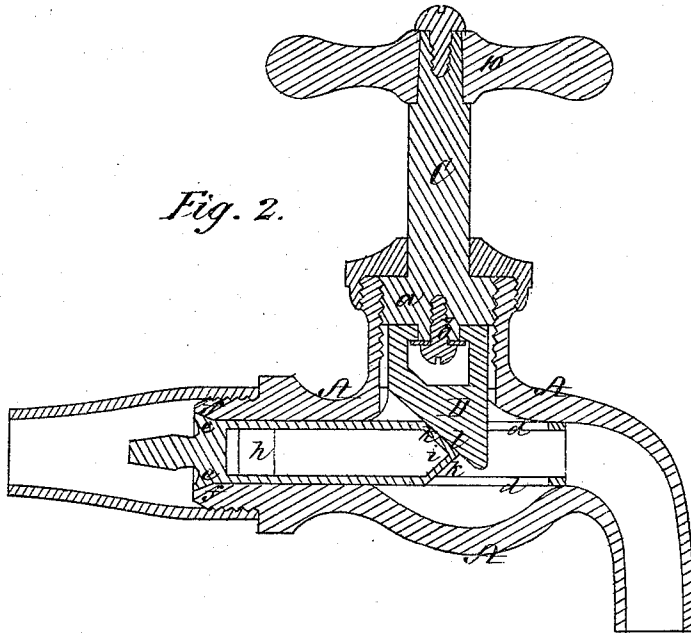
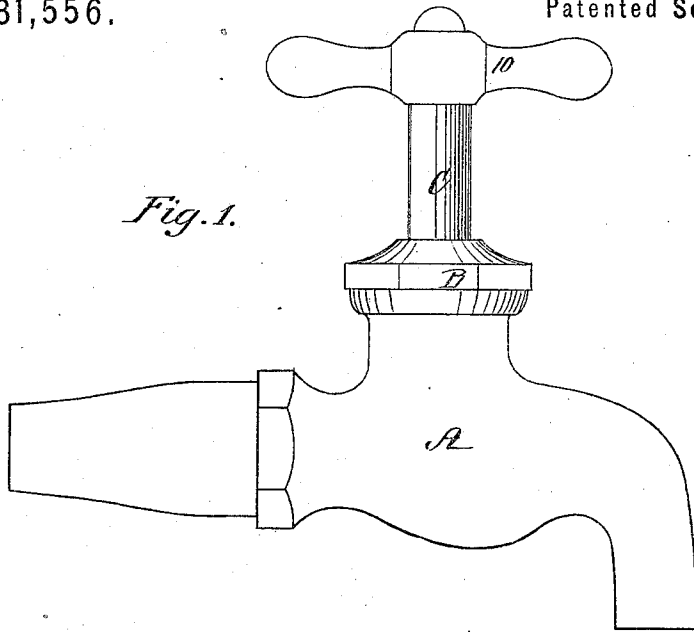


M. T. F. O'DONNELL.
Improvement in Cocks.

No. 131,556.

Patented Sep. 24, 1872.



