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1,778,092

VALVE

Filed June 8, 1926

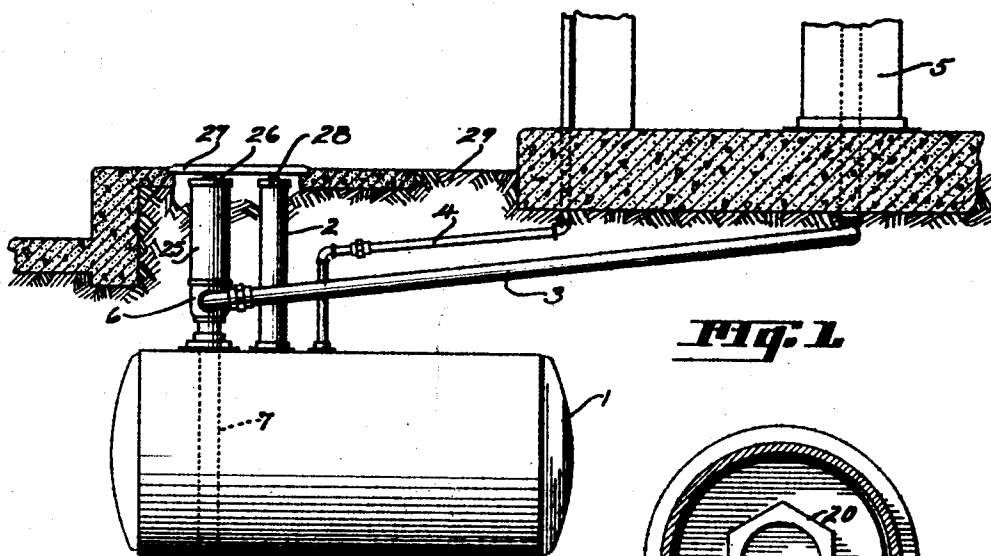


Fig. 1.

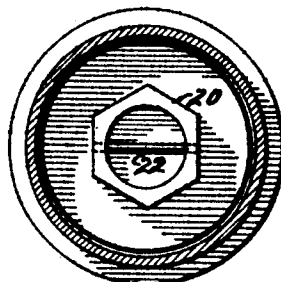


Fig. 3.

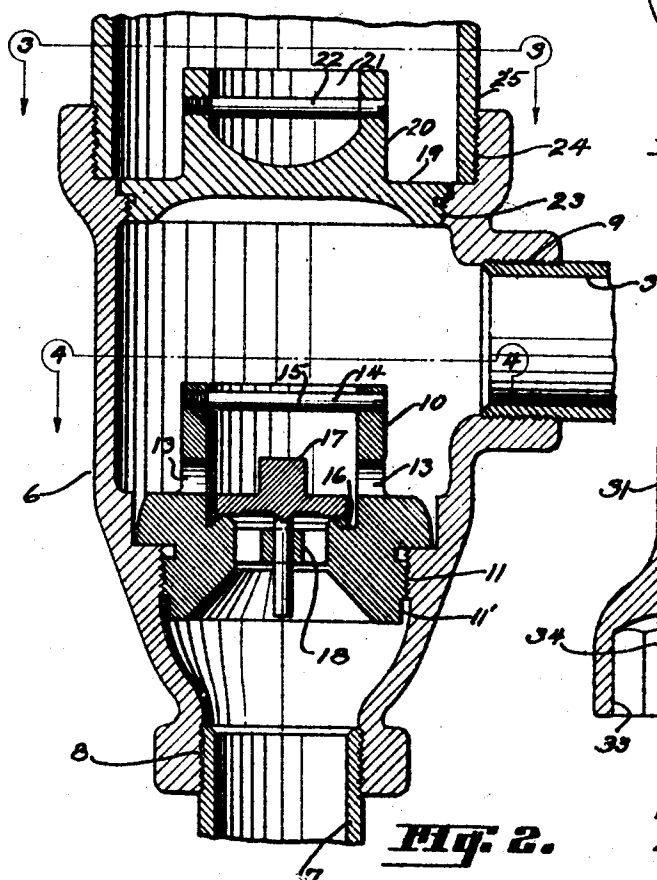


Fig. 2.

