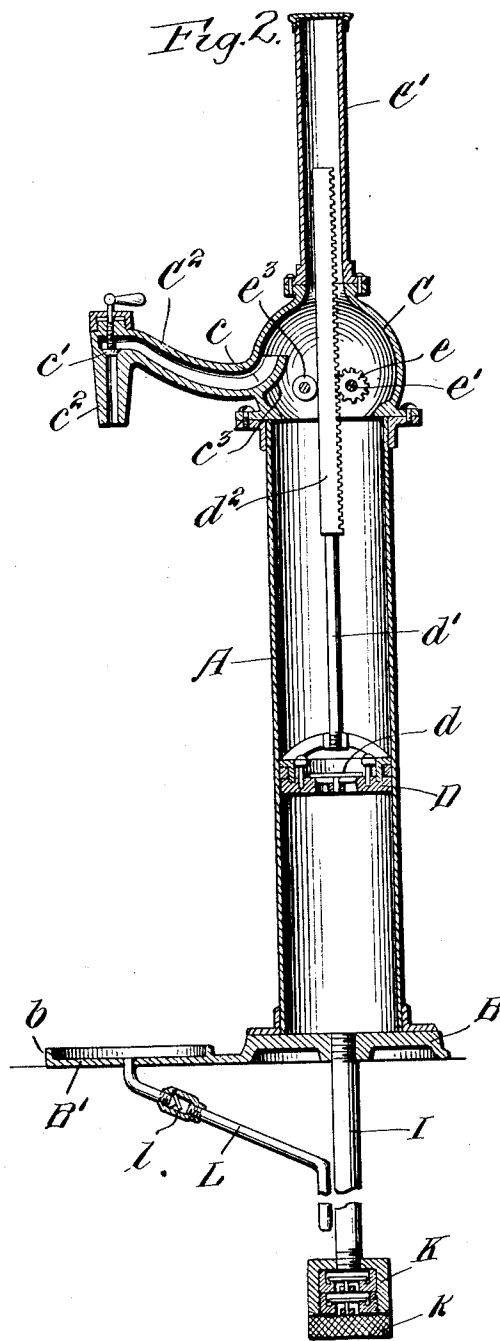
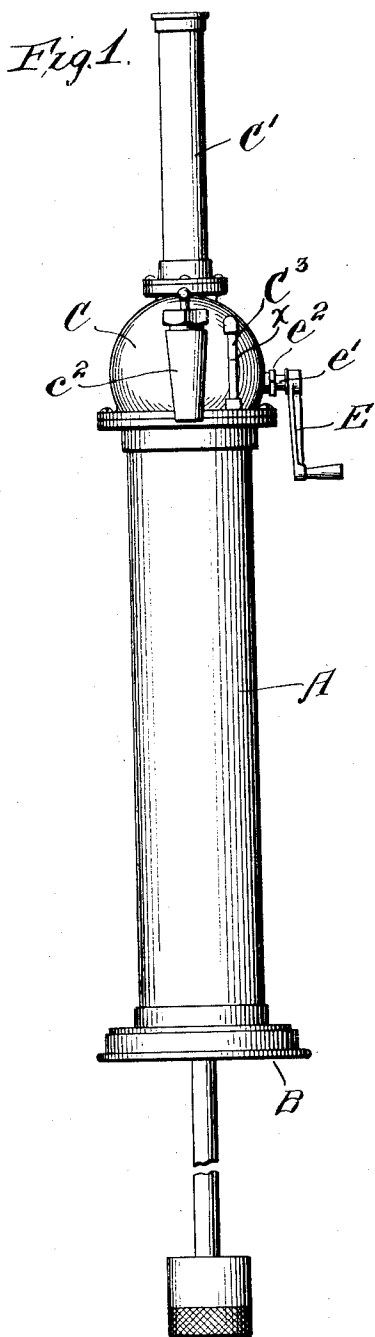


W. B. HAINES.
LIQUID DELIVERING DEVICE.
APPLICATION FILED MAR. 19, 1909.

Patented May 24, 1910.

