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(54) **Kit of deflector elements and window comprising such a kit**

(57) The window has a frame (1) and a sash (2) carrying a window pane (4), the sash (2) being hinge connected with the frame (1) to form a predetermined hinge axis (3). The sash (2) is movable between a closed position and an open position. In order for the window to function as a smoke and heat exhaust ventilator, the win-

dow comprises a kit of deflector elements including a first set of deflector elements (10) adapted to be mounted on the frame (1) to surround at least a part of the frame (1), and a second set of deflector elements (20) adapted to be mounted on the sash (2) to cover, in the mounted position, at least a part of the window pane (4) in at least the open position of the sash (2).

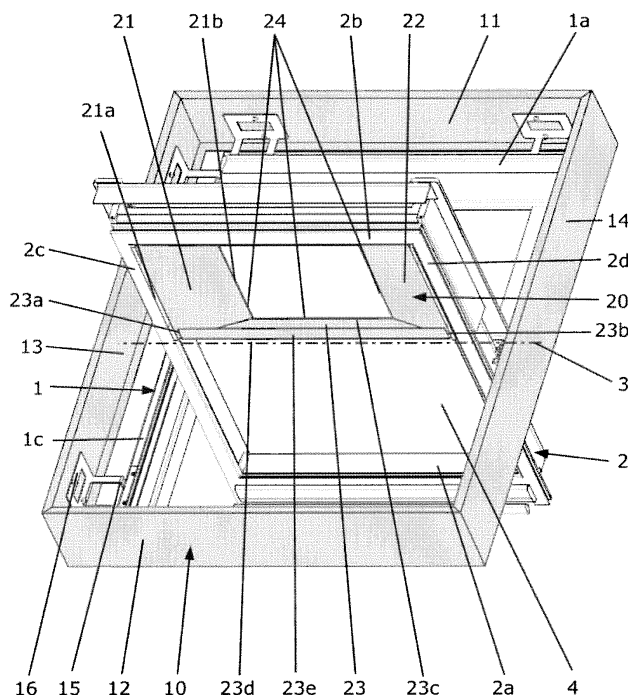


Fig. 1

Description

[0001] The present invention relates to a kit of deflector elements for mounting on a window having a frame and a sash carrying a window pane, said sash being movable between a closed position and an open position, said kit comprising a first set of deflector elements adapted to be mounted on the frame to surround at least a part of the frame. The invention furthermore relates to a window having a frame and a sash carrying a window pane, said sash being hinge connected with the frame to form a predetermined hinge axis, said sash being movable between a closed position and an open position.

[0002] Ventilators for natural extraction of smoke, heat exhaust and fumes from the interior of a building are well known in the art in a variety of different designs. Common to most such ventilators is the fact that they are units built to that specific purpose, i.e. ventilation. Consequently, they are only to a very reduced extent, if at all, suitable for fulfilling the primary function of a window, which, in addition to providing ventilation, is to admit daylight to the interior and provide a view to the exterior.

[0003] On the other hand, there exist windows for installation in roofs or facades of buildings, which are utilized as ventilators in addition to their above-mentioned function as a window. However, as windows are not traditionally designed primarily for ventilations purposes, it can occur that smoke and heat exhaust are not extracted from the interior to the extent desired or necessary. At worst, downdraught into the interior may occur under unfavourable wind conditions. Furthermore, with increasing requirements to the amount of smoke and heat exhaust, which is to be extracted during test conditions, traditional windows do not usually meet the specifications to be certified as a natural smoke and heat exhaust ventilator.

[0004] DE 24 08 212 A1 describes a kit of deflector elements of the kind mentioned in the introduction and comprising one or more plane or curved plates for mounting on the exterior of the frame of an opening for ventilation and/or a window, surrounding the opening completely or partially. The deflector elements are mounted at an angle to and at a distance from the frame. This arrangement provides an aerodynamic effect that somewhat reduces the above-mentioned problem regarding downdraught and somewhat increases the extraction of smoke and heat exhaust. However, since downdraught still occurs and exhaustion of e.g. smoke and heat is not particularly efficient, the problems on these matters are not solved in a satisfactory extend.

[0005] DE 20 2005 019 510 U1 discloses a moveable set of deflector elements comprising one or more elements for mounting on the interior of the frame of an opening in the roof for ventilation and/or a roof window. The elements may be placed in an intermediate chamber so as not to be visible from the interior as well as the exterior of the building. As the ventilation flap or the window is opened the deflector elements are moved from a hidden an inactive position below the roof surface to an

active position, extending out from and above the roof surface. The same conditions as described above regarding a slightly improved, but still inefficient and insufficient aerodynamic effect, also apply to this piece of prior art.

[0006] It is an object of the invention to provide at kit of deflector elements making it possible to provide a traditional standard window with improved ventilating properties in an easy and reliable manner. It is a further object to provide a window having improved ventilating properties.

[0007] In a first aspect of the present invention, this object is met by the provision of a kit of deflector elements of the kind mentioned in the introduction, said kit being characterized in that the kit furthermore comprises a second set of deflector elements adapted to be mounted on the sash to cover, in the mounted position, at least a part of the window pane in at least the open position of the sash.

