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F4V
(71) Applicant
Norcros Investments Limited
Reading Bridge House
Reading
Berkshire RG1 8PP
(72) Inventor
Alan Thomas John Succamore
(74) Agents
Mathisen Macara & Co
Lyon House
Lyon Road
Harrow
Middlesex HA1 2ET

(54) Sliding doors or windows adapted for ventilation

(57) A sliding door or window has a fixed frame head (8) which co-operates alternately with a removable apertured insert (22) to permit a ventilating airflow or with a solid insert to prevent such an air flow.

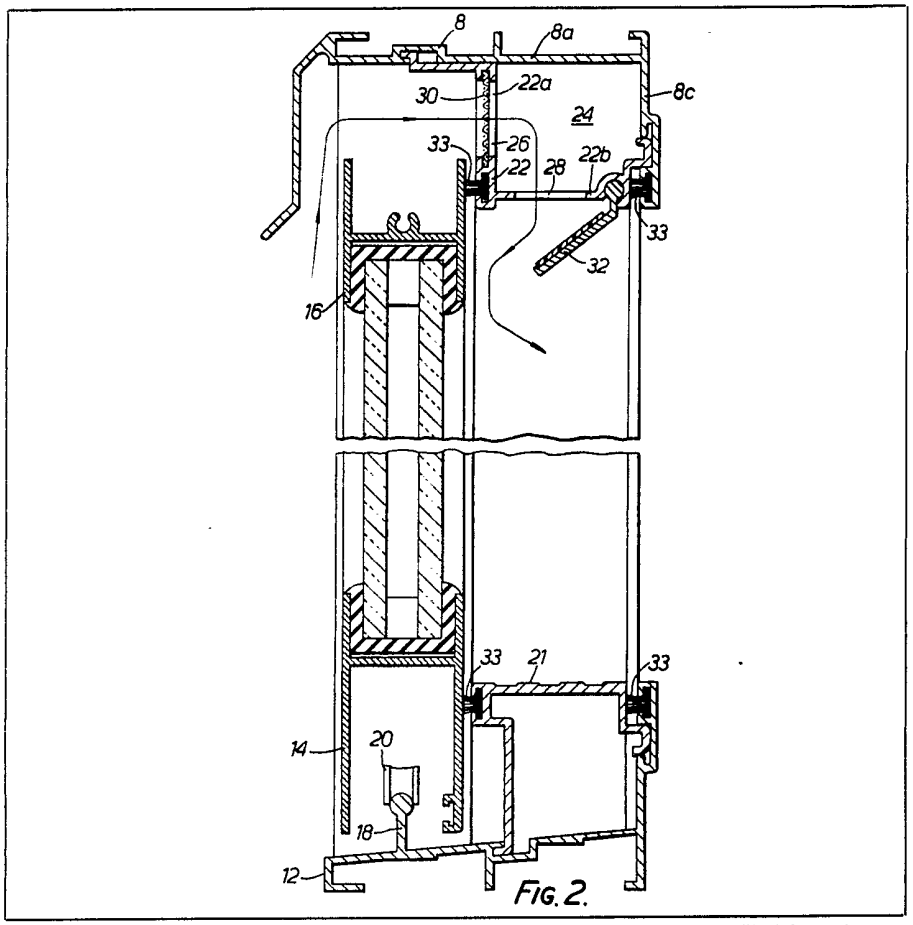

FIG. 2.

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The drawing(s) originally filed was/were informal and the print here reproduced is taken from a later filed formal copy.

