June 13, 1939. C. M. VERHAGEN 2,162,364

WINDOW CONSTRUCTION

Filed June 10, 1935

Fig. 1.

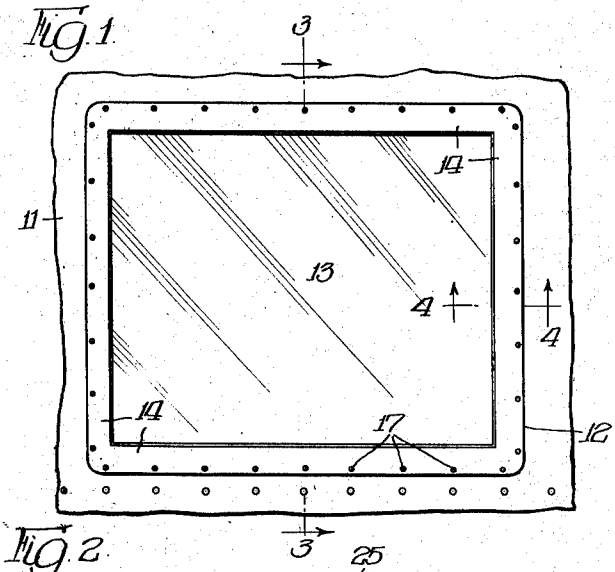


Fig. 2.

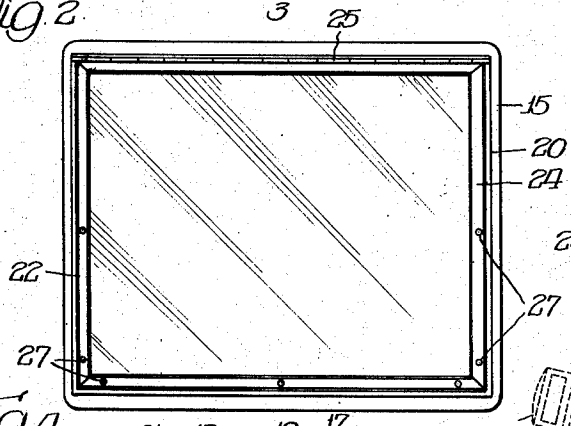
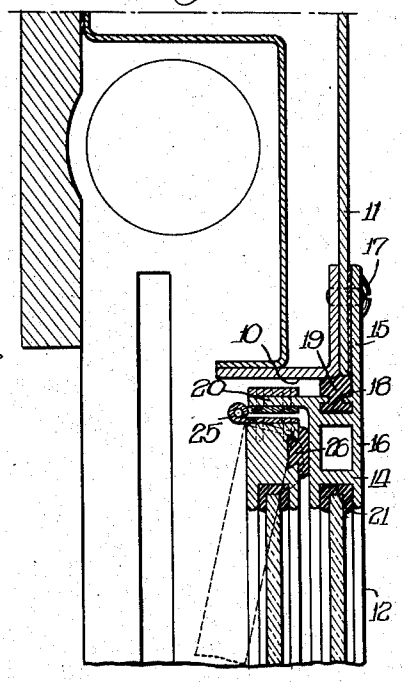


Fig. 3.



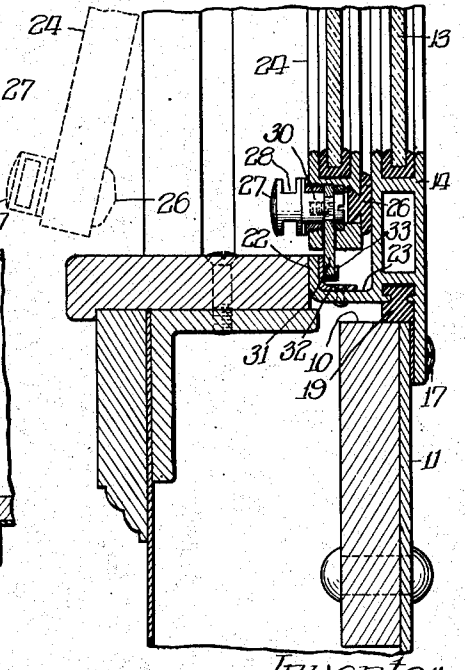


Fig. 4.