[0008] The two sets of deflector elements make it possible to after-mount the kit on the frame and the sash, respectively, in a particularly easy manner. Furthermore, the combined effect of having deflector elements not only on the frame but also on the sash has turned out to provide a traditional standard window with such improved aerodynamic properties at the window opening that the window may be approved as a natural smoke and heat exhaust ventilator according to specifications set by a number of standards. The deflector elements of the two sets of the kit act as spoilers to deflect any wind striking the sash in the open position of the window.

[0009] In one embodiment, the first set of deflector elements includes a plurality of substantially planar plates. The plates of said plurality of plates may be connected with each other to form a coherent deflector frame unit, or the plurality of plates may be constituted by a single plate forming a deflector frame unit. The provision of plates provides for a simple, yet reliable deflecting or spoiler effect around the circumference of the frame of the window.

[0010] The second set of deflector elements is preferably, in the mounted position, connected with the members constituting the sash, on the inner side of the sash. This position protects the elements of the second set against the weathering when the window is closed, and the deflecting function is nevertheless fulfilled when the window is in its open position.

[0011] In one embodiment, which is particularly simple with respect to manufacture and mounting, the second set includes a first plate and a second plate, each first and second plate extending, in the mounted position, part of the way between two opposite members of the sash to cover the window pane at least partially.

[0012] Preferably, the first and second plate extend, in the mounted position, at an angle with respect to the window pane, said angle being between 5° and 60°, preferably between 15° and 45°. The first and second plates function as slopes for the wind striking the window, thus

facilitating the flow towards the sides of the window.

[0013] This effect is pronounced even further in a further development of this embodiment, in which said second set further includes a third plate extending, in the mounted position, between said opposite members of the sash. The third plate acts as a base preventing air, smoke or heat exhaust from flowing back towards the interior.

[0014] An even further enhancement of this effect is accomplished in yet a further development of this embodiment, in which said third plate includes a flange protruding, in the mounted position, from said third plate, covering at least partially the window pane and/or said first and second plate of said second set of deflector elements. Said flange is preferably orthogonal to the third plate and hence parallel with the window pane. Said flange forms, together with said window pane and/or said first, second and third plate, a kind of trough assisting in and enhancing the prevention of air, smoke or heat exhaust from flowing back toward the interior. Also, said flange adds more stiffness to the plate.

[0015] Alternatively, the second set includes a first deflector element extending, in the mounted position, between two opposite members of the sash. This provides for an easy mounting; however, a larger area of the window pane is covered by the deflector element in comparison with the embodiment having first and second plates extending at an angle with the window pane.

[0016] The first deflector element may, in the mounted position, be substantially parallel to or convex with respect to the window pane.

[0017] In order not to impede the influx of daylight and the view towards the exterior, the deflector elements of at least the second set are preferably transparent.

[0018] Alternatively, or additionally, the deflector elements of the second set may be movable between a first position and a second position, the deflector elements covering a larger area of the window pane in said second position than in said first position. This provides for the possibility of having the advantages of a virtually unimpeded influx of daylight and unhindered view towards the exterior when the window is closed, while at the same time retaining the deflector or spoiler effect when the window is opened and in its function as a smoke and heat exhaust ventilator.

[0019] In a second aspect, a window comprising a kit of deflector elements as defined in the above is provided.

[0020] The window may be substantially rectangular, and the frame and the sash may each have a top and a bottom member and two side members, respectively, the hinge axis being positioned along a line between the two side members or between the top member and the bottom member.

[0021] In a further embodiment, an alternative position of the hinge axis is provided at a side, top or bottom member.

[0022] In the following the invention will be described in detail by means of examples of embodiments with ref-

erence to the schematic drawings, in which

Fig. 1 is a perspective view of an embodiment of the window according to the second aspect of the invention comprising a first embodiment of the kit according to the first aspect of the invention;

Fig. 2a is a view of the window shown in Fig. 1, seen from the front;

Fig. 2b is a view of the window shown in Fig. 1, seen from the side; and

Fig. 3 is a perspective view of an embodiment of the window according to the second aspect of the invention comprising a second embodiment of the kit according to the first aspect of the invention.

[0023] The window according to the invention and shown in the Figures is based on a rectangular pivot window of a known and common type. This type of window has a frame 1 and a sash 2 connected with the frame 1 by means of hinges (not shown) at the side members 1c, 1d and 2c, 2d of the frame 1 and sash 2 to form a hinge axis 3 substantially half-way between the top member 1a, 2a and the bottom member 1b, 2b of the frame 1 and sash 2, respectively. The sash 2 carries a window pane 4. The window may for instance be built into the surface of an inclined roof having a roofing material such as tiles, slates or the like by mounting the window to the underlying roof structure to provide daylight from the exterior, possibly a view to the exterior and ventilation to and from a room in a building below the roof.