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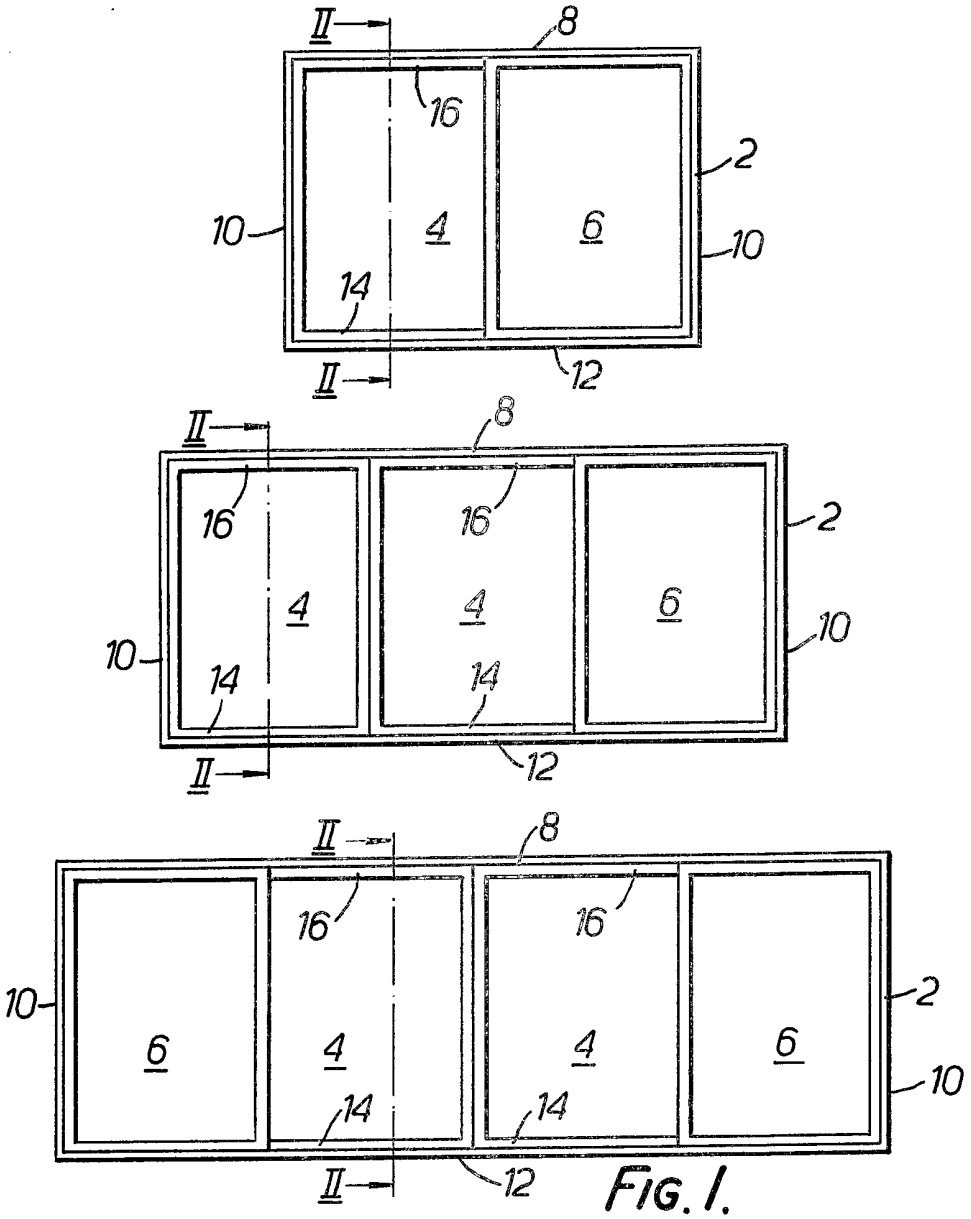
II
8
16
2
10
4
6
10
14
II
12
II
8
16
16
2
4
4
6
10
10
14
14
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4
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14
14
II
12

FIG. 1.

