

C. A. LINDSTRÖM.
STEEL CAR SIDE STRUCTURE.

APPLICATION FILED DEC. 19, 1904.

2 SHEETS—SHEET 1.

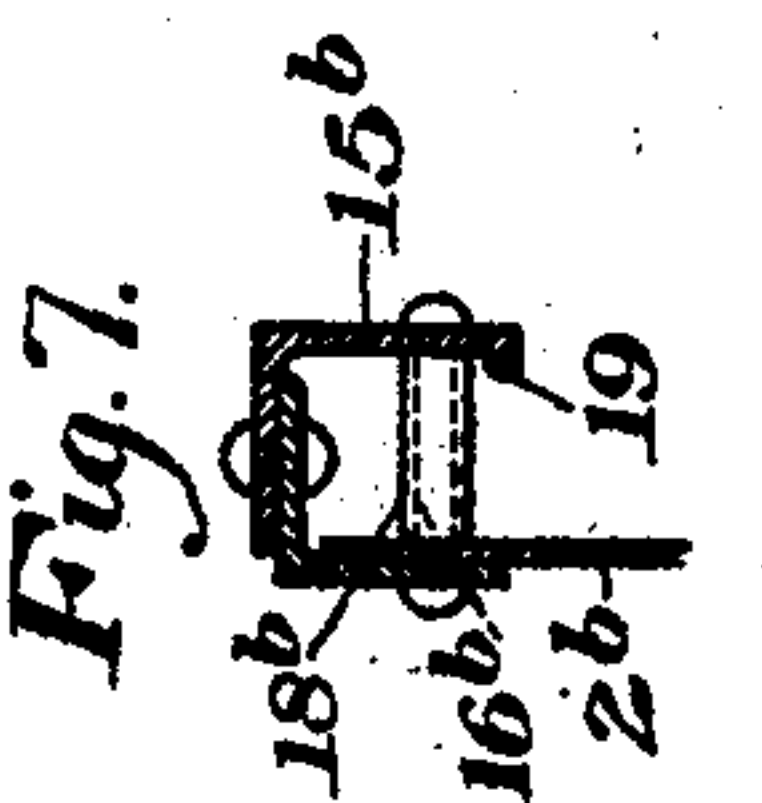
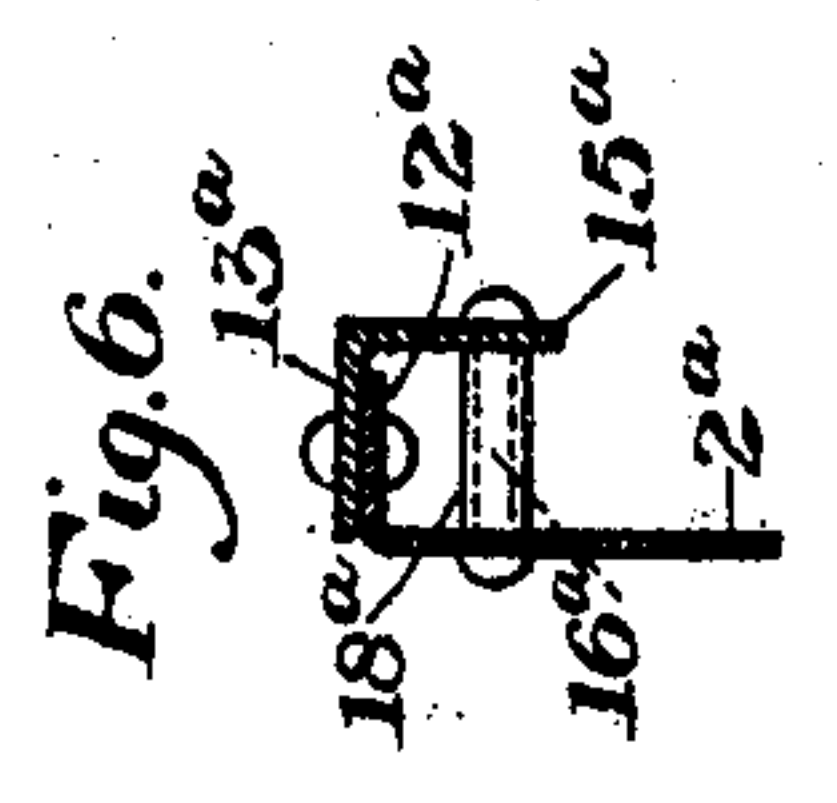
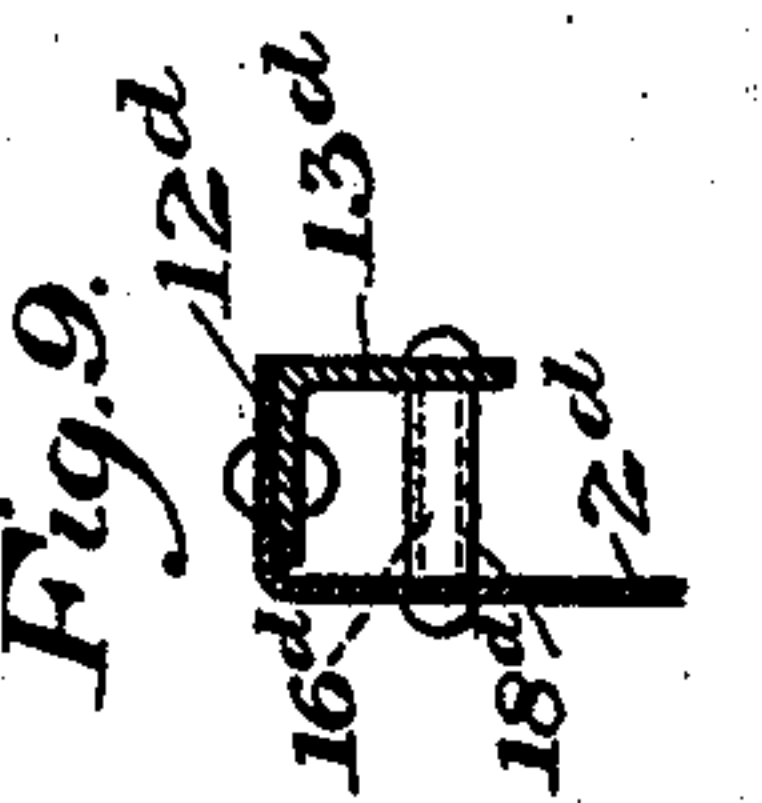
