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U. T. WALKER

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PIPE COUPLING

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Fig. 1.

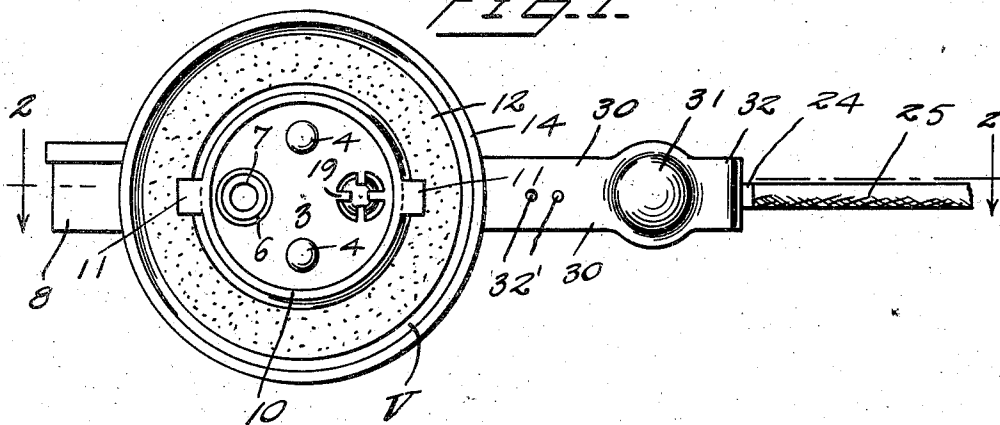
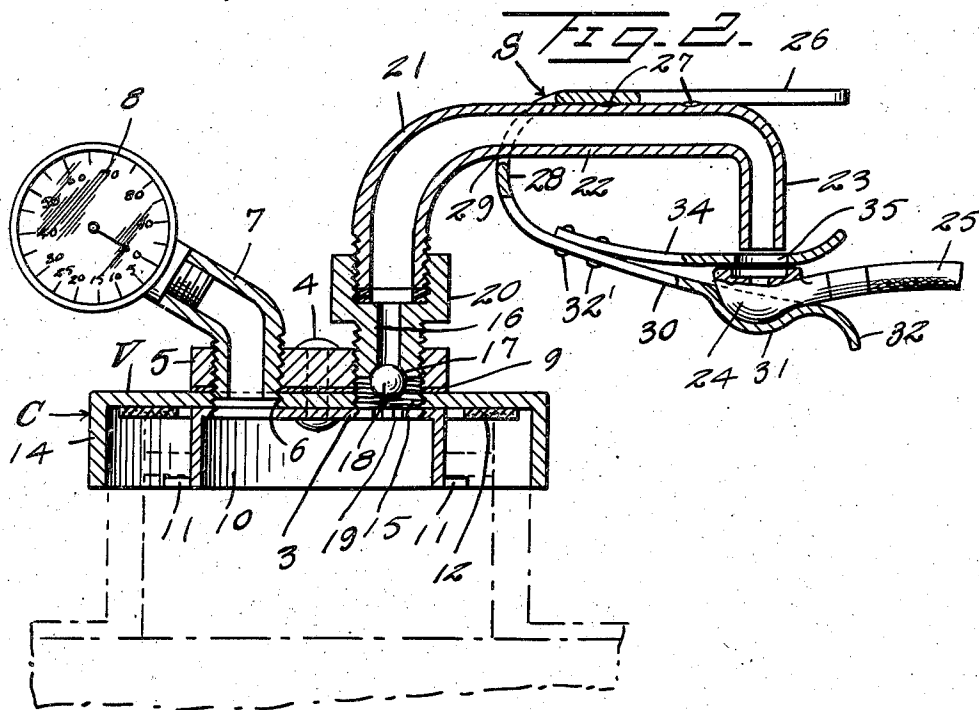


Fig. 2.



Inventor

Uel T. Walker

By *Walter E. Brown*
Attorney

UNITED STATES PATENT OFFICE

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PIPE COUPLING

Uel T. Walker, Hollywood, Fla.

