

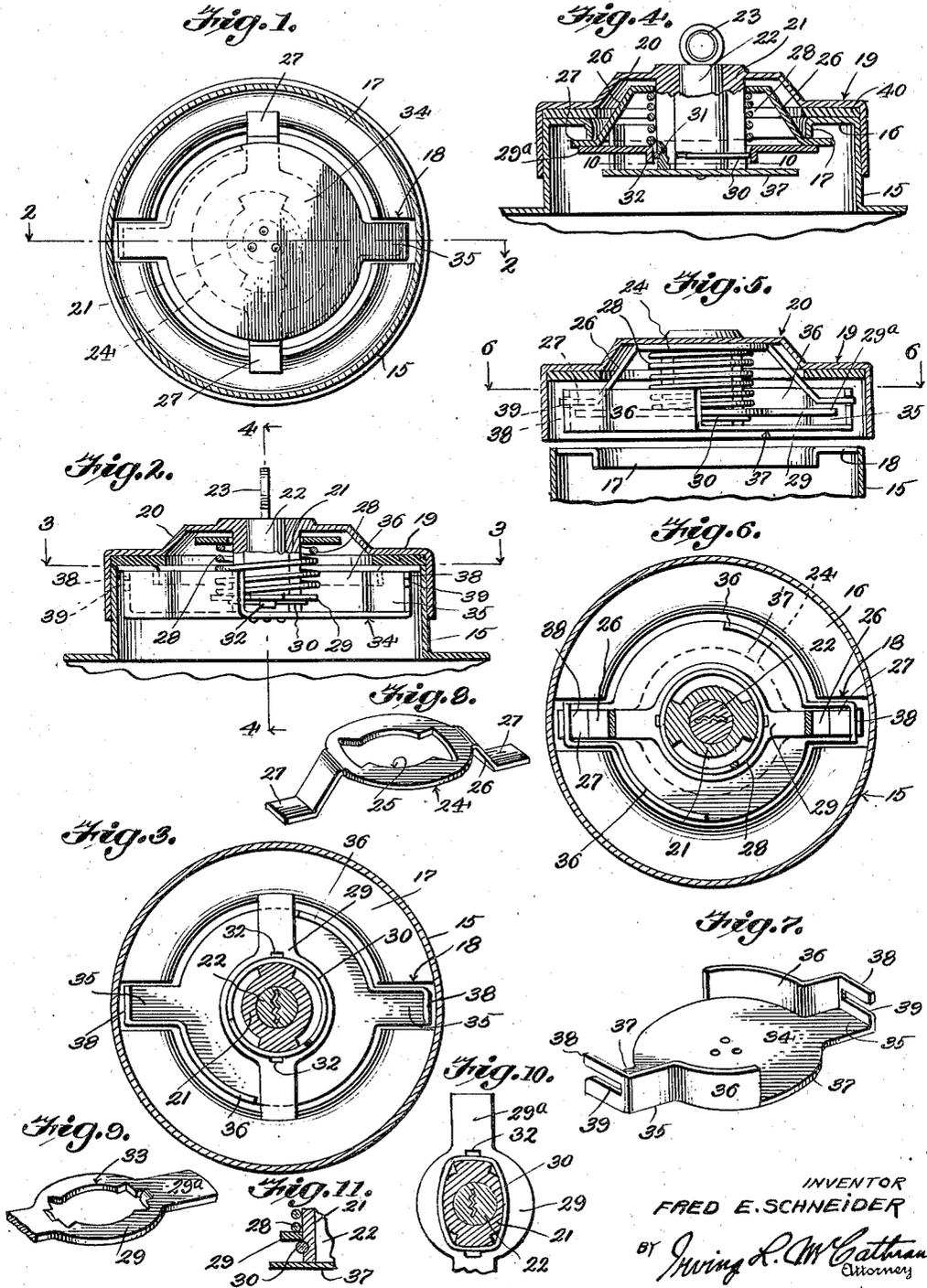
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FUEL TANK LOCK

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## FUEL TANK LOCK

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12 Claims. (Cl. 70—172)

This invention relates to fuel tank locking caps, and has for its object the production of a simple and efficient lock for fuel tanks of automobiles and other vehicles the lock being so constructed as to prevent the removal of the cap by unauthorized parties and thereby prevent the syphoning of gasoline from the tank.

Another object of this invention is the production of a simple and efficient means for securing the cap to the tank and preventing the removal of the cap except by the insertion of an authorized key, and the proper manipulation of the cap upon the neck of the tank.

A further object of this invention is the production of a simple and efficient fuel tank locking cap having an anti-splash plate mounted therein to prevent the splashing of the contents of the tank out through the filling opening.

