Aug. 26, 1924. 1,506,610

P. O. BOOTH

MANHOLE COVER FOR OIL TANKS

Filed July 20, 1923 2 Sheets-Sheet 1

Fig. 1.

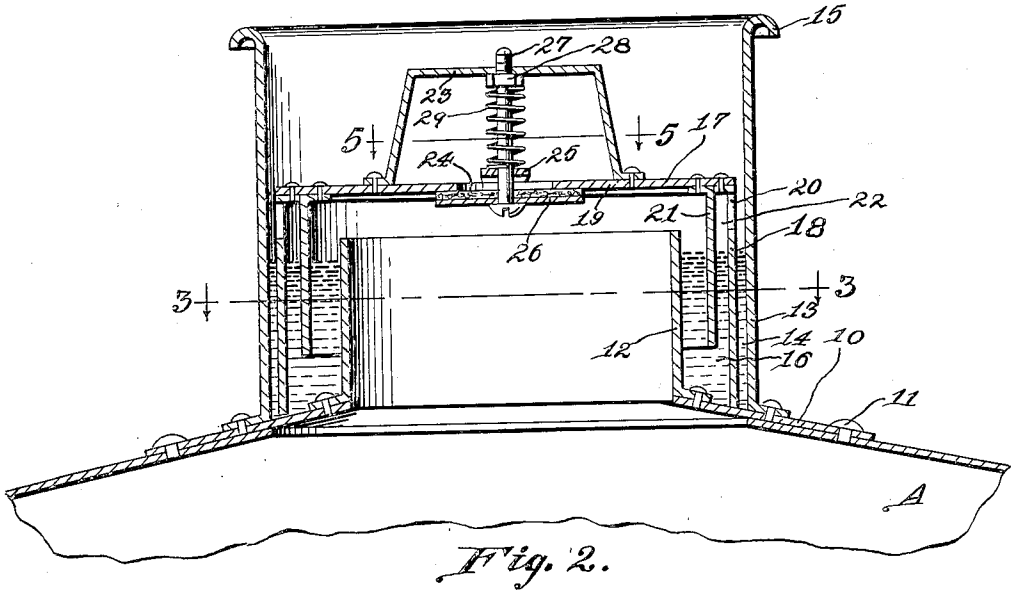
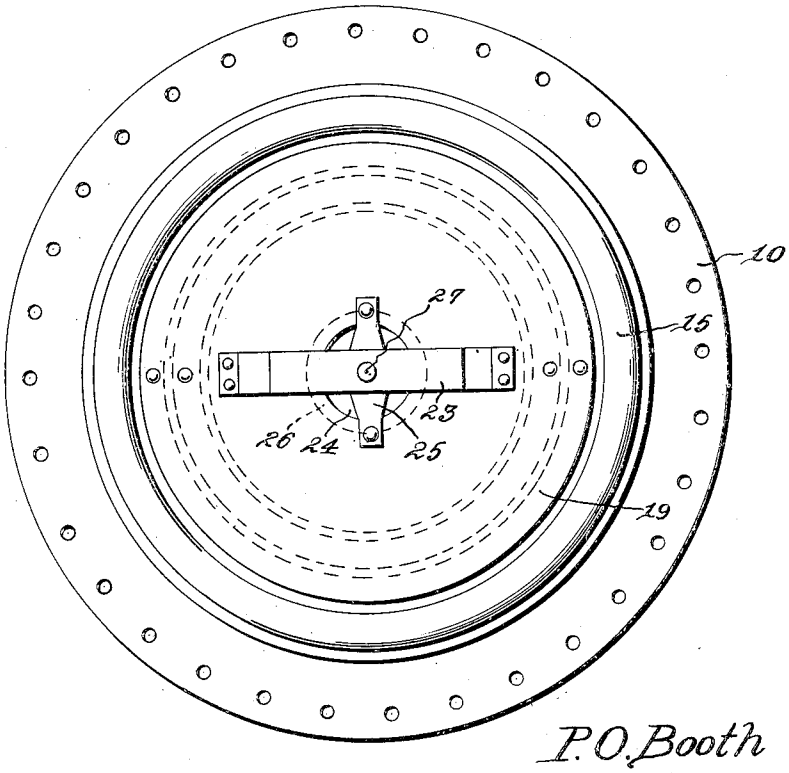


Fig. 2.



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Fig. 3.

