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(54) **WINDOW WITH A SCREENING ARRANGEMENT**

(57) The window (1) is provided with a frame (2) and a sash (3) connected to the frame (2) by means of at least one hinge connection providing a hinge axis substantially parallel with top and bottom members of the sash, so that through an opening movement of the window (1), the sash (3) is adapted to be moved between a closed position, an intermediate ventilating position and an open position, in which ventilating position the sash plane forms an angle within a limited angle range with the frame plane to provide at least one ventilating aperture (20) in the circumferential of the frame (2) and/or

sash (3). A screening arrangement is provided to cover at least one ventilating aperture (20) in the ventilating position. The screening arrangement comprises at least one screening element (21) incorporated in a member of the frame (2) and/or sash (3) and arranged so as to form a ventilating passage (22). The ventilation passage (22) is formed as a plurality of perforations (22a, 22b) in the material of the screening element (21) opening into a cavity (28) formed in the screening element and hence in turn of the frame member in which the screening element is incorporated

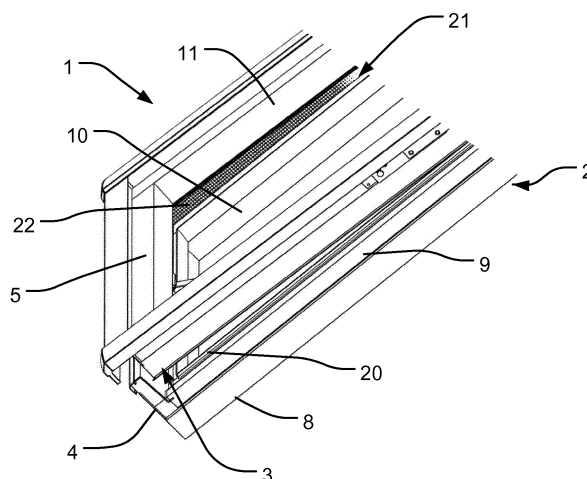


Fig. 1

Description

[0001] The present invention relates to a window comprising a frame and a sash, each having a top member, a bottom member and two side members, each side member of the frame and sash defining a longitudinal direction between the top and bottom members, and the members all together defining a frame and a sash plane, respectively, said sash being connected to the frame by means of at least one hinge connection providing a hinge axis substantially parallel with the top and bottom members, so that through an opening movement of the window, the sash can be moved from a closed position to an open position, and into an intermediate ventilating position, in which ventilating position the sash plane forms an angle within a limited angle range with the frame plane to provide at least one ventilating aperture in the circumferential of the frame and/or sash, the window further comprising a screening arrangement arranged to cover the said ventilating aperture in said ventilating position. The invention furthermore relates to a method for providing ventilation in a window.

[0002] It is generally known from prior art to provide windows with a ventilating position, in order to provide easy ventilation of a room without the need to fully open the window. In the ventilating position the windows thus have a ventilating aperture, through which not only air can flow, but also objects, such as insects, may enter. It is in generally known from prior art to block the entry of objects through the ventilating aperture by providing the windows with a screening arrangement.

[0003] Such screening arrangements are generally provided in the form of a screening curtain, netting or similar attached to either the frame or sash, or, in an activated screening position, to both the frame and sash, so that they can be manually activated by a user handling the screening arrangement after opening of the window or is automatically activated throughout the entire opening movement of the window, i.e. following the path of opening of the window so as to cover the full aperture provided in an open position of the window.

[0004] A screening arrangement of this kind is known from Applicant's application no. WO2005/005762 A1, which discloses a pivotal roof window having a screening arrangement arranged to provide screening of the top and/or bottom part of the window exclusively. The screening arrangement is moved automatically from an inactive position corresponding to the closed position of the window to an active position corresponding to the ventilating position, and from the active position to the inactive position when the window is brought from its ventilating position to its closed position. The screening arrangement is for example formed as an element hanging freely from the top and/or bottom member or as a curtain being connected to the top and bottom member of the frame and sash. Such screening arrangements are thus useful in the sense that they block out incoming objects in the top and/or bottom of the window effectively.

[0005] However, such screening arrangements must however be formed as an element hanging freely from either the frame and/or sash or being connected to both the frame and sash in order to cover at least the bottom aperture in the ventilating position, which may create an unwanted direct visible and to some degree aesthetically displeasing screening arrangement.

[0006] Other solutions disclosed in the prior art are curtains or insect nets screening off the entire aperture between the sash and frame in the ventilating as well as open position of the window, as for example disclosed in US patent no. 2311413. This document describes a window, having a screening arrangement for screening off the aperture between the sash and frame in the open position of the window. Thus, the screening arrangement disclosed does not only cover a small aperture such as the aperture arising in the ventilating position of a window, but as the sash turns outwards when opening the window, the screening arrangement is activated so that it covers the entire opening angle between the frame and sash by a single insect net screening the entire opening angle. That is, the screening arrangement has the form of a curtain covering the aperture between the sides, top and bottom members of the window in the open position.

[0007] Still further examples of prior art windows with screening arrangements are shown in US patent no. 4,969,291, DE 42 18 088 C1, WO 95/34739 A1 and DE 20 2008 006531 U1.

[0008] This solution for screening off especially the sides of the window is useful in the sense that it blocks out incoming objects such as insects, while providing a ventilating passage of the window both in an open position and a ventilating position of the window. However, when provided in a roof window, generally designed especially to facilitate easy window cleaning as the sash comprising the pane can be turned essentially 180° to allow cleaning of the outside surface of the pane from inside the building, with such screening arrangements you must remember that they have to be decoupled from the frame and/or sash in order to make the 180° rotation.

[0009] Furthermore, such arrangements limit the possibility of using the window as an exit, as in for instance fires, where the screening device has to be manually removed first, in order to create an unblocked escape opening.

[0010] Moreover, the large screening arrangement constituted by the prior art can be aesthetically displeasing, as the screening arrangements are blocking at least portions of the view through the window. In some examples of the prior art, the screening arrangement is clearly visible, when the window is closed, which makes these solutions less advantageous.

[0011] With this background it is the object of the present invention to provide a window with a screening arrangement arranged to cover at least one ventilating aperture in a ventilating position of the window for blocking out incoming objects, such as insects, while maintaining the unhindered view and operation of the window,

and which furthermore maintains an aesthetic appearance of the window.

[0012] In a first aspect this and further objects are met by a screening arrangement of the kind mentioned in the introduction, which is furthermore characterized in that the screening arrangement comprises at least one screening element incorporated in at least one member of said frame and/or sash, said screening element being arranged so as to form a ventilating passage, wherein said screening element automatically spans the ventilating aperture between the sash and frame plane in the ventilating position, while being inconspicuous in both the open and the ventilating position of the window.

[0013] By this screening arrangement, a screening element having a ventilating passage, which is active in all positions of a window, is provided for. That is, the screening arrangement needs not to be activated during opening and/or after opening of the window. The screening arrangement is simply an incorporated part of at least one member of the frame and/or sash so that it is active independently of for instance an opening movement of the window and is especially functionally active in the ventilating position of the window. By the term "incorporated" should be understood that the screening arrangement forms part of the frame or sash member in question, and may for instance be an integrated part of at least one of the sash and/or frame members, so that the material from which the members are made may constitute the screening element having the ventilating passage or even a part of the members are constituted by the screening element. One advantage is thus that there is simply no part of the screening arrangement which extends a distance covering neither more nor less than the exact ventilating aperture between the sash and frame in the ventilating position of the window. Furthermore, the screening arrangement is arranged to be part of either the frame or sash, so that by positioning the window in the ventilating position, the screening element automatically provides screening of the ventilating aperture. Basically, the screening arrangement provides for the possibility of automatic screening by the screening element incorporated into a frame or sash member while being placed in a way so it appears hidden or inconspicuous for the user's eye in both the open and ventilating position of the window.

[0014] In a preferred embodiment, the at least one screening element is incorporated exclusively in at least one of the side frame members of the window so as to form at least one ventilating passage in at least one of the side frame members, preferably one screening element in each side frame member. By providing the screening arrangement in one of or both side frame members, it is made sure that ventilation through the sides of the window is achieved while blocking out incoming objects, such as insects. Furthermore, with this solution the window may be opened in the ventilating position even during rain fall, and still provide airflow into the room.

