June 10, 1930. J. J. TOKHEIM 1,763,544

GASOLINE DISPENSING DEVICE

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Fig. 1.

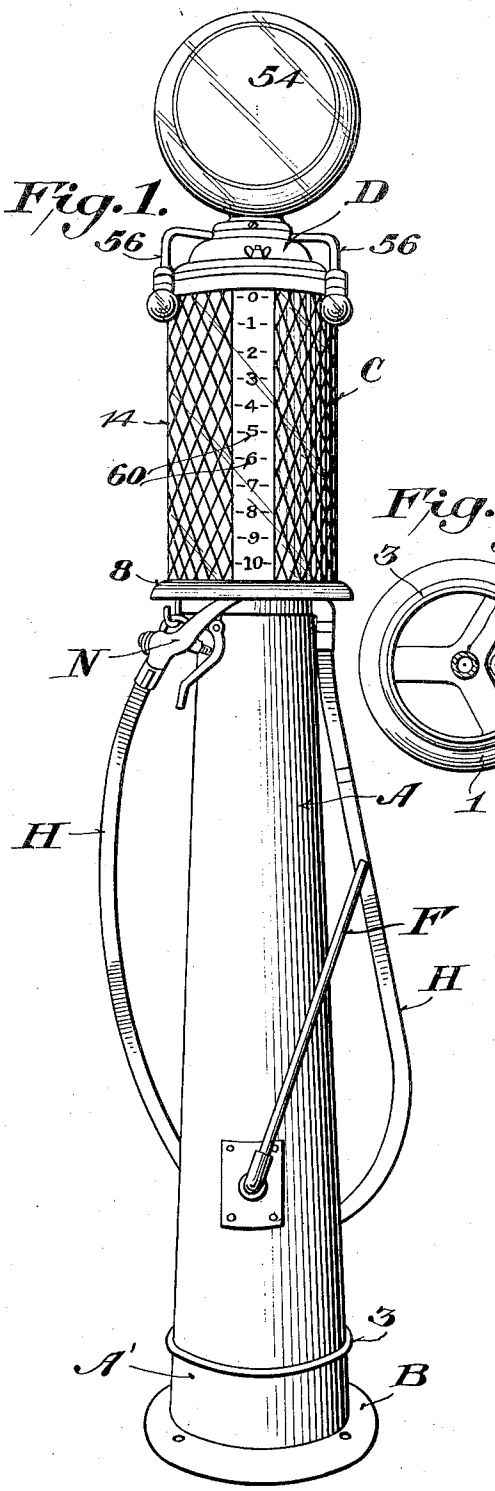
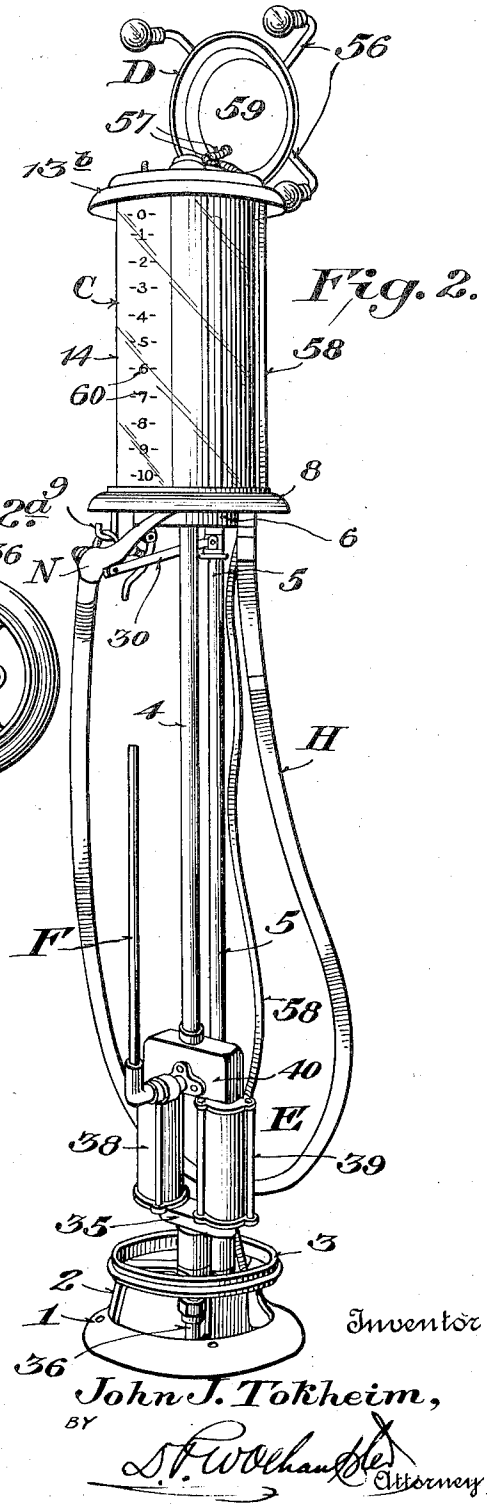


