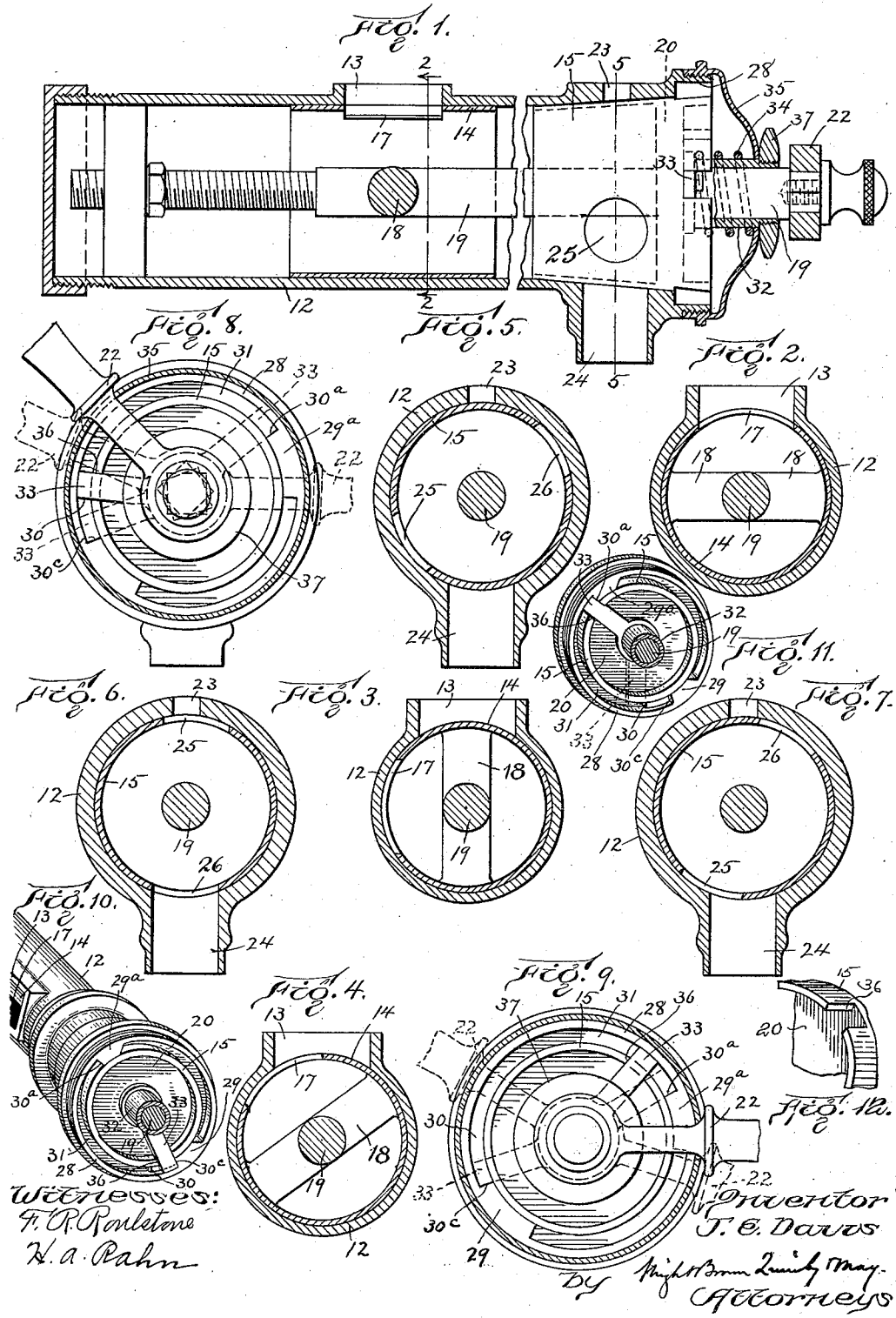
T. E. DAVIS.

MEASURING FAUCET.

APPLICATION FILED MAR. 13, 1915.

1,178,906. Patented Apr. 11, 1916.



UNITED STATES PATENT OFFICE.

THOMAS E. DAVIS, OF CAMBRIDGE, MASSACHUSETTS.

MEASURING-FAUCET.

1,178,906. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed March 13, 1915. Serial No. 14,274.

