A. C. SOULE.

WINDOW.

APPLICATION FILED DEC. 28, 1915.

1,256,840.

Patented Feb. 19, 1918

3 SHEETS—SHEET 1.

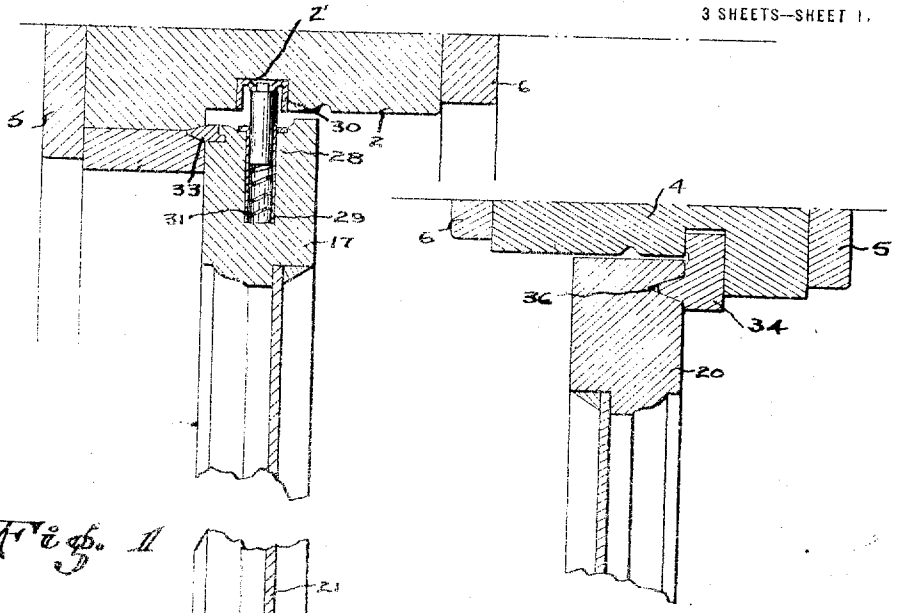


Fig. 1

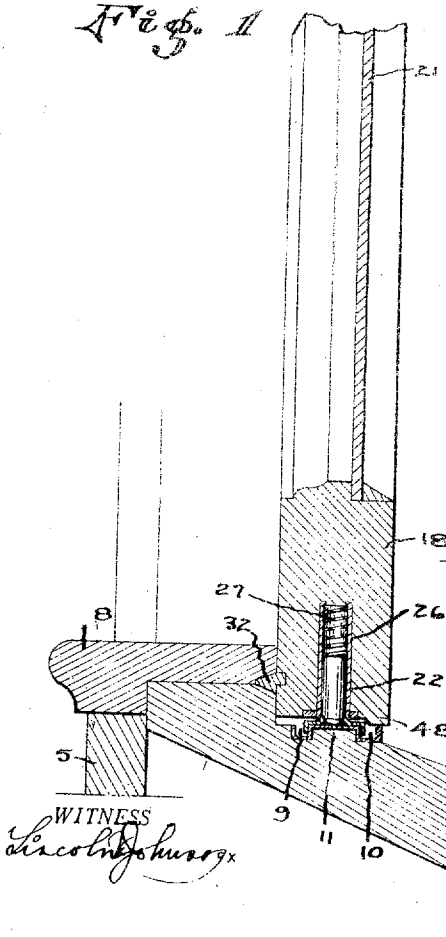
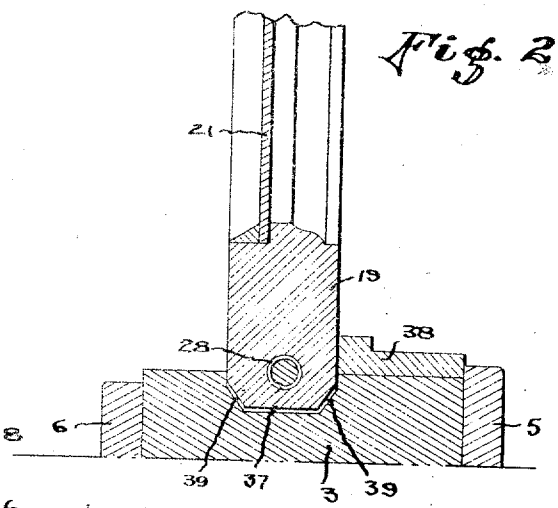


Fig. 2



WITNESS

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3 SHEETS—SHEET 2.