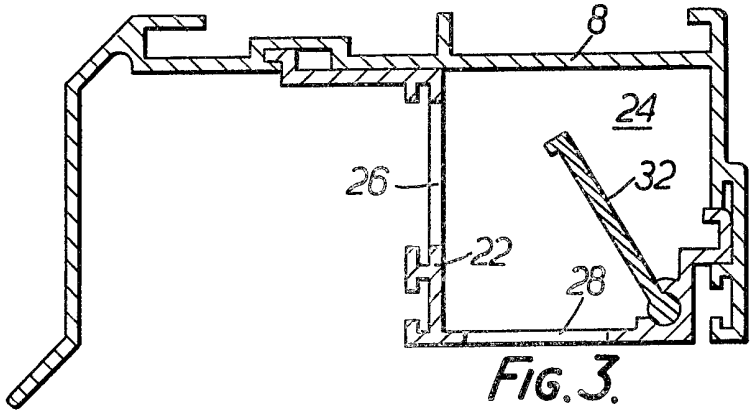
8
24
26
32
22
28

FIG. 3.

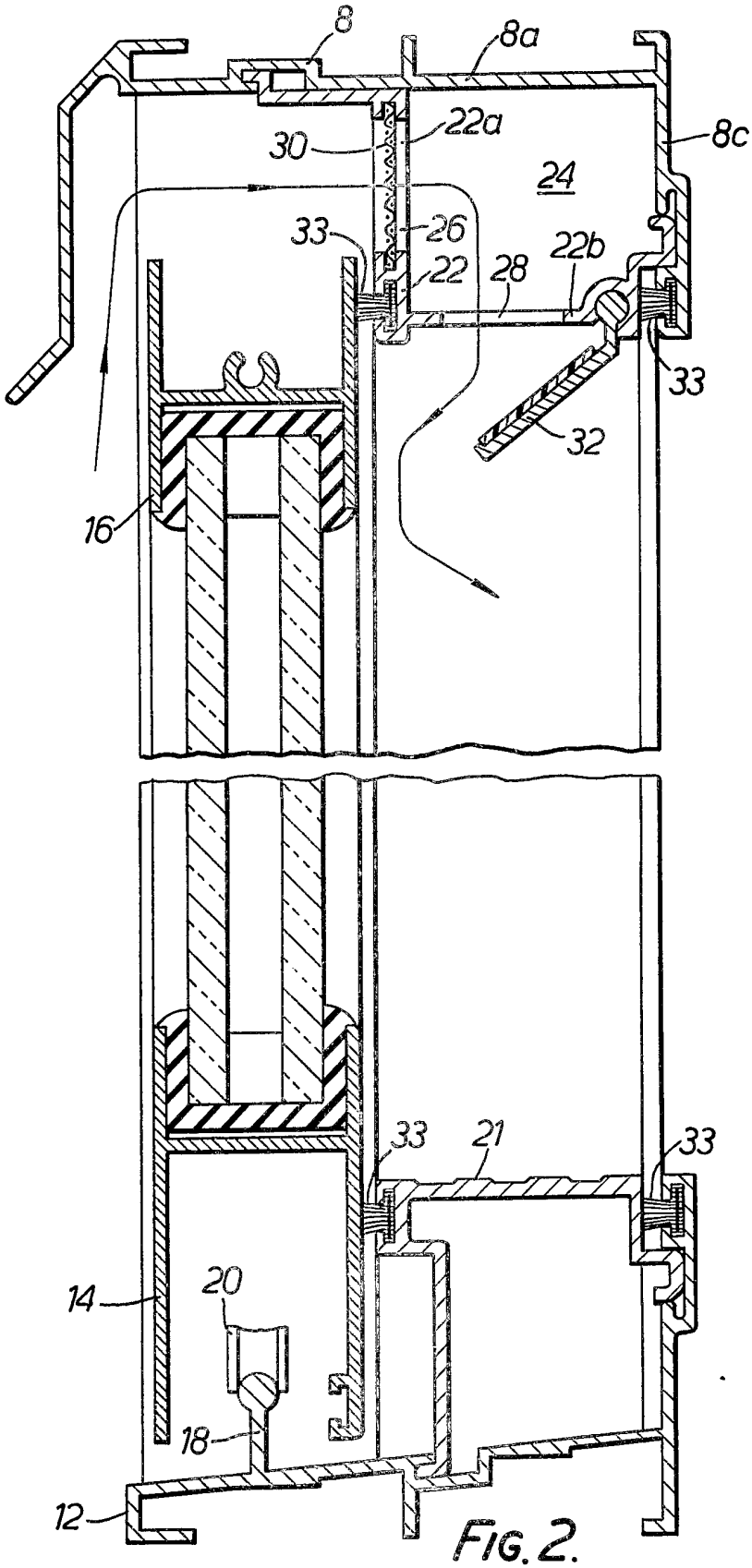

FIG. 2.

