

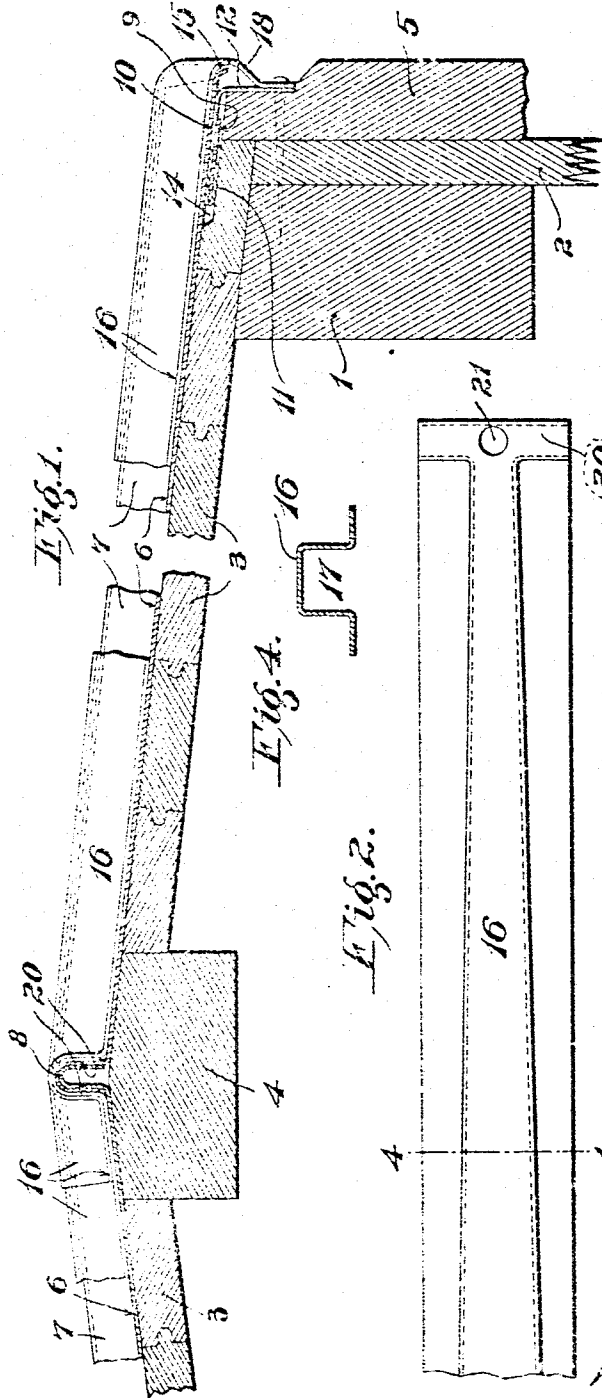
P. H. MURPHY.
CAR ROOF.

APPLICATION FILED APR. 14, 1909.

950,947.

Patented Mar. 1, 1910.

3 SHEETS—SHEET 1.



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3 SHEETS—SHEET 2.

Fig. 5.

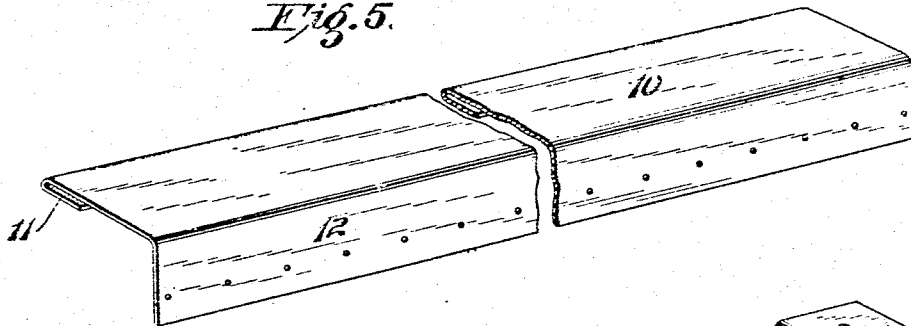


Fig. 6.

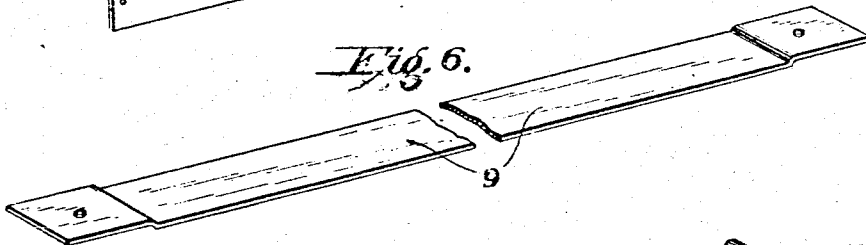


Fig. 7.

