

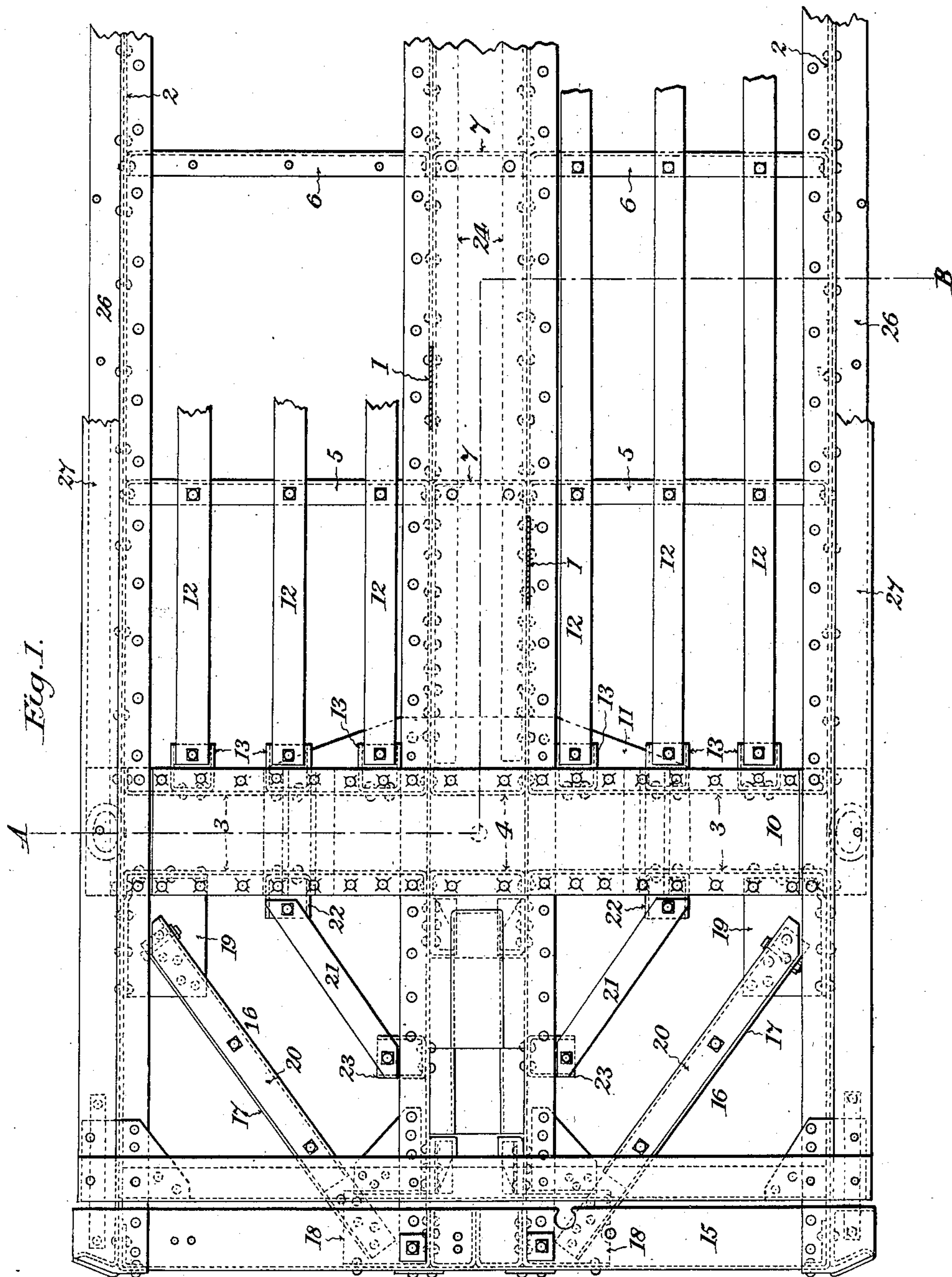
No. 841,145.

PATENTED JAN. 15, 1907.

J. M. HANSEN.
UNDERFRAME FOR BOX CARS.

APPLICATION FILED JAN. 9, 1902.

3 SHEETS—SHEET 1.



Witnesses:

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Inventor:

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3 SHEETS—SHEET 2.

Fig. 2.

