

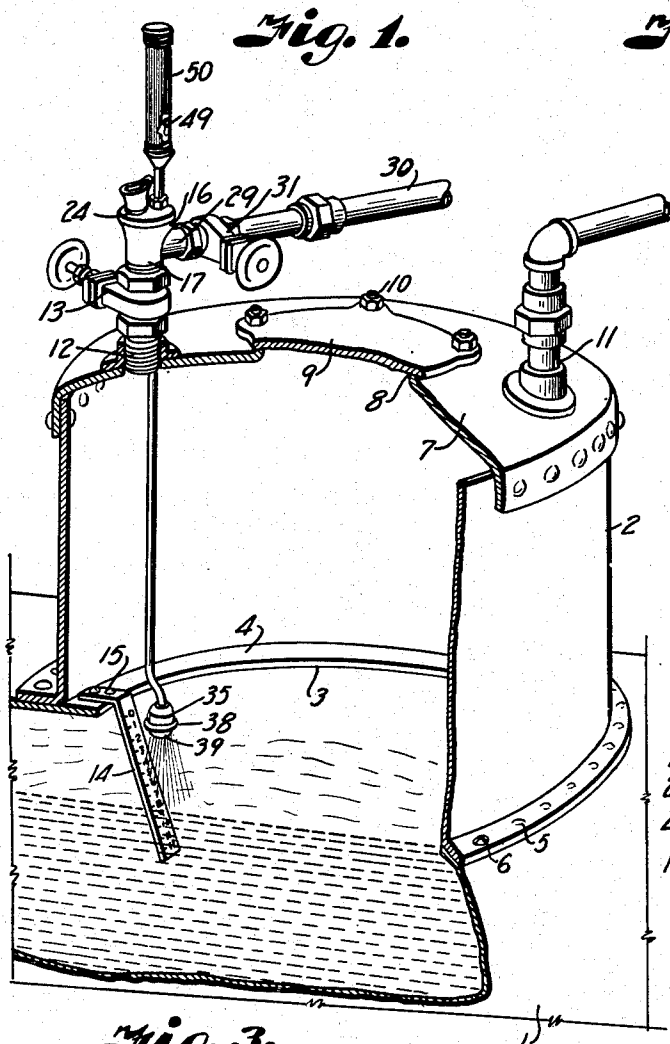
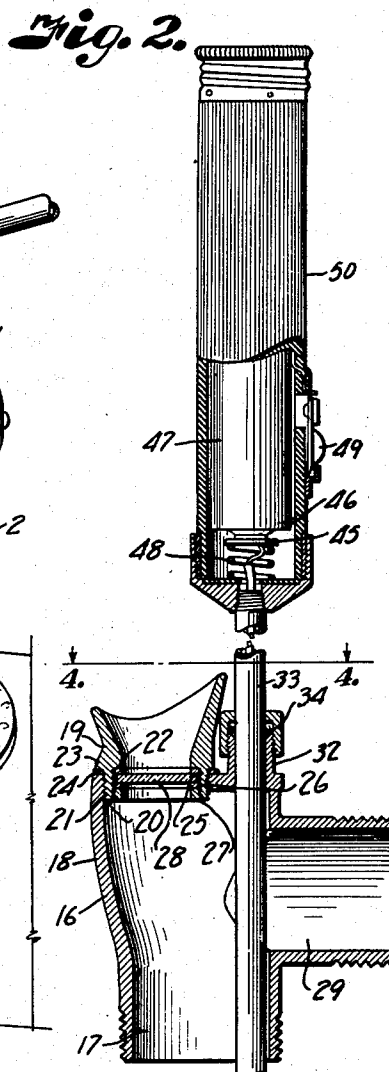
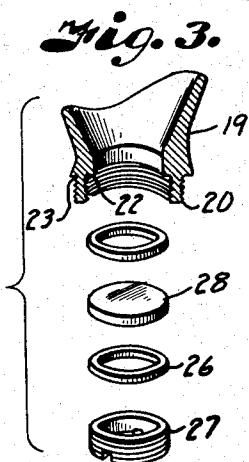
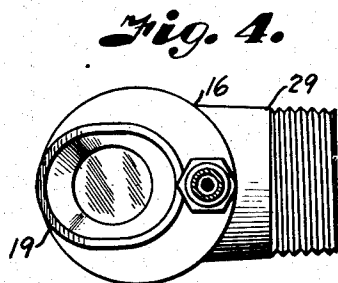
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SIGHT ATTACHMENT FOR CAR OR OTHER TANKS

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SIGHT ATTACHMENT FOR CAR OR
OTHER TANKS

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10 Claims. (Cl. 240—2.15)

My invention relates to a sight attachment for tank cars, tank trucks, stationary tanks or other similar opaque receptacles, and more particularly to a device of that character which may be applied to or removed from a tank or similar receptacle without exposure of the interior of the receptacle to atmosphere, the principal object of the invention being to provide for the gauging of and/or observation of the filling and emptying of the tank without the evaporation loss and hazard incident to the exchange or removal of dome covers, manhole covers or other removable covers, required in ordinary practice.

