July 27, 1926. 1,594,019

W. SHEA

WINDOW

Filed Nov. 23, 1925

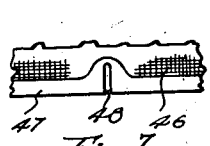


Fig. 7

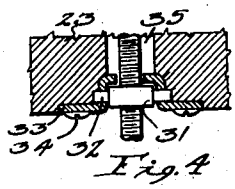


Fig. 4

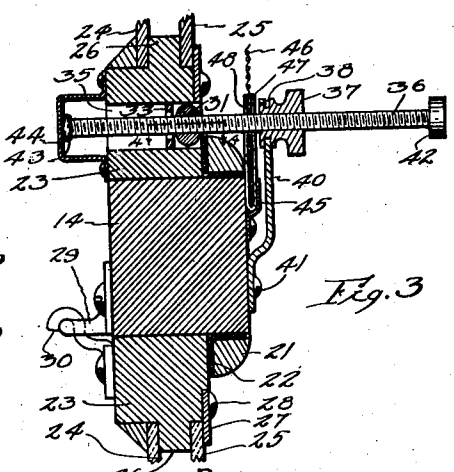


Fig. 3

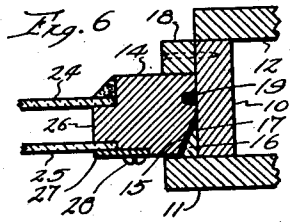


Fig. 6

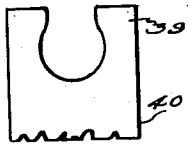


Fig. 5

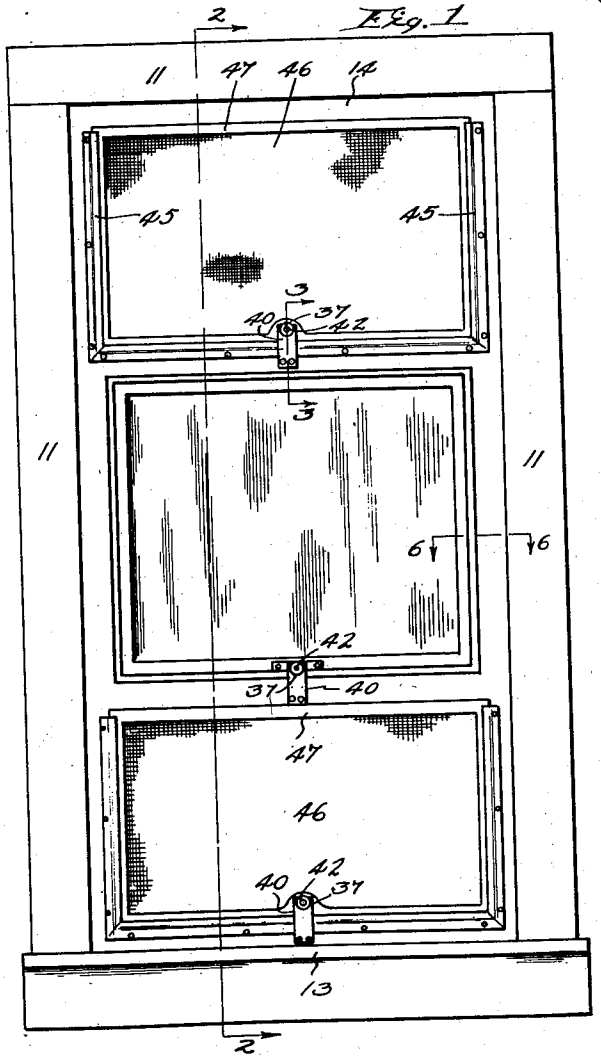


Fig. 1

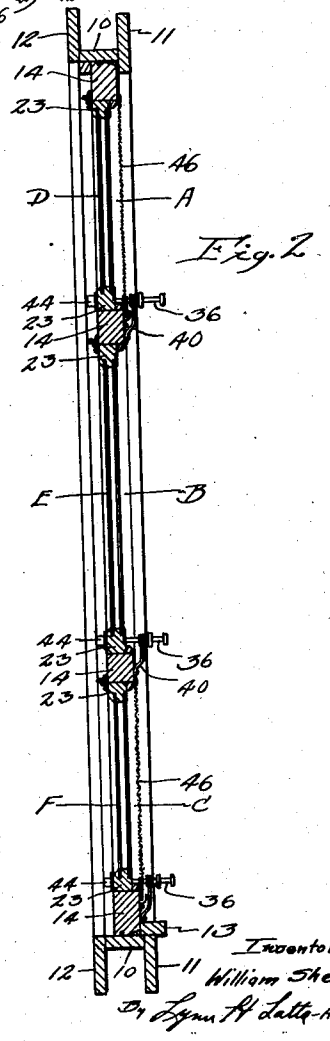


Fig. 2

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# UNITED STATES PATENT OFFICE.

WILLIAM SHEA, OF SIOUX CITY, IOWA.

## WINDOW.

Application filed November 23, 1925. Serial No. 70,855.

