

No. 748,122.

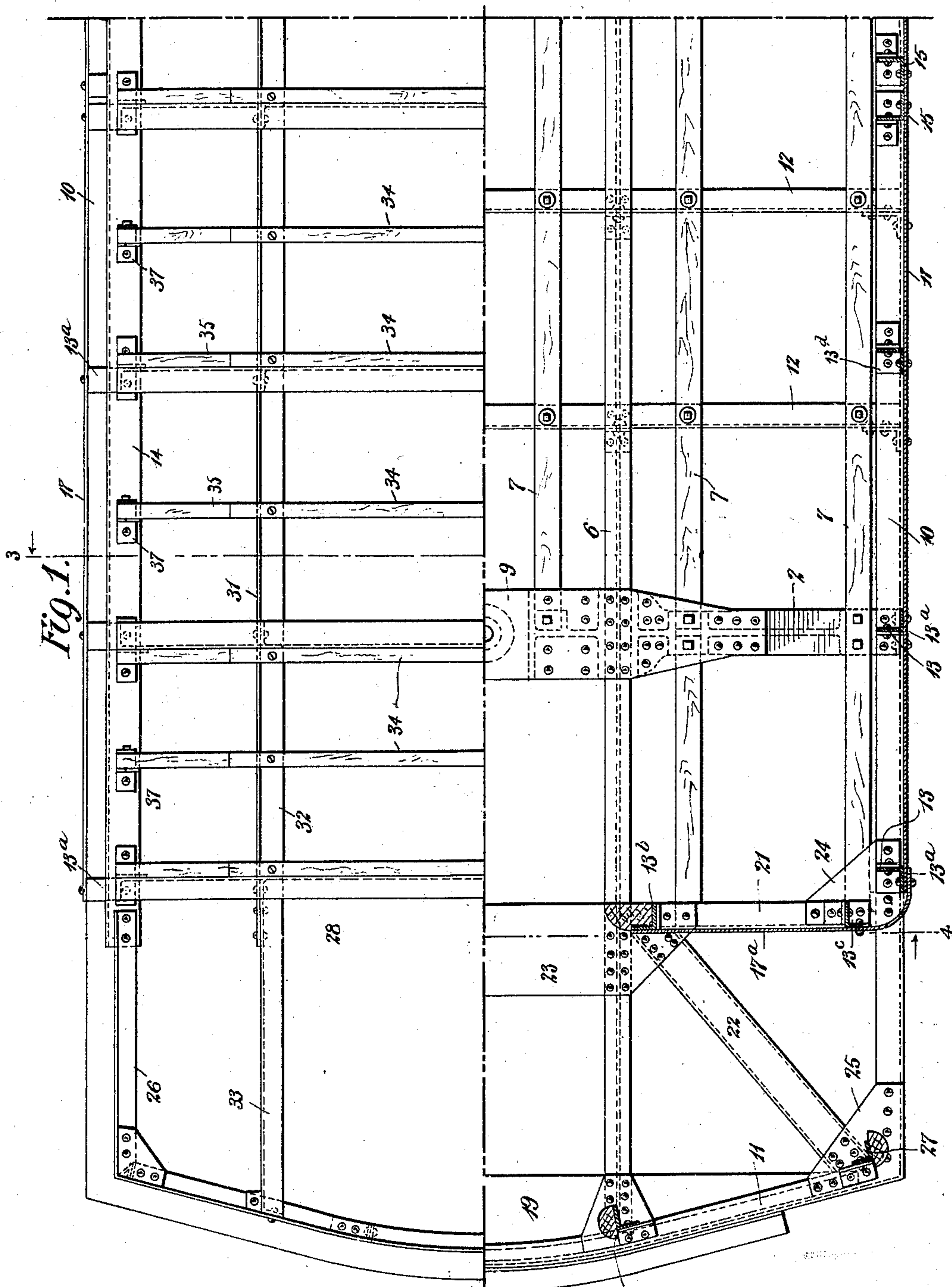
PATENTED DEC. 29, 1903.

C. VANDERBILT.
RAILWAY CAR.

APPLICATION FILED OCT. 7, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



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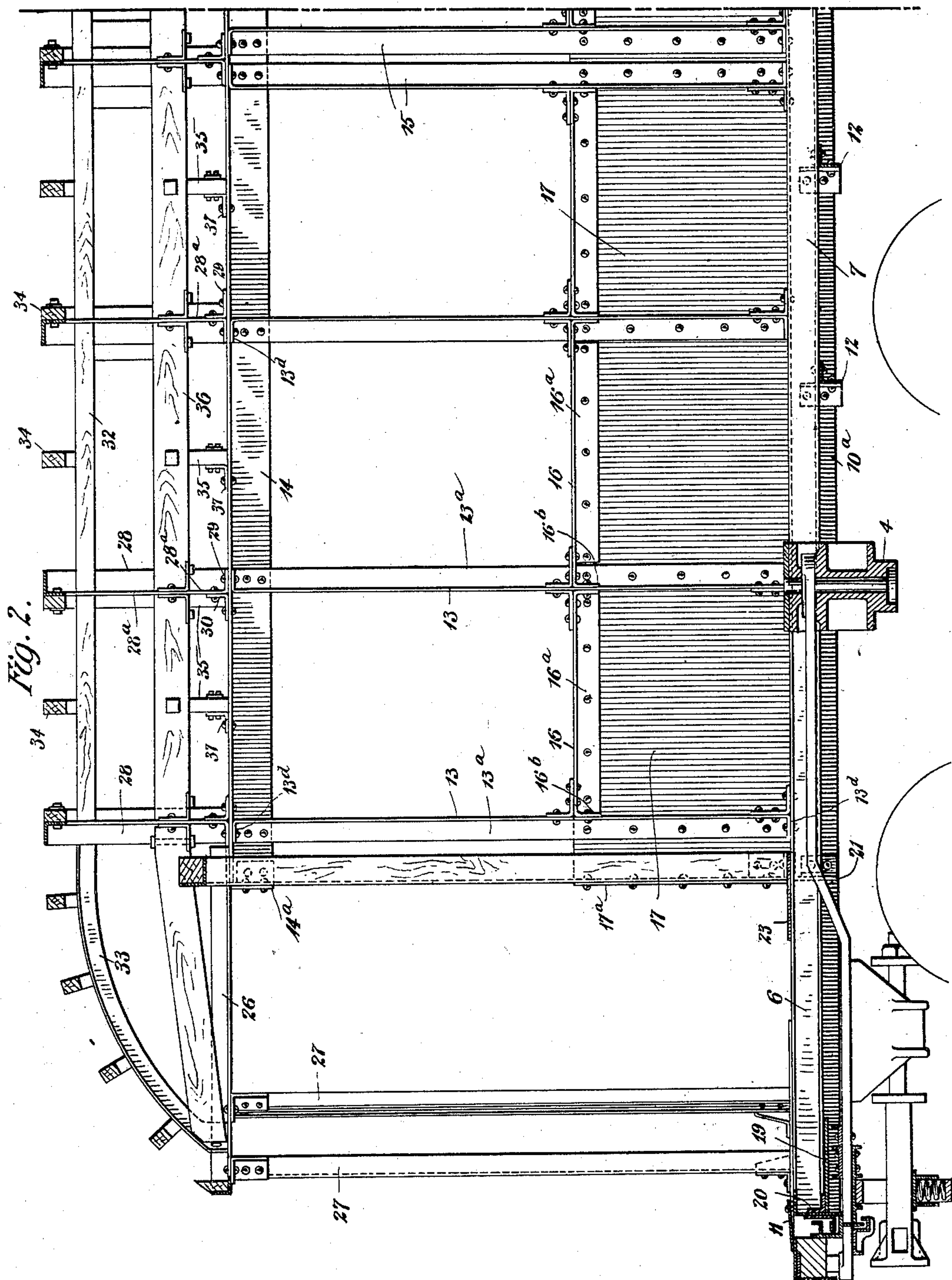
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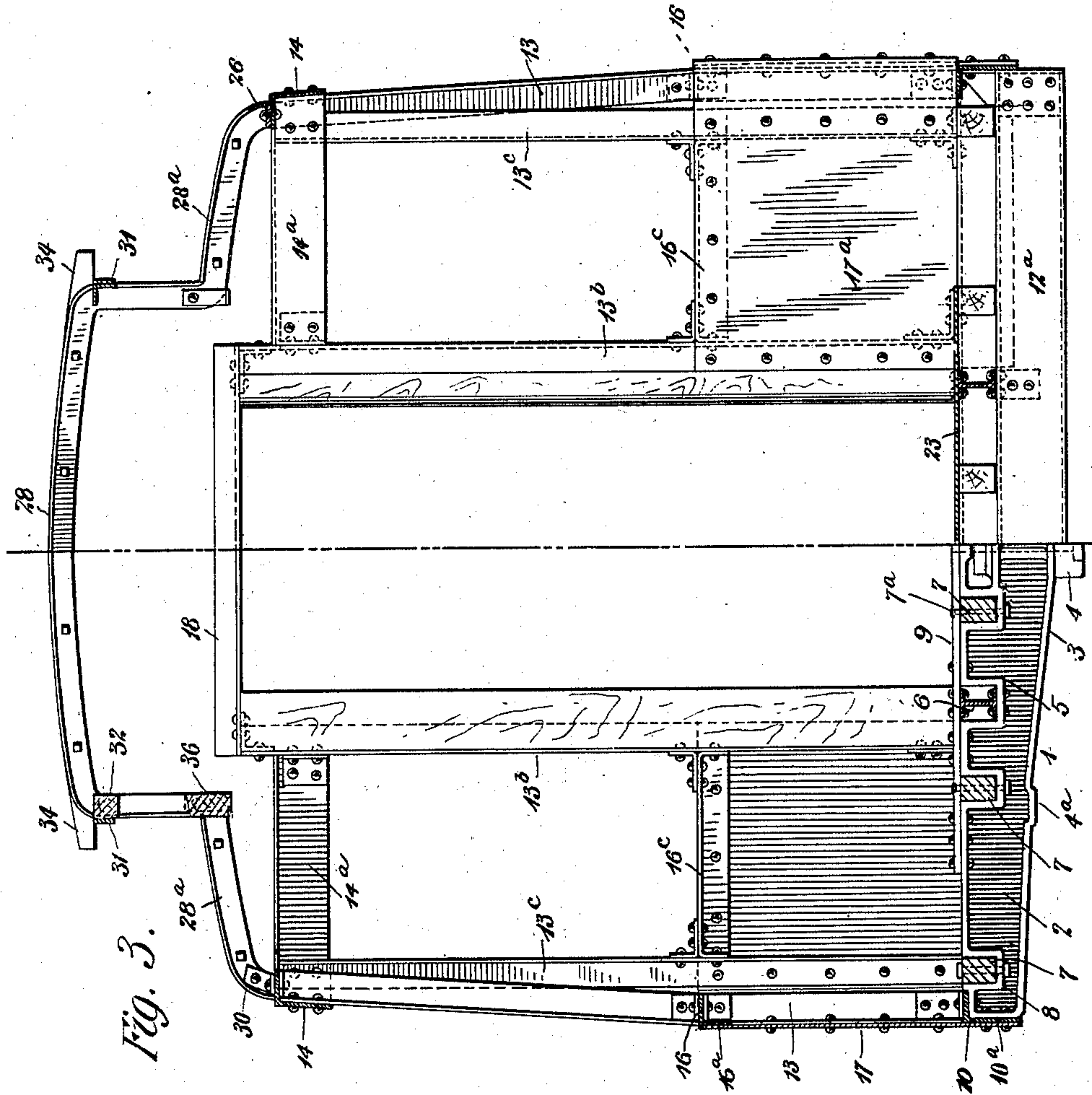
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

CORNELIUS VANDERBILT, OF NEW YORK, N. Y.

