

Sept. 3, 1946.

J. LEDWINKA ET AL

2,407,086

WINDOW CONSTRUCTION, ESPECIALLY FOR RAIL CARS

Filed Sept. 3, 1943

FIG. 2

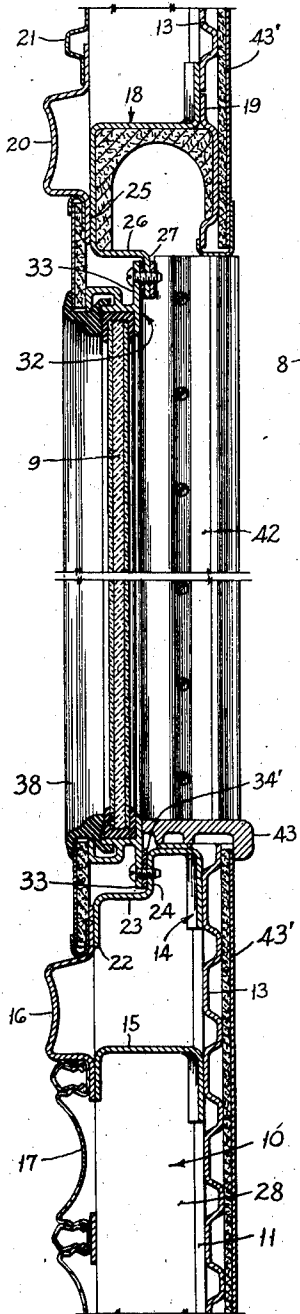


FIG. 1

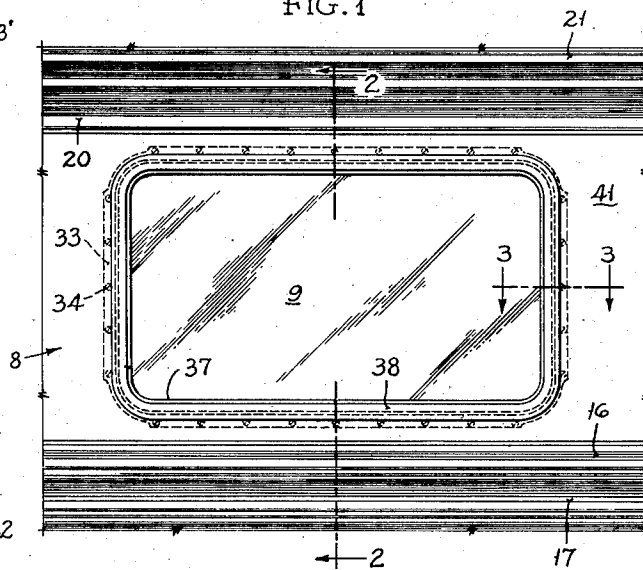
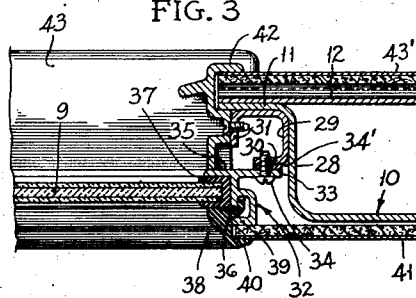


FIG. 3



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2,407,086

WINDOW CONSTRUCTION, ESPECIALLY FOR
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Application September 3, 1943, Serial No. 501,117

5 Claims. (Cl. 189-64)

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The invention refers to a window construction, especially for vehicle in general and rail cars in particular.

More specifically, the invention refers to the construction of a window sash and to its mounting in the window frame.

The main objects of the invention are the simplification of the construction, the lightening and cheapening of the sash, and the more convenient mounting.

The objects of the invention are achieved by a sash which has at a distance inwardly from its outer margin laterally extending flanges, lugs or the like which rest against and are secured to an offset of the window frame, and by covering the connections between sash and frame by the outer panels which extend to and are held along the outer margins of the sash.

The details of the invention and its advantages will be more fully understood from the attached drawing showing an embodiment of the invention and from the following detailed description thereof.

In the drawing:

Fig. 1 is a fragmentary outside elevation of a rail car side wall portion comprising a window;

Fig. 2 is a vertical section through the wall and the window substantially along line 2-2 of Fig. 1;

Fig. 3 is a horizontal section through one marginal portion of the window and of the adjacent part of the side wall along line 3-3 of Fig. 1.

The side wall 8 is provided with a window opening closed by the window plate 9.

Vertical post members 10 of channel section provided with lateral flanges 11 are arranged at the sides of the window opening. The members 10 are closed by corrugated metal 12 which is attached, such as by welding, to the flanges 11. Above and below the window opening, the posts 10 are interconnected by corrugated metal plates 13 and by chord and frame members to be described in the following.

A downwardly facing channel section member 14 is arranged below the window opening. A second channel member 15 is arranged at some distance below the member 14 between the posts 10 on both sides of the window opening. Members 14 and 15 are attached to an outer chord member 16 forming part of the outer panel and to the inner sheathing 13. Below the chord member 16, the outer panel is formed by fluted metal 17 which is removably attached to the posts 10.

