

No. 854,349.

PATENTED MAY 21, 1907.

J. M. HANSEN.  
METALLIC CAR UNDERFRAME.

APPLICATION FILED SEPT. 6, 1906.

2 SHEETS—SHEET 1.

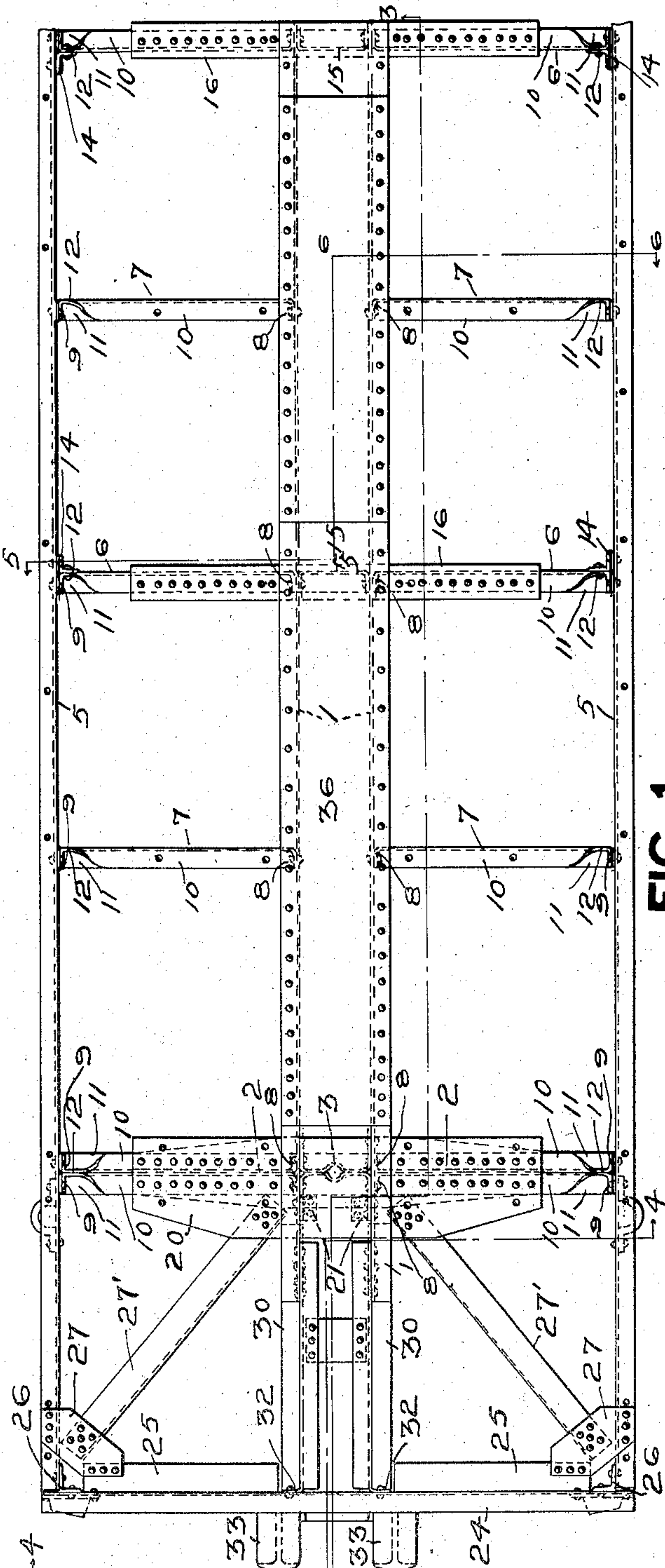


FIG. 1

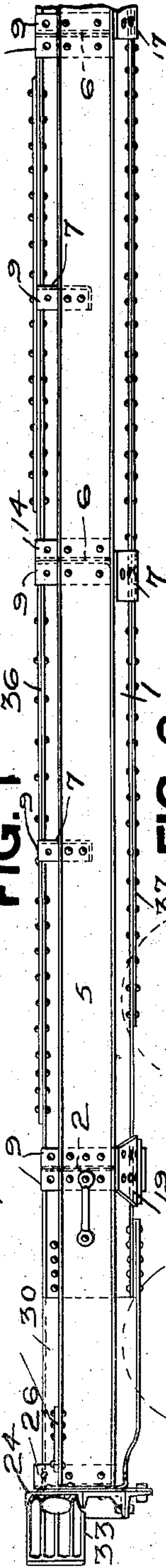


FIG. 2

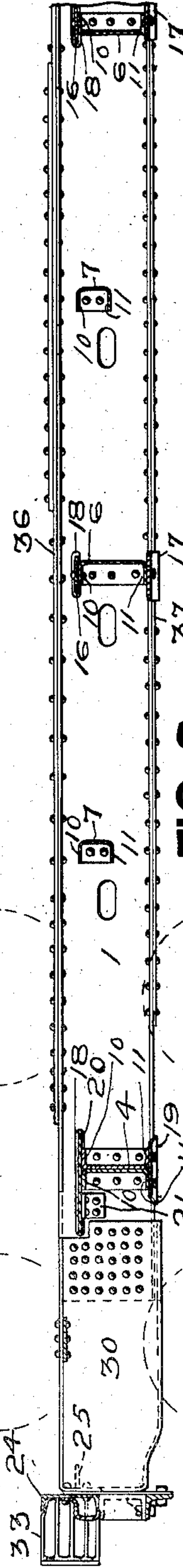


