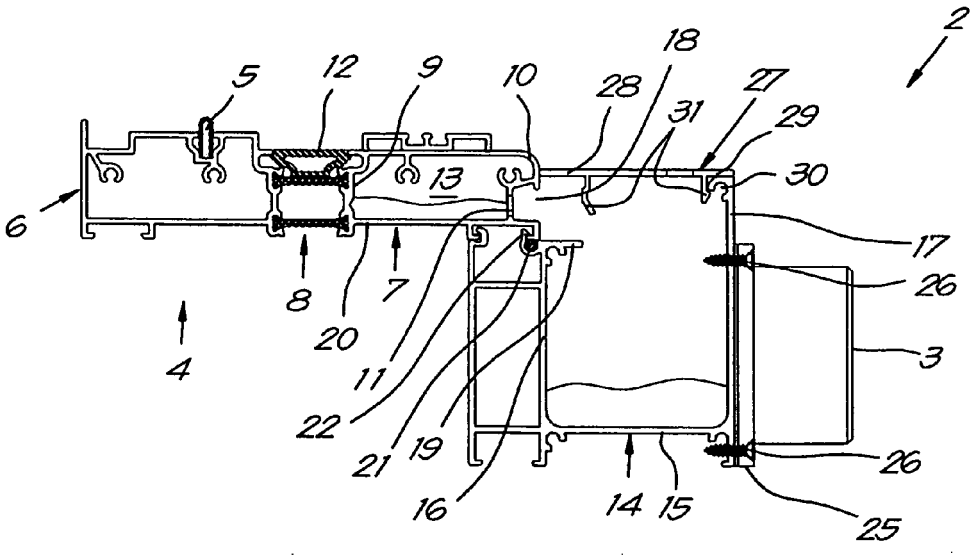
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Fig.4