

Nov. 6, 1934.

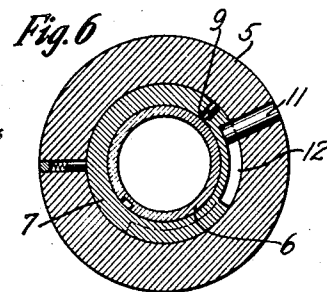
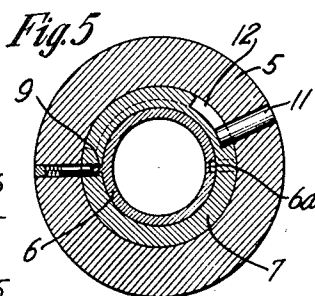
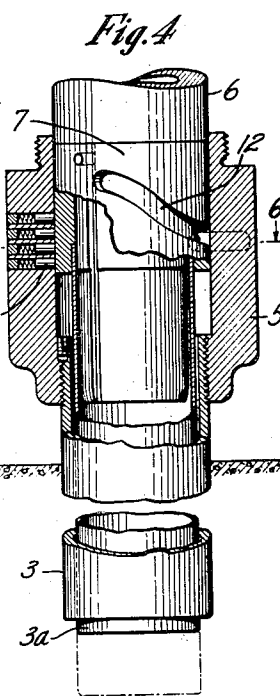
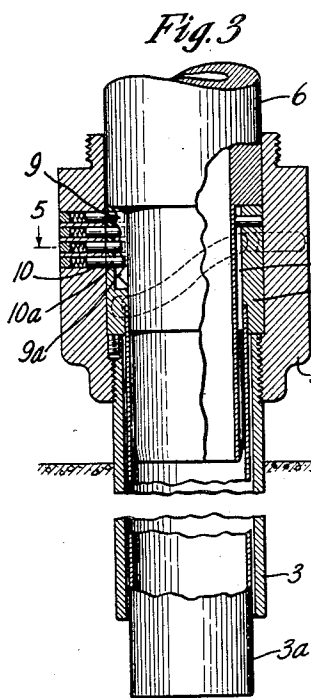
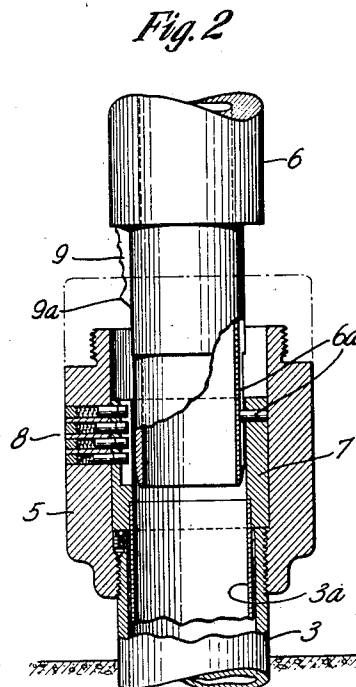
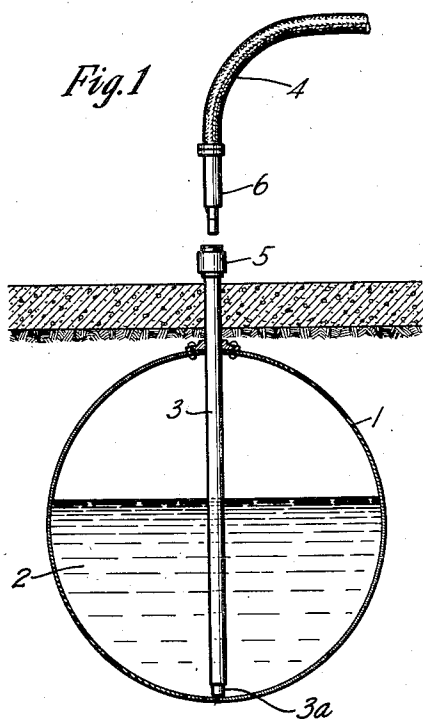
M. S. YOUNG ET AL

