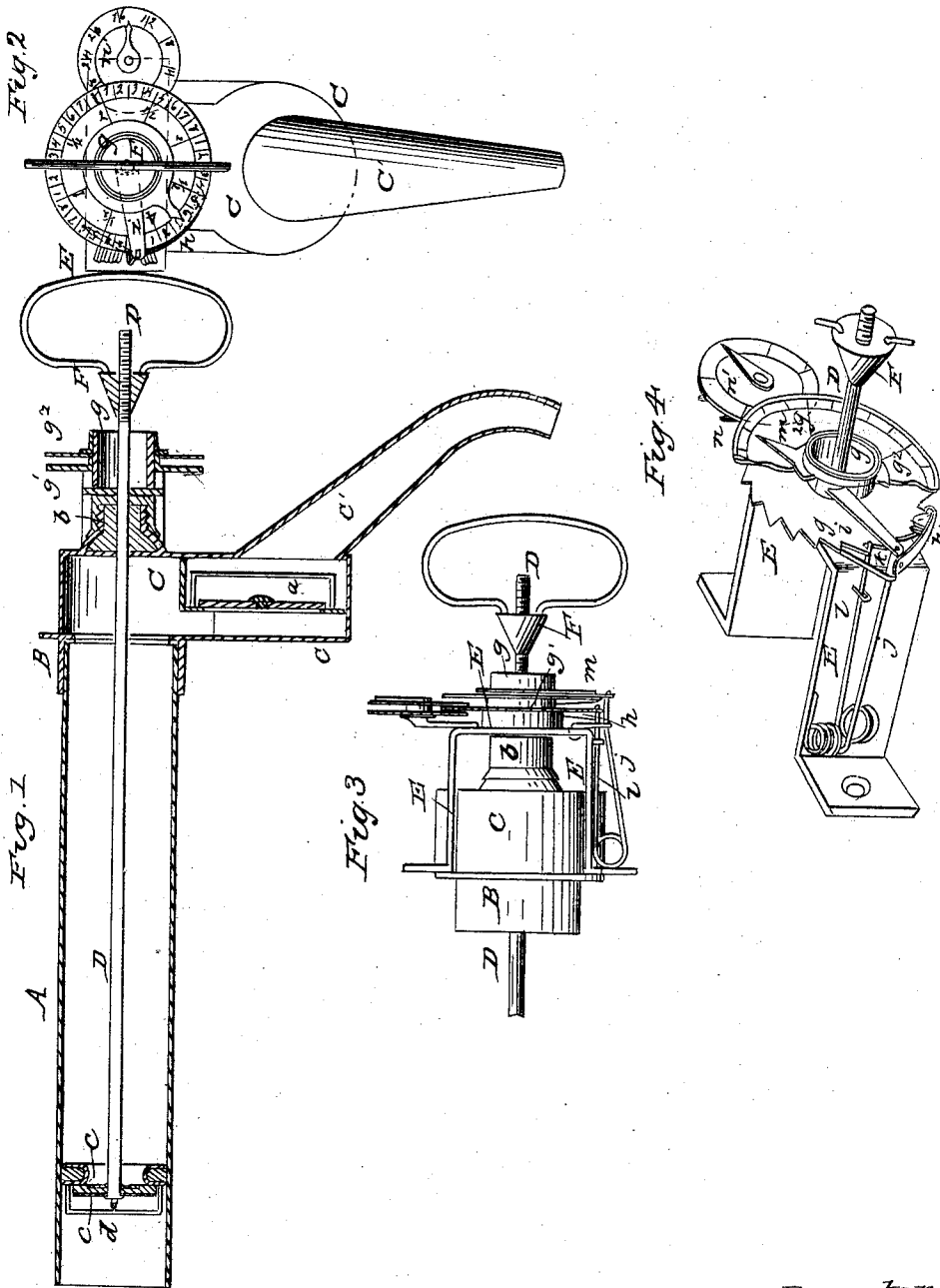


S. H. WHEELER.
Measuring Pump.

No. 55,433.

Patented June 5, 1866.



Witnesses
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S. H. WHEELER, OF DOWAGIAC, MICHIGAN, ASSIGNOR TO HIMSELF, RICHARD HEDDEN, JAMES THOMPSON, AND ROBERT B. THOMPSON.

IMPROVEMENT IN MEASURING-PUMPS.

Specification forming part of Letters Patent No. 55,433, dated June 5, 1866.

To all whom it may concern:

Be it known that I, S. H. WHEELER, of Dowagiac, in the county of Cass and State of Michigan, have invented a new and Improved Pump for Measuring Liquids as they are Drawn from Vessels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a vertical central section through the pump. Fig. 2 is a top or end view of the measuring devices. Fig. 3 is a side view of the measuring devices and head of the pump. Fig. 4 is a perspective view of the measuring devices detached from the body of the pump.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a novel mode of constructing pumps for drawing liquids from vessels—as, for instance, in transferring liquids from vats or reservoirs into barrels or casks.

