Dec. 6, 1938. A. M. MALLUK 2,138,871

CAP PROTECTOR FOR FUEL TANK OPENINGS

Filed Aug. 11, 1936 2 Sheets-Sheet 1

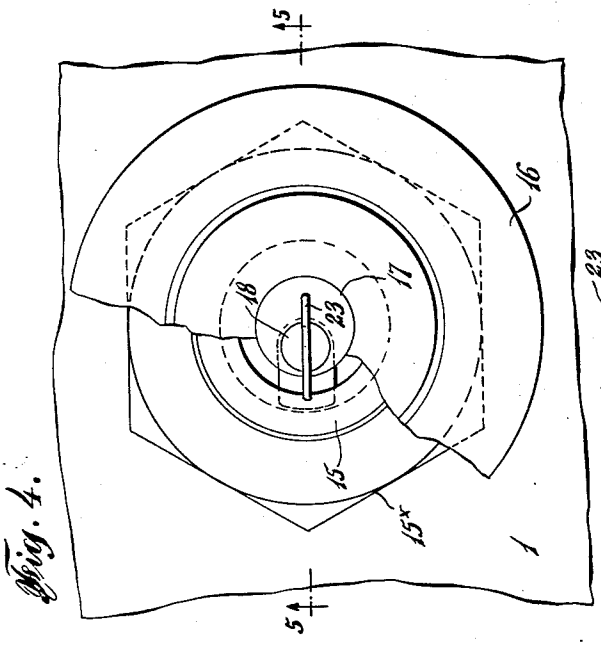


Fig. 4.

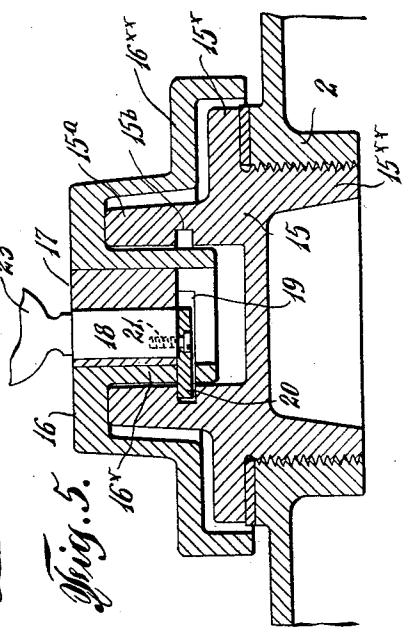


Fig. 5.

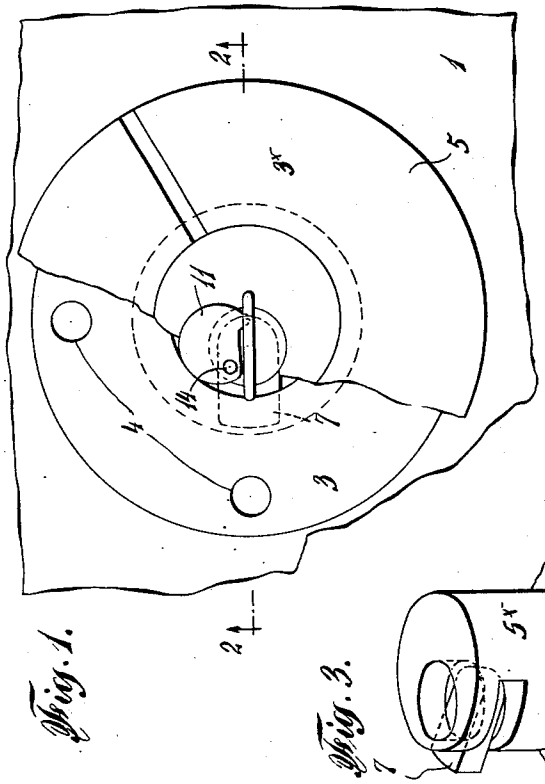


Fig. 1.

