

No. 743,499.

PATENTED NOV. 10, 1903.

J. M. HANSEN.

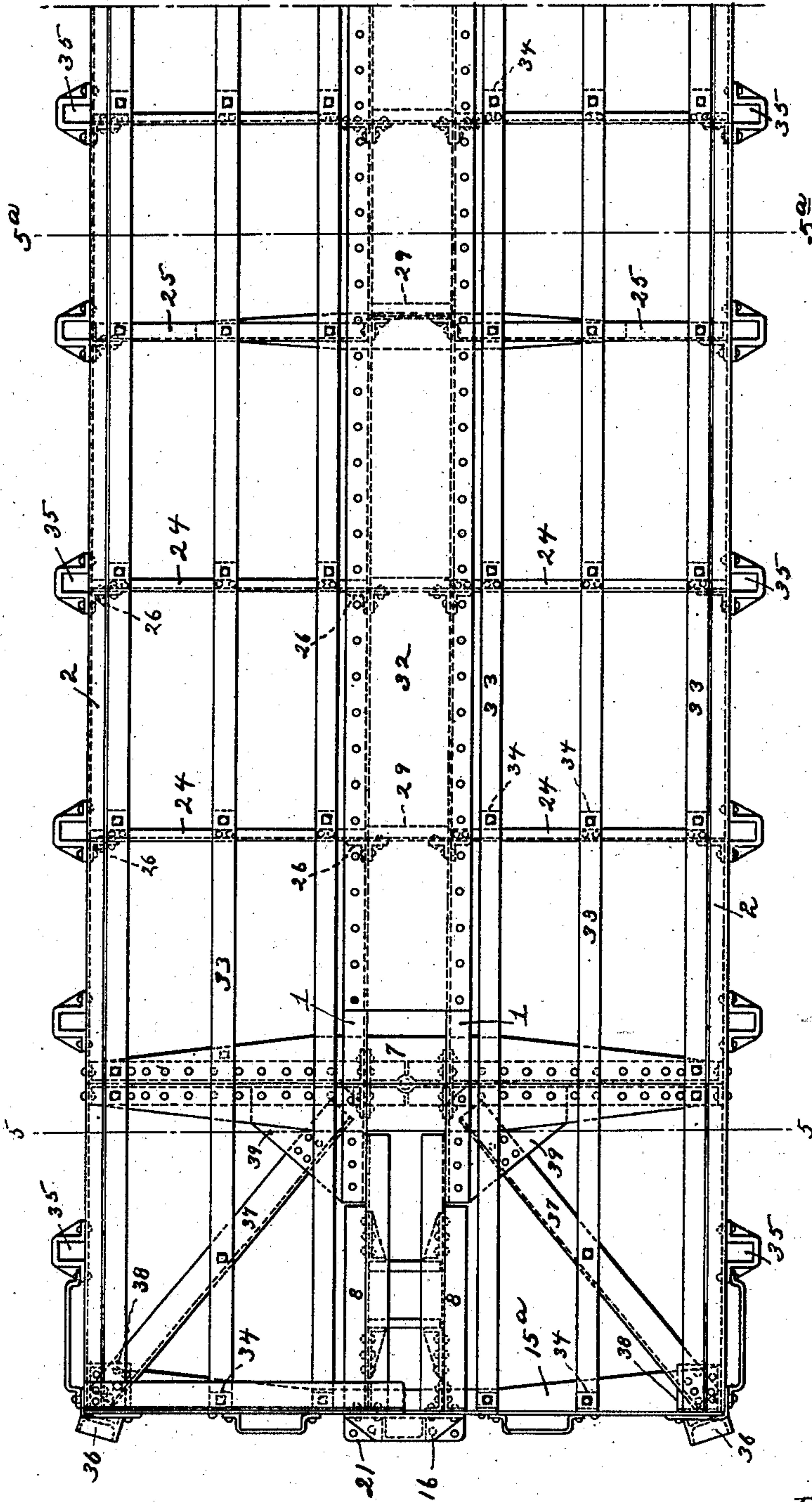
FLAT CAR.

