July 20, 1954 J. LEHR 2,684,176

CLOSURE FOR GAS TANKS AND THE LIKE

Filed March 8, 1951

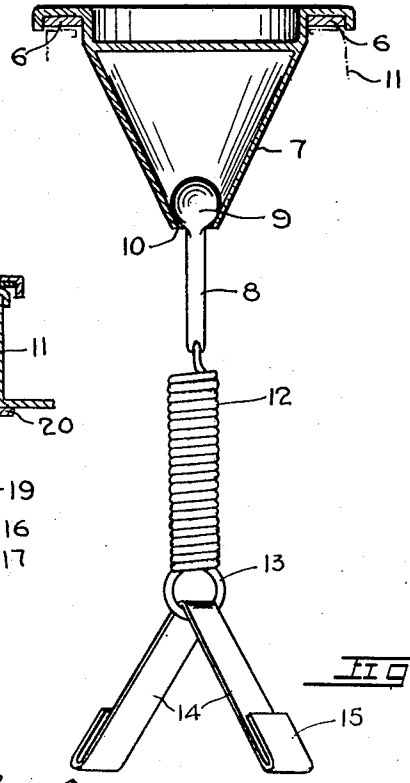


Fig 1

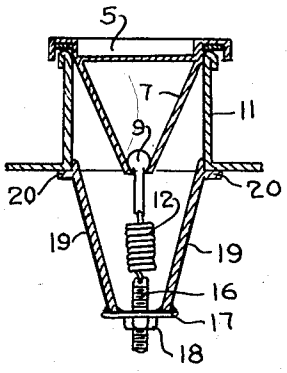


Fig 3

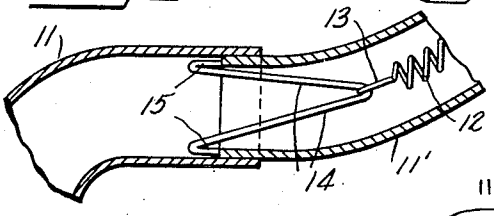


Fig 2a

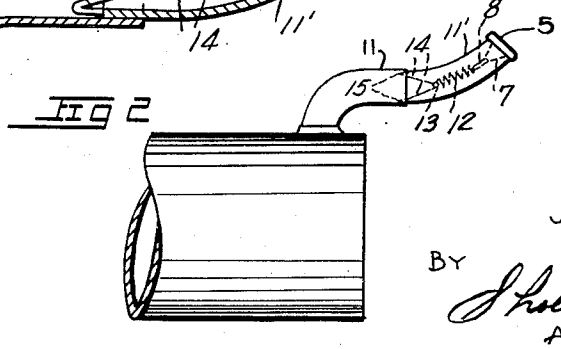


Fig 2

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CLOSURE FOR GAS TANKS AND THE LIKE

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2 Claims. (Cl. 220—38.5)

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This invention relates to caps for closing gasoline tanks, radiators and the like and more particularly to the provision of a self closing cap which, due to its construction is directed exactly as it would normally sit, had it been closed by hand, but for which I provide a self closing means associated with the cap which make it impossible to forget the cap and leave the container on which it is used exposed to catch dirt and any impurities floating in the air.

Broadly, the invention comprises a cap of somewhat conventional design formed with a cone, securely welded or integrally formed with the central portion of the cap per se, and adapted to fit within the neck of the pipe leading to the opening. Within the open neck of the cone, I mount a swivel comprising a sphere formed at the extremity of a rod and I attach a spring through an aperture formed at the lower extremity of said rod.

To secure the device to the pipe leading to the opening of the tank, I provide a strip of thin flexible spring steel which straddles a loop formed at one of the extremities of the spring. Each end of said strip is bent back on itself to engage the inner end of the extension of the filling neck as shown in Figure 2 of the accompanying drawing.

It is therefore the main object of the invention to provide a self closing cap for gas tank or the like. Another object is to provide a swivel joint on the cap so that same may be used on curved neck as well as straight neck tanks.

With these and other objects in view that may appear as the description proceeds the invention consists in the novel arrangements of co-operating elements as hereinafter more specifically set forth, claimed and shown in the accompanying drawing forming part of this application, and in which:

Fig. 1 is a front elevational view of the device with the cap shown in section.

Fig. 2 is a fragmental view of a tank and indicating by dotted lines the position of my invention when mounted in the neck of the tank.

