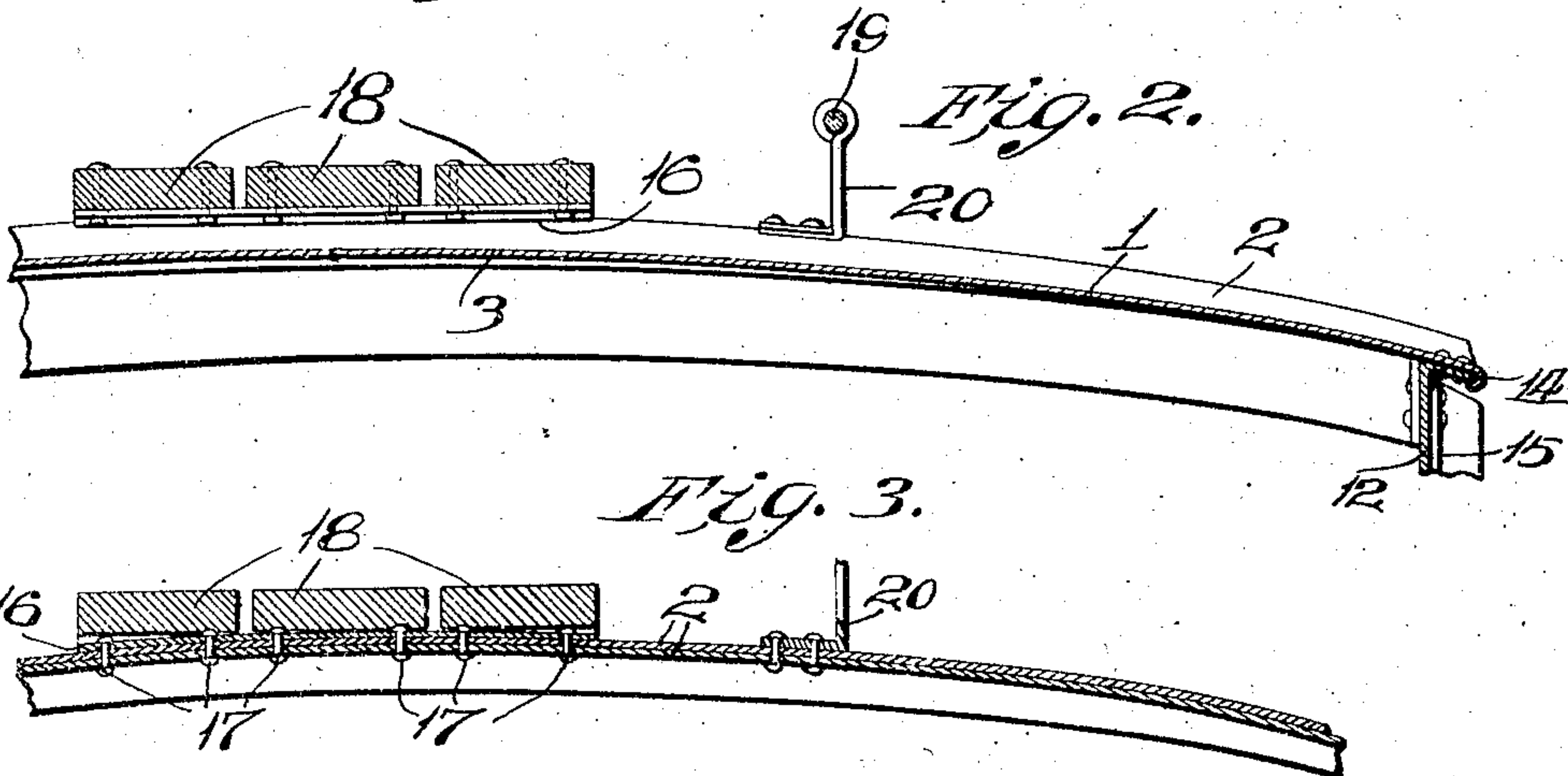
