June 5, 1945. J. M. PREVETTE 2,377,449

COMBINATION SCREEN AND STORM DOOR AND WINDOW

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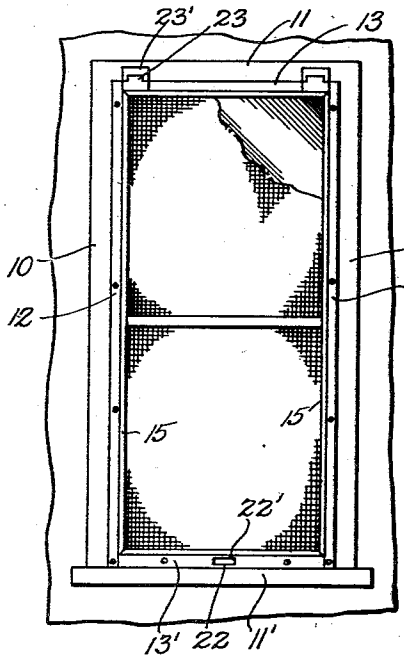


Fig. 1.

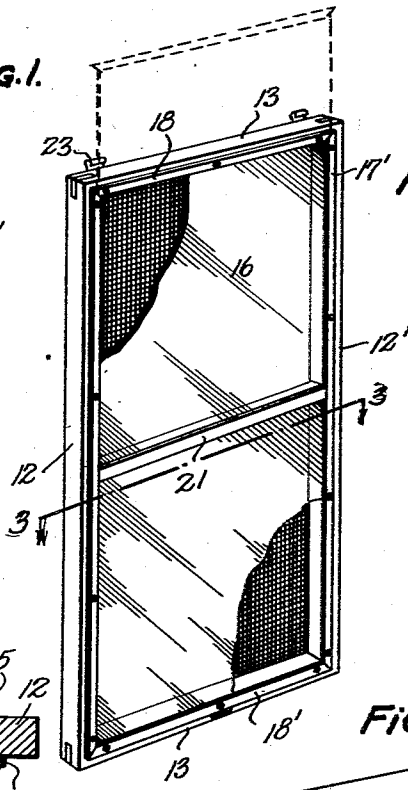


Fig. 2.

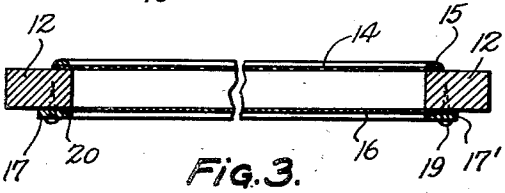


Fig. 3.

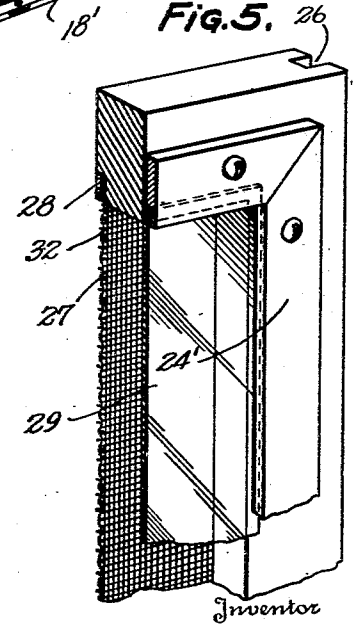


Fig. 5.

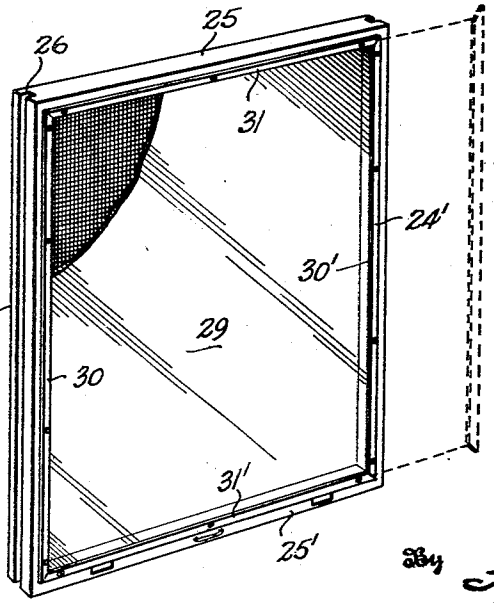


Fig. 4.

