United States Patent [19]

Lovatt

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[54] **REVERSIBLE SASH WINDOWS**

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.**.....**49/192**

[51] **Int. Cl.**.....**E05d 15/52**

[58] **Field of Search**.....49/192

[56] **References Cited**

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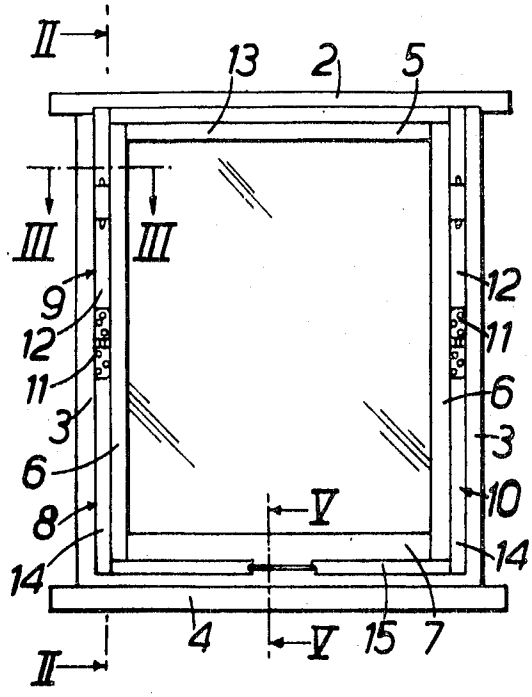
Primary Examiner—Kenneth Downey

Attorney—Burns, Doane, Swecker & Mathis

[57] **ABSTRACT**

A window includes a window frame and a window sash that may be swung outwardly or doubled back to expose the outside window surface at a location convenient for cleaning. A metal frame surrounds the sash and includes upper and lower parts hinged together at a middle portion of the sash. The upper metal frame part is pivotally connected to the upper end of the sash, and the lower metal frame part is fixed to the window frame. A locking device is slidable into one position which locks the upper metal frame part to the window frame so that the sash may swing open relative to the metal frame. The locking device is slidable into another position which locks the sash to the upper metal frame part for inward swinging movement about the central hinges.

6 Claims, 8 Drawing Figures



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2 Sheets-Sheet 1

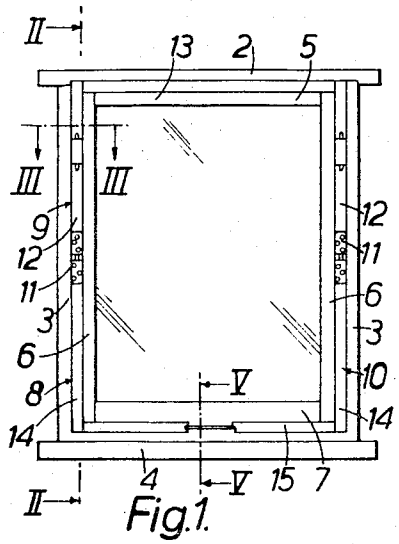


Fig.1.

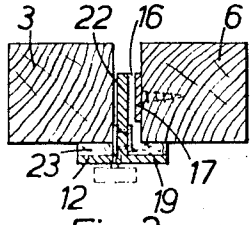


Fig.3.

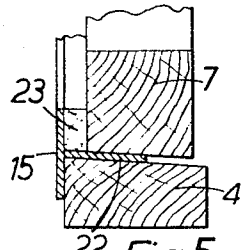


Fig.5.

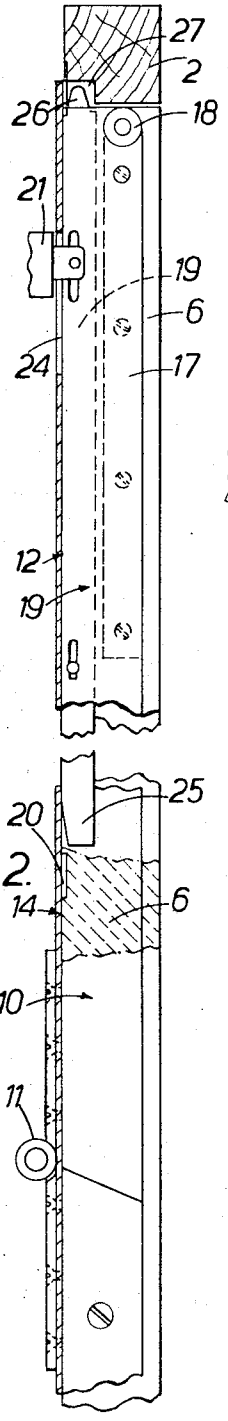


Fig.2.

