J. LEES.

SAFETY TANK LOCK.

APPLICATION FILED JAN. 25, 1915.

1,215,668. Patented Feb. 13, 1917.

Fig. 1.

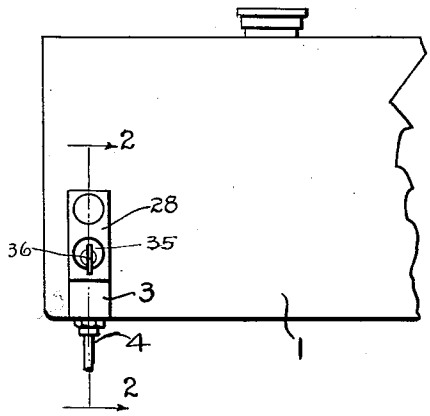


Fig. 2.

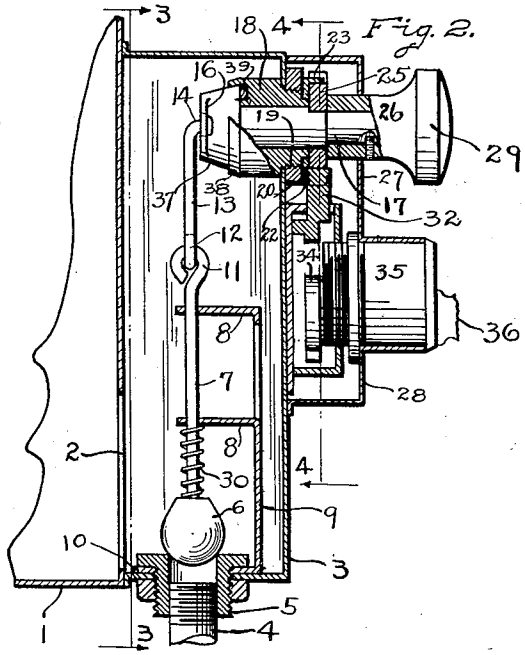


Fig. 3.

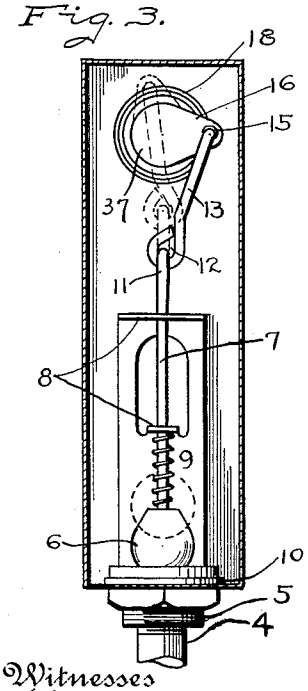
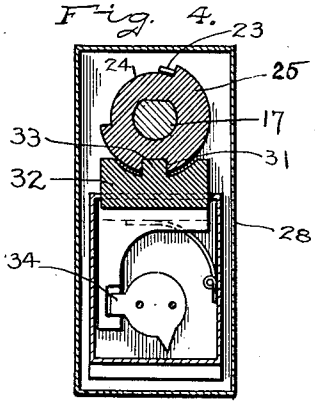


Fig. 4.



Witnesses

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SAFETY TANK-LOCK.

1,215,668. Specification of Letters Patent. Patented Feb. 13, 1917.

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To all whom it may concern:

Be it known that I, JOHN LEES, a citizen of the United States, residing at Indianapolis, Marion county, and State of Indiana, have invented and discovered certain new and useful Improvements in Safety Tank-Locks, of which the following is a specification.

My invention relates to safety tank locks and its object is to provide a construction adapted for closing a tank against the escape of fluids therefrom and for locking the closing means, which construction shall be capable of being readily assembled, is provided with means for automatically holding the valve out of closing position when turned to such position by its handle and which is adapted to be applied to any existing tank by merely cutting an opening through the tank which may communicate with the inclosing body in which the valve mechanism is mounted.

With these objects and others in view, my invention is embodied in preferable form in the device hereinafter described and illustrated in the accompanying drawings.

In these drawings, Figure 1 is a side view in elevation of a tank showing the invention applied thereto; Fig. 2, an enlarged vertical section at right angles to Fig. 1; Fig. 3, a rear view in elevation partly in section on the line 3—3 of the valve and connecting mechanism and Fig. 4, a vertical section on the line 4—4 of Fig. 2 through the operating handle and the lock mechanism.

Referring to the drawings, 1 is a tank which may be the main gasolene supply tank of an automobile or may be an auxiliary tank between the main tank and the carbureter, such as is employed in vacuum feeding systems. In applying my invention to such a tank, an exit opening 2 is cut in the tank and adapted to communicate with this opening is a valve inclosing body or casing 3 which is designed to be permanently secured to the tank by solder or similar means, so as to form practically an integral part thereof, with its interior in free communication with the interior of said tank. This casing is provided in its lower end with a pipe fitting 4 which communicates with the feed line leading to the carbureter or other device to be supplied with the fluid and the fitting is held within a bushing 5 extending through the base of the casing and having a valve seat at the upper end thereof.

Adapted to engage this seat is a vertically reciprocable ball valve 6 carried at the lower end of a stem 7 which is guided in arms 8 of a vertical bracket 9, which has a base 10 fitting under the head of the bushing. The upper end of the stem has an eye 11 with which loosely engages the eye 12 of a link 13, the upper end of which link has a hook 14 freely engaging an aperture 15 in a radially prolonged lever arm 16 extending from the inner end of a rotatable shaft 17.

