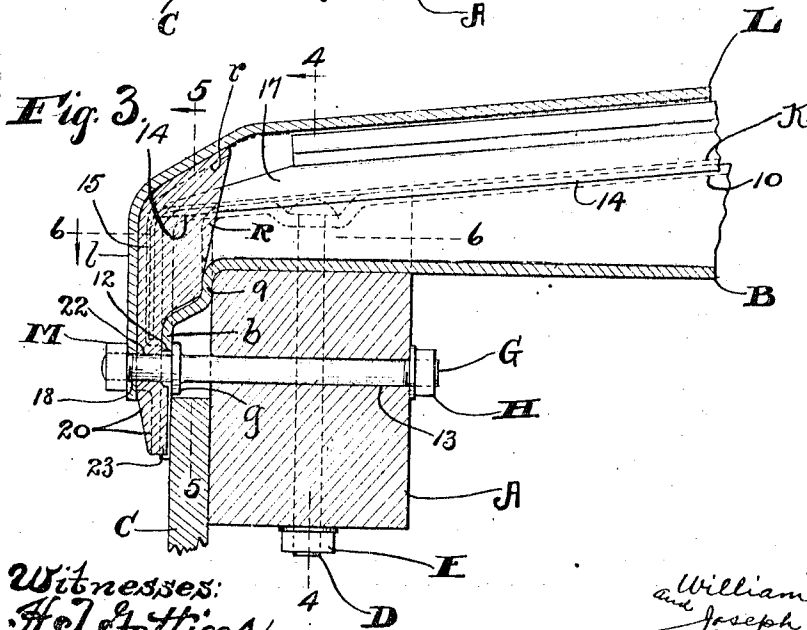
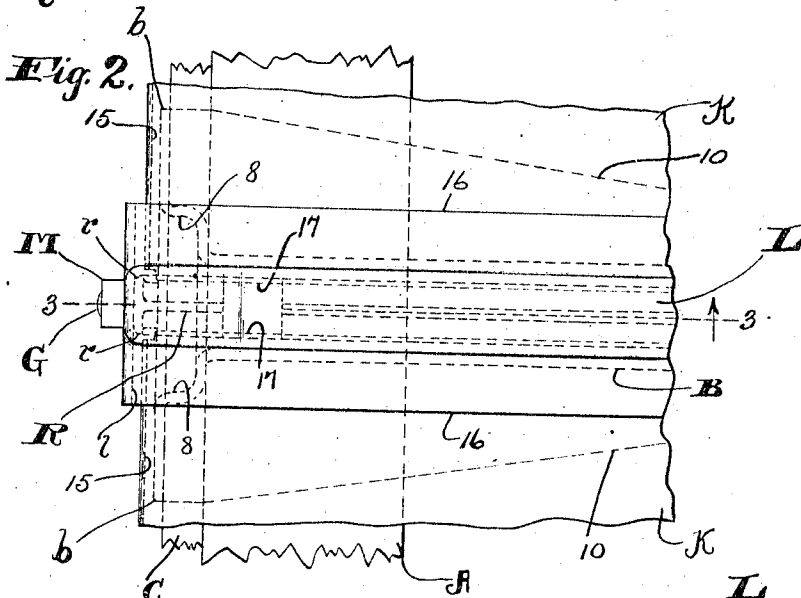
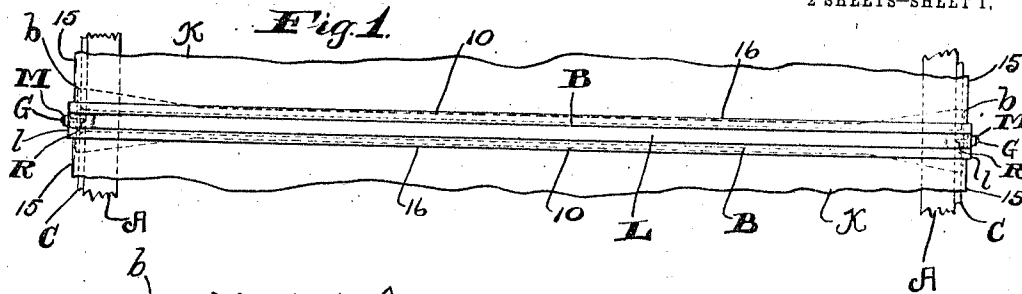


W. S. BIDLE & J. A. COSTELLO.
CAR ROOF CONSTRUCTION.
APPLICATION FILED SEPT. 23, 1912.

1,053,699.

