Feb. 25, 1958 J. N. BLAIR 2,824,340

WINDOW CONSTRUCTION

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Fig. 1.

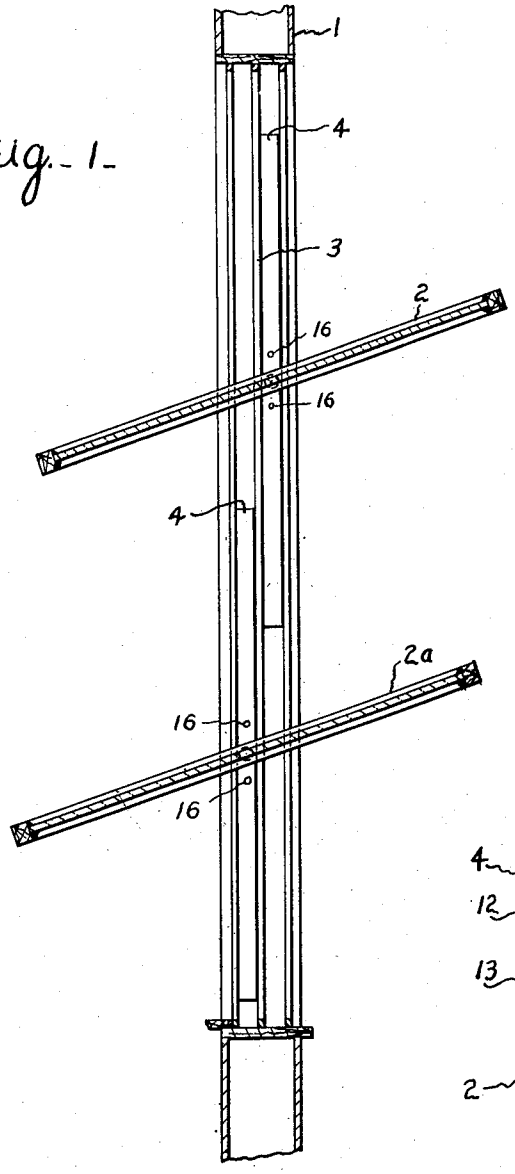
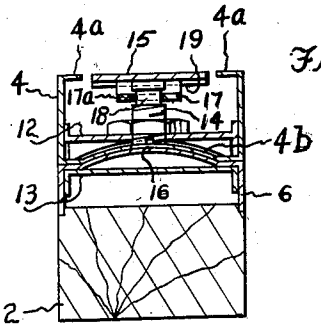


Fig. 7.



INVENTOR
JOSEPH N. BLAIR

BY

ATTORNEY

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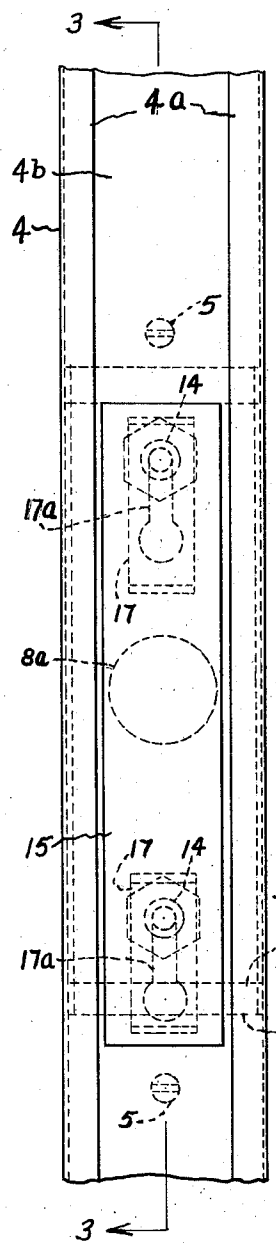


Fig. 2.

