

(19)



(11)

EP 3 708 760 B1

(12)

EUROPEAN PATENT SPECIFICATION

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

13.07.2022 Bulletin 2022/28

(51) International Patent Classification (IPC):

E06B 7/14 (2006.01) **E06B 3/46** (2006.01)
E06B 7/26 (2006.01)

(21) Application number: **20161984.8**

(52) Cooperative Patent Classification (CPC):

E06B 7/14; E05D 15/0686; E06B 3/4609;
E06B 3/4636; E06B 7/26; E05Y 2800/428;
E05Y 2900/132; E05Y 2900/148

(22) Date of filing: **10.03.2020**

(54) DRAINAGE SYSTEM FOR HORIZONTALLY SLIDING DOORS OR WINDOWS

DRAINAGESYSTEM FÜR HORIZONTAL VERSCHIEBBARE TÜREN UND FENSTER

SYSTÈME DE DRAINAGE POUR PORTES ET FENÊTRES HORIZONTALES À GLISSIÈRES

(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

(72) Inventor: **Loperfido, Michele**

70013 Castellana Grotte (BA) (IT)

(30) Priority: **11.03.2019 IT 201900003505**

(74) Representative: **Cosenza, Simona et al**
Barzanò & Zanardo Milano S.p.A.

Via Borgonuovo, 10
20121 Milano (IT)

(43) Date of publication of application:

16.09.2020 Bulletin 2020/38

(56) References cited:

FR-A1- 2 981 389 US-A1- 2015 159 428

(73) Proprietor: **MasterLAB S.r.l.**
70014 Conversano (BA) (IT)

EP 3 708 760 B1

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The present invention relates to a drainage system for horizontally sliding doors or windows, according to the preamble of claim 1 and to a drainage tray for such a drainage system, according to claim 20.

[0002] In the sector of sliding doors and windows there is a strongly felt problem of draining water, whether it is rain water or from 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 door or window leaves 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] There are numerous drainage systems for sliding doors or windows currently known, see for example US 2015/159428 A1.

[0004] Known drainage systems are schematically shown in figures 12 to 15 appended to the present description.

[0005] 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.

[0006] With reference to the appended figures showing the prior art, they show a transverse element T provided with a pair of rails R between which a sealing dowel U is interposed, which separates the "outer side" which is turned towards the environment AE external to the compartment closed by the door or window, from the "inner side", which is turned towards the environment AI internal to such compartment.

[0007] Known drainage systems (Figures 12, 12A and 12B and 13, 13A and 13B) consist of the provision in the transverse element T of a plurality of openings that are in fluid communication with one another and that form a drainage path P that discharges into the external environment. The opening that opens directly into the external environment is generally covered with a cap C that is open at the bottom for discharging the drained water. The cap C is inserted with a snap fitting into the respective opening obtained in the transverse element and is generally provided with a movable doors adapted to prevent the entry of air from the outside to the inside.

[0008] As it can be immediately understood by a person skilled in the art, Figures 12, 12A and 12B show an "outer side" drainage system and Figures 13, 13A and 13B show an "inner side" drainage system, such systems being able to be combined with one another.

[0009] Some known drainage systems, schematically illustrated in Figures 14, 14A and 14B, imply the use of drainage bushings B with valves that allow the outflow of water from the inside towards the outside until the thrust exercised by the water is such as to overcome the

external pressure. When the external pressure exceeds a determined threshold value, the valve closes preventing the inlet of water into the door or window and infiltrations of air.

[0010] These known systems have some drawbacks.

[0011] In fact, their drainage capacity is limited to the dimensions of the slots and of any bushings and valves.

[0012] Furthermore, the water that cannot flow outside stagnates in the tubular ducts internal to the transverse element.

[0013] These drawbacks have in part been overcome by another known drainage system (Figures 15, 15A, 15B) which entails the use of a drainage tray V which is inserted slidably in relevant slots obtained in the transverse element T and into which at least one drainage opening opens, which drainage opening is obtained on the bottom of the channel that runs parallel to the rails and into which an outflow bushing B is inserted. The drainage tray V is provided with a front wall crossed by at least one discharge opening protected by a covering cap. Such a known drainage system is generally used for "outer side" drainage and, with respect to the known drainage systems as described above, it has greater drainage capacity and allows stagnation in the tubular ducts internal to the transverse element to be prevented. However, its use is limited by the fact that as the conformation and dimensions of the lower transverse element vary, a drainage tray with a different conformation and dimensions must be used, with consequent high design, production and storage costs. Furthermore, the adoption of a drainage tray of the known type for the drainage both of the "inner side" and of the "outer side" has the disadvantage of infiltrations of air and dirt from the external environment towards the environment internal to the compartment closed by the door or window.

[0014] The aim of the present invention is that of providing 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.

[0015] Another aim of the present invention is that of providing a drainage system for horizontally sliding doors or windows that can be easily adopted on transverse elements with a different configuration and dimensions for draining both of the "inner side" and of the "outer side", eliminating infiltrations of air into the environment closed by the door or window.

[0016] Still another aim of the present invention is that of providing a drainage system for horizontally sliding doors or windows that can be easily mounted and dismounted with a limited number of operations.

[0017] It is another aim of the present invention to provide a drainage system for horizontally sliding doors or windows, which is particularly simple and functional, with reduced costs.

[0018] These aims according to the present invention are achieved by providing a drainage system for horizon-

tally sliding doors or windows as set out in claim 1.

[0019] 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 20.

[0020] Further features are comprised in the dependent claims.

[0021] The features and advantages of a drainage system for horizontally sliding doors or windows according to the present invention will result more apparent from the following description, which is to be understood as exemplifying and not limiting, with reference to the schematic attached drawings, wherein:

Figures 1A and 1B are axonometric and exploded views of a possible embodiment of a drainage tray for a drainage system according to the present invention;

Figures 2A and 2B are axonometric views of the drainage tray of Figures 1A and 1B in the assembled configuration;

Figures 3 and 4 are a plan view from above and a front view, respectively, of the first tray-shaped body of the drainage tray of Figures 1A and 1B;

Figures 5 and 6 are a plan view from above and a side elevation view, respectively, of the second tray-shaped body of the drainage tray of Figures 1A and 1B;

Figures 7 and 8 are axonometric views of a possible embodiment of the drainage system according to the present invention, respectively in a mounting step and in the mounted configuration;

Figure 9 is a horizontal sectional view of a door or window with sliding leaf provided with a drainage system according to the present invention for "outer side" drainage;

Figure 9A is a schematic section according to the sectional plane indicated in Figure 9;

Figure 9B schematically shows the processes performed on the lower transverse element of the frame of the door or window of Figures 9 and 9A defining the insertion slot of the drainage tray and the drainage opening obtained on the bottom of the channel; Figures 10, 10A and 10B are analogous figures to Figures 9, 9A and 9B with the drainage system arranged for the "inner side" drainage;

Figures 11A to 11E are schematic cross sections that show a drainage system according to the present invention applied to possible different doors and windows with sliding leaves that differ from one another in particular due to the conformation of the lower transverse element of the frame;

Figure 12 is a horizontal sectional view of a door or window with sliding leaves provided with an "outer side" drainage system according to a first possible solution of the prior art;

Figure 12A is a schematic section according to the sectional plane indicated in Figure 12;

Figure 12B is an axonometric view of a detail of the drainage system of Figures 12 and 12A;

Figures 13, 13A and 13B are views analogous to those of Figures 12, 12A and 12B showing a drainage system for the "inner side" drainage according to a second possible solution of the prior art;

Figures 14, 14A and 14B are views analogous to those of Figures 13, 13A and 13B showing a drainage system for the "inner side" drainage according to a third possible solution of the prior art;

Figures 15, 15A and 15B are views analogous to those of Figures 12, 12A and 12B showing a drainage system for the "outer side" drainage according to a fourth possible solution of the prior art;

Figures 16A and 16B are axonometric views, exploded and in the assembled configuration, respectively, of an alternative embodiment of a drainage tray of a drainage system according to the present invention.

[0022] With reference to Figures 1 to 11E, a drainage system 10 for horizontally sliding doors or windows according to the present invention is shown.

[0023] 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 limitation.

[0024] 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.

[0025] The fixed frame comprises a lower transverse element 100 which is generally constituted by 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 they known to a person skilled in the art.

[0026] 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.

[0027] 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.

[0028] 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.

[0029] 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.

[0030] 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.

[0031] 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 external to the compartment closed by the door or window itself.

[0032] In the appended figures, AE schematically indicates the external environment and AI the internal environment to the compartment closed by the door or window.

[0033] It is specified that the tubular duct 103 may be of the type with one or more internal chambers separated from one another by intermediate walls 130 according to the configuration of the transverse element 100.

[0034] 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.

[0035] The drainage opening 106 and the slot 107 are obtained at the same longitudinal portion of the transverse element 100.

[0036] When 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.

[0037] The drainage system 10 comprises at least one drainage tray 11 (indicated for simplicity purposes below as tray 11) which can be inserted transversally into the tubular duct 103 through the slot 107 and that is adapted to extend below the drainage opening 106.

[0038] The tray 11 has a front wall 12 and a rear wall 13 opposite one another along the longitudinal extension of the tray 11.

[0039] 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.

[0040] The rear wall 13 is adapted to be housed in the tubular duct 103, generally beyond the edge of the drainage opening 106 further from the outer lateral wall 104.

[0041] According to the present invention, the tray 11 comprises:

- a first tray-shaped body 15 that is provided with the front wall 12 and that is open at the top and at the rear, and
- a second tray-shaped body 16 that is provided with the rear wall 13 and that is open at the top and at the front.

[0042] The first tray-shaped body 15 and the second tray-shaped body 16 can be coupled to one another in one of a plurality of different relative positions along a direction D perpendicular to the front wall 12 and to the rear wall 13 for regulating the length of the tray 11 as a function of the distance H between the slot 107 and the drainage opening 106, a distance that is measured on a plane perpendicular to the longitudinal extension of the

tubular duct 103.

[0043] The distance H, in particular, is defined between the outer lateral wall 104 and the edge of the drainage opening 106 which, on a plane transverse to the longitudinal extension of the tubular duct 103, is more distant therefrom. The length of the tray 11 is thus regulated as a function of the maximum distance between the slot 107 and the drainage opening 106, so that the first is greater than or equal to the second one so that the tray 11 extends in length below the entire drainage opening 106 to collect the water that flows out therefrom.

[0044] As it can be immediately understood by a person skilled in the art, the useful width of the tray 11 - and, therefore, of the first tray-shaped body 15 and of the second tray-shaped body 16 that constitute it - 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.

[0045] In other words, in plan view, considering the drainage system 10 in the mounting configuration, the drainage opening 16 is contained in the useful dimensions of the tray 11.

[0046] The first tray-shaped body 15 comprises a bottom 15a connected with the front wall 12 extending along a plane substantially perpendicular to the same and a pair of lateral sides boards 15b joining the bottom 15a with the front wall 12. The bottom 15a and the lateral sides boards 15b extend from the face of the front wall 12 which, in the mounting configuration, faces the rear wall 13.

[0047] The second tray-shaped body 16 comprises a bottom 16a connected with the rear wall 13 extending on a plane substantially perpendicular thereto and a pair of lateral sides boards 16b that join the bottom 16a to the rear wall 13. The bottom 16a and the lateral sides boards 16b extend from the face of the rear wall 13 which, in the mounting configuration, faces the front wall 12.

[0048] The volume delimited by the first tray-shaped body 15 is adapted to contain at least one portion of the second tray-shaped body 16, advantageously the entire second tray-shaped body 16 possibly with the exclusion of the rear wall 13.

[0049] The coupling of the first tray-shaped body 15 and of the second tray-shaped body 16 in one of a plurality of different relative positions along the direction D can be obtained by means of a plurality of coupling seats 17, which are obtained in one of the first tray-shaped body 15 and the second tray-shaped body 16 and are arranged in succession one after the other along the direction D defining said plurality of positions, the other one of the first tray-shaped body 15 and of the second tray-shaped body 16 comprising at least a coupling element 18 for the coupling with at least one of the coupling seats 17.

[0050] The coupling of the first tray-shaped body 15 and of the second tray-shaped body 16 can take place

along a coupling direction F that is substantially perpendicular to a plane parallel to the bottom of the tray 11. Furthermore, advantageously, when the first tray-shaped body 15 and the second tray-shaped body 16 are coupled to one another, the relative sliding with respect to one another along parallel directions to such plane and, in particular, along transverse directions to the direction D, is prevented, for example, by a form-fitting.

[0051] In a possible embodiment, one of the first tray-shaped body 15 and of the second tray-shaped body 16 comprises a plurality of teeth 19 that are arranged in succession one after the other along the direction D, wherein the spaces between the teeth 19 define said plurality of coupling seats 17 or positions. The other one of the first tray-shaped body 15 and of the second tray-shaped body 16 comprises at least one respective tooth substantially complementary to one of said spaces and defining said at least one coupling element 18.

[0052] With reference to the embodiment shown in the appended figures, the first tray-shaped body 15 comprises two rows of teeth 19 that extend perpendicular to the bottom 15a at the lateral sides 15b so as to leave a central channel free.

[0053] The teeth 19 are parallel to the front wall 12 and are in succession one after the other equally spaced along the direction D. The spaces between the teeth 19 define the coupling seats 17.

[0054] The second tray-shaped body 16 comprises a pair of teeth defining respective coupling elements 18 complementary to the coupling seats 17.

[0055] The coupling elements 18 extend from the lower face of the bottom 16a (i.e. the face opposite the one which in the mounting configuration is turned towards the drainage opening 106) in a direction substantially perpendicular thereto. Each coupling element 18 is inserted in a corresponding coupling seat 17.

[0056] The coupling of the first tray-shaped body 15 and of the second tray-shaped body 16 takes place by inserting the second tray-shaped body 16 into the first tray-shaped body 15 along a direction F substantially perpendicular to the bottom 15a of the latter, so that the coupling elements 18 are engaged in respective coupling seats 17 defining a desired relative position of the first tray-shaped body 15 and of the second tray-shaped body 16 corresponding to the desired length of the tray 11.

[0057] The sliding of the second tray-shaped body 16 with respect to the first tray-shaped body 15 along parallel directions to their bottoms is prevented on one hand by the engagement of the coupling elements 18 with the coupling seats 17 and, on the other hand, by the form-fitting or however the constraint by obstacle formed by the lateral sides 15b, 16b.

[0058] Advantageously, at least one of the first tray-shaped body 15 and of the second tray-shaped body 16 comprises at least one drain chute 20 toward the discharge opening 14.

[0059] The drain chute 20 can be constituted of one or more inclined planes convergent to one another.

[0060] In the embodiment shown in the appended figures, the drain chute 20 is obtained in the second tray-shaped body 16 (i.e. the one that receives water directly from the drainage opening 106) and comprises a plurality of inclined planes that converge towards the centre of the bottom 16a.

[0061] The drainage system 10 further comprises at least one bushing 21 that can be inserted into the drainage opening 106.

[0062] The bushing 21 can be engaged in the drainage opening 106 with a form-fitting, by interference or jointing.

[0063] The bushing 21 has a grille 22 at the end thereof that surfaces on the bottom of the channel 102.

