March 20, 1951 H. R. SUGAR 2,545,901

STORM WINDOW

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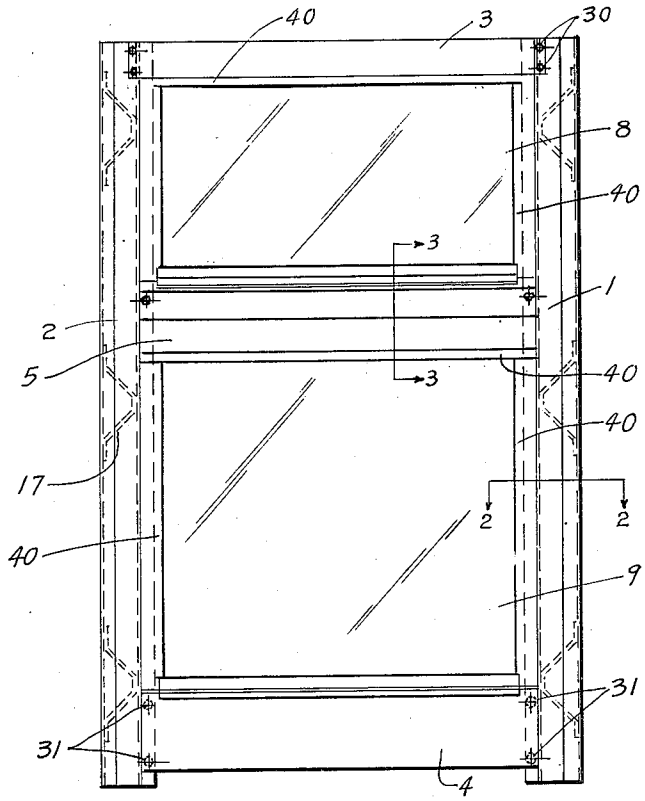


FIG. 1

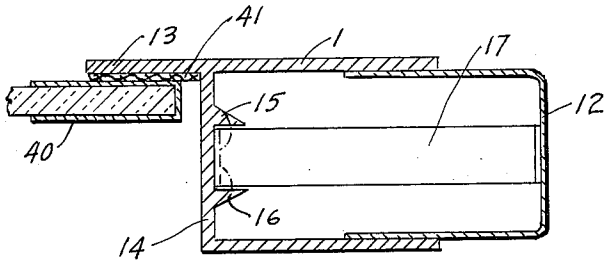


FIG. 2

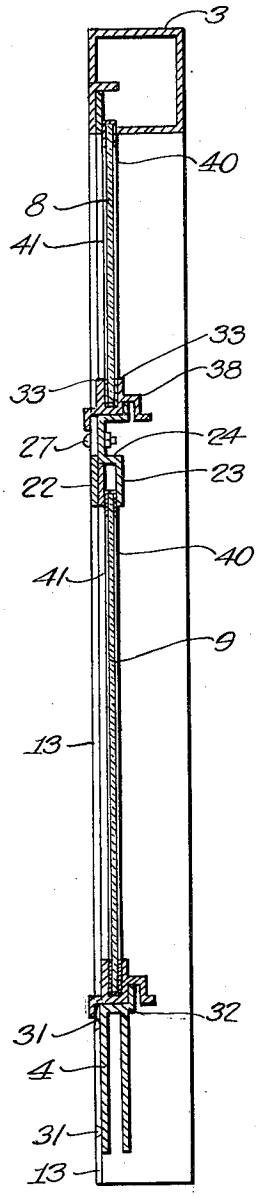
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FIG. 4