Fig. 3

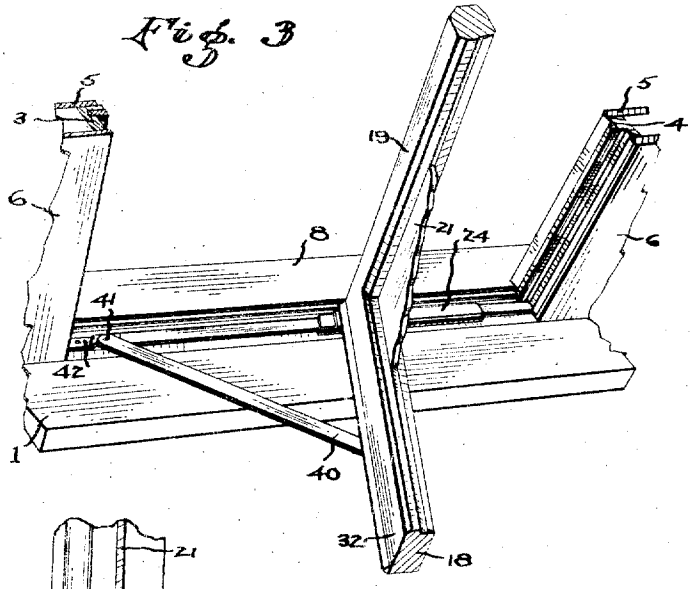
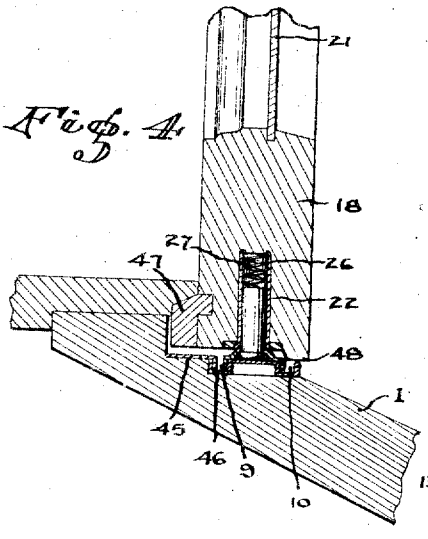


Fig. 4



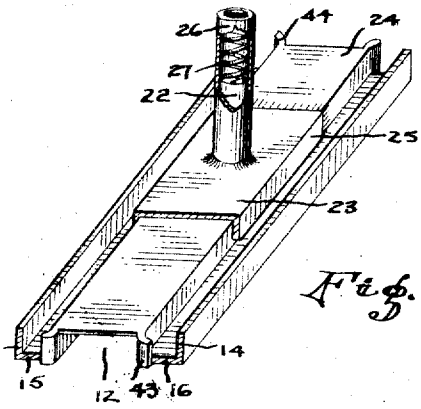


Fig. 5

Witness:

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3 SHEETS—SHEET 3.

