No. 715,355. Patented Dec. 9, 1902.

M. A. DEES.

FREIGHT CAR.

(Application filed Mar. 19, 1902.)

(No Model.)

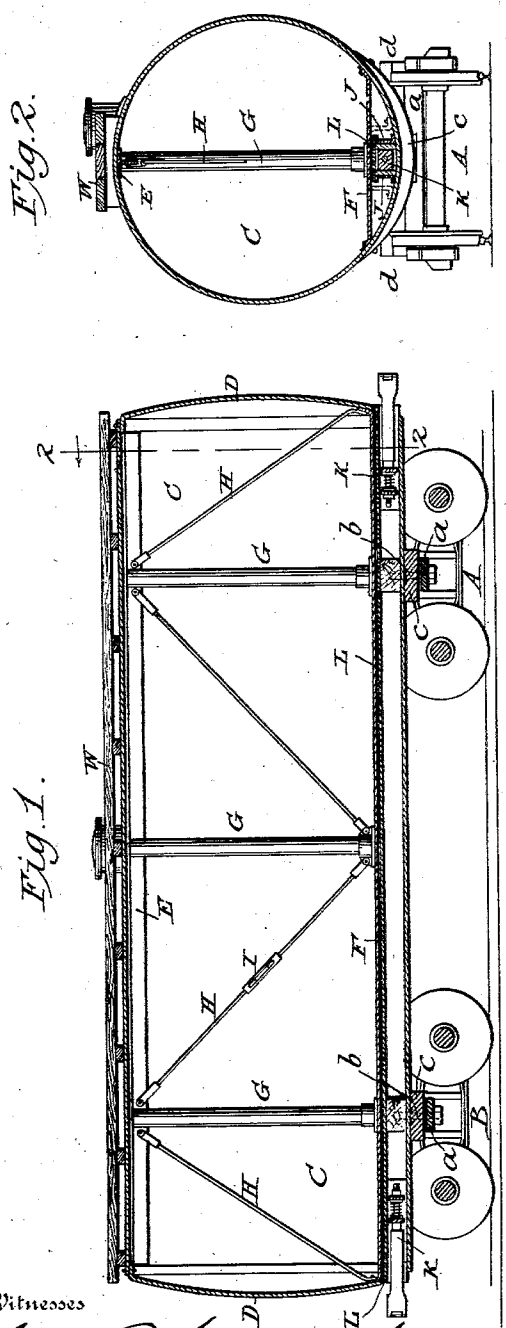

Fig. 1.

Fig. 2.

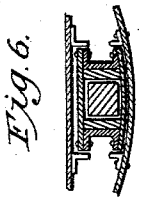

Fig. 6.

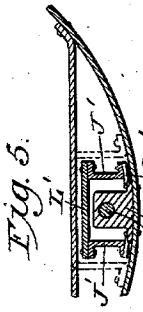

Fig. 5.

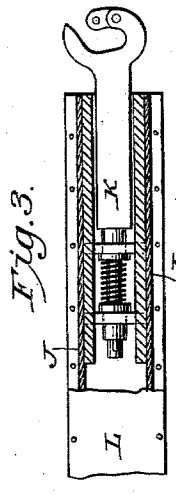

Fig. 3.

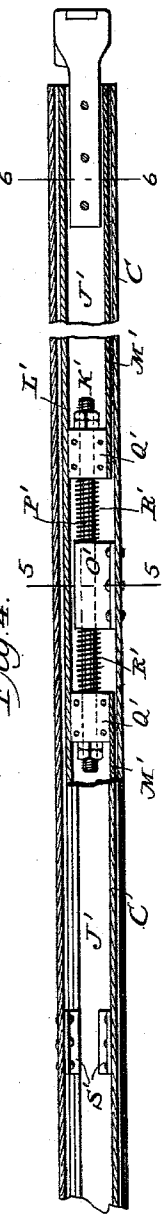

Fig. 4.

Fig. 7.

Witnesses

Sidney P. Mellingwork.

Charles L. Howard.

Inventor

Mark A. Dees,

By

W. W. Howard,

Attorneys

UNITED STATES PATENT OFFICE.

MARK A. DEES, OF ST. LOUIS, MISSOURI.

FREIGHT-CAR.

SPECIFICATION forming part of Letters Patent No. 715,355, dated December 9, 1902.

Application filed March 19, 1902. Serial No. 98,990. (No model.)

