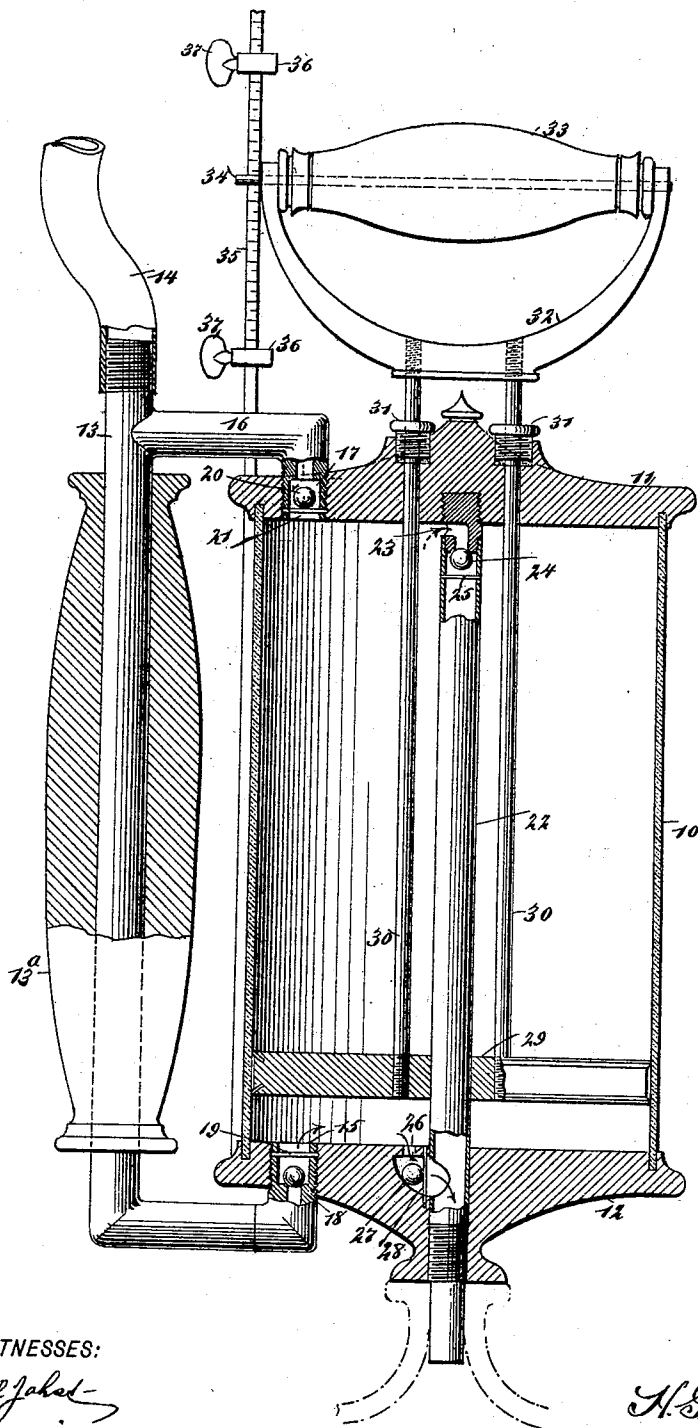


(No Model.)

H. GREGSON.
LIQUID MEASURE.

No. 515,211.

Patented Feb. 20, 1894.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HAROLD GREGSON, OF DETROIT, MICHIGAN.

LIQUID-MEASURE.

SPECIFICATION forming part of Letters Patent No. 515,211, dated February 20, 1894.

Application filed January 3, 1893. Serial No. 457,053. (No model.)

To all whom it may concern:

Be it known that I, HAROLD GREGSON, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Liquid-Measure, of which the following is a full, clear, and exact description.

My invention relates to improvements in liquid measures; and the object of my invention is to produce an extremely simple measure which is adapted for use in measuring any kind of liquid however light or heavy; which is provided with a movable piston adapted to reciprocate in the measure; which simultaneously fills on one side of the piston while it discharges on the other, and which in general is arranged so as to operate accurately and with great ease.

To this end my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawing forming a part of this specification, in which the figure is a broken sectional elevation of the measure embodying my invention.

The measure is provided with a cylinder 10 which is preferably of glass, and this has solid ends 11 and 12 through the latter of which the discharge pipe extends, as hereinafter described. On one side of the cylinder and extending parallel therewith is a pipe 13 on which is secured a handle 13^a for the measure, and this pipe at the lower end of the measure is bent inwardly and opens into the bottom of the cylinder, as shown at 15, and near the top of the cylinder a branch pipe 16 leads from the main pipe and delivers into the cylinder, as shown at 17. The two inlets 15 and 17 are controlled by ball valves, the lower valve 18 being held in place in the enlarged end of the pipe 13 by a pin 19 in the usual way, and the upper valve 20 is arranged similarly in the discharge end of the pipe 16 and held there by a pin 21. Extending longitudinally through the cylinder 10 and out through the lower cylinder head 12, is a discharge pipe 22 and this has at its upper end a port 23 opening into the cylinder, the port being controlled by a ball valve 24 which is held in place by a pin 25, and at the opposite

or lower end of the cylinder the discharge pipe connects with the cylinder by a port 26 which is controlled by a ball valve 27 held in place by a pin 28. It will be understood, however, that the form of ball valve used at the ports and inlets may be changed and any other suitable valve substituted without departing from the principle of my invention.

It will be noticed from the above description that there is an inlet and discharge port on each side of the cylinder, these working alternately as hereinafter described. A piston 29 is held to reciprocate in the cylinder 10, and on the discharge pipe 22, the piston having its edges suitably packed so that it fits snugly in the cylinder. The piston is provided with two piston rods 30 which are arranged on opposite sides of the discharge pipe 22 and are screwed firmly into the piston. These rods extend outward through stuffing boxes 31 in the head 11, and at their outer ends they are screwed firmly into the curved braces 32 in which the handle 33 is carried, this handle being arranged at right angles to the rods so that the operator may get a good and effective grip on it. The handle 33 has at one end a projection 34 which moves opposite a gage rod 35, between collars 36 fastened to the rod. These collars are adjustable on the rod and are held in place by set screws 37. It will be seen that the gage rod and the collars enable any desired quantity of liquid within the capacity of the cylinder to be measured, as the handle 33 and piston 29 have a movement corresponding to the distance between the collars, and the gage marks on the rod are arranged so as to indicate the quantity of liquid in the cylinder which is displaced by such movement of the piston.

The operation of the measure is as follows:—The supply pipe 14 which is secured to one end of the main pipe 13 leads to the source from which the liquid is to be drawn, and when the handle 33 is pulled up, the valve 20 closes against its seat in the pipe 16, thus closing said pipe, while the liquid enters through the inlet 15 and beneath the piston 29. The piston by its suction will also draw the valve 27 against its seat in the port 26, and the liquid above the piston will be ejected

through the port 23 and the discharge pipe 22. On the return movement of the piston the liquid below it will be ejected through the port 26 and discharge pipe 22, as the valve 18 will be forced to its seat in the pipe 13, and during this movement the valve 20 will drop so that the liquid will run in through the pipe 16 and fill the upper portion of the cylinder.

It will be seen then that the cylinder will always be full so long as the supply of liquid lasts, and while the liquid is being ejected from one side of the piston, the new supply will be running in on the opposite side of the piston.

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

1. A liquid measure, comprising a cylinder having valve-controlled inlet and discharge ports in its opposite ends, a piston held to reciprocate in the cylinder, and an operating handle located outside the cylinder and connected with the piston, substantially as described.

2. A liquid measure, comprising a cylinder, a discharge pipe arranged longitudinally in the cylinder and extending through one end thereof, ports leading into the discharge pipe at opposite ends of the cylinder, a supply pipe arranged to deliver into both ends of the cylinder, a piston held to reciprocate in the cylinder, and an arrangement of valves for the ports and inlets whereby the liquid may be alternately discharged at opposite ends of

the cylinder by the reciprocation of the piston, substantially as described.

3. A liquid measure, comprising a cylinder a piston held to reciprocate therein, a supply pipe arranged parallel with the cylinder and delivering into both ends thereof, a handle secured to the supply pipe, discharge ports arranged in opposite ends of the cylinder, and an arrangement of valves at the inlets and discharge ports whereby the liquid will be alternately admitted and discharged from opposite ends of the cylinder, substantially as described.

4. A liquid measure, comprising a cylinder having valve controlled inlet and discharge ports at its opposite ends, a piston held to reciprocate in the cylinder a discharge pipe extending longitudinally within the cylinder, parallel piston rods secured to the piston and held to slide in one of the cylinder heads, and handle secured to the rods, substantially as described.

5. In a liquid measure, the combination of the cylinder having suitable inlet and discharge ports, the reciprocating piston held to slide in the cylinder, the handle operatively connected with the piston, a gage rod arranged at one side of the handle, and an indicator on the handle arranged to move opposite the rod, substantially as described.

HAROLD GREGSON.

Witnesses:

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WM. YOUNG.