FIG. 3

WITNESSES.

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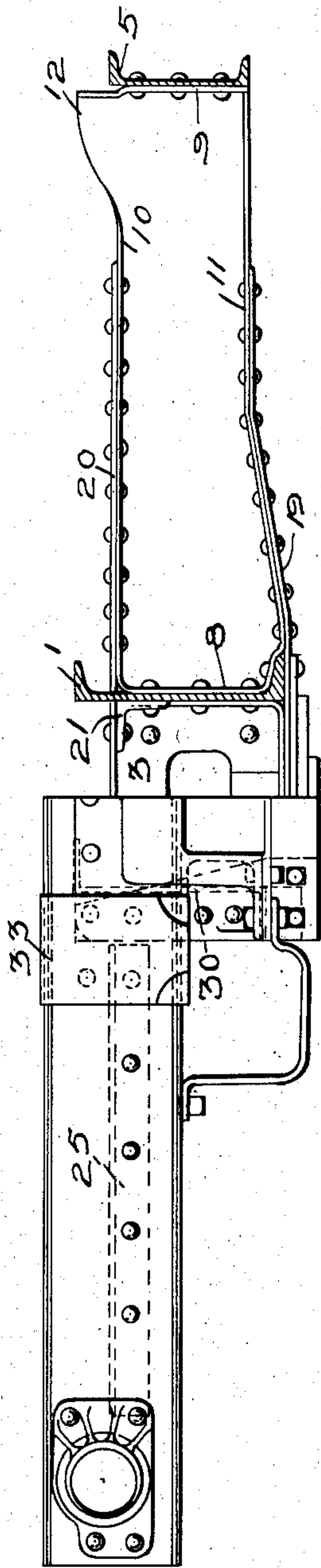
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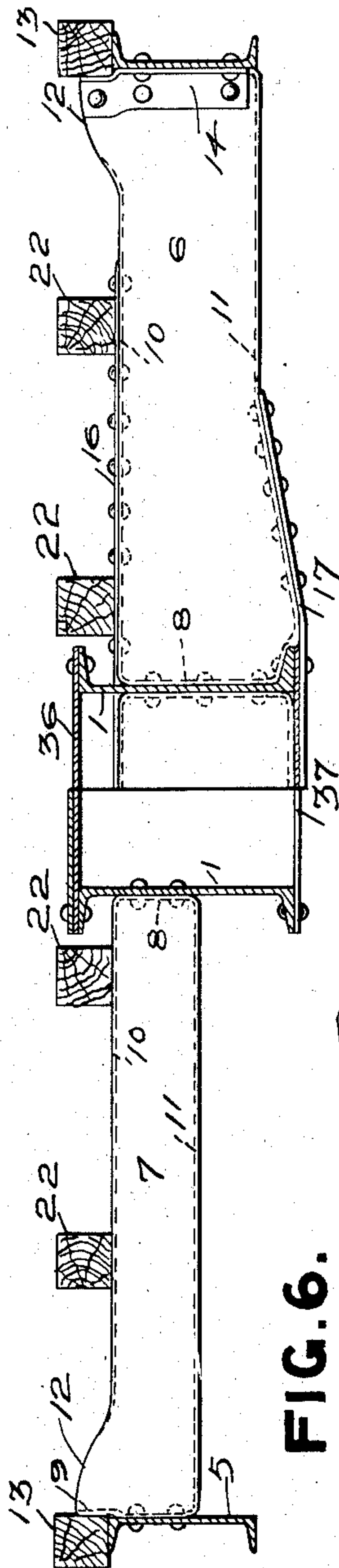
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2 SHEETS—SHEET 2.