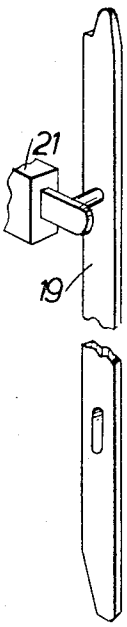


Fig.4

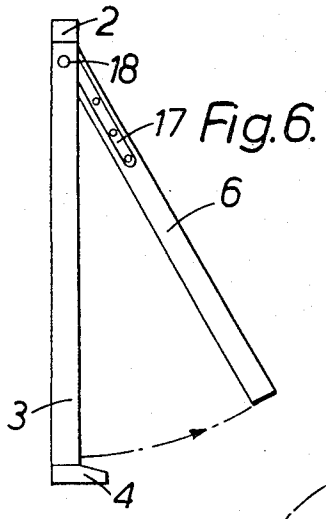


Fig.6.

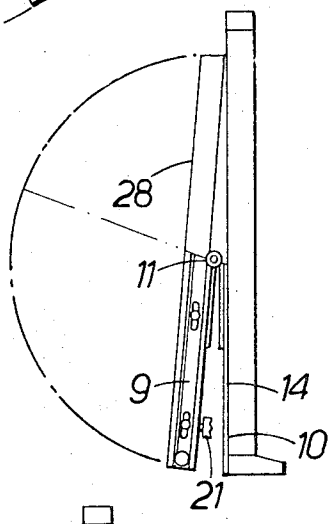


Fig.7.

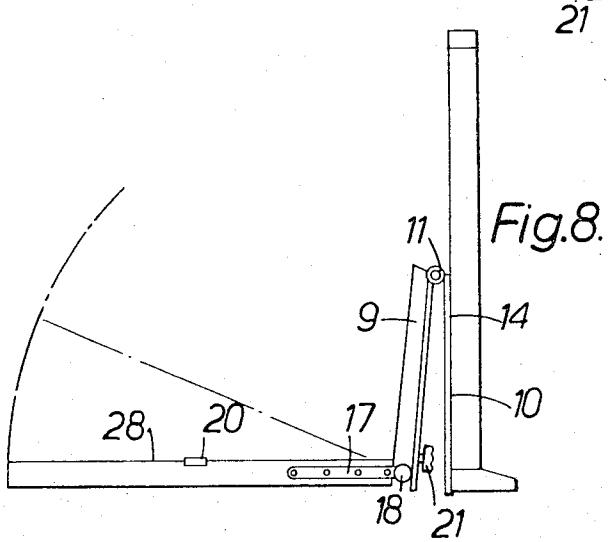


Fig.8.

REVERSIBLE SASH WINDOWS

This invention relates to reversible sash windows.

Reversible sash windows having pivoted sashes are known, but such windows have the disadvantages that they interfere with the curtain line and particularly with venetian blinds, when such blinds are fitted to the windows. Known reversible sash windows have a further disadvantage in that it is not easy to prevent the entry of damp at the top. Canopy type windows having reversible sashes and exceeding 2 ft. 3 in. in height are difficult to clean owing to the excessive reach required. This applies to any "easy clean" window of the conventional type.

An object of this invention is to provide a reversible sash window without the disadvantages previously mentioned, which can be opened outwardly of the window frame in the normal manner, and which can also be reversed by rotation through approximately 180° so that the glass can be readily cleaned from within a room.

According to this invention a reversible sash window comprises a window frame, a window sash mounted in the frame and adjustable locking means so arranged that the sash can either be swung outwardly relatively to a pivotal mounting at one end of the frame or can be reversed relatively to a pivotal mounting substantially central of the fame depending on the position of the adjustable locking means.

The invention also includes a reversible sash window comprising a window frame, upwardly extending elongated members each hingedly connected at its lower end to a vertical side member of the window frame substantially centrally thereof, pivot means at the upper end of each elongated member for the pivotal attachment of the window sash to the elongated members, adjustable locking means for locking the sach to the frame for opening the window or for locking the sash to the elongated members for reversing the window whereby the sash can be swung outwarly on its pivotal connection with the elongated members when the sash is locked to the window frame and can be reversed by angular movement about the substantially central hinges when the sash is locked to the elongated members.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings in which:

FIG. 1 is an elevation of the inside face of a window according to the invention;

FIG. 2 is a vertical section on line II — II of FIG. 1, drawn to an enlarged scale, and partly broken away;

FIG. 3 is a section on line III — III of FIG. 1 drawn to an enlarged scale;

FIG. 4 is an enlarged detail of the locking means;

FIG. 5 is a section on line V — V of FIG. 1;

FIG. 6 is a side elevation of the window, drawn to a reduced scale, and showing the sash opened outwardly;

FIG. 7 corresponds to FIG. 6, but shows the sash reversed and

FIG. 8 also corresponds to FIG. 6 but shows the sash turned into a substantially horizontal plane interiorly of the window.

Referring to FIG. 1, a window frame of conventional construction comprises a head 2, side members 3 and a cill 4. A sash, which normally fits in the frame, may also be of conventional construction comprising a top rail 5, stiles 6 and a bottom rail 7.

Covering the gap between the sash and the frame on the inside face of the window is a metal frame 8 having an upper part 9 and a lower part 10 which are connected together by a hinge 11. The upper part 9 comprises side members 12 which form upwardly extending elongated members, and a separate top member 13, while the lower part 10 comprises side members 14 and a separate bottom member 15, the members of both parts being T shaped in cross section to provide an inwardly projecting rib 22. The rib 22 of the top member 13 of the upper part 9 is fixed to the upper edge of the top rail 5 of the sash while the ribs 22 of the side members 12 are each spaced as at 16 from their adjacent stile 6 of the sash, as illustrated in FIG. 3.

The ribs 22 of the side member 14 of the lower part 10 of the metal frame 8 are each fixed to the adjacent vertical member of the window frame while the rib 22 of the bottom member 15 is inclined to the angle of the cill and is fixed to the cill as illustrated in FIG. 5. Thus, the lower part 10 of the metal frame is immovable since it is secured to the window frame while the upper part 9 is free to move relatively to the window frame.

Fixed in the angle of each T section member of both parts 9 and 10 of the metal frame 8 is a strip 23 of soft resilient material, for example sponge rubber, to form a weather seal for the window when closed.

Screwed to the outside edge of each stile 6 of the sash towards its top is a metal strip 17 the upper end of which projects above the top rail of the sash where it is pivotally connected as at 18 to the rib of the adjacent side member 12 of the metal frame 8, each strip 17 being accommodated in the space 16 between the stile and the rib see FIG. 3. The pivotal connections 18 enable the sash to be swung outwardly in the usual manner.

When the sash is being reversed, it is necessary that the sash be locked to the side members 12 of the upper part 9 of the metal frame 8. Suitable adjustable locking means comprises bolts 19 each slidably mounted on the interior side of the adjacent side member 12 of the upper part 9 of the frame 8. Fixed to each bolt 19 is an operating knob 21 which is movable in a slot 24 in the adjacent member 12 of the frame 8. The lower end of each bolt 19 is suitably bevelled at 25 so as to engage a plate 20, fixed to the sash, and wedge the sash against the side members 12 of the frame 8 when the knob 21 is moved downwardly. Thus, the sash is locked to the part 9. The upper end of each bolt 19 is suitably formed at 26 so as to engage in a recess 27 in the head 2 of the window frame and thus lock the side members 12 of the metal frame 8 to the window frame, while permitting the window sash to be swung outwardly as indicated in FIG. 6.

In order to reverse the sash, the bolts 19 are withdrawn from the head 2 whereupon the sash can be turned on the hinges 11 through 180° interiorly of room as illustrated in FIGS. 7 and 8 thereby enabling the outside surface 28 of the glass to be easily cleaned.

If desired, the sash when fully reversed, can be turned on the pivots 18 so that it lies substantially in a horizontal plane, as shown in FIG. 8, thereby enabling complete removal of the sash for repair or replacement.

In the construction described, the two locking bolts 19 are operated independently, but they may be operated simultaneously by any convenient means. Further, instead of the resilient strips 23 which prevent

the ingress of draughts, damp etc. through the window, the members which meet when the window is closed, may have one or more co-operating ribs and grooves which form labyrinths.

A window having a wood frame and sash has been described, but the invention is also applicable to metal or plastics window.

The drawings show the axes of the hinges **11** and the pivotal connections **18** as being disposed horizontally, but if required, the axes may be disposed vertically.

What we claim is:

1. A reversible sash window comprising a window frame, a window sash mounted in the frame, a metal frame covering the gap between the window sash and the window frame on the inside face of the window and having upper and lower parts connected together by a hinge, the upper part of the metal frame comprising a top member and side members which form upwardly extending elongated members and the lower part of the metal frame comprising a bottom member and side members which form downwardly extending elongated members, the downwardly extending elongated members being fixed to the adjacent vertical member of the window frame so that the lower part of the metal frame is immovably secured to the window frame, a metal strip fixed to the outside edge of each vertical member of the window sash adjacent to its top, a pivotal connection between the metal strip and the adjacent side member of the metal frame, and vertically adjustable locking bolts one at each side of the window sash adapted when in their upper position to lock the upper part of the metal frame to the window frame while permitting the window sash to be swung outwardly for ventilation without any part of the window sash projecting inwardly and adapted when in their lower position to wedge the sash against the upper part of the metal frame whereby the sash can be turned on the hinges which connect the upper part of the metal frame to the lower part.

2. A reversible window according to claim **1** wherein the metal frame is T shaped in cross section to provide an inwardly projecting rib and wherein the upper part of the metal frame includes a top member the rib of which overlies the upper edge of the top rail of the sash and side members the ribs of which are spaced from the adjacent vertical member of the window sash.

3. A reversible window according to claim **2** wherein the lower part of the metal frame has side members fixed to the adjacent vertical member of the window frame and a bottom member the rib of which is inclined to the angle of the cill and is fixed thereto.

4. A reversible window according to claim **1** wherein said sash is provided with a plate fixed thereto adjacent the path of each of said adjustable locking bolts, and wherein the lower end of each said bolt is bevelled for engagement with the said plate.

5. A reversible window according to claim **4** wherein the upper end of each bolt is suitably formed so as to engage in a recess provided in the top of the window frame to lock the upper part of the metal frame to the window frame while permitting the window sash to be swung outwardly.

6. A reversible window according to claim **1** wherein the bolts operate independently.

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