July 18, 1933. F. W. WHYTE 1,918,790

VENTILATING AND REFLECTING TRANSOM FOR PASSENGER CARS

Filed June 9, 1931 3 Sheets-Sheet 1

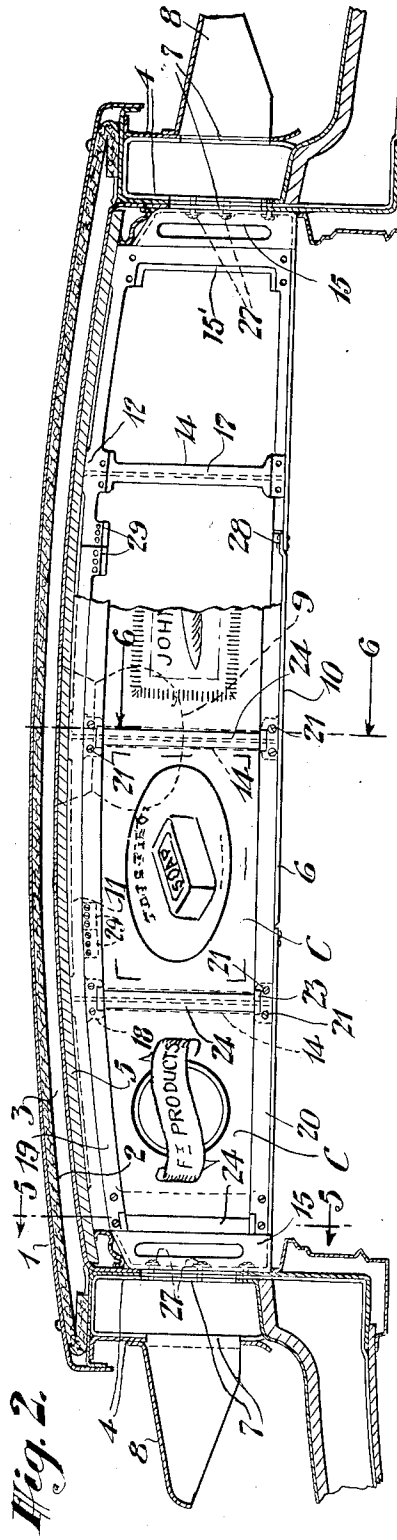


Fig. 2.

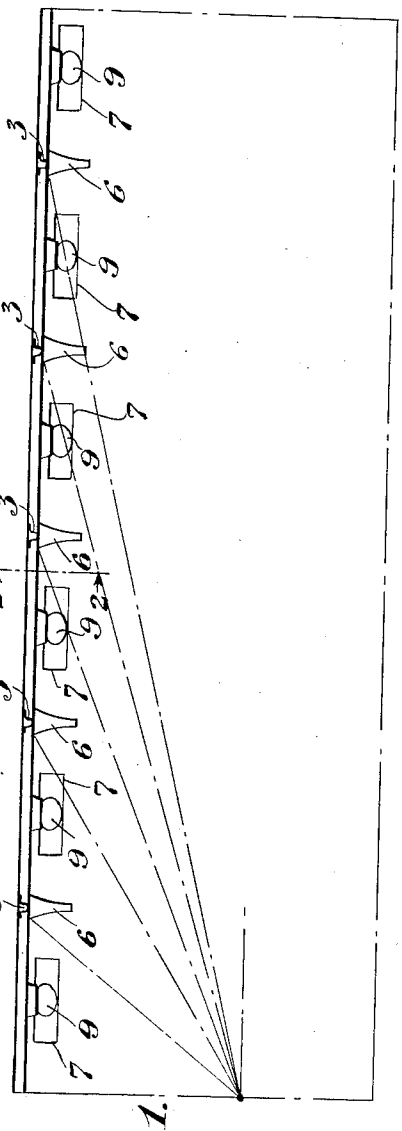


Fig. 1.

