Oct. 23, 1928. 1,689,057

W. SCHWEMLEIN

CLOSURE

Filed Dec. 18, 1925

FIG. 1.

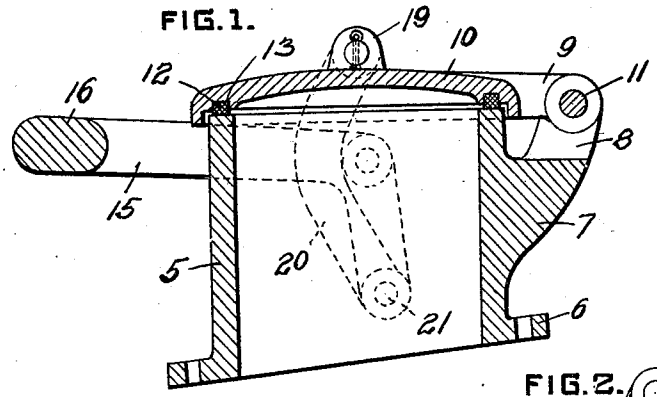


FIG. 2.

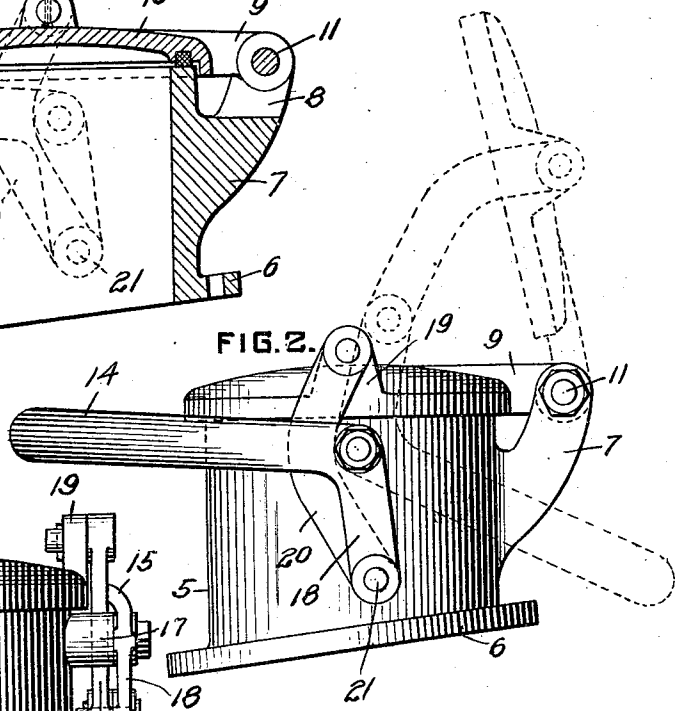


FIG. 3.

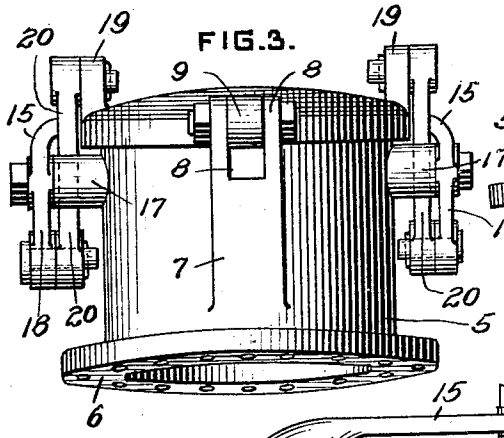
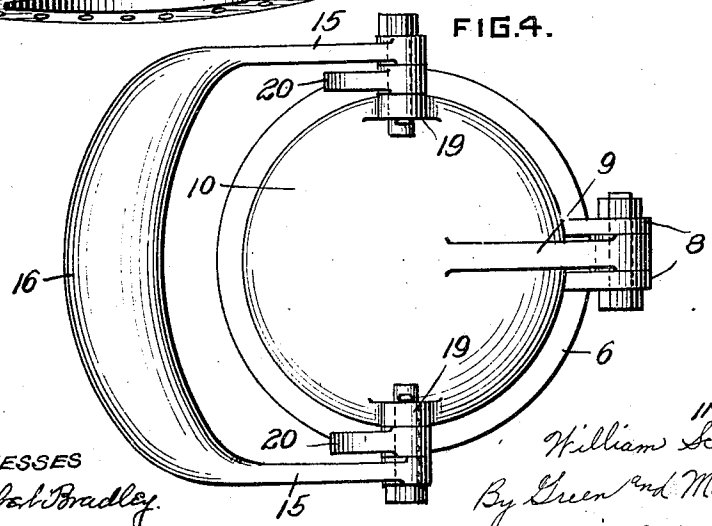


FIG. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM SCHWEMLEIN, OF PARKERSBURG, WEST VIRGINIA, ASSIGNOR TO THE PARKERSBURG RIG & REEL COMPANY, A CORPORATION OF WEST VIRGINIA.

CLOSURE.

Application filed December 18, 1925. Serial No. 76,199.

This invention relates to closures such, for example, as gauge hole covers used to close the ports of tank cars, oil tanks and the like.

Ordinary screw covers such as are frequently used for this purpose are so heavy and awkward to handle that the tank is often left open to the atmosphere with the resultant fire risk and other attendant dangers. In addition to this there is great danger of a screw cover being blown off at the time of its removal by gas pressure built up in the tank.

Covers which are bolted to the deck by a circumferential series of locking bolts are so troublesome and time consuming, because of the large number of bolts to be fastened or unfastened, as to be very objectionable on that score alone.

