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(54) DRAINAGE SYSTEM FOR HORIZONTALLY SLIDING DOORS OR WINDOWS

(57) Drainage system (10) for horizontally sliding doors or windows, comprising a fixed transverse element (100) provided with at least one support rail (101) adapted to support at least one door or window leaf (200), at least one channel (102) extending parallel with respect to the rail (101) and at least one tubular duct (103) extending along the transverse element (100) and that has an outer lateral wall (104) and an upper wall (105) defining the bottom of the channel (102), wherein the upper wall (105) is crossed by at least one drainage opening (106) and the outer lateral wall (104) is crossed by at least one slot (107), a drainage tray (11) insertable into the tubular duct (103) through the slot (107) and which is adapted to extend under the drainage opening (106), wherein the drainage tray (11) has a front wall (12), which is adapted to cover the slot (107) and which is provided with at least one discharge opening (14), and a rear wall (13), which is opposed with respect to the front wall (12) and is adapted to be housed within the tubular duct (103), wherein the drainage tray (11) comprises at least one intermediate support (18) which is obtained in correspondence of at least a respective position defined between the front wall (12) and the rear wall (13) at a non-null distance with respect to the same and suitable for rotatably supporting at least a respective door (19) about an axis of rotation (A) transverse to the drainage tray (11) between a first position, in which it is lifted toward the front wall (12) away from the rear wall (13), and a second position, in which said door (19) is substantially parallel with respect to the front wall (12) thus realizing a septum dividing the drainage tray (11) into respective longitudinal compartments, wherein the drainage opening (106) opens into the downward compartment, with respect to the insertion direction of the drainage tray (11) into the tubular duct (103), of the septum.

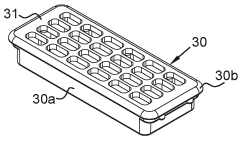
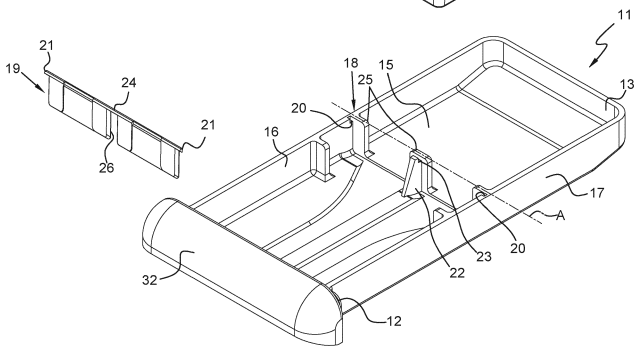


Fig. 1A



EP 3 708 761 A1

Description

[0001] The present invention relates to a drainage system for horizontally sliding doors or windows.

[0002] In the sector of sliding doors and windows there is the particularly significant problem of draining water, whether it is rain water or condensation, from the lower transverse element of the fixed frame, on which transverse element the rails or guides for the support and sliding of the doors or windows are obtained. In fact, the aim is to prevent water penetrating into the environment closed by the door or window and stagnating in the door or window itself, as well as limiting the inlet of air from the outside towards the inside of the environment closed by the door or window.

[0003] Generally, the lower transverse element comprises one or more rails or guides for the support and sliding of respective door or window leaves. Alongside such rails or guides a longitudinal channel runs, which is open at the top.

[0004] More precisely, the lower transverse element is provided with at least one pair of rails or guides between which a sealing dowel is interposed that separates a first portion of the longitudinal channel, which faces the "inner side", from a second portion of the longitudinal channel, which faces the "outer side", and which are respectively in communication with the internal environment and with the environment external to the compartment closed by the door or window.

[0005] Inside the transverse element a longitudinal tubular duct extends which has an external lateral wall and an upper wall defining the bottom of the channel.

[0006] One of the known drainage systems envisages the use of drainage trays, each of which is inserted slidingly in the tubular duct internal to the transverse element through a relevant slot obtained in the external lateral wall thereof. Each tray extends transversally to the tubular duct internal to the transverse element below at least one respective drainage opening which is obtained on the bottom of the channel and in which an outflow bushing is inserted.

[0007] Each tray is provided with a front wall that closes the slot obtained in the transverse element for the insertion through it of the tray itself.

[0008] Such front wall is crossed by at least one discharge opening which is generally protected by a covering cap open towards the bottom.

[0009] In order to prevent infiltrations of air from the external environment towards the internal environment through the drainage tray, it is known to arrange at the front wall of the latter a door rotatable about an axis parallel to the front wall and transverse to the longitudinal extension of the tray.

[0010] The known door is movable between:

- a first position, in which it is raised away from the front wall towards the external environment so as to at least partially uncover the discharge opening obtained in the front wall itself to let the drained water flow out towards the external environment, and
- a second position, in which it is substantially overlapped with the front wall so as to close the discharge opening obtained in the latter to prevent the inlet of air from the external environment towards the internal environment, the rotation of the door away from the front wall towards the internal environment being prevented by obstacle.

[0011] Such a known drainage system has greater drainage capacity with respect to other known drainage systems and allows stagnations to be prevented in the tubular ducts internal to the transverse element. However, its use is still limited, as it is generally used for the drainage of the "outer side" only or the "inner side" only, in combination with other known drainage systems.

[0012] In fact, whenever a known drainage tray is used both for the drainage of the "outer side" and for the drainage of the "inner side", undesired air infiltrations would occur.

[0013] The aim of the present invention is that of realising a drainage system for horizontally sliding doors or windows that has a high drainage capacity and prevents the diffusion of the drained water into the tubular duct internal to the transverse element and consequent stagnation thereof.

[0014] Another aim of the present invention is that of realising a drainage system for horizontally sliding doors or windows that can be easily adopted for draining both the "inner side" and the "outer side", preventing infiltrations of air into the environment closed by the door or window.

[0015] Yet another aim of the present invention is that of realising a drainage system for horizontally sliding doors or windows that can be easily mounted and dismounted with a limited number of operations.

[0016] It is another aim of the present invention to realise a drainage system for horizontally sliding doors or windows, which is particularly simple and functional, with contained costs.

[0017] These aims according to the present invention are achieved by realising a drainage system for horizontally sliding doors or windows as set out in claim 1.

[0018] These aims according to the present invention are also achieved with a drainage tray for a drainage system for horizontally sliding doors or windows as set out in claim 10.

[0019] Further features are comprised in the dependent claims.

[0020] The features and advantages of a drainage system for horizontally sliding doors or windows according to the present invention will be more apparent from the following description, which is to be understood as exemplifying and not limiting, with reference to the schematic attached drawings, wherein:

Figure 1A is an axonometric and exploded view of a

possible embodiment of a drainage tray for a drainage system according to the present invention in a first use configuration;

Figure 1B is an axonometric view of the tray of figure 1A in the assembled condition;

Figures 2A and 2B are views like those of Figures 1A and 1B showing a second possible use configuration of the drainage tray;

Figure 3 is a horizontal sectional view of a door or window with sliding leaf provided with a drainage system according to the present invention for the drainage both of the "outer side" and of the "inner side";

Figures 4 and 5 are sections according to the planes of section IV-IV and V-V of Figure 3.