To all whom it may concern:

Be it known that I, MARK A. DEES, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Freight-Cars, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

My invention relates to freight-cars of the class generally used for transporting petroleum and other liquids or grain from place to place, such cars being commonly known as "tank" or "oil" cars.

One object of my invention is to improve the construction of an oil or tank car, the body of which is ordinarily an elongated cylinder, for the purpose of increasing its carrying capacity without raising its center of gravity, lengthening its wheel-base, or the distance between couplers. In accomplishing this result I make the body or cylindrical portion of the car of enlarged diameter and increase its length until it extends from coupler to coupler. The tank or body of the car thus changed is supported on bolsters on the trucks as low as possible, bringing the footboard on top of the tank to the level of that of the ordinary box freight-car and the bottom of the tank below the line of draft. The tank, which is about nine feet in diameter, if mounted on a platform or in any other known manner to permit the placing of the draft mechanism beneath it elevates the car and raises its center of gravity so high that the danger of derailment and overturning on rounding curves is great. An increased height also endangers the car by its liability to strike low bridges, tunnels, &c. I overcome this difficulty by lowering the supports of the tank, as above stated, and placing the sills and draft mechanism within the tank, but separated from its contents by means of a fluid-tight floor or partition.

A further feature of my invention consists in placing within the cylindrical body of the car a truss or open frame running centrally therethrough from end to end for the purpose of increasing its strength and rigidity.

Referring to the drawings, Figure 1 is a longitudinal section through a car constructed in accordance with the principles of my invention. Fig. 2 is a cross-section thereof on the line 2 2. Fig. 3 is a horizontal section on the line 3 3 of Fig. 1. Fig. 4 shows a modified form of the coupling mechanism; and Figs. 5 and 6 are cross-sections therethrough on the lines 5 5 and 6 6, respectively. Fig. 7 is a view of a modified form of the floor.

Similar reference-letters indicate similar parts in the respective figures.

A and B represent two car-trucks of ordinary construction supporting a cylindrical tank or body C. Between the wheels of each truck and forming a part thereof is the usual truck-bolster *a*. To the under side of the tank or body C, near each end, is bolted a crescent-shaped body-bolster *c*, each of which rests on one of the truck-bolsters *a* and is pivotally connected thereto by a king-bolt *b*. Side bearings *d* are applied to the trucks and tank or car body as usual.

The cylindrical body or "tank" C, as it will be hereinafter designated, is closed at each end by a head D, made fluid-tight in any approved manner. Within the tank and bolted to it at the top is a T-beam E, extending the length of the tank, while near the bottom is placed a horizontal plate or floor F, riveted to the walls of the tank and made fluid-tight. Extending from the floor F to the T-beam E in the longitudinal center of the tank are a series of uprights or columns G, which, with the truss-rods H, reaching diagonally between the uprights and the ends of the car, form a tight and rigid truss-frame for strengthening the tank and retaining it in proper shape. A turnbuckle I is shown on one of the truss-rods for adjusting its tension. Similar buckles may be placed on all the rods, if desired.

A tank constructed as above will be very strong and rigid and well adapted to resist all strains to which it may be subjected, especially such as are produced by supporting the tank near the ends only.

Within the tank, but beneath the floor F, are placed two longitudinal channel beams or sills J, projecting a short distance through the head D of the tank and spaced sufficiently far apart to permit the application of draft mechanism K between them. The channel-beams J, which are placed with their web portions in vertical position, are riveted through their lower flanges to the bottom of the tank,

their upper flanges being connected to each other by a horizontal plate L, riveted to the flanges and running the length of the car immediately below the floor F. This construction forms a strong box-girder, affording additional strength to the tank and a central support for the floor F, which, however, is not connected to the channel-beams J or plate L.

By supporting the tank C on the trucks A B in the manner described its height is reduced to such an extent that notwithstanding its large diameter the footboard W on the top of the tank will be substantially on a level with the roofs of adjoining box-cars. The bottom also is low enough to permit the line of draft to pass within the tank, as shown and described.

Instead of using a straight plate for the floor F it may be of the shape shown in Fig. 7 and by dotted lines in Figs. 2 and 5 to closely embrace the box-girder formed by the channel-beams J, plate L, and bottom of the tank.