Witnesses,
S. W. Stearns
H. J. Cambridge

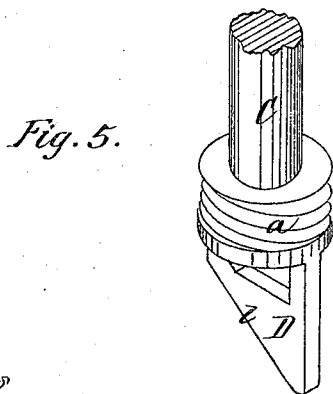
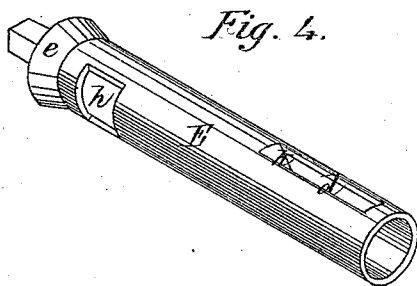
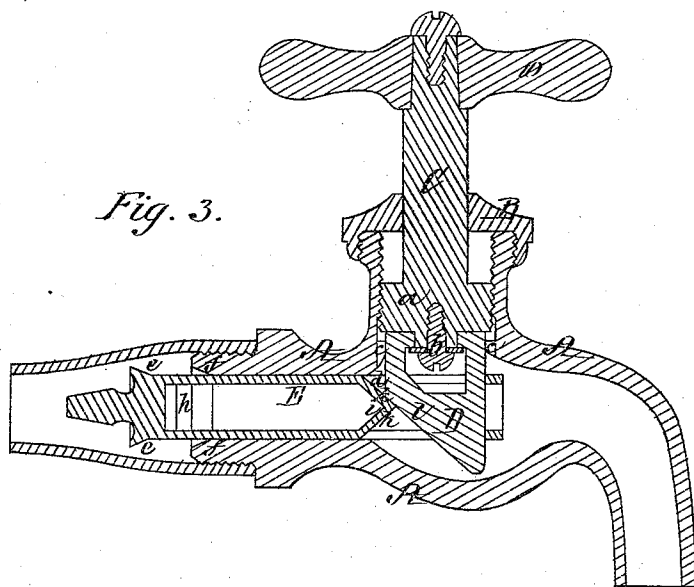
Inventor,
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UNITED STATES PATENT OFFICE.

MICHAEL T. F. O'DONNELL, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN COCKS.

Specification forming part of Letters Patent No. 131,556, dated September 24, 1872.

To all whom it may concern:

Be it known that I, MICHAEL T. F. O'DONNELL, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Stop-Cocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is an elevation of my improved stop-cock. Fig. 2 is a vertical longitudinal section through the center of the same when open for the passage of water through it. Fig. 3 is a similar section when closed. Fig. 4 is a perspective view of the sliding valve detached; and Fig. 5 is a perspective view of the wedge-shaped key for opening the same.

My invention relates to certain improvements in that class of cocks known as "self-closing cocks," in which the pressure of the water against the valve forces it upon its seat and closes the passage through the cock; and my invention consists in a slotted tubular valve, provided with one or more inlet-ports, and placed within the shell of the cock, the valve being opened against the resistance of the water by a wedge-shaped key operated by a spindle.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawing, A represents the body or shell of the cock, through the screw-cap B of which passes the spindle C, the lower end of which is provided with a screw-plug, *a*, having a left-hand thread cut thereon, fitting into a corresponding thread in the top of the shell A. To the bottom of the screw-plug *a* is secured at *b*, so as to swivel thereon, the top of a flat wedge-shaped piece or key, D, (see Fig. 5,) which, when the plug is screwed in, passes between projections *e*, formed within the shell A a short distance below the thread therein, these projections serving as guides for directing the wedge-shaped key into one of the slots, *d*, formed through the top and bottom of a hollow or tubular valve, E, the construction and operation of which will now be described. The inner end of the valve E is provided with a conical projection, *e*, which is ground smoothly down so as to snugly fit into its seat *f*, of corresponding size and form, in the rear of the

horizontal portion of the shell A, the tubular valve, when in place, extending longitudinally through its center. Near the conical portion *e* of the valve are formed two inlet-ports or openings, *h*, opposite each other, and by which the water passes through the stop-cock when the valve is open. The passage of the tubular valve is divided by a wedge-shaped bridge or cross-piece, *i*, which extends into the space between the slots *d* and forms inclines *k*, down the upper one of which the inclined face *l* of the wedge-shaped key moves to slide the valve off its seat, and open it against the pressure of the water when the screw-plug is turned by the handle 10 of the spindle C, (see Fig. 2,) the object of the left-hand thread on the plug *a* being to allow of its being revolved in the same direction as those of ordinary stop-cocks when required to draw water. The end of the valve on which the projection *e* is formed is of concave shape to afford a more extended bearing-surface for the water to act against in closing the valve.

Where the stop-cock is to be attached to a lead-pipe a thimble, G, is screwed over a thread, *m*, on the rear of the horizontal portion of the shell A, and the outer end of this thimble is tapered down smaller in order to enter the lead-pipe when a wipe-joint is to be formed. This thimble is, however, dispensed with where a brass or iron pipe is used, in which case the stop-cock is connