



(11) **EP 3 411 554 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention
of the grant of the patent:

17.11.2021 Bulletin 2021/46

(21) Application number: **17704381.7**

(22) Date of filing: **26.01.2017**

(51) Int Cl.:

E06B 7/14 (2006.01)

(86) International application number:

PCT/BE2017/000010

(87) International publication number:

WO 2017/132737 (10.08.2017 Gazette 2017/32)

(54) **FRAME FOR A WINDOW OR DOOR**

RAHMEN FÜR EIN FENSTER ODER EINE TÜR

CHÂSSIS POUR FENÊTRE OU PORTE

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **03.02.2016 BE 201605086**

(43) Date of publication of application:

12.12.2018 Bulletin 2018/50

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CN-U- 202 000 865 JP-U- S5 522 407

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Description

[0001] The present invention relates to a frame for a window or door.

[0002] More specifically the invention is intended for sliding windows or sliding doors that are essentially made of aluminium profiles.

[0003] Such sliding windows or sliding doors have a frame with a bottom profile, i.e. the lowest profile, with surfaces on which rainwater can fall. To remove this water, the bottom profiles are provided with drainage holes along which the water in the bottom profile can flow and outlets along which the water can flow away from the bottom profile again.

[0004] In order to prevent air being blown inside, these outlets are normally provided with a valve that is open from the inside to the outside, but not the other way around.

[0005] The water can only flow out of the outlets in the bottom profile if the water pressure at the location of the valve is higher than the wind pressure. To this end the internal water level in the bottom profile must be a certain height above the valve in order to have sufficient pressure.

[0006] The maximum wind pressure for which a frame is designed can differ according to the desired application.

[0007] For example, when located at certain height the wind pressure can rise to 600 Pa or more, thus corresponding to a water column of approximately 6 cm high.

[0008] Of course the bottom profile must have sufficient internal height to be able to contain such a water column, because otherwise no drainage can take place.

[0009] However, for aesthetic reasons thin profiles, thus with a low height, are desirable.

[0010] A conflict thus arises between the desire to have low bottom profiles and the technical need to have a minimum height to have space for the necessary water column to have sufficient pressure for controlled water drainage.

[0011] From CN 202.000.865 U is known a window construction with a bottom profile with a water drainage outlet at the front of the profile and connecting to a drainage pipe that is prominently visible at the front of the window. The bottom profile is used to accumulate a required height of water column to open the relief valve at the end of the pipe.

[0012] JP S55.22407 U discloses a window frame with a drainage piece extending at the side and at the front of the window and draining the water through an outlet of the drainage piece over the glass panel of the window.

[0013] The purpose of the present invention is to provide a solution to the aforementioned and other disadvantages, by providing a frame for a window or door, whereby the frame is made of profiles that are connected together, whereby these profiles comprise a bottom profile that is on the underside of the frame, whereby the bottom profile is provided with one or more drainage

holes to allow water to flow away from a top wall of the bottom profile through the bottom profile, whereby the bottom profile is provided with at least one first outlet for the said water, whereby the outlets have an open connection to at least one of the drainage holes, whereby the frame is provided with a drainage piece for water drainage whereby the drainage piece is provided with an inlet and a second outlet that have an open connection to one another, whereby the inlet is situated in a higher position than the second outlet, whereby the inlet connects to a said at least one first outlet, preferably in an airtight and watertight way, the drainage piece comprising a horizontal gutter with an open top, whereby the gutter is connected to a vertical pipe and whereby the inlet is formed by the open top of the gutter and the second outlet is located in the vertical pipe and whereby the drainage piece is mounted against the underside of the bottom profile in an airtight and watertight way.

[0014] It should be noted here that in practice the bottom profile is a composite profile of a number of aluminium and plastic part-profiles connected together.

[0015] Thanks to such a drainage piece, a required water column height cannot be formed in, but under, the profile so that the profile can be well drained.

[0016] Hereby the vertical distance between the inlet and the second outlet determines the water column height that can be present in the drainage piece, and this can be chosen such that good drainage is also possible for applications where a high wind pressure is expected.

[0017] Preferably the second outlet is hereby provided with a valve that opens if the pressure on the inside is higher than on the outside.

[0018] According to an embodiment not according to the invention, the drainage piece comprises a horizontal pipe that is connected to a vertical pipe with an open connection, whereby the inlet is in the horizontal pipe and the second outlet in the vertical pipe.

[0019] This enables the horizontal pipe to be concealed invisibly in the bottom profile behind a cover profile on the bottom profile, whereby the vertical pipe is on the side and thus cannot be in front of an underlying window.