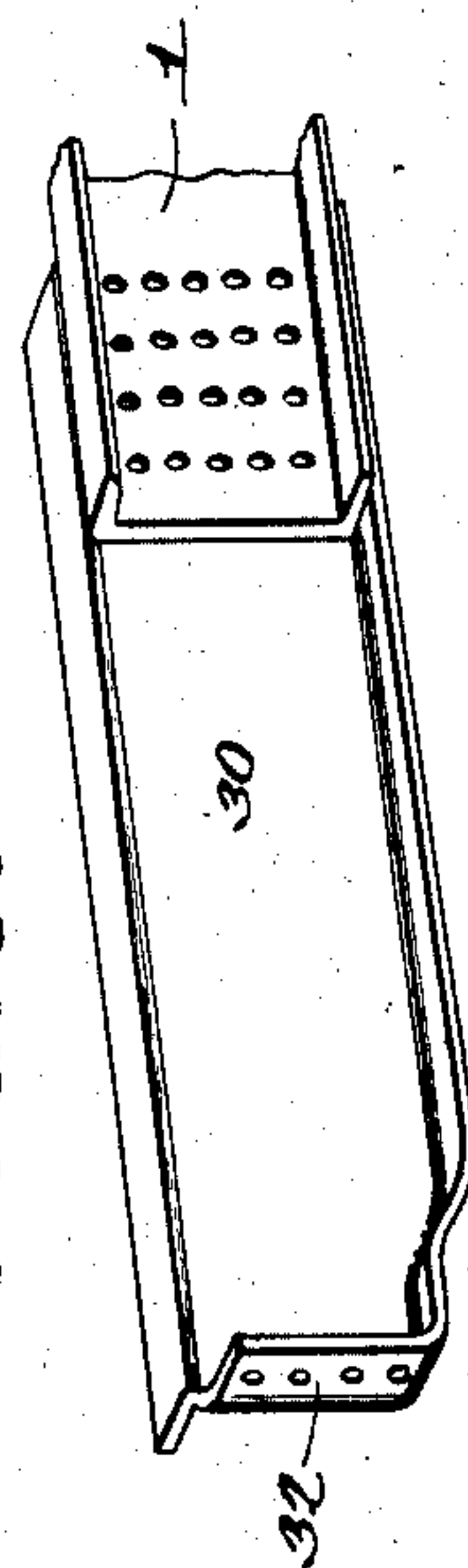
**FIG. 4**



**5. 5. 5.**



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# UNITED STATES PATENT OFFICE.

JOHN M. HANSEN, OF PITTSBURG, PENNSYLVANIA.

## METALLIC CAR-UNDERFRAME.

No. 854,349.

Specification of Letters Patent.

Patented May 21, 1907.

Application filed September 6, 1906. Serial No. 333,493.

*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.

