No. 884,323. PATENTED APR. 7, 1908.

E. I. DODDS.

STEEL CAR CONSTRUCTION.

APPLICATION FILED JULY 6, 1904.

2 SHEETS—SHEET 1.

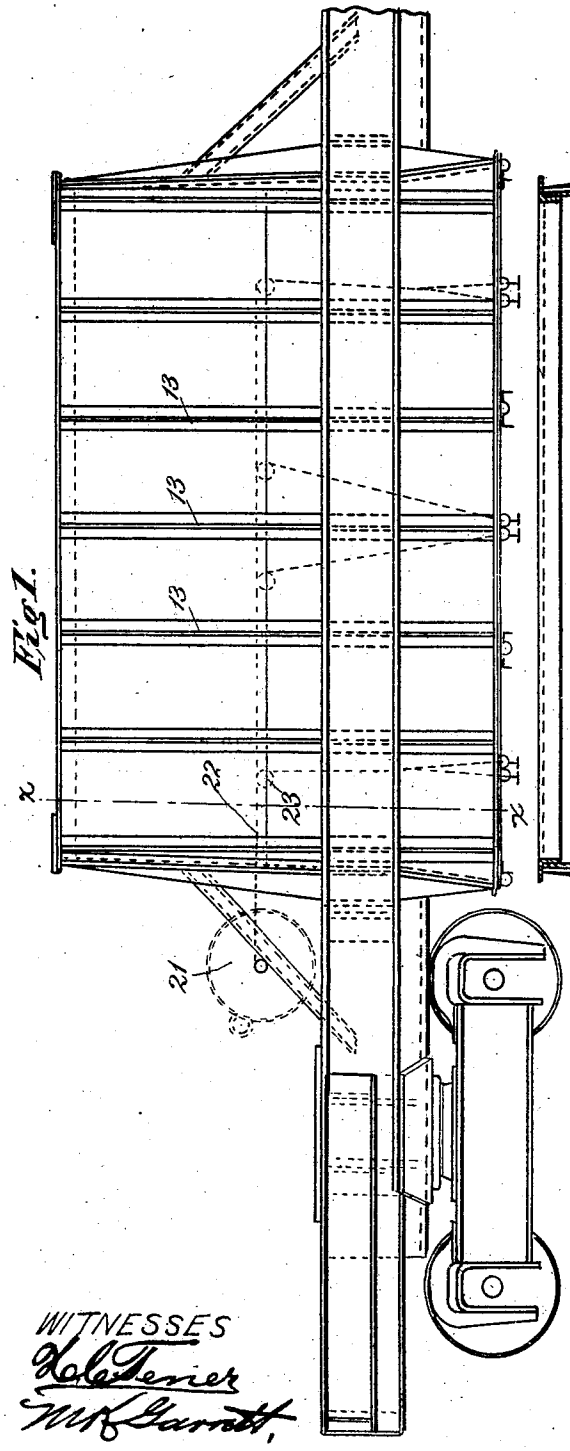


Fig. 1.

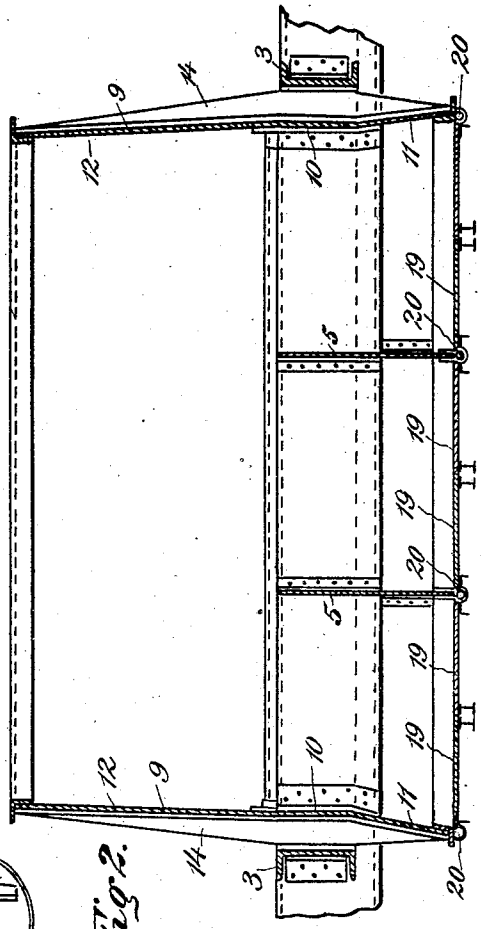


Fig. 2.

