Jan. 14, 1941. A. C. DE HOFFMANN 2,228,694

LOCK CAP FOR FILLING OPENINGS

Filed March 18, 1939

FIG. 1.

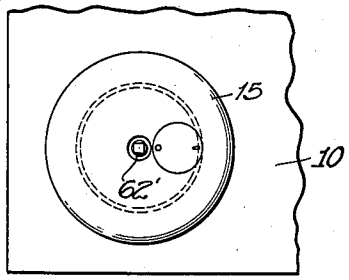


FIG. 2.

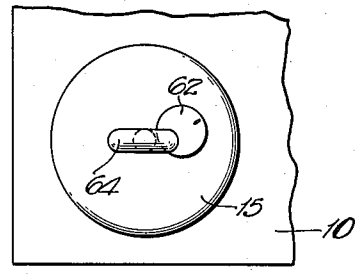


FIG. 3.

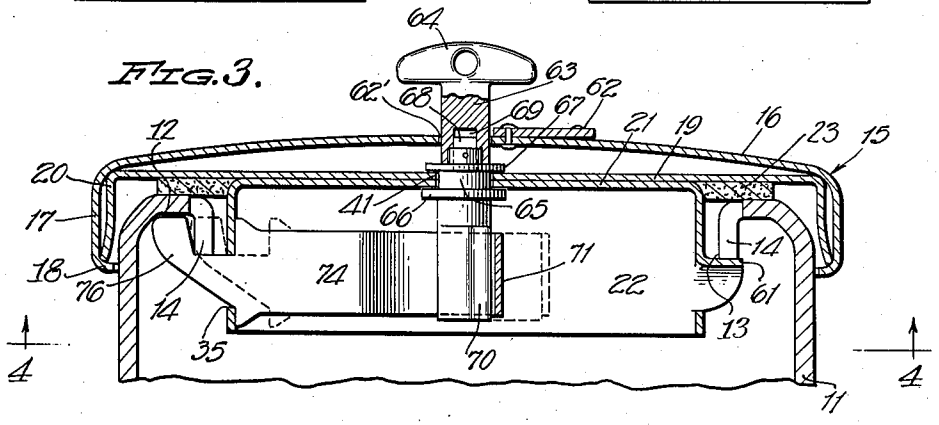


FIG. 4.

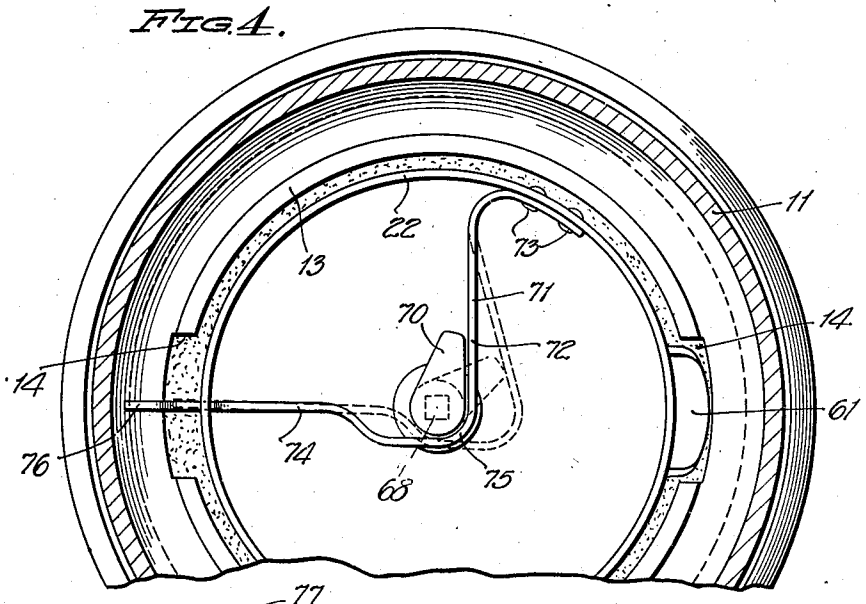
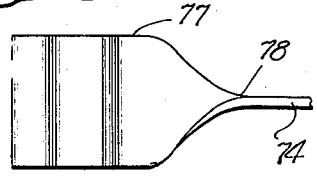


FIG. 5.