[0015] For providing the necessary ventilating suitable

for a window, the ventilating passage may extend at least partly along the screening element forming a ventilating passage in only a part of the at least one side frame member in which the screening arrangement is incorporated.

[0016] In another embodiment of the invention the ventilating passage is arranged in the bottom part of the at least one side frame member and extends in a pre-defined distance in the longitudinal direction along the side frame member, the ventilating passage preferably extending half the length of said side frame member, more preferably extending a third of the length of said side frame member. By providing the ventilating passage in the bottom part of the side frame member it is made sure that the ventilating area is arranged where the angle of the ventilating aperture is largest, so that more air flow may be directed into the room.

[0017] In a further embodiment the screening element comprising the ventilating passage is a detachable screening element configured to be connected to the at least one frame or sash member in a mounted condition thereof. Providing the screening element as a detachable element has the advantages that the screening element may be customized for one or more particularly sized windows, so that they may be installed in different sized windows.

[0018] The screening element is in one presently preferred embodiment in the form of an L-shape, having a first flange and a second flange, the second flange extending perpendicularly to the first flange, wherein at least one of the first and/or second flanges comprises said ventilating passage. With this geometrical form of the screening element, the screening element is suitable for installation in a traditional frame and/or sash structure. The L-shape of the screening element makes it possible to create a cavity within a frame and/or sash member, through which cavity air may enter and exit so as to provide the ventilating passage.

[0019] Preferably, the first flange is arranged to abut said side sash member in a mounted condition of the screening element, such that the second flange extends perpendicularly thereto in a direction towards an exterior side of said window to form said ventilating passage of at least a part of said side frame member.

[0020] In a further development of the presently preferred embodiment, the L-shaped screening element is provided as a thin-walled profile element of a material such as metal, plastic or composite. In addition to contributing to material and weight savings of the overall window, the manufacture of such an L-shaped thin-walled profile element is easy and able to be carried out by established technical means such as bending, moulding or extrusion in various sizes and shapes, and in which the provision of ventilating passages may easily be incorporated into the manufacturing process according to the specific field of application of the window.

[0021] It should however be noted that the screening element could take any other shape suitable for installa-

tion or incorporation in a frame and/or sash structure. For instance, in alternative embodiments, the screening element is in the form of a U-shape and/or having a rectangular profile shape, not to be ruling out other suitable geometrical shapes that would fit to standard window frame and sash members, or including parts or portions that are movable relative to each other.

[0022] In a preferred embodiment the ventilating passage is formed as a plurality of perforations in the material of said screening element. This makes it easy to manufacture and provide at least a blocking mechanism for entry of for example insects. The perforations may be formed as a netting, constituting an integral part of the screening element, or as a separate unit connected to the remaining parts of the screening element.

[0023] In a second aspect of the invention, a method for providing ventilation in a window is devised, comprising the steps of

providing a screening arrangement comprising a screening element, incorporating the screening element in at least one member of the frame and/or sash to extend between the sash plane and the frame plane, and opening the window by moving the sash to a ventilating position in which the sash plane forms an angle with the frame plane.

[0024] The advantages of the first aspect of the present invention as well as the further embodiments presented above equally apply to the second aspect of the invention.

[0025] Accordingly, reference is made thereto. In the following the invention will be described in further details by means of examples of embodiments with reference to the schematic drawings, in which

Fig. 1 is a perspective side view of a window positioned in the ventilating position and having a ventilating aperture,

Fig. 2 is a perspective side view of a window corresponding to the window of Fig. 1, having a screening arrangement according to an embodiment of the window according to the invention,

Fig. 3 is a perspective side view corresponding to Fig. 2, illustrating the screening arrangement in more detail,

Fig. 4 is perspective view of the window of Fig. 2, illustrating a top part of the window comprising the screening arrangement,

Fig. 5 is a perspective view of the window of Fig. 4, where parts of the window have been removed to show more clearly the screening arrangement,

Fig. 6 is a perspective top view of the window of Fig. 4,

Fig. 7 is a perspective top view of Fig. 5,

Fig. 8 and 9 are perspective side views of the window in the embodiment of Fig. 2 illustrating the screening element in more detail and where the window in Fig. 9 is in a closed position,

Figs 10 and 11 are perspective views of the screen-

ing element according to an embodiment of the window according to the invention, and

Fig. 12 is a schematic perspective view of a screening element of an alternative embodiment of the invention.

[0026] Referring initially to Figs 1 to 3 a window 1 having improved ventilating properties is shown. Generally as shown in the Figures, the window 1 comprises a frame 2 and a sash 3, and a hinge connection (not shown) providing a hinge axis allowing the sash 3 to rotate about the hinge axis. The frame 2 has a bottom member 4, a top member 6, and two side members 8 and 10. Correspondingly, the sash 3 is provided with a bottom member 5, a top member 7, and two side members 9 and 11.

[0027] In the embodiment shown, the window is a top-hung window having a position of the hinge axis near the top members 6; 7 of the frame 2 and sash 3, but the inventive concept is applicable also to centre-hung or traditional pivot windows having a hinge axis provided near a position halfway between the top and bottom members, just as a position of the hinge axis between the top and centre of the window is also possible. The hinge axis is thus substantially parallel with the top members 6; 7 of the frame 2 and sash 3, respectively. The window is adapted to be moved between at least three positions, namely a first closed position, where the plane formed by the sash 3 is substantially parallel with the plane formed by the frame 2, a second and ventilating position, where the plane of the sash 3 forms a predetermined angle with the plane of the frame, and a third and open position, where the sash plane forms an angle, larger than the angle in the ventilating position, with the frame plane.

[0028] As illustrated in Fig. 1, the sash 3 of the window 1, when in the ventilating position, forms a pre-defined angle with the frame plane and a ventilating aperture 20 is formed in the circumferential of the frame 2 and sash 3. The ventilating aperture 20 is at least partly covered by a screening arrangement, as illustrated in Fig. 2, where the screening arrangement comprises a screening element 21 incorporated in a member of the frame 2. In Fig. 2 it is only shown how the screening arrangement is incorporated in the frame structure; however it should be noticed that the screening arrangement could be arranged in the sash in a similar manner. In the embodiment shown, a screening element is incorporated in each side member 8, 10 of the frame 2, but configurations having a screening element in only one side are conceivable as well, just as a screening element may be incorporated in the bottom member 4 of the frame 2 as well.

[0029] The screening element 21 is as shown in Fig. 2 incorporated in the frame so as to form a ventilating passage 22, and wherein the screening element 21 automatically spans the ventilating aperture 20 between the planes of the sash 3 and frame 2. It is a central feature of the inventive window that the screening arrangement is arranged in the frame 2, so that it is inconspicuous in

both the open and ventilating position of the window 1. The term "inconspicuous" is intended to incorporate that the screening arrangement is placed in a way so it appears hidden or inconspicuous for the user's eye in both the open and ventilating position of the window. Furthermore, it is noted that the inconspicuous quality inherently excludes hindrance of the physical access through the opening. The inconspicuous characteristics of a first embodiment will be described in further detail in the following.

[0030] As illustrated in more detail in Figs 1, 2 and 3 the ventilating aperture 20 is covered by a screening arrangement, comprising the screening element 21, which is incorporated into the side members 8 and 10 of the frame. In Fig 1, the right side, i.e. the side of the window to the right side according to the orientation of the drawings, shows the ventilating aperture 20 without the screening element 21 for reasons of clarity. In the opposite, left side of the window in Fig. 1 the ventilating aperture 20 is shown covered by the screening element 21. When the window 1 is moved to the position shown in Fig. 1, i.e. the ventilating position, the ventilating passage 22 is formed through the use of the screening element 21 incorporated in the side frame member 8, 10. In this way the ventilating aperture 20 of Fig. 1 is covered by the screening element 21 as shown in Fig. 2, so that air can flow through the screening element 21 while closing off the ventilating aperture 20 between the sash 3 and frame 2. Insects and other objects trying to enter a room of a building from the outside are thus blocked out, since only air may flow through the ventilating passage 22 of the screening element 21.

