June 29, 1937. E. E. SCHLESINGER 2,085,338

CAR ROOF

Filed Nov. 27, 1936 2 Sheets-Sheet 1

Fig. 1.

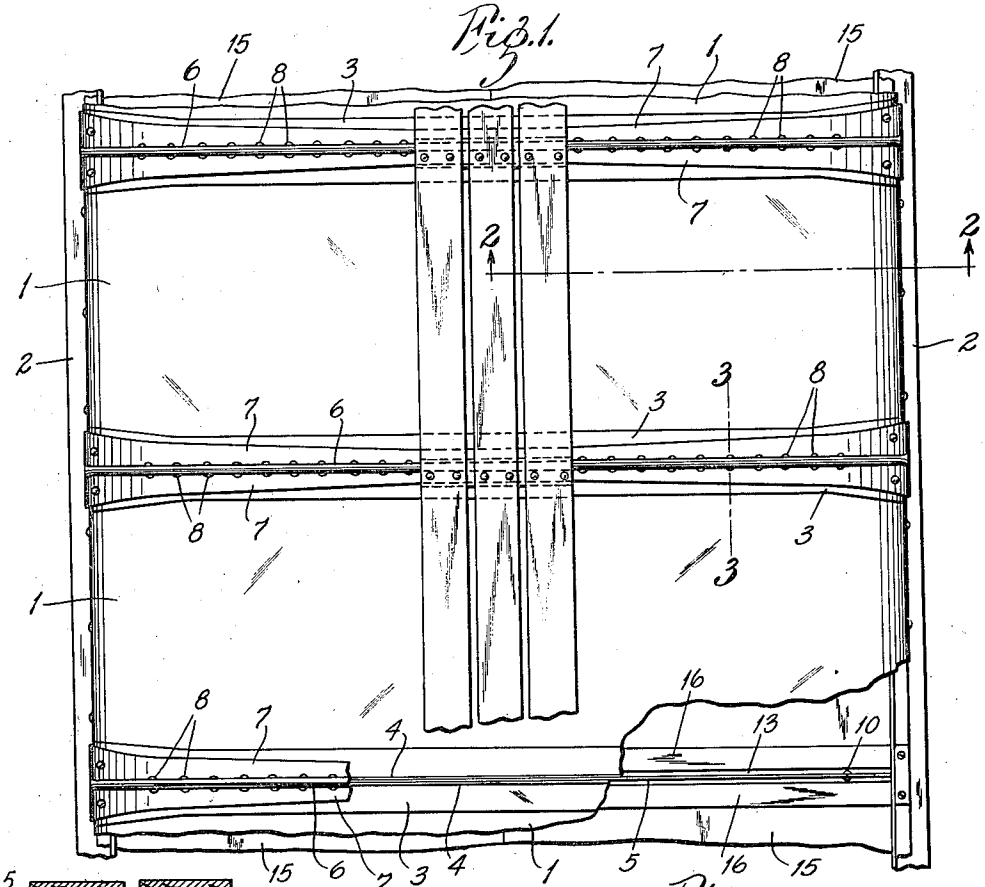


Fig. 2.

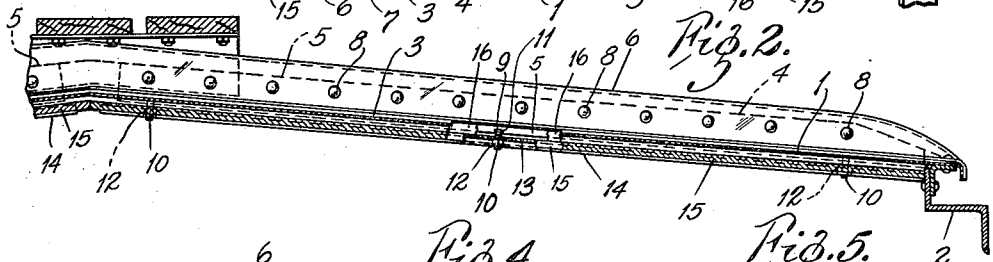


Fig. 4.

