Feb. 11, 1941. O. M. EDWARDS 2,231,530

WINDOW CONSTRUCTION

Original Filed Sept. 7, 1937

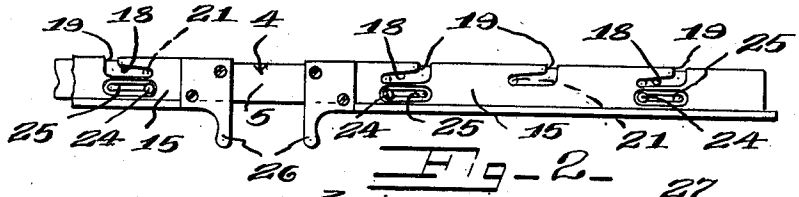


Fig-2-

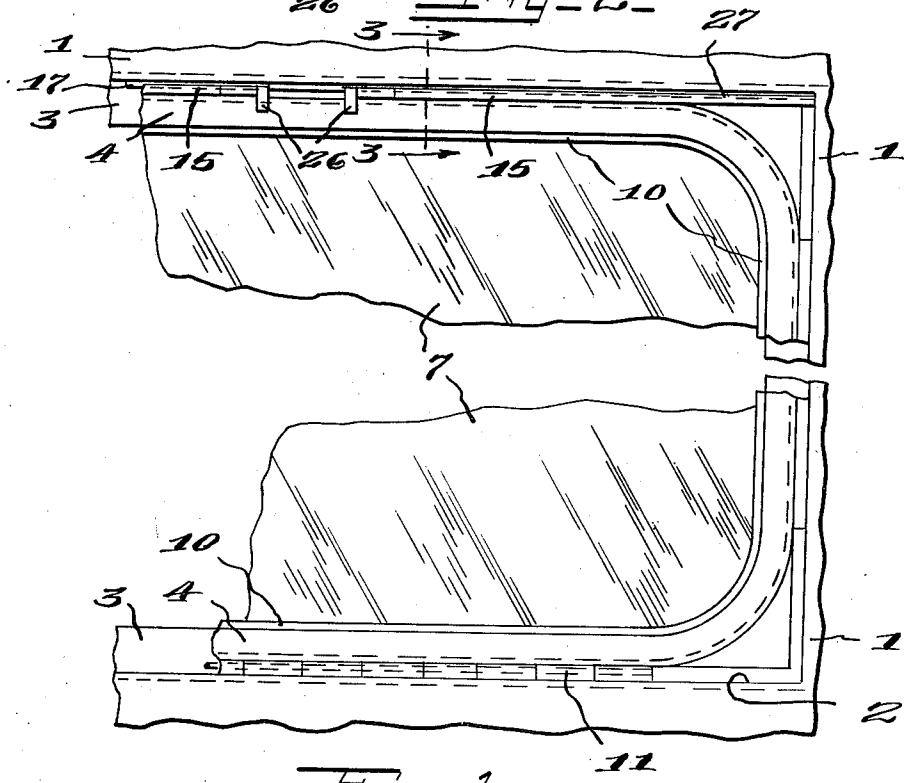


Fig-1-

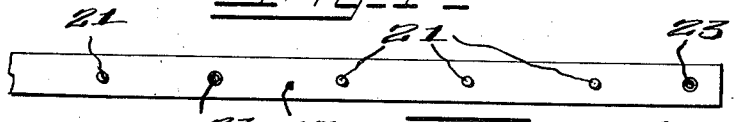


Fig-4-

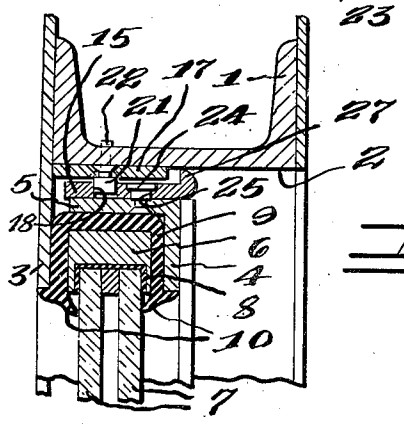


Fig-3-

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Patented Feb. 11, 1941

2,231,530

UNITED STATES PATENT OFFICE

2,231,530

WINDOW CONSTRUCTION

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Original application September 7, 1937, Serial No. 162,645. Divided and this application May 31, 1938, Serial No. 210,908

2 Claims. (Cl. 292—42)

This invention relates to window constructions, and has for its object latch mechanism for holding a sash in the window opening in normal position, which latch mechanism is located between the edge of the sash and the opposing surface of the window opening.

It further has for its object the latch mechanism hereinafter set forth and claimed.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawing, in which like characters designate corresponding parts in all the views.

Figure 1 is a fragmentary elevation of a window structure embodying this invention.

Figure 2 is an edge view of the frame section around the sash and carrying, or movable with, the same.

Figure 3 is an enlarged sectional view on line 3—3, Figure 1.

Figure 4 is a fragmentary face view of the keeper plate with which the latch mechanism coacts.

The window here shown is adapted for air conditioned railway cars where ordinarily the window is sealed closed against the entrance of outside air through crevices around the window and against the outlet of conditioned inside air through said crevices.

The window is of the type shown in my pending application, Serial No. 162,645, filed September 7, 1937, of which this application is a division.