[0031] Referring now to the closed position of the window as illustrated in Fig. 9, the screening element 21 is not visible from an interior side of the window, i.e. the screening element is not visible when a person stands in a room and looks at the window, as the side members 9, 11 of the sash cover the screening arrangement in the closed position.

[0032] When the window is moved to the open position, the screening element or elements are also inconspicuous, since each screening element is incorporated in the members of the frame or sash, in the embodiment shown in the side members 8, 10 of the frame. By being incorporated into the side members of the frame 2, the screening elements 21 do not prevent easy opening of the window to an open position or disturb the functions of the open window, including using this as an emergency exit. The function of the ventilating passage 22 created by the ventilating arrangement, comprising the screening element 21 is especially useful, when the window 1 is in the predetermined ventilating position, where it covers the ventilating aperture and thus blocks the entry of among objects, such as insects or similar.

[0033] Even though not illustrated in the Figures, the ventilating passage could be formed by incorporating the screening element in the side members of the sash instead of the side members of the frame, possibly in com-

bination. Furthermore, it would be possible to provide a similar solution of the previously described, wherein the ventilating passage 22 is formed by incorporating the screening element 21 in at least one of the bottom members of the frame and/or sash.

[0034] The screening element 21, regardless of the member it is incorporated in, may extend the whole member it is incorporated in or a portion of the member, in order to form the ventilating passage 22. In the embodiment shown in Fig. 3, the ventilating passage 22 is formed to extend only a portion of the side members 8, 10 of the frame, as the screening element 21 is only perforated in a portion of its length. The length of extension of the ventilating passage 22 in the side members 8, 10 is chosen in accordance with the length of the screening element 21, which in turn is dependent on the desired amount of ventilation.

[0035] In the embodiment shown in Fig. 3, the ventilating passage 22 of the screening element 21 is incorporated in the bottom portion of the side members 8, 10 of the frame. This is a desired place to incorporate the ventilating passage 22 of the screening element 21 for top-hung windows, but in other cases, such as a centre-hung window, an incorporation of the screening element 21 in the top portion of the side members 8, 10 of the frame is just as desirable. By positioning the ventilating passage or passages near the bottom and/or top of the frame side members, optimal ventilating conditions are achieved, as opening the sash to a small angle presents a sufficient ventilating passage at a distance from the hinge axis.

[0036] For incorporation in other members than the side members of the frame, the bottom portions of the chosen members are desired places to incorporate the screening element for a top-hung window, and either the bottom or top portions are desired for non top-hung windows, such as pivotal or centre-hung windows. That is when using the screening element in centre-hung windows it may be desirable to block out entry in both the top and bottom apertures present in a ventilating position of the window.

[0037] In the specific embodiment shown, the screening element 21 is a detachable screening element 21 and the configuration of the screening element 21 is illustrated in more detail in Fig. 10 and 11. The screening element as being detachable is configured to be connected to the at least one frame member 8, 10 in a mounted condition thereof. This makes the screening element 21 suitable for retrofitting, so that it may be produced in different sizes for fitting into different sized windows.

[0038] For attaching the screening element 21 to the at least one side member 8, 10 of the frame, engagement means 40 are included in either the side member 8, 10, the bottom member 4 or in the screening element 21 in order to connect with the screening element 21 in a second end 26 of the screening element 21. The engagement means 40 of the bottom frame member 4 is, as illustrated in Fig. 9 configured as a groove in an engage-

ment part 41 of the bottom frame member 4.

[0039] The screening element 21 is in Figs 10 and 11, illustrated as a screening element having the form of an L-shape, with a first flange 23 and a second flange 24, the second flange extending substantially perpendicular to the first flange 23, wherein at least one of the first and/or second flanges 23, 24 comprises the ventilating passage 22. The L-shaped screening element 21 is as previously described arranged to be incorporated in at least one of any of the frame and/or sash members 4, 5, 6, 7, 8, 9, 10, 11 in a mounted condition, and extends either over a portion of the member to which it is incorporated in or in the entire length of the member in question.

[0040] As illustrated in Fig. 6, the screening element 21 is mounted in the side member of the window, such that the first flange 23 in the mounted condition is arranged to abut the side sash member 9 such that the second flange 24 extends substantially perpendicular to the first flange 23 in a direction towards an exterior side of the window 1 so as to form the ventilating passage 22 of at least a part of the side frame member 8, when mounted in the window.

[0041] Furthermore as illustrated, especially in Fig. 7, the screening element 21 is arranged to cover a portion substantially extending the length of the side member 8, 10 of the frame. Thus, as the detachable screening element should be mounted in the frame member, the screening element is furthermore provided with a longitudinally extending slot 27 at a first end 25 of the screening element. The longitudinally extending slot 27 is as illustrated in more detail in Figs 10 and 11 provided in the surface of the second flange 24. The slot 27 is intended to engage with a control arrangement 30 of the window, the control arrangement having the function of providing a force for opening of the window. Furthermore the first end 25 of the screening element 21 is intended to connect with the top frame member 6 of the window so that the screening element when provided as a detachable element is attached to the side frame member 8, 10 in both ends through engagement means 40 of the bottom part of the window and abutting a top part of the frame, while being connected to a second groove 42 in the top part of the side frame member as seen in Fig. 7.

[0042] In the presently preferred embodiment described in the above, the L-shaped screening element 21 is provided as a thin-walled profile element of a material such as metal, plastic or composite. The thickness of the walls may for instance lie in the interval 0.5 to 10 mm, more preferably 1 to 8 mm, and still more preferably 2-5 mm. The manufacture of such an L-shaped thin-walled profile element lies well within the skills of the person skilled in the art, and will typically include technical means such as bending, moulding or extrusion in various sizes and shapes. The provision of ventilating passages may easily be incorporated into the manufacturing process according to the specific field of application of the window.

[0043] It should be noted that the invention is not limited to a screening element having an L-shape, but that any other suitable geometrical shape could be used, such that the screening element could be in the form of a U-shape, profile having a rectangular shape or a rounded profile shape.

[0044] As illustrated in the Figures in general, the ventilation passage 22 is formed as a plurality of perforations 22a, 22b in the material of the screening element 21 opening into a cavity 28 formed in the screening element and hence in turn of the frame member in which the screening element is incorporated. This is especially shown in Fig. 10 and 11, where the perforations in the lower end 26 of the L-shaped profile constitute the ventilating passage 22 of the screening element 21.

[0045] In the embodiment shown and described in the above, the screening element is shown as a fixed element, i.e. with all portions remaining in the same position in all situations. It is conceivable, however, that the screening element may comprise a number of parts or portions which are movable relative to each other, for instance in dependence on the movement of the sash.

[0046] In the alternative embodiment shown in Fig. 12, the screening element 21 comprises a substantially compact and resilient element 121 provided with a plurality of through-going canals 122a. As the element 121 is resilient, it is able to adapt its shape in dependence on the movement of the sash, i.e. is able to be compressed in the closed or only partially open position, and re-assume its relaxed condition when the sash is open. The material and the size and distribution of the canals 122a are advantageously chosen such that the canals 122a are at least partially closed when the element 121 is compressed and open when the element 121 is relaxed.

[0047] The invention should not be regarded as being limited to the described embodiments. Several modifications and combinations of the different embodiments will be apparent to the person skilled in the art.

[0048] The following is an itemized list of embodiments:

E1. A window (1) comprising a frame (2) and a sash (3), each having a top member (6; 7), a bottom member (4; 5) and two side members (8, 10; 9, 11), each side member of the frame and sash defining a longitudinal direction between the top and bottom members, and the members all together defining a frame and a sash plane, respectively, said sash (3) being connected to the frame (2) by means of at least one hinge connection providing a hinge axis substantially parallel with said top and bottom members, so that through an opening movement of the window (1), the sash (3) can be moved from a closed position to an open position, and into an intermediate ventilating position, in which ventilating position the sash plane forms an angle within a limited angle range with the frame plane to provide at least one ventilating aperture (20) in the circumfer-

ential of the frame (2) and/or sash (3),
 said window further comprising a screening arrange-
 ment arranged to cover the said ventilating aperture
 (20) in said ventilating position and comprising at
 least one screening element (21) incorporated in at
 least one member of said frame (2) and/or sash (3),
 said screening element (21) being arranged so as
 to form a ventilating passage (22), wherein said
 screening element (21) automatically spans the ven-
 tilating aperture (20) between the sash (3) and frame
 plane in the ventilating position,

characterized in that said at least one screening
 element (21) is incorporated in at least one of said
 side frame members (8, 10) of said window so as to
 form at least one ventilating passage (22) in at least
 one of said side frame members (8, 10), the at least
 one screening element (21) being inconspicuous in
 the ventilating position of the window (1) so that it
 appears hidden from the user's eye.