In accomplishing this and other objects of the invention I have provided improved details of structure, the preferred forms of which are illustrated in the accompanying drawing, wherein

Fig. 1 is a perspective view of an ordinary type of tank car, illustrating one of the uses to which my improved device may be applied, a portion of the tank shell and dome being broken away for better illustration.

Fig. 2 is a vertical section through the lower portion of the device.

Fig. 3 is a detail perspective view of the sight glass elements in spaced relation, the eye shade being in section.

Fig. 4 is a horizontal section of the device on the line 4—4, Fig. 2, showing the sight box in plan.

Referring more in detail to the drawing:

1 designates the shell and 2 the dome of an ordinary car tank, the shell having a manhole 3 of sufficiently less diameter than the dome to form an annular shelf 4 about the opening. The dome 2 is of ordinary standard construction, comprising an outturned flange 5 attached to the shell by rivets or the like 6, a conical top 7, having a central opening 8 through which access may be had to the tank, and a cover 9 for closing the opening 8 and held to the top of the dome and in sealed relation thereto by bolts or the like 10.

Opening through the top of the dome is a filler pipe 11 and also opening through said top is a vapor outlet fitting 12, including a gate valve 13 whereby the outlet of vapors from the dome may be controlled.

Fixed to the shelf 4 within the dome is a scale 14, consisting of a piece of strap metal, attached to the shelf 4 by fastening devices 15, and extending into the shell on an incline so that the scale graduations may be readily observable through a sight opening in the top of the dome. The graduations of the scale run downwardly

and are adapted for indicating in inches the approach to capacity of the tank as it is being filled, as well as indicating the amount of shrinkage that has occurred in the tank during delivery to the point of destination.

With the ordinary method of observation, it is necessary to exchange the standard dome cover for a special window cover and, when the tank is filled, to replace the window cover with the standard cover.

When the tank is being filled with or emptied of a volatile liquid, such as gasoline, there is a material loss through the dome outlet during the period of interchange of the covers and it is to save this loss and to facilitate the filling and emptying operation that I have devised my improvement constituting the following structural elements:

16 designates a sight box having a tubular neck 17, which may be threaded into the gate valve 13 and comprises a swell 18 whereby the top of the box is enlarged to accommodate a window, preferably comprising an eye guard 19, having a collar 20 threaded into an opening 21 in the top of the box 16 and comprising inner and outer shoulders 22 and 23; the outer shoulder seating against a gasket 24, which lies on the top of the box, to form a vapor-proof joint. Seated against the inner shoulder 22 is a gasket 25 and held against said gasket by a packing ring 26 and a clamping ring 27 is a sight glass 28, through which the contents of the tank may be observed when the device is in place on the dome fitting.

Opening from the side of the box 16 opposite the window is a branch 29 through which vapor may be taken off by a pipe 30, and provided with a gate valve 31 for controlling the offtake; or the pipe 30 may be omitted and the branch capped to allow inspection of the tank without releasing vapors.

Extending from the top of the sight box is a tubular boss 32 constituting a guide for a tube 33 and carrying a stuffing box 34, through which the tube is extended. The tube 33 is slidable longitudinally and rotatable within the stuffing box and carries at its lower end a lamp 35 including a housing 36 enclosing a reflector 37 that is retained by a clamping ring 38 which carries a lens 39. The rim of the reflector carries a gasket 40 which sealingly packs the joint between the clamping ring and the housing to prevent leakage of vapors. The tube 33 is offset at its lower end to permit its withdrawal into the sight box so that the gate valve 13 may be

manipulated to control the escape of vapors, and so that the field of illumination may be extended by manipulation of the tube. 41 designates a lamp bulb that is threaded into a socket 42 of the reflector and makes an electrical connection with a contact 43 to which is connected a lead wire 44 extending through the tube 33 to a contact plate 45, normally yieldingly held against the positive terminal 46 of a battery 47 by a spring 48, the negative terminal of the battery being grounded to the metallic part of the device through a switch 49 mounted on the side of a battery case 50 containing the battery 47; the parts just mentioned corresponding to those of an ordinary hand flash light and constituting a handle member for the tube.

When a tank is to be filled, my attachment is applied by threading the neck 17 of the sight box 16 into the gate valve 13, the gate valve remaining closed and the lamp housed within the sight box. The vapor line 30 is then connected with the sight box, the gate valve 13 opened and the lamp 35 projected down into the dome by sliding the tube 33 through the stuffing box 34 after which it is turned to position for illuminating the scale 14 by rotation of the tube.