[0064] It is to be noted that the ribs that form the grille 22 are interrupted at the perimeter edge thereof so that the upper end of the bushing 21 is substantially level with the bottom of the channel 102, promoting the outflow of the water into the drainage tray 11 preventing stagnation near the edges of the bushing itself.

[0065] The bushing 21 conveys the water from the channel 102 directly into the drainage tray 11.

[0066] The drainage system 10 further comprises at least one stop adapted to lock the drainage tray 11 into the tubular duct 103.

[0067] Advantageously, such stop is constituted by the same bushing 21 that is adapted to be engaged in the drainage tray 11 locking it by obstacle into a fixed position with respect to the tubular duct 103.

[0068] In that case the bushing 21 has:

- a first tubular portion 21a that is inserted into the drainage tray 11 and, in the case in question, into the second tray-shaped body 16 thereof, forming a constraint by obstacle adapted to prevent the drainage tray 11 from sliding out of the tubular duct 103, and
- a second portion 21b, advantageously flange shaped, which defines the upper end of the bushing itself and at which the possible grille 22 is obtained in a projecting manner; this second portion 21b is the one that is engaged in the drainage opening 106 coupling with a form-fitting, by engagement or interference therewith.

[0069] In a possible embodiment, the first tray-shaped body 15 comprises a cap 23 which projects from the face of the front wall 12 opposite the one facing towards the second tray-shaped body 16 (i.e. the face which in use is turned towards the external environment AE) and that overhangs the discharge opening 14.

[0070] The cap 23 is open at the bottom forming a passage for the water leaving from the discharge opening 14.

[0071] In a further possible embodiment, the first tray-shaped body 15 comprises at least one tab or door 24 which is supported at the front wall 12 in a movable way for opening or closing the discharge opening 14. The door 24 is supported in a movable way - for example by rotation about an axis of rotation A parallel to the bottom

of the drainage tray and perpendicular to the direction D - between a first position, in which it is distanced from the discharge opening 14 leaving the passage of water free from the inside to the outside of the tray 11, and a second position, in which it is overlapped with the discharge opening 14, preventing the flow of air from the outside towards the inside of the tray 11.

[0072] The door 24 is normally in its second position 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.

[0073] More in detail, the tray 11, or better the first tray-shaped body 15 thereof, comprises a main support 25 that is formed at the front wall 12 and that is adapted to support the door 24 rotatably about an axis of rotation A transverse to the tray 11 between:

- a first position, in which the door 24 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 24 is substantially overlapped with the front wall 12 closing the discharge opening 14, the rotation of the door 24 away from the front wall 12 towards the rear wall 13 being prevented.

[0074] The door 24 is normally in its second position.

[0075] In a possible alternative embodiment of the tray 11 shown in Figures 16A and 16B, the tray 11 comprises at least one intermediate support 26 that is formed at an at least one respective position defined between the front wall 12 and the rear wall 13 at a non-null distance therefrom and that is adapted to support at least one respective door 24 rotatably about an axis of rotation B transverse to the tray 11 between:

- a first position, in which the door 24 is lifted toward the front wall 12 away from the rear wall 13, and
- a second position, in which the door 24 is substantially parallel with respect to the front wall 12 forming a septum dividing the tray 11 into respective longitudinal compartments, wherein the respective drainage opening 106 opens into the compartment downstream, with respect to the insertion direction of the tray 11 into the tubular duct 103, of the septum itself.

[0076] The intermediate support 26 is obtained in a respective position spaced by a non-null distance both from the front wall 12 and from the rear wall 13, so that the door 24 supported thereby, when it is in the second position thereof, is not against any of such walls and in particular the front wall 12. In this way, when the door 24 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 15b, 16b and a second compartment delimited by the septum, the rear wall 13 and the side boards 15b, 16b.

[0077] Advantageously, the coupling between the at least one intermediate support 26 and the door 24 prevents the rotation of the latter away from the front wall 12 towards the rear wall 13.

[0078] With reference to the embodiment shown in the appended figures, the at least one intermediate support 26 is obtained in the second tray-shaped body 16.

[0079] The at least one intermediate support 26 comprises two seats 27 that are obtained in the side boards 16b and aligned with one another so as to define the axis of rotation A and that rotatably support corresponding pins 28 obtained at the opposite ends of the door 24.

[0080] At the seats 27 tabs 29 are obtained which extend parallel to the front wall 12 and prevent by obstacle the rotation of the door 24 towards the rear wall 13 away from the front wall 12.

[0081] The door 24 is constituted by a plate-shaped body that has pins 28 at the opposite ends.

[0082] However, alternative embodiments of the intermediate support 26 and of the door 24 are not excluded.

[0083] The tray 11 can comprise a plurality of intermediate supports 26 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 26 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 24 as described above. As it will appear more clearly below, such an embodiment is particularly useful for drainage systems of transverse elements 100 whose rails delimit a plurality of longitudinal channels.

[0084] The mounting of a drainage 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.

[0085] Such mounting comprises the following steps:

- providing at least one drainage opening 106 on the upper wall 105 of the tubular duct 103,
- providing 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,
- coupling the first tray-shaped body 15 and the second tray-shaped body 16 in one of the pluralities of possible relative positions that allows the tray 11 to be obtained with a total length such as to extend completely below the drainage opening 106,
- inserting the tray 11 thus obtained into the tubular channel 103 through the slot 107, and
- locking the drainage tray 11 thus inserted by means of at least one stop.

[0086] Such locking can take place by means of the bushing 21 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.

[0087] The dismounting of the drainage system 10 takes place with inverse operations to those described above.

[0088] Figures 9 and 9A show a drainage system 10 according to the present invention with a transverse element 100 provided with two rails 101 on each of which a respective leaf 200 is mounted. The "outer side" and the "inner side" are separated by a sealing dowel 300. In that case, the drainage system 10 is configured to drain the "outer side" of the door or window, as it is easily understood by a person skilled in the art. Figure 9B schematically shows the processes performed on the transverse element 100 for obtaining the drainage opening 106 and the slot 107.

[0089] Figures 10, 10A and 10B are analogous to Figures 9, 9A and 9B and show the drainage system 10 in the "inner side" drainage configuration of the door or window, as it can be easily understood by a person skilled in the art.

[0090] It is clear that the configurations shown in Figures 9 and 10 can be coupled in a same door or window. In the latter case, adopting a tray 11 as shown in Figures 16a and 16B, it is possible to adjust the position of the door 24 as a function of the drainage arrangement of the tray 11.

[0091] The tray 11 used for the "outer side" drainage will be provided with an "end" door 24 which is supported by the main support 25 at the front wall 12.

[0092] The tray 11 used, in combination with the first, for the "inner side" drainage, will be provided with an "intermediate" door 24 which is supported by the at least one intermediate support 26 in a position upstream, with respect to the insertion direction of the tray 11 into the tubular duct 103, of the respective drainage opening 106 forming a septum that separates the tray 11 into two compartments: a first (front) compartment defined between the front wall 12 and the septum itself and a second (rear) compartment defined between the septum itself and the rear wall 13 and into which the respective drainage opening 106 opens.

[0093] In this combined drainage system (i.e. with trays 11 used for the drainage both of the "outer side" and of the "inner side"), the "intermediate" door 24 of the drainage tray 11 of the "inner side" is arranged downstream, with respect to the insertion direction of the tray 11 into the tubular duct 103, of the drainage opening 106 pertaining to the "outer side" drainage tank 11.

[0094] The presence of one or more intermediate supports 26 for the door 24 allows the position of the latter to be adjusted as a function of the drainage arrangement of the tray 11.

[0095] The drainage system 10 can comprise a plural-

ity of drainage trays 11 and, therefore, a respective plurality of drainage openings 106 and slots 107. It is also possible that a plurality of drainage openings 106 lead into a common drainage tray 11.

[0096] Figures 11A - 11E show a drainage system 10 according to the present invention with transverse elements 100 that differ from one another in terms of conformation and in particular depth (i.e. width). It is to be noted that as the depth increases the length of the drainage tray 11 varies, a variation that is obtained by coupling the first tray-shaped body 15 and the second tray-shaped body 16 in different possible relative positions.

[0097] The drainage system 10 according to the present invention can be combined with other known systems such as for examples valves for inner side drainage or the like.

[0098] Alternative embodiments of the drainage system 10 are not excluded in which, for example:

- the first tray-shaped body 15 and the second tray-shaped body 16 are coupled to one another telescopically along the direction D and the regulation of their relative position (and, therefore, of the total length of the drainage tank 11) takes place by the sliding of one with respect to the other along the direction D,
- the at least one stop could consist of a bayonet mount of the drainage tray 11 into the slot 107 or other equivalent systems;
- the shape of the main support 25, of the intermediate support 26 and of the door 24 could be different.

[0099] The subject matter of the present invention is also only the drainage tray 11 for a drainage system as described above.

[0100] 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 on the "inner side", with the use of a same drainage tray that can be configured so as to have the necessary length for the specific application.

[0101] Furthermore, it can be adopted in a plurality of transverse elements (profiles) that are different from one another in terms of conformation and dimensions, in particular having different depths (widths). The drainage tray of the system according to the present invention can in fact be adapted to different conformations and dimensions of the transverse elements, in which it is sufficient to perform the drainage openings and slots in the desired positions.

[0102] 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.

[0103] The drainage system according to the present invention can be configured for the combined "outer side" and "inner side" drainage with a respective drainage tray,

the adjustment of the position of the respective sealing door allowing infiltrations of air to be prevented while guaranteeing the discharge of the drained water.

[0104] The presence of the drain chute further facilitates the outflow of the water collected in the drainage tray.

[0105] The drainage system and drainage tray thus conceived are susceptible to many modifications and variations, all falling within the invention as defined by the claims. 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 all 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 one drainage opening (106) and said outer lateral wall (104) is crossed by at least one slot (107),
- a drainage tray (11) that can be introduced 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) adapted to cover said slot (107) and provided with at least one discharge opening (14) and a rear wall (13) opposed with respect to said front wall (12) and adapted to be housed within said tubular duct (103),

characterized in that

- said drainage tray (11) comprises a first tray-shaped body (15) provided with said front wall (12) and open on the top and on the rear and a second tray-shaped body (16) provided with said rear wall (13) and open on the top and frontally, wherein said first tray-shaped body (15) and said second tray-shaped body (16) are adapted to be coupled to each other in one of a plurality of different relative positions along a direction (D) perpendicular with respect to said front wall (12) and to said rear wall (13) to adjust the length of said drainage tray (11) as a function of the distance (H) between said slot (107) and said drainage opening (106) measured along a

plane perpendicular to the longitudinal development of said tubular duct (103).

2. Drainage system (10) according to claim 1, **characterized in that** one of said first tray-shaped body (15) and of said second tray-shaped body (16) comprises a plurality of coupling seats (17) that are arranged in succession one after the other along said direction (D) and that define said plurality of positions, the other one of said first tray-shaped body (15) and of said second tray-shaped body (16) comprising at least a coupling element (18) coupling with at least one of said coupling seats (17).
3. Drainage system (10) according to claim 2, **characterized in that** one of said first tray-shaped body (15) and of said second tray-shaped body (16) comprises a plurality of teeth (19) that are arranged in succession one after the other and distanced from one another along said direction (D), wherein the spaces between said teeth (19) define said plurality of coupling seats (17), the other one of said first tray-shaped body (15) and of said second tray-shaped body (16) comprising at least a corresponding teeth substantially complementary to one of said spaces and defining at least one coupling element (18).
4. Drainage system (10) according to one or more of the preceding claims, **characterized in that** said first tray-shaped body (15) and said second tray-shaped body (16) are adapted to be coupled to each other along a direction (F) substantially perpendicular with respect to a plane parallel to the bottom (15a, 16a) of said drainage tray, when coupled to each other, the relative sliding along directions parallel with respect to said plane being prevented.
5. Drainage system (10) according to one or more of claims 1 to 3, **characterized in that** said first tray-shaped body (15) and said second tray-shaped body (16) are telescopically coupled to each other along said direction (D).
6. Drainage system (10) according to one or more of the preceding claims, **characterized in that** each one of said first tray-shaped body (15) and of said second tray-shaped body (16) comprises a bottom (15a; 16a) respectively connected with said front wall (12) and said rear wall (13) extending along a plane substantially perpendicular to the same and a pair of lateral sides (15b; 16b) joining said bottom respectively with said front wall (12) and said rear wall (13).
7. Drainage system (10) according to one or more of the preceding claims, **characterized in that** at least one of said first tray-shaped body (15) and said second tray-shaped body (16) comprises a drain chute (20) toward said discharge opening (14).

8. Drainage system (10) according to one or more of the preceding claims, **characterized in that** it comprises at least a stop element adapted to block said drainage tray (11) in said tubular duct (103).
9. Drainage system (10) according to one or more of the preceding claims, **characterized in that** it comprises at least a bushing (21) adapted to be inserted into said drainage opening (106).
10. Drainage system (10) according to claims 8 and 9, **characterized in that** said at least one stop element is constituted by said bushing (21), said bushing being adapted to be inserted into said drainage tray (11) blocking the same by obstacle in a fixed position with respect to said tubular duct (103).
11. Drainage system (10) according to one or more of the preceding claims, **characterized in that** said first tray-shaped body (15) comprises a cap (23) projecting from the face of said front wall (12) opposed with respect to the one faced toward said second tray-shaped body (16) and overhanging said discharge opening (14).
12. Drainage system (10) according to one or more of the preceding claims, **characterized in that** said first tray-shaped body (15) comprises a main support (25) formed at said front wall (12) and adapted to rotatably support at least one door (24) about a rotation axis (A) transverse to said drainage tray (11) between a first position, in which said door (24) is lifted off said front wall (12) on the opposite side with respect to said rear wall (13) to at least partially uncover said at least one discharge opening (14), and a second position, in which said door (24) 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.
13. Drainage system (10) according to one or more of the preceding claims, **characterized in that** said drainage tray (11) comprises at least one intermediate support (26) obtained at at least one respective position defined between said front wall (12) and said rear wall (13) at a distance different from zero from the same and adapted to rotatably support at least one respective door (24) about a rotation axis (B) transverse to said drainage tray (11) between a first position, in which said door (24) is lifted toward said front wall (12) away from said rear wall (13), and a second position, in which said door (24) is substantially parallel to said front wall (12) thus forming a septum dividing said drainage tray (11) in respective longitudinal compartments, wherein said at least one drainage opening (106) opens in the compartment defined downward, with respect to the insertion direction of said drainage tray (11) in said tubular duct (103), of said septum.
14. Drainage system (10) according to claim 13, **characterized in that** the coupling between said at least one intermediate support (26) and said at least one respective door (24) prevents rotation of the latter away from said front wall (12) toward said rear wall (13).
15. Drainage system (10) according to claim 13 or 14, **characterized in that** said septum substantially seamlessly extends transversally to said drainage tray (11) dividing the same into respective longitudinal compartments.
16. Drainage system (10) according to one or more of claims 13 to 15, **characterized in that** said drainage tray (11) comprises a plurality of said intermediate supports (26) obtained at a plurality of respective positions, which are defined between said front wall (12) and said rear wall (13) at a distance different from zero from the same, wherein said plurality of said intermediate supports (26) are arranged in succession one after the other and spaced from each other along the longitudinal extension of said drainage tray (11).
17. Drainage system (10) according to one or more of the claims 13 to 16, wherein said channel (102) comprises at least two longitudinal portions, the first one of which communicates with the environment (AI) inside said space and a second portion communicates with the environment (AE) outside said space closed by at least one leaf (200), wherein said first portion and said second portion are insulated from each other by at least one sealing dowel (300), **characterised in that** said first portion 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 one said door (24) supported by at least one intermediate support (26), wherein said at least one intermediate support (26) is formed 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 one drainage tray (11) in said tubular channel (103), of said at least one 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) comes out.

