Feb. 25, 1947. R. BLANCK 2,416,511

WINDOW STRUCTURE

Filed Oct. 13, 1943

Fig. 1.

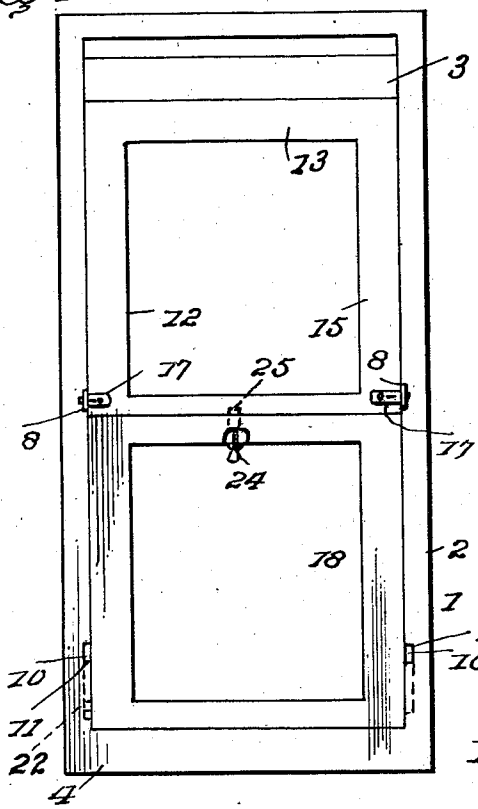



Fig. 2.

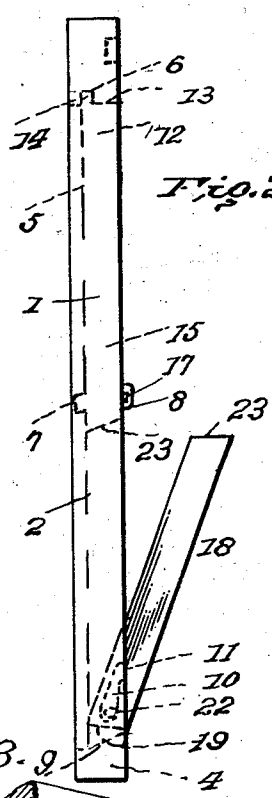



Fig. 3.

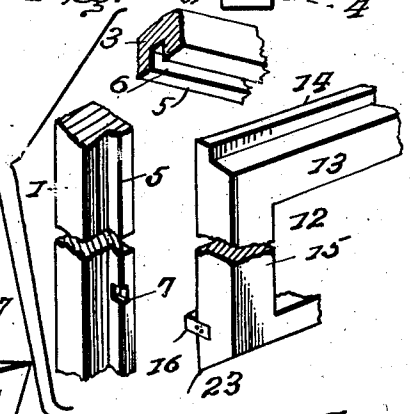



Fig. 4.

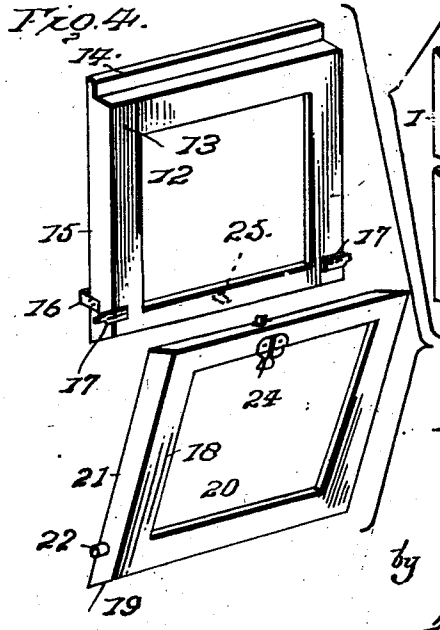



Fig. 5.




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2,416,511

## WINDOW STRUCTURE

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Application October 13, 1943, Serial No. 506,093

1 Claim. (Cl. 20—55)

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This invention is directed to an improvement in storm windows or doors of the convertible type, providing for the use of glass panels in winter and screen panels in summer.

An important and necessary characteristic of windows or doors of this type is to provide for a comparatively perfect sealing fit of the removable sections together with securing means therefor which will permit easy and convenient manipulation of the sections as may be desired or necessary.

The primary object of the invention is, therefore, the provision of means whereby the sash of either form may be readily placed in or removed from the frame, with the cooperation of the sash and frame and the securing means contributing to provide a substantial sealing relation of the parts.

A further object of the invention is the relative formation of certain meeting parts of the sash and frame as to provide a more or less wedging interfit for more effective sealing, and to particularly utilize this formation of the lower sash in conjunction with the connecting means therefor to permit a limited opening of the lower sash when desired without removing it from the frame.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a view of the improved storm accessory, shown as a window.