E2. A window (1) according to E1, wherein one
 screening element (21) is incorporated in each side
 frame member (8, 10).

E3. A window (1) according to E2, wherein said at
 least one screening element (21) is incorporated ex-
 clusively in one of or both side frame members (8,
 10).

E4. A window (1) according to E2 or E3, wherein
 said ventilating passage (22) extends at least partly
 along the screening element (21) forming a ventilat-
 ing passage (22) in only a part of the at least one
 side frame member (8, 10) in which the screening
 arrangement is incorporated.

E5. A window (1) according to any of embodiments
 E1 to E4, wherein said ventilating passage (22) is
 arranged in the bottom part of said at least one side
 frame member (8, 10) and extends in a pre-defined
 distance in the longitudinal direction along the side
 frame member (8, 10), said ventilating passage pref-
 erably extending half the length of said side frame
 member (8, 10), more preferably extending a third
 of the length of said side frame member (8, 10).

E6. A window (1) according to any one of the previ-
 ous embodiment, wherein the screening element
 (21) comprising said ventilating passage (22) is a
 detachable screening element (21) configured to be
 connected to the at least one frame or sash member
 (8, 10) in a mounted condition thereof.

E7. A window according to any one of the previous
 embodiment, wherein said screening element (21)
 is in the form of an L-shape, having a first flange (23)
 and a second flange (24), said second flange exten-
 ding perpendicularly to said first flange (23),
 wherein at least one of said first and/or second flange-
 es (23, 24) comprises said ventilating passage (22).

E8. A window according to embodiment E7, wherein
 said first flange (23) is arranged to abut said side
 sash member (9, 11) in a mounted condition of the
 screening element (21), such that said second flange

(24) extends perpendicularly thereto in a direction
 towards an exterior side of said window (1) to form
 said ventilating passage (22) of at least a part of said
 side frame member (8, 10).

E9. A window according to any one of embodiments
 E7 and E8, wherein the L-shaped screening element
 (21) is provided as a thin-walled profile element of a
 material such as metal, plastic or composite.

E10. A window according to any one of embodiments
 E1 to E6, wherein said screening element (21) is in
 the form of a U-shape and/or having a rectangular
 profile shape.

E11. A window according to any one of the previous
 embodiments, wherein said ventilating passage (22)
 is formed as a plurality of perforations in the material
 of said screening element.

E12. A window according to any one of embodiments
 E6 to E11, wherein said screening element (21) in a
 first end (25) is provided with a longitudinally extend-
 ing slot (27) intended to engage with a control ar-
 rangement (30) of said window, said first end (25)
 intended to connect with said top frame member,
 said screening element (21) further comprising a
 second end (26) intended to connect with engage-
 ment means (40) of said bottom frame member in a
 mounted condition.

E13. A window according to embodiment E12,
 wherein said engagement means (40) of said bottom
 frame member is configured as a groove in an en-
 gagement part (41) of said bottom frame member.

E14. A window according to any one of embodiments
 E1 to E6, wherein the screening element (21) com-
 prises a number of parts or portions which are mov-
 able relative to each other, preferably in the form of
 a substantially compact and resilient element (121)
 provided with a plurality of through-going canals
 (122a).

E15. A method for providing ventilation in a window
 comprising a frame (2) and a sash (3) each having
 a top member (6; 7), a bottom member (4; 5) and
 two side members (8, 9, 10, 11), each side member
 of the frame and sash defining a longitudinal direc-
 tion between the top and bottom members, and to-
 gether defining a frame and a sash plane, respec-
 tively, said method comprising the steps of
 providing a screening arrangement comprising a
 screening element (21),

incorporating the screening element (21) in at least
 one of said side frame members of said window so
 as to form at least one ventilating passage (22) in at
 least one of said frame members (8, 10) to extend
 between the sash plane and the frame plane, and
 opening the window by moving the sash to a venti-
 lating position in which the sash plane forms an angle
 with the frame plane.

E16. The method of embodiment E15, wherein the
 step of providing the screening element (21) involves
 forming the screening element in an L-shape com-

prising a first flange (23) and a second flange (24), said second flange extending perpendicular to said first flange (23), wherein at least one of said first and/or second flange (23, 24) comprises said ventilating passage (22), and comprising the further step of

connecting said screening element (21) to at least one of said frame members so that said first flange (23) of said screening element (21) abuts said side sash member (9, 11) such that said second flange (24) extends perpendicularly thereto in a direction towards an exterior side of said window (1) to form said ventilating passage (22) of at least a part of said side frame member (8, 10), and

connecting a first end (25) of said screening element with said top frame member and a further second end (26) with engagement means (40) of said bottom frame member.

Claims

1. A window (1) comprising a frame (2) and a sash (3), each having a top member (6; 7), a bottom member (4; 5) and two side members (8, 10; 9, 11), each side member of the frame and sash defining a longitudinal direction between the top and bottom members, and the members all together defining a frame and a sash plane, respectively, said sash (3) being connected to the frame (2) by means of at least one hinge connection providing a hinge axis substantially parallel with said top and bottom members, so that through an opening movement of the window (1), the sash (3) can be moved from a closed position to an open position, and into an intermediate ventilating position, in which ventilating position the sash plane forms an angle within a limited angle range with the frame plane to provide at least one ventilating aperture (20) in the circumferential of the frame (2) and/or sash (3), said window further comprising a screening arrangement arranged to cover the said ventilating aperture (20) in said ventilating position and comprising at least one screening element (21) incorporated in at least one member of said frame (2) and/or sash (3), said screening element (21) being arranged so as to form a ventilating passage (22), wherein said screening element (21) automatically spans the ventilating aperture (20) between the sash (3) and frame plane in the ventilating position, **characterized in that** the ventilation passage (22) is formed as a plurality of perforations (22a, 22b) in the material of the screening element (21) opening into a cavity (28) formed in the screening element and hence in turn of the frame member in which the screening element is incorporated.

2. A window according to claim 1, wherein the shape

of said at least one screening element (21) forms a cavity within a frame and/or sash member through which cavity air may enter and exit so as to provide the ventilating passage.

3. A window according to claim 1 or 2, wherein said screening element (21) is in the form of an L-shape, having a first flange (23) and a second flange (24), said second flange extending perpendicularly to said first flange (23), wherein at least one of said first and/or second flanges (23, 24) comprises said ventilating passage (22).

4. A window according to claim 1 to 3, wherein said first flange (23) is arranged to abut said side sash member (9, 11) in a mounted condition of the screening element (21), such that said second flange (24) extends perpendicularly thereto in a direction towards an exterior side of said window (1) to form said ventilating passage (22) of at least a part of said side frame member (8, 10).

5. A window according to any one of claims 1 to 4, wherein the screening element (21) is provided as a thin-walled profile element of a material such as metal, plastic or composite.

6. A window according to claim 1 or 2, wherein said screening element (21) is in the form of a U-shape and/or having a rectangular profile shape.

7. A window according to any one of the previous claims, wherein said ventilating passage (22) is formed as a plurality of perforations in the material of said screening element.

8. A window according to any one of the preceding claims, wherein said screening element (21) in a first end (25) is provided with a longitudinally extending slot (27) intended to engage with a control arrangement (30) of said window, said first end (25) intended to connect with said top frame member, said screening element (21) further comprising a second end (26) intended to connect with engagement means (40) of said bottom frame member in a mounted condition.

9. A window (1) according to claim 1, 2, 3, 6 or 7 wherein one screening element (21) is incorporated in each side frame member (8, 10).