My invention relates to a window construction, and has for its object to provide a window which will combine the functions of a storm window to be used in wintertime, with those of a screen window to be used in the summertime.

More specifically, my invention contemplates a structure wherein the window proper is provided with a single integral frame adapted to be readily inserted in a window casing, and having novel means, quickly attachable, for sealing the window in the casing against the passage of air currents, the window proper being provided with individual window sashes, arranged vertically, one above another, at least the upper and lower sash being hinged in the frame for swinging outwardly therefrom to allow ventilation of a room equipped with the window.

A further object is to provide a window having such an arrangement of individual window sashes that the central portion of the window may be left unscreened and therefore the view therethrough unobstructed in the summertime, the screened portions being so positioned as to give the required ventilation.

Another object is to provide a non-frosting window sash construction, from which one of the individual panes of glass may be removed and replaced to allow washing.

Another object is to provide a window having individual window sashes, so hinged to the frame that they may be removed from the inside of a room, and which are at the same time provided with means for adjusting them outwardly from the frame for ventilation purposes and for sealing them in place in the frame, said locking means being quickly disengageable from the frame to allow the entire removal of the window sashes.

With these and other objects in view, my invention consists in the construction, arrangement and combination of the various parts of my device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Fig. 1 is an elevation of the window taken from the inside.

Fig. 2 is a vertical sectional view of the window, taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail sectional view, taken on the line 3—3 of Fig. 1.

Fig. 4 is a detail sectional view, taken on the line 4—4 of Fig. 3.

Fig. 5 is a detail view of the adjusting screw bracket.

Fig. 6 is a detail sectional view, taken on the line 6—6 of Fig. 1.

Fig. 7 is a detail view of a portion of one of the screens.

My invention is designed not only to combine the functions of storm and screened windows, but also to eliminate some of the objectionable features common to the present sliding construction. One of these objectionable features is the parting stop which separates the upper and lower sashes of the ordinary window. The sashes being separated, it is difficult to obtain a close joint between the registering edges of the sashes when they are closed.

My invention is applied to the ordinary window casing, having the casing frame, 10, the inner casing boards, 11, the outer casing boards, 12, and the inner sill, 13. The inner boards, 11, extend toward each other beyond the frame, 10, so as to form shoulders, against which the window frame, 14, is received. The frame, 14, is a unitary structure, sized to fit within the frame, 10, and having a beveled edge, 15, which engages a beveled strip, 16, which is inserted between the window frame, and the boards, 11, on three sides of the window, and between the window frame and the sill, 13, on the lower side.

The beveled strip, 16, is preferably covered with felting material, 17, to provide an air-tight joint.

After insertion of the frame within the casing, strips, 18, are nailed to the frame members, 10, around the four sides of the window to retain the frame securely in position. I find that the insertion of a window in its casing in this manner may be readily accomplished with very little trouble. Due to the wedge effect between the frame, 14, and the strips, 16, it requires no skill to obtain a perfectly air-tight joint between the window and its casing, since it is only necessary to force the window inwardly as far as possible toward the inner boards, 11.

An auxiliary strip of felting material, 19, may be used, retained in the slot, 20, in the frame, 14.

The frame is provided with three openings, A, B and C, in which are received the three sashes, D, E and F, respectively. Each of the openings, A, B, and C, is framed with a beading, 21, at the inner surface of the frame. The beading, 21, forms in each window opening a stop for the respective sash, D, E or F, and in order to effectively exclude air currents is provided with facing, 22. (See Fig. 3.)

The window sashes, E, D and F each receive a frame, 23, glassed at one side with a permanently secured pane of glass, 24, and at the other side with a pane, 25, which is removably secured against the shoulder, 26, of the frame, 23, by means of metal plates, 27, screwed to the frame, as at 28. An air space is thus left between the panes of each sash, which effectively prevents the formation of frost on either pane and insulates against radiation of heat through the window sashes.

Each window sash is suspended from the frame by a separable hinge connection, common to storm windows and the like, including a keeper element, 29, secured to the frame, 14, and a hooked hinge element, 30, secured to the sash frame, 23. By swinging the sash outwardly and lifting it slightly, the hook, 30, may be disengaged from the keeper, 29, and removed therethrough. The sash may be then turned to a position diagonal of the window opening and drawn therethrough into the room in which the window is mounted. Thus, when it is desired to wash the windows, it is not necessary to gain access to the window from the outside. By removing the plate, 27, the panes may be washed on either side.

To adjust the sashes toward and from the frame, I provide an internally threaded sleeve, 31, having trunnions, 32, pivoted in a bracket, 33, secured as at 34, to the lower portion of the sash frame, 23. A suitable depression is provided for the bracket, 33, and an opening, 35, is extended from the center thereof to the side of the casing, 23, to receive a screw rod, 36, which is threaded through the sleeve, 31.

From the rod, 36, is threaded a thumb nut, 37, having an annular slot, 38, which receives the side arms, 39, of a bifurcated bracket, 40. The bracket, 40, is secured as at 41 to the frame, 14.

