June 20, 1939. E. R. KLEMM, JR 2,163,042

CONTAINER CLOSURE

Filed Feb. 12, 1938

Fig. 2.

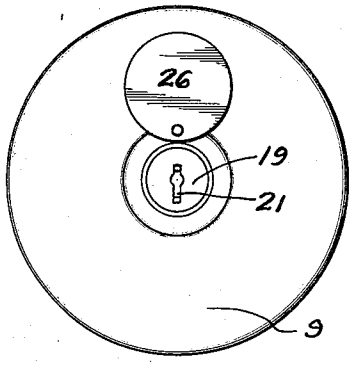


Fig. 1.

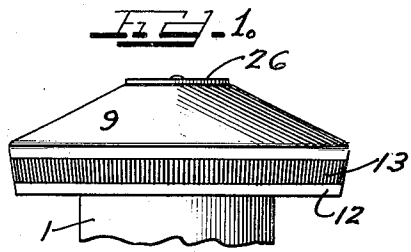


Fig. 3.

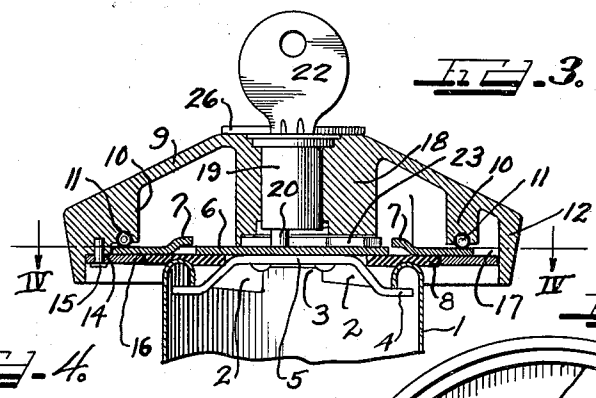


Fig. 5.

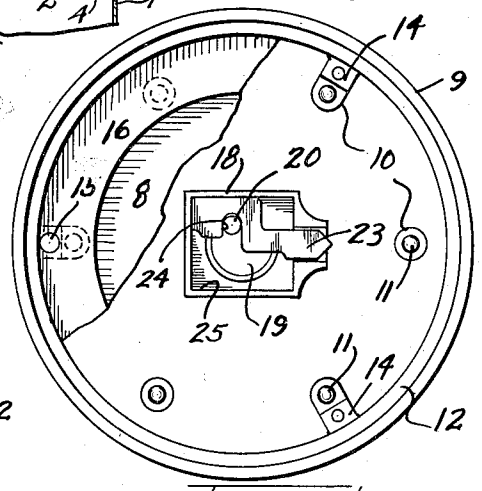
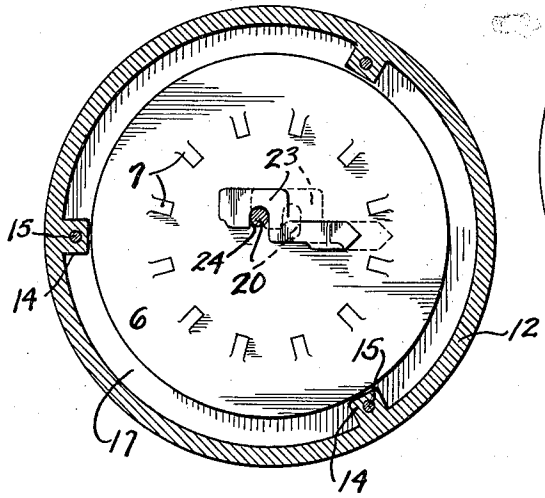


Fig. 4.



Inventor

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by Charles Hill Attys.

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CONTAINER CLOSURE

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5 Claims. (Cl. 70—165)

The present invention relates to container closures, such, for example, as the closure caps of automobile gasoline tanks and the like, and primarily relates to an improved and simplified form of container closure constructed to overcome the defects of earlier types of closures and caps and embodying simplified parts permitting a reduction in cost, convenient assemblage of the parts, and including protective means to obviate unauthorized locking of the parts together for the removal of the closure from a container without the use of a key provided for the purpose.

It is an object of this invention to provide an improved and simplified type of container closure including relatively movable sections provided with means for locking the sections together for mounting or removing the closure, said sections being so constructed that they cannot be locked together by unauthorized means.

It is also an object of this invention to provide a container closure consisting of relatively movable sections having simplified locking means associated therewith for locking the sections together when it is desired to mount or remove the closure.

