

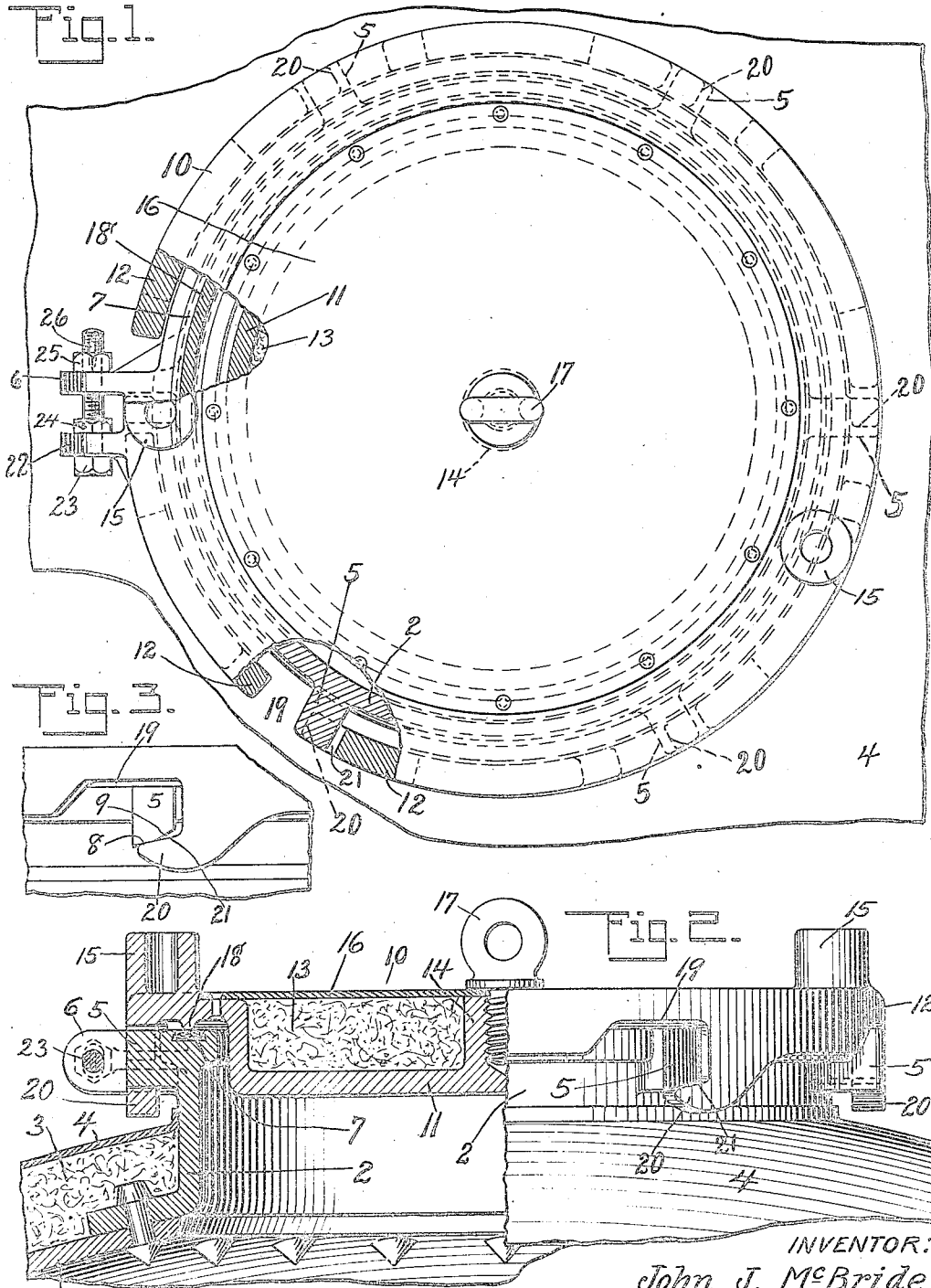
April 6, 1926.

1,579,224

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TANK CAR DOME CLOSURE

Filed Oct. 29, 1921



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UNITED STATES PATENT OFFICE.

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TANK-CAR-DOME CLOSURE.

Application filed October 29, 1921. Serial No. 511,461.

To all whom it may concern:

Be it known that I, JOHN J. McBRIDE, residing at Bayonne, Hudson County, State of New Jersey, and being a citizen of the United States, have invented certain new and useful Improvements in a Tank-Car-Dome Closure, 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:

Fig. 1 is a plan view, partly in section, of a car tank dome showing my improved closure applied thereto;

Fig. 2 is a view, partly in elevation and partly in vertical section, of the structure shown in Fig. 1; and

Fig. 3 is a detail view showing the engaging lugs on the ring and cover.

It is the object of my invention to provide an improved closure for car tanks of such a type that the cover may be raised slightly to permit of the escape of pressure from the tank without danger of the cover being blown from the tank by the pressure in the tank.

