Sept. 9, 1941. A. M. MALLUK 2,255,070

LOCK CAP FOR TANKS AND THE LIKE

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FIG. 1.

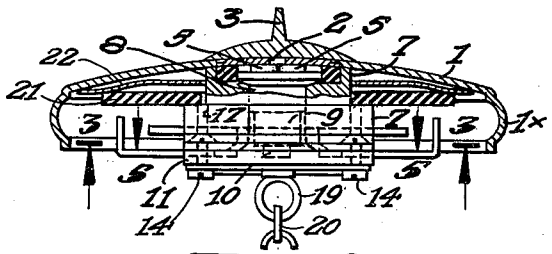



FIG. 7.

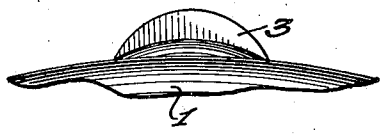



FIG. 5.

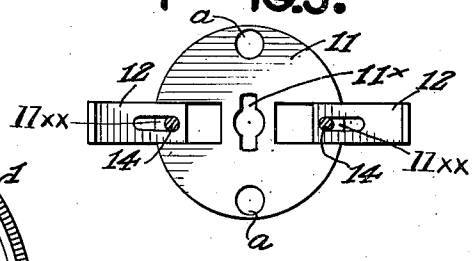



FIG. 2.

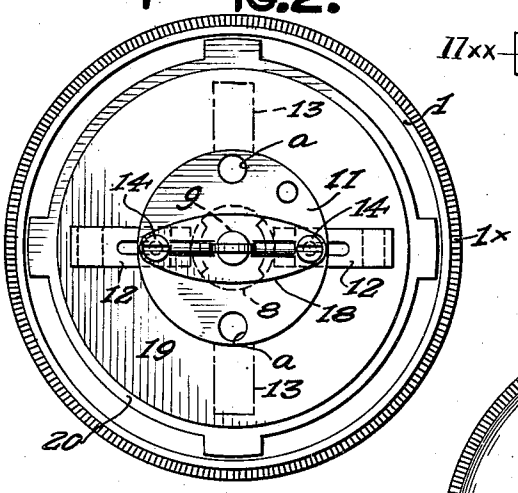



FIG. 4.

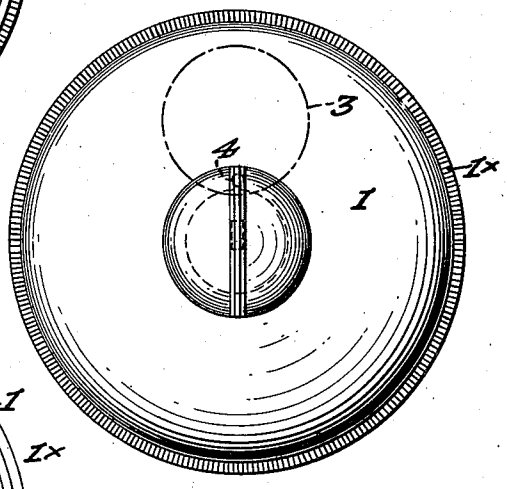



FIG. 3.

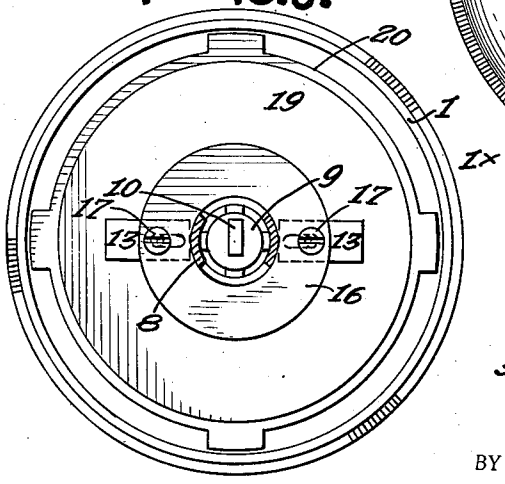
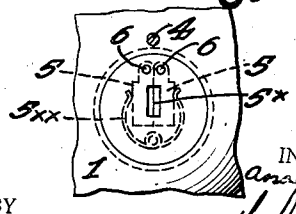



FIG. 6.