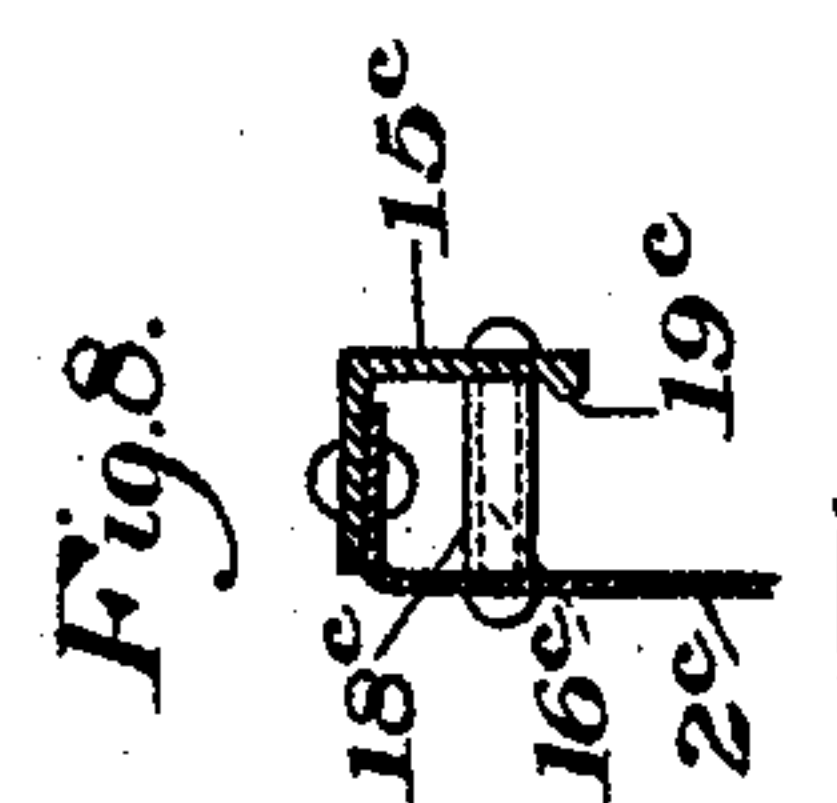
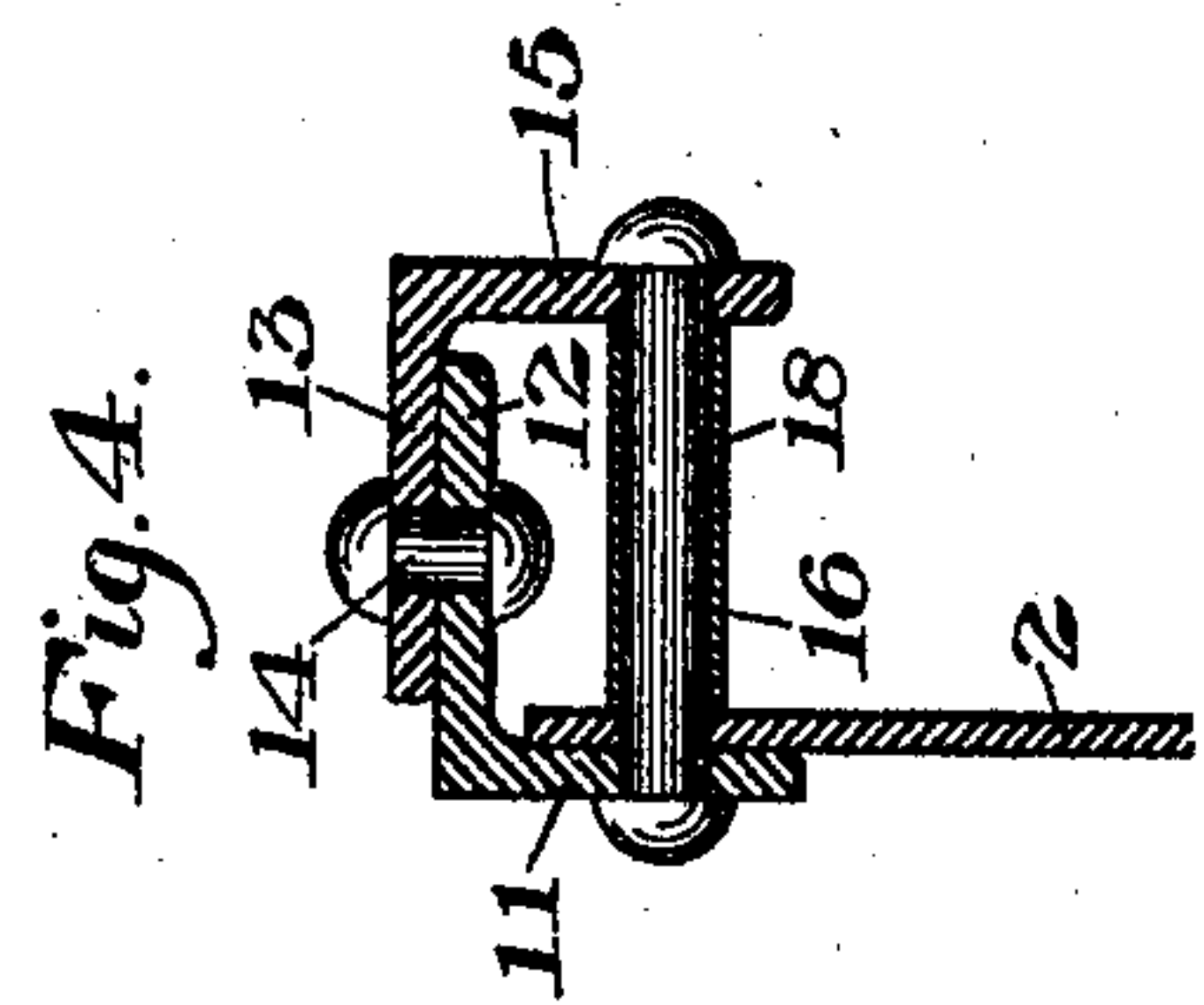
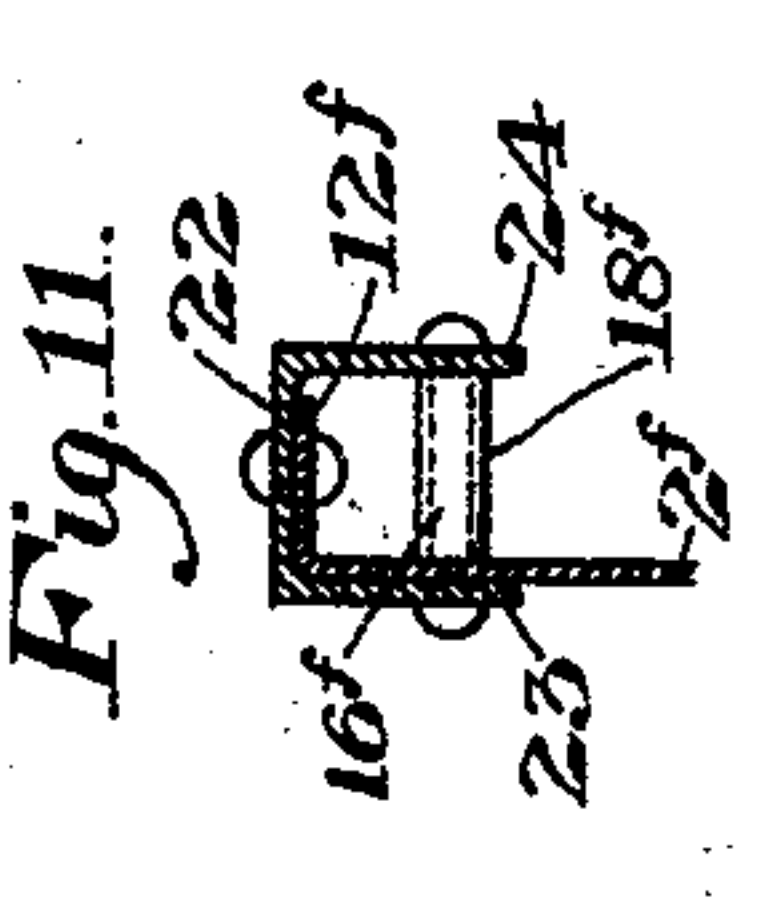
