To all whom it may concern:

Be it known that I, George E. Mittinger, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Outlet-Valves and Operating Mechanisms for Tank-Cars, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to improvements in outlet valves and operating mechanisms for tank cars.

The object of my invention is to provide a valve and its operating mechanism so arranged in the tank car that the valve seat is flush with or below the lower face of the bottom of the car, so there is no projection around the valve seat and thus enables the car to be readily flushed out.

Another object of my invention is to provide a valve and its operating mechanism so that it is impossible to remove the valve entirely from its seat during the ordinary operation of the valve yet allowing a proper movement of the valve for opening the same to allow for the maximum flow of oil through or by the valve.

A further object of my invention is to provide a valve and its operating mechanism which has an auxiliary lock for the valve so that it is absolutely impossible for the valve to work upward from the seat, caused by the vibration of the car in transportation.

A still further object of my invention is to provide a simple, cheap and more effective valve of this character, having certain details of structure and operation hereinafter more fully set forth.

In the accompanying drawings—

Figure 1 is a vertical sectional view of a tank car showing my improved valve applied thereto, the valve being in a closed position.

Figure 2 is an enlarged vertical sectional view showing the valve in its open position.

Figure 3 is a top plan view of the valve proper.

Referring now to the drawings, 1 represents the body of the ordinary tank car having the usual dome 2, provided with the opening 3, by means of which access may be had to the tank, and which is closed by the cover 4, all of which is of the usual construction of tank cars and needs no further description. The bottom 5 of the tank car is provided with an opening 6, and secured to the bottom of the car below the opening is the outlet leg 7, which is preferably made of cast-iron and riveted to the bottom by means of the bolts 8, as clearly shown in Fig. 1 of the drawings.

The outlet leg 7 has its lower end screw-threaded at 9, and upon which is screwed the cap 10, which forms an absolute closure for the lower end of the leg, to prevent the leakage of the contents of the car should the valve, to be later described, leak. This cap 10 is preferably secured to the car by means of a chain 11, so that it cannot be misplaced or lost. The leg 7 is provided with a bore 12 therethrough, the upper end of which registers with the opening 6 in the bottom 5 of the tank car. The bore 12 is provided with a circumferential groove or weakened portion 13 a slight distance below its upper end, so that should the leg strike an obstruction on the track, it would break at the point 13 and not be torn loose from the car and thus preventing the entire contents of the car from leaking out should the leg strike an obstruction.

The upper end of the leg 7 is provided with a valve seat 14, and below the valve seat it is screw-threaded, as indicated at 15, and into which is screwed the threaded portion 16 of the valve 17. The valve 17 is of a hollow form and is provided around its periphery with openings 18 below the beveled seating surface 19. By this structure it will be seen that the valve proper carries the threaded portion 16, cooperating with the threads 15 of the leg, and whereby it is not necessary to remove the valve entirely from the leg to obtain the maximum flow of oil through the openings 18. The seating surface 19 is of a shape to correspond with the valve seat 14, so that when the valve is screwed down it will firmly engage the seat 14 and prevent the passage of oil through the leg.

The upper end of the valve 17 is provided with a recess 20 in which extends the lower end 21 of the valve stem 22. The lower end 21 of the valve stem 22 is rectangular in cross-section to correspond with the recess 20 in the valve and is secured therein by a transverse pin 23. The valve stem 22 extends upwardly in the dome 2 of the tank car and passes through a bracket 24 secured to the side of the dome. The valve stem 22, above the bracket 24, is provided with a hand wheel 25, whereby the valve stem is ro-
tated for screwing the valve up and down in the leg for allowing the passage of the liquid in the tank to flow through the openings 18 in the valve.

Secured to the stem 22 below the bracket 24 is a collar 26. This collar 26 is locked upon the valve stem 22 by means of a set screw 27. Above the collar 26 on the valve stem is arranged a second collar 28, which is locked upon the stem by means of a set screw 29, which has permanently or removably secured thereto a wrench 30 for operating the set screw, whereby the collar 28 may be adjusted on the valve stem.

The collar 26 is so positioned on the valve stem that when the valve is screwed upwardly sufficiently to bring the openings 18 entirely above the valve seat so that the maximum flow of oil will be obtained through the valve, the collar 28 engages the bracket 24 and prevents the valve from being unscrewed wholly from within the leg. The collar 28 is used to lock the valve stem against vertical movement when the valve has been screwed down in its seated position.

The valve, as is understood, is operated by the hand-wheel 25 through the opening 3 in the dome, and when the valve has been seated, the collar 28 is moved up against the bracket 24 and the set screw 29 tightened by means of the wrench 30, so that any jar or vibration of the car during transit cannot possibly work the valve upwardly away from its seat.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

A valve mechanism for tank cars, comprising a member at the bottom of the car having a vertically disposed opening, the upper edge of the wall of the opening provided with a horizontally arranged outwardly tapered valve seat, the opening having internal screw-threads below the valve seat, in combination with a valve member having a horizontally arranged upwardly tapered flange to co-act with the before-mentioned valve seat, the valve member having a downwardly projecting reduced hollow portion provided with external screw-threads, the screw-thread thereof adapted to mesh with the internal screw-threads of the before-mentioned vertically disposed opening, the reduced hollow portion having transverse openings below the flange, and means for turning the valve member on and away from its seat, substantially as and for the purpose described.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

GEORGE E. MITTINGER.

Witnesses:
G. M. Jonsson,
W. J. Stuppy.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."