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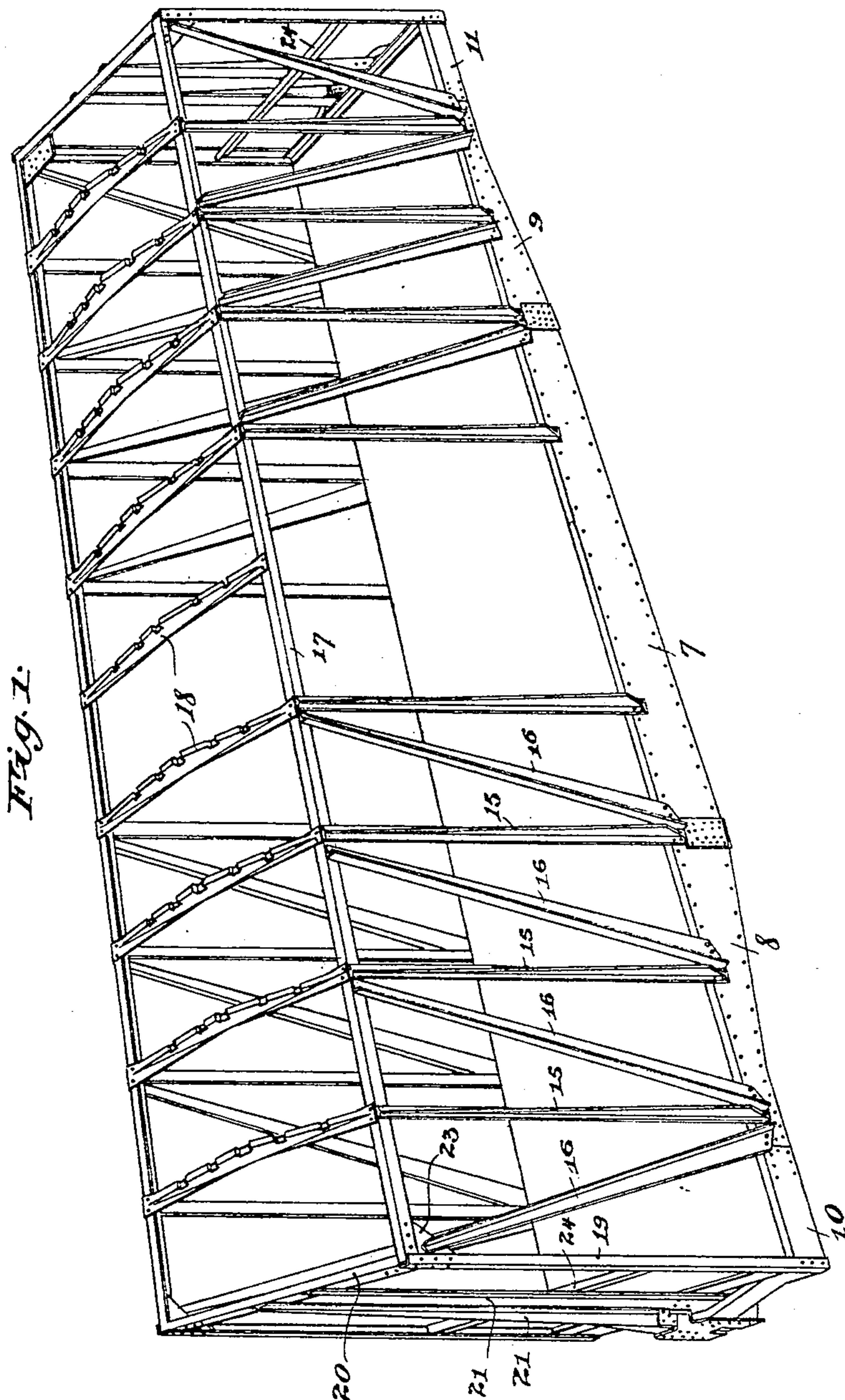
DRAFTSMAN

No. 855,839.

