July 3, 1934. P. MULLER 1,965,250

REVERSIBLE WINDOW SASH

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Fig. 1.

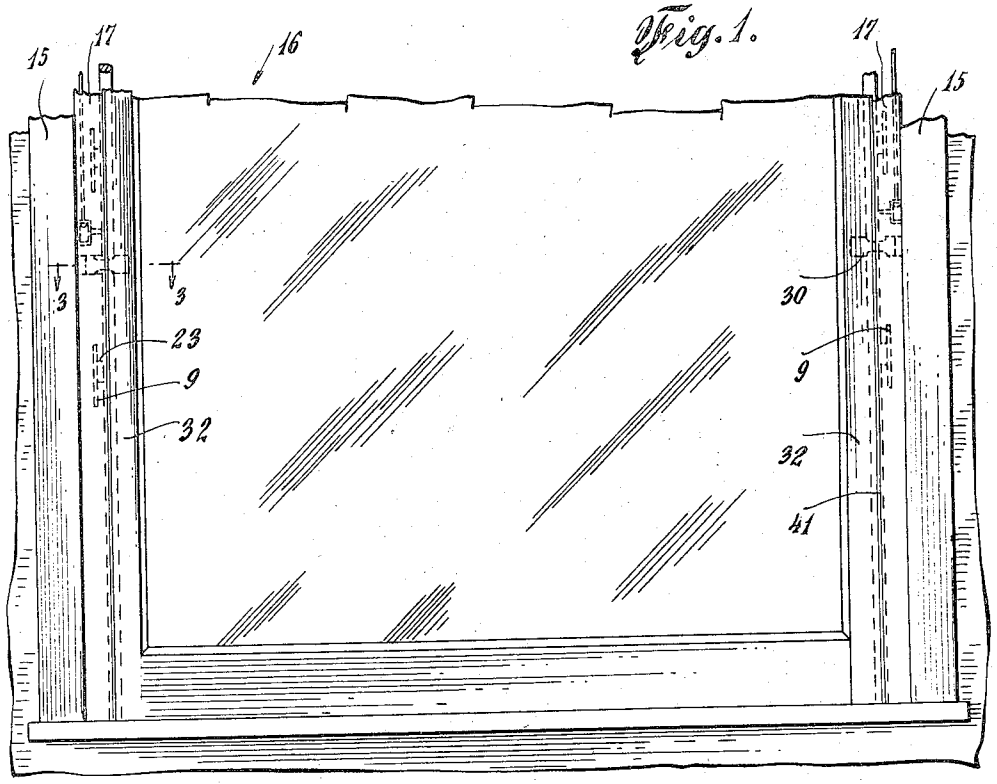


Fig. 2.

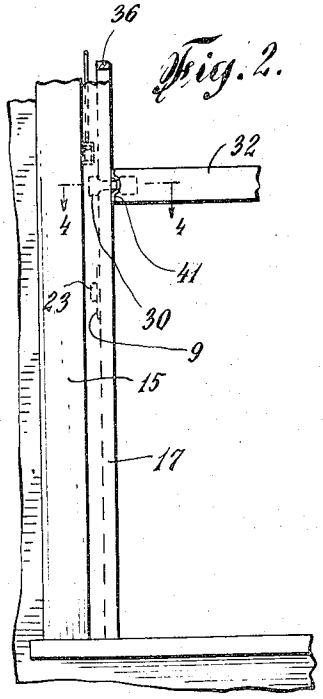


Fig. 3.

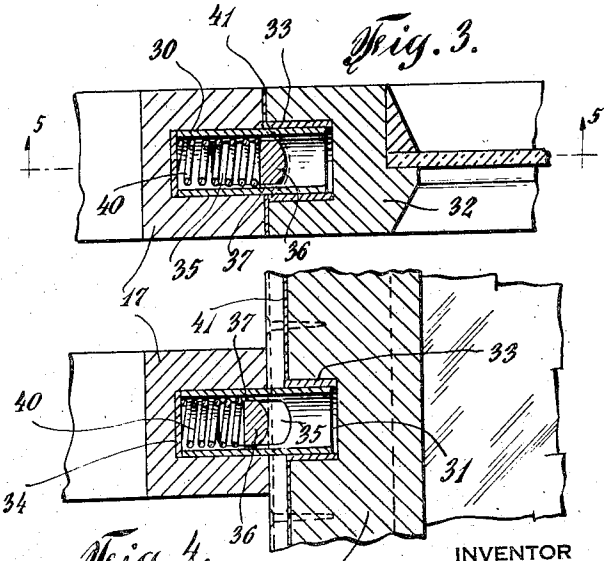


Fig. 4.