10. A window (1) according to claim 9, wherein said at least one screening element (21) is incorporated exclusively in one of or both side frame members (8, 10).

11. A window (1) according to claim 9 or 10, wherein said ventilating passage (22) extends at least partly

along the screening element (21) forming a ventilating passage (22) in only a part of the at least one side frame member (8, 10) in which the screening arrangement is incorporated.

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- 12.** A window (1) according to any one of claims 9 to 11, wherein said ventilating passage (22) is arranged in the bottom part of said at least one side frame member (8, 10) and extends in a pre-defined distance in the longitudinal direction along the side frame member (8, 10), said ventilating passage preferably extending half the length of said side frame member (8, 10), more preferably extending a third of the length of said side frame member (8, 10).

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- 13.** A window (1) according to any one of claims 1 to 3 and 6 to 13, wherein the screening element (21) comprising said ventilating passage (22) is a detachable screening element (21) configured to be connected to the at least one frame or sash member (8,10) in a mounted condition thereof.

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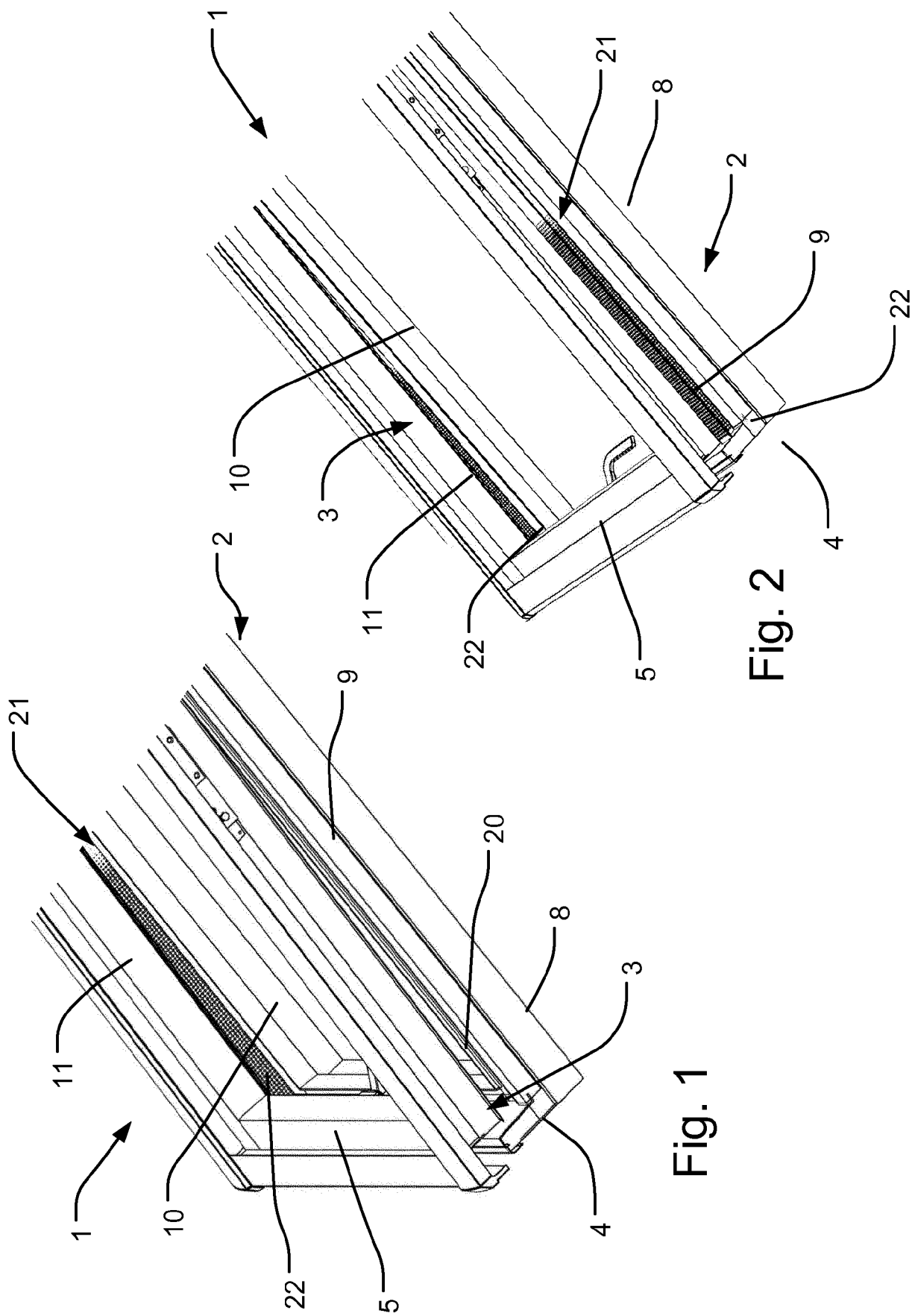