Patented Feb. 18, 1913.

2 SHEETS—SHEET 1.



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2 SHEETS-SHEET 2.

Fig. 4.

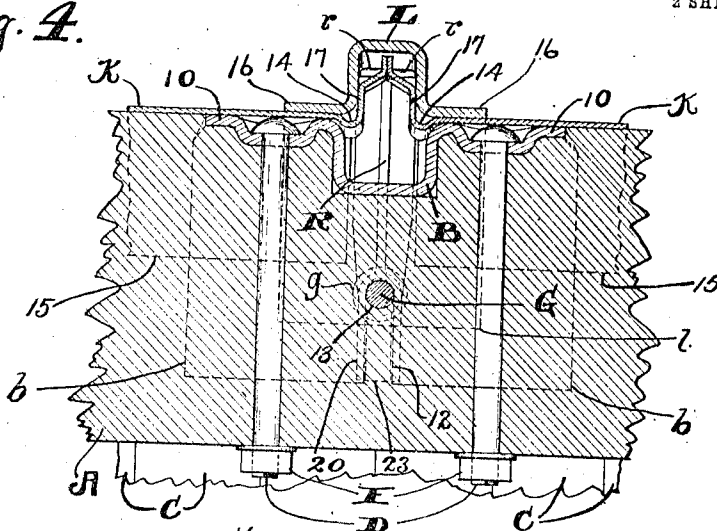


Fig. 5.

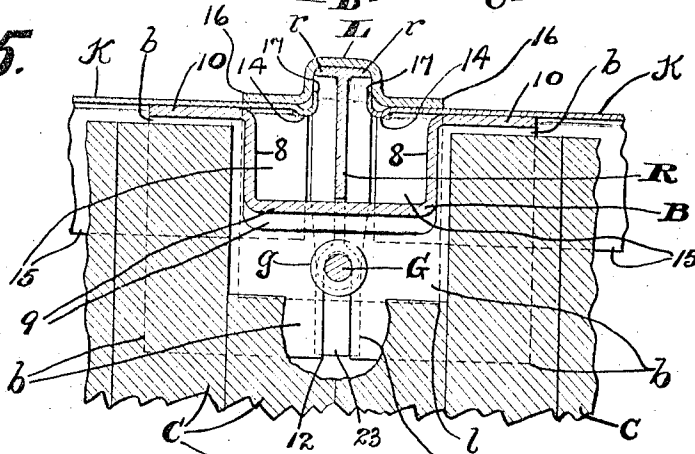
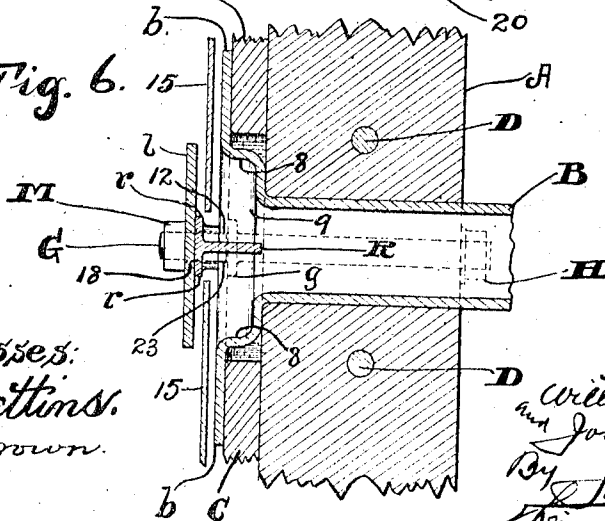


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM S. BIDLE AND JOSEPH A. COSTELLO, OF CLEVELAND, OHIO, ASSIGNORS TO
CLEVELAND CAR SPECIALTY COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF
WEST VIRGINIA.

CAR-ROOF CONSTRUCTION.

1,053,699.

Specification of Letters Patent.

Patented Feb. 18, 1913:

Application filed September 23, 1912. Serial No. 721,887.

