No. 632,568. Patented Sept. 5, 1899.

A. H. HERRON.

MEASURING PUMP.

(Application filed June 17, 1898.)

(No Model.)

Fig. 1.

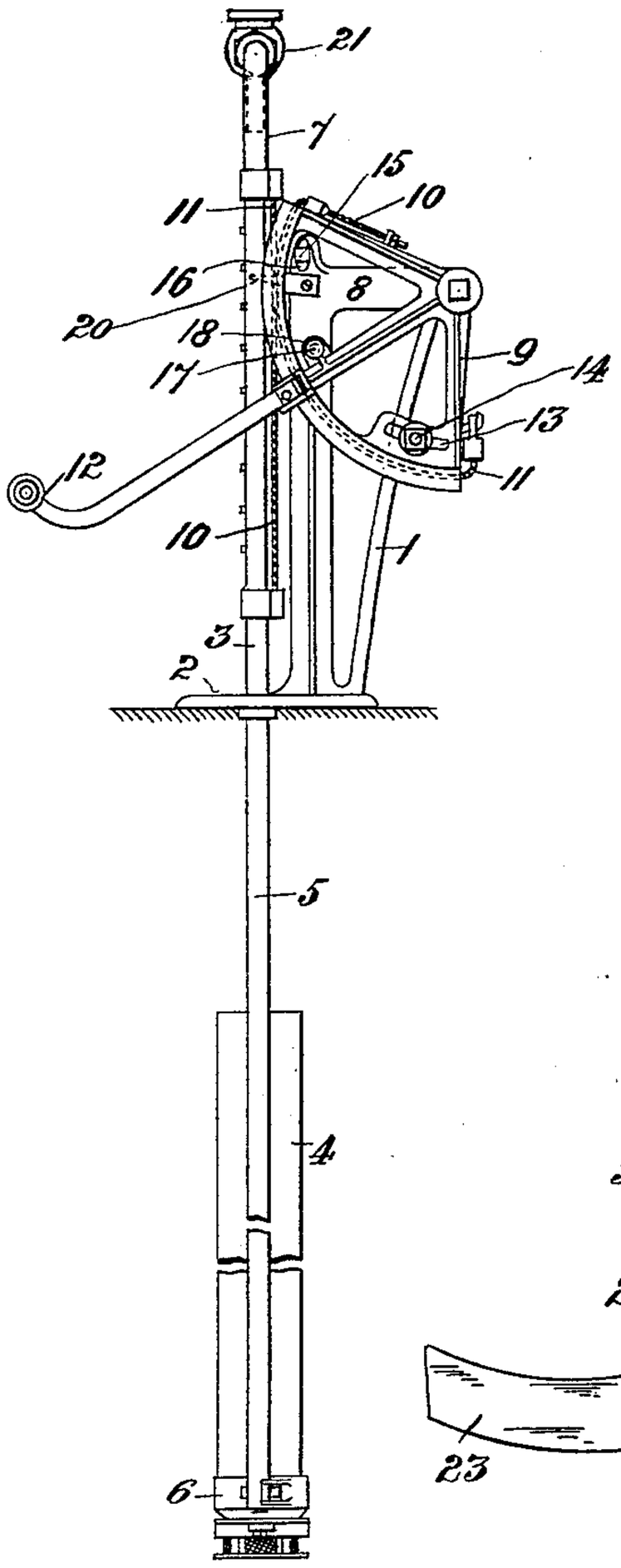


Fig. 2.