1,979,850

COMBINATION INFLOW CONTROLLING AND FLUID DISCHARGE MEANS

Filed Feb. 16, 1927

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 7

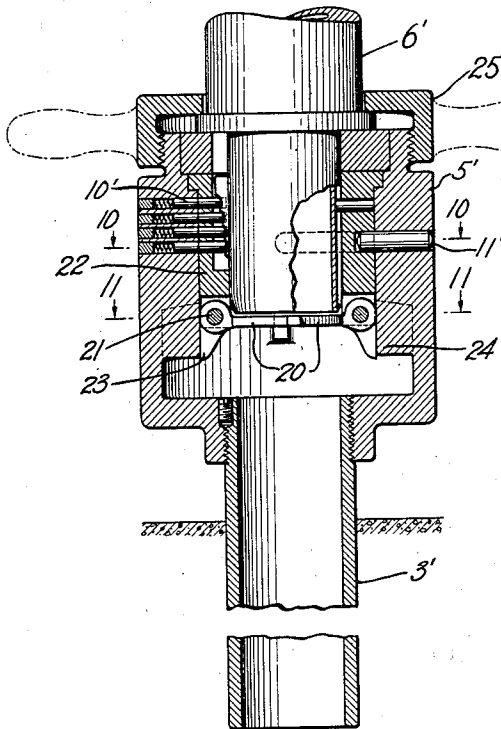


Fig. 8

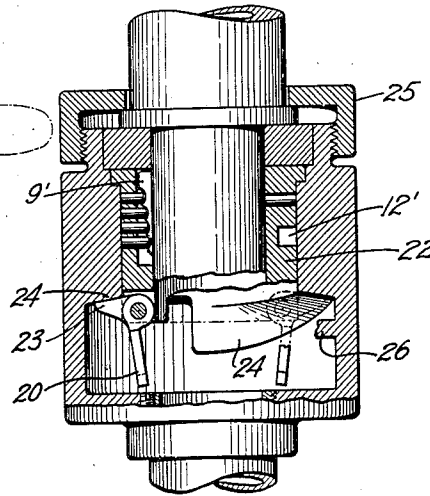


Fig. 9

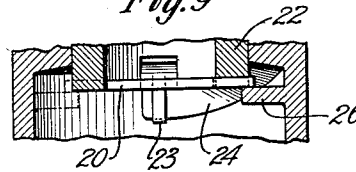


Fig. 10

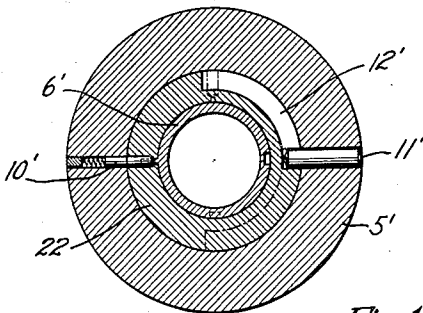


Fig. 11

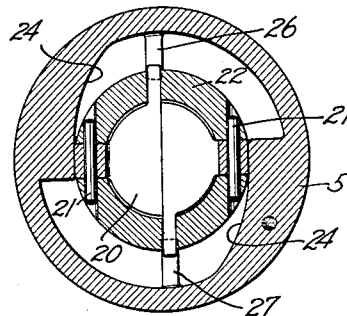
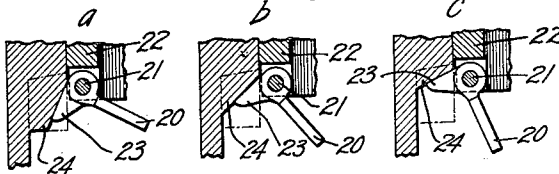


Fig. 12



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UNITED STATES PATENT OFFICE

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COMBINATION INFLOW CONTROLLING AND
FLUID DISCHARGE MEANS

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Application February 16, 1927, Serial No. 168,678

20 Claims. (Cl. 221—28)

This invention relates to means for filling receptacles and particularly to means for filling receptacles of a type in which quantities of a liquid are to be placed such as a gasoline or oil tank.

