W. C. GORDON.

DUMPING CAR.

APPLICATION FILED DEC. 11, 1917.

1,287,292.

Patented Dec. 10, 1918.

2 SHEETS—SHEET 1.

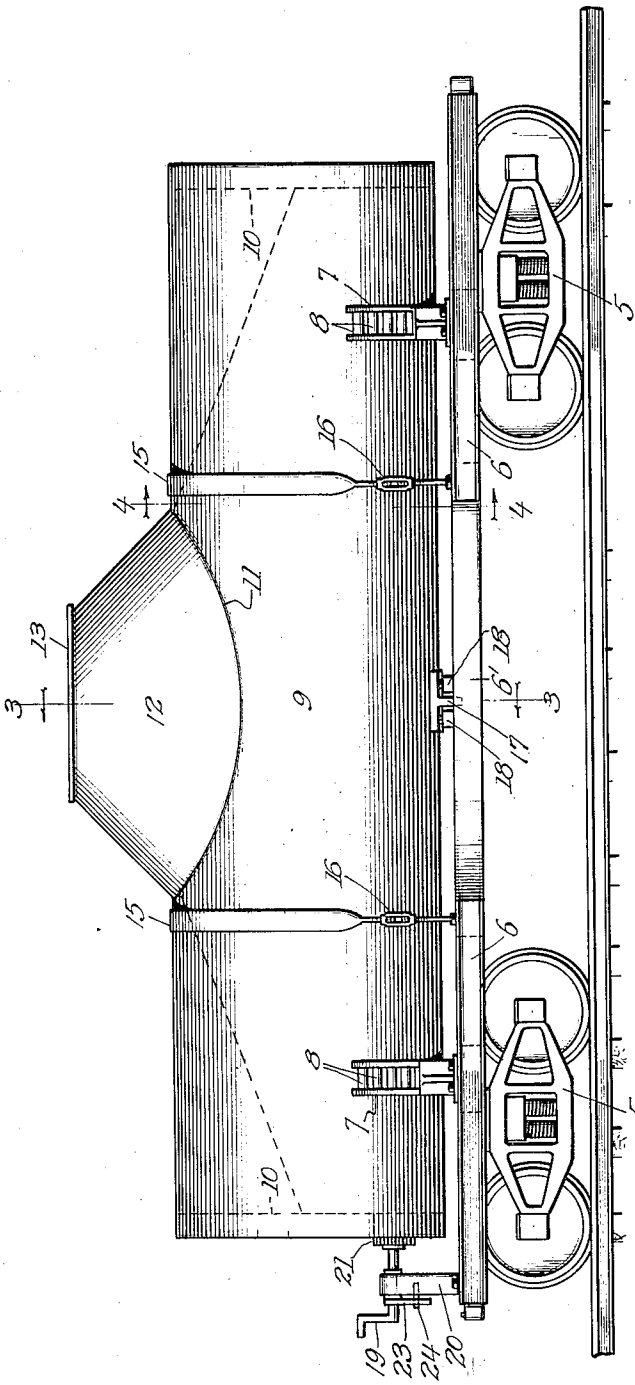


Fig. 1

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2 SHEETS—SHEET 2.

Fig. 2.

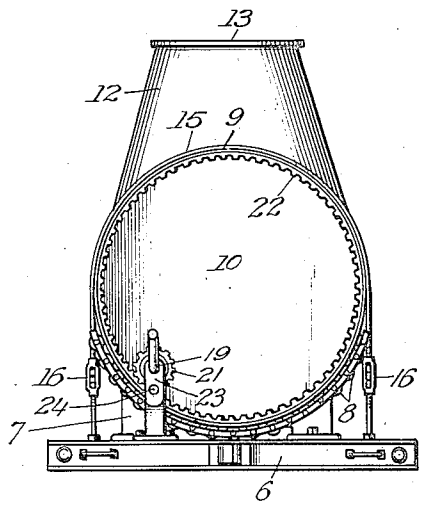


Fig. 3.

