Nov. 4, 1947. W. M. KRANTZ 2,430,059

STORM WINDOW

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Fig. 2.

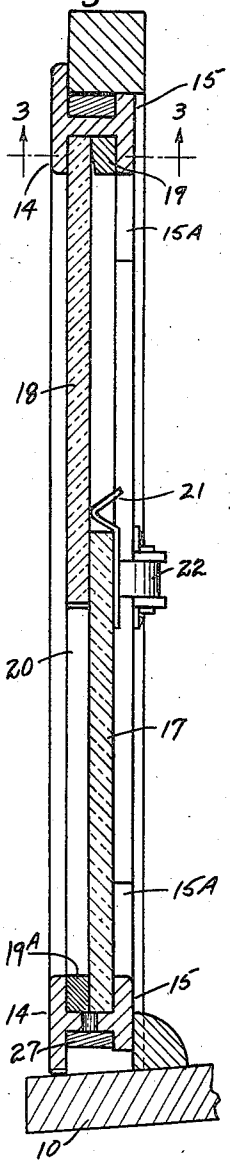


Fig. 1.

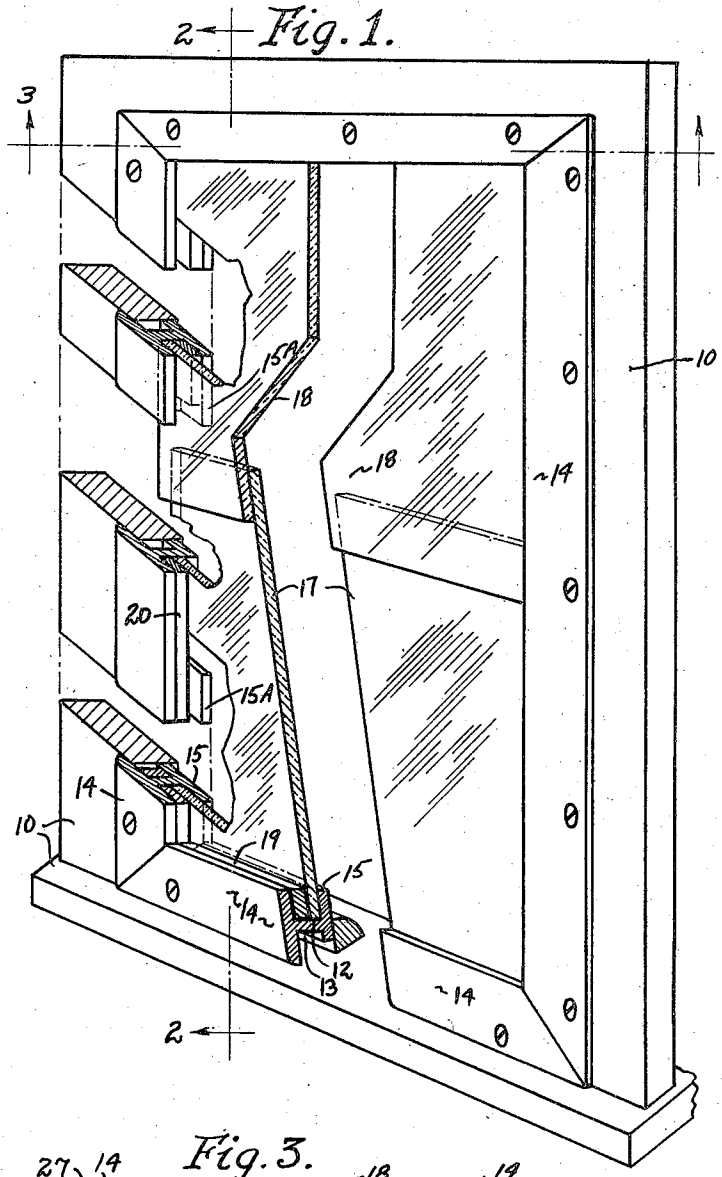


Fig. 3.

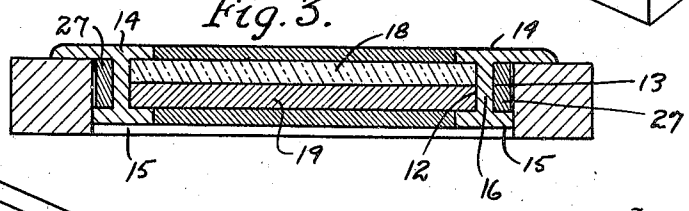
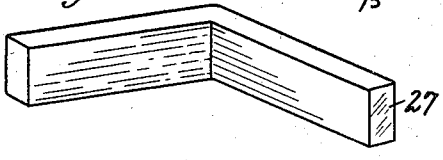


Fig. 4.