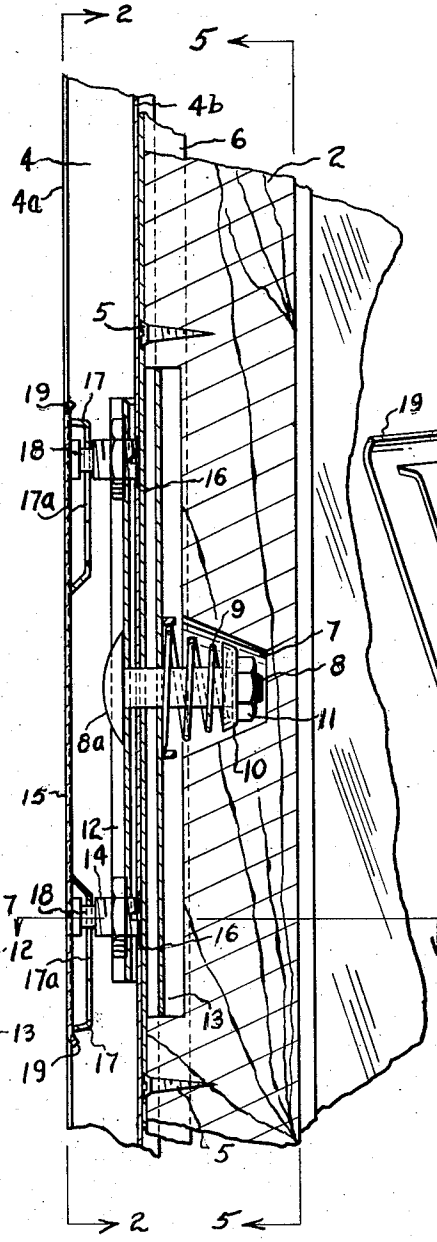


Fig. 3.

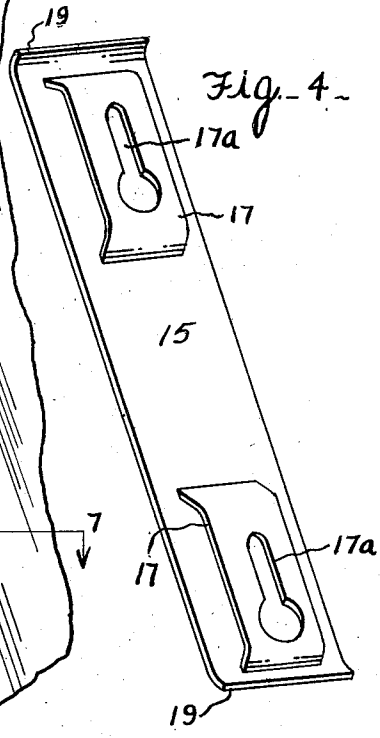


Fig. 4.

INVENTOR
JOSEPH N. BLAIR

BY J. S. Murray
ATTORNEY

Feb. 25, 1958 J. N. BLAIR 2,824,340

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Fig. 6.

