Nov. 22, 1932. C. D. BONSALL 1,888,653

REMOVABLE GONDOLA CAR ROOF

Filed Dec. 3, 1930

Fig. 1.

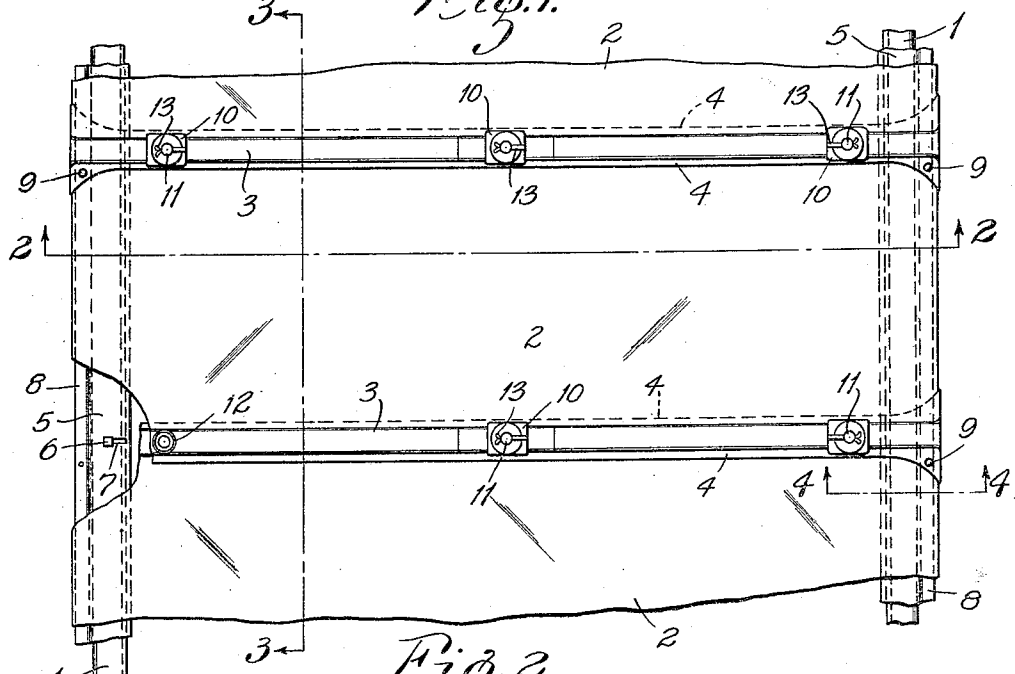


Fig. 2.

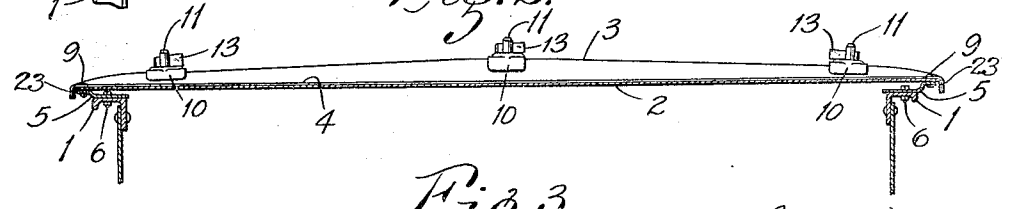


Fig. 3.

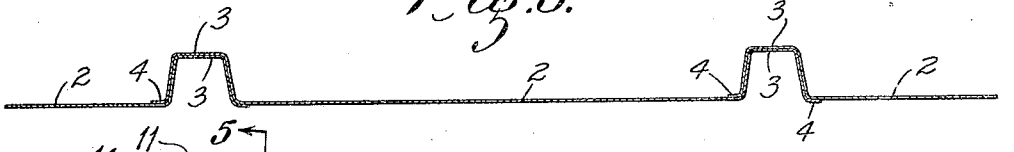


Fig. 4.