18. Drainage system (10) according to claim 17, **characterized in that** said second portion of said channel comprises at least one second drainage opening (106), wherein said at least one door (24) of said at least one first drainage tray (11) is provided downward with respect to the introduction direction of said at least one first drainage tray (11) in said second tubular duct (103) of said at least one second drainage opening (106).
19. Drainage system (10) according to claim 18, wherein said transverse element (100) comprises at least one second slot (107) obtained at said at least one second drainage opening (106), at least a respective second drainage tray (11) being insertable in said second 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 one door (24) supported by said main support (25) at said front wall (12) to prevent entrance of outside air toward the inside of said second drainage tray (11).
20. Drainage tray (11) for a drainage system (10) according to any one of the preceding claims,
- said drainage tray (11) can be introduced 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) adapted to cover said slot (107) and provided with at least one discharge opening (14) and a rear wall (13) opposed with respect to said front wall (12) and adapted to be housed within said tubular duct (103), wherein
 - said drainage tray (11) comprises a first tray-shaped body (15) provided with said front wall (12) and open on the top and on the rear and a second tray-shaped body (16) provided with said rear wall (13) and open on the top and frontally, wherein said first tray-shaped body (15) and said second tray-shaped body (16) are adapted to be coupled to each other in one of a plurality of different relative positions along a direction (D) perpendicular with respect to said front wall (12) and to said rear wall (13) to adjust the length of said drainage tray (11) as a function of the distance (H) between said slot (107) and said drainage opening (106) measured along a plane perpendicular to the longitudinal development of said tubular duct (103).

Patentansprüche

1. Drainagesystem (10) für horizontal verschiebbare Türen und Fenster, wobei das System (10) umfasst:

- ein festes Querelement (100), das mit mindestens einer Schiene (101) versehen ist, die geeignet ist, mindestens einen Tür- oder Fensterflügel (200) zu tragen, mindestens einen Kanal (102), der sich in Bezug auf die Schiene (101) parallel erstreckt, und mindestens eine Rohrleitung (103), die sich über die gesamte Längserstreckung des Querelements (100) erstreckt und eine äußere Seitenwand (104) und eine obere Wand (105) aufweist, die den Boden des Kanals (102) definieren, wobei die obere Wand (105) von mindestens einer Drainageöffnung (106) und die äußere Seitenwand (104) von mindestens einem Schlitz (107) durchquert wird,
- eine Drainagewanne (11), die durch den Schlitz (107) in die Rohrleitung (103) eingeführt werden kann und geeignet ist, sich unter der Drainageöffnung (106) zu erstrecken, wobei die Drainagewanne (11) eine Vorderwand (12), die geeignet ist, den Schlitz (107) abzudecken und mit mindestens einer Auslassöffnung (14) und einer Rückwand (13) versehen ist, die in Bezug auf die Vorderwand (12) gegenüberliegt und geeignet ist, in der Rohrleitung (103) untergebracht zu werden,

dadurch gekennzeichnet, dass

- die Drainagewanne (11) einen ersten wannenförmigen Körper (15), der mit der Vorderwand (12) versehen und an der Oberseite und an der Rückseite offen ist, und einen zweiten wannenförmigen Körper (16), der mit der Rückwand (13) versehen und an der Oberseite und an der Vorderseite offen ist, umfasst, wobei der erste wannenförmige Körper (15) und der zweite wannenförmige Körper (16) geeignet sind, in einer von mehreren verschiedenen relativen Positionen entlang einer Richtung (D) senkrecht zu der Vorderwand (12) und der Rückwand (13) miteinander gekuppelt zu werden, um die Länge der Drainagewanne (11) als Funktion des Abstands (H) zwischen dem Schlitz (107) und der Drainageöffnung (106), gemessen entlang einer Ebene senkrecht zu der Längserstreckung der Rohrleitung (103), einzustellen.

2. Drainagesystem (10) nach Anspruch 1, **dadurch gekennzeichnet, dass** entweder der erste wannenförmige Körper (15) oder der zweite wannenförmige Körper (16) eine Vielzahl von Kupplungssitzen (17) umfasst, die nacheinander entlang der Richtung (D) angeordnet sind und die Vielzahl von Positionen definieren, wobei der andere des ersten wannenförmigen Körpers (15) oder des zweiten wannenförmigen Körpers (16) mindestens ein Kupplungselement (18) umfasst, das mit mindestens einem der Kupplungssitze (17) kuppelt.

3. Drainagesystem (10) nach Anspruch 2, **dadurch gekennzeichnet, dass** entweder der erste wannenförmige Körper (15) oder der zweite wannenförmige Körper (16) eine Vielzahl von Zähnen (19) umfasst, die nacheinander und mit Abstand voneinander entlang der Richtung (D) angeordnet sind, wobei die Zwischenräume zwischen den Zähnen (19) die Vielzahl von Kupplungssitzen (17) definieren, wobei der andere des ersten wannenförmigen Körpers (15) oder des zweiten wannenförmigen Körpers (16) mindestens einen entsprechenden Zahn umfasst, der im Wesentlichen komplementär zu einem der Zwischenräume ist und mindestens ein Kupplungselement (18) definiert. 5
4. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der erste wannenförmige Körper (15) und der zweite wannenförmige Körper (16) geeignet sind, entlang einer Richtung (F), die im Wesentlichen senkrecht zu einer zum Boden (15a, 16a) der Drainagewanne parallelen Ebene verläuft, miteinander gekuppelt zu werden, wobei, wenn sie miteinander gekuppelt sind, das relative Gleiten entlang von Richtungen, die parallel zu dieser Ebene verlaufen, verhindert wird. 10
5. Drainagesystem (10) nach einem oder mehreren der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** der erste wannenförmige Körper (15) und der zweite wannenförmige Körper (16) entlang der Richtung (D) teleskopisch miteinander gekuppelt sind. 15
6. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** sowohl der erste wannenförmige Körper (15) als auch der zweite wannenförmige Körper (16) einen Boden (15a; 16a), der jeweils mit der Vorderwand (12) und der Rückwand (13) verbunden ist und sich entlang einer im Wesentlichen senkrecht dazu verlaufenden Ebene erstreckt, und ein Paar seitlicher Seiten (15b; 16b) umfasst, die den Boden jeweils mit der Vorderwand (12) und der Rückwand (13) verbinden. 20
7. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** mindestens einer von dem ersten wannenförmigen Körper (15) oder dem zweiten wannenförmigen Körper (16) einen Abflussschacht (20) in Richtung der Auslassöffnung (14) aufweist. 25
8. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** es mindestens ein Anschlagelement umfasst, das geeignet ist, die Drainagewanne (11) in der Rohrleitung (103) zu blockieren. 30
9. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** es mindestens eine Buchse (21) umfasst, die geeignet ist, in die Drainageöffnung (106) eingeführt zu werden. 35
10. Drainagesystem (10) nach den Ansprüchen 8 und 9, **dadurch gekennzeichnet, dass** das mindestens eine Anschlagelement von der Buchse (21) gebildet wird, wobei die Buchse geeignet ist, in die Drainagewanne (11) eingeführt zu werden und diese durch ein Hindernis in einer festen Position in Bezug auf die Rohrleitung (103) zu blockieren. 40
11. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der erste wannenförmige Körper (15) eine Kappe (23) umfasst, die von der Fläche der Vorderwand (12) gegenüber derjenigen, die dem zweiten wannenförmigen Körper (16) zugewandt ist, vorsteht und die Auslassöffnung (14) überragt. 45
12. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** der erste wannenförmige Körper (15) eine Hauptstütze (25) umfasst, die an der Vorderwand (12) ausgebildet ist und geeignet ist, mindestens eine Tür (24) um eine Drehachse (A) quer zu der Drainagewanne (11) zwischen einer ersten Position, in der die Tür (24) von der Vorderwand (12) auf der gegenüberliegenden Seite in Bezug auf die Rückwand (13) abgehoben ist, um die mindestens eine Auslassöffnung (14) mindestens teilweise freizulegen, und einer zweiten Position, in der die Tür (24) im Wesentlichen die Vorderwand (12) überlappt und die mindestens eine Auslassöffnung (14) verschließt, drehbar zu stützen, wobei die Drehung der Tür weg von der Vorderwand (12) in Richtung der Rückwand (13) verhindert wird. 50
13. Drainagesystem (10) nach einem oder mehreren der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** die Drainagewanne (11) mindestens einen Zwischenträger (26) umfasst, der an mindestens einer jeweiligen Position, die zwischen der Vorderwand (12) und der Rückwand (13) in einem von Null verschiedenen Abstand von diesen definiert ist, erhalten wird und geeignet ist, mindestens eine jeweilige Tür (24) um eine quer zur Drainagewanne (11) verlaufende Drehachse (B) zwischen einer ersten Position, in der die Tür (24) in Richtung der Vorderwand (12) von der Rückwand (13) weg angehoben ist, und einer zweiten Position, in der die Tür (24) im Wesentlichen parallel zu der Vorderwand (12) ist, drehbar zu stützen, wodurch eine Trennwand gebildet wird, die die Drainagewanne (11) in jeweilige Längsabteile unterteilt, wobei die mindestens eine Drainageöffnung (106) in das Abteil mün- 55

det, das in Bezug auf die Einführrichtung der Drainagewanne (11) in die Rohrleitung (103) nach unten von der Trennwand definiert ist.

14. Drainagesystem (10) nach Anspruch 13, **dadurch gekennzeichnet, dass** die Kupplung zwischen dem mindestens einen Zwischenträger (26) und der mindestens einen jeweiligen Tür (24) eine Drehung der letzteren weg von der Vorderwand (12) zur Rückwand (13) hin verhindert. 5
15. Drainagesystem (10) nach Anspruch 13 oder 14, **dadurch gekennzeichnet, dass** sich die Trennwand im Wesentlichen nahtlos quer zu der Drainagewanne (11) erstreckt und diese in entsprechende Längsabschnitte unterteilt. 10
16. Drainagesystem (10) nach einem oder mehreren der Ansprüche 13 bis 15, **dadurch gekennzeichnet, dass** die Drainagewanne (11) eine Vielzahl von Zwischenträgern (26) umfasst, die an einer Vielzahl von jeweiligen Positionen erhalten werden, die zwischen der Vorderwand (12) und der Rückwand (13) in einem von Null verschiedenen Abstand von denselben definiert sind, wobei die Vielzahl der Zwischenträger (26) nacheinander und voneinander beabstandet entlang der Längserstreckung der Drainagewanne (11) angeordnet sind. 20
17. Drainagesystem (10) nach einem oder mehreren der Ansprüche 13 bis 16, wobei der Kanal (102) mindestens zwei Längsabschnitte umfasst, von denen der erste mit der Umgebung (AI) innerhalb des Raums in Verbindung steht und ein zweiter Abschnitt mit der Umgebung (AE) außerhalb des Raums in Verbindung steht, der durch mindestens ein Blatt (200) geschlossen ist, wobei der erste Abschnitt und der zweite Abschnitt durch mindestens einen Dichtungsdübel (300) voneinander isoliert sind, **dadurch gekennzeichnet, dass** der erste Abschnitt mindestens eine erste Drainageöffnung (106) umfasst, in deren Entsprechung das Querelement (100) mindestens einen ersten Schlitz (107) aufweist, wobei mindestens eine entsprechende erste Drainagewanne (11) durch den ersten Schlitz (107) in die Rohrleitung (103) eingeführt werden kann, um sich unter der ersten Drainageöffnung (106) zu erstrecken, wobei die erste Drainagewanne (11) mit mindestens einer Tür (24) versehen ist, die von mindestens einem Zwischenträger (26) getragen wird, wobei der mindestens eine Zwischenträger (26) in einer jeweiligen Position ausgebildet ist, die zwischen der Vorderwand (12) und der Rückwand (13) in einem Abstand, der nicht Null ist, und aufwärts in Bezug auf die Einführrichtung der mindestens einen Drainagewanne (11) in die Rohrleitung (103) der mindestens einen ersten Drainageöffnung (106) definiert ist, um den Luftdurchgang aus dem Abteil zu verhindern, das zwischen 30

den der Vorderwand (12) und der Trennwand definiert ist, die durch die mindestens eine Tür (24) zu dem Abteil definiert ist, das zwischen der Trennwand und der Rückwand (13) definiert ist, und worin die mindestens eine erste Drainageöffnung (106) herauskommt.

18. Drainagesystem (10) nach Anspruch 17, **dadurch gekennzeichnet, dass** der zweite Abschnitt des Kanals mindestens eine zweite Drainageöffnung (106) umfasst, wobei die mindestens eine Tür (24) der mindestens einen ersten Drainagewanne (11) nach unten in Bezug auf die Einführrichtung der mindestens einen ersten Drainagewanne (11) in die zweite Rohrleitung (103) der mindestens einen zweiten Drainageöffnung (106) vorgesehen ist. 25
19. Drainagesystem (10) nach Anspruch 18, wobei das Querelement (100) mindestens einen zweiten Schlitz (107) umfasst, der an der mindestens einen zweiten Drainageöffnung (106) erhalten wird, wobei mindestens eine jeweilige zweite Drainagewanne (11) durch den zweiten Schlitz (107) in die zweite Rohrleitung (103) eingeführt werden kann, um sich unter der zweiten Drainageöffnung (106) zu erstrecken, wobei die mindestens eine zweite Drainagewanne (11) mit mindestens einer Tür (24) versehen ist, die von der Hauptstütze (25) an der Vorderwand (12) gestützt wird, um den Eintritt von Außenluft in das Innere der zweiten Drainagewanne (11) zu verhindern. 30
20. Drainagewanne (11) für ein Drainagesystem (10) nach einem der vorstehenden Ansprüche, 35
 - die Drainagewanne (11) kann durch den Schlitz (107) in die Rohrleitung (103) eingeführt werden und ist geeignet, sich unter der Drainageöffnung (106) zu erstrecken, wobei die Drainagewanne (11) eine Vorderwand (12) aufweist, die geeignet ist, den Schlitz (107) abzudecken und mit mindestens einer Auslassöffnung (14) und einer Rückwand (13) versehen ist, die in Bezug auf die Vorderwand (12) gegenüberliegt und geeignet ist, innerhalb der Rohrleitung (103) untergebracht zu werden, wobei
 - die Drainagewanne (11) einen ersten wannenförmigen Körper (15), der mit der Vorderwand (12) versehen und an der Oberseite und an der Rückseite offen ist, und einen zweiten wannenförmigen Körper (16), der mit der Rückwand (13) versehen und an der Oberseite und an der Vorderseite offen ist, umfasst, wobei der erste wannenförmige Körper (15) und der zweite wannenförmige Körper (16) geeignet sind, in einer von mehreren verschiedenen relativen Positionen entlang einer Richtung (D) senkrecht zu der Vorderwand (12) und der Rückwand (13) miteinander 40

der gekuppelt zu werden, um die Länge der Drainagewanne (11) als Funktion des Abstands (H) zwischen dem Schlitz (107) und der Drainageöffnung (106), gemessen entlang einer Ebene senkrecht zu der Längserstreckung der Rohrleitung (103), einzustellen.