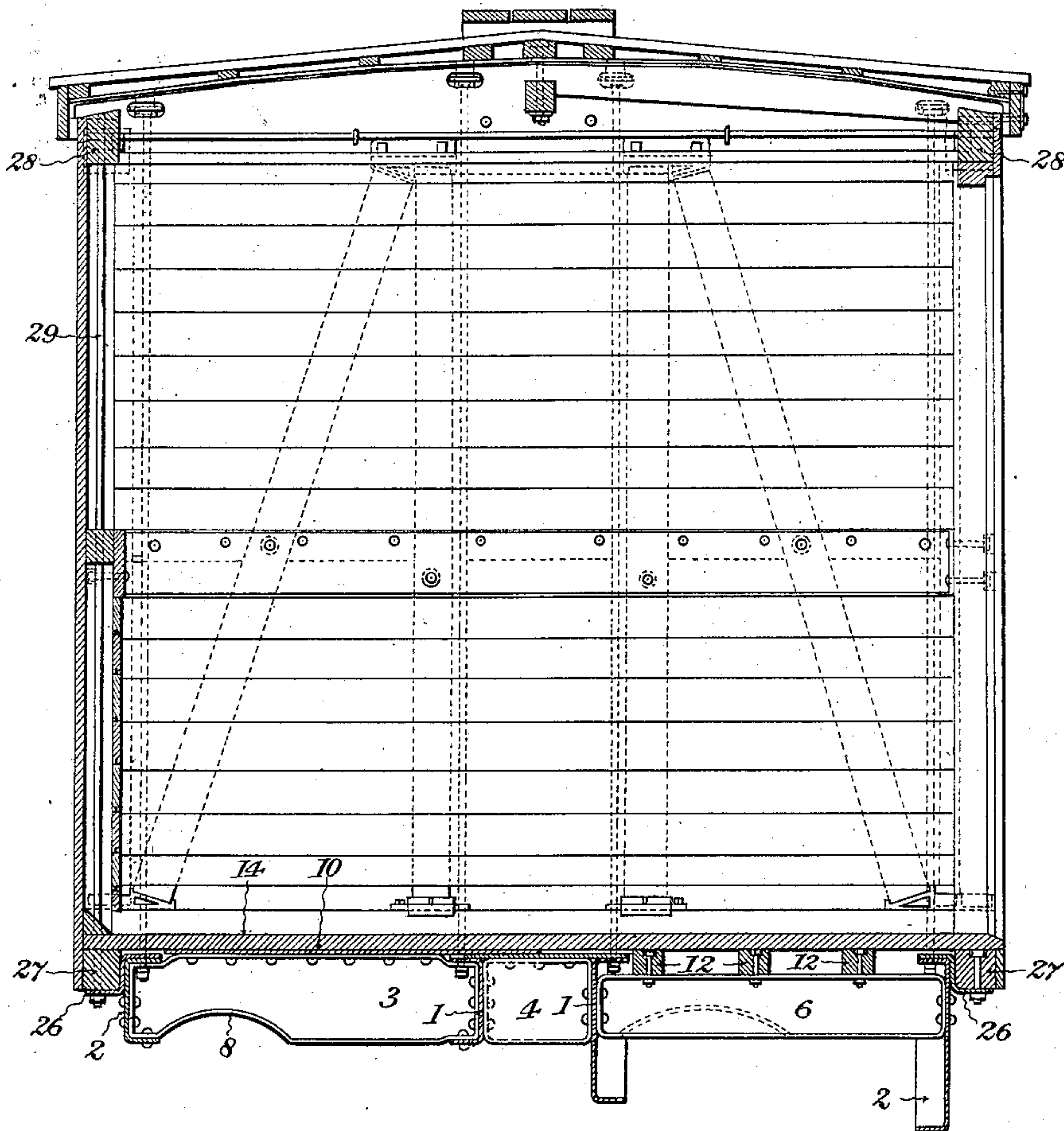
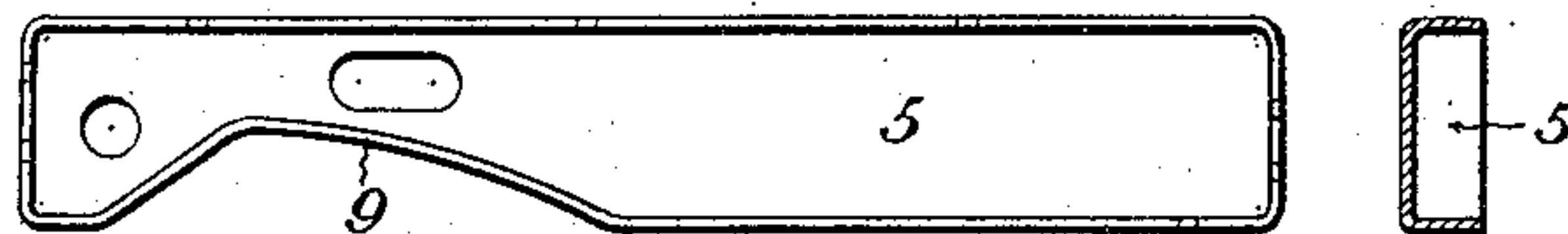


Fig. 3.