[0020] Preferably the horizontal pipe has a rectangular or square cross-section so that it can be placed with a good fit against the underside of the bottom profile.

[0021] The invention further comprises a curtain wall that comprises a number of horizontal members and a number of vertical members, and which comprises a frame according to the invention whereby the second outlet is in one of the vertical members, whereby the vertical member concerned is provided with a third outlet for water at a position lower than the second outlet.

[0022] With the intention of better showing the characteristics of the invention, a preferred embodiment of a part of a curtain wall according to the invention is described hereinafter, by way of an example without any limiting nature, with reference to the accompanying drawings, wherein:

figure 1 schematically shows a front view of a part of a curtain wall;

figure 2 shows a perspective view of a component of the curtain wall of figure 1;

figure 3 shows a perspective view of a part of the curtain wall of figure 1 during the construction of the curtain wall;

figure 4 shows the part of figure 3 of the curtain wall during a later stage of the construction; and figure 5 shows a component of the curtain wall of figures 3 and 4 on a larger scale and from a different angle.

[0023] The main structure of the curtain wall 1 of figure 1 is formed by horizontal members 2 and vertical members 3. Windows are made herein above one another, and possibly, but not in this example, also next to one another, whereby in this example only one window is shown. This is a sliding window with a leaf 5 that can be brought from a closed to an open position by moving it to the right.

[0024] The vertical members 3 are provided with openings to the outside, not shown, on a lower level than the window 4, along which water can flow to the outside and along which air can flow to the inside and outside.

[0025] The sliding window comprises a frame 6 that is built into the vertical members 3 and horizontal members 2. The frame 6 is made of aluminium profiles, including a bottom profile 7.

[0026] A section of the bottom profile 7, i.e. a section that connects to the right side profile 8, is shown in figure 2.

[0027] The bottom profile 7 comprises a space 9 where the leaf 5 is located. Both in the closed position and in the open position of the leaf 5, rainwater can get onto this, whereby in a closed position there is a pressure difference between inside and outside, caused by the wind pressure.

[0028] In order to remove this rainwater, drainage holes 10 are made in the top wall of the bottom profile 7 that lead to an internal cavity 11 of the bottom profile 7, a passage 12 is further provided between this internal cavity 11 and a further internal cavity 13 and a first outlet 14 is provided at the bottom of the bottom profile 7.

[0029] As is particularly clear from figure 4 a drainage piece 15 is provided under the first outlet 14.

[0030] In this example, the drainage piece 15 is made of aluminium and essentially consists of a straight horizontal gutter 16 with an open top that is coupled to a vertical pipe 17 that is closed at the bottom and which is provided with a valve close to its underside, formed by a hinged flap 18 that is pushed shut by its own weight and thereby closes off an opening 20.

[0031] The drainage piece 15 can of course be entirely or partially made of other materials, such as plastic.

[0032] In figures 3 to 5, the flap 18 is shown in a partially open state for clarity.

[0033] The open top forms the inlet 19 of the drainage piece 15 and the opening closed by the flap 18 forms the

outlet of the drainage piece 15, further called the second outlet 20. The vertical distance A between the inlet 19 of the drainage piece and the second outlet 20 is approximately 8 cm in this example.

[0034] The drainage piece 15 is mounted in a water-tight and airtight way, with its inlet 19 connecting to the first outlet 14 of the bottom profile 7, under the bottom profile 7. The dimensions of the drainage piece 15 and the location of the first outlet 14 are hereby such that the vertical pipe 17 of the drainage piece 15 is in a vertical member 3.

[0035] The operation of the frame 6 for the drainage of water is simple and as follows.

[0036] When water gets on the top of the bottom profile 7, this water flows via the drainage holes 10, the passage 12 in the bottom profile, the first outlet 14 and the inlet 19 of the drainage piece 15 to the vertical pipe 17 of the drainage piece 15.

[0037] The vertical members 3 are open to the outside such that the same pressure prevails therein as on the outside of the curtain wall 1.

[0038] This also means that the wind pressure, i.e. the pressure exerted by the wind on the curtain wall, is also present in the vertical members 3.

[0039] As soon as the water height in the vertical pipe 17 of the drainage piece 15 is high enough such that the pressure exerted by this water on the flap 18 is higher than the wind pressure, the flap 18 opens and the water flows out of the vertical pipe 17 in the vertical members 3, as indicated by the arrows P in figure 1.

[0040] The water then flows further away to the outside through the openings provided to this end in the vertical members 3.

[0041] As long as the wind pressure is higher than the water pressure in the vertical pipe 17, the flap 18 remains closed.