The arms, 39, have their inner edges inclined toward each other and upwardly, as shown in Fig. 5, so that in order to insert the thumb nut, 37, between the arms, it is necessary to spring them apart somewhat. The bracket may be made of spring brass, or the like.

The screw rod, 36, is provided with a head, 42. By rotating the thumb nut, 37, and preventing rotation of the screw rod, 36, the rod will be pushed forwardly so as to move the window sash away from the frame. When the head, 42, contacts with the thumb nut, 37, further movement of the window sash may be accomplished by rotating the two together and thus causing the sleeve, 31, to be threaded along the screw rod.

In order to prevent disengagement of the screw rod from the sleeve, a head 43, is offset from the end of the rod. A cap, 44, is secured to the frame, 23, over the opening, 35, and is of such depth as to accommodate the desired length of the screw rod, 36.

In this connection it may be stated that it is not desirable to have the rod extend too far inwardly, and in order to attain sufficient movement of the sash a portion of the rod is allowed to extend beyond the outer surface of the sash.

As the window moves outwardly the angle between the threaded rod and the sash will change somewhat, and this angular movement will be taken care of by the pivoting connection between the sleeve, 31, and the bracket, 33.

When it is desired to remove the sash from the frame, the thumb nut is simply lifted from engagement with the bracket, 40.

Guide strips, 45, are secured to the frame, 14, on three sides of each of the openings, A and C, and are adapted to receive screens, 46, provided with metallic frames, 47. (See Fig. 3). The lower side of each frame, 47, is provided with a slot, 48, to receive the screw rod, 36. The slot, 48, extends to the edge of the frame in order that the frame may be simply inserted over the rod. (See Fig. 7).

It will now be seen that in the summertime the screens may be inserted and the window sashes opened to any extent desired so that the proper ventilation may be secured by currents of air through the upper and lower extremities of the window respectively.

If desired, the central window, B, may also be opened, although ordinarily it is preferable to maintain this sash closed. It is known that the best ventilation can be secured by providing two spaced openings, one near the top and one near the bottom of the window rather than one large opening. Thus, my window is so constructed that the central portion of the window, through which a person ordinarily looks, is never obstructed by screens, and yet the proper ventilation may be secured through portions of the window which are protected from insects and the like by screens.

It will be understood that more than two panes of glass may be used for each sash, if desired, in order to provide better insulation.

With the threaded adjusting rod, as shown, it is possible to close the window sash to a much tighter engagement with the

frame than may be secured in the ordinary type window.

The hinge member, 30, is so arranged relative to the stop, 21, that a tight joint is always had at the upper portion of the window sash, and the tight joint is secured at the lower portion by pressure exerted by the threaded rod, 36.

With my invention it is not necessary to use sash cords, weights and pulleys, and certain objections to these elements, such as the sticking of the weights in their channel, are eliminated. This is a substantial improvement over present constructions.

Some changes may be made in the construction and arrangement of the parts of my invention without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim as my invention:

1. In a window, a casing having a casing frame and inner casing boards projecting inwardly beyond said casing frame to form an annular shoulder, a window frame provided with beveled edges, said window frame being received within the casing frame with the bevels of its edges inclined inwardly and toward the said annular shoulder, beveled strips received between said beveled edges and the shoulder, in such a manner that pressure of the window frame against said strips will tend to form a tight joint between the window frame and its casing, and means to hold said window frame in close engagement with said beveled strips.

2. In a window, a frame having an opening bordered by an inwardly extending shoulder formed on the frame, a sash hinged to the frame at its upper edge by means of a separable hinge connection, said sash being adapted to swing to position within the opening and against the shoulder, and an adjusting screw having a connection with the sash and a connection with the frame, one of said connections being permanent and the other of said connections being separable.

3. In a window, a frame having an opening bordered by an inwardly extending shoulder formed on the frame, a sash hinged to the frame at its upper edge by means of a separable hinge connection, said sash being adapted to swing to position within the opening and against the shoulder, an adjusting screw having a connection with the sash and a connection with the frame, one of said connections being permanent and the other of said connections being separable, and a screen removably mounted over the opening on the inner side of the frame, said screen having a slot to receive the screw.

4. in a window, a frame having a plurality of vertically spaced openings, window sashes closing said openings, the upper and lower sashes being mounted for movement relative to the frame to disclose their openings for ventilation purposes, and means for moving the upper and lower sashes between open and closed positions, said means comprising brackets secured to the frame and extending over the openings, internally threaded sleeves pivoted in the sashes and screw rods threaded into said sleeves and having a rotatable connection with the brackets.

5. In a window, a frame having an opening bordered by an inwardly extending shoulder formed on the frame, a sash hinged to the frame at its upper edge by means of a separable hinge connection, said sash being adapted to swing to position within the opening and against the shoulder, a bifurcated bracket secured to the frame and extending over the opening, and an adjusting screw having a connection with the sash and a removable connection with said bifurcated bracket.

Signed at Sioux City, in the county of Woodbury and State of Iowa, November, 1925.

WILLIAM SHEA.