Witnesses:

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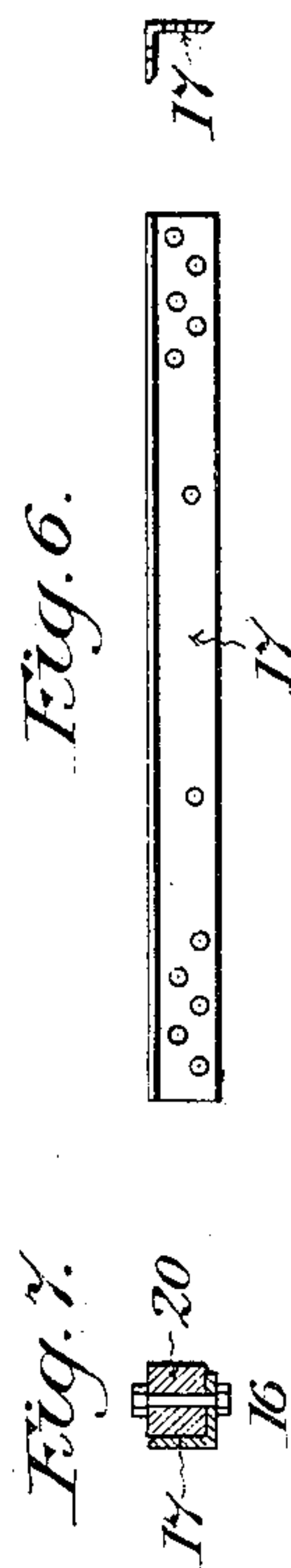
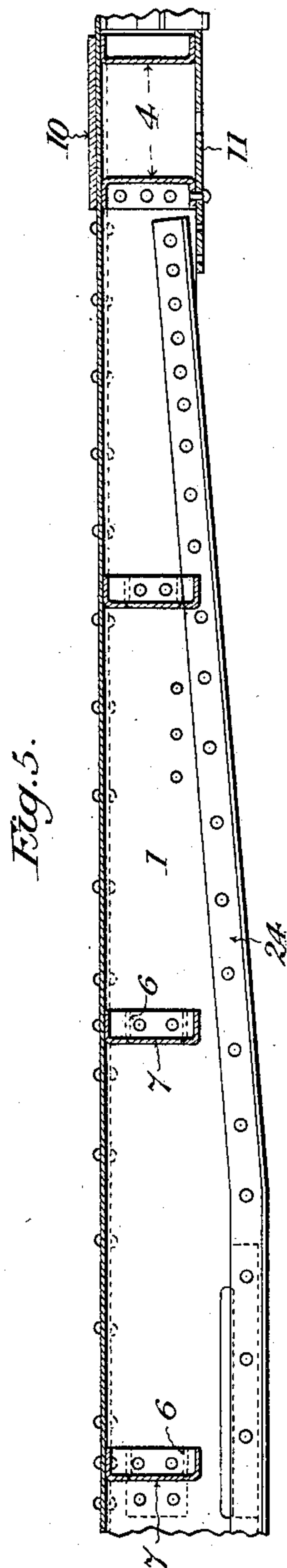
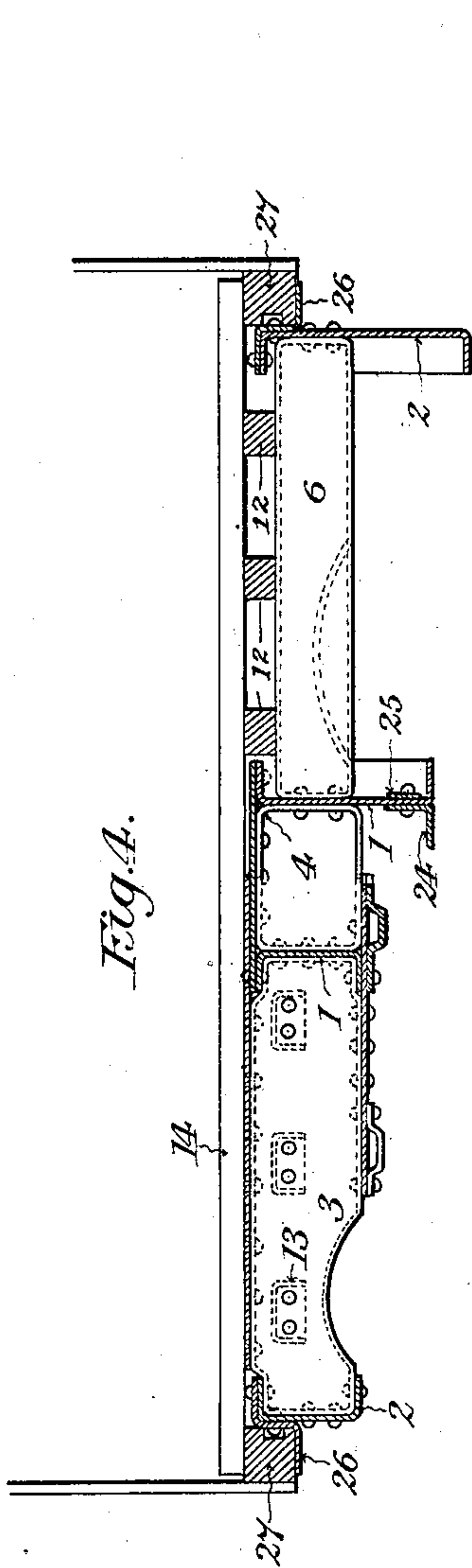
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3 SHEETS--SHEET 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN M. HANSEN, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO PRESSED STEEL CAR COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

