No. 852,935. PATENTED MAY 7, 1907.

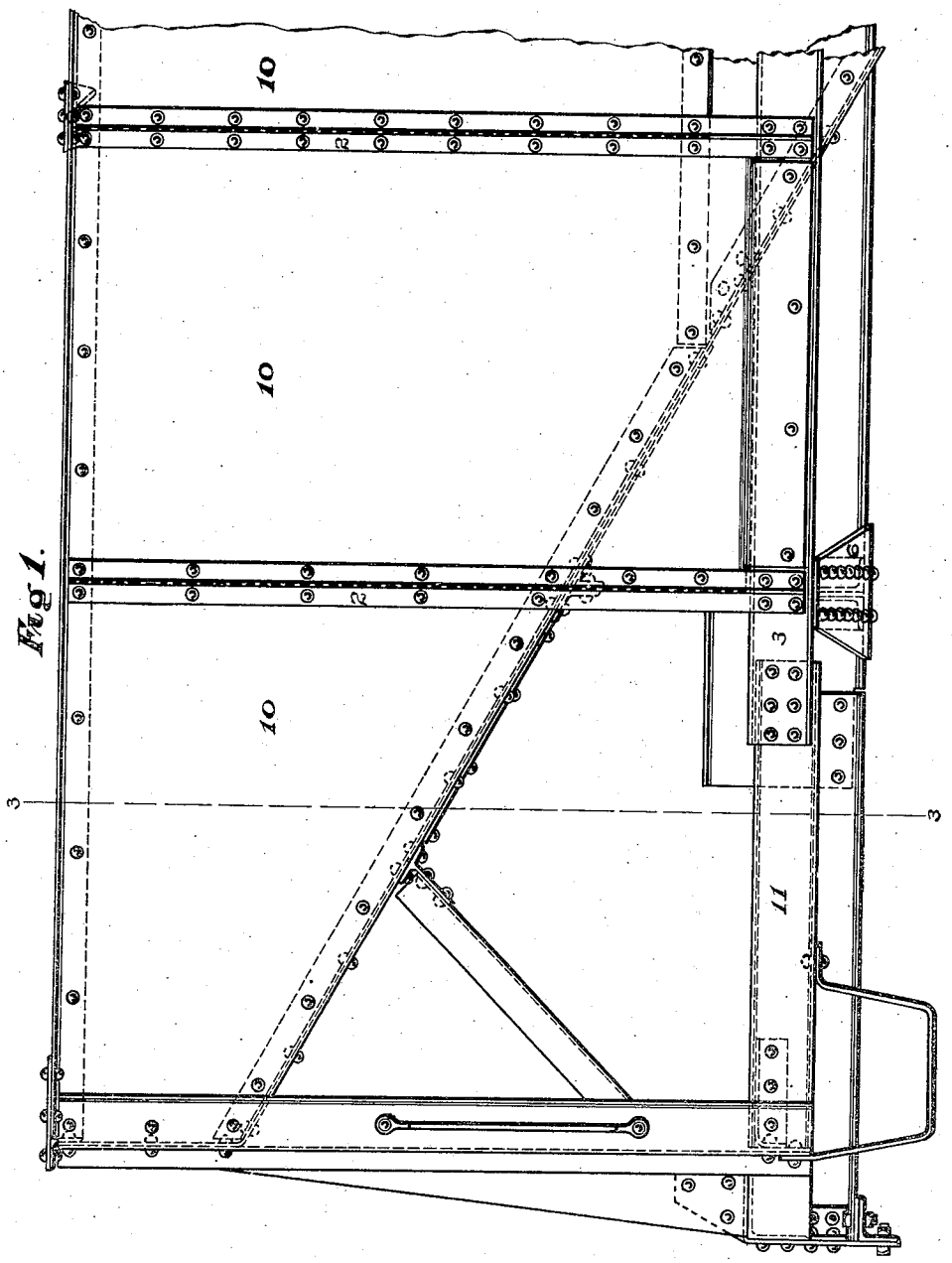
E. I. DODDS.

METALLIC CAR CONSTRUCTION.

APPLICATION FILED NOV. 25, 1904.

3 SHEETS—SHEET 1.

Fig 1.