[0021] With reference to the appended figures, a drainage system 10 for horizontally sliding doors or windows according to the present invention is shown.

[0022] Sliding doors or windows are known to a person skilled in the art and are described and illustrated herein by way of example only with reference to the components useful for the understanding of the present invention, without thereby constituting any limitations.

[0023] Such doors or windows comprise a fixed frame on which one or more leaves of a window or a door are mounted, at least one of which is supported in a horizontally sliding way.

[0024] The fixed frame comprises a lower transverse element 100 which is generally comprised of one or more extruded profiles coupled to one another and/or provided with sealing and/or thermally insulating gaskets and that are not described in detail being known to a person skilled in the art.

[0025] The transverse element 100 comprises at least one rail 101 or guide adapted to support at least one leaf 200 of a door or window.

[0026] Generally, the transverse element 100 comprises at least two rails 101 or guides parallel to one another, on each of which a respective leaf 200 is mounted, wherein one of the two leaves 200 is mounted slidably onto the respective rail 101 or guide.

[0027] The transverse element 100 can also be provided with more rails or guides each supporting a respective fixed or sliding leaf according to configurations known to a person skilled in the art.

[0028] At least one channel 102 runs parallel to the rails 101. The channel 102 is generally open at the top and is delimited along at least one side by a rail 101.

[0029] The transverse element 100 then comprises at least one tubular duct 103 that extends along the longitudinal extension of the transverse element itself and internally thereto. The tubular duct 103 has an outer lateral wall 104 and an upper wall 105 that defines the bottom of the channel 102.

[0030] Outer lateral wall 104 means the wall that longitudinally delimits the tubular duct 103 and which, in the mounting configuration of the door or window, faces the environment AE external to the compartment closed by the door or window itself.

[0031] In the appended figures, AE schematically indicates the external environment and AI the internal environment to the compartment closed by the door or window.

[0032] It is specified that the tubular duct 103 may be provided with one or more internal chambers separated from one another by intermediate walls 130 depending on the configuration of the transverse element 100.

[0033] The upper wall 105 is crossed by at least one drainage opening 106 and the outer lateral wall 104 is crossed by at least one slot 107.

[0034] The drainage opening 106 and the slot 107 are obtained at the same longitudinal portion of the transverse element 100.

[0035] In the case in which the tubular duct 103 comprises various internal chambers separated from one another by intermediate walls 130, each intermediate wall 130 interposed between the outer lateral wall 104 and the drainage opening 106 is crossed by at least one respective slot that matches and is aligned with the slot 107.

[0036] The drainage system 10 comprises at least one drainage tray 11 (indicated below as "tray 11") which can be inserted transversally into the tubular duct 103 through the slot 107 and which is adapted to extend below the drainage opening 106.

[0037] The tray 11 comprises a body that has a front wall 12 and a rear wall 13 opposite one another along the longitudinal extension of the tray 11.

[0038] The front wall 12 is adapted to cover the slot 107 and is provided with at least one discharge opening 14 that leads into the external environment AE for discharging the drained water therein.

[0039] The rear wall 13 is adapted to be housed inside the tubular duct 103, generally beyond the edge of the drainage opening 106 further from the outer lateral wall 104.

[0040] The front wall 12 and the rear wall 13 are defined projecting from the bottom 15 of the body of the drainage tray 11 and are joined to one another by a pair of longitudinal side boards 16, 17 projecting from the bottom 15 and that extend in a substantially orthogonal direction to the front wall 12 and to the rear wall 13.

[0041] The tray 11 has a length and a width such for which - once it has been inserted into the tubular conduit 103 transversally thereto - it extends below the at least one drainage opening 106 and the latter, from the plan view, is contained within the useful dimensions of the tray itself. In particular, the tray 11 has a length measured between the front wall 12 thereof and the rear wall 13 thereof that is greater than or equal to the distance measured transversally to the longitudinal extension of the transverse element 100 between the respective slot 107 and the edge of the drainage opening 106 which, on a transverse plane to the longitudinal extension of the tubular duct 103, is more distant therefrom. The length of the tray 11 is therefore greater or equal to the maximum

distance between the slot 107 and the drainage opening 106, so that the tray 11 extends in length below the entire drainage opening 106 to collect the water that flows out therefrom.

[0042] Likewise, the useful width of the tray 11 is greater than or equal to the maximum size that the drainage opening 106 has parallel to the longitudinal extension of the tubular duct 103, so that the tray 11 extends, not only in length, but also in width below the entire drainage opening 106.

[0043] According to the present invention, the tray 11 comprises at least one intermediate support 18 which is obtained in correspondence of at least one respective position defined between the front wall 12 and the rear wall 13 and at a non-null distance therefrom.

[0044] The intermediate support 18 is adapted to support at least one respective door 19 rotatably about an axis of rotation A transverse to the tray 11 itself (i.e. transverse to the extension in length of the tray 11).

[0045] The intermediate support 18 is adapted to support the door 19 rotatably about the axis of rotation A between:

- a first position, in which the door 19 is lifted toward the front wall 12 away from the rear wall 13, and
- a second position, in which the door 19 is substantially parallel with respect to the front wall 12 forming a septum dividing the drainage tray 11 into respective longitudinal compartments, wherein the at least one drainage opening 106 cooperating with the tray 11 opens into the compartment that is defined downstream, with respect to the insertion direction of the tray 11 into the tubular duct 103, of the septum formed by the door 19 itself.

[0046] The intermediate support 18 is obtained in a respective position distanced by a non-null distance from both of the front wall 12 and the rear wall 13, so that the door 19 supported thereby, when it is in its second position, is not against any of such walls and in particular the front wall 12. In this way, when the door 19 is in its second position, it forms a septum that extends substantially continuously transversally to the tray 11 dividing it into respective longitudinal compartments: a first compartment delimited by the front wall 12, the septum and the side boards 16, 17 and a second compartment delimited by the septum, the rear wall 13 and the side boards 16, 17.

[0047] Advantageously, the coupling between the intermediate support 18 and the door 19 is configured to prevent, for example by mechanical obstacle, the rotation of the door 19 away from the front wall 12 towards the rear wall 13.

[0048] With reference to the embodiment shown in the appended figures, the intermediate support 18 comprises two seats 20 which are obtained in the side boards 16, 17 and aligned with one another so as to define the axis of rotation A and which rotatably support corresponding pins 21 obtained at the opposite ends of the door 19.

[0049] The intermediate support 18 further comprises a forked body 22 that projects from the bottom 15 and that has a respective seat 23 aligned with the seats 20 that rotatably supports a portion 24 of the door 19, which portion 24 is aligned with the pins 21.

[0050] At the seats 20 and the forked body 22 tabs 25 are obtained which extend parallel to the front wall 12 and that prevent by obstacle the rotation of the door 19 towards the rear wall 13 away from the front wall 12.

[0051] The door 19 is comprised of a plate-shaped body that has pins 21 at the opposite ends.

[0052] The door 19 has an aperture 26 for coupling with the forked body 22.

[0053] However, alternative embodiments of the intermediate support 18 and of the door 19 are not excluded.

