Dec. 23, 1930. E. B. MALCOLM 1,785,908

PANEL ROOF FOR CLOSED CARS

Filed July 30, 1928

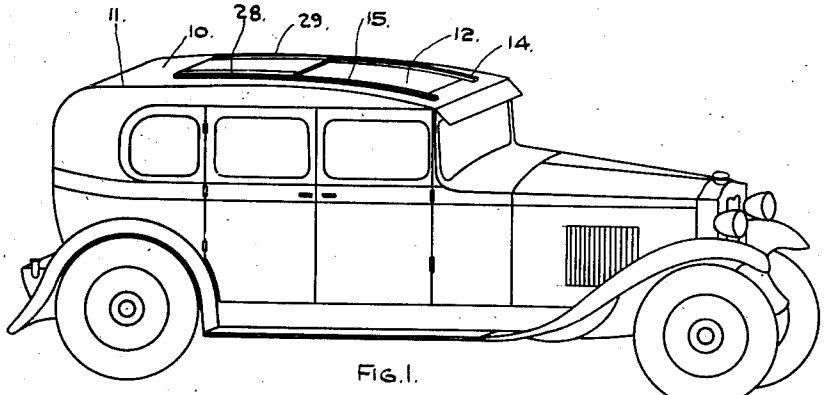


FIG. 1.

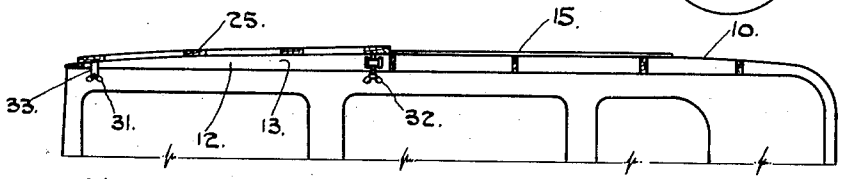


FIG. 2.

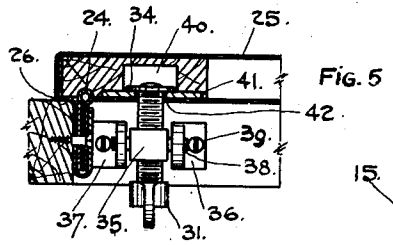


FIG. 5

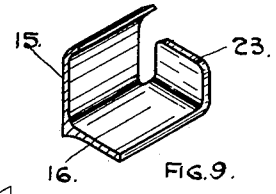


FIG. 9.

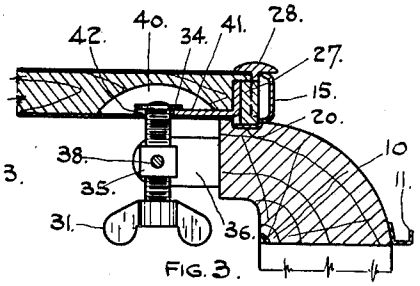


FIG. 3.

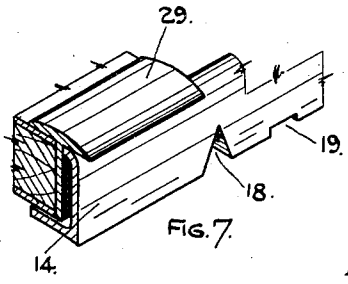


FIG. 7.

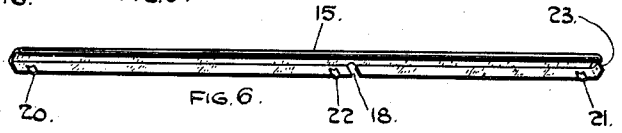


FIG. 6.

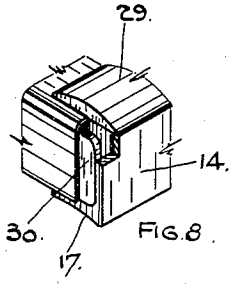


FIG. 8.

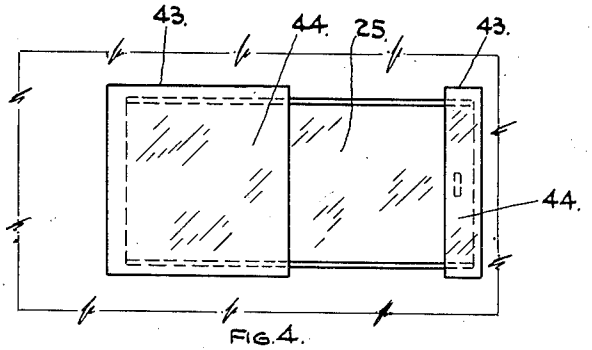


FIG. 4.

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UNITED STATES PATENT OFFICE

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PANEL ROOF FOR CLOSED CARS

Application filed July 30, 1928. Serial No. 296,320.

The invention relates to a panel roof for closed cars, as described in the present specification and illustrated in the accompanying drawings that form part of the same.

The invention consists essentially of the novel features of construction pointed out broadly and specifically in the claim for novelty following a description containing an explanation in detail of an acceptable form of the invention.

The objects of the invention are to afford a free passage for light and air into the interior of a closed car and permit the passengers to view the surroundings with ease and comfort; to furnish all the advantages of an open car and yet in an instant be able to enjoy the protection that accrues to a closed car; to eliminate all complications resulting from the use of convertible cars and at the same time maintain the interior of the car free from the bad effects of inclement weather conditions; to facilitate the operation of the panel in the roof whether it is in the front or the rear portion thereof; and generally to provide in closed cars a simple and efficient means for opening up a portion of the roof of the car without damage to the body or material increase in the cost of production.

In the drawings, Figure 1 is a perspective view of a closed car showing the movable panel as occupying the front portion of the roof.

Figure 2 is a longitudinal sectional view through the roof of the car.

