

UNITED STATES PATENT OFFICE.

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OIL-TANK.

SPECIFICATION forming part of Letters Patent No. 702,584, dated June 17, 1902.

Application filed February 6, 1902. Serial No. 92,848. (No model.)

To all whom it may concern:

Be it known that I, JOHN JOSEPH PAQUETTE, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented new and useful Improvements in Oil-Tanks, of which the following is a specification.

My invention relates to improvements in oil-tanks, and has for one of its objects to provide a safety oil-tank closure—i. e., a closure embodying such a construction that the cover thereof will be held in its sealed position against the strain or pressure in the tank under normal conditions and yet will give way to and be displaced by pressure much less than that necessary to burst the tank—this in order to preclude bursting of the tank under sudden expansion, as when the vapor or oil is heated or fired, and prevent the widespread distribution of burning oil and the consequent endangering of life and property which would follow an explosion of the tank.

Another object of the invention is to provide an oil-tank constructed in general with a view of preventing fire from gaining access to the oil therein.

Still another object is to provide an oil-tank equipped with simple and reliable means for indicating the quantity of oil which it contains.

Other advantageous features of the invention will be fully understood from the following description and claims when taken in conjunction with the accompanying drawings, in which—

Figure 1 is a longitudinal central section of a portion of an oil-tank embodying my invention; Fig. 2, a perspective view of the anchor-bar forming part of the closure removed; Fig. 3, a detail section of a car-tank embodying a modification of the invention, and Fig. 4 a similar view of a storage-tank embodying another modification of the invention.

Referring by letter to the said drawings, and more particularly to Figs. 1 and 2 thereof, A is an oil-tank designed more particularly to be placed in the hold of a vessel or buried in the ground, B a drum connected to the tank and designed when the latter is placed in a vessel to extend above the deck and when it is buried in the ground to extend to or above the surface, and C a cover which

in conjunction with the drum and certain appurtenances forms my improved tank-closure.

In the preferred embodiment of the invention the drum B is provided interiorly with diametrically opposite keeper-lugs *a* and exteriorly with a trough *b*. The latter is designed to receive the depending flange *c* of the cover C and some substance *d*, such as water or cement, calculated to form a seal between the drum and cover, and thereby prevent the escape of gas and odors through the closure. I prefer the seal just described for rendering the closure gas and air tight, but do not desire to be understood as confining myself to the same, as when desired other means—such, for instance, as the gasket shown in Fig. 3 and hereinafter described—may be employed without departing from the scope of my invention.

D is a bar designed to be placed in engagement with the keeper-lugs *a*, or, in other words, anchored in the drum B, after the manner shown, and E is a connection between the said bar and the cover C. This connection may be of any suitable construction, although I prefer to have it comprise a headed bolt *e*, extending through the bar and cover, and a nut *f*, mounted on the upper threaded end of the bolt. When the cover C and bar D are arranged in the positions shown and connected together, the bar will obviously serve as an anchor-bar—i. e., to anchor or hold the cover on the drum. The bar D may be of wood, metal, or other material suitable to the purpose of my invention; but it is essential that it be of such comparative strength as to hold the cover on the drum under the strain to which the tank is ordinarily or normally subjected and yet give way and become disengaged from the lugs *a* when extraordinary pressure much less than that necessary to burst the tank is developed in said tank. I prefer to employ a bar D of such strength that it will give way and become disengaged from the lugs *a* when about one-fourth of the pressure necessary to burst the tank is developed therein, this being advantageous, because in the event of the oil being heated or fired the cover will be displaced under low pressure and the tank relieved from strain. The release of the cover under low pressure is also

advantageous, since it affords a free escape for the gas and prevents widespread scattering of the burning particles of oil and the consequent endangering of life and property.

5 Again, it will be observed that if the oil contained in my improved tank is fired by any means no serious explosion can take place or injury to the tank result, and, if desired, the fire may be readily smothered and controlled
10 by placing the cover C or another cover on the drum B.

F is a removable wire-gauze diaphragm placed in the drum B on lugs *g* and having for its purpose to remove the larger particles
15 of foreign matter from the oil supplied through the drum to the tank, and G is a wire-gauze diaphragm removably placed in the drum B on lugs *h*, disposed below the lugs *g*. The gauze of the diaphragm G is much finer
20 than that of the diaphragm F, being preferably fourteen or sixteen mesh to the inch. Said diaphragm G may be employed to assist the diaphragm F in straining the oil supplied to the tank; but its chief purpose is to resist the
25 entry of fire through the drum B to the oil in the tank, as fire cannot penetrate it. Both diaphragms F G are preferably removable in order to enable a workman to enter the tank when it is necessary to clean the tank or for
30 any other purpose.

H is a vent-pipe leading from the tank to a suitable point of discharge and protected at either end with wire-gauze to prevent escaping gas from igniting back into the tank;
35 I, a pipe having its end within the tank protected by wire-gauze and designed to be connected to a pump, (not shown;) J, a nipple connected to the drum B above the gauze diaphragm F and covered at its inner end by
40 wire-gauze J', calculated to resist the passage of fire, and K a nipple also connected to the drum B, but preferably in a position below the nipple J. The nipple J is designed to be connected with a hose or other conduit lead-
45 ing from a wagon, tank-car, or other source of supply, as is also the nipple K. Oil is supplied to the drum B from the source of supply through the lower conduit, (shown by dotted lines,) while the upper conduit (also
50 shown by dotted lines) has for its purpose to convey the gases and air back to the supply-tank—this in order to prevent the escape of the gases and air and obviate the necessity of the same being discharged through the
55 vent-pipe H incident to the filling of the tank A. The wire-gauze covering the inner end of the nipple J has for its function to prevent the escaping gas from igniting back into the drum B.

60 L is a dial connected to the outer side of the drum B; M, a shaft journaled in the wall of the drum and the dial and having a pointer *m* at its outer end and a crank *n* at its inner end; N, a float-lever fulcrumed in the tank
65 A, preferably in an adjustable manner, as shown, so that its throw can be regulated, if desirable or necessary, and P a pitman con-

necting the float-lever and the crank of the shaft M. When the float-bearing arm of the lever N is supported by oil in the tank, the
70 pointer *m*, in conjunction with dial L, will indicate the height of the oil to the observer.

In the modified closure shown in Fig. 3 a gasket *d'* is interposed between the cover C' and the drum B', the bar D is anchored in
75 the tank by placing it against interior abutments in the drum, and the connection E, before described, is interposed between the cover and the bar. With the exception of the bar D and connection E the construction
80 of closure shown in Fig. 3 is similar to those at present in use on car-tanks. From this it will be appreciated that my improvements may be readily applied to car-tank covers at
85 present in use.

The modified construction shown in Fig. 4 is designed more particularly for embodiment in large storage-tanks. In said construction the opening B² of the tank is surrounded by a trough *b'*, containing a sealing
90 substance *d'*, and the weight of the cover C² is depended on to retain it against displacement by the pressure present in oil-tanks under normal conditions. When, however,
95 extraordinary pressure is developed in the tank, the cover C² will be moved by the pressure from over the opening B². Both of the covers C' C² are preferably provided with vent-pipes covered at one end with wire-gauze,
100 as shown.

I have entered into a detailed description of the construction and relative arrangement of parts embraced in the present and preferred embodiments of my invention in order to impart a full, clear, and exact under-
105 standing of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within
110 the scope of my claims.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In the closure described, the combination of a tank having a drum provided with interior keeper-lugs at diametrically opposite points, and also having an exterior trough around its upper portion, and a sealing substance in said trough, a cover having a de-
115 pending flange disposed in the trough of the drum, a bar arranged in the drum with its ends in engagement with the keeper-lugs thereof, and a connection between an intermediate part of the bar and the cover; the
120 said bar being of such strength that it will retain the cover in position under normal conditions, and yet give way and release the cover when extraordinary pressure less than
125 that necessary to burst the tank is developed therein.

2. An oil-tank having a filling-drum, means for closing the upper end of said drum, an oil-straining diaphragm disposed in said drum, a

diaphragm of fine wire-gauze capable of resist-
ing the passage of fire, disposed in the drum be-
low the oil-straining diaphragm, an oil-inlet
pipe connected to the drum above the strain-
5 ing-diaphragm and adapted to be connected
with a supply-tank, a gas-outlet pipe also con-
nected with the drum above the oil-straining
diaphragm and adapted to be connected with
the said supply-tank, and wire-gauze arranged

in the drum over the end of said gas-outlet pipe.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

JOHN JOSEPH PAQUETTE.

Witnesses:

C. G. REBENTISCH,

H. W. SIMERO.