

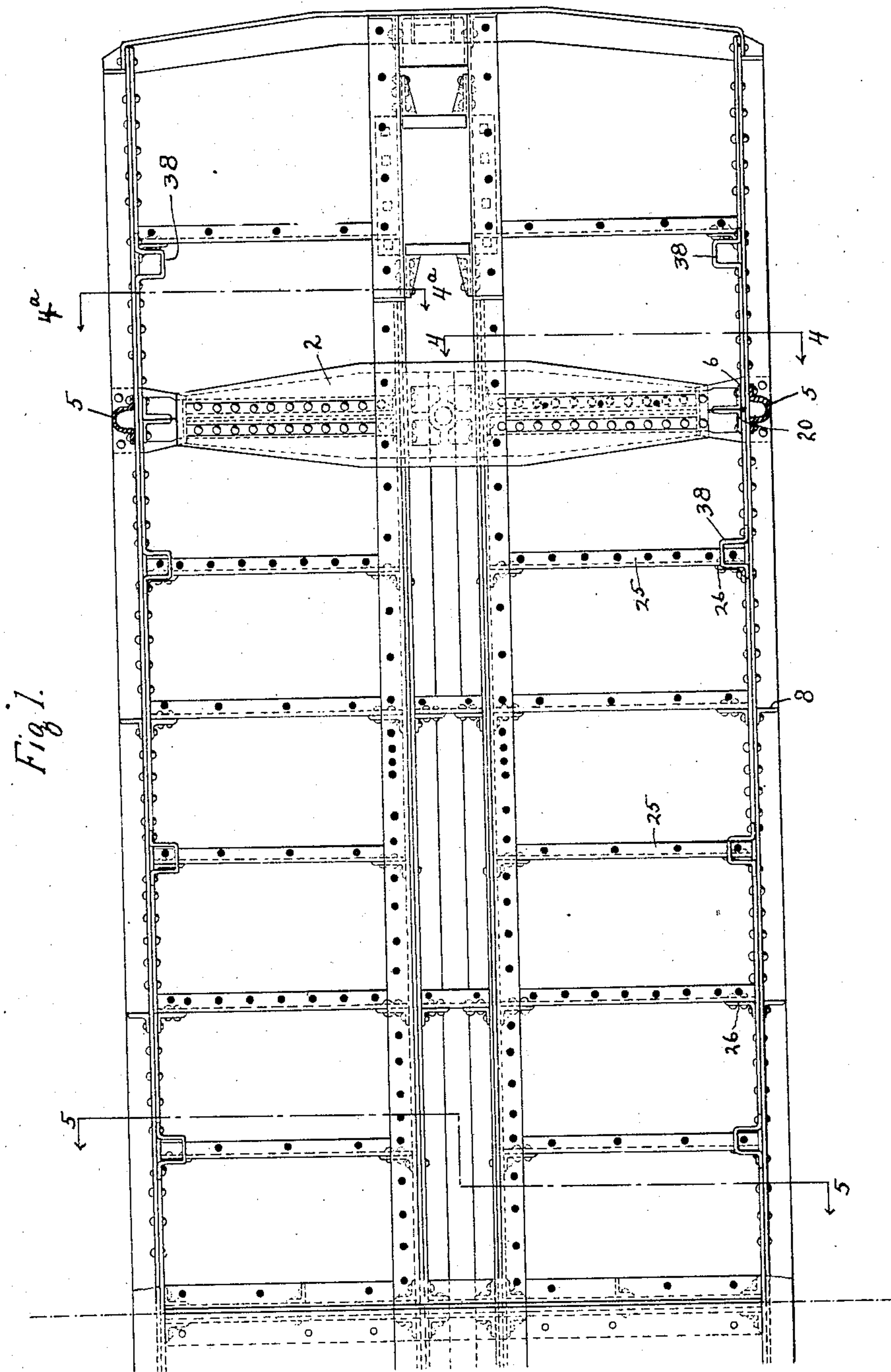
No. 786,356.

PATENTED APR. 4, 1905.

J. M. HANSEN.
LOW SIDE GONDOLA CAR WITH DROP ENDS.

APPLICATION FILED JULY 31, 1902.

3 SHEETS—SHEET 1.



Witnesses.