[0054] The tray 11 can comprise a plurality of intermediate supports 18 obtained at a plurality of respective positions, each of which is defined between the front wall 12 and the rear wall 13 at a non-null distance therefrom, wherein the intermediate supports 18 are in succession, distanced from one another, along the longitudinal extension of the tray 11, and each of which is adapted to support a respective door 19 as described above. As will appear more clearly below, such an embodiment is particularly useful for drainage systems of transverse elements 100 whose rails delimit various longitudinal channels.

[0055] Advantageously, the same tray 11 is then provided with a main support 27 obtained at the front wall 12 and that is adapted to support at least one respective door 19 rotatably about an axis of rotation B transverse to the tray 11 itself (i.e. transverse to the extension in length of the tray 11).

[0056] The main support 27 is adapted to support the door 19 rotatably about the axis of rotation B between:

- a first position, in which the door 19 is lifted away from the front wall 12 on the opposite side with respect to the rear wall 13 for at least partially uncovering the discharge opening 14, and
- a second position, in which the door 19 is substantially overlapped with the front wall 12 closing the discharge opening 14.

[0057] The coupling between the main support 27 and the door 19 is advantageously configured to prevent the rotation of the door 19 away from the front wall 12 towards the rear wall 13.

[0058] With reference to the embodiment shown in the appended figures, the main support 27 is obtained at the face of the front wall 12 facing towards the rear wall 13. The main support 27 comprises respective seats 28 which are obtained, aligned with each other defining the axis of rotation B, at the joint between the side boards 16, 17 and the front wall 12. The seats 28 rotatably support the pins 21 obtained at the opposite ends of the door 19. A further seat 28a is obtained in an intermediate po-

sition to support the portion 24. The main support 27 further comprises respective tabs 29 that extend parallel to the front wall 12 near to the latter to prevent by obstacle the rotation of the door 19 away from the front wall 12 towards the rear wall 13.

[0059] However, alternative embodiments of the main support 27 and of the door 19 are not excluded.

[0060] Preferably, the at least one intermediate support 18 and the main support 27 have an analogous configuration so as to be able to mount doors 19 with the same conformation on each of them i.e. so as to be able to mount a single door 19 at the main support 27 or at one of the intermediate supports 18 as a function of the configuration of the system 10.

[0061] The system 10 further comprises at least one bushing 30 that can be inserted into the drainage opening 106.

[0062] The bushing 30 can be engaged in the drainage opening 106 by form-fitting, by interference or jointing.

[0063] The bushing 30 has a grille 31 at the end thereof that surfaces on the bottom of the channel 102.

[0064] The bushing 30 conveys the water from the channel 102 directly into the tray 11.

[0065] The system 10 further comprises at least one stop adapted to lock the tray 11 into the tubular duct 103.

[0066] Advantageously, such stop is comprised of the same bushing 30 that is adapted to be engaged in the tray 11 locking it by obstacle into a fixed position with respect to the tubular duct 103.

[0067] In that case the bushing 30 has:

- a first tubular portion 30a that is inserted into the tray 11 forming a constraint by obstacle adapted to prevent the tray 11 from sliding out of the tubular duct 103, and
- a second portion 30b, advantageously flange shaped, which defines the upper end of the bushing itself and at which the grille 31 is obtained; this second portion 30b is the one that is engaged in the drainage opening 106 coupling with a form-fitting, by engagement or interference therewith.

[0068] The tray 11 can then comprise a cap 32 that projects from the face of the front wall 12 opposite the one facing towards the rear wall 13 and that towers over the discharge opening 14.

[0069] The cap 32 is open at the bottom forming a passage for the water leaving from the discharge opening 14.

[0070] The mounting of a system 10 according to the present invention is immediately comprehensible to a person skilled in the art in light of the description provided above and the appended figures.

[0071] Such mounting comprises the following steps:

- creating at least one drainage opening 106 on the upper wall 105 of the tubular duct 103,
- creating at least one slot 107 in the outer lateral wall 104 of the tubular duct 103 (and in any intermediate wall 130 interposed between the outer lateral wall 104 and the drainage opening 106) substantially at the drainage opening 106,
- mounting the door 19 on the intermediate support 18 or in one of the intermediate supports 18 or on the main support 27 of the tray as a function of which channel or portion of channel it needs to drain,
- inserting the tray 11 thus configured into the tubular channel 103 through the slot 107, and
- locking the tray 11 thus inserted by means of at least one stop.

[0072] Such locking can take place by means of the bushing 30 that is subsequently engaged in the drainage opening 106 and which, being inserted for at least one portion of the tray 11, forms a constraint by obstacle that prevents any sliding of the tray 11 with respect to the tubular duct 103.

[0073] The dismounting of the drainage system 10 takes place with inverse operations to those described above.

[0074] Figures 3, 4 and 5 show a system 10 according to the present invention.

[0075] In the case depicted, the transverse element 100 comprises two rails 101 that identify a channel 102 and on each of which a respective leaf 200 is mounted.

[0076] The channel 102 comprises at least two longitudinal portions: a first portion 102a, which communicates with the internal environment AI at the compartment closed by the door or window, and a second portion 102b, which communicates with the environment AE external to such compartment.

[0077] A sealing dowel 108 separates the first portion 102a from the second portion 102b.

[0078] At the first portion 102a at least one first drainage opening 106' is obtained and at least a first slot 107' is obtained in the transverse element 100 at said first drainage opening 106' to house a respective first drainage tray 11' arranged to drain the so-called "inner side".

[0079] The first tray 11' is inserted into the tubular duct 103 through the first slot 107' and extends below the first drainage opening 106'.

[0080] In that case, the first tray 11' is provided with an "intermediate" door 19' which is thus supported by an intermediate support 18, which is obtained in a position defined between the front wall 12 and the rear wall 13 at a non-null distance therefrom and that is arranged upstream, with respect to the insertion direction of the first drainage tray 11 into the tubular duct 103, of the respective first drainage opening 106'.

[0081] This "intermediate" door 19' forms a septum that separates the first tray 11' into two longitudinal compartments: a first (front) compartment, which is defined between the front wall 12 and the septum itself, and a second (rear) compartment, which is defined between the septum and the rear wall 13 and into which the at least one drainage opening 106' leads.

[0082] This "intermediate" door 19' is normally in its

second position; it is adapted to prevent the inlet of air towards the internal environment AI, while allowing the drainage towards the external environment AE of the water that accumulates in the first portion 102a.

[0083] At the second portion 102b of the channel 102 ("outer side") there is at least one second drainage opening 106".

[0084] It is to be noted that the "intermediate" door 19' of the first tray 11' is arranged downstream, with respect to the insertion direction of the first tray 11' into the tubular duct 103, of this second drainage opening 106".

[0085] A second slot 107'' is obtained in the transverse element 100 at the second drainage opening 106'' for housing a respective second drainage tray 11' for the drainage of the "outer side".

[0086] The second tray 11' is inserted into the tubular duct 103 through the second slot 107'' and extends below the second drainage opening 106".