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5 Claims. (Cl. 285-108)

1 This invention relates to a cap for fuel tanks or the like, such as employed in connection with gasoline and Diesel oil, and it is an object of the invention to provide a cap of this kind provided with means whereby clogged and dirty tanks can be readily cleaned.

It is also an object of the invention to provide a cap of this kind provided with means whereby the same may be coupled with a source of air under pressure and in a manner to permit said air to be discharged within the tank through the cap for cleaning the tank.

An additional object of the invention is to provide a device of this kind having a check-controlled port for communication with a source of air under pressure, together with means for effectively maintaining the desired connection or coupling of the cap with such source.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved cap for fuel tanks or the like whereby certain important advantages are attained, as will be hereinafter more fully set forth.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a view in bottom plan of a cap for a fuel tank or the like constructed in accordance with an embodiment of the invention; and

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1.

In the embodiment of the invention as illustrated in the accompanying drawings, C denotes the cap body which fits in a well known manner over the usual upstanding neck 1 surrounding the filling opening of a tank T for gasoline or Diesel oil.

The central portion of the head plate 2 of the cap body C has clamped to the inner face thereof a lug base plate 3 which is held in position by the rivets 4, herein disclosed as two in number and diametrically opposed. These rivets 4 are also disposed through a relatively heavy circular plate 5 whereby the base plate 3 and the plate 5 are maintained in position by the rivets 4.

The plates 3 and 5 and the head plate 2 on one side of their centers are provided therethrough with an opening 6 into which threads from above a short bent pipe 7 and suitably coupled with the outer portion of this pipe 7 is a pressure gauge 8 or safety valve for determining the proper application of the air pressure injected into the tank.

It has been found of advantage to interpose be-

2 tween the plates 2 and 5 a gasket 9 or to provide other means, such as solder, welding or brazing, to prevent leakage between such plates. It is also desirable to solder, weld or braze over the heads of the rivets 4 to prevent leakage.

The marginal portion of the base plate 3 is provided with the defining flange 10 provided at its outer or free marginal portion with the outstanding holding lugs 11 for coaction in a well known manner with the neck 1 for holding the cap C in applied position.

The marginal portion of the head plate 2 of the cap C has disposed over its under surface a surrounding washer 12 which is positioned between the flange 10 and the peripheral flange 14 of the cap C. This flange 14 has contact with the outer end of the neck 1 of the tank to assure an air-tight seal when the cap is applied.

It is believed to be obvious, and without requiring illustration, that if desired the base plate 3, together with the plate 5, may be integral with the plate 2 of the cap C.

The plates 2, 3 and 5 at the opposite side of the center from the opening 6 are provided therethrough with a second opening 15 into which threads from above a tubular shank 16, the lower edge of which has its inner marginal portion suitably formed to provide a seat 17 for the ball valve 18 positioned therebelow and which ball valve 18 coacts with the seat 17 to prevent retrograde flow out through the shank 16.

The opening or downward movement of the ball valve 18 is limited by the lugs 19 carried by the base plate 3 and extending inwardly of the opening 15. These lugs or their equivalent form no hindrance or obstruction to the desired flow of air through the cap C and into the tank T upon which the cap may be applied.

The outer portion of the tubular shank 16 is formed to provide a cup-like head 20 into which threads the outer end portion of an arcuate extremity 21 of a tubular member or pipe 22. The opposite end portion of the pipe 22 is continued by a laterally disposed extension 23 substantially at right angles to the axis of the pipe 22 and which is adapted to have coaction with a conventional type of nozzle head 24 carried by a flexible hose 25 leading from a suitable source of air under pressure, such as is generally to be found at filling stations.

When this head 24 is tightly braced against the outer end of the extension 23, the usual valve within the head will open and thus permit air under pressure to pass into the tank T to which the cap C is applied and the amount of pressure

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within the tank T can be readily determined by the gauge 8.

Resting from above on the member or pipe 22 is an end portion 26 of an elongated resilient strip S of steel or other desired material. This end portion 26 is spot-welded, as at 27, or otherwise securely attached to the member or pipe 22.