WITNESSES:

Thos. H. Brown

Wm. H. Capes

INVENTOR:

Ethan I. Dodds

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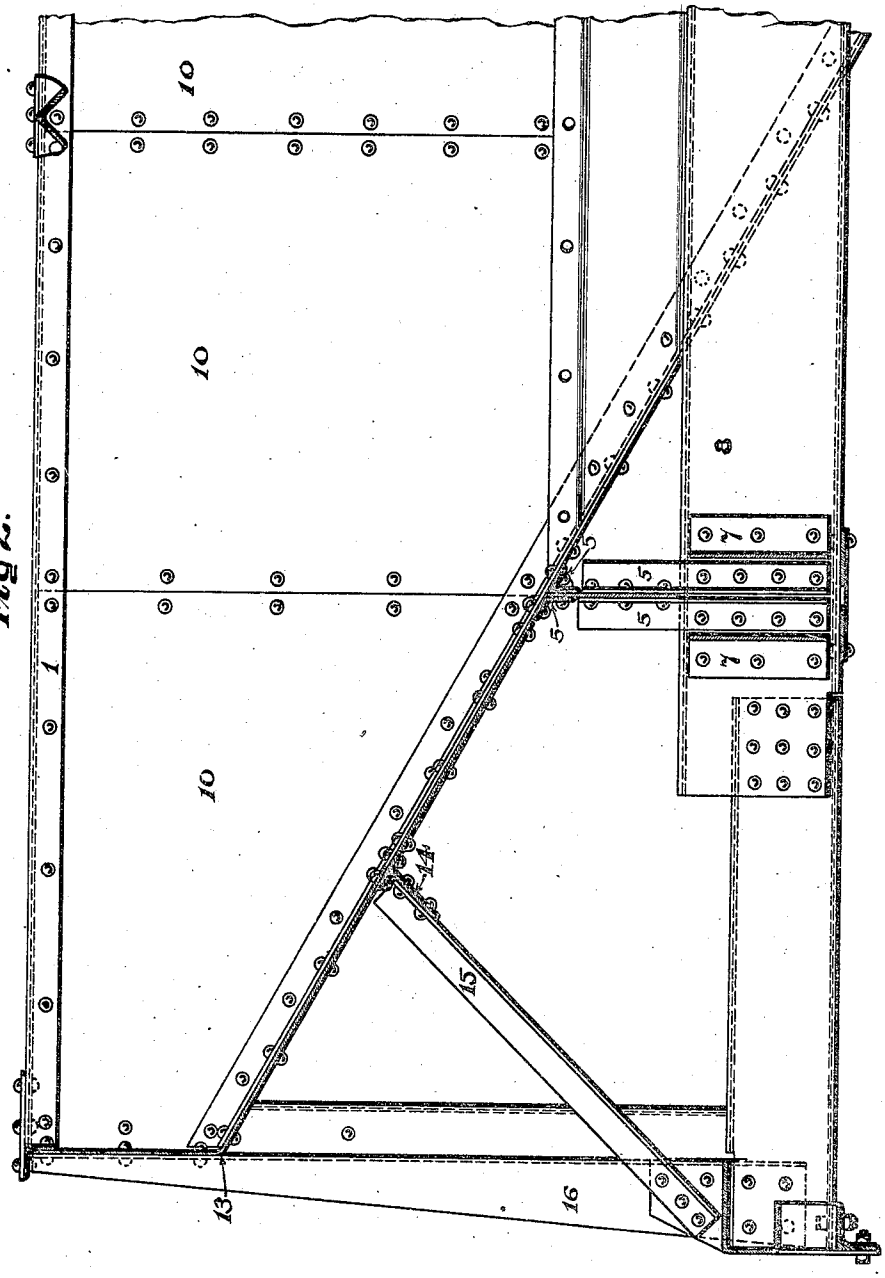
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3 SHEETS—SHEET 2.

Fig 2.



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3 SHEETS—SHEET 3.

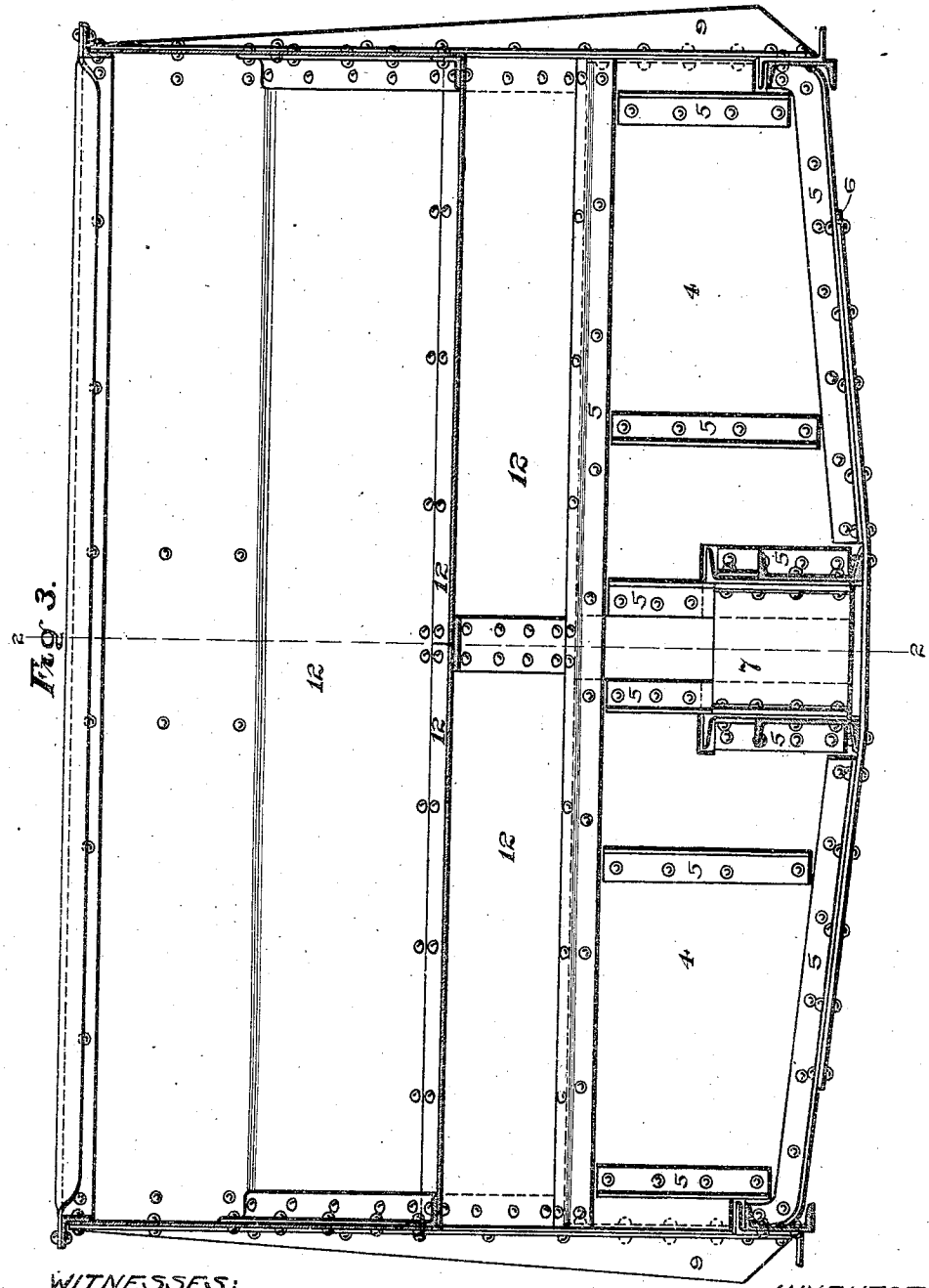


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

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

METALLIC-CAR CONSTRUCTION.

No. 852,935. Specification of Letters Patent. Patented May 7, 1907.

Application filed November 25, 1904. Serial No. 234,140.

To all whom it may concern:

Be it known that I, ETHAN I. DODDS, a citizen of the United States, and a resident of Avalon, county of Allegheny, State of Pennsylvania, have invented certain new and useful Improvements in Metallic-Car Construction, of which the following is a specification.

The present invention relates to improvements in metallic car construction, referring especially to cars built of rolled or pressed shapes.

For convenience I illustrate the invention as applied to a hopper car, although the same is applicable to other styles of cars, such, for example, as gondolas, ballast and ore cars.

One of the objects of my invention is to provide a construction for cars which will permit of ready renewal of the side or floor plates in case of any accident which bends or twists the said plates. It is well known that cars designed for the uses mentioned herein are liable to more or less frequent accident and that the plates constituting the sides and the floor of such cars are liable to become distorted by reason of such accidents. As at present constructed, cars of the character herein referred to are usually constructed with broad plates so that three or four plates constitute the entire side of the car. The cars are generally provided with side stakes at the edges of the car and intermediate between such edges, the said side stakes constituting supports for the plates and being themselves connected with compression members at the top of the car and side sills at the bottom of the car whereby the car sides are strengthened and supported.