UNDERFRAME FOR BOX-CARS.

No. 841,145.

Specification of Letters Patent.

Patented Jan. 15, 1907.

Application filed January 9, 1902. Serial No. 89,056.

To all whom it may concern:

Be it known that I, JOHN M. HANSEN, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Underframes for Box-Cars, of which the following is a full, clear, and exact description.

The special object of this invention is to provide a metallic underframe to receive a wooden superstructure.

In carrying out the invention center and side sills of metal, preferably pressed steel, are used, and these are connected by built-up bolsters, the sills running continuously from end sill to end sill by preference and the center and side sills connected by transoms arranged sufficiently below their upper levels to receive wooden nailing-stringers, and thereby preserve unimpaired the carrying capacity of the body. Diagonal braces, also affording nailing-strips, are arranged between the bolsters and the ends of the car. The end sills may be of approved construction. Reinforcing angle-pieces may be applied to the lower edges of the center sills. The side sills are provided with pressed or rolled metallic Z-bars to receive wooden nailing-strips, and these nailing-strips are tied to the side plates by vertical tie-rods, whose heads or bolts are accessible from outside the car, all as I will proceed now more particularly to set forth and claim.

In the accompanying drawings, illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a top plan view of one end of the underframe. Fig. 2 is a vertical section taken substantially in the plane of line A B, Fig. 1. Fig. 3 shows in front elevation and cross-section one of the diaphragms next to the bolster having the wheel clearance. Fig. 4 is a cross-section like Fig. 3, illustrating additional features of the invention. Fig. 5 is a longitudinal section between center sills. Fig. 6 is an elevation of the angle portion of the diagonal braces, with an end view thereof to the right. Fig. 7 is a cross-section of the complete brace.

Center sills 1, of channel form, bellied centrally in accordance with the Pressed Steel Car Company's well-known construction and arranged back to back, and similar side

sills 2, with their flanges extending inwardly, are united by bolsters composed of pairs of box-like side diaphragms 3 between the center sills and side sills and similar center diaphragms 4 between the center sills, and they are further united by other diaphragms 5 and 6 between the center and side sills and still other diaphragms 7 between the center sills. All of these sills and diaphragms are riveted together. The bolster-diaphragms 3 are hollowed out at 8 to afford clearance for the wheels, and the diaphragms 5 next the trucks are also hollowed out in the peculiar manner indicated at 9, Fig. 3, in order to afford clearance for the wheels in rounding a curve. The bolsters are provided with top cover-plates 10, riveted to the flanges of their diaphragms, and also with a bottom tie-plate 11, which may extend no farther than the side bearings.

The tops of the diaphragms 5 and 6 are arranged at a lower level than the tops of the bolsters and center and side sills, and to them are bolted or otherwise secured the wooden nailing-stringers 12, the bolster-diaphragms 3 having supporting-brackets 13 to receive the ends of said stringers. These stringers are of a height to bring the top level of the underframe in one plane to receive the flooring 14. As seen in Figs. 2, 4, and 5, the diaphragms 4 and 7 between the center sills have tops level with the tops of said sills, but they also may be lowered to receive wooden nailing-stringers where necessary or desirable.

