No. 773,954. PATENTED NOV. 1, 1904.

G. B. MALTBY.

ROOF CARLINE.

APPLICATION FILED JULY 27, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

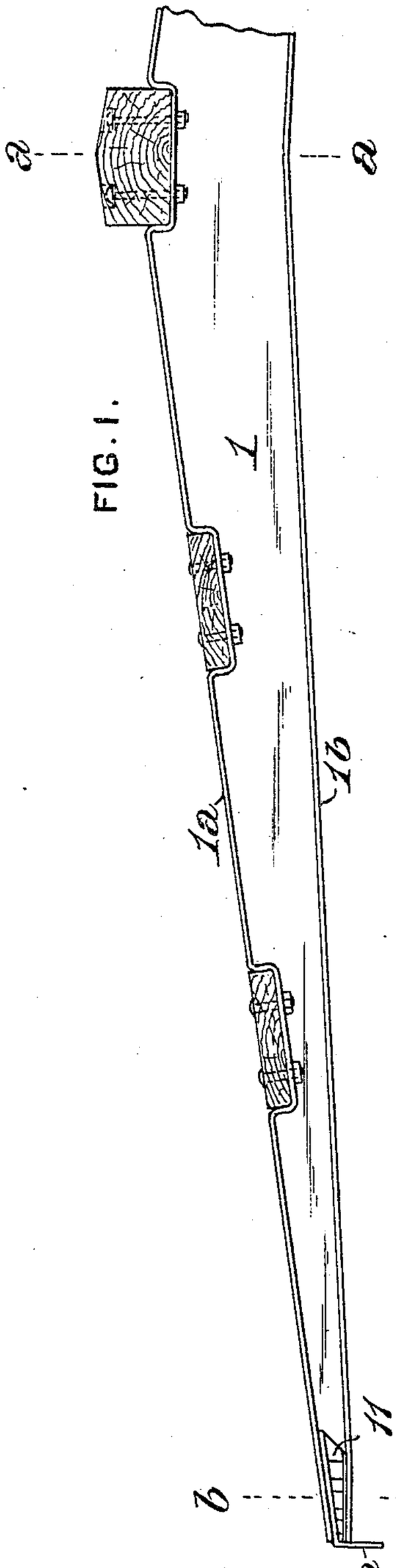


FIG. 3.

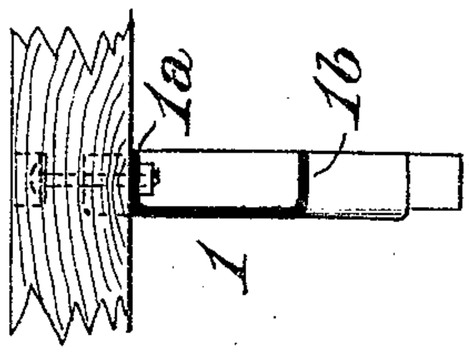


FIG. 4.

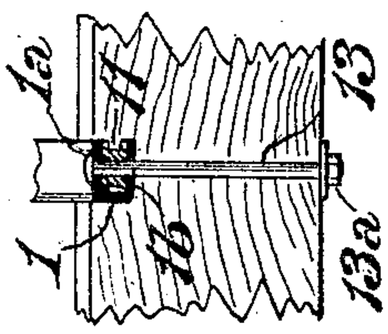


FIG. 5.

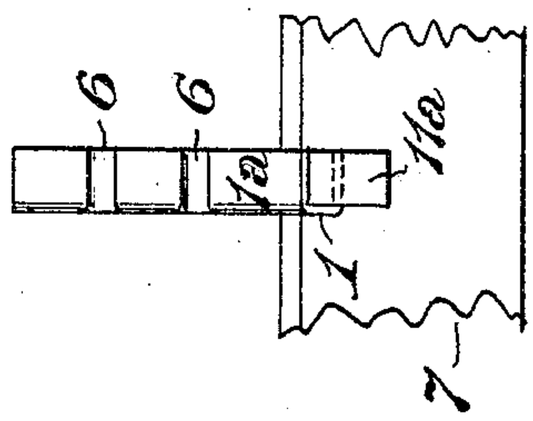
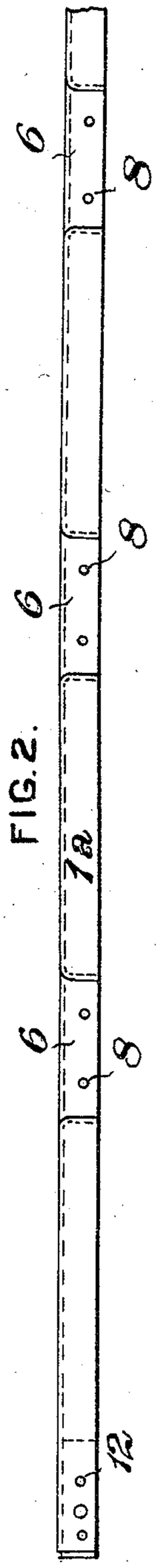


FIG. 2.