This invention relates to metallic underframes for railway cars, and more especially to underframes for cars having either a wooden superstructure, or at least a wooden floor.

The object of the invention is to improve car underframes of this character in details of construction and arrangement hereinafter described and claimed.

In the accompanying drawings Figure 1 is a plan view of the underframe of one half of the car; Fig. 2 is a side elevation of the same; Fig. 3 is a vertical longitudinal section on the line 3—3 Fig. 1; Fig. 4 is in part an end view and in part a cross section on the line 4—4 Fig. 1; Fig. 5 is in part a cross section on the line 5—5 Fig. 1, and in part a cross section on the line 6—6 Fig. 1; and Fig. 6 is a perspective view of a draft sill.

The underframe is provided with center sills 1, shown as rolled channel beams placed with their flanges projecting outwardly and extending slightly beyond the body bolster 2. The latter is a built-up structure having a center brace 3 between the center sills, and web members 4 extending from the center sills to the car sides, which in this case are represented by side sills 5, these also being of rolled channel beams, placed with their flanges projecting outwardly. The center brace 3 may be of any desired construction, that shown being two pressed plates placed back to back and having integral flanges on top, bottom and both side edges, the latter being riveted to the webs of the center sills.

A novel feature of this underframe is in the web members 4 of the bolsters, which web members are also used in the cross bearers or transoms 6, three of which are employed between the body bolsters, the principal feature of said web members also being used in cross connectors or floor supports 7 located between the cross-bearers 6 and the bolsters 2. The peculiarity of these web members is the fact that they are made of pressed plates having integral flanges 8 and 9, respectively,

on the inner and outer ends as well as flanges 10 and 11, respectively, on the top and bottom, but the top flange 10 not extending out to the end of the web member, but at the upper edge of said end the web is left unflanged and projects above the top flange 10, as shown in the drawings and indicated by the reference numeral 12. It will be observed that the flanges of these web members are continuous, except at the upper outer portion thereof. The outer end flanges 9 are riveted directly to the side sills 5, and the vertical web parts 12 extend upwardly above the top edge of the sill and brace the outer end flanges so as to form abutments for a floor stringer 13. The flanges 8 at the inner ends of these web members are riveted directly to the webs of the center sills.

In the body bolsters two web members of the character described are used, these being placed back to back as shown. At the cross bearers or transoms 6 only a single web member of the character described is used, and an additional connecting piece or angle 14 is used to connect the outer end to the side sill. With these cross-bearers or transoms a center brace 15 of pressed metal is placed between the center sills. The cross connectors or floor supports 7 have no center brace in line therewith between the center sills, and these cross connectors also are of much less depth than the web members of the body bolsters and transoms or cross bearers and also are not provided with cover plates. They, however, have the same general construction as the web members of the bolsters and transoms.

The transoms 6 are provided with a top cover plate 16, and a bottom cover plate 17. The latter extends underneath the center sills and is riveted to the bottom flanges 11 of the web members of the transom, while the top cover plate is riveted to the top flanges 10 and extends through slots 18 in the webs of the center sills, the latter projecting above the transoms. The bolster also is provided with a bottom cover plate 19, which extends underneath the center sills and is riveted to the bottom flanges 11 of the web members, and with a top cover plate 20, riveted to the top flanges 10 of the web members and extending through slots 18 in the center sills. The top cover plate is considerably wider than the web members and ex-



tends farther toward the end of the car than it does toward the center. This projecting part of the plate is supported by angle brackets 21, riveted to the webs of the center sills and to the top cover plate.

The underframe described has the center sills considerably higher than the side sills and cross connecting and bearing members, this being for the purpose of receiving the wooden stringers 22, the latter resting upon the bolsters, the cross-bearers or transoms 6 and the cross-connecting floor members 7. The underframe is provided with an end sill 24, which also projects above the tops of the side sills. Stringer supports 25 are secured to the inner face of the end sill, said stringer supports being ordinary angle bars having one flange projecting inwardly. At the corner of the car the side sills and end sill are connected by ordinary angle pieces 26, and a gusset plate 27 is also riveted to the top flanges of the side sills and the stringer supports 25. From this gusset plate a brace formed of an angle bar 27 extends diagonally inwardly and has its inner end riveted to the top cover plate 20 of the body bolster. The end sill is shown as a rolled channel placed with the flanges projecting outwardly, but if desired, it may be of any other construction.