[0024] The sash 2 is, in a manner known *per se*, movable between a closed position and an open position by any suitable means of operating mechanism (not shown), such as a chain operator or a pressure medium activated operator connected with for instance the bottom members 1b and 2b of the frame 1 and sash 2, respectively. In the position shown in Fig. 1, the sash 2 is in a fully open position and the general plane of the sash 2 formed by its members 2a, 2b, 2c and 2d is substantially at right angles to the corresponding plane of the frame 1. Thus, a window opening in two parts is provided, one part being delimited by the frame bottom member 1b, the lower halves of the side members 1c and 1d, the sash side members 2c and 2d in the area of the hinges and the window pane 4. The other part of the window opening is delimited in a similar manner on the opposite side of the window pane 4. Other opening angles are of course conceivable and may be controlled by the operating mechanism.

[0025] In order to improve the aerodynamic properties around the window opening a kit of deflector elements is provided. The kit includes a first set of deflector elements generally designated 10 adapted to be mounted on the frame 1 to surround at least a part of the frame, and a second set of deflector elements generally designated 20 adapted to be mounted on the sash 2 to cover, in the mounted position, at least a part of the window pane 4 in at least the open position of the sash.

[0026] In the embodiment shown in Figs 1, 2a and 2b, the first set of deflector elements 10 includes a plurality of substantially planar plates 11-14. The plates 11-14 may be connected with each other to form a coherent deflector frame unit to be mounted on the frame 1 either before the mounting, or the plates 11-14 may be mounted separately and subsequently connected with each other. Alternatively, the plurality of plates may be constituted by a single plate forming a deflector frame unit. The plates 11-14 constituting the deflector elements of the first set 10 may be connected with the frame 1 in any suitable manner. In Fig. 1, one example is indicated, i.e. by a number of brackets 15 fastened to the outer side of the frame members 1a-1d for connection with corresponding brackets 16 fastened to the plates 11-14, only four brackets 15, 16 being shown in Fig. 1. The number of brackets may vary in dependence on the dimensions of the window; however, 2-4 brackets at each frame member of the window are considered suitable. The brackets are preferably formed in such a manner that they allow the first set 10 to collapse in the case of for instance heavy snow load but still to remain connected to the window.

[0027] As shown most clearly in Figs 2a and 2b, the plates 11-14 constituting the deflector elements of the first set 10 are mounted at a distance from the outer side of the frame 1 as measured in the plane of the frame 1 and in such a manner that they protrude well above the frame 1 in the height direction, however with a slight overlap with the frame 1. The dimensions of the plates 11-14 and hence of the deflector frame unit depend on the dimensions of the window, in particular of the dimensions of the frame 1. In the embodiment shown, the plate 12 at the bottom member 1b of the frame 1 has the measures 1500mm x 175mm as compared to the corresponding dimensions of the frame which are 1340mm x 128mm. Of the full height dimension of the frame, only a part protrudes above the roof surface.

[0028] The height of the other plates 11, 13 and 14 may be the same as the height of plate 12, or the height may vary among the individual plates. In order to adapt the first set 10 to the different types of roofing materials available, the plates 11-14 are mounted to be height adjustable with respect to the frame 1. This height adjustable mounting may be carried out in any suitable manner, for instance by making the brackets 15, 16 as indicated in Fig. 1 adjustable. The protrusion of the plates entails that wind hitting the window is deflected and the deflector elements hence act as spoilers. This reduces the risk of a downdraught, which is particularly critical when the window functions as a ventilator for smoke and heat exhaust.

[0029] As may be seen from Fig. 2, the plates 13, 14 are positioned at a distance from the corresponding side members 1c, 1d of the frame 1. Correspondingly, plates 11 and 12 are mounted at a distance from the respective member 1a and 1b of the frame. The distance between the plates 11-14 and the outer side of the respective frame members 1a-1d lies in the range 50-200mm, in the embodiment shown approximately 80mm. Consequent-

ly, the plates 11-14 are situated at an even further distance from the respective members 2a-2d of the sash 2. By positioning the plate members 11-14 constituting the deflector elements of the first set 10 at a distance from the frame 1 and the sash 2, combined with the fact that there are no flanges or edges on the plates 11-14 forming a bottom, a free passageway is created surrounding the outer side of the frame 1 (apart from the brackets). This prevents snow, leaves and debris from gathering within the deflector frame formed by the plates 11-14, as it may pass below the plates 11-14 and further out on the roof surface.

[0030] The plates 11-14 forming the elements of the first set 10 of deflector elements in the first embodiment of the kit may be made from any suitable material, but should at least be able to withstand the temperatures which may arise in smoke and heat exhaust and not deteriorate due to exposure of sun light and weathering in general. The material may be coloured, opaque or even transparent.

[0031] In the following, the second set of deflector elements 20 of the first embodiment of the kit according to the invention will be described in further detail. The second set 20 cooperates with the first set 10 in the open position of the window to ensure a sufficient discharge or flow of air, smoke and/or heat exhaust through the window opening.