Fig. 2a.

Fig. 2.



Inventor

John J. Tokheim,

BY

S. F. Wolhandler

Attorney

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GASOLINE DISPENSING DEVICE

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Fig. 3.

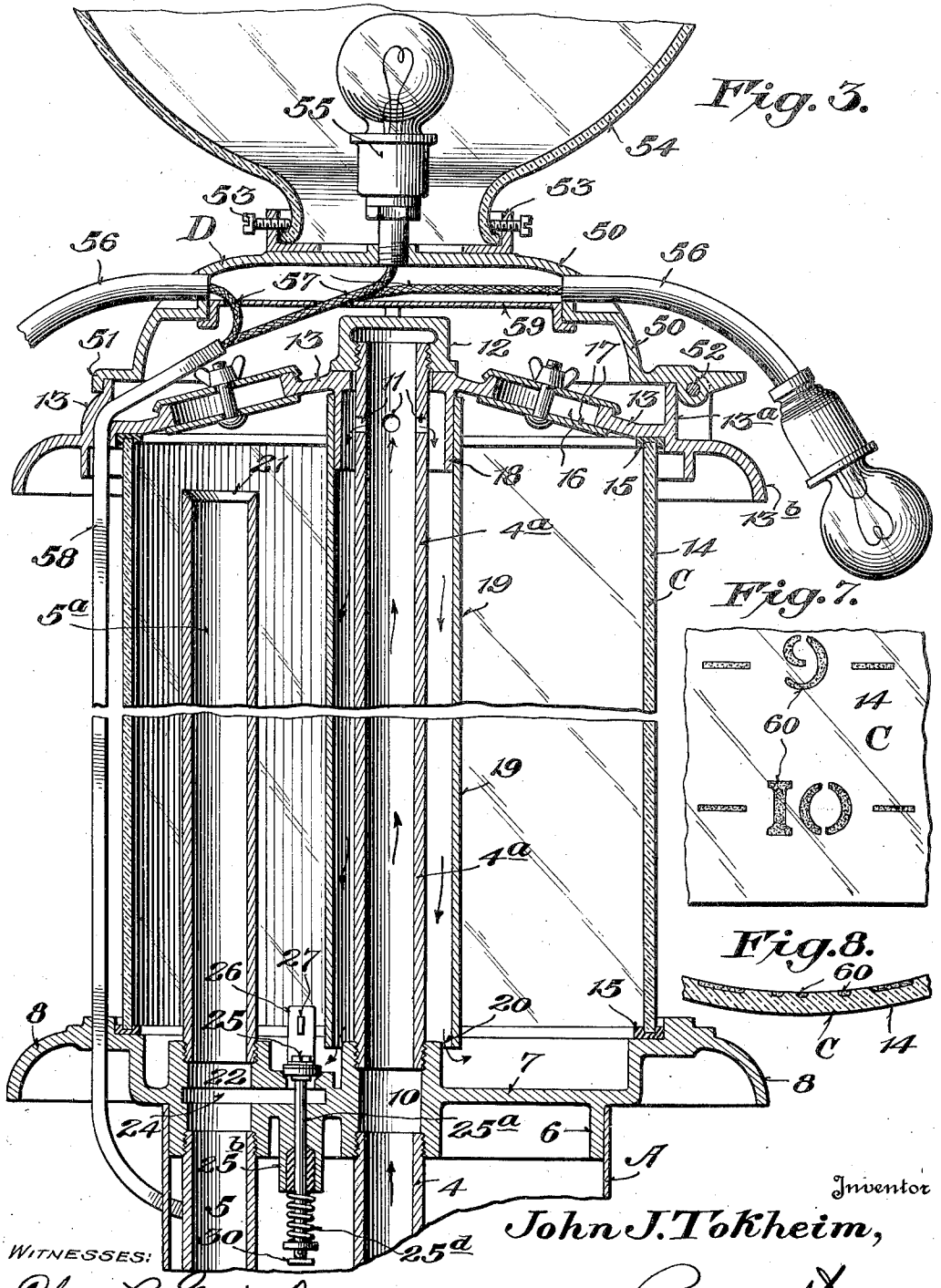


Fig. 7.

Fig. 8.

Inventor

John J. Tokheim,