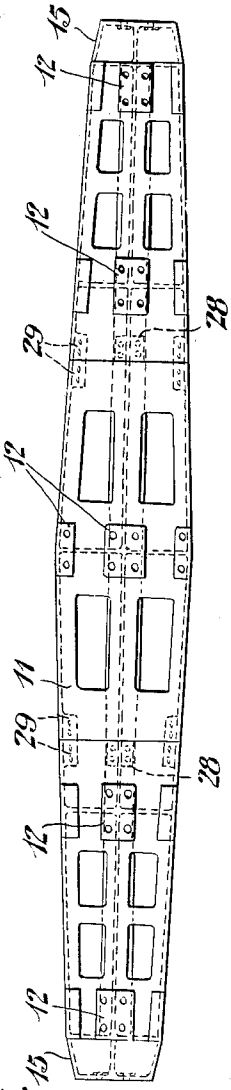


Fig. 3.

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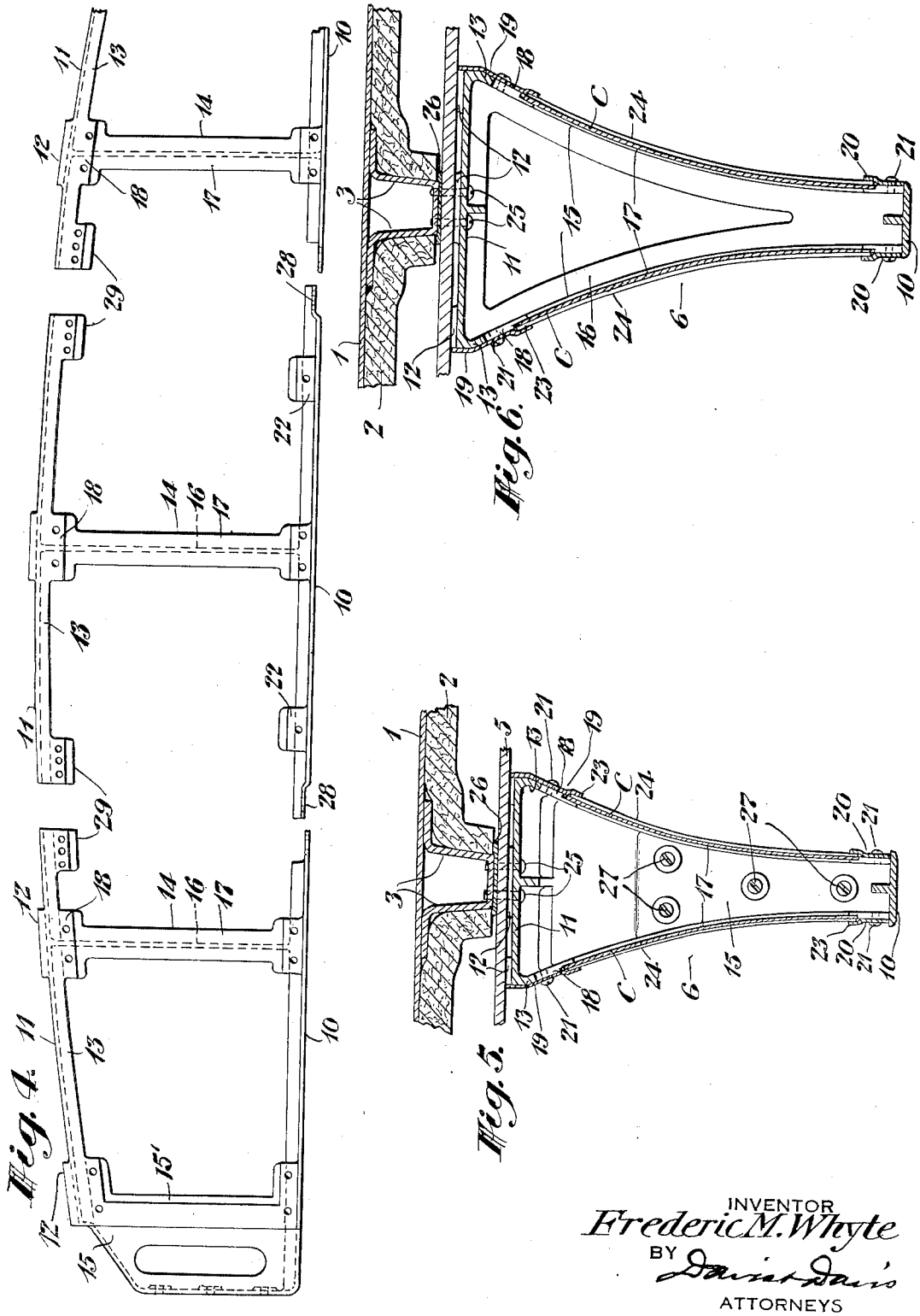


Fig. 4.

