

A. J. SWEET.
 SELF CLOSING MEASURING VALVE.
 APPLICATION FILED AUG. 10, 1907.

898,999.

Patented Sept. 15, 1908.

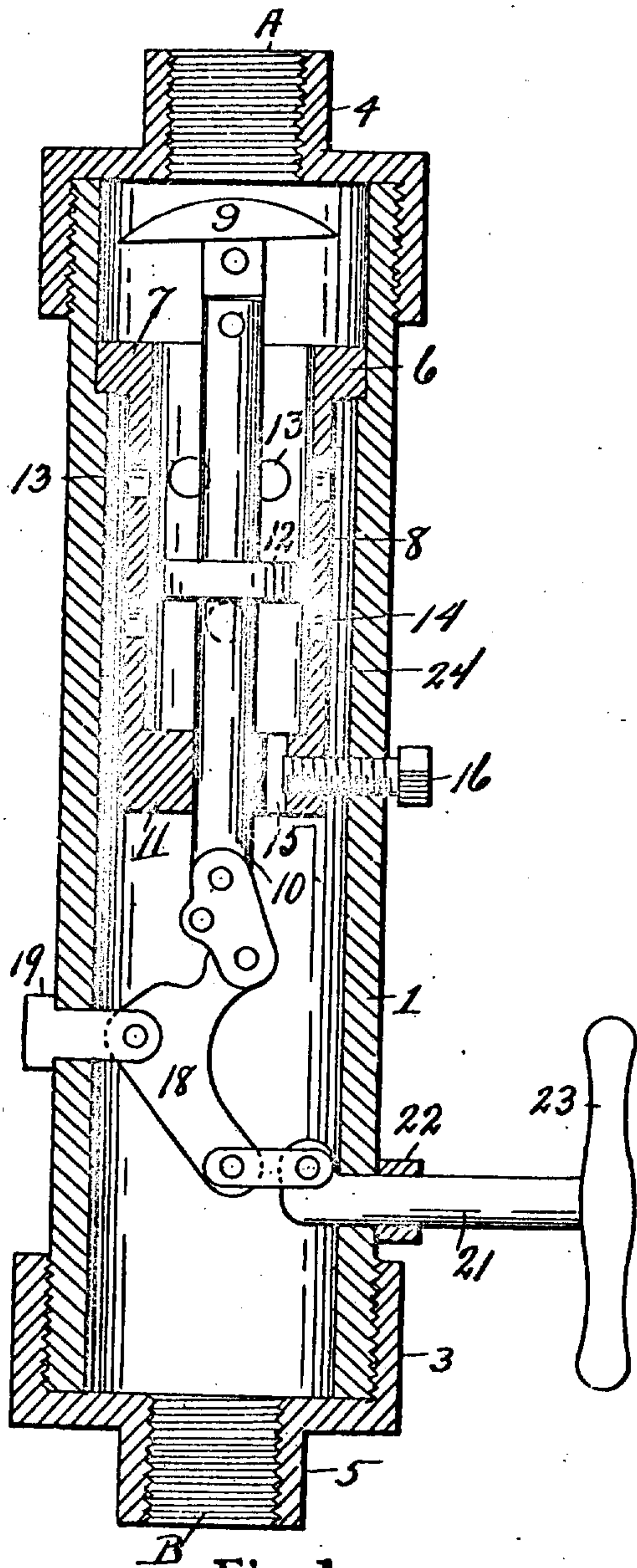


Fig. 1.