It is an object of the invention to provide a means to prevent unauthorized filling of a receptacle.

It is a further object of the invention to provide a locked cap on the filler pipe of a container which may only be automatically released by the insertion of a certain filler nozzle.

It is a further object of this invention to provide a means for filling a large receptacle such as a gasoline or oil reservoir comprising a valve operated by an integral tumbler lock securing the filler tube against use by unauthorized persons.

It is a further object of this invention to provide a key nozzle for an authorized filling hose which will act automatically to release the filler tube and to form a fluid tight joint in the filling pipe.

Further features and objects of the invention will be more fully understood from the following detailed description of the drawings which illustrate two embodiments of which my invention is susceptible, and in which,

Fig. 1 is a diagrammatic view showing the relation of the filler pipe and tank.

Fig. 2 is an enlarged front view partially in section showing the details of the lock.

Fig. 3 is a view similar to Fig. 2 and showing the inner filler sleeve in its lowermost position.

Fig. 4 is a view similar to Fig. 3 showing the inner filler sleeve in a raised or filling position.

Fig. 5 is a section on the line 5—5 of Fig. 3.

Fig. 6 is a section on the line 6—6 of Fig. 4.

Fig. 7 is a front elevation, partially in section showing a modified form.

Fig. 8 is a view similar to Fig. 7 showing the valve opened.

Fig. 9 is a detail of the modified form shown in Fig. 7 in a vertical plane rotated through 90 degrees.

Fig. 10 is a horizontal section on the line 10—10 of Fig. 7.

Fig. 11 is a horizontal section on the line 11—11 of Fig. 7.

Fig. 12, *a*, *b* and *c* show three details of the cam operating the valve in Fig. 7.

In the dispensing art and especially that dealing with gasoline and lubricants, it has frequently been the practice of unscrupulous agents to fill a container branded by a certain particular company with a different and usually inferior quality of material.

A particular producing company will, with great effort and expense, produce a certain product and by its own merits and by its advertising, become well known to the user public who will oftentimes drive out of their way to procure the product of that company. But due to the fact that a cheaper or different product is more easily obtainable the dealer or dispensing agent will foist this other product on his customers, who, not knowing the details of filling of the agent's reservoir with something that may be just as good but in reality is different, is unfortunately the victim of the fraud.

Besides the consumer who does not get what he pays for, the concern producing the grade and quality of material that has been asked for by the unsuspecting public, in having its containers filled with a different substitute product and offered as its own is also subject to fraud because it loses the profits from the sale of its own gasoline or lubricant, and it also loses that most important thing "goodwill", because the inferior product is unsatisfactory to the man who wants and pays for a definite article but who is delivered a substitute.

So far, the means of sealing containers similar to underground gasoline tanks and the portable oil tanks in common use around the filling or dispensing station have proved inadequate, unsatisfactory and of little practical value and it is therefore, the subject of our invention to produce a container which is non-fillable unless the proper authorized equipment is used as will be more fully explained in the following detailed description.

Fig. 1 shows a container of any desired shape or location in which it is desired to retain a fluid temporarily and into which the fluid is pumped or drained by the action of gravity in large quantities and from which this fluid is removed in relatively smaller quantities. In this embodiment chosen for illustration, an underground tank 1 contains gasoline 2 which enters in large quantities through the filler pipe 3 from the hose 4 connecting with the filling source usually a tank wagon or car (not shown).

The filler pipe 3 has a surmounting shoulder portion called the head 5 and the filler hose 4 has a cooperating nozzle 6, the nozzle 6 being adapted to project into the head 5 to make a fluid tight joint during the filling operation and further, adapted to be readily removed after the filling operation.