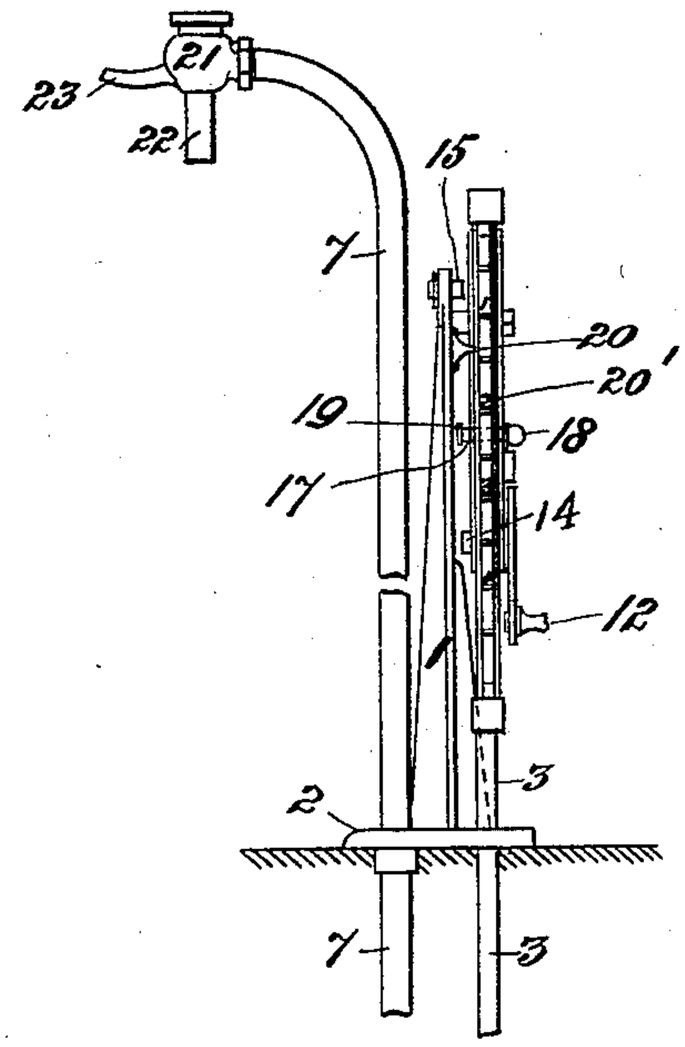
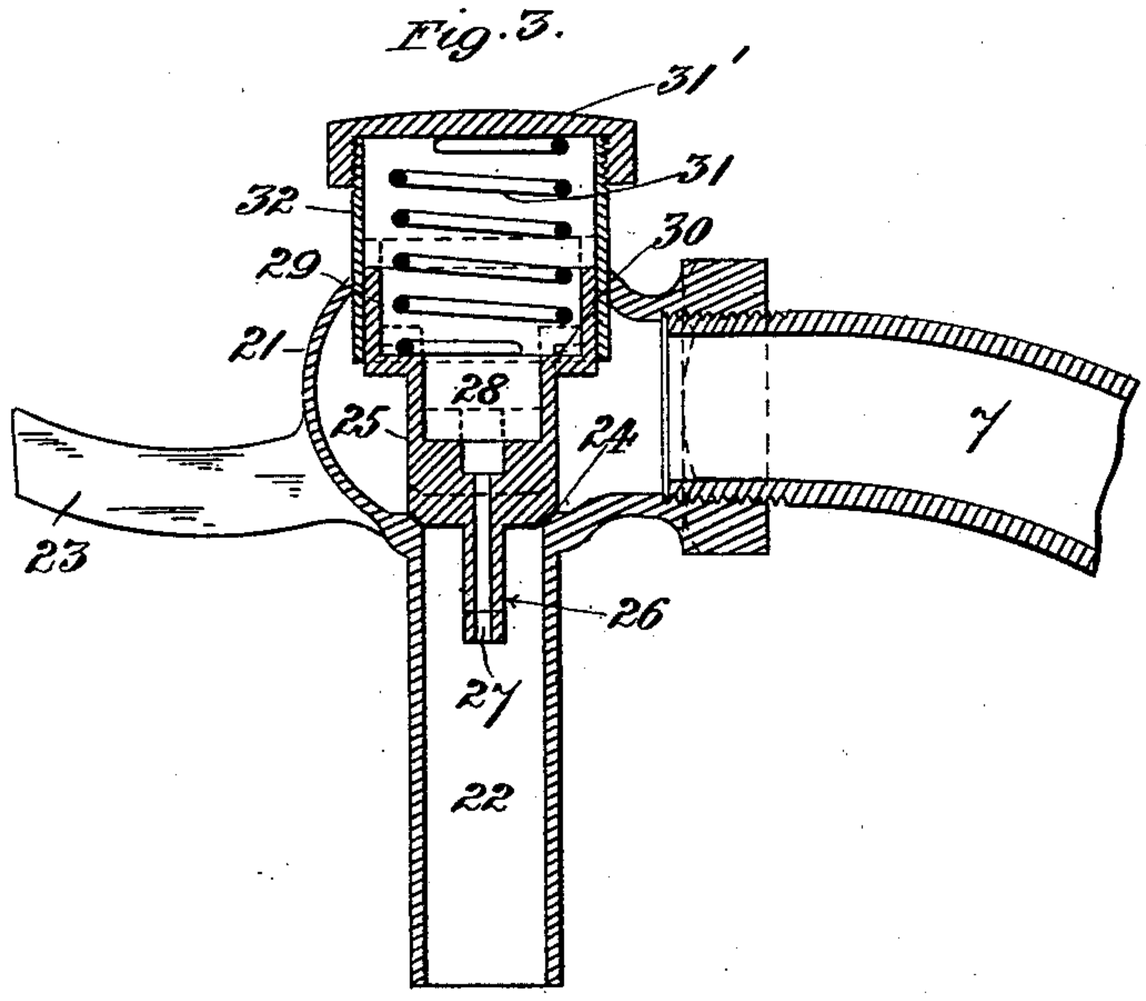


Fig. 3.