1 designates the framing of a car body around a window opening as 2. 3 and 4 designate, respectively, the sections of a window frame which form a sash receiving channel, one section, as 3, forming one side of the channel, and the other section 4 being angular in cross-section and forming the other side and the bottom 5 of the channel. The section 3 may be an extension of the outer sheeting of the car body beyond the wall around the window opening 2.

6 designates a sash frame which may be of any suitable construction, its construction per se forming no part of this invention.

As the windows used in air conditioned cars are generally formed double, or with spaced apart glass panes 7, the sash frame 6 is formed with a channel for receiving two glass panes in spaced apart relation. The margins of the glass panes are seated in a sealing and spacing strip 8. It is requisite that the space between the panes 7 be sealed to prevent clouding of the opposing surfaces of the panes 7 or to prevent the escape of dry conditioned air or of dehydrating or declouding gas from between the glass panes 7.

Sealing and insulating means are provided between the sash frame and the window frame. The sealing means is shown as a unit.

In Figure 3, 9 designates a channel-shaped sealing strip of compressible resilient material, usually rubber, to seal the sash and cushion the sash or the glass thereof against shocks and internal strains and insulate it against transference of heat from the outside to the inside of the car and vice-versa. The sealing strip 9 embraces or encloses the frame 6 and the margins 10 extend beyond the inner edges of both the window frame and the sash frame and press against the outer faces of the glass pane 7 to further seal the joint between the glass panes and the sash frame. It is preferably secured as by cementing or otherwise to the section 4.

The angular section 4 is hinged to the body along one side thereof, that is, along the top or bottom rail or one of the stiles, it being here shown as hinged along the bottom rail and the axis of the hinge is so located that when the sash is closed, the sealing strip or the side thereof adjacent the stationary side 3 of the channel of the window frame is compressed and also the other side compressed against the sash, that is, the entire sealing strip is under compression. Preferably, the axis of the hinge is located at or near the exterior angle of the angular formation of the movable section 4 of the window frame.

11 designates the hinge, which is of the piano type.

In so far as this invention is concerned, the section 4 may be considered part of the sash.

The quick releasable means is located between the edge of the sash and the opposing edge of the window opening or frame, it being here shown as interposed between the bottom flange 5 of the section 4 which may be considered part of the sash, and a wall of the window opening, it being preferably located along the edge of the sash opposite to the hinged edge, this being in the illustrated embodiment, along the top edge of the sash.

The quick releasable means here illustrated comprises a pair of latch plates 15 slidable flatwise in opposite directions along the edge face of the top rail of the sash or of the section 4 and coacting with a keeper plate 17 on the window frame, or in the window opening and arranged flatwise relative to the latch plates 15. One of

these plates is formed with cam or bayonet slots and the other with studs for entering the slots. As here shown, the latch plates are formed with slots 18 extending lengthwise thereof and opening laterally at 19 through like edges of the latch plate, and the keeper plate 17 is provided with studs 21 for entering and interlocking in the slots 18. The keeper plate 17 is secured, as by screws 22, to the frame 1, the screws extending through holes 23 in the keeper plate. The latch plates are secured to the sash or the frame section 4 by means of headed pins 24 extending through the lengthwise slots 25 in the latch plates and into the sash or the angular flange 5 of the frame section 4. The latch plates are provided with handles 26 at their opposing ends for sliding the latch plates endwise toward each other, and in so doing, causing the cam slots to move along the studs 21 and force or pry the sash outward slightly where it can be swung into wide open position, when the latch plates are moved far enough to permit the slots to move free of the studs. The outer margin of the latch plate is rounded or formed with a bead 27 to close the crevice between the edge of the sash and the frame member 1.

In operation, when it is necessary to open the sash, the handles 26 are pinched toward each other, this operation sliding the latch plates 15 endwise toward each other, and thus forcing the sash slightly open about the hinge 11, due to the camming action of the slots 18 on the stationary suds 21. When the latch plates 15 move into a position in which the studs 21 are at the open ends 19 of the slots 18, the sash may be swung open by applying a pulling force to the handles 26. In again closing the sash, the handles 26 are again pinched toward each other, in order to aline the open ends of the slots 18 with the studs 21 and the sash pressed into closed sealed position by pulling the handles 26 apart.

By reason of the construction of this latch means, it is of minimum thickness and compactly assembled and concealed between the edge of the sash and the opposing surface of the window opening or frame and at the same time readily operable.

What I claim is:

1. In a body having an opening and a closure frame hinged at one edge in the opening and having an opening and closing movement, and when closed, having its peripheral edge fitting into and opposed to the circumferential wall of the opening, a latch for said frame comprising readily releasable means for holding the closure frame in closed position including a latch plate secured to and slidable edgewise on the portion of the peripheral edge of the frame opposite to the hinged edge and having a latching engagement with coacting means on the opposing walls of the opening, whereby the latch plate is located between the peripheral edge of the closure and the circumferential wall of the opening.

2. In a body having an opening and a closure frame hinged at one edge in the opening and having an opening and closing movement, and when closed, having its peripheral edge fitting into and opposed to the circumferential wall of the opening, a latch for said frame comprising readily releasable means including oppositely movable latch plates mounted on the portion of the peripheral edge of the closure opposite the hinged edge and slidable edgewise thereon and arranged in alinement, the plates having handles at their opposing ends arranged in pinch-handle relation to each other, said plates coacting with latching means on the opposing walls of the opening.

OLIVER M. EDWARDS.