[0087] The second tray 11'' is provided with a respective "end" door 19'' which is thus supported by the main support 27 at the front wall 12 to prevent the inlet of air from the outside towards the inside of the second tray 11''.

[0088] This "end" door 19'' is normally in its second portion in which, overlapping with the discharge opening 14 it prevents the inlet of environmental air and protects the discharge opening 14 itself from the accumulation of dust and dirt.

[0089] In the case in which the transverse element 100 has various rails 101 and various channels 102, the system 10 will also comprise for each intermediate channel or portion thereof a respective tray 11 as described above and provided with at least one respective tray 19 mounted on an intermediate support 18 arranged upstream, with respect to the insertion direction of the tray 11 in the tubular duct 103, the respective drainage opening 106 and downstream of the drainage openings of channels or portions of channels that are more external.

[0090] The drainage system 10 can comprise a plurality of first and/or second drainage trays 11'/11'' and, therefore, a respective plurality of first and/or second drainage openings 106'/106'' and first and/or second slots 107'/107''. It is also possible that a plurality of drainage openings 106 lead into a common tray 11.

[0091] Alternative embodiments of the drainage system 10 are not excluded in which, for example:

- the shape of the door 19, of the at least one intermediate support 18 and of the main support 27 could be different from those represented and described;
- the at least one stop could be comprised of a bayonet mount of the tray 11 into the slot 107 or other equivalent systems;
- the tray 11 could also be provided with only one intermediate support 18 or with a plurality of intermediate supports 18 and not necessarily with the main support 27, in which case the "outer side" drainage could be performed with drainage trays according to the prior art.

[0092] The subject matter of the present invention is also only the drainage tray 11 for a drainage system as described above.

[0093] The drainage system according to the present invention has the advantage of allowing the drainage of the water from any position of the transverse element, either on the "outer side" or the "inner side", with the use of drainage trays while preventing infiltrations of air and dirt towards the environment internal to the compartment closed by the door or window.

[0094] In the case in which the drainage trays are provided with one or more intermediate supports and possibly also with the main support, the same drainage tray can be variously configured by arranging the same door in the necessary position for the specific drainage application.

[0095] The drainage system according to the present invention further guarantees a high drainage capacity and prevents stagnation in the tubular ducts internal to the transverse elements.

[0096] The drainage system and drainage tank thus conceived are susceptible to many modifications and variations, all falling within the invention; furthermore, all the details are replaceable by technically equivalent elements. In practice, the materials used, as well as the dimensions, can be of any type according to the technical requirements.

Claims

1. Drainage system (10) for horizontally sliding doors or windows, wherein said system (10) comprises:

   - a fixed transverse element (100) provided with at least a rail (101) adapted to support at least one door or window leaf (200), at least one channel (102) extending parallel with respect to said rail (101) and at least one tubular duct (103) extending along the longitudinal extension of said transverse element (100) and having an outer lateral wall (104) and an upper wall (105) defining the bottom of said channel (102), wherein said upper wall (105) is crossed by at least a drainage opening (106) and said outer lateral wall (104) is crossed by at least a slot (107),
   - a drainage tray (11) insertable into said tubular duct (103) through said slot (107) and adapted to extend under said drainage opening (106), wherein said drainage tray (11) has a front wall (12), which is adapted to cover said slot (107) and is provided with at least a discharge opening (14), and a rear wall (13), which is opposed with respect to said front wall (12) and is adapted to be housed within said tubular duct (103),
   - said drainage tray (11) comprising at least an

intermediate support (18) obtained in correspondence of at least a respective position defined between said front wall (12) and said rear wall (13) at a not null distance with respect to the same and suitable for rotatably supporting at least a respective door (19) about a rotation axis (A) transverse to said drainage tray (11) between a first position, in which said door (19) is lifted toward said front wall (12) away from said rear wall (13), and a second position, in which said door (19) is substantially parallel with respect to said front wall (12) thus realizing a septum dividing said drainage tray (11) in respective longitudinal compartments, wherein said at least one drainage opening (106) opens into the downward compartment, with respect to the introduction direction of said drainage tray (11) into said tubular duct (103), of said septum.

2. System (10) according to claim 1, **characterized in that** the coupling between said at least one intermediate support (18) and said at least one respective door (19) prevents the rotation of the latter away from said front wall (12) toward said rear wall (13).

3. System (10) according to claim 1 or 2, **characterized in that** said septum extends in a substantially continuous manner transverse to said drainage tray (11) dividing the same into longitudinal compartments.

4. System (10) according to one or more of the preceding claims, **characterized in that** said drainage tray (11) comprises a plurality of intermediate supports (18) obtained in correspondence of a plurality of respective positions, which are defined between said front wall (12) and said rear wall (13) at a not null distance from the same, wherein said plurality of intermediate supports (18) follow each other, one spaced with respect to the other one, along the longitudinal extension of said drainage tray (11).

5. System (10) according to claim 4, **characterized in that** each one of said intermediate supports (18) supports at least one respective door (19).

6. System (10) according to one or more of the preceding claims, **characterized in that** said drainage tray (11) is provided with a main support (27) obtained in correspondence of said front wall (12) and adapted to rotably support at least one respective door (19) about a rotation axis (B) transverse to said drainage tray (11) between a first position, in which said door (19) is lifted away from said front wall (12) toward the opposite direction with respect to said rear wall (13) to at least partially uncover said at least a discharge opening (14), and a second position, in which said door (19) is substantially overlapped to said front wall (12) closing said at least one discharge opening (14), the rotation of said door away from said front wall (12) toward said rear wall (13) being prevented.

7. System (10) according to one or more of the preceding claims, wherein said channel (102) comprises at least two longitudinal portions, a first portion (102a) of which communicates with the environment (AI) internal to said space and a second portion (102b) of which communicates with the environment (AE) external the space closed by said at least one leaf (200), wherein said first portion (102a) and said second portion (102b) are insulated each other by at least a sealing dowel, **characterised in that** said first portion (102a) comprises at least a first drainage opening (106'), in correspondence of which said transverse element (100) has at least one said first slot (107), at least a respective first drainage tray (11) being insertable in said tubular duct (103) through said first slot (107') to extend under said first drainage opening (106'), wherein said first drainage tray (11') is provided with at least said door (19') supported by said at least an intermediate support (18), wherein said at least an intermediate support (18) is obtained in a respective position defined between said front wall (12) and said rear wall (13) at a not null distance and upward, with respect to the insertion direction of said at least a drainage tray (11') into said tubular channel (103), of said first drainage opening (106') to prevent the air passage from the compartment defined between said front wall (12) and the septum defined by said at least one door (24) to the compartment defined between said septum and said rear wall (13) and wherein said at least one first drainage opening (106') opens.