Ordinary draft-rigging, such as that shown in Figs. 1 and 3, will usually be employed to couple the cars together; but under some circumstances the through or continuous drawbar (illustrated in Figs. 4, 5, and 6) may be desired. In the continuous draft-rigging here represented the channel-beams J′ J′ are not riveted to the tank, but are connected at their tops by a continuous plate L′ and at their bottoms by two plates M′ M′, their inner ends being separated a short distance at the center of the tank. The bottom plates M′ M′ rest and are adapted to slide upon the bottom of the tank. A casting O′, riveted to the bottom of the tank at its center, extends upwardly between the plates M′ M′ and has a longitudinally-directed hole, through which a rod P′ may freely slide, the ends of the rod P′ being secured to blocks Q′, which latter are in turn fastened to the beams J′ J′ above the inner ends of the plates M′ M′. A space is thus left on each side of the casting O′ and between it and one of the blocks Q′, within which spaces are spiral springs R′ R′, preferably surrounding the rod P′, to serve as buffers. The continuous draw-bar thus constructed is capable of a slight longitudinal movement under working conditions to lessen the force of shock and jar, which is conveyed to the springs and there absorbed. Angle-pieces S′ are riveted to the tank C and floor F to guide the draft mechanism and retain it in its proper position. These angle-pieces are dispensed with when the floor is made as represented in Fig. 7.

I do not restrict myself to the exact details of construction, combination, and arrangement herein set forth, it being obvious that minor variations thereof not involving the exercise of invention may be made by the skilled mechanic, and such departures from what is herein described and claimed not involving invention I consider as within the scope and terms of my claims.

Having thus described my invention, I claim—

1. A cylindrically-bodied freight-car divided longitudinally into two sections by a partition, combined with a draft mechanism located in one section, substantially as set forth.

2. A cylindrically-bodied freight-car divided into two sections by a solid longitudinal partition, combined with a truss-bracing in one section in the longitudinal center of the car, substantially as set forth.

3. A cylindrically-bodied freight-car divided longitudinally into two sections by a solid partition, combined with draft mechanism in one section and a truss-bracing in the other section, substantially as set forth.

4. A cylindrically-bodied freight-car divided into two sections by a horizontal fluid-tight partition, combined with draft mechanism in the lower section, substantially as set forth.

5. A cylindrically-bodied freight-car divided into two sections by a horizontal fluid-tight partition, combined with truss-bracing in the upper section, substantially as set forth.

6. A cylindrically-bodied freight-car divided into two sections by a horizontal fluid-tight partition, combined with draft mechanism in the lower and truss-bracing in the upper section, substantially as set forth.

7. In combination with a cylindrical freight-car body, a fluid-tight partition near the bottom of the cylindrical body, and a draft mechanism beneath said partition, substantially as set forth.

8. In combination with a cylindrical freight-car body, a fluid-tight partition near the bottom of the cylindrical body, a draft mechanism beneath said partition, and truss-bracing between the partition and the top of said body, substantially as set forth.

9. A cylindrically-bodied freight-car divided into two sections by a horizontal fluid-tight partition, combined with a box-girder in the lower section, substantially as set forth.

10. A cylindrically-bodied freight-car divided into two sections by a horizontal fluid-tight partition, combined with a box-girder in the lower section, and draft mechanism within said box-girder, substantially as set forth.

11. A cylindrically-bodied freight-car divided into two sections by a horizontal fluid-tight partition, combined with a truss-bracing in the upper section, a box-girder in the lower section, and draft mechanism within said box-girder, substantially as set forth.

12. In combination with the tank of a car, a horizontal fluid-tight partition near the bottom of the tank, sills fastened to the bottom of said tank below the partition and extending through the ends of said tank, and draft mechanism between the sills, substantially as set forth.

13. In combination with the tank of a car, a horizontal fluid-tight partition near the bot-

tom of the tank, sills fastened to the bottom of said tank below the partition, and a plate connecting the tops of the sills, substantially as set forth.

14. In combination with the tank of a car, a horizontal fluid-tight partition near the bottom of the tank, sills fastened to the bottom of said tank below the partition, a plate connecting the tops of the sills, and truss-bracing above the partition, substantially as set forth.

15. The combination in a tank-car, of a fluid-tight partition near the bottom of the tank, a beam within and riveted to the top of said tank, columns in the longitudinal center of said tank extending from the fluid-tight partition to said beam, and truss-rods between the columns and the ends of the tank, substantially as set forth.

16. In a car, the combination of a tank extending below the line of draft, draft devices within said tank, and a fluid-tight partition for separating the draft devices from the contents of the car, substantially as set forth.

In testimony whereof I hereunto set my hand and seal.

MARK A. DEES. [L. S.]

Witnesses:
HATTIE BROWNING,
KATIE BROWNING.