The draft beams are shown at 30, and these consist of pressed plates of general Z-shape in cross section, having the top flange projecting inwardly and the bottom flange projecting outwardly. The webs of these draft beams are riveted to the webs of the center sills outside of the body bolster. At their outer ends the draft sills are provided with integral flanges 32 which are continuous with the out-turned bottom flanges and are riveted directly to the web of the end sill as well as to a buffer casting 33, which has a portion projecting below the bottom edge of the end sill, to which projecting portion the end flanges of the draft beams are riveted. The center sills are provided with a top cover plate 36 and a bottom cover plate 37, so that between the body bolsters said sill is practically a box girder.

What I claim is:

1. In a metallic underframe for railway cars, the combination of center sills, a cross beam or connector extending therefrom to the car sides, said beam or connector having web members formed from pressed plates provided with vertical webs highest at their outer ends and having integral vertical flanges at the outer ends for connection to the car sides, and also having top flanges terminating short of the outer ends of said webs.

2. In a metallic underframe for railway cars, the combination of center sills, a cross beam or connector extending from said sills to the car sides, said cross beam or connector having web members composed of pressed

plates having vertical webs highest at their outer ends and having integral flanges at the top, bottom and outer end edges, the latter extending for the full height of the web members, and the top flanges terminating short of the outer ends of the webs.

3. In a metallic underframe for railway cars, the combination of center sills, a cross-beam or connector extending from the same to the car sides, said cross-beams and connectors having web members formed of pressed plates having their webs arranged vertically and highest at the outer ends, and having integral flanges at the top and bottom edges and outer ends, the flanges at the tops terminating short of the ends of the webs and the bottom and end flanges being continuous, the latter extending for the full height of the ends of the web members.

4. In a metallic underframe for railway cars, the combination of center sills, side sills, a cross-beam or connector having its top at the same height as the tops of the side sills but having its outer ends projecting above the same to serve as stringer abutments, said cross beam or connector having web members composed of pressed plates placed with the webs vertically and with integral flanges on the outer ends and top and bottom edges, the top flanges terminating short of the outer ends of the web members.

5. In a metallic underframe for railway cars, the combination of center sills, side sills, and a cross-beam or connector, the latter having its top on the same level as the tops of the side sills and having upwardly projecting portions at its outer ends, said cross beam including pressed plates having flanges at their outer ends for connecting to the side sills and flanges on the top and bottom edges, those at the top edges terminating short of the outer ends of the beam, and top connecting members riveted to the top flanges of said web members.

6. In a metallic underframe for railway cars, the combination of center sills, end sill, side sills and a body bolster, stringer supports secured to the end sill, and a brace connecting said stringer support and body bolster.

7. In a metallic railway car underframe, the combination of center sills, side sills, end sill, and body bolster, of a stringer support on the end sill, gusset plates connecting the side sills and said stringer support and braces connecting said gusset plates and body bolster.

8. In a metallic underframe for railway cars, the combination of center sills, draft sills riveted thereto and comprising a vertical web having top and bottom flanges projecting in opposite directions and having an integral flange at the outer end for riveting to the car end.

9. A metallic draft beam for railway cars comprising a pressed plate of general Z form



having at its outer end an integral flange which is continuous with one of the edge flanges and serving to secure the beam to the car end.

5 10. A metallic draft beam for railway cars, comprising a pressed plate having a vertical web and being of general Z form with the lower flange projecting outwardly and having at its outer end an integral flange contin-

uous with the out-turned bottom flange and so serving to secure the beam to the car end.

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

JOHN M. HANSEN.

Witnesses:

ROBERT C. TOTTEN,  
J. R. KELLER.