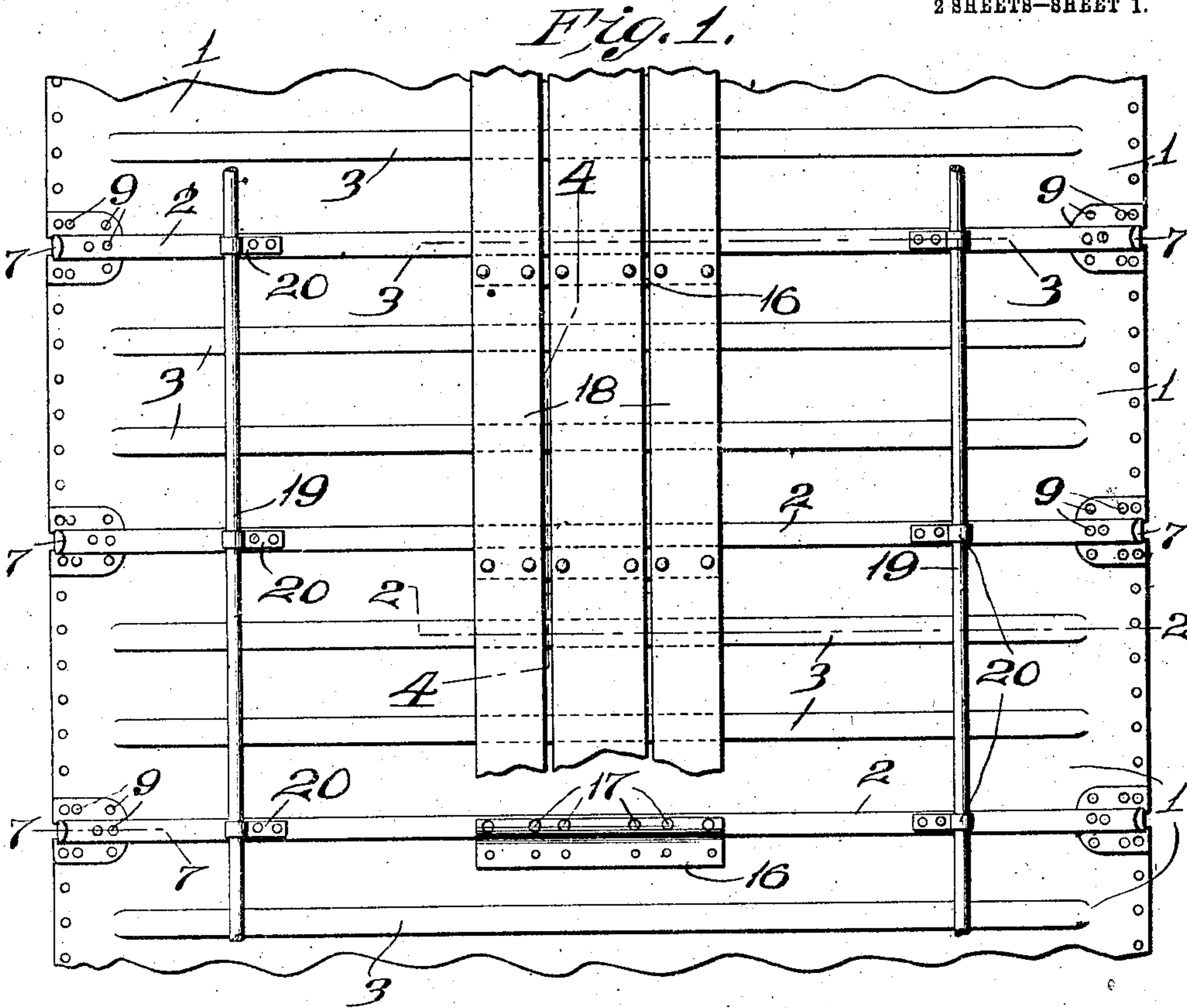