959,216.



WITNESSES:

M. F. Roy & Co.
J. K. Moore

INVENTOR

William B. Haines

BY

Whitaker & Tabor
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM B. HAINES, OF SUNBURY, PENNSYLVANIA, ASSIGNOR TO HAINES OIL MEASURING PUMP COMPANY, OF HARRISBURG, PENNSYLVANIA.

LIQUID-DELIVERING DEVICE.

959,216.

Specification of Letters Patent.

Patented May 24, 1910.

Original application filed June 9, 1908, Serial No. 437,568. Divided and this application filed March 19, 1909. Serial No. 484,498.

To all whom it may concern:

Be it known that I, WILLIAM B. HAINES, a citizen of the United States, residing at Sunbury, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Liquid-Delivering Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists in the novel features hereinafter described reference being had to the accompanying drawing which illustrates one form in which I have embodied my invention and said invention is fully disclosed in the following description and claims.

Referring to the drawings, Figure 1 represents a front elevation of a measuring pump embodying my invention. Fig. 2 is a vertical sectional view of the same.

This application is a division of my former application for Letters Patent of the United States, for improvements in measuring pumps, filed June 9, 1908, Serial No. 437,568.

The object of my invention is to provide a pump for delivering quantities of liquids particularly such as gasoline, kerosene and the like.

In carrying out my invention I employ a pump cylinder and piston or plunger, the latter being operated by the rotation of a shaft carrying a pinion gearing with a rack on the pump rod, which is entirely inclosed within the pump cylinder or an extension of the same, so that no evaporation of the liquid or escape of fumes is permitted. This is particularly desirable in handling gasoline, the fumes of which mixed with air form, as is well known, a highly explosive and dangerous mixture. The pinion and rack teeth are preferably so proportioned that each revolution of the pinion moves the plunger to deliver a definite quantity of liquid, say one quart, the capacity of the cylinder being a multiple of this quantity, say one gallon, and the rack providing for four revolutions of the crank shaft to move the plunger from its lowest to its highest position. I also provide a dripless siphon delivery spout, and in connection therewith a sight gage to show the level of the liquid above the plunger.

In Figs. 1 and 2 I have shown my inven-

tion applied to a type of pump adapted for use especially with a storage receptacle, barrel or tank located in another apartment and below the room in which the pump is placed, as in the cellar of a building, or a tank set in the ground outside of the building as the case may be. In these figures A represents the pump barrel or cylinder provided with a base B, and a substantially spherical head C. D is the piston or plunger located in the cylinder and provided with the valve *d* and a piston or pump rod *d'* having a rack *d''* thereon. The rack engages a pinion *e* on a shaft *e'* journaled in the head C and provided at one side thereof with a gland *e''* through which it projects, and the projecting portion of the shaft *e'* is provided with a crank or handle E at its end, for operating the shaft *e'* by hand.

Within the head C, an idle roller *e'''* is preferably supported on the side of the rack opposite the pinion *e*, to hold the rack in engagement with the pinion and guide it in its vertical movements.

The base B has an aperture in it into which is screwed the supply pipe I, which extends into the supply tank, barrel or receptacle, wherever located, and is provided at its lower end with the check valve K and sieve or filter *k*. I prefer to provide the base B with an extension B' having an annular flange *b*, and forming a drip pan to catch any overflow, when filling vessels with the device. The drip pan is provided with a central aperture through which the liquid drains, and from which it is conducted by a drain passage or pipe L to the storage or supply receptacle. The pipe or passage L is preferably provided with a check valve *l* to prevent the escape of fumes from the storage or supply receptacle.