Two rail members 18 and 19, which are con-

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nected with each other and form together a generally channel section, downwardly opening structure, are arranged above the window opening. An upper chord member 20 similar to the lower member 16 is arranged on the outside of the member 18. The member 20 and corrugated outer sheathing 21 are attached to the posts 10 in the region above the window opening.

The members 14 and 15 are provided, respectively, with an outer vertical wall or flange 22 or 25, an inwardly extending portion or flange 23 or 26, and at the inward end of the latter with a wall or flange 24 or 27. Said walls or flanges 22 and 25 serve for the attachment of the chord members 16 and 20, respectively. The inwardly extending portions 23 and 26 are arranged at some distance from the outer edges of the window plate 9, and the portions or flanges 24 and 27 are arranged in one common plane.

Nested in the angle formed by the side wall 28 of the member 10 and its flange 11 is a profile rail 29 having two flanges 30 and 31. The member 29 is attached, such as by welding, to the post member 10. The flange 30 is arranged in the same plane as the portions or flanges 24 and 27 of the horizontal rails 14 and 18. The distance between the side wall of the post 10 and the vertical margin of the window plate 9 is about the same as the distance between the horizontal margins of the plate 9 and said portions 23 and 26 of the rails 14 and 18.

A window-receiving frame or sash 32 which extends continuously around the entire plate 9 is provided on its inner side with a laterally extending flange 33 which rests against said flanges and wall portions 24, 27 and 30 and is secured thereto by screws 34. A gasket 34' of any appropriate material, for instance rubber, is inserted between the flange 33 and the flanges 24, 27, 30 so as to insure complete air-tightness and to avoid rattling.

The inner portions 35 and 36 of the profile frame 32 present an angle facing outwardly and toward the center of the window opening. Nested in this angle is the window plate 9 with the channel section weather strip 37 embracing its outer margin. The plate 9 is held in place by a resilient molding 38 usually made of rubber. This strip 38 has a portion entering into a recess formed by said portion 36 of the strip 32 and an outward extension 39 thereof. An outer lateral extension 40 of the strip 38 overlaps and holds the outer panel 41 against said extension 39. The panel 41 may consist of sheet metal backed by felt or the like as heat insulation; it extends

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all around the window opening between the lower and upper chord members 16 and 20. Additional securing means (not shown), such as screws for the panel 41, may be provided.

42 are vertical inner molding strips which are attached to the flange 31 of each member 29 and are provided with a guiding channel for a curtain to be housed in the interior of the members 18 and 19. 43 is a lower inside molding for the window opening. The moldings 42 and 43 serve for holding interior trim or upholstery panels 43' which cover the corrugated metal panels 12 and 13.

The window plate 9 may consist of two outer laminations of glass and an intermediate plate of a transparent heat insulating, somewhat flexible material. This plate is described in greater detail and forms the subject matter of applicants' pending application Transparent window plate, Serial No. 498,272, filed August 12, 1943.

It is obvious that the construction of the sash and its attachment to the wall can easily be modified for other types of window plates, such as double plates with an intermediate sealed off air space.

Whereas the material of the members composing the wall and the window frame may be sheet metal, preferably stainless steel, the sash consists preferably of extruded aluminum. However, the sash may also be made of other material and by other methods than extruding.

From the description of the embodiment, it will have become clear that the window can easily be mounted in a wall structure so that the seals are practically air-tight, and that the construction is simpler and lighter than the constructions hitherto customary.

The invention is, as indicated hereinbefore, not restricted to the shown and described embodiment but the attached claims are intended to cover all such modifications and adaptations which will occur to those skilled in the art.

What is claimed is:

1. In a window construction, a window frame and a sash in the frame; said frame having shoulders extending toward the center of the opening and located intermediate the outer and inner margins of the frame; said sash having a main portion adapted for the reception of a window

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plate and of lateral dimensions smaller than the opening of the frame in which it is located; said main portion of said sash having means projecting laterally therefrom and resting against the outside of said shoulders of the frame leaving an outwardly facing open space between the main portion of the sash and the frame, securing means accessible from the outside between said projecting means and said shoulders, and a removable panel covering said open space, said panel resting against and being secured to the surfaces of the sash and of the frame adjoining the open space.

2. In a window construction according to claim 1, said shoulder along at least one of the sides of the window being formed by an offset in the bottom wall of a channel section frame member the mouth of which faces away from the center of the window opening and the side walls of which are adapted for connection to adjoining wall members.

3. In a window construction according to claim 1, an angle section frame member having one arm extending along one of its margins toward the center of the window opening and the other arm transversely to the plane toward the opposite margin, a hollow section member nested and secured in the angle and providing one of the shoulders for the attachment of the sash and a transverse wall for the attachment of a molding.

4. In a window construction according to claim 1, a frame member at least in part of integral Z section, the web of the Z extending transversely to the plane of the frame and one arm thereof constituting one of the shoulders for the attachment of the sash.

5. In a window construction according to claim 1, a frame member at least in part of Z section having a web extending transversely to the plane of the frame and having one of its arms arranged to constitute one of the shoulders for the attachment of the sash, said frame member forming part of a hollow section structure providing a slot along said attachment arm and being adapted for the reception of a roller curtain.

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