Nov. 13, 1934. C. E. JULIN 1,980,275

WINDOW CONSTRUCTION

Filed Oct. 4, 1933 2 Sheets-Sheet 1

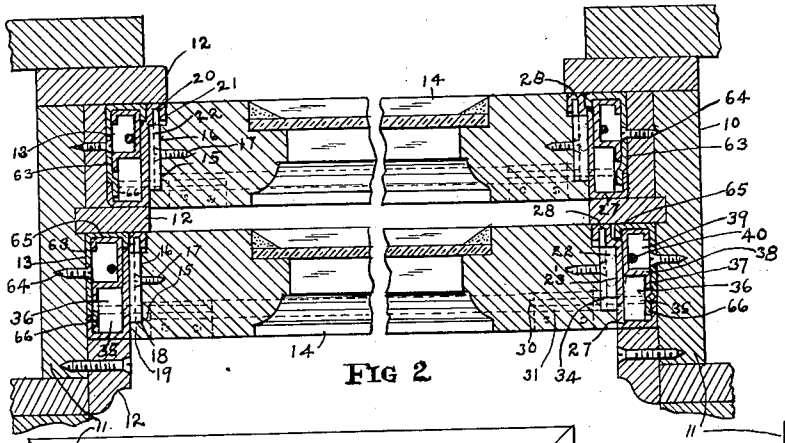


FIG 2

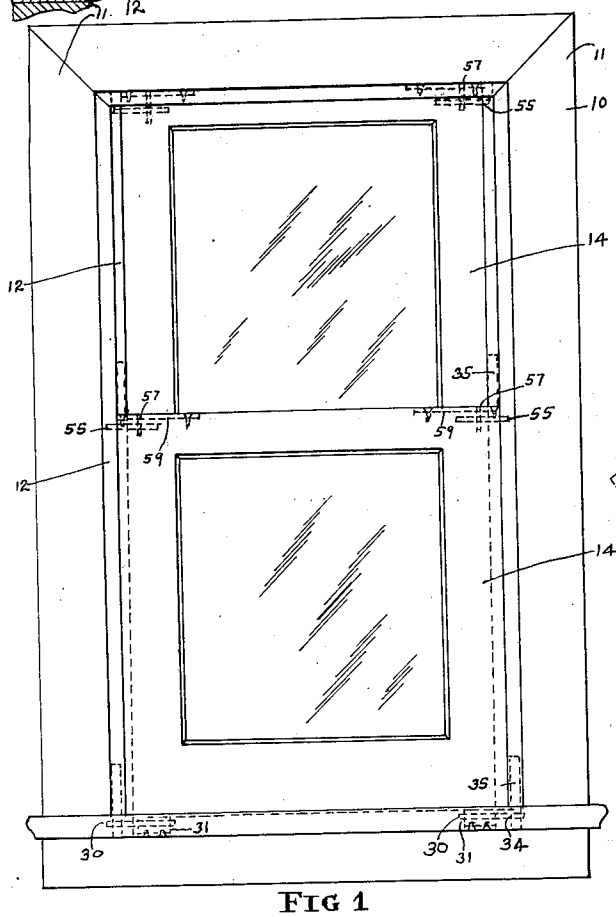


FIG 1

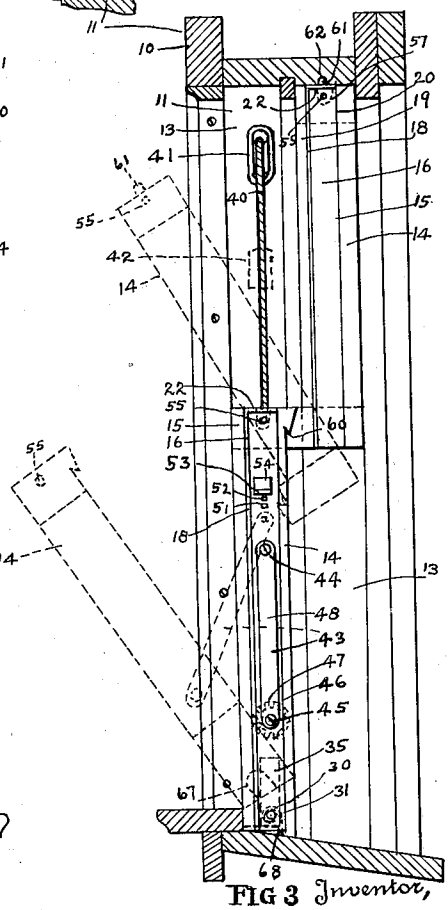


FIG 3

Inventor,

CLARENCE E. JULIN,

By

His Attorney

Nov. 13, 1934. C. E. JULIN 1,980,275

WINDOW CONSTRUCTION

Filed Oct. 4, 1933 2 Sheets-Sheet 2

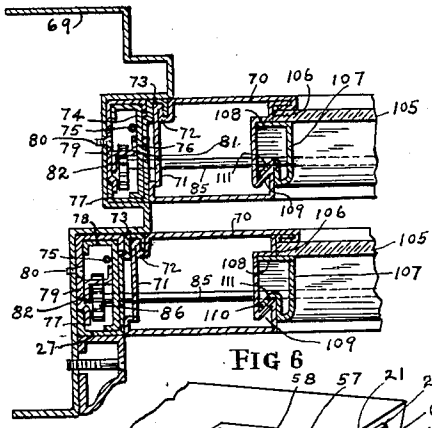


FIG 6

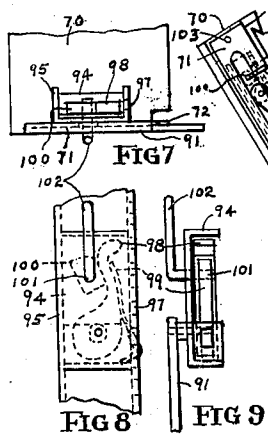


FIG 7

FIG 8

FIG 9

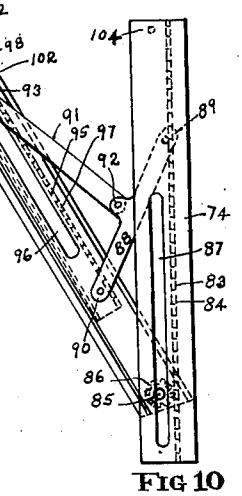


FIG 10

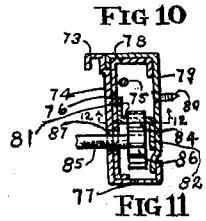


FIG 11

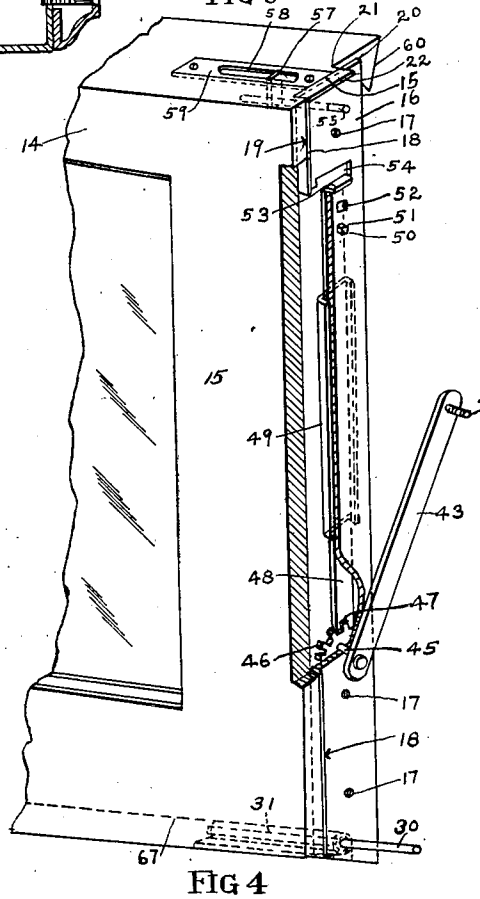


FIG 4

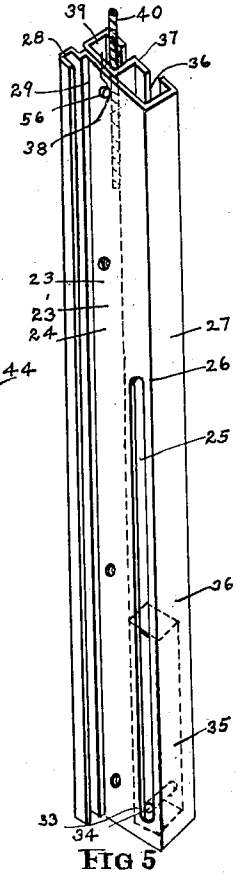


FIG 5

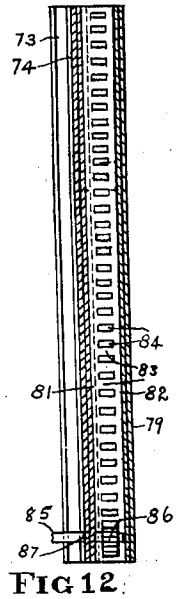


FIG 12.

Inventor,

CLARENCE E. JULIN,

By

HIS Attorney

Patented Nov. 13, 1934

1,980,275

UNITED STATES PATENT OFFICE

1,980,275

WINDOW CONSTRUCTION

Clarence E. Julin, Jamestown, N. Y.

Application October 4, 1933, Serial No. 692,203

12 Claims. (Cl. 20—49)

This invention relates to window construction and it aims to provide novel means for mounting double hung sashes, in either wooden, metallic or composite form so that they may have usual sliding movement and as well be swung to and secured in any desired tilted or angular position.