Other objects and advantages of the present invention will appear throughout the following specification and claims.

In the drawing:—

Figure 1 is a horizontal sectional view through the neck of a tank showing the cap in bottom plan view;

Figure 2 is a transverse sectional view taken on line 2—2 of Figure 1;

Figure 3 is a horizontal sectional view taken on line 3—3 of Figure 2;

Figure 4 is a vertical sectional view taken on line 4—4 of Figure 2;

Figure 5 is a vertical sectional view showing the cap in its removed position;

Figure 6 is a horizontal sectional view taken on line 6—6 of Figure 5;

Figure 7 is a perspective view of the anti-splash plate;

Figure 8 is a detail perspective view of the locking member;

Figure 9 is a detail perspective view of the abutment plate which supports the coil spring upon the barrel carried by the cap;

Figure 10 is a horizontal sectional view taken on line 10—10 of Figure 4; and

Figure 11 is an enlarged vertical sectional view through the lower end of the barrel which is carried by the cap showing the manner of supporting the plate which engages the lower end of the coil spring carried by the barrel.

By referring to the drawing, it will be seen that 15 designates the neck of the tank which may be of any suitable or desired structure, the neck 15 being provided with an inwardly extending flange 16, which flange 16 is provided with a depending annular rib along its inner periphery indicated by

the numeral 17. This flange 16 is provided with notches 18 arranged in diametrically disposed relation for the purpose hereinafter described.

A cap 19 is adapted to fit snugly over the neck 15 and comprises a substantially cup-like structure having an upwardly extending dome 20 which upwardly extending dome 20 is provided with an integral depending barrel 21 (note particularly Figures 2 and 4). Within the barrel 21 is mounted a conventional tumbler lock 22 of any well-known structure, and it should be understood that no attempt is made to illustrate or describe the particular type of barrel lock since any form of barrel lock may be employed to be operated with a suitable key 23 without departing from the spirit 15 of the invention.

A locking member 24 is fitted over the barrel 21, the barrel 21 being shaped to properly fit the irregularly shaped slot 25 and thereby anchor the locking member 24 against independent rotation 20 upon the barrel 21. This locking member 24 is provided with a pair of oppositely arranged downwardly inclined legs 26 which terminate in laterally extending feet 27. This locking member 24 is supported upon a coil spring 28, which coil spring 28 is supported at its lower end by a supporting plate 29 which supporting plate is also shaped to fit the irregular contour of the barrel 21. The plate 29 is anchored against downward movement by means of a wire 30 which is seated 30 in the channel 31 extending around the lower end of the barrel 21, and this wire 30 is held within the channel 31 by means of the depending lugs 32, the lugs 32 preventing the expansion of the wire 30 and preventing the wire from jumping out of 35 the notch or channel 31. The lugs 32 are struck inwardly at a sufficient distance to overhang the sides of the wire 30 and the supporting plate 29 around the periphery of the irregularly shaped aperture 33 rest snugly upon the upper face of 40 the wire 30 (note particularly Figure 11). Through the medium of the spring 28 it will be noted that the locking member 24 is yieldably supported.

The ends of the supporting plate 29 are extended as at 29a to fit under the laterally extending feet 27 and thereby brace these feet when the device is in a locked position.

Secured to the lower end of the cylinder lock 22 is an anchoring plate 34 which constitutes an 50 anti-splash plate. The anchoring plate 34 is riveted or otherwise securely fastened to the lower end of the cylinder lock 22. This anchoring plate 34 is provided with laterally extending substantially diametrically arranged arms 35 and is 55

provided with upwardly extending reinforcing flanges 36 which extend partially around the periphery of the plate 34 providing open portions 37. The flanges 36 extend upon opposite sides 5 of the respective arms 35 and may or may not extend across the respective ends of the arms, as indicated at 38, the portions 38 of the flange may have notches 39 for the purpose of receiving the laterally extending feet 25 of the locking member and holding the locking member 24 and the 10 anchoring plate 34 in nested relation.

The operation of the device is as follows:

The cap 19 is placed upon the neck 15 of the tank in such a position as to extend the arms 35 15 of the locking plate 34 through the notches 18 of the flange 16. It should be noted that in this operation, the laterally extending feet 27 of the locking member 24 are housed within the arms 35. Since the arms 35 extend through the notches 18, the anchoring plate 34 through the 20 medium of the flanges 36 will be held against rotation. By inserting the key 23 into the cylinder lock 22, the cylinder lock 22 will be unlocked from the barrel 21 thereby permitting the barrel 21 to rotate with respect to the cylinder lock 22, 25 at which time the laterally extending feet 27 of the locking member 24 will be moved out of the arms 35 and away from the notches 18 of the flange 16, the spring 28 forcing the locking member 24 upwardly whereby the laterally extending 30 feet 27 will firmly engage the downwardly extending annular rib 17 of the flange 16 and hold the cap 19 against accidental or unauthorized removal. As shown in Figures 2, 4 and 5, a suitable gasket 40 may be employed to rest upon the 35 flange 16.

