

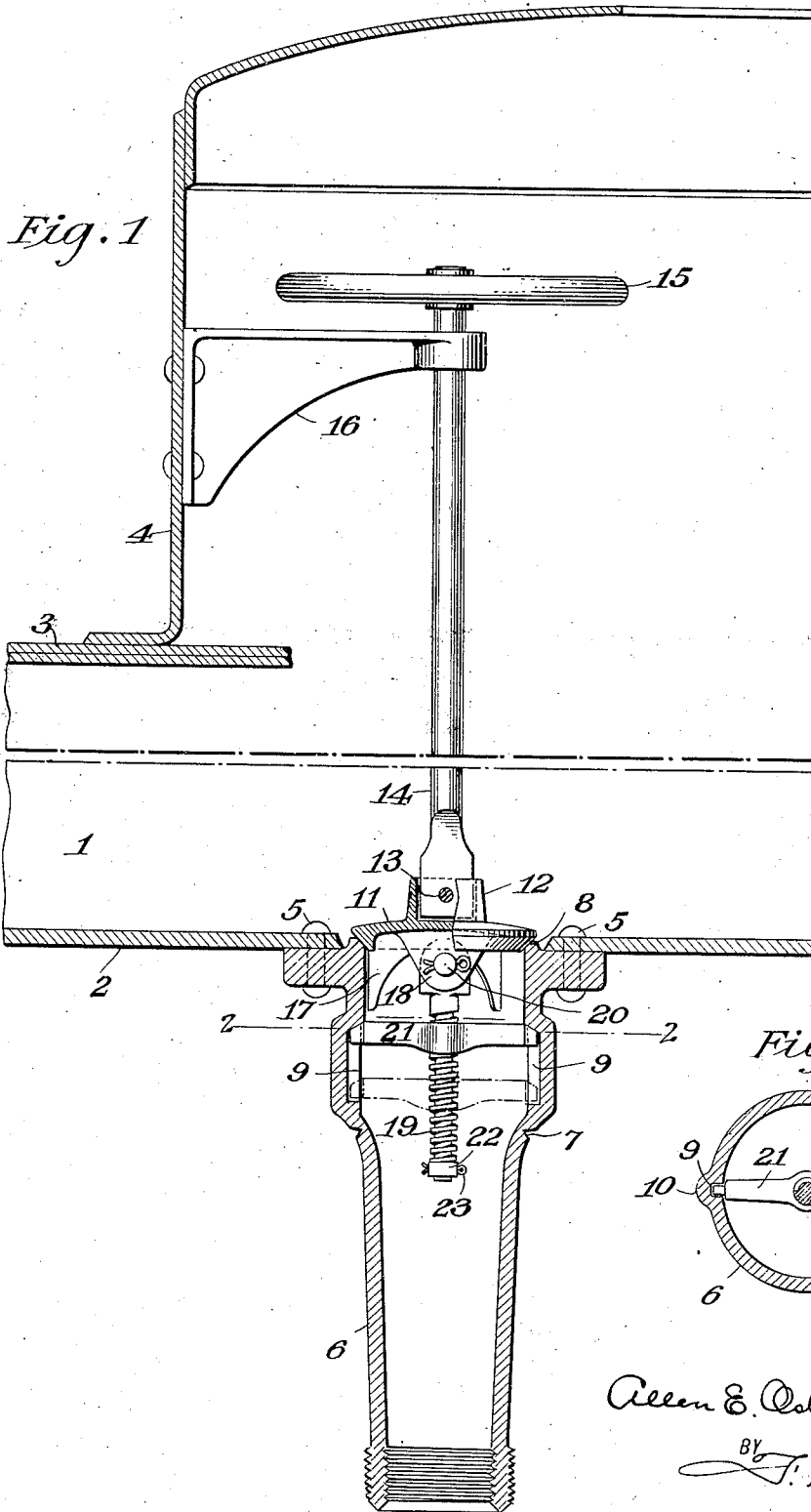
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VALVE FOR TANK CARS

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VALVE FOR TANK CARS.

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To all whom it may concern:

Be it known that I, ALLEN E. OSTRANDER, residing at Ridgewood, county of Bergen, State of New Jersey, and being a citizen of the United States, have invented certain new and useful Improvements in a Valve for Tank Cars, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof within the scope of the claims will occur to persons skilled in the art.