PATENTED JUNE 4, 1907.

E. I. DODDS.
COMBINATION METAL AND WOOD CAR.
APPLICATION FILED JULY 6, 1905.

4 SHEETS—SHEET 1.



Witnesses,
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O. N. Pond

Inventor,
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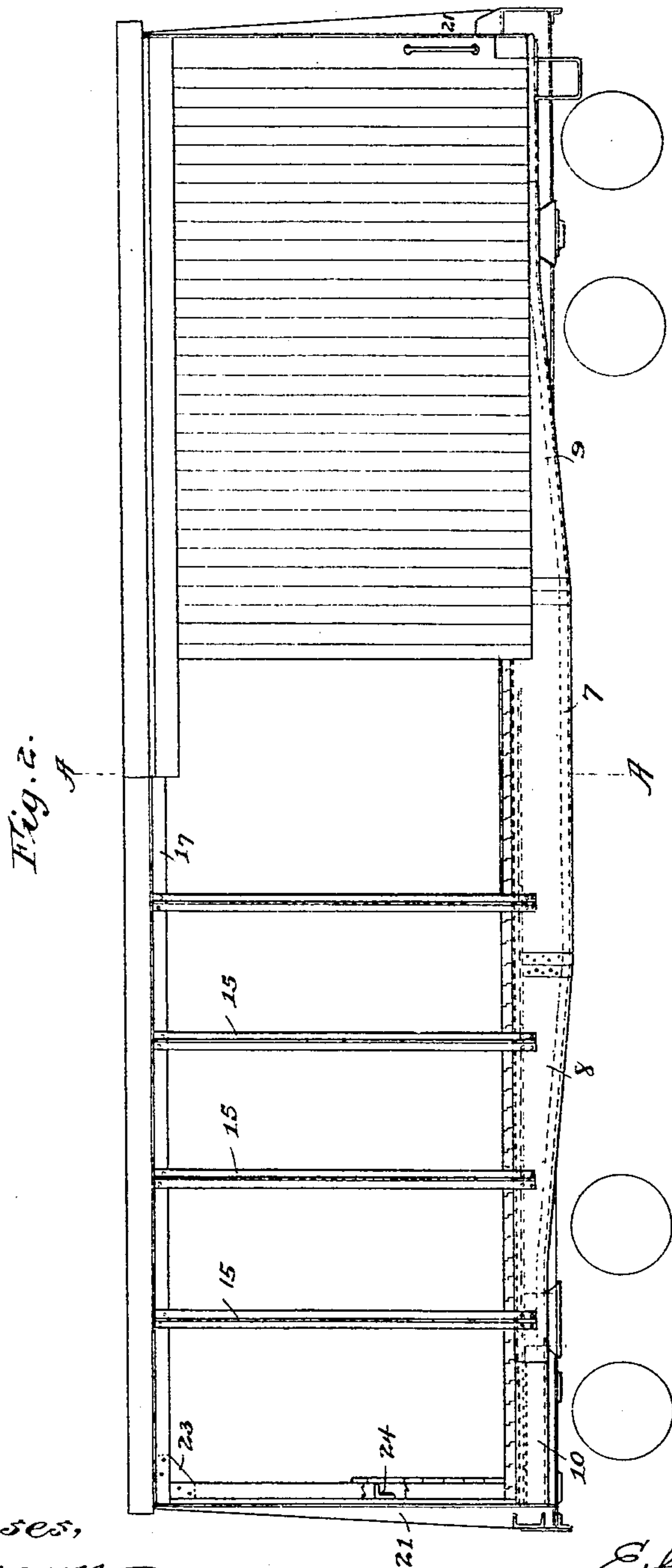
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4 SHEETS—SHEET 2.



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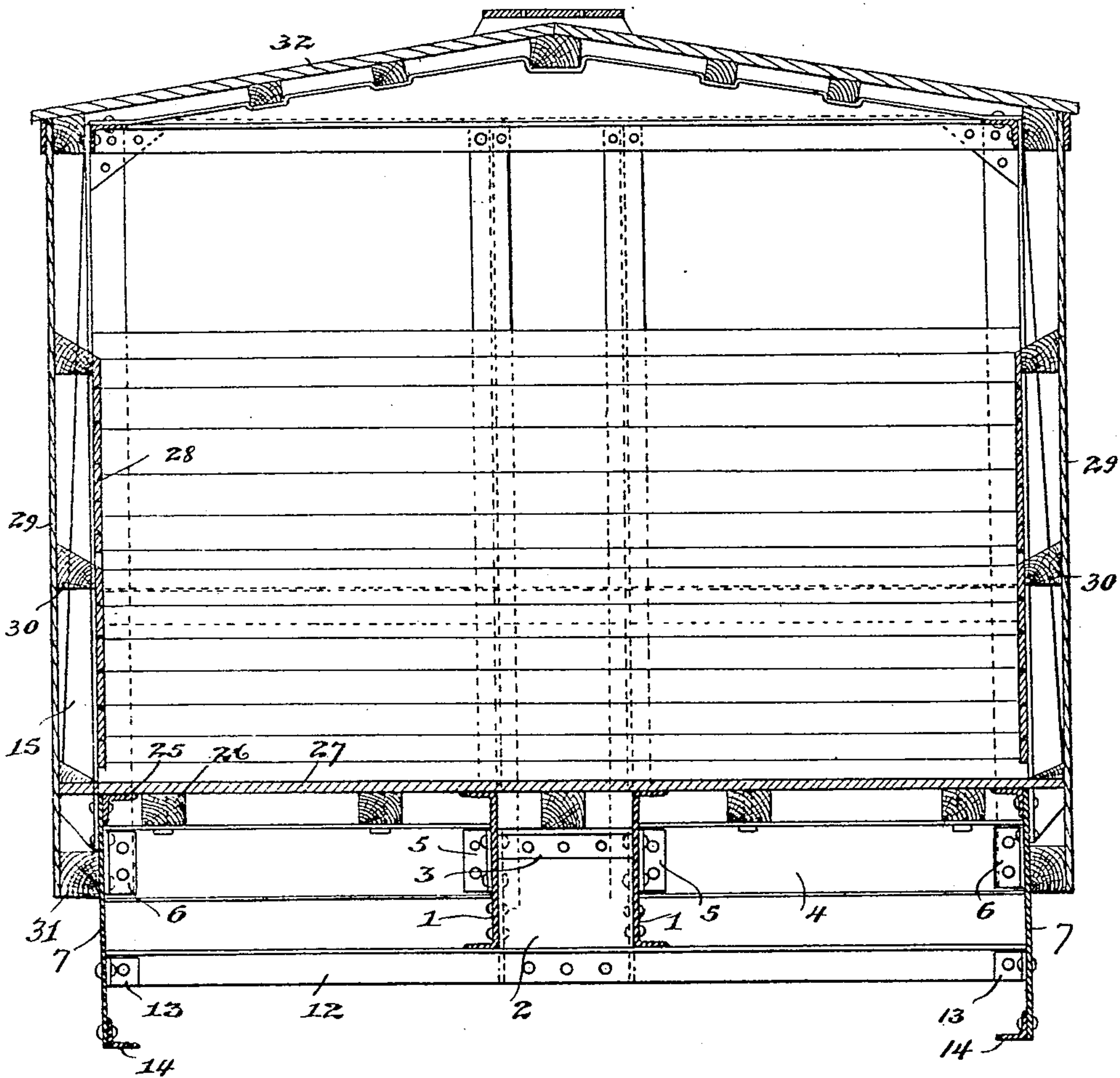
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4 SHEETS—SHEET 3.

Fig. 3.