[0042] It goes without saying that the length of the vertical pipe 17 can be chosen such that the height of the water column above the flap 18 can be high enough to be able to open the valve 18 for all anticipated wind speeds and accompanying wind pressures.

[0043] As a result, in all wind conditions water can flow away from the top surface of the bottom profile 7 through the drainage holes 10 provided to this end.

[0044] In an alternative embodiment, the drainage piece 15 is constructed of three parts, more specifically as a horizontal gutter 16 with a connection for a vertical pipe 17, a separate pipe that can be connected to this connection and a valve connected to this separate pipe.

[0045] The separate pipe can then be sawn to the desired length, after which the drainage piece 15 can easily be assembled from the three parts. As a result the length of the vertical pipe 17 can easily be adjusted to the length needed in a specific situation.

[0046] The present invention is by no means limited to the embodiment described as an example and shown in the drawings, but a frame according to the invention can be realised in all kinds of forms and dimensions without

departing from the scope of the appended claims.

Claims

1. - Frame (6) for a window or door, whereby the frame (6) is made of profiles (7, 8) that are connected together, whereby these profiles comprise a bottom profile (7) that is on the underside of the frame (6), whereby the bottom profile (7) is provided with one or more drainage holes (10) to allow water to flow away from a top wall of the bottom profile (7) through the bottom profile (7), whereby the bottom profile (7) is provided with at least one first outlet (14) for the said water, whereby the frame (6) is provided with a drainage piece (15) for water drainage, whereby the drainage piece (15) is provided with an inlet (19) and a second outlet (20) that have an open connection to one another, whereby the inlet (19) is situated in a higher position than the second outlet (20), whereby the inlet (19) connects to a said at least one first outlet (14), the drainage piece (15) comprising a horizontal gutter (16) with an open top, **characterised in that** the gutter (16) is connected to a vertical pipe (17) and whereby the inlet (19) is formed by the open top of the gutter (15) and the second outlet (20) is located in the vertical pipe (17) and whereby the drainage piece (15) is mounted against the underside of the bottom profile (7) in an airtight and watertight way.
2. Frame according to claim 1, **characterised in that** it is a frame (6) for a sliding window or sliding door.
3. - Frame according to claim 2, **characterised in that** the said top wall forms the underside of a space (9) in which a sliding leaf (5) of the sliding window or the sliding door is located.
4. - Frame according to any one of the previous claims, **characterised in that** the said profiles (7, 8) are at least partially made of aluminium.
5. - Frame according to any one of the previous claims, **characterised in that** the second outlet (20) is provided with a valve (18) that opens if the pressure on the inside is higher than on the outside.
6. - Frame according to any one of the previous claims, **characterised in that** the vertical pipe (17) has a length of more than 2 cm.
7. - Frame according to any one of the previous claims, **characterised in that** the vertical pipe (17) has a length of less than 20 cm.
8. - Curtain wall (1) that comprises a number of horizontal members (2) and a number of vertical mem-

bers (3) and which comprises a frame (6) according to any one of the previous claims.

9. - Curtain wall according to claim 8, **characterised in that** the second outlet (20) is located in one of the vertical members (3), whereby the vertical member (3) concerned is provided with a third outlet for water at a position lower than the second outlet (20).

Patentansprüche

1. Rahmen (6) für ein Fenster oder eine Tür, wobei der Rahmen (6) aus Profilen (7, 8) besteht, die miteinander verbunden sind, wobei diese Profile ein Bodenprofil (7) umfassen, das sich an der Unterseite des Rahmens (6) befindet, wobei das Bodenprofil (7) mit einem oder mehreren Ablauflöchern (10) versehen ist, um es Wasser zu ermöglichen von einer oberen Wand des Bodenprofils (7) durch das Bodenprofil (7) abzufließen, wobei das Bodenprofil (7) mit wenigstens einem ersten Auslass (14) für das Wasser versehen ist, wobei der Rahmen (6) mit einem Ablaufstück (15) für einen Wasserablauf versehen ist, wobei das Ablaufstück (15) mit einem Einlass (19) und einen zweiten Auslass (20) versehen ist, die eine offene Verbindung miteinander haben, wobei der Einlass (19) in einer höheren Position als der zweite Auslass (20) angeordnet ist, wobei der Einlass (19) sich mit einem wenigstens einen ersten Auslass (14) verbindet, wobei das Ablaufstück (15) eine horizontale Rinne (16) mit einer offenen Oberseite umfasst, **dadurch gekennzeichnet, dass** die Rinne (16) mit einem vertikalen Rohr (17) verbunden ist und wobei der Einlass (19) durch die offene Oberseite der Rinne (15) ausgebildet wird und der zweite Auslass (20) in dem vertikalen Rohr (17) gelegen ist und wobei das Ablaufstück (15) gegen die Unterseite des Bodenprofils (7) luft- und wasserdicht montiert ist.
2. Rahmen nach Anspruch 1, **dadurch gekennzeichnet, dass** es ein Rahmen (6) für ein Schiebefenster oder eine Schiebetür ist.
3. Rahmen nach Anspruch 2, **dadurch gekennzeichnet, dass** die obere Wand die Unterseite eines Raums (9) ausbildet, in dem ein Schiebeflügel (5) des Schiebefensters oder der Schiebetür gelegen ist.
4. Rahmen nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Profile (7, 8) wenigstens teilweise aus Aluminium bestehen.
5. Rahmen nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der zweite Auslass (20) mit einem Ventil (18) versehen ist, das