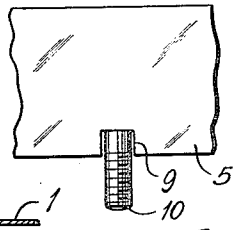


Fig. 5.

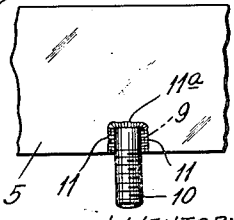
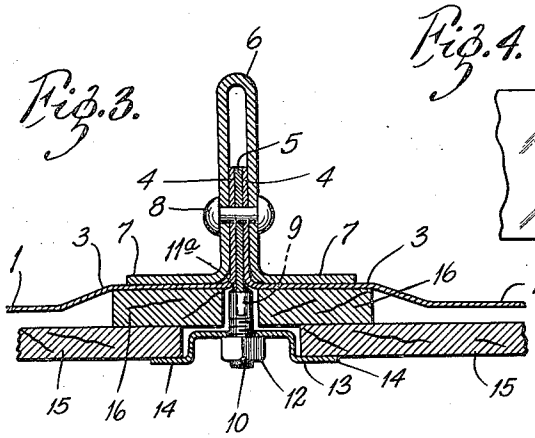


Fig. 3.



INVENTOR:
Edgar E. Schlesinger
by Church Church Brady
HIS ATTORNEYS

June 29, 1937. E. E. SCHLESINGER 2,085,338

CAR ROOF

Filed Nov. 27, 1936 2 Sheets-Sheet 2

Fig. 6.

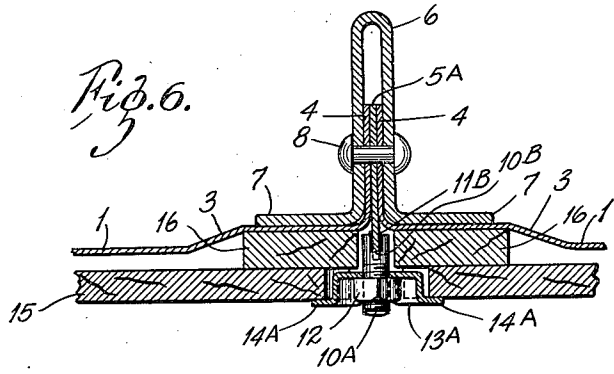


Fig. 7.

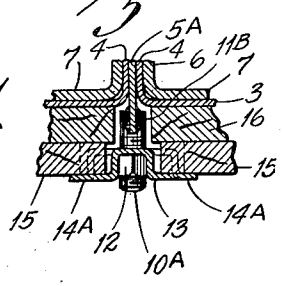


Fig. 8.

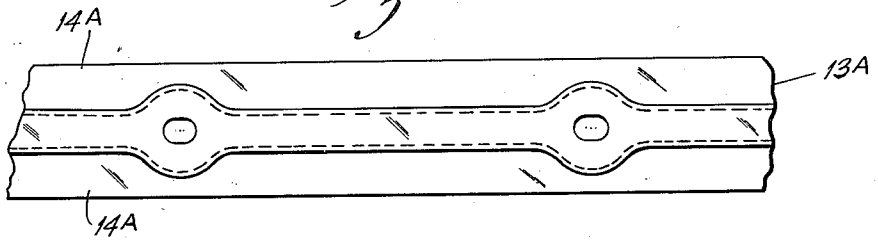


Fig. 9

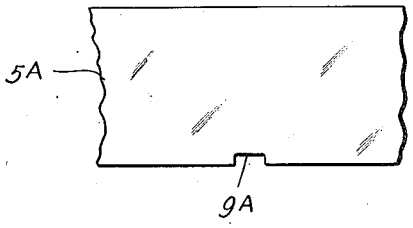


Fig. 11.

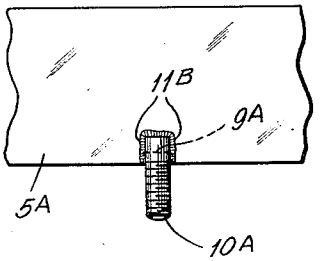
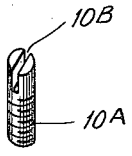


Fig. 10.