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FIG. 8.

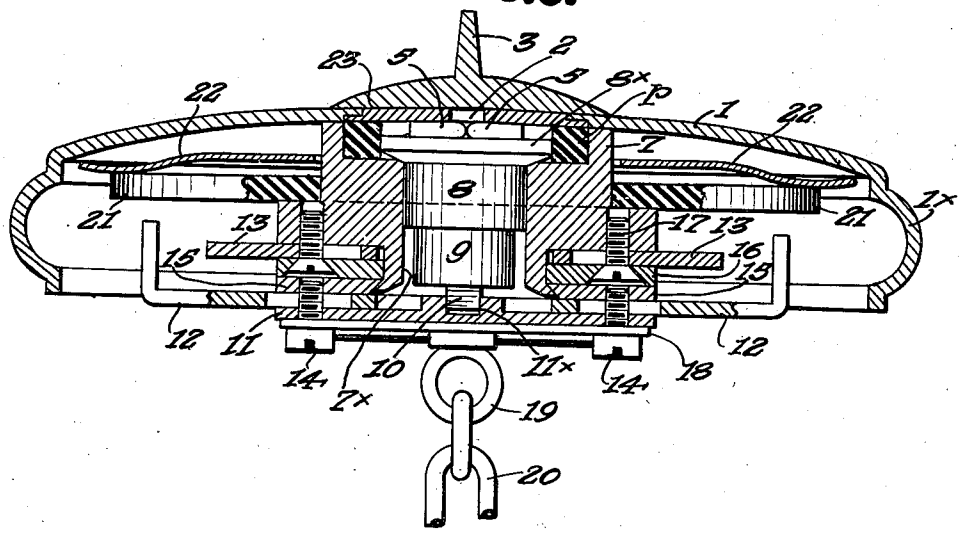
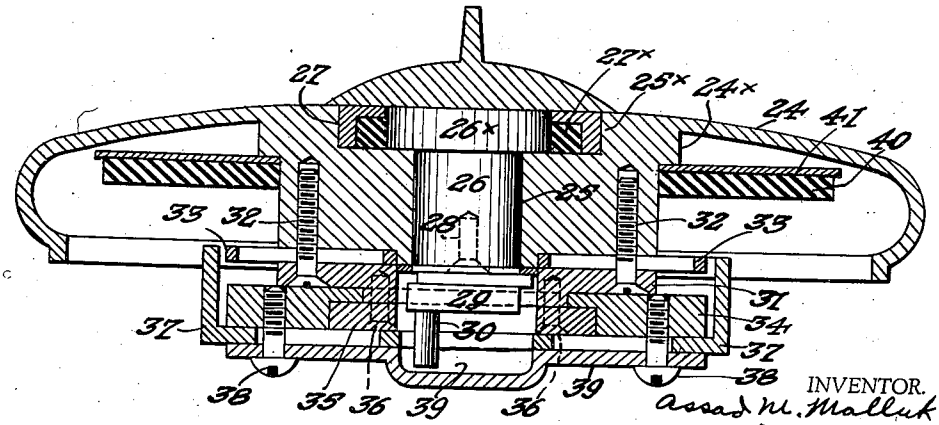



FIG. 9.




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## LOCK CAP FOR TANKS AND THE LIKE

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Application January 4, 1940, Serial No. 312,344

2 Claims. (Cl. 70—172)

The present invention relates to lock or protection caps for tanks and the like, particularly the filler openings of automobile fuel tanks, wherein the tank is provided with an outwardly projected short neck formed internally with a shallow horizontal flange having two oppositely directed slots for the reception of lugs carried by the cap for said neck. Thus when the cap is pressed downwardly with the lugs opposite the flange apertures, rotation of the cap will carry the lugs under the flange and thus hold the cap in position. By means of the present invention two sets of lugs are employed, the lugs initially lying one set over the other so that the two sets are projected through the flange openings, the cap then being turned, carrying the lugs under the flange, and thereupon a key operated mechanism is employed to bodily move the second set of lugs relatively to the first set, the arrangement being such that if either set of lugs is brought into registry with the flange openings by the rotation of the cap, the second set will hold the cap in locked position.