WITNESSES

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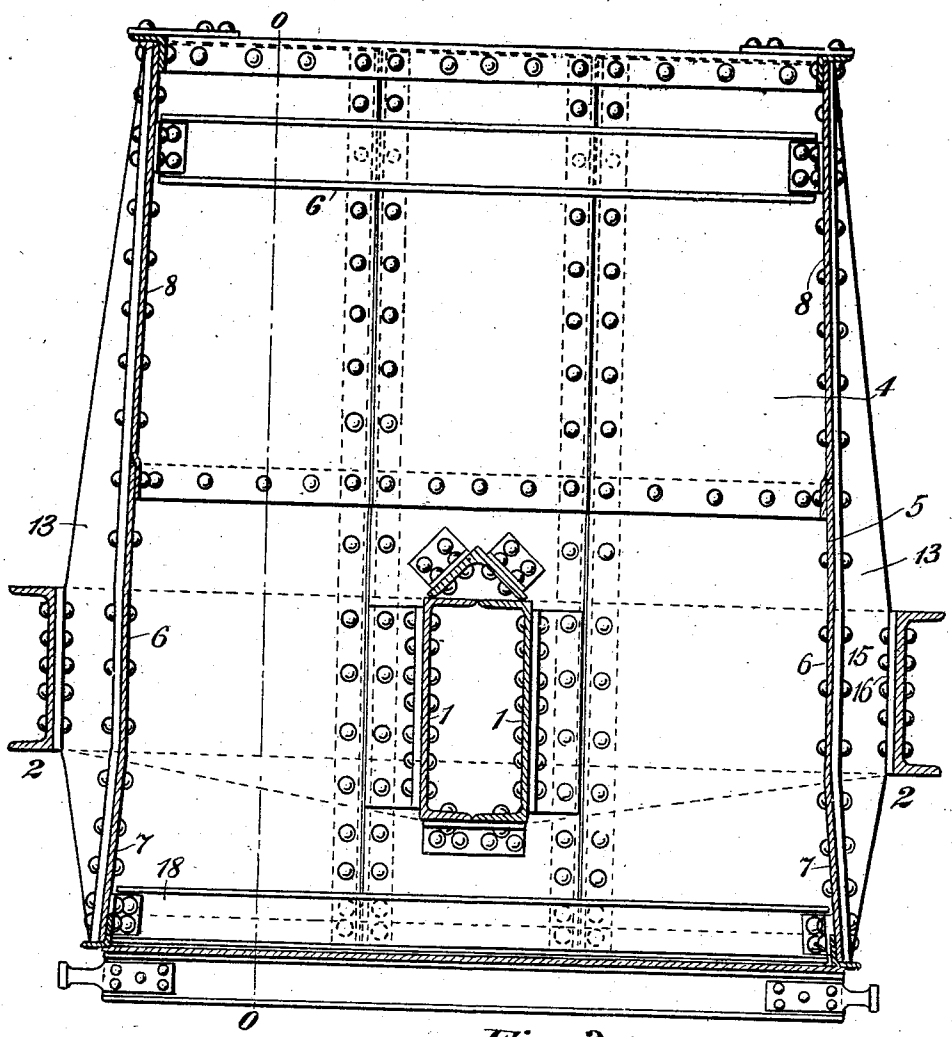


Fig 3.

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.

STEEL-CAR CONSTRUCTION.

No. 884,323. Specification of Letters Patent. Patented April 7, 1908.

Application filed July 6, 1904. Serial No. 215,492.

To all whom it may concern:

Be it known that I, ETHAN I. DODDS, a citizen of the United States, residing at Avalon, in the county of Allegheny, in the State of Pennsylvania, have made a new and useful Improvement in Steel-Car Construction, of which the following is a specification.

My invention relates to improvements in cars and concerns more particularly dumping cars the bottoms of which are composed of or provided with discharging doors.

Certain classes of lading, such as ore, are more or less difficult to discharge from a car even though the whole bottom of the car body is opened up because of the more or less moist character of the lading, and the tendency of the same to adhere to the walls of the car body and arch over the discharge openings. My new form of car has a body the bottom of which is equipped with a number of doors, and the discharge opening at the bottom of the body is larger than the opening at the top whereby the lading has a tendency to drop away from the side or end walls due to its own weight.

On the accompanying drawings which form a part of this specification I have illustrated a desirable embodiment of my invention, and on the various views of this drawing like reference characters refer to the same parts throughout.

Figure 1 is a fragmentary side elevation of a car constructed in accordance with my invention; Fig. 2 is a vertical longitudinal section of the car body on line *o*—*o* of Fig. 3; and Fig. 3 is a cross-section through the car on line *x*—*x* of Fig. 1.