J. J. HOFFMAN.
METAL CAR ROOF.
APPLICATION FILED MAY 19, 1908.

929,221.

Patented July 27, 1909.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 4.

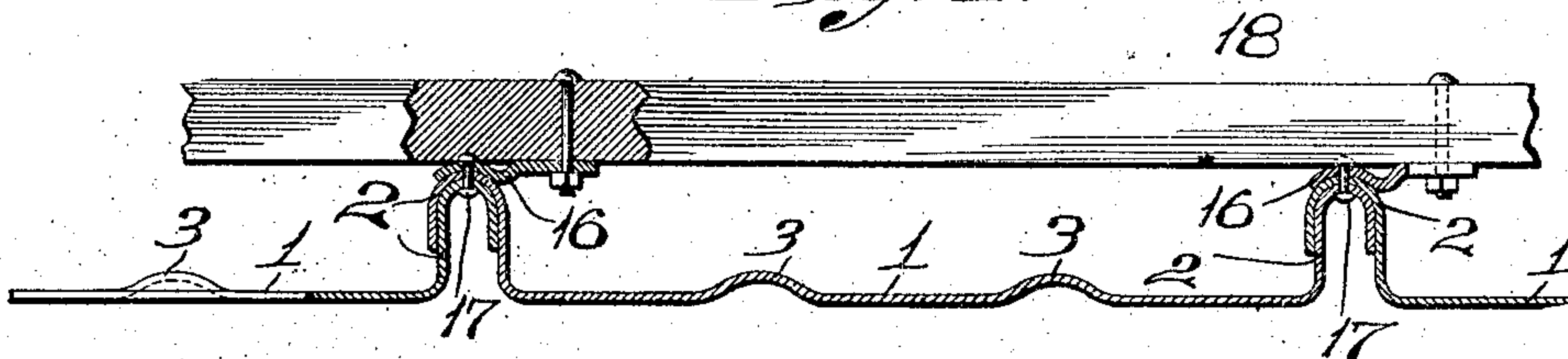


Fig. 5.

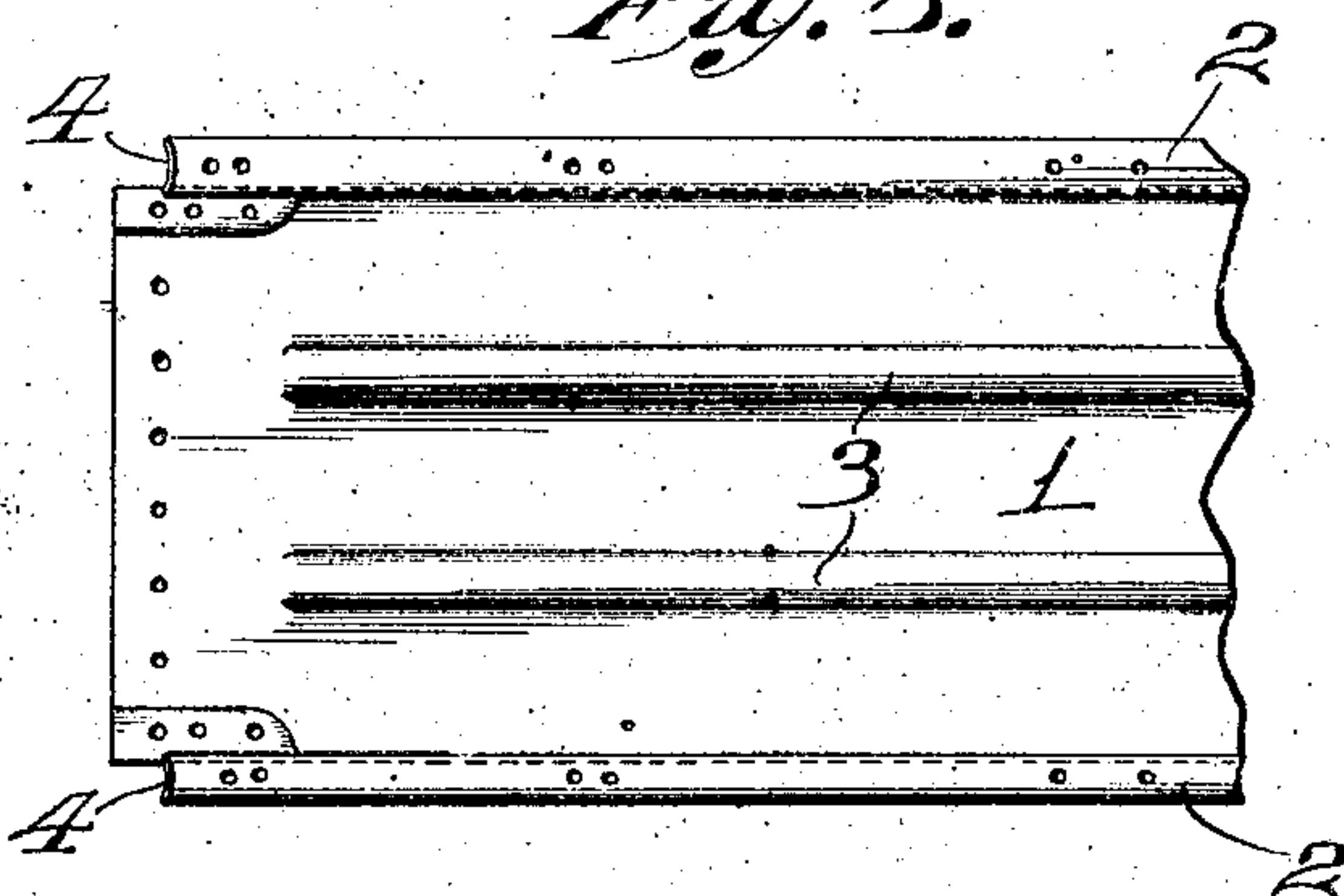


Fig. 6.

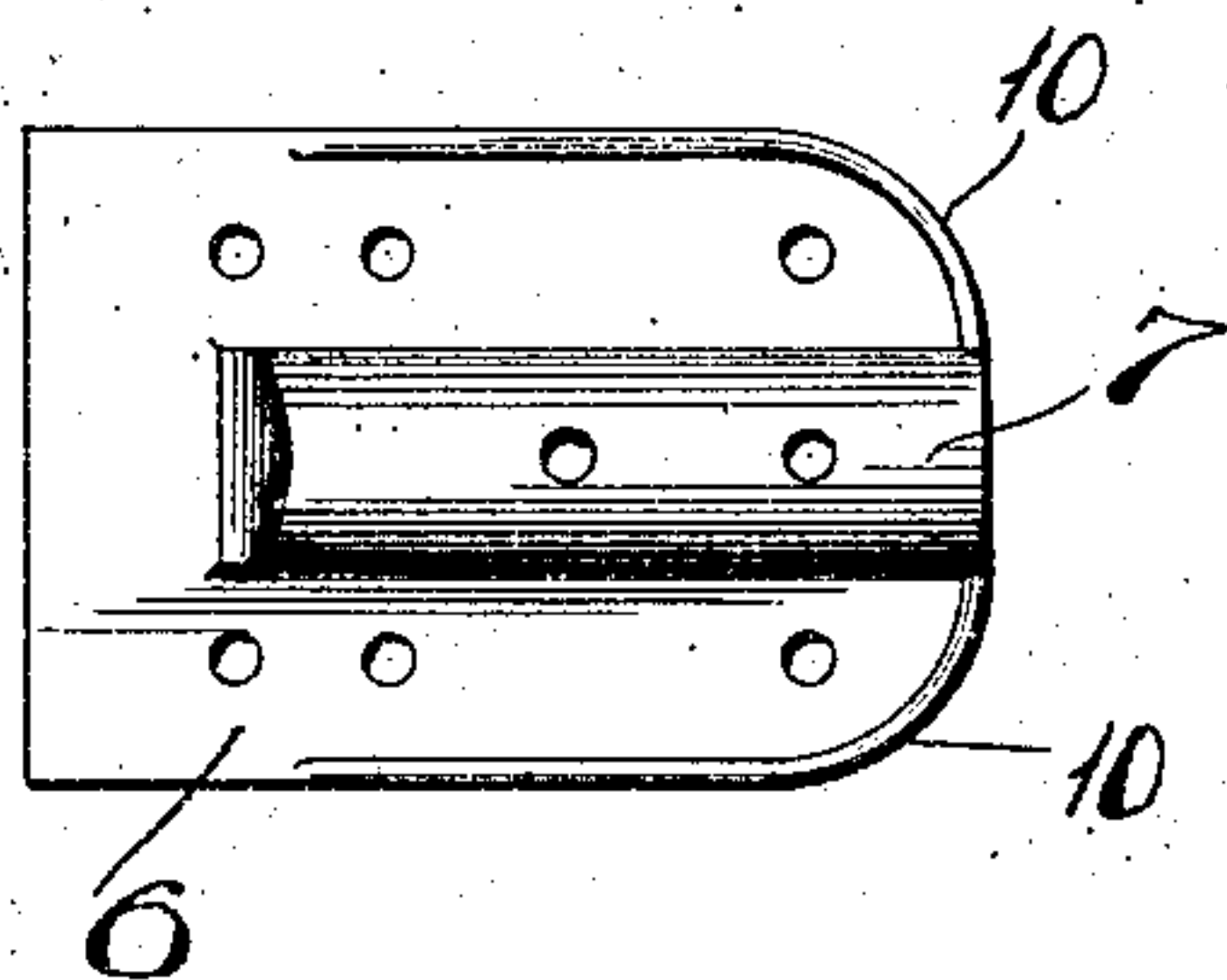


Fig. 7.

