

S. J. Burr, Diaphragm Meter.

No. 17,127.

Patented Apr. 21, 1857.

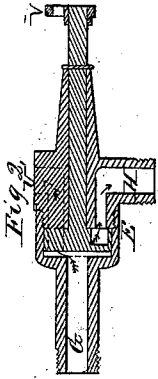


Fig. 2.

Fig. 4.

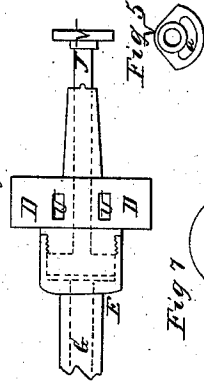


Fig. 5.

Fig. 7.

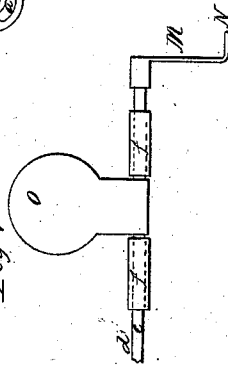


Fig. 8.

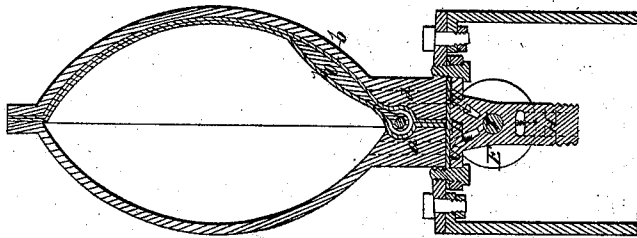


Fig. 9.

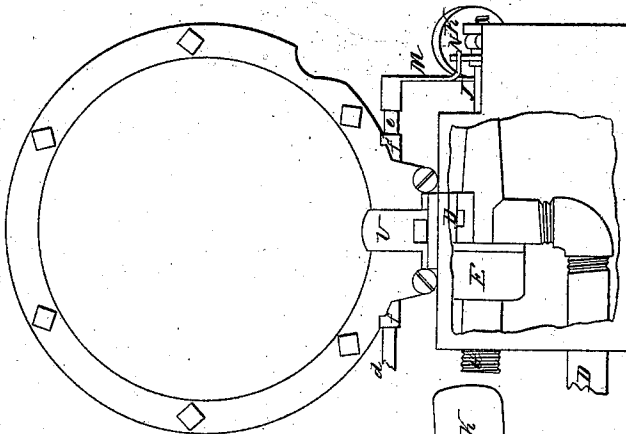
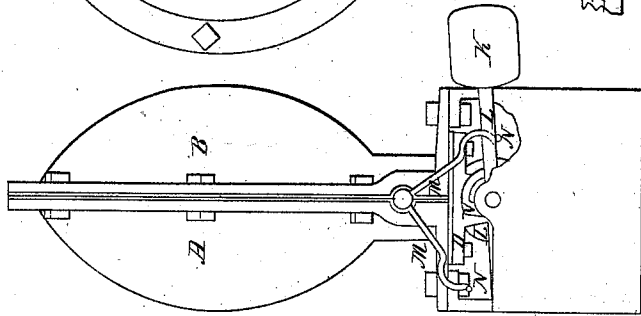


Fig. 1.



Witnesses.

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Inventor

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UNITED STATES PATENT OFFICE.

SAMUEL J. BURR, OF BROOKLYN, NEW YORK, ASSIGNOR TO HIMSELF AND HENRY F. READ.

IMPROVED FLUID-METER.

Specification forming part of Letters Patent No. 17,127, dated April 21, 1857.

To all whom it may concern:

Be it known that I, SAMUEL J. BURR, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Machine for Measuring Gas, Water, and other Fluids; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which like letters refer to like parts, and in which—

Figure 1 is an end view. Fig. 2 presents a view of the valves, valve-stem, feed and discharge pipes. Fig. 3 is a perspective view of the inside of the valve. Fig. 4 is a top view of the valve, valve-stem, feed-pipe, and plate. Fig. 5 is a view of the end of the valve-stem adapted to be operated upon by the valve-throw. Fig. 6 is a view of the lever, its load, and pin, constituting the valve-throw. Fig. 7 is a view of the shifter, shaft, hollow tube, and arm. Fig. 8 is a transverse section showing the flexible partition and its carrier (the shifter) thrown toward the right. Fig. 9 is a longitudinal and sectional view.

