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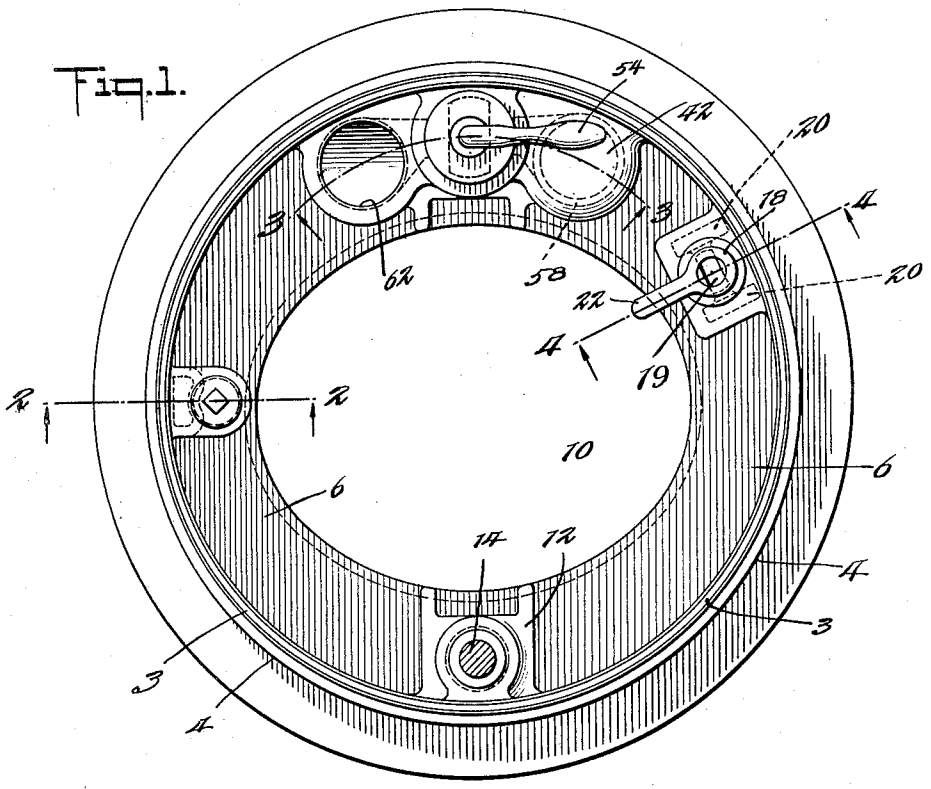
TANK CAR DOME CLOSURE

Filed July 14, 1927

Fig. 1.



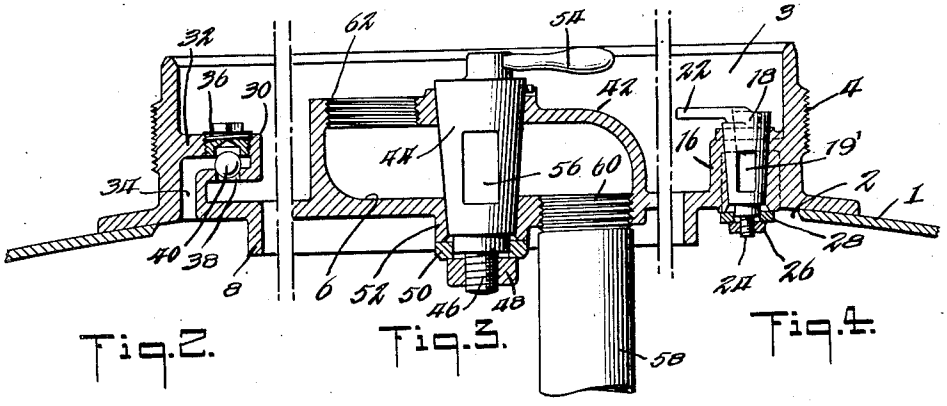


Fig. 2. Fig. 3. Fig. 4.

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TANK-CAR-DOME CLOSURE.

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Reference is 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 top plan view of a dome ring showing the invention;

Fig. 2 is a vertical sectional view on the line 2—2, Fig. 1;

Fig. 3 is a vertical sectional view on the line 3—3, Fig. 1; and

Fig. 4 is a vertical sectional view on the line 4—4, Fig. 1.

This invention relates to car tanks and refers more particularly to an improved closure for the domes thereof.

The main object of the invention is the provision of a tank dome closure which will permit the loading and unloading of the tank without the necessity of opening the tank to the atmosphere.

A further object of the invention is the provision of a tank dome closure provided with an integral mounting for various elements and further provided with a manhole which is normally closed by means of a suitable cover.

Another object of the invention is the provision of a tank dome having a dome ring provided with an annular ledge for supporting tank loading and unloading elements, an automatic relief valve and a manually operated venting valve.