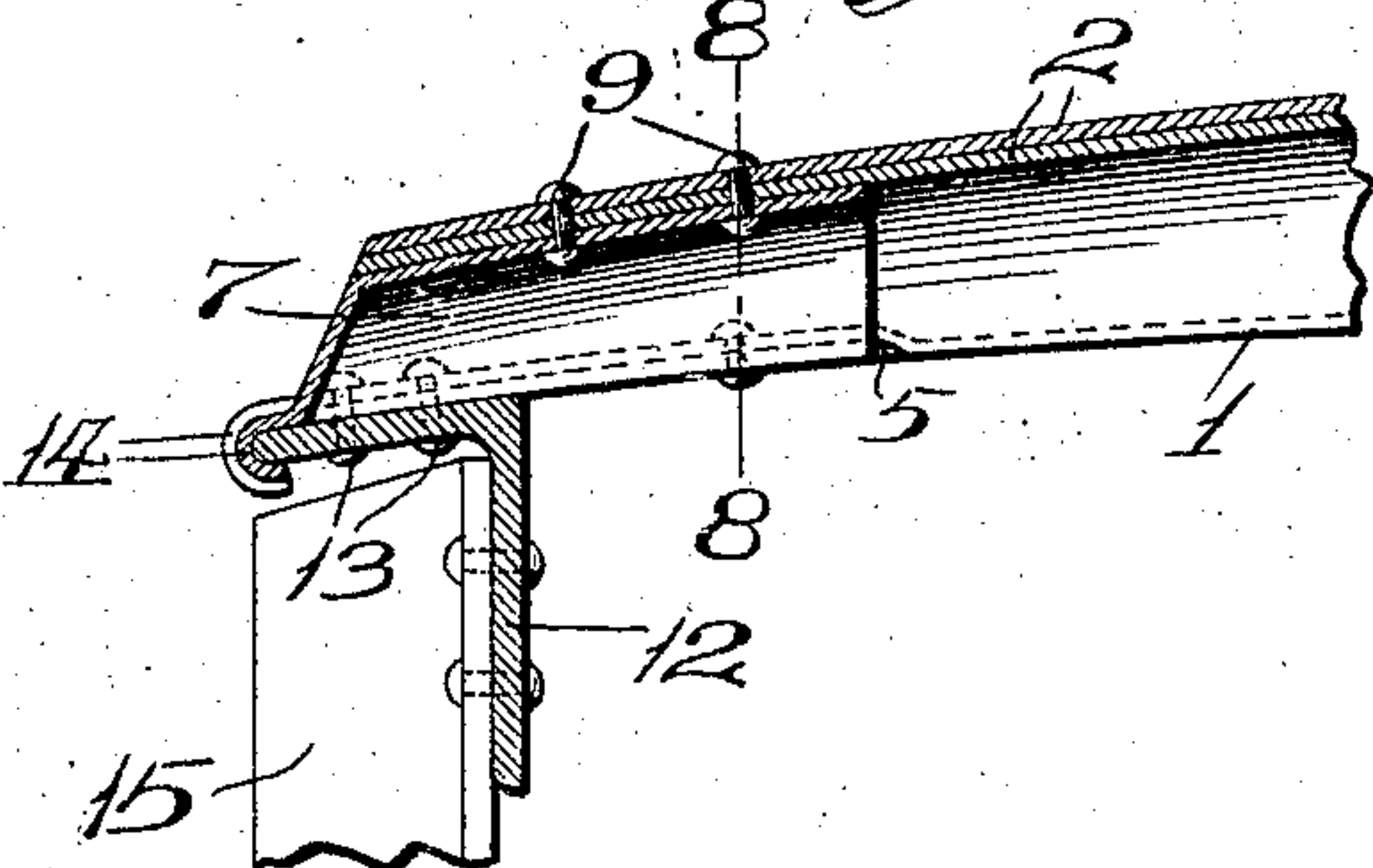


Fig. 8.

