

2 Sheets—Sheet 1.

No. 592,274.

Patented Oct. 26, 1897.



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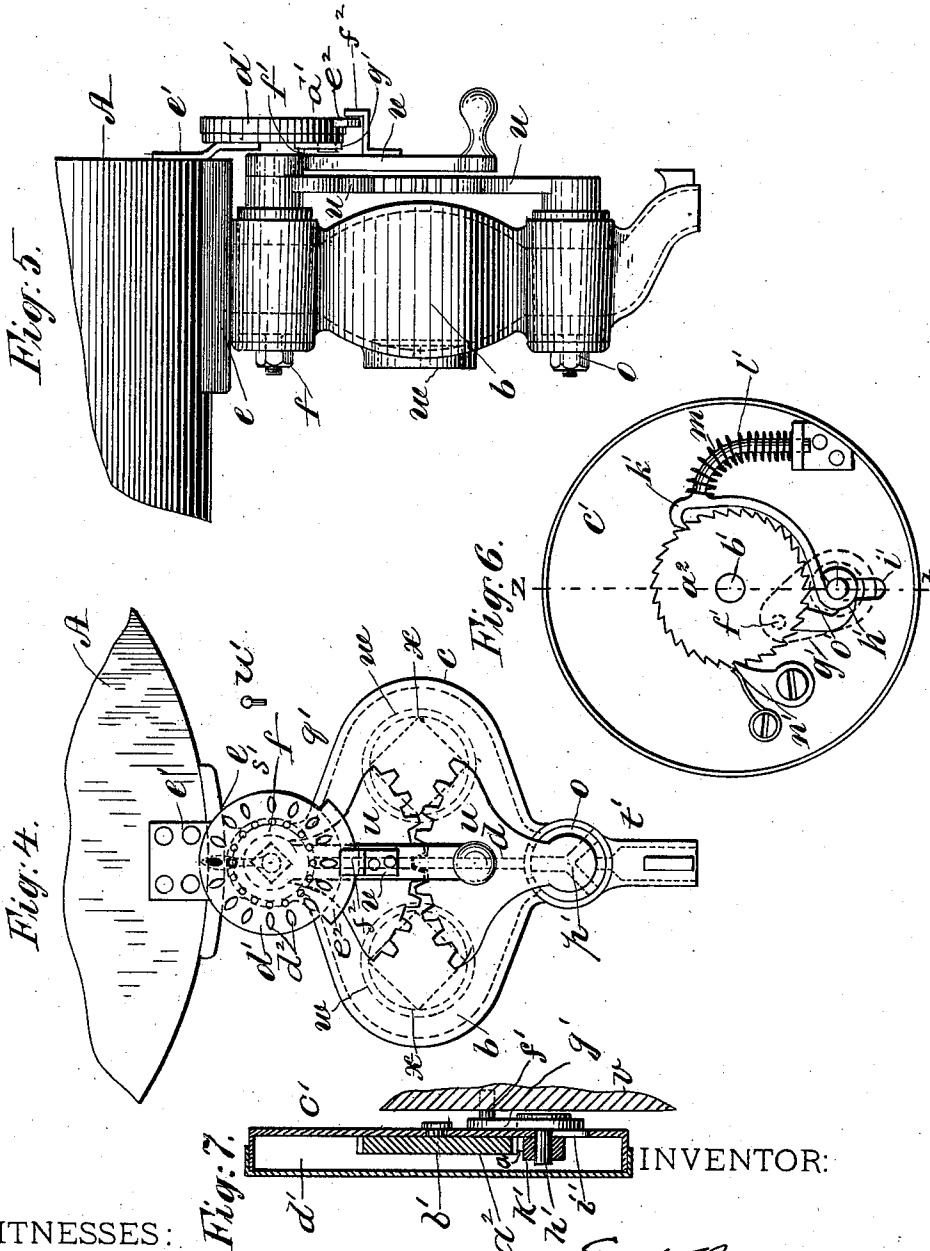
(No Model.)

2 Sheets—Sheet 2.

E. BOENING.
MEASURING FAUCET.

No. 592,274.

Patented Oct. 26, 1897.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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MEASURING-FAUCET.

SPECIFICATION forming part of Letters Patent No. 592,274, dated October 26, 1897.

Application filed March 31, 1896. Renewed March 3, 1897. Serial No. 625,913. (No model.)

To all whom it may concern:

Be it known that I, ERNEST BOENING, a citizen of the United States, and a resident of Yonkers, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Measuring-Faucets, of which the following is a specification.