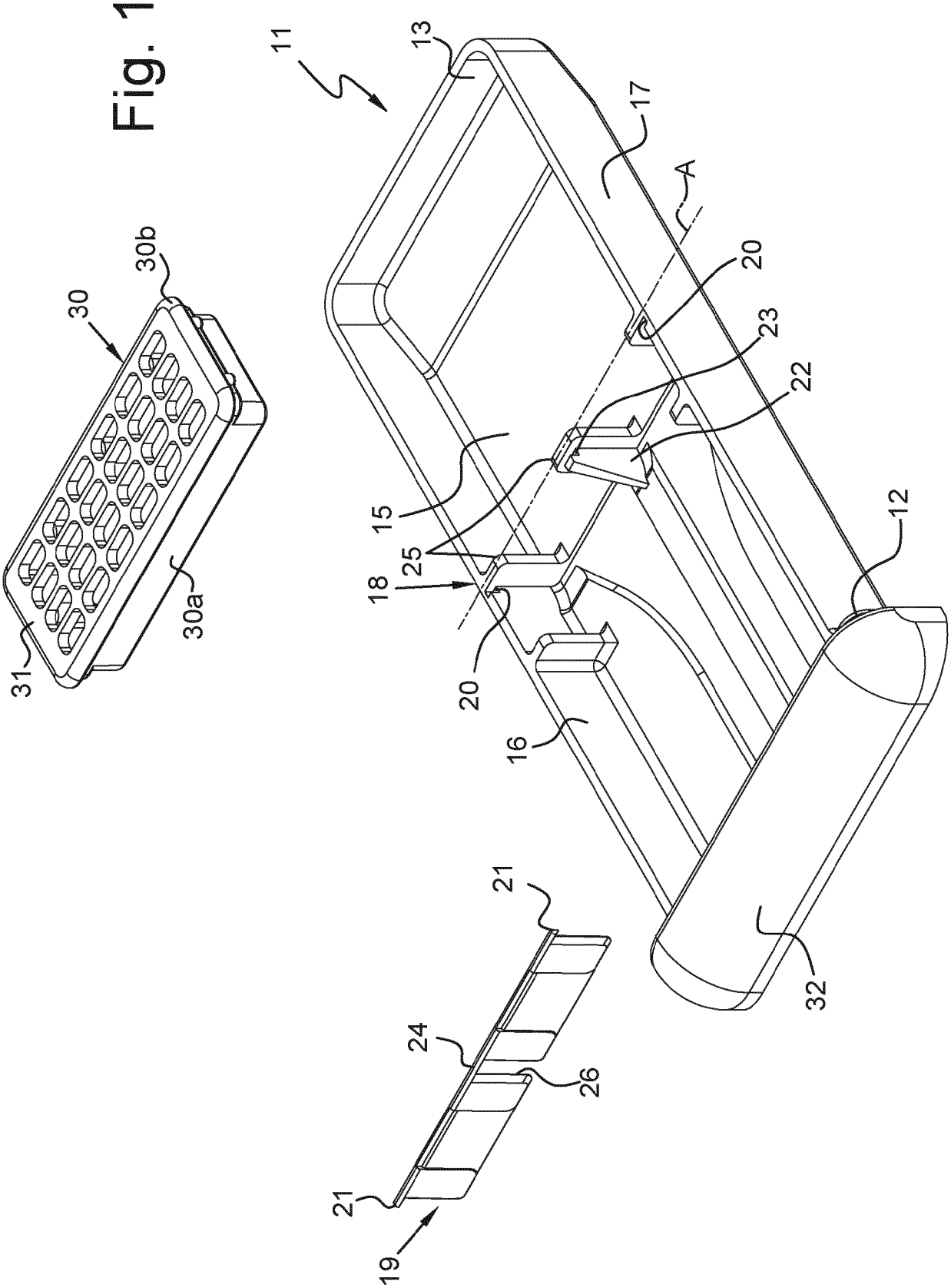
8. System (10) according to claim 7, **characterized in that** said second portion (102b) of said channel (102) comprises at least a second drainage opening (106''), wherein said at least one door (19') of said at least a first drainage tray (11') is placed downward, with respect to the introduction direction of said at least a first drainage tray (11') into said tubular duct (103), of said at least one second drainage opening (106").

9. System (10) according to claims 6 and 8, wherein said transverse element (100) comprises at least a second slot (107'') obtained in correspondence of said at least a second drainage opening (106''), at least a respective second drainage tray (11'') being insertable into said tubular duct (103) through said second slot (107'') to extend under said second drainage opening (106''), wherein said at least one second drainage tray (11'') is provided with at least said door (19'') supported by said main support (27) in correspondence of said front wall (12) for preventing inlet of air from outside to inside said second

drainage tray (11").