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Fig. 5.

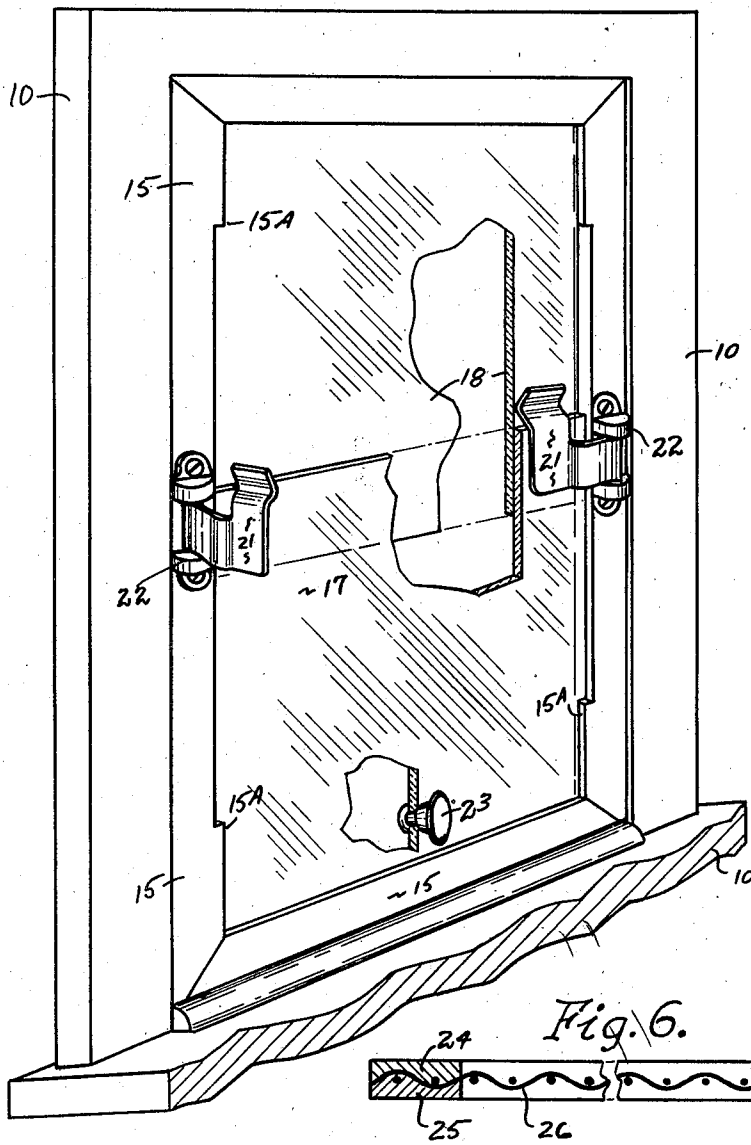


Fig. 6.

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Patented Nov. 4, 1947

2,430,059

UNITED STATES PATENT OFFICE

2,430,059

STORM WINDOW

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Application March 27, 1944, Serial No. 528,300

3 Claims. (Cl. 20—55)

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This invention relates to a storm window and more particularly to a storm window adapted for positioning on a conventional window frame in a dwelling or other building.

The principal object of the invention is the provision of a storm window including upper and lower glass panes and a frame for mounting the same on a conventional window.

A further object of the invention is the provision of a storm window, the component parts of which consist of a simple extruded plastic shape and a pair of glass panes.

A still further object of the invention is the provision of a storm window, the frame portion of which comprises a simple channeled shape adapted to be mounted on a conventional window for the reception therein of a pair of glass panes.

A still further object of the invention is the provision of a storm window in which a glass to glass seal is effected between the panes of the storm window.

The storm sash shown and described herein has been designed to form a simple and relatively inexpensive storm window which may be readily assembled from stock parts and readily mounted upon the exterior or interior of a window in a dwelling or other building. The storm sash relies upon the positioning of plate glass panes in a channeled frame so as to utilize the sliding fit between the glass sash and the frame and between the glass panes themselves for effecting an efficient weather tight closure.

With the foregoing and other objects in view which will appear as the description proceeds the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The invention is illustrated in the accompanying drawing, wherein—

Figure 1 is a perspective view of the storm window with parts broken away and parts in cross section.