APPLICATION FILED JUNE 9, 1902.

NO MODEL.

3 SHEETS—SHEET 1.

fig. 1.



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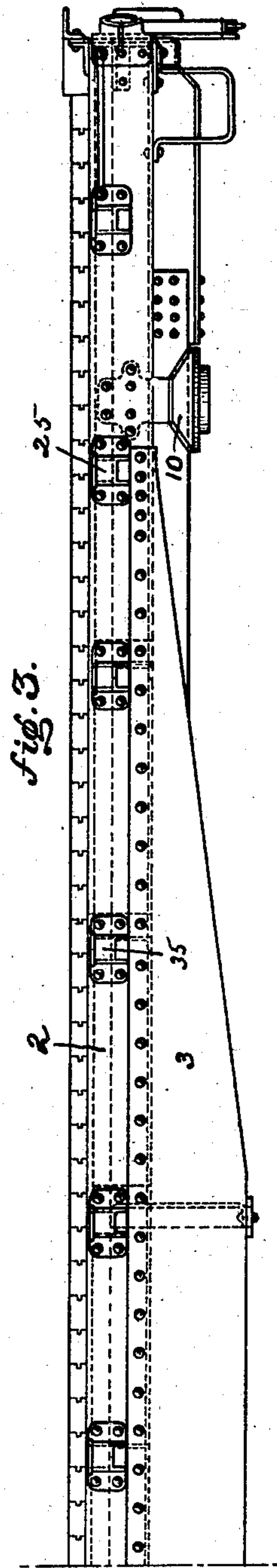
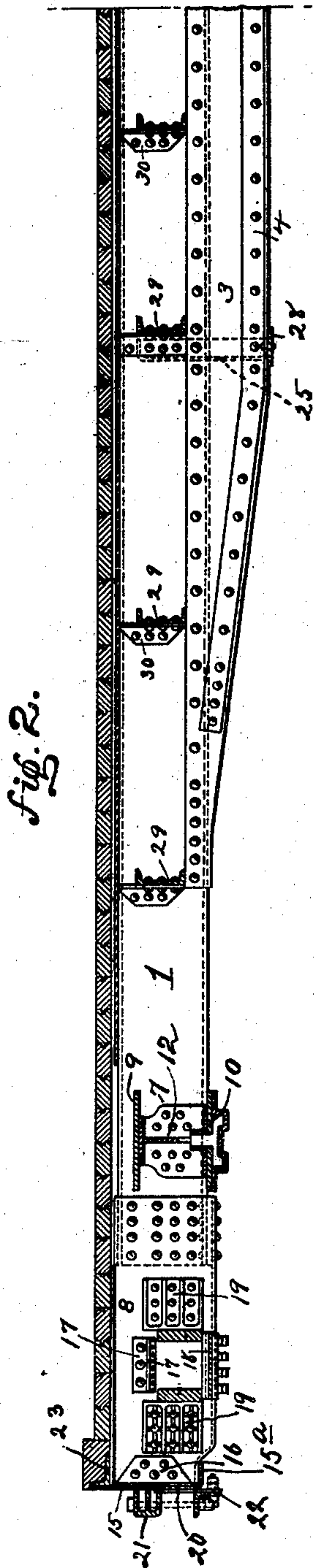
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FLAT CAR.

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3 SHEETS—SHEET 2.