To all whom it may concern:

Be it known that we, WILLIAM S. BIDLE and JOSEPH A. COSTELLO, citizens of the United States of America, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Car-Roof Construction; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in car-roofs, and pertains more especially to a car-roof having its framework comprising a carline consisting of a steel trough bridging the space between and attached to the two laterally spaced side plates of said framework and employed in supporting two metal roofing-sheets which extend over the carline and laterally of the carline in opposite directions and longitudinally of the carline and have downwardly projecting end-portions arranged at the outer sides of the side plates and have upwardly projecting side flanges arranged over and extending longitudinally of said carline and covered by a cap which extends longitudinally of said flanges and consequently longitudinally of the carline and is attached to the aforesaid side plates.

One object of this invention is not only to have said trough extend beyond the outer side of each side plate and over the side sheathing overlapping said side of said side plate but to provide a baffle-plate at each end of the trough and to have said baffle-plate arranged to prevent the passage of water from the outer side of the adjacent downwardly projecting end-portion of one of the roofing-sheets to the inner side of the adjacent downwardly projecting end-portion of the other roofing-sheet.

Another object is to have said baffle-member contoured and arranged as required to form a desirable seat for a roofing-cap employed in covering adjacent portions of said roofing-sheets and to utilize said baffle-member as a guide during the application of said cap to the adjacent car line.

Another object is to facilitate the assembly of the component parts of a car-roof of the character indicated.

With these objects in view, and to the end of attaining any other advantage herein-after appearing, this invention consists in

certain features of construction, and combinations and arrangement of parts; herein-after described, pointed out in the claims, and illustrated in the accompanying drawings.

In said drawings, Figure 1 is a top plan of a portion of a car-roof embodying our invention. Fig. 2 is a top plan illustrating an end-portion of Fig. 1 on a larger scale. Fig. 3 is a vertical section on line 3-3, Fig. 2, looking in the direction indicated by the arrow. Fig. 4 is a vertical section on line 4-4, Fig. 3, looking outwardly. Fig. 5 is a vertical section on line 5-5, Fig. 3, looking outwardly, and a portion of the side sheathing is shown broken away in Fig. 5 to more clearly show the construction. Fig. 6 is a horizontal section on line 6-6, Fig. 3, looking downwardly.

Referring to Fig. 1 of the drawings, A and A indicate the two laterally spaced horizontally arranged parallel side plates of the framework of a car-roof. Said side plates constitute longitudinal members of said framework, and a metal carline preferably composed of a steel-blank pressed into the shape required constitutes a transverse member of said framework and comprises a trough B which is shown bridging the space between and extends transversely of and through the upper portions of the side plates and beyond the outer sides of said side plates which of course are recessed to receive said trough. Said trough (see Figs. 2 and 6) has each side thereof offset laterally and outwardly, as at 8, at the outer side of each side plate, and said trough (see Figs. 3 and 6) has its bottom offset downwardly, as at 9, between the offset portions 8 of the sides of each end-portion of the trough. The offset portions 8 and 9 of each end-portion of the trough abut against the outer side of the adjacent side plate.

The trough B is provided at each end and externally with an end flange b which is arranged transversely of the trough and projects downwardly from the outer end of the adjacent offset portion 9 of the bottom of the trough and extends at the sides of the trough upwardly from said bottom and consequently also extends laterally of and outwardly from the adjacent laterally offset portions 8 of the sides of the trough. Said trough has the passageway formed therein wider between each side plate A and the adjacent end flange b than between the