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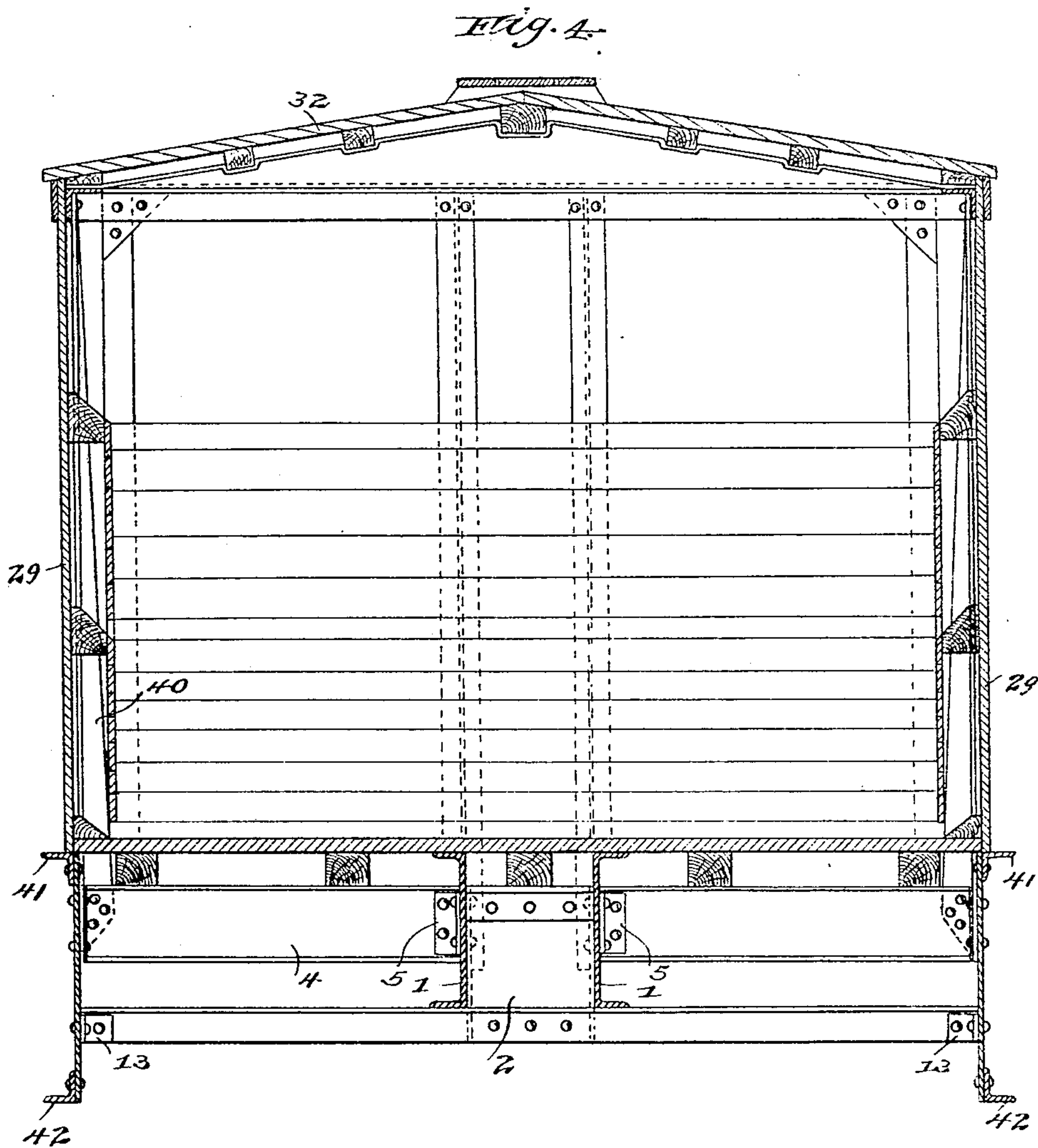
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

ETHAN I. DODDS, OF PULLMAN, ILLINOIS, ASSIGNOR TO THE PULLMAN COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

COMBINATION METAL AND WOOD CAR.