By D. W. Oldham & Son

Attorney

WITNESSES:

Chas. L. Griesbauer

Emory B. Groff

June 10, 1930. J. J. TOKHEIM 1,763,544

GASOLINE DISPENSING DEVICE

Filed Aug. 10, 1927 3 Sheets-Sheet 3

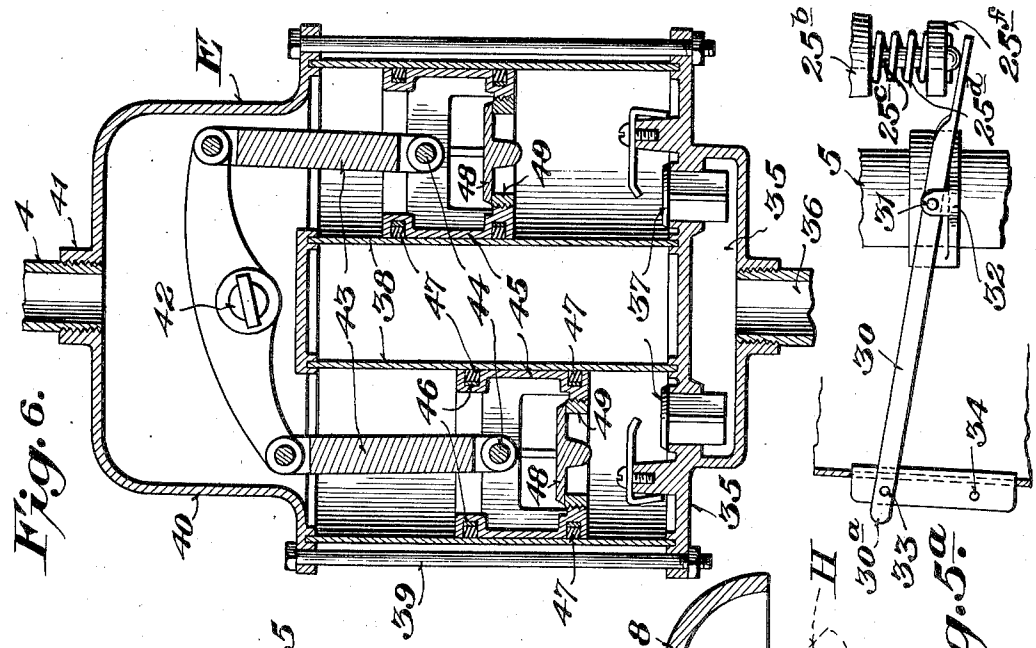


Fig. 6.

Fig. 5a.

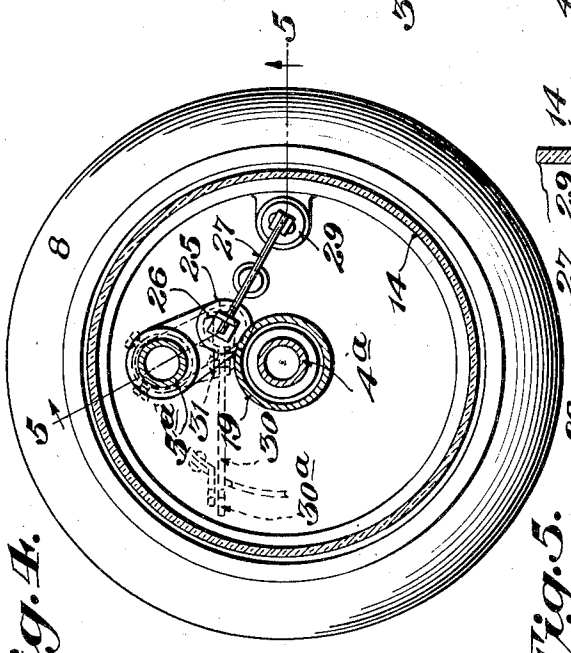


Fig. 4.