Revendications

1. Système de drainage (10) pour portes ou fenêtres à coulissement horizontal, dans lequel ledit système (10) comprend:

- un élément transversal fixe (100) muni d'au moins un rail (101) conçu pour porter au moins un battant de porte ou de fenêtre (200), au moins un canal (102) s'étendant parallèlement audit rail (101) et au moins un conduit tubulaire (103) s'étendant tout le long de l'extension longitudinale dudit élément transversal (100) et ayant une paroi latérale externe (104) et une paroi supérieure (105) définissant le fond dudit canal (102), dans lequel ladite paroi supérieure (105) est traversée par au moins une ouverture de drainage (106) et ladite paroi latérale externe (104) est traversée par au moins une fente (107),
- un bac de drainage (11) qui peut être introduit dans ledit conduit tubulaire (103) à travers ladite fente (107) et adapté pour s'étendre sous ladite ouverture de drainage (106), dans lequel ledit bac de drainage (11) possède une paroi avant (12) conçue pour recouvrir ladite fente (107) et munie d'au moins une ouverture d'évacuation (14) et une paroi arrière (13) opposée par rapport à ladite paroi avant (12) et conçue pour être logée au sein dudit conduit tubulaire (103),

caractérisé en ce que

- ledit bac de drainage (11) comprend un premier corps en forme de bac (15) muni de ladite paroi avant (12) et ouvert sur le dessus et sur l'arrière et un second corps en forme de bac (16) muni de ladite paroi arrière (13) et ouvert sur le dessus et de manière frontale, dans lequel ledit premier corps en forme de bac (15) et ledit second corps en forme de bac (16) sont conçus pour être couplés l'un à l'autre dans l'une d'une pluralité de différentes positions relatives le long d'une direction (D) perpendiculaire par rapport à ladite paroi avant (12) et à ladite paroi arrière (13) pour ajuster la longueur dudit bac de drainage (11) en fonction de la distance (H) entre ladite fente (107) et ladite ouverture de drainage (106) mesurée le long d'un plan perpendiculaire au développement longitudinal dudit conduit tubulaire

(103).

2. Système de drainage (10) selon la revendication 1, **caractérisé en ce que** l'un dudit premier corps en forme de bac (15) et dudit second corps en forme de bac (16) comprend une pluralité de sièges de couplage (17) qui sont agencés en succession les uns après les autres le long de ladite direction (D) et qui définissent ladite pluralité de positions, l'autre dudit premier corps en forme de bac (15) et dudit second corps en forme de bac (16) comprenant au moins un élément de couplage (18) se couplant avec au moins l'un desdits sièges de couplage (17).
3. Système de drainage (10) selon la revendication 2, **caractérisé en ce que** l'un dudit premier corps en forme de bac (15) et dudit second corps en forme de bac (16) comprend une pluralité de dents (19) qui sont agencées en succession les unes après les autres et espacées les unes des autres le long de ladite direction (D), dans lequel les espaces entre lesdites dents (19) définissent ladite pluralité de sièges de couplage (17), l'autre dudit premier corps en forme de bac (15) et dudit second corps en forme de bac (16) comprenant au moins une dent correspondante sensiblement complémentaire à l'un desdits espaces et définissant au moins un élément de couplage (18).
4. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit premier corps en forme de bac (15) et ledit second corps en forme de bac (16) sont conçus pour être couplés l'un à l'autre le long d'une direction (F) sensiblement perpendiculaire par rapport à un plan parallèle au fond (15a, 16a) dudit bac de drainage, lorsqu'ils sont couplés l'un à l'autre, le coulissement relatif le long de directions parallèles par rapport audit plan étant empêché.
5. Système de drainage (10) selon l'une ou plusieurs des revendications 1 à 3, **caractérisé en ce que** ledit premier corps en forme de bac (15) et ledit second corps en forme de bac (16) sont couplés de manière télescopique l'un à l'autre le long de ladite direction (D).
6. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** chacun dudit premier corps en forme de bac (15) et dudit second corps en forme de bac (16) comprend un fond (15a; 16a) respectivement relié à ladite paroi avant (12) et à ladite paroi arrière (13) s'étendant le long d'un plan sensiblement perpendiculaire à celles-ci et une paire de côtés latéraux (15b; 16b) joignant ledit fond respectivement avec ladite paroi avant (12) et ladite paroi arrière (13).

7. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'**au moins l'un dudit premier corps en forme de bac (15) et dudit second corps en forme de bac (16) comprend une goulotte de drain (20) allant vers ladite ouverture d'évacuation (14). 5
8. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'**il comprend au moins un élément de butée conçu pour bloquer ledit bac de drainage (11) dans ledit conduit tubulaire (103). 10
9. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'**il comprend au moins une douille (21) conçue pour être insérée dans ladite ouverture de drainage (106). 15
10. Système de drainage (10) selon les revendications 8 et 9, **caractérisé en ce que** ledit au moins un élément de butée est constitué par ladite douille (21), ladite douille étant conçue pour être insérée dans ledit bac de drainage (11) en bloquant celui-ci par obstacle dans une position fixe par rapport audit conduit tubulaire (103). 20 25
11. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit premier corps en forme de bac (15) comprend un capuchon (23) faisant saillie à partir de la face de ladite paroi avant (12) opposée par rapport à celle faisant face vers ledit second corps en forme de bac (16) et en surplomb de ladite ouverture d'évacuation (14). 30
12. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit premier corps en forme de bac (15) comprend un support principal (25) formé au niveau de ladite paroi avant (12) et conçu pour porter de manière rotative au moins une porte (24) autour d'un axe de rotation (A) transversal audit bac de drainage (11) entre une première position, dans laquelle ladite porte (24) est soulevée de ladite paroi avant (12) sur le côté opposé par rapport à ladite paroi arrière (13) pour au moins partiellement découvrir ladite au moins une ouverture d'évacuation (14), et une seconde position, dans laquelle ladite porte (24) est sensiblement superposée à ladite paroi avant (12) fermant ladite au moins une ouverture d'évacuation (14), la rotation de ladite porte en éloignement par rapport à ladite paroi avant (12) vers ladite paroi arrière (13) étant empêchée. 40 45 50
13. Système de drainage (10) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit bac de drainage (11) comprend au moins un support intermédiaire (26) obtenu à au moins une position respective définie entre ladite paroi avant (12) et ladite paroi arrière (13) à une distance différente de zéro par rapport à celles-ci et conçu pour porter de manière rotative au moins une porte respective (24) autour d'un axe de rotation (B) transversal audit bac de drainage (11) entre une première position, dans laquelle ladite porte (24) est soulevée vers ladite paroi avant (12) en éloignement par rapport à ladite paroi arrière (13), et une seconde position, dans laquelle ladite porte (24) est sensiblement parallèle à ladite paroi avant (12) formant ainsi un septum divisant ledit bac de drainage (11) en compartiments longitudinaux respectifs, dans lequel ladite au moins une ouverture de drainage (106) s'ouvre dans le compartiment défini vers le bas, par rapport à la direction d'insertion dudit bac de drainage (11) dans ledit conduit tubulaire (103), dudit septum. 55
14. Système de drainage (10) selon la revendication 13, **caractérisé en ce que** le couplage entre ledit au moins un support intermédiaire (26) et ladite au moins une porte respective (24) empêche une rotation de cette dernière en éloignement par rapport à ladite paroi avant (12) vers ladite paroi arrière (13).
15. Système de drainage (10) selon la revendication 13 ou 14, **caractérisé en ce que** ledit septum s'étend sensiblement sans soudure de manière transversale audit bac de drainage (11) en divisant celui-ci en compartiments longitudinaux respectifs.
16. Système de drainage (10) selon l'une ou plusieurs des revendications 13 à 15, **caractérisé en ce que** ledit bac de drainage (11) comprend une pluralité desdits supports intermédiaires (26) obtenus à une pluralité de positions respectives, qui sont définies entre ladite paroi avant (12) et ladite paroi arrière (13) à une distance différente de zéro par rapport à celles-ci, dans lequel ladite pluralité desdits supports intermédiaires (26) sont agencés en succession les uns après les autres et espacés les uns des autres le long de l'extension longitudinale dudit bac de drainage (11).
17. Système de drainage (10) selon l'une ou plusieurs des revendications 13 à 16, dans lequel ledit canal (102) comprend au moins deux parties longitudinales, dont la première communique avec l'environnement (AI) à l'intérieur dudit espace et une seconde partie communique avec l'environnement (AE) à l'extérieur dudit espace fermé par au moins un battant (200), dans lequel ladite première partie et ladite seconde partie sont isolées l'une de l'autre par au moins une cheville d'étanchéité (300), **caractérisé en ce que** ladite première partie comprend au moins une première ouverture de drainage (106), en cor-

responsance de laquelle ledit élément transversal (100) possède au moins une dite première fente (107), au moins un premier bac de drainage (11) respectif qui est apte à être inséré dans ledit conduit tubulaire (103) à travers ladite première fente (107) pour s'étendre sous ladite première ouverture de drainage (106), dans lequel ledit premier bac de drainage (11) est muni d'au moins une dite porte (24) portée par au moins un support intermédiaire (26), dans lequel ledit au moins un support intermédiaire (26) est formé à une position respective définie entre ladite paroi avant (12) et ladite paroi arrière (13) à une distance non nulle et vers le haut, par rapport à la direction d'insertion dudit au moins un bac de drainage (11) dans ledit canal tubulaire (103), de ladite au moins une première ouverture de drainage (106) pour empêcher le passage d'air, du compartiment défini entre ladite paroi avant (12) et le septum défini par ladite au moins une porte (24), au compartiment défini entre ledit septum et ladite paroi arrière (13) et dans lequel ladite au moins une première ouverture de drainage (106) débouche.

18. Système de drainage (10) selon la revendication 17, **caractérisé en ce que** ladite seconde partie dudit canal comprend au moins une seconde ouverture de drainage (106), dans lequel ladite au moins une porte (24) dudit au moins un premier bac de drainage (11) est ménagée vers le bas par rapport à la direction d'introduction dudit au moins un premier bac de drainage (11) dans ledit second conduit tubulaire (103) de ladite au moins une seconde ouverture de drainage (106).

19. Système de drainage (10) selon la revendication 18, dans lequel ledit élément transversal (100) comprend au moins une seconde fente (107) obtenue au niveau de ladite au moins une seconde ouverture de drainage (106), au moins un second bac de drainage (11) respectif qui est apte à être inséré dans ledit second conduit tubulaire (103) à travers ladite seconde fente (107) pour s'étendre sous ladite seconde ouverture de drainage (106), dans lequel ledit au moins un second bac de drainage (11) est muni d'au moins une porte (24) portée par ledit support principal (25) au niveau de ladite paroi avant (12) pour empêcher l'entrée d'air extérieur vers l'intérieur dudit second bac de drainage (11).

20. Bac de drainage (11) pour un système de drainage (10) selon l'une quelconque des revendications précédentes,

- ledit bac de drainage (11) peut être introduit dans ledit conduit tubulaire (103) à travers ladite fente (107) et adapté pour s'étendre sous ladite ouverture de drainage (106), dans lequel ledit bac de drainage (11) possède une paroi avant

(12) conçue pour recouvrir ladite fente (107) et munie d'au moins une ouverture d'évacuation (14) et une paroi arrière (13) opposée par rapport à ladite paroi avant (12) et conçue pour être logée au sein dudit conduit tubulaire (103), dans lequel

- ledit bac de drainage (11) comprend un premier corps en forme de bac (15) muni de ladite paroi avant (12) et ouvert sur le dessus et sur l'arrière et un second corps en forme de bac (16) muni de ladite paroi arrière (13) et ouvert sur le dessus et de manière frontale, dans lequel ledit premier corps en forme de bac (15) et ledit second corps en forme de bac (16) sont conçus pour être couplés l'un à l'autre dans l'une d'une pluralité de différentes positions relatives le long d'une direction (D) perpendiculaire par rapport à ladite paroi avant (12) et à ladite paroi arrière (13) pour ajuster la longueur dudit bac de drainage (11) en fonction de la distance (H) entre ladite fente (107) et ladite ouverture de drainage (106) mesurée le long d'un plan perpendiculaire au développement longitudinal dudit conduit tubulaire (103).

