J. L. MOHUN.

CAR ROOF.

APPLICATION FILED OCT. 19, 1910.

1,069,563.

Patented Aug. 5, 1913

2 SHEETS—SHEET 1.

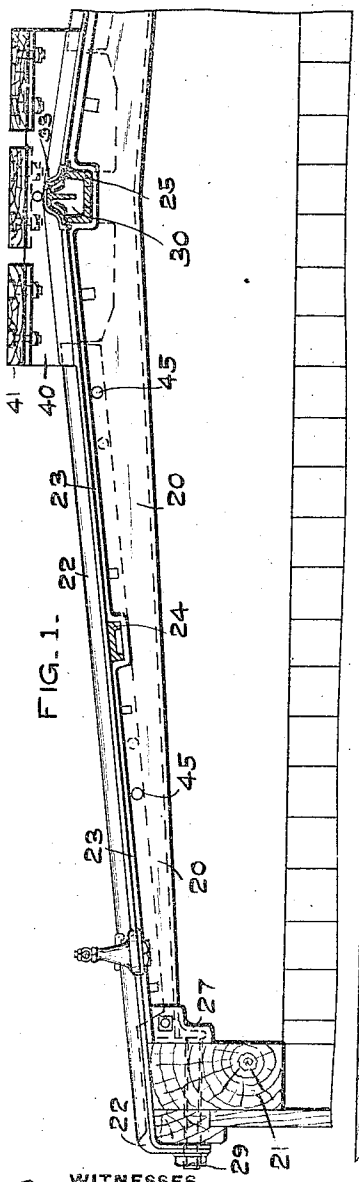


FIG. 1.

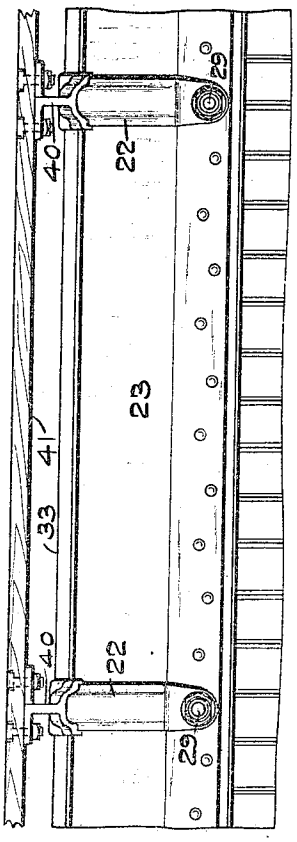
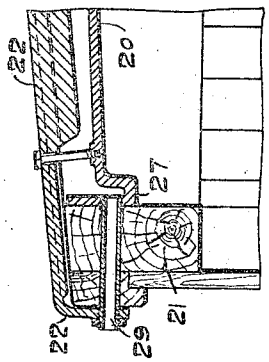


FIG. 2.



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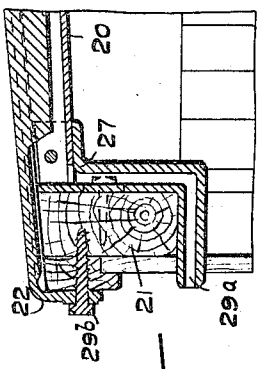

FIG. 8.

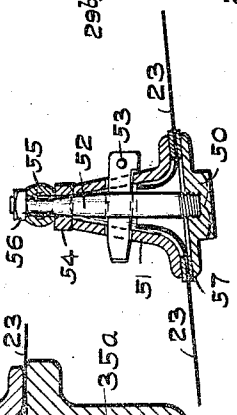

FIG. 10.

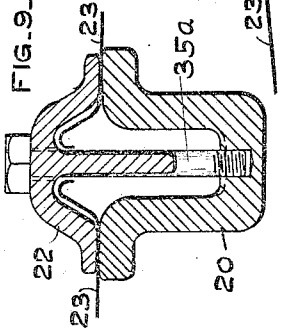

FIG. 9.

WITNESSES

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2 SHEETS—SHEET 2.

FIG. 3.

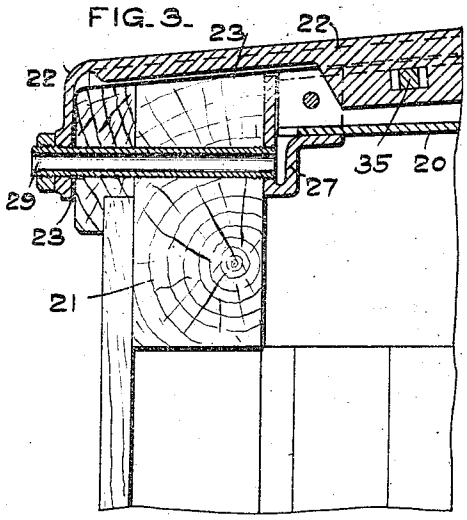


FIG. 4.