The object of my invention is to provide a simple, cheap, and reliable measuring-faucet for drawing liquids from any source, but especially for application to wagon-tanks, and being provided with a registering apparatus whereby the indication of the quantity to be drawn is made before the drawing to prevent drawing without showing the evidence thereof, and the apparatus may be effectually locked to prevent undue working of the register and to prevent it from being shifted by the shocks and jars of the wagon, as herein-after described, reference being made to the accompanying drawings, in which—

Figure 1 is a transverse sectional elevation of the apparatus and part of a wagon-tank. Fig. 2 is a front elevation of the apparatus shown in Fig. 1, with a part in sectional elevation. Fig. 3 is a side elevation on a reduced scale. Fig. 4 is a front elevation, and Fig. 5 is a side elevation, of the apparatus in a modified form of construction. Fig. 6 is an elevation of the registering apparatus in same view as in Fig. 2, but enlarged for greater clearness. Fig. 7 is a section of the apparatus of Fig. 6 on line *z z*.

A represents the wagon or other tank from which the liquid is to be drawn.

b and c represent measuring-chambers located side by side and separated by a partition d, two chambers being used to facilitate delivery by drawing into one chamber while discharging from the other. These measuring-chambers are in this example represented as formed in an integral casting of metal; but they may be otherwise constructed, as desired. They are joined to the under side of the tank A by a neck-piece e, in which is a taper-plug valve f, above said chambers, and having a straightway port g, with which two tank-ports h and i communicate, respectively, according as the valve is set; but a single wide port may be used; and chamber b has a port j, and chamber c a port k, which also respec-

tively communicate with valve-port g, according to the position of the valve, said ports j and k being separated by the partition d. The valve also has vent-ports l and m, respectively communicating with small air-inlet passages n when the chambers are opened for discharge of the contents and being closed when the chambers are filling.

In the lower extremity of the measuring-chambers is another plug-valve o, having a straight passage p, with which ports q and s of the chambers communicate, respectively, according as the valve is set for discharging the measured contents into the nozzle t for delivery to the receptacle into which the liquid is to be drawn. The projecting stems of these two valves are geared together in front of the measuring-chambers by toothed segments u for synchronous action, and one is provided with a crank v for operating them, the arrangement being such that when, after one chamber has filled and the other has emptied, valve f is shifted for again filling the empty chamber, valve o will be shifted for opening the discharge-passage of the filled chamber, and so on.

As it is not feasible to cast the chambers with sufficient accuracy of size for the necessary exactness of measurements of quantity, they are each cored or otherwise formed, as at w, for reception of an adjusting-plug x, by which any inaccuracy may be corrected by screwing the plug in or out.

The segments u are formed with eye-terminals y at their extremities, so arranged that when the limit of movement of the valve is reached the eyes of those extremities that are in mesh will match by overlapping each other and together form a double eye, whereby the valves may be locked in position with the hasp z' of a padlock a' inserted through said double eye to prevent unauthorized use of the faucet in the absence of the attendant and also to prevent the valves from shifting by the shocks and jars of the wagon when moving along the street. This lock also serves to lock the registering apparatus to prevent making false registry. To illustrate this part of the invention, it is only necessary to show the prime mover of a register with my improved appliances for working it, as the rest

of the register may be of any approved form. The said prime mover consists of the ratchet-wheel a^3 , fixed loosely on a stud-pivot b' of the back plate c' of a case d' and coincident with the axis of the valve f , said case being supported in front of the end of said valve in any approved way, as by bracket e' . Behind the back plate c' of said case is a wrist-pin f' , either in the crank V or in the end of one of the valves, which is connected by a rod or link g' with a sliding pin h' in a slot i' of the back plate radial to the stud b' and forming a pivot on which a hook-pawl k' is carried for shifting the ratchet-wheel a stage at each movement of the valves. A coiled spring l' , fixed on a curved rod m' and bearing against the back of pawl k' , keeps the pawl in engagement with the teeth of the ratchet-wheel and tends to shift the pawl back to the normal position. A retaining-pawl n' is employed, as usual, to prevent back motion of the ratchet when the shifting-pawl k' returns after shifting the ratchet.

On the hub of the pawl k' , connected to the sliding pin h' , is a locking-spur o' , facing the ratchet-wheel and in such relation that it locks the ratchet-wheel until pawl k' is shifted for turning said wheel, and when the pawl k' returns to normal position after shifting the ratchet it engages said ratchet again and effectually prevents it from shifting until the valves are again shifted, its movement being dependent on the movement of the valves, and when they are locked the registering apparatus is thereby also locked.

How the movement of the register is effected so that the drawing will be indicated before the liquid is drawn will be understood by reference to the diagram Fig. 6, where it will be seen that a movement of the crank r for shifting the valves in one direction imparts through said wrist-pin a forward-and-backward movement to the sliding pin h' and the pawl k' , whereby the pawl shifts the ratchet in the first half of the movement of the crank, which is before the valves open, and returns to the normal position and locks the ratchet in the last part of the movement of the crank and simultaneously with the opening of the valves, this being effected by the connection of the sliding pin with the wrist-pin, so that said wrist-pin crosses the radial line in which the pin h' slides when the crank r is at the middle of its stroke.

The valve-casings are preferably cast integral with the chamber-casting, as shown in Fig. 1, but they may be made separately and be attached, if desired.