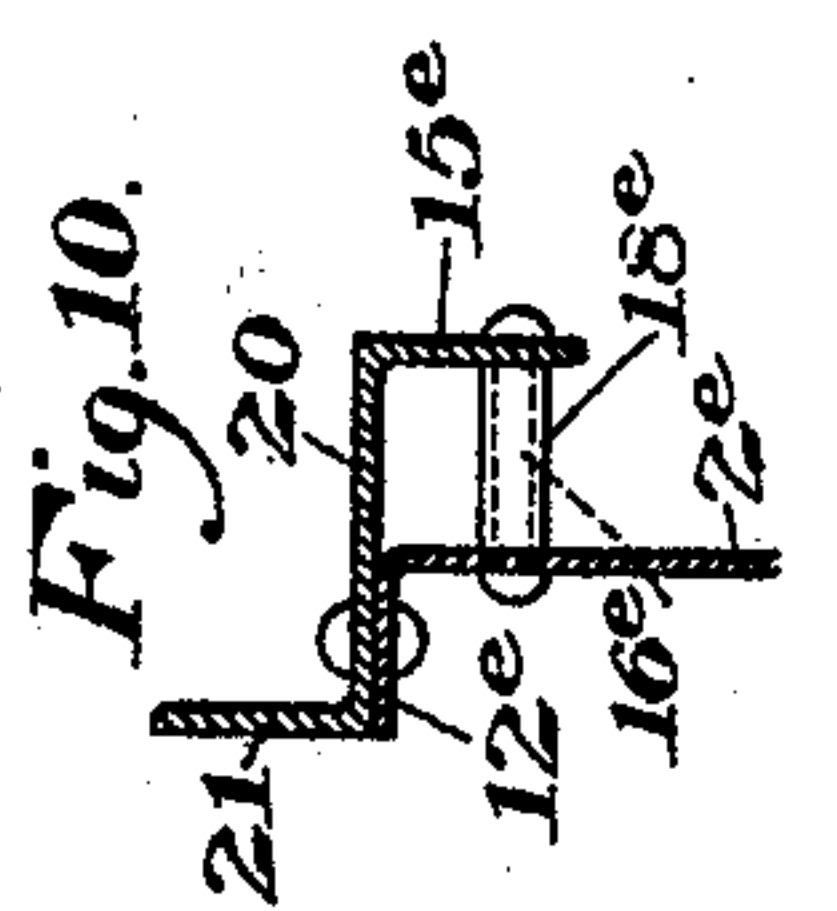
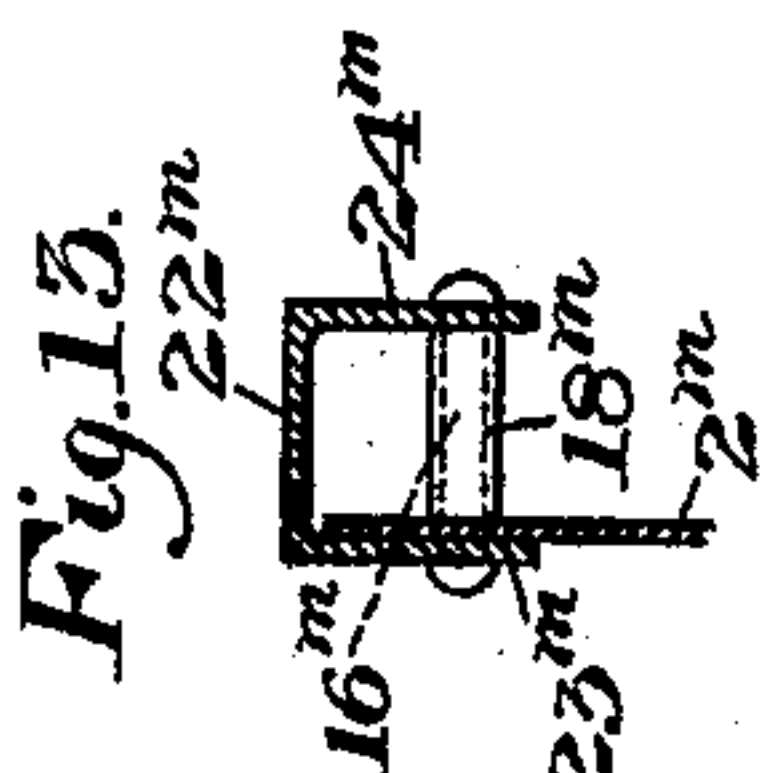
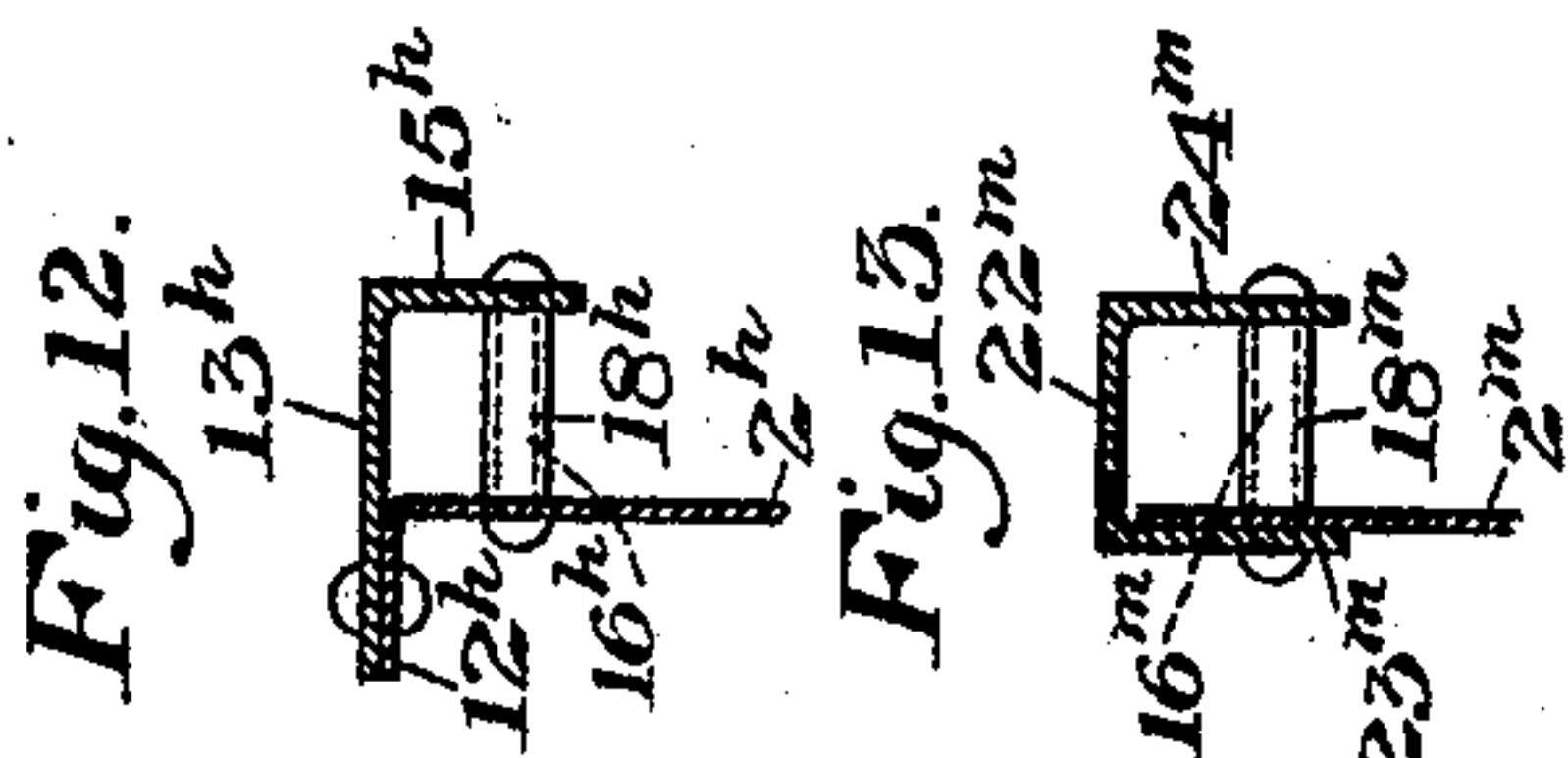