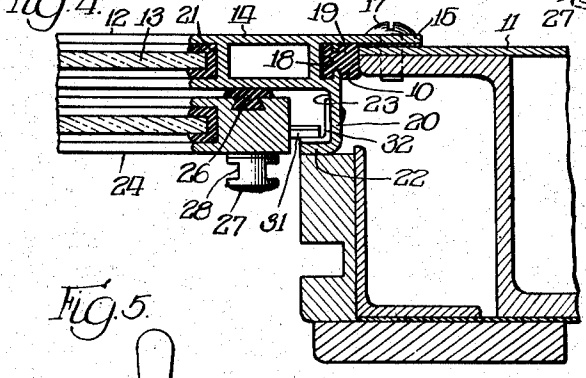
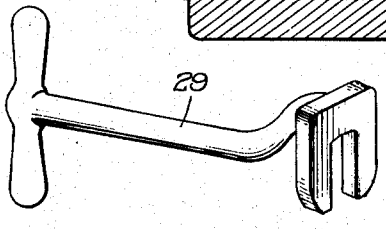


Fig. 5.



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UNITED STATES PATENT OFFICE

2,162,364

WINDOW CONSTRUCTION

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Application June 10, 1935, Serial No. 25,733

6 Claims. (Cl. 189—64)

The object of this invention is to provide a thoroughly weather-tight double glass window structure of improved design suitable for use in air conditioned cars where the window does not have to be open for ventilation but where, on the other hand, the two panes of glass must be capable of ready separation on occasion by unskilled labor to permit of cleaning.

The new window structure is preferably made of extruded aluminum and consists of two sash, one being fixed in position and having an outwardly extending flange about its periphery flush with one face for lapped association with the sheathing of the car about the window opening, and the other being hinged to the fixed sash and fitting within a frame which is formed as an integral part of the latter.

The fixed sash is sealed in position by packing material in a groove behind the lapped flange which engages with the edge of the window opening and the movable sash is sealed against the fixed sash by packing the material in the groove of the opposed face of the movable sash. The two sash are drawn tightly together and held in that position by means of a number of catches distributed about the three unhinged sides of the movable sash, which catches project outwardly through the periphery of the movable sash and operate within an inwardly opening channel in the surrounding frame carried by the fixed sash.

While the foregoing statements are indicative in a general way of the nature of the invention, other objects and advantages will be apparent to those skilled in the art upon a full understanding of the construction of the improved window structure.

One embodiment of the invention is presented herein for the purpose of exemplification, but it will of course be appreciated that the invention is capable of incorporation in other structurally modified forms coming equally within the scope of the appended claims.

In the accompanying drawing:

Fig. 1 is an outside face view of a window constructed in accordance with the invention;

Fig. 2 is an inside face view of the same window;

Fig. 3 is a vertical section through the window, taken on the line 3—3 of Fig. 1;

Fig. 4 is a horizontal section through one side of the window, taken on the line 4—4 of Fig. 1; and

Fig. 5 is a perspective view of the tool employed in operating the catches which hold the two sash together.

The window structure shown in the drawing is of horizontally elongated rectangular shape and fits as a unit into a correspondingly proportioned opening 10 in the outer sheathing 11 of the car. The fixed sash 12, which includes a pane of glass 13 and four suitably connected extruded aluminum rail members 14, is provided about its periphery with an outwardly projecting flange 15 in the plane of the outside face 16 of the sash, and this flange fits tightly against the sheathing 11 and is held in place by means of a number of screws 17. At the base of the flange 15 a groove 18 is formed in the outer periphery of the sash 12, and strips of soft rubber 19 or other suitable packing material are positioned in the four sides of this groove for compressed and consequently sealed association with the opposed edges of the opening 10.

The fixed sash 12 is also provided about its periphery with a laterally projecting flange 20, which flange extends from the sash at right angles to the flange 15 and is disposed at the opposite side of the groove 18 from the flange 15. The flanges 15 and 20 and the groove 18 and also the groove 21 for the glass are all formed integrally of extruded aluminum. The flange 20 on the upper rail member is flat throughout its full width, but the corresponding flanges on the side and bottom rail members are provided with inturned rims 22, which rims form an inwardly opening channel 23 about three sides of the adjacent face of the fixed sash. This channel frame, which is formed as an integral part of the outer sash, receives a movable sash 24. The sash 24 fits within the supplementary frame on the first sash and is connected along its upper edge to the top flange 20 by a piano hinge 25. When the sash 24 is swung downwardly into a position parallel with the sash 12, strips of rubber 26 mounted in grooves in the adjacent face of the sash 24 will be compressed against the opposed face of the sash 12 in tightly sealed association with the latter. The strips 26 are laterally beveled in order to present initially a line contact which widens progressively under increased pressure. When the sash 24 is forced into this sealed relation, it will be substantially flush with the edge of the frame composed of the flanges 20 and will be held securely in that position by means of a number of catches 27 on the sash 24.

The catches 27 have non-circular heads 28 which project from the face of the sash and are adapted to be turned by means of a hand tool 29 on the order of the one shown in Fig. 5. The studs 30 on which the heads 28 are formed are attached to beveled edge fingers 31 which project

through slots in the edge of the sash 24 and cam against catch plates 32 positioned in the channel 23 of the frame. As the edges of the fingers 31 are beveled, the sash 24 will be drawn firmly by the camming action of the bevel into tightly sealed association with the sash 12. Stops 33 on the plates 32 are provided to limit the turning movement of the fingers 31 when in cammed engagement with the plates 32.

In order to render the inside of the window structure readily accessible for cleaning, it is merely necessary to turn all of the catches 27 into positions where the fingers 31 thereof are withdrawn from the channel 23 and then swing the movable sash inwardly and upwardly into an out-of-the-way position, where it can be secured while the cleaning work is being done.

This simply constructed double glass window structure presents a very pleasing appearance, renders the window opening absolutely weather-tight and can be cleaned between the panes of glass without any difficulty. The arrangement of the sealing means permits ready replacement of the same, the soft rubber strips being easily withdrawable from their retaining grooves.

I claim:

1. In car window construction, a fixed sash which is provided about its periphery with a groove and flanges on opposite sides of the groove, one of the flanges projecting outwardly flush with one face of the sash for lapped association with the sheathing of the car about the window opening, and the other projecting laterally from the other face of the sash at right angles to the first mentioned flange to form a supplemental frame, packing material in the groove for sealed engagement with the edge of the window opening, a movable sash which is hinged to the fixed sash within the frame flush with the projecting face of the latter, compressible packing material between the opposed faces of the sash, and latching means on the movable sash coacting with the frame carried by the fixed sash for holding the two sash tightly together with the packing material compressed therebetween.

2. In car window construction, a fixed sash which is provided about its periphery with two flanges, one of the flanges projecting outwardly for lapped association with the sheathing of the car about the window opening, and the other projecting laterally through the window opening to form a supplemental frame, a movable sash which is hinged to the fixed sash within the supplemental frame, compressible packing material between the opposed faces of the sash and between the flanges and the window frame, and latching means between the movable sash and the frame for holding the two sash tightly together with the packing material compressed therebetween.

3. In car window construction, a fixed sash provided on one face with a laterally projecting inwardly opening channel frame, a movable sash hinged to the fixed sash within the frame, compressible packing material between the two sash, and latching means mounted in the rail members of the movable sash and projecting outwardly through slots in the periphery of the latter into the channel of the frame for holding the two sash tightly together with the packing material compressed therebetween.

4. In car window constuction, a fixed sash provided on one face with a laterally projecting inwardly opening channel frame, a movable sash hinged to the fixed sash within the frame, compressible packing material between the two sash, and latching means mounted in the rail members of the movable sash and projecting outwardly through slots in the periphery of the latter into the channel of the frame for holding the two sash tightly together with the packing material compressed therebetween, said latching means being characterized at each of several spaced locations by an exteriorly accessible stud journaled in the movable sash and a cam finger on the stud inside the sash movable outwardly into a position behind an abutment in the channel of the frame.

5. In car window construction, a fixed sash provided on one face with a laterally projecting inwardly opening channel frame, a movable sash hinged to the fixed sash within the frame, compressible packing material between the two sash, and latching means mounted in the rail members of the movable sash and projecting outwardly through slots in the periphery of the latter into the channel of the frame for holding the two sash tightly together with the packing material compressed therebetween, said movable sash being provided with a dovetailed groove for the reception of the packing material, and said packing material being in the form of a laterally beveled rubber strip.

6. In a window construction, a fixed sash provided about its periphery with angularly disposed flanges, one extending in the general plane of the sash and the other laterally a distance approximately equal to the sash thickness and along the bottom and two sides marginally inturned to form a supplemental frame, packing material in the angle formed by the flanges for sealing engagement with the edge of the window opening, a movable sash associated with the fixed sash within the supplemental frame formed by the lateral flanges by a hinged connection of the upper rails, a continuous strip of packing material interposed between the opposed faces of each of the sash rails, and latching means serving to clamp the sash members upon the packing strips therebetween and upon the packing material in the angle formed by the flanges.

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