INVENTOR

Edgar E. Schlesinger

by Parmelee Parmelee & Crowley

HIS ATTORNEYS.

Patented June 29, 1937

2,085,338

UNITED STATES PATENT OFFICE

2,085,338

CAR ROOF

Edgar E. Schlesinger, Chicago, Ill., assignor to P. H. Murphy Company, New Kensington, Pa., a corporation of Pennsylvania

Application November 27, 1936, Serial No. 112,838

11 Claims. (Cl. 105—5.2)

My invention relates to metal car roofs of the type wherein an insulating lining is suspended on the metal portion of the roof. The principal object of the invention is to devise means which will support the insulating lining in proper relation to the metal sheets, which will take up a minimum of head room in the car, which will provide for the easy application and replacement of the lining, which may be applied without weakening any portion of the roof structure and which will not extend appreciably below the insulating lining. The invention consists principally in welding stud bolts in notches provided therefor in the lower edges of reinforcing plates secured in the roof seams, said stud bolts having nuts which support inverted channel members with lateral flanges on which the lining is supported. It also consists in the combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawings wherein like reference numerals refer to like parts wherever they occur,

Fig. 1 is a plan view of a portion of a metal car roof embodying my invention;

Fig. 2 is an enlarged transverse section through one-half of a roof on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged vertical longitudinal section through the roof at one of the seams on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary side elevation of one of the seam plates with a stud bolt positioned in a notch thereof ready for welding;

Fig. 5 is a similar view of the parts after welding;

Fig. 6 is a section similar to Fig. 3, illustrating a modified form of the invention;

Fig. 7 is a section similar to Fig. 6, showing the shape of the lining supporting strip between the hanger bolts;

Fig. 8 is a fragmentary plan view of the lining supporting strip shown in Figs. 6 and 7;

Fig. 9 is a fragmentary side view of the notched seam plate shown in Figs. 6 and 7;

Fig. 10 is a perspective view of one of the slotted hanger bolts; and

Fig. 11 is a fragmentary side view of the assembled hanger plate and the slotted hanger bolt.

The construction illustrated in the drawings comprises metal roof sheets 1 which extend from side plate 2 to side plate 2 of the car. These roof sheets have their side marginal portions raised or offset upwardly to form panels 3 at a somewhat higher level than the adjacent body portions of the roof sheets. At the outer margins of such panels are upstanding flanges 4. Between each upstanding flange of one roof sheet and the adjacent flange of the next roof sheet is a metal plate 5 which extends downwardly below the raised panels of the adjacent sheets. A metal seam cap 6 of inverted U-shape with horizontal flanges 7 straddles the upstanding flanges of adjacent sheets and the interposed suspension or hanger plate 5 between them and all are firmly secured together by horizontal rivets 8.

The lower margin of the suspension plate 5 has rectangular notches 9 therein of suitable width and depth to receive stud bolts 10 and afford adequate bearing surface for welding said stud bolts to said suspension member in vertical alinement therewith. As illustrated in Figs. 4 and 5, the notch 9 is of greater width than the diameter of the stud bolt 10 and the weld metal 11 fills the spaces between the sides of said bolt and the adjacent edges of the suspension plate 5. Preferably also the end face of the stud bolt is welded, as at 11a, to the sides of said plate at the bottom of said notch. As an alternative construction, the bolt may snugly fit the notch and be welded directly thereto by any suitable method of welding.

Each of the stud bolts 10 is provided with a nut 12 that works on the thread at the lower end thereof. These nuts support an inverted channel-shaped member 13 which has holes for the stud bolts 10 to extend through and which has horizontal marginal flanges 14 which serve as ledges or supports for an insulating ceiling or lining. Preferably, this lining is in the form of sections 15 of ply wood of suitable length for its ends to rest on the flanges 14 of adjacent supporting strips 13. Resting on the end portions of said insulating sections are strips 16 of wood or other suitable material that extend crosswise of the car and are of substantially the same width as the marginal panels 3 of the roof sheets. By this arrangement, the nuts 12 are supported by the hanger bolts 10 and themselves support the inverted channel-shaped members 13 whose flanges 14, in turn, support the insulating lining 15 which, in turn, supports the spacing members 16. Thus, when the nuts 12 are tightened, the spacing members 16 are clamped against the under surfaces of the raised panels 3 of the metal roof sheets and serve to space the insulating lining 15 at such distance below the main body portions of said sheets as is predetermined by the thickness of said spacing members.