Fig. 6.

Fig. 5.

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VENTILATING AND REFLECTING TRANSOM FOR PASSENGER CARS

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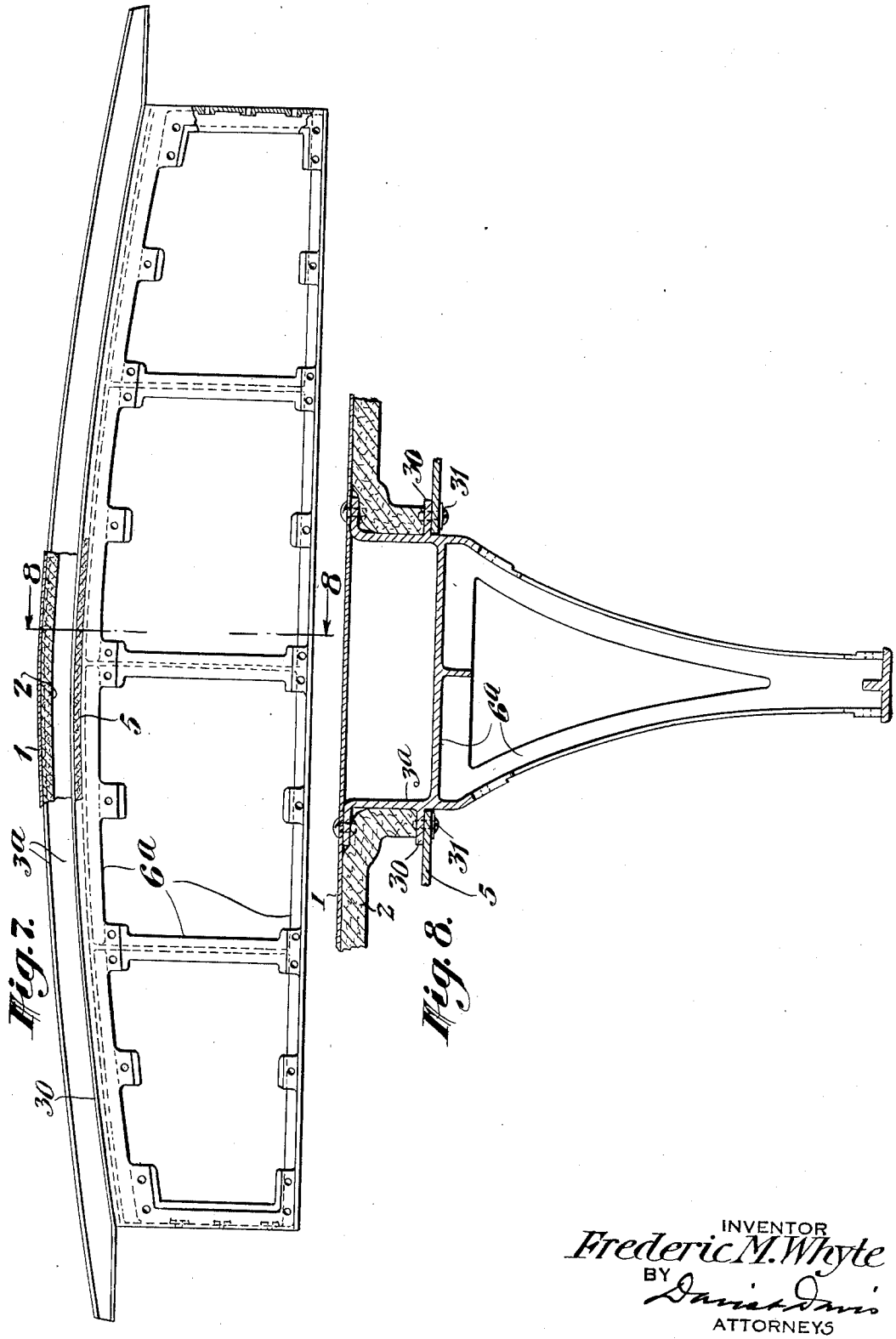


Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE

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VENTILATING AND REFLECTING TRANSOM FOR PASSENGER CARS

Application filed June 9, 1931. Serial No. 543,130.