Fig. 1.

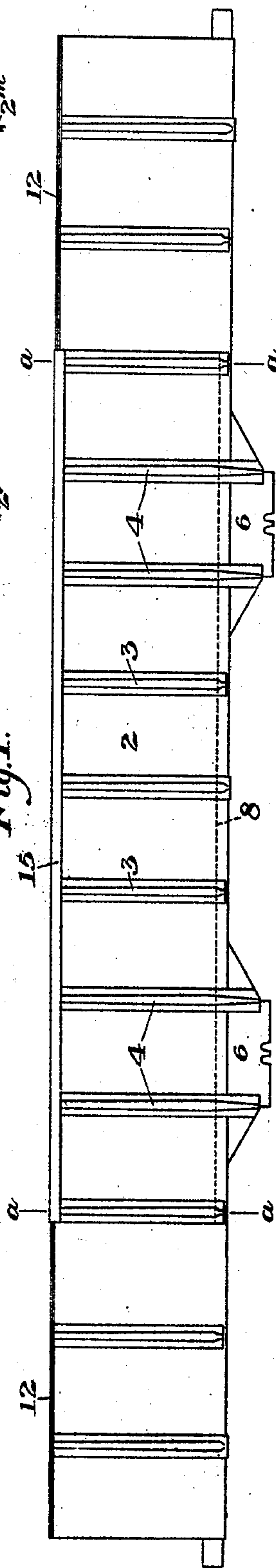
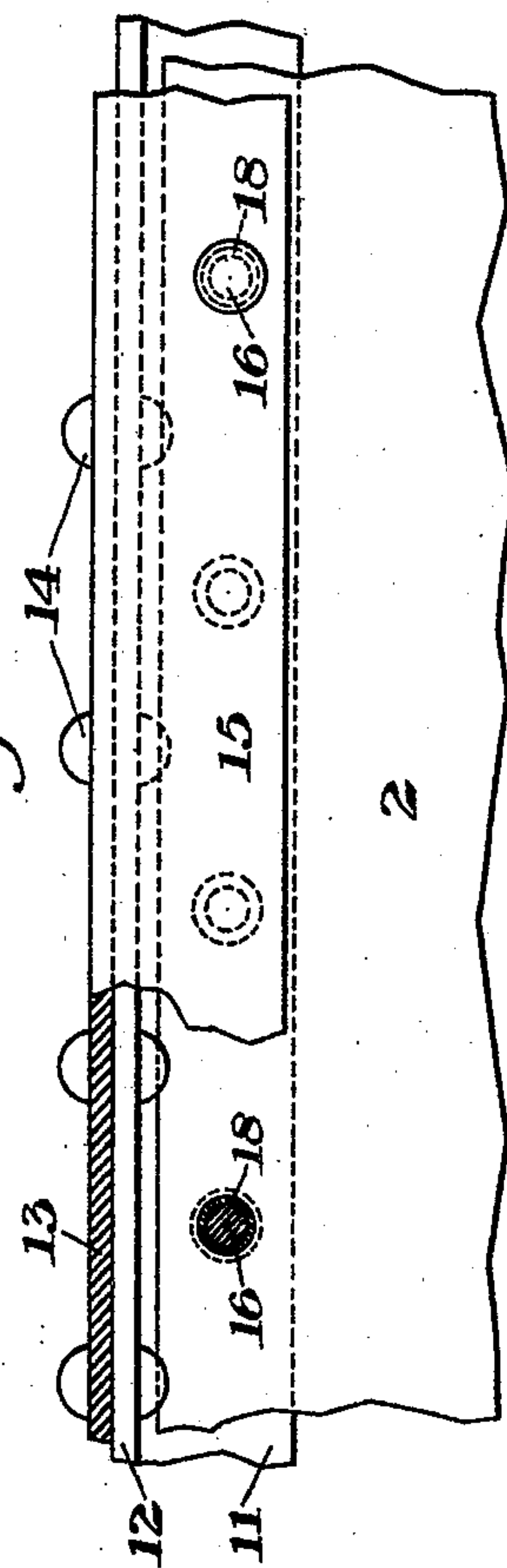