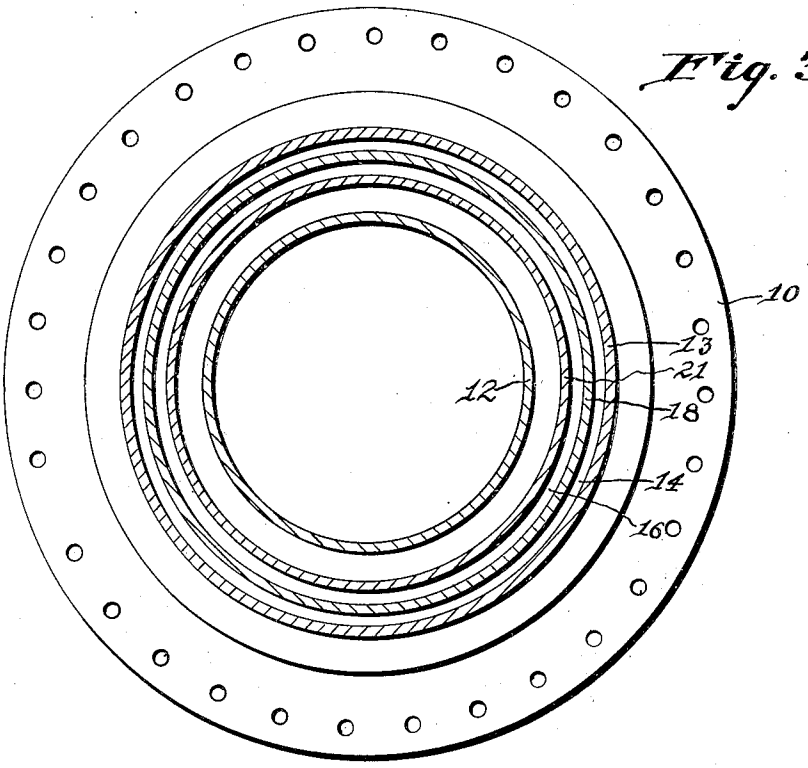


Fig. 4.

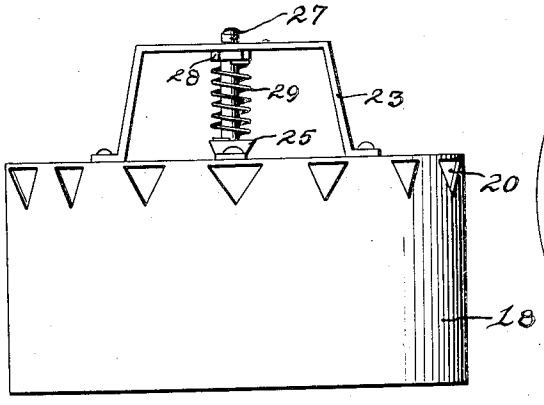
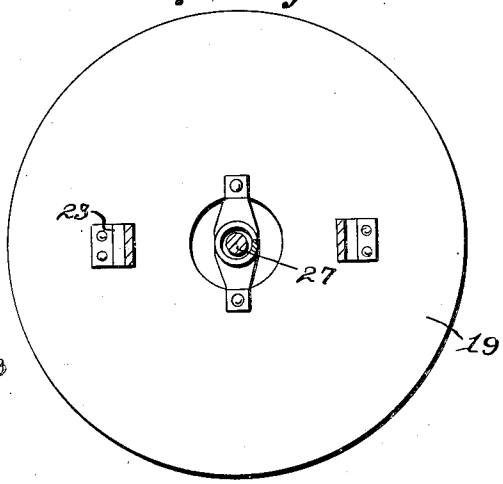


Fig. 5.



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UNITED STATES PATENT OFFICE.

PERLEY O. BOOTH, OF IVAN, TEXAS.

MANHOLE COVER FOR OIL TANKS.

Application filed July 20, 1923. Serial No. 652,807.

To all whom it may concern:

Be it known that I, PERLEY O. BOOTH, a citizen of the United States, residing at Ivan, in the county of Stephens and State of Texas, have invented new and useful Improvements in Manhole Covers for Oil Tanks, of which the following is a specification.

This invention relates to manhole covers for use primarily in connection with the large storage tanks employed in the oil fields for containing oil prior to shipment and has for its object the provision of a novel cover which is constructed somewhat in the nature of a gas dome and which will seal the tank air tight at all times while permitting expansion or contraction of the gases therein under the influence of temperature changes, the device being equipped with a relief valve which is openable when the oil is pumped from the tank.

An important object is the provision of a cover of this character in which the seal portion is formed with a double wall to prevent splashing of the sealing liquid when the dome portion rises under the influence of gas pressure.

An additional object is the provision of a device of this character which will be simple and inexpensive in manufacture, highly efficient in use, durable in service and a general improvement in the art.

With the above and other objects and advantages in view the invention consists in the details of construction to be hereinafter more fully described and claimed and illustrated in the accompanying drawings, in which:

Figure 1 is a vertical section through the device showing it mounted upon the dome of an oil tank,

Figure 2 is a plan view,

Figure 3 is a horizontal section on the line 3—3 of Figure 1,

Figure 4 is a side elevation of the movable cover member,

Figure 5 is a detail cross section through the cover member at right angles to Figure 2.

