

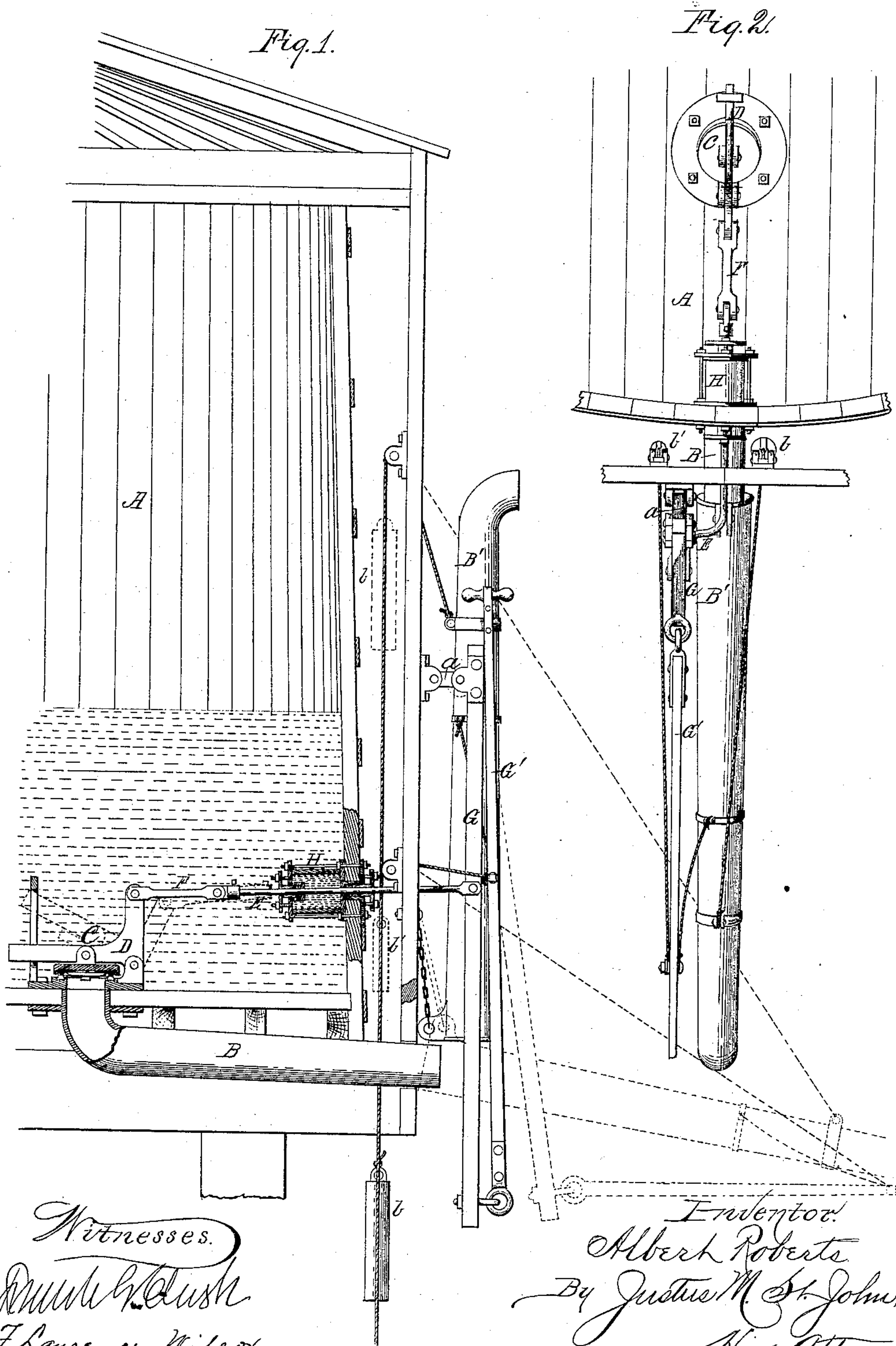
(No Model.)

A. ROBERTS.

# RAILWAY WATER TANK.

No. 322,068.

Patented July 14, 1885.



Witnesses.  
 Mark G. Clark  
 F. Laurence Wilcox

Inventor:  
Albert Roberts  
By Justice M. S. John,  
his Atty.



# UNITED STATES PATENT OFFICE.

ALBERT ROBERTS, OF MARION, IOWA.

## RAILWAY WATER-TANK.

SPECIFICATION forming part of Letters Patent No. 322,068, dated July 14, 1885.

Application filed May 8, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT ROBERTS, a citizen of the United States residing at Marion, in the county of Linn and State of Iowa, have invented certain new and useful Improvements in Railway Water-Tanks, of which the following is a specification.

This invention relates to water-tanks, especially those which supply water for locomotives; and my object is to render the opening and closing of the outlet-valve more reliable, and to prevent the freezing up of the pipes and operative parts during cold weather. The nature of the improvements to this end will be fully described herein.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertically sectional view of the invention, and Fig. 2 a plan view of the same.

Similar letters of reference indicate corresponding parts.

