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J. H. FALSTER

LOCKED CLOSURE FOR TANK OPENINGS

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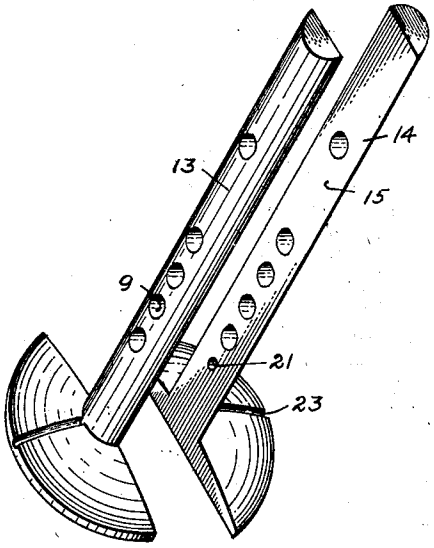

Fig. 1

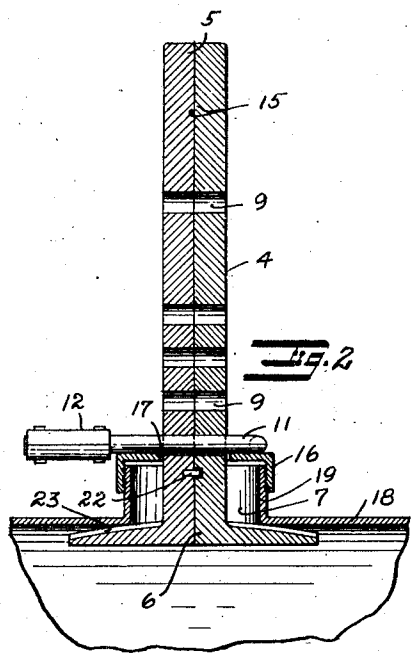

Fig. 2

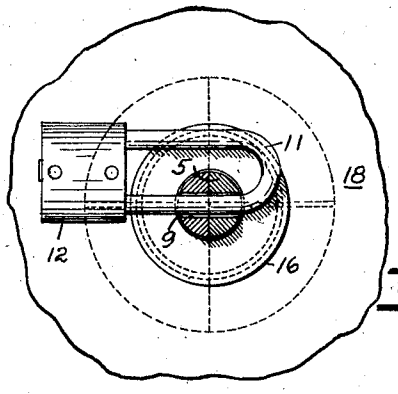

Fig. 3

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UNITED STATES PATENT OFFICE.

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LOCKED CLOSURE FOR TANK OPENINGS.

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My invention relates to a device for preventing the unauthorized removal of closure caps from top openings of liquid containers.

It is frequently desirable that the filler openings of tanks containing liquid be locked to prevent the unauthorized removal of liquid therefrom by siphoning or other means. Since such openings are usually comparatively large and must be covered with a capping closure, the problem resolves itself into providing means for locking the closure in position and which are at the same time readily releasable by an authorized person. Furthermore, the means must be simple in structure and operation, and readily applicable to existing tanks. The foregoing requirements have been met in the device of my invention and it is accordingly one object of the invention to provide a device of the character described which may be applied to containers of usual structure without requiring the alteration thereof.

Another object of the invention is to provide locking units of the character described so arranged that a single unit thereof may be used on a variety of tanks, thus providing for the substantially universal use of the device in a single size and design.

A further object of the invention is to provide a device of the character described which is of extremely simple structure and may be manufactured at a minimum cost.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of my invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that I do not limit myself to the showing made by the said drawings and description, as I may adopt variations of the preferred form within the scope of my invention as set forth in the claims.

Referring to said drawings:

Figure 1 is a perspective view showing cooperating members of the device in slightly spaced relation.

Figure 2 is a vertical sectional view showing the device operatively disposed to effect the locked closure of a tank filler opening.

Figure 3 is a sectional view taken on the line 3—3 in Figure 2.

As illustrated in the drawings, the device of my invention comprises a member 4 having a cylindrical stem portion 5 and a base portion 6.

As here shown, the portion 6 is cylindrical about a common axis with the portion 5 and is of somewhat greater diameter than is the filler opening 7 of the tank 8, while the stem portion 5 is of somewhat less diameter than is the opening 7.

The stem 5, it will now be noted, is provided with a number of transverse perforations 9 along its length, such perforations being arranged to receive the bolt 11 of a suitable lock 12, the latter being here shown as a padlock of a usual type.

To provide for the insertion of the device through the filler opening, the member 4 is preferably formed in transversely separable sections. As here shown, the member 4 comprises a pair of cooperating like sections, 13 and 14 having their plane of separation include the axis of the member 4, it being noted that the perforations 9 extend transversely of such plane. In this manner, the sections may be passed through the opening 7 one at a time, it being noted that the section first placed in the opening may be held to one side thereof to permit the insertion of the other section, after which the sections may be placed together with their flat back surfaces 15 together.