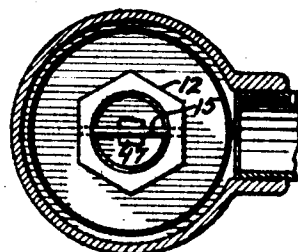


Fig. 4.

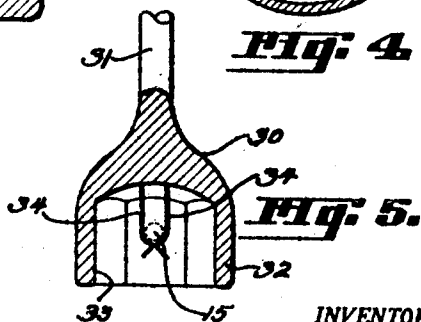


Fig. 5.

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VALVE

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My invention relates to improvements in valve constructions for measuring pumps for gasoline stations, pipe lines and the like, and it consists in the combinations, constructions and arrangements hereinafter described and claimed.

It is customary in the building of gasoline stations and installation of measuring pumps to first connect the piping system to the storage tank and to the measuring pump and then to embed this piping system in earth and concrete in order to make the device fire-proof. When a valve in the piping system needs changing or repairing due to its wearing out or becoming pitted or clogged with foreign matter, it is necessary to chip away the cement and remove the earth down to the position where the valve is placed, before the latter can be removed. The storage tanks are placed quite a distance below the surface of the ground and since the valve is placed adjacent to the storage tank it is necessary to dig down a considerable distance in the cement and earth before the valve can be reached. This operation requires a great amount of labor which is expensive and also necessitates the tearing out of a portion of the cement from time to time in order to replace new valves for worn out ones, or repair the old ones.

An object of my invention is to provide a valve construction for measuring pumps and gasoline piping systems in which the entire valve mechanism may be removed and a new mechanism be replaced for the old one, without the necessity of chipping away the cement and excavating down to the valve casing.

A further object of my invention is to provide a device of the type described which is extremely simple in construction and which provides novel means whereby a valve may be readily removed, even though this valve is disposed a considerable distance beneath the surface of the ground.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claim.

My invention is illustrated in the accompanying drawing forming a part of this ap-

plication in which Figure 1 is a diagrammatic view of a gasoline station;

Figure 2 is a vertical section through the valve mechanism,

Figure 3 is a section along the line 3—3 of Figure 2,

Figure 4 is a section along the line 4—4 of Figure 2, and

Figure 5 a sectional view of a wrench employed with the device.

In carrying out my invention I make use of a gasoline station, which comprises a storage tank 1 for gasoline, an inlet pipe 2, an outlet pipe 3, a vent or breather pipe 4 and a gasoline pump 5. These parts are standard construction and form no part of my invention except insofar as they cooperate with the parts now to be described.

It will be noted from Figure 1 that the outlet pipe 3 is connected to a valve casing or body 6, the casing in turn being connected to a pipe 7 that extends into the tank 1. When the pump is actuated it will suck gasoline up through the pipe 7, through the valve casing 6, the outlet pipe 3, and to the pump 5.

In Figure 2 I show the special construction of the valve casing or body 6 and the parts carried by the casing. It will be noted from this figure that the casing 6 is threaded at 8 for receiving the upper end of the pipe 7 and is also threaded at 9 for receiving the pipe 3. The openings 8 and 9 communicate with each other and are controlled by a valve 10 which is threaded into the casing 6 at 11. Figures 2 and 4 clearly show how the valve 10 is provided with a non-circular portion 12 for the purpose hereinafter described, this portion having openings 13 therein and having an open top 14 for permitting gasoline to flow therethrough. The valve 10 carries a pin 15 for the purposes hereinafter described, and is provided with a valve seat 16 upon which a valve plunger or disc 17 is adapted to rest by gravity. A spider 18 guides the valve plunger 17 in its movement.