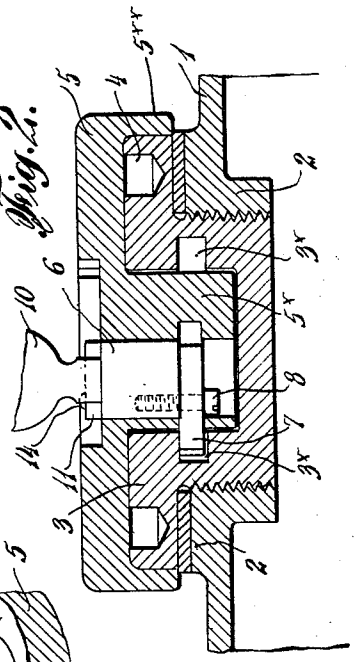


Fig. 2.

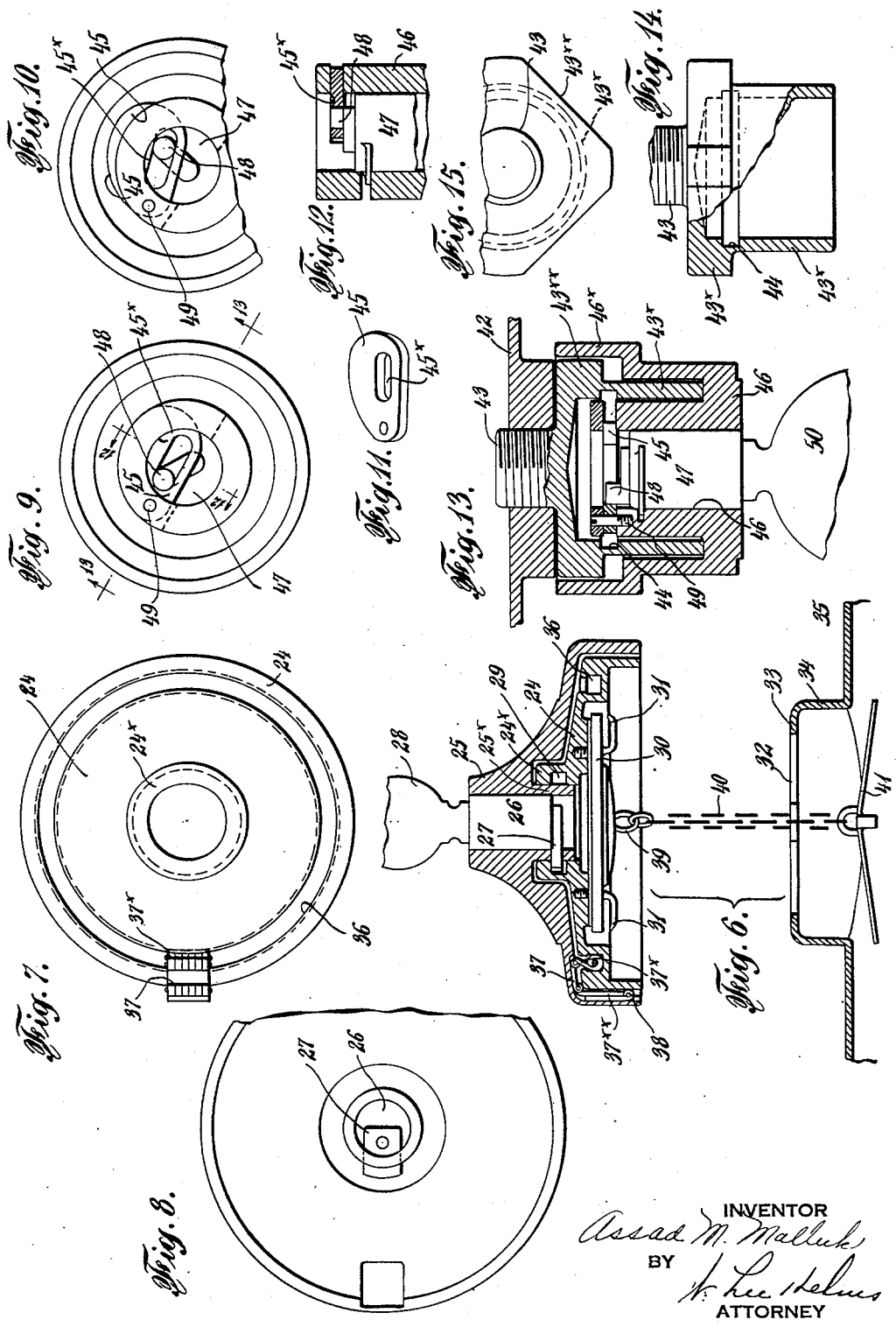
Fig. 3.