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Fig. 7.

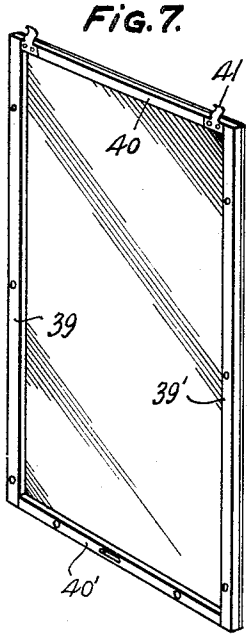
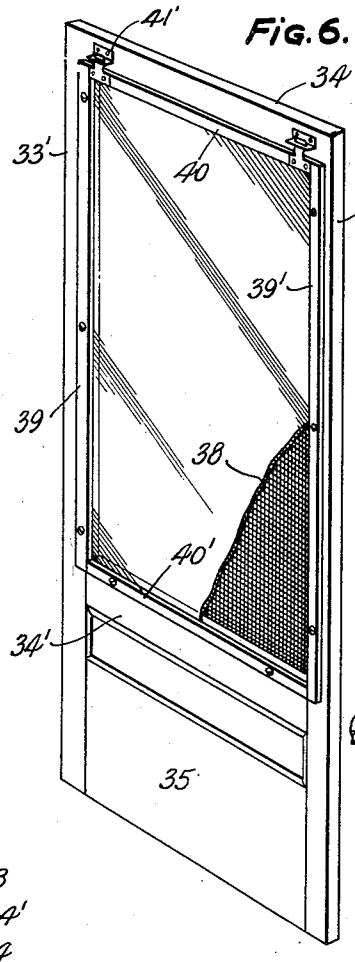


Fig. 6.



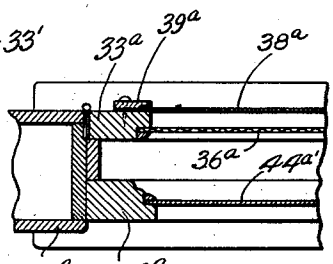


Fig. 9.

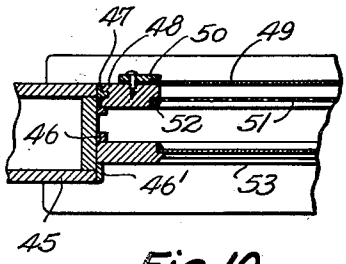


Fig. 10.

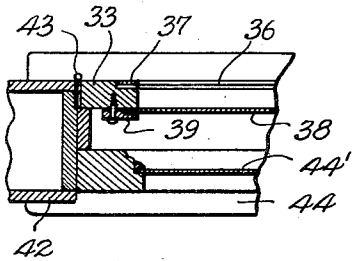


Fig. 8.

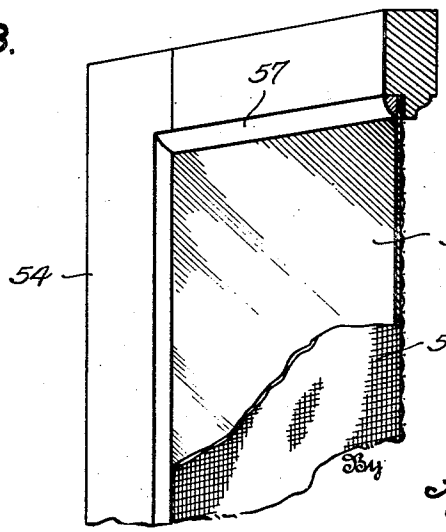


Fig. 11.

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2,377,449

COMBINATION SCREEN AND STORM DOOR AND WINDOW

Joseph M. Prevette, Arlington, Va.

