April 21, 1925.

1,534,131

J. J. McBRIDE

TANK CAR DOME CLOSURE

Filed Oct. 29, 1921

Fig. 1.

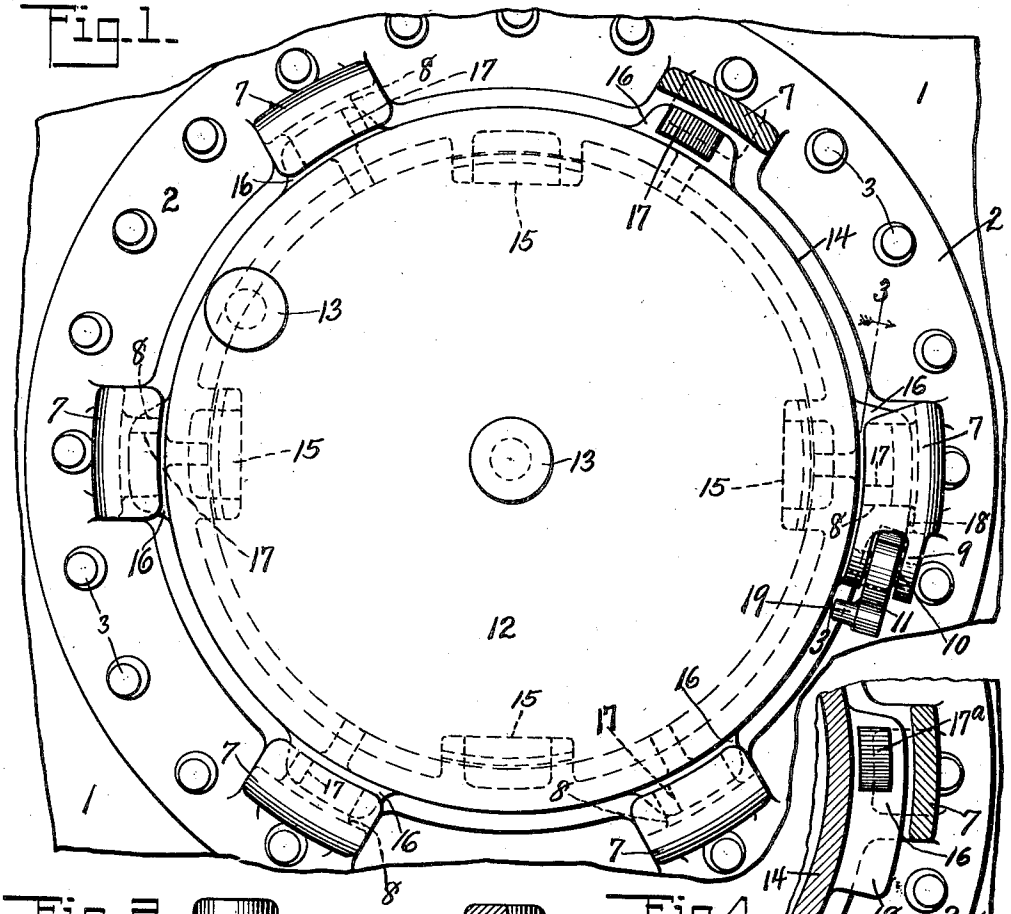


Fig. 2.

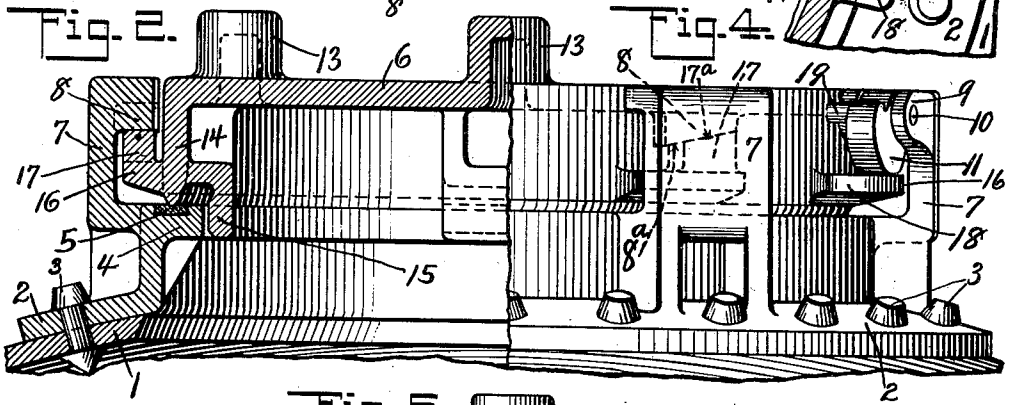


Fig. 4.

Fig. 3.

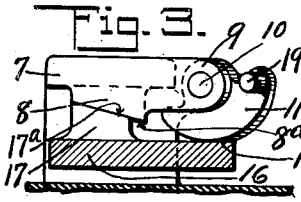
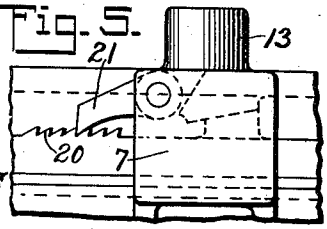


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOHN J. McBRIDE, OF BAYONNE, NEW JERSEY, ASSIGNOR TO AMERICAN CAR AND FOUNDRY COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

TANK-CAR-DOME CLOSURE.

Application filed October 29, 1921. Serial No. 511,460.

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;

Fig. 3 is a section taken on the line 3—3 of Fig. 1 showing one form of cover locking means;

Fig. 4 is a horizontal sectional view of the cover at the cover locking means; and

Fig. 5 is a view in elevation of a modified form of cover locking means.