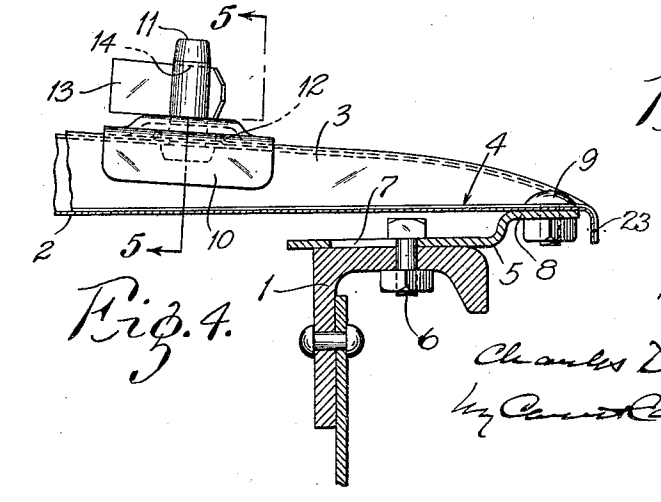
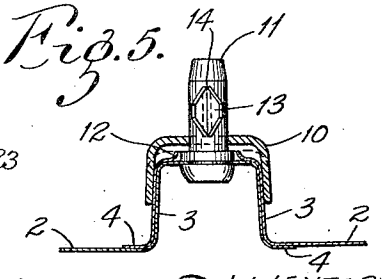


Fig. 5.



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HIS ATTORNEYS

Patented Nov. 22, 1932 1,888,653

UNITED STATES PATENT OFFICE

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REMOVABLE GONDOLA CAR ROOF

Application filed December 3, 1930. Serial No. 499,641.

This invention relates to removable roofs for gondola cars. It has for its principal objects to provide a sectional sheet metal roof that can be readily assembled on and dismounted from cars of the above type, that can be applied to cars of substantially different widths and to cars with bowed side rails, that will permit the sheets to be compactly stacked for shipment, and that will embody other advantages hereinafter appearing. The invention consists in the removable gondola car roof, and in the parts and arrangements and combinations of parts hereinafter described and claimed.

In the accompanying drawing, which forms part of this specification and wherein like symbols refer to like parts wherever they occur,

Fig. 1 is a plan view of a portion of a gondola car provided with a removable roof embodying my invention,

Fig. 2 is a vertical transverse section on the line 2—2 in Fig. 1,

Fig. 3 is a vertical longitudinal section on the line 3—3 in Fig. 1,

Fig. 4 is an enlarged vertical section through the eaves portion of the roof on the line 4—4 in Fig. 1; and

Fig. 5 is a vertical section through one of the roof seams, the section being taken through one of the seam clamps on the line 5—5 in Fig. 4, the clamping member being shown in elevation.

Referring to the accompanying drawing, my invention is shown in connection with a gondola car provided with longitudinal side members or rails in the form of bulb angles 1 that extend along the tops of the side frames of the car with their uppermost flanges facing outwardly. A removable roof for such gondola cars comprises a series of metal roof sheets 2 that are provided along their ends with depending eaves flanges 23 and along their side margins with hollow upstanding stiffening or strengthening ribs 3 that have outstanding base flanges 4 at the lower edges of their outer side walls. The ribs 3 are of substantially inverted channel-shaped cross-section and their side walls slope outwardly from top to bottom of the ribs. As shown in the drawing, the body portions of the roof sheets 2 extend substantially straight from end to end thereof, and side marginal ribs 3 slope downwardly from the middle of said ribs to points adjacent to the ends thereof where they are curved downwardly and merge into the plane of the flat body portions of the sheet where they are curved downwardly to form depending eaves flanges 23. The surplus of metal resulting from the decreased height of the side marginal ribs 3 at the end portions thereof is utilized to increase the width of the end portions of the base flanges 4 of said ribs.

