A. A. BOWSER.

SELF MEASURING DEVICE.

APPLICATION FILED MAR. 28, 1907.

1,046,052. Patented Dec. 3, 1912.

Fig. 1.

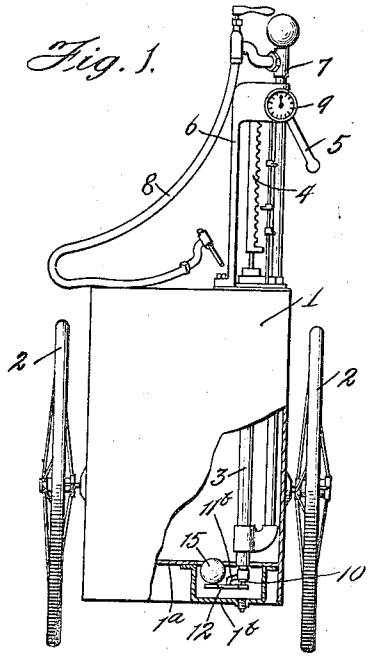


Fig. 2.

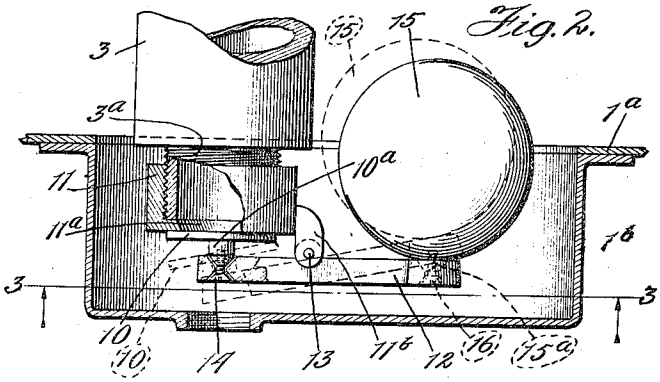
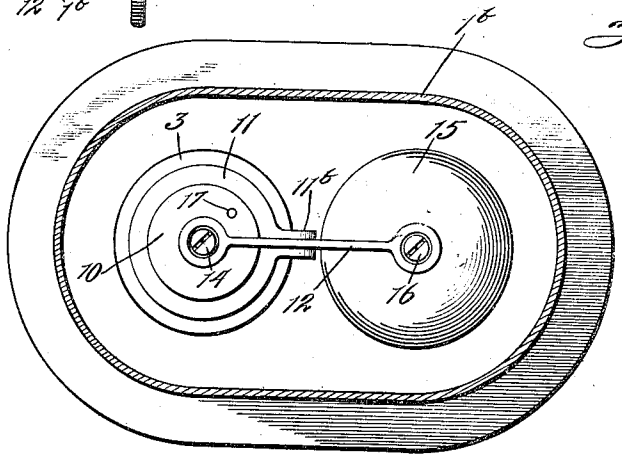


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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SELF-MEASURING DEVICE.

1,046,052. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed March 28, 1907. Serial No. 365,103.

To all whom it may concern:

Be it known that I, ALLEN A. BOWSER, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Self-Measuring Devices, of which the following is a full, clear, and exact specification.

The invention relates to automatic cut-offs and has for its primary object to provide an improved device of the character described, which is simple and efficient, and particularly adapted to be used for automatically stopping the action of a self-measuring pump used for drawing liquids from receptacles.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings, illustrating an exemplification of the invention, and in which—

Figure 1 is a view in elevation of a portable tank carrying a self-measuring pump provided with the invention. In this view portions of the walls of the tank are broken away to disclose the cut off applied to the lower or intake end of the pump barrel. Fig. 2 is an enlarged view of the invention in side elevation showing broken parts of the tank and the pump with which the device coöperates. In this view, the movement of the device is illustrated diagrammatically the open position of the valve and its operative parts being shown in dotted lines. Fig. 3 is a bottom plan view of the device taken on line 3—3, Fig. 2.

A convenient embodiment of the invention shows it applied to the wheel or portable oil tank equipped with a self measuring device or pump, as shown in Fig. 1. This tank is particularly adapted for use in garages for distributing oils in measured quantities to motor cars and the like.

The numeral 1 represents the body of the tank provided with suitable carrying wheels 2; the walls of the tank are broken away, showing the barrel of the pump on the interior, the lower end of which extends flush with or below the bottom plate 1^a of the tank, a suitable depressed receptacle or housing in the bottom of the tank being formed as designated by the numeral 1^b. The pump barrel 3 is provided with a suitable piston operated by any convenient mechanism above the top of the tank, as, for example, the rack 4 and a suitable engaging pinion carried by the operating handle 5, all these parts above the top of the tank being carried by a suitable supporting bracket 6.

The pump to which the invention is shown applied, although not necessarily so, is preferably of the solid piston type not illustrated, and the common suction and discharge valves with which the pump may be provided to be operative are not shown, since they are of old and well known construction and form no part of the present invention.