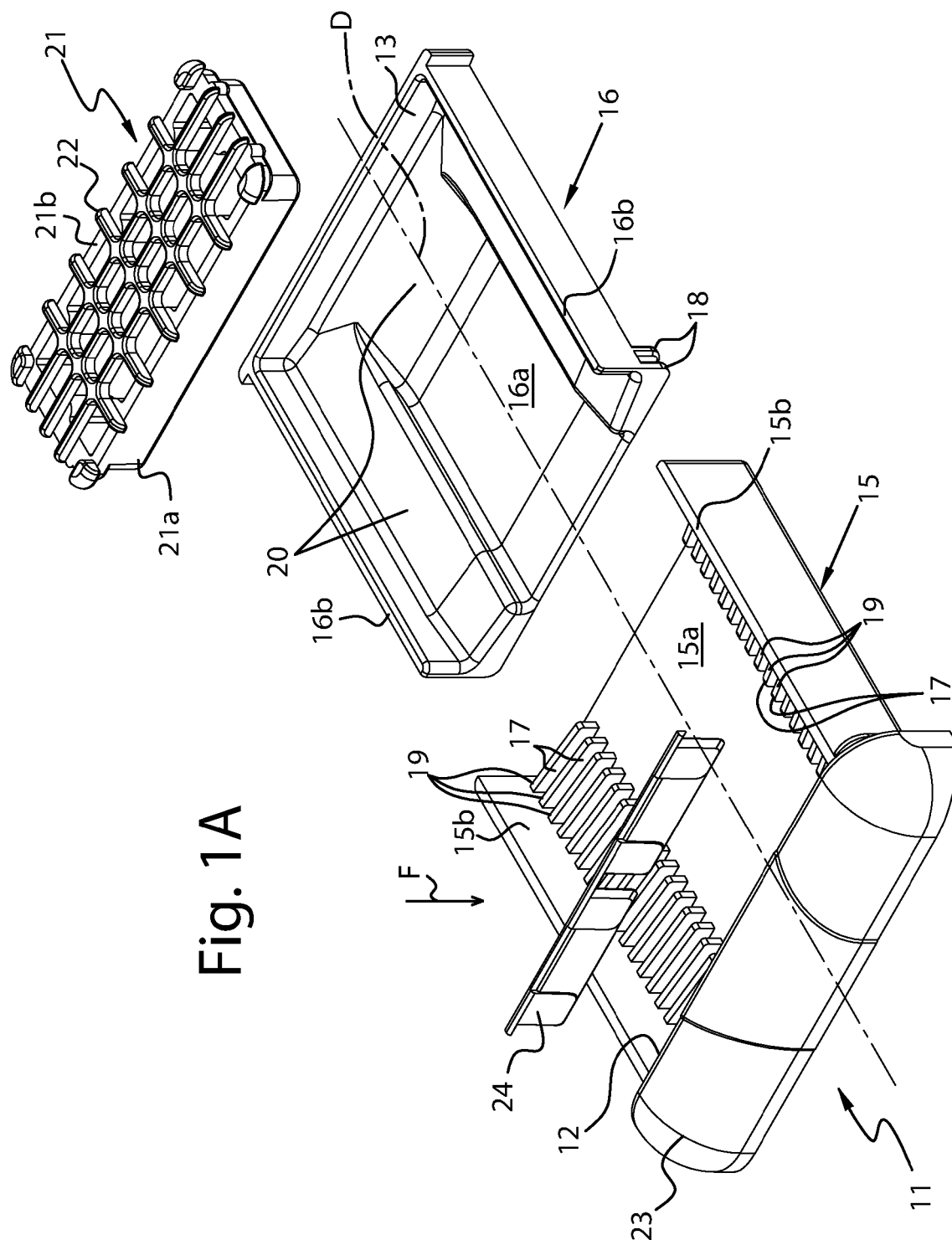


Fig. 1A

Fig. 1B

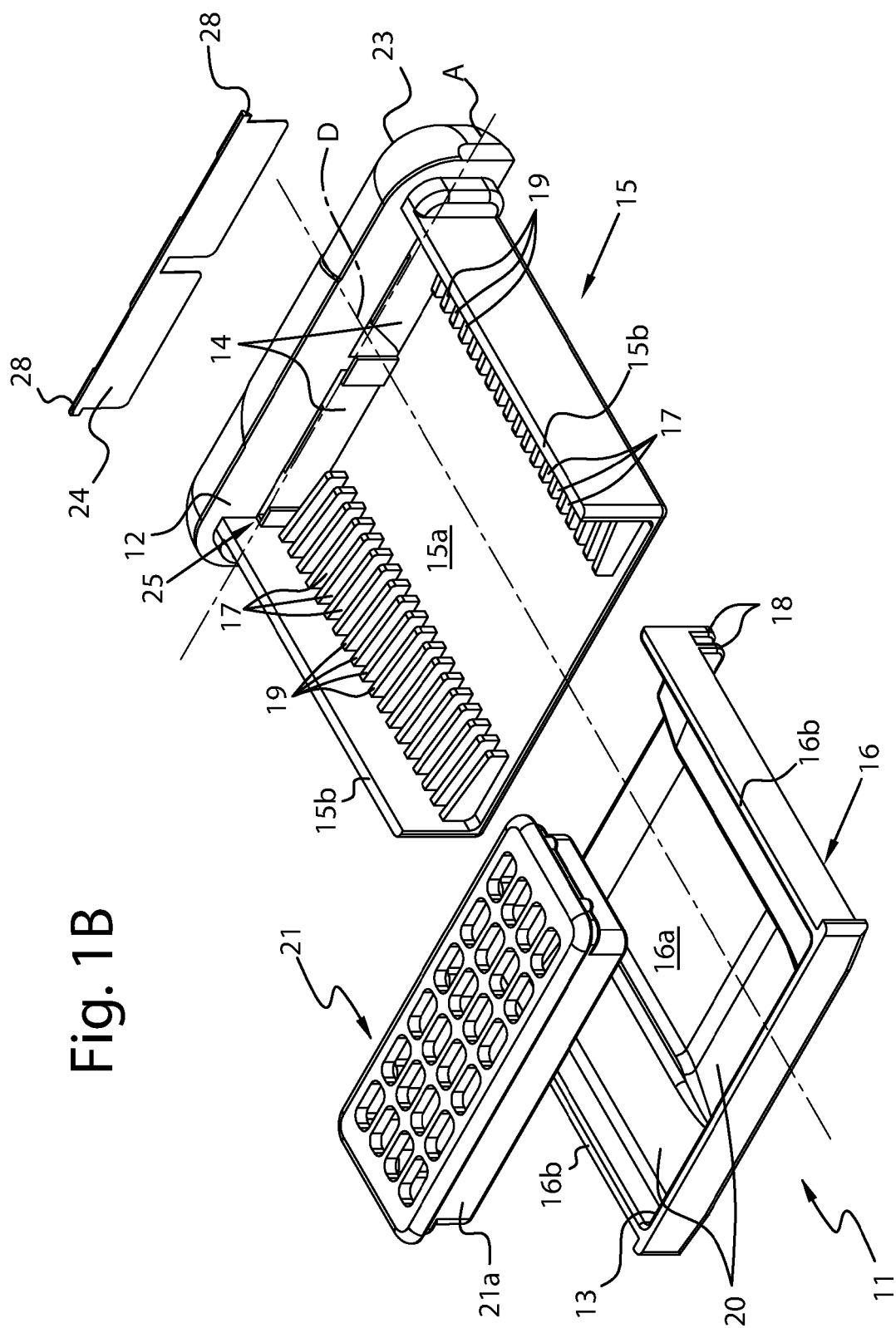
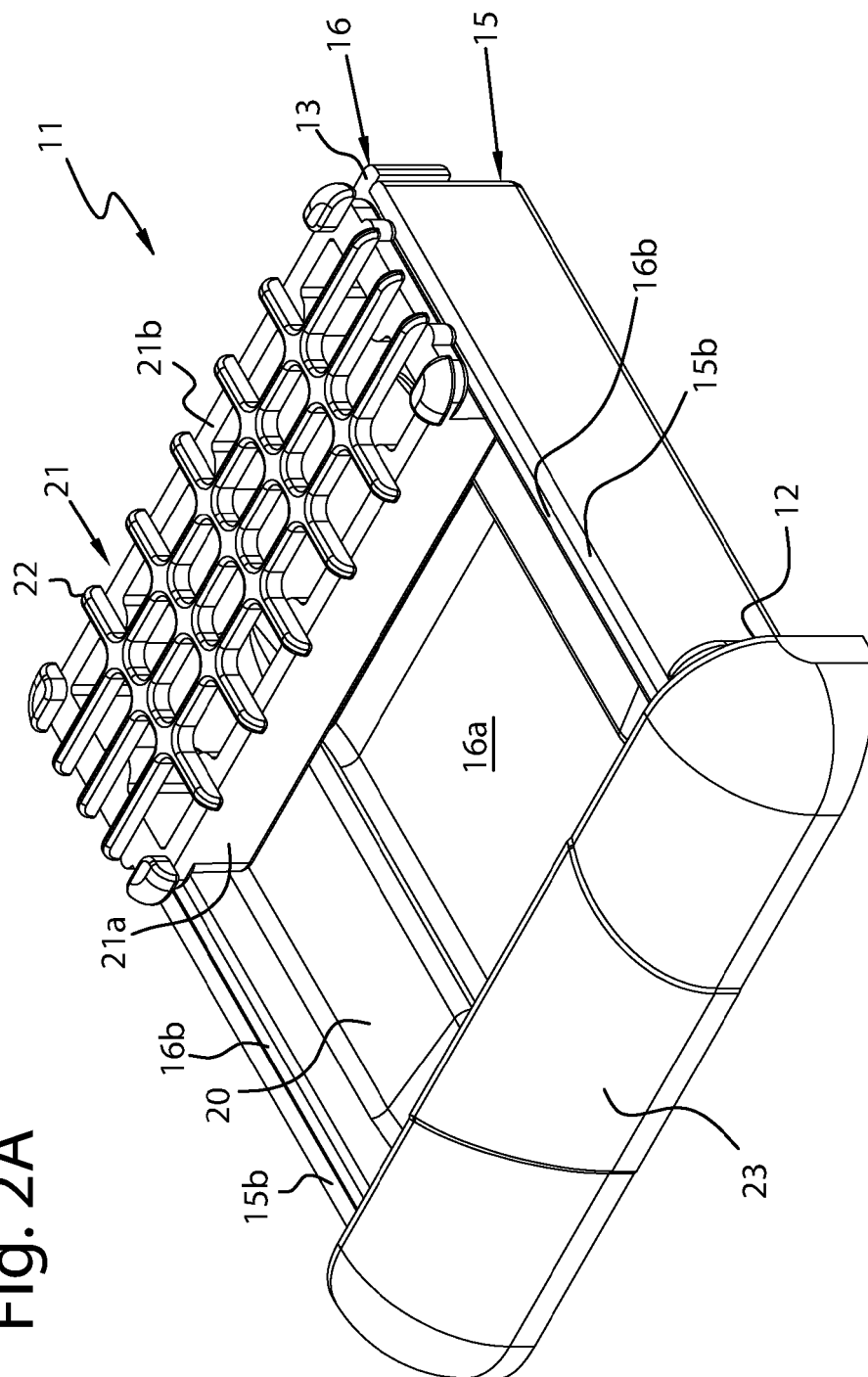