10. Drainage tray (11) for a drainage system (10) according to any one of the preceding claims.

Fig. 1A



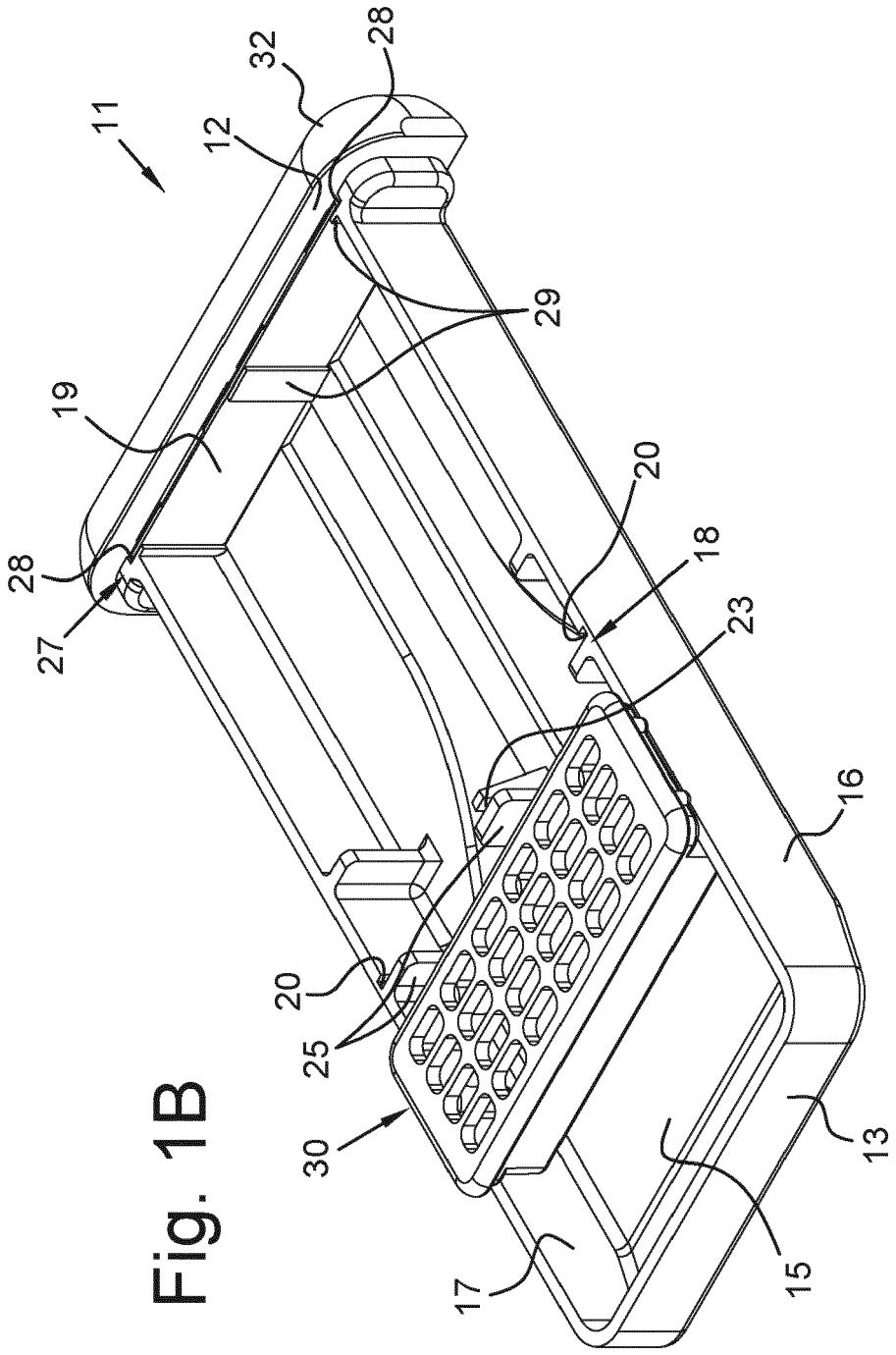


Fig. 1B

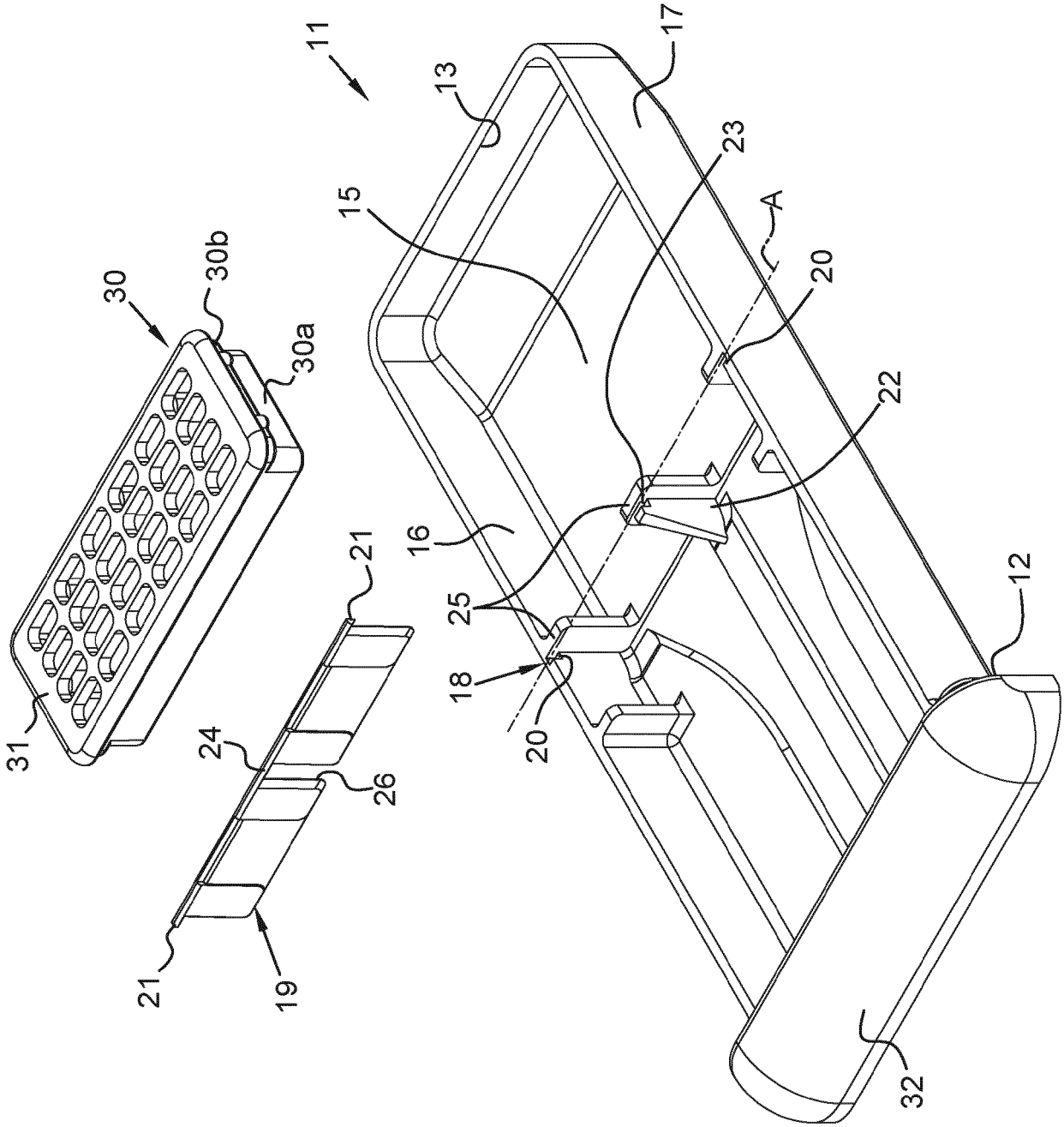