RAILWAY-CAR.

SPECIFICATION forming part of Letters Patent No. 748,122, dated December 29, 1903.

Application filed October 7, 1902. Serial No. 126,283. (No model.)

To all whom it may concern:

Be it known that I, CORNELIUS VANDERBILT, a citizen of the United States, and a resident of the borough of Manhattan, city and State of New York, have invented new and useful Improvements in Railway-Cars, of which the following is a specification.

My invention relates to improvements in railway-cars in which the framework is composed wholly or in part of metal, my object being the production of a light, durable, and strong railway-car. For this purpose I prefer to use wherever practicable the ordinary commercial shapes of rolled iron or steel—such as I-beams, angles, &c.—although I do not limit my invention to the use of such material, but include also the use of pressed and cast metal.

The scope of the invention is defined in the appended claims.

In the drawings which accompany this specification, Figure 1 is a detail plan view which shows on one side the floor-framework and on the other the roof-framework of a car, illustrating one form in which my invention may be embodied. Fig. 2 is a longitudinal central section of one end of the car. Fig. 3 is a sectional view on lines 3 4 of Fig. 1.

The car is supported at each end by body-bolsters, which may be of any approved form. I prefer to use for this purpose a casting 1, having a web 2, a continuous marginal flange 3, and a center bearing 4. Side bearings 4^a are formed integral with the flange 3. The flange 3 and web 2 are depressed at 5 to permit the passage of longitudinal sills 6, which are riveted to the said flange and extend the entire length of the car. Nailing strips or sills 7 are held in depressions 8 of the flange 3 on either side of the web 2. (See Figs. 1 and 3.) The bolster is completed by the addition of a cover-plate 9, laid upon the upper surfaces of the flange 3 and sills 6 and secured thereto. The sills 7 may be held in position by bolts 7^a, passing through the cover-plate 9, sills 7, and flange 3.

The side sills 10 may be flanged beams and are preferably angles placed with their horizontal flanges above and secured to the ends of the bolsters and with their vertical flanges 10^a depending and likewise secured to the bolster ends. These sills may be bent at their

ends to form the end sills 11, or a separate piece may be used, if desired. The ends of the car are further strengthened by means of a plate 19, secured to the lower flanges of the sills 6, and an angle piece or strip 20, acting as a stiffener and as a knee-brace between the plate 19 and end sill 11. Instead of using a separate strip for this purpose, however, the forward edge of the plate 19 may be bent to form a vertical attaching-flange. Cross-sills are placed below and secured to the sills 6. They extend across the car and are secured at their ends to the depending flanges of the sills 10. Angle-beams 12 may be used for this purpose, (see Fig. 2,) though for additional strength I prefer to use channels 12^a as cross-sills and needle-beams. (See Fig. 3.) Transverse and diagonal braces 21 and 22 are inserted at the ends of the car, as shown, and are firmly secured to the sills 6, 10, and 11 by means of plates 23, 24, and 25.