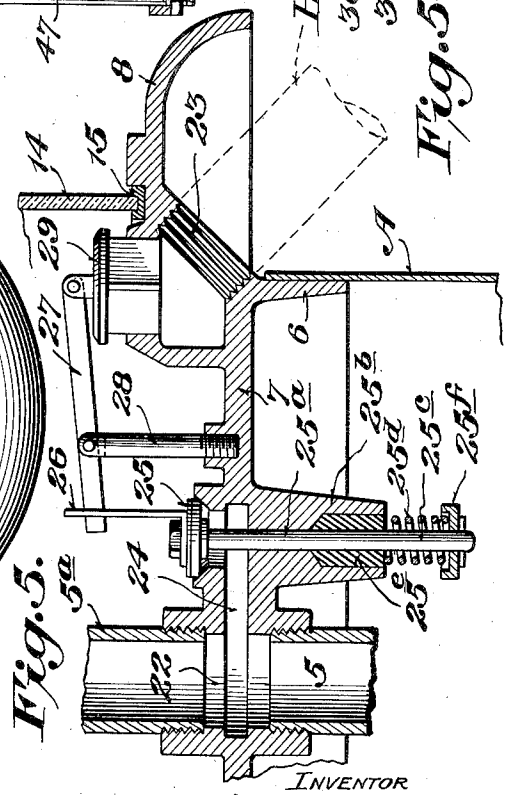


Fig. 5.

WITNESSES:-

Chas. L. Grigsbauer

Emory L. Groff

INVENTOR

John J. Tokheim,

By D. P. Wolhaupter

Attorney

Patented June 10, 1930 1,763,544

UNITED STATES PATENT OFFICE

JOHN J. TOKHEIM, OF CEDAR RAPIDS, IOWA

GASOLINE-DISPENSING DEVICE

Application filed August 10, 1927. Serial No. 212,042.

This invention relates to a gasoline dispensing device and more particularly to that type known as visible pumps.

A primary object of the invention is to provide a device involving novel features of construction which render the pump of maximum efficiency, easy to operate, and also tamper-proof when left unattended.

To that end the invention contemplates a reservoir construction including a transparent container having the gallon marks and figures sand-blasted on the inside of the cylinder, together with novel means for supporting and holding the cylinder in position, as well as providing a display cover hinged to the reservoir construction so that access may be readily had to the reservoir when desired. In that connection, it is also proposed to include in the reservoir construction, a novel shield or hood for the dispensing nozzle thereby to prevent the same from being fouled with rain or snow and otherwise generally protecting the same.

A further object of the invention is to provide a novel drain-back valve which communicates directly with the return or overflow line of the system. That is to say, it is proposed to provide a novel valve arrangement which permits of simultaneously closing the discharge port of the reservoir, and opening a by-pass return valve which communicates with the overflow line so that when the pump is left for the night or other unattended period, it will be impossible for anyone who may use a duplicate or substitute lever to operate the pump, to cause gasoline to go into the customer's fill hose or discharge line, since the same is automatically closed and at the same time the bottom part of the reservoir is put in communication with the overflow or return pipe.

A still further object of the invention is to provide a novel hand operated pump which possesses features of construction that enable it to operate efficiently and reliably under all conditions of use, and to last considerably longer than the average pump.

With the above and other objects in view which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

A preferred and practical embodiment of the invention is shown in the accompanying drawings in which:—

Figure 1 is a perspective view illustrating the complete pump.

Figure 2 is a perspective view with the casing or body sheets removed and the display cover raised.

Figure 2[a] is a horizontal sectional view showing in plan the Y formation of the base casting which supports the pump instrumentalities.

Figure 3 is an enlarged vertical sectional view of the dispensing reservoir.

Figure 4 is a horizontal sectional view of the bottom of the dispensing reservoir.

Figure 5 is an enlarged detail vertical sectional view taken on the line 5—5 of Figure 4.