Witnesses

May E. Kott.
 Clarence E. Day

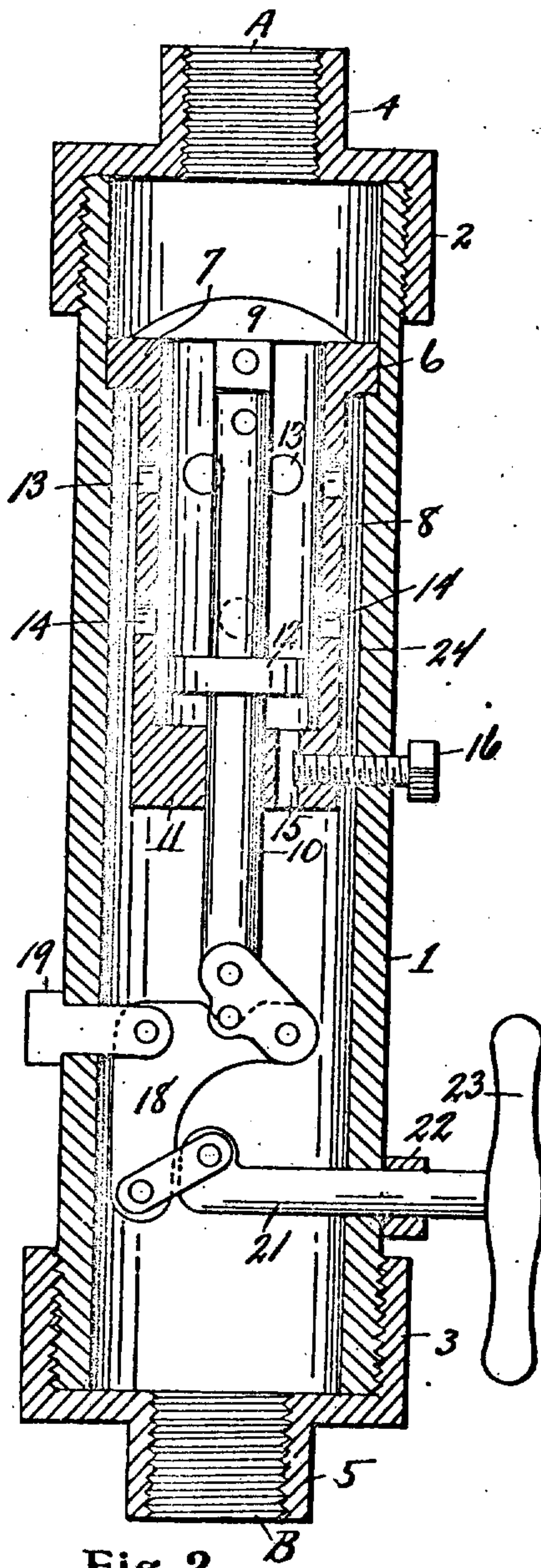


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SELF-CLOSING MEASURING-VALVE.

No. 898,999.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed August 10, 1907. Serial No. 387,983.

To all whom it may concern:

Be it known that I, ARTHUR J. SWEET, a citizen of the United States, residing at Jackson, county of Jackson, State of Michigan, have invented a certain new and useful Improvement in Self-Closing Measuring-Valves, and declare the following to be a full, clear, and exact description of the same, such as it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to self closing measuring valves; it has for its object an improved structure intended to close after there has passed through the valve a definite predetermined quantity of water.

In the drawings:—Figure 1, shows a longitudinal section with the valve open. Fig. 2, shows a longitudinal section with the valve closed.

The main casing 1, of the valve is a straight cylindrical tube provided with caps 2 and 3, which are provided with coupling nipples 4 and 5. Within the tubular casing 1, is located a diaphragm 6, provided with a valve seat 7 with a cylinder 8, which extends from the valve seat toward the outlet of the casing; around the cylinder is an annular passage 24. The valve 9 seats on the valve seat 7, and is provided with a stem 10 that engages through a diaphragm 11 at the outlet end of the cylinder 8. On the valve stem 10 is a piston 12, which reciprocates in the cylinder 8. The wall of the cylinder 8 is provided with passages 13 and 14, intermediate the ends, and the piston 12 in its reciprocation may travel toward the inlet and past the openings 14, but may not travel far enough to pass or cover the openings 13. The diaphragm 11 which closes the end of the cylinder which is toward the outlet of the casing, is provided with a small passage-way 15, the capacity of which may be adjusted by a screw 16 that extends into the diaphragm from outside the main casing.

The stem 10 of the valve 9 is actuated to open the valve by a hand manipulated lever 18, pivotally connected to a pin 19 that engages through the main casing. This lever engages a push rod 21 with a pin and link joint; the push rod extends through the main casing packing cap 22, and terminates with a push handle 23.

In operation this valve is coupled to the

water pipes with the entrance end of the casing at the end A, and with the delivery end at the end B. Water entering through the nipple 4 is prevented from passing through the casing by the seated valve; if, however, the valve be forced from its seat by manipulating the push rod 21, the water passes the valve through the opening in the valve seat and some part of it at once enters and fills the piston chamber behind the piston 12, entering the piston chamber through the openings 14.

The pressure of the water entering the casing tends to close the valve to its seat and the closure of the valve to its seat is obstructed by the water in the piston chamber, which soon becomes caged therein after the piston has passed the openings 14 toward the delivery end of the casing. After the piston has passed beyond these openings, it can only travel further by expelling water from the piston chamber through the regulatable outlet 15, and the amount of flow for a given pressure of water can easily be determined experimentally and the structure set accordingly, after which for a given pressure of water only a certain amount can pass the main valve and escape through the outlet until the action shall have caused the main valve to close down entirely on its seat.

This device being made mainly from cylindrical tubes, is easily and cheaply made, and it is simple and efficient in action. There are no small valves, or in fact any valves except the main valve, and no parts to fill and clog.

What I claim is:—

1. A measuring valve, having in combination a main casing, a cylinder therein having apertured ends and sides, a piston stem extending within the cylinder through an apertured end thereof, and a valve carried on one end of said stem, adapted to close the adjacent end of said cylinder, substantially as described.

2. A measuring valve, having in combination a main casing, a cylinder therein having a terminal inlet portion and apertures through its side walls, a main valve adapted to close the inlet portion, a piston within said cylinder, and a stem whereon said main valve and said piston are fixed, passing through the opposite end of the cylinder from that adapted to be closed by said main valve, substantially as described.

3. A measuring valve, having, in combination with a main casing, a cylinder with apertured ends and side walls inclosed within said casing, a closure member for one end of said cylinder, a piston within said cylinder, a stem whereon said closure member and said piston are mounted, means for regulating the outflow from said cylinder, and means whereby said valve may be manually opened from the outside of said casing, substantially as described.

4. In a measuring valve, in combination with a casing having apertured end portions through which water may flow, a cylinder fixed therewithin, said cylinder being apertured at the ends and side walls, and being spaced from the inner face of said casing along a portion of its length, a movable valve piece adapted to close one end of said cylinder, a piston within said cylinder, a stem whereon said valve piece and said piston are mounted, and a manually operated opening device connected with said stem, substantially as described.

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In testimony whereof, I sign this specification in the presence of two witnesses.

ARTHUR J. SWEET.

Witnesses:

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