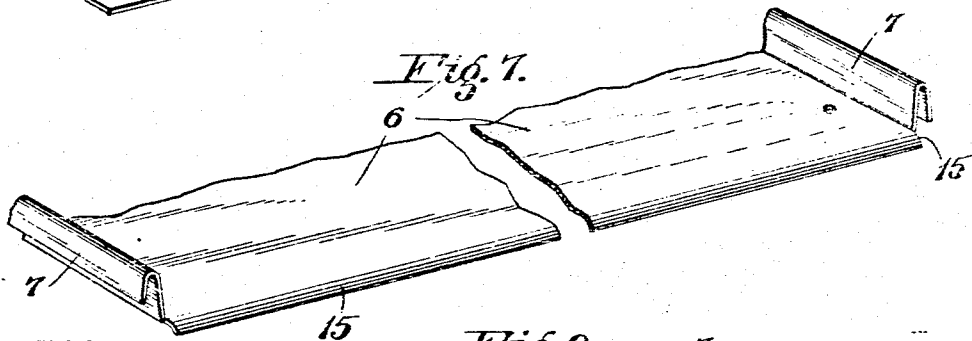


Fig. 8.

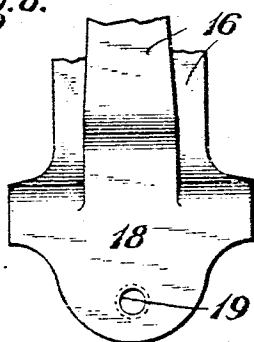


Fig. 9.

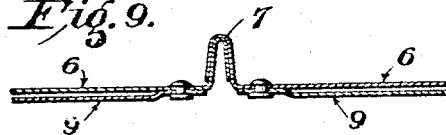
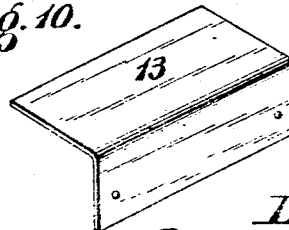


Fig. 10.



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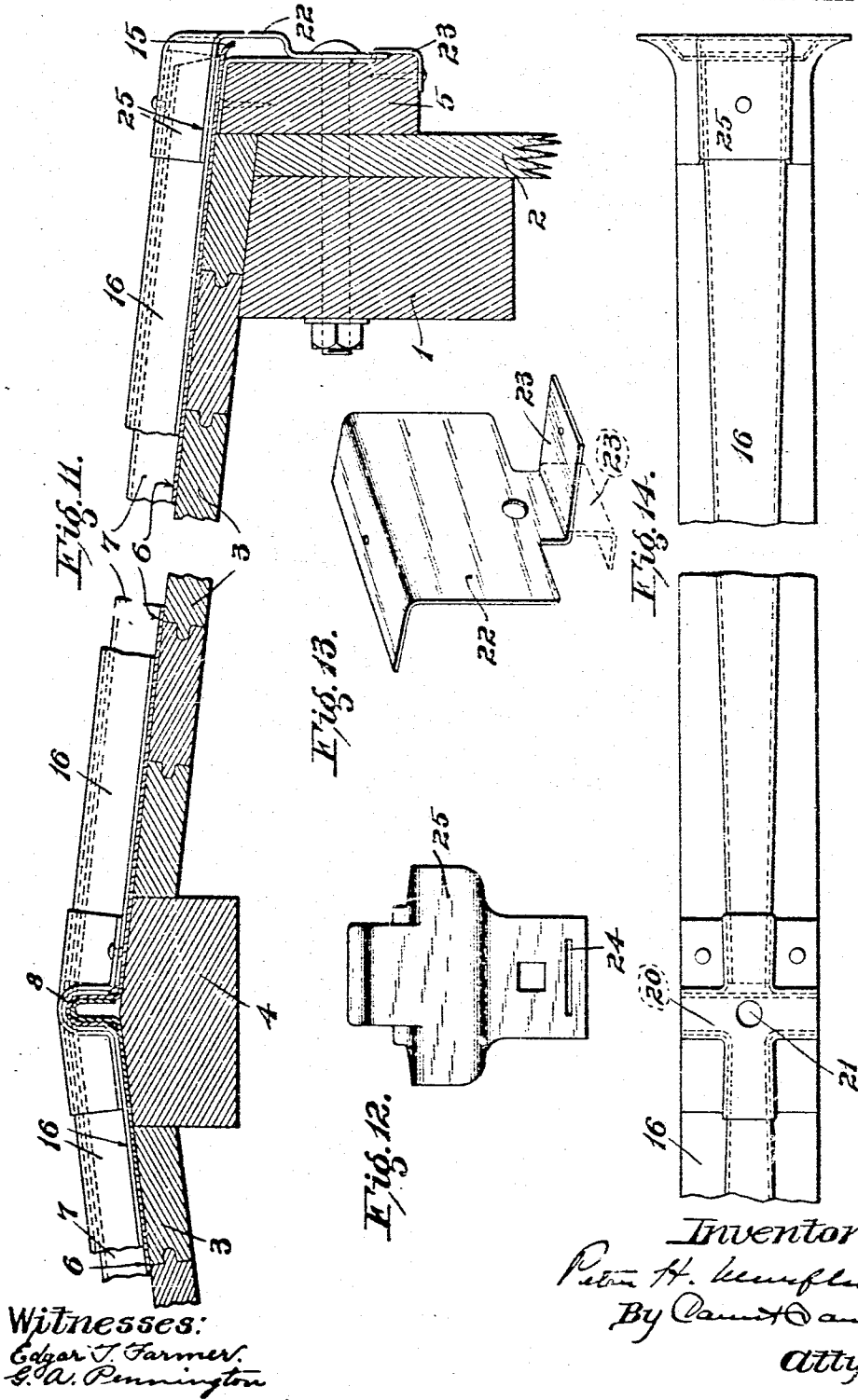
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

PETER H. MURPHY, OF PITTSBURG, PENNSYLVANIA.

CAR-ROOF.

950,947.

Specification of Letters Patent.

Patented Mar. 1, 1910.

Application filed April 14, 1909. Serial No. 489,837.

To all whom it may concern:

Be it known that I, PETER H. MURPHY, a citizen of the United States, and a resident of the city of Pittsburg, county of Allegheny, and State of Pennsylvania, have invented a new and useful Improvement in Car-Roofs, of which the following is a specification.

My invention relates to car roofs, and has for its principal objects to fasten the metal roof sheets in such a way that said sheets shall be movable relative to the sheathing and shall be substantially free from bending and tearing stresses at the eaves; also to guard against the admission of water under the metal sheets at the eaves without binding the ends of the sheets or having to turn them down a considerable distance over the eaves; also to make the seam caps contribute to the strength of the car structure; and to attain other advantages hereinafter appearing.

The invention consists principally in providing the roof sheets with retaining strips close to the eaves and adapted to interlock with fasteners secured to the substructure.

It also consists in providing the roof sheets with nailing strips adapted to secure the roof sheets in place to permit them to accommodate themselves without strain at the eaves to the various distortions of the substructure.

It also consists in seam caps adapted to hold down the roof sheets, to protect the seams, to accommodate the required movements thereof, and to serve as secondary outside carlines.

The invention also consists in the arrangements and combinations of parts herein-after described and claimed.

In the accompanying drawing, which forms part of this specification, and wherein like symbols refer to like parts wherever they occur, Figure 1 is a cross section of a portion of the car embodying my invention; Fig. 2 is a plan view of the inner portion of the seam cap illustrated at the left side of Fig. 1; Fig. 3 is a plan view of the seam cap illustrated at the right side of Fig. 1, and of the adjacent portion of the left hand seam cap; Fig. 4 is a cross section of the seam cap on the line 4-4 of Fig. 2; Fig. 5 is a perspective view of a nailing strip; Fig. 6 is a perspective view of a retaining strip, which is mounted on the underside of a roof sheet;

Fig. 7 is a detail perspective view of the outer end portion of a roof sheet; Fig. 8 is an end elevation of a seam cap; Fig. 9 is a detail sectional view through a roof seam and the adjacent portions of the roof sheets; Fig. 10 is a perspective detail of the flashing strip; Fig. 11 is a cross sectional view of a car embodying a modified form of my invention; Fig. 12 is an end view of the seam clip illustrated in Fig. 11; Fig. 13 is a detail of the flashing strip illustrated in Fig. 11; and, Fig. 14 is a plan view of the seam cap illustrated in Fig. 11.