Figure 5[a] is a detail view illustrating the means for supporting the locking means for the return valve.

Figure 6 is a vertical sectional view of the pump.

Figures 7 and 8 are respectively a detail elevation and cross section of the glass cylinder showing the gallon indications cut on the inside.

Similar reference characters designate corresponding parts throughout the several figures of the drawings.

Referring to the drawings it will be observed from Figure 1 that the present construction includes a casing designated generally as A mounted upon a base casting or ring B, the said base and standard being surmounted by a reservoir C which in turn is provided with a cap or display cover designated generally as D. The reservoir C is supplied with gasoline from a storage reservoir by a suitable pump designated generally as E which may be operated by the handle F or equivalent means. The gasoline supplied to the reservoir C by the pump E may be dispensed to the consumer through the hose connection H which may be fitted with the control nozzle N in the usual manner.

The base casting B preferably includes a

foot flange 1 which is provided with a plurality of upstanding legs 2 for supporting the ring 3 on which the body sheets forming the casing rest, and as will be observed from Fig. 2[a] the said ring or flange 1 is provided with a Y-shaped spider which provides in effect a horizontal continuation of the vertical legs 2. The space between the ring 3 and the flange 1 may be fitted with a cover plate A′ which permits of convenient access to pipe connections in the base of the pump by removing the relatively small section A′ only. The base B also supports the pump E and the feed and overflow pipes for the reservoir or measure. The feed pipe from the pump is designated generally as 4 and the overflow or return pipe is designated 5 and leads back to the storage tank in the usual way.

One of the novel features of the invention resides in the manner of supporting the reservoir or measure C. That is to say, the said reservoir is supported on the feed pipe 4, and when the overflow pipe 5 is connected thereto relative turning movement of the entire reservoir on the feed pipe is prevented, while at the same time the overflow pipe contributes to the stability of the support for the reservoir, as does also the casing A which fits around the depending flange 6 of the plate 7 which constitutes the base or bottom of the reservoir.

The peripheral edge portion of the said plate 7 is provided with an extending overhanging flange 8 provided at a suitable point with the hook 9 on which the nozzle end may be supported thereby to be protected and housed from the elements as heretofore indicated. Also, the said plate is provided at its central part with a boss 10 which is interiorly threaded at both ends whereby its lower end may receive the feed pipe 4, while its upper end may receive the feed pipe extension 4[a]. The upper portion of the feed pipe extension is provided with openings 11 which permit gasoline forced through the supply line, to make its way into the reservoir as will presently appear. Furthermore, the upper end of said pipe is exteriorly threaded thereby to receive a combined cap and clamping nut 12 which is adapted to clamp a dust excluding cover plate 13 onto the upper edge of the glass cylinder 14 which constitutes the side wall of the reservoir. Suitable gaskets 15 are provided at the upper and lower edges of the cylinder so that where the cylinder engages the cover and the bottom plate, a fluid type joint will be provided. This arrangement of centrally binding the reservoir is of much practical importance since it permits of an even distribution of pressure on the glass cylinder 14 which cannot be accomplished where a plurality of clamping rods or struts are used. In other words, by the glass cylinder being supported on the bottom plate 7 and subjected to an even clamping pressure due to the nut 12 pressing downwardly on the cover plate, an effective top and bottom joint will be provided and the cylinder will be subjected to an evenly distributed clamping pressure throughout, and thus eliminate danger of cracking.

The dust plate 13 is provided with a plurality of inspection or clean out ports 16 which may have the cover disks 17 shown in detail in Figure 3. Also the cover is provided with a central depending flange 18 which is spaced from the feed pipe extension 4[a] so as to permit the free discharge of gasoline through the openings 11, and said flange carries therewith the downflow pipe 19 whose lower end is spaced from the bottom plate as indicated at 20 to permit the free discharge of gasoline into the reservoir. This means for feeding the gasoline into the reservoir avoids foaming and permits the gasoline to rise until it reaches the level of the mouth 21 of the overflow extension pipe 5[a] whose lower end is fitted into a threaded boss 22 in the plate 7 and communicates directly with the return line 5 which is fitted in the bottom of the boss 22.

