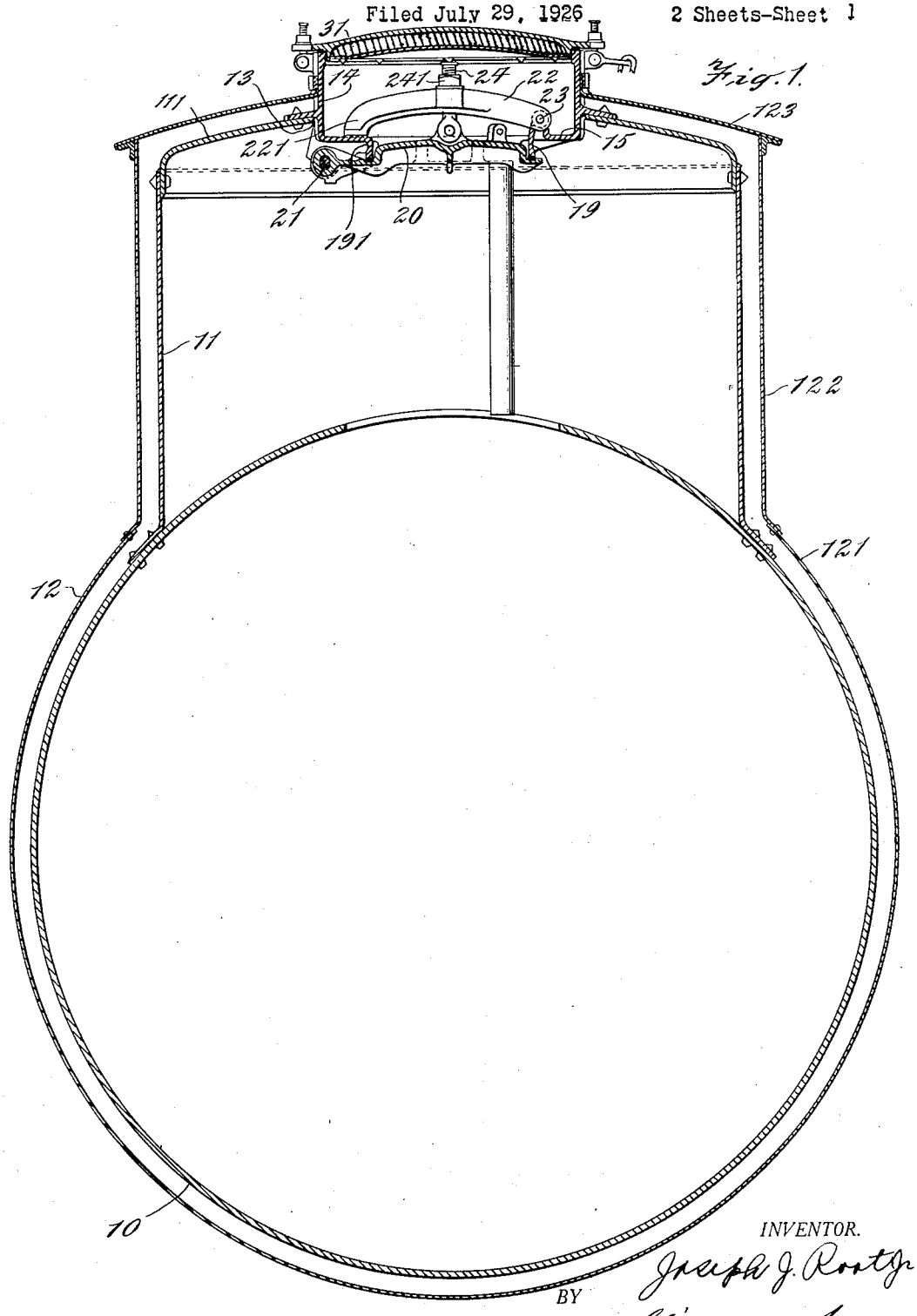
May 8, 1928. 1,669,022

J. J. ROOT, JR

DOME FOR TANKS

Filed July 29, 1926 2 Sheets-Sheet 1



INVENTOR.
Joseph J. Root Jr
BY
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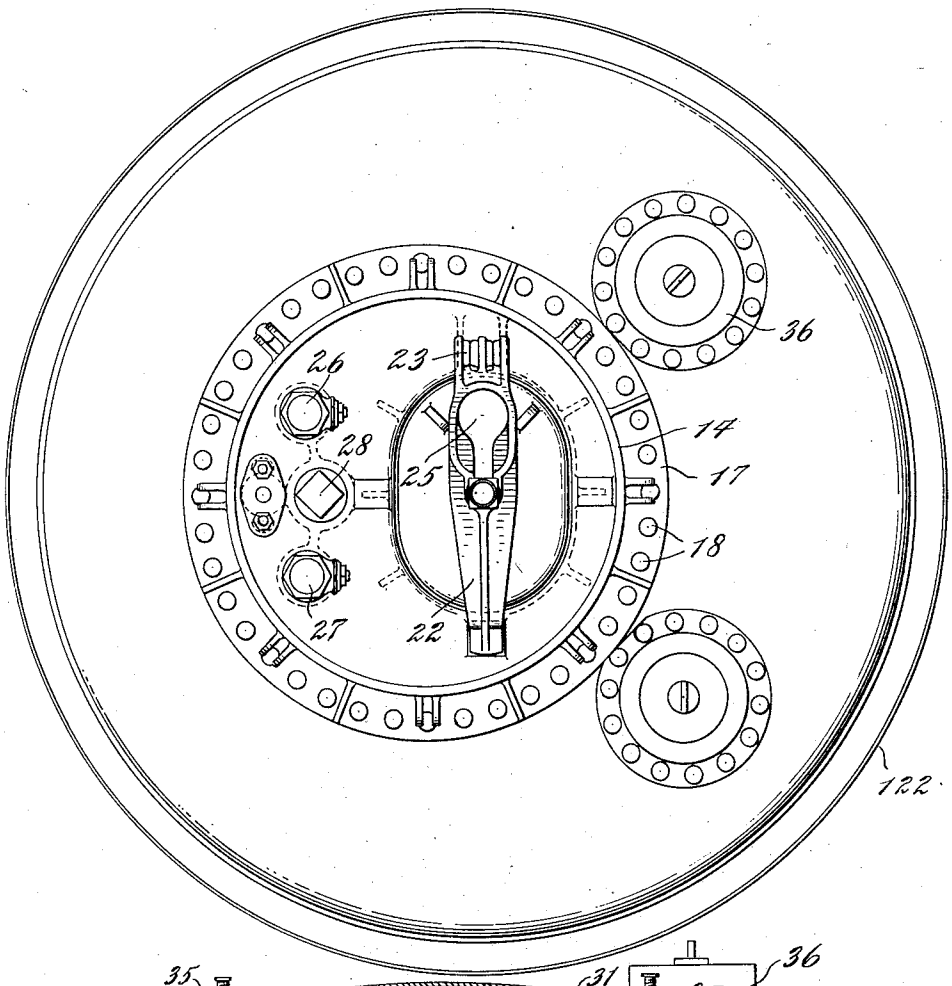
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Fig. 3.



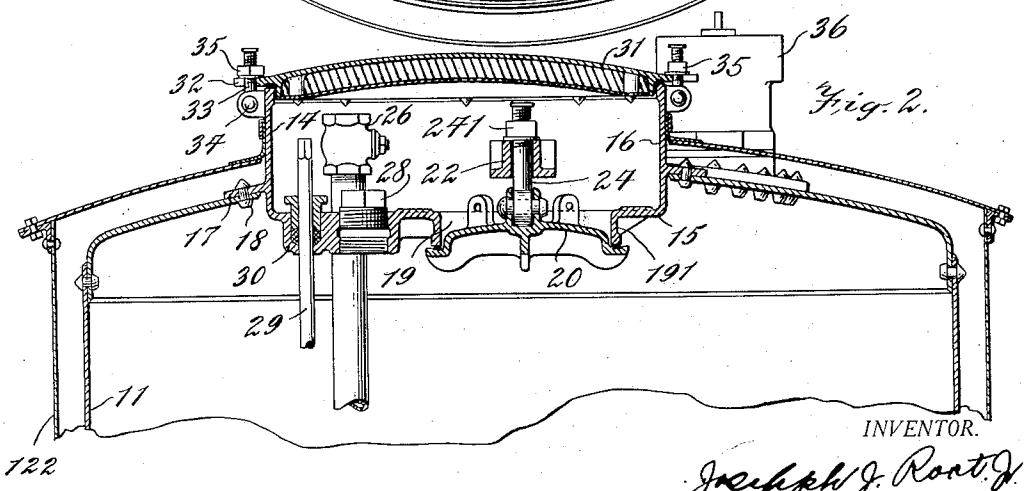


Fig. 2.

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Patented May 8, 1928. 1,669,022

UNITED STATES PATENT OFFICE.

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DOME FOR TANKS.

Application filed July 29, 1926. Serial No. 125,616.

My invention will best be understood by reference to the accompanying drawings in which Fig. 1 is a sectional view through a tank and the dome therefor embodying my invention; Fig. 2 is a fragmentary sectional view similar to the corresponding portion of Fig. 1 but taken at right angles thereto and Fig. 3 is a plan view of Fig. 2 with the cover for the box removed.

Like reference characters indicate like parts throughout the drawings.