INVENTOR
Paul Muller
BY
Maxwell E. Sparrow
ATTORNEY

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Fig. 5.

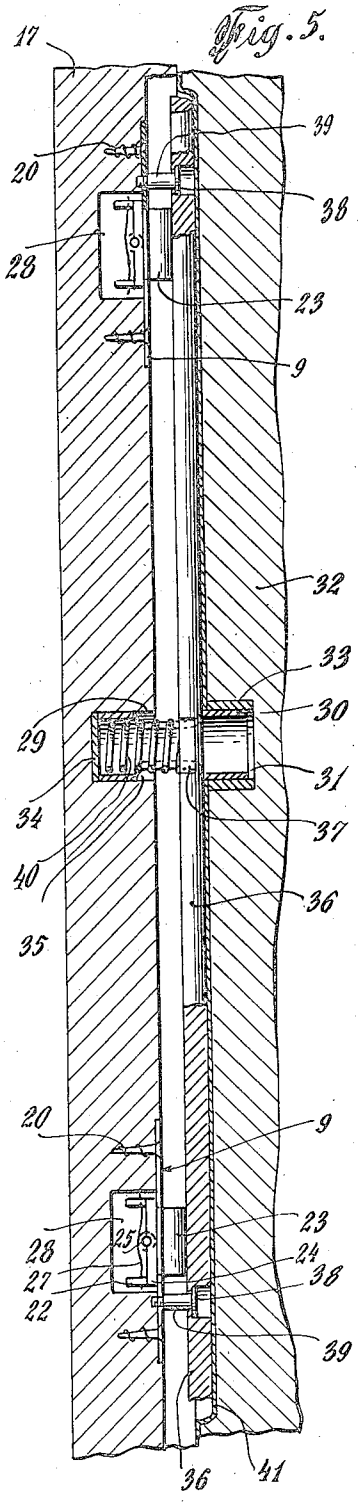


Fig. 6.

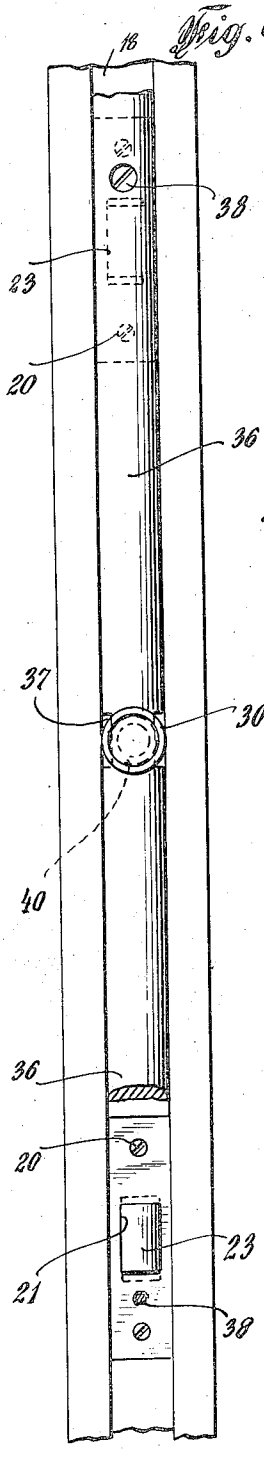


Fig. 7.