The main object of the invention is to measure the amount of liquid which is drawn through the pump by providing the pump with a measuring and a registering device which shall operate automatically as the piston or plunger of the pump is moved, as will be hereinafter specified.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings my improved pump is represented in a horizontal position; but I contemplate using it in an upright position by passing the pump-barrel into the head of the vessel containing the liquid to be transferred, so that the discharge of the liquid will take place above the level of the same in the vessel, thus avoiding all danger of leakage around or through the pump-barrel which is not accounted for by the registering apparatus about to be described.

A represents the barrel of the pump, which may be made of any desirable length. It should be sufficiently long to reach the bottom of the vessel from which the liquid is drawn. B is a cylindrical receiver for one end of the barrel A, and C is an enlarged chamber into

which the liquid is drawn and from which it escapes through the valve *a* into the discharge-nozzle *C'*. The valve *a* is a check-valve for preventing the influx of air during the descent of the piston, and it is arranged within the chamber C for the purpose of allowing of a free flow of the liquid from the barrel A during the ascent of the piston.

The pump-rod D passes through a stuffing-box, *b*, and also through a bracket-support and cylindrical tube, as will be hereinafter described. That end of the rod D which works within the pump-barrel is secured to a circular valve, *c*, which has for its seat a ring-piston, *c'*. This piston is attached to the valve *c* by means of guard-wires or a cage, *d*, so that when the rod D is forced down the valve *c* will leave its seat or ring *c'* and be pressed against the bottom of the cage *d*, thus carrying with it the ring *c'*, and when the valve-rod is drawn up the valve will be seated and carry with it the ring *c'*. This arrangement will always insure the instantaneous opening or closing of the valve at the termini of the strokes of the piston-rod, and for this reason such a valve is peculiarly adapted for a pump which is intended for measuring the quantity of liquid drawn through it. When the piston on the rod D is drawn up it carries with it the liquid and fills the barrel A, the valve *a* opening to allow of the escape of air. When the piston descends its valve *c* is opened and the valve *a* closed. Then, on drawing up the piston again, it carries with it the liquid, and at the same time discharges that which is above it. In this way the pump-barrel is always filled, whatever may be the level of the liquid in the vessel from which the liquid is drawn. The operation of the pump will be the same if the valve *a* is placed at the lower end of the barrel A; but it is preferable to have the valve *a* arranged, as shown in the drawings, in the enlarged chamber C.

The measuring of the liquid is as follows: E represents a bracket, which may be secured to a flange on the body of the pump or to some other object. To this bracket E a tube, *g*, is secured, which is concentric to the rod D, that passes freely through the bracket, as shown in Fig. 1. The tube *g* serves as a central bear-

ing for a ratchet-wheel, g' , and a disk, g^2 , which disk is secured to the wheel, so as to rotate around the tube with this wheel.

The ratchet-wheel g' and its disks receive an intermittent rotary motion from the spring-pawl h by means of a cone, F , on the outer end of the rod D , which cone forces the short lever i outward at the termination of every descending stroke of the piston. The outer end of the rod or lever i is pivoted to the upper end of the spring j , to which the pawl h is attached. To this spring j an arm, k , is pivoted, which arm is again pivoted to the bracket E , and causes the outer end of the lever i to vibrate as this lever is thrust outward by the action of the conical wedge F upon it. The spring-rod l engages with the teeth of the ratchet-wheel g' , and serves as a check for this wheel to prevent it from turning backward. The wheel g' is moved the distance of one tooth at every descending stroke of the piston, and this movement is indicated by a hand or pointer, m , on the fixed tube g , which points at certain figures indicating pints, quarts, and gallons. When the disk or dial-plate g^2 has made a complete revolution, a pin which projects from the bottom of the spur-wheel g' will act upon the teeth of a ratchet-wheel, n , and move the disk or dial-plate n' a certain distance, thus registering tens, hundreds, or thousands of gallons.

The circular wedge or cone F has a handle secured to it, and through the axis of this wedge is a hole having a female screw cut in

it for receiving the male screw on the outer or upper end of the piston-rod. By adjusting the cone or wedge F the piston-rod can be lengthened or shortened, and in this way the quantity of liquid drawn at each stroke of the piston can be regulated.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The enlarged chamber C upon the upper end of the pump-barrel, having a check-valve, a , in it, as arranged in relation to the valve c on the rod D , and caged piston c' , substantially as described.
2. Providing the upper end of the piston-rod D with a cone or circular wedge, F , for actuating the registering devices at every descent of the piston, substantially as described.
3. The vibrating lever i , spring j , pawl h , and arm k , in combination with the ratchet-wheel g' , disk g^2 , and a circular wedge, F , substantially as described.
4. In a pump having a registering device applied to it, providing for regulating the length of the piston-rod by means substantially such as described.
5. In a pump having the registering device applied to it, the use of a valve, c or c' , applied to the piston-rod, substantially as described.

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Witnesses:

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