One particular object is to provide a novel slide and plate arrangement enabling the window sashes to be maintained air and weather tight when closed.

Another important object is to provide means whereby the sashes may be so swung that they do not affect and will not be affected by screens or the like in the usual location at the exterior of the window frame.

Still another important aim is to provide sashes which may be swung and moved with precision and without binding especially to and from 45° angles or more.

The various additional objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating operative embodiments.

In said drawings:—

Fig. 1 is an inside elevation of a window constructed in accordance with one form of the invention;

Fig. 2 is an enlarged, partly broken away and partly in section, view taken horizontally across said window;

Fig. 3 is a vertical sectional view through said window;

Fig. 4 is a detail perspective view, partly broken away and in section, of one side of one of the sashes;

Fig. 5 is a detail perspective view of one of the window carriers or guides;

Fig. 6 is a partial horizontal sectional view through a modified form of window;

Fig. 7 is a fragmentary plan of one end portion of the sashes used in the form of Fig. 6;

Fig. 8 is a fragmentary elevation of the latching means used in said modified form;

Fig. 9 is a vertical section through the parts of Fig. 8;

Fig. 10 is a side elevation of portions of a sash and guide according to the modified form;

Fig. 11 is a cross section through a guide of the modified form, and

Fig. 12 is a vertical sectional view taken on the line 12—12 of Fig. 11.

Referring specifically to the drawings wherein like reference characters designate like or corresponding parts in the different views, and first to the form of Figures 1 to 5, a window frame is shown at 10 as of wood although it could be metallic, composite or the like, the vertical sides being shown at 11 as having the customary stops 12 providing vertical grooves 13 to enable sliding of sashes 14.

Said sashes 14, per se, are of any conventional construction, being of wood as shown, metallic, composite or otherwise and the outer surfaces of their side stiles 15 are cut away to accommodate metallic strips or plates 16, fastened in place to the sash as by means of screws 17. One longitudinal edge of each plate 16 has a flange 18 which bears against a shoulder 19 on the stile 15 adjacent thereto and the opposite side edge or longitudinal edge is free at 20 extending beyond a shoulder 21 of the adjacent sash stile 15. A flange 22 of the same depth as flange 18 extends from the upper edge of the plate 16 in the rear of free edge 20.