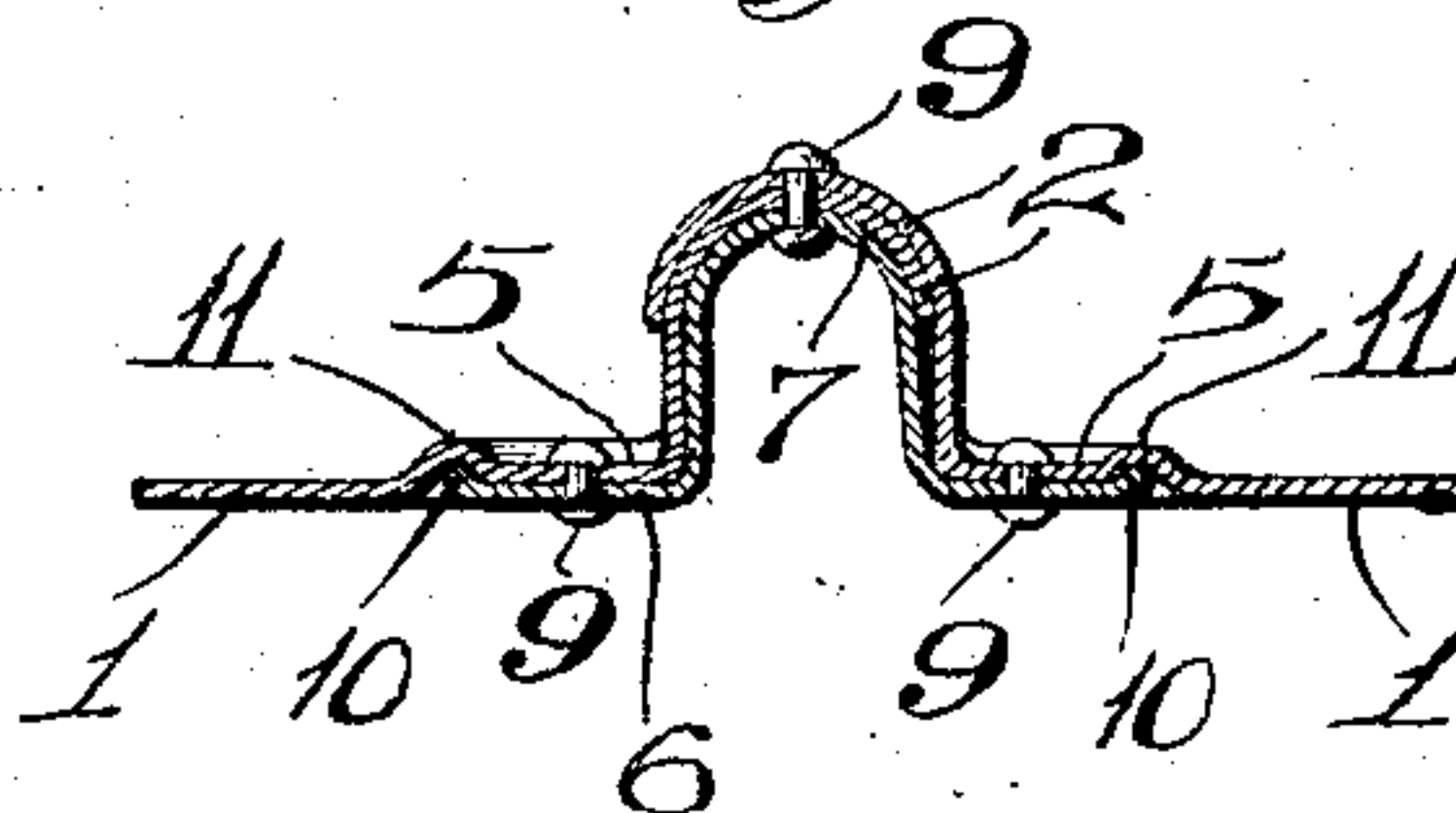
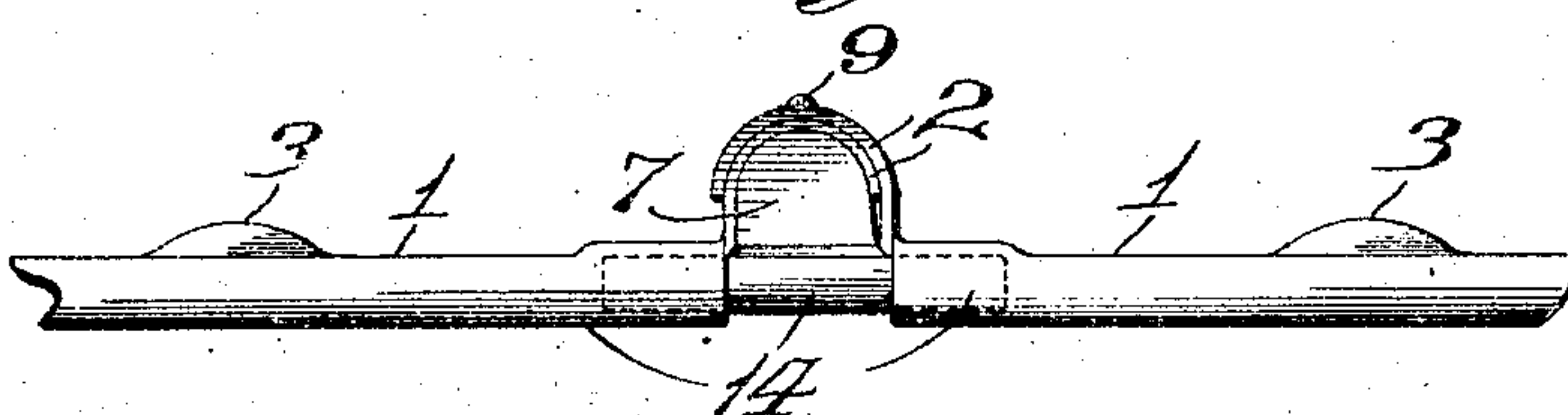