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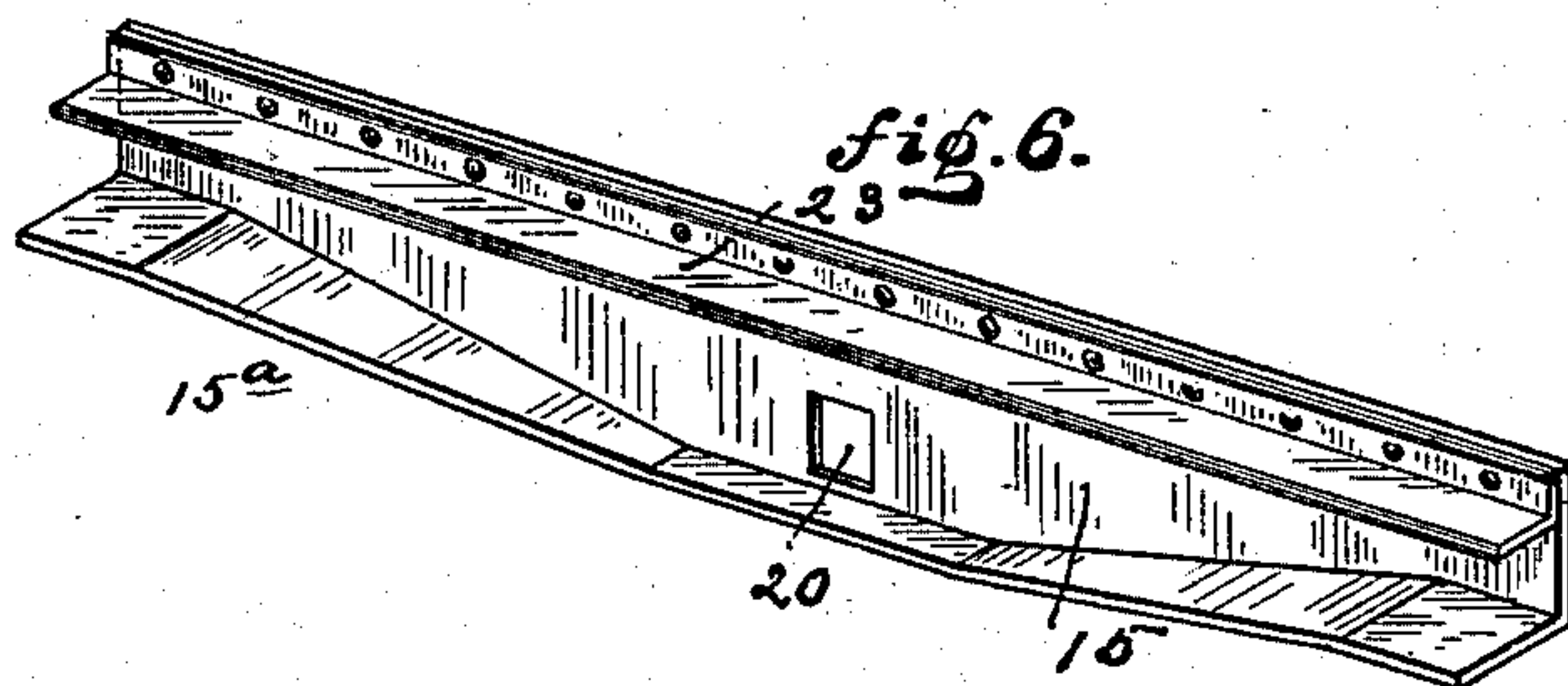
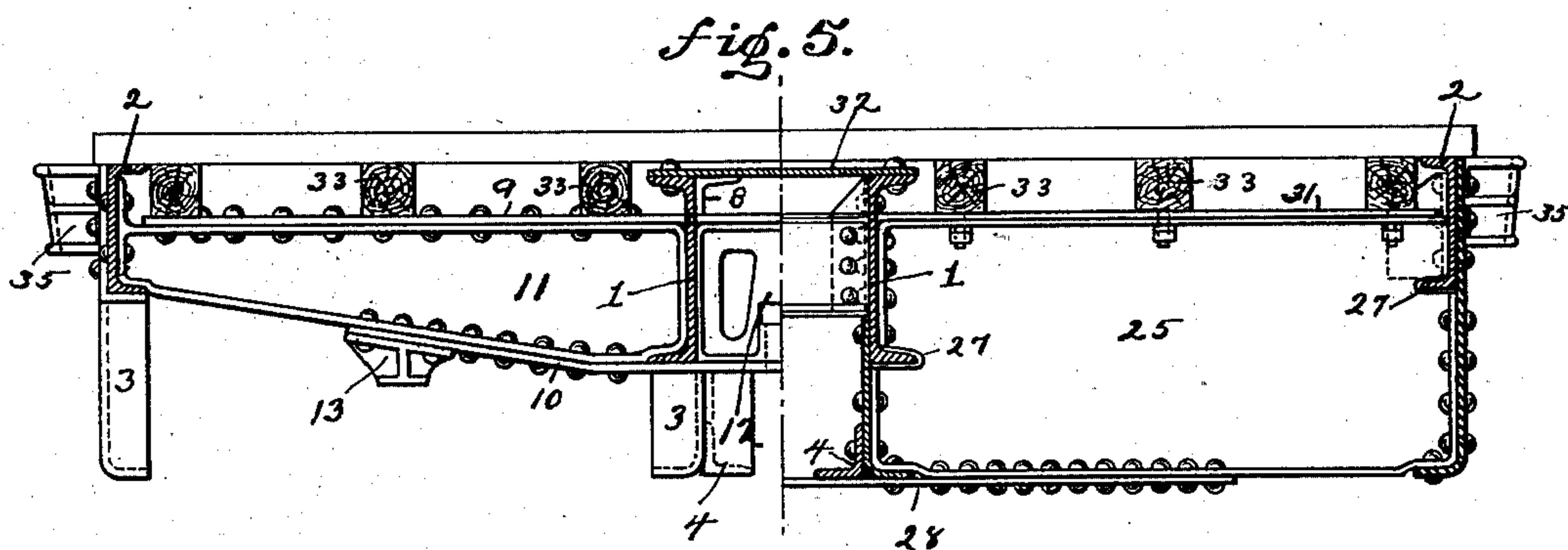