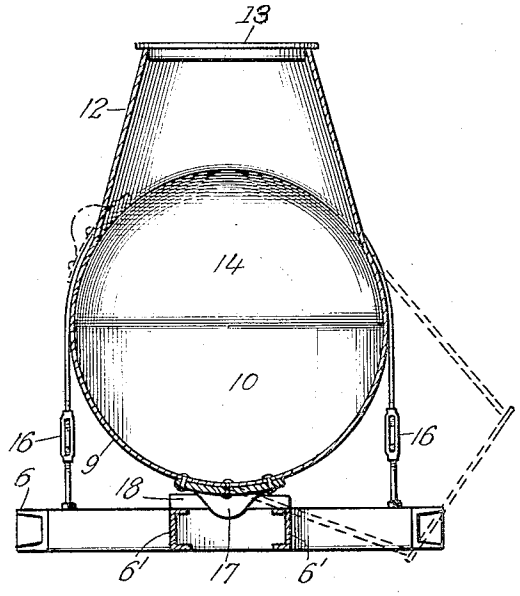
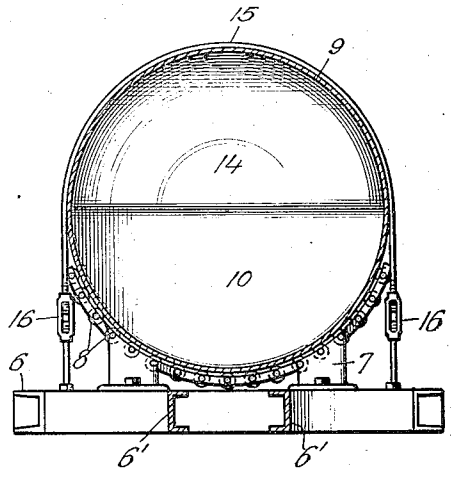


Fig. 4.



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UNITED STATES PATENT OFFICE.

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DUMPING-CAR.

1,287,292. Specification of Letters Patent. Patented Dec. 10, 1918.

Application filed December 11, 1917. Serial No. 206,597.

To all whom it may concern:

Be it known that I, WILLETT C. GORDON, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Dumping-Cars, of which the following is a specification.

This invention relates to improvements in railway cars adapted for the transportation of bulk grain, sand, and similar relatively fine material, which is self discharging under a comparatively small angle of flow. Heretofore in actual practice bulk grain has been transported for the most part in box cars, which are objectionable in two respects. In the first place, a large amount of grain is lost by leakage through the cracks in the floor and side walls. In the second place, such cars can be unloaded only by manual or power shovels, which makes the work of unloading an item of considerable time and expense. A steel tank grain car has also been proposed equipped with hopper bottoms having valve-controlled discharge outlets beneath the platform of the car. While this construction avoids the leakage of the box car through cracks in the structure, it is nevertheless subject to loss of grain in case the valves of the hopper bottoms get out of order or are accidentally opened.

One object of the present invention is to provide an improved railway car of this character, more especially designed for the transportation of grain and similar fine material in bulk which shall be absolutely proof against leakage. Another object of the invention is to provide such a car which shall have a common opening for the reception and discharge of the contents and shall be capable of being turned on its longitudinal axis between the loading position, in which the opening is on top, and the discharge position in which the opening overhangs the side of the car platform, permitting the contents to run out. Other objects and advantages of the invention will be apparent to those skilled in the art as the invention is better understood by reference to the following detail description and the accompanying drawings, wherein—

Figure 1 is a side elevation of my improved car;

Fig. 2 is an end view as seen from the left of Fig. 1; and

Figs. 3 and 4 are cross-sections on the corresponding lines of Fig. 1, Fig. 3 showing in dotted lines the tank turned to discharge position.

Referring to the drawings, 5 designates as an entirety the trucks while the underframe, for the purposes of this invention is preferably of the type having full width end portions or platforms 6 and an intermediate narrow portion formed by the usual longitudinal center sills 6′. Securely mounted on and transversely of the underframe a slight distance inwardly of its ends, are a pair of cradles 7 which include antifriction rollers 8 that support the tank 9. This latter is preferably a steel structure circular in cross-section and of uniform diameter from end to end and provided with tight end walls 10. Centrally of the top of the tank structure is an oblong opening, the line of which is indicated at 11, that is surrounded by a tapered dome 12, the upper end of which is provided with a suitable lid or cover 13 to protect the contents of the tank from the weather. Within the tank and extending from substantially the center of each end wall 10 to opposite sides of the opening 11 at the base of the dome 12 are inclined walls 14 that, in the upright position of the tank, unitedly have the form of an inverted hopper.

The tank is securely held down in the cradles by means of straps 15 that extend thereover and are anchored at their ends to the opposite sides of the underframe 6. Preferably, and as herein shown, turnbuckles 16 are interposed in these straps on each side for tightening purposes.

