Nov. 29, 1927. 1,651,168

H. N. VICKERMAN

FILLER CAP FOR STORAGE TANKS

Filed March 4, 1927

Fig. 1.

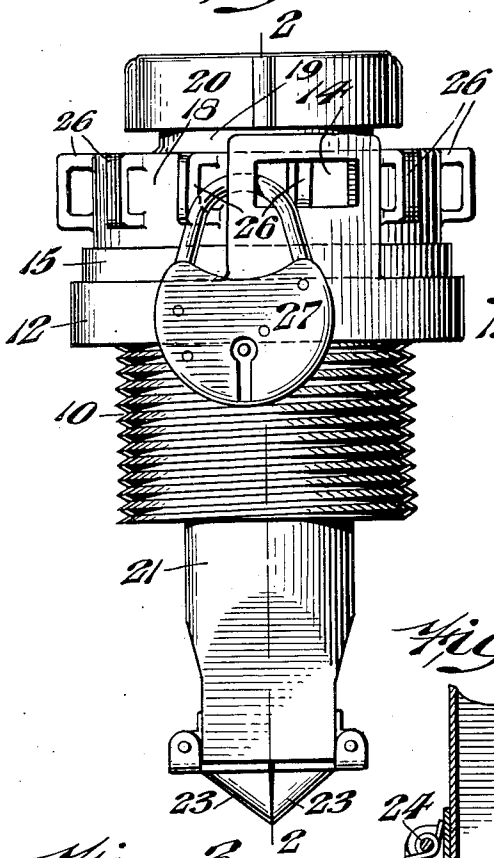


Fig. 2.

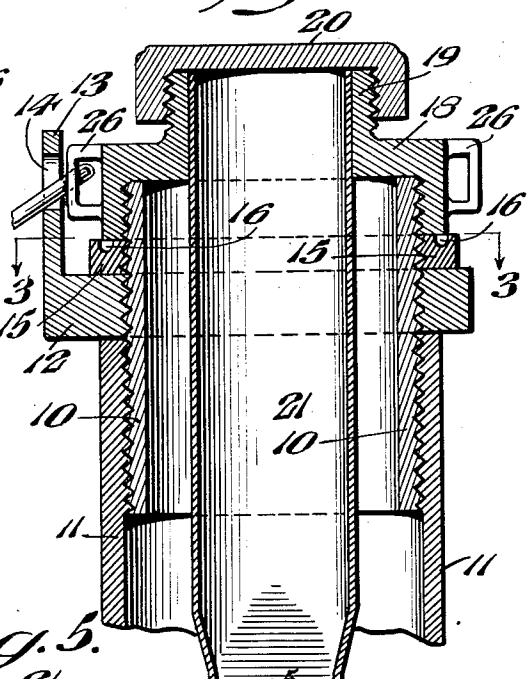


Fig. 5.

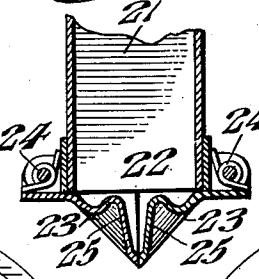


Fig. 4.

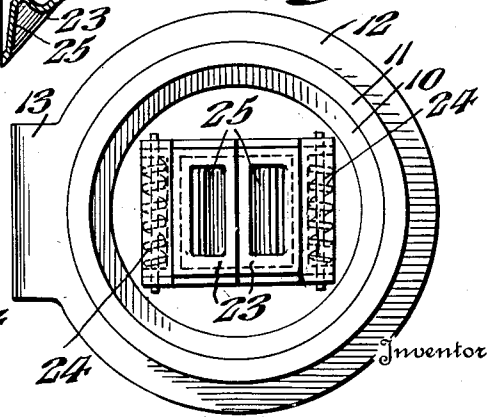


Fig. 3.