Figure 2 is a vertical cross section taken on lines 2—2 of Figure 1.

Figure 3 is a horizontal cross section taken on lines 3—3 of Figures 1 and 2.

Figure 4 is a perspective view of a corner joining member.

Figure 5 is a perspective elevation of the interior of the storm window with parts broken away, parts in cross section and parts in enlarged detail.

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Figure 6 is a cross sectional elevation of an improved screen sash which may be used as an interchangeable unit with the glass panes of the storm window.

By referring to the drawings and Figures 1, 2 and 3 in particular it will be seen that a storm window has been mounted upon an exterior window casing 10 which includes a sill or ledge and that the frame portion of the storm window comprises a channeled shape incorporating double channels, one of which forms the inner edge of the frame portion of the storm window and the other of which forms the outer edge, the inner channel being indicated by the numeral 12 and the outer channel by the numeral 13. The exterior 14 of the channeled shape forms an outer facing and the inner side 15 of the channeled shape forms an inner facing, the facings 14 and 15 being spaced apart by means of a web 16 the length of which determines the width of the channels 12 and 13. The channel 12 being the one forming the inner edge of the frame is adapted to receive a pair of glass panes 17 and 18, each of which is preferably of triple strength plate glass. It will thus be seen that when sections of the channeled frame are cut in suitable lengths and fitted to one another with diagonal joints, a rectangular frame is formed with continuous inturned flanges defining the channel 12 therebetween. This frame may be united at the corners by suitable L-shaped brackets as illustrated in Figure 4 which are press fit in position together with a suitable cement or bolted or riveted therein, as desired. The frame may be assembled on the window casing 10 as illustrated in Figure 1. In either event in order that double glass panes may be positioned therein, portions of the in-turned flange of the inner facing 15 are cut away at each side to provide clearance for positioning the glass panes 17 and 18 in the channel 12. By referring to Figures 1, 2 and 5 of the drawings, it will be observed that the inturned flange of the facing 15 is not cut away near the upper and lower sections of the frame and these remaining portions are indicated by the numerals 15A. The cut away area of the facing 15, as is best illustrated in Figure 5, is sufficient to enable either one of the glass panes 17 and 18 to be positioned in the channel 12. The strip so removed from each side of the frame is utilized for modifying the channel 12 from double glass to single glass width across the top and bottom of the frame and such added strips are indicated by

the numerals 19 and 19A, respectively. It will be observed that the added strip 19 is positioned in the top channel 12 adjacent the inner facing 15 and that the added strip 19A is positioned in the channel 12 adjacent the exterior facing 14. This formation provides for the location of the upper and lower glass panes, the upper pane being indicated by the numeral 18 and the lower pane by the numeral 17, the upper pane being positioned adjacent the exterior facing 14 in the upper half of the frame and the lower pane being positioned adjacent the inner facing 15 in the lower half of the frame. In order that the upper pane may be retained in the position illustrated, additional filler strips 20 are employed, which filler strips 20 are positioned vertically in the channel 12, one at each side of the frame, and they are of a length so that their uppermost ends lie immediately under the bottom of the uppermost pane 18 thereby providing ledges upon which it may rest. It will thus be seen that when a storm window frame is formed from four pieces of the channeled frame material and assembled in the manner illustrated and described and modified by cutting away the side sections of the inner facing 15, glass panes may be placed in the channel 12 formed by the frame and slidably moved into upper or lower position. For example, assuming the frame to be empty and desiring that the upper pane 18 be positioned therein, the pane is positioned in the channel 12 of the frame through the inner opening formed by the cut away portions of the inner facing flanges 15 and allowed to rest against the in-turned flange of the exterior facing 14 and moved upwardly until the uppermost edge thereof registers with the single channel 12 formed in the top of the frame. When in such position its lowermost edge is moved outwardly so that the sides of the pane 18 continuously engage the in-turned flanges of the exterior facing 14 and the bottom of the pane 18 rests upon the upper ends of the added strips 20. The upper pane 18 will remain in this position. The lower pane is then positioned in the frame flush against the inner surface of the upper pane and so that its sides lie within the channel 12. In this position it may be lowered until its bottom-most edge registers with the single channel in the frame. The glass pane in this position forms a workable weather tight closure, and to insure against the possibility of movement, rattling or accidental displacement a pair of spring tensioned hinged brackets 21 are provided one on each side of the frame and they may be mounted directly on the frame material itself or on the casing 10 of the window on which the storm window is positioned. In either event, they are so formed that they may be swung about into contact with the uppermost edge of the inner, lower pane 17 where they will remain under spring tension holding the uppermost edge of the lower pane 17 against the lowermost edge of the upper pane 18.