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Fig. 2

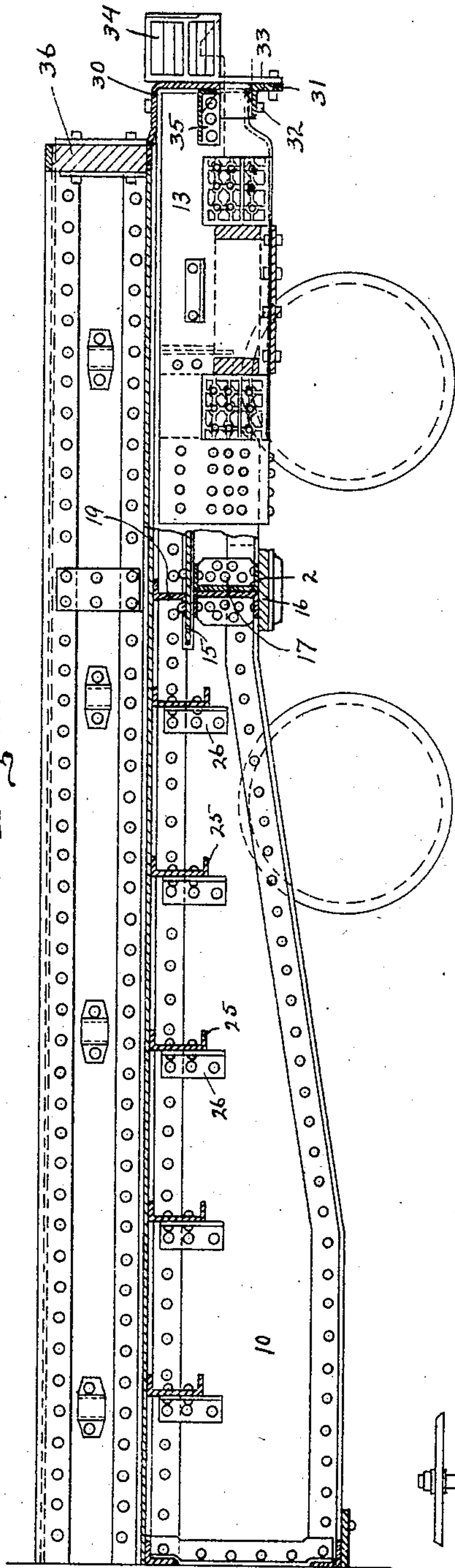
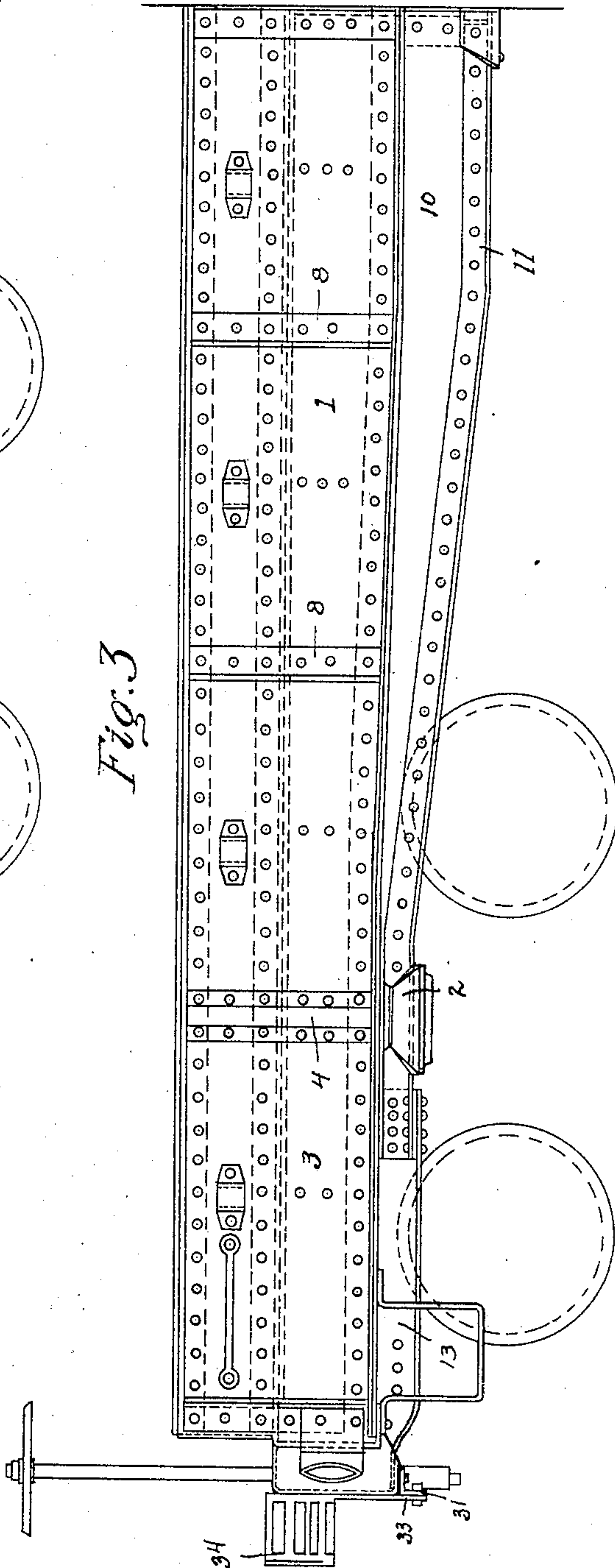