Fig. 5.



WITNESSES

Warren W. Swartz
J. M. Corwin

INVENTOR

C. A. Lindström
by R. A. Jones & Co.
his attys.

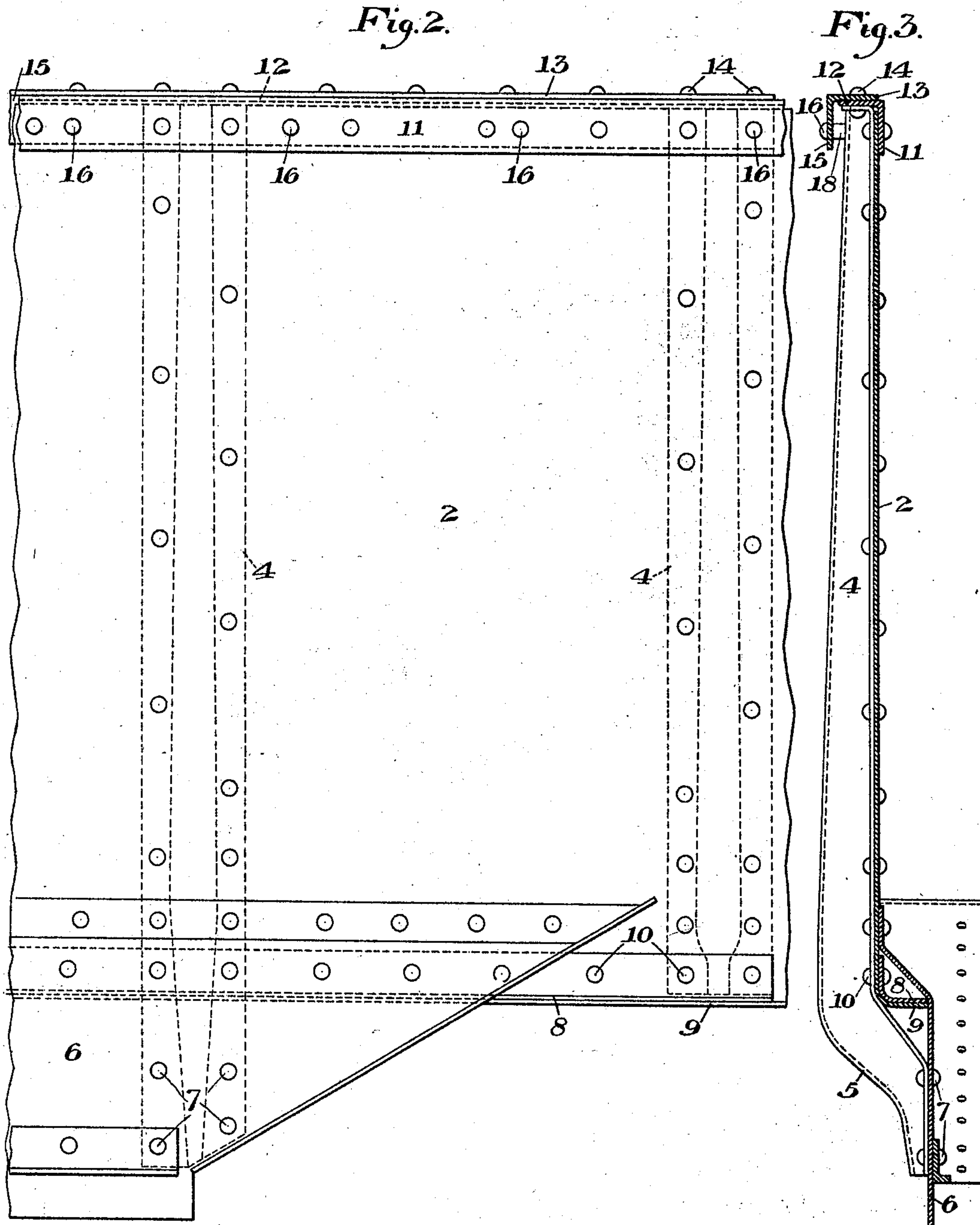
No. 805,921.