Fig. 6

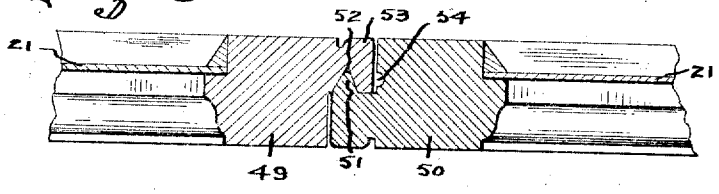


Fig. 7

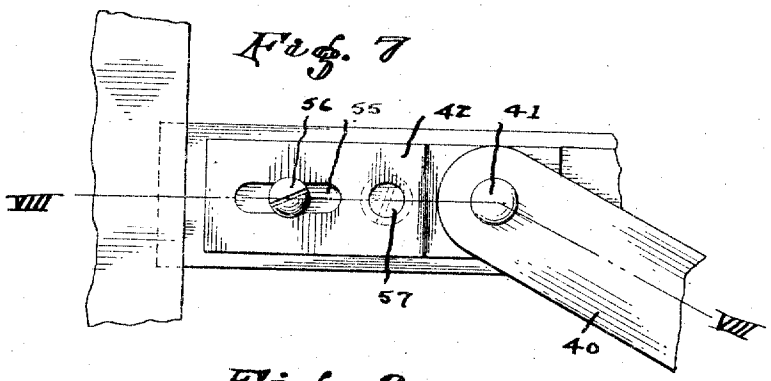
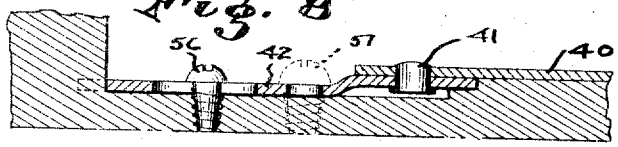


Fig. 8



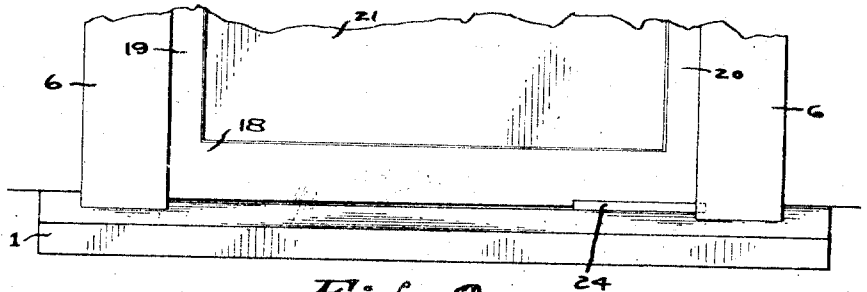


Fig. 9

WITNESS

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UNITED STATES PATENT OFFICE.

ARTHUR C. SOULE, OF SAN FRANCISCO, CALIFORNIA.

WINDOW.

1,256,840. Specification of Letters Patent. **Patented Feb. 19, 1918.**

Application filed December 28, 1915. Serial No. 69,051.

To all whom it may concern:

Be it known that I, ARTHUR C. SOULE, the undersigned, a citizen of the United States, residing at 226 Judah street, in the city and county of San Francisco, State of California, have invented a new and useful invention—to wit, Windows; and I do hereby declare the following to be a full, clear, concise, and exact description of the same.

In this specification and the annexed drawings, I illustrate the invention in the form which I consider the best; but it is to be understood that I do not limit myself to this form, because the said invention may be embodied in other forms. It is also to be understood that in and by the claims following the description herein, I desire to cover the invention in whatever form it may be embodied.

This invention relates particularly to mountings for casement windows, although it is adaptable to other uses also.

In the accompanying three sheets of drawings:

Figure 1 is a side elevation in longitudinal cross-section of a window frame or casement having a sash mounted therein in accordance with this invention.

Fig. 2 is a plan view in fragmentary detail of the same, in cross section.

Fig. 3 is a fragmentary detail in perspective of the lower portion of the casement and the sash with the connecting mechanism.

Fig. 4 is a fragmentary detail in cross section illustrating the engagement of the sash with the window stool and the window sill.

Fig. 5 is an enlarged detail of the sliding pivot member.

Fig. 6 is an enlarged fragmentary detail of the meeting rails used when two sashes are combined in a single casement.

Fig. 7 is an enlarged fragmentary detail of the adjustable pivot plate attached to the window sill to which the control arm is pivoted.

Fig. 8 is a side elevation of the same in cross section on the line 8—8 in Fig. 7.

Fig. 9 is a fragmentary detail of the lower portion of the frame with the sash in the closed position.

In detail the construction illustrated in the drawing includes: the window frame composed of the sill 1 and the lintel 2 joined by the side stiles 3 and 4 in the usual manner. The interior of the window opening is provided with stops 5 at the sides and top and the stool 8 across the bottom of the opening. The exterior is provided with the stops 6 at the sides and top, and the sill 1 at the bottom.