The inner end of the portion 26 is continued by a downwardly curved portion 28 provided with an elongated slot 29 through which the member or pipe 22 is disposed and this curved portion 28 is continued by a downwardly and outwardly inclined portion 30, the outer extremity of which is formed to provide an upwardly facing pocket 31 in which is snugly received the nozzle head 24 hereinbefore referred to. The strip S outwardly of this pocket 31 is flared, as at 32, in a manner to facilitate the placement of the head 24 within the pocket 31.

Riveted, as at 32', or otherwise anchored to the upper face of the portion 30 of the strip S and inwardly of the extension 23 is an end portion of a supplemental spring strip 34 of steel or other suitable material. This strip 34 is of a length to extend beyond the extension 23 and is provided with a suitably positioned opening 35 through which the free extremity of the extension 23 passes when the portion 30 of the strip S has requisite pressure imposed thereon to bring the nozzle head 24 into proper engagement with the outer or free end of the extension 33. This spring strip 34 provides means for effectively maintaining the nozzle head 24 in the pocket 31 and particularly during the squeezing operation, for bringing said head 24 into proper engagement with the extension 33.

When it is desired to deliver air under pressure within the tank, the head 24 is placed within the pocket 31 of the portion 30 of the strip S, which also may be termed an adapter, and the member or pipe 22 and the portion 30 is grasped by a hand so that the required pressure may be created for maintaining the head 24 in requisite contact with the extension 33.

It is to be pointed out that the slot 29 hereinbefore referred to serves to lessen the tension of the portion 30, whereby is materially reduced the required pressure to be exerted upon the portion 30 to bring the nozzle head 24 into working engagement with the extension 33.

From the foregoing description it is thought to be obvious that a cap for fuel tanks or the like constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated.

I claim:

1. A cap for the filling opening of a fuel tank or the like, said cap including a head plate having an opening therethrough, a tubular member connected at one end with said opening for communication through the cap with the interior of the tank, the outer end of the tubular member being angled to open downwardly when the cap is in applied position, means carried by the tubular member and having spaced relation with the said outer end of such member for supporting a fluid delivery nozzle in spaced relation with the adjacent end of the tubular member, and said nozzle supporting means being resilient and when flexed toward the adjacent end of the tubular member functioning to shift a supported nozzle

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to position against the end of the tubular member.

2. A cap for the filling opening of a fuel tank or the like, said cap including a head plate having an opening therethrough, a tube connected at one end with said opening for the introduction of a fluid through the opening into a tank, the outer end of said tube being arranged to be directed downwardly when the cap is in applied position, a resilient arm carried by the tube and having a terminal portion formed to provide a pocket, the pocket being designed to receive the delivery nozzle of a fluid delivery tube, said pocket being directed toward and in spaced relation with the said other end of the first tube to support the nozzle in spaced relation with said other end of the first tube, and resilient means carried by the resilient arm and arranged to maintain a nozzle in position in said pocket.

3. A cap for the filling opening of a fuel tank or the like as described in claim 2, wherein the said resilient means comprises a relatively long strip of material secured at one end to said arm and being interposed adjacent to its other end between the said other end of the first tube and the pocket, said strip of material having an opening therethrough which is axially aligned with the adjacent tube end.

4. A cap for the filling opening of a fuel tank or the like, said cap including a head plate having an opening therethrough, a tubular member coupled to the head plate for discharge through the opening in the head plate, and means carried by the outer portion of the tubular member for supporting a delivery nozzle in position for movement toward and into engagement with the outer end of the tubular member, comprising a resilient arm carried by the tubular member and having a pocket opposed to the outer end of the tubular member, said pocket receiving the nozzle head.

5. A cap for the filling opening of a fuel tank or the like, said cap including a head plate having an opening therethrough, a tubular member coupled to the head plate for discharge through the opening in the head plate, and means carried by the outer portion of the tubular member for supporting a delivery nozzle in position for movement toward and into engagement with the outer end of the tubular member, comprising a resilient arm carried by the tubular member and having a pocket opposed to the outer end of the tubular member, said pocket receiving the nozzle head, and means carried by said resilient arm for holding the nozzle head in the pocket when said nozzle head is free of contact with the outer end of the tubular member.

UEL T. WALKER.

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