It is a further object of this invention to provide a container closure wherein a main or inner cover is mounted within an outer cover and separated therefrom by bearing balls.

It is furthermore an object of this invention to provide a container closure wherein an inner closure member and an outer closure member are separated by bearing balls and wherein the inner closure member has means integrally formed therewith for coaction with a latch member included in the outer closure means and operable only by an authorized actuating member for locking the inner closure means and the outer closure means together when it is desired to either mount the closure on a container or remove the closure therefrom.

It is an important object of this invention to provide a container closure comprising inner and outer caps rotatably associated with one another by means of a ball bearing and adapted to be locked together by means of a key operated latch carried in the outer cap for coaction with a plurality of lugs struck from the inner cap.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawing.

The invention (in a preferred form) is illustrated in the drawing and hereinafter more fully described.

On the drawing:

Figure 1 is side elevation of a container closure embodying the principles of this invention mounted in position on the neck of a container such as an automobile gasoline tank or the like.

Figure 2 is a top plan view of the container closure showing the key lock cover in open position.

Figure 3 is an enlarged vertical detail section taken centrally through the container closure illustrating the lock mechanisms in elevation with the key in position.

Figure 4 is a horizontal detail sectional view taken on line IV—IV of Figure 3.

Figure 5 is a fragmentary bottom plan view of the container closure with parts broken away.

As shown on the drawing:

The reference numeral 1 indicates the neck of a container such as an automobile gasoline tank or the like. The upper end of the neck 1 is rolled inwardly and cut to form cam flanges 2, the ends of which are separated by diametrically opposite openings 3 to facilitate the insertion of the deflected ends 4 of a cross clamp 5. The cross clamp 5 is riveted or otherwise rigidly secured on the bottom or outer surface of a main or inner closure cap or plate 6, which as illustrated in Figure 4 is of circular form and has struck upwardly therefrom a plurality of spaced radially directed latch lugs or fingers 7 arranged in circular formation. Seated against the bottom or outer face of the inner closure plate or cap 6 is a suitable gasket or washer 8 fitted around the cross clamp 5 to effect a liquid seal between the upper end of the neck 1 and the container closure when the closure is in use. As clearly illustrated in Figure 3, it will be noted that the gasket 8 when in position closes the openings in the inner closure plate 6 resulting from the formation of the latching lugs 7.

The main or inner closure plate 6 is normally rotatably mounted within an outer closure cap or casing 9 having integrally formed therein a plurality of spaced bearing posts 10, the ends of which are provided with ball seats for the reception of bearing balls 11 against which the main or inner closure plate 6 engages. It will thus be noted that a ball bearing unit is provided between the closure plate 6 and the outer casing 9.

As clearly illustrated in Figures 1 and 3, the outer cap or casing 9 is provided with a peripheral rim or flange 12 formed with exterior knurlings at 13. Integrally formed within the outer casing 9 on the inner face of the flange 12 are a

plurality of spaced radially directed seats or bosses 14 provided with suitable openings for the reception of rivets 15 or the like for rigidly holding a flat metal protecting and retaining ring 16 secured within the outer cap or casing 9 to serve the double purpose of holding the inner closure plate 6 rotatably positioned within the casing 9 and furthermore serving the purpose of completely closing the space 17 (Figure 4) between the outer edge of the closure plate 6 and the inner surface of the casing flange 12. The positioning of the protecting and retaining ring 16 within the casing 9 provides an arrangement for positively preventing the fraudulent insertion of a tool or other device between the casing 9 and the inner rotatable closure plate 6 making it impossible for unauthorized persons to remove the container closure from the neck 1 without the use of a proper authorized locking device.

Integrally formed within the outer casing 9, in substantially the middle portion thereof, is a block or shank 18 which is suitably recessed for the reception of a key controlled barrel type of lock 19, the inner end of which is provided with an eccentric pin 20. The upper end of the lock barrel 19 is provided with a key slot 21 for the reception of a control key 22 for rotating the barrel of the lock and for actuating the pin 20 to cause operation of a latch bolt 23.

