

No. 784,261.

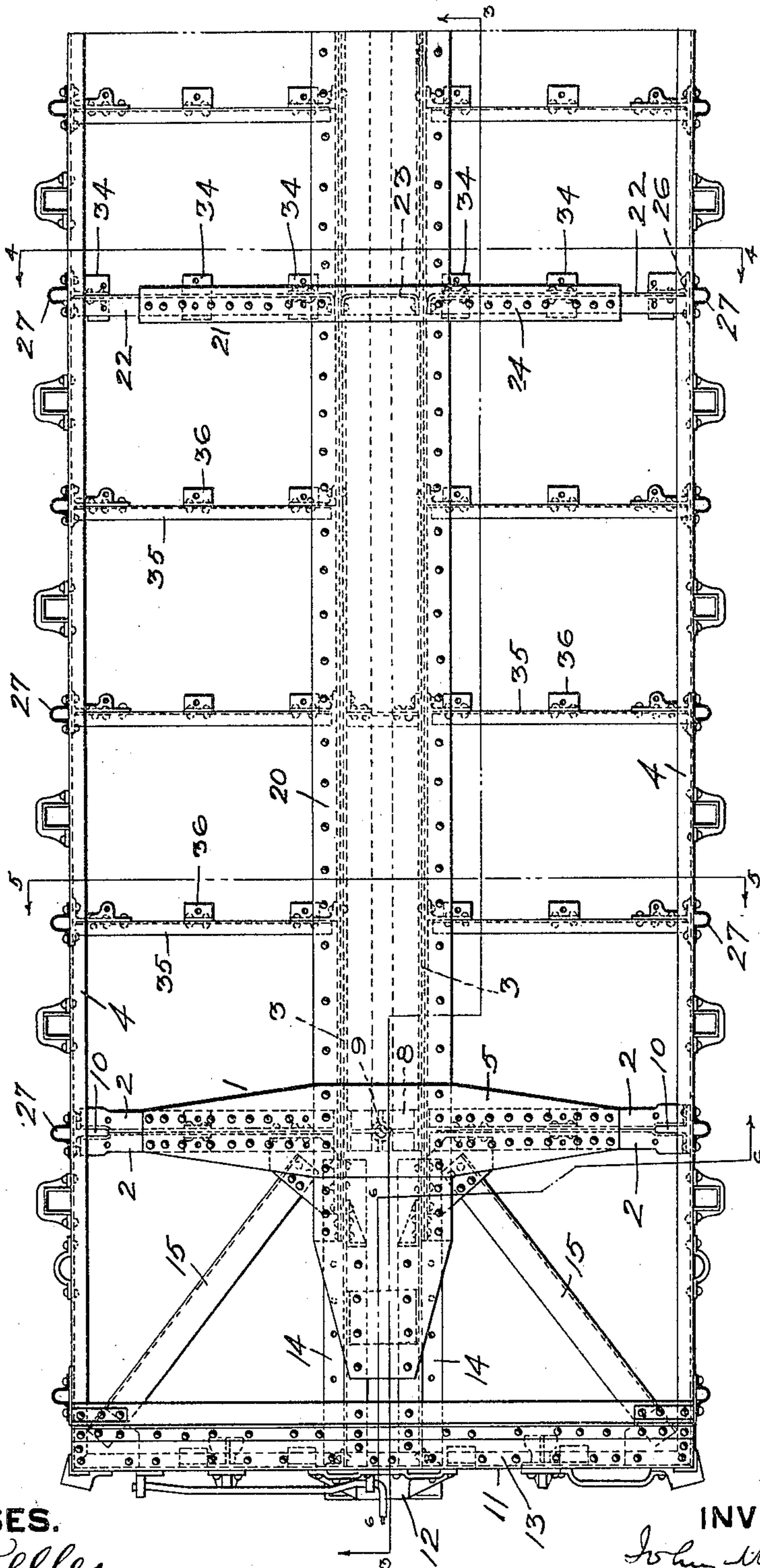
PATENTED MAR. 7, 1905.