The sill 1 is grooved longitudinally as shown in cross section in Figs. 1 and 4. The groove 9 and rabbet 10 are spaced apart to leave the guide bead 11 extending across the sill longitudinally between the side jambs 3 and 4. The sliding plate has the central channel 12 slidably engaging the bead 11. The upturned edges 13 and 14 of the sliding plate form the runners 15 and 16 sliding freely within the groove 9 and rabbet 10.

The sash comprises the top and bottom rails 17 and 18 joined by the side stiles 19 and 20, forming a rectangular frame to receive the glass 21. The sash is vertically pivoted in the opening on the lower pivot 22, having the sliding shoe 23 attached thereto and slidably engaging the central bearing plane 24 of the sliding plate, the flanged edges 25 of the shoe 23 preventing lateral displacement of the shoe, in its movement on the plane 24. The pivot 22 is movable vertically in a hole in the bottom of the sash rail 18, provided with a sleeve 26 fixed therein and revoluble on the pivot 22. The shoe 23 is maintained in contact with the plane 24 by the spiral spring 27 interposed between the ends of the pivots 22 and the bottom of the hole in the sash. The top rail 17 of the sash is vertically pivoted and guided in the lintel 2 by the pivot 28 movable in the sleeve 29 fixed in the top rail of the sash. The pivot 28 is provided with the shoe 30 attached thereto and slidable in a slot guide 2′ formed longitudinally in the lintel 2. This shoe is forced against the lintel by the spring 31 confined between the end of the pivot 28 and the bottom of the hole in the top rail 17. These springs 27 and 31 create the necessary friction to aid in holding the sash in the desired adjusted positions. The weather strips 32 and 33 respectively fixed in the top and bottom rails 17 and 18, and projecting beyond the face of the sash, engage grooves formed in the contiguous frame work of the casement. It is the function of these strips in engagement with the casement to act as weather strips to exclude the weather or moisture when the window is closed. The strip 34 fixed in the side jamb 4 of the frame and engaging a groove in the face of the sash (see Fig. 2)

performs the same function. The strip 34 is adjustable laterally in a groove formed in the side jamb 4 and securely nailed therein after having been properly adjusted to always meet the groove 36 in the edge of the sash when the sash is closed. The opposite side rail 19 engages the groove 37 in the side jamb 4, fitting snugly against the stop 38 to form a weather tight joint on this side of the sash in its engagement with the frame. The corners of the sash are cut away as at 39 to permit that edge of the sash to swing into the closed and reversed position.

The pivots 22 and 28 are set into the sash stile as near the outer edge as practicable (see Fig. 2) and permit the sash to swing horizontally in an arc from the stool outward over the sill. To permit the reversal of the sash within the casement the shoe 30 on the top pivot is permitted to slide in the guide groove 2′ provided for it in the lintel, and the shoe 23 on the bottom pivot is permitted to move across the sill, as will be hereinafter more fully described. To control the movement of the sash across the casement, the arm 40 is provided (see Fig. 3). The outer end of this control arm 40 is pivoted to the under side of the sash, outward a proper distance from the pivotal edge of the sash; the opposite end of the arm is pivoted on 41 on the adjustable plate 42 fixed to the sill adjacent to one side of the casement opening. The plate is gained into the guide bead 11 so that the underside of the arm is flush with the top of the guide when the sash is in the closed position. The arm 40 is duplicated at the top of the sash to steady its movement.

The extended length of the sliding plate provides a large bearing surface for the support of the weight of the sash on the sill, greatly facilitating the movement and saving wear on the wooden portions supporting the weight. The metal shoe 23 bearing against the plane 24 of the sliding plate, is a metal-to-metal contact preventing undue wear and permitting free movement of the sash, in that limited sector of the entire arc of movement, at which the sash is most generally adjusted for ordinary ventilation. When the sash is moved open for reversal, the edge of the shoe 23 engages the outturned lugs 43 on the sliding plate, by which means the plate then moves forward with the shoe 23, until the sash is reversed the desired distance for the purpose of washing the outside of the sash, or directing the ventilation in the opposite direction so that the window may be accommodated to meet the direction of the wind or other conditions. The return of the sash to the normal position slides the shoe 23 forward until it engages the similar lug 44 on the opposite end of the sliding plate, carrying the latter forward until it abuts the side jamb 4 when the sash is in the closed position. In either event, the movement of the sash is in no wise interfered with and the sash operates as described in opening and closing. Any water collecting in the groove 9 behind the guide bead 11 would escape where the plate 42 is gained into the sill, or this groove may be vented to the outside by transverse channels through the bead at any desired point.