Fig. 2ª is a fragmentary sectional view upon an enlarged scale showing the manner in which the spring securing member of Fig. 1 is held in place within the filling neck.

Fig. 3 is a modified form of the invention.

Referring more in detai to the drawing in which similar reference characters designate corresponding parts throughout the three views, it will be seen the invention comprises a gas tank cap 5 of substantially conventional construction having a gasket 6 mounted in the lip thereof and a cone 7 welded or integrally formed with said cap.

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A swivel joint is provided in the form of a rod 8 and ball or sphere 9 mounted within the open end 10 of the cone to allow the device to be used on a straight or curved neck 11 as shown in Figure 2 of the accompanying drawing.

The lower extremity of the rod 8 is formed with an aperture so that a coil spring 12 may be attached thereto for the purpose of securing the device within the neck of the tank.

A loop 13 is formed to the other extremity of the spring and a thin flexible strip 14 of spring steel passes through said loop 13. Each extremity 15 of the strip is bent back on itself to engage the extension 11' of the filling neck 11 of the tank as set forth.

In operation the device is hooked by means of the bent back portions 15 to the inner end edge of the extension 11' of the neck of the tank 11 leading to the opening thereof while the cap 5 sits on said opening. The coil spring 12 is prearranged to provide just sufficient tension to maintain the cap on the opening. When it becomes necessary to fill the tank, the cap 5 is lifted until the filler nozzle is inserted into the neck. When the tank is filled, the simple removal of the nozzle will cause the cap to fall back in its place and seal the tank against dirt, mud, snow or the like.

In Figure 3 of the drawing I illustrate a modified form of the invention whereby I provide a device which is readily adaptable to radiators, tractor gas tanks, oil cans and the like where there is no pipe to secure a device such as illustrated in Figure 1 of the accompanying drawing.

The modified form comprises, in addition to the cap 5, cone 7 and corresponding elements including a spring 12, of a threaded rod 16 mounted at the lower extremity of the spring 12, a disc 17 threadably engaged to said rod 16 and a nut 18 for locking said plate in any desired position along rod 16. A plurality of upwardly extending arms 19 are securely welded to plate 17 at spaced apart intervals and are formed at their upper extremity with horizontal extensions 20 by means of which the device is held in position at the mouth of the article on which it is used. Although a short neck 11 is shown, it is conceivable that such an arrangement could be used whether there be a neck or not. The adjustment provided by the threaded rod 16 is sufficient to retract the cone cap in line with the opening in a tank or the like constructed without a neck.

Thus a cap constructed in accordance with my invention cannot become lost nor can the tank on which it is used be inadvertently left open. This cap may be ventilated as are present day

caps, that is, by a small breather hole through a wall of the cone and the top wall.

While the preferred embodiment has been disclosed it is understood that minor changes may be resorted to within the scope of the invention.

I claim:

1. A closure of the character described comprising a cap having a depressed portion surrounded by a circumferentially extending recess in the under face of the cap, a gasket seated in said recess, a cone mounted about the margin of said depressed portion and extending downwardly therefrom and at its lower end formed with an opening, a rod extending downwardly from the open lower end of said cone and at its upper end having a substantially spherical head located within the cone and constituting a swiveled connection between the cone and the rod, the lower end of the rod being formed with an opening, a spring under said rod having its upper end loosely mounted through the opening in the rod, a bolt loosely connected with the lower end of said spring, a yoke consisting of a disc and diverging arms extending upwardly from the disc and having abutments at their upper ends for centering the yoke under a filling opening, said disc being formed with a central opening through which the bolt passes, and a nut screwed upon the bolt from the lower end thereof and engaging the under face of the disc and exerting downward pull upon the bolt to tension the spring and yieldably hold the cap in a closed position.

2. A closure of the character described comprising a cap, a hollow conical member mounted concentric with the under surface of said cap

and open at its lower end, a rod of appreciably less diameter than the opening extending downwardly from the lower end of said cone and at its upper end formed with a substantially spherical head disposed loosely in the lower portion of the cone and constituting a swiveled connection between the rod and the cone, said rod having an opening therein, a spring under said rod having its upper end loosely mounted through the opening in said rod, a bolt loosely connected with and extending downwardly from the lower end of said spring, a disc about said bolt, arms extending upwardly from said disc and having fingers at their upper ends, and a nut screwed upon said bolt from the lower end thereof and engaging the under surface of the disc.

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