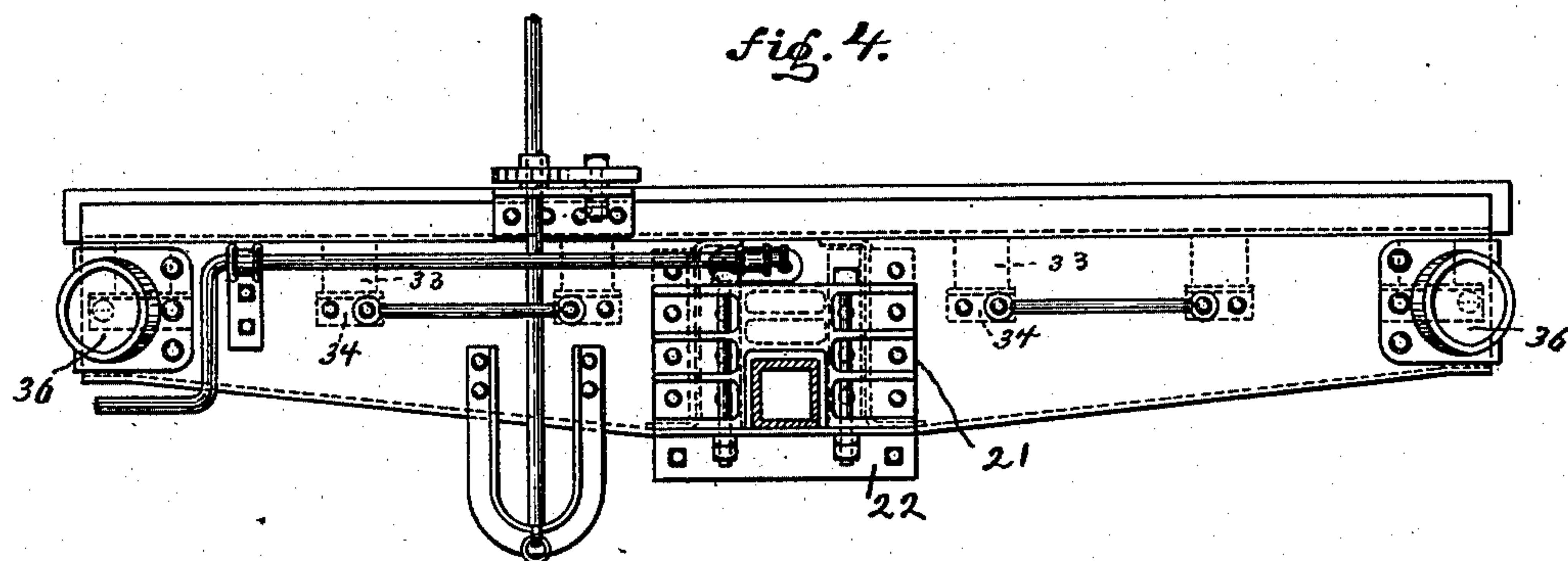
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FLAT CAR.

