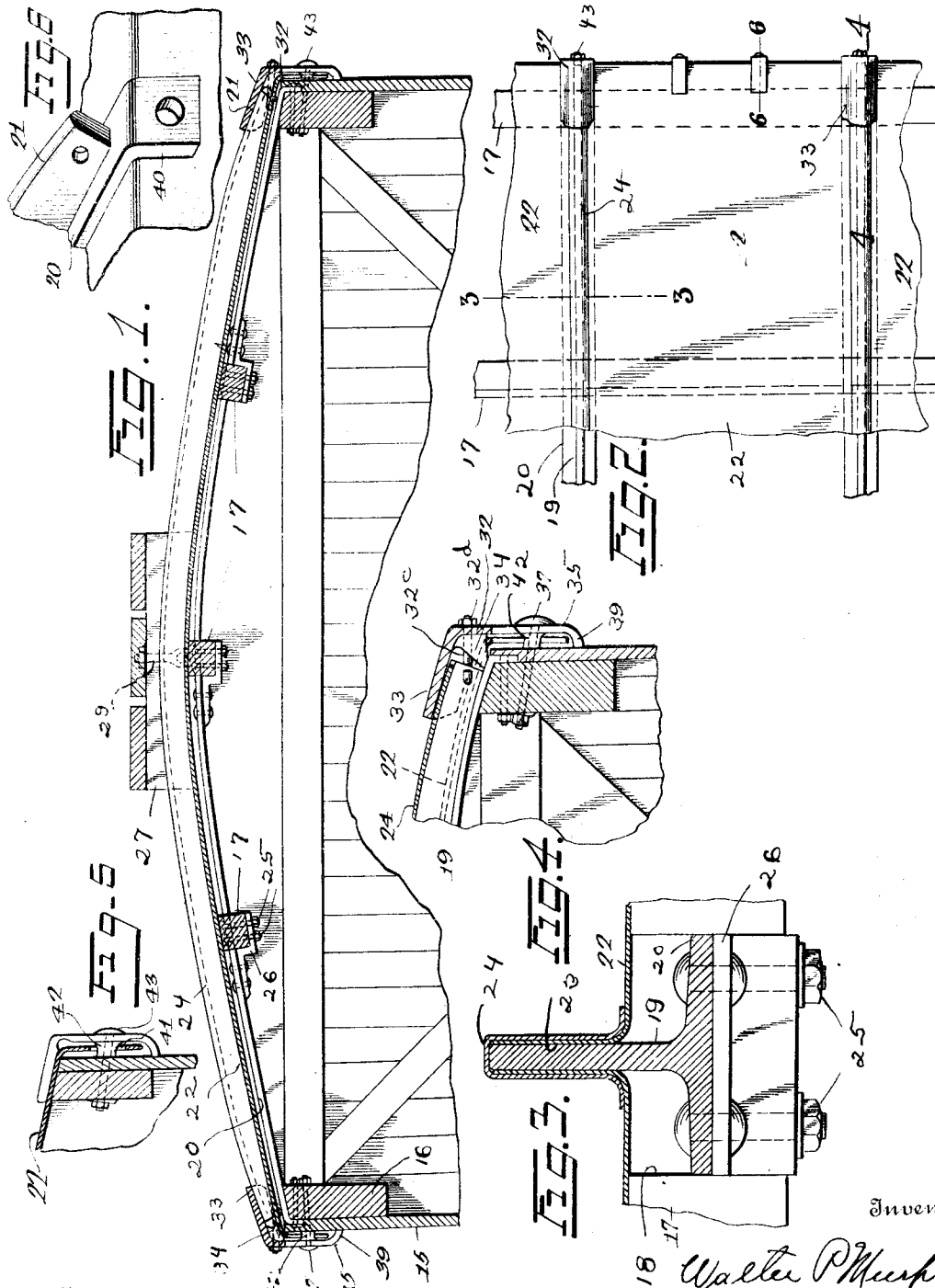


W. P. MURPHY.
CAR ROOF.
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WALTER P. MURPHY, OF ST. LOUIS, MISSOURI.

CAR-ROOF.