Another distinctive feature of the invention resides in connection with the boss 22 and the hose outlet or discharge port 23 to which the customer's hose H is connected (see Figs. 4 and 5). That is to say, the boss 22 of the overflow line is adapted to communicate with a passage 24 which is normally closed by a valve 25, the said valve carrying an extension 26 which is interlocked with a lever 27 fulcrumed on a post 28 and carrying a cut-off valve 29 which when closed positively seals the discharge opening 23 previously referred to. This valve 29, however, is normally maintained elevated so as to permit the gasoline within the container to normally pass out the hose outlet 23. Nevertheless, when the pump is to be left unattended for any period of time, the valve 25 is opened, thus placing the container in direct communication with the return line 5 through passage 24 and permitting the valve 29 to be seated thereby to positively close the hose outlet 23. Therefore, if gasoline should be pumped into the container by an unauthorized person it could not be discharged through the opening 23 because the same would be closed by the valve 29, and of course it would immediately flow back to the source of supply through the passage 24 and return line 5.

With further reference to the valve 25 it may be pointed out that the same is provided with a stem 25[a], which extends downwardly through the boss 25[b] of the base or plate 7 and has its exposed end 25[c] in the boss. The lower end of the spring abuts against a washer 25[f], or its equivalent, and the extremity of the stem is adapted to be engaged by one end of a lever 30 whose opposite end projects through a slot in the casing A as at

30[a]. This lever is pivotally supported as at 31 in a bracket 32 carried by the return line 5 and as will be observed from Fig. 5 the normal position of the stem 25[a] and the lever 30 is such that the spring 25[d] is expanded and the valve 25 seated.

When the pump is to be left unattended the lever 30 is rocked on its pivot 31 thereby to bring the eye 33 of the end 30[a] into alinement with the eye 34 of a flange attached to the casing A at the edge of the slot therein through which the lever 30 projects so that a padlock P or the like may be inserted in the registering eyes and thus maintain the lever in a downward position. Also, the upper end of the flange may be provided with an eye or opening so that the lever might be locked in its upward position. The effect of locking the lever in eye 34 is to compress the spring 25[d] and elevate the stem 25 to unseat the valve 25, thereby causing the spring to compress the gasket 25[e] and insure a fluid tight joint between the stem and the gasket, and also elevating the arm or extension 26 carried by the valve. Since the arm 27 is interlocked with the extension 26, when the latter is elevated by the unseating of the valve 25, the valve 29 carried by the lever 27 will be let down to close the discharge port or outlet which communicates with the drain or customer's hose H. Therefore, when the valve 25 is locked in its open position it will be apparent that any gasoline pumped into the container cannot flow past the valve 29 and will make its way back to the return or overflow pipe 5.

The lever 30 may serve as a convenient support for the nozzle N when the pump is not in use. That is to say, the loop or eye on the nozzle which is ordinarily placed on the hook 9 may be placed over the lever 30 thereby to pull the lever downwardly and maintain valve 25 open and valve 29 closed. Then, when the padlock P, or the like is placed through eyes 33 and 34, the said lock will not only hold the lever 30 in a tamper-proof position but will also prevent removal of the nozzle N by unauthorized persons. The opening in the casing A through which the lever 30 projects may be formed sufficiently large to permit the loop of the nozzle N to be engaged over said lever.

The pump E for elevating the gasoline from the source of supply to the container or reservoir C includes in its organization a chambered valve base designated as 35 (Fig. 6) which communicates with a supply pipe 36 and has the valves 37 therein adapted to respectively communicate with separate cylinders 38. These cylinders are held to the base 35 by means of the elongated bolts 39 which clamp the cylinders between the chambered cover 40 and the valve base as clearly shown in Fig. 6. The upper ends of the cylinders 38 communicate with the cover 40 which in turn is provided with a boss 41 for receiving the lower end of the supply or fill pipe 4.

The pump cover 40 has the rock shaft 42 journaled therein, the same receiving at its outer exposed end the operating handle F, and carrying within the cylinder the connecting rods 43 which connect with the wrist pins 44 of the one piece self guiding or self alining pistons 45. These pistons have two or more packing grooves, depending upon the duty of the pump, and each groove receives at the bottom thereof a split flat metallic expanding ring 46 and a flexible cushion packing 47 which takes the place of the commonly used cup-leathers but which are far more durable and satisfactory and last indefinitely. The heads of the pistons 45 are provided with the valves 48 which close on the up stroke of the pistons but open on the down stroke thereof to get behind the gasoline brought into the cylinder through the valve 37 on the previous up stroke. In assembling the construction, the valve 48 is inserted in the piston first and the valve seat 48 is screwed in place afterwards, thus improving and simplifying the piston construction. It will also be observed that the body or side wall of the piston extends above the wrist pin 44, thereby assisting in the proper guiding of the piston in the cylinder, and this feature, together with the spaced packing rings 47, prevents scarring and wearing of the cylinder walls.