APPLICATION FILED JUNE 9, 1902.

NO MODEL.

3 SHEETS—SHEET 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN M. HANSEN, OF PITTSBURG, PENNSYLVANIA.

FLAT-CAR.

SPECIFICATION forming part of Letters Patent No. 743,499, dated November 10, 1903.

Application filed June 9, 1902. Serial No. 110,786. (No model.)

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 Flat-Cars; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to underframes for cars, and more especially to metallic underframes for cars provided with a wooden superstructure. Its object is to improve underframes of this character in details of construction which are hereinafter fully 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 central vertical longitudinal section through one half of the car. Fig. 3 is a side view of the other half of the car. Fig. 4 is an end view of the car. Fig. 5 is a transverse cross-section, the left-hand portion being taken on the line 5 5 and the right-hand portion on the line 5^a 5^a, Fig. 1; and Fig. 6 is a perspective view of the end sill.

The invention is shown applied to an ordinary flat-car; but it will be understood that it is not limited thereto. The underframe is composed of metallic center, side, and end sills, draft-sills, body-bolsters, and suitable cross-ties. The center sills preferably are channel-shaped structures, such as the rolled channel-beams 1, placed parallel to each other, with their flanges preferably projecting outwardly. The side sills also preferably are rolled channels 2 of less depth than the center sills and placed with their flanges projecting inwardly. Both the center and side sills are reinforced by bars 3 of L-shape cross-section and varying width, being deepest at their middle portions and tapering toward their ends. The vertical webs of these L-shaped members overlap the webs of the longitudinal sills and are riveted thereto. The flanges of the L-shaped members applied to the outside sills preferably project inwardly, while those applied to the center sills have their flanges preferably projecting outwardly. The L-shaped members attached to the center sills are reinforced by angle-bars 4, riveted to the webs of the L-shaped members near their bottom and have their

horizontal flanges flush with the lower flanges on the L-shaped members. In this manner a truss-shaped girder is provided for both center and side sills.

The center sills project through and beyond the body-bolsters 7 and have the draft-sills 8 secured thereto between the body-bolsters and the end sills. The body-bolsters comprise top cover-plates 9, bottom cover-plates 10, side web-fillers 11, and center braces 12. The top cover-plates 9 pass through slots cut in the webs of the center sills and extend nearly to the side sills. Bottom cover-plates 10 pass beneath the center sills and extend beyond the body side bearings 13, which are secured thereto. The side web-fillers 11 are so shaped at their ends as to fit neatly against the side sills and to provide suitable means for the attachment of the side sills thereto.

The draft-sills are of Z shape in cross-section and extend from the center sills to the end sills 15. They are of slightly greater depth than the center sills and have their webs bearing against the inner faces of the webs of the center sills and riveted thereto, with their upper flanges projecting inwardly substantially flush with the upper flanges of the center sills and with their lower flanges projecting outwardly and lying underneath and preferably also riveted to the lower flanges of the center sills. The draft-sills are united to the end sills by connecting-angles 16 and are also connected by the transverse tie-plates 17 and 18. Draft-lugs 19 are riveted to the inner faces of the webs of the center sills. The end sill 15 is of L-shape cross-section, the depth of the web and the width of the flange 15^a being variable. The web is deeper at its center than at the ends, and the flange is wider at the ends than at the center, the idea being to form the end sill of rectangular flat plates of uniform width and throwing into the flange to produce extra width the metal which is diverted from the web on account of its decreased depth. Openings or holes 20 are cut through the webs of the end sills near their centers at the lower side just above the flange 19 to permit the passage of the draw-bar shank. Buffer-castings 21 are attached to the end sills and serve as a partial support for the draw-bar

carrier, as well as striking-blocks for the draw-bar horn. Draw-bar carriers 22 in the form of angle-bars are bolted to these castings. Reinforcing angle-bars 23 are riveted to the inner faces near the upper edges of the webs of the end sills and lie on top of the draft and side sills and preferably with their vertical flanges projecting upwardly. These angles serve to support the end floor-planks, and the upwardly-projecting portions of the end sills and angles keep the floor from shifting end-wise.