WITNESS:

ALEXANDER C. DE HOFFMANN.
INVENTOR.

BY Ely & Pattison.

ATTORNEYS.

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LOCK CAP FOR FILLING OPENINGS

Alexander C. de Hoffmann, New York, N. Y.

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2 Claims. (Cl. 70—173)

This invention relates to improvements in lock caps and more particularly to lock caps for the filling openings of automobile gasoline tanks and/or radiators.

Automobile owners are constantly troubled by the accidental loss, or by deliberate theft of gasoline tank caps and radiator caps. It is therefore the primary object of this invention to provide a lock cap which may only be removed from the filling opening by an authorized person having the proper key.

I am aware that various lock caps have been introduced to the public, but so far as is known to me, they have not been extensively used by automobile owners due to the expensive lock construction embodied therein. It is therefore another important object of this invention to construct a lock cap in which the lock means is of a very simple and inexpensive construction so as not to appreciably increase the cost of the lock cap over the cost of manufacture of the cap alone.

Another important feature of the invention is the provision of a novel form of tubular key with which it is possible to make an unlimited amount of combinations so that the chance of the key of one lock cap opening another lock cap is very remote.

A still further feature of the invention resides in a simple and inexpensive lock construction which may be incorporated in the type of cap construction now in use.

With these and other objects in view, the invention further resides in the novel details of construction, combination and arrangement of parts, the essential features of which are hereinafter fully described in the following specification, are particularly pointed out in the appended claims, and are illustrated in the accompanying drawing, in which:

Figure 1 is a top plan view of a lock cap in locked position upon a filling spout.

Figure 2 is a view similar to Figure 1 but showing the key inserted in the key receiving opening.

Figure 3 is a vertical sectional view of the lock cap showing the lock bolt in locked position in full lines and in unlocked retracted position in dotted lines.

Figure 4 is a horizontal sectional view on the line 4—4 of Figure 3 showing the lock bolt in locked position in full lines and in unlocked position in dotted lines.

Figure 5 is a detail top plan view of a modified form of bolt which may be substituted for that shown in Figures 3 and 4.

Referring to the drawing by reference characters, the numeral 10 designates a fragmentary portion of a tank which may be in the form of a gasoline tank for automobiles, or an automobile radiator. The tank 10 is provided with the usual upstanding filling spout 11 which is circular in plan and the top of the annular side walls of the spout are brought inwardly to provide a horizontal seat portion 12 and a downwardly extending annular flange 13, the same being disposed in spaced relation to the annular wall of the spout 11. The flange 13 is provided with opposed slots or notches 14—14, which notches extend slightly into the horizontal seat 12. This form of spout is conventional and ordinarily, the locking lugs of the ordinary cap are inserted into the slots 14 and the cap turned to its locking position to cause the lugs to engage beneath the flange 13.

The numeral 15 designates a conventional construction of closure cap, but with which my improved locking means is associated. The cap 15 includes an outer shell 16 which is circular in plan, the same being provided with an annular downwardly extending knurled rim flange 17, the peripheral edge of which is bent inwardly as at 18. The outer shell 16 encloses an inner shell 19, the same being provided with a depending rim flange 20 which is engaged by the inwardly turned edge 18 of the outer shell 16. Fixed to the flat top wall of the inner shell 19 by rivets or the like is the top flat wall of an inverted cup shaped member 21, the same having a downwardly extending annular wall or flange 22. A cork sealing ring gasket 23 encircles the inverted cup shaped member 21 and fits flat against the top wall of the inner shell 19.

This construction of cap is at present upon the market and it is to such construction of cap that my invention now to be described is adapted.