Fig. 3



Witnesses.

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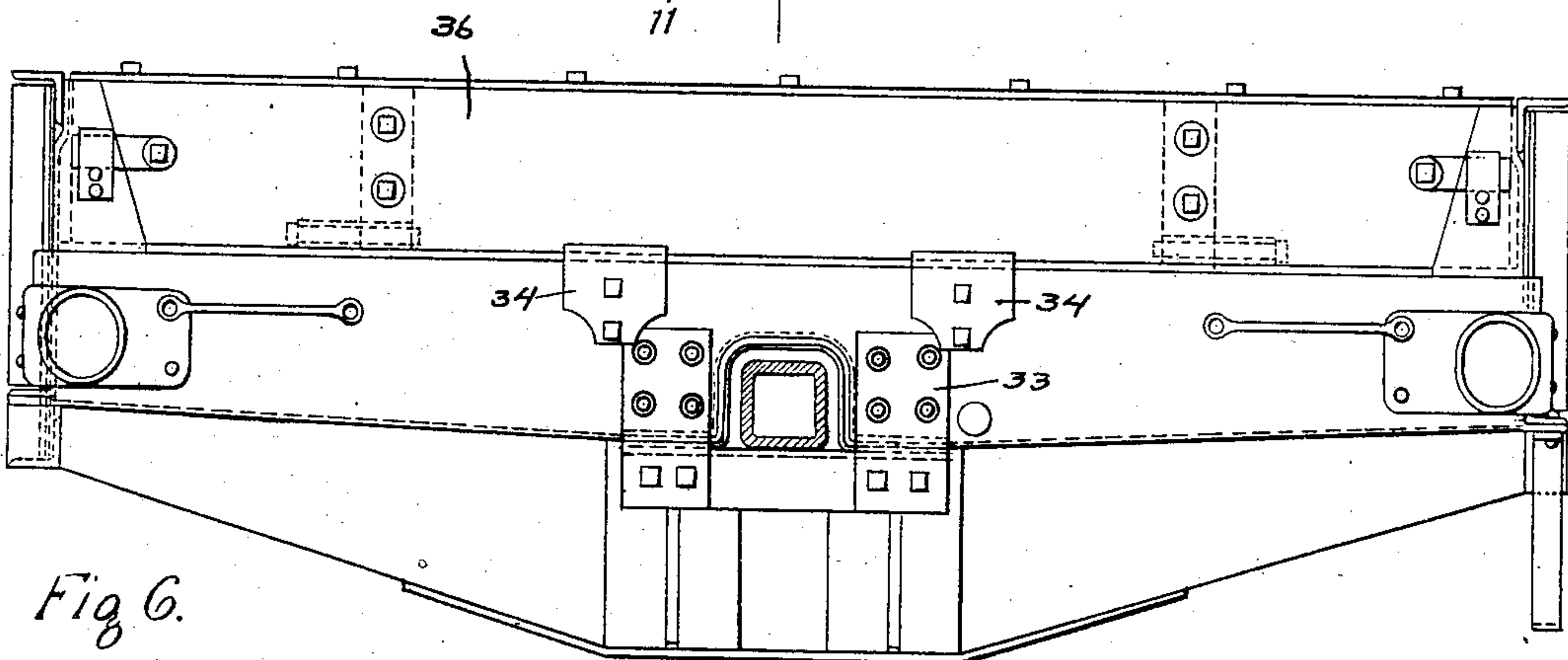
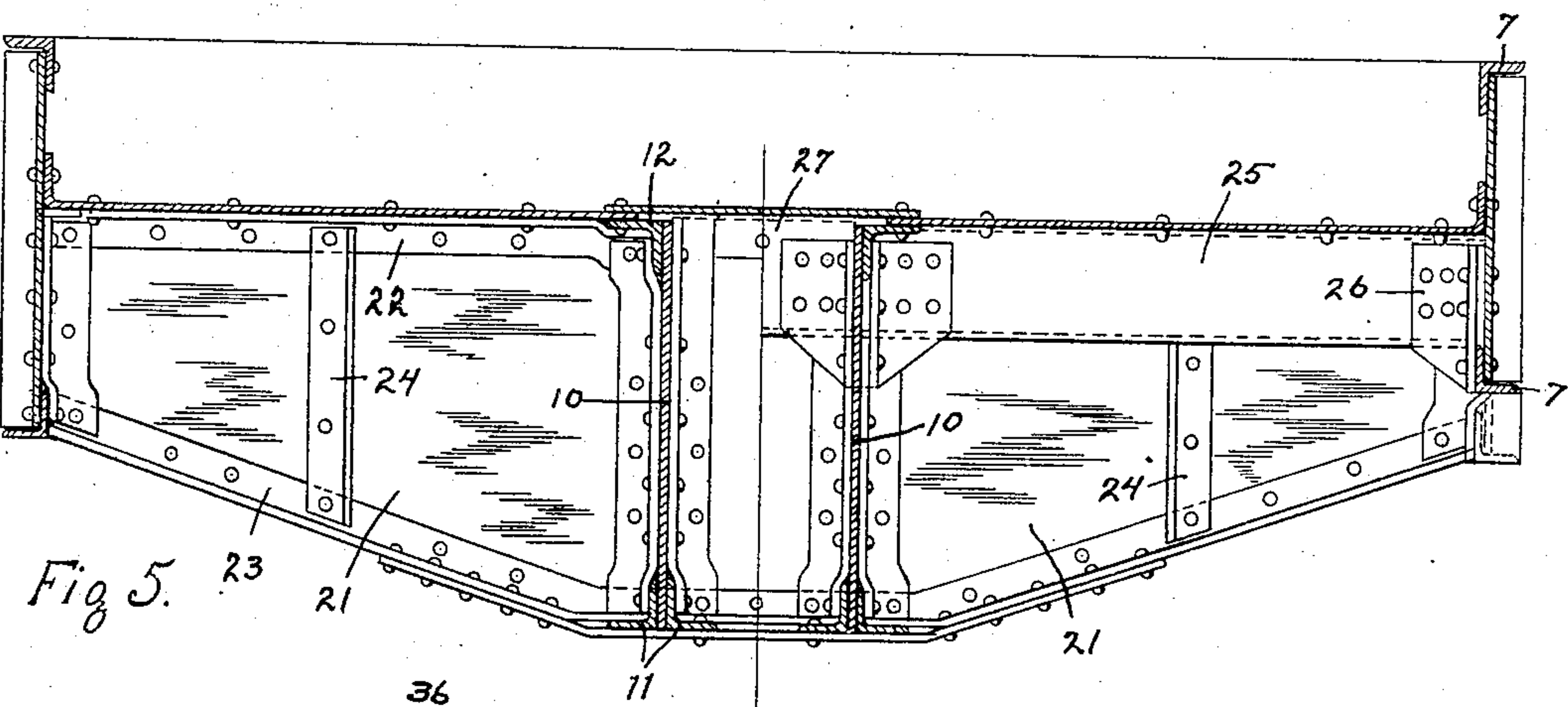