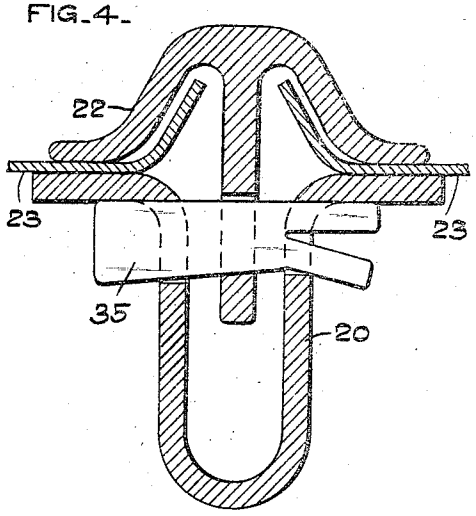


FIG. 5.

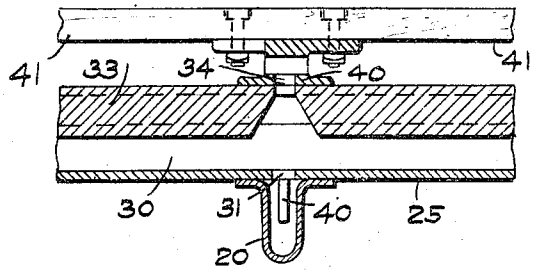
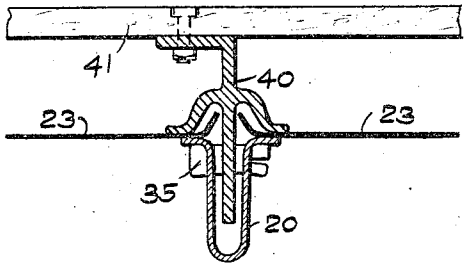


FIG. 6.



WITNESSES

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CAR-ROOF.

1,069,563. Specification of Letters Patent. Patented Aug. 5, 1913.

Application filed October 19, 1910. Serial No. 587,804.

To all whom it may concern:

Be it known that I, JOHN L. MOHUN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Car-Roofs, of which the following is a specification.

This invention relates to car roofs, and has for its general object to provide an improved metal roof structure which shall be durable, strong, and flexible, and in which any rain or water that may be driven in over the edge of the metal roof sheets shall drain off through the hollow carlines and discharge over the side plates of the car.

Another object is to provide improved connecting means for supporting the metal carlines at the side plates of the car.

Another object is to provide an improved saddle or bracket for supporting the running board and holding together the roof members at the ridge.

Still another object is to provide improved means for fastening a handhold or other attachment to the thin metal roof sheets.

These and other objects will hereinafter more fully appear from the following description and claims:

In the accompanying drawings: Figure 1 is a transverse sectional view of a portion of a car roof embodying a preferred form of my improvements; Fig. 2, a side elevation of the same; Fig. 3, a transverse section of a portion of the roof at the side plate of the car, said section being taken through the center of a carline and showing the side plate bracket connection; Fig. 4, a transverse section of a carline, upon a larger scale; Fig. 5, a vertical longitudinal section through the center of the car ridge; Fig. 6, a transverse section of the running board saddle taken at one side of the ridge pole; Fig. 7, a view similar to Fig. 3, but showing a slight modification in which the side plate bracket is formed integral with the carline; Fig. 8, a similar view showing another modification in which the drain passage extends out below the side plate; Fig. 9, a transverse section of a carline showing a slight modification; and Fig. 10, a vertical sectional view of the improved means for connecting a handhold or other attachment to the roof plate.

According to the construction shown in the drawings, the metal roofing sheets or plates, 23, which may be of galvanized steel, are supported at their side edges upon the metal carlines, 20, which are preferably constructed of U shaped steel sections and supported at the side plates, 21, upon brackets, 27, which are preferably formed with a pocket for receiving drainage water from the channel in the carline and discharging through a passage, 29, to the outside of the car. As shown in Figs. 1, 3, and 7, this passage, 29, is in the form of a hollow bolt extending through the side plate, 21, and which may also be used to fasten the down turned end of the carline cap, 22. In the modification shown in Fig. 8, the drain passage, 29^a, in bracket, 27, leads out below the side plate and the screw, 29^b, is used for fastening the end of the carline cap, 22. It will be apparent that this side plate bracket, 27, may be formed separate from the carline and bolted thereto, as shown in Figs. 1, 3, and 8, or formed integral therewith as shown in Fig. 7.