Figure 2 is a side elevation of the same.

Figure 3 is a broken detail in perspective showing the mounting for the sashes.

Figure 4 is a perspective view of the upper and lower sashes.

Figure 5 is a detail view showing part of the frame to bring out the details of construction.

The improved structure, which is shown and will be particularly described as a storm window, includes a more or less conventional main frame 1, of a length and width desired in the particular use. This frame 1 includes side bars 2, a top bar 3, and a bottom bar 4. The top bar 3 is of increased vertical dimensions for a particular compensating function to be later referred to, and the top bar 3 and side bars 2 are formed with a bead strip 5 flush with the outer surface of the frame and providing a sealing limit for the sash. The lower surface of the top rail 3 is formed with a channel or recess 6, of which the bead strip forms the outer wall.

The bead strips 5 on the side bars 2 of the frame are each formed, at points slightly above the position of the bottom of the lower rail of

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the upper sash when in place, with depressions 7, opening toward the rear of the frame and of less depth than the corresponding dimension of the bead strip. These depressions receive holding lugs on the upper sash as will later appear. Sliding-latch keepers 8 are also secured to the inner surfaces of the side bars 2, just opposite the depressions 7.

The upper surface of the bottom bar 4 is rather sharply inclined, as at 9, downwardly toward the front of the frame to provide a sealing and holding surface, and each side rail, immediately above the surface 9, is formed with a downwardly and outwardly inclined positioning and holding groove 10. These grooves 10 are of relatively shallow depth, open at their upper ends at 11 through the rear surfaces of the side bars and terminate slightly above the inclined surface 9.

The upper sash 12 includes forming rails shaped on their inner edges to receive a window pane or screen cloth according to their contemplated use. The upper rail 13 is formed with an upstanding strip 14 designed when the sash is applied to fit more or less snugly in the channel 6 of the top bar 3 of the main frame 1. The side rails 15 of the upper sash 12 are provided with holding lugs 16 to accurately seat in the depressions 7 in the bead strips 5 of the side bars 2 to thus support the upper sash when applied, and sliding latches 17 or other appropriate fastenings are provided on the inner surface of the upper sash in positions to cooperate with the keepers 8, to removably secure the upper sash in place.

The lower sash 18 is also of rail construction to accommodate a window pane or screen, the lower surface 19 of the lower rail 20 being formed as a complementary fit on the inclined surface 9 of the bottom bar 4 of the main frame. The side rails 21 of the lower sash are provided with outstanding pins 22, designed for sliding fit in the holding grooves 10, and positioned to bear against the ends of the grooves when the inclined surfaces 9 and 19 are in contact.

The upper edge surface of the lower sash and the lower edge surface of the upper sash are similarly inclined at 23 outwardly and downwardly of the main frame to insure substantial sealing interfit when the sash are in position. The lower sash carries a snap latch 24 of any conventional form to cooperate with a keeper 25 on the upper sash to removably lock the sash in applied positions.

The sash are applied in an obvious manner, the lower sash being capable by reason of its pivotal

support and inclined lower edge of being tilted inwardly to a limited degree and held partially open when desired. Both sash are more or less effectively sealed when in position and are locked against opening from the outer side of the frame.

The increased height of the top bar 3 of the frame is to compensate for the height of the lower rail of the lower sash of the regular window, in order to permit the lower sash 18 of the improved storm window to operate freely when bottom sash of regular window is raised. This same result can be provided for by increasing the vertical dimension of the top sash of the storm window a corresponding amount, which is contemplated if desired.

The improvement readily lends itself to a metal frame and sash instead of the wooden structure illustrated, and of course the dimensions of the respective parts may be determined by the required size of the particular window desired.

The details of structure, particularly in the convertible features may with equal advantage be applied to door construction, if desired.

What is claimed as new is:

A storm sash including a frame having side bars, a top bar and a bottom bar, sash limiting beads projecting inwardly from the sash receiving surfaces of the side bars with the outer surfaces of the beads flush with the outer surfaces of the side bars, the upper surface of the bottom bar being inclined upwardly from the beads, a lower sash fitting between the side bars to bear against the beads, the lower end of the sash being inclined to accurately fit the inclination of the bottom bar of the frame when the sash is in contact with the beads, the lower ends of each of the side bars of the frame being formed with grooves inclined with respect to the beads and opening at their upper ends through the rear surfaces of the side bars, and pivot pins projecting from the sash to engage in said grooves when the sash is in place to swingingly support the sash relative to the frame, the pivot pins and bottoms of the grooves being spaced when the sash is in operative closed position in the frame, whereby the sash may be tilted on the inner margins of the inclined surfaces of the sash and frame until the pivot pins contact the bottoms of the grooves to thereby prevent further swinging movement of the sash and hold such sash in open position while still connected to the frame.



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