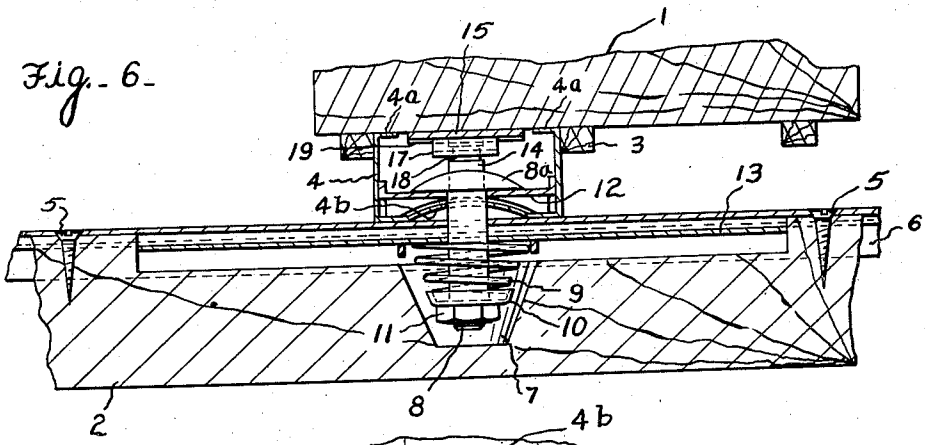
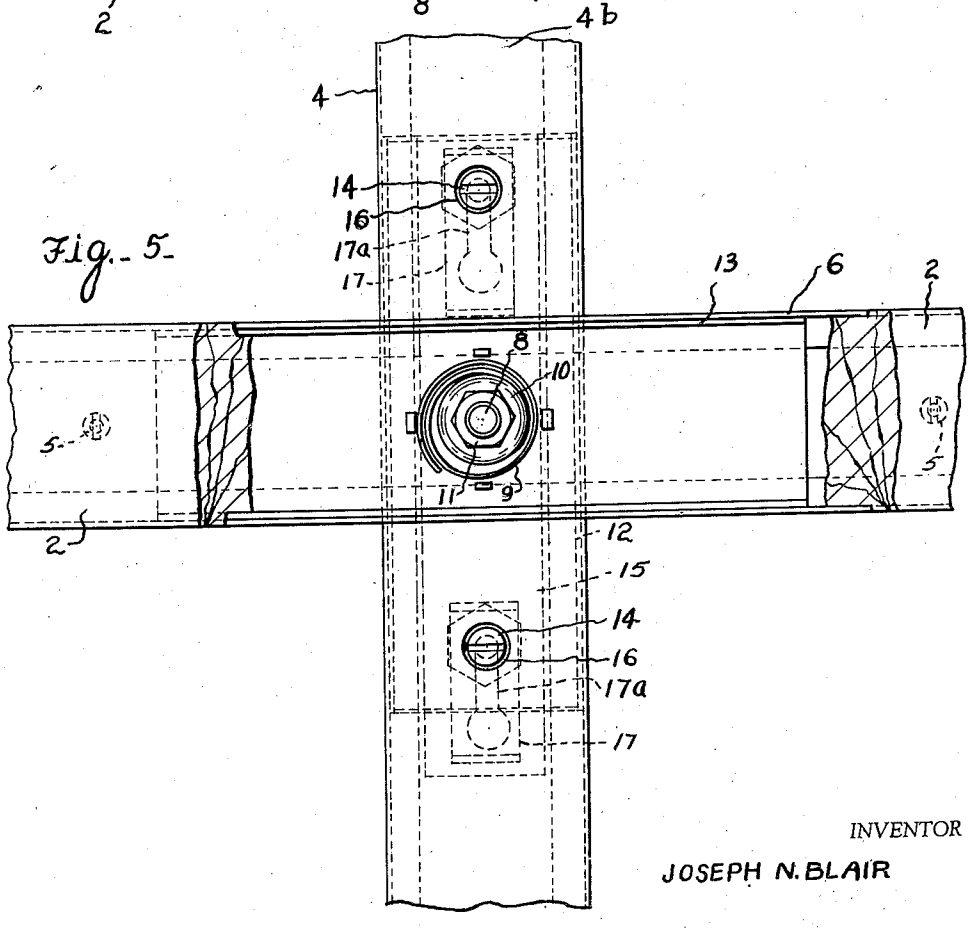


Fig. 5.



INVENTOR

JOSEPH N. BLAIR

BY

J. S. Murray

ATTORNEY

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WINDOW CONSTRUCTION

Joseph N. Blair, Detroit, Mich.

Application December 22, 1955, Serial No. 554,663

5 Claims. (Cl. 20—49)

This invention relates to window constructions and particularly to constructions employing pivotal sash.

An object of the invention is to horizontally pivot a sash upon and between a pair of vertical slide bars so that it may be swung to afford easy and safe cleaning of either face thereof, and further may be shifted up or down in unison with said bars to additionally facilitate cleaning.