The filler pipe 3 leading to the bottom portion of the tank 1 is made up of two telescoping sleeves

or pipes the outer one being 3 and the inner one 3a which is moved relatively to the outer one from a position flush or nearly so with the pipe 3 to a position substantially in contact with the bottom of the tank 1, the object being that in this embodiment of the invention, the inner sleeve 3a being substantially in contact with the bottom of the tank, practically no fluid may be forced therethrough either by a pump or by the action of gravity. When it is desired to fill this receiver rapidly with substantial quantities of liquid it is essential that the inner telescoping sleeve 3a be raised to a position substantially flush with the pipe 3, thereby allowing a sufficient outlet of the liquid.

The upper portion of the sleeve 3a is integrally attached to a collar or cylinder 7 whose shoulder, resting on the sleeve 3, limits the lowermost position. As shown in Figs. 3 and 4, the collar 7 is provided with a cylinder locking means 8 of any approved or desired type and the nozzle 6 of the filler hose is provided with a raised key portion 9 which cooperates with the tumblers 10 of the lock 8 so that when the nozzle 6 is projected into the collar 7, the proper nozzle being used, the tumblers 10 are properly positioned to allow a rotation of the collar, through a rotation of the hose 4, nozzle 6 and the cooperating pin and slot connection 6a.

The head 5 on the outer pipe 3 is provided with a pin 11 inwardly projecting into a depressed cam slot or groove 12 in the collar 7, the arrangement being such that a partial rotation of the collar 7 will force the cam portion along the pin on the relatively fixed outer sleeve and thereby raise or lower the inner sleeve 3a depending upon its initial position.

The operation of this device is therefore, obvious. When it is desired to fill the tank with a liquid from an authorized source and conveyed through a hose with a particular key nozzle, the nozzle is projected into the filler cap, unlocking the cooperating key tumblers, the nozzle then being given a partial turn, raising the inner sleeve and thus allowing the liquid to pass into the tank.

On the other hand, if the fluid to be placed into the tank has not been placed in a container such as a tank wagon or car, with the authorized discharge hose and the unlocking key nozzle, the nozzle cannot unlock the collar on the inner sleeve and cannot therefore, raise this sleeve from its position relatively close to the bottom of the tank and the liquid will, at best, flow so slowly as to invite suspicion and detection, and practically prevent filling.

To prevent removal of the nozzle before the tank has been effectively closed again, the lowermost projection 9a on the key of the nozzle projects below and beyond the lowermost tumbler 10a and securely holds the nozzle in position in the filler pipe as long as the inner filler sleeve is raised or in filling position. The tank must be closed before the filling hose can be removed.

The filler pipe 3 and the inner tube 3a allow sufficient liquid to flow into the pipe from the reservoir so that a gage stick may be inserted through the open top to determine the depth of liquid therein.

In Figures 7 to 12 we have shown another embodiment which our invention may take and in which the filler pipe 3', integrally fastened head 5' and nozzle 6' are similar to the corresponding parts shown in Figures 1 to 6. It will be noted however, that there is no inner sleeve here

but that the filler pipe is sealed by a different valve means comprising two semi-circular doors 20, hinged at 21 to a rotatable internal hollow collar or cylinder 22. The doors have a projecting ear portion 23 extending from the hinged portion and at a substantial right angle thereto, this ear cooperating with a cam shaped surface 24 on the head 5'. As shown in Fig. 12, a, b, and c, each shows a different step in the cam surface and the relation of the position of the valve doors. Fig. 7 shows one extreme position and Fig. 8 the other.

These valve doors are, as has been explained, hinged on the rotatable collar 22, and the projecting ear portions cooperate with the cam portion on the relatively fixed head 5'. To open or close the doors therefore, it is only necessary to rotate the collar 22 within the head 5' and thus effect the pivoting of the doors to change their position.