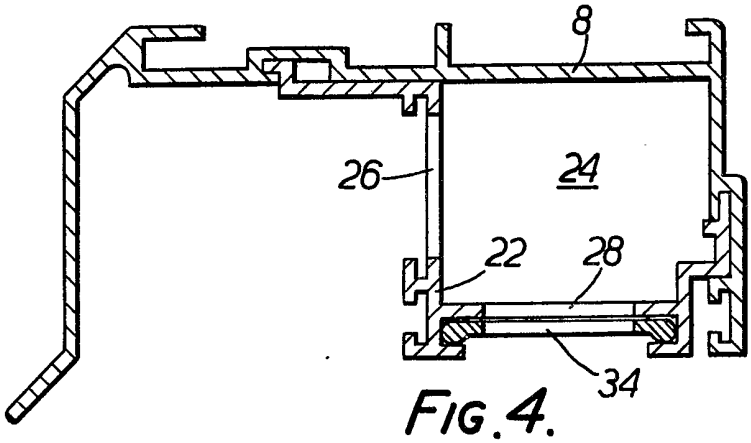

FIG. 4.

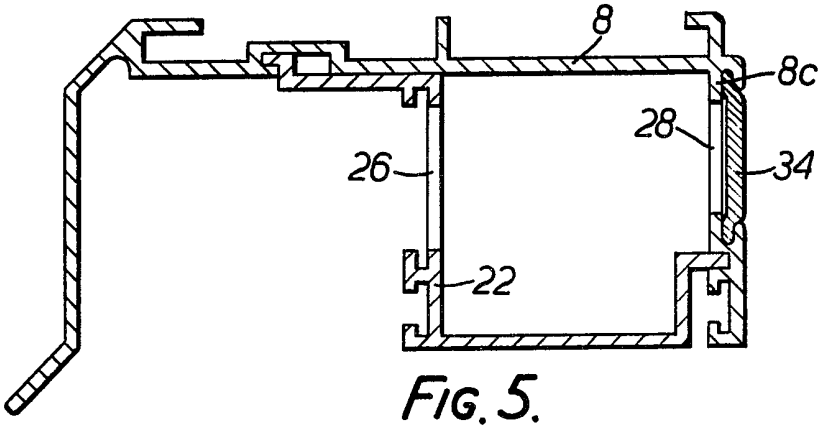

FIG. 5.

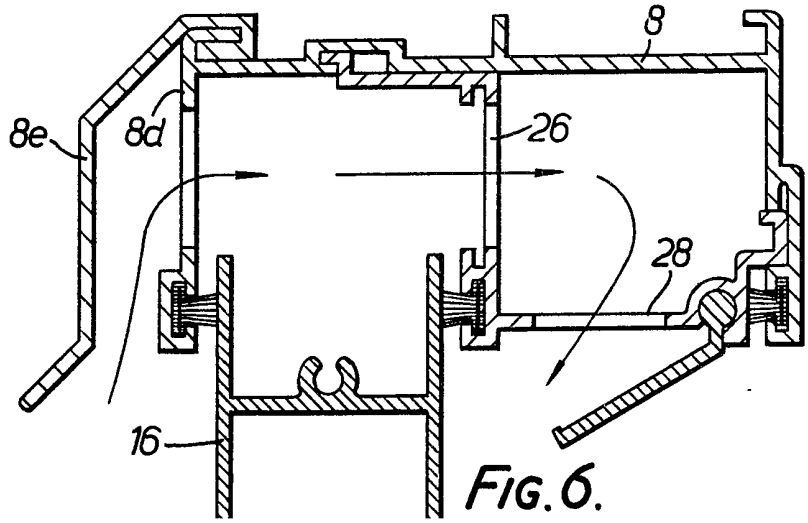

FIG. 6.