[0032] In the embodiment of Fig. 1, the second set of deflector elements 20 includes a first plate 21 and a second plate 22 connected with the sash side members 2c and 2d, respectively, on the inner side of the sash 2, i.e. the side which faces towards the room when the window is closed. Each first and second plate 21, 22 extends part of the way between the two opposite side members 2c, 2d of the sash to cover the window pane 4 partially. In the embodiment shown, the plates 21, 22 have a substantially identical configuration; however, they may also be configured differently from each other. Hence, the following description is made with respect to the first plate 21, conditions being similar (however mirror-inverted) with respect to the second plate 22.

[0033] The first plate 21 is at one end 21a fastened to the sash side member 2c near or at one edge thereof, namely at the transition between the face adjoining the window pane 4 and the inwards facing face (again in the closed position of the window). Said fastening is provided e.g. by means of a flange extending from said one end 21a of the first plate 21, and also suitable fastening means, such as screws. Said flange is for instance folded back so as to, in the mounted position, be abutting the face of the sash side member 2c adjoining the window pane, or the inward facing face of same sash member (in the closed position of the window). The other end 21b is positioned close to, possibly in abutment with, the window pane 4. In connection with the close positioning and possible abutting of the other end 21b of the first plate 21 with the window pane, a packing 24 (not clearly discernible in the figure) is provided in order to avoid noise.

Consequently, the first plate 21 extends, in the mounted position, at an angle with respect to the window pane 4. The angle depends on the dimensions of the window but may be between 5° and 60°, preferably between 15° and 45°. Generally, a smaller angle provides a better deflecting effect on wind hitting the window, but entails that a larger area of the window pane 4 is affected by the presence of the plates 21 and 22 for the same size plate. In the embodiment shown, the total width of the window sash 2 measured between the sash side members 2c, 2d, i.e. the visible width of the window pane 4, is approximately 1170mm. The thickness of the sash side member 2c between the window pane 4 and the inwards facing face of the frame side member 1c is approximately 50mm. The first plate 21 has a length between the first and second ends 21a and 21b of approximately 158mm, the angle hence being approximately 18° and the plate 21 covers approximately 150mm of the window pane 4, thus corresponding to the plates 21 and 22 covering a total of 25% of the width of the window pane 4. As to the width of the first and second plates 21, 22, i.e. the dimension along the sash side members 2c, 2d, this dimension corresponds mainly to half of the total height of the sash, such that the plates 21, 22 extend between the sash bottom member 2b and the hinge axis 3.

[0034] In this first embodiment of the kit of deflector elements, the second set 20 further includes a third plate 23 extending, in the mounted position, between the opposite side members 2c, 2d of the sash 2. The third plate 23 is positioned with one longitudinal edge 23c facing, possibly in abutment with, the window pane 4 and extends substantially at right angles to the window pane 4. In connection with the facing and possible abutment of the longitudinal edge 23c of the third plate 23 with the window pane 4, here too a packing 24 (not clearly discernible in the figure) is provided in order to avoid noise. Ends 23a and 23b are fastened, in any suitable manner, to the sash side members 2c, 2d adjacent the first and second plates 21, 22. Said fastening is provided e.g. by means of flanges extending from both ends 23a, 23b of the third plate 23, and also suitable fastening means, such as screws. Said flanges are for instance folded back so as to, in the mounted position, be abutting the face of the sash side members 2c, 2d adjoining the window pane. The other longitudinal edge 23d is positioned substantially in flush with the inwards facing face of the sash side members 2c, 2d; however, smaller heights of the third plate 23 are of course conceivable. In the embodiment shown, the measures of the third plate are approximately 1170mm x 50 mm. The third plate 23 thus forms a kind of division bar extending across the window pane 4. Without being bound by theory, it is believed that the third plate 23 acts as a base in the chamber formed by the first, second and third plates 21, 22 and 23 and the window pane 4, thereby forcing the flow resulting from wind striking the sash 2, air and possibly smoke and heat exhaust from the interior, outwards and to the sides of the window, instead of resulting in an inflow towards the in-

terior of the building. The provided packing 24 is believed to enhance this effect.

[0035] In a further development of this embodiment a flange 23e is protruding from the edge 23d of said third plate 23, in the mounted position, covering at least partially the window pane 4 and/or said first and second plates 21, 22. Said flange 23e is preferably orthogonal to the third plate 23 and hence parallel with the window pane 4. Said flange 23e forms together with said window pane 4 and/or said first, second and third plates, 21, 22, 23 a kind of trough, which is believed to enhance the above discussed advantageous effect regarding the deflection of striking wind etc. Also, said flange 23e adds more stiffness to the third plate 23.

[0036] The plates 21-23 forming the elements of the second set 20 of deflector elements in the first embodiment of the kit may be made from any suitable material, but should at least be able to withstand the temperatures which may arise in smoke and heat exhaust and not deteriorate due to exposure of sun light and weathering in general. The material may be coloured, opaque or even transparent.

[0037] Although not preferred, it is conceivable for the plates to have other angles relative to the window pane and to extend across the entire window pane. For instance, two plates may extend from a respective side member of the sash to meet in a crest.