The shaft 17 is mounted for rotation in a hub 18 which is supported in the wall of the casing 3. This hub is provided with a screw threaded portion 19 on which is mounted a nut 20 which is adapted to be forced against the outer face of the wall of the said casing. Such threaded portion is also provided with a flattened portion 21 on which is seated a washer 22 provided with a stop lug 23 extending longitudinally of the shaft and which projects into a peripheral slot 24 formed on a collar 25, which is mounted on the shaft and held against rotatable movement thereon by a suitable flattened surface on the shaft. This collar abuts against a sleeve 26 on the shaft, which sleeve extends through and rotates in the wall 27 of an outside lock inclosing case 28 which is adapted to be soldered or otherwise permanently secured to the outside of the valve casing. The sleeve 26 terminates in a knob 29 whereby the shaft is adapted to be rotated, for the purpose of lifting the valve from its seat or lowering it to closing position. A spiral spring 30 assists in the downward movement of the valve and serves to hold it tightly to its seat and such spring is confined between one of the arms 8 of the bracket 9 and the upper end of the ball valve.

The collar 25 carried by the shaft is provided with a second peripheral slot 31 which is adapted to be engaged by a locking bolt in order to hold the valve in closed position and prevent tampering therewith. To this end there is provided below the knob 29, a key-controlled lock of ordinary construction preferably of the pin and tumbler type and which has a bolt 32 provided with an upwardly projecting tongue 33 which is adapted to enter the slot 31 in the collar, when the knob has been turned to valve-closing position and which tongue is adapted to ride on the periphery of the collar when the knob is turned to valve-opening position. This

bolt is adapted to be actuated by the dog 34 of the usual operating barrel 35 of the lock. 36 is a key adapted to engage the lock.

The shaft 17 is provided with an enlarged conical head 37, over which is adapted to fit the conical locking head 38 of the hub 18. Before assemblage of the parts the head 38 is cylindrical and the head 37 is adapted to be slipped within the same. A flexible packing washer 39, preferably of felt is placed in an annular recess of the head 38 at the joint between the two heads, so as to form a packing that will prevent passage of the liquid, and also to provide a stop preventing relative longitudinal movement of the shaft and hub and after the parts are assembled, the outer head 38, is bent or spun down on the head 37. This arrangement facilitates assemblage of the parts and prevents endwise separation of the shaft.

The operative parts of the lock and the collar 25 are inclosed entirely within the case 28, while the valve itself and its connecting parts are separately inclosed in the body 3, hence, even if the lock should be broken off, access could not be obtained to the valve for the purpose of releasing the same from closing position.

In the operation of the device, the valve casing or inclosing body 3 is in constant open communication with the interior of the liquid containing tank through the opening 2. In Fig. 4, the valve is shown in closing position with the valve pressed down to its seat by the spring 30. In this position of the valve the slot 31 on the collar 25 will be engaged by the tongue 33 of the bolt 32, thus locking the rotatable shaft against movement and preventing the withdrawal of the valve through operation of the knob. Assuming that it is desired to establish communication between the tank and the feed line, the key is inserted into the lock and the barrel of the lock turned to withdraw the tongue 33 of the bolt from the slot 31 and then the knob 29 of the rotatable shaft 17 is turned by hand to the right, carrying upward the radially prolonged arm 16 on the end of such shaft, which carries with it the link 13 and lifts the valve stem until the shaft has been rotated sufficiently far to carry the end of the peripheral slot 24 against the stop lug 23 of the locking washer 22 when the rotation of the shaft will be stopped. In this position, the radially prolonged arm 13 will project upwardly and to one side of the vertical line passing through the center of the shaft, thus automatically retaining the link and the stem in their uppermost position and holding the valve out of engagement with its seat.

In order to close the valve and lock the same in closing position, it is merely necessary to turn the knob to the left, whereupon the arm 16 will be carried downwardly to one side of the axis of the shaft permitting the descent of the valve to its seat and the slot 31 will automatically engage the tongue 33 of the bolt of the lock, thereby locking the valve in closed position. The key may then be withdrawn from the lock.

Having thus described my invention, what I claim is:

1. In combination with a liquid containing tank having an exit, a vertically reciprocable valve for closing said exit, a valve stem, a link flexibly connected to the upper end of the stem, a rotatable shaft, a handle at the outer end of said shaft for operating the same, a radially extended arm at the inner end of the shaft flexibly connected at its extremity to the upper end of said link, a locking bolt, said shaft having a slot in the lower part of its periphery to engage said bolt, and said shaft having on the upper part of its periphery a slot elongated slightly beyond the distance between two adjacent diameters of the shaft at right angles, a stop pin engaging said upper slot, said radial arm being movable from a horizontal position to a position beyond the center line of the shaft.

2. In combination with a liquid containing tank having an exit, a valve for closing said tank, a rotatable shaft, a turning knob on said shaft, connections between said shaft and valve for lifting the latter from its seat, a hub mounted in the tank wall and in which said shaft is mounted, said hub and shaft having conical interfitting parts and a flexible packing washer at the joint between said parts.

In witness whereof, I have hereunto set my hand and seal at Indianapolis, Indiana, this 21st day of January, A. D. nineteen hundred and fifteen.

JOHN LEES. [L. S.]

Witnesses:
A. C. RICE,
H. P. DOOLITTLE.