With the pump construction described it will be apparent that by reciprocating the handle F, the pistons 45 will be alternately elevated and lowered to lift the gasoline from the source of supply into the reservoir C.

Another feature of the invention resides in the novel cap or display cover construction D for the pump. As will be observed from Figs. 1, 2 and 3 the plate 13 is provided with an upstanding flange 13[a] and a downturned canopy or drip flange 13[b]. The flange 13[a] cooperates with the rounded or dome-shaped central part 50 of the cap which is provided with a flange 51 that cooperates with the upstanding flange 13[a] to completely house and protect the dust plate 13 from the weather. Also the entire cap D is hinged as at 52 to the plate 13 so that the same may be rocked on the hinge when desired to expose the dust plate 13 and its associated parts. In addition to performing the functions of a cap the dome portion 50 also serves as a means for supporting the electrical fixtures for illuminating the pump. As will be seen from Fig. 3 the top of the cover is provided with a shade or globe holder 53 for securing the transparent or translucent globe 54 in place. The central portion of the cover also supports an electrical fixture 55 for receiving a lamp to illuminate the transparent globe 54. The sides of the part 50 are provided with the radially disposed electrical fixtures 56 for receiving lamps for

illuminating the reservoir C on all sides in accordance with the well known practice. The electrical fixtures 55 and 56 are electrically connected with the main line or circuit through the wires 57 which are brought up through the casing A in a standard form of cable 58 as clearly shown in Figs. 2 and 3. It will of course be understood that sufficient slack is provided in the wires 57 to permit of the cover D being rocked on the hinge 52. Also to assist in insulating the electrical fixtures from the main part of the apparatus an insulating shield 59 may be employed.

Another feature of much practical importance in the present invention resides in the marking of the gallon indications on the inside of the transparent container 14. As will be observed from Figs. 7 and 8 the figures as well as lines indicating the gallons are sand-blasted on the inside of the cylinder. By sand-blasting the figures and other indicia on the inside of the glass as indicated at 60 the exact liquid level is truly visible from any angle regardless of the thickness of the glass and the position from which the reservoir is viewed. Due to the parallax in vision with markers on the outside of the glass some jurisdictions require that the markers be inside of the measure, and it has been the practice heretofore to use metal markers on rods inside of the measure. However, as these markers cannot be made absolutely stationary, there is too much variation in measurement and no dependable accuracy. By sandblasting the figures and level indicating marks on the inside of the glass the accuracy of the measure is insured.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:—

1. A gasoline dispensing device including a reservoir comprising a base, a container mounted on the base, means for supplying liquid to the reservoir, an overflow pipe carried by the base and projecting upwardly into the reservoir, a return pipe connected to the base and communicating with the overflow pipe, said base having a dispensing outlet and a drain passage which communicates with the reservoir and with the return pipe, a valve for the dispensing outlet, a spring pressed valve for normally closing the drain passage, and means for connecting the first named valve with the spring pressed valve whereby when one valve is unseated the other will be seated.

2. A gasoline dispensing device including a reservoir comprising a base, a transparent container mounted on the base, means for supplying liquid to the reservoir, an overflow pipe carried by the base and projecting upwardly into the reservoir, a return pipe line connected to the base and communicating with the overflow pipe, and said base having a dispensing port and a drain passage therein and said drain passage adapted to communicate with the reservoir and with the return line, a valve for closing the drain passage, a spring for normally maintaining said valve closed, a lever supported intermediate its ends on the base, a valve adapted to close the dispensing outlet carried by one end of the lever, a connection between the valve for the drain outlet and said lever whereby when said latter valve is closed the valve for the dispensing outlet is open, and means adapted to operate in opposition to the spring for maintaining the valve of the drain passage open whereby the valve for the dispensing outlet will be closed.