J. M. HANSEN.  
METALLIC CAR UNDERFRAME.

APPLICATION FILED DEC. 23, 1904.

3 SHEETS—SHEET 1.

FIG. 1



WITNESSES.

*J. R. Keller*  
*Robert C. Zottner*

INVENTOR.

*John M. Hansen*  
*By Kay Zottner & Winter*  
*attorneys*

No. 784,261.

PATENTED MAR. 7, 1905.

J. M. HANSEN.  
METALLIC CAR UNDERFRAME.

APPLICATION FILED DEC. 23, 1904.

3 SHEETS—SHEET 2.

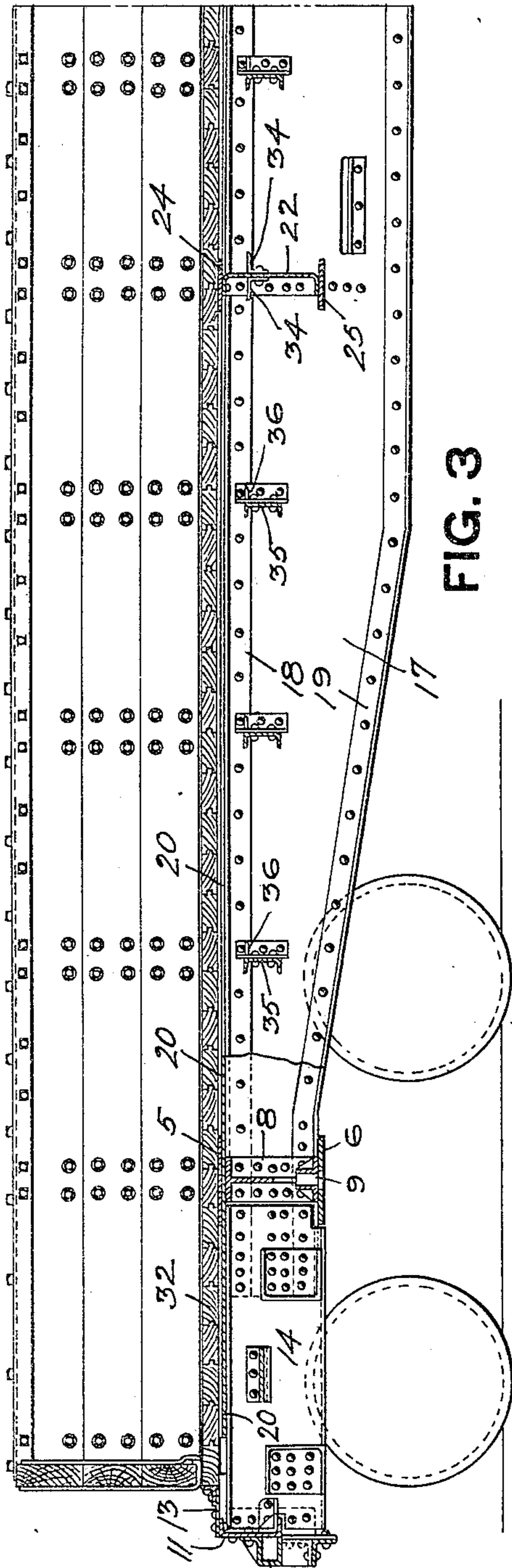


FIG. 3

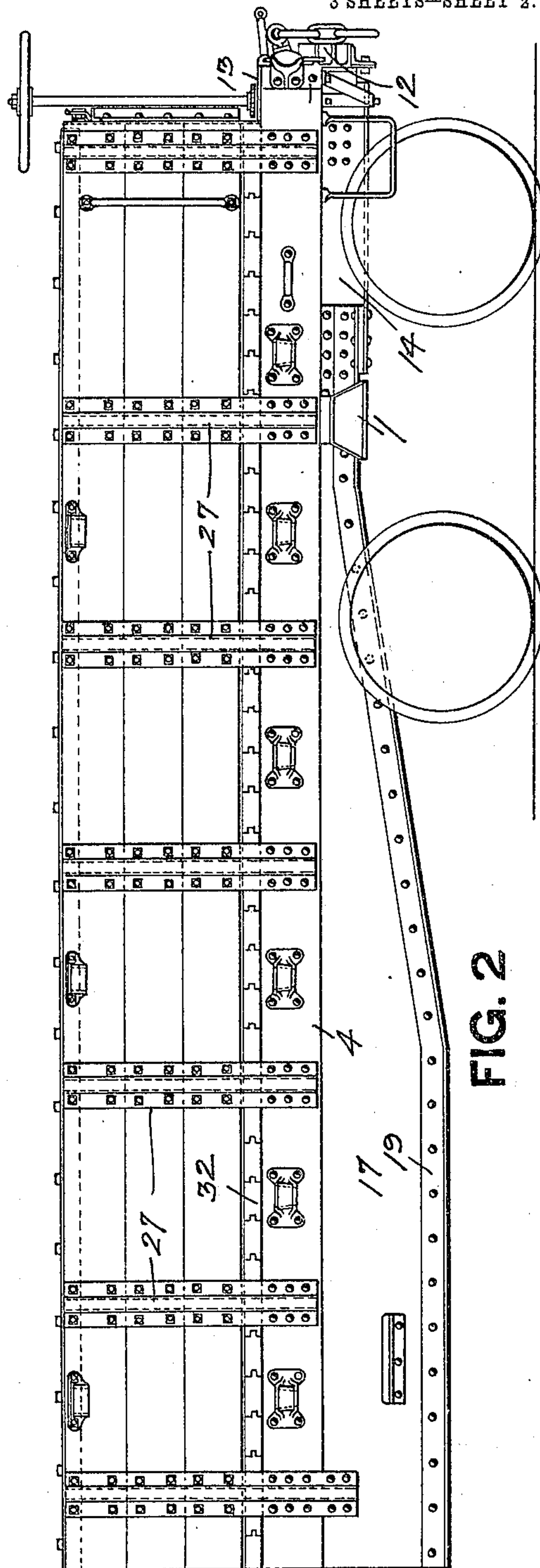


FIG. 2

WITNESSES.

*J. R. Keller*  
*Robert C. Fother*

INVENTOR.