Another object is to equip said slide bars with friction plates for bearing on the uprights of the window frame, and to regulate the pressure applied by such plates, so that the bars will be frictionally retained in any selective sliding position.

Another object is to impose a spring pressure on a horizontally pivoted sash along its pivotal axis, and thus frictionally maintain any desired pivotal position of the sash, to regulate ventilation or maintain a preferred position for cleaning.

Another object is to afford a ready regulation of the friction applying means.

Another object is to adapt my improved construction to be applied to window frames of the type now commonly equipped with upper and lower sliding sash.

These and various other objects are attained in the device described herein and illustrated in the accompanying drawings, wherein:

Fig. 1 is a cross sectional elevation of my improved window construction, showing the sash thereof tilted in the window frame.

Fig. 2 is an edge elevational view of the unit formed by a slide bar and a sash pivoted on such bar, the direction of sight being indicated by the line 2—2 of Fig. 3.

Fig. 3 is a vertical sectional view of such unit, taken on the line 3—3 of Fig. 2.

Fig. 4 is a perspective view of a friction plate, a pair of which are to be associated with each sash.

Fig. 5 is a fragmentary elevational view of said unit in partial section, showing a tilted position of the sash, the direction of sight being indicated by the line 5—5 of Fig. 3.

Fig. 6 is a cross-sectional view of the same.

Fig. 7 is a horizontal cross-section on the line 7—7 of Fig. 3.

In these views, the reference character 1 designates an ordinary two-sash window frame, equipped with upper and lower sash 2 and 2*a* and with the usual separating strips 3 between guide ways for such sash. Slidable up and down in each upright of the frame is a vertically elongated bar 4 formed preferably of sheet metal bent to a channel form. The longitudinal margins of each such bar confront the corresponding frame upright and are flanged at 4*a* to slidingly seat on the upright. Each bar 4 presents to the sash a wall 4*b* forming a shallow channel coextensive with said bar and having its depth gradually increased from its margins to its medial vertical plane. Secured by screws 5 to each upright of the sash is a sheet metal facing strip 6 having a slight convexity adapting it to conform to and normally fit in said

channel. Midway between the top and bottom edges of each sash upright, the latter has a socket 7 to accommodate a pivotal bolt 8 having its head 8*a* set within the corresponding bar 4. Within each socket 7, said bolt mounts a coiled spring 9 compressed between the strip 6 and a cap 10 retained on the bolt by a nut 11. Thus each such spring urges the corresponding bar 4 against the sash under a predetermined pressure, while the two aligned bolts 8 pivot the sash to tilt relative to the slidable bars. In tilting the sash, its convex facing strips must escape from the shallow channels of the bars 4, thus exercising a cam action on the bars to shift them slightly apart and impose a slight added compression on the coiled springs.

Set into the channel of each bar 4 beneath the corresponding bolt head 8*a* is a reinforcing metal plate 12, such plate being thus held firmly against the channeled wall of the bar by the corresponding spring 9. A similar reinforcing plate 13 is preferably carried by each sash upright, being interposed between such upright and its facing strip 6.

Threaded into the ends of each reinforcing plate 12 are a pair of headless screws 14 which jointly carry a vertically elongated friction plate 15 adapted to bear upon the window frame. The pressure applied through the plates 15 may be regulated by rotating said screws in the plate 12 to increase or diminish the spacing of each friction plate from its supporting plate 12. The screws 14 have their inner ends slotted (Fig. 3) or otherwise adapted to apply rotation, and each slide bar 4 is apertured at 16 to give access to said screws upon suitably tilting the corresponding sash.

To conveniently mount each friction plate on the corresponding screws 14, while affording such screws a rotative adjustment, it is preferred to install on the end portions of each such plate a pair of brackets 17 each having a key-hole slot 17*a*, the ends of each bracket being bent to space its slotted portion from the friction plate. Near its end carrying such plate, each screw has an annular groove 18, and in installing the plate, the latter is first positioned to locate the annular grooves in the plane established by the slots 17*a*, the enlarged ends of such slots then receiving the screws. Upon then sliding the friction plate lengthwise, the restricted portions of the key-hole slots are engaged in the grooves of the screws, thus affording the screws free rotative adjustment, while adapting the friction plate to be horizontally shifted by the screws. It is preferred to curve the ends 19 of each friction plate slightly away from the corresponding upright of the frame 1 so that such ends will not impede up and down sliding of such plate, as pressed against such upright.