When it is desired to fill the receptacle of a motor car, any desired quantity of oil may be forced from the pump through the exhaust or discharge pipe or passage 7, through a suitable hose 8, which is preferably flexible for convenience. The quantity of oil that is discharged by the pump is ordinarily registered by suitable mechanism designated by the numeral 9, operated by the stroke of the piston or suitable connection with the discharge mechanism of the pump. Wheel tanks of this character are not ordinarily provided with gages to disclose the quantity of oil within the tank at all times and it will be apparent that when the discharge end of the hose 8 is placed within a closed receptacle, the operator may not be made aware of the exact time when the supply of oil in the tank is exhausted and if the operation of the pump be continued, the pumping mechanism will simply exhaust air from the interior of the tank while the registering mechanism will continue to operate as the air is exhausted. To avoid this difficulty is one of the objects of the present invention, the preferred form of which consists primarily of the movable valve 10 adapted to coöperate with the lower or intake end of the pump barrel and to close the same and so check the operation of the pump when the supply of oil within the tank is exhausted or reaches a predetermined level. The lower end of the pump barrel is preferably provided with a reduced threaded portion 3^a adapted to take the cup-shaped member 11, which is also threaded and is pro-

vided in its base with a suitable opening 11^a adapted to serve as the intake port of the pump barrel and with which the valve 10 is adapted to coöperate. The cup-shaped member 11 is preferably provided with a laterally depending arm 11^b to which the member 12 is pivoted at 13. The arm 12 carries at one end the valve 10, being provided with a suitable counter-sunk portion or recess adapted to take the depending member 10^a. On the lower side of the member 12 a recess is provided opposite the recess just described on the upper side, the two recesses communicating with each other and adapted to take a suitable screw 14 inserted from the lower side and threaded into the depending member 10^a of the valve 10. A sufficient amount of play is preferably provided between these connections of the valve just described and the arm 12 to permit the valve to seat itself properly.

At the opposite end of the member 12 a float 15 is carried and may be connected to the arm in any suitable manner but a connection similar to that just described between the valve and the arm 12 is preferably provided, consisting of an opening counter-sunk from both sides of the arm and into which a depending branch 15^a from the float is secured by the screw 16. The float 15 may be of any suitable material but should be lighter than the quantity of oil it is adapted to displace in order that it may operate to retain the lever 12 and the valve in the position illustrated in dotted lines in Fig. 2 when the float is immersed in oil or other liquid within the tank. When the oil surrounding the float is removed to the degree when it is desired that the operation of the pump shall cease, gravity will cause the float to depress the end of the lever 12 to which it is connected, thus elevating the valve 10 and shutting off the supply of oil to the pump barrel.

It is found that the closing of the valve 10 by the float produces a vacuum between the valve and the piston, which if maintained may prevent the float from having sufficient buoyant power to open the valve, and consequently upon becoming closed may remain inoperative even after a supply of liquid has been placed within the tank, bringing the level above the float. The maintenance of the vacuum between the valve and the piston, which vacuum formed by the closing of the valve is intended only as a warning to the operator, may be prevented by providing the valve 10 with a suitable relief hole or vent 17, which will permit of but a relatively small intake opening, and so small that the closing of the valve 10 will stop the effective pumping operation, and will in fact practically stop the piston, so that the operator will be warned that the liquid is exhausted and will find it impossible to do effective pumping until the supply of liquid within the tank around the intake of the pump is replenished.

From an inspection of Figs. 1 and 2 of the drawings it will be seen that the relative positions of the valve 10 and the float controlling the same in relation to the intake of the pump barrel are such that the float will fall and the valve 10 close upon the intake to stop the effective pumping operation before the liquid has reached the lower or intake end of the pump barrel, thus effectively preventing any air being drawn into the pump by the piston. When the valve 10 is closed by the float it will be of course possible to operate the pump by pumping a small quantity of oil through the relief hole or vent 17, but this is so small and the relative movement of the piston when the valve is closed is so slow, that the warning to the operator of the exhaustion of the liquid supply within the tank is effective for practical purposes as though the liquid supply were entirely cut off.

In order that the invention might be fully understood, the details of an embodiment thereof have been thus specifically described but it will be apparent that many variations may be made in the arrangement of details by those skilled in the art without departing from the purpose and spirit of the invention, and what I claim is:—

1. In a device of the character described, the combination with a pump, of a barrel provided with an intake port, a pivoted lever, a valve coöperating with said intake, said valve being controlled by said lever and provided with a relief hole or vent, and a float controlling said lever.

2. In a device of the character described, the combination with a tank, of a pump barrel, an intake port adjacent the lower extremity of the pump barrel, a lever pivotally connected to the said barrel, a valve provided with a relief hole or vent carried at one end of the pivoted lever and adapted to coöperate with the intake port and, a float secured to the other end of the said lever.

3. In a device of the character described, the combination with a pump of a pump barrel provided with an intake port, a valve coöperating with said intake port, said valve being provided with a relief hole or vent, and a float controlling said valve.

4. In a device of the character described, the combination with a tank adapted to contain liquid, a cylinder provided with a piston, there being a portion of the pump extending within the tank and having an intake communicating with the interior of the tank, and a valve adapted to close the intake automatically when the supply of liquid within the tank reaches a predetermined level, there being means for automatically

relieving the vacuum between the pump piston and the valve when the valve is closed consisting of a constantly open passageway between the interior of the tank and the interior of the pump cylinder.

5. In a device of the character described, the combination with a tank adapted to contain liquid, of a pump having a cylinder provided with a piston, there being a portion of the pump extending within the tank and having an intake communicating with the interior of the tank, and a valve adapted to close the intake automatically when the supply of liquid within the tank reaches a predetermined level, there being means for automatically relieving the vacuum between the pump piston and the valve when the valve is closed consisting of a constantly open passage way in the valve extending between the interior of the tank and the interior of the pump cylinder.

6. In a device of the character described, the combination with a pump, of a pump barrel provided with an intake port, a valve coöperating with said intake port to close the same automatically when the supply of liquid adjacent the pump barrel reaches a predetermined level, there being means for relieving the vacuum between the pump piston and the valve when the valve is closed, consisting of a constantly open passage way or vent between the interior of the pump barrel and its exterior.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 25th day of March A. D. 1907.

ALLEN A. BOWSER.

Witnesses:
S. B. BECHTEL,
W. G. ZAHRT.