By the lowering of the diaphragms as described it is possible to use a metallic underframe with wooden nailing-stringers without decreasing the load capacity of the car.

The end sills 15 may be of approved construction, and between them and the bolsters are similar diagonal braces 16, composed of angle bars or strips 17, whose ends are secured to plates 18 and 19 below the top level of the sills and bolsters, and wooden nailing-strips 20 are bolted or otherwise applied to these angle-bars, (see Figs. 1, 6, and 7,) which raise the level to a uniform plane with the longitudinal sills. Other diagonal braces 21 are secured to brackets 22 and 23, affixed, respectively, to the bolster side diaphragms and the center sills.

The draft-rigging and the end sills may be

of approved construction and are herein shown as constructed in accordance with well-known Pennsylvania Railway standards, and hence need no description.

5 The center sills are provided with the reinforcing angle-bars 24, rolled or pressed, (see Figs. 4 and 5,) with or without the reinforcing-strips 25. These bars 24 are arranged to follow the profile of the sills from bolster to
10 bolster and are riveted to them.

The side sills have riveted to their top flanges the Z-bars 26, rolled or pressed, and these bars extend longitudinally of the sills and receive and support wooden stringers 27,
15 which are bolted or otherwise secured to the side of the car. The top side plates 28 and these side stringers are connected by vertically-arranged tie-rods 29, which pass
20 through said plates, strips, and Z-bars, with their nuts arranged outside of the sills to admit of ready inspection and easy access if they should have to be drawn up.

By the construction described it is possible
25 to substitute a metallic or pressed-steel underframe for a wooden underframe in a wooden car of the ordinary Master Car Builders' standard.

Instead of center sills continuous from
30 end to end of the car and built-up bolsters I may use continuous bolsters and center sills extending from bolster to bolster in accordance with the Pressed Steel Car Company's practice, and other variations also may be
35 adopted without departing from the spirit and scope of my invention.

What I claim is—

1. An underframe for cars, comprising essentially metallic longitudinal sills, diaphragms and bolsters connecting them, the
40 diaphragms between the bolsters being arranged at a level lower than that of the sills, wooden stringers applied to such diaphragms, end sills, braces applied between
45 the end sills and bolsters below the level of the bolsters, and nailing-strips on said braces.

2. An underframe for cars, comprising essentially metallic longitudinal sills, diaphragms and bolsters connecting them, the
50 diaphragms between the bolsters being arranged at a level lower than that of the sills, wooden stringers applied to such diaphragms, metallic supports on the bolsters for the ends of said stringers, end sills, braces applied be-
55 tween the end sills and bolsters below the

level of the bolsters, and nailing-strips on said braces.

3. An underframe for cars, comprising essentially metallic center sills and side sills, built-up bolsters connecting them, diaphragms also, connecting said sills and
60 dropped below the upper level of the sills, longitudinal wooden stringers applied to said diaphragms, Z-bars secured longitudinally to the upper flanges of the side sills and
65 wooden stringers secured to said Z-bars.

4. An underframe for cars, comprising essentially metallic center sills and side sills, built-up bolsters connecting them, diaphragms also connecting said sills and
70 dropped below the upper level of the sills, wooden stringers applied to said diaphragms, Z-bars riveted to the upper flanges and sides of the side sills, wooden stringers secured to said Z-bars, and vertical tie-rods passed
75 through said stringers and bars and engaging the upper part of the car-body.

5. An underframe for cars, having diagonal braces arranged between its bolsters and end sills, and composed of angle-bars riveted
80 in place below the level of these parts and having wooden nailing-strips secured thereto.

6. An underframe for cars, having diagonal braces arranged between its bolsters and end sills, and composed of angle-bars riveted
85 in place below the level of these parts and having wooden nailing-strips secured thereto, and other diagonal braces interposed between the center sills and bolsters.

7. A car-underframe having longitudinal
90 side sills of metal provided with top flanges, Z-bars whose upper flanges overlap the upper flanges of the longitudinal side sills, and wooden stringers mounted upon the lower flanges of said Z-bars and parallel with the
95 side sills.

8. A box-car, having longitudinal metallic side sills, Z-bars riveted to the upper flanges thereof to receive wooden stringers, side plates, and vertical tie-rods connecting the
100 side plates and the wooden stringers, and passing through the stringers and Z-bars, and having their nuts exposed on the outside.

In testimony whereof I have hereunto set my hand this 7th day of January, A. D. 1902. 105

JOHN M. HANSEN.

Witnesses:

CHAS. F. CHUBB,

WM. BIERMAN.