In said drawings:

Figure 1 is a broken view, partly in section and partly in elevation, showing my improved discharge valve for tank cars; and Figure 2 is a section taken on the line 2-2 of Fig. 1.

It is the object of my invention to provide an improved valve for the discharge outlets of tank cars of the type that is positively seated by a screw means that allows play between the valve and its seat sufficient to permit of grinding the valve to its seat.

In the drawing, 1 designates a car tank of which but portions are shown, having a bottom sheet 2, a top sheet 3 and a dome 4 secured to the top sheet 3.

Secured to the bottom sheet 2, by rivets 5, is a flanged discharge outlet casing 6 having the usual breakage groove 7 and screw threaded at the bottom to receive the usual cap, (not shown). The outlet casing 6 is provided at its upper end with a valve seat 8 that faces into the tank and in the length of the casing 6 are the grooves 9, diametrically opposite to each other and extending for a short distance as shown in Fig. 1. In order to provide the proper thickness of metal in the casing wall, the casing is ribbed throughout the length of the grooves, as at 10 in Fig. 2.

Coacting with the seat 8 is a valve 11 provided with an upwardly extending collar 12 in which is secured, by the pin 13, a valve operating shaft 14 provided with a hand wheel 15 and guided by the bracket 16 secured to the tank dome 4. Projecting downwardly from the valve 11 are the guides 17

and the lugs 18 to which the screw threaded rod 19 is pivoted by a pin 20 passing through the lugs 18 and the flattened head on the end of the rod 19. Screwed onto the rod 19 is a cross-bar 21, the ends of which travel in the grooves 9 in the casing 6, the upper portions of the ends of the cross-bar being beveled, as shown in Fig. 1, to coact with the inclined upper ends of the grooves 9. To prevent the separation of rod 19 and bar 21, the lower end of rod 19 is provided with a retaining collar 22 held in place by the cotter pin 23.

In use, operation of the hand wheel 15 causes the shaft 14 and valve 11 to rotate, thus rotating the screw threaded rod 19. Rotation of the rod in one direction will cause the cross-bar 21 to be advanced along the rod 19 until it engages the upper ends of the grooves 9 and further rotation in the same direction, with the cross-bar 21 engaging the ends of the grooves 9, will cause the valve 11 to be forced to its seat 8 with sufficient pressure to clear the seat 8 of much of the foreign matter that gathers there when the tanks are in service. Rotating the hand wheel in the opposite direction will cause the cross-bar 21 to be advanced along the rod 19 towards the bottom of the grooves 9, freeing the valve 11 if it is seated. By rotating the hand wheel 15 until the cross-bar 21 is away from both ends of the grooves, sufficient play is given so that the valve 11 may be lifted clear of the seat 8 and rotated so that different parts of the valve and seat will engage when the valve is replaced on its seat in the usual manner of grinding a valve to its seat. Continued rotation of the hand wheel after the cross-bar 21 engages the bottoms of the grooves 9 causes the valve 11 to be lifted from its seat and give a clear passage for the discharge of the contents of the tank.

What I claim is:

1. In a tank car discharge valve, a discharge outlet casing having a valve seat and a plurality of grooves, a valve for said seat, operating means for said valve, means mounted in said grooves for reciprocatory motion therein and adapted to support said valve in the open position thereof and a connection between said valve and said means adapted to force said valve and said means into engagement with said casing.
2. In a tank car discharge valve, a dis-