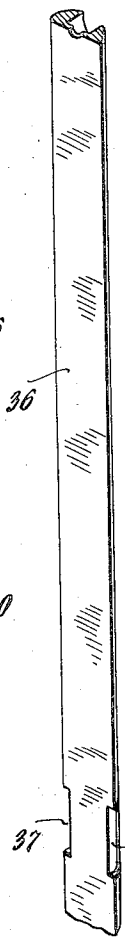
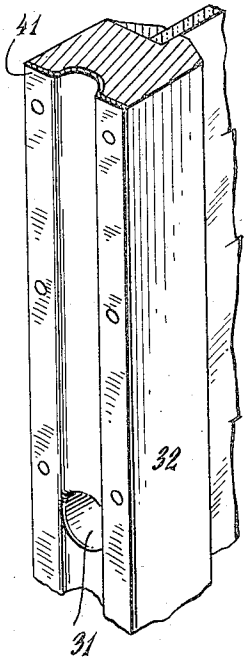


Fig. 9.



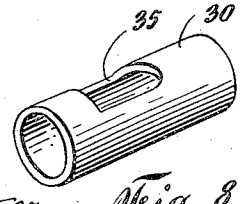
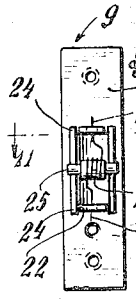


Fig. 8.

Fig. 10.



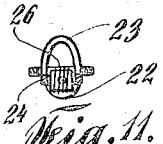


Fig. 11.

INVENTOR
Paul Muller
BY
Maxwell & Sparrow
ATTORNEY

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UNITED STATES PATENT OFFICE

1,965,250

REVERSIBLE WINDOW SASH

Paul Muller, New York, N. Y.

Application June 18, 1932, Serial No. 617,951

2 Claims. (Cl. 20—49)

This invention relates generally to reversible window-sash and particularly to the kind pivoted to swing in a horizontal plane.

An object of the invention is to provide a window-sash capable of being pivotally swung in a horizontal plane whereby the sash may be reversed or turned with its outer side in, without in any wise interfering with its ability to be slid vertically in the usual manner.

A further object of the invention is to produce a device of the character mentioned in the preceding object having novel instrumentalities to bring about the desired result.

These and other objects, which will become apparent as the description progresses, are attained by the novel construction, combination and arrangement of elements hereinafter more fully delineated in the accompanying illustrations forming a material part of this disclosure and in which:

Fig. 1 is a front plan view of the lower section of a window showing the application of the device.

Fig. 2 is a front plan view of part of the lower section of the window showing the sash pivotally swung at an angle of 90°.

Fig. 3 is an enlarged sectional view taken along line 3—3 of Figure 1.

Fig. 4 is an enlarged sectional view taken along line 4—4 of Figure 2.

Fig. 5 is a sectional view taken along line 5—5 of Figure 3.

Fig. 6 is an end view (partly in section) of that shown in Figure 5, with the swingable member of the sash removed.

Fig. 7 is a perspective view of part of one of the movable bars or strips used in the invention.

Fig. 8 is a perspective view showing one of the pivot shafts or sleeves.

Fig. 9 is a perspective view of part of the window frame showing the metal lining and recess for pivot.

Fig. 10 is a view of a preferred form of bar pusher, taken from its underside.

Fig. 11 is a sectional view taken on line 11—11 of Figure 10.

In the drawings the numeral 15 represents the sides of the conventional framing surrounding a window, which are provided with grooves (not shown) in which the sashes are lifted and lowered. The numeral 16 represents the window sash proper which is provided with lateral strips 17, capable of sliding within the grooves, the said strips running the entire length of each side of the window sash, the window sash proper being pivoted between the said strips 17, and adapted to be turned on a central horizontal axis, all in a manner hereinafter disclosed.

The mechanism on both sides of the window-sash are the same.

Along the outer sides of each of the strips 17 are channels 18 to the bottom of which, at spaced intervals, are secured bar pushers 19 by means of screws 20. A preferred form of bar pusher is shown in the drawings which comprises a plate 20, having a central opening 21, the ears 22 of which are struck out from the material at the ends of the opening 21.

Arranged for movement within the opening is a substantially U-shaped or other curved member 23 having lugs 24 to form stops for limiting the outward movement of the element 23. Seated within central recesses formed in element 23 is a shaft 25 and encompassing the shaft is a spring 26, the ends 27 of the spring engaging the ears 22 of the plate 19 whereby a tension is produced on the element 23 urging the latter outward.