Fig. 1

Fig. 2

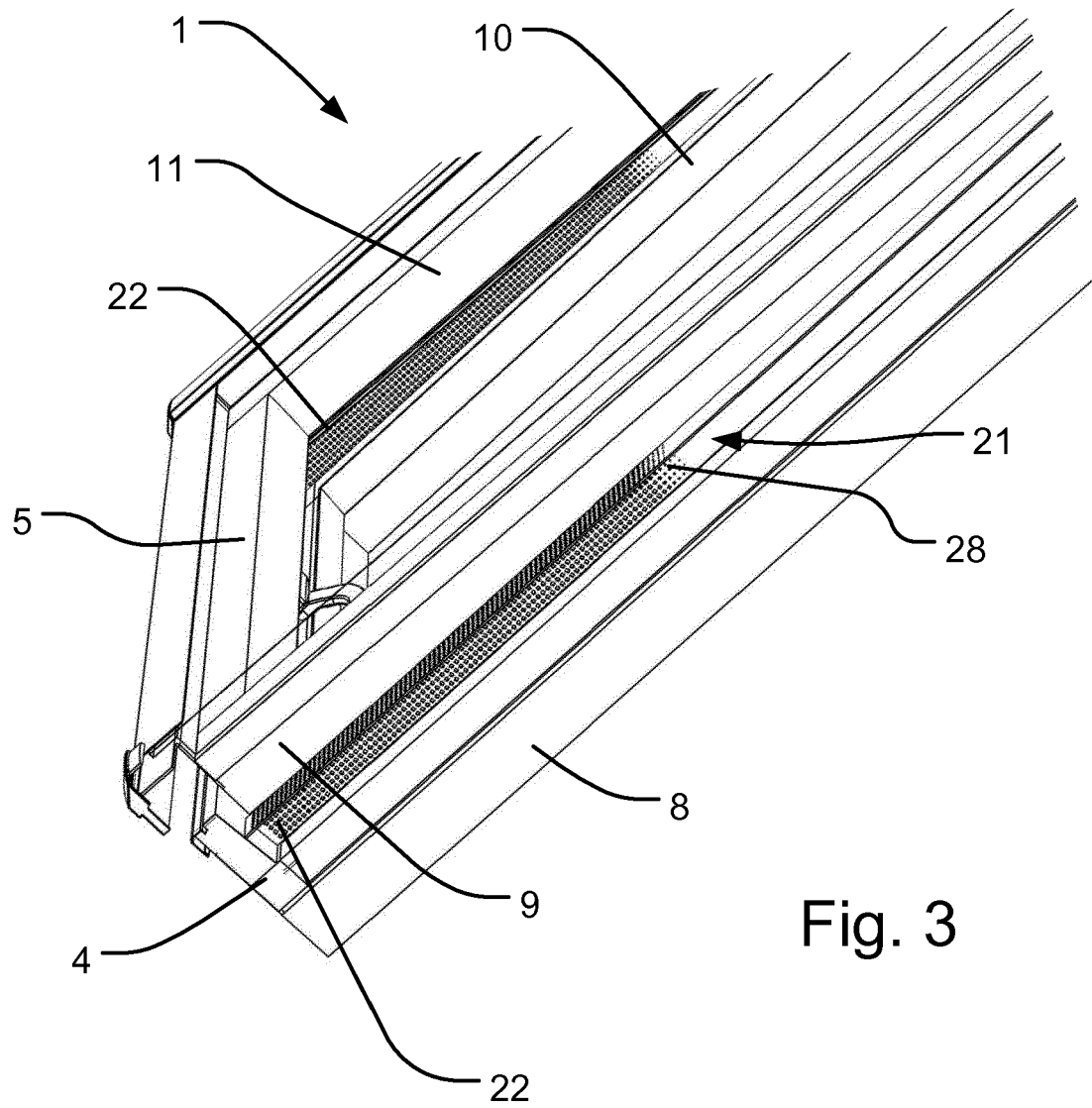


Fig. 3

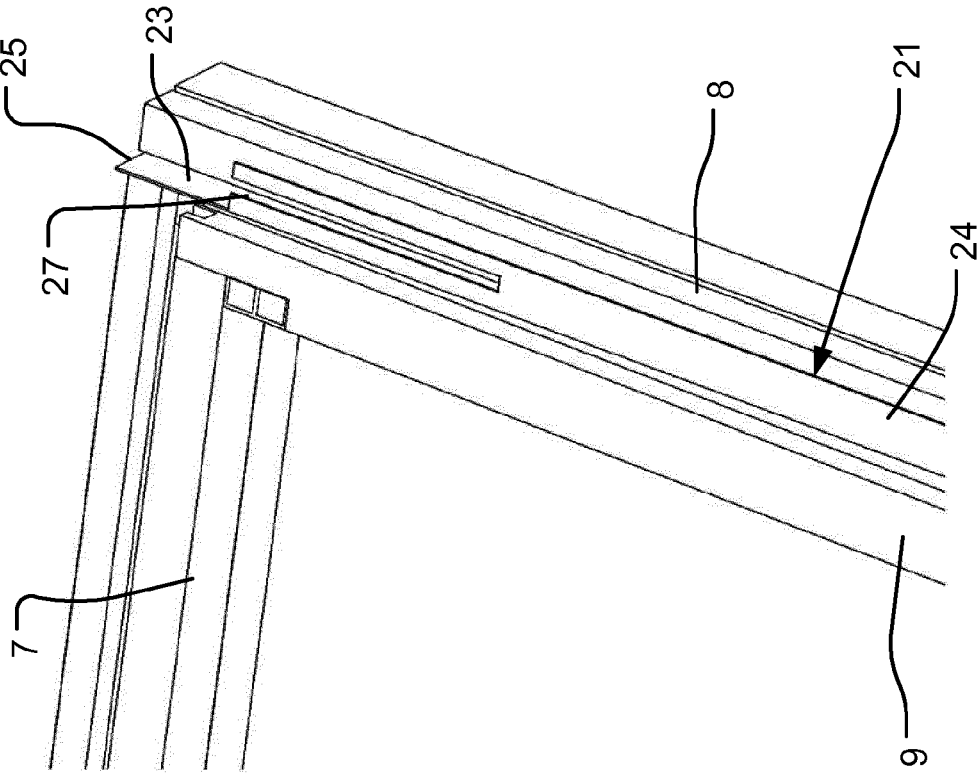


Fig. 5

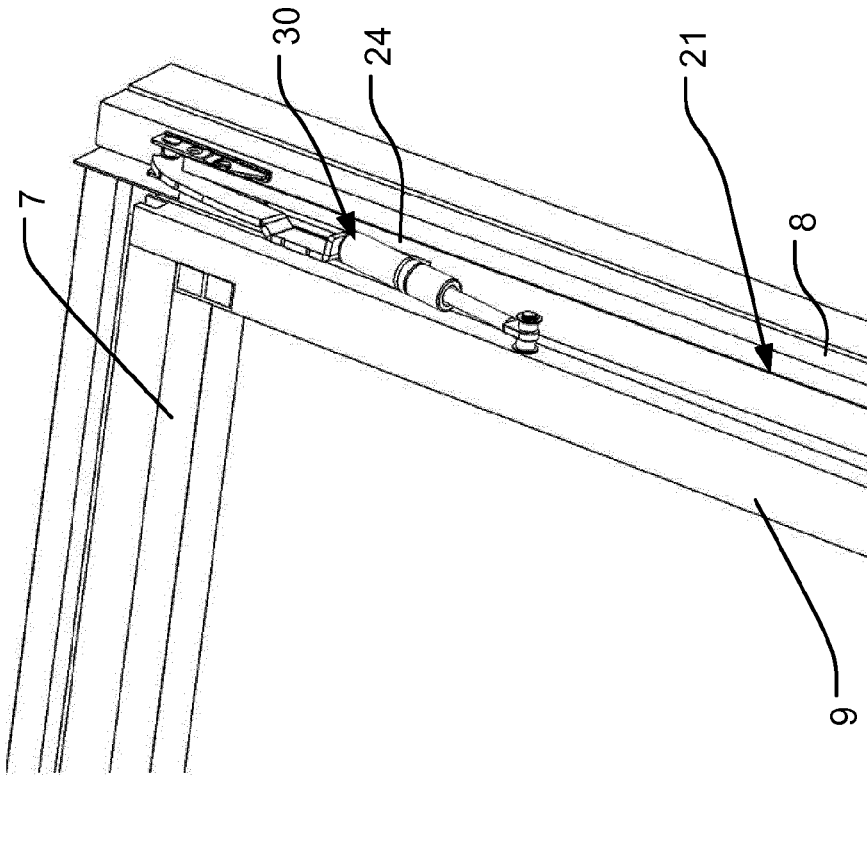


Fig. 4