Application February 2, 1943, Serial No. 474,483

6 Claims. (Cl. 160—106)

This invention relates to window and door construction, and particularly to combination screen and storm doors and windows for buildings.

An object of the invention is to provide a window or door structure of the "storm" type which is of simple construction and may be easily fabricated from readily available materials, may be installed with a minimum of time and labor, is light in weight and at the same time is strong and rugged and capable of long life with little liability of breakage.

Another object is to provide a combination screen and storm door window having a window pane of flexible transparent or substantially transparent material which may consist of a single sheet of cellulose acetate or like plastic fastened at the marginal edges only, thereby rendering the door or window devoid of mullions or like intermediate framework.

Another object is to provide a storm door or window particularly adapted for window panes of the flexible type.

A further object is to provide a structure of the kind specified embodying a flexible transparent pane which may be readily removed or applied whenever desired or when conditions warrant, as for example, to provide a screen door or window in summer and a storm door or window in winter.

A still further object of the invention is to generally improve and at the same time simplify combination screen and storm doors or windows for building structures.

The foregoing and other objects and advantages will become apparent in view of the following description taken in conjunction with the drawings, wherein:

Figure 1 is a view in front elevation of a combination screen and storm window in accordance with the invention;

Fig. 2, a perspective of the window of Fig. 1, showing same removed from its frame and the flexible transparent pane partly broken away;

Fig. 3, a section on the line 3—3, Fig. 2;

Fig. 4, a perspective of a slightly modified type of window with respect to that shown in Figs. 1, 2 and 3;

Fig. 5, an enlarged detail in perspective of the upper right-hand corner portion of Fig. 4;

Fig. 6, a perspective of a storm door constructed in accordance with the invention;

Fig. 7, a similar view showing the window panel removed from the door of Fig. 6;

Fig. 8, a fragmentary horizontal section illustrating the door of Fig. 6 installed in conjunction with an outside door;

Fig. 9, a view similar to the Fig. 8 showing a slight modification in structure;

Fig. 10, a further fragmentary section illustrating a storm window of the sliding type installed in conjunction with a regular window; and

Fig. 11, a fragmentary perspective view of a storm window or door illustrating a pane section made up of a transparent plastic sheet and screening in coacting reinforcing relation.

In carrying out the invention, I utilize a pane section of flexible transparent material such as cellulose acetate, or one of the clear substantially transparent plastics capable of being fabricated in the form of sheets and which are generally made up in sizes according to specifications, or in rolls to be cut to length. This pane section is mounted in conjunction with a window or door screen by means of framework which holds the pane taut while at the same time permitting the pane to be removed and replaced whenever it is desired or conditions warrant.

Referring to the drawings in detail, in Figs. 1, 2, and 3, a storm window is illustrated as being mounted within a casement made up of vertical side members 10, 10', a top rail 11 and a bottom member or sill 11'. The storm window comprises vertical side rails or frames 12 and 12' and top and bottom rails or frames 13 and 13' which are provided with suitable interlocking or mortised joints at their corners so that the said frame members may be connected in rigid or substantially rigid relation.

The outer side of the window has applied thereto screening 14 which is secured in place by means of suitable molding 15. The inner side of the window has applied thereover pane section 16 which is comprised of a sheet of clear transparent or substantially transparent plastic. In practice, I have used cellulose acetate material which may be purchased in the open market in continuous length rolls to be cut to size, or sheets of the required dimensions. The flexible transparent pane thus provided is connected to the window by means of molding strips 17, 17' and 18, 18' fastened by means of screws or the like 19. The side strips 17, 17' provide slideways or grooves 20 to permit the flexible pane section or sheet 16 to be slid in or withdrawn when the top strip 18 is detached, this latter strip preferably being permanently connected to the upper edge of the sheet 16 so as to provide a finger grip and to also hold the sheet against undue deformation when it is removed.