Figure 3 is a sectional detail of the clamping mechanism and rail and watershed.

Figure 4 is a plan view, showing a modification of the mounting.

Figure 5 is a sectional detail of the clamping mechanism beginning at right angles to the sectional detail illustrated in Figure 3 showing the end packing.

Figure 6 is a perspective detail of the rail.

Figure 7 is a fragmentary detail showing the joint connecting the panel and the rail at one end.

Figure 8 is a fragmentary detail showing the joint connecting the panel and the rail at the other end.

Figure 9 is a perspective detail showing the stop at the end of a rail.

Like numerals of reference indicate corresponding parts in the various figures.

Referring to the drawings, the numeral 10 indicates the roof of a modern closed car having the usual drains 11 along the sides, and upholstered in the interior as customary.

The front portion of the roof is cut out intermediately of the length and breadth to form the opening 12, this opening extending from a line adjacent to the front end of the roof rearwardly to a line approximately above the back of the front seat of the car, though this opening may be in the rear or other portion of the roof instead of the front portion.

The trackways or rails 14 and 15 are rigidly secured to the roof parallel to one another and on either side of the opening 12 which is reinforced around the edges by the binding bars 13.

These trackways 14 and 15 project upwardly and inwardly from their bases 16 and 17 secured to the roof and project beyond the front portion of the opening.

These rails are slotted at 18 and 19 and have the end recesses 20 and 21 as well as the recesses 22 in the center portion, these recesses being adapted to insure the exit of the water from between the rails, and the panel runners 27.

The rails 14 and 15 terminate at one end in the retaining lugs 23 acting as a stop for the panel runners 27.

At the extreme front end of the opening 12, the flexible rubber packing 24 formed of sheet rubber doubled is held between the front binding bar and the front edge face of the roof opening, so that the packing loops thereby formed project above the roof and form a resilient seat for the panel 25, which is also packed by the weather strip 26.

The rear edge of the opening 12 is packed in precisely the same manner.

The panel 25 is formed as a lid to cover the opening 12 extending slightly therebeyond on all sides, and carrying from either edge face the runners 27 which extend into the rails 14 and 15. These runners are very securely fastened to the edge faces of the panel

and are in part ball form, so as to slide into the recesses 20 and 21 respectively at the ends of the panel trackways.

The moulding strips 28 and 29 are secured at each side of the panel 25 and overhang the longitudinal edges thereof over the rails 14 and 15, thereby in the lower and closed position of the panel affording a water shed on said rails.

The means for locking the panel in its open or closed position in respect to the opening 12 of the roof is accomplished by dividing a series of angle brackets 36 preferably in pairs secured to the car body at the ends and having a pivot 38 secured to a sleeve 35 and which contains the screw clamps 31 and 32, the angle brackets being rigidly secured to the car body by means of the screws 39 or other suitable fastening.

There are four pairs of these brackets and four pivoted sleeves containing two screw clamps 31 at the front end and two screw clamps 32 at the rear end, the ends of the screws carrying the clamping plates extend upwardly into the recesses 40, two of these recesses being at the front end of the panel and two at the rear end of the panel adjacent to the four corners of said panel.

Each of the recesses 40 is covered in by an angle plate 41 having the slots 42 to receive the screws, these plates being screwed to the panel at the bottom and side edges by bolts, screws, rivets or other fasteners, thus when the screws are swung into the recesses 40 and into the slotted plates 41, the clamping plates on the screws are in their positions to engage the upper surfaces of the slotted plates.

This is done by turning the butterfly screws in the threaded sleeves. Thus by means of these screws the panel can be drawn down tightly on its packings.

In the operation of this invention the panel in its closed position is in close communication on all sides with the roof, naturally the panel itself is upholstered in the inside corresponding with the upholstery of the car and the necessary holes are left in the cover for the screws to extend into the recesses 40.

In order to open the panel so that the opening 12 will be quite free of any covering; butterfly screw clamps are turned until the pressure of the clamping plates is relieved, that is to say, in the four corners, then these screw clamps are swung on their pivot bearings so that they are clear of the recesses 40 and the slotted plates 41.

The handle is then grasped and the panel slid into its rearward position, and in this position the runners 27 slide into the recesses 22 and 21 and the end of the panel comes in contact with the stop lugs 23 at the ends of the rails.

The front pair of screw clamps are then swung into the rear recesses so that the clamping plates at the ends of the screws engage the rear pair of slotted plates, and in this position the screws are tightened up so that the panel is very rigidly held to its open position and all rattle avoided.

To close the panel these front screw clamps are loosened and swung out of the rear recesses and they are simply moved forward into place and then the four screw clamps are swung into position and tightened up, so that the panel is brought into very close relationship with the front and rear packings and the front and rear weatherstrips, and besides this the packings closing in the ends of the rails are also squeezed tightly closing any possible egress of water, and the moulding strips forming the water-sheds are coincidently brought into engagement with the tops of the rails, which completes the water tight joints formed by the clamping of this panel into its closed position.

In Figure 4 the principal difference is the sheet cover 43 preferably of aluminum forming the pocket 44, thus eliminating any necessity for the draining slots in the rail and effecting a means of binding the end of the panel in its open position.

What I claim as my invention is:—

A panel roof for closed cars, comprising a closure riding on rails on either side of a roof opening and therebeyond and having corner recesses and slotted plates covering said recesses, corner angle brackets secured to the roof, screw clamps pivotally secured to said angle brackets in a threaded sleeve swinging to and away from said slotted plates and having gripping plates on the ends thereof and rubber packing cooperating with said clamps in maintaining a tight closure.

Signed at Montreal, Canada, this 26th day of June, 1928.

EDWARD BOSWELL MALCOLM.