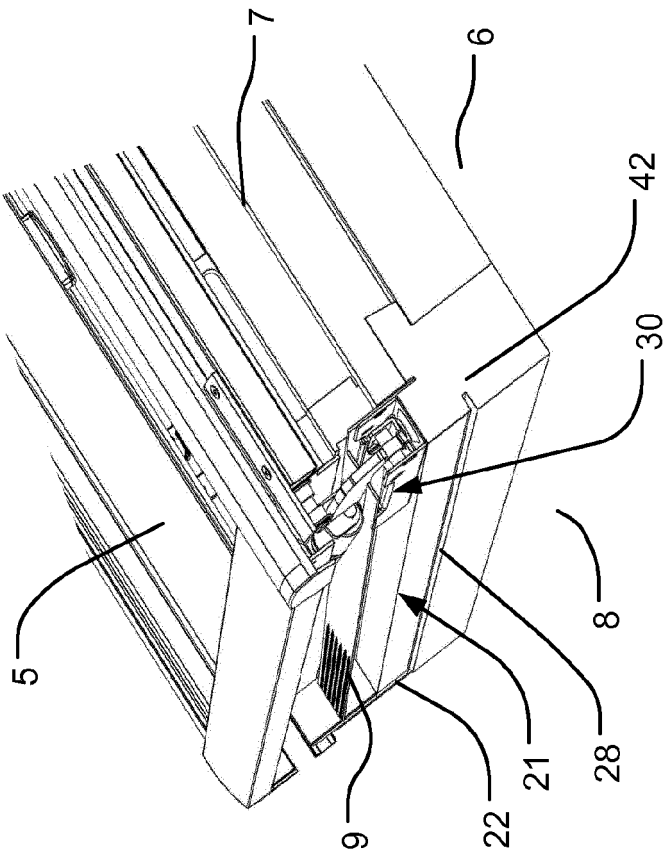


Fig. 6

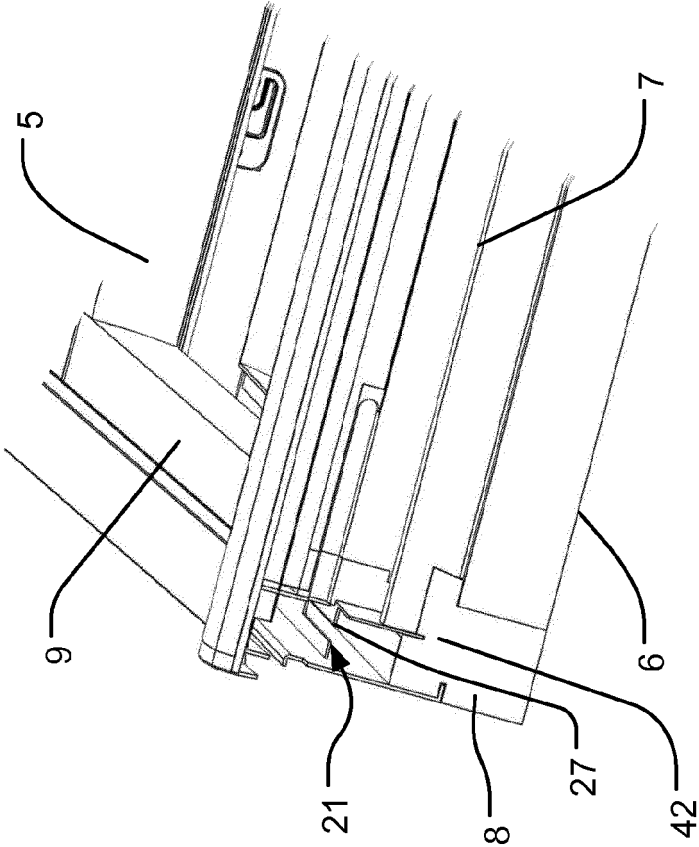
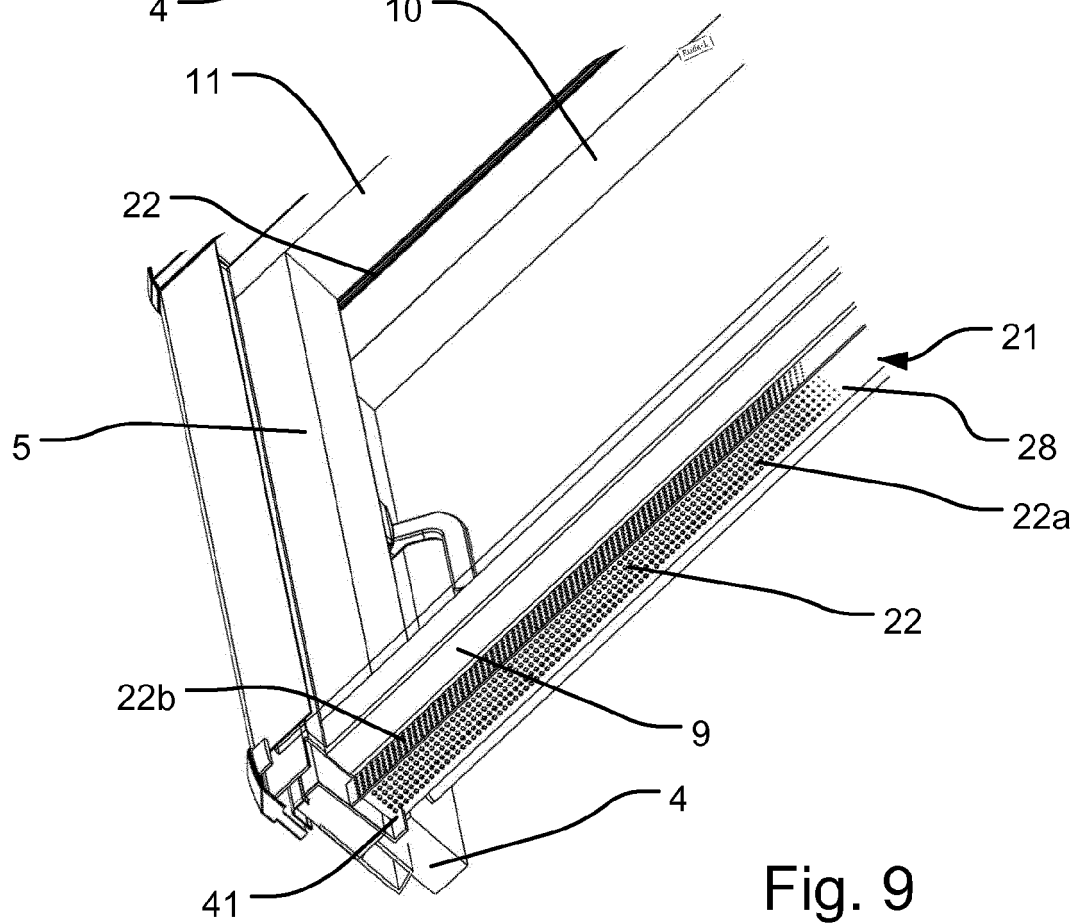
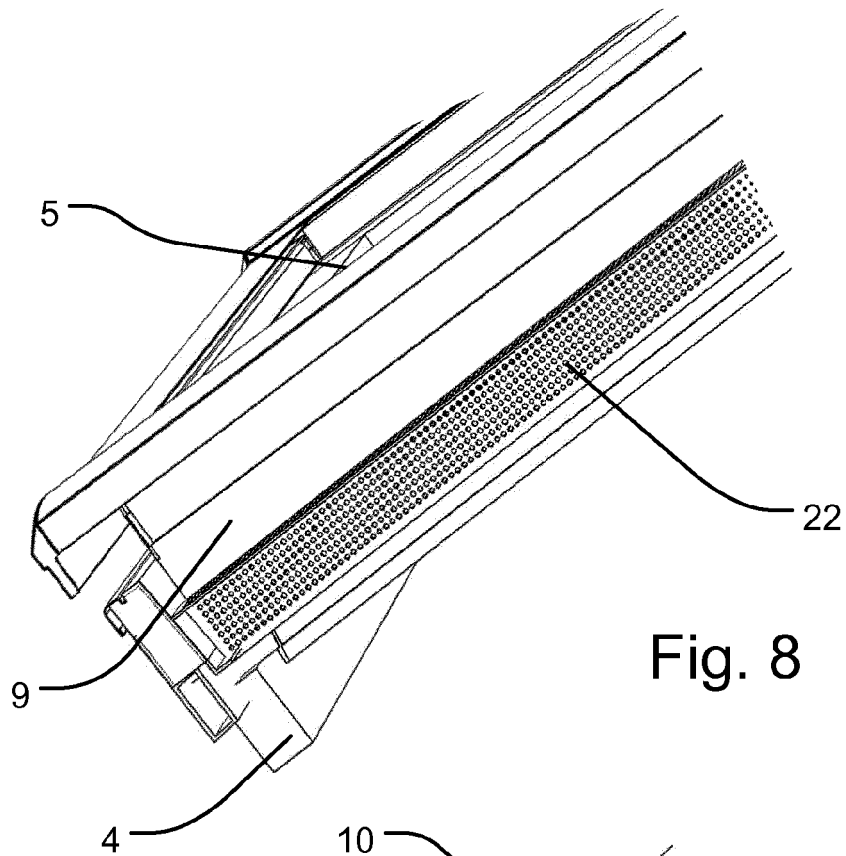