The invention will be described with reference to the accompanying drawings, in which

Figure 1 is a sectional elevation of an embodiment of the invention.

Figure 2 is a bottom plan view.

Figure 3 is a view similar to Figure 2 partially in section, on the line 3—3, Figure 1.

Figure 4 is a top plan view.

Figure 5 is a top plan view of the disc carrier for the rotatable set, or second set of lugs, taken on the line 5—5, Figure 1, looking in the direction of the arrow.

Figure 6 is a fragmentary detailed view of that portion of the cap lying under the lock protector 3, showing in dotted lines the spring engaged key aperture closing members.

Figure 7 is a fragmentary view of the cap in elevation showing the pivoted lock protector 3.

Figure 8 is an enlarged sectional elevation of the cap.

Figure 9 is an enlarged sectional elevation of a modified form of cap.

Referring to the drawings I have shown at 1 the cap body, it having a depending skirt 1*x* generally arcuate in form. At its top the cap is formed with a key aperture 2 guarded by a pivoted protector 3, the place of the pivot being best shown in Figures 4 and 6 at 4. Pivoted on the underface of the cap adjacent key aperture 2, the pivots being shown at 6, Figure 6, are two movable key slot protectors 5, having beveled key receiving faces 5*x*, formed in such manner that movement of the key downward into the cap will press the protectors aside against the tension of the light U-shaped spring 5*xx*.

Below the cap and either integral therewith (as when the cap is formed as a die casting), or formed as a separate member welded to the cap, is a block 7. Block 7 is formed with an axial aperture, above which an aperture of greater width is formed, providing a horizontal shoulder to receive a packing ring *p*. The block receives the casing 8 of a rotatable lock barrel 9, the casing preferably being formed with a head 8*x* abutting the internal face of the packing ring, shown more particularly in Figure 8.

The rotatable lock barrel 9 carries a lever 10 which enters a slot at 11*x* formed in a rotatable disc 11. This disc adjustably carries the "second" set of locking lugs 12. The first set of lockings lugs are indicated at 13. Disc 11 is formed at 11*xx*, with screw holes to receive screws 14 which screws are threaded into a ring 15 rotatably held upon block 7. The manner of holding ring 15 is as follows:

Near its lower end block 7 is reduced in diameter to form an annular sleeve 7*x* and the lower end of the sleeve receives ring 15 and is swaged over upon the ring to hold the same but permit its rotation.

Above rotatable ring 15 the sleeve 7*x* has mounted thereon a second and fixed ring 16. Ring 16 is held to block 7 by screws 17. Referring to Figure 8 it will be seen that the screws 14 and 17 lie in line with each other. However, when barrel 9 is rotated this will bodily move disc 11 so as to carry the locking lugs 12 out of registry with locking lugs 13, and hence apertures *a* may be formed in disc 11, as shown in Figure 5, so that the screws 17 may be reached through the apertures and manipulated.

The reason for manipulation of the screws 17 is to effect adjustment of the locking lugs 13. These lugs are, as shown in Figure 3, provided with elongated apertures to receive the screws 17. Thus by loosening the screws the lugs may be moved inwardly or outwardly to accommodate filler neck flange openings of different lengths or spacing.

If desired, the screws 14 may hold securely in position on the lower face of disc 11, a carrier plate 18 having a depending eye member 19 for receiving a chain 20. The lower end of the chain may be attached to the center of a bar so that when the cap is removed the chain will pull the bar up against the lower portion of the filler neck, permitting removal of the cap from the filler

neck and yet holding of the same to the tank.

A washer disc may surround block 7, the disc being indicated at 21 and a springy plate 22 may lie over the washer disc to reinforce the action of the same.

When the cap is applied to a filler neck opening the two sets of lugs 12 and 13 lie in registry as shown in Figure 8. The cap is pressed down upon the filler neck so that the lugs pass through the opposed apertures of the neck flange, whereupon the cap is given a slight turn to bring the lugs 13 under and against the lower face of said flange. Thereupon the protector element 3 is moved on its pivot to expose the key slot, an appropriate key is inserted into the lock mechanism and the key turned to rotate barrel 9. The member 10 acting as a lever will rotate disc 11 and thereby carry the set of lugs 12 to a position offset from the lugs 13 as for example the position shown in Figure 2. The key is then withdrawn and the cap will be securely held against dislodgment.