In order to rotate this inner collar 22, the projecting key portion 9' on the nozzle 6' must properly displace the cooperating tumblers 10' in the cylinder lock after which, the collar 22 is free to rotate, being guided by the pin 11' projecting from the head 5' into the depressed slot portion 12' in the head 22. This slot has a plane surface inasmuch as there is no upward movement necessary. The screw cap 25, fitting over the head of the nozzle is used in this modification to retain the nozzle 6' on the filler pipe head 5'. To additionally secure the doors 20 in the closed position, two diametrically opposite projecting ledges 26 and 27 have been provided. They are so placed that during the normally closed position as determined by the cam 24, the ledges will extend under the unsupported edges of the doors and firmly hold them. When the collar 22 is rotated, the ledges 26 and 27 do not interfere with their complete opening to allow filling of the receptacle.

The filler pipe 3', is commonly adapted for such curb installations as desired, but in such curb installations, the lowermost part of the filler pipe drains away from the filler pipe to the reservoir. It is therefore, impossible to gage the quantity of fluid in the reservoir as the true level is not in a straight portion of the pipe, and hence, means to allow opening of the valve doors for gaging purposes is unnecessary.

Whereas we have described our invention by reference to specific forms thereof, it will be understood that many changes and modifications may be made without departing from the spirit of the invention and we do not, therefore, desire to limit ourselves to the specific embodiments shown but to interpret the invention broadly within the scope of the appended claims.

We claim:

1. In a device of the class described, a filler pipe, a fixed head thereon, said pipe having closure means to seal the opening therein, including a concentric sleeve, tumblers projecting through said sleeve into said head, a conveying pipe, and integral key means on the end of the conveying pipe projecting into the filler pipe to release the tumblers and thereafter open the filler pipe to flow.

2. The combination with a fluid discharge means, a fluid intake means, the intake means comprising two concentric pipes, one of which closes the intake means, and a lock means between the intake pipes which may only be released by the discharge means for raising the inner pipe to open said intake means.

3. The combination of a fluid discharge means, fluid receiving means, said fluid discharge means having a key nozzle and a valve comprising hinged doors in said intake means, and cam means operated by said key nozzle to open said doors.

4. In combination with a discharge conduit ending in a nozzle, an entrance conduit comprising a lock formed of a cylinder and cooperating tumblers, the nozzle being formed with a projecting lug operating said tumblers to unlock the cylinder.

5. In combination with a closure for filler pipes having a rotatable sleeve, lock tumblers projecting into said sleeve, valve closure means opened by rotation of said sleeve, of a nozzle at the end of a discharge conduit, the nozzle being provided with cooperating key lugs to remove the lock tumblers in a definite relation, the nozzle unlocking the sleeve and permitting ingress of fluid.

6. The combination of a discharge conduit provided with a key nozzle, an entrance conduit projecting into a reservoir, an intermediate sleeve in said entrance conduit and extending substantially to the bottom of the reservoir, and a cam means unlocked by said nozzle to raise the intermediate sleeve and allow discharge into the reservoir.

7. In a device of the class described, a movable intake pipe projecting substantially to the bottom of a reservoir to be filled, a tumbler lock, and a key nozzle on a discharge pipe, for unlocking the lock, and raising said intake pipe to allow filling.

8. In combination with a dispensing system including a discharge conduit ending in a nozzle, an entrance conduit closed by a lock valve, means comprising a cylinder lock and cooperating tumblers, the nozzle being formed with a series of projecting lugs operating said tumblers to unlock the valve, certain of said lugs preventing removal of the filling hose without closing the filling pipe.

9. The combination of fluid receiving means for filling a reservoir, comprising an intake pipe, an integral head on said intake pipe, valve members pivoted in said head to seal said intake pipe, a rotatable sleeve mounted in said head provided with cam faces, a lock for said sleeve, cooperating cam faces on said valve members, and a discharge pipe having key means thereon, said key means unlocking said lock whereby said discharge pipe will rotate said intermediate sleeve for opening said valve members to permit filling of the reservoir.