Cleaning the outer faces of window glass is made much easier and safer by permitting the sash to be substantially reversed in position, as in the described construction, so that ready interior access may be had to exterior faces of the glass. Such faces cannot, in ordinary windows, be readily reached except from the exterior of a building. Cleaning of both faces of the glass is facilitated further by permitting the sash to be raised or lowered preliminary to tilting thereof.

It is a highly desirable feature of the construction that the frame-engaging slide bars are firmly pressed against the sash when the latter are closed so as to establish a quite secure weather seal. The interfitting relation of the slide bars and sash, when the latter are closed, also adds to the weather-sealing effect.

It is to be noted that the coiled springs 9 exercise a dual function in maintaining the aforementioned weather seal when the sash are closed and in maintaining any tilted position of the sash so that a desired and selective ventilation may be had.

Regulation of pressure applied to the frame **1** by the friction plates **15** is highly desirable to assure equalization of such pressure, as applied to opposite uprights of the frame, and in adapting the installation, as standardized, to any slight variations in the spacing of the uprights of different frames. The regulated frictional resistance to up and down travel of the bars **4**, serves to maintain any selected sliding position of such bars eliminating necessity for the usual counterbalancing springs or weights.

The slight increase in compression of the springs **9**, resulting from tilting the sash is desirable since the sash have a greater tendency to vary from any tilted position than from their closed positions in which they interfit with the bars **4**.

What I claim is:

1. In a window construction of the class comprising a frame having a window opening and a pair of opposed vertically elongated guideways, a pair of vertically elongated bars slidable up and down in said guideways, a sash mounted in said opening between the slide bars, and a pair of horizontally aligned pivot members jointly mounting the sash on the slide bars, the combination with said window construction of a pair of friction plates respectively mounted on the respective guide bars and engageable with the guideways of the frame to maintain selective vertical adjustments of the bars, and means mounting each friction plate on the corresponding slide bar, including means for selectively spacing such plate from the corresponding bar.

2. A window construction as set forth in claim 1, said friction plates being vertically elongated, and said mounting means being a pair of screws engaging the ends of each friction plate and having threaded engagement with said bar to effect said selective spacing.

3. A window construction as set forth in claim 2, said friction plates being similarly vertically elongated, and said means mounting each plate on the corresponding slide bar including a bracket fixed on each plate and formed with a key hole slot elongated lengthwise of such plate,

and further including an element secured to each bar and initially engageable in an enlarged end of said slot and annularly grooved to engage the margins of the restricted portion of said slot to retain the corresponding plate on said element responsive to a sliding actuation of the plate.

4. A window construction as set forth in claim 3, said bracket being vertically elongated and having a center portion spaced from and parallel to the corresponding plate, and having its ends rigidly interconnected with such plate, and said keyhole slot being formed in such center portion.

5. In a window construction of the class comprising a frame having a window opening and a pair of opposed vertically elongated guideways, a pair of vertically elongated bars slidable up and down in said guideways, a sash disposed in said opening between the paired bars, a pair of horizontally aligned pivot members jointly affording tilting of the sash on said bars, and spring means yieldably urging the bars against the sash, the combination with said elements of a pair of friction plates for respectively applying pressure to the respective guideways, a screw rotatively engaging each friction plate to mount such plate on the corresponding slide bar and having threaded engagement with such bar, the bar having an aperture in vertically spaced relation to said pivot members to provide actuating access to such screw, in a tilted position of the sash, whereby the sash covers said aperture when occupying the plane of the window opening, and said screw regulates the pressure applied by the corresponding friction plate.

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