outer sides of the two side plates. Said trough is provided at the top thereof with two laterally and outwardly projecting side flanges 10 arranged at opposite sides respectively of the trough and extending between and to the end flanges *b* of the trough, and preferably each end flange *b* extends upwardly at the sides of the trough to said side flanges, as shown in Fig. 5. Preferably the trough-bottom slopes between the offset portions 8 of the sides of each end-portion of the trough downwardly toward the adjacent end flange *b*, as shown in Fig. 3. Each end flange *b* is spaced far enough from the adjacent side plate to permit the interposition of car-siding or side sheathing C between said side plate and said flange, and in Fig. 3 side sheathing is shown interposed between an end flange *b* of the carline shown and the outer side of the side plate adjacent said flange, and the trough B of said carline is secured at its side flanges 10 to said side plate by suitably applied bolts D and nuts E, as shown in Fig. 4. Each end flange *b* of said carline (see Fig. 3) abuts at its inner side against an annular shoulder *g* formed on and externally of a double-ended bolt G and arranged at and spaced from the outer side of the adjacent side plate A, and the side sheathing C adjacent said bolt terminates below said shoulder, and said flange is provided below the bottom of the trough B of said carline with a lateral slot 12 which is arranged vertically and centrally between the side edges of said flange and extends to the lower edge of said flange and registers at its upper end with a bolt-hole 13 formed in and extending laterally through the adjacent side plate, and said bolt extends through said bolt-hole and through said slot and a suitable distance beyond the outer side of said flange and a suitable distance beyond the inner side of said side plate, and a nut H is screwed onto said bolt at the last-mentioned side of said side plate. The shoulder *g* on said bolt forms a lateral abutment for the inner side of the adjacent flange *b*.

Two metal roofing-sheets K and K rest on opposite flanges 10 and 10 respectively of the trough B. Said roofing-sheets extend over the trough B and laterally of said trough in opposite directions and longitudinally of said trough from end to end of the trough. Between the flanges 10 and 10,—that is, between the sides of the carline-trough B,—each of the roofing-sheets K has a trough-forming portion 14 which depends to and extends longitudinally of said carline-trough, and said trough-forming portions of said roofing-sheets extend to and beyond the outer side of each side plate A, as shown in Figs. 3 and 5. The roofing-sheets K extend over and across the tops of the side plates A, and each roofing-sheet K

is provided at the outer side of each end flange *b* of the carline illustrated with a depending end-portion 15 which extends opposite the outer side of said flange and opposite the outer side of the adjacent side sheathing C. Adjacent portions of said roofing-sheets are covered between the outer sides of the side plates by a cap L arranged above and extending longitudinally and from end to end of the adjacent carline-trough and provided at the bottom and externally with flanges 16 projecting laterally and outwardly across the aforesaid trough-forming portions of said roofing-sheets. It will be observed that adjacent trough-forming portions 14 of said roofing-sheets K are covered by said cap L, that adjacent sides of said trough-forming portions project, as at 17 (see Figs. 4 and 5) upwardly into said cap, and that said trough-forming portions of the roofing-sheets receive any water driven or forced next below the flanges of said cap and toward said trough-forming portions of said roofing-sheets and are arranged to conduct any water received thereby beyond the outer sides of the side plates and over the ends of the adjacent carline-trough so that flooding of said carline-trough is rendered impossible.

The cap L is provided at the outer side of the adjacent downwardly projecting end-portion 15 of the roofing-sheets K, with a downwardly projecting end flange *l* which (see Fig. 6) extends opposite said sides of said end-portion of said roofing-sheets. Each end flange *l* of the cap L (see Fig. 3) projects downwardly far enough to receive the adjacent bolt G and is provided with a bolt-hole 18 which is arranged in line endwise and registers with the bolt-hole 13 in the adjacent side plate A, and said bolt extends through the said bolt-hole 18 in said flange and beyond the outer side of said flange, and a nut M is screwed onto said bolt at the outer side of said flange. Each end flange *l* of the cap L is shown spaced from the adjacent depending end-portion 15 of the roofing-sheets K and from the adjacent end flange *b* of the trough B of the adjacent carline, and a baffle-member which consists preferably of a substantially vertically arranged plate R extends between the inner side of said flange of the cap and the adjacent downwardly offset portion 9 of the bottom of said carline-trough and is arranged within the adjacent end-portion of said trough centrally between the adjacent laterally offset portions 8 of the sides of the trough and faces the sides of the trough. Obviously therefore the baffle-plates R within the end-portion of said carline-trough form abutments for the inner sides of the end flanges *l* of the cap L, and each baffle-plate is provided with two laterally and outwardly

projecting flanges *r* and *r* arranged at opposite sides respectively of said plate and extending along the top edge and outer upright edge of the plate and affording an adequate seat at the upper end of the baffle-plate for the cap L. The cap L is therefore seated on or supported from the baffle-plates. Each baffle-plate obviously divides the passageway formed by the adjacent end-portion of the carline-trough B so that any water drained by said trough through said end-portion of the trough passes off at the sides of said plate. Said baffle-plate is arranged therefore between the adjacent roofing-sheets K. The adjacent downwardly projecting end-portions *l* of said roofing-sheets are spaced apart (see Figs. 5 and 6) to permit the location of said baffle-plate between said roofing-sheets, and obviously said baffle-plate prevents the passage of water from the outer side of the adjacent downwardly projecting end-portion of the roofing-sheet at one side of the baffle-plate to the inner side of the adjacent downwardly projecting end-portion of the roofing-sheet at the opposite side of the baffle-plate more especially during weaving or racking of a car provided with our improved car-roof.