Fig. 2A

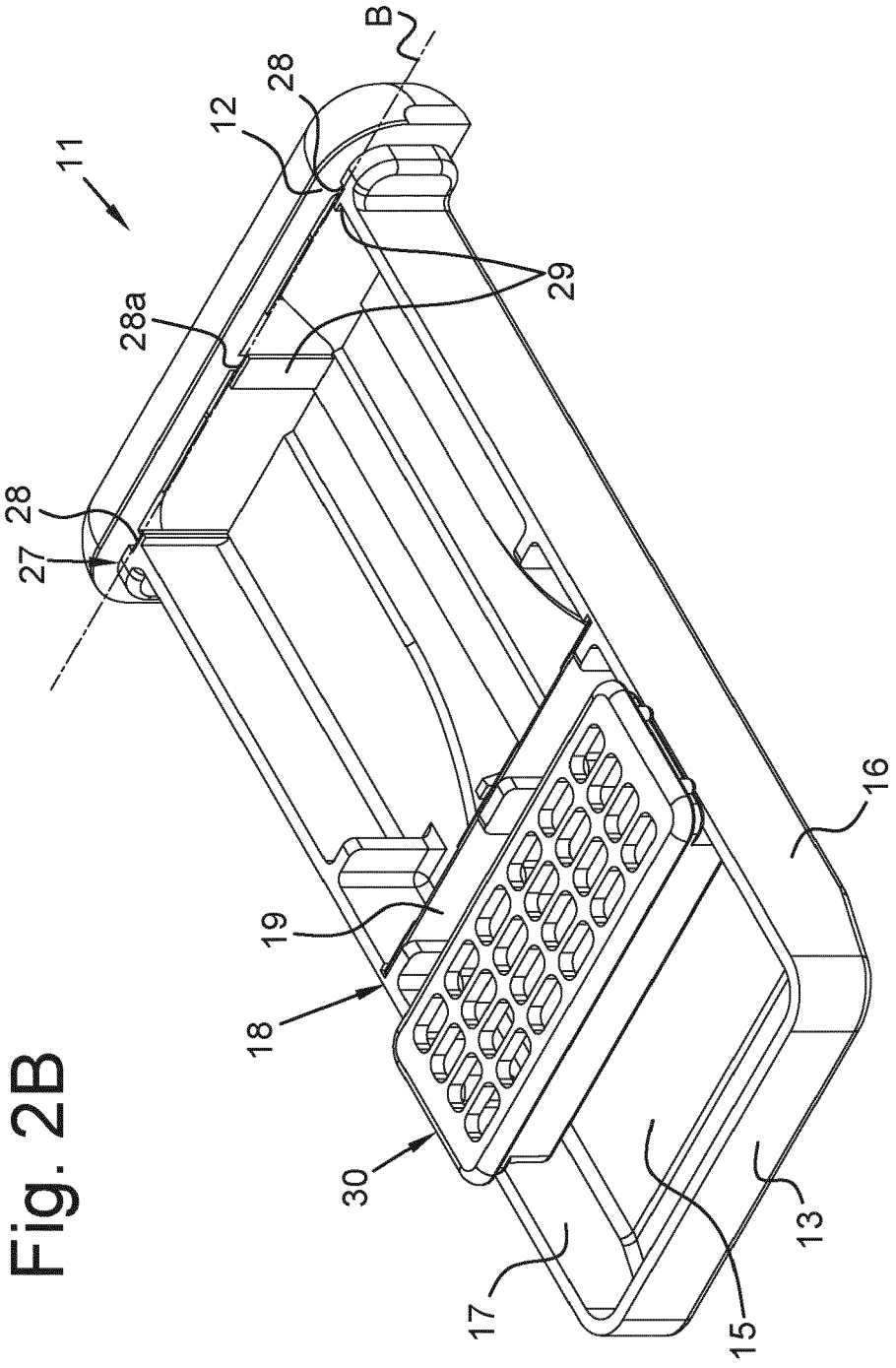


Fig. 2B

Fig. 3

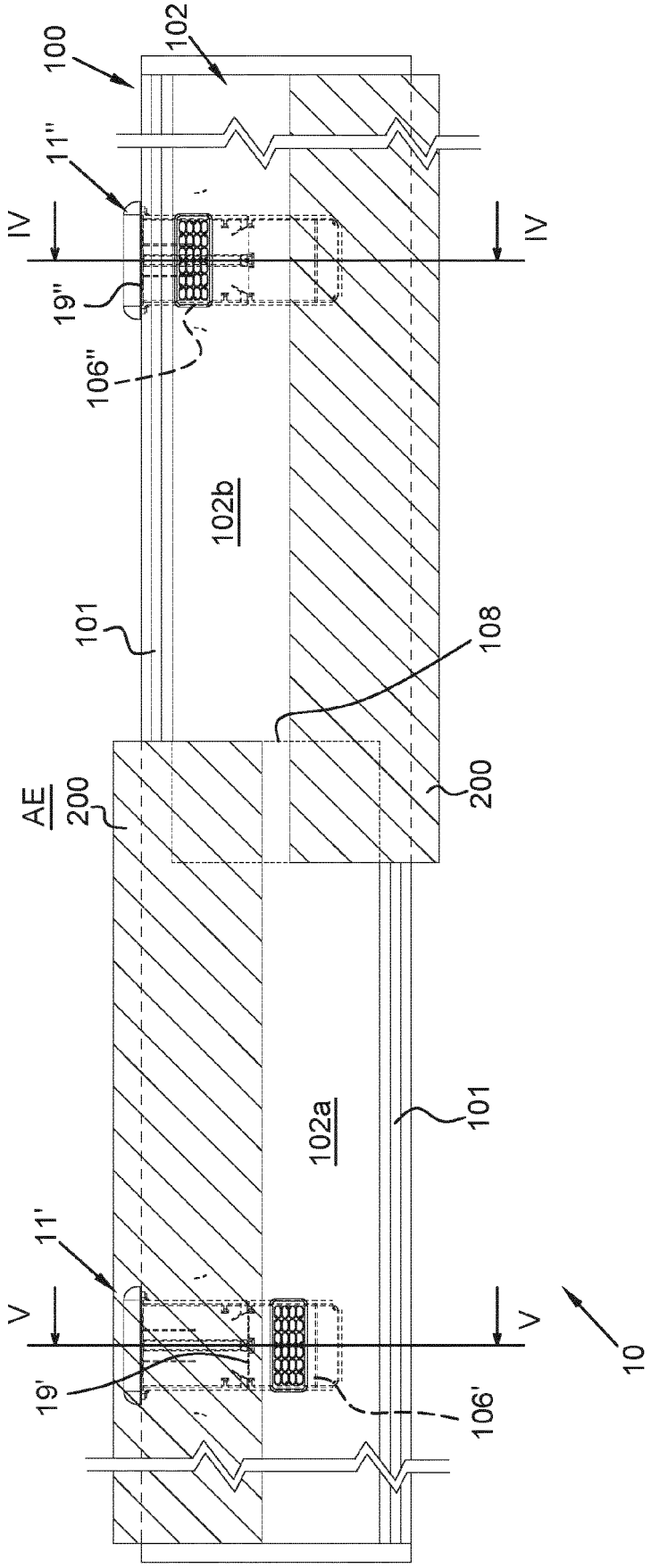

100
102
11''
IV
IV
19''
106''
102b
101
108
AE
200
200
102a
101
11'
V
V
19'
106'
10