10. The combination of a filling conduit for filling a reservoir, having an integral head thereon, valve members pivoted in said head to substantially seal said intake conduit, a rotatable sleeve mounted in said head provided with cam faces, cooperating cam faces on said valve members, and a discharge pipe having key means thereon for unlocking and rotating said sleeve for opening said valve members to permit filling of the reservoir, and means to prevent removal of the discharge pipe unless the intake pipe is resealed.

11. In an inflow control and fluid discharge device for a reservoir, which includes an intake pipe for the reservoir, means in the intake pipe to prevent unauthorized filling therethrough, means to lock the fill preventing means, and means to unlock said locking means, said fill preventing means having a sufficiently large opening when fluid flow is prevented to receive a measuring stick.

12. The combination of a discharge conduit

provided with a key nozzle, an entrance conduit projecting into a reservoir, an intermediate sleeve in said entrance conduit extending substantially to the bottom of the reservoir, cam means unlocked by said nozzle to raise the intermediate sleeve and allow discharge into the reservoir, said entrance conduit being open to receive a measuring stick while in a position such that discharge into the reservoir is substantially prevented.

13. The combination with a gasoline tank a filler conduit extending into the bottom thereof, means in said conduit to prevent unauthorized filling of said tank, means to lock said means to prevent unauthorized filling in closed position, and keyed means to unlock and open said means to prevent unauthorized filling, said means to prevent unauthorized filling remaining within the filler conduit at all times, and means to move said means to prevent unauthorized filling into closed position when the keyed means is removed from said conduit.

14. The combination with a liquid reservoir having means for filling a filler conduit communicating therewith having a continuously open vent opening of small dimension therein, means in said conduit to prevent unauthorized filling of said tank, means to lock said means to prevent unauthorized filling in closed position, and keyed means to unlock and open said means to prevent unauthorized filling, said means to prevent unauthorized filling remaining within the filler conduit at all times, and means to move said means to prevent unauthorized filling into closed position when the keyed means is removed from said conduit.

15. The combination with a liquid discharge means, a liquid reservoir having intake means extending therein, the intake means comprising two concentric members, normally closed to flow therebetween, and means carried by the discharge means for moving one of the members whereby flow may be completed through one of the members.

16. In combination with a discharge conduit ending in a nozzle, an entrance conduit comprising a lock having a fixed portion and a movable portion, a plurality of spring pressed tumblers extending between said portions, said tumblers having variable parting lines, the nozzle being formed with a lug means to move said tumblers to a common parting line to unlock said lock whereby said movable portion may be moved for opening the entrance conduit to flow.

17. In combination with a discharge conduit ending in a hollow nozzle, an entrance conduit leading to a receptacle to be filled, of means to prevent unauthorized filling of the receptacle except by the use of a predetermined key nozzle which comprises a valve member in said entrance conduit, and a tumbler lock to hold said valve member closed, said lock having a plurality of spring pressed tumblers with variable parting lines and variable lengths, said hollow nozzle being pre-arranged to move said tumblers to a common parting line whereby the valve member and entrance conduit may be opened to flow.

18. In combination with a closure for filler pipes having a movable sleeve, a plurality of tumblers of variable effective length, a plurality of plungers therefor, means to normally maintain said tumblers and plungers in sleeve locking position, said plungers being movable by a key means having coordinated plunger coacting por-

tions into sleeve releasing position whereby said filler pipe may be opened.

19. In combination with a fill pipe for a receptacle, said fill pipe having a normally closed valve therein, a lock to hold said valve closed, said lock including a cylindrical member in said pipe, a plurality of transverse tumblers, means to hold said tumblers projecting into said cylindrical member, said tumblers being releasable by a key whereby said valve may be opened.

20. In combination with a dispensing system including a discharge conduit ending in a nozzle, an entrance conduit closed by a lock valve means comprising a cylinder lock and cooperating tumblers, the nozzle being formed with a series of projecting lugs operating said tumblers to unlock the valve, whereby the flow of liquids may exist through the nozzle and entrance conduit.

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