Important objects of the present invention are, to provide means for improving the ventilation of a passenger car, comprising transoms disposed transversely of the car directly beneath the ceiling and in a certain relation to overhead ventilating apertures; to provide such transoms designed and disposed for better distribution of the overhead artificial illumination in the car; to provide such transoms designed and disposed for supporting advertisements and effectively displaying them; to provide satisfactory mountings for the transoms; and to provide for the support of the transoms by the transverse beams or carlines of the roof structure of the car. Other objects of the invention will appear hereinafter.

In the drawings:

Fig. 1 is a diagrammatic longitudinal sectional view of a car equipped with the ceiling transoms;

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

Fig. 3 a plan view of one of the transoms;

Fig. 4 a partial side view of one of the transom frames with the sections thereof separated;

Fig. 5 an enlarged vertical section taken on the line 5—5 of Fig. 2;

Fig. 6 an enlarged vertical section taken on the line 6—6 of Fig. 2;

Fig. 7 a side view of a modified transom frame formed integrally with a carline; and

Fig. 8 an enlarged vertical section taken on the line 8—8 of Fig. 7.

In the general scheme usually employed for ventilating passenger carrying cars reliance is placed upon the opening of end doors or sliding windows therein, in the opening of side windows, in adjustment of ventilators in the upper deck of cars having double deck roofs, and adjustment of special globe type ventilators placed directly in the roof of dome roofed cars. When the outside temperature is too low to justfy opening of side windows and end doors, reliance for general ventilation is placed upon ventilating devices located in or near to the roof and no provision is made for directing downwardly into the body of the car the inflowing currents of fresh air, nor for breaking up the currents of vitiated outgoing air flowing lengthwise of the car near the roof.

My improved transoms for improving the ventilation and light distribution and for providing valuable advertising space are shown as mounted beneath a car roof of a double deck type wherein the central part of the roof is elevated or stepped above the side portions of the roof. By slight changes in design, however, the transom may be adapted for mounting beneath a single deck or dome roof. The elevated central portion of the double deck roof includes an outer metal covering 1, a lining 2 of heat insulation and a series of transverse supporting beams or carlines 3 supported by the hollow riser structures 4 intervening between the upper and lower decks. The carlines are metal channels and the car ceiling 5 is secured to the under sides thereof. They occur at numerous points equally spaced down the length of the car and, in the form of the invention shown in Figs. 1 to 6 inclusive, each has one of the transoms designated 6 attached to its under side and depending from the ceiling. Midway between each pair of adjacent transoms are ventilating apertures 7. In the present instance said apertures are formed in the risers 4 and, outside of the latter, they are covered by the ventilator hoods 8. There is also a lamp 9 disposed midway between each pair of adjacent transoms and in the present instance the lamps are mounted in a row along the center of the ceiling. It will be understood, however, that the ventilating apertures and lamps may be otherwise located between the transoms.

Each transom 6 comprises a hollow skeleton frame preferably of a light-weight metal such as aluminum. The under side of the frame is a flat, narrow, horizontal strip 10 of inverted T form in cross section and of uniform width. The upper side of the frame is a plate 11, which, in the preferred form, is much wider than the strip 10 and arched from the ends of the frame to the middle thereof to correspond with the arch of the car roof. Said plate, in the preferred form, is widest at its middle in plan and tapers to