By referring to Figure 5 of the drawings, the spring tensioned brackets 21 may be seen to comprise spring tensioned mountings 22 in which the actual brackets 21 are pivotally positioned and sprung in relation thereto preferably by a separate spring incorporated therewith. In Figure 5 of the drawings a knob 23 is shown affixed in a drilled opening in the lowermost sash 21 to provide a convenient hand hold.

For summer use the upper or the lower plate glass pane may be removed and a screen insert of comparable size and thickness may be substituted. Such a screen insert is illustrated in Figure 6 of the drawings wherein a pair of plastic frames 24 and 25 having a section of plastic screen 26 positioned therebetween in a sandwich-like manner have been united through the use of suitable cement and/or heat so as to form a rigid unitary structure, the total thickness of the screen sash section being equal to the thickness of the glass pane it is adapted to be interchanged with.

By referring to Figures 2, 3 and 4 of the drawings it will be seen that a corner bracket 27 illustrated in Figure 4 in enlarged detail may be employed as heretofore referred to in the assembly of the frame of the invention. The corner bracket 27 is shown in position in the cross sectional elevations of Figures 2 and 3 wherein it is indicated by the numeral 27 and it will be observed that it has been press fit in the corner sections of the frame being positioned in the exterior channel 13. In this position where it may be located by cementing, heat treatment or by bolting or riveting, depending upon the material of the frame and the bracket, the brackets, in conjunction with the frame structure cooperate to form a unitary window frame.

It will thus be seen that in forming the storm window of the invention certain advantages over storm windows heretofore known in the art are realized. Among these are the formation of the frame portion of the storm window of a simple channeled shape which may be and preferably is of extruded plastic while the sash portions themselves are simply unframed sections of plate glass or clear plastic material. The storm window due to the unique construction need not employ weather stripping of any nature or complicate means for positioning and holding separately framed window panes as has heretofore been customary in the art as the formation of the simple frame cooperates with the glass or plastic panes forming a weathertight closure. The storm window may be installed upon the exterior or the interior of a conventional window and forms a neat, unobtrusive, highly efficient weather closure in either position. When positioned on the exterior of a window casing as shown in Figure 1, an added wooden back-up member is preferably employed across the bottom portion of the frame to provide a structural portion of the window frame against which the storm window frame may be located. The window frame may be flush fit with the casing 10 of the window upon which it is installed by the simple expedient of trimming off the portion of the exterior facing 14 which extends beyond the interior facing 15, thus permitting the whole frame to be positioned against the inner structure of the window casing and providing a neater assembly as no exterior flange remains. In such position the frame is positioned by screws driven through the web 16 into the casing or in the manner shown in Figure 4, the screws being driven into the inner structure of the conventional window frame.

Having thus described my invention, what I claim is:

1. In a storm window a frame comprising a channeled shape the channel in said shape being of a width sufficient to receive therein two thicknesses of transparent material as panes, means in said channel for positioning one of the panes in upper outer position in the said channel and for positioning the other one of the said panes in inner lower position in the said channel, the said panes partially overlapping and touching one another, vertical sections of the said channeled

shape being cut away to permit the said panes to be moved into and out of the said channel.

2. In a storm window a frame comprising a channeled shape the channel in said shape being of a width sufficient to receive therein two thicknesses of transparent material as panes, means in said channel for positioning one of the panes in upper outer position in the said channel and for positioning the other one of the said panes in inner lower position in the said channel, the said panes partially overlapping and touching one another, vertical sections of the said channeled shape being cut away to permit the said panes to be moved into and out of the said channel, a lip on said channeled shape oppositely disposed from said channel, said lip adapted to overlie a window casing and serve as a means of mounting said storm window.

3. In a storm window a frame comprising a channeled shape the channel in said shape being of a width sufficient to receive therein two thicknesses of transparent material as panes, means in said channel for positioning one of the panes in upper outer position in the said channel and for positioning the other one of the said panes in inner lower position in the said channel, the said panes partially overlapping and touching one another, vertical sections of the said channeled shape being cut away to permit the said panes to be moved into and out of the said channel, a lip

on said channeled shape oppositely disposed from said channel, said lip adapted to overlie a window casing and serve as a means of mounting said storm window, tensioning members positioned on said channeled shape and engageable with both upper outer and lower inner panes for holding the same in their respective positions.

WALTER M. KRANTZ.

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