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To all whom it may concern:

Be it known that I, WALTER P. MURPHY, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Car-Roofs, of which the following is a specification.

The object of my invention is to produce an all metal roof of simple construction that will withstand the weights usually imposed on such roofs and at the same time adapt itself to the usual strains incident to the travel of a car without tearing the sheets or their fastenings, and with this and minor objects in view my invention consists of the parts and combination of parts as will be more fully hereinafter set forth.

In the drawings Figure 1 is a transverse section of a car broken away, with my roof applied. Fig. 2 is a top plan view of the same, the roofing sheets being partially broken away. Fig. 3 is a section on the line 3—3, Fig. 2. Fig. 4 is a section on the line 4—4 Fig. 2 the carline being shown in elevation. Fig. 5 is an enlarged sectional view on the line 6—6 Fig. 2, showing one of the small eave clips in elevation. Fig. 6 is an enlarged perspective view of the end of the carline.

In the drawings I have illustrated my invention as applied to a car having wooden side sheathing 15 and side plate 16, but it is evident that my improvements may be applied to all metal cars. The purlins 17 are shown as constructed of wood in Figs. 1 and 2, but for all metal cars and for extra large wooden cars, I prefer to construct the purlin of metal to materially strengthen the cars and raise them against end thrusts.

The purlins are notched as at 18 to receive the carlines 19, the foot 20 of the carlines being seated in said notch as shown in Fig. 3. The object of setting the carlines in a notch in the purlins is that I am enabled to use a very heavy T iron to get a strong carline without having too much of a projection on top of the roof, thus enabling me to make a low seam between the sides of the roofing sheets and obviating the danger of trainmen tripping on the same. If seams are very high on a roof, a trainman is apt to trip over them and be thrown from the roof of the car.

The carline is formed on the arc of a circle thus forming a circular roof and enabling me to use a solid roofing sheet ex-

tending from one side of the car to the other, thus eliminating the ridge seam. The web of the carline is cut down on a curve toward its end as at 21 to provide clearance at the eaves of the car for tunnels, bridges, etc., and at the same time further reduce the height of the seam between the roofing sheets at the eaves, thus reducing the area of the opening through which the elements may enter. The roofing sheets 22 are bent upward at their side edges as at 23 a distance equal to the height of the carline above the purlin and fit snugly against the sides of the carline as shown in Fig. 3. A metal cap 24 is fitted over the carline and the ends 23 of the roofing sheets; the lower edges of the cap being bent out to adapt them to fit snugly on the roofing sheets as shown in Fig. 3. If found necessary, the space between the roofing sheets and the top of the foot 20 of the carline, in the notch 18, may be filled with a suitable filler.

The purlins are suspended from the carlines by suitable bolts 25. It has been found that the nuts on these bolts frequently work off and thus the purlins are liable to drop in the car and not only weaken the structure but damage the load. To obviate this, I secure, by riveting, clips 26 to the carlines and pass them under the purlins, the open end of the clips extending toward the center of the car. The saddle 27 for the running board 28 is secured by means of bolts 29.

The clips 32 are provided with a hood 33 constructed to cover the end of the roof seams against the elements; in order to hold this hood up to prevent its edges from coming in contact with the roofing sheets, I provide it with a lug 34 which is constructed to rest on the base of the carline between the upturned side edges 23 of the adjacent roof sheets, thus constituting a firm support for the hood. In order to further support the clips 32, a hole is formed in the carline, near its outer end and one end of a bolt 32^a secured therein, the other end of the bolt being passed through the apron and secured by means of the nut 32^a. This holds the top of the clip firmly against outward movement, thus the clip holds the roofing sheets more firmly against endwise movement. In this construction it is not necessary to make any holes in the top of the roofing sheet cap. In Fig. 4, I have shown a bolt or hook 32^c secured to the vertical

