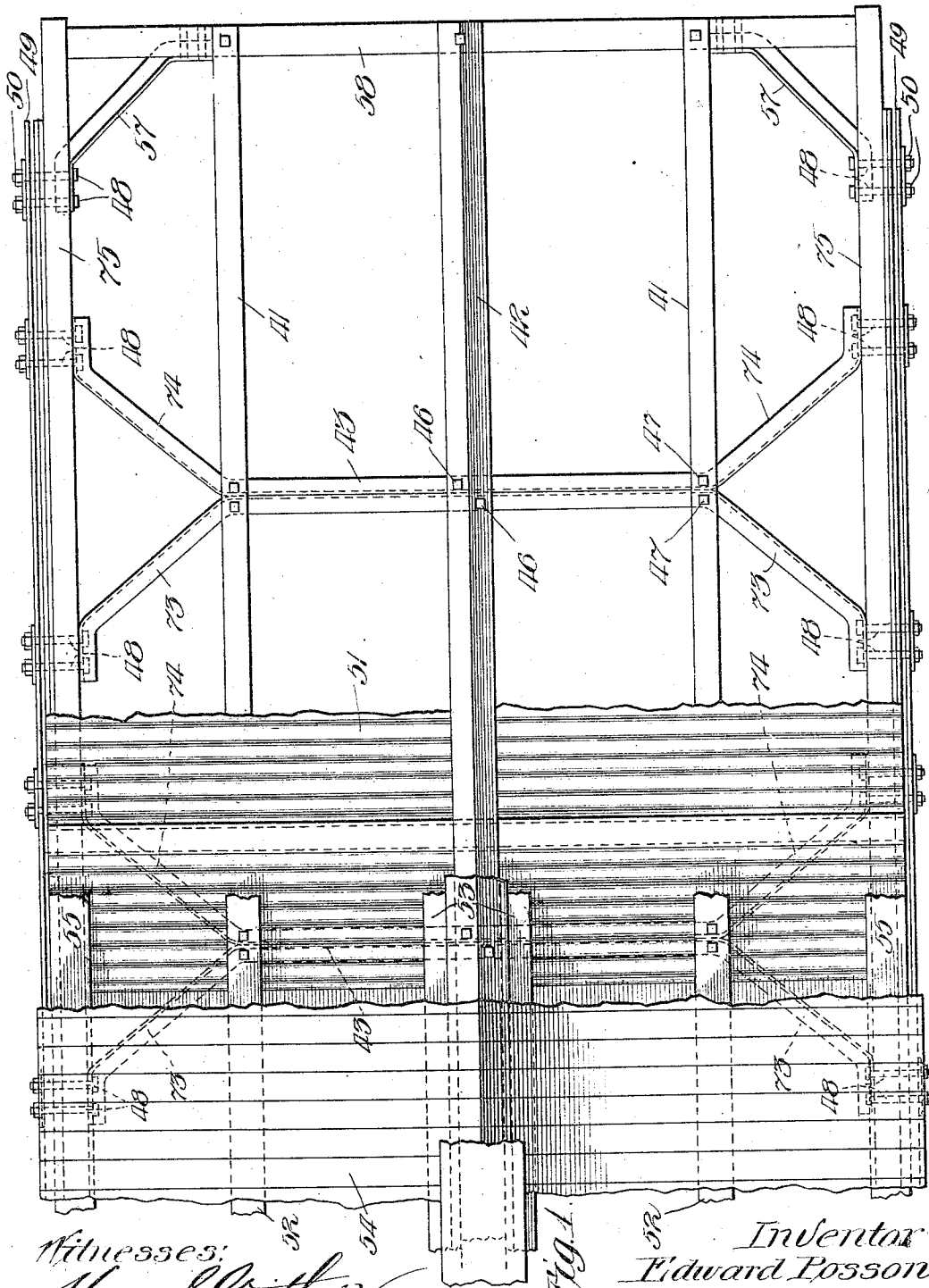


E. POSSON.
CAR ROOF CONSTRUCTION.
APPLICATION FILED MAR. 29, 1910.

1,026,698.

Patented May 21, 1912.

2 SHEETS—SHEET 1.



Witnesses:
Harry S. Gaither
A. C. Walton

Fig. 1

Inventor:
Edward Posson
by Sherman, Wilkinson, Scott & Richmond
Attys

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Fig. 2.