The roof sheets, 23, are provided with down turned edges at the eaves and ends of the car, and may be fastened in any convenient manner, as by means of wire nails, while the edges of the roof sheets along the sides over the carlines and at the ridge may be turned up as shown more clearly in Fig. 4. The carlines and the upturned edges of the roof plates, 23, are covered by the carline caps, 22, which are preferably formed with central vertical webs and side flanges having grooves to accommodate the upturned edges of the roof sheets, as clearly shown in Fig. 4.

The carline cap, 22, is preferably secured to the carline, 20, by means of wedge keys, 35, which extend through slots in the web of the cap and side walls of the U shaped carline, whereby the cap may be drawn down tightly upon its roof sheets, and be made to clamp the edges of the same between the flanges of the carline and cap. The sheets are not rigidly held, however, but are sufficiently loose to permit of a sliding movement which makes a flexible construction and provides for the contraction and expansion of the roof sheets and the weaving motion of the car.

Fig. 9, shows a slight modification in which the cap, 22, is secured to the carline, 20, by means of a clamping bolt, 35^a, and the upturned edges of the roof sheets, 23, are turned over so that any water which may

be forced in beneath the cap and over the edge of the sheet may readily drain into the channel in the carline and discharge out through the pocket and passage in the side plate bracket, 27. The turned over edges may obviously be made longer or shorter, as desired.

The carlines are formed with recesses for receiving the purlins, 24, and the ridge pole, 25, which may be of wood, iron or steel, preferably of channel sections, as shown, the ridge channel forming a gutter, 30, extending longitudinally and communicating with the hollow carlines through openings, 31, (see Fig. 5.) A ridge cap, 33, of a section similar to the carline caps, 22, is provided for covering the ridge channel and the edge of the roof sheets, 23, which may also be turned up at the ridge as shown.

As a means for holding down the ridge caps and supporting the running board, I provide a running board saddle or bracket, 40, which extends over the ends of the carline caps, 22, and the ridge cap, 33, and has a vertical web extending down within the carline, 20, where it is secured by wedge keys, 35, in the same manner as the carline caps, the web being notched or cut away at the center to receive the ridge pole. This saddle, 40, is also provided with an upwardly extending web having flanges at the top to which the running board, 41, may be bolted, as shown in Figs. 1, 4, and 5. The saddle thus forms a continuation of the carline cap at the ridge, and serves not only to support the running board, but also to cover and hold down the ridge cap and the carline caps, thereby producing a rainproof construction which is also strong and flexible.

By means of the clamping connection between the carline cap and carline whereby the flanges of the cap may be drawn down closely upon the roof sheets, a substantially water tight joint may be obtained, but if any water or moisture should be forced in under the cap, the upturned edges of the sheets will tend to prevent the water from passing over the edges of said sheets. If there is any leakage over these edges, however, it will fall into the channel of the carline and drain off over the side plates of the car, and in the same manner, if any water be forced in over the edge of the roof sheets at the ridge, it will collect in the ridge gutter and drain off through the openings, 31, and the channel in the carlines, thereby providing a thoroughly rainproof roof construction.

Vent openings, 45, may be made in the sides of the carlines, 20, and other vent openings, 34, lead from the gutter in the ridge to the outside atmosphere at the running board saddles, whereby a free circulation of air is obtained from the inside of the car and through the hollow carlines and ridge pole, thus providing a complete system of ventilation and preventing the accumulation of foul gases, moisture and rust.

In order to secure a handhold or other attachment to the thin metal roof sheets, 23, I have shown in Fig. 10, a device comprising a post or stem, 52, extending through an opening in said roof sheet, 23, having an upwardly projecting flange surrounding the opening, the post being provided with a plate, 50, on the underside of the roof to engage the surface around the opening. A hollow conical bracket member, 51, is placed over the stem, 52, and the upturned flange of the roof sheet, and has a flaring flange at its base for engaging the upper surface of the roof sheet. The hand hold bar, 55, or other attachment, has an opening through which the stem, 52, extends, and may be securely clamped thereon, by means of the nut, 56. A washer, 54, may also be mounted on the stem between the handhold and the base or bracket member.