Fig. 4

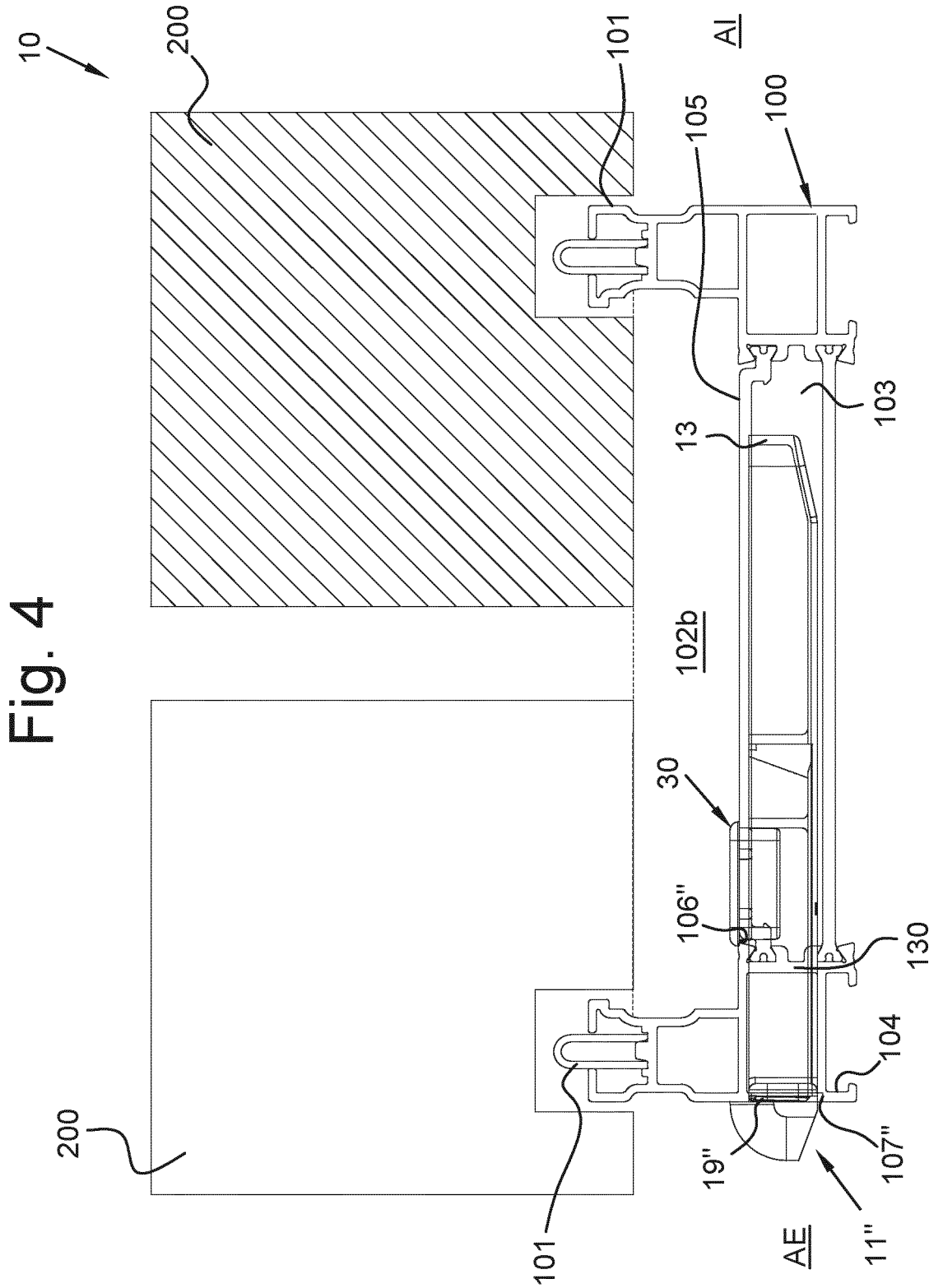
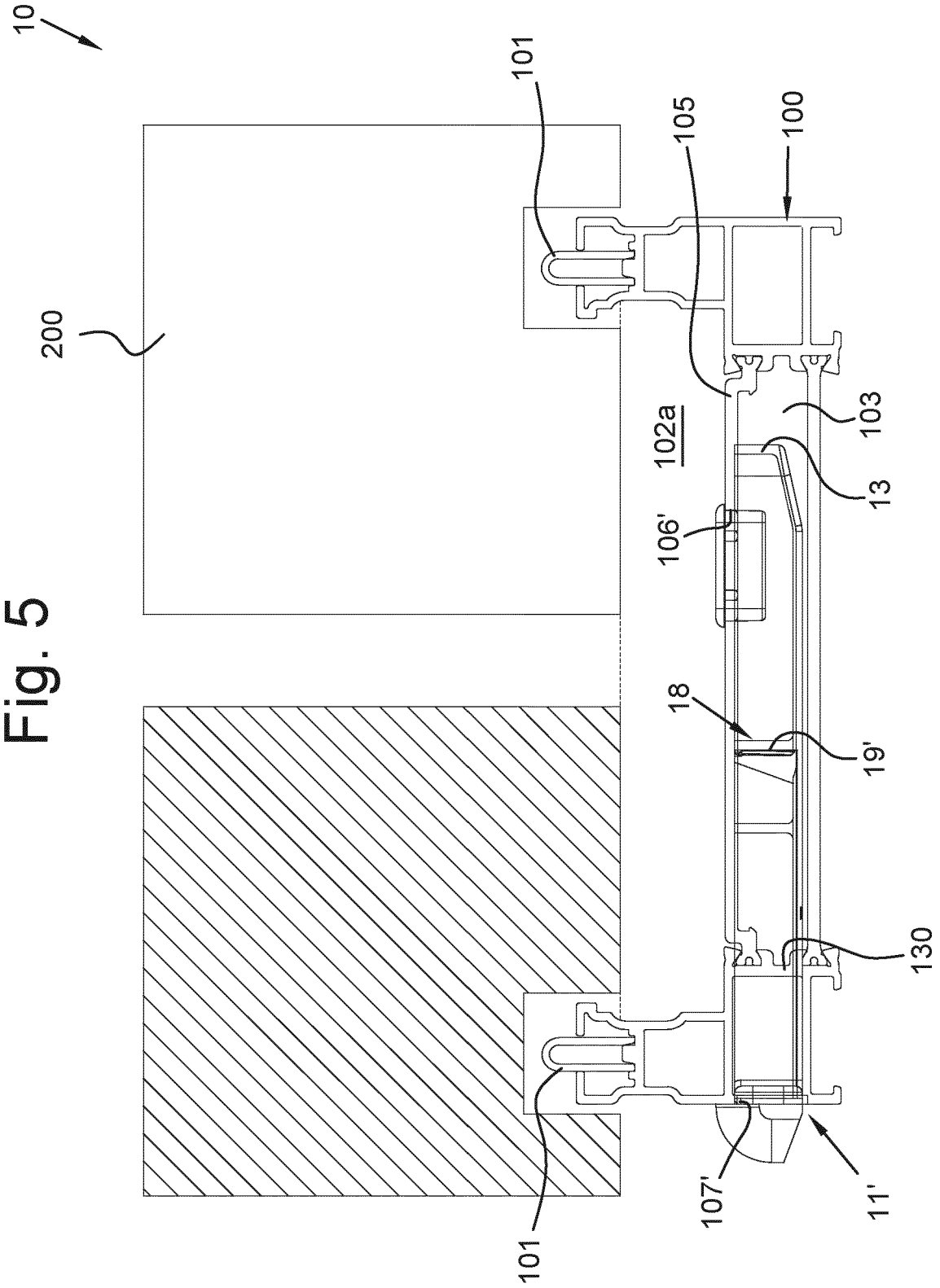

10
200
101
AI
105
100
103
13
102b
30
106"
130
104
107"
19"
11"
AE
101
200

Fig. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 20 16 1986

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 2015/159428 A1 (JOHNSON CRAIG [US] ET AL) 11 June 2015 (2015-06-11) * paragraphs [0057] - [0058]; figures 1-6 *	1-10	INV. E06B7/14 E06B3/46 E06B7/26
A	FR 2 981 389 A1 (COMPOSANTS ARCHITECTURAUX INDUSTRIALISES POUR LE BATIMENT [FR]) 19 April 2013 (2013-04-19) * page 3, line 26 - page 10, line 32; figures 1-13 *	1-10	
A	US 2009/120005 A1 (ECKENSWILLER EDGAR GRANT [CA] ET AL) 14 May 2009 (2009-05-14) * paragraphs [0038] - [0042]; figures 12-16 *	1-10	

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	17 April 2020	Kofoed, Peter

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17-04-2020

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