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S. WISE

2,343,605

LOCK TYPE FUEL TANK FILLING CAP

Original Filed March 11, 1940

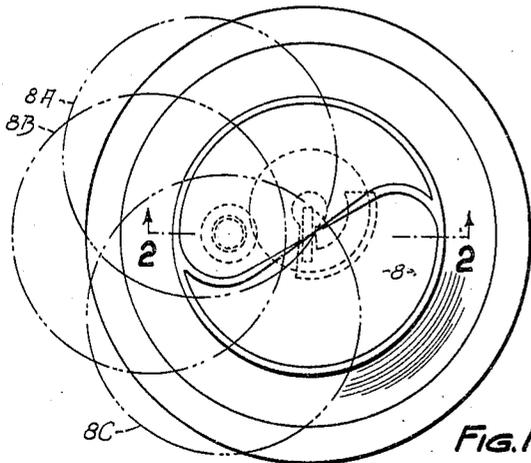


FIG. 1

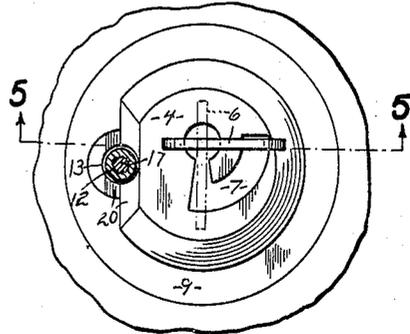


FIG. 3

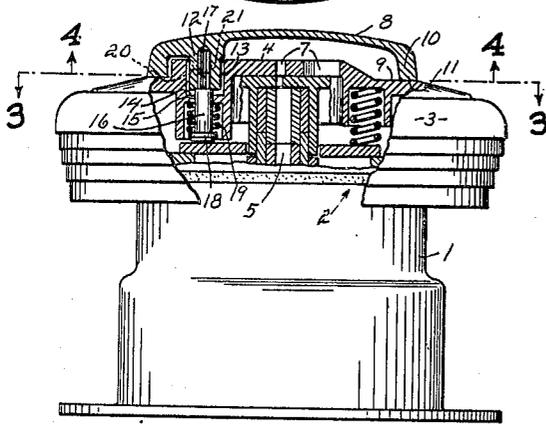


FIG. 2

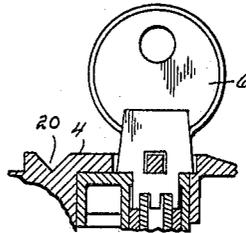


FIG. 5

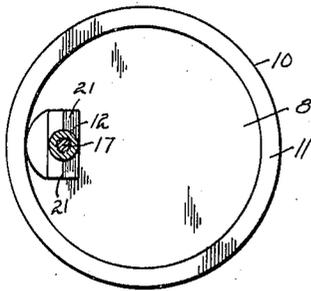


FIG. 4

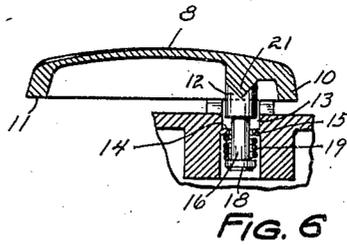


FIG. 6

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LOCK TYPE FUEL TANK FILLING CAP

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Original application March 11, 1940, Serial No. 323,291. Divided and this application October 6, 1941, Serial No. 413,858

3 Claims. (Cl. 70-455)

This invention relates to filling cap devices for closing the filling stems of gasoline or other liquid fuel tanks and to such cap devices as are provided with key-operated locks to prevent their unauthorized removal. Devices of this general class have been proposed illustrative of which is that constituting the subject matter of my co-pending application Serial No. 323,291, filed March 11, 1940, now Patent No. 2,303,594. The lock of such a device is operated by a key inserted into a keyhole and the present invention relates particularly to the cover cap sometimes called "dust cap," provided to normally cover and seal the keyhole against the ingress of dust, water and other foreign matter, but which is removable to give access to the keyhole, and the present application is divisional from the above-mentioned application.

It is among the objects of the present invention:

To provide generally an improved cover cap or dust cap for key-operated filling cap devices;

To provide a cover cap of the type referred to having an improved mode of operation.

Other objects will be apparent to those skilled in the art to which my invention appertains.

My invention is fully disclosed in the following description taken in connection with the accompanying drawing in which,

Fig. 1 is a top plan view of a lock type filling cap device provided with a cover cap embodying my invention and indicating in broken line different positions which the cover cap may take up in operation;

Fig. 2 is a side elevational view with parts broken away and parts in section of the embodiment of Fig. 1, and showing the same associated with the filling stem of a tank or the like;

Fig. 3 is a view taken from the plane 3-3 of Fig. 2 and showing a key in the keyhole of Fig. 2;

Fig. 4 is a view taken from the plane 4-4 of Fig. 2, and showing a part of the cover cap in cross section;

Fig. 5 is a fragmentary view taken from the plane 5-5 of Fig. 3;

Fig. 6 is a fragmentary view similar to a part of Fig. 2 illustrating the cover cap thereof in a different position.

Referring to the drawing, I have shown at 1 a fuel tank filling stem and generally at 2 a lock type closure or cap device for the same. The device 2 itself may be of any preferred construction for example that constituting the principal subject matter of the above mentioned patent application. It comprises a device portion 3 hav-

ing an upper wall 4 under which is a lock mechanism shown generally at 5 which may be operated by a key 6 when inserted through a keyhole or opening 7 in the upper wall 4.

The keyhole or opening 7 is normally sealedly covered by a cover cap 8 which may be pivotally swung laterally to give access to the keyhole 7 and this cover cap will now be described in detail in connection with parts of the device itself with which it cooperates.