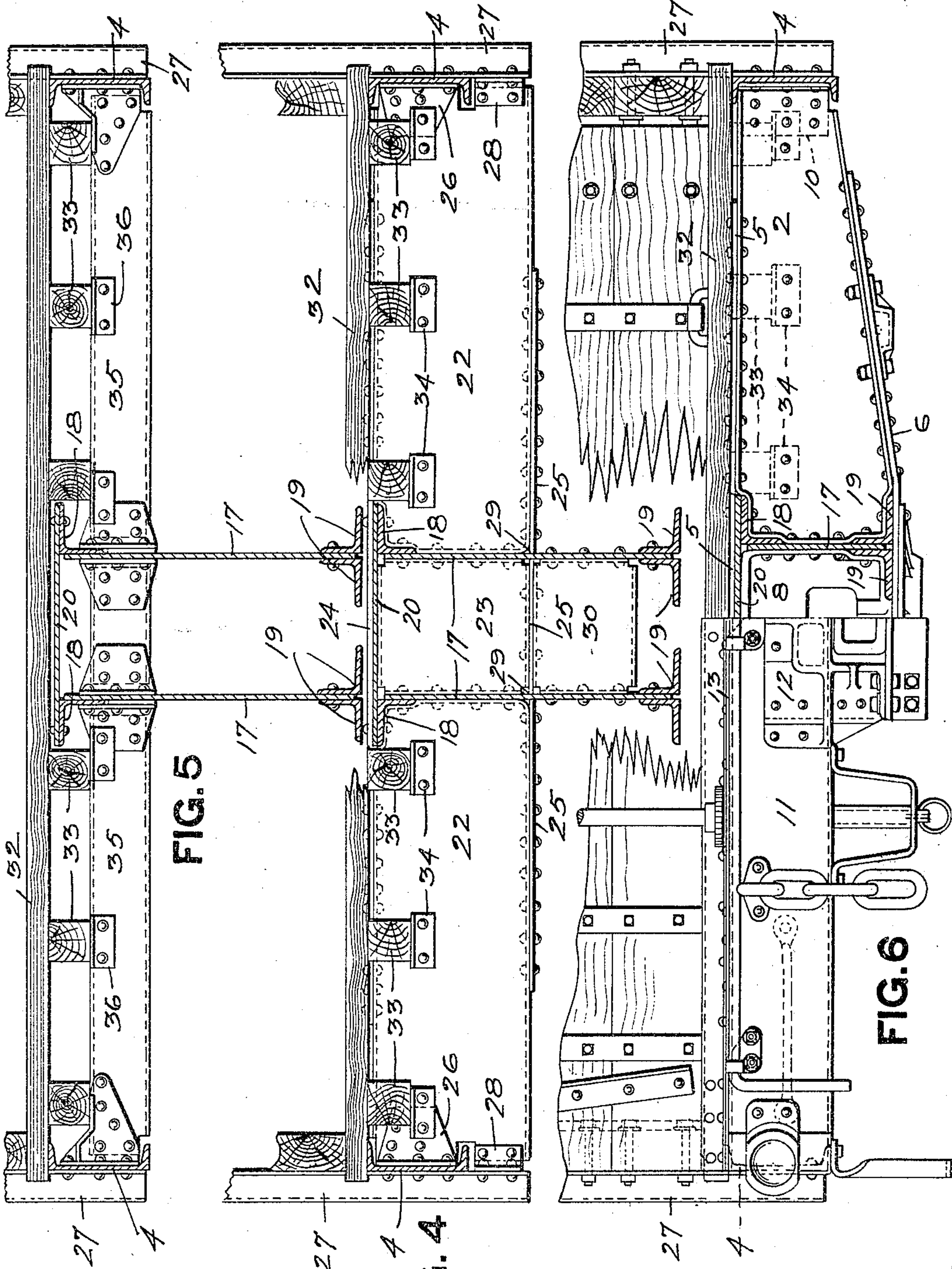
*John M. Hansen*  
*By Kay Fother & Winter*  
*attorneys*



J. M. HANSEN.  
METALLIC CAR UNDERFRAME.

APPLICATION FILED DEC. 23, 1904.

3 SHEETS—SHEET 3.



WITNESSES.

*J. R. Keller*  
*Robert C. Zottner*

FIG. 4

INVENTOR.

*John M. Hansen*  
*By Kay Zottner & Winter*  
*attorneys*



## UNITED STATES PATENT OFFICE.

JOHN M. HANSEN, OF PITTSBURG, PENNSYLVANIA.

## METALLIC CAR-UNDERFRAME.

SPECIFICATION forming part of Letters Patent No. 784,261, dated March 7, 1905.

Application filed December 23, 1904. Serial No. 238,161.

*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 Metallic Car-Underframes; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to metallic underframes for railway-cars, and more especially to underframes for flat, box, and gondola cars.

The invention consists in the features of construction and arrangement hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of one-half of the underframe with the floor removed. Fig. 2 is a side elevation of one-half of the car. Fig. 3 is a vertical longitudinal section thereof on the line 3 3, Fig. 1; and Figs. 4, 5, and 6 are transverse sections taken, respectively, on the lines 4 4, 5 5, and 6 6, Fig. 1.

The underframe comprises as its essential elements body-bolsters, center, side, and end sills, draft-beams, and suitable transverse connecting members. The body-bolsters 1 are of a standard built-up type, the same comprising web members 2, extending from the center sills 3 to the side sills 4 and suitably secured to both and provided on their top and bottom edges with flanges, to the upper ones of which is secured the top tie member or cover-plate 5, which extends continuously across the tops of the center sills, and to the lower ones of which is secured the bottom transverse tie member or cover-plate 6, which extends continuously underneath the center sills. Between the center sills is a center brace 8, provided with an opening 9 for the king-pin and suitably secured to the center sills, such as being provided with flanges, so that rivets may be driven therethrough and through the center sills. This type of bolster, however, is not claimed herein and has been selected for purposes of illustration merely, as any other type of body-bolster will answer the purpose.