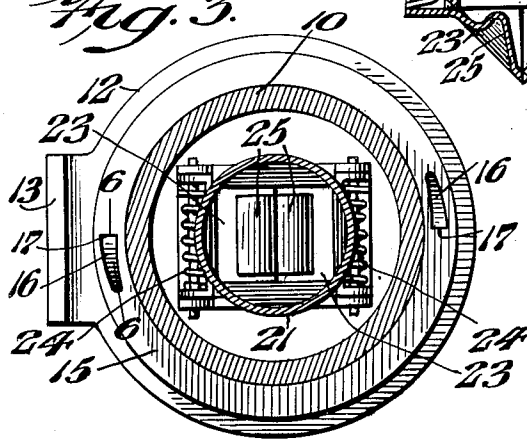


Fig. 6.



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UNITED STATES PATENT OFFICE.

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FILLER CAP FOR STORAGE TANKS.

Application filed March 4, 1927. Serial No. 172,675.

The present invention relates to closures, and more particularly a cap for the filling pipe of a liquid storage tank.

In underground tanks for the storage of gasoline, oil and other liquids, it is desirable to prevent such tanks from being filled with other than the genuine product which the tank is supposed to hold. In the merchandising of gasoline as well as other liquid products it is possible for unscrupulous dealers to refill their supply tanks with an inferior product which is then sold as and for the same price as the genuine product which the tank is supposed to contain. Some of the objects of the present invention are to provide an improved closure for the filling pipe of a liquid storage tank; to provide a filling cap construction whereby the contents of the storage tank can be measured at will but can only be refilled by an authorized agent; to provide means for preventing the refilling of a gasoline or oil tank with anything but the gasoline or oil which the tank is advertised to contain; to provide means for locking the closure parts of a filling pipe to such pipe to prevent removal thereof; and to provide other improvements as will hereinafter appear.

In the accompanying drawings Fig. 1 represents a side elevation of a filling cap structure embodying one form of the present invention; Fig. 2 represents a section on line 2—2 of Fig. 1; Fig. 3 represents a section on line 3—3 of Fig. 2; Fig. 4 represents a bottom plan; Fig. 5 represents a section on line 5—5 of Fig. 2; and Fig. 6 represents a section on line 6—6 of Fig. 3.

Referring to the drawings, one form of the present invention comprises an exteriorly threaded sleeve 10 arranged to be screwed into the inlet end of a filling pipe 11 which leads to a buried tank such as ordinarily arranged and located to store a supply of gasoline, oil or other liquid. This sleeve 10 carries a collar 12 which forms a part of a locking device through the provision of an upstanding keeper 13 having an opening 14 therein.

In order to lock the collar 12 fast to prevent unscrewing of the sleeve 10, a lock nut is provided in the form of an internally threaded ring 15 which is screwed on the sleeve 10 to clamp the collar 12 fast to the end of the pipe 11. This locking movement is transmitted to the ring 15 by a suitable tool engaging one of a pair of slots 16 formed in the top face of the ring 15 and beveled to provide tool engaging shoulders 17 respectively. The aforesaid beveling is in a clockwise direction so that pressure upon a shoulder 17 rotates the ring 15 to locking position, but the absence of shoulders or other abutments prevents the use of the tool to rotate the ring for unlocking purposes. In other words the locking of the ring 15 makes a permanent interlocking of the parts and prevents removal of the ring so that the sleeve could be taken out for unauthorized filling of the storage tank.

For the purpose of providing access to the pipe 11 for measuring the quantity of liquid in the storage tank a reducing bushing 18 is provided, part of which is secured upon the end of the sleeve 10 and the reducing extension part 19 is exteriorly threaded to receive a closure cap 20. This bushing 18 carries a tube 21 which in assembled condition depends well into the pipe 11 where it terminates in a flap valve controlled outlet 22. In the form here shown this outlet 22 is normally closed by two flap valves 23, each hinged to opposite sides of the tube 21 and held in closed position by coil springs 24 respectively. When these valves 23 are closed any attempt to fill the storage tank by pouring liquid through the tube 21 is prevented because the relatively small or restricted passage formed by the tube not only makes such filling a long and tedious operation even were the valves open but with them closed it is impossible.