WITNESSES

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No. 773,954. PATENTED NOV. 1, 1904.

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ROOF CARLINE.

APPLICATION FILED JULY 27, 1904.

NO MODEL. 2 SHEETS—SHEET 2.

FIG. 6.

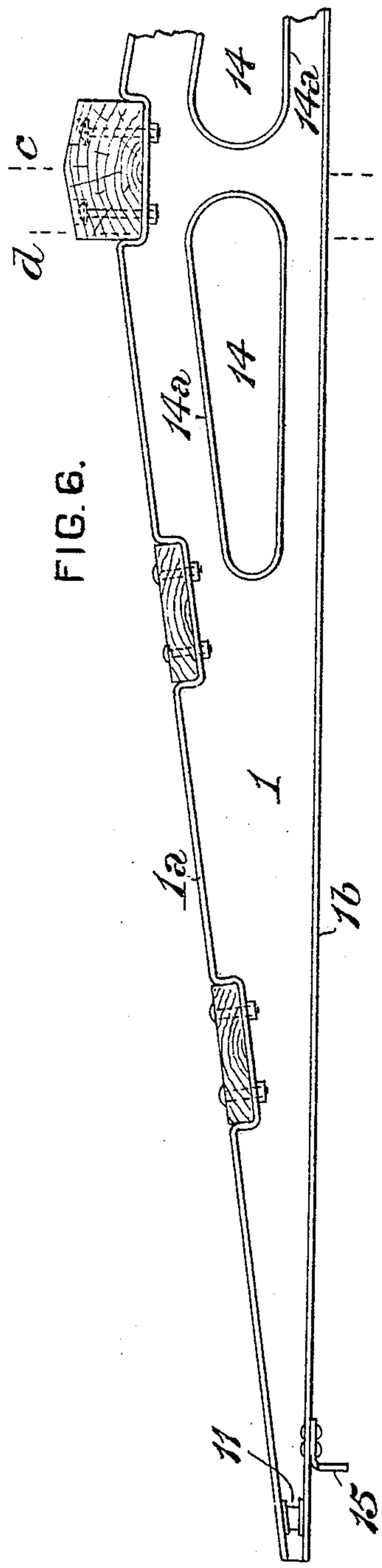


FIG. 8.

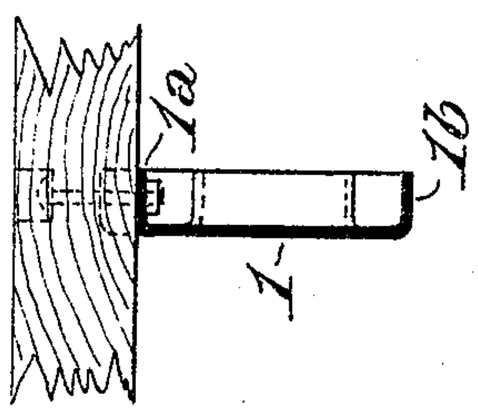


FIG. 9.

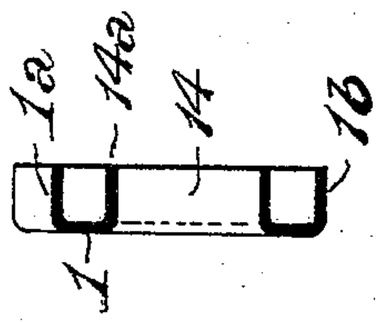


FIG. 10.