sich öffnet, wenn der Druck innen höher ist als außen.

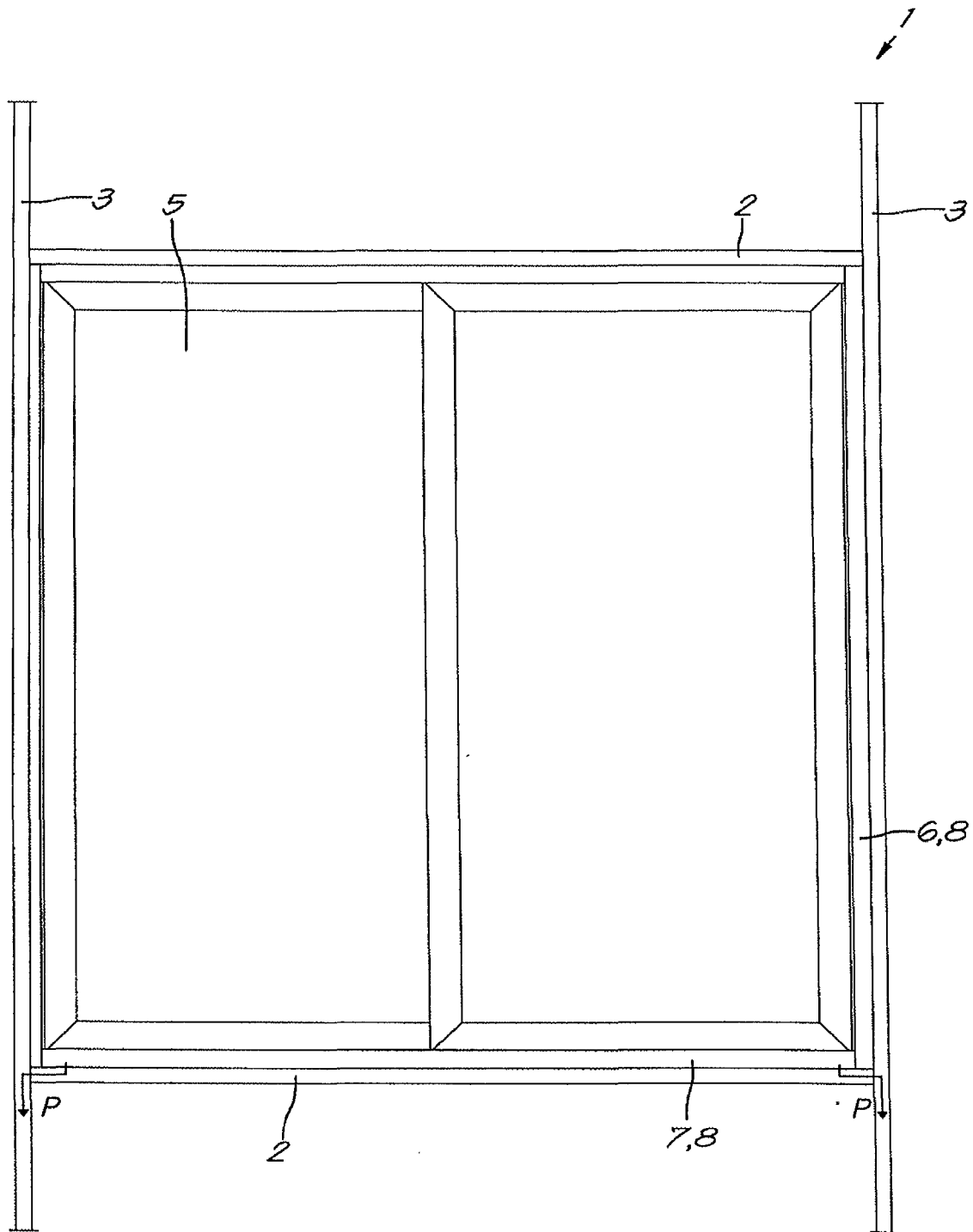
6. Rahmen nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das vertikale Rohr (17) eine Länge von mehr als 2 cm aufweist. 5
7. Rahmen nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das vertikale Rohr (17) eine Länge von weniger als 20 cm aufweist. 10
8. Vorhangfassade (1), die mehrere horizontale Elemente (2) und mehrere vertikale Elemente (3) umfasst und die einen Rahmen (6) nach einem der vorhergehenden Ansprüche umfasst. 15
9. Vorhangfassade nach Anspruch 8, **dadurch gekennzeichnet, dass** der zweite Auslass (20) in einem der vertikalen Elemente (3) gelegen ist, wobei das betreffende vertikale Element (3) mit einem dritten Auslass für Wasser an einer Position unterhalb des zweiten Auslasses (20) versehen ist. 20