A and B represent the two sides or halves of the meter-box. D is the plate by which the valves are attached to the meter-box. E is the barrel covering the valves; G, entrance or inlet pipe; H, the discharge-pipe; J, the valve-stem; K, the load of L the lever; M M, arms permanently attached to the shaft *c*, which runs through the tube *f*, and operated by the shifter O to change the valves; N N, ends of arms M M, which may be bent, if so required. O is the valve-shifter, also permanently attached to the shaft *c* and placed between the two portions of the flexible partition; R, the level-pin. *t* is the single opening or entrance through to the valve; and U U are double openings or discharges between the valves and the apartments of the meter-box, one opening communicating with one apartment and the other with the other. V is a piece attached to the end of the valve-stem J, having slot *a* adapted to the reception of the pin R of the valve-throw; *a*, the slot just described; *b b*, the two portions of the flexible partition, between which is placed the shifter O. *c* is the shaft, attached to which are the arms M M and the shifter O. *d* is the point at which the shaft *a* is attached

to the register. *f* is the hollow tube inclosing shaft *c*, either made in two pieces or in one piece, slotted in the center to receive the end of shifter O, through which the shaft *c* passes. Said tube is packed on its outer surface by the edges of the flexible partitions, which are placed between it and the walls of the meter-box, protecting shaft *c* and end of shifter O from contact with the packing, allowing them to work easily.

Operation: The fluid to be measured enters at G, passes through E into the single opening *t*, which opening is turned to and fro, so as to connect alternately with each of the double openings U U. Say (as the arrows point in the drawings) it takes the left-hand passage. (See Fig. 8.) Hence it passes between the flexible partition and the left-hand wall of the meter-box, and as the side A is filled the fluid presses the flexible partition (by its own force and without the use of any springs or levers) as close to the right-hand wall of the box as desired, as seen at *b*, filling the whole space in the entire box, while the fluid in the right-hand side is forced by the same pressure through the right-hand passage U and out at the discharge H. The shifter O, lying between the two portions of the partitions, is forced over (by the same power) with the partition, turning the shaft *c*, to which it (shifter O) is attached, and which shaft carries the arms M M, and they turn the valve-throw L, and when shifter O reaches the opposite wall of the box it changes the position of the single opening T and the double openings U U, reversing the course of the entering and escaping fluid. To understand this better, look first at Fig. 7, and it will be seen that the shifter O is permanently attached to the shaft *c*, and (see Fig. 1) the same shaft *c* has permanently attached to it the arms M M. As shifter O is raised from its recumbent position it carries with it the shaft and arms, and when the end of the arm reaches the lever L the latter is also raised until it gets just beyond the center, when it falls by its own weight suddenly to the other side and changes the position of the openings by means of the lever-pin R, Fig. 6, which pin plays in the slot of the end piece of the valve stem that runs through the cock and changes the opening from side to side.

I claim—

1. The combination of the flexible partition with shifter O, for the purpose of opening and closing the valves or apertures to admit and discharge the fluid, so that the apartments shall be alternately filled and emptied, in the particular manner described and shown.

2. The combination of the valves, tube, and flexible partition, substantially as described, so as to make the entering fluid discharge the fluid (alternately) in each apartment by its pressure upon the opposite sides of the flexible partition.

3. Shifter O, whether as set forth or in any other form producing the same result, and

placed between the two portions of the flexible partition, and the packing of the tube by the outer edges of the two portions of the flexible partition, protecting shaft *c* and shifter O from contact with the packing, and allowing the said shaft to work freely at the same time.

4. The combination of the shaft *c*, inclosed in the tube *f* with the valve throw, substantially as described, and for the purpose set forth.

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Witnesses:

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