Directly disposed and slidable in the grooves 13 of said frame 10 are sash carriers or guide members, one of which is detailed in Fig. 5. This guide member comprises a single metallic plate 23', having a main wall 24 provided with a vertical elongated slot 25. From one longitudinal edge 26 of plate 23', an L-shaped flange 27 extends while from the opposite longitudinal edge, a U-shaped channel 28 extends, being offset from wall 24 by a portion 29.

One of the guides 23 is associated with each stile of each sash and hence there is a guide 23 at each side of each sash coacting with a plate 16. The sashes while normally vertically slidable as a unit with the two guide members 23 at the sides thereof, are also capable of assuming an angular position or being tilted and fastened in tilted positions with respect to the associated guide members. To this end pivot members or pintles 30 are carried one at each of the lower corners of each sash. Such pintles are mounted by brackets 31 suitably secured to the sashes.

The pintles 30 extend through the elongated slots 25 and are journalled in sockets 34 of guide blocks 35. Guide blocks 35 are retained and slidable in ways 36 afforded by the previously mentioned flanges 27 and flanges 37 on channel elements 38 spot welded or otherwise connected to the guide members 23 and affording ways 39 for sash cord 40, suitably attached to the guide members 23. Sash cords 40 are of conventional construction and arrangement, being guided over

pulleys 41 in the sides 11, and being weighted as usual as at 42.

The swinging movement of the sashes 14 is controlled so that the sashes may be fastened in any desired position or angle. To this end, a link 43 is detachably pivoted by a screw 44 to each guide member 23. Links 43, at their opposite ends, are rigid with pins or short shafts 45 journalled in plates 16, between which and stiles 15, pinions 46 are rigidly attached. Pinions 46 preferably have square teeth as shown, which are removably engageable by a notch 47 in a vertically slidable latch bar 48 which serves to hold the sashes at the desired angle with respect to the guide members and window frame. Latch bar 48 is positioned and guided by a channel bracket 49 welded to the back of the adjacent plate 16. Bar 48 carries a lug 50 to occupy a hole 51 when the bar is lowered or latched and to occupy a hole 52 when the bar is raised or unlatched. To enable the bar to thus function, it is of resilient metal having a manipulating end projection 53 facilitating inward movement of the bar above the bracket 49, due clearance being provided for such movement, and the projection being disposed in an enlarged slot 54 of plate 16.

In order to secure the sashes in closed and normal position, latch bolts 55 are slidable through plates 16 to engage holes or openings 56 of the guide members 23. Bolts 55 have lugs 57 thereon for engagement by the operator's fingers, slidable in openings 58 of plates 59 secured to and countersunk in the upper ends of the sides or stiles 15.

The sashes 14 have interfitting projections engageable at 60 in their closed position to render the same dust and weather proof. Also the upper sash, has a rib 61 to enter a groove 62 in the top of frame 10 in the closed position, as best shown in Fig. 3. In the closed condition of the sashes, the free edges 20 of the plates 16 are snugly disposed in the channels or grooves of the members 28 to form dust and weatherproof joints.

The guide members 23 are slidably mounted directly in track members 63 screwed or otherwise fastened at 64 to the side members 11 of the frame 10. Said track members 63 have hook portions 65 partly embracing the guide members and terminally extending between channel members 28 and 38, while an offset edge 66 on the track member interiorly overlaps flanges 27 of the adjacent guide member.

In the closed or normal condition of the sashes 14, a groove 67 in the lower edge of the lower sash receives a bead 68 on the sill of the frame 10.