Referring more particularly to the drawings the letter A designates the dome of a gas tank on which my device is mounted. In carrying out the present invention I provide a ring member 10 which constitutes the base of the attachment and which is inclined downwardly and outwardly from its center, with its outer edge portion formed with suitable holes for the passage of rivets or bolts 11 for holding the attachment upon the dome A. Rising from the center of this ring member is an inner shell 10 which is cylindrical in shape and which is surrounded by an upstanding cylindrical outer shell 13 which is suitably secured to the base ring 10 and which is spaced considerably from the inner shell to define an annular chamber 14. The outer shell 13 is of considerably greater height than the inner shell and has its upper edge formed with an outstanding flange 15 which provides stiffness. It is intended that the chamber 14 contain liquid indicated at 16.

In conjunction with the above described parts I provide a movable cover designated broadly by the numeral 17 and including a cylindrical wall 18 and a top 19. Near its juncture with the top the wall 18 is formed with a plurality of openings 20 which establish communication between the chamber 14 and the atmosphere. Secured within this cover is a depending skirt 21 which is spaced from the cylindrical wall 18 to define a space 22 with which the openings 20 communicate. This skirt is of less length than the wall 18 as shown. The cover is equipped with a suitable handle 23 by means of which it may be clasped and removed when necessary. To provide relief and prevent formation of a vacuum when oil is pumped out of the tank, I provide the center of the cover with an opening 24 traversed by a bearing 25. Co-operating with this opening is a valve disk 26 carried by a stem 27 slidable through the center of the bearing 25 and having a head 28 against which engages a spring 29 which operates to hold the valve disk normally seated so as to close the opening 24.

When the device is placed in position and properly assembled, the wall 18 and skirt 21 dip into the liquid in the chamber 14 and form a seal which will prevent escape of gases accumulated within the tank. The skirt 21 together with the provision of the holes 20 will operate to prevent splashing of the liquid in case of expansion of the gases within the tank, while the valve structure permits admission of air for relieving any tendency to form a vacuum in the tank when oil is pumped therefrom.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided a simply con-

structed, inexpensive and easily installed air and vapor tight manhole cover and relief for use on oil and other tanks. Owing to the simplicity of the construction and the fewness of the parts it is apparent that there is little to get out of order so that the device should have a long life and satisfactorily perform all of its functions.

While I have shown and described the preferred embodiment of the invention it is of course to be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention I claim:

1. A manhole cover for tanks, comprising a base ring adapted to be mounted upon a tank dome at the manhole therein, an upstanding shell rising from the inner periphery of said ring, an outer shell rising from the ring in spaced relation to said inner shell and defining an annular chamber for containing liquid, and a cover located within said outer shell and including a top and an outer wall and further including a depending skirt spaced from the wall, the wall and skirt of the cover fitting within said annular chamber.

2. A manhole cover for tanks, comprising a base ring adapted to be mounted upon a tank dome at the manhole therein, an upstanding shell rising from the inner periphery of said ring, an outer shell rising from the ring in spaced relation to said inner shell and defining an annular chamber for containing liquid, and a cover located within said outer shell and including a top and an outer wall and further including a depending skirt spaced from the wall, the wall and skirt of the cover fitting within said annular chamber said wall of the cover being provided with openings near the top communicating with the atmosphere and with the space between said wall and the skirt.

3. A manhole cover for tanks, comprising a base ring adapted to be mounted upon a tank dome at the manhole therein, an upstanding shell rising from the inner periphery of said ring, an outer shell rising from the ring in spaced relation to said inner shell and defining an annular chamber for containing liquid, and a cover located within said outer shell and including a top and an outer wall and further including a depending skirt spaced from the wall, the wall and skirt of the cover fitting within said annular chamber, the center of the cover being provided with an opening, and an upwardly spring pressed downwardly movable valve normally closing said opening.

4. A manhole cover for tanks, comprising a base ring adapted to be mounted upon a tank dome at the manhole therein, an upstanding shell rising from the inner periphery of said ring, an outer shell rising from the ring in spaced relation to said inner shell and defining an annular chamber for containing liquid, and a cover located within said outer shell and including a top and an outer wall and further including a depending skirt spaced from the wall, the wall and skirt of the cover fitting within said annular chamber said wall of the cover being provided with openings near the top communicating with the atmosphere and with the space between said wall and the skirt, the center of the cover being provided with an opening, and an upwardly spring pressed downwardly movable valve normally closing said opening.

In testimony whereof I affix my signature.

PERLEY O. BOOTH.