Other objects and advantages of this invention will be apparent from the following description taken in conjunction with the accompanying drawings in which 1 indicates a portion of a tank dome head having an opening 2 formed therein. The dome ring 3 of the present invention is exteriorly threaded, as shown at 4, by which an outer dome cover (not shown) may be secured and said ring is attached to the dome in any suitable manner, as by rivets, not shown.

The dome ring is preferably a casting and is provided with an inwardly extending annular ledge 6 having a depending flange 8, the ledge defining a manhole opening 10 which is normally closed by a suitable cover, not shown.

The ledge 6 is provided with a bracket or support 12 in which is journaled the upper end of a valve rod 14 which extends to substantially the bottom of the tank for operating the bottom discharge valve, not shown.

The ledge 6 also has cast integral therewith a valve casing 16 in which is positioned a hollow rotary vent valve 18, the bore of which is open to the atmosphere at the upper end thereof as shown at 19 in Fig. 1. The valve is also provided with oppositely arranged openings or ports 19′ which are adapted to communicate with openings 20 formed in the casing and leading to the interior of the tank. The valve 18 is provided with an operating handle 22 at its upper end, and the lower end of the valve is provided with a threaded stem 24 which receives a nut 26 by which the valve is retained within the casing 16 by binding against a washer 28 interposed between said nut and the lower portion of the casing. It will be apparent that upon actuation of the handle 22 to aline the ports or openings 19′ with the openings 20, communication is established from the interior of the tank through the openings 20, ports 19′ and bore 19 to the atmosphere.

The ledge 6 also has an integral automatic relief valve indicated generally at 30 and comprising a casing 32, the interior of which has communication with the tank dome through a passage 34. The upper wall of the casing 32 threadedly receives a recessed plug 36 and the lower wall of the casing is provided with an aperture 38 normally closed by a ball valve 40; the valve 40 being capable of movement between the upper edge of the aperture 38 and the recess in the plug 36.

Referring now to Fig. 3, the ledge 6 is provided with an integral syphon-pipe connection comprising a casing 42 within which a rotary valve 44 is positioned, the latter having a threaded stem 46 which receives a nut 48 by which the valve is retained to its seat; a washer 50 being interposed between the nut 48 and a depending annular flange 52 formed in the ledge and within which the lower end of the valve 44 is seated. The valve is provided with an operating handle 54 and with an opening or bore 56; the latter establishing communication through the casing from a pipe 58 threadedly secured within the ledge 6, as shown

at 60, to an outlet 62 to which a hose or other connection may be attached.

From the above description, it is apparent that I have provided a closure for the domes of car tanks in which the several elements, namely the relief valve, the manhole vent valve, the loading and unloading connection and the valve rod for controlling the bottom discharge valve are all positioned in such a manner that said valve and the connections heretofore specified may be operated without the necessity of opening the tank or removing any portion thereof so as to expose the contents of the tank to the atmosphere.

What is claimed is:

1. In combination with a tank dome, a dome ring secured thereto provided with an internal annular ledge defining a manhole opening, a hollow casing formed with the ledge and having an opening leading into the tank dome, and a second opening leading from the casing, a valve mounted in the casing for establishing communication into and out of the tank dome through the casing, an automatic relief valve casing formed with the ledge, a valve therein, and a manually operated vent valve carried by the ledge.

2. In a car tank a dome, and a dome ring secured to the dome and comprising an attaching flange, a vertical flange for receiving an outer dome cover, an internal annular ledge formed with the vertical flange, valve casings formed in said ledge, and valves in said casings normally concealed by said outer dome cover.

3. As an article of manufacture, a dome ring comprising a horizontal attaching flange, a vertical flange for receiving an outer dome cover, an internal annular ledge formed with the vertical flange, valve casings formed with the annular ledge, valves in said casings and normally concealed by the outer dome cover, and a syphon-pipe connection formed with one of said valve casings.

4. As an article of manufacture, a dome ring comprising a horizontal attaching flange for permanent securing to a tank dome, an exteriorly threaded vertical flange for receiving an outer dome cover, an internal annular ledge formed with the ring and arranged in substantially the same horizontal plane as the attaching flange, hollow valve casings formed with the ledge, valves in said casings and normally concealed by the outer dome cover, and a pipe connection formed with one of the valve casings for permitting the filling of the tank.

5. In a tank dome, a dome ring comprising an attaching flange, a vertical flange for receiving an outer dome cover, an internal annular ledge formed with the dome ring, and means for filling the tank with which the ring is associated comprising a fluid receiving casing formed with the ledge and having inlet and outlet openings respectively at the ends thereof adapted to receive pipes, and a valve in said casing intermediate the openings for controlling the passage of fluid through the casing.

6. In combination with a tank dome, a dome ring secured thereto having an internal annular ledge, a valve casing formed with said ledge and provided with spaced inlet and outlet openings, and a rotary valve in said casing intermediate the inlet and outlet openings.

In witness whereof I have hereunto set my hand.

CHARLES I. HUMMER.