its ends. It is apertured for lightness and at spaced points therealong it has relieved seats 12 bearing against the car ceiling 5. Certain of these seats extend along the longitudinal center line of the plate and are apertured for fastening elements. Along its longitudinal edges the plate has depending flanges 13 which converge inward. The strips 10 and 12 are joined by vertical struts 14 and by box-like ends 15, all integrally formed. Said struts occur one at the middle of the frame and the others midway between the middle and ends. Each comprises an apertured web 16 flanged at its front and rear edges to form arcuate upwardly diverging frame surfaces 17 extending from the edges of strip 10 to the flanges 13. At the upper and lower ends of said surfaces 17 the struts are formed with relieved surface portions 18 which serve to position panel sheets C placed therebetween against the frame. Said panels close the skeleton frame and form oblique surfaces extending crosswise of the car to baffle a flow of air along the ceiling of the car and also deflect light from the car lamps downward for better illumination of the car. The relieved surface portions 18 of the frame also form seats for strips 19 and 20, which hold the panels in place and are fastened to the frame by screws 21. Said box-like ends 15 also have arcuate faces diverging similarly to the strut surfaces 17 and formed with depressed inner margins 15'. The panels seat against said margins and against the strut surfaces 17. At points intermediate the struts the strip 10 also has ears 22 forming additional inner supports for the panels and apertured to receive some of the screws 21 holding the retaining strips in place. Said strips at points directly opposite the struts and the frame ends, are pressed outward, as at 23, to form recesses into which are snapped the ends of spring strips 24 which are held bowed to press the panels against the opposite sides of the frame in arcuate form. In the present instance the panels are in the form of cards bearing advertisements.

The peculiar form of the transom frame enables it to support the cards C in curved form without crinkling. Owing to the uniform width of the lower portion of the frame and to the widening of the upper portion of the frame in plan to the proper degree to compensate for the rise of its arch, the cards at opposite sides of the frame are supported so that a horizontal section taken at any point in their height will show them parallel. Each card lies in the surface of a true cylinder. The frame is symmetrical in cross section about a vertical line and the card supporting surfaces diverge equally and at a rather low acute angle from said line. Thereby the cards are supported so as to face downward as well as longitudinally of the car. There may be a single card extending clear across the frame or there may be a plurality of cards disposed edge to edge. The frame ends and the card-retaining strips present the cards neatly framed.

Each transom is held in place at the car ceiling by screws 25 passed upward through the central seats 12, through the ceiling 5 and an interposed insulating strip 26, and screwed into the carline 3. At its ends the frame 6 is fastened to the risers 4 by screws 27. Thereby the transom is detachably mounted.

As shown diagrammatically in Fig. 1, the transoms are so disposed with respect to the ventilators as to deflect the inflowing air downward into the interior of the car body and so as to serve as baffles for slowing the flow of vitiated air lengthwise of the car and cause it to exhaust more readily through the ventilators. The transoms are also so formed and disposed with respect to the lamps as to reflect the rays therefrom downward for more effective illumination. Furthermore they shield many of the lamps down the aisle from the view of the passengers and prevent a glare which is a strain upon the eyes and causes drowsiness. The rays are reflected and distributed by the inclined surfaces of the transoms in a manner to produce a better reading light. In addition to improving the ventilation and illumination the transoms afford a great amount of valuable advertising space, and the advertisements are so disposed as to effectively display a maximum number to the view of the passengers, as will be seen in Fig. 1. The sheets or cards bearing the advertisements are preferably of a character suitable for their light-reflecting purposes also. If it is desired to omit the advertisements other sheets, free of advertising matter and of a suitable light diffusing and reflecting character, may be substituted for the advertising cards.

In the form of the invention shown in Figs. 2 to 6 inclusive, each transom frame is made of sections joined together end to end and their length may vary according to the width of the car. This sectional frame is designed for installation in a car which is already constructed. In the present instance the frame is formed of three sections, a middle one and two end ones. Each section may comprise a single casting. The middle section of the bottom strip 10 has extensions 28 which lap over the end sections and are secured by screws or other fastening elements. The three sections of the arched top plate 11 abut end to end and have depending side ears 29 adjacent their abutting ends and the card-retaining strips 19 are fastened thereto by screws or the like.

In Figs. 7 and 8 is shown a combined transom frame and carline for installation when the car is built. Here the carline 3^a and the entire transom frame 6^a are integrally formed

and are preferably a single aluminum casting. The carline corresponds to the transom in width and the ceiling is interrupted to provide clearance for it. Along its opposite sides the carline has integral flanges 30 to which the ceiling is secured, as at 31.