Referring to the drawings 10 designates a tank, which in the present embodiment is illustrated in connection with a tank car, and 11 is the dome therefor, the tank and dome in the embodiment illustrated being surrounded by an insulating jacket 12 which ordinarily protects insulating material surrounding tank and dome (not illustrated) having a portion 121 surrounding the tank, a vertically extending portion 122 surrounding the vertical walls of the dome and a horizontally extending portion 123. The top of the dome or dome head 111 is provided with an opening 13 which is closed by a box 14 having a bottom plate 15 and an upwardly extending annular wall 16 which is preferably provided on its exterior with an outwardly extending flange 17 with which the box may be attached to the dome as by rivets 18 thereby providing a gas-tight joint between the box and the dome head.

The bottom plate 15 is provided with a manhole opening 19, preferably surrounded by a downwardly extending flange 191, the closure therefor comprising a manhole cover 20 which is preferably hinged at 21 on interior or underside of bottom plate 15. The manhole cover is held in position against the seat of the downwardly extending flange 191 surrounding the opening 19 by a crab or arm 22 which is preferably pivoted at 23 on the opposite side of the opening from the pivot 21 for the manhole cover but on the outside or exterior of bottom plate 15, the arm having on its free end a downwardly extending portion 221 which engages the bottom plate as indicated in Fig. 1. The manhole cover 20 is preferably attached to the arm 22 by a bolt 24, pivoted on the outside of manhole cover 20, the upper threaded end of which is engaged by a nut 241, the arm 22 preferably being provided with an opening 25 (Fig. 3) through which the nut on the end of the bolt 24 may pass when bolt 24 is moved about its pivot to open manhole cover and so that the nut need not be entirely removed from the bolt. In fact the upper end of the bolt is preferably peened over as indicated in Fig. 1 to prevent removal of the nut.

A loading, unloading or overflow fitting 26 preferably passes through the bottom plate 15 of the box and a gas fitting 27 also passes therethrough as well as a gage or sample opening closed by plug 28 and an opening through which the discharge valve operating stem 29 passes, a stuffing box 30 preferably surrounding the valve stem. On filling the tank, the loading or supply line leading to the supply of liquid with which the tank is to be filled is connected to the fitting 26, and the gas line is connected to the fitting 27. To fill the tank the valves in both of the fittings 26 and 27 are opened, and the tank is then filled in the usual manner.

The box 14 is closed by a single cover 31 insulated on its lower side and preferably provided with spaced lugs 32 which are engaged by bolts 33 pivoted at 34 to lugs on the box 14, the bolts 33 being secured in position between the lugs 32 by nuts 35.

The dome may be provided with the usual pressure relief valves 36.

It will be apparent that by placing the manhole opening together with the loading and unloading fittings, as well as the upper end of the discharge valve operating stem and the gage and sample opening in a single box, these parts are all brought under the protection of the common cover 31 which not only protects them from dust and other foreign matter, but when the cover 31 is sealed in position, as it is in practice, this single cover and the single seal therefor prevents tampering with the parts. Where the manhole cover and the fittings are not combined in a single unit, more than one seal is required. Furthermore, it will be apparent that when the box with the fittings and the manhole opening is made as a single unit, it is cheap as compared with two separate units, and the box with the manhole opening and the associated parts may readily be applied to the domes of tank cars that are already in service. Furthermore it will be

apparent that any drippings from the loading line will be received in the bottom of the box and will find their way into the manhole opening.

It is apparent that the cover 31 having a layer of heat insulating material provides an effective and economical method of insulating the dome box which heretofore has required special insulation and an extra insulating cover.

By placing the manhole opening and fittings in a box in the described manner, the device may be applied to a tank dome of smaller diameter than would otherwise be the case.

I claim:

1. In combination, a tank dome comprising a head and provided with an opening, a box closing said opening and fixedly attached to the dome head and provided with a bottom plate, said plate being provided with a manhole opening and a closure therefor, and fittings for the tank passing through said bottom plate.

2. In combination, a tank dome comprising a head and provided with an opening, a box closing said opening and fixedly attached to the dome head and provided with a bottom plate, said plate being provided with a manhole opening and a closure therefor, fittings for the tank passing through said bottom plate, and a cover for said box, whereby the manhole opening and said fittings are enclosed.

3. In combination, a tank dome comprising a head and provided with an opening, a box provided with a bottom plate and vertical walls fitted in said opening and having an outwardly extending flange fixedly attached to the dome head, said bottom plate being provided with a manhole, a closure therefor and fittings comprising a discharge valve operating stem passing through said bottom plate.

4. In combination, a tank dome comprising a head and provided with an opening, a box closing said opening and fixedly attached to the dome head and forming a gastight joint therewith, said box being provided with a bottom plate, said plate being provided with a manhole opening and a closure therefor, fittings for the tank passing through said bottom plate, and a cover for said box, whereby the manhole opening and said fittings are enclosed.

JOS. J. ROOT, JR.