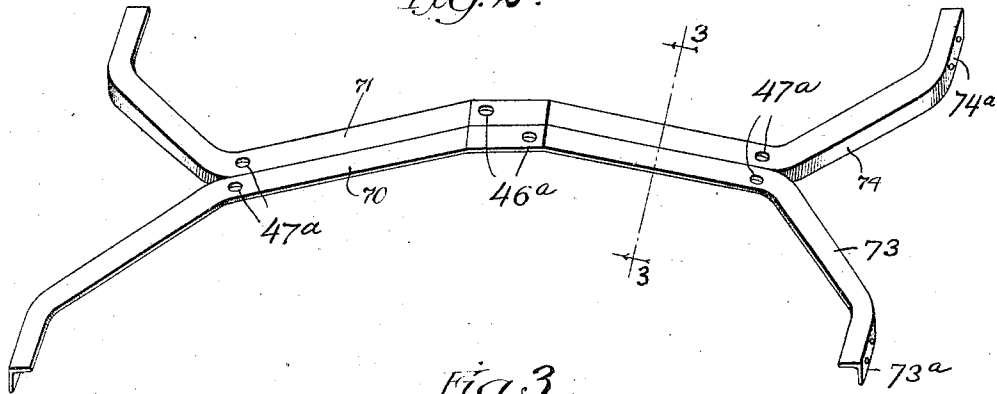


Fig. 3.

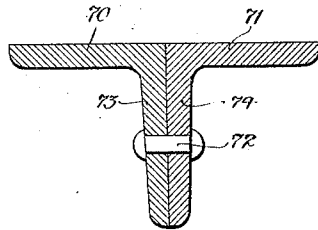


Fig. 4.

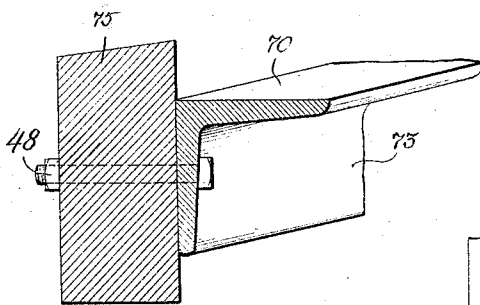


Fig. 5.

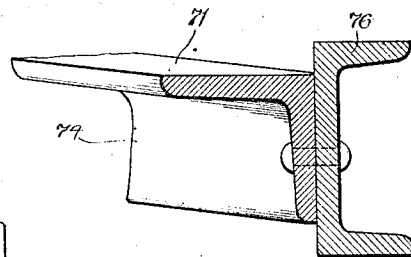
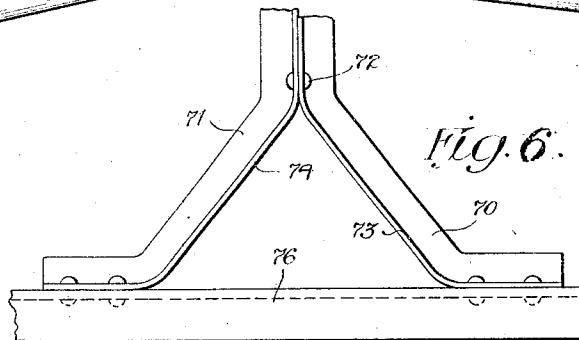


Fig. 6.



Witnesses:
Odythe M. Anderson
Florence A. Florell

Inventor:
Edward Posson

By:
Menden, Wilkinson, Scott & Richmond Attys.

UNITED STATES PATENT OFFICE.

EDWARD POSSON, OF CHICAGO, ILLINOIS, ASSIGNOR TO CAMEL COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF MAINE.

CAR-ROOF CONSTRUCTION.

1,026,698.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed March 29, 1910. Serial No. 552,131.

To all whom it may concern:

Be it known that I, EDWARD POSSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Roof Construction, of which the following is a specification.

My invention relates in general to car roof framework, and more particularly to car roof construction of the character covered by my Reissue Patent No. 13,297, the original patent of which was granted upon an application copending with this application. In the roof construction illustrated in my said reissue patent, the carlines are each formed of an integral standard rolled beam, the web of which is split from each end part way toward the center and the divided parts of the ends spread apart at an angle to each other and secured at their extremities to the side plates.

The object of my present invention is to provide a car roof framework possessing the structural characteristics covered by my said reissue patent, but in which the carlines, while generically the same as the carlines covered by my said reissue patent, are specifically different, in that they are each composed of two angle bars secured back to back at the central part of the carline with their horizontal flanges projecting in opposite directions from the tops of their vertical flanges, the bars upon the opposite sides of said central part being inclined downwardly and diverging from each other toward the car sides to which the extremities of the vertical flanges of the bars are secured.