[0038] Turning now to Fig. 3, this Figure shows a perspective view of an embodiment of the window according to the second aspect of the invention comprising a second embodiment of the kit according to the first aspect of the invention. Elements having the same or analogous function as elements in the embodiment of Figs 1, 2a and 2b carry the same reference numerals to which 100 has been added. Only differences with respect to the above embodiment will be described in detail.

[0039] The window is of substantially the same configuration as in the above embodiment, i.e. including a frame 101 and a sash 102. The kit comprising the two sets of deflector elements 110 and 120 is, however, of a different configuration:

[0040] The first set of deflector elements 110 includes a plurality of substantially planar plates 111-114. However, the plates 113 and 114 at the sides, i.e. at the frame side members 101c and 101d, are made substantially shorter and are only connected with the plate 111 at the frame top member 101a but not to the plate 112 at the frame bottom member 101b such that the plates do not form a coherent frame. This configuration has shown to provide a sufficient effect on the flow resulting from wind striking the window and air, smoke and heat exhaust from the interior.

[0041] The second set of deflector elements 120 includes a first deflector element 125 extending, in the mounted position, between two opposite members 102c and 102d of the sash 102. In the embodiment shown, the first deflector element is 125 convex with respect to the window pane 104. However, the deflector element may

in principle be parallel to the pane, as long as the step between the window pane and the inner face of the respective sash side member is substantially eliminated. The width of the first deflector element corresponds in substance to the distance between the sash bottom member 102b and the hinge axis 103, i.e. approximately half of the total height of the sash 102. The deflector element 125 may be supplemented by further deflector elements. The material utilized should fulfil the same requirements as the materials of the corresponding elements in the above embodiment, primarily with respect to the requirements regarding temperature resistance, and may have any suitable colouring or be transparent.

[0042] Alternative forms of the deflector elements include a wing-shaped element having its largest dimension at the hinge axis and tapering towards the sash.

[0043] Calculations and test carried out in respect of the windows according to the above embodiments support the spoiler effect of the deflector elements in a window provided with a kit of deflector elements.

[0044] In the above embodiments, the deflector elements of the second set are formed as continuous elements remaining in the same position and having the same configuration throughout the operational positions of the window, i.e. in particular in the open and the closed positions. However, it is conceivable to design the second set in other ways, for instance as a plurality of lamellae which assume a first position when the window is closed, but are, preferably automatically, moved to a second position when the window is opened. For instance, the lamellae may be substantially perpendicular to the window pane in the closed position to allow a maximum influx of daylight, but move to the second position, e.g. by means of gravity, in which the lamellae form a more or less continuous surface to deflect air, smoke and heat exhaust. Another example is the use of a rolled-up deflector screen to form the set of second deflector elements, the screen being rolled-up at the bottom sash member when the window is closed, but is moved to an active position by rolling out of the screen when the window is opened.

[0045] The invention should not be regarded as being limited to the embodiments shown and described in the above, but various modifications and combinations may be performed without departing from the scope of the appended claims. For instance, the window may be hinged at the top, bottom or one of the side members. In this case, the kit including the first and second sets of deflector elements may take other forms and be positioned in other manners than is the case in the shown pivot window having its hinge axis substantially half-way between the top and bottom members.

Claims

1. A kit of deflector elements for mounting on a window having a frame (1) and a sash (2) carrying a window

pane (4), said sash (2) being movable between a closed position and an open position, said kit comprising: a first set of deflector elements (10) adapted to be mounted on the frame (1) to surround at least a part of the frame (1), **characterized in that** the kit furthermore comprises

a second set of deflector elements (20) adapted to be mounted on the sash (2) to cover, in the mounted position, at least a part of the window pane (4) in at least the open position of the sash (2).

2. A kit according to claim 1, wherein said first set of deflector elements (10) includes a plurality of substantially planar plates (11, 12, 13, 14).

3. A kit according to claim 2, wherein the plates (11, 12, 13, 14) of said plurality of plates are connected with each other to form a coherent deflector frame unit, or the plurality of plates are constituted by a single plate forming a deflector frame unit.

4. A kit according to any one of the preceding claims, wherein said second set of deflector elements (20), in the mounted position, are connected with the members constituting the sash (2), on the inner side of the sash (2).

5. A kit according to claim 4, wherein said second set (20) includes a first plate (21) and a second plate (22), each first and second plate (21, 22) extending, in the mounted position, part of the way between two opposite members (2c, 2d) of the sash (2) to cover the window pane (4) at least partially.

6. A kit according to claim 5, wherein the first and second plate (21, 22) extend, in the mounted position, at an angle with respect to the window pane (4), said angle being between 5° and 60°, preferably between 15° and 45°.

7. A kit according to claim 6, wherein said second set (20) further includes a third plate (23) extending, in the mounted position, between said opposite members (2c, 2d) of the sash (2).

8. A kit according to claim 7, wherein said third plate (23) includes a flange (23e) protruding, in the mounted position, from said third plate (23), covering at least partially the window pane (4) and/or said first and second plate (21, 22).

9. A kit according to claim 4, wherein said second set (20) includes a first deflector element (125) extending, in the mounted position, between two opposite members (2c, 2d) of the sash (2).