The woodwork of the car comprises side plates 1, side sheathing 2, roof sheathing 3, a ridge pole 4, and a fascia 5. Metal roof sheets 6 lie flatwise on the roof sheathing and are connected by any suitable joint 7 which will permit movement thereof relative to the roof sheathing. As illustrated in the drawing, the side margins of the sheets have rebent flanges which overlap each other to form ribs or seams; and the ridge ends of the sheets are provided with similar rebent flanges which interlock to form seams 8 at the ridge. The outer end of each sheet has retaining strips 9 mounted on the underside thereof close to and parallel with the eaves. Preferably, these retaining members are strips of sheet metal whose ends are riveted or otherwise secured to the roof sheets, the end portions of such retaining strips being offset upwardly so as to space the body portion thereof from the body of the roof sheet. The roof sheets are held in place by nailing strips 10 which are secured to the body of the car and are flexibly connected to the retaining strips. In the construction illustrated in the accompanying drawing, these nailing strips are sheets of metal which are rebent along one side to form a continuous loop 11 parallel with the body. The body of the nailing strip lies between the metal roof sheet 6 and the retaining strip 9, with the looped end 11 underneath said retaining strip. The outer side 12 of the nailing strip is bent downwardly and nailed flatwise to the eaves. The nailing strip thus constitutes a flashing as well as a means for securing the sheet in position. Under normal conditions, the edges of the retaining strip are spaced from the bend of the loop 11 and from the downturned portion or flange 12 of the nailing strip, respectively, and the ends of the nailing strip are

spaced from the offset portions of the retaining member. In consequence of this arrangement, the roof sheets are free to move to a limited extent in any direction in their respective planes. It is preferable to make the gap between the end of the loop 11 and the downturned flange 12 of the nailing strip narrower than the width of the retaining strip, so that the roof sheets and nailing strip may be assembled and handled together before they are mounted upon the car. By delivering the sheets with the nailing strips already applied thereto, there is less risk of having the careless workman drive nails through the roof sheets.

Underneath each seam is an angular flashing strip 13, whose downturned portion is nailed flatwise against the eaves and whose upper portion extends inwardly a sufficient distance to protect the woodwork from the weather. In order that the end portions of the sheets may lie in the plane of the body portion, the marginal portion of the woodwork has a rabbet 14 formed therein of sufficient depth to accommodate the looped nailing strip. The outer edges of the roof sheets project slightly beyond the nailing strips and are bent downwardly sufficiently to form a drip edge 15. In order to protect the metal portions of the roof against scraping, the lower portion of the fascia is made thick enough to project beyond such metal portions of the roof.

The roof seams 7 are protected by seam caps 16. As illustrated in Figs. 1, 2 and 3, the body portion of the seam cap extends from eaves to ridge and has a longitudinal groove 17 therein of sufficient height and width to accommodate the seam. This longitudinal groove widens gradually from the ridge to the eaves to permit the outer portions of the roof sheets to move laterally therein, that is to say, longitudinally of the car. The outer end 18 of the seam cap is turned downwardly beyond the roof sheets and is fastened to the side of the car. Preferably, the material surrounding the bolt or nail hole is raised or turned inwardly to form an annular rib 19 which may be driven into the woodwork and constitute a lining for the outer portion of the bolt or nail hole. At the ridge, the seam cap is provided with a transverse groove 20 adapted to straddle the ridge seam of the roof sheets. One of the seam caps overlaps the other at the ridge and projects a slight distance beyond the ridge seam, such projecting portion having a longitudinal groove adapted to accommodate the underlying roof seam 7. At the intersection of the longitudinal and transverse grooves of the seam cap is a hole 21 adapted to receive a bolt which extends through the ridge pole.

In the construction illustrated in Fig. 1, the seam cap is made integral and prefer-

ably of sheet metal; and the seam caps on one side of the roof are separate from those on the opposite side.

In the construction illustrated in Fig. 11, the seam cap is made of parts fastened together. In this construction, a corner cap, made preferably of malleable iron, is provided with two intersecting grooves adapted to receive the ridge seam and the transverse roof seams. On the fascias are mounted suitable clips having grooved heads or clips which are turned inwardly over the ends of the respective seams. The corner cap and the two eaves clips are fastened securely together by means of body members riveted thereto and provided with longitudinal grooves adapted to accommodate the transverse roof seams. As in the case of the seam caps above described, the longitudinal grooves widen toward the eaves. By this construction, the seam caps extend from eaves to eaves and contribute materially to the strength of the car structure, especially by functioning as tie rods to prevent the spreading of the sides of the car.

In the construction illustrated in Figs. 11 and 13, the flashing strip 22 has its lower portion 23 narrowed and elongated. This elongated portion extends through an elongated slot 24 provided therefor in the downturned portion of the seam cap or of the seam clip 25, which may be an independent piece. The elongated end portion of the flashing is bent downwardly around the looped edge of the fascia and is nailed to the bottom thereof or otherwise suitably fastened, as illustrated in Fig. 11. In this construction, the flashing is preferably nailed to the top of the fascia also. It is one advantage of this construction that the flashing serves to hold the seam clip in place in case the normal fasteners for said clip shall become loosened and the clip become otherwise disengaged.