Revendications

1. Cadre (6) qui est destiné à une fenêtre ou à une porte, dans lequel le cadre (6) est constitué par des profilés (7, 8) qui sont reliés les uns aux autres, dans lequel ces profilés comprennent un profilé de base (7) qui est disposé sur le côté inférieur du cadre (6), dans lequel le profilé de base (7) est équipé d'un ou de plusieurs trous de drainage (10) qui permettent à l'eau de s'écouler à l'écart d'une paroi supérieure du profilé de base (7) en passant par le profilé de base (7), dans lequel le profilé de base (7) est équipé d'au moins une première sortie (14) pour l'eau en question, dans lequel le cadre (6) est équipé d'une pièce de drainage (15) qui est destinée au drainage de l'eau, dans lequel la pièce de drainage (15) est équipée d'une entrée (19) et d'une deuxième sortie (20) qui possèdent une liaison ouverte l'une par rapport à l'autre, dans lequel l'entrée (19) est disposée à un endroit situé plus haut que la deuxième sortie (20), dans lequel l'entrée (19) est reliée à ladite au moins une première sortie (14), la pièce de drainage (15) comprenant une gouttière horizontale (16) qui comprend un sommet ouvert, **caractérisé en ce que** la gouttière (16) est reliée à un tuyau vertical (17) et dans lequel l'entrée (19) est réalisée par l'intermédiaire du sommet ouvert de la gouttière (15) et la deuxième sortie (20) est disposée dans le tuyau vertical (17) et dans lequel la pièce de drainage (15) est montée contre le côté inférieur du profilé de base (7) d'une manière étanche à l'air et étanche à l'eau. 25 30 35 40 45 50 55
2. Cadre conformément à la revendication 1, **caracté-**

risé en ce qu'il s'agit d'un cadre (6) qui est destiné à une fenêtre coulissante ou à une porte coulissante.

3. Cadre conformément à la revendication 2, **caractérisé en ce que** ladite paroi supérieure forme le côté inférieur d'un espace (9) dans lequel se trouve un battant coulissant (5) de la fenêtre coulissante ou de la porte coulissante. 5
4. Cadre conformément à l'une quelconque des revendications précédentes, **caractérisé en ce que** lesdits profilés (7, 8) sont constitués au moins en partie d'aluminium. 10
5. Cadre conformément à l'une quelconque des revendications précédentes, **caractérisé en ce que** la deuxième sortie (20) est équipée d'une soupape (18) qui s'ouvre lorsque la pression qui règne à l'intérieur est supérieure à celle qui règne à l'extérieur. 15
6. Cadre conformément à l'une quelconque des revendications précédentes, **caractérisé en ce que** le tuyau vertical (17) possède une longueur qui est supérieure à 2 cm. 20
7. Cadre conformément à l'une quelconque des revendications précédentes, **caractérisé en ce que** le tuyau vertical (17) possède une longueur qui est inférieure à 20 cm. 25
8. Mur rideau (1) qui comprend un certain nombre d'éléments horizontaux (2) et un certain nombre d'éléments verticaux (3) et qui comprend un cadre (6) conformément à l'une quelconque des revendications précédentes. 30
9. Mur rideau conformément à la revendication 8, **caractérisé en ce que** la deuxième sortie (20) est disposée dans un des éléments verticaux (3), dans lequel l'élément vertical (3) en question est équipé d'une troisième sortie pour l'eau à un endroit qui est situé plus bas que la deuxième sortie (20). 35 40 45 50 55