The upper outer surface of the device portion 3 has thereon an annular planar sealing surface 9 surrounding the keyhole. The cover cap 8 is, in the preferred construction, in the form of a circular shallow downwardly open cup, the skirt 10 of which terminates in a planar surface 11. When the dust cap is in the sealing or closed position illustrated in Fig. 2, the planar surface 11 of the cover cap sealedly engages the annular surface 9 on the device portion 3. The cap 8 is directly over the keyhole 7 and therefore seals the same against the ingress of dust and dirt, water or the like.

To effect the said seal the said sealing surfaces are resiliently held in engagement with each other by the following means. A cylindrical boss 12 extends downwardly from the under side of the dust cap 8 and projects into a cylindrical recess 13 in the cover 3. The bottom of the recess 13 is closed by a wall 14 having a perforation 15 therein. A pin 16 is projected through the perforation 15 and a reduced diameter shank 17 thereof is press fitted into a corresponding bore in the boss 12 to rigidly connect it to the dust cap. The pin has a head 18 on its lower end and between the head and the bottom 14 of the recess, is a spring 19 surrounding the pin 16 and abutting at opposite ends upon the recess bottom and the pin head, thereby resiliently drawing the pin and the dust cap 8 downwardly to effect said seal. The cylindrical boss 12 in the recess 13 and the pin 16 in the perforation 15 function as a pivotal bearing upon which the dust cap may be turned. This bearing as shown is at one side of the cover cap and laterally of the keyhole 7 whereby the major part of the cap may be pivotally rotated to a position to uncover the keyhole. The cover cap may be rotated in either direction through a complete revolution. Several rotated positions are shown at 8A, 8B, 8C in Fig. 1.

I have found that at the time of turning the dust cap to uncover the keyhole or opening 7, a distinct improvement in the operation thereof results if the sealing face 11 of the cover cap is

concurrently given an axial movement away from the engaged sealing face of the device, and to effect such concurrent movement, the following means is provided.

The upper surface 4 of the cover 3 is provided with an upwardly open groove 20; and preferably the said recess 13 is disposed intermediate the ends of said groove so that the groove is in effect in two aligned parts one on each side of the recess.

The aforesaid boss 12 has projecting from opposite sides thereof, a pair of downwardly convex lugs 21—21 which, when the cap is in the sealed position, lie in the said groove, the lugs clearing the walls of the groove so as not to interfere with the seal on the faces 9 and 11 as indicated in dotted lines in Fig. 2.

When the cap 8 is rotated as described, the lugs move into engagement with the walls of the groove and then ride up outwardly therefrom carrying the dust cap with them. It will be seen therefore that the said lugs and the said groove are in the nature of a cam and cam follower, exerting outward thrust upon rotation of the cap about its pivot bearing.

The outward axial movement of the cap 8 upon rotation thereof through 90 degrees, representing the extreme throw of the cam and cam follower, is illustrated in Fig. 6. As the cap moves outwardly the spring 19 is compressed as will be understood.

Upon rotating the cap back to the keyhole covering position, the said lugs are pulled back into the groove by the spring 19, accurately positioning the cover cap, and the cover cap is moved inwardly by the spring 19 and engages the sealing faces 9 and 11 with an audible snap. Sufficient rotary force applied to the cap compresses the spring, and allows the cap to be rotated; and for convenience in this connection, the cover cap is made of substantial thickness so that its outer side wall provides a substantial area upon which thumb or finger pressure to rotate the cap may be exerted.

When the cover cap has been moved from its sealing position, the tension of the spring 19, holding the cap toward the device portion 3, maintains frictional pressure engagement between the lugs 21—21 and the upper surfaces of the device portion 3 whereby the cover cap is maintained against accidental displacement in any position to which it is rotated.

It will be observed that the cam and cam fol-

lower referred to are covered by the cover cap in all rotated positions of the latter, whereby they are kept clean and free from dust or dirt which otherwise might interfere with the operation thereof.

I claim:

1. In a filling cap device, a body provided with a keyhole, a keyhole cover pivotally connected to the body and pivotally movable to uncover the keyhole, a cam and a cam follower, one on the body and the other on the cover, a spring holding the cover toward the body and yieldable to permit the cam and cam follower to move the cover away from the body upon turning the cover on its pivot connection to uncover the keyhole and the cam and cam follower being disposed so as to be covered by the cover in all rotated positions thereof.

2. In a lock type filling cap device, a body provided with a keyhole, a keyhole cover connected to the body laterally of the keyhole and pivotally and axially movable thereat to uncover the keyhole, a concave cam recess and a convex cam follower one on the body and the other on the cover mutually nested when the cover is in keyhole covering position to predeterminedly position the cover, the recess and cam follower being disposed so as to be covered by the cover in all rotated positions thereof, a spring holding the cover toward the body, the cover and the body having portions sealingly engaged by the spring to seal the keyhole, and the spring being yieldable to permit the cam and recess to relatively move to un-nest them upon turning the cover on its pivot connection to uncover the keyhole, and to cause the cover to move axially on its pivot connection.

3. In a lock type filling cap device, a body provided with a keyhole surrounded by a sealing surface, a generally cup-form keyhole cover having a sealing surface on its skirt engageable with the body sealing surface to seal the keyhole, a connection between the cover and body laterally of the keyhole upon which the cover may move pivotally to uncover the keyhole and axially to disengage said sealing surfaces, a spring yieldably holding the cover toward the body, and cam and cam follower means between the body and cover for moving the cover axially upon pivotal movement thereof the cam and cam follower means being disposed so as to be covered by the cover in all rotated positions thereof.

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