10. A kit according to claim 5, wherein said first deflector element (125) is, in the mounted position, substan-

tially parallel to or convex with respect to the window pane (4).

11. A kit according to any one of the preceding claims,
wherein the deflector elements of at least the second
set (20) are transparent. 5

12. A kit according to any one of the preceding claims,
wherein the deflector elements of the second set (20)
are movable between a first position and a second
position, the deflector elements covering a larger ar-
ea of the window pane (4) in said second position
than in said first position. 10

13. A window having a frame (1) and a sash (2) carrying 15
a window pane (4), said sash (2) being hinge con-
nected with the frame (1) to form a predetermined
hinge axis (3), said sash (2) being movable between
a closed position and an open position, **character-**
ized in that the window comprises a kit of deflector 20
elements according to any one of claims 1 to 12.

14. A window according to claim 13, wherein the window
is substantially rectangular and the frame (1) and the
sash (2) each has a top and a bottom member (1a, 25
2a, 1b, 2b) and two side members (1c, 2c, 1d, 2d),
respectively, and wherein the hinge axis (3) is posi-
tioned along a line between the two side members
(1c, 2c, 1d, 2d) or between the top member (1a, 2a)
and the bottom member (1b, 2b). 30

15. A window according to claim 13, wherein the window
is substantially rectangular and the frame (1) and the
sash (2) each has a top and a bottom member (1a,
2a, 1b, 2b) and two side members (1c, 2c, 1d, 2d), 35
respectively, and wherein the hinge axis (3) is posi-
tioned at a side, top or bottom member.

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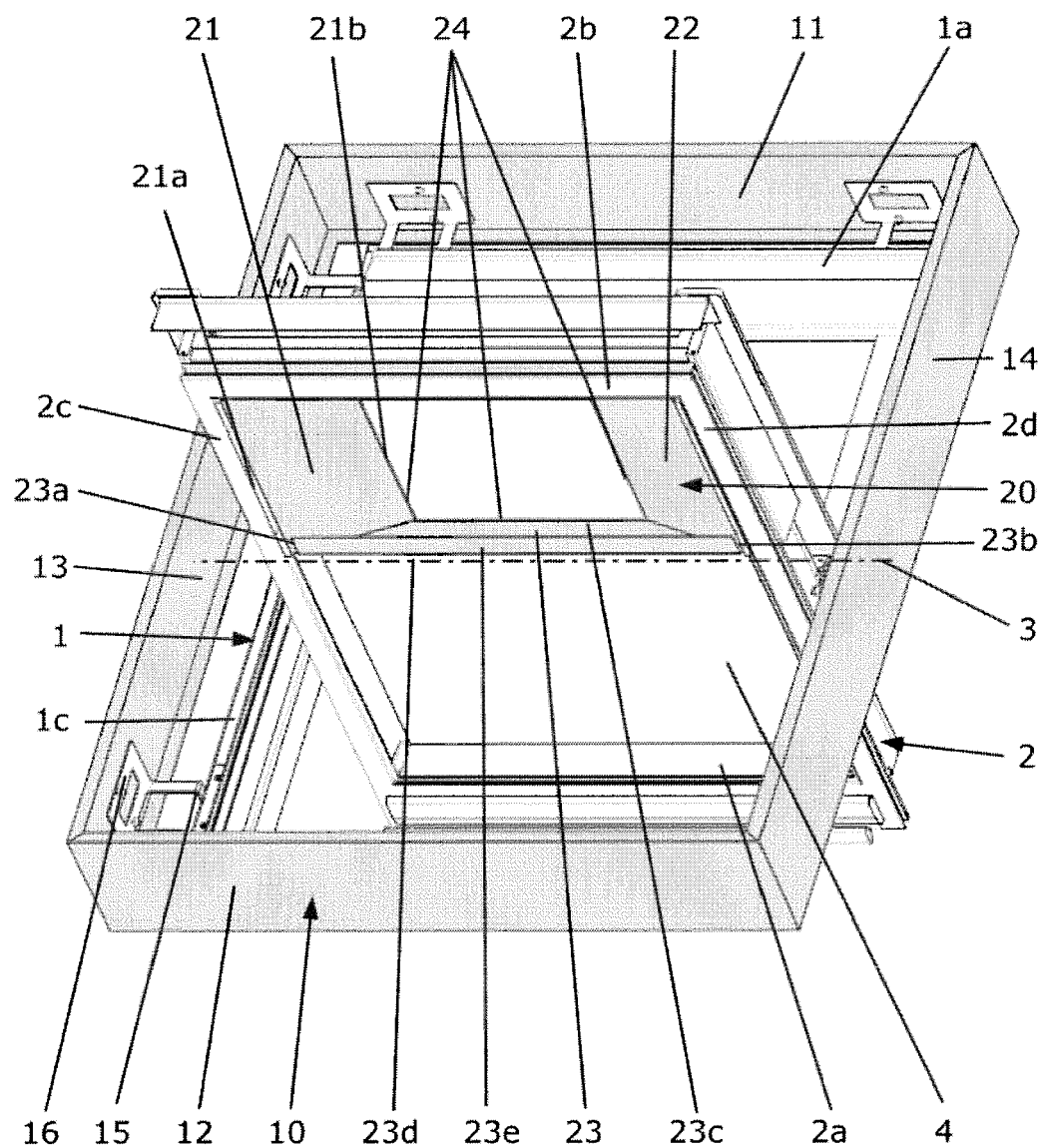


