Dec. 17, 1929. W. G. McMURRAY 1,739,911

THIEF HOLE COVER

Filed July 3, 1928

Fig. 1.

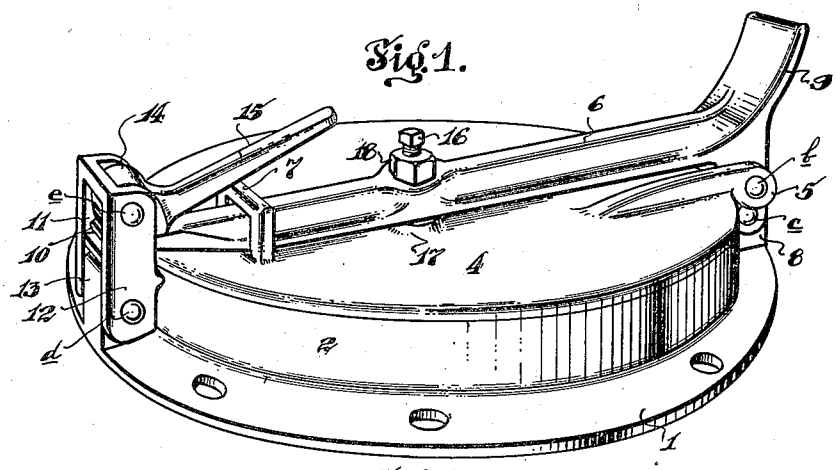


Fig. 2.

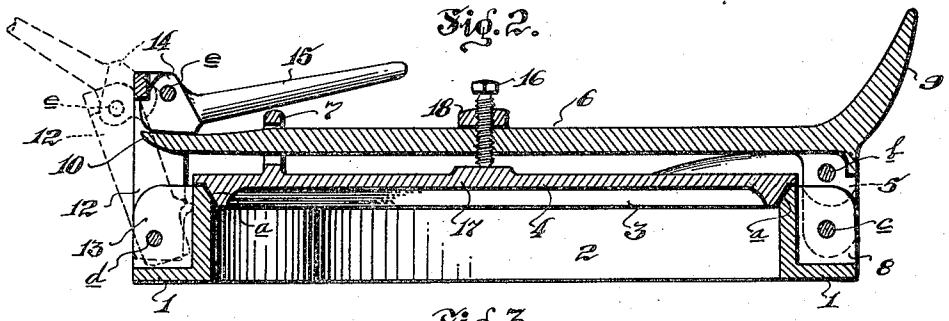


Fig. 3.

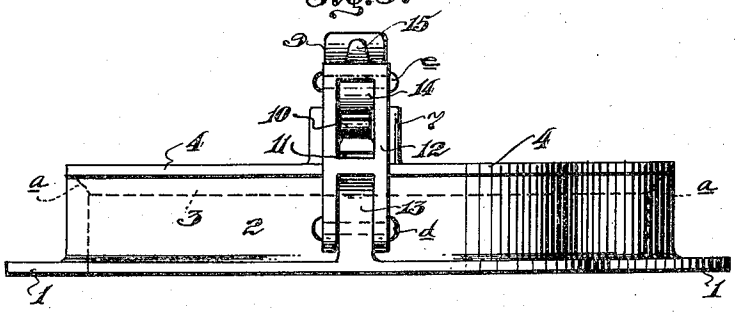
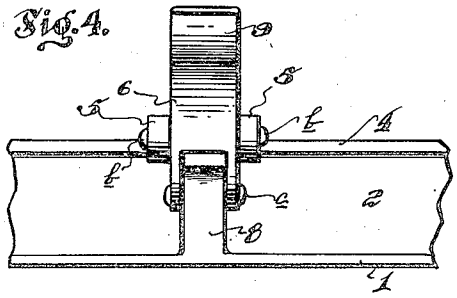


Fig. 4.



William G. McMurray
INVENTOR.

BY Ernest A. Wood

ATTORNEY.

Patented Dec. 17, 1929 1,739,911

UNITED STATES PATENT OFFICE

WILLIAM G. McMURRAY, OF WICHITA FALLS, TEXAS, ASSIGNOR TO M & V TANK COMPANY, OF WICHITA FALLS, TEXAS

THIEF-HOLE COVER

Application filed July 3, 1928. Serial No. 290,230.

This invention relates to improvements in closures for openings in fluid storage tanks and it especially refers to a locking and tensioning means for a thief hole cover for tanks adapted to contain oil and like products, the principal object being to provide a closure affording, primarily, a gas tight joint between the cover and its seat without the use of deteriorating gaskets, and further, a closure locking means through the medium of which, centralized pressure is brought to bear upon the closure, insuring against non-uniform relationship between the cover and seat, the connection between these elements being such as to allow for slight displacement of the cover without effect.

Another object of the invention resides in the provision of an adjustable tensioning means by which central pressure on the cover may be kept uniform according to the wear upon the cover and locking means.