To secure the tank against longitudinal displacement relative to the underframe under shocks of starting and stopping, a depending lug 17 is strongly secured to the bottom of the tank and extends between buffer-blocks 18 secured on and across the center sills 6′ of the underframe, as clearly shown in Fig. 3, ample space being provided for clearance of the lug 17 as the tank is turned on its longitudinal axis.

For effecting the turning of the tank any suitable and convenient means may be provided, the means herein shown comprising a winch 19 journaled in an upright 20 at one end of the underframe and carrying a spur pinion 21 in mesh with an internal gear 22 (Fig. 2) formed on the end of the tank, for which purpose the end wall 10 is preferably slightly inset as shown. To lock the tank against turning, I provide an arm 23 rigid with the winch 19, through which a pin 24

passes into a hole in the upright 20. By simply withdrawing the pin 24 the winch may be turned to rotate the tank in either direction.

When the car is to be loaded, it is in the upright position shown in Figs. 1 and 2 and in full lines in Fig. 3, and the grain or other material is delivered through a suitable spout into the dome 12, and the car may be filled if desired to the top of the latter. When the car is to be emptied at the elevator or other destination, the pin 24 is withdrawn and the winch manipulated until the tank has been turned to carry the dome 12 to the dotted line position indicated in Fig. 3, whereupon the grain or other material is readily discharged by gravity into the elevator conveyer or other receptacle. When the car is thus emptied, the reverse manipulation of the winch restores it to upright position in condition for reloading.

It is believed that the foregoing description, taken in connection with the drawings, will make clear to those familiar with the art how the stated objects and advantages of the invention are secured. It will be evident that the structure shown and described may be modified in minor details without involving any departure from the principle of the invention or sacrificing any of the advantages inhering therein. Hence, I do not limit the invention to the precise details herein disclosed except to the extent clearly indicated in specific claims.

I claim:

1. In a dumping railway car, the combination of a car underframe, a cylindrical tank supported on said underframe with capacity for turning on its longitudinal axis, said tank being of uniform diameter from end to end and having transverse walls and a lateral filling and discharge opening substantially midway between said transverse walls, inclined walls within said tank extending from substantially mid-height of said transverse walls to opposite sides of said opening and forming, when the tank is inverted, a hopper bottom, and means for turning said tank.

2. In a dumping railway car, the combination of a car underframe, a tank supported on said underframe with capacity for turning on its longitudinal axis, said tank being of uniform cross-sectional area from end to end and having transverse end walls and a substantially central dome on its upper side through which the load is received and discharged, and inclined walls within said tank extending from substantially mid-height of said end walls to opposite sides of the base of said dome and forming, when the tank is inverted, a hopper bottom, and means for turning said tank.

3. In a dumping railway car, the combination of a car underframe, cradles mounted on and transversely of said underframe, a tank of circular cross-section rotatably supported entirely in and by said cradles, said tank having a substantially central opening in its top side for receiving and discharging the load, means embracing the tank and secured to the underframe for holding said tank down in said cradles, means for preventing endwise displacement of said tank relative to said underframe, and means for turning said tank.

4. In a dumping railway car, the combination of a car underframe, cradles mounted on and transversely of said underframe, a tank of circular cross-section rotatably supported entirely in and by said cradles, said tank having a substantially central opening in its top side for receiving and discharging the load, straps extending over said tank and anchored to said underframe, and means for tightening said straps.

5. In a dumping railway car, the combination of a car underframe, cradles mounted on and transversely of said underframe, a tank rotatably supported entirely in and by said cradles and provided with a substantially central opening in its top side for receiving and discharging the load, inclined walls extending from end walls of said tank to opposite sides of said opening, and a depending lug on the lower side of said tank normally abutting against transverse members of said underframe to prevent longitudinal displacement of said tank relative to said underframe.

6. In a dumping railway car, the combination of a car underframe, a tank body of circular cross-section rotatably supported on said underframe, said tank body having a single lateral filling and discharge opening and an inset head at one end, an internal gear at said end, a winch mounted on said underframe and carrying a pinion in mesh with said gear, and means for locking said winch against turning.

7. In a dumping railway car, the combination of a car underframe, a tank body of circular cross-section rotatably supported on said underframe and provided with a substantially central lateral opening, an oblong tapered dome surrounding said opening, inclined walls extending from the ends of said tank body to the base of said dome and forming with the latter a hopper bottom when said tank body is rotated to dumping position, and means for turning said tank body on its longitudinal axis.

WILLETT C. GORDON.