It will be noted that the flexible transparent pane section in the arrangement shown in Figs. 1, 2 and 3 is on the inner side of the window. In this manner, the pane is readily accessible for removal to facilitate washing or cleaning from the interior of the dwelling or building to which the storm window may be applied. Furthermore, the screen protects the plastic sheet, rendering the latter less susceptible to damage or puncture. An intermediate molding strip 21 may be applied across the center of the frame to reinforce the sheet 16 at this point.

In Fig. 2, the flexible transparent pane section is shown partially removed in dotted line.

To prevent clouding of the pane section or sheet 16 due to trapped air and moisture, or to ventilate the room or compartment of the building, an opening 22 is preferably formed in one of the frame members, for example in the bottom frame 13', and has thereover a closure slide 22, the latter being adjustable to regulate the amount of ventilation or to afford sufficient circulation of air within the dead air space between the inner and outer windows to prevent clouding thereof.

The storm window of Figs. 1, 2 and 3 may be mounted in any suitable manner within the main window frame or casement. In the present instance, the upper frame member 13 is provided with hangers 23 adapted to engage in brackets 23'.

The type of storm window just described is of relatively simple construction yet at the same time it is unusually light and strong. The transparent pane or pane section 16 being flexible, is less liable to breakage than were window glass used and at the same time it may be more readily applied and removed without danger of damage or breakage. Furthermore, the plastic sheet is light in weight so that it considerably reduces the weight of the entire window structure. Actual use has demonstrated that a storm window of this type is a marked advance over those utilizing glass or like rigid materials susceptible of breakage. These flexible pane sections 16 are also of considerable advantage in case the storm windows are stored during the summer months, since the sheets may be rolled or laid flat in compact form without danger of breakage.

Figs. 4 and 5 illustrate a storm window of the sliding type. In this instance, the window is made up of side frames or rails 24, 24' and top and bottom rails 25, 25', the side rails being formed with grooves 26 whereby the window may be slid into place in a suitable frame structure provided therefor. The outer side of the window has applied thereover a screen 27 by means of suitable molding strips 28; while on the inner side thereof is a flexible transparent sheet of plastic providing a pane section 29 secured in place by means of side molding strips 30, 30' and top and bottom strips 31, 31'. The top and bottom strips provide slideways or grooves 32, whereby the pane section 29 may be slid laterally in place or removed simply by removing the side strip 24, note the dotted line position in Fig. 4. In this instance, the side molding strip 30' is permanently connected to the adjacent edge of the pane section 29 to provide a finger piece and to hold the side section against distortion.

Figs. 6, 7 and 8 illustrate a storm door made up of side frames or rails 33, 33', a top rail 34, a bottom rail 34' and a bottom panel 35. The outer side of the door has applied thereover screening 36 by means of molding strips 37, while the inner side has applied thereover a flexible transparent sheet providing a pane or pane section 38, the latter being held in place by means of side molding strips 39, 39', a top strip 40 and a bottom strip 40'. In this instance, the top and bottom strips may be provided with slideways or grooves with one of the side strips removable and connected to the flexible pane section 38 so that the latter may be slid in place and removed in the same manner as heretofore described in connection with Figs. 1 to 3, inclusive. The storm window thus provided may be hung by means of hooks 41 and hanger brackets 41'.

Fig. 8 illustrates the storm door of Figs. 6 and 7 mounted in a door opening, the latter being defined by an outer frame 42 and the door being hinged to said frame at 43. The usual outside door is generally indicated at 44 and is provided with a window section of glass or other suitable material as indicated at 44'. It will be noted that the plastic sheet or pane section 38 is made of one piece so that the use of mullions is rendered unnecessary.

Fig. 9 illustrates a slightly modified form of storm door with respect to that shown in Figs. 6, 7, and 8. In this instance, parts are given similar reference characters except that an exponent *a* has been added. The difference in this instance is that the transparent pane section 38*a* is located exteriorly of the door, or on the exterior surface of the latter, with the screen in between the flexible pane and the usual or conventional window 44.

In Fig. 10, a storm window of the sliding type is shown in conjunction with a conventional window. The outer frame or casement is indicated at 45 and is provided with window-retaining strips 46, 46' and runners 47. The storm window consists of a frame 48 mounted on the runners 47 and having connected to the outer side thereof a flexible transparent pane section 49 by means of molding strip 50, and to the inner side a wire screen or screening 51 by means of molding 52. A window of the conventional type is indicated at 53 and is mounted between the strips 46, 46'.

Fig. 11 illustrates a structure wherein the pane section is made up of a plastic sheet and screening arranged in contiguous or face to face relation in order that one reinforces the other. In this instance the outer frame structure is generally indicated at 54, the transparent pane section or sheet at 55 and the screening at 55'. The flexible pane section may be mounted by means of suitable molding strips 56. This type of window or door panel may be used as a permanent pane section, or it may be removably mounted as heretofore described.

Actual use has demonstrated that this type of storm window or door may be manufactured at an unusually low cost while at the same time the degree of transparency or visibility remains substantially that of the conventional window pane made of glass or like rigid material.

It will be understood that certain limited changes in construction and design may be made without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

1. In a structure defining a window opening, a combined screen and storm window for said opening comprising side, top and bottom frame members connected in substantially rectangular relation providing a frame adapted to fit in a window opening, the outer side of said frame

being recessed, screening secured over the outer side of said frame and having its marginal edges engaged in said recess, molding strips secured against the inner side of said rectangular frame and defining in conjunction with said side frame members and said bottom frame member slideways, a flexible transparent sheet of plastic such as cellulose acetate material having its side and bottom marginal edges adapted to slidingly engage in said slideways, and a top molding strip secured to the upper edge of said sheet, whereby the sheet may be readily removed and replaced within said guideways and said top molding strip secured to the top frame member when the sheet is in its lowermost position within the frame.

2. In a structure providing an opening, a storm window mountable in said opening, said storm window comprising a substantially rectangular frame having strips of molding secured thereto in substantially rectangular relation and providing slideways or grooves at opposite sides and the bottom of said frame, a sheet of flexible substantially transparent plastic mounted in said slideways and having secured to the upper edge thereof a strip of molding providing a finger grip whereby the sheet may be readily removed or replaced within said slideways, said last-named molding strip being securable to the top of said frame when the sheet is in its lowermost position.

3. In a structure defining an opening, a storm window adapted to be disposed in said opening and comprising top, bottom and side frame members connected together in substantially rectangular relation, a substantially impervious clear transparent pane mounted in said frame, said pane comprising a single sheet of substantially transparent plastic such as cellulose acetate and said frame being provided with slideways adapted to receive three marginal edges of said sheet, the remaining marginal edge having secured thereto a strip of molding whereby the sheet may be slid into or withdrawn from said guideways, said strip of molding being connectable to said frame when the sheet is fully inserted within said guideways.

4. A removable screen comprising frame members; a removable window pane section mounted within said frame members and comprising a sheet of substantially transparent plastic material, and screening connected to said frame members and disposed in spaced relation with respect to said plastic sheet, the screening being located on the outer side of the window to protect the plastic sheet.

5. In a storm window having a screen panel and a transparent panel disposed in spaced relation to one another, top and bottom frame windows connected in rectangular relation, molding strips secured against the inner side of said frame and defining in conjunction with said side frame members and with said bottom frame member slideways, a flexible transparent sheet of molded plastic having its side and bottom marginal edges slidingly engaged in said slideways, and a top molding strip permanently secured to the upper edge of said sheet, said molding strip providing a finger grip whereby the plastic sheet may be readily removed from and replaced within the slideways provided therefor and also serving to prevent undue deformation of the sheet when it is removed, the screen panel being disposed on the outer side of the rectangular frame in order to protect the plastic sheet.

6. A combined removable screen and storm window assembly comprising a frame, a screen in said frame, a second frame for connection with and adapted to be carried by the first frame, and transparent flexible sheet material adapted to be carried by said assembly clamped between said frames in spaced relation to the screen of the first frame.

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