WITNESSES
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by
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UNITED STATES PATENT OFFICE.

AL H. HERRON, OF ST. LOUIS, MISSOURI, ASSIGNOR TO THE ANTHONY WAYNE MANUFACTURING COMPANY, OF SAME PLACE.

MEASURING-PUMP.

SPECIFICATION forming part of Letters Patent No. 632,568, dated September 5, 1899.

Application filed June 17, 1898. Serial No. 683,703. (No model.)

To all whom it may concern:

Be it known that I, AL H. HERRON, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Measuring-Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention has relation to improvements in measuring-pumps; and it consists in the novel arrangement and combination of parts more fully set forth in the specification and pointed out in the claims.

In the drawings, Figure 1 is a side elevation of the pump. Fig. 2 is a front elevation of the upper portion of the pump, and Fig. 3 is a middle vertical longitudinal enlarged section of the valve carried by the gooseneck or delivery pipe.

The present invention is an improvement on the oil-measuring pump described in the United States Letters Patent No. 577,957, granted me under date of March 2, 1897, and has for its object to provide the gooseneck or delivery pipe with a valve which shall be actuated by the efflux of fluid from the pipe, the valve seating itself the moment the required amount of fluid is discharged or when the pressure on the valve is reduced below the gravitating tendency of the valve and tension of the spring by which it is controlled. With my present improvement the atmosphere has no possible access to the oil which remains in the gooseneck after any particular operation, thus minimizing the loss due to evaporation, especially in the case of volatile oils like kerosene, gasolene, petroleum, and the like. By my present improvement the amount of drip after a predetermined quantity of liquid has been dispensed is practically reduced to *nil*.

In detail the device may be described as follows:

Referring to the drawings, 1 represents a suitable standard, the base 2 of which can be secured to any suitable support, table, counter, or the like. Passing freely through said base and extending both below and above the same is a reciprocating piston-rod or plunger 3, the base of which carries a piston operating in the open cylinder 4, secured to the base 2. The cylinder is partially secured to the base 2 by means of a rigid bar 5, depending from said base, the lower end of the bar 5 being secured to the hollow casting 6, forming the base of the cylinder and subserving the purpose of retaining the check-valves by which the flow of the liquid into and from the cylinder 4 is governed. The cylinder is additionally supported by means of the delivery-pipe 7, whose base communicates, as in my patent above referred to, with the outlet-passage from the casting 6, the upper end of the pipe 7 passing through and being secured to the base 2 of the supporting-standard.

Pivoted to the free end of a bracket or arm 8, forming a part of the standard, is a swinging arc 9, whose periphery is grooved for the reception of the adjacently-disposed elastic cables 10 11, the lower end of the cable 10 being secured at a convenient point to the upper piston extension and the upper end of said cable being secured to the upper end of the arc, while the upper end of the cable 11 is secured to the upper end of the piston extension, the opposite end of said cable being secured to the lower extremity of the periphery of the arc. The swinging arc is provided with a suitable handle or extension 12, which serves to swing the arc up or down, and accordingly draw up or force down the piston rod or plunger 3, operating within the pump-cylinder.

Adjustable in a curved slot 13 near the base of the periphery of the swinging arc is a bolt 14, whose inner end is adapted to strike the head 15 of a bolt adjustably mounted in a slot 16 at the upper end of the standard, thereby preventing the swinging of the arc beyond the limits of what is intended shall be its extreme stroke in one direction.

Carried by and sliding in an opening of the handle portion 12 at a point which lies in the path of the arc described by the bolt 14 is a pin 17, limited by a head 18 and expanded end 19, which when forced inwardly, as indicated in Fig. 2, is adapted to strike the head of the bolt 15 when the arc has described only half a stroke. In this way the degree to which the arc 9 is swung and the distance to which the piston-rod 3 shall be operated, and consequently the quantity of liquid pumped for any stroke of the piston, are accordingly governed and controlled.