In the modified construction illustrated in

Sheet 2 of the drawings, the lower margin of the seam plate 5A has a relatively shallow notch 9A therein; and the stud bolt 10A has its upper end notched or slotted, as at 10B, so as to straddle said plate just above the notch therein. The stud bolt is secured to the plate by welds 11B. This arrangement enables the notch in the seam plate to be made shallower or entirely dispensed with; and it also prevents the stud bolt from twisting and straining the securing weld therefor.

The overall width of the inverted channel shaped lining supporting strip 13A of the modified construction is less than the overall width of the strip 13 shown in Fig. 3; and the width of the inverted channel of the strip 13A is reduced between hanger bolts. By this arrangement lining supporting strip 13A may be pressed from a relatively narrow blank without decreasing the width of the nut receiving portion of the channel and without reducing the width of the lining supporting flanges 14A thereof except at points opposite said nut receiving portions.

The foregoing construction is very simple and strong and its application does not cause any weakening of the seam reinforcing plate. It enables the insulating lining to be applied and replaced wholly or in part with great facility. It enables the depth of the insulating air space between the lining and the metal roof sheets to be varied by substituting spacing members of one thickness for those of another. As the stud bolt nuts are located inside of the inverted channels, they add very little or nothing at all to the overall depth of the lining and thus do not decrease the head room of the car.

What I claim is:

1. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions, members depending from and permanently secured to said vertically disposed lower marginal portions of said plates, and a lining located beneath said roof sheets and sustained by said members.

2. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions provided with downwardly opening notches, bolts welded in said notches, and a lining for said roof sustained by said bolts.

3. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions, bolts depending from said vertically disposed lower marginal portions of said plates, strips sustained by said bolts, and a lining for said roof sustained by said strips.

4. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions, bolts depending from said vertically disposed lower marginal portions of said plates, strips sustained by said bolts, a lining for said roof sustained by said strips, and spacing strips interposed between said roof and said lining.

5. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions provided with downwardly opening notches, bolts welded in said notches, strips sustained by said bolts, and a lining for said roof sustained by said strips.

6. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions provided with downwardly opening notches, bolts welded in said notches, strips sustained by said bolts, a lining for said roof sustained by said strips, and spacing strips interposed between said roof and said lining.

7. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions provided with downwardly opening notches, bolts welded in said notches, nuts on said bolts, inverted channel-shaped strips supported on said nuts and having outstanding base flanges, and a lining for said roof supported on said flanges.

8. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and having vertically disposed lower marginal portions provided with downwardly opening notches, bolts welded in said notches, nuts on said bolts, inverted channel-shaped strips supported on said nuts and having outstanding base flanges, a lining for said roof supported on said flanges, and spacing strips interposed between said roof and said lining.

9. A car roof comprising roof sheets connected along their adjacent margins by seams, hanger plates embodied in said seams, a lining located beneath said roof sheets, sustaining bolts for said lining, said bolts being provided at their upper ends with slots, whereby they are adapted to straddle the lower margins of said hanger plates, and welds uniting the slotted ends of said bolts to said plates.

10. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams and provided in their lower edges with notches, bolts fitting in said notches and having slotted upper end portions straddling portions of the plates located above the notches therein, welds securing said bolts to said plates, and a lining located beneath said roof sheets and sustained by said bolts.

11. A car roof comprising roof sheets connected along their adjacent margins by seams, plates embodied in said seams, bolts depending from the lower edges of said plates, nuts on the lower ends of said bolts, inverted channel shaped strips supported on said nuts and provided with outstanding base flanges, and a lining for said roof sustained by said flanges, the inverted channels of said strips being widened in the regions of said nuts.

EDGAR E. SCHLESINGER.