- charge outlet casing having a valve seat, a valve for said seat, operating means for said valve, a cross bar mounted in said casing for reciprocatory motion therein and means 5 pivotally connecting said cross bar and said valve adapted to force said cross bar into engagement with said casing and said valve from its seat.
3. In a tank car discharge valve, a casing 10 having a valve seat and a discharge passage, a valve for said seat, operating means for said valve, a cross bar mounted in said discharge passage for a limited reciprocatory movement therein and means pivotally connecting said cross bar and said valve adapted 15 to move said cross bar to the limit of its movement in said discharge passage and then to force said valve from its seat upon rotation of said valve.
4. In a tank car discharge valve, a casing 20 having a valve seat and a discharge passage, a valve for said seat, operating means for said valve, grooves in said casing wall open to said discharge passage, a cross-bar adapted 25 to reciprocate in said grooves and a connection between said cross-bar and said valve adapted to force said cross-bar against the ends of said grooves and to move said valve with respect to said valve seat.
5. In a tank car discharge valve, a casing 30 having a valve seat and a discharge passage, a valve for said seat, operating means for said valve, grooves in said casing wall open to said discharge passage, a cross-bar mounted 35 in said grooves and a rod joining said cross-bar and said valve and pivotally connected to said valve.
6. In a tank car discharge valve, a casing 40 having a valve seat, a valve for said seat, operating means for said valve, grooves in said casing wall, a cross-bar mounted to reciprocate in said grooves, and a screw threaded rod carrying said cross-bar and pivotally 45 connected to said valve adapted to cause relative movement of said valve and said cross-bar upon rotation of said valve.
7. In a tank car discharge valve, a casing 50 having a valve seat, a valve for said seat, a screw threaded rod pivotally connected to said valve, grooves in said casing wall, means engaging said screw threaded rod and adapted to reciprocate in said grooves and means 55 adapted to rotate said valve to cause relative movement of said valve and said groove engaging means.
8. In a tank car discharge valve, a discharge outlet casing having a valve seat, a valve for said seat operating means adapted to rotate said valve on said seat and means 60 in said outlet opening adapted to raise said valve from its seat upon a predetermined degree of rotation of said valve on said seat.
9. In a tank car discharge valve, a discharge outlet casing having a valve seat, a valve for said seat, operating means for said 65 valve and means in the outlet opening adapted to raise said valve from said seat and to force said valve to said seat upon predetermined degrees of rotation of said valve on said seat.
10. In a tank car discharge valve, a discharge outlet casing having a valve seat, a valve for said seat, operating means for said valve adapted to rotate said valve on said seat, a stem pivotally connected to said valve 70 and a cross-bar mounted on said stem and adapted to engage said casing, said cross-bar and stem being adapted to raise said valve from its seat upon a predetermined degree of rotation of said valve on said seat. 75
11. In a tank car discharge valve, a discharge outlet casing having a valve seat, a valve for said seat, a valve operating rod connected to one side of said valve, a threaded rod pivotally connected to the other side 80 of said valve and a cross-bar mounted on said threaded rod and engaging said casing to raise said valve from its seat upon rotation of said valve.
12. In a tank car discharge valve, a grooved discharge outlet casing having a valve seat, a valve for said seat, a valve operating rod connected to the upper side 85 of said valve, a threaded rod pivotally connected to the lower side of said valve and projecting into said discharge outlet casing and a cross-bar mounted on said threaded rod and adapted to be reciprocated in said grooves upon rotation of said valve. 90
13. In a tank car discharge valve, a discharge outlet casing having a valve seat, a valve for said seat, a valve operating rod connected to one side of said valve, a threaded rod connected to the other side of said valve and a cross-bar mounted on said 95 threaded rod and adapted to be reciprocated in said casing to raise said valve from its seat upon rotation of the valve in one direction and to engage said casing to force said valve to its seat upon rotation of the valve 100 in the opposite direction.
14. In a tank car discharge valve, a casing having a valve seat and a discharge passage, a valve for said seat, a valve rod connected to one side of said valve, a cross-bar mounted in said discharge passage for a limited reciprocatory movement therein and a threaded rod connecting said cross-bar to the other side of said valve and adapted to move said cross-bar to the limit 105 of its movement in said discharge passage and then to force said valve from its seat upon rotation of said valve.
15. In a tank car discharge valve, a discharge outlet casing having a valve seat, a valve for said seat, an operating rod connected to one side of said valve, grooves in said casing wall, a cross-bar mounted to reciprocate in said grooves and a threaded rod carrying said cross-bar and pivotally 110 connected to said valve, means in the outlet opening adapted to raise said valve from said seat and to force said valve to said seat upon predetermined degrees of rotation of said valve on said seat.
- 115
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- 125
- 130

connected to the other side of said valve adapted to cause relative movement of said valve and said cross-bar upon rotation of said valve.

5 16. In a tank car discharge valve, a casing having a valve seat, a valve for said seat, a threaded rod pivotally connected to the underside of said valve, grooves in said casing wall, means engaging said threaded
10 rod and adapted to reciprocate in said grooves and a valve operating rod connect-

ed to the upper side of said valve and adapted to rotate said valve to cause relative movement of said valve and said groove engaging means.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

ALLEN E. OSTRANDER.

Witnesses:

BESSIE D. STRONG,
LEO V. JOYCE.