Fig. 2A



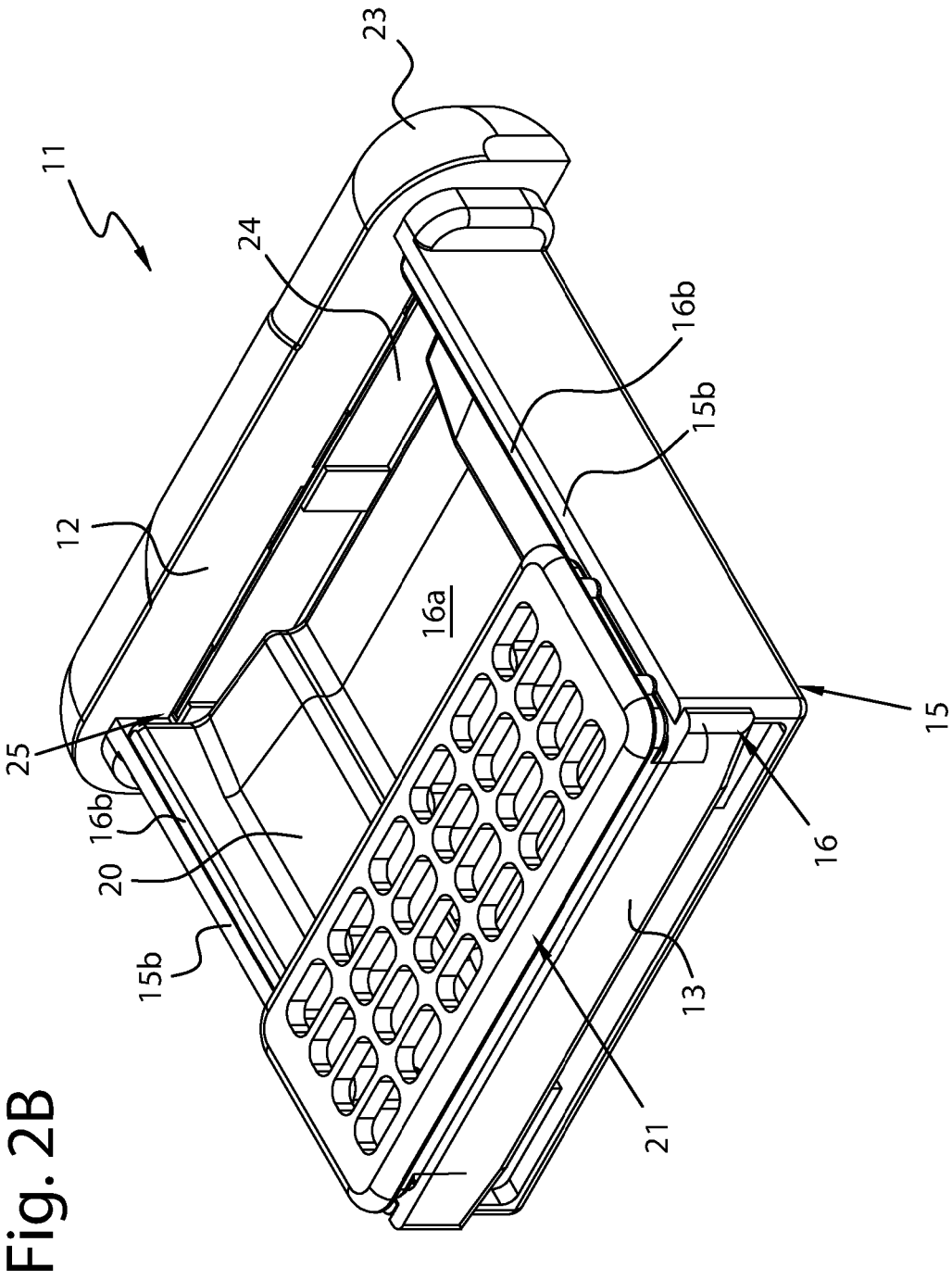


Fig. 2B

Fig. 3

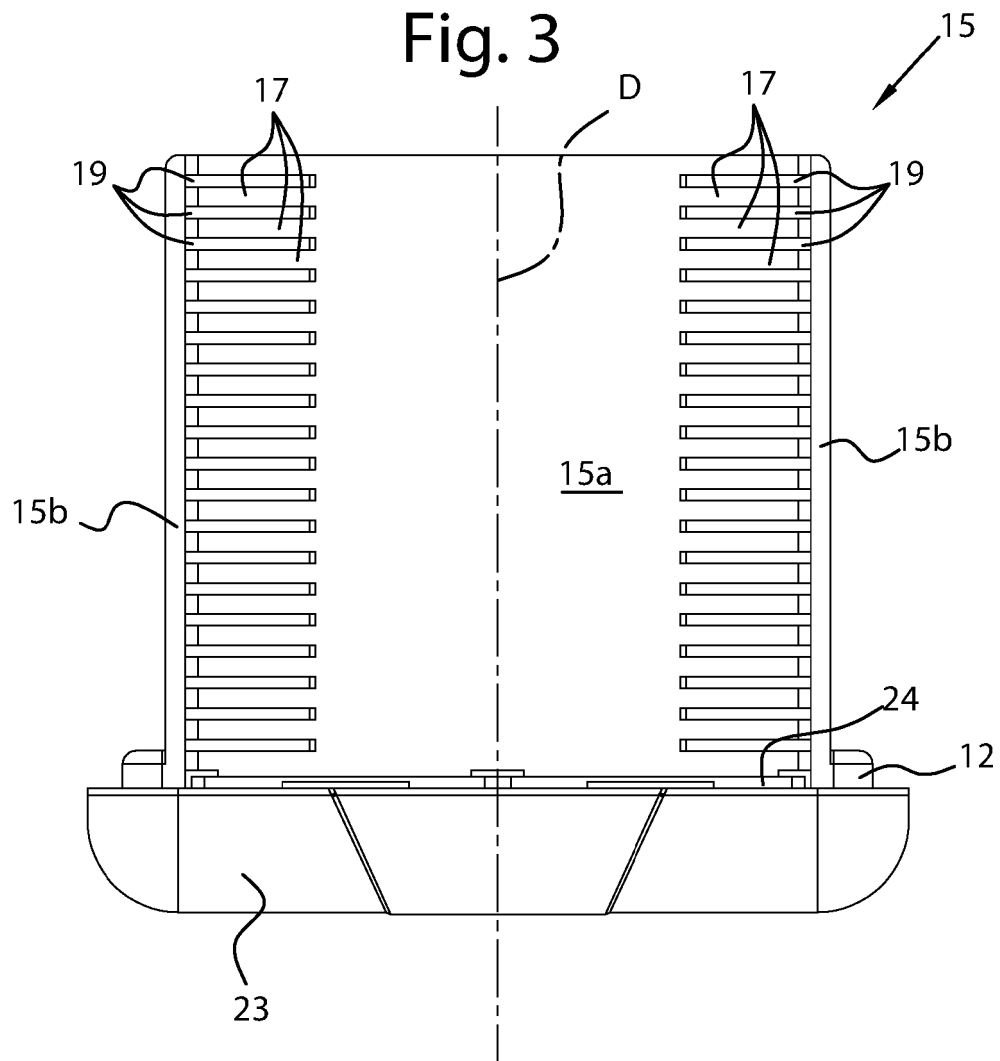


Fig. 4

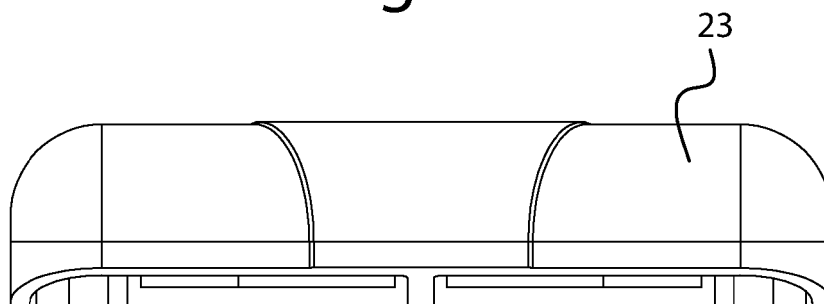


Fig. 5

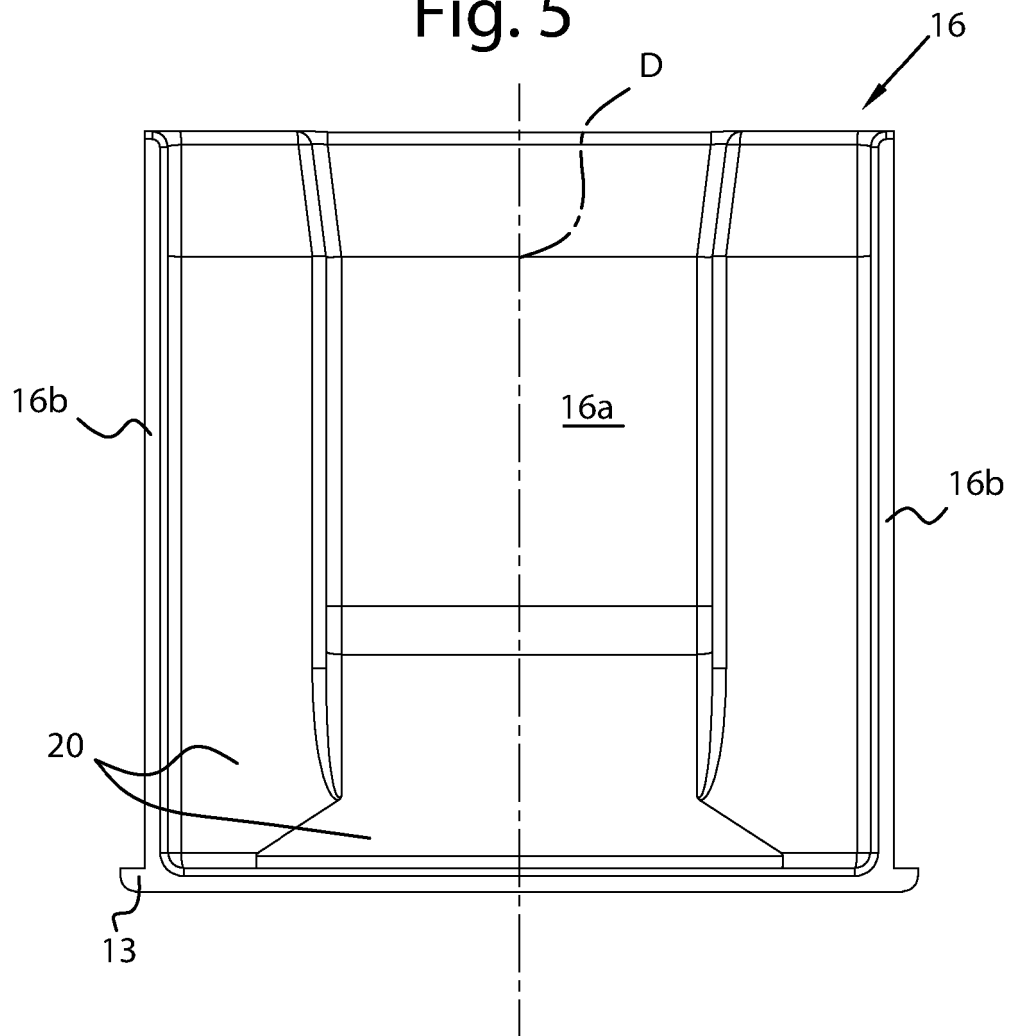
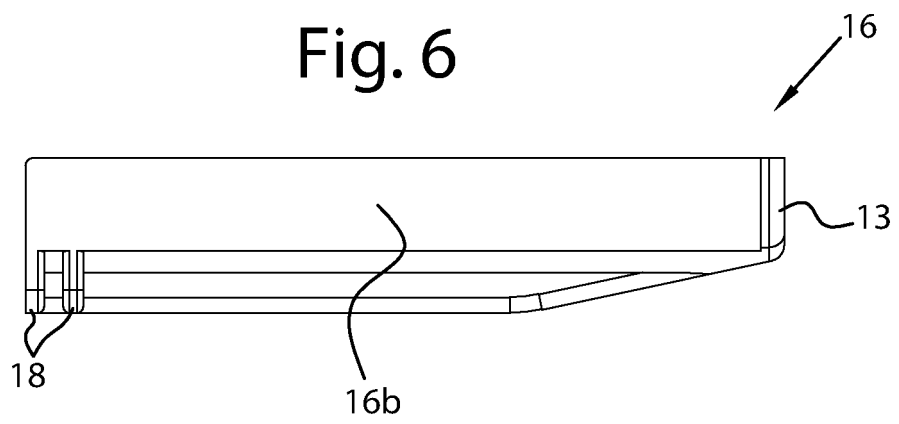


Fig. 6



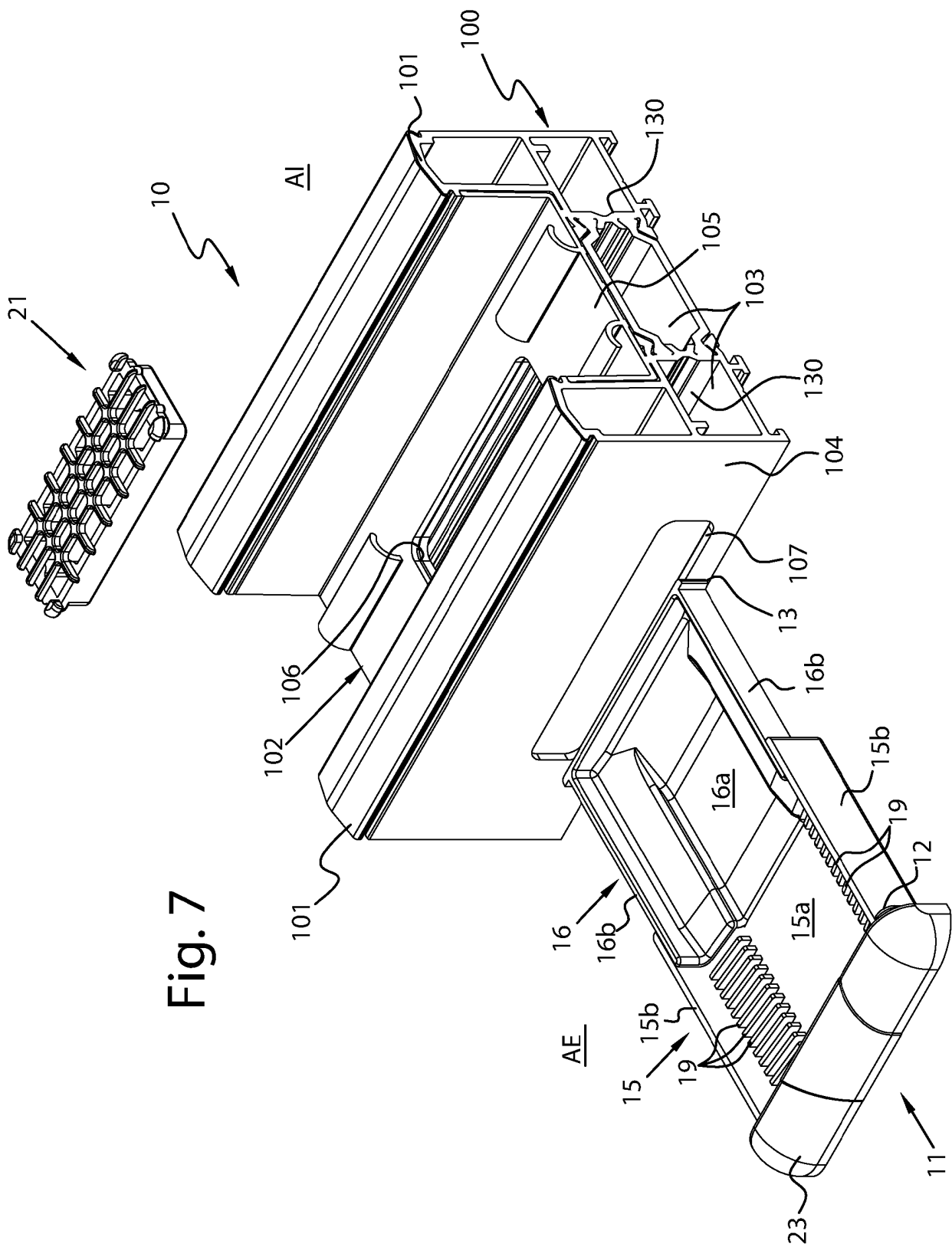
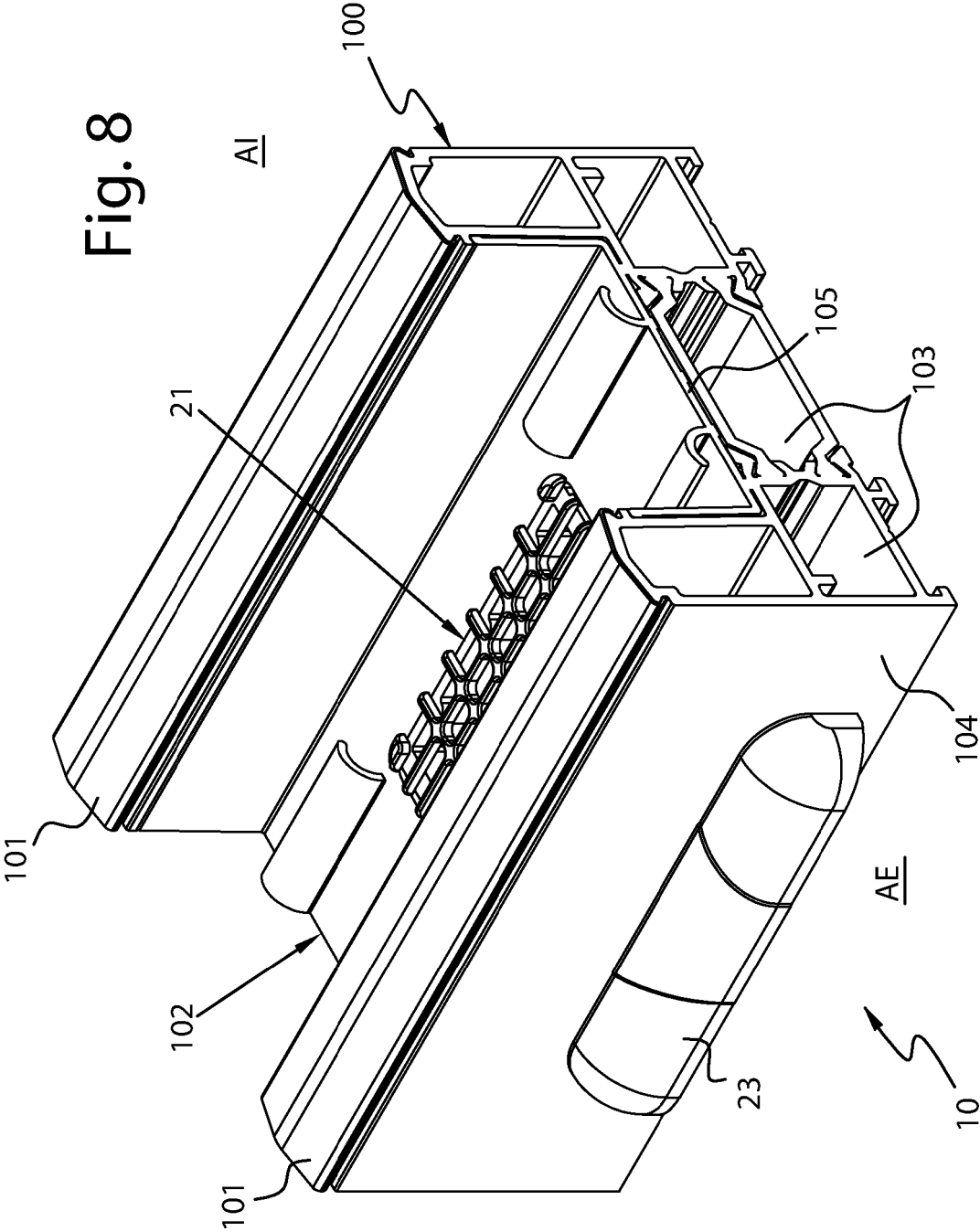
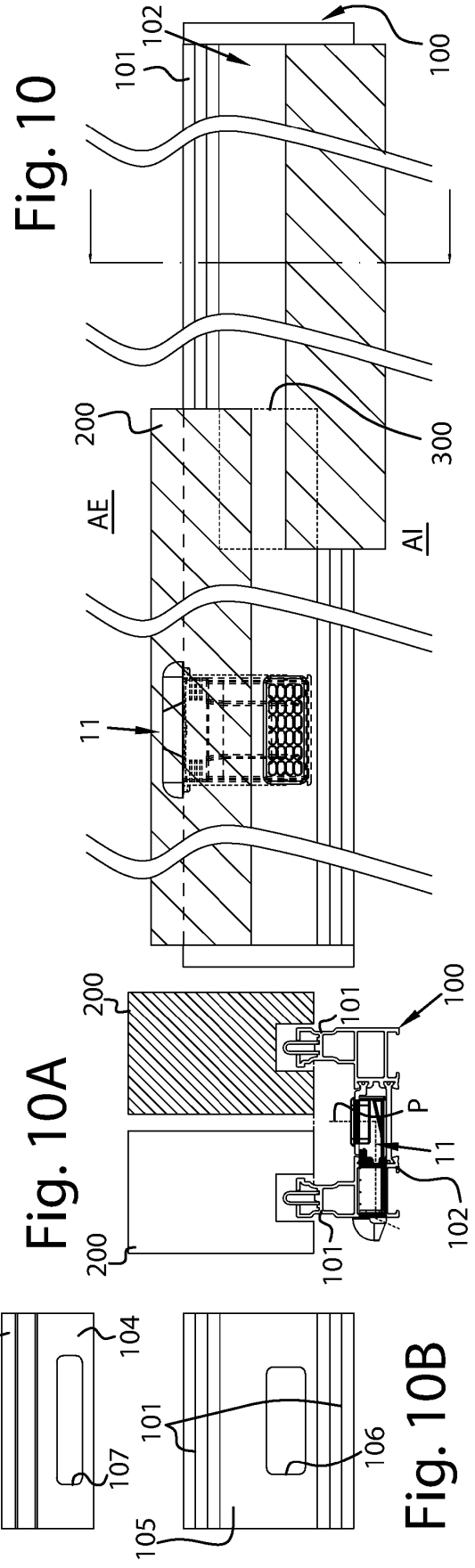
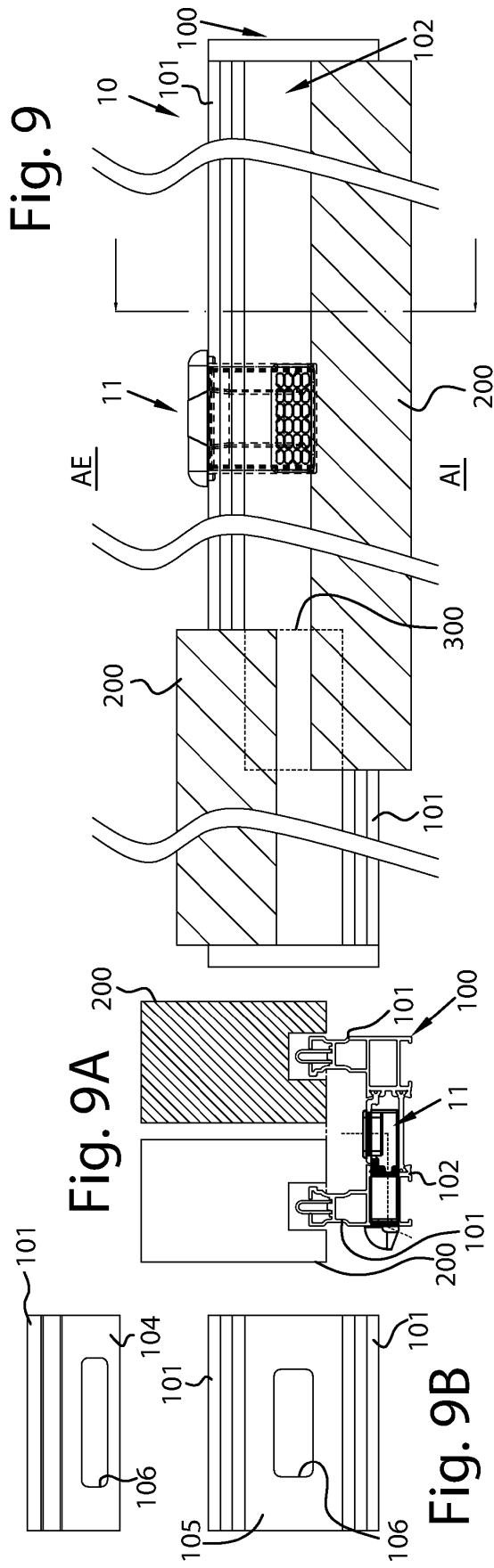