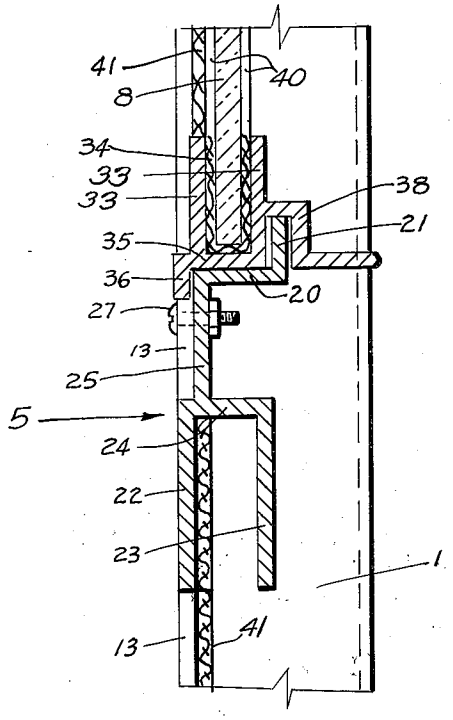


FIG. 3

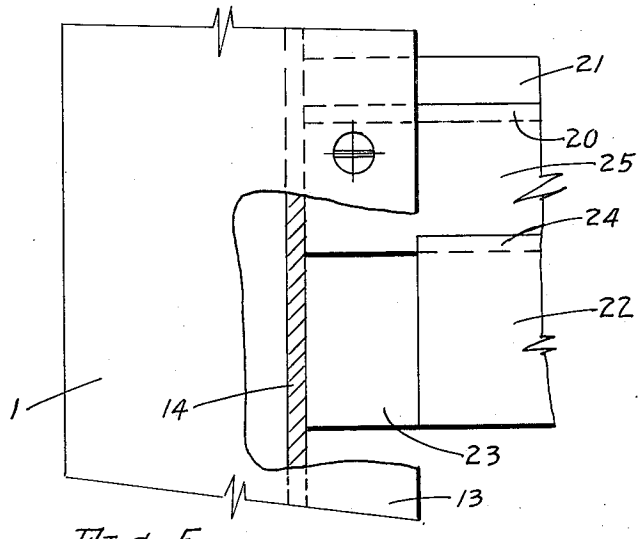


FIG. 5

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STORM WINDOW

Harry R. Sugar, Akron, Ohio

Application November 19, 1945, Serial No. 629,547

2 Claims. (Cl. 189—75)

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This invention relates to a new storm window.

In my copending application, Serial No. 594,296, there is described a storm window for two sashes of about the same size with the lower sash holding the upper sash in place so that the lower sash must be removed before the upper sash can be removed. Such a design is practical only with windows in which the upper sash is at least about as large as the lower sash. In many windows the upper sash is small, and as it is desirable to have the middle rail of the storm window at about the same height as the middle rail of the window which is being protected, a storm window of different design is required. This invention relates to such a storm window in which, generally the upper sash will be smaller than the lower sash although it will be seen from the description that the window is designed to accommodate sashes of any size.

The window is formed substantially entirely of extruded metal parts. The lower rail, which protects the bottom of each pane of glass, is advantageously extruded with the other edges of each pane protected by a thin strip of sheet metal which is bent to clip over these edges.

An important element of this invention is the rail between the two sashes. It is extruded and is designed along the upper edge so as to make a weathertight seal with the lower rail of the upper sash, and along its lower edge is designed to accommodate the upper edge of the lower sash.

The invention will be further described in connection with the accompanying drawings, in which:

Fig. 1 is an elevational view of the storm window from the inside;

Fig. 2 is an enlarged section on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged section on the line 3—3 of Fig. 2 but with the lower sash removed;

Fig. 4 is a longitudinal sectional view of the window; and

Fig. 5 is an enlarged detail, with a part broken away, and with both sashes removed, showing the manner in which the middle rail is united to the stiles as viewed from the outside of the storm window.

The window is composed essentially of the two extruded stiles 1 and 2, the extruded top rail 3, the extruded bottom rail 4, and the extruded middle rail 5. The upper and lower sashes 8 and 9 may be of any desired size.

As shown in Fig. 2, each side rail is advantageously channel shaped to accommodate an extender 12 and is provided with the rest 13

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which extends inwardly from the bottom 14 of the channel and runs the length of the window to serve as a guide for the sashes. Inside the channel are two fins 15 and 16 spaced wide enough apart to accommodate sheet metal springs 17 which are held in place between the fins by bending a portion of each fin over onto them as shown in dotted lines in Figure 2. The springs, if used, keep the extender 12 extended so that it fits snugly against the edges of the opening into which the window is fitted.