Directly above the valve 10 I dispose a cap 19, this cap having a non-circular portion 20 of the same size and shape as the portion 12. The cap 19 has a recess 21, this recess receiving a pin 22 similar to the pin 15. The cap

19 is threaded into a threaded bore 23, this bore being large enough in diameter to permit the entire valve 10 to be withdrawn there-through. The upper end of the valve casing 6 is threaded at 24 for receiving a pipe 25, this pipe having an inner diameter large enough to permit the cap 19 and the valve 10 to be withdrawn through the pipe. The upper end of the pipe 25 is normally closed by means of a cap 26.

From the foregoing description of the various parts of the device the operation thereof may be readily understood. In the present form of the device I have shown the pipe 25 as being disposed adjacent to, and parallel with the pipe 2. The tops of these pipes are normally sealed or covered by a cover plate 27.

The station with my special type of valve construction will function in the same manner as a standard station. That is, the cap 28 may be removed from the pipe 2 when it is desired to fill the tank 1 with gasoline. The cap 28 is normally locked to the pipe 2 and can only be opened when one has the necessary key. The gasoline is withdrawn from the tank 1 by means of the operator actuating the pump 5 which may either be hand operated or motor operated. The gasoline in flowing through the pipe 3 raises the valve plunger 17 off from its seat 16. As soon, however, as the required amount of gasoline is withdrawn from the tank, the valve plunger 17 will again seat by gravity. The breather or vent pipe 4 is merely provided for permitting air to fill the portion of the tank 1 that is not occupied by the gasoline, or liquid in said tank.

Assume now, that the valve 10 is in need of repair. Instead of chipping away the cement 29 down to the valve casing 6, it is merely necessary to first remove the cover plate 27 and the cap 26. The cap 19 and the valve 10 are now removed by means of the special wrench 30 shown in Figure 5.

This wrench has a handle 31 long enough to permit the operator to lower the socket 32 of the wrench down to the cap 19 and then down to the valve 10. The socket 32 has a non-circular recess 33 for receiving the non-circular portions 12 and 20 of the valve 10 and the cap 19 respectively. Spring clips 34 are carried by the wrench 30 and extend a slight distance into the recess 33.

The operator first removes the cap 19 and in doing so disposes the socket 32 over the non-circular portion 20. In doing this the clips 34 receive the pin 22. A rotative movement of the handle 31 for unscrewing the cap 19 will release the cap from the casing 6. The operator can now raise the wrench 30 and the spring clips 34 will engage with the pin 22 to remove the cap from the pipe 25. The wrench 30 is again inserted into the pipe 25 and this time removes the valve 10 in the

same manner as the cap 19 was removed. The valve 10 may now be reground or repaired if desired, or a new one may be substituted for the old one.

The new valve 10 and the cap 19 are replaced by the same wrench 30 that removed them. The spring clips 34 are merely strong enough to lift the weight of the cap 19 or the valve 10 and therefore will release the wrench from these members when the members have been tightly screwed back into place.

The pin 15 not only provides means by which the valve casing may be removed, but also acts as a stop member for the valve. The shoulder 11' acts as a guide for the valve casing when the latter is being assembled.

I claim:

The combination of a valve comprising a casing internally screw-threaded at its respective ends, a closure cap in screw-threaded engagement with one end of the casing, said cap having a recessed non-circular portion, a pin spanning the recess, a plug having a bore therethrough forming a valve housing having apertures through the wall thereof and in screw-threaded engagement with the other end of the casing, said plug having a non-circular portion, a valve seat formed on the plug, a plunger valve for reciprocal movement within the housing, a pin spanning the housing, and a recessed wrench for engaging the non-circular portion of the closure cap and the non-circular portion of the plug, said wrench having spring fingers in the recess for engaging the pins.

In testimony whereof I affix my signature.

ZACH D. TALLMAN.