3. A gasoline dispensing device including a reservoir comprising a base having a dispensing outlet and a drain passage, a spring actuated drain valve normally closing the drain passage, a support carried by the base, a lever intermediately pivoted to said support, a valve carried by said lever for controlling the flow through the dispensing outlet, a connection between said lever and said drain valve, a lever for controlling the position of the drain valve, and means whereby said second mentioned lever is adapted to be locked in a position to maintain the drain valve open and the other valve closed.

4. A gasoline dispensing device comprising, in combination, a reservoir having liquid supply means and overflow and return means, a dispensing hose, a pump for forcing liquid into the reservoir through the supply means, a pair of valved outlets in the reservoir respectively communicating with the dispensing hose and the return line, and means for operatively connecting and controlling said valved outlets whereby when the outlet connecting with the dispensing hose is closed liquid supplied by the pump to the reservoir will pass therefrom to the return line.

5. A gasoline dispensing device comprising, in combination, a reservoir including a base having a customer's service discharge opening for the contents of the container, means for supplying gasoline to the container, overflow means for establishing the level of gasoline in the container, and said case having a passageway communicating with the overflow means and provided with a valve opening, a valve for said opening, a valve for said customer's service discharge opening, a support on the base between said valve opening and the customer's discharge opening, a lever carried by said support and operatively connected with a valve for said

customer's discharge opening and the valve for the drain opening, and means for operating the valve at the drain opening to control the latter and also the valve at the customer's discharge opening.

6. A gasoline dispensing device including a reservoir comprising a base, a transparent cylinder mounted on the base, means for supplying liquid to the reservoir, means for emptying the same, a dust plate covering the reservoir, means for clamping the dust plate to a part of the means for supplying liquid to the reservoir, and a display cover hinged to one side of the dust plate.

7. A gasoline dispensing device including a reservoir comprising a base, a transparent cylinder mounted on the base, a central gasoline feed pipe, a cover plate having a circumferential seat for engaging the upper edge of the transparent container and having a central opening for receiving the said gasoline feed pipe, a clamping member for engaging said feed pipe to force the dust plate into firm contact with the upper edge of the cylinder, an upstanding flange formed on the upper side of the dust plate, and a display cover hinged to the dust plate and having a portion fitting over said upstanding flange of the dust plate.

8. In a gasoline dispensing device, a reservoir including a base, a transparent container mounted on the base, an overflow pipe connected with the base, a feed pipe connected with the base, a dust cover engaging the upper edge of the transparent container, and a clamping nut for engaging the feed pipe to rigidly clamp the dust plate against the container.

9. A gasoline dispensing device comprising a container, gasoline supply, dispensing and return means connected with said container, a valve controlling said dispensing means, a valve controlling said return means, and a connection between said valves whereby closing of one opens the other.

10. A gasoline dispensing device comprising a container, gasoline supply, dispensing and return means connected with said container, a valve controlling said dispensing means, a valve controlling said return means, a connection between said valves whereby closing of one opens the other, and means maintaining said second mentioned valve normally closed.

11. A gasoline dispensing device comprising a container, gasoline supply, dispensing and return means connected with said container, a valve controlling said dispensing means, a valve within said container controlling said return means, a connection between said valves whereby closing of one opens the other, a stem on said second mentioned valve projecting exteriorly of said container, compressible packing surrounding said stem, an abutment on said stem exteriorly of the container, and a coil spring between said packing and said abutment reacting from the packing to maintain said second mentioned valve normally closed.

12. A gasoline dispensing device comprising a container, gasoline supply, dispensing and return means connected with said container, valves for controlling said dispensing and return means, respectively, and an intermediately pivoted lever connected at its ends with said valves, respectively, whereby closing of one of said valves opens the other.

13. A gasoline dispensing device comprising a container, gasoline supply, dispensing and return means connected with said container, valves for controlling said dispensing and return means, respectively, a connection between said valves whereby closing of one opens the other, and means for operating said valves.

14. A gasoline dispensing device comprising a container, gasoline supply, dispensing and return means connected with said container, valves for controlling said dispensing and return means, respectively, a connection between said valves whereby closing of one opens the other, and a lever for operating said valves.

In testimony whereof I hereunto affix my signature.

JOHN J. TOKHEIM.