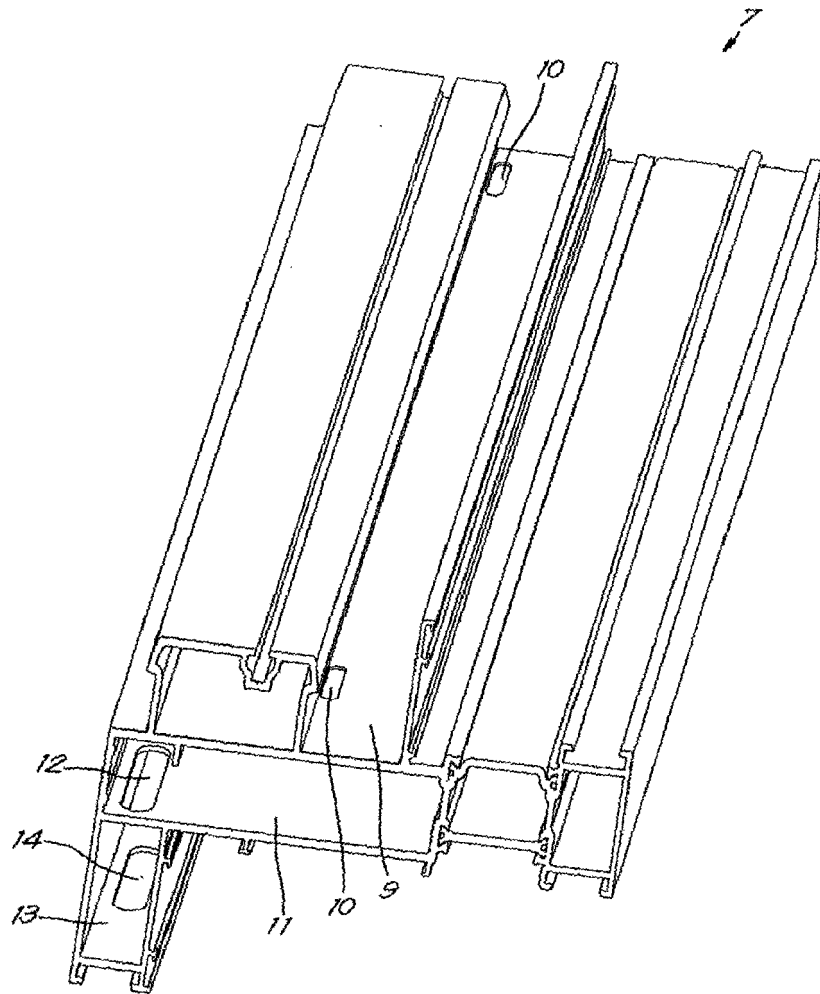
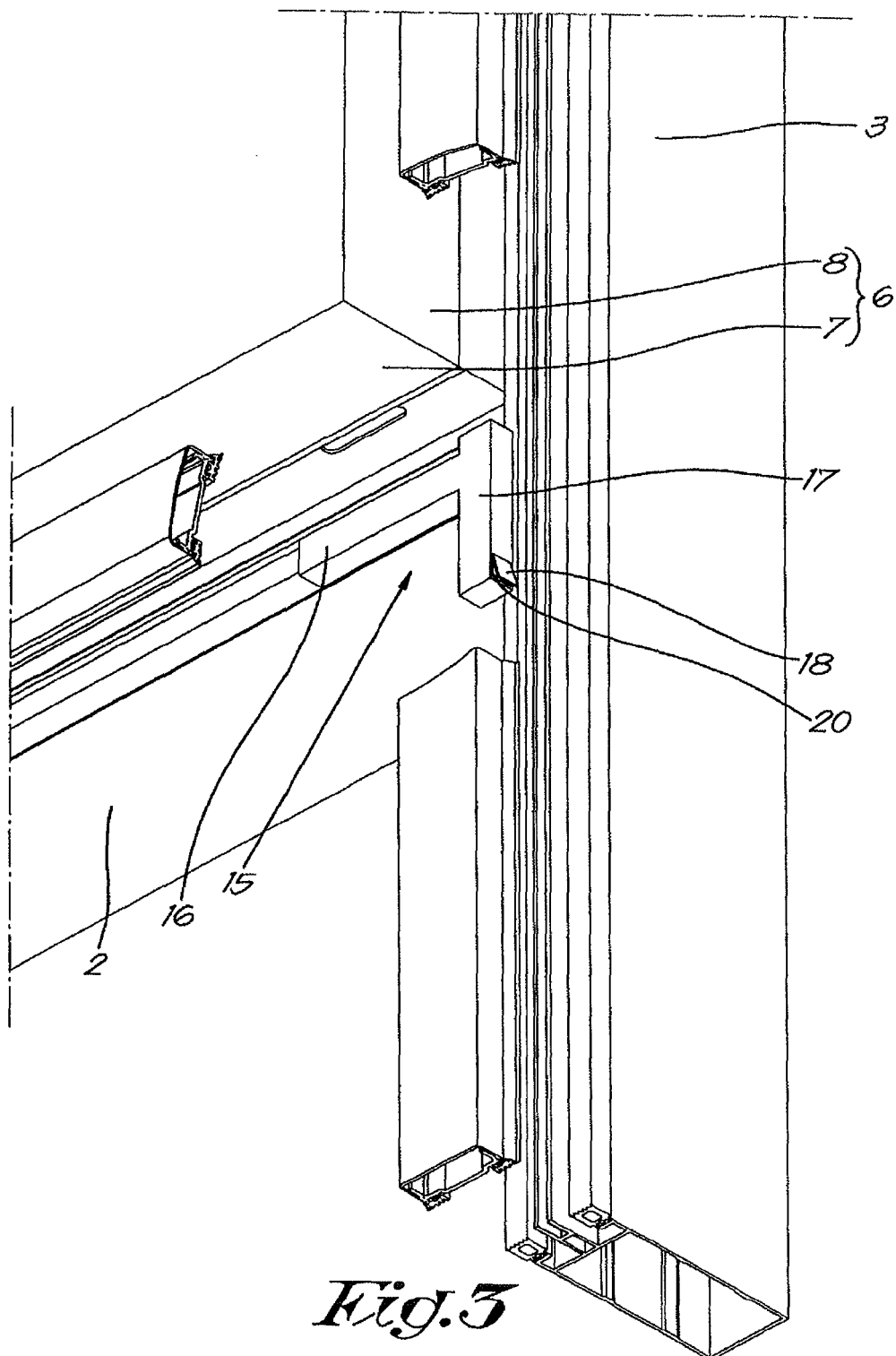