The tank A is not unlike those in ordinary use, the invention being applicable to any water-tank. In the bottom is fitted an escape-pipe, B, turning outwardly, and adapted to connect with the swinging pipe B' in the usual way. Over the opening in the bottom of the tank is a valve or gate, C, adapted to lift on a lateral pivot by means of a bell-crank, D, the valve being attached to the horizontal arm thereof. A rod, E, connects with the vertical arm of the bell-crank by means of a suitable connecting-rod, F, and passing through the side of the tank is moved back and forth by the pivoted lever G. To bring this lever within reach of the operator from the locomotive-tender, it is provided with a hinged bar, G', adapted to swing up or down with the movement of the sway-spout B'. As will be seen, the lever G is pivoted to an external timber of the tank above the valve-rod. A short connecting-rod, a, permits the necessary variation in position as the valve is drawn out on a horizontal line. The lower end of the lever extends some distance below the outlet-pipe, so that when the sway-spout is lowered to the position indicated by the dotted lines it is about level with the end of the spout, and the handle-bar, pivoted to the lower end of the lever, is horizontal, rendering the operation of the lever and its connections easy and convenient. Another result is also secured by reason

of the vertical difference between the pivotal points of the sway-spout and the handle-lever. The spout and the lever may be connected by a cord or chain, as shown. When the spout is elevated, the chain is drawn taut, and the handle lever is thereby held in a vertical position; but when lowered and in its normal position, the chain is slack, allowing the handle to be drawn outward, as indicated.

It will be seen that this construction admits of the valve being forcibly closed as well as opened. Ordinarily the valve is opened by means of a chain or cord passing over a pulley or pulleys at the top of the tank, consequently the valve closes by gravity; but by reason of obstructions to the free movement of the chain, or otherwise, the valve is apt to close imperfectly and tardily, causing annoyance and loss of time. It is desirable, therefore, to so construct the apparatus that the operator may control the closing as well as the opening of the valve.

To render the movement of the sway-spout and the handle-bar as easy as possible, and to hold them at any desired angle, they may be provided with counterbalance-weights b b', as represented.

One of the greatest difficulties met with in connection with the ordinary railway-tank is that occasioned by ice. Naturally the ice accumulates on the surface of the water and also around the sides of the tank. The cord or chain which raises the valve is thus continually exposed to the liability of being frozen fast and the tank rendered useless until temporarily relieved by cutting the ice away. This invention is designed to obviate this difficulty, by passing the rod which actuates the valve through a non-freezing medium at that place which otherwise would be exposed to ice. To this end a chamber, H, provided with suitable stuffing-boxes and glands, is attached to the inside of the tank near the bottom, and through this chamber or cylinder the valve-rod passes. The cylinder is made long enough to extend inward beyond the limits of frost, and for better non-conduction is preferably made of wood. In practice, I fill this chamber with common black oil, which will not congeal and serves to lubricate the valve-rod, and thereby the better prevent any accumulation of ice on the parts thereof extending beyond the stuffing-boxes.



Obviously, alcoholic spirits may be used instead of oil, but are more expensive and not so good as a lubricant. It may be possible, also, to dispense with every kind of a liquid medium here without any important modification of the device, the dead-air space in the chamber being a sufficient non-conductor.

The chamber is quite simple in construction, and may be fully understood from the drawings without any further description.

The valve-rod being in the same vertical line with the outlet-pipe, provision must be made for the movement of the sway-spout and the lever at the side thereof connecting with said piston. This may be done by turning the outer end of the outlet-pipe to one side, or, what is equivalent thereto, setting the valve-rod and chamber at an angle to the pipe; but in practice I prefer to make an offset in the outer end of the valve-rod, as shown in Fig. 2, leaving all the parts and allowing for all the movements in parallel lines.

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

1. In combination with the valve-rod of a water-tank, a chamber or cylinder attached to the inside of the tank, and having a stuffing-box at each end for preventing leakage around the valve-stem, and filled with oil, spirits, or other non-freezing substance to prevent the accumulation of ice about the valve-rod, as set forth.

2. In combination with the valve-rod of a water-tank and the actuating-lever thereof, a handle-bar pivoted to said lever below the pivotal point of the sway-spout, and attached to the sway-spout by a cord or chain, by means of which construction and arrangement the spout and handle-bar rise to a vertical position together, and the handle-bar is free to move back and forth when horizontal, substantially as set forth.

3. In a water-tank, the combination of valve C, bell-crank D, valve-rod E, lever G, and non-conducting chamber H, adapted to contain oil, spirits, or other non-freezing substance, and prevent the freezing fast of the valve-rod, substantially as specified.

4. In a water-tank, the combination of valve C, bell-crank D, valve-rod E, chamber H, lever G, pivoted above the valve-rod, and having handle-bar G' pivoted to it below the pivotal point of the sway-spout, and connected to said sway-spout by a cord or chain, all constructed, arranged, and adapted to operate, substantially as and for the purpose set forth.

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

ALBERT ROBERTS.

Witnesses:

MYRON REYNOLDS,  
FRANK G. CLOKE.