The tank cap 16, it will now be noted, is provided with a perforation 17 arranged to freely receive the stem 5 when the sections are in cooperative relation. In this manner, with the member 4 positioned in the opening 7 having the base portion 6 thereof disposed below the adjacent wall 18 of the tank and the stem portion 5 extending from the tank, and with the sections held together, the cap 16 may then be passed downwardly along the stem to effect a closure of the opening 7.

With the member 4 preferably drawn upwardly as far as possible, the lock bolt 11 is then passed through the lowermost free stem perforation 9 and locked therein. In this manner, the upward displacement of the cap is prevented and unauthorized access to the opening 7 is thus positively denied.

As herewith particularly illustrated, the cap 16 is arranged for threaded engagement with an externally threaded flange 19 defining the opening 7, so that, after the device is locked, the partial unscrewing of the cap will cause it to exert a thrust against the

lock bolt and thus force the portion 6 of the device against the wall 18 to thereby fix the various engaged members against relative motion and so prevent rattling of the device, it being obvious, however, that other means might be used to prevent such rattling.

Means are provided to facilitate the holding of the device prior to the positioning of the lock, and to insure the proper registration of the parts of the bolt receiving perforations. As here shown, such means comprises the provision of a socket 21 in one of the surfaces 15 in which a projection 22 which protrudes from the other surface 15 is arranged to register when the sections are properly related, the projection 22 being here shown provided by means of a pin fixed in the latter surface.

In order to insure the usually desirable venting of the tank, the cap opening 17 is preferably large enough to permit the passage of gas therethrough when the stem 5 is disposed therein, while the upper surface of the base 6 is provided with one or more radial grooves 23 through which the gas may pass when the base is engaged with the tank wall 18.

It will now be particularly noted that the device of my invention is so designed that the two sections thereof may be cast in the same mold, and that a minimum of labor is involved in preparing them for use, so that the device will be inexpensive to manufacture.

I claim:

1. In combination with a tank having a wall provided with an aperture, a lock having a bolt, a screw cap providing a closure member for said aperture, and a locking member passing through said aperture and closure member arranged to bear on the inner face of said wall and to receive said lock bolt at a point thereof above said closure member whereby a releasing movement of said cap will effect a forcible engagement of said member with the inner wall face and the displacement of said latter member to uncover said aperture may be prevented.

2. In combination with a wall provided with an aperture and a removable cap therefor, a lock bolt, and locking means for said cap comprising a unitary member having a wall engaging portion engageable against a side of the wall and a stem portion disposed through said aperture and cap to extend transversely outwardly of the other side of the wall, said stem portion being provided with a plurality of bolt receiving perforations longitudinally along the stem whereby it is arranged to receive said bolt at a point closely adjacent and outwardly of said cap, and said member may thereby be retained in operative position on walls of widely different thickness.

3. In combination with a wall provided with an aperture and a screw cap therefor, a lock bolt, and locking means for said aperture comprising a member having a wall engaging portion engageable against the inner side of the wall and a stem portion disposed through said aperture and cap to extend transversely outwardly of the other wall side and the cap, said stem portion being provided with a bolt receiving perforation arranged to receive said bolt at a point closely adjacent and outwardly of said cap whereby an unscrewing rotation of said cap will act through said bolt and stem to effect a pressure engagement of said wall engaging portion with the wall.

4. In combination with a tank provided with an aperture in a wall thereof, a closure member for said aperture arranged for threaded engagement with said wall, and a bolt; a locking bar removably positionable to extend transversely through said aperture and said closure member comprising a base portion arranged to engage the inner surface of said wall, and a stem portion arranged to receive said bolt outwardly of and substantially against said closure member whereby a releasing rotation of said member will effect a forcible engagement of the base portion of said bar with the opposed wall surface and said closure member may be held fixed against removal from said wall.

5. In combination with a tank provided with an aperture in a wall thereof, a closure member for said aperture disposable in a plurality of operative positions with respect to said aperture, and a bolt; a locking bar removably positionable to extend transversely through said aperture and said closure member comprising a base portion arranged to engage the inner surface of said wall, and a stem portion arranged to receive said bolt outwardly of and substantially against said closure member when in a primary operative position whereby a disposal of said closure member out of said primary position will effect a forcible engagement of the base portion of said bar with the opposed wall surface and said closure member may be held fixed against removal from said wall.

In testimony whereof, I have hereunto set my hand at California, this 10th day of May 1926.

JOHN H. FALSTER.