In order to prevent a hollow member from being inserted in the tube 21 with the idea of holding the valves open while liquid is poured through the hollow member, each of the valves 23 has a portion struck up or pressed out of its face to form inwardly arranged lugs 25 which diverge from each other and terminate a spaced distance from the side walls of the tube 21. Hence when a tube is thrust down into the tube 21 its end will pass between the ends of the lugs 25 and the respective adjacent walls and thereby prevent the flap valves 23 from opening. It will be evident that the greater the pressure upon the hollow inserted member the greater will be the resistance of the valves to opening. This construction does not interfere with a solid measuring stick being inserted to open the valves 23 because

such a stick merely presses upon the lugs 25 in the direction to swing the valves outward upon their hinged supports.

For locking the bushing 18 to the pipe 11, a plurality of spaced apertured ears 26 are radially disposed about the outer periphery of the bushing 18 in the horizontal plane of the keeper slot 14 so that a suitable lock 27 can be engaged through the slot 14 in the path of the nearest ear 26 and thus prevent removal of the bushing 18 and its associated parts. While this locking engagement is the preferred one it is obvious that other means can be employed such for instance as sealed wires or other equivalent devices.

It will now be apparent that a complete unitary closure means for the filling pipe of an underground storage tank has been devised whereby the refilling of such tank is controlled only by the distributor of the gasoline or oil specified for use in such tank. Furthermore the present construction allows the dealer or dispenser of the particular gasoline or oil to measure the contents of the storage tank whenever desired but prevents such dispenser from refilling the tank unless an authorized agent of the distributor of the product is present.

In the use of underground supply tanks it is always customary for the dealers and dispensers of the product to keep track of the contents of the storage tank by means of sticks or rods which can be inserted by way of the filling pipe and reach to the bottom of the storage tank, and by the use of the present invention such dealers can of course continue to use these measuring sticks when the device of the present invention is attached to the filling pipe.

Having thus described my invention, I claim:

1. In a device of the character stated, a closure arranged for attachment to the inlet end of a tank filling pipe, a locking device to prevent removal of said closure, means in said closure forming a restricted passage for the insertion of a rod to measure the contents of the tank to which said filling pipe connects, and valve means arranged to close said passage to the flow of liquid.

2. In a device of the character stated, a closure arranged for attachment to the inlet end of a tank filling pipe, a locking device to prevent removal of said closure, means in said closure forming a restricted passage for the insertion of a rod to measure the contents of the tank to which said filling pipe connects, and valve means normally closing said passage and arranged to be opened by a rod passed through said passage.

3. In a device of the character stated, a closure arranged for attachment to the inlet end of a tank filling pipe, a locking device to prevent removal of said closure, means in said closure forming a restricted passage for the insertion of a rod to measure the contents of the tank to which said filling pipe connects, and means to lock said valve means against opening movement when engaged by a hollow rod passed through said pasage.

4. In a device of the character stated, a sleeve threaded to the end of a tank filling pipe, a collar connected to said sleeve and seating on the end on said pipe, a locking nut of ring form clamping said collar to said pipe, said nut having means operable only for turning said nut to locking position, a cap for said sleeve, and means to interlock said cap and said collar, whereby access to said pipe is had only by authorized agents.

5. In a device of the character stated, a sleeve arranged to be locked to the end of a tank filling pipe, a member closing the end of said sleeve, a tube passing through said member and extending well within said filling pipe, locking means to prevent removal of said member, a cap for said tube, and spring controlled valves normally closing said tube.

6. In a device of the character stated, a sleeve arranged to be locked to the end of a tank filling pipe, a member closing the end of said sleeve, a tube passing through said member and extending well within said filling pipe, locking means to prevent removal of said member, a cap for said tube, spring controlled valves normally closing said tube, and means on said valves to prevent opening thereof under certain conditions.

Signed at Philadelphia, county of Philadelphia, State of Pennsylvania, this 24th day of February, 1927.

HARRY N. VICKERMAN.