A further object of my invention is to provide in a car roof construction carlines of the generic character of the carlines covered by my said reissue patent, but which will not involve the splitting of the standard rolled beams and the subsequent bending apart of the split portions thereof, but while utilizing commercial rolled beams, will not involve any splitting of them, but merely the securing of them together throughout their central portions and the bending of their end portions to form downwardly inclined diverging parts for attachment to the side plates.

A still further object of my invention is to provide a car roof framework comprising

carlines each composed of two angle bars secured together at their centers and diverging downwardly on opposite sides thereof and purlins crossing the carlines and fastened to both angle bars of each carline, so that the purlins strengthen the rigidity of the connection between the angle bars of the carlines.

My invention will be more fully disclosed hereinafter with reference to the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a car roof, portions thereof being broken away to more clearly show the framework, and the relation thereto of my improved carlines. Fig. 2 is a perspective view of my improved carline removed from the car roof framework. Fig. 3 is a sectional view on line 3 3, Fig. 2. Fig. 4 is a sectional view, showing the attachment of the carline with a wooden side plate. Fig. 5 is a view similar to Fig. 4, showing the attachment of the carline to a steel side plate, and Fig. 6 is a bottom view of one end of the carline and the adjacent portion of the steel side plate to which it is attached.

The same reference characters are used to designate the same parts in the several figures of the drawings.

The framework of the car roof comprises the usual side plates placed longitudinally of the car, purlins and ridge beam. Transversely arranged directly beneath these frame members are the carlines, each of which is formed of two angle bars, each of which is formed of two angle bars, each of which is formed of two angle bars 70 and 71 placed with two flanges in vertical contact and secured together throughout the body portion of the carline. The horizontal flanges of the angle bars project in opposite directions from the tops of the vertical flanges and are provided with holes through which pass the bolts for rigidly securing each of the angle bars composing each carline to the ridge beam. The horizontal flanges of the angle bars are also provided with pairs of holes through the portions thereof which underlie the purlins 41 and through which extend bolts 47 rigidly securing each angle bar of each carline to the intersecting portions of the purlins.

The angle bars of each carline diverge on opposite sides of the central portion of the carline, as shown at 73 and 74, and the extremities of the angle bars at each end of the

carline are bent into the same plane so as to provide alining portions 73^a and 74^a of the vertical flanges of the angle bars through which bolts 48 pass for rigidly securing the 5 divided ends of the carline to the side plates 75.

The vertical flanges of the angle bars in each carline throughout the portions thereof which are in contact are rigidly secured 10 together by suitable fastening means, such, for instance, as rivets 72.

Each carline is given an arched form transversely of the car roof, the portions thereof on opposite sides of the ridge beam 15 being deflected downwardly toward the car sides to the side plates of which the ends of the divided end portions of the carlines are secured.

In the form of car roof which I have preferred to show in connection with my improvements, the usual fascia board 49 is used and the bolts 48 pass through this fascia board and are secured in position by the nuts 50. The corrugated metal plate 51 lies 25 immediately above the side plates 75 and the purlins 41, and is embedded in the roof beam 42 at its inner edges. Immediately above this corrugated metal plate are placed the sub-purlins 52, upon which are placed 30 the roof boards 54. The roof boards are also spaced from the corrugated plates 51 by the supplementary ridge members 53 and the supplementary plates 55, as will be clearly seen in Fig. 1.

The diagonal corner braces 57 are attached to the side plates in similar manner to the forked ends of the carlines, and also to the end frame members 58. These braces 35 57 also serve in making the framework very strong and rigid and especially adapted to resist diagonal stresses.

It will be understood that my improved carlines are adapted for all kinds of roofs, although I have illustrated them in connection with a roof which is made up of a metal roof within the usual wooden roof. My improved carlines are adapted to any 45 form of roof structure in which said roof must be supported by members arranged transversely of the car body, and in which 50 said members are subjected to diagonal stresses. The forked end portions of my improved carlines very readily transmit the said diagonal stresses from the side plates to the purlins and to the inner portions of the 55 framework.

In Figs. 5 and 6 I have illustrated my improved carline in connection with channel beam side plates 76 in lieu of the wooden 60 side plates 75 shown in Figs. 1 and 4.