Fig. 1

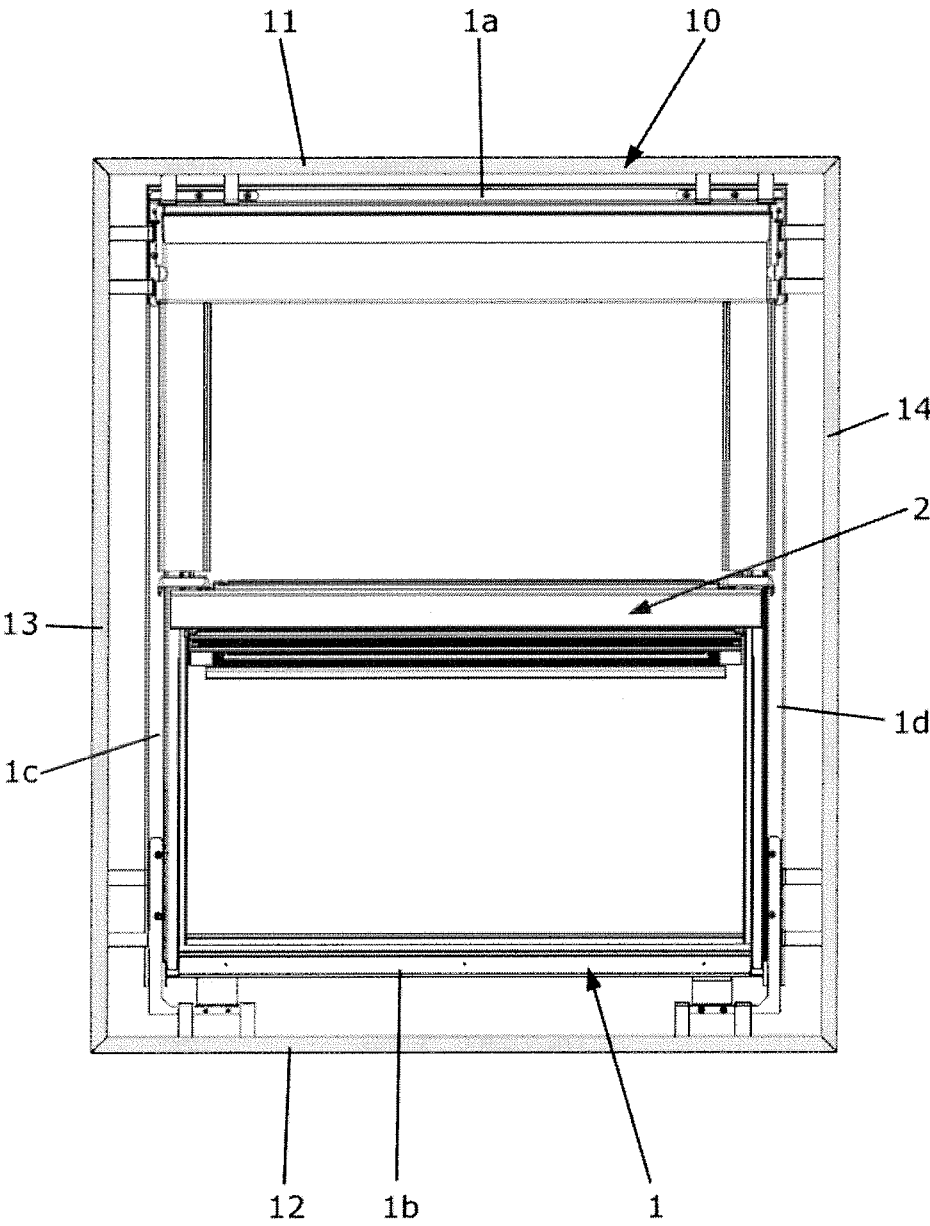


Fig. 2a

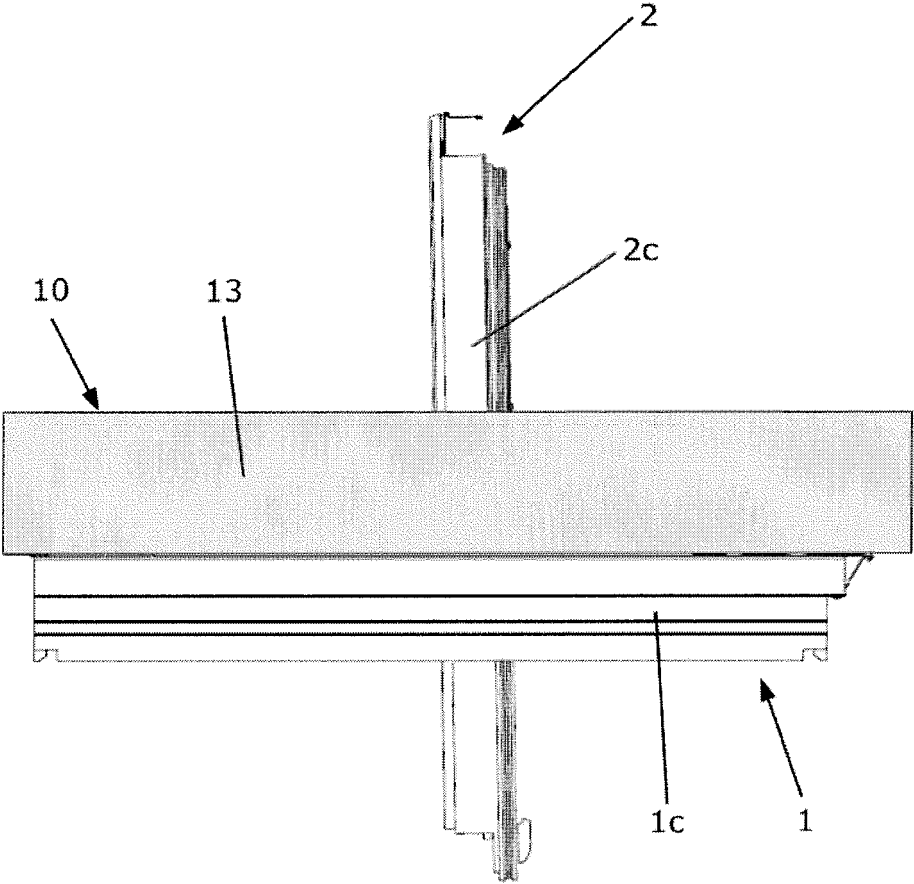


Fig. 2b

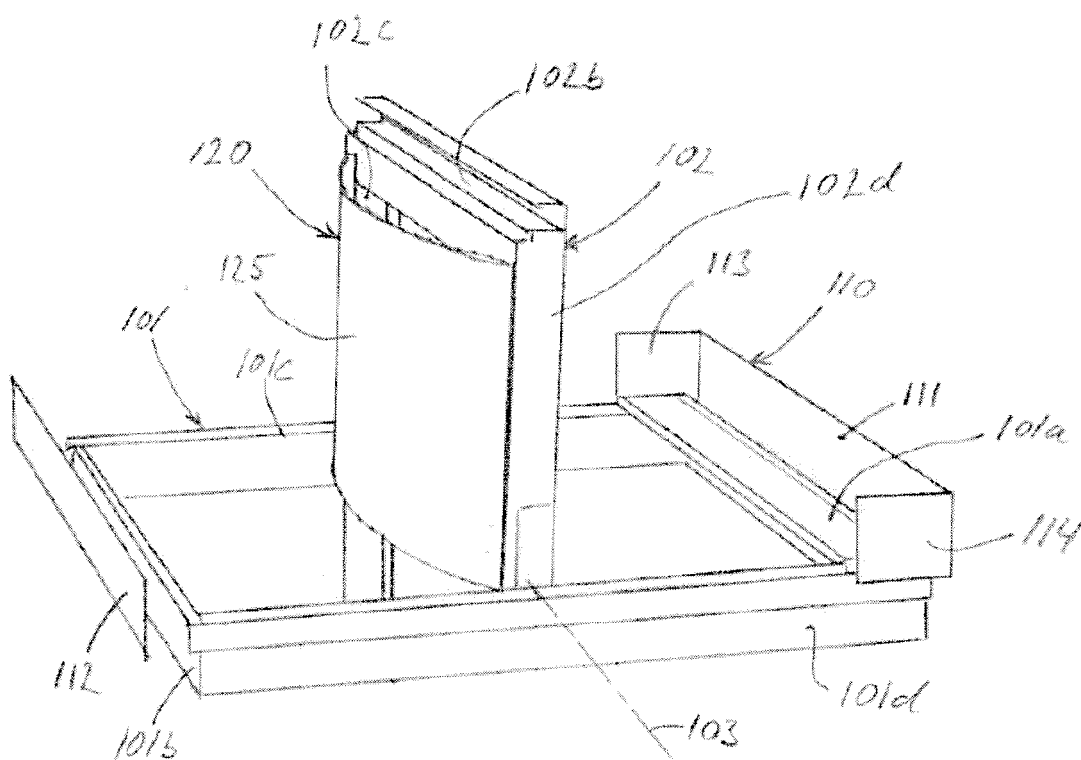


Fig. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 07 11 0533

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 380 707 A (HEXADOME [FR]; CT SCIENT ET TECH DU BATIMENT [FR]) 14 January 2004 (2004-01-14) * the whole document * -----	1-15	INV. E06B7/02 E04D13/035 F24F7/02
			TECHNICAL FIELDS SEARCHED (IPC)
			E06B E04D F24F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 September 2007	Examiner Geivaerts, Dirk
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