PATENTED NOV. 28, 1905.

C. A. LINDSTRÖM.
STEEL CAR SIDE STRUCTURE.

APPLICATION FILED DEC. 19, 1904.

2 SHEETS—SHEET 2.



WITNESSES

Warren W. Swartz
St. M. Corvise

INVENTOR

C. A. Lindström
by R. A. Currier & Co.
his attys.

UNITED STATES PATENT OFFICE.

CHARLES A. LINDSTRÖM, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO
THE PRESSED STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA,
A CORPORATION OF NEW JERSEY.

STEEL CAR-SIDE STRUCTURE.

No. 805,921.

Specification of Letters Patent.

Patented Nov. 28, 1905.

Application filed December 19, 1904. Serial No. 237,421.

To all whom it may concern:

Be it known that I, CHARLES A. LINDSTRÖM, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Steel Car-Side Structure, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a car-body constructed in accordance with my invention. Fig. 2 is a partial interior elevation of the side on a larger scale. Fig. 3 is a vertical cross-section of the side through the hopper-sheet. Fig. 4 is an enlarged detail cross-section of the central top-girder construction. Fig. 5 is an outer detail, partly broken away, of the same. Figs. 6 to 13 are modifications of the top-girder construction.

My invention relates to the steel sides of hopper gondola cars, and is designed to strengthen the side structure above and adjacent to the hoppers through the intermediate portion of the car.

In the drawings, referring to Figs. 1 and 2, 2 represents the steel-plate side of the car, having side stakes 4 riveted vertically thereto. I have shown these side stakes as of the usual pressed-steel form with the exception of the stakes at the hopper-points. In the form shown with twin hoppers two of the side stakes are within the lines of each hopper, and these stakes 4 are extended downwardly, as shown at 5, and are shaped so that they may be fastened to the side hopper-sheet 6. In the form shown the extensions 5 of these stakes are bent inwardly, and the flanges are riveted through the hopper-sheet, as shown at 7 in Fig. 3. The hopper may, however, be built out so that the stake extension may be secured to it without being bent in. In addition to the strengthening action of these stake extensions I preferably provide a pressed or rolled angle 8, which extends between the hopper-sheets below their tops and the stakes and is preferably fitted against the flanged-in portion 9 at the lower edge of the side plate 2. This angle preferably extends throughout the intermediate part of the car-body and beyond the hoppers. In the form shown it extends between the lines *a a* of Fig. 1, terminating at the stakes immediately beyond the hoppers. These angles 8 are preferably secured by rivets

10, extending through the car sides and also through the flanges of the stakes where the stakes occur. The side hopper-sheet is preferably of the form indicated in Fig. 2, though it may be of any desirable shape. In order to further strengthen the car side through the intermediate portion where the hoppers are located, I employ a girder structure along the upper edge of the side, one form of which is shown in Figs. 3, 4, and 5. In this structure an angle is provided, with its vertical leg or flange 11 riveted upon the inner face of the side and its upper horizontal flange 12 projecting outwardly over the edge of the side. The horizontal flange 13 of another angle laps over the flange 12, the two being secured by rivets 14. The depending leg 15 of the outer angle is secured by studs or pins 16, extending through the flanges 11 and 15 and the car side and riveted in place. I preferably surround these studs with thimbles or sleeves 18, which act as spacers. The outer angle, having the flange 15, preferably terminates at the lines *a a* beyond the hoppers, as this construction is specially designed to strengthen the intermediate portion of the side, although it may extend to the ends of the car sides.