The side sills 4 are shown as commercial rolled channel-beams; but they may be of any other desired construction. They are secured

to the ends of the body-bolsters by means of knee-pieces 10 and extend to the corners of the car, where they are suitably connected to the end sills 11. The latter also may be of any desirable construction, being shown as commercial channel-beams, and have secured thereto the buffer-casting 12 and other necessary appurtenances. A plate 13 preferably will be riveted to the upper flange of the end sill, so as to form a narrow deck at the end of the car.

The center sills project beyond the body-bolsters, and to their ends are riveted the draft-sills 14, which extend out to and are secured to the end sills. These draft-beams may be of any preferred form, those shown in the drawings being Z shape in cross-section, having the bottom flanges projecting outwardly and the top flanges projecting inwardly. Extending from the corners of the underframe to the angle of the body-bolster and center sills are diagonal braces 15, having their ends connected to suitable gusset-plates, as will be apparent from the drawings.

All of the parts of the car so far described are or may be of the usual construction, and no novelty therein is claimed.

The center sills are shown as plate-girders having web-plates 17, which are reinforced at their upper edges by means of an angle-bar 18 and at their lower edges by a pair of angle-bars 19. These center sills are made extremely deep and are of varying depth, so as to give a uniform-strength girder. A top cover-plate 20 is riveted to the top flanges of the center sills and extends practically from end to end of the car. The center sills are intended to carry the greater portion of the load, the side sills being comparatively shallow.

In order to transfer a portion of the load from the weak side sills to the strong center sills, I provide one or more cross-bearers or transoms intermediate the bolsters, two such transoms 21 being shown. Each of these transoms comprises a web member 22, extending between the center and side sills, and a center web member 23 between the center sills, together with a top cross-tie 24 and a bottom cross-tie 25. The web members 22 are formed from plates flanged at their top, bottom, and



inner edges, by means of which flanges said members are secured, respectively, to the top cross-tie, bottom cross-tie, and center sills. They are secured to the side sills by means of  
 5 suitable angle-brackets or knee-pieces 26. The stakes or posts 27, which lie opposite the ends of these transoms, are extended downwardly beyond the side sills and have said extended portions connected to the web members 22 by  
 10 angle-brackets or knee-pieces 28. The center web member 23 is flanged on all four edges and is riveted through these flanges to the center sills and bottom cross-tie 25. It may also, if desired, be riveted to the top cross-tie 24,  
 15 but is not so shown. The web members 22 and 23 are of less depth than the center sills, and consequently the webs of said sills are slotted at 29 in order that the bottom cross-tie 25 may extend through the same. The  
 20 portions of the center sills which project downwardly below these transoms or cross-bearers are braced and stiffened by means of a plate 30, suitably secured to said sills and also to the cross-tie 25. This plate is flanged on all  
 25 edges, through which flanges it is riveted to the center sills and cross-tie 25. It will be observed that the bottom cross-tie 25 lies between the center braces 23 and 30 and that rivets pass through said tie and flanges on both  
 30 of said braces. The top cross-ties 24 of the transoms lie above the cover-plate 20 of the center sills.

The top edges of the bolsters, longitudinal sills, and cross-bearers or transoms are all in  
 35 approximately the same plane. When the underframe is adapted to a wooden superstructure, such as shown in the drawings, the wooden floor 32 will be supported on suitable wooden stringers 33. These extend from the  
 40 body-bolsters to the cross-bearers or transoms, having their ends supported on brackets 34, secured to the webs of said bolsters and transoms. Intermediate their ends they are supported upon cross-connectors 35, shown as  
 45 channel-bars, which extend from the center to the side sills and are secured to both by suitable knee-pieces. Brackets 36 are secured to these transverse connectors, and the stringers are bolted to said brackets.

50 The drawings show various other features of a wooden gondola car; but as they form no part of the present invention they will not be described.