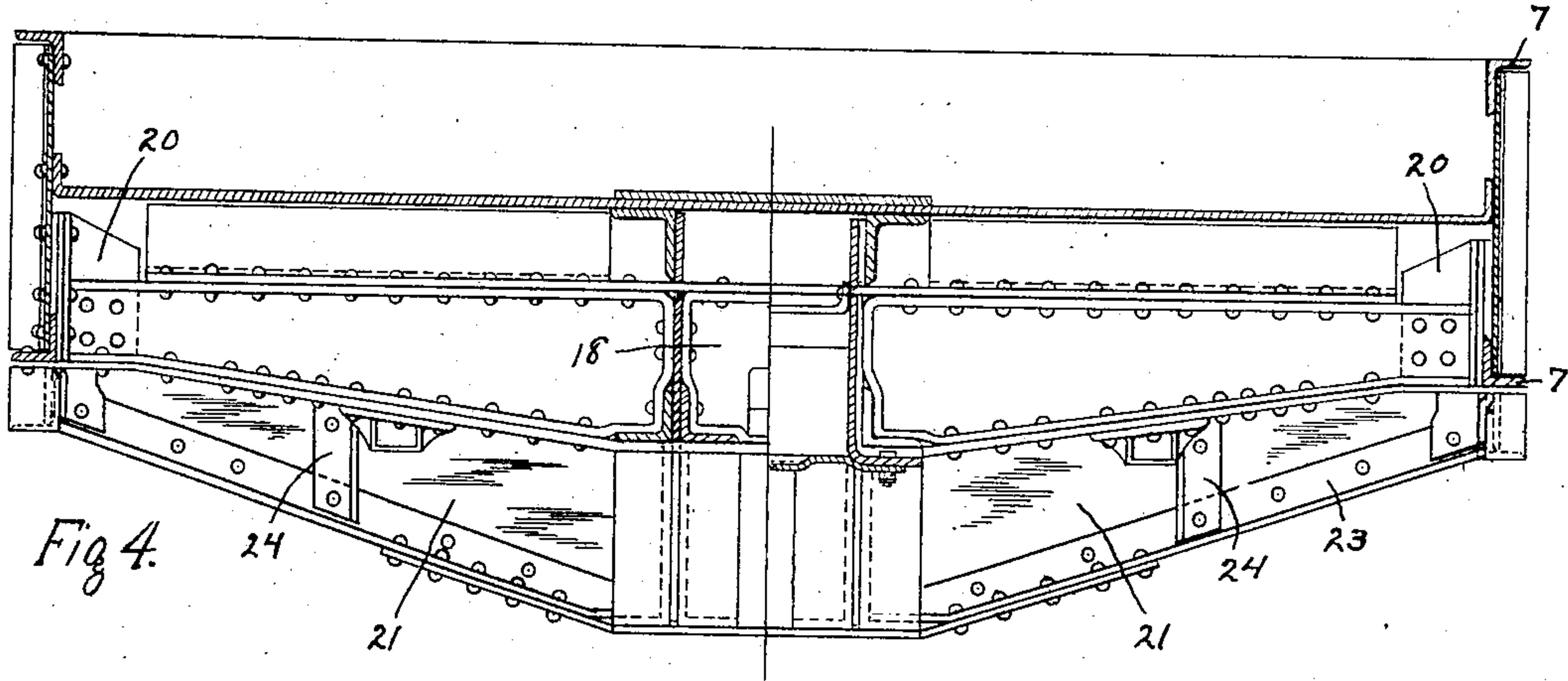
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UNITED STATES PATENT OFFICE.