The illustrations show the transom made as a frame the open spaces of which are to be filled in with sheet panels or, should the advertising feature be used, the spaces may be covered by the advertising cards. While the frame construction is preferred it will be apparent that the transom can be made of sheet material of any kind which is sufficiently stiff to fulfill the conditions. The two faces of the transom are shown as curved surfaces and while such form is preferred, it will be understood that these surfaces may be flat surfaces when so desired.

What I claim is:

1. In a roofed passenger car having ventilating apertures and lamps at or adjacent the ceiling and spaced along the car, a series of transoms depending from the ceiling and extending transversely of the car at points spaced therealong between the successive lamps and ventilating apertures and each having downwardly converging, opposite, longitudinal side surfaces extending crosswise of the car and facing obliquely downward and longitudinally of the car in opposite directions.

2. In a roofed passenger car having illuminating means at spaced points therealong at or adjacent the ceiling, a transom extending crosswise of the car directly beneath the ceiling at a point between said spaced illuminating means and having opposite, downwardly converging light diffusing and reflecting longitudinal side surfaces extending crosswise of the car and facing obliquely downward and longitudinally of the car in opposite directions.

3. In a roofed passenger car having ventilating apertures and lamps at or adjacent the ceiling and spaced along the car and transverse roof carlines located at longitudinally spaced points between said lamps and apertures, a plurality of depending transoms attached at their upper edges to said carlines, supported thereby transversely of the car and dividing the car space beneath the ceiling and baffling a flow of air therealong, said transoms having surfaces oppositely directed longitudinally of the car and disposed for illumination by said lamps.

4. In a roofed passenger car having illuminating means at spaced points therealong at or adjacent the ceiling and a transverse roof-supporting carline disposed between said illuminating means, a transverse transom attached at its upper edge to said carline and supported thereby directly beneath the ceiling and having opposite, longitudinal side surfaces converging downward, extending across the car and facing obliquely downward and longitudinally of the car in opposite directions.

5. In a roofed passenger car having illuminating means at spaced points therealong at or adjacent the ceiling, a transverse, metal roof-supporting carline disposed between said illuminating means; a transverse transom comprising a metal frame integrally formed with said carline and depending therefrom directly beneath the ceiling; and sheets framed and removably supported by said frame at opposite sides thereof in oppositely inclined, downwardly converging positions and facing obliquely downward and longitudinally of the car in opposite directions.

6. A transom transversely mounted beneath the arched ceiling of a passenger car and having oppositely inclined longitudinal surfaces at its opposite sides of greater depth at the middle of the transom than at the ends, in accordance with the ceiling arch, and parallel to each other at all horizontal sections, said surfaces facing obliquely downward and longitudinally of the car in opposite directions.

7. A transom transversely mounted beneath the arched ceiling of a passenger car and having oppositely curved, downwardly converging longitudinal surfaces at its opposite sides of greater depth at the middle of the transom than at the ends in accordance with the ceiling arch and parallel to each other at all horizontal sections, said surfaces facing obliquely downward and longitudinally of the car in opposite directions.

8. A transom transversely mounted beneath the arched ceiling of a passenger car and having oppositely inclined, downwardly converging longitudinal surfaces at its opposite sides of greater depth at the middle of the transom than at the ends, in accordance with the ceiling arch, and parallel to each other at all horizontal sections, said surfaces facing obliquely downward and longitudinally of the car in opposite directions and bearing advertising signs.

9. A transom transversely mounted beneath the arched ceiling of a passenger car and comprising a frame of greater depth at its middle than at its ends in accordance with the arch of the ceiling, of uniform width along its lower edge, of greater width at the ends of its upper edge than said lower edge and increasing in width toward the middle; and sheets supported by said frame at the opposite longitudinal sides of said frame and curving upward and outward away from each other to face obliquely downward and longitudinally of the car in opposite directions, the frame supporting said sheets parallel to each other at all horizontal sections to avoid crinkling.