The upper end of the pump cylinder or barrel is provided with a closed tubular extension C' secured to the head C to permit the rack to move upwardly as required, and which also serves as an air chamber. The device is also provided with a delivery spout of peculiar form. In Figs. 1 and 2 I have shown this spout formed integral with and connected to the head C, which brings the nozzle of the spout at a convenient height from the drip pan B' for filling vessels. The delivery spout C² extends outwardly and upwardly from an aperture *c* in the

head C, and adjacent to its highest point is provided with a cut off valve c' , below which extends a discharge or nozzle c'' . A curved lip c^3 extends upwardly from the lower edge of the discharge orifice c within the head, to a point slightly below the level of the seat of valve c' , as indicated in Fig. 2. When the piston is rising in the pump cylinder it forces the liquid above the lip and upwardly to the valve seat aperture, and there is a very slight compression of air in the upper part of the cylinder. When the piston stops it stops suddenly, as is usual with a hydraulic piston, and the reaction of the air cushion above the liquid forces the liquid out quickly until it reaches the level of the lip c^3 , when it instantly stops with even a slight rebound in some instances, leaving the liquid in the spout below the level of the valve seat, hence there will be no drip after the operation of the device is stopped. This is desirable as it avoids waste of liquid and the stoppage of all flow is practically simultaneous with the stoppage of the piston. The valve c' serves the function of hermetically sealing the pump and preventing either the escape of fumes or the ingress of air. In order that the operator may know the exact level of the liquid in the pump before beginning to operate it, I provide a sight gage C^3 , of usual type which is secured to the apparatus in line horizontally with the delivery orifice, and will preferably be provided with a mark as indicated at x in line with the upper edge of the lip c^3 .

The operation of the device will be clear from the drawings and foregoing description and need not be specifically described.

What I claim and desire to secure by Letters Patent is:—

1. In a liquid delivering device, the combination with a pump cylinder provided at its upper end with a closed air chamber, and a piston working in said cylinder, of a horizontally disposed delivery spout connected with the cylinder below the air chamber and having a portion extending above its point of connection with the cylinder, and provided with a lip within the air chamber, extending upwardly from the lower edge of the communicating aperture between the cylinder and said spout.

2. In a liquid delivering device, the combination with a pump cylinder provided at its upper end with a closed air chamber, and a piston working in said cylinder, of a horizontally disposed delivery spout communi-

cating with the cylinder by an aperture located adjacent to but below the upper end of the air chamber portion of the cylinder, and provided with a lip extending inwardly and upwardly from the lower edge of said communicating aperture, said spout having portions between said aperture and its delivery end extending above the upper edge of said lip, and having a valve seat located adjacent to the horizontal plane of the upper edge of said lip, and a valve in said spout engaging said seat.

3. In a liquid delivering device, the combination with a pump cylinder provided at its upper end with a closed air chamber, and a piston working in said cylinder, of a horizontally disposed delivery spout communicating with the cylinder by an aperture located adjacent to but below the upper end of the air chamber portion of the cylinder, and provided with a lip extending inwardly and upwardly from the lower edge of said communicating aperture, said spout having portions between said aperture and its delivery end extending above the upper edge of said lip, and having a horizontal valve seat located above the horizontal plane of the upper edge of said lip and a vertically movable valve engaging said valve seat.

4. In a liquid delivering device, the combination with a pump cylinder having a closed air chamber portion extending above the same, a piston working in said cylinder, a rack bar connected with the piston and adapted to extend into the air chamber portion when in its upper position, a horizontal operating shaft provided with a pinion engaging said rack and having a portion extending outside of said cylinder, a handle secured to the outwardly extending portion of said shaft, a delivery spout connected to the air chamber portion of the cylinder by a communicating aperture located below the upper end of the air chamber, and having a lip extending inwardly and upwardly from the lower edge of said aperture, said spout having portions between its inner and outer ends extending above the horizontal plane of the upper edge of said lip, and a valve located at the highest part of said spout.

In testimony whereof I affix my signature, in the presence of two witnesses.

WILLIAM B. HAINES.

Witnesses:

B. F. KELLEY,
WILLIAM S. HARRIS.