No. 855,839.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed July 6, 1905. Serial No. 268,305.

To all whom it may concern:

Be it known that I, ETHAN I. DODDS, a citizen of the United States, residing at Pullman, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combination Metal and Wood Cars, of which the following is a specification.

In constructing wooden box cars with steel under-frames it is desirable to have the frame-work of the car, which is very heavy, rigidly secured to the under-frame and since the only successful method at present used for accomplishing this object is to have steel members extending from the under-frame up into the body of the car so as to provide a suitable anchorage for the wood-work, I have devised a car of this type of reduced weight, great strength, simple construction, and with provisions for ready repairs.

The following description, taken in connection with the accompanying drawings, will clearly set forth my invention:

Figure 1 shows a perspective view of the frame of the car. Fig. 2 shows a side elevation with a part of the outer wood-work removed and with the diagonal side stakes omitted. Fig. 3 is a section of the car on the line A—A of Fig. 2. Fig. 4 is a similar section of a modified construction.

The center sills 1, 1 are made of channel beams and are spaced apart by short channel sections 2, each spacer being provided with a stiffening angle plate 3 riveted thereto if desired. Cross-bearers or flying transoms 4 are secured to the center sills by angle plates 5 and to the side sills 7 by angle plates 6, each side sill comprising a center portion 7, intermediate portions 8 and 9 more or less tapered, and end parts 10 and 11, all spliced together as shown in Fig. 1. To the upper edge of each side sill is attached a longitudinal compression angle bar 25, and to the lower edge of the sill is riveted a similar tension angle bar 14. Some of the spacers 2 extend below the center sills, and to their protruding portions are riveted the needle beams 12, whose ends are fastened to the side sills by the usual angle plates 13.

The superstructure of the car comprises vertical side stakes 15, each of which has an outwardly extended tapering flange 15^a, the side stakes being preferably made by cutting the webs of I-beams on the bias, thereby pro-

ducing two stakes T-shaped in cross section. The diagonal stakes 16 have their side flanges, or those lying flat against the side sill, tapering as is shown in Fig. 1, these stakes being economically manufactured by cutting the web of a channel bar on the bias, so that two stakes are secured from a single channel beam. These diagonal stakes, as well as the vertical ones, are riveted to the side sills and also to the top longitudinal angle bar 17. Carlines 18, which are produced from pressed sheet-steel, cross connect the opposite bars 18 and side stakes and support the roof of the car 32, as is shown in Figs. 1 and 3, the roof being held in place by bolts, or in any other approved manner. The upright corner angle irons 19 are riveted at their lower ends to the side and end sills, and on the ends of the car I provide the transverse top angle bar 20 and vertical stakes 21, the latter being T-shaped in cross section, with tapering outer flanges. Bars 17, 19, 20 and 16 are securely riveted in each corner to a gusset plate 23. Intermediate angle irons or bars 24 extend across the end of the car and are fastened to the upright posts or stakes, as shown in Fig. 1.

Longitudinal wooden stringers 26 are bolted to the top flanges of the cross-bearers, and the floor boards or planks 27 are nailed or otherwise secured to these stringers, as is readily understood. The inner and outer sheathing of the car 28 and 29 is secured to longitudinal wooden pieces or nailing strips 30 and 31, which may be fastened in any desired manner. Preferably, however, strips 31 are bolted or riveted to angle plates 6, the bolts or rivets passing through the side sill.

The lower ends of the side stakes 15 extend below the upper surface of the side sills 7, partially overlapping the same, and are riveted not only to the side sills but also to the angle plates 25 and 6, each rivet passing through all three parts. The lower ends of the side stakes 15 are desirably opposite the ends of cross-bearers 4 so that any thrust by the side stakes will be received by the cross-bearers or flying transoms.