Fig.2



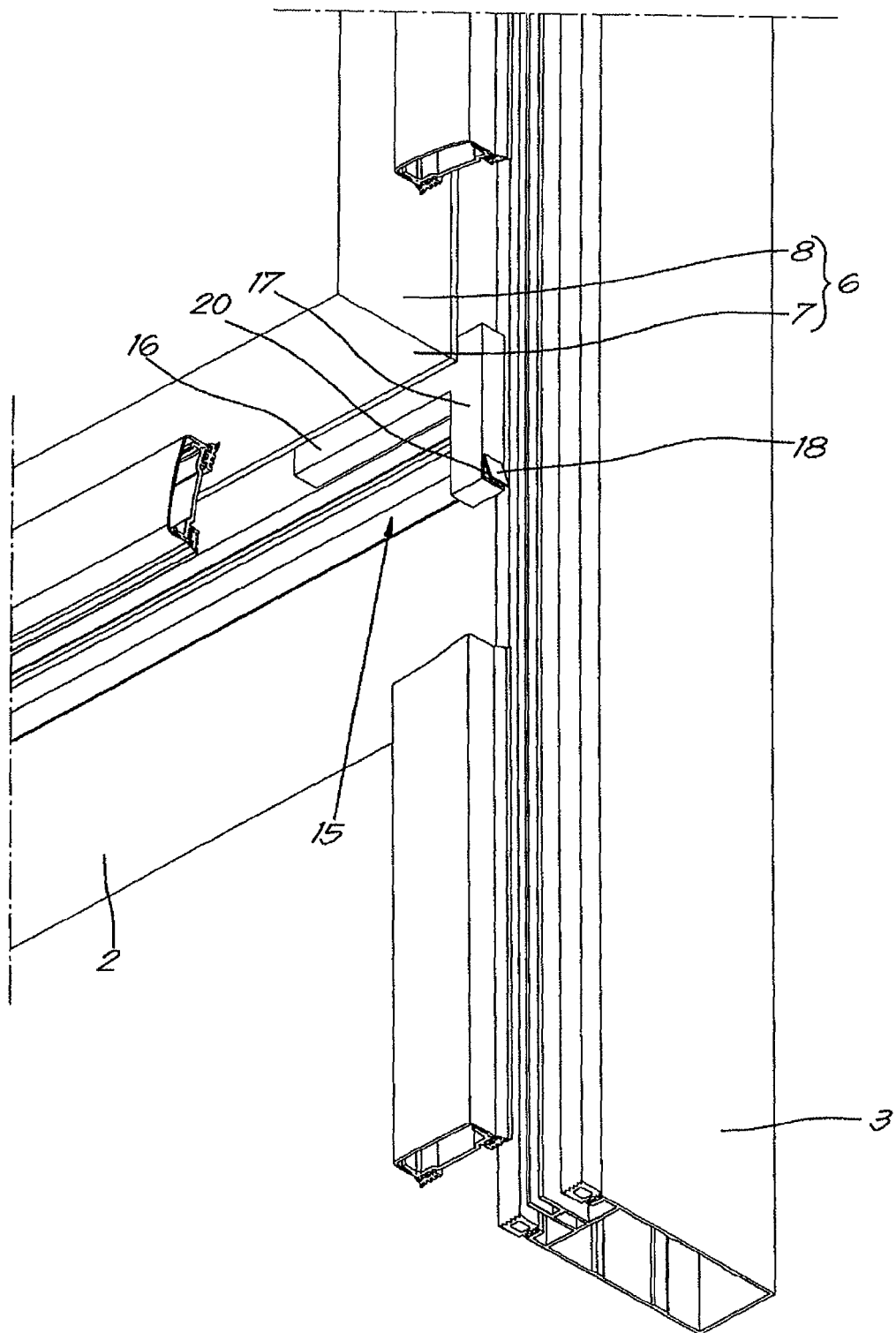


Fig. 4

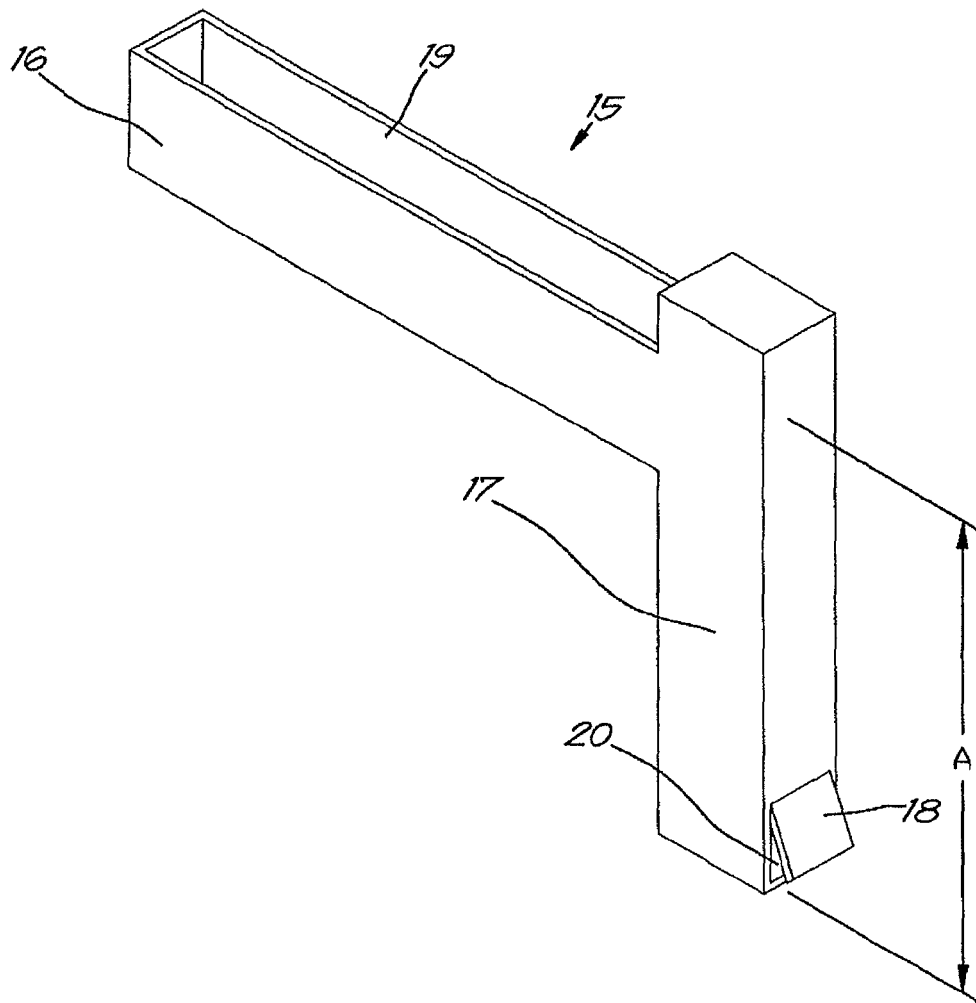


Fig.5

REFERENCES CITED IN THE DESCRIPTION

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