The underframe is tied together and reinforced by two sets of diaphragms 24 and 25. The diaphragms 24 are made of channel-bars and extend transversely and horizontally from center sills to side sills, being connected thereto by angle-pieces 26. The diaphragms 25 are pressed pan-shaped members having flanges on all sides thereof, by means of which they are riveted to the center and side sills. The flanges are cut away, as shown at 27, and the web slightly notched to receive the flanges of the side and center sills. A tie-plate 28 lies beneath each set of diaphragms 25 and passes beneath the center sills and is riveted to the lower flanges of the diaphragms. Center braces or diaphragms 29 are placed substantially in line with the side diaphragms 24 and 25. These also are preferably formed from channel-bars and are united to the center sills by angle-pieces 30. If desired, the diaphragms 25 may have secured to their upper flanges cover-plates 31, which pass through slots in the center sills in the same manner as the cover-plates of the bolsters.

The center sills have riveted to their upper flanges the cover-plate 32, which extends only to the bolsters. Wooden stringers 33 extend longitudinally of the car and rest upon the body-bolsters and transverse diaphragms, being secured to each by means of angle-brackets 34, riveted to the diaphragms and having the stringers bolted thereto. The wooden decking or floor is laid upon the longitudinal stringers 33 and extends from end sill to end sill. Stake-pockets 35 are riveted at intervals to the side sill, and push-pole pockets 36 are secured to the underframing at the corners thereof. Diagonal braces 37, of angle-iron, extend from the corners of the car, where they are riveted to gusset-plates 38, toward the center sills and bolsters and have their inner ends riveted to gusset-plates 39, which in turn are riveted to the top cover-plates of the bolsters and to the webs of the center sills, being secured to the former by

the same rivets which unite the cover-plates and web-fillers.

The underframing described is very simple and strong. It is composed of a small number of parts, most of which can be made from commercial rolled or other shapes, thus avoiding the expense of special shapes.

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

1. In a metallic car-underframe, a metallic end sill of L-shape cross-section having its flange turned inwardly, said end sill having a hole cut in its web just above the flange for the passage of the shank of the draw-bar.

2. In a metallic car-underframe, a metallic end sill of L-shape cross-section having a web of varying depth and a bottom flange turned inwardly, said end sill having a hole cut in the web just above the flange for the passage of the shank of the draw-bar, and a reinforcing-angle applied to the inner face near the upper edge of its web.

3. In a metallic car-underframe, the combination with the end sill comprising a metallic member L shape in cross-section having a bottom flange turned inwardly and having a hole cut in its web just above the bottom flange, of a buffer-block attached to the end sill at its center and notched on its under side to register with the hole in the end sill, and a draw-bar carrier secured to said buffer-block and serving to support the draw-bar shank.

4. In a metallic car-underframe, a longitudinal sill comprising a member of uniform flanged cross-section, an angle member having a web of varying depth overlapping and riveted to the web of the flanged member, and a reinforcing-angle secured to said angle member.

5. In a metallic car-underframe, the combination with longitudinal sills comprising metallic members of uniform channel cross-section having their flanges turned toward each other, of reinforcing angle members of varying depth having their webs overlapping and secured to the webs of said channel members, and transverse diaphragms provided with integral end flanges and notched or cut at the ends to fit over the projecting flanges of the longitudinal sills, and rivets uniting said diaphragms to said longitudinal sills.

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

JOHN M. HANSEN.

Witnesses:

WM. BIERMAN,
ROBERT C. TOTTEN.