10. A transom for mounting transversely

beneath the arched ceiling of a passenger car and comprising a frame of greater depth at its middle than at its ends in accordance with the arch of the ceiling, of uniform width along its lower edge, of greater width than said lower edge at the ends of its upper edge and increasing in width toward the middle and having opposite longitudinal side faces curving upward and outward away from each other to face obliquely downward and longitudinally of the car in opposite directions, said faces being parallel to each other at all horizontal sections.

11. A transom transversely mounted beneath the ceiling of a passenger car and comprising a frame having a substantially V-shaped outline in vertical cross section and formed of sections joined together end to end; face sheets, disposed oppositely, inclined against opposite longitudinal sides of the frame; and longitudinal strips secured to said opposite sides of the frame extending continuously along all of the frame sections and engaging the upper and lower margins of said sheets to hold them in place.

12. In a roofed passenger car, a transverse roof-supporting carline; a transverse transom comprising a frame carried by said carline and depending therefrom directly beneath the ceiling; and sheets adapted to bear advertising signs framed and supported by said transome frame at opposite sides thereof in oppositely inclined, downwardly converging positions and facing obliquely downward and longitudinally of the car.

13. A transom mounted transversely beneath the arched ceiling of a passenger car and comprising a frame of greater depth at its middle than at its ends in accordance with the arch of the ceiling, of uniform width along its lower edge, of greater width than said lower edge at the ends of its upper edge and increasing in width toward the middle and having opposite, longitudinal side faces curving upward and outward away from each other, said faces being parallel to each other at all horizontal sections; sheets disposed against said curved faces and bearing advertising signs; longitudinal sheet-retaining strips secured to the frame and engaging the upper and lower margins of said sheets to detachably hold them in place; and resilient, vertical sheet-retaining strips detachably held by said longitudinal strips and holding the sheets bowed inward against the curved faces of the frame to face obliquely down ward and longitudinally of the car in opposite directions.

14. In a roofed passenger car, a series of transoms extending crosswise of the car at spaced points therealong directly beneath the ceiling, and each transom having oppositely inclined, downwardly converging light diffusing and reflecting surfaces extending crosswise of the car and directed obliquely downward and longitudinally of the car, said transoms serving to break up air currents tending to flow along the ceiling of the car.

15. A transom mounted transversely beneath the ceiling of a passenger car and comprising an open skeleton frame having an approximately V-shaped outline in vertical cross section; and face sheets closing the opposite longitudinal sides of the frame and secured to the frame in downwardly converging relation, said face sheets bearing advertising signs.

16. In a roofed passenger car, a transverse roof-supporting carline; a transverse transom carried by said carline and depending therefrom and comprising an open skeleton frame having an approximately V-shaped outline in vertical cross-section; and face sheets closing the opposite longitudinal sides of said frame and secured thereto in downwardly converging relation.

17. In a roofed passenger car, a transverse metal roof-supporting carline of channel form; a hollow metal casting transom frame structure of skeleton form depending from the ceiling and attached at its upper edge to to said carline and supported thereby; and sheets removably supported by said transom frame and closing the sides thereof and facing longitudinally of the car.

18. In a roofed passenger car, a transverse metal roof-supporting carline of channel form; and an integral hollow metal transom frame of skeleton form extending along the lower edge of the carline and depending therefrom, the carline and the transom frame being cast in one piece.

19. In a roofed passenger car, a transverse metal roof-supporting carline of channel form; an integral hollow metal transom frame of skeleton form extending along the lower edge of the carline and depending therefrom, the carline and the transom frame being cast in one piece; and sheets removably supported on said transom frame and closing the sides of the skeleton frame and facing longitudinally of the car.

20. In a roofed passenger car, a transverse roof-supporting carline; a transverse transom comprising a frame approximately V-shaped in cross-section formed integrally with said carline and depending therefrom; and sheets closing the opposite faces of said frame and supported thereby in downwardly converging relation for the purpose set forth.

21. In a roofed passenger car having a transverse roof-supporting carline, a transom disposed transversely of the car, depending from the ceiling and attached at its upper edge to said carline and supported thereby, the opposite faces of said transom being closed and converging downward in vertical cross-section for the purpose set forth.

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