Obviously, my device admits of considerable modification without departing from my invention, and therefore I do not wish to be limited to the exact construction shown and described.

What I claim as my invention and desire to secure by Letters Patent is:

1. An outside metal car roof comprising metal sheets arranged transversely of the car and extending from eaves to ridge and having upstanding marginal flanges at their sides, separate retaining members mounted on the underside of said sheets, and nailing and flashing strips secured to the car and arranged to interlock with said retaining strips.

2. An outside car roof comprising metal sheets mounted on the substructure to move transversely thereof and arranged transversely of the car and extending from eaves to ridge and having upstanding marginal

flanges at their sides, retaining strips mounted on the under sides of said sheets near the side of the car, and spaced from the said sheets at both horizontal edges and fastening devices secured to the car and adapted to interlock with said first mentioned strips, said fastening devices being adapted to hold said sheets against vertical movement and limit while permitting movement in their own plane in both directions.

3. An outside metal car roof comprising metal sheets arranged transversely of the car and extending from eaves to ridge and having upstanding marginal flanges at their sides, metal strips mounted on and offset from the underside of said sheets, and nailing and flashing strips secured to the car and arranged to interlock with said retaining strips.

4. An outside metal car roof comprising metal sheets, retaining strips mounted on the underside of said sheets, fastening strips between said sheets and said retaining strips, said fastening strips having their outer portions secured to the car and having their inner portions turned under said retaining strips.

5. An outside metal car roof comprising metal sheets, retaining strips mounted on the underside thereof, and fastening strips secured to the side of the car and having an inwardly turned portion which extends over said retaining strip and thence back under it.

6. An outside metal car roof comprising metal sheets arranged transversely of the car, retaining strips mounted on the underside of said sheets, and nailing and flashing strips secured to the car and interlocking with said retaining strips, the ends of said roof sheets extending beyond said interlocking members and adjacent portions of the substructure and formed into drip edges.

7. A car roof comprising a wooden substructure rabbeted along its outer edges, metal roof sheets having retaining strips on their under sides, and nailing strips secured to the car and extending inwardly over said retaining strip and thence back under it, said inwardly extending portion of the nailing strip lying in said recess.

8. As an article of manufacture, a roof sheet having a retaining strip fastened near one end thereof with its body portion spaced from the sheet, and a second strip whose body portion lies between said first mentioned strip and said sheet, one side of said second strip being rebent to underlie said first mentioned strip and the other side being turned to form a nailing flange.

9. An outside metal car roof comprising transversely arranged relatively movable sheets having interlocked side seams and

seam caps therefor, and means at the ridge for securing said seam caps to the substructure, said seam caps comprising a body portion having a longitudinal groove arranged to straddle the side seam and an end portion turned down and secured to the side of the car, said groove increasing in width from the ridge end toward the eaves end thereof to permit movement of the sheets.

10. An outside metal car roof comprising transversely arranged relatively movable sheets having interlocked side and ridge seams, and seam caps therefor, and means at the ridge for securing said seam caps to the substructure, said seam caps comprising a body portion having a longitudinal groove and end portion turned down and secured to the side of the car, and a transverse groove arranged to straddle the ridge seam, said longitudinal groove increasing in width from the ridge end toward the eaves end thereof to permit movement of the sheets.

11. An outside metal car roof comprising transversely arranged sheets having interlocked side and ridge seams, and seam caps therefor, and means at the ridge for securing said seam caps to the substructure, said seam caps comprising body portions having longitudinal grooves arranged to straddle the side seams and a transverse groove arranged to straddle the ridge seam, and end members turned down and secured to the sides of the car, the body members being secured together at the ridge all arranged so that said sheets are relatively movable.

12. An outside car roof comprising transversely arranged sheets having interlocking side seams and seam caps therefor, and means at the ridge for securing said seam caps to the substructure, said sheets having retaining members mounted on the underside thereof, nailing strips secured to the side of the car and interlocked movably with said retaining members and said seam caps having downturned ends secured to the side of the car all arranged so that said sheets are relatively movable.

13. A car roof comprising roof sheets movably connected by transverse seams, a flashing strip underneath said seams at the eaves and clips mounted at the eaves and engaging said seams, said clips having slots therein and said flashings having narrow elongated portions extending through said slots and secured below said clips.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses this 12th day of April, 1909, at Pittsburg, Pennsylvania.

PETER H. MURPHY.

Witnesses:

J. GARFIELD HOUSTON,
EDW. P. KYLE.