SPECIFICATION

Improvements in or relating to sliding doors or windows

The present invention relates to sliding doors or windows, and more particularly to so-called patio doors.

Patio doors conventionally comprises one or more sliding leaves or panels and one or more fixed leaves or panels mounted in a fixed outer frame. Each leaf consists of a frame, of which the upper side, sometimes referred to as the leaf head, is located within the upper side of the outer frame, this side of the fixed outer frame sometimes being referred to as the outer frame head. Usually, patio doors are supplied in kit form to an installer in a limited number of standard size kits (length and height).

It is often required to incorporate ventilation means into a patio door, for example either to meet building regulations when there are no other means in the room for providing ventilation, or when this is desired as an option by the customer. One way of providing suitable ventilation in a door assembled from a kit is to incorporate above the frame head, a further frame member which runs along the length of the frame head and which permits air flow from the outside, over the top of the frame head, and into the room. However, this means that the overall height of the frame is increased, and to permit the patio door to be mounted into an existing opening of standard height, the height of the fixed frame to the level of the frame head must be correspondingly reduced and thus the heigh of the leaves must be reduced; alternatively, the height of the opening could be increased. whichever method is adopted, increased costs will result. Another method of providing ventilation is to incorporate a ventilator into one or more of the leaves. This tends to be unsightly and also requires modifications to be made to the leaf which, again, leads to increased costs.

According to the invention, there is provided a kit for assembling an outer frame of a sliding door or window, said kit including means for providing an outer frame head, a ventilating insert selectively mountable in the frame head, and a non-ventilating insert selectively mountable in the frame head, one or other of said inserts being mounted in the head to provide, selectively, a ventilated or non-ventilated assembly.

Further according to the invention, there is provided a frame head for the fixed frame of a sliding door or window, said frame head including a replaceable insert mounted within the head, said insert being selected from an apertured insert or a solid insert, said apertured insert permitting a ventilating air flow from the outside to the inside through the head, and the solid insert preventing such air flow.

Still further according to the present invention, there is provided a frame head for the fixed frame of a sliding door or window, said frame head being of inverted channel section with a front wall, a top wall land a rear wall, a head of a sliding door or window leaf being located within the frame head in a channel defined between the front wall of the frame head and an opposed apertured wall lying between the front and rear walls, an air flow path being defined through the channel, from the outside to the inside via the apertured wall, said apertured wall being removably mounted on the head and being replaceable by a solid wall.

Preferably, shutter means are provided for selectively blocking the ventilation air flow

Embodiments of the invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawings, in which:

Figure 1 is an elevation of different configurations of fixed and sliding door leaves in a patio door, the elevation being from the inside of the door;

Figure 2 is a section on lines II–II of Fig. 1;

Figures 3 to 5 are sections similar to Fig. 2 showing modified shutter arrangements for the head of the fixed frame; and

Figure 6 is a section similar to Fig. 2 showing a modified form of frame head.

The patio door shown in the Figs. 1 and 2 of the drawings comprises a fixed outer frame 2, one (or more) sliding leaves 4, and one (or more) fixed leaves 6. The (or each) sliding leaf 4 is mounted in the frame 2, to lie in front of the plane of the (or each) fixed leaf 6, as viewed from the outside.