The latch bolt is provided with a notch 24 in which the pin 20 projects. As clearly illustrated in Figure 5, the latch bolt 23 is seated within a recess 25 provided in the inner end of the shank 18 forming part of the casing 9. The locking end of the latch bolt 23 is so positioned that when the latch bolt is projected by operation of the lock mechanism the tip of the latch bolt will extend between two of the lugs or fingers 7 forming a part of the closure plate 6, as illustrated in dotted lines in Figure 4, to lock the outer casing 9 and the inner closure plate together to permit rotation of the inner closure plate 6 with respect to the tank neck 1 to disengage the cross clamp 5 from engagement with the cam flanges 2 to position the deflected fingers 4 of the cross clamp in register with the opening 3 to permit the container closure to be removed from the tank neck 1 to permit filling of the tank.

After the tank has been filled, the container closure is engaged in position on the neck 1 and is turned to cause the cross clamp fingers 4 to engage beneath the cam flanges 2 of the neck tightly clamping the gasket 8 upon the upper end of the neck 1 and securing the closure in place. The key 22 is now inserted into the lock 19, and the key is turned to cause the retraction of the latching bolt 23 from between two of the lugs thereby unlocking the closure plate 6 and the casing 9 to permit free rotation of the outer casing 9 with respect to the inner closure 6, so that it is impossible to remove the container closure from the tank neck 1. When the key 22 is removed from the lock 19, the lock cover plate or disk 26, which is pivotally supported on the top of the outer casing 9, is swung from the position illustrated in Figure 2 into the closed position illustrated in Figure 1 to cover the lock 19.

Having described the device, it will be noted that an improved and simplified form of container cover is provided wherein an outer housing or casing is provided to enclose an inner closure cap or plate which is rotatably mounted by means of a ball bearing unit when a latching mechanism is in released position, and furthermore adapted to be locked within the casing when the lock mechanism is in projected latching position coacting with spaced lugs forming a part of the inner or main closure plate for the intake of a gas tank or the like.

The improved and simplified container closure is also provided with a combination retaining and protecting ring which is rigidly secured within the outer casing to overlap a marginal portion of the main closure plate for the tank intake to completely cover the space between the outer casing and the margin of the closure plate contained therein so that unauthorized locking of the plate with the casing is entirely obviated.

It will, of course, be understood that numerous details of construction may be varied through a wide range without departing from the principles of this invention, and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. A container closure comprising a casing, a closure plate rotatably mounted therein, ball bearing means between the closure plate and the casing, means associated with the closure plate for detachably engaging the same on the intake of a container, a key operated means in the casing movable into engagement with the closure plate to hold the same locked against rotation within the casing so that the casing and closure plate are locked together as a unit for mounting the container closure in position on the intake of a tank or for removing the container closure from said intake, and a ring member of greater diameter than the closure plate rigidly secured in the casing to retain the closure plate within the casing and also acting to close a marginal space between the closure plate and the interior of the casing to obviate unauthorized locking of the casing and said closure plate.

2. A tank intake closure comprising a closure plate having means thereon for coacting with the intake to close the same, a casing for enclosing the closure plate and normally rotatable with respect thereto, a ring member in the casing coacting with the closure plate for retaining the same in the casing and preventing access to the outer margin of the closure plate for obviating unauthorized locking of the plate with respect to the casing, and a key controlled latch means slidably supported on the inner face of the closure plate and movable into engagement with parts of the closure plate to lock the plate and casing together to permit authorized removal of the closure from the intake or mounting of the closure on the intake.

3. A tank intake closure comprising a casing, a plate rotatably mounted therein, roller bearing means in said casing for said plate, clamping means on said plate for engagement with the container intake, a gasket fitted around said clamping means and seated against the plate, means for locking the plate against rotation within said casing, and a ring member of greater diameter than said plate rigidly secured in said casing for holding the plate in place and for obviating unauthorized locking of the plate to the casing by means of unauthorized devices.

4. A container intake closure comprising a casing, a closure plate rotatably mounted therein, means thereon for securing the closure on the intake, rotatable bearing members between the plate and the casing, a ring member larger than the plate secured in the casing for holding the plate in position and for obviating unauthorized

locking of the plate with respect to the casing, a ring of spaced latch projections formed on said plate and projecting into the casing, a locking member and means for projecting the locking member between two of the latch projections on said plate to lock the plate against rotation within the casing and permit mounting of the closure on the container intake or removal of said closure from said intake.

5. In a container intake closure, a casing, a container closure plate rotatably mounted therein and provided with means for securing the closure on the intake, means for locking the closure plate with respect to the casing to permit mounting and removal of the closure with respect to the container intake, and a ring member in the casing larger than the plate for holding the plate therein and for obviating unauthorized locking of the plate with respect to the casing.

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