With the lamp so arranged, liquid with which the tank is to be filled is flowed into the shell until it reaches the desired level, the person in charge of the filling controlling the lamp to insure illumination of the scale and viewing the interior of the dome and shell through eye piece 19 in the top of the sight box.

When the tank has been filled to the desired level the supply is shut off and the tube 33 pulled upwardly through its stuffing box into the sight box, after which the gate valve 13 is closed to prevent escape of vapor through the fitting. The vapor line 30 is then disconnected from the sight box, and the sight box removed from the gate valve. The tank is then ready for shipment.

When the tank arrives at its destination and is to be emptied, the person in charge at that end applies the sight box and lamp to the dome in the same manner as heretofore described in connection with the loading (either connecting up pipe 30 for removal of vapor, or capping branch 29 to prevent escape of vapor as may be desired). He then observes the scale to determine depth of liquid.

It is apparent, therefore, that with my improved device, convenient observation of the contents of the tank is afforded and wastage and hazard incident to the release of pressure and/or interchange or removal of covers and manipulation of connections necessary under ordinary methods is avoided.

While the joints of the attachment are sealed to prevent escape of vapor and eliminate fire hazard, the lamp elements, with their extension tube, may be removed from the sight box for separate use if desired.

Although I have, in the foregoing description, referred specifically to use of the attachment in connection with car tanks, this has been merely for explanation of the invention and not with the intention of limiting its use to that particular kind of a tank, as the attachment may be employed to the same advantage in connection with storage or other tanks.

What I claim and desire to secure by Letters Patent is:

1. A device of the character described, com-

prising a sight box having means for removable application to a tank fitting and having a passageway for communicating with the interior of a tank when the sight box is applied to such fitting, a window in said passageway, a lamp support adjustable on the sight box from the exterior of the fitting, and a lamp on the inner end of said support.

2. In a device of the character described, a sight box adapted for application to a tank fitting and comprising a window and a stuffing box, a tube slidably projected through the stuffing box, a lamp on the inner end of the tube, a battery on the outer end of the tube, and means extending through the tube for connecting the lamp with the battery.

3. In a device of the character described, a sight box adapted for application to a tank fitting and having a vapor offtake, a window and a stuffing box, a lamp support extended through the stuffing box, a lamp on one end of the support, a source of illuminating energy at the other end of the support, and means extending through the support connecting the lamp with said source of energy.

4. In a device of the character described, a sight box comprising a threaded neck and a head opposite the neck, provided with a window opening and a stuffing box, an eye guard threaded into the window opening, a window glass enclosed by said guard, a tube slidably and rotatably mounted in the stuffing box, a lamp at one end of said tube, a handle at the other end of said tube, a battery in the handle, and means in said tube electrically connecting the lamp with the battery.

5. In a device of the character described, a sight box comprising a tubular body open at one end and closed at the other, the closed end comprising a window opening and a stuffing box, a branch on said body communicating with the interior thereof, an eye guard having a neck threaded into said window opening, a window glass sealed in said neck, a tube slidably and rotatably mounted in said stuffing box, the tube having an offset inner end, a lamp on the inner end of the tube, a flash light handle on the outer end of the tube comprising a switch, a battery in said handle, and means in said tube connecting the lamp with the battery.

6. A device of the character described in combination with a tank having a fitting, a sight box, a valve interposed between the fitting and the sight box, a lamp support slidable through the sight box, a lamp on the lamp support adapted to be withdrawn into the sight box for closing the valve, and an eye piece on the sight box for viewing the interior of the tank when the lamp is extended into the tank.

7. A device of the character described in combination with a tank having a fitting, a sight box, a valve interposed between the fitting and the sight box, a lamp support slidable and rotatable through the sight box, a lamp on the lamp support adapted to be withdrawn into the sight box for closing the valve, and an eye piece on the sight box for viewing the interior of the tank when the lamp is extended into the tank.

8. A device of the character described in combination with a tank having a fitting, a sight box, a valve interposed between the fitting and the sight box, a lamp support slidable through the sight box, and a lamp on the lamp support

adapted to be withdrawn into the sight box for closing the valve.

- 5 9. A device of the character described in combination with a tank having a fitting, a sight box, a valve interposed between the fitting and the sight box, a lamp support slidable through the sight box and having an offset on its lower end, and a lamp carried by said offset and adapted to be retracted into the sight box to close the valve.

- 10 10. A device of the character described in

combination with a tank having a fitting, a sight box, a valve interposed between the fitting and the sight box, a lamp support slidable through the sight box and having an offset on its lower end, a lamp carried by said offset and adapted to be retracted into the sight box to close the valve, and a source of current supply for the lamp carried by the opposite end of the lamp support.

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