web of the carline and extending through the face of the clip to which it is secured by means of the nut 32^d. This clip is positioned, at the end of a roof seam, and in view of the fact that the base of the metal carline is bent down on the side of the car or fascia, the use of the usual clip would necessitate drilling bolt holes in the end of the carline to fasten the clip. In order to obviate this, I provide the clip with an apron 35 of considerable area with bolt openings to receive bolts 37 which are secured to the side plate 16. Extending below the apron is a lug 39 fitting snugly against the side of the car or fascia. This lug with the apron 35, constitutes a lever to resist the tendency of the roofing sheets slipping endwise.

If found desirable or necessary, the end 40 of the carline may be provided with a bolt opening, whereby it may be secured to the side plate 16. The roofing sheets are bent over the eaves down onto the fascia and are provided with openings 41 in which thimbles or spacing members 42 are positioned. The nail, bolt or other fastening means 43 passes through the thimbles into the fascia to secure the ends of the sheets at the eaves. The bolt 43 is of less diameter than the opening in the thimble, thereby providing for movement of the sheet without placing any stress on the bolt 43 or the sheet, whereby the sheets may adapt themselves to the usual twisting and "weaving" of the car in transit without loosening the fastening at the eaves.

What I claim is:—

1. A car roof including a metal carline of inverted T-shape with its web terminating short of its ends forming notches, movable roof sheets having upturned flanges arranged on each side of said carline, a seam cover positioned over said web and roof sheet flanges and flexibly engaging the latter to retain the roof sheets in position, and a roof clip covering the end of the carline and seam cap at the eaves of the car and having a fastening means secured to the web of the carline in longitudinal alinement therewith.

2. A car roof including a metal carline of inverted T-shape with its web terminating short of its ends forming notches, movable roof sheets having upturned flanges arranged on each side of said carline, a seam cover positioned over said web and roof sheet flanges and flexibly engaging the latter to retain the roof sheets in position, and a roof clip covering the end of the carline and seam cap at the eaves of the car and having a projection extending into the notch left at the end of the web, and having a fastening means secured to the web of the carline in longitudinal alinement therewith.

3. In a car roof, sheets having downturned end flanges overhanging the eaves, openings in said flanges, roof clips spaced from said sheets, said clips having spacing projections on their inner sides bearing against the car body above and below the lower edge of said sheet flanges, and means passing through said clips and said openings for securing said clips to the car body.

4. In a car roof, sheets having downturned end flanges overhanging the eaves, openings in said flanges, roof clips, a spacing member at the lower end of said roof clips bearing upon the car body below the lower edge of the said flanges, and a spacing member intermediate the ends of said clips projecting through the openings in the downturned end flanges of the sheets and bearing on the car body, and means passing through said clips and said openings for securing the clips to the car body.

5. A car roof comprising carlines having a web and laterally extending base flanges, the base flanges extending beyond the ends of the web and bent down and secured to the side plate of the car, roof sheets having upturned side edges which are disposed alongside of the carline, a cap extending from eaves to eaves of the car and covering the carline and upturned edges of the roof sheets, a seam clip having a hood housing the end of the seam, a tongue projecting within the hood to engage the carline, and an apron depending from said hood below the eaves of the car, a fastening passing through the apron and the side of the car to secure the clip to the car below the eaves, and a fastening securing the hood to the carline above the eaves to prevent the hood from tilting.

6. A clip for a car roof having a hood closed at one end and an apron depending from said hood, the closed end of the hood having a bolt opening extending in the direction of the longitudinal axis of the hood, said apron being provided with a bolt opening near its lower end, whereby the clip may be anchored above and below the eaves of a car.

7. A car roof including a carline, and a clip having a hood, an apron depending from the hood, and a tongue arranged within the hood to engage the carline, and a main fastening securing the apron to the side of the car below the eaves, and a secondary fastening securing the hood to the carline above the eaves of the car.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER P. MURPHY.

Witnesses:

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