In the embodiment of my invention shown in the drawings, 1 designates the tank dome head having the usual manhole opening surrounded by a flanged ring 2 riveted to the dome head 1. In the construction shown, insulation 3 protected by an outer sheathing 4 is provided but my invention is not limited to use in connection with insulated tanks. The ring 2 is provided with a plurality of projecting lugs 5, a perforated lug 6 and a groove provided with packing 7. Each of the lugs 5 is provided with a plurality of intersecting inclined surfaces 8 and 9.

The cover 10 comprises a top portion 11 and a side portion 12, the top portion 11 being dished so as to form a chamber for the insulation 13 and provided with an integral threaded boss 14 at its center and the operating lugs 15 at its perimeter. As shown in

Fig. 2 the dished portion of the cover 10 is adapted to project into the opening formed by the ring 2 and to guide the cover 10 on the ring 2. A sheathing plate 16, riveted along its edge to the cover and held in engagement with the boss 14 by a shoulder on the ring bolt 17 serves to retain the insulation 13 in place. On its underside the top portion 11 is provided with an annular rib 18 adapted to engage the packing 7. The side portion 12 is cut away so as to provide a plurality of recesses 19 adapted to receive lugs 5 and integral with one side of each recess is a projection 20 extending part way across the opening of each recess and provided with an inclined upper surface 21 adapted to cooperate with the inclined surfaces 8 and 9 on the lugs 5. Integral with the side portion 12 is a perforated lug 22 in which a bolt 23 is secured by lock nut 24. The lugs 6 and 22 are positioned so that the bolt 23 will pass through an opening in the lug 6 as the cover 10 is brought to the fully closed position. A nut 25 and a sealing wire, not shown, passed through the opening 26 in the bolt 23 serve to lock the cover in closed position.

To close the tank, the cover 10 is placed on the ring 2 so that the lugs 5 will enter the recesses 19 and the bolt 23 will be positioned so as to enter the opening in the lug 6 when the cover 10 is rotated in a clockwise direction, as shown in Fig. 1, by means of a bar in engagement with the operating lugs 15. As the cover 10 is rotated the engagement of the inclined surfaces on the lugs 5 and 20 will force the rib 18 against the packing 7 and prevent the escape of gas from the tank. To remove the cover from the tank, after removing the nut 25 and the sealing wire, the cover is rotated in a counter-clockwise direction until the projection 20 will clear the projection 5 and the bolt 23 is withdrawn from the lug 6 whereupon the cover 10 may be removed from the rim 2. In cases where there is gas under pressure in the tank, a partial rotation of the cover 10 will permit the cover to be raised slightly by the pressure in the tank allowing the escape of the gas under pressure while the inclined surfaces 21 on the lugs 20 are still engaged with the inclined surfaces 8 and 9 on the lugs 5, the opening being but slight while surfaces 20 and 8 are in contact but increased rapidly while the

surfaces 20 and 9 are in contact so that the confined gases may escape while the cover 10 is still secured to the tank. In order to prevent the cover 10 being turned past the partly open position in which the surfaces 9 and 20 are in contact, the nut 25 may be moved on the bolt 23 far enough to permit of the desired movement of the cover 10 so that the rotation of the cover 10 will be stopped by the engagement of the nut 25 with the lug 6.

What I claim is:

1. A tank dome closure comprising a ring, lugs on said ring having inclined surfaces, a cover, lugs on said cover adapted to engage said inclined surfaces to determine a partly open and the closed positions for said cover and means to hold said cover in closed position, said means being adapted to stop the opening movement of said cover in a partly open position.

2. A tank dome closure comprising a ring, lugs on said ring having a plurality of inclined surfaces, a cover recessed to receive said lugs, lugs on said cover adapted to engage first one and then the other of said inclined surfaces to determine the closed position of said cover and to permit a partial raising of said cover and means to limit the movement of said cover from the closed position.

3. A tank dome closure comprising a ring, lugs on said ring having a plurality of inclined surfaces, a cover recessed to receive said lugs, lugs on said cover adapted to engage first one and then the other of said inclined surfaces to determine a partly open and the closed positions for said cover and means to hold said cover in the closed position, said means being adapted to stop the opening movement of said cover in a partly open position.

4. A tank dome closure comprising a man-hole cover rotatable from a fully closed position to a position in which the cover may be partially raised and means for locking said cover in fully-closed position adjustable to limit the movement of said cover from the fully closed position to the position in which the cover may be partially raised.

5. A tank dome closure comprising a manhole cover having a fully closed position and a position in which the cover may be partially raised and adjustable locking means adapted to lock said cover in the fully closed position and to permit a limited rotation of said cover from the fully closed position.

In witness whereof I have hereunto set my hand.

JOHN J. McBRIDE.