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CAP PROTECTOR FOR FUEL TANK OPENINGS

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CAP PROTECTOR FOR FUEL TANK OPENINGS

Assad M. Malluk, New York, N. Y.

Application August 11, 1936, Serial No. 95,315

3 Claims. (Cl. 70—165)

The object of the present invention is to provide a cap protector for fuel tank openings and adaptable for both the filler neck, opening and drain opening such as those customarily used at the base of automobile fuel tanks.

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

Figure 1 is a plan view of an embodiment of the invention, partly broken away.

Figure 2 is a sectional elevation taken on the line 2—2, Figure 1.

Figure 3 is an inverted perspective view of the locking barrel, the locking dog in outward position, showing a fragment of the wall which carries the barrel.

Figure 4 is a view in elevation of a slightly modified form of the device.

Figure 5 is a sectional elevation of the same on the line 5—5, Figure 4.

Figure 6 is a sectional elevation of a further modification of the device.

Figure 7 is a top plan view of the cap member with the over-all protector removed.

Figure 8 is a bottom plan view of the over-all protector employed with the cap member of Figure 7.

Figure 9 is a bottom plan view of the protector shown in Figure 13 with the locking dog retracted.

Figure 10 is a view similar to Figure 9 with the locking dog projected.

Figure 11 is a perspective view of the locking dog.

Figure 12 is a vertical section on the line 12—12, Figure 10.

Figure 13 is a vertical sectional view of a form of the invention for application to the drain plug of a tank, and for other uses.

Figure 14 is a view in elevation partly broken away, of the drain plug shown in Figure 13.

Figure 15 is a fragmentary plan view of the drain plug.

Referring to the drawings, I have shown in Figures 1 to 4 inclusive at 1, a fragment of the upper wall of a liquid containing tank having a threaded filling neck 2. Screwed into neck 2, in Figures 1 and 2, is an annular closure cap 3 which, in the embodiment illustrated, is formed with a plurality of prong-wrench holes at 4 by which the cap may conveniently be applied and removed. The periphery of the cap however, may be square or otherwise formed with angularly extending edges to receive an ordinary wrench, as in the caps of Figs. 4 and 15. Also, the threads may be substituted by slots in a horizontal annular flange carried by the neck and lugs formed on the cap to enter and be turned by the cap laterally of the slots, as in the cap of Figure 6, this being well known in the art.

The cap 3 is formed with an axial annular chamber, the wall of which is formed with a lateral annular groove at 3x. Within the chamber is received the depending annular neck 5x of the over-all protector 5, the latter having a downwardly extending peripheral flange 5xx which covers the side area of the cap 3.

Depending neck 5x is formed with an eccentric vertical aperture to receive a rotary barrel member 6. Within a horizontal slot in member 6 is a locking dog 7 held by screw 8 eccentrically threaded in barrel 6. When the barrel is rotated, as by key 10, the dog may be projected into annular groove 3x of cap 3, and a reverse rotation will retract the dog, thus freeing the over-all protector from the cap. Rotation of the cap is prevented since it is completely covered by the over-all protector 5, and rotation of the protector merely causes idle movement of dog 7 in annular groove 3x.

A pivoted cover 11 for the key slot of barrel 6 may be provided, a pivot stud 14 for the cover 11 holding the latter in position.

In the structure of Figures 4 and 5, the cap 15 is formed with an hexagonal flange 15x above its exteriorly threaded base ring 15xx. The cap is also formed with an upwardly projected hollow neck 15a, formed with an inner annular groove at 15b. Within the neck is received the depending hollow neck 16x of the over-all protector 16 which is formed with a peripheral downwardly directed stepped rim 16xx completely covering the exposed surfaces of the cap.

Within the hollow neck 16x is secured a barrel-housing 17 in which is rotatably held lock barrel 18. Neck 16x is also formed with a horizontal slot at 19 to receive a locking dog 20 secured to barrel 18 by screw stud 21, the stud being eccentrically carried by barrel 18 so that rotation of the barrel, as by key 23, moves dog 20 into annular groove 15b or out of the groove.