Fig. 8





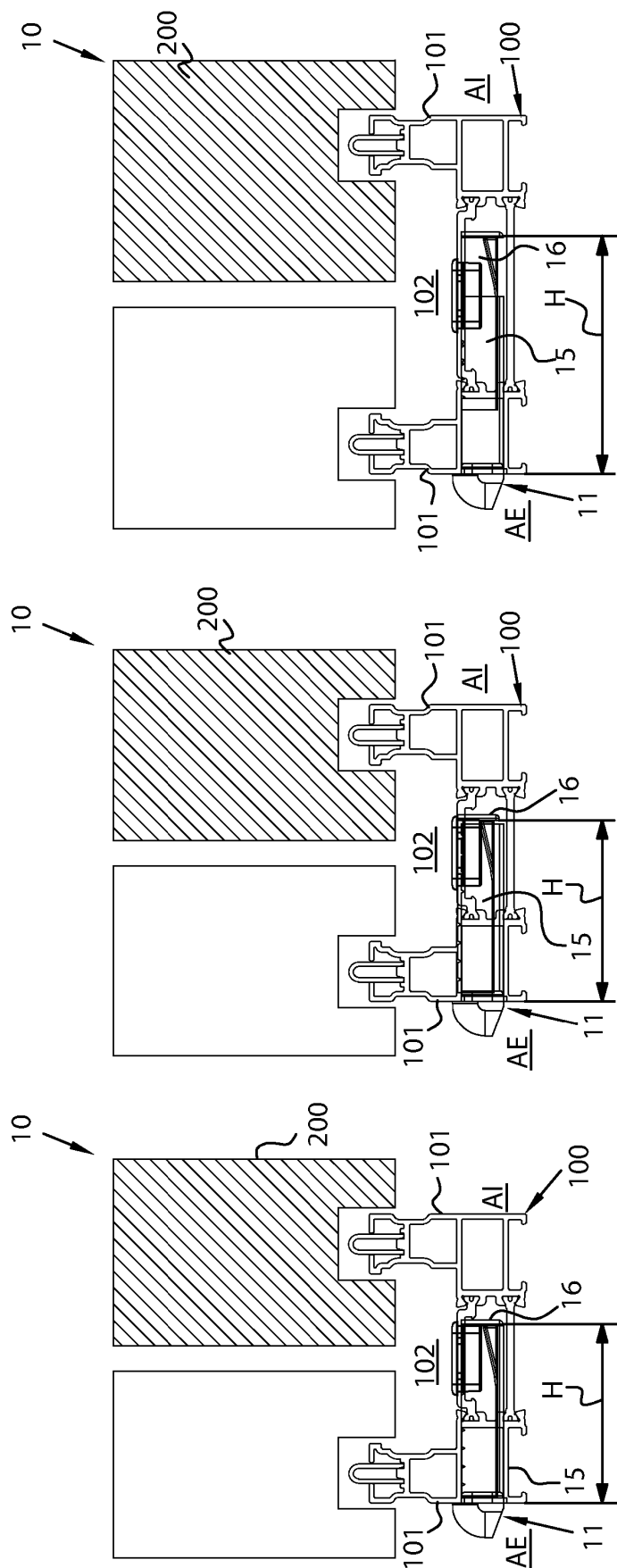


Fig. 11A

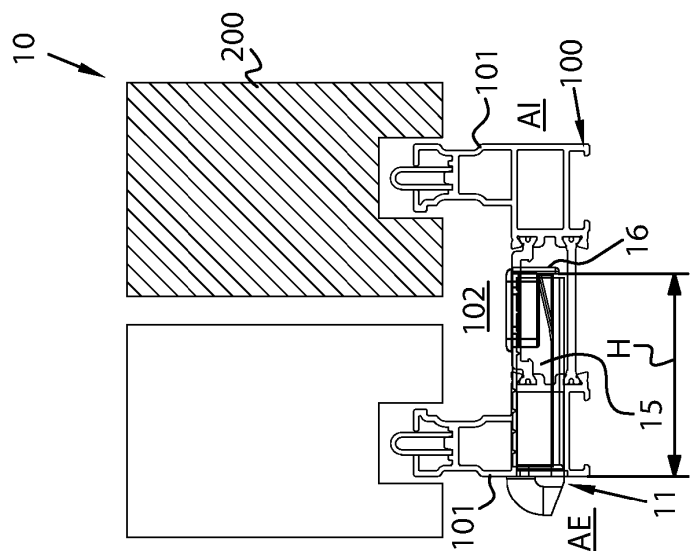


Fig. 11B

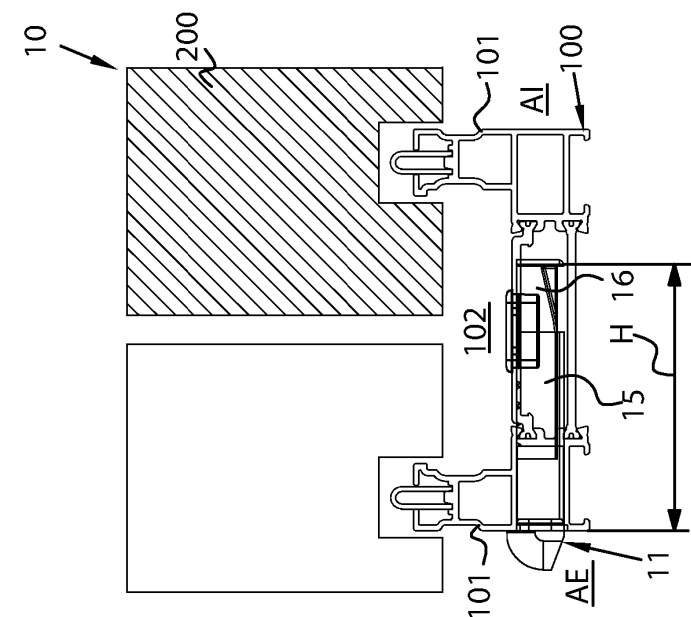
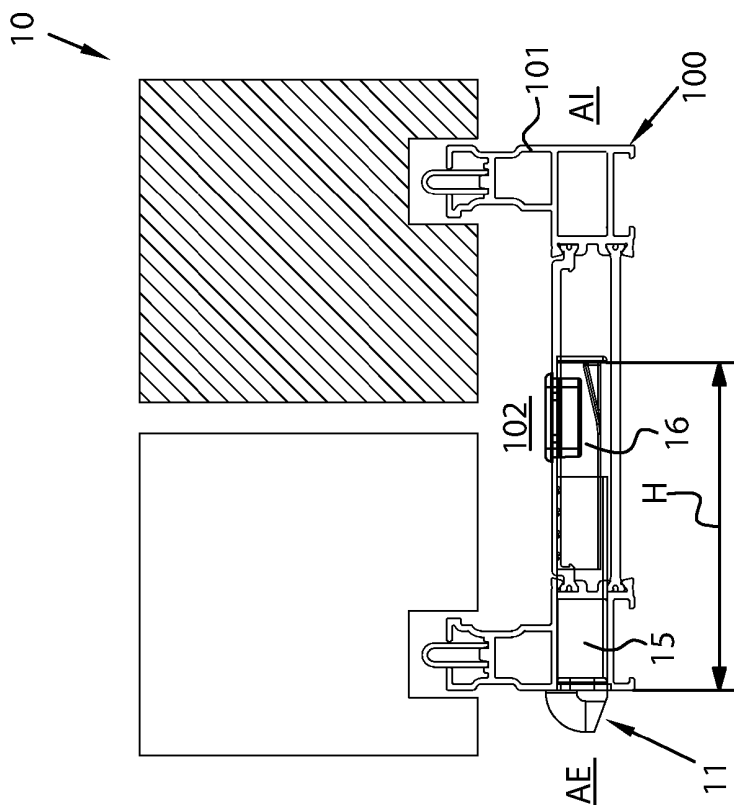
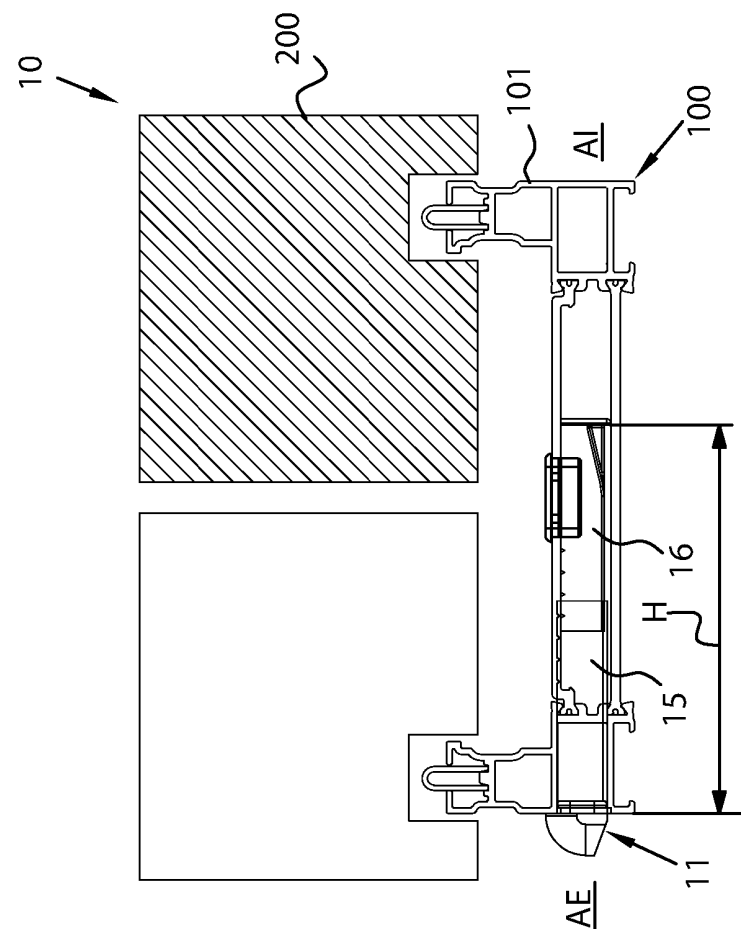