To all whom it may concern:

Be it known that I, THOMAS E. DAVIS, a citizen of the United States, and a resident of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Measuring-Faucets, of which the following is a specification.

This invention relates to faucets for dispensing liquids in measured quantities or charges from a reservoir, and it has for its object to provide improved means whereby a faucet of this character may be made temporarily inoperative as a measuring device and adapted to continuously draw liquid from the reservoir until the latter is emptied.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings forming a part of this specification: Figure 1 represents a longitudinal section of a measuring faucet embodying my invention, the outer valve hereinafter referred to being shown in elevation; Fig. 2 represents a section on line 2—2 of Fig. 1; Fig. 3 represents a view similar to Fig. 2, showing the inner valve closed; Fig. 4 represents a view similar to Fig. 2, showing the inner valve partly opened to empty the reservoir; Fig. 5 represents a section on line 5—5 of Fig. 1; Fig. 6 represents a view similar to Fig. 5, showing the outer valve open; Fig. 7 represents a view similar to Fig. 5, showing the outer valve partly open to empty the reservoir; Fig. 8 represents an end view of the faucet, the cap hereinafter referred to being shown in section; Fig. 9 represents a view similar to Fig. 8, showing a different adjustment; Figs. 10, 11 and 12 represent fragmentary perspective views hereinafter referred to.

The same reference characters indicate the same or similar parts in all the views.

In the drawings, 12 represents a tubular casing having an inlet port 13 adapted to be connected with a liquid reservoir.

14 and 15 represent tubular valves adapted to turn in said casing, the inner valve 14 being a hollow cylinder open at its ends and closely fitting a cylindrical seat formed by a cylindrical portion of the inner surface of the casing, while the outer valve 15 is preferably tapering or frusto-conical and closely fits a seat formed by a tapering portion of said inner surface.

The inner valve 14 is attached by arms 18 to a stem 19 and has a port 17. The outer valve 15 has a head 20, shown by Figs. 10 and 11, and partially shown by Fig. 12, said head being centrally apertured to receive the stem and rigidly attached thereto so that the two valves turn with the stem, the latter being provided with a handle 22. The outer end portion of the casing has an air inlet port 23 at its upper side, and a liquid outlet port 24 at its lower side. The outer valve 15 is hollow from its open inner end to the head 20 and has two diametrically opposite ports 25 and 26 communicating with the hollow portion of said valve.

The relative arrangement of the valve and casing ports is such that when the valves are turned to the position indicated by Figs. 1, 2 and 5, the inner valve port 17 registers with the casing inlet port 13, and the outer valve ports 25 and 26 are out of register with the air inlet port 23 and outlet port 24 of the casing, so that the casing receives and retains a measured charge of liquid. When the valves are turned to the position shown by Figs. 3 and 6, the inner valve port 17 is out of register with the casing inlet port 13, so that the casing is shut off from the reservoir, and the outer valve ports 25, 26, register respectively with the air inlet port 23 and the casing outlet port 24, so that the charge of liquid is discharged, its place being occupied by air admitted through the port 23.

The outer end of the casing is enlarged to form an annular flange 28 (Figs. 1, 8, 9, 10 and 11) surrounding the outer end of the outer valve and provided with a thickened portion 29, one end of which forms a stop shoulder 30, and a thickened portion 29ª, one end of which forms a stop shoulder 30ª, there being a segmental space 31 between said shoulders. The shoulder 30 is relatively narrow and projects partly across the space 31, as shown by Figs. 10 and 11.

32 represents a sleeve mounted to slide endwise on the stem 19 between the head of the outer valve and the handle 22, and provided with a stop arm 33 which projects into the space 31 and is adapted to oscillate between the shoulders 30 and 30ª. Said sleeve