Fig. 9.



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UNITED STATES PATENT OFFICE.

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METAL CAR-ROOF.

No. 929,221.

Specification of Letters Patent.

Patented July 27, 1909

Application filed May 19, 1908. Serial No. 433,741.

To all whom it may concern:

Be it known that I, JOHN J. HOFFMAN, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Metal Car-Roofs, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an all metal car roof, particularly adapted for metallic railway cars, and the object of my invention is to construct an arched car roof by utilizing a number of transversely disposed plates or sheets of steel, or the like, which sheets are slightly curved longitudinally and the edges of which sheets are formed into ribs which are of inverted U-shape in cross section, thereby forming carlines between the sheets, thus doing away with the necessity of providing auxiliary carlines or a roof frame.

A further object of my invention is to provide cap plates which are located at the corners of the roof sheets, and which plates are so constructed as to provide a perfect water and dust tight joint between the corners of an adjacent pair of roof sheets.

A further object of my invention is to provide simple and substantial means for attaching the running board to the carlines formed on the sides of the roof sheets.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully set forth, pointed out in the claims, and illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of a portion of a car roof of my improved construction; Fig. 2 is an enlarged section taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged section taken on the line 3—3 of Fig. 1; Fig. 4 is an enlarged section taken on the line 4—4 of Fig. 1; Fig. 5 is a plan view of the end of one of the roof sheets; Fig. 6 is a plan view of one of the cap plates used at the corners of the roof sheets; Fig. 7 is an enlarged detail section taken on the line 7—7 of Fig. 1; Fig. 8 is a vertical section taken on the line 8—8 of Fig. 7; and

Fig. 9 is an elevation looking toward the edge of the completed roof.

In the construction of my improved car roof, I utilize a number of rectangular sheets 1, of steel, or the like, and which sheets are of sufficient length to extend from one side of the car to the other, and these sheets are so curved longitudinally as that when a number of the sheets are assembled to form the car roof, the same are arranged transversely, or with the central portion in a plane higher than the plane occupied by the sides.

The side edges of each sheet or plate are bent upward, as designated by 2, to form inverted U-shape ribs, which form the carlines of the roof, and when the sheets or plates are assembled, the bent edge on one side of each plate or sheet fits snugly within the corresponding bent edge of the adjacent sheet or plate, thus forming carlines between the joints of all the sheets or plates, which carlines are composed of two thicknesses of metal, and the material bent to form said carlines is so shaped as that said carlines are highest at their centers and gradually taper in height toward their outer ends, thus providing a very strong and substantial structure which is an integral part of the roof, and which obviates the use of auxiliary carlines or a roof frame.

Formed in each plate 1 between the bent side edges thereof is a plurality of longitudinally disposed ribs 3, which materially strengthen the central portions of the plates or sheets. The ends of all of the bent side edges 2 of the plates 1 are cut away, as designated by 4, and the adjacent portions of the plates at the corners thereof are bent or pressed upward to a slight degree, as designated by 5, and when the roof is assembled sheet metal cap plates 6, which are substantially rectangular in plan view, are inserted beneath the upwardly bent portions 5 at the corners of the plates 1, and formed integral with the central portions of the plates 6 are inverted U-shaped ribs 7, which fit snugly beneath the ends of the carlines formed by the inverted U-shaped bent edges 2. These

cap plates are rigidly fixed to the corners of the plates 1, and to the carlines, by means of rivets 9 or similar fastening devices passing through the thicknesses of metal forming said plates and carlines.