The roof sheets are made long enough to span a gondola car of maximum width from side rail to side rail and are arranged on the car side by side with the upstanding side marginal ribs 3 of adjacent roof sheets snugly fitting one over the other to form weatherproofing seams, and with the depending eaves flanges 23 of the sheets overhanging the outer edges of said side rails. Mounted on the top flanges of the side rails 1 of the gondola car are eaves plates 5, which preferably extend lengthwise of said rails from end to end of the car. These eaves plates have main body portions which rest flatwise on and are removably secured to the side rails, preferably by means of bolts 6 that pass vertically through said plates and the top flanges of said side rails. The bolt receiving openings in the plates 5 are in the form of elongated slots 7 that extend transversely of said plates, whereby the plates can be applied to cars for cars of different widths. The outer side marginal portions of the eaves plates of the roof are offset upwardly, as at 8, to form supports for the eaves end portions of the roof sheets; and said roof sheets are rigidly secured to the sheet supporting portions 8 of said plates by means of carriage bolts 9 that extend through the widened eaves end portions of the base flanges 4 of the overlapping ribs 3 of the sheets and the body portion of the sheets located therebelow. The eaves strips are made wide enough to rest on the side rails of cars of substantially different widths; and likewise, the slots 7 in said plates are made long

enough to register with the bolt holes in the side rails of the widest and narrowest of such cars.

The overlapped side marginal ribs 3 of adjacent sheets are secured together by clamps preferably located adjacent to and midway of their ends. Each of these seam clamps comprises an inverted channel-shaped member 10 which is placed astride the upper portion of the overlapping rib of a seam with its depending legs bearing against the sloping side walls of said rib. The seam clamp is held in position by means of an upstanding stud or pin 11 that is riveted or otherwise permanently secured to the underlapping rib of the seam and projects upwardly through a bossed opening 12 provided therefor in the overlapping rib of said seam and through a hole provided therefor in the web of the seam clamp 10. The overlapped ribs of the seam are drawn together by means of a tapered draw key or wedge 13 which is driven into a tapered longitudinal slot 14 formed in the rivet pin 11 above the clamp 10. By this arrangement the action of driving the tapered draw key 13 into the tapered slot 14 in the rivet pin 11 causes the clamp 10 to bear against the opposite side walls of the overlapping rib and thus causes the two ribs to be drawn tightly together.

The hereinbefore described roof has numerous advantages. It can be quickly and easily applied to and removed from the roof; it provides weatherproof connections between the adjacent roof sheets and between the roof sheets and the side rails of the car; it may be applied without alteration to cars of different widths and to cars with bowed side rails; it will present straight eaves lines when applied to said bowed side rails; it is strong enough to support the vertical roof load; and its flat sheets are well adapted for stacking or piling and require a minimum amount of space in shipping.

Obviously, my invention admits of considerable modification in the design of the seams and stiffening ribs, and I do not wish to be limited to the specific design shown.

What I claim is:

1. A removable roof for gondola cars of substantially different widths, said roof comprising a series of roof sheets spanning the car from side rail to side rail and supported only at their ends, means for removably securing adjacent margins of said sheets together to form weatherproof joints therebetween, and plates bolted to the tops of said side rails and to the undersides of said roof sheets, said plates being wide enough to bear upon the side rails of the narrowest and the widest of such cars, the hole in said plates for the bolts that secure said plates to said side rails being elongated in directions transverse to said rails.

2. A removable roof for gondola cars, said roof comprising roof sheets adapted to extend from side rail to side rail of the car and provided along their adjacent margins with hollow ribs that are lapped to form weatherproofing seams, eaves plates removably secured to said side rails and to said roof sheets, inverted channel-shaped clamps straddling the lapped ribs of adjacent sheets, a pin permanently secured to the underlapping rib of a seam and extending upwardly through registering openings in the overlapping rib and in said clamp, said pin being provided above said clamp with a longitudinal slot, and a tapered key engaging said slot.

3. A removable roof for gondola cars, said roof comprising roof sheets adapted to extend from side rail to side rail of the car and provided along their adjacent margins with hollow ribs which overlap each other to form weatherproofing seams, means for removably securing said ribs together, eaves plates resting flatwise on said side rails and having upwardly offset portions adapted to overhang the outer edges of said side rails, bolts for removably securing said eaves plates to said side rails, and bolts for removably securing the roof sheets to the upwardly offset portions of said eaves plates, the opening in said eaves plates for the securing bolts therefor being elongated transversely of said side rails.

Signed at New Kensington, Pennsylvania, this 28th day of November, 1930.

CHARLES DAVID BONSALL.