To prevent slipping or displacement of the sliding plate on a flat sill as in Fig. 4, the angular strip 45 may be fixed to the sill with the depending flange 46 overhanging the upturned edge 13 of the sliding plate 24 (see Fig. 4). In this view a modification of the weather strip 32 is shown consisting of the strip 47 fixed to the sash and having an inclined surface engaging the similarly inclined lower edge of the stool 8 for the purpose of packing the joint at this point to exclude weather. The lower rail 18 of the sash is rabbeted to leave the depending flange or tongue 48 (Figs. 1 and 4) behind which the control arm 40 and its connecting mechanism is hidden when the sash is in the closed position. A portion of the flange 48 is cut away on the pivot side of the sash to clear the bead 11 and the sliding plate when the sash is in the reversed position. When normally closed this cut away portion is closed by the sliding plate.

While I have shown and illustrated a casement having a single sash mounted therein, I do not wish to be understood as limiting this invention to such construction. It is obvious that two sashes can be worked in one casement by merely duplicating the parts, in which event the meeting rails 49 and 50 of the sashes would be interlocked as illustrated in Fig. 6, in which the flange 51 of one sash engages a groove 52 formed in the opposing sash to form an interlocked weather-proof joint. To facilitate the proper adjustment of the plate 42, I provide it with a slot 55 receiving the screw 56 screwed into the sill and loosely holding the plate until the desired location of the pivots 41 is determined when the plate can be permanently fixed by setting a screw into the hole 57 in the plate.

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

1. An improved window comprising a frame, a plate slidably supported by said frame, a sash having one edge slidably and pivotally engaging said plate, to move longitudinally thereof, and means for providing a corresponding slidable and pivotal engagement between said frame and the opposite edge of said sash.

2. A window comprising a frame having a sill provided with a guide bead, a plate slidably engaging said bead to move longitudinally thereof, and a sash having pivots

one of which slidably engages said frame, the other pivot of said sash being in longitudinal slidable engagement with said sliding plate.

3. A window including a frame, a guide bead on said frame, a plate slidably engaging said guide to move longitudinally thereof, a sash slidably pivoted in said frame, one of the pivots of said sash being slidable longitudinally of said sliding plate, and a controlling arm attached to said sash and pivoted to the frame at a point in line with said guide bead, the under side of said arm being flush with the top of said bead when the sash is in closed position.

4. A window including a frame, guides on opposite sides of said frame, a plate slidably engaging one of said guides to move longitudinally thereof, a sash, pivots on said sash, one of said pivots slidably engaging one of said guides, the other pivot slidably engaging the said slidable plate and movable longitudinally thereof, a plate adjustably secured to the frame in line with one of said guides and at one end thereof, and a control arm pivoted to said plate and attached to said sash.

5. An improved window comprising a frame, a plate slidably supported by said frame and having a flange, a shoe longitudinally slidable on said plate, a sash having one edge pivotally engaging said shoe, means for providing a corresponding slidable and pivotal engagement between said frame and the opposite edge of said sash, and a strip attached to the frame and having a flange engaging the flange of the slidable plate.

6. A window including a frame; a guide on the sill of said frame; a sliding plate engaging said guide; a guide on the opposite side of said frame; a sash; pivots on said sash slidably engaging said plate and said opposite guide respectively, and a control arm pivoted to said frame and said sash.

In testimony whereof, I have hereunto set my hand at San Francisco, California, this 18th day of December, 1915.

ARTHUR C. SOULE.

In presence of—
BALDWIN VALE,
A. J. HENRY.