The edges of the sides and inner ends of the cap plates 6 are bent slightly upward, as designated by 10, which upwardly bent edges fit tightly against corresponding shoulders 11, formed at the edges of the upwardly bent portions 5, thus forming a perfect water and dust proof joint between the corners of the plates 1 and the cap plates 6. The outer ends of the cap plates 6 are in alinement with the ends of the plates 1, and said plates 6 and 1 are rigidly fixed to the upper side plates 12 of the car body by means of rivets 13, or similar fastening devices, and the edges of said plates 6 and 1 are bent around the outer edge of the plates 12, as designated by 14, thus rigidly connecting the entire roof structure with the corner plates 12 of the car body, which are supported by the side posts or stanchions 15.

Running board saddle irons 16 are constructed of sections of heavy sheet metal, one side of each saddle iron being formed to fit over the central portion of the carlines, and these saddle irons are rigidly fixed to the carlines by means of rivets 17, or similar fastening devices, and rigidly fixed in any suitable manner to the laterally projecting portions of said saddle irons is the running board 18.

Safety rails 19 are arranged on the roof between the running board and the sides of said roof, which safety rails are rigidly supported by means of brackets 20, fixed to the carlines.

In my improved construction, the carlines are an integral part of the roof, and said carlines are so formed as to combine minimum weight with maximum strength, and the sheets or plates of which the roof is formed are easily and cheaply manufactured, and are readily assembled for use.

The ribs 3 strengthen the central portions of the roof plates, and the cap plates form simple and compact connection between the corners of the plates, and provide an air and dust proof joint at said corners and at the ends of the carlines.

I claim:—

1. An all metal car roof comprising self-supported metal plates having raised inverted U-shaped flanges at the meeting edges thereof, the flanges of adjacent plates interlocking to constitute hollow carlines, substantially as described.

2. An all metal car roof comprising self-supported metal plates extending from eaves to eaves, said plates having raised rebent flanges at their margins interlocking to constitute hollow carlines, substantially as described.

3. An all metal car roof comprising self-supported metal sheets having raised rebent marginal flanges extending from eaves to eaves, said flanges interlocking to constitute carlines, and cap plates fixed to the ends of said carlines, each cap plate comprising a sheet having a portion struck up to fit inside of said carline.

4. An all metal car roof comprising self-supported metal sheets having raised rebent marginal flanges extending from eaves to eaves, said flanges interlocking to constitute carlines, and cap plates fixed to the ends of said carline, each cap plate comprising a plate having a flange adapted to hook over the eaves and a struck up portion adapted to fit in the end of the carline.

5. A car roof comprising metal sheets having rebent marginal flanges extending from eaves to eaves, said flanges interlocking to constitute carlines, and cap plates at the ends of said carlines, each cap plate comprising a portion struck up to fit in the end of the carline and a body portion resting flatwise on the side plate of the car, and the corner portions of the sheets being struck up to fit over the body portion of said cap plates.

6. A car roof comprising metal sheets having rebent marginal flanges extending from eaves to eaves, said flanges interlocking to constitute carlines, and cap plates at the ends of said carlines, each plate comprising a portion struck up to fit in the end of the carline, a body portion fitting flatwise against the side plate of the car, and a raised rib near the margin of the body portion, the roofing sheets being struck up and grooved to fit over said cap plates.

7. An all metal car roof comprising self-supported roof sheets having raised rebent marginal flanges at their sides interlocking to constitute hollow carlines, and running board saddles secured by fasteners extending vertically through the tops of said carlines.

8. A car roof comprising roof sheets having rebent marginal flanges at their sides interlocking to constitute carlines, and running board saddles secured by fasteners extending vertically through the tops of said carlines, said running board saddles comprising heavy sheets having laterally projecting portions adapted to receive the running boards.

9. A car roof constructed of a series of plates which are curved longitudinally so as to form an arched roof when the plates are assembled, carlines formed at the meeting edges of the plates by bending said edges so that the same interlock when the plates are positioned for use, and cap plates inserted beneath the corners of the plates and beneath the ends of the carlines.

10. A car roof constructed of a series of plates which are curved longitudinally so as

to form an arched roof when the plates are assembled, carlines formed at the meeting edges of the plates by bending said edges so that the same interlock when the plates are positioned for use, cap plates inserted beneath the corners of the plates and beneath the ends of the carlines, and running board supports fixed on top of the carlines.

In testimony whereof, I have signed my name to this specification, in presence of two 10 subscribing witnesses.

JOHN J. HOFFMAN.

Witnesses:

M. P. SMITH,
E. L. WALLACE.