Each baffle-plate R (see Figs. 3 and 5) is provided with a downwardly projecting arm 20 interposed between the outer side of the adjacent end flange *b* of the carline and the inner side of the adjacent end flange *l* of the cap L and projects downwardly far enough to receive the adjacent bolt G, being provided (see Fig. 3) with a bolt-hole 22 which is arranged in registry with the bolt-hole 18 in said flange of the cap and with the bolt-hole 13 in the adjacent side plate A, and said bolt extends through said bolt-hole in said arm. The provision of each baffle-plate with a member extending around the adjacent bolt G is instrumental in preventing displacement of the baffle-plate transversely of the carline, but to more efficiently prevent displacement of said baffle-plate transversely of the carline,—that is, to hold said plate in place relative to its position centrally between the adjacent laterally offset portions 8 of the sides of the carline-trough B, the arm 20 of said baffle-plate has a portion thereof projecting, as at 23, into the slot 12 formed in the adjacent end flange of the carline.

In constructing our improved car-roof, the bolts G are applied to the side plates A before the application of the carline which is then placed in position relative to the side plates and secured to the side plates by the bolts D and nuts E, whereupon the baffle-plates R are applied, and thereupon each bolt is shifted inwardly far enough to permit the application of the cap L and upon the application of said cap said bolt G is shifted outwardly to cause the shoulder *g*

of the bolt to abut against the inner side of the adjacent end flange of the carline and to cause the bolt to extend through the bolt-hole in the adjacent end flange of the said cap and beyond the outer side of said last-mentioned flange, whereupon the nut M is applied and manipulated to clamp said flange of the cap and the baffle-plate interposed between said flange and the adjacent end flange of the carline to said shoulder of the bolt, whereupon the nut H mounted on said bolt is manipulated to effect the clamping of said flange of the carline to the adjacent side sheathing.

What we claim is,—

1. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline extending between and attached to the side plates, and two metal roofing-sheets extending over the carline and laterally of the carline in opposite directions and longitudinally of the carline and having downwardly projecting end-portions at the outer sides of the side plates, of a baffle-plate arranged between adjacent downwardly projecting end-portions of the roofing-sheets and positioned to prevent the passage of water from the outer side of one to the inner side of the other of said end-portions of the roofing-sheets, and a metal cap arranged above and longitudinally of the carline and covering adjacent portions of the roofing-sheets and extending over said baffle-plate.

2. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline extending between and attached to the side plates, and two metal roofing-sheets extending over the carline and laterally of the carline in opposite directions and longitudinally of the carline and having downwardly projecting end-portions at the outer sides of the side plates, of a baffle-plate arranged between adjacent downwardly projecting end-portions of the roofing-sheets and facing laterally of the carline, which baffle-plate is provided with a laterally and outwardly projecting flange extending along to top edge of the plate, and a metal cap arranged above and longitudinally of the carline and covering adjacent portions of the roofing-sheets and seated on the aforesaid flange.

3. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline extending between and attached to the side plates, and two metal roofing-sheets extending over the carline and laterally of the carline in opposite directions and longitudinally of the carline and having downwardly projecting end-portions at the outer sides of the side plates, of a substantially vertically arranged baffle-plate arranged between adjacent downwardly projecting end-portions of the roofing-sheets

and facing laterally of the carline, which baffle-plate is provided with two laterally and outwardly projecting flanges arranged at opposite sides respectively of the baffle-plate and extending along the top and outer upright edge of the baffle-plate, and a metal cap arranged above and longitudinally of the carline and covering adjacent portions of the roofing-sheets and seated on the aforesaid flanges.

4. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline bridging the space between and extending to the outer sides of and attached to the side plates, which carline is provided at each end with an end flange arranged opposite the outer side of the adjacent side plate, and two metal roofing-sheets extending over the carline and laterally of the carline in opposite directions and longitudinally of the carline and having downwardly projecting end-portions arranged at the outer sides of the side plates and extending opposite the outer sides of the end flanges of the carline, of a baffle-plate at each end of the carline, which baffle-plate is arranged centrally between the side edges of the adjacent end flange of the carline and between the adjacent downwardly projecting end-portions of the roofing-sheets and faces laterally of the carline, and a metal cap arranged above and longitudinally of the carline and covering adjacent portions of the roofing-sheets and seated on said baffle-plate.

5. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline bridging the space between and extending to the outer sides of and attached to the side plates, which carline is provided at each end with an end flange arranged opposite the outer side of the adjacent side plate and provided centrally between its side edges with a slot extending upwardly from the lower end of the flange, and two metal roofing-sheets extending over the carline and laterally of the carline in opposite directions and longitudinally of the carline and having downwardly projecting end-portions arranged at the outer sides of the side plates and extending opposite the outer sides of the end flanges of the carline, of a baffle-plate at each end of the carline, which baffle-plate is arranged between the adjacent downwardly projecting end-portions of the roofing-sheets and faces laterally of the carline, said baffle-plate having a member extending into the aforesaid slot in the adjacent end flange of the carline, and a metal cap arranged above and longitudinally of the carline and covering adjacent portions of the roofing-sheets and extending over said baffle-plate.

6. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline comprising a trough bridging

the space between and extending through the upper portions and beyond the outer sides of the side plates and having each side thereof offset laterally and outwardly and its bottom offset downwardly at the outer side of each side plate, which trough is provided at each end with an end flange projecting downwardly from the bottom of the trough and extending at the sides of the trough upwardly from said bottom, and two metal roofing-sheets extending over the carline-trough and laterally of the carline in opposite directions and longitudinally of the carline and having a downwardly projecting end-portion at the outer side of each side plate, which end-portion extends opposite the adjacent end flange of the carline, of a baffle-plate arranged within each end of the carline-trough centrally between and facing the sides of the carline-trough and positioned between the adjacent downwardly projecting end-portions of the roofing-sheets, which baffle-plate extends from over the bottom of the carline-trough, and a metal cap arranged above and longitudinally of the carline and covering adjacent portions of the roofing-sheets and extending over said baffle-plate.

7. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline comprising a trough bridging the space between and extending through the upper portions and beyond the outer sides of the side plates and having each side thereof offset laterally and outwardly and its bottom offset downwardly at the outer side of each side plate, which trough is provided at each end with an end flange projecting downwardly from the bottom of the trough and extending at the sides of the trough upwardly from said bottom, and two metal roofing-sheets extending over the carline-trough and laterally of the carline in opposite directions and longitudinally of the carline and having downwardly projecting end-portions at the outer sides of the side plates, of a baffle-plate arranged within each end of the carline-trough and facing the sides of the carline-trough and positioned between the adjacent downwardly projecting end-portions of the roofing-sheets, which baffle-plate is attached to the adjacent end flange of the carline-trough, and a metal cap arranged above and longitudinally of the carline and extending over said baffle-plate.

8. In car-roof-construction, the combination, with the two laterally spaced side plates, a carline extending between and to the outer sides of and secured to the side plates, which carline is provided at each end with an end flange arranged opposite the outer side of the adjacent side plate, and two metal roofing-sheets extending over the carline and laterally of the carline in opposite