The top-girder construction may be varied in many ways, and I show other forms thereof in Figs. 6 to 12. In Fig. 6 I show the car-side plates 2^a as provided with horizontal outwardly-bent flanges 12^a, a single angle being used with an outer vertical leg or flange 15^a and an inwardly-projecting horizontal flange 13^a, which is riveted to the bent flange 12^a. The spacing devices 16^a are used in the same manner as in the first form. In Fig. 7 I show a form similar to that of Fig. 4, except that the leg 15^b of the outer angle is provided with a rib 19 along its lower edge. In Fig. 8 I show a form similar to that of Fig. 6, except that the leg 15^c of the angle is provided with a rib 19^c at its lower edge. In Fig. 9 I show a form similar to that of Fig. 6, except that the horizontal flange 13^d of the angle is placed beneath the bent flange 12^d instead of over it, as in the form of Fig. 6. In Fig. 10 I show the side plates as provided with a flange 12^e, which is bent inwardly instead of outwardly, as in Fig. 6, a Z-bar 20 having its web fastened to the flange 12^e, with its outer depending flange 15^e connected to the side by the spacers 16^e, the inner flange 21 projecting up-

wardly at the inner edge of the flange 12^e. In Fig. 11 I show the side as having the outwardly-bent flange 12^f with a channel-shaped section having its web 22 riveted to the flange and its inner leg 23 fitting against the inner face of the side plate and its outer leg 24 secured to the side by spacers 16^f, which extend through the side plate and the leg 23. In Fig. 12 I show the side plate as having an inwardly-bent flange 12^h, to which is riveted the longer horizontal leg 13^h of an angle having its depending outer leg 15^h secured to the side by spacers 16^h. In Fig. 13 I show a form similar to that of Fig. 11, except that the bent flange is done away with, the channel 22^m having its inner flange 23^m secured to the inner face of the side plate by spacers 16^m, which extend through the outer leg 24^m. When the top girder is constructed as shown in Figs. 4, 7, 11, and 13, the vertical leg or flange which connects with the side sheet is riveted thereto in the usual manner, in addition to having the spacers to stiffen the other leg. In my broader claims upon this top-girder construction the word "flange" is intended to cover either a flange bent integrally from the side plate or forming a part of a member secured thereto.

The advantages of my invention result from the simple construction by which strength is given to the sides of steel cars, at points where they have been very weak, and which will prevent the spreading and buckling of the sides by the lading placed inside of the car, as well as the breaking down of the sides when the loads are supported on the top of the sides, as is frequently the case with the present cars when transporting twin loads.

Each of the features herein described may be employed without the others, and many variations may be made in the form and arrangement of the sides, stakes, the hoppers, &c., without departing from my invention.

I claim—

1. A gondola car having a hopper, and an inner angle extending between the hopper-sheet and the car side, said car side having a stake with a lower extension secured to the hopper-sheet; substantially as described.

2. A car having depending hoppers below its bottom, side stakes extended below the level of the bottom and secured to the hopper-sheets, and angles riveted between the lower portions of the car sides and the hopper-sheets, said angles extending through the intermediate portions of the car; substantially as described.

3. A steel car side having an independent vertically-extending flange spaced apart from

the top of the side, and securing devices extending through said flange and the side; substantially as described.

4. A steel car side having at its top an independent outer, spaced-apart flange connected to the side by separate spacing devices; substantially as described.

5. A car side having an independent reinforcing member secured along its upper edge and having a depending flange spaced apart from the car side, and securing devices connecting said depending flange to the car side; substantially as described.

6. A car side having at its top an outwardly-projecting flange, and an independent outer, depending flange spaced apart from the car side and secured thereto by connections extending through the flange and the car side; substantially as described.

7. A steel car side having an angle with an inner vertical leg secured along the inner surface of its upper edge, and another angle with a horizontal flange overlapping the flange of the inner angle and secured thereto; substantially as described.

8. A steel car side having an upper girder comprising two angles arranged oppositely with overlapping horizontal flanges secured together, and spacers between the vertical leg of the outer angle and the car side; substantially as described.

9. A car side have an upper girder comprising two oppositely-arranged angles with overlapping horizontal flanges secured together, the leg of the inner angle being secured to the car side by spacers extending through the vertical leg of the outer angle; substantially as described.

10. A hopper gondola car having a top-girder construction comprising two angles extending through the intermediate part of the car, through the twin-hopper portion thereof, the upper angle having an outer, depending flange; substantially as described.

11. A car side having the stakes extended at the hopper-points and secured to the hopper-sheets, angles secured between the hopper-sheets and the car side, and overlapping angles forming a girder construction for the upper edge of the side through the hopper portions of the side; substantially as described.

In testimony whereof I have hereunto set my hand.

CHARLES A. LINDSTRÖM.

Witnesses:

K. L. ROBINSON,
H. B. FISHER.