Recesses 28 are provided in the lateral strips 17 to provide pockets for the members 23 when urged inwardly. A side bore or recess 29 is provided centrally of each strip 17 to receive one end of a sleeve or hollow shaft or pivot 30, the other end of the sleeve or hollow shaft or pivot 30 being received within a similar recess 31, formed in the adjacent side member 32 of the sash, a bearing 33 being provided within the recess 31 to rotatably support the shaft 30. At the bottom of each recess 29, there is preferably provided a bearing plate 34.

Each hollow shaft or pivot 30 is provided with longitudinal slots 35, top and bottom respectively, through which extends a bar 36, the said bar being notched as indicated at 37, for horizontal movement within the slots 35. Each bar 36 has a flat side and a curved side, the said bar being arranged within groove 18 of strip 17 in such manner that its flat side bears against the spring pushers 19. The bars 36 are loosely fastened to the strips 17 by means of the shouldered screws 38, the shanks 39 of the screws being of sufficient length to permit in-and-out movement of the bars.

Interposed within hollow of shaft 30 and between bar 36 and plate 34 is a spring 40 to aid the said bar being urged away from the strip 17. The side of the members 32 of the sash opposing the grooved side of strip 17 is arcuately grooved its entire length and is preferably provided with a metal lining 41 having a similar groove and secured in any suitable manner

thereto. The opposed grooved side 18 of strip 17 may also be similarly lined.

It can be seen that by the means hereinabove described, the bars 36 are normally urged outwardly with their curved sides in engagement with linings 41 within their arcuate grooves. The bars 36 disposed as hereinabove described make air-tight joints between the sides 32 of the sash and the strips 17. The slotted shafts 30 act as pivots on which the sash can be turned, and it is to be observed that the bars 36 have freedom of movement at the shafts 30.

To reverse the window for cleaning or like purposes, it is grasped by the top of the sash and pulled forward by virtue of which the sash turns on the shafts 30 as pivots. As the window is pulled forward the bars 36 retract into the grooves 18 of members 17, the slots in the shafts 30 permitting free movement thereof. When the window is returned to normal position, the bars 36 being urged outwardly by the spring pushers 19 and springs 26, an airtight joint is maintained between the strips 17 and sides 32 of the sash.

It will thus be seen that there is herein described apparatus in which the several features of this invention are embodied, and which apparatus in its action attains the various objects of the invention and is well suited to meet the requirements of practical use.

It is understood that the terms which have been employed herein are used in a descriptive rather than in a limiting sense, except however for such limitations that may be imposed by the state of the prior art.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. The combination with a window frame, of a sliding and swinging window structure comprising a pair of strips to slide vertically in said frame and each having a vertical side channel, a window sash interposed between said strips and provided with vertical side grooves opposing said channels, a metal lining mounted in each of said grooves and conforming in contour therewith, a horizontally disposed bushing sunk into each side of said window sash and centrally thereof, a horizontally disposed shaft extending from each of said strips and journalled in the corresponding bushing in said window sash, said shafts having longitudinal slots, vertical bars, each having its sides contoured to fit the said channel and said groove, said bars extending through the said slots, respectively, and capable of horizontal movement therewithin, spring operated rigid members disposed at intervals within the said channels tending to urge said bars outwardly, and means to limit the outward movement of said bars.

2. The combination with a window frame, of a sliding and swinging structure comprising a pair of strips to slide vertically in said frame and each having a vertical side channel, a window sash interposed between said members and provided with vertical side grooves opposing said channels, a journal member sunk into each side of said window sash and centrally thereof, a horizontally disposed hollow pivot extending from each of said strips and journalled in the corresponding journal member in said window sash, said pivots having longitudinal slots, vertical bars, each having its sides contoured to fit the said channel and said groove, said bars extending through the said slots, respectively, and capable of horizontal movement therewithin, spring operated members disposed at intervals within the said channels, and a resilient element disposed within the hollow of said pivot and between said bar and said strip, said members and said element tending to urge said bars outwardly, and means to limit the outward movement of said bars.

PAUL MULLER.