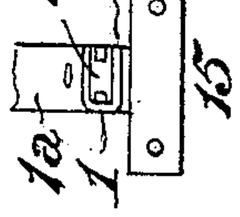
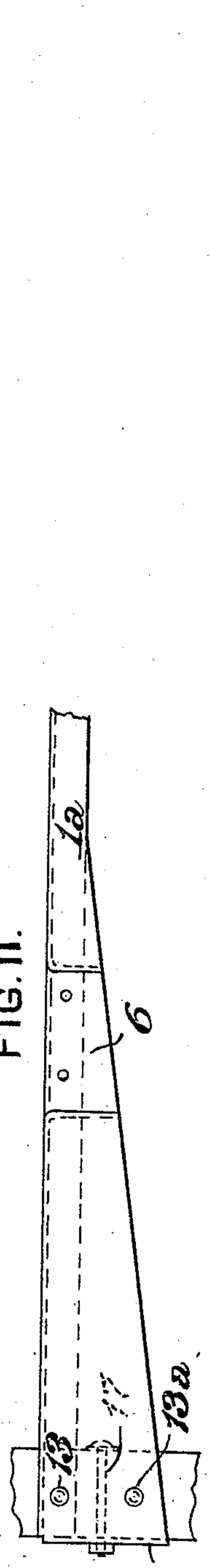


FIG. 7.

FIG. 11.



WITNESSES

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No. 773,954. Patented November 1, 1904.

UNITED STATES PATENT OFFICE.

GEORGE B. MALTBY, OF CLEVELAND, OHIO, ASSIGNOR TO CLEVELAND CAR SPECIALTY COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF WEST VIRGINIA.

ROOF-CARLINE.

SPECIFICATION forming part of Letters Patent No. 773,954, dated November 1, 1904.

Application filed July 27, 1904. Serial No. 218,340. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. MALTBY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Roof-Carlines, of which improvement the following is a specification.

My invention relates to sheet or plate metal roof-carlines of the general type which is exemplified in Letters Patent of the United States No. 649,171, granted and issued to me and to Broderick Haskell (as assignee of two-thirds of the right) under date of May 8, 1900, and in Letters Patent of the United States No. 742,465, granted and issued to the Cleveland Car Specialty Company (as my assignee) under date of October 27, 1903.

The object of my present invention is to provide a roof-carline which shall embody the advantageous features of those set forth in Letters Patent Nos. 649,171 and 742,465, aforesaid, and which shall afford further improved facilities for attachment to a car-frame side plate and for the reception of a wood filler, if desired.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side view in elevation of slightly more than one-half in length of a roof-carline embodying my invention; Fig. 2, a plan or top view of the same portion thereof; Figs. 3 and 4, transverse sections on the lines *a a* and *b b*, respectively, of Fig. 1; Fig. 5, an end view in elevation; Fig. 6, a side view in elevation of slightly more than one-half in length of a roof-carline, illustrating a modification of structural detail; Fig. 7, a plan or top view of the same portion thereof; Figs. 8 and 9, transverse sections on the lines *c c* and *d d*, respectively, of Fig. 6; Fig. 10, an end view in elevation, and Fig. 11 a plan view of one of the end portions of a carline having its upper flange widened at and adjoining its ends.

Referring first to Figs. 1 to 5, inclusive, in the practice of my invention I provide a roof-carline, which is formed of sheet or plate metal, preferably, by being pressed or shaped in a die or mold. The body of the carline is integral and of channel-section, comprising a vertical web 1 and upper and lower lateral flanges 1^a and 1^b, both projecting from the same side of the vertical web, which web gradually diminishes in depth from its middle toward each of its ends and is also downwardly inclined from its middle to each of its ends, its upper flange being at such an angle on each side of its middle portion as may be adapted to impart the desired pitch to the roof. The web is therefore subject to shearing strain, and the upper and lower flanges are respectively tension and compression members. As the flanges project from the web one directly above the other, they provide an intermediate space for receiving the end filling-blocks presently to be described and in which, if desired, a filling-strip of wood may be inserted and be secured by bolts to the web of the carline.

In order to provide suitable bearings for the ridge-pole and purlins of the roof, the metal of the web 1 and upper flange 1^a is, as in the carline of Letters Patent No. 742,465, aforesaid, turned outwardly at the middle of the carline and at suitable distances therefrom between the middle and the ends, so as to form seats or pockets 6 of channel-section in which the ridge-pole and purlins are fitted and to which they are secured by bolts passing through perforations 8 in the seats.

The carline is secured to the side plates 7 of the car-frame through cast-metal filling-blocks or spacers 11, which are fitted in the open spaces between the upper and lower flanges of the carline and are secured to said flanges by bolts or rivets 12. The filling-blocks are provided with downwardly-extending lips or flanges 11^a, which abut against the outer faces of the side plates, and the carlines are connected to the side plates by vertical bolts 13, which pass through the upper and

lower flanges and the interposed filling-blocks and are provided with nuts 13ª abutting on the bottoms of the side plates.