It is the object of my invention to provide an improved closure for car tanks comprising a cover that may be raised to permit of the escape of gas under pressure from the tank while still so secured to the tank that the operator will not be endangered by a violent lifting of the cover by the pressure in the tank.

In the embodiment of my invention shown in the drawing, the tank dome head 1 is provided with a manhole opening about which a flanged ring 2 is secured by rivets 3. The ring 2 is provided with an inwardly projecting portion 4 in which is a groove filled with a suitable packing 5 to form a seat for a cover 6 and with a plurality of upwardly projecting lugs 7 provided with downwardly projecting portions 8 having inclined surfaces 8^a. One of the lugs 7 is provided with a bifurcated extension 9 through which passes a pin 10 that pivotally supports a locking dog 11.

The cover 6 comprises a top portion 12 having the operating lugs 13 and a side portion 14 adapted to engage with the packing 5. Projecting inwardly from the side portion 14 are guide members 15 which, when the cover 6 is in position on the packing 5, project into the opening formed by the projecting portion 4 and serve to guide the cover 6. Projecting outwardly from the side 14 are lugs 16 having upwardly projecting portions 17 provided with inclined surfaces 17^a adapted to engage with the inclined faces 8^a. One of the lugs 16 is extended, as shown in Fig. 4, so as to provide a surface 18 adapted to engage with the locking dog 11.

To apply the cover 6 to the ring 2, the cover 6 is placed upon the ring 2 with its side 14 engaging the packing 5, the guide members 15 projecting into the opening formed by the ring 2 and the lugs 16 falling between the lugs 7. The lug 16 having the surface 18 is placed so that when the cover 6, as shown in Fig. 1, is rotated in a clockwise direction, by means of a bar in engagement with the operating lugs 13, to bring the inclined faces 8^a and 17^a into contact, the surface 18 will be brought into position beneath the dog 11. As will be seen from Fig. 3, the dog 11 will permit rotation of the cover 6 in a clockwise direction but will lock the cover against movement in a counter-clockwise direction so that it will be necessary to lift the dog 11 by means of the lug 19 before the cover 6 may be rotated in the direction for opening.

To remove the cover 6, the dog 11 is lifted and the cover turned in a counter-clockwise direction to a position in which the inclined faces 17^a will clear the inclined faces 8^a whereupon the cover 6 may be removed from the ring 2. It will be noted that the inclined faces 8^a and 17^a are of sufficient length to permit, in cases where there is pressure in the tank, of the cover 6 being rotated to a position in which the pressure in the tank will raise the cover 6 and escape between the side 14 and packing 5 while the inclined faces 8^a and 17^a are still engaged to such an extent that there is no danger of the cover 6 being blown from the tank by the pressure.

In the modification shown in Fig. 5, one of the lugs 16 is extended to carry a rack 20 that is engaged by a gravity operated pawl 21 carried by one of the lugs 7. This locking means will operate in the same manner as the dog 11, permitting rotation of the cover in a clockwise direction and preventing rotation of the cover in a counter-clockwise direction.

What I claim is:

1. A manhole closure comprising a ring for the manhole opening, a cover for said opening, lugs projecting upwardly from said ring and lugs projecting outwardly from said cover, said lugs cooperating to permit a partial raising of said cover upon a partial rotation of said cover from closed position.

2. A manhole closure comprising a ring for the manhole opening, lugs integral with and projecting upwardly from said ring, a cover for said opening, lugs integral with and projecting upwardly from said cover and inclined faces on the lugs on said ring and said cover adapted to be engaged to hold said cover on said ring.

3. A manhole closure comprising a ring for the manhole opening, a cover for said opening and cooperating means on said ring and said cover adapted to be engaged to hold said cover on said ring, said cooperating means being adapted to permit a partial opening upon a partial movement of said cover from locked position.

4. A manhole closure comprising a cover adapted to be rotated to locked position, means adapted to permit a partial opening upon a partial rotation of said cover from locked position and means preventing the rotation of said cover from locked position.

5. A manhole closure comprising a ring for the manhole opening, lugs projecting from said ring, a cover for said opening, lugs projecting from said cover, inclined surfaces on the lugs on said ring and said cover adapted to be engaged to hold said cover on said ring and means adapted to prevent disengagement of said inclined surfaces.

6. A manhole closure comprising a ring for the manhole opening, lugs projecting from said ring, a cover for said opening, lugs projecting from said cover, inclined surfaces on the lugs on said ring and said cover adapted to engage to hold said cover to said ring and to permit of partial opening of said closure upon partial rotation of said cover and means to prevent rotation of said cover.

7. A manhole closure comprising a ring for the manhole opening, lugs projecting from said ring, a cover for said opening, lugs projecting from said cover, inclined faces on the lugs on said ring and cover adapted to be engaged upon rotation of said cover, said lugs being adapted to permit a partial opening upon a partial rotation of said cover from locked position and automatically operating means adapted to prevent rotation of said cover from the closed position.

8. A manhole closure comprising a ring for the manhole opening, a cover for said opening, upwardly projecting lugs on said ring and lugs on said cover adapted to be engaged with the lugs on said ring to hold said cover on said ring, said lugs being adapted to permit a partial raising of said cover upon a partial rotation of said cover from closed position.

9. A manhole closure comprising a cover adapted to be rotated to a closed position and means operating automatically upon rotation of said cover towards closed position to prevent rotation of said cover away from closed position.

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

JOHN J. McBRIDE.

Witnesses:

F. H. GIBBS,

ELLEN G. WEBSTER.