For insertion and removal of the lock casing and barrel, particularly when block 7 is cast integrally with body member 1, the body member 1 at its top center may be cut and shouldered to receive a disc plate 23.

It will be understood that various changes may be made in the form and arrangement of the elements illustrated in the drawings without departing from the spirit of the invention. For example, the structure may be formed as in Figure 9. In Figure 9, the cap body is shown at 24 and its depending block 24$x$ is cast integrally with the cap. The block is formed with a central aperture at 25 which merges into an aperture at 25$x$ of greater diameter. Into the aperture 25 is projected a lock casing 26 which has an enlarged head 26$x$ resting upon the horizontal shoulder at the base of aperture 25$x$. A packing ring 27 may be inserted in aperture 25$x$ to hold a packing 27$x$ in contact with the head of the lock casing 26. The rotatable lock barrel which will be used in lock casing 26, and which is not shown, will be connected by screw 28 to a rotatable disc 29 having a lug 30.

Secured to block 24$x$ by screws 32 is a ring 31 which lies below the upper set of locking lugs 33, the screws passing through elongated slots in said lugs which are formed similarly to the lugs 13 of Figure 3. Rotatable below ring 31 is a disc 34 held in position by a ring 35, which fits within an annular channel formed centrally of ring 34 and which is secured to ring 31 by screws 36. The rotatable lock disc 29 and lug 30 are cleared by annular centrally disposed apertures in ring 31 and disc 35.

Abutting the lower face of ring 34 are the two lower locking lugs 37 which are formed with elongated slots to receive screws 38. The lugs are held in position by a lowermost plate 39 through which screws 38 pass. Plate 39 is formed with an axial channel or depression into which lug 30 projects.

When lug 30 is rotated by the lock mechanism it will engage the wall of the channel and impart a rotation to plate 39 and ring 34 carried thereby, this rotation bodily moving the lower set of locking lugs 37 as in the case of the structure shown in Figure 8, and the structure in general respects, may be similar to Figure 8. Hence, a resilient packing ring 40 may surround the block in its upper area and the spring plate 41 may abut the upper face of the packing ring. For adjustment, the screws 32 may be reached through apertures (not shown) formed in ring 34 in positions offset from the apertures for screws 38 in the same manner as the apertures $a$ are offset from the apertures for the screws 14 in Figure 2.

General operation of the cap shown in Figure 9 is the same as that of the preceding figures.

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

1. A closure cap for a receptacle or the like having an opening therein surrounded by an inwardly extending flange provided with spaced interruptions adjacent each inner edge comprising a skirted body member having a key-receiving aperture at its top, a block depending from the cap and surrounding the key aperture, the block being formed with an aperture extending throughout its length, locking mechanism in the aperture of the block and including a key-operated actuating lug, a ring surrounding the block, screws securing the ring to the block, a pair of latching lugs disposed intermediate the block and said ring and having elongated apertures receiving said screws, a rotary plate disposed below the block and engaged by said actuating lug whereby movement of the latter rotates the plate, a second set of latching lugs carried by said plate and having elongated apertures, and screws entering the plate and extended through the elongated apertures of said second set of latching lugs the two sets of lugs being adapted for mutual registration and to be passed through said interruptions.

2. A closure cap for a receptacle or the like having an opening surrounded by an inwardly extending flange provided with spaced interruptions adjacent its inner edge, comprising a body member adapted to fit over said opening, a block depending from the interior wall of the body member and centrally thereof, the body member carrying lock mechanism including an actuating lug, a rotary plate engaged by said actuating lug, a pair of latching lugs held by said plate for movement therewith and a second pair of latching lugs held by the block above the first named pair of latching lugs, both pairs of lugs being normally adapted to be passed through said interruptions when brought into mutual registry, each latching lug being formed with a longitudinally extending aperture, screws carried by the block and holding one set of latching lugs against lateral movement but permitting their longitudinal adjustment, and screws passing through the apertures of the second set of lugs and connecting the same with the rotary plate.

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