The car underframe includes the usual channel center sills 1—1 disposed with their flanges extended toward each other, as shown in Fig. 3, and channel side sills 2 whose flanges project outwardly. This car underframe is also supplied with transverse channel cross-bearers or sills 3 disposed outside of and adjacent to the end walls of the car body, the ends of these cross-sills being suitably joined to the side and center sills. The car body 4 has sides 5 which are vertical and parallel at 6, 6 on a level with the side sills 2, the sides below the sills at 7, 7 diverging downwardly while above the sills at 8, 8 they converge slightly upwardly. A corresponding shape or contour of the end walls 9 of the car body is used the portions 10 being vertical and parallel, while the lower portions 11 diverge downwardly and the upper portions 12 converge upwardly. It will thus be apparent that the bottom of the car is somewhat greater in area than the top opening and that when this bottom or discharge opening is open the load has a tendency to leave the side and end walls due to its own weight. This car body is not riveted directly to the side and cross sills 2 and 3 but is connected thereto and supported thereby by the side and end stakes 13 and 14 respectively. Stakes 13 for a portion of their length have parallel flanges 15 and 16, the former of which extends the whole length of the stake and is riveted to the side wall of the car, while the flange 16 is of a length substantially equal to the depth of the side sill and is riveted thereto. Each flange 15 is bent or shaped to conform to the outline of the car body, and the web of each stake above and below the side sill tapers toward the inner flange 15. Since the end stakes 14 are substantially like the side stakes a further description thereof appears to be unnecessary, except to state that their outer flanges are riveted to the cross-sills 3. Gusset plates 17 and channel or angle bars 18 are used to tie the car frame and body together, as will be readily understood.

The bottom of the car body is provided with a plurality of doors 19 arranged in pairs and hinged at the points 20, each door extending completely across the full width of the car. When the doors are in closed position, as shown in Fig. 2, they form a substantially flush or flat bottom for the car body. In order to open and close these doors there is provided a drum 21 upon which may be wound and from which may be paid out the chains or cables 22 which pass over sheaves 23 and are suitably connected at their lower ends to the doors. It will be readily understood that through the manipulation of this barrel or drum 21 the doors may be permitted to drop under the influence of the weight of the load above them, and may be afterwards closed by revolving the drum to wind the chains or cables thereon.

Although the slope of the sides and ends of the car body is not great it nevertheless is sufficient to enable the moist lading, in fact any kind of lading, to be readily and completely discharged leaving practically none

adhering to the car body walls. Although this car has been described as having center sills and side sills it should be understood that it can be constructed without these sills in which case the sides of the car body would be formed as plate girders to partially or wholly sustain the load.

To those skilled in this art it will be obvious that minor mechanical changes may be made in the structure shown and described without departing from the substance of my invention.

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

I claim:

1. In a railway car, the combination of side sills, a car body having a bottom opening of greater area than its top opening, means to open and close said bottom opening, and side stakes interposed between said car body and side sills, substantially as described.

2. A car body whose sides for a portion of their depth are substantially vertical, said sides below said vertical portions diverging downwardly and above said vertical portions converging upwardly, substantially as described.

3. A car body whose end walls for a portion of their depth are substantially vertical, said end walls below said vertical portions diverging downwardly and above said vertical portions converging upwardly, substantially as described.

4. In a railway car the combination of side sills and a car body whose sides on a level with said sills are substantially vertical, said sides below said sills diverging downwardly and above said sills converging upwardly, substantially as described.

5. In a railway car, the combination of a car underframe having transverse sills or beams, and a car body whose end walls on a level with said sills are substantially vertical, said end walls below said sills diverging downwardly and above said sills converging upwardly, substantially as described.

6. A car body whose side and end walls for a portion of their depth are substantially vertical, and below said vertical portions diverge downwardly and above said vertical portions converge upwardly, substantially as described.

7. In a railway car, the combination of side sills, a car body whose sides on a level with said sills are substantially vertical, said sides below said sills diverging downwardly and above said sills converging upwardly, and side stakes interposed between and fastened to the side walls of said car body and said side sills, substantially as described.

8. In a railway car, the combination of side sills, transverse sills or beams, a car body whose side and end walls on a level with said side and transverse sills are substantially vertical, said walls below said sills diverging downwardly and above said sills converging upwardly, and stakes interposed between said walls and sills and riveted to said walls and sills, substantially as described.

ETHAN I. DODDS.

Witnesses:
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M. K. GARRETT.