In the normal or closed condition of the sashes, they are air and waterproof at all sides because of the joints afforded by channels 28 and edge portions 20, projections 60, projection 61 and groove 62, and groove 67 and bead 68. The sashes are freely slidable to different vertical adjustments. In order to swing the sashes to angular positions as suggested in Fig. 3, latch bolts at 55 are retracted, whereupon the sashes are swung on pintles 30 and pivoted link joints 44 and 45 and secured at the desired angular adjustment by engaging the latch bars 48 and engaging their notches 47 with the adjacent teeth of pinions 46.

The sashes 14 may be reversed on their pintles 33 to enable the outer sides of the sashes to be washed from the inner sides of the sashes, the sashes swinging within a very restricted zone about such pintles 33, so that they will not affect or be affected by screens or the like which may be carried by or secured to the window frames 10 outwardly of the sashes. Screws 44 may be removed to enable the sashes to be removed, as for repairing.

A modified form of the invention is shown in Figs. 6 to 12. Here, a window frame is used of the same exterior configuration as in the preceding views, but being made of sheet metal and designated 69. The window sashes, here designated 70 are also of sheet metal. As a result, plates 71 functioning like the plates 16, are integral parts of the window sashes. Said plates 71 have projecting free edge portions 72 functioning like portions 20 of the first form, and are adapted for snug engagement in the channel members 73 on the sash carriers or guides 74. Sash guides 74 are suspended by cords 75 having balance weights at one end like the cords 40. Guides 74 are specifically different from those used in the first form. They have main walls 76 along one longitudinal edge of which channel members 73 are offset. At the other side edge, walls 76 have L-shaped flanges 77. A generally L-shaped strip or plate 78 is also welded to wall 76 so that the guide will be substantially C-shaped. The guides are held in place by track members 79 secured as at 80 to the window frame 69.

A Z-shaped bar 81 has a flange 82 welded to the track member 79 and it provides rack teeth 83 since equidistant slots 84 are cut between them. Shafts 85 rigidly attached to and extending across the lower portions of the sashes 14, have pinions 86 journalled thereon adjacent the lower corners of the sashes 14, which are enmeshed with the teeth 83. Shafts 85 extend through vertically elongated slots 87 provided in the plates 76 and 78 so that the sashes may move vertically relatively to their guide members incidental to angular disposition or tilting as suggested in Fig. 10 inasmuch as a modified form or linkage, that is, a double link arrangement is provided. To this end, a link 88, is pivoted at 89 and 90, respectively to the guide at walls 76 and 78 and to the sash plate or wall 71. Midway of the ends of link 88, the lower end of a link 91 is pivoted at 92, the other end being pivoted at 93 by a pin rigid on a slide 94. Slide 94 is movable longitudinally of a channel member 95 welded to the inner face of plate 71 and the main wall of channel member 95 and plate 71 have a longitudinal slot 96 therethrough in which pin 93 operates. One flange of the said channel member 95 has a series of slots 97 therein which are engageable by a latch member 98 to secure the sash 70 at different angles. Link 91 is removably engaged with the pin 93. The sashes 70 may be reversed to enable the outer sides to be washed from the inside of the window frame.

Latch 98 is normally urged out of the openings 97 by a spring 99. To engage the latch with and hold it in any selected opening or slot 97, a cam block 100 is moved thereagainst, the same being carried by a pin 101 journaled on the slide 94 and having an operating handle or crank extending outwardly through slot 96 at 102. This form of the invention employs a latch bolt 103 mounted and operable by and like the same parts as latch bolt 55 of the previous form to engage an opening 104 in wall 76 of the guide.

It will be realized that but one side of the modified window contruction has been shown in Figs. 6 to 12 but that in practice, the parts will be duplicated at the opposite side to make a complete window. Also, that in this form of the

invention all of the advantages of the first form are secured.

I especially wish to emphasize the fact that with both constructions disclosed herein that the sashes will not bind in the guides or frame even if swung beyond a 45° angular position, since the sashes swing from positive axes at 30 in the first form and at 85 in the second form, in connection with associated parts ensuring precision.