What I claim is—

55 1. In a metallic railway-car, the combination with the body-bolsters, of a deep center sill connecting said bolsters, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides  
 60 and secured to both, and a bottom tie member secured to the web members and extending through a slot cut in the web of the center sill.

65 2. In a metallic railway-car, the combination with body-bolsters, of a deep center sill

connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides and secured to both, a top tie member secured to  
 70 said web members and extending across the top of the center sill, and a bottom tie member secured to said web members and extending through a slot in the center sill.

3. In a metallic railway-car, the combination with the body-bolsters, of a deep center sill connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides and  
 80 secured to both and provided with flanges on their bottom edges, and a bottom tie member secured to the flanges of said web members and extending through a slot in the center sill.

4. In a metallic railway-car, the combination with the body-bolsters, of a deep center sill connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sill to the car sides and  
 90 secured to both and being provided with flanges on their top and bottom edges, a top tie member secured to the top flanges of said web members and extending across the top of the center sill, and a bottom tie member secured to  
 95 the bottom flanges of said web members and extending through a slot in the center sill.

5. In a metallic railway-car, the combination with body-bolsters, of deep center sills connecting the same, and a cross-bearer or  
 100 transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sills to the car sides and secured to both, braces between the center sills, and a bottom tie member extending through  
 105 slots in the center sills and secured to said center brace and said web members.

6. In a metallic railway-car, the combination with the body-bolsters, of deep center sills connecting the same, and a cross-bearer or  
 110 transom intermediate the body-bolsters, said cross-bearer comprising web members extending from the center sills to the car sides and secured to both, a brace between the center sills, a cross tie member extending through  
 115 the center sills and secured to said center brace and web members, and a brace located between the center sills below said tie member and secured to said tie member and to the center sills.

7. In a metallic railway-car, the combination with the body-bolsters, of deep center sills connecting the same, and a cross-bearer or transom intermediate the body-bolsters, said cross-bearer comprising members extending  
 125 from the center sills to the car sides, and secured to both, a transverse tie member extending through slots in the center sills and secured to said side members, and a pair of plates secured to the center sills, one above  
 130



and the other below said cross-tie, said plates being provided with flanges, the one on its top edge and the other on its bottom edge, and rivets passing through said flanges and the interposed cross-tie.

8. In a metallic railway-car, the combination with body-bolsters, of center and side sills, a cross-bearer or transom connecting said center and side sills intermediate the bolsters, a wooden superstructure, and vertical metallic members therefor secured to the side sills, those opposite the transom extending below the side sills and having said projecting portions secured to the ends of the transom.

9. In a metallic railway-car, the combination of body-bolsters, center and side sills, a cross-bearer or transom intermediate the body-bolsters and comprising web members extending from the center to the side sills and secured to both, top and bottom transverse tie members connected to said web members, a wooden superstructure, and metallic vertical members therefor secured to the side sills, said members opposite the transom projecting below the side sills and having said projecting portions secured to the ends of the web members of the transom.

10. In a metallic railway-car, the combination of body-bolsters, center and side sills connecting the same, and a cross-bearer or transom intermediate the bolsters and extending

from the center to the side sills and secured to both, the sills, bolsters and transom having their top edges in approximately the same plane, cross-connectors between the transom and body-bolsters and located below the top edges of the sills, and longitudinal stringers extending from the body-bolsters to the transom and resting on said cross-connectors.

11. In a metallic railway-car, the combination of side and center sills, body-bolsters, a transom intermediate the body-bolsters, said bolsters and transom comprising web members extending from the center to the side sills and secured to both, the top edges of said bolsters, transom and sills being in approximately the same plane, cross-connectors extending from the center to the side sills intermediate the bolsters and transom and located below the top edges of said sills, longitudinal stringers extending from the body-bolsters to the transom and resting on said cross-connectors, and brackets secured to the webs of said bolsters and transom and supporting the ends of said stringers.

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

JOHN M. HANSEN.

Witnesses:

ROBERT C. TOTTEN,  
G. C. RAYMOND.