When it is desired to remove the cap 19, the cap 19 is rotated in a reverse direction to that 40 of locking, and by rotating the cap in a direction to cause the feet 27 to be moved into the arms 35 of the anchoring plate 34 and bringing the feet 27 and the arms 35 into alignment with the notches 18, the cap may be easily lifted outwardly and off the neck 15.

It should be understood that the locking member 24 is movable with the cap 19 when it is rotated, and the cylinder lock is unlocked and the anchoring member 34 is locked against rotation 45 due to the fact that the arms 35 will be held against rotation by fitting in the notches 18 of the flange 16.

Certain detail changes in the mechanical construction, combination and arrangement of parts may be employed without departing from the spirit of the invention so long as such changes 50 fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A locking closure adapted to be applied to a 60 container which has an inturned flange with openings therein, including a locking mechanism, a cap supporting said locking mechanism, said locking mechanism comprising a cylinder mounted within said cap and adapted to be actuated by a key, an anchoring member carried by said cylinder and comprising an anti-splash plate having 65 laterally extending arms, said anchoring member having angularly extending flanges for reinforcing the same, the flanges of the anchoring member having cut-away portions, a locking member carried by said cap and having depending legs, the legs being provided with laterally 70 extending feet adapted to be swung within the cut-away portions of the flanges of said anchoring member, whereby said laterally extending

feet may be moved into and out of engagement with the inwardly turned flange of the container for preventing the unauthorized removal of the cap from the container.

2. A locking closure for a fuel tank which has 5 an inturned flange with openings therein, including a locking mechanism, a cap supporting said locking mechanism, said locking mechanism comprising a cylinder mounted within said cap and adapted to be actuated by a key, an anchoring member carried by said cylinder and comprising 10 an anti-splash plate having laterally extending arms, said anchoring member having flanges for reinforcing the same, the flanges of the anchoring member having cut-away portions, 15 a locking member carried by said cap and having depending legs, the legs being provided with feet adapted to be swung within the cut-away portions of the flanges of said anchoring member and into and out of the arms of said anchoring 20 plate, whereby said feet may be moved into and out of engagement with the inwardly turned flange of the tank for preventing the unauthorized removal of the cap from the neck, and a spring for supporting said locking member for 25 holding the feet of the locking member in firm engagement with the inwardly turned flange of said fuel tank.

3. A locking closure for a fuel tank which has 30 an inturned flange with openings therein, including a locking mechanism, a cap supporting said locking mechanism, said locking mechanism comprising a cylinder mounted within said cap and adapted to be actuated by a key, an anchoring member carried by said cylinder and comprising 35 an anti-splash plate having extending arms, said anchoring member having flanges for reinforcing the same, a locking member carried by said cap and having depending legs adapted to be swung within the said anchoring member and into and out of the arms of said anchoring plate, whereby said locking member may be moved into and out of engagement with the inturned flange 40 of said fuel tank for preventing the unauthorized removal of the cap from the tank, a spring for supporting said locking member for holding it in firm engagement with the inturned flange 45 of said tank, said cap having a barrel for supporting said cylinder over which said spring is fitted, a plate anchored upon the lower end of said barrel and supporting the lower end of said spring, a supporting member engaging said last 50 mentioned plate, the barrel having a channel for receiving the supporting member, and said last mentioned plate having means for retaining said supporting member within said channel. 55

4. A locking closure adapted to be applied to a container which has an inturned flange with an opening therein, including a cap, a yieldable locking member carried by said cap, a lock carried 60 by said cap, said lock being provided with a rotating cylinder adapted to be locked in and out of engagement with said cap, an anchoring member carried by said rotating cylinder and provided with means for fitting in the opening in said 65 flange for anchoring said anchoring member against rotation, said locking member being secured to said cap and movable therewith and provided with means adapted to be brought under the edge of said flange for preventing the unauthorized removal of said cap, and said locking member being adapted to be brought into registering engagement and alignment with said opening in said flange when said lock is unlocked for 70 permitting the removal of said cap. 75

5 5. A locking closure adapted to be applied to a  
container which has an inturned flange with an  
opening therein, including a cap, a locking mem-  
ber carried by said cap and provided with fixed  
10 fingers adapted to extend through said opening  
and adapted to extend under said flange, a lock-  
ing mechanism carried by said cap, said locking  
mechanism comprising a rotating cylinder, an  
anchoring member carried by said cylinder pro-  
15 vided with means to rest within said opening,  
the unlocking of said locking mechanism permit-  
ting the rotation of said cap and said locking  
member into alignment with said opening, where-  
by said cap may be removed.