directions and longitudinally of the carline and having downwardly projecting end-
 portions which are arranged at the outer
 sides of the side plates and extend opposite
 5 the end flanges of the carline, of a baffle-
 plate adjacent each end and facing later-
 ally of the carline and positioned between
 the adjacent downwardly projecting end-
 portions of the roofing-sheets, which baffle-
 10 plate is clamped to the adjacent end flange
 of the carline, and a metal cap arranged
 over and longitudinally of the carline and
 covering adjacent portions of the roofing-
 sheets and extending over said baffle-plate.
 15 9. In car-roof-construction, the combina-
 tion, with the two laterally spaced side
 plates, a carline comprising a trough
 bridging the space between and extending
 through the upper portions and beyond the
 20 outer sides of the side plates and having
 each side thereof offset laterally and out-
 wardly and its bottom offset downwardly at
 the outer side of each plate, which trough is
 provided at each end with an end flange pro-
 25 jecting downwardly from the bottom of the
 trough, said flange being provided centrally
 between its side edges with a slot extending
 upwardly from the lower end of the flange,
 and two metal roofing-sheets extending over
 30 the carline-trough and laterally of the car-
 line in opposite directions and longitudi-
 nally of the carline and having downwardly
 projecting end-portions which are arranged
 at the outer sides of the side plates and ex-
 35 tend opposite the outer sides of the end-
 flanges of the carline-trough, of a baffle-
 plate arranged within each end of the car-
 line-trough centrally between and facing
 the sides of the carline-trough and posi-
 40 tioned between the adjacent downwardly
 projecting end-portions of the roofing-
 sheets, which baffle-plate has a downwardly
 projecting arm clamped to the adjacent end-
 flange of the carline-trough and having a
 45 portion thereof extending into the aforesaid
 slot, and a metal cap arranged above and
 longitudinally of the carline and covering
 adjacent portions of the roofing-sheets and
 extending over the aforesaid baffle-plate.
 50 10. In car-roof-construction, the two later-
 ally spaced side plates; a carline extending
 between and to the outer sides of and se-
 cured to the side plates, which carline is pro-
 55 vided at each end with an end flange ar-
 ranged opposite the outer side of the ad-
 jacent side plate; two metal roofing-sheets
 extending over the carline and laterally of
 the carline in opposite directions and longi-
 60 tudinally of the carline and having depend-
 ing end-portions at the outer sides of the
 side plates; a baffle-plate at each end of the
 carline, which baffle-plate overlaps the outer
 side of the adjacent end flange and faces

laterally of the carline, and a metal cap ar-
 ranged above and longitudinally of the car- 65
 line and covering adjacent portions of the
 roofing-sheets and extending over said
 baffle-plate, which cap is provided at each
 end with an end flange overlapping the outer
 upright edge of the adjacent baffle-plate and 70
 extends opposite the outer sides of the ad-
 jacent depending end-portions of the roof-
 ing-sheets, and bolts connected to the side
 plates adjacent the end flanges of the car-
 line and having shoulders at the inner sides 75
 of said flanges, the end flanges of the afore-
 said cap, the baffle-plates and the end flanges
 of carline being clamped to the shoulders
 of said bolts.

11. In car-roof-construction, the combina- 80
 tion, with the two laterally spaced side
 plates; a carline extending between and to
 the outer sides of and secured to the side
 plates, which carline is provided at each end
 with an end flange arranged opposite the 85
 outer side of the adjacent side plate, which
 flange is provided with a slot extending up-
 wardly from the lower end of said flange;
 two metal roofing-sheets extending over the
 carline and laterally of the carline in oppo- 90
 site directions and longitudinally of the car-
 line and having depending end-portions
 at the outer sides of the side plates;
 a baffle-plate at each end of the carline,
 which baffle-plate has a downwardly pro- 95
 jecting arm arranged at the outer side of
 the aforesaid slot, and a metal cap arranged
 above and longitudinally of the carline,
 which cap covers adjacent portions of the
 roofing-sheets and extends over said baffle- 100
 plate and has end flanges arranged at the
 outer sides of the depending end-portions
 of the roofing-sheets, each end flange of the
 cap being provided with a bolt-hole ar-
 ranged in registry with the upper end of 105
 the slot in the adjacent end flange of the
 carline, of a double-ended bolt extending
 through said bolt-hole and through the
 aforesaid arm of the adjacent baffle-plate
 and through the slot in the adjacent end 110
 flange of the carline and through the ad-
 jacent side plate, said bolt having a
 shoulder arranged at the inner side of said
 last-mentioned flange; a nut screwed onto
 said bolt at the outer side of the adjacent 115
 end flange of said cap, and a nut screwed
 onto said bolt at the inner side of the ad-
 jacent side plate.

Signed by us at Cleveland, Ohio, this
 12th day of September, 1912.

WILLIAM S. BIDLE.
 JOSEPH A. COSTELLO.

Witnesses:

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 B. C. BROWN.