The carline shown in Figs. 6 to 11, inclusive, accords in all substantial particulars with that above described, its minor structural modifications being the following: The carline is straight on its under side—that is, it has no camber—and the web 1 is lightened and stiffened by cutting out a portion of its metal on each side of its middle, so as to provide openings 14, having flanges 14ª around their edges. The filling-blocks 11 are, as in the instance first described, fitted in the space between the upper and lower flanges of the carlines, but are not riveted thereto, being in this case in the form of thimbles through which and through the flanges the bolts 13, which secure the carline to the side plates, are passed. As an additional connecting means brackets or angle-pieces 15 may be riveted to the lower flange 1ᵇ, said brackets abutting against the inner faces of the side-plates and being secured thereto by horizontal bolts 16.

As shown in Fig. 11, the upper flange 1ª may, if desired, be widened at and adjoining the ends of the web and be thence tapered inwardly to its normal width. The upper flange is in this case turned to form downwardly-extending lips 1ᵈ at its ends, which lips abut against the outer faces of the side plates and are secured thereto by horizontal bolts 17. The carline is also connected to the side plates by vertical bolts 13, passing through the filling-blocks, as before described, and may be further secured by supplemental vertical bolts 13ª, passing through the widened portions of the flanges and through the side plates.

In addition to the advantages of strength, lightness, and facility of application in ordinary car-framing which are possessed by the carlines of the Letters Patent hereinbefore referred to my present invention embodies those of capability of manufacture at reduced cost, greater vertical stiffness and strength for the same amount of material, and improved facilities for the connection of the carline to the side plates.

I claim as my invention, and desire to secure by Letters Patent—

1. A sheet or plate metal roof-carline having an integral body of channel-section, comprising a vertical web which gradually diminishes in depth from its middle toward its ends, and upper and lower lateral flanges projecting from the same side of the web and presenting an intermediate open space adapted to receive connecting members at its ends.

2. A sheet or plate metal roof-carline having an integral body of channel-section, comprising a vertical web which gradually diminishes in depth from its middle toward its ends, upper and lower lateral flanges projecting from the same side of the web and presenting an intermediate open space adapted to receive connecting members at its ends, and downwardly-turned lips on the ends of the upper lateral flange.

3. A sheet or plate metal roof-carline having an integral body of channel-section comprising a vertical web which gradually diminishes in depth from its middle toward its ends, upper and lower lateral flanges projecting from the same side of the web and presenting an intermediate open space adapted to receive connecting members at its ends, the upper lateral flange being outwardly extended, at and near its ends, to a greater width than at its middle portion and thence tapering inwardly, and downwardly-turned lips on the ends of the upper lateral flange.

4. A sheet or plate metal roof-carline having an integral body of channel-section, comprising a vertical web which gradually diminishes in depth from its middle toward its ends and has longitudinal flanged openings in its body and upper and lower lateral flanges projecting from the same side of the web and presenting an intermediate open space adapted to receive connecting members at its ends.

5. A sheet or plate metal roof-carline having an integral body of channel-section, comprising a vertical web which gradually diminishes in depth from its middle toward its ends, upper and lower lateral flanges projecting from the same side of the web and presenting an intermediate open space adapted to receive connecting members at its ends, and laterally-projecting seats or pockets, of channel-section, formed in the web and upper flange.

6. The combination of a sheet or plate metal roof-carline having an integral body of channel-section, comprising a vertical web which gradually diminishes in depth from its middle to its ends and upper and lower lateral flanges projecting from the same side of the web, filling-blocks fitting in the space between the flanges, at the ends of the carline, car-frame side plates, and connecting-bolts passing through the flanges, filling-blocks, and side plates.

7. The combination of a sheet or plate metal roof-carline having an integral body of channel-section comprising a vertical web which gradually diminishes in depth from its middle to its ends and upper and lower lateral flanges projecting from the same side of the web, car-frame side plates, filling-blocks fitting in the space between the flanges, at the ends of the carline, and having depending flanges abutting against the side plates, and connecting-bolts passing through the flanges, filling-blocks, and side plates.

8. The combination of a sheet or plate metal roof-carline having an integral body of channel-section comprising a vertical web which gradually diminishes in depth from its middle to its ends and upper and lower lateral flanges projecting from the same side of the web, filling-blocks fitting in the space between the flanges, at the ends of the carline, car-frame side plates, brackets secured to the lower lateral flange of the carline and abutting against the side plates, horizontal connecting-bolts passing through said brackets and through the side plates, and vertical connecting-bolts passing through the flanges, filling-blocks, and side plates.

GEORGE B. MALTBY.

Witnesses:
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F. C. TEGTMILLER.