The top wall 16 of the cap 15 is provided with a round opening 62' capable of receiving the external diameter of the cylindrical shank 63 of an actuating key 64. Journaled in the opening 41 of the inner shell and top wall of the inverted cup-shaped member 21 is a stub shaft 65, the same having an annular flange 66 which fits against the top wall of the member 21 and a flat washer 67 which is fixed to the stub shaft and engages the outer side of the top of the inner shell 19. The top end of the stub shaft 65 is provided with a hub portion which terminates in a square or other flat sided head 68. The head 68 is received in a correspondingly shaped socket 69 in the key 63, a portion of the key fitting over the hub portion, whereupon a person having the proper key may operatively attach the same to the

stub shaft 65 and manually impart turning movement thereto. The inner end of the stub shaft 65 is provided with a radially extending arm 70 which acts in the capacity of a cam in a manner to be presently explained. The resilient lock bolt is designated in its entirety by the numeral 71 and is substantially right angular shaped in plan to provide a pressable arm 72 which is connected to the flange 22 of the cap by rivets or like fastening elements 73. The arm portion 72 connects with an arm portion 74, the corner connecting these portions being rounded as at 75 and which rounded corner passes about a portion of the stub-shaft 65 when the latch bolt is in extended position. The free end of the arm 74 is provided with a locking head 76 similar in construction to the locking head 50 illustrated in Figure 9 of the drawing. The tension of the resilient locking bolt 71 tends to hold the nose end of the locking head in an extended position through the opening 35 in the flange 22 and to position the arm portion 72 of the bolt in the path of turning movement of the arm 70. Thus by inserting the key 64 through the key opening in the cap, it is possible to impart rotation to the stub shaft 65 which causes the arm 70 to abut the portion 72 of the resilient bolt and which effects a flexing of the resilient bolt to cause the head end 76 thereof to move to a retracted position, whereupon the cap 15 may be rotated to bring the lug 61 and the head 76 into registration with the slots or notches 14—14 of the spout, at which time the cap may be lifted free from the spout.

In Figure 5 of the drawing, I have illustrated a locking head 77 which may be substituted for the head 76 by forming a twist 78 in the arm portion 74. The head 77 is formed from the flat side of the metal in the same manner as the head 76 illustrated in Figures 3 and 4.

In the invention herein disclosed, the locking head end of the resilient bolt is rigid, with the body of the bolt flexible and resilient, the normal resilient spring action of the bolt tending to extend the head end to a locking position. A key is provided for the purpose of flexing the body portion of the bolt to impart retraction of the locking head. Whereas I have shown and described what I consider the preferred embodiment of my invention, such modifications as come within the scope of the appended claims may be resorted to if desired.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A lock cap comprising a cap member having an annular flange depending from the underside thereof, a locking bolt including a flexible resilient angular shaped body having an attaching portion and a lock bolt portion, means securing the attaching portion to said annular flange, a rigid locking head at the free end of the lock bolt portion, the annular flange having a slot therein through which the locking head slidably extends, the resiliency of the angular shaped body tending to extend the locking head to extended locking position, a pair of spaced stop shoulders on said lock bolt portion respectively disposed at opposite sides of the annular flange and engageable therewith to limit sliding movement of the lock bolt portion in opposite directions, and rotatable actuating means engageable with the attaching portion of the angular shaped body to flex the same and cause the locking head to slide to a retracted position.

2. In a locking device, a cap member provided with a flange having a slot therein, a lock bolt including a flexible resilient angularly shaped body defining an attaching portion and a lock bolt portion, means fixedly securing the free end of the attaching portion to said cap member, a rigid locking head at the free end of the lock bolt portion slidably extending through said slot and normally disposed in an extended locking position by the resiliency of said angularly shaped body, a pair of spaced stop shoulders on said locking head respectively disposed at opposite sides of the body member and engageable therewith to limit sliding movement of said locking head in opposite directions, a beveled undersurface on said locking head to cause the same to slide to a retracted position when pressed against the edge of a keeper member, and rotatable actuating means carried by said cap member engageable with the attaching portion of the angularly shaped body to flex the same and cause the locking head to slide inwardly to a retracted position.

ALEXANDER C. DE HOFFMANN.