Yet another and important object of the invention resides in the apparent simplicity and durability of the improved thief hole cover, and its consequent capability of properly performing the function for which it is intended with little or no attention after installation and with no appreciable wear which cannot be taken up with the tension adjusting means aforesaid.

With the foregoing objects as paramount, the invention has particular reference to its salient features of construction and arrangement of parts, to become manifest as the description proceeds, taken in connection with the accompanying drawings, wherein;—

Figure 1 represents a perspective view of a thief hole cover constructed according to the present invention.

Figure 2 is a sectional view on a line drawn diametrically through the cover.

Figure 3 is an elevational view of the cover, showing an end view of the locking means, and Figure 4 is a fragmentary elevational view of the pivotal point of the cover.

Continuing now more in detail with the invention, and with particular reference to the drawings, 1 designates a circular flange having an integral collar 2 thereon, the latter being beveled interiorly at its upper edge. Corresponding to this beveled edge, is a beveled ridge 3, integral with the cover 4, normally in the position shown in the figures. This beveled joint affords the only assurance necessary against leakage, and such wear as may take place therein will be negligible and may be taken up by the adjusting means to be later explained in detail.

The cover 4 has integral therewith a pair of opposed ears 5 and are pivoted at *b* to the arm 6, extending diametrically across the cover 4, near its pivotal point *c*. As apparent in Figures 1 and 2, the arm 6 does not form an integral part of the cover 4, and is not connected therewith except by the bolt *b* by which the ears are jointed to the arm, and at 7, which is an eye formed upon the cover, and through which the arm 6 is passed. By so indirectly connecting the arm 6 and cover 4, the latter has some slight freedom of movement, independently of the arm, thus to insure maximum effectiveness of the central tensioning means. The arm 6 is pivoted at *c* to an ear 8 integral with the flange 1 and collar 2, and is provided with an upwardly directed tail portion 9 by which it is possible to readily throw open the cover by simply depressing said tail portion 9 with the foot, after the locking means, to be later described, is released.

A tongue 10 is formed at the end of the arm 6 and is so shaped as to be received in the opening 11 in the keeper 12, which latter has a bifurcated lower end adapted to straddle an ear 13 integral with the flange and collar, directly opposite the similar ear 8. This keeper is pivoted at *d* and is capable of being moved to the position shown in dotted lines in Figure 2 so as to enable the tongue 10 to move upward upon raising the cover 4.

The arm 6, it will be understood, is capable of slightly yielding, that is, is of sufficient resiliency as to impart a spring like urge against the cover 4 when the tongue 10 is depressed. To accomplish the latter, a cam 14 is eccentrically pivoted at *e* in the keeper 12, to turn which, an arm 15 is provided thereon, extending toward the center of the cover 4.

The sectional view, Figure 2, will show the relationship between the tongue, keeper and

the cam when the cover is locked and when it is released, the latter position being suggested in broken lines in this figure. Obviously, the spring tension in the arm 6 is such as to positively bind the cam 14 in locked position, the correspondingly shaped surfaces on the cam and tongue avoiding against undue slippage. This same spring tension of the arm will cause the keeper and cam to move with quick impetus to the dotted position in Figure 2, with only a slight upward urge upon the lever or arm 15 of the cam 14.

It is obvious that the connection between the diametrically arranged arm 6 and the cover 4 will allow the latter slight independent movement laterally therefore, in order to make the pressure uniform entirely around the cover, a central urge is imparted to the latter. In this regard, a set screw 16 is threaded into the arm at its middle and engages a boss 17 formed in the center of the cover plate 4. A lock nut 18 is also provided to prevent displacement of the screw when once set. When wear occurs at the point of engagement between the cam 14 and tongue 10, or any other point in the locking assembly, the screw 16 may be turned to renew the tension upon the cover.

Manifestly, the construction shown is capable of considerable modification and such modification as is considered in keeping with the appended claim is also considered within the spirit of the invention.

What is claimed is;—

In a cover of the type set forth, a collar having a horizontal base flange, an ear projecting upwardly from said flange, a keeper having a bifurcated lower end straddling said ear, and pivoted thereto, said keeper having its said lower end formed to engage said collar so as to restrict outward pivotal movement thereof, a cover member, an arm overlying said member and having one end thereof free, said keeper having an opening to receive said free end of the arm, the rear of the upper end and the rear side of the keeper being cutaway, a cam engageable with said free end of the arm and pivoted in said cutaway part of the keeper and engageable with the front of said upper end of the keeper to restrict outward movement thereof, a pair of spaced ears carried by the cover and receiving the opposite end of said arm therebetween, a pin pivotally connecting said opposite end of the arm to the ears, an ear on the collar flange, and a bifurcated part on said opposite end of the arm receiving said last named ear therein and pivoted thereto.

In testimony whereof I affix my signature.

WILLIAM G. McMURRAY.