The flared conical base makes a stiff support for the attachment, and by screwing up the nut, 56, the roof sheet is securely clamped between the flanges of the inside plate, 50, and the outside base, 51, thereby making a water tight joint. A gasket, 57, may be used between these flanges and the roof sheet, if desired. In order to prevent the parts from falling within the car, in case the nut, 56, should accidentally come off, a key or cotter, 53, is provided, extending through the base, 51, and the stem, 52. This will effectually hold the parts in place, even with the clamping nut removed.

Having now described my invention, what I claim and desire to secure by Letters Patent, is:

1. In a car roof, the combination of U shaped metal carlines having depressed seats at the ridge, a metal ridge pole supported in said seats on the carlines, and having a drain channel, roofing sheets having their side and top edges supported upon said carlines and ridge pole respectively over said drain channels, carline caps covering the side edges of said roof sheets and the channel in the carlines, and a ridge cap covering the top edges of said roof sheets and the channel in the ridge pole.

2. In a car roof, the combination of a U shaped metal carline, roof sheets with edges supported on said carline, a carline cap covering the U shaped carline and having a vertical web extending down between its walls, and a wedge key for clamping the cap down upon the edges of the roof sheets.

3. In a car roof, the combination of a metal carline, having a water conducting channel, a cap for covering same, and a side plate bracket for supporting the end of the carline, and having a passage for draining the water therefrom to the outside of the car.

4. In a car roof, the combination of metal carlines, metal roof sheets supported at their side edges upon said carlines, metal brackets secured to the side plate of the car and supporting the ends of the carlines, and carline caps covering the edges of said roof sheets and having their ends extended over the side plate and fastened to said brackets.

5. In a car roof, the combination of a metal carline having a water conducting channel, a cap for covering same, a side plate bracket supporting the end of the carline, and a hollow bolt extending through the side plate for draining off water from the carline, the carline cap being extended at its end and secured to said hollow bolt.

6. In a car roof, the combination of metal carlines having drain channels, metal roof sheets supported at their edges upon the carlines over said channels, carline caps covering said channels and the edges of the roof sheets, and running board saddles having cap portions covering the edges of the roof sheets and the carline channels at the ridge and extending over the upper ends of the carline caps, and connecting means between the saddles and carlines for clamping the saddles down upon the roof sheets.

7. In a car roof, the combination of metal carlines, a ridge pole supported on said carlines, metal roof sheets supported at their edges upon the carlines and the ridge pole, carline caps covering the side edges of the roof sheets, a ridge cap formed in sections, and covering the upper edges of the roof sheets, and running board saddles having cap portions extending over the ends of the carline caps and the ends of the ridge cap sections, and connecting means between the saddles and carlines for clamping the saddles down upon the roof sheets.

8. In a car roof, the combination of metal carlines having drain channels, metal roof sheets supported on the carlines with their edges over said channels, carline caps covering the edges of said roof sheets, and a running board saddle having a portion extending down into the channel of the carline and rigidly secured thereto, the saddle member also having cap portions extending over the ends and forming a continuation of the carline caps.

9. In a car roof, the combination of metal carlines having drain channels, metal roof sheets supported on the carlines with their edges over said channels, carline caps covering the edges of said roof sheets, a ridge pole supported on the carlines, a ridge cap therefor, and a running board saddle having webs extending down to the carline, on both sides of the ridge pole and rigidly secured to said carline, the saddle also having cap portions extending over the ends and forming a continuation of the carline caps.

10. An attachment for thin metal roof sheets, comprising a stem extending through an opening in said sheet and having a plate for the under side, a bracket or base member surrounding said stem, and having a flange for the upper side of the roof sheet, and a nut on said stem for rigidly clamping the base and the under plate to the roof sheet.

11. An attachment for thin metal roof sheets, comprising a stem extending through an opening in said sheet and having a plate for the under side, a bracket or base member surrounding said stem and opening, and having a flange for the upper side of the roof sheet, a key passing through the base and the stem, and a nut for clamping the base and the under plate to the roof sheet.

12. In a car roof, the combination of a thin metal roof sheet having an opening surrounded by an upturned flange, a stem extending through said opening and having a plate for the under side of the sheet, a brace or bracket member surrounding the stem and said flange on the upper side of the sheet, and a nut on said stem for rigidly clamping the base and under plate to the roof sheet.

In testimony whereof I have hereunto set my hand.

JOHN L. MOHUN.

Witnesses:
A. G. ELVIN,
C. L. WINEY.