The frame 2 consists of a frame head 8, jambs 10, and a cill 12. Each door leaf likwise consists of a frame composed of a head, jambs, and a cill, the cill and head of the sliding leaf being designated 14 and 16 respectively. The various frame heads, jambs, and cills are formed from extruded sections, preferably aluminium extruded sections.

As shown in detail in Fig. 2, the cill 12 of the outer frame 2 includes an upstanding track 18 on which run grooved rollers 20 journalled within the sliding leaf cill 14 at opposite ends of the cill 14, so that the sliding leaf is supported from the track 18 by the rollers 20. The part of the outer frame cill 12 lying internally of the sliding leaf is covered with a threshold section 21, which is likewise in the form of an extrusion.

The head 8 of the outer frame 2 is generally of inverted channel-section configuration defined by a top wall 8*a*, a front (outside) wall 8*b*, and a rear (inside) wall 8*c*. The head 16 of the sliding leaf is positioned within the confines of the channel-section head 8, and an insert 22 is mounted within the head 8 in a 'snap-in' or screwed manner to define

therewith a rectangular duct 24 lying inwardly of the sliding leaf in the closed position thereof. It will be seen from Fig. 2, that the upper part of the leaf head 16 lies between the front wall 8*b* of the frame head 8, and a vertical outer wall 22*a* of the insert 22. The leaf head 16 is located laterally relative to these walls by buttons (not shown) positioned at spaced intervals along the length of the front and rear sides of the head 16 and projecting into engagement with the adjacent wall 8*b* or 22*a*. The buttons are composed of a suitable low-friction plastics material and slidingly engage the walls 8*b* and 22*a*.

The vertical outer wall 22*a* and a lower horizontal wall 22*b* of the insert are each provided with a series of longitudinally spaced ventilation apertures 26, 28 respectively. The apertures 26 are preferably covered by a flyscreen mesh 30 and the apertures 28 can be selectively mounted on the insert 22. For non-ventilated doors, the insert 22 is solid, that is to say it is not provided with the apertures 26, 28 and, of course, the corresponding shutter 32 is omitted.

The patio door assembly is completed by weather strips 33 at appropriate places as indicated in Fig. 2.

It will be apparent from Fig. 2 that when the shutter 32 is opened, air can flow into the room by passing between the front wall 8*b* of the outer frame head 8 and the adjacent side of the leaf head 16, over the top of the leaf head 16, through the apertures 26 into the duct 24, and thence through the open apertures 28 into the room. The size of the open area which provides the ventilation is such to comply with the appropriate building regulations.

In assemblies where no ventilation is required, the apertured insert 22 is replaced by an insert of identical cross-section but without any apertures. The insert (whether or not provided with the ventilation apertures) lies wholly within the confines of the frame head 8 and it will therefore be apparent the provision of a ventilator, which is simply provided by the apertures in the insert and the shutter, will not affect the overall height of the fixed frame, as occurs when a separator ventilation section is mounted above the frame head. Further the ventilator is virtually unobstrusive and lies above the sight line.

The insert can also be removed and replaced after the patio door has been installed, so that existing installations can be readily changed from ventilated to non-ventilated installations (or vice-versa) without any structural modifications.

Figs. 3 and 4 show modified shutter configurations. In Fig. 3, the shutter 32 is pivotal within the duct 24. In Fig. 4 the pivotal shutter has been replaced by an apertured sliding shutter 34 of the so-called "hit and miss" type which opens or closes the apertures 28 by placing apertures or solid portions of the shutter in registration with the apertures 28.

In Fig. 5, the apertures 28 are incorporated in the rear wall 8*c* of the frame head 8, rather than in the bottom wall of the insert 22. The apertures 28 can be opened or closed by a sliding shutter 34, as described in connection with Fig. 4.

In the arrangement shown in Fig. 6, the frame head 8 includes an apertured wall 8*d* lying immediately adjacent the front of the leaf head 16. A solid ducting hood of similar shape to the head wall 8*b* shown in Fig. 2 is provided by a separate strip 8*e* attached to the frame head 8 to lie in front of the wall 8*d*. The shutter can be as shown in any one of Figs. 2 to 5.