Figs. 4 and 5 show the chamber-casting in a different form, which may be preferred in some cases as more favorable for rapid and complete discharge of the contents, as when a wagon-tank may happen to stand on a grade with the hind end upward, and plug-valve o is represented with a branched passage with the nozzle having but a single port; but these changes are immaterial.

The register-supporting bracket may be attached to the measuring-chamber casting instead of the tank, if desired.

It is to be understood that the chambers vent, when filling into the tank, through valve f .

To facilitate keeping accounts of drafts when a number are made in succession, I will provide a circle of plug-holes q' in the cover of the dial and the indicator-hand s' with a plug u' to be set prior to the first draft as far ahead of the hand as the number of drafts to be made to show when the hand reaches the plug the completion of the intended number of drafts.

The front plate of the register-case d' will preferably be of metal, with openings d^2 for sight of the indicator-hand, and on the lower edge of said front plate I provide a radially-projecting extension e^2 , with a guard f^2 on the crank r overlapping said extension of the plate at the front, which guard being securely fastened to the crank will prevent the plate from being removed and protect the indicator from being fraudulently shifted to make false registry.

I claim—

1. In a measuring-faucet, the combination of two separate chambers of equal capacity, an inlet-port to each chamber at the top, a discharge-port to each chamber at the bottom, a valve at the top having communication with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, and a valve having communication with the discharge-nozzle and respectively connecting with the outlet-ports according as it is set, said valves geared together by the toothed segments for joint action and in the relation whereby one valve opens the discharge-port of one chamber, and the other valve opens the inlet-port to the other chamber to fill one chamber while emptying the other in alternate succession, substantially as described.

2. In a measuring-faucet, the combination of the two separate chambers, an inlet-valve communicating with the supply-tank, and respectively communicating with the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, the overlapping eye-terminals of the segments, and means for locking them together and thereby locking the faucet, substantially as described.

3. In a measuring-faucet, the combination of the two separate chambers, an inlet plug-valve communicating with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle, and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed

segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with one of the valves for being actuated thereby and being arranged to actuate the register before the opening of the valves substantially as described.

4. In a measuring-faucet, the combination of the separate chambers, an inlet-valve communicating with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle, and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with one of the valves for being actuated thereby, and means for locking the register, controlled by the valve-locking devices substantially as described.

5. In a measuring-faucet, the combination of the separate chambers, an inlet-valve communicating with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with one of the valves for being actuated thereby consisting of the pawl-slide and pawl crank-pin of the valve and the link connecting said pawl slide and crank-pin substantially as described.

6. In a measuring-faucet, the combination of the separate measuring-chambers, an inlet-valve communicating with the supply-tank and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with the valves for being actuated thereby consisting of the pawl-slide and pawl crank-pin of the valve, and the link connecting said pawl slide and crank-pin, the said connection being in the relation whereby a forward-and-backward movement is imparted to the pawl for each single movement of the valves to actuate the registering apparatus prior to opening the valves substantially as described.

7. In a measuring-faucet, the combination of the separate measuring-chambers, an inlet-valve communicating with the supply-tank and respectively communicating with the inlet-ports of the chambers according as it is set, a discharge-valve having communication with the discharge-nozzle and respectively communicating with the outlet-ports of the chambers according as it is set, the toothed segments gearing said valves together, means for locking said segments, registering apparatus, means connecting the prime mover of said registering apparatus with the valves for being actuated thereby, and means for locking the registering apparatus in connection with the locked valves consisting of the pawl-slide and pawl, crank-pin of one of the valves, and the link connecting said pawl slide and crank-pin, and the locking-spur attached to the slide and adapted for locking said prime mover substantially as described.

8. In a measuring-faucet, the combination of two separate chambers, an inlet-port to each chamber at the top, a discharge-port to each chamber at the bottom, a valve at the top having communication with the supply-tank, and respectively communicating with the inlet-ports of the chambers according as it is set, and a valve having communication with the discharge-nozzle and respectively connecting with the outlet-ports according as it is set, said valves geared together by the toothed segments for joint action and in the relation whereby one valve opens the discharge-valve of one chamber, and the other valve opens the inlet-port to the other chamber to fill one chamber while emptying the other in alternate succession, said chambers and the inlet ports and valve arranged to vent the chambers into the supply-tank when filling substantially as described.

9. In a measuring and registering faucet the combination with the indicator-hand of the front plate, of the register-case having a circle of plug-holes coincident with the scale of the register, and a plug insertible in said holes and adapted for an advance gage to the indicator-hand substantially as and for the purpose specified.

10. In a measuring and registering faucet the front plate of the register-case having the projecting extension along the range of the crank in combination with the overlapping guard on the crank, substantially as and for the purpose set forth.

Signed at New York city, in the county and State of New York, this 14th day of March, A. D. 1896.

ERNEST BOENING.

Witnesses:

W. J. MORGAN,
A. P. THAYER.