There is no extender across the top of the window, as the top should be flush with the window opening. The bottom rail 4 is channel shaped and will accommodate an extender of any suitable type.

The middle rail 5 is extruded from aluminum or the like and is formed with a channel at the bottom, a horizontal ledge 20 at the top, and a lip 21 extending upwardly from this ledge. The channel is formed of the two side walls 22 and 23 which are united by the connecting portion 24. The upright 25 unites the channel with the ledge 20. It will be noted that the upright 25 is offset from the outer edge of the channel just the width of the rest 13 to which it is bolted by the bolt 27. The ends of the channel side 22 are preferably cut away the width of the flange 13 in order to permit the back side of that portion of the channel side 22, which extends between the rests 13 of the stiles 1 and 2, to be flush therewith as illustrated in Figs. 3 and 4. As illustrated in Fig. 4, the top edge of the lower sash 9 fits into this channel just as the top edge of the sash 8 fits into the extruded upper rail 3. All of each end of the upper rail 3 is cut away somewhat except the front wall which is allowed to extend a short distance over the front of the stiles 1 and 2 and is riveted or bolted thereto at 30 to hold it in place. The channeled lower rail 4 is bolted or riveted to the rests 13 from the outside of the window, as by rivets 31 (Fig. 4). It has an upwardly extending lip 32 which corresponds to the lip or flange 21 of the middle rail. The lower rail of the lower sash is the same as the lower rail of the upper sash and fits down over this bottom rail and forms a weathertight union with it just as the upper edge of the middle rail 5 makes a weathertight union with the bottom rail of the upper sash.

Fig. 3 illustrates how the lower rail of the upper sash rests on the ledge 20 of the middle rail and fits over the lip 21. This lower rail comprises an extruded channel, the walls of

which are indicated by the reference numeral **33**. The sash is supported in these and may be protected by suitable packing **34**. The bottom **35** of the channel terminates at its outer edge in the lip **36** which depends over the ledge **20** to keep out the weather. The lip **38** on the inside of the sash, which serves as a means for lifting and lowering it, extends inwardly from the channeled wall **32** and fits over the lip **21** to make a weathertight joint.

Both sides and the top of each sash are protected by bent sheet metal strips **40** which are sprung onto them. The rests **13** may be protected by felt **41** or the like to prevent the window from rattling.

Although the middle rail **5** and other important elements of the storm window are preferably formed of extruded aluminum, any extruded metal or plastic may be utilized. Extrusion is recommended for economy; and aluminum, for light weight.

The drawings and description are illustrative, and changes may be made within the scope of the appended claims.

What I claim is:

1. A storm window with an upper and a lower sash, on the two sides thereof stiles with inwardly extending portions, and between the sashes and extending from one stile to the other a unitary extruded middle rail formed at the bottom with a channel having vertical walls and a horizontal bottom, and formed at the top with an inwardly extending horizontal rest, and between the rest and the channel a vertical section spaced from the outside wall of the channel the thickness of said inwardly extending portions of the stiles, said outside wall of the channel being cut away at each end to abut said inwardly extending portions of the stiles, and means fastening said vertical section of the middle rail to said portions of the stiles.

2. A storm window with an upper and a lower sash, on the two sides thereof stiles with inwardly extending portions, and between the sashes and extending from one stile to the other a unitary extruded middle rail formed at the bottom with a channel having vertical walls and a horizontal bottom, and formed at the top with an inwardly extending horizontal rest and a lip extending upwardly from the inner edge thereof, and between the rest and the channel a vertical section spaced from the outside wall of the channel the thickness of said inwardly extending portions of the stiles, said outside wall of the channel being cut away at each end to abut said inwardly extending portions of the stiles and means fastening said vertical section of the middle rail to said portions of the stiles.

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