In a preferred modification of the arrangement of Fig. 6, the strip 8*e* and wall 8*d* are formed as an integral unit and are mounted in a removable manner on the frame head 8. For non-vented doors, an integral unit consisting of the strip 8*e* and a solid (i.e. non-apertured) wall 8*d* will be used in addition to a solid insert 22.

In each of the embodiments described above, the insert 22 has a vertical wall and a lower horizontal wall to define, with the outer frame head 8, the duct 24. The insert 22 lies inwardly of the sliding leaf in the closed position thereof, and in doors having more than one sliding leaves, there will be a corresponding number of inserts, the respective inserts thus extending between the fixed leaves, and/or between the outer frame jamb and the fixed leaves, depending on the positions of the fixed leaves within the outer fixed frame.

In alternative arrangements (not shown) the insert may consist primarily of the vertical wall 22*a*, and may extend along the entire length of the outer frame head 8, the horizontal wall 22*b* being omitted. A shutter may be provided in the opposite wall 8*c* of the frame head. Again the insert is replaceable and is either solid, or apertured to provide a non-ventilated, or ventilated door.

Although it is usually preferred to provide a shutter in each of the arrangements described, the shutter may be omitted, to provide permanent ventilation if this is required.

In practice, installers will be supplied with kits including both ventilating and non-ventilating inserts and the installer will incorporate the appropriate insert depending on whether a ventilated or non-ventilated installation is required. Although a customer may initially specify a non-ventilated installation, this can readily be changed to a ventilated installation, after installation has been completed, simply by replacing the non-ventilating insert with the ventilating insert without having to dismantle the door.

CLAIMS

1. A frame head for a fixed frame of a sliding door or window, said frame head including a replaceable wall part selected from an apertured wall part or a solid wall part, said apertured wall part permitting a ventilating air flow from the outside to the inside through the head, and the solid wall part preventing such air flow.

2. A frame head according to claim 1, wherein the replaceable wall part forms part of a replaceable insert mounted within the interior of the frame head, said replaceable wall part defining within the frame head a substantially vertical side wall of a channel within which the upper edge portion of the sliding door or window leaf is housed.

3. A frame head according to claim 2, further comprising shutter means for selectively blocking the ventilation air flow through the apertured wall part.

4. A frame head according to claim 3, wherein the shutter means is carried by the insert.

5. A frame head according to any one of claims 2 to 4, wherein the insert defines with a top wall and side wall of the frame head, a duct through which air can flow to the inside when the insert includes the apertured wall part, the air flow from the outside into the duct being through the vertical apertured wall part of the insert, and the air flow from the duct to the interior being via a generally horizontal wall of the insert, said horizontal wall being apertured.

6. A frame head according to claim 3 and claim 5, wherein the shutter means is operative to selectively close the apertured horizontal wall of the insert.

7. A frame head for the fixed frame of a sliding door or window, said frame head being inverted channel section with a front wall, a top wall, and a rear wall, an apertured wall lying between the front and the rear walls and defining with one of said wall a channel in which the head of a sliding door or window leaf is located, an air flow path being defined through the channel from the outside to the inside via the apertured wall, the apertured wall being removably mounted on the head and being replaceable by the solid wall to provide an alternative arrangement in which said air flow path is blocked.

8. A kit for assembling an outer frame of a sliding door or window, said kit including means for providing an outer frame head, a ventilating insert mountable in the frame head to define within the frame head part of a channel within which the head of a sliding leaf is located, said ventilating insert permitting air to flow from the outside to the inside over the head of the sliding leaf, and a non-ventilating insert mountable in the frame head in place of the ventilating insert, said non-ventilating insert, when fitted, serving to provide a non-ventilated assembly.

9. A frame head substantially as hereinbefore described with reference to the accompanying drawings.

10. A sliding door or window including a frame head according to any one of the preceding claims.

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