In the modified construction shown in Fig. 4 the side stakes 40, which are similar to those described above are on the inside of the side sills. In this modification the compression angle iron 41 and the tension iron 42 are secured to the outer side of the side sill

and the cross-bearer 4^a is riveted directly to the inwardly projecting flange of the side stake 40 omitting the angle plate whose use was necessary in the construction shown in Fig. 3. It is obvious that by such a structure, I secure great strength combined with light weight and that the parts may be easily and quickly separated, thus facilitating repairs. Since the side sills are made in five parts, repairs to these portions of the car can be carried out expeditiously for the reason that instead of removing a long sill only a part of it need be unriveted.

My invention is susceptible of various modifications, so that it is not limited to the details of construction described above and illustrated on the drawing.

This patent is intended to embrace only so much of the disclosure made herein as is covered by the claims.

I claim:

1. A frame for the superstructure of a railway car having diagonal side stakes or braces, each having a flange of uniform width and a tapered flange, substantially as described.
2. A frame for the superstructure of a railway car, including on each side a longitudinal sill, a top longitudinal angle bar, and diagonal braces connecting said sill and bar, each brace having an outwardly-extended flange of uniform width and a tapered flange lying against said sill and bar, substantially as described.
3. A car frame comprising a side sill, an upper bar, vertical and diagonal side stakes with tapering flanges secured to the side sill and upper bar, substantially as described.
4. A car frame comprising a side sill, an upper bar, vertical and diagonal side stakes secured to said side sill and upper bar, said vertical stakes having outwardly extended tapered flanges, and said diagonal stakes having tapered flanges parallel to said side sill and upper bar, substantially as described.
5. A car frame comprising a spliced side sill, an upper longitudinal angle bar, vertical and diagonal side stakes secured to said side sill and upper bar, said vertical stakes having outwardly extended tapered flanges, and said diagonal stakes having tapered flanges lying against said sill and bar, substantially as described.
6. In a car frame the combination of a cross-bearer, a side sill, an angle plate securing the cross-bearer and side sill together, a

longitudinal angle bar, a side stake, rivets fastening said stake, sill and longitudinal angle bar together, substantially as described.

7. In a railway car, the combination of a transverse cross-bearer, a longitudinal side sill, an upright side stake, an angle plate fastened to the outer end of said cross-bearer, one or more rivets securing together said side sill, side stake and angle plate, a longitudinal angle bar, and rivets fastening together said bar, sill and stake, substantially as described.

8. In a railway car, the combination of a transverse cross-bearer, a longitudinal side sill, an upright side stake, an angle plate fastened to the outer end of said cross-bearer, one or more rivets securing together said side sill, side stake and angle plate, a longitudinal angle bar, rivets fastening together said bar, sill and stake, and a longitudinal nailing strip fastened to said side sill, substantially as described.

9. In a railway car, the combination of longitudinal side sills on opposite sides of the car, cross-bearers having their outer ends secured to said side sills, side stakes connected to said side sills and partially overlapping the latter and the ends of said cross-bearers, means to tie together the upper ends of said stakes on opposite sides of the car, and nailing strips secured to said side sills below the ends of said side stakes.

10. In a car frame, the combination of center sills, a spacing member for the same, said spacer extending beyond said sills, a side sill and a needle bar connecting said side sill and spacing member.

11. In a car frame the combination of center sills, a channel spacer for said sills extending beyond said sills, side sills and a needle beam connected to said side sills and to the web of said channel spacer, substantially as described.

12. In a car frame, the combination of an upper side longitudinal bar, a transverse end bar, an upright corner bar, a diagonal bar and a gusset plate to which the bars are secured, substantially as described.

13. In a car frame, the combination of a longitudinal angle bar, a transverse end angle bar, an upright corner angle bar, a diagonal angle bar and a gusset plate to which the bars are secured, substantially as described.

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