Upon the framework just described the walls of the car are erected. The side walls comprise upright posts 13, preferably flanged beams. They are shown as angles having one flange 13^a in the plane of the vertical flange of the sill 10 and the other flange extending inwardly therefrom. Both the upper and lower ends of the latter flange are bent into a horizontal position to form attaching-flanges 13^d, while the ends of the flange 13^a are cut away. Knee-braces are then secured to the posts 13 and side sills 10 for additional strength. (See Fig. 2.) A top rail 14 is secured to the upper ends of the posts 13. This rail may be an angle, one flange of which rests upon the ends of the posts and the other of which depends therefrom. Between each two adjacent posts except where for additional strength two are placed close together, as at 15, I secure the short rails 16. These rails may be angles placed with one flange 16^a in the same vertical plane as the depending flange 10^a of the sill 10 and as the outer flange 13^a of the posts 13. The other flange of the rails 16 extends inward horizontally, its ends 16^b being bent into a vertical position and secured to adjacent posts 13, while the ends of the flange 16^a are cut away, as shown in Fig. 2. Knee-braces are then secured to the rails 16 and posts 13, as shown. Upon the outer surfaces of the sills 10, posts 13, and

rails 16, which are all in the same plane, I secure a plate 17. This plate is of quite heavy metal and adds considerably to the strength of the car. It extends the entire length of the side walls and is intended to form the outer sheathing of the car.

The end walls of the car are formed of posts 13^c and 13^b, similar to the posts 13 of the side walls. They rest upon and are secured to the cross brace or sill 21, the posts 13^b resting directly upon the plate 23. A top rail 14^a, similar to the rail 14 or a continuation thereof, is secured to the upper end of the post 13^c and near the upper end of the post 13^b. Rails 16^c are secured between the posts 13^c and 13^b similarly to the rails 16 and posts 13, and a plate 17^a is secured to the outer surfaces of the posts 13^a 13^b and rail 16^a. The ends of this plate are bent backward and secured to the forward posts 13 outside of the plate 17. If desired, however, the plate 17^a may be integral with 17. An angle cross-piece 18 is secured above the ends of the posts 13^b, forming the top of the doorway.

The platforms are formed by the ends of the sills 6 and 10, the end sills 11, and the braces 21 and 22.

The roof-framework of the car comprises in addition to the rails 14 a beam 26, which is secured to the ends of said rails, as shown, and the forward portion of which is supported by the end posts 27, which rest upon the platforms of the car. Upon the rails 14 rest the ends of the carlines 28. Each of these beams consists of a single piece of metal, preferably a flanged beam, as an angle. The beam is bent into the form shown in Fig. 3 and comprises an arched center portion, depending vertical portions, and downwardly-curved end portions, which are secured to the rails 14. Any securing means may be used; but I prefer to bend the ends of the vertical flanges 28^a into a horizontal position and then by means of a rivet 29 to unite the carline, top rail, and side post firmly together, the ends of the other flange of the carline being cut away. (See Fig. 2.) A knee-brace 30 may also be used between the carline and the top rail. Longitudinal metallic strips 31 are secured to the sides of the vertical portions of the carlines and serve to brace them and also to support the sash-strips 32. To the ends of the strips 31 are secured the parts 33, which may be angle-irons and which curve downwardly and are secured to the part 26. Lower sash-strips 36 are secured between the carlines. The upper roof-beams 34 are secured to the strips 32, alternate beams being bolted to the sides of the carlines. The lower roof-beams 35 extend from the sash-strips 36 to the rails 14, to which they are secured by angle-plates 37. Alternate beams are bolted to the side of the carlines. (See Fig. 1.)

The car-frame herein disclosed and claimed may be constructed almost entirely of commercial shapes of rolled flanged metal, thus providing for its quick, easy, and inexpen-

sive manufacture. Furthermore, the flanged beams give the greatest strength with the least possible weight. The securing of the angle-beams 13, 16, 16^a, and 28 at their ends to other beams by bending one flange thereof parallel to the other beam and riveting directly thereto dispenses with a separate knee-brace or angle-plate. The securing of the ends of the carlines to both the top rail 14 and posts 13 gives great strength to the framework. The securing of the rail 31 to the carlines and the continuation of it by the rail 33, secured to the front top rail 26, produces a strong and well-braced roof. Other features disclosed will be seen to contribute to the combined strength and lightness of the car.

I do not desire to limit my invention, however, to the structure shown, as various minor changes may be made therein without departing from the spirit of my invention or sacrificing the advantages thereof.

What I claim as my invention is—

1. In a metallic car-frame, a longitudinal side sill, a series of vertical angles secured thereto, and intermediate horizontal angles having one flange cut away at its ends, and having the ends of the other flange bent at right angles and secured to adjacent vertical angles, the outer surfaces of the vertically-extending flanges of said horizontal angles being flush with the outer surfaces of said vertical angles, substantially as described.

2. In a metallic car-frame, a longitudinal side sill, a series of vertical angles secured thereto, intermediate horizontal angles having one flange cut away at its ends, and having the ends of the other flange bent at right angles and secured to adjacent vertical angles, the outer surfaces of the vertically-extending flanges of said horizontal angles being flush with the outer surfaces of said vertical angles, and a metallic plate secured to the said outer surfaces.

3. In a metallic car-frame, a longitudinal side sill, a series of vertical angles secured thereto, horizontal angles having one flange cut away at its ends, and the ends of the other flange bent at right angles and secured to adjacent vertical angles, the outer surfaces of said sill, vertical and horizontal angles, forming a vertical plane, and a metallic plate secured to said outer surfaces, substantially as described.

4. In a metallic car-frame, a pair of vertical members, a horizontal angle having one flange cut away at its ends, and having the ends of the other flange bent into vertical positions and secured to said vertical members, and knee-braces secured to said vertical members and to said horizontal angle, substantially as described.

5. In a metallic car-frame, a horizontal member, a vertical angle having the end of one flange cut away, and the end of the other flange bent into a horizontal position and secured to said horizontal member, and a knee-

brace secured to said horizontal member and said vertical angle, substantially as described.

5 6. In a car, a bolster having a web and a continuous marginal flange, the upper portion of said flange forming a horizontal plane provided with a depression and a longitudinal flanged sill resting in said depression, the bottom flanges of said sill being secured to the depressed portion of the said marginal flange,
10 substantially as described.

7. In a car, a bolster having a web and a continuous marginal flange, the upper portion of said flange forming a horizontal plane provided with a depression, a longitudinal
15 flanged sill resting in said depression, the bottom flanges of said sill being secured to the depressed portion of said marginal flange, and a cover-plate secured to said marginal flange above said sill, substantially as described.

20 8. In a metallic car-frame, a longitudinal side sill, a cross-sill 21 secured thereto, vertical posts secured to said side sill and to said cross-sill, and a bent plate 17^a secured to said vertical posts, substantially as described.

25 9. In a metallic car-frame, a longitudinal sill having top and bottom flanges, a cross-sill entirely below said longitudinal sill and secured to the bottom flange thereof, longitudinal nailing-strips resting upon said cross-
30 sill, and a side sill having a depending flange

secured to the end of said cross-sill, substantially as described.

10. In a metallic car-frame, a floor-frame-work, upright side posts secured thereto, longitudinal top rails, 14, secured to the upper
35 ends of said posts, and transverse top rails, 14^a, continuous with the ends of said rails, 14, substantially as described.

11. In a metallic car-frame, a floor-frame-work, upright side posts secured thereto, longitudinal top rails, 14, secured to the upper
40 ends of said posts, transverse top rails, 14^a, continuous with the ends of said rails, 14, and a rail, 26, secured to said ends, substantially as described. 45

12. In a metallic car, a roof-supporting frame, comprising top rails extending along the sides and ends of the car, transverse carlines secured at their ends to said rails, and
50 a longitudinal rail or brace, secured to the intermediate portions of said carlines, and to the ends of said roof-frame, substantially as described.

In witness whereof I hereunto sign my name this 6th day of October, 1902.

CORNELIUS VANDERBILT.

Witnesses:

JAMES J. COSGROVE,
WM. H. BERRIGAN, Jr.