As previously mentioned the carlines have an arched form, sloping downwardly from the central part of the car toward the sides thereof, thus giving the roof structure the 65 necessary resistance to vertical stresses re-

sulting from the weight of the roof and service strains. The outwardly diverging ends of the carlines afford a wide support which has the effect of preventing the carlines from being tilted longitudinally of 70 the car around the chords of the arches as centers, and the diverging ends also serve in connection with the car sides to which they are secured to form an approximately horizontal truss capable of resisting high 75 torsional stresses. The efficiency of this truss in resisting horizontal stresses is largely dependent upon its being firmly held in its original approximately horizontal plane, and the arched carlines seated upon 80 the wide bases formed by their bifurcated ends serve to give the truss the vertical rigidity necessary to preserve its original form.

The diagonal portions at the ends of the carlines serve to brace the roof against di- 85 agonal strains. At the same time these diagonal parts perform the usual load sustaining functions of the whole carline. In practice, I have found that this carline is 90 unusually strong and rigid in proportion to the amount of material employed therein, and a roof framework comprising such carlines has great durability.

I do not in this application claim gener- 95 ically a car roof construction comprising carlines extending completely across the car and secured to and supported upon the side walls so as to afford an unobstructed space between the carlines, each of the carlines 100 having an arched form and sloping downwardly from the central part of the car toward the sides thereof and having their end portions bifurcated and the bifurcated parts spread apart diagonally toward the 105 car sides so as to form arches braced against tilting longitudinally of the car and so as to impart to the entire roof structure an approximately horizontal truss, inas- 110 much as such generic invention is claimed in my said Reissue Patent No. 13297, but in my present application I claim the specific form of said generic invention in which carlines possessing the structural characteris- 115 tics above outlined are formed of angle bars secured back to back at the center of the carline and spread diagonally apart on opposite sides thereof and secured at their 120 extremities to the side plates.

I claim:

1. In a car roof, the combination with a set of carlines, each comprising two comple- 120 mentary angle bars, each angle bar having a vertical flange and a flange extending outwardly at a right angle from the upper edge 125 of said vertical flange, the vertical flanges of said two angle bars lying in parallel relation for a certain distance upon each side of the longitudinal center of each carline and there secured together, said angle bars 130

upon the opposite sides of said center portion inclining downwardly and diverging from each other, of purlins extending across the carlines, and means securing each purlin
5 to each of the angle bars forming each of said carlines.

2. In a car roof, the combination with a set of carlines, each comprising two complementary angle bars, each angle bar having
10 a vertical flange and a flange extending outwardly at a right angle from the upper edge of said vertical flange, the vertical flanges of said two angle bars lying in parallel relation for a certain distance upon
15 each side of the longitudinal center of each carline and there secured together, said angle bars upon the opposite sides of said central portion inclining downwardly and diverging from each other, of purlins extending across the carlines, and means securing each purlin to the horizontal flange
20 of each of the angle bars forming each of said carlines.

3. In a car roof framework, the combination with side plates, of metal carlines each comprising two complementary angle bars, each angle bar having a vertical flange and a flange extending outwardly at a right angle from the upper edge of said vertical
30 flange, the vertical flanges of said two angle bars lying in parallel relation for a certain distance upon each side of the longitudinal center of the carline and there secured together, said bars upon the opposite sides
35 of said central portion inclining downwardly and diverging from each other, the

vertical flanges of the corresponding ends of the angle bars of each carline being bent to lie in the same plane, means securing the flanges at the ends of the angle bars forming
40 the carlines to the side plates, purlins overlying the said carlines, and means securing each purlin to the oppositely projecting flanges of the angle bars of each of said carlines.

4. In a railroad car, side walls and metal
45 carlines, each having an arched form and sloping downwardly from the central part of the car toward the sides thereof, said carlines extending completely across the car
50 and secured to and supported solely upon said side walls, thus affording an unobstructed space beneath said carlines, each of said carlines comprising two flanged metallic bars having parallel intermediate portions secured together, each of said bars
55 having its opposite end portions disposed at an angle to the intermediate portion, whereby the carline as an entirety has bifurcated ends, the bifurcated end parts diverging toward the car sides to which they are secured, whereby the arches formed by the carlines are braced against tilting longitudinally of the car and whereby the entire structure
60 forms an approximately horizontal truss.

In testimony whereof, I have subscribed my name.

EDWARD POSSON.

Witnesses:

EDYTHER M. ANDERSON,
FLORENCE A. FLORELL.