When large or broad plates of the character described are employed in the construction of car sides, it is found to be very difficult to straighten the plates and restore them to their original shape, this being partly due to the fact that the plates are too large for the furnaces which are at the disposal of the railroad companies. Consequently, when the center or the edge of a large plate is bent and the attempt is made to put this side or end into the furnace, it is liable to buckle and it is very difficult, if not impossible, to straighten the plate. In any case, both the intermediate and the edge side stakes have to be removed by chipping off the rivets, and this involves considerable labor and expense.

I propose to make use of side plates which are narrow enough to extend only between two adjacent side stakes and whereby it is accomplished that if a single side plate is bent or distorted in any way by reason of an accident or from any other cause, it is easily possible to manipulate the said plate and straighten it in a furnace, whereas it is only necessary to remove the edge side stakes in order to leave it free for easy handling. With small plates of this character it is easily possible to subject the entire plate to the same temperature so that it will not buckle and can be easily straightened out. The plates may extend to the full height of the car or they may be divided in the middle if desired.

Another object of my invention is to provide in hopper cars a simple end and floor construction consisting of an end and floor sheet combined and bent at the point where the floor sheet takes an angle from the end of the car.

Other features of my invention will be fully described hereinafter and set forth in the claims forming part of this specification.

I have illustrated my invention in the accompanying drawings, in which

Figure 1 is a side elevation of a part of a steel car embodying my invention; Fig. 2 is a longitudinal cross-section of a portion of such a car, the section being taken along the line 2—2 in Fig. 3; and Fig. 3 is a vertical transverse section taken along the line 3—3 in Fig. 1.

The side frames of the car illustrated in the drawings are made up of angular compression members, 1, 1, at the top of the cars, side stakes, 2, 2, extending down the sides of the cars, and tension members, 3, 3, with which the said side stakes are connected.

The side stakes are of special construction, but are not herein claimed, the same forming the subject of another application for Letters Patent of the United States.

The body bolster is composed of plates, 4, 4, constituting the web, reinforced and connected by means of angle irons, 5, 5, 5, to the floor sheets, 12, 12; the center sills, 8, 8, the bottom tie plates, 6, 6, to the side construction. It will be noted that the body bolster center braces, 7, 7, are composed of channel iron section riveted to the center sills, 8, 8.

It will be noted that each side stake 2 is provided with a web, 9, and that side plates,

10, 10, extend between each pair of side stakes and are riveted thereto. In the drawing, the side plates 10, 10 are represented as extending the entire height of the car body. This is a construction which is generally preferred, but there is no reason why the side plates should not be divided in the middle, in which case there would be a horizontal riveting thereof. In either case, it is assumed that the plates will be narrow enough to be heated uniformly in the ordinary furnace, as set forth in the preamble of this specification.

To the projecting ends of the tension members 3, 3, are secured the sub-sills, 11, 11.

The parts 2 and 9 constitute, as will be seen, combined butt straps and side stakes for the support of the side sheets or plates of the car.

The second distinctive feature of my invention appears at 12, 12, where a series of plates bearing this number constitute the major portion of the car ends, and are bent, as clearly shown in Figs. 1 and 2, so as to form also a part of the floor of the car. The bend is shown at 13 and the support for the floor is indicated at 14 in the form of a T-shaped butt strap or girder secured to the floor sheet 12 and being also braced by means of an angle iron, 15, secured to the vertical end members, 16, 16.

It will be understood that the sub-sills are provided and also draft and end sills, in the usual way.

At 16, 16, are shown vertical end members for strengthening the ends of the car.

It will be understood that the plates 12 constituting the end and floor plates are also adapted to be treated in the furnace with the same advantages as the side plates already mentioned.

I claim as my invention:—

1. In a metallic car, a combined end and floor sheet, one portion of which extends from the top of the car downward, and another of which is bent to form a portion of the floor of the car, in combination with a floor plate forming an extension of the said floor sheet, a butt-strap connecting the said extension with the floor portion of the combined end and floor sheet one or more braces or supports secured to said butt-strap, substantially as described.

2. In a railway car having a sloping bottom, the combination of a side sill, corner and side stakes fastened thereto, and side plates extending from stake to stake, the end side plates having inclined lower edges, the next to the end side plates extending from the top of the side to the side sill, and the other side plates extending from the top of the car downward and terminating above the side sill, substantially as described.

Signed at Pittsburg, in the county of Allegheny, and State of Penn. this 22nd day of November, A. D. 1904.

ETHAN I. DODDS.

Witnesses:
GEO. J. TAYLOR,
M. K. GARRETT.