Gauge Hole Collar

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Fig. 1.

Fig. 2.

Fig. 3.

INVENTOR

Stephen H. Brooks.

ATTORNEY
To all whom it may concern:

Be it known that I, Stephen H. Brooks, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gauge-Hole Collars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to gauge hole covers for oil tanks and particularly to means for providing a self-seating cover which will be normally urged into seating position by its own weight.

The construction is such that the inspector or operator may open the gauge hole by applying pressure to a swinging lever either by hand or foot so as to raise the cover off its seat, the lever swinging to a substantially vertical plane but not quite to a true perpendicular. In other words, not far enough to allow the gauge hole cover to overbalance so that it will swing into a position to prevent its dropping upon the seat when the pressure on the lever is relieved. The cover is pivoted to its supporting lever so it will swing and means is provided whereby the swinging movement of the cover will be limited so that it will be guided into the seat and so that liability of its perimeter overlapping the outer edge of the seat will be entirely eliminated.

The novel construction of the form of the invention selected for illustration will be understood by reference to the following description in connection with the accompanying drawings, in which:

Fig. 1 is a vertical, longitudinal, sectional view through the gauge hole collar, the cover and its operating mechanism being shown in elevation, the cover being seated.

Fig. 2 is a similar view showing the cover unseated and moved to the limit of its unseating movement, and

Fig. 3 is an elevational view of the parts in the position shown in Fig. 1.

Referring now to the drawings by numerals of reference:

1 designates a tank roof provided with a gauge hole 2 surrounded by a collar 3, which may be secured to the roof 1 in any well known manner as, for example, by the rivets 4. The top of the collar is flared, as at 5, and it is provided with an annular insert 6 comprising a seat, the seat being flared to receive the conical portion 7 of the gauge hole cover 8, which is shown as provided with parallel ears 9 to receive the actuating lever 10, which is secured to it by the pivot 11, thereby allowing the cover to swing about the axis of the pivot 11.

The actuating lever 10 is pivotally secured to an ear or offset portion 12, shown as integral with the collar, the lever being pivotally mounted, as at 13, and having an offset portion 14, against which the pressure may be exerted by the hand or foot of the inspector or operator so that when the portion 14 is swung in a downward direction, as indicated in Fig. 2, the gauge hole cover will be lifted off its seat. The arc in which the gauge hole cover can swing, however, is limited by the stop shoulder 15 on the lever 10, which is adapted to bear against the offset portion or ear 12, as clearly seen in Fig. 2. The shoulder 15 is so disposed with respect to the lever that it will contact with the ear before the lever has reached a vertical position. Therefore, the lever will be overbalanced in the direction of the seat 6, tending to cause the cover to gravitate toward the seat whenever pressure upon the portion 14 is relieved.

Therefore, when the parts are in the position shown in Fig. 2 and pressure is taken off the top side of the portion 14, the cover will automatically move toward the seat 6. In order to insure that the cover moves into the conical portion of the seat 6, I have provided angle limiting lugs 16 and 17 on the lever 10, which are adapted to contact with the top of the cover 8 so that the angular position of the cover with respect to the lever is such that the truncated end of the conical portion 7 will always be guided into the conical seat 6, which would not be the case if the cover could swing about its pivot far enough to allow the bottom face of the truncated portion of the cover to overlap the seat 6. By providing the angle limiting lugs 16 and 17 there will be sufficient independent play or free movement of the cover to insure its finding its seat without liability of preventing its entering the seat 6 on account of swinging too far to one side of its axis.
The seating ring 6 is preferably bronze as it prevents any chance of a spark being generated when dropping the cover into place and besides, it forms a practical gas-tight joint with the conical or tapered cover.

By applying the device in accordance with my invention, heavy losses to the oil trade due to evaporation, admission of water to finished oil and the danger of igniting vapors leaking through the gauge holes will be eliminated.

It is an important feature of my invention to provide the shoulder 15 or some equivalent structure which will limit the movement of the lever 10 so that it cannot swing beyond the vertical so as to cause the cover to overbalance in the wrong direction.

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

A gauge hole cover collar having a seat, a lever pivoted intermediate its ends and having an offset portion to provide an operating end, the operating end having a shoulder to contact with the collar to keep the other end portion of the lever from swinging to a perpendicular plane, a cover having pivotal connection with the second mentioned end of the lever, and stop projections on said second mentioned end of the lever at opposite sides of said pivotal connection, for the purpose set forth.

In testimony whereof I affix my signature.

STEPHEN H. BROOKS.