The characteristic of the modification shown in Figures 6 to 8 inclusive, is that the over-all protector is rotatively hinged to the cap, the latter carrying lips to enter key slots in the horizontal inwardly projected flange of a filling neck of present general use, rotation of the cap causing the lips to be moved under the flange for frictionally holding the cap. The cap 24 of said figures is formed with a short axial hollow neck 24x to receive the annular depending extension

25x of the over-all protector 25, the latter rotatably holding lock barrel 26.

Carried at the lower end of the barrel 26 and eccentrically thereof, is a locking dog 27 which is normally seated in an aperture formed in neck 25x and which may be projected through the aperture (by operation of key 28) into annular groove 29 formed in cap 24.

Suitably secured to the undersurface of cap 24 is a plug member 30 which carries spaced lips 31 adapted to enter openings such as opening 32 formed in the flange 33 of the filling neck 34 at the top of the tank 35, rotation of the cap causing the lips to pass under and be frictionally held by the lower wall of the flange.

An annular groove at 36 is formed in the cap member 24 and in the groove is disposed the lower unit 37x of hinge 37, the latter having a leg 37xx pivoted at 38 to protector 25. After the hinge unit 37x is placed in groove 36x an upper wall thereof may be slightly upset inwardly so as to hold the hinge in place and yet permit rotation of the cap. When the key 28 is operated to retract dog 27, the over-all protector may be lifted and then swung over upon its hinge thus exposing the cap for removal.

If desired, plug 30 may carry a depending eye 39 connected to a chain 40 passing through the filler neck opening and connected to a retaining device 41.

In the construction of Figures 9 to 15 inclusive, the device is particularly adapted for closing the drain opening of the tank. The bottom wall of the tank is indicated at 42 and screwed therein is the threaded plug 43 from which depends the hollow neck 43x and immediately below the plug is a wall section 43xx adapted to receive a wrench and therefore formed with the angular sides shown in Figure 15. The inner wall of neck 43x is formed with an annular groove at 44 to receive a locking dog 45 carried by the over-all protector 46. The protector is formed with an annular recess adapted to receive the hollow neck 43x of the cap and with a skirt 46x which covers the wrench receiving wall 42x of the cap. Axially mounted within the protector is the lock barrel 47 having at its inner end the eccentric stud 48 which enters slot 45x in dog 45, the latter being seated in a transverse opening formed in the inner wall section of the over-all protector 46 and pivoted to said wall by pivot stud 49. When key 50 is operated, the barrel will be turned to cause the eccentric stud to move the dog 45 into annular groove 44 of the plug. Thereupon the plug will be protected inasmuch as rotation of the protector will merely cause the dog to move idly in annular groove 44.

While the over-all protector is particularly adapted for the closure caps for fuel tank openings such as the filling and drain openings, it is adaptable for protecting closures for a very wide range of cap or plug closed openings in various kinds of receptacles and the like.

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

1. A closure member for openings such as tank openings and comprising a cap area and a neck area projected therefrom, the neck area being formed with an annular channel, of an over-all protector comprising a lock element receiving chamber and a skirt adapted to conceal the closure member, a locking member carried by the protector, means in said chamber of the protector for operating the lock member for projection into and out of engagement with said annular shoulder of the closure member, and a hinge connection between the closure member and the protector permitting free rotation of the latter.

2. A closure member for openings, means to fasten said member to a wall of a receptacle, an annular groove in said closure member, an over-all protector adapted to cover and rotate on said closure member, means to lock said protector to said closure member, and a hinge connection between said closure member and said protector which is situated under cover of said protector and free to rotate with said protector.

3. A closure member for openings, means to fasten said member to a wall of a receptacle, an annular groove in said closure member, an over-all protector adapted to cover and rotate on said closure member, means to lock said protector to said closure member, and a hinge device operatively associated with said closure member and said protector, said hinge device comprising a leg hinged to said protector, a hinge unit moveably held in said closure member and a hinge element interconnecting both said leg and hinge unit.

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