20 6. A locking closure adapted to be applied to  
a container which has an inturned flange with an  
opening therein, including a locking mechanism,  
a cap supporting said locking mechanism, a ro-  
tating cylinder mounted within said cap and  
25 adapted to be actuated by a key, a member car-  
ried by said cylinder anchoring in said opening,  
and a locking member provided with arms adapt-  
ed to extend under said flange for preventing the  
removal of said cap, and said lock permitting the  
30 rotation of said cap and said locking member for  
the purpose of bringing said locking member into  
alignment with said opening whereby said cap  
may be removed.

35 7. A locking closure adapted to be applied to a  
container which has an inturned flange with an  
opening therein, including a locking mechanism,  
a cap supporting said locking mechanism, a ro-  
tating cylinder mounted within said cap, a mem-  
ber carried by said cylinder anchoring in said  
40 opening, a locking member provided with exten-  
sions adapted to extend under said flange for pre-  
venting the removal of said cap from said neck,  
the unlocking of said locking mechanism merely  
requiring the insertion of the proper key into said  
45 cylinder permitting the rotation of said cap and  
said locking member for the purpose of bringing  
said locking member into alignment with said  
opening whereby said cap may be removed, and  
means for supporting said locking member.

50 8. A locking closure adapted to be applied to a  
container which has an inturned flange with  
openings therein, including a locking mechanism,  
a cap supporting said locking mechanism, said  
locking mechanism comprising a cylinder mount-  
ed within said cap and adapted to be actuated  
55 by a key, an anchoring member carried by said  
cylinder and comprising a disc having extending  
arms adapted to fit in said openings and to en-  
gage the sides thereof for anchoring said cap  
against rotation when said key is removed from  
said cylinder, a locking member carried by said  
60 cap and having extending legs adapted to be  
moved into and out of engagement with the in-  
turned flange for preventing the unauthorized  
removal of the cap.

9. A locking closure adapted to be applied to a  
container which has an inturned flange with  
openings therein, including a locking mechanism,  
a cap supporting said locking mechanism, said  
locking mechanism comprising a cylinder mount-  
ed within said cap and adapted to be actuated  
5 by a key, an anchoring member carried by said cyl-  
inder and comprising a plate provided with ex-  
tending means adapted to enter said openings  
and to engage the sides thereof for anchoring it-  
self against rotation when said key is removed  
10 from said cylinder, a locking member secured to  
said cap and movable therewith, said locking  
member being provided with extending feet  
adapted to be moved under the surface of said  
15 flange for preventing the unauthorized removal  
of said cap, and means for supporting said lock-  
ing member for holding the feet of said locking  
member in firm engagement with the inturned  
flange, the unlocking of said locking mechanism  
20 merely requiring the insertion of said key into  
said cylinder permitting the rotation of said cap  
and said locking member and allowing said lock-  
ing member to be brought into alignment with  
said openings whereby said cap may be removed  
25 and said key need not be turned to unlock said  
locking mechanism and to remove said cap.

10. A locking cap for attachment to filling  
necks of tanks comprising a body having a de-  
30 pending hub, radially extending arms rigidly con-  
nected with the hub for movement under the  
cam flanges of the filling neck, notch-engaging  
fingers movably mounted on the hub, and key-  
operated means for locking said fingers and the  
body against relative movement.

35 11. A locking cap for attachment to filling  
necks of tanks comprising a body having a de-  
pending hub, radially extending arms rigidly con-  
nected with the hub for movement under the cam  
flanges of the filling neck, notch engaging fingers  
40 rotatably mounted on the hub, and key-operated  
means for locking said fingers and the body  
against relative rotation.

45 12. The combination with the filling neck of a  
tank having an annular depending flange with  
notches thereon, of a cap mechanism for said  
neck including a body having an axially disposed  
hub, radially extending locking arms carried on  
said hub non-rotatably thereof and portions of  
50 said arms adapted to pass through said notches  
and movable under said annular depending flange  
upon rotation of said body, radially extending  
fingers rotatably mounted on said hub and adapt-  
ed to engage said notches, and means for locking  
55 said body and said radially extending fingers  
against relative rotation when the arms are under  
the flange of the filling neck and out of align-  
ment with the last-mentioned fingers.

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