Fig. 11C



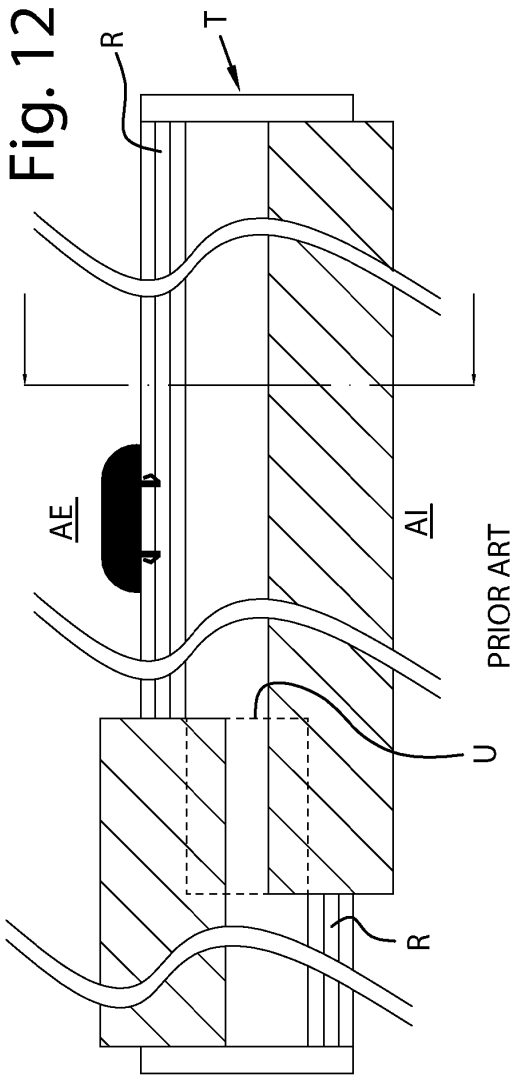


Fig. 13

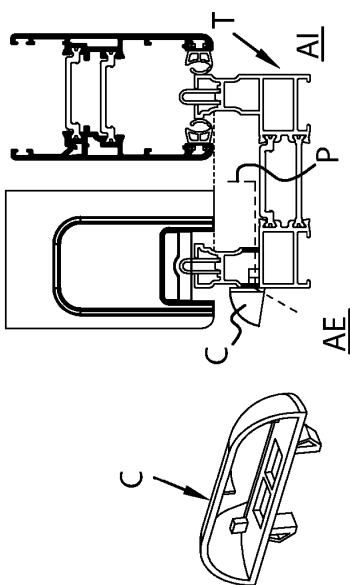
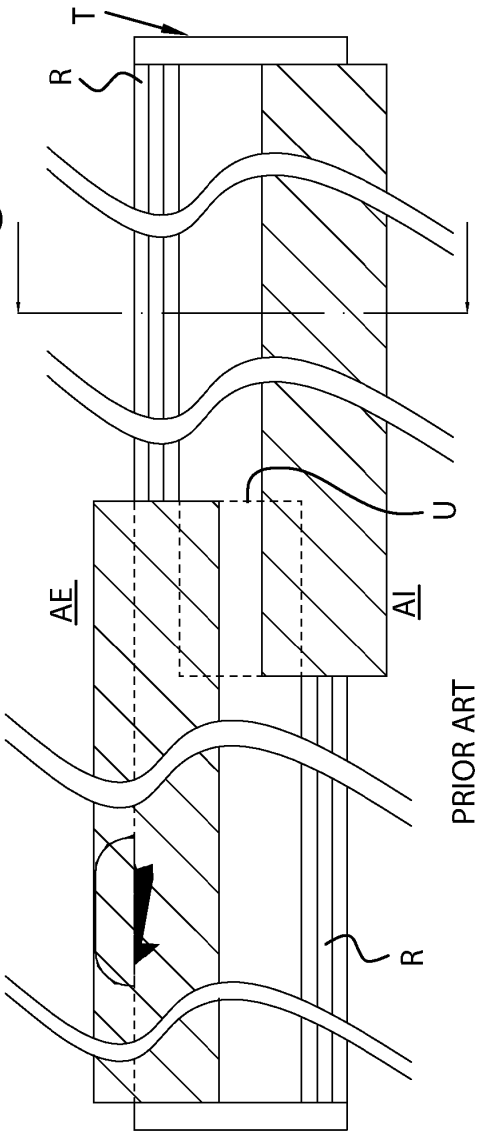


Fig. 12A

Fig. 12B

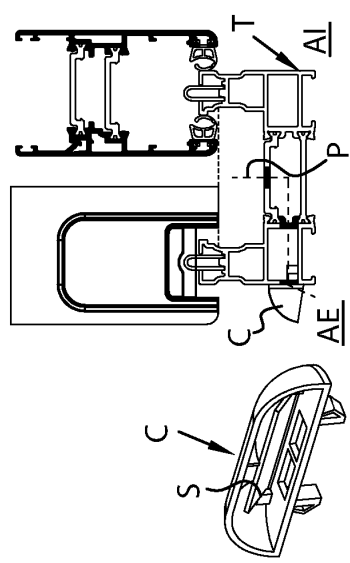
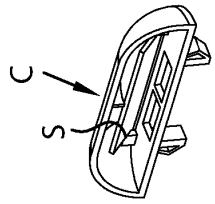
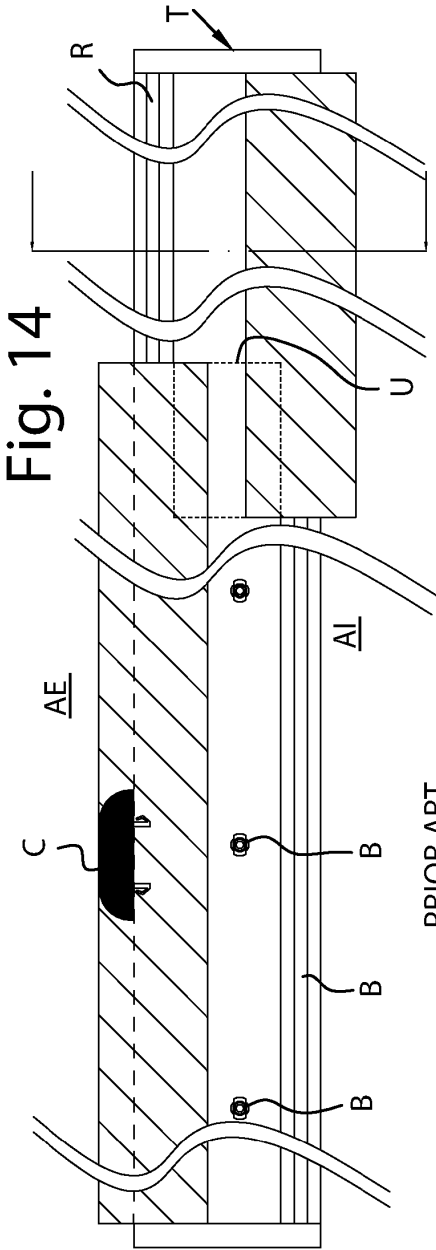


Fig. 13A

Fig. 13B





PRIOR ART

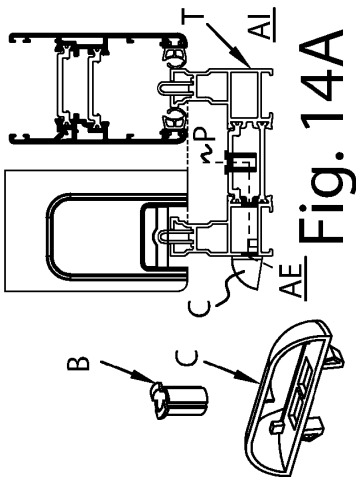
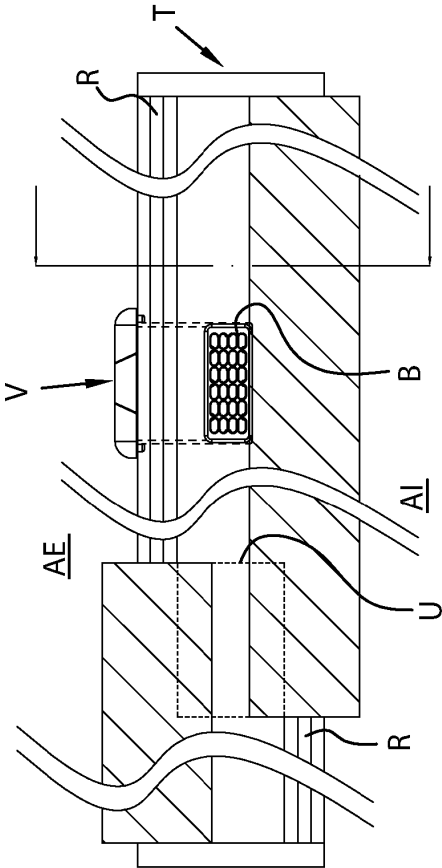


Fig. 14A

Fig. 14B

Fig. 15



PRIOR ART

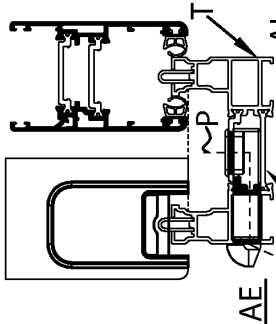


Fig. 15A

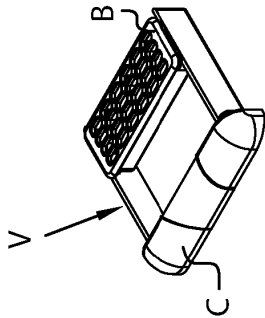


Fig. 15B

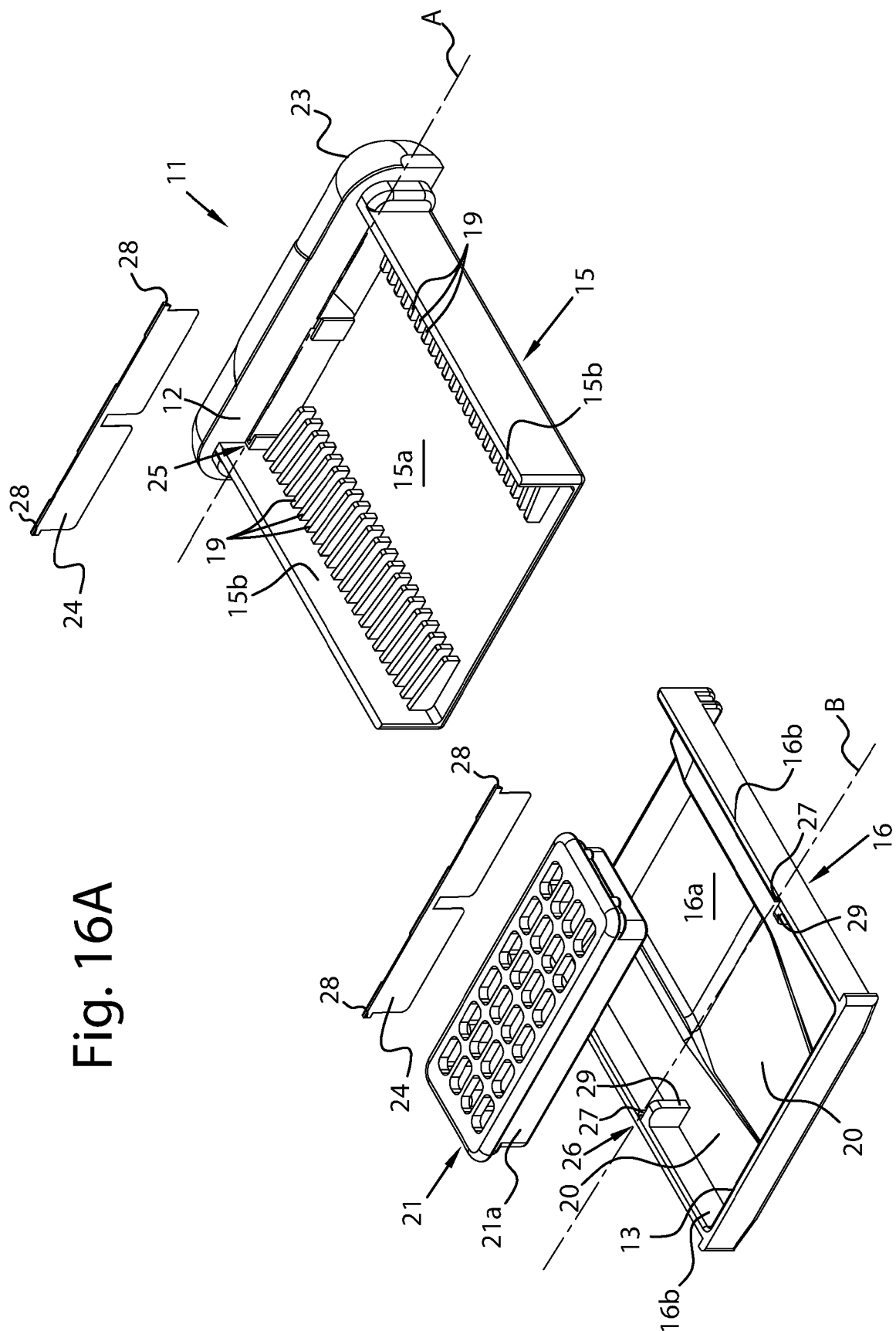
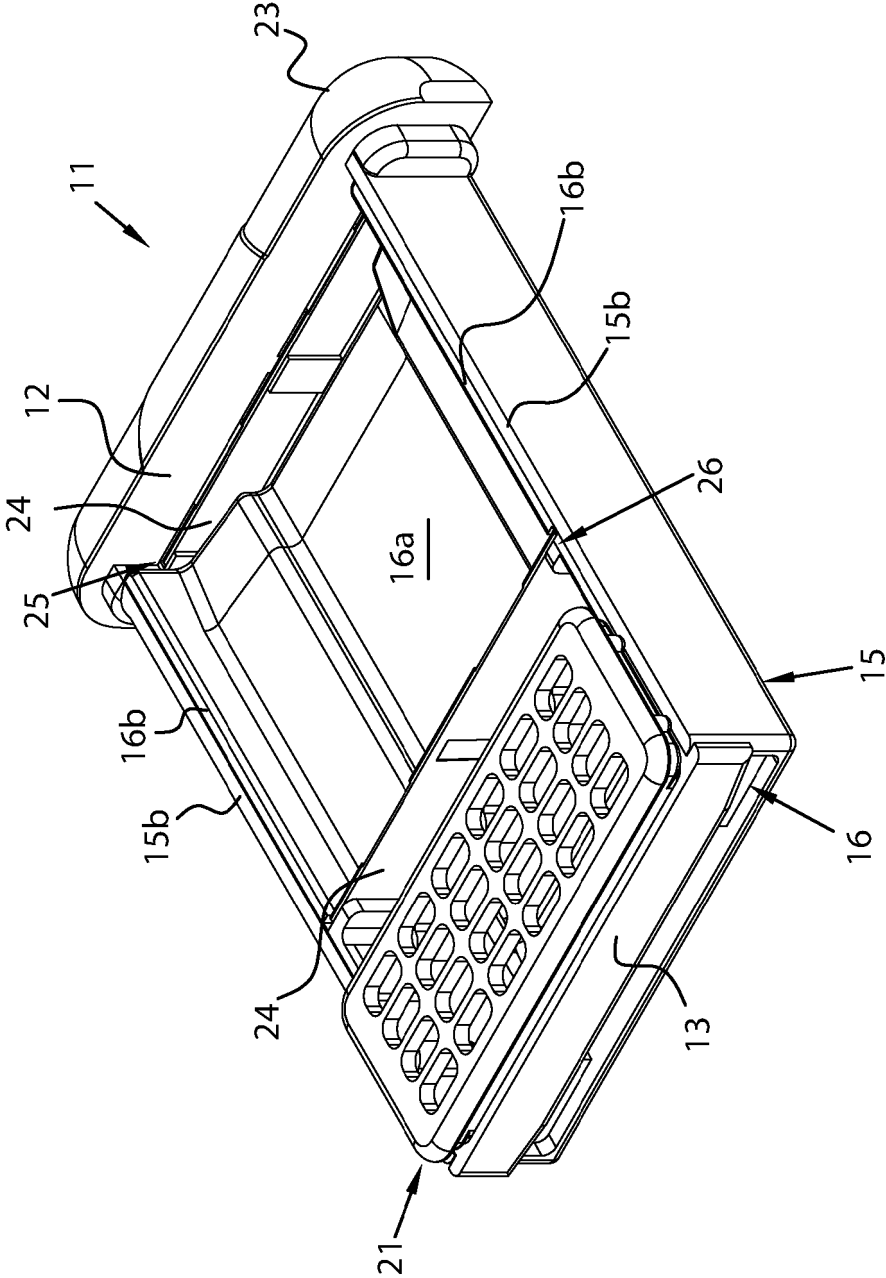


Fig. 16A

Fig. 16B



REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- US 2015159428 A1 [0003]