Carried by the standard 1 and projecting out-

wardly and forwardly therefrom is an index or pointer 20, which coöperates with certain division-marks "1, 2, 3, 4," &c., of an index-plate 20′, secured to the front face of the upper extension of the plunger. The division-marks are arbitrary and may represent quarts, pints, or gallons. When the pin 17 is pulled out to its full extent, so that the arc has free swing, the operator can swing the same and draw up the plunger (or piston-rod) and cause the latter to stop when any particular division-mark on the index-plate comes opposite the index or pointer 20. In this way the exact quantity of oil can always be pumped into the cylinder at one stroke of the piston and forced from it on the next or down stroke.

The parts thus far described and the valves for controlling the liquid which passes into the cylinder (and which are neither herein shown nor described) are essentially the same as in the patent above referred to, it being understood that the present pump operates in precisely the same manner as the patented device. In the patent referred to, however, I find that the vent-valve placed at the crown of the arch of the gooseneck did not fully overcome the objection of excessive dripping, nor did the valve prevent access of the atmosphere to the oil column generally remaining in the gooseneck at the end of any particular operation. In lieu of the valve therein employed I substitute the valve which constitutes my present invention and which in detail may be described as follows:

Secured to the free end of the gooseneck extension of the delivery-pipe 7 is a valve-casing 21, having a depending delivery nozzle or tube 22, and forming a part of the outer wall of the casing is a hook or arm 23 for the support of the can or other vessel to be filled. Adapted to be normally seated against a circular seat 24 at the upper end of the nozzle 22 is the bevel edge of the medial cylindrical body portion 25 of a reciprocating cut-off valve, the said part 25 being provided with a hollow depending stem 26, the parts 25 and 26 having a common bore or passage 27, communicating with the chamber 28 at the upper portion of the part 25. The medial portion 25 expands into an upper guiding portion 29, the ledge 30 at the bottom of which is adapted to support a yielding coiled spring 31, whose upper end is adapted to bear against the under surface of a screw-cap 31′, screwed over the upper cylindrical extension 32 of the valve-casing. Normally the valve remains seated under the combined action of gravity and the resilient action of the spring 31. When the pump is set into operation, the pressure of the fluid in the pipe 7 against the base of the ledge 30 raises the valve off its seat against the resilient action of the spring (see dotted position of the parts in Fig. 3) and permits the oil to escape through the nozzle 22. The moment the required quantity has been dispensed the valve immediately seats itself, shutting off all access of the atmosphere from the fluid remaining in the pipe 7, and thus preventing any subsequent loss from evaporation, which in the case of volatile fluids like gasolene would amount to considerable. Again, the moment the valve is seated the amount remaining in the faucet below the valve will drop out into the can suspended by the hook 23, thus reducing the quantity lost by dripping to practically *nil*. The object of perforating the cut-off valve is apparent. It prevents accumulation of air-pressure behind the valve during the reciprocation of the latter.

It is obvious, of course, that slight changes may be made in the present device without departing from the spirit of my invention.

Having described my invention, what I claim is—

1. In a measuring-pump, a suitable cylinder and piston therefor, a discharge-pipe leading from the cylinder, a valve-casing located at the free or delivery end of said pipe, a hook or arm carried by the walls of the casing for suspending a suitable vessel, an upper tubular extension forming a part of the casing, a valve having an upper hollow expanded portion adapted to be guided by the walls of the casing extension, a middle body portion connected by a ledge or offset to the upper portion, a removable cap carried by the casing extension, a discharge-nozzle depending from the casing beneath the valve, means for normally retaining the valve against its seat at the upper end of the nozzle, a piston-rod or plunger connected to said piston, and means for reciprocating the plunger and piston carried thereby, the oil being forced from the cylinder through the discharge-pipe under the operation of the piston, and adapted to raise and unseat the valve confined in the casing, substantially as set forth.

2. In a measuring-pump, a valve-casing having a depending tube or discharge-nozzle, a hook or arm carried by the walls of the casing for suspending a suitable vessel, an upper tubular extension forming a part of the casing, a valve having an upper hollow expanded portion adapted to be guided by the walls of the casing extension, a middle hollow body portion connected by a ledge or offset to the upper portion, a screw-cap carried by the casing extension, a spring confined between the cap and ledge for forcing the valve against its seat at the upper end of the nozzle, a lower hollow or tubular portion forming a part of the valve and establishing communication between the outer air and the space behind the valve, the parts operating substantially as and for the purpose set forth.

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

AL H. HERRON.

Witnesses:
EMIL STAREK,
GEORGE L. BELFRY.