An object of this invention is to provide a closure for the purpose set forth of such construction and arrangement that the lid can be easily and quickly locked in closed position so that tank pressure cannot force it open.

A further object is to provide a closure of the type set forth which is provided with a lever for opening or closing the lid so arranged that the weight of the operating lever arm is utilized to hold the lid in either open or closed position.

A still further object is to provide a device of the type set forth which is simple and rugged in construction, reliable in operation and easy to manufacture and assemble.

These and other objects which will be apparent to those skilled in this particular art are attained by means of this invention, one embodiment of which is illustrated in the accompanying drawings, in which Figure 1 is a vertical sectional view through the center of a gauge hole cover constructed in accordance with one form of this invention. Fig. 2 is a side elevation of the device shown in Fig. 1. Fig. 3 is a similar view looking from the right of Fig. 2 and Fig. 4 is a top plan view thereof.

The particular embodiment of this invention which has been chosen for the purposes of illustration includes a body member or lid supporting member 5 which is preferably cylindrical in shape and has a perforated flange 6 at its lower edge whereby it is secured to the deck of a tank car or the like around the port provided therein. One side of body member is provided with an outwardly and upwardly extending lug 7 which is bifurcated at the upper end to form spaced ears 8 which receive between them a lid supporting arm 9 formed on and extending outwardly from the lid 10 which is adapted to open and close the upper end of the lid supporting body member 5. The radially extending arm 9 is hinged to the ears 8 by a suitable hinge pin 11.

A circular, resilient gasket 12 is seated in a gasket receiving groove 13 for cooperating with the associated end of the body member to form a fluid tight joint. The gasket is preferably formed of rubber or some similar, resilient material.

An operating lever is provided for raising and lowering the lid to open and closed position, and in the illustrated embodiment this operating lever is in the form of a yoke or U-shaped lever 14 having side arms 15 connected by a weighted cross arm 16. Each side arm is pivoted in diametrically opposite trunnions 17 extending outwardly on opposite sides of the lid supporting base member 5. Each lever arm 15 is of bell crank shape and has an extension 18 extending downwardly from the associated supporting pivot trunnion 17. The lower end of each arm 18 is connected to an ear 19 formed on each side of the lid 10 by connecting links 20 which are so shaped, preferably by being curved as illustrated, that when the weighted lever arm 16 is forced downwardly so as to compress the gasket 12 between the lid and the associated end of the body member the lower pivot 21 will be moved beyond the line passing through the centers of the pivot ears 19 and the trunnions 17, see Fig. 2, thereby locking the lid in closed position so that it cannot be blown open by gas pressure built up in the tank. As illustrated, the curved connecting links 20 engage the trunnions 17 when the device is in locked position so as to prevent the lever arm 16 from being forced downwardly so far as to rotate the pivot 21 too far about the trunnions and again lift the lid 10.

To raise the lid and open the port it is only necessary to raise the lever arm 16 and rotate the bell crank levers about the supporting trunnions. The lid will be raised as shown in dotted lines in Fig. 2 and when in open position the lever will be in the position illustrated in dotted lines in said figure. Obviously, the weighted arm 16 will hold the lid in open position. To close the port the lever

arm or yoke is thrown back to the position illustrated in Figs. 1 and 2, in which position the weight of the arm 16 will hold the lid in closed position. In this position the lid 10 is yieldingly held closed by the weighted arm 16 and, if desired, can be left in this position so that pressure generated in the tank can escape slowly without blowing off the lid. If it is desired to lock the lid closed it is only necessary to depress the lever sufficiently to compress the gasket 12 and move the pivot 21 into locking position where it is held by engagement of the links 20 with the sides of the trunnions 17.

The construction provides a gauge hole cover which can be easily and quickly raised or lowered and which can be locked in closed position in the fraction of a second and as quickly unlocked and opened. Being secured to the body member 5 the lid cannot be lost, and the weighted operating lever will hold the lid in either open or closed position.

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

1. A gauge hole cover including in combination a body member, a lid hinged thereto and mechanism for raising and lowering said lid including an operating lever and a link connecting said lever to said lid, a resilient member adapted to cooperate with said lid when in lowered position, said link being formed so that movement of said lever to compress said resilient member will lock said lid in closed position.

2. A gauge hole cover including a body member, a lid hinged thereto and mechanism for raising and lowering said lid including an operating lever pivoted to said member and a connecting link pivoted at one end to said lid and at the other end to said lever, said link being formed so that downward pressure on said lever moves the pivot connection of said link therewith past the center line between said lever supporting pivot and the pivot on said lid so as to lock said lid in closed position.

3. A gauge hole cover including a body member, a lid hinged thereto and mechanism for raising and lowering said lid including a trunnion on said member, an operating lever pivoted in said trunnion and a connecting link pivoted at one end to said lid and at the other end to said lever, said link being adapted to engage said trunnion and shaped so that the pivot connection of said link with said lever is moved past the center line between said trunnion and the pivot on said lid into lid locking position when said link engages said trunnion.

4. A gauge hole cover including a body member, a lid hinged thereto and mechanism for raising and lowering said lid including an operating lever, a trunnion on said body member to which said lever is pivoted and an angular connecting link pivoted at one end to said lid and at the other end to said lever for raising or lowering said lid upon movement of said lever and adapted to engage said trunnion when the connecting pivot between said link and said lever is moved past the line of centers of said trunnion and the pivot on said lid so as to lock said lid in closed position.

In testimony whereof, I have hereunto subscribed my name this 15th day of December, 1925.

WILLIAM SCHWEMLEIN.