Fig. 7



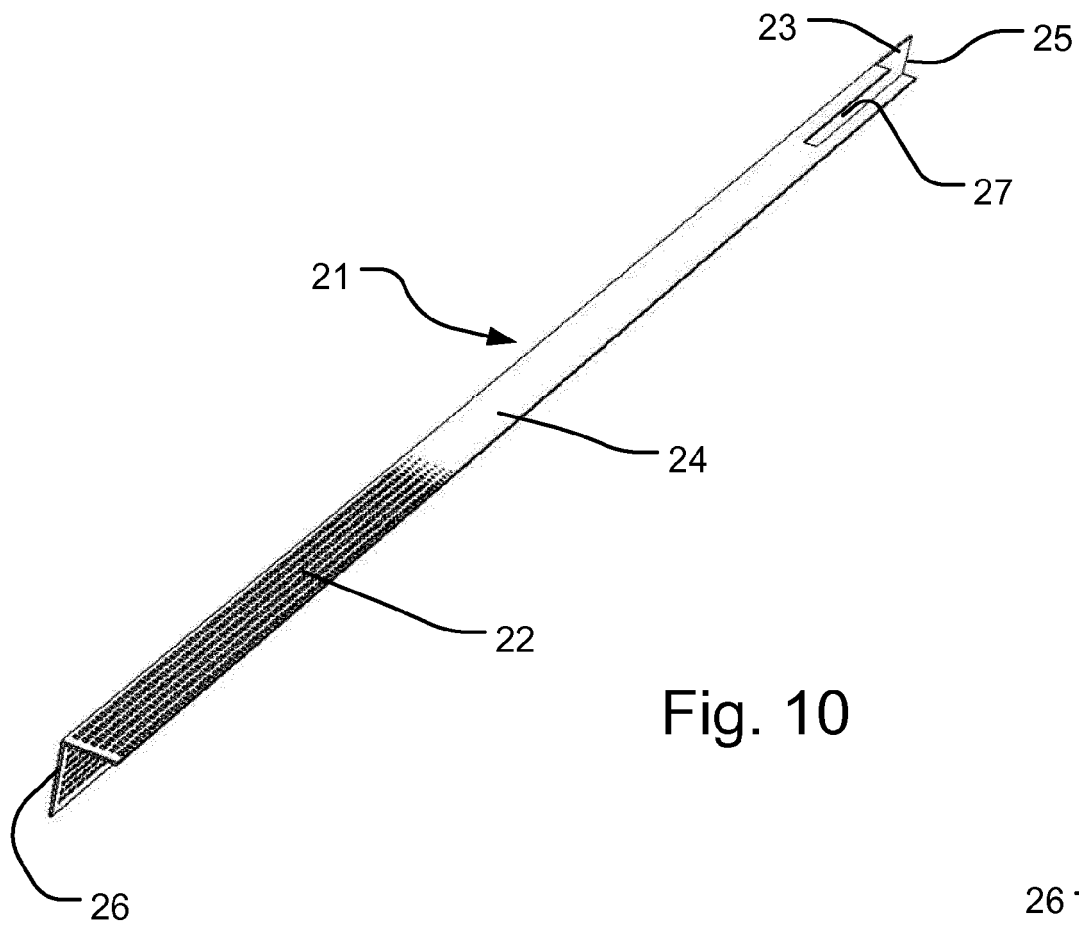


Fig. 10

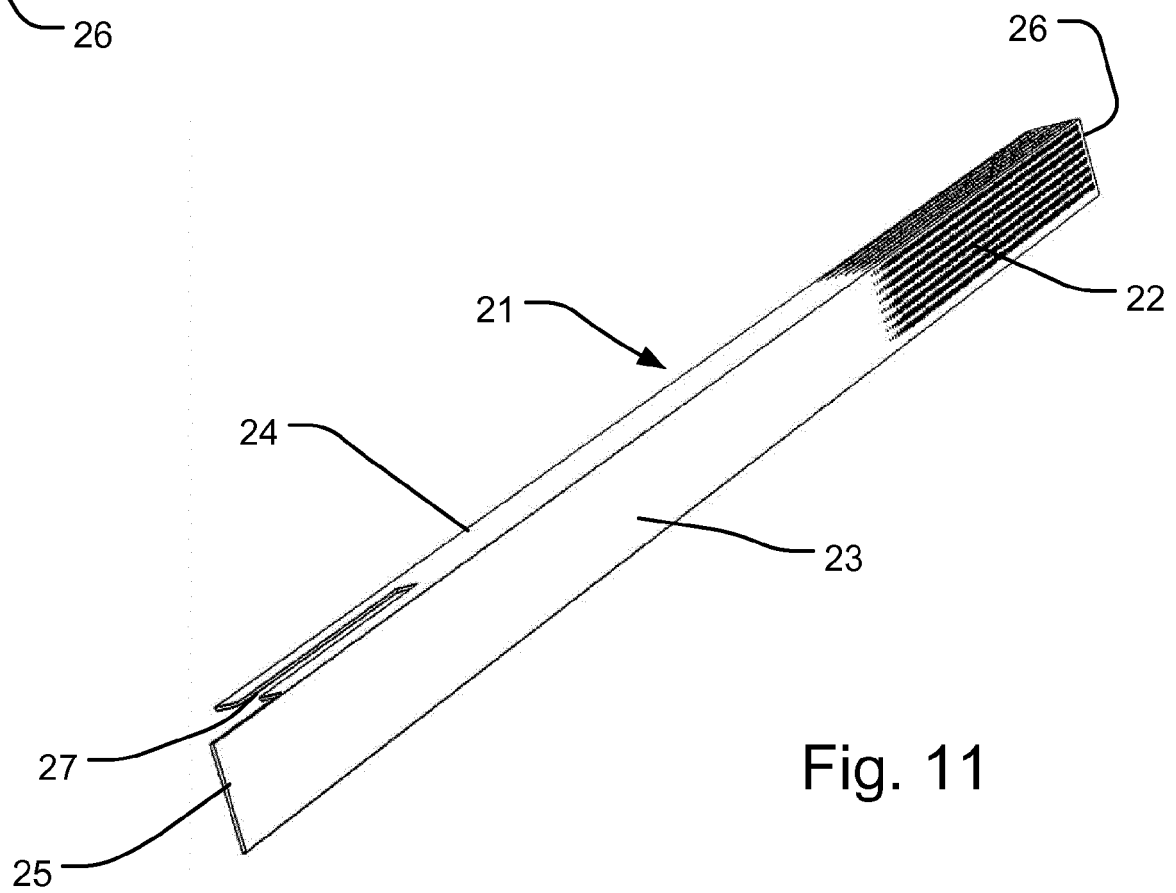


Fig. 11

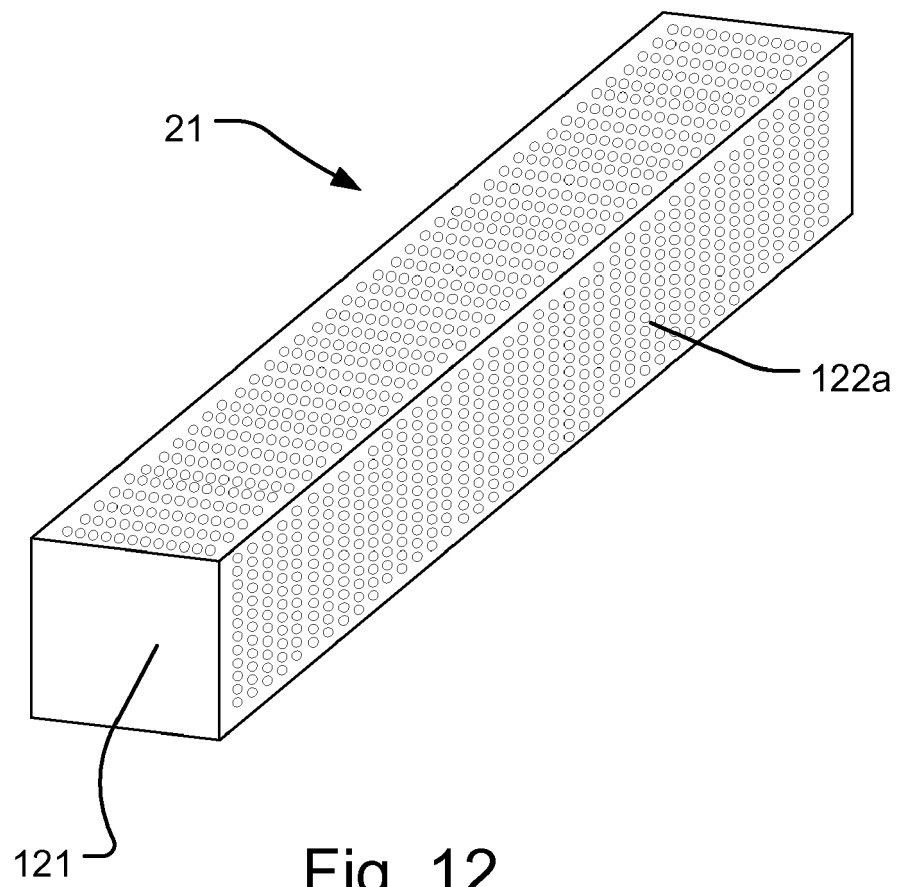


Fig. 12



EUROPEAN SEARCH REPORT

Application Number
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			E06B
Place of search		Date of completion of the search	Examiner
Munich		7 March 2018	Kofoed, Peter
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