It is clear that the glass panels may be secured in the sashes in any desired way. The preferred manner used in all forms is best shown in Fig. 6. The glass panel is there shown at 105 in abutment with a stop 106. Against the opposite side of the panel is an R shaped securing strip or beading made of resilient metal, designated 107. Such removable strip 107 has a wall 108 which bridges the junction of the panel and frame and extends into a groove 109 in such sash or frame. Such groove is undercut at 110 so that an inclined wall or flange 111 of the expansive strip 107 will spring or clip into the same.

I claim as my invention:

1. A device of the class described comprising a sash, a guide to slidably mount the sash in a frame, means pivotally connecting the sash adjacent one end to the guide, link means to secure the sash at different angles relatively to the guide, said link means being connected to one of said parts to enable reversal of the sash for washing of its outer surface from the inner side thereof.

2. A device of the class described comprising a sash having a plate at one side thereof, a guide to slidably mount the sash, a pin adjacent one corner of the sash, said guide having an elongated slot through which said pin extends, a guide block in the guide in which the pin is journalled, latch means to normally connect the plate and sash against relative movement, a link pivoted to the guide, a pin pivotally connecting the link to the plate, and latch means between the pin last mentioned and the plate to secure the sash at different angular adjustments.

3. A device according to claim 2 wherein said plate has flange means abutting the sash, a channel on said guide in which one edge portion of the plate fits when the sash is closed.

4. A device according to claim 2 wherein the last mentioned latch means consists of a pinion on the second mentioned pin, and a latch member slidable on the plate coacting therewith.

5. A device according to claim 2 wherein the last mentioned latch means consists of a pinion on the second mentioned pin, a resilient latch bar slidable on the plate, guide means on the plate for said latch bar, said plate having openings, and a lug on the bar engageable with said openings to secure the bar in latched and unlatched position.

6. A device according to claim 2 wherein the guide has a main wall, a channel on said wall receiving the adjacent edge of the first plate in the closed condition of the sash, an L-shaped flange on said main wall, and a channel member on the plate providing a way for sash-balancing means and coacting with said flange to provide a way for said guide block.

7. A device of the class described comprising a sash, a guide therefor, a pinion pivoted on the sash, a pin for the pinion on the sash, said guide having a slot through which the pin extends and having teeth enmeshed with the pinion, a link pivoted to the sash and to the guide, a link pivoted to the first link, said sash having a slide and an elongated slot adjacent thereto, pivot means extending from the second link through the last mentioned slot to the slide, and guide means on the sash for the slide.

8. A device according to claim 7 having a latch on the slide, and the guide means having openings engageable by the latch.

9. A device according to claim 7 having a latch on the slide, said guide means having openings engageable by the latch, means normally maintaining the latch retracted, and cam means to maintain the latch in latching position having an operating member extending through the last mentioned slot.

10. A device according to claim 7 wherein the guide is generally of C-shape and has an intermediate member provided with the aforesaid teeth.

11. A device of the class described comprising a sash having a plate at one side thereof, a slidable carrier guide for the sash, a pin pivotally connecting the sash and guide, means to latch the sash to the guide against movement, said plate having a free edge extending beyond a portion of the sash and corresponding in length to the sash, and said guide having a channel member laterally offset from said guide and corresponding in length to the sash, the channel of said channel member being spaced from the guide and occupied by said free edge in the closed condition of the sash, and means to secure the sash at different angles to the guide including an element accommodated in the space between said plate and the guide, the wall of said guide from which the channel member extends being unobstructed from the channel member to the remote side edge at the zone of movement of said element.

12. A device of the class described comprising a sash having a plate at one side thereof, a slidable carrier guide for the sash having an elongated slot, a pin to pivotally connect the sash and guide extending through said slot, means including an element carried by the pin operable to latch the sash to the guide against relative movement, and a block slidable in the guide journalling said pin.

CLARENCE E. JULIN.