is pressed inwardly by a spring 34 surrounding the sleeve and bearing at one end on a cap 35 (Fig. 1) attached to the casing, and at its other end on the arm 33, said spring normally holding the arm in position to engage the shoulders 30 and 30ª alternately. The arm 33 projects into a slot 36 (Fig. 12) formed in the portion of the outer valve 15 which projects outwardly from the head 20, the arm being thus caused to move with the valves. The relative arrangement of the said stop arm and ports is such that when the arm abuts against the stop 30, as shown by full lines in Fig. 8, the inner valve is in the receiving position shown by Figs. 1 and 2, and the outer valve is in the closed position shown by Fig. 5, so that the casing receives and retains a measured charge of liquid. When the arm abuts against the stop 30ª, as shown by dotted lines at the right-hand portion of Fig. 8, and by full lines in Fig. 11, the inner valve is in the closed position shown by Fig. 3, and the outer valve is in the open position shown by Fig. 6, one of its ports registering with the casing air inlet 23 and the other with the casing outlet 24, so that the measured liquid is discharged, the operation thus far described being substantially the same as described in Letters Patent No. 1,094,982, granted to me April 28, 1914. Said patent does not however disclose the stop arm 33 which is movable lengthwise of the valve stem independently of the outer valve, the present invention being embodied in the independently movable stop arm and in a supplemental stop shoulder coöperating therewith, as hereinafter described, to permit the inner valve and the outer valve to stand simultaneously in the open positions shown by Figs. 4 and 7, when it is desired to drain off all the liquid from the reservoir with which the faucet is connected.

30ᶜ designates the supplemental stop shoulder, which is arranged, as shown by Figs. 8, 9 and 11, relatively to the normal shoulders 30 and 30ª, the shoulders 30 and 30ᶜ occupying different lateral positions, as shown by Figs. 10 and 11, so that when the arm 33 is moved outwardly against the pressure of the spring 34 from the position shown by Fig. 1, it is enabled to pass by the shoulder 30 and abut against the supplemental shoulder 30ᶜ, as indicated by dotted lines at the left-hand portions of Figs. 8 and 9, and by full lines in Fig. 10. When the arm is in this position the port 17 of the inner valve is partly open, as shown by Figs. 4 and 10, and the port 25 of the outer valve is also partly open (the air inlet being closed), as shown by Fig. 7, so that liquid is free to flow from the reservoir to the outlet 24 until the reservoir is empty.

The depth of the slot 36 in the outer valve is such that the arm 33 remains in the slot when moved outwardly to engage the supplemental shoulder 30ᶜ, a suitable stop being provided, such as the handle 22, to limit the outward movement of the sleeve 32 and arm 33. The sleeve is provided with a knob or handle 37 formed to be grasped by a thumb and finger for the purpose of moving the arm outwardly to position to pass over the stop 30 and engage the supplemental stop 30ᶜ.

It will now be seen that when the faucet is in operative condition to alternately receive and discharge liquid, the stop arm 33 is held by the spring 34 between the normal stop shoulders 30, 30ª. It will also be seen that when the operator desires to empty the reservoir, the arm 33 is pulled outwardly by the knob 37 far enough to pass over the stop 30, the valves being then free to be turned to the positions shown by Figs. 4, 7 and 12, and being arrested in said positions by the supplemental stop 30ᶜ.

To restore the faucet to its operative condition it is only necessary to turn the valve stem and valves until the arm 33 springs into the space between the normal stops 30 and 30ª.

I claim:

1. A measuring faucet comprising a casing having an inlet port and an outlet port offset from the inlet port, a stem adapted to turn in said casing, inner and outer valves attached to said stem and provided with ports arranged to coöperate respectively with the inlet and outlet ports of the casing, a stop arm movable lengthwise of the valve stem and loosely engaged with the outer valve to turn therewith, a spring normally holding said arm at the inner extreme of its movement, and means for manually moving the arm outwardly against the stress of the spring, the casing being provided with spaced apart normal stop shoulders arranged to arrest the arm when the valves are at the extremes of their operative movements, and with a supplemental stop shoulder arranged to arrest the arm with the valves both partially open, when the arm is moved outwardly from its normal position.

2. A measuring faucet comprising a casing having an inlet port and an outlet port offset from the inlet port, a stem adapted to turn in said casing, inner and outer valves attached to said stem and provided with ports arranged to coöperate respectively with the inlet and outlet ports of the casing, the outer valve being provided with a slot in its outer end portion, a sleeve movable endwise on the valve stem and provided with an arm projecting through and movable in said slot, said sleeve being provided with an exposed handle, and a spring normally holding said sleeve and arm at the inner extreme of their movement, the casing being provided with spaced apart normal stop

shoulders arranged to arrest the arm when the valves are at the extremes of their operative movements, and with a supplemental stop shoulder arranged to arrest the arm with the valves both partially open, when the arm is moved outwardly from its normal position.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS E. DAVIS.

Witnesses:
C. F. BROWN,
P. W. PEZZETTI.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."