JOHN M. HANSEN, OF PITTSBURG, PENNSYLVANIA.

LOW-SIDE GONDOLA CAR WITH DROP ENDS.

SPECIFICATION forming part of Letters Patent No. 786,356, dated April 4, 1905.

Application filed July 31, 1902. Serial No. 117,777.

To all whom it may concern:

Be it known that I, JOHN M. HANSEN, a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Low-Side Gondola Cars with Drop Ends; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to railway-cars, and more especially to metallic cars of the gondola type. Its object is to improve cars of this type in details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of one end of the car with the floor-plates removed. Fig. 2 is a longitudinal vertical section taken in part on a plane between one of the car sides and center sills and in part between the center sills. Fig. 3 is a side view of one end of the car. Fig. 4 is a transverse section, the left-hand portion being taken on the line 4 4, Fig. 1, and the right-hand portion on the line 4^a 4^a, Fig. 1. Fig. 5 is a transverse section on the line 5 5, Fig. 1; and Fig. 6 is an end view of the car.

The car illustrated is designed especially for carrying a comparatively heavy load concentrated at its center, and it is almost entirely composed of so-called "structural-steel" members. The car has no side sills as such; but the sides of the car are made in the form of plate-girders, which assist in supporting the load. The side plates 1, which serve as the web-plates for the plate-girder sides, are continuous between the centers of the body-bolsters 2 and are of varying depth being deeper at their centers and tapering toward their ends. From the centers of the body-bolsters to the ends of the car side plates 3, somewhat thinner than the main side plates 1, are used, the plates 3 being united to the plates 1 by means of vertical trough-shaped stakes 4 on the outside and cover-plates 6 on the inside. To the upper and lower edges of the side plates angle-rails 7 are suitably attached, and vertical angles 8 are applied at intervals to the outer faces of the side plates. The center sills are also plate-girders, each comprising a web-plate 10 of varying depth, as shown, being greatest at its center and de-

creasing toward both ends, and having two reinforcing-angles 11 riveted to its lower edge and a single reinforcing-angle 12 riveted to its upper edge. The web-plates of the center sills extend beyond the body-bolsters 2 toward the ends of the car, and draft-sills 13 are riveted to the ends thereof. These draft-sills may be of any suitable construction, those shown being channel shapes of pressed steel, having their flanges projecting outwardly and having their webs overlapping and riveted to the web-plates of the center sills. The body-bolsters may be of any suitable construction, those shown consisting of top cover-plates 15 and bottom cover-plates 16, which serve as tension and compression members respectively, pressed-steel web-fillers 17, of channel shape, placed back to back and extending from the center sills to the sides and suitably attached to the top and bottom cover-plates, and cast center braces 18, placed between the center sills. The bottom cover-plates extend continuously underneath the center sills, as shown, while the top cover-plates pass through slots in the webs of the center sills. On the top of the body-bolsters are Z-shaped floor-supports 19. The body-bolsters are secured to the side plates by means of the vertical angle-pieces 20, which have one of their flanges riveted between the two web-fillers and their outwardly-projecting flanges riveted to the side plates of the car.

At the center of the car is a deep transverse diaphragm which consists of two web-plates 21, one on each side of the center sills and extending out to the sides of the car, and top reinforcing angle-bars 22 and bottom reinforcing-angles 23, riveted to said plates. The plates are stiffened by means of vertical angles 24, riveted thereto. Elsewhere throughout the car the center sills and sides of the car are connected by diaphragms consisting, preferably, of sections of channel-bar 25, suitably attached to the center sills and sides of the car by connecting angle-pieces 26. These diaphragms support the floor and tie the underframe together. Opposite alternate diaphragms center braces 27 are applied between the center sills. These center braces may be of any suitable construction, preferably sections of chan-

nel-bar secured to the center sills by angle-pieces.

The end sills 30 are of pressed steel and are in the general form of a trough, having inwardly-projecting flanges on the top and bottom and being notched at their centers for the passage of the draw-bar shank. The usual draw-bar carrier 31, consisting of a section of angle-bar, is suspended from the end sill. It is secured in place by vertical bolts 32, passing through the end sill, and also by horizontal bolts, which pass through carrier-iron-supporting plates 33, the latter being flat plates or hangers riveted to the outer faces of the end sills. The channel draft-sills are made shallow at their outer ends and rest upon the lower flange of the end sill. Buffer-blocks 34 are applied to the end sills, and coupler-horn braces 35 are riveted between the draft-sills. The ends of the car 36 are shown as being composed of wood and are arranged to drop; but they may be made of metal, if desired. To the car sides on the inside are attached stake-pockets 38. The depths of the plate-girder sides 1 of the car and of the center sills for some distance on either side of the center of the car are the same; but the sides of the car, as a matter of course, are placed in a higher plane than the center sills, so that they will project above the floor-plates in order to confine the lading. By reason of the equal depths of the center sills and side plates of the car the deflections of the longitudinal sills under practically all conditions of distribution of the load which may exist are substantially equal, so that the maximum intensities of the stresses in the

longitudinal sills are substantially equal. By reason of this the greatest economy in the use of metal is secured.

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

1. A metallic car having side and intermediate sills of varying depth from end to end and of the same depth at their central sections, and floor-plates suitably secured to said sills, the tops of the side sills lying above the tops of the center sills and extending above the floor-plates to serve as walls to retain the lading.

2. A metallic car having side and intermediate sills of varying depth from end to end and of the same depth at their central sections, said sills each comprising a vertical web-plate and top and bottom reinforcing-angles secured thereto, and floor-plates suitably supported from said sills, the tops of the side sills projecting above said floor-plates and serving as walls to retain the lading.

3. A metallic car having side sills intermediate sills of varying depth longitudinally and of the same depth at their central sections as the side sills, and floor-plates suitably secured to said sills, the side sills lying partly above and partly below said floor-plates whereby they serve as supports for the load and also as walls to retain the lading.

In testimony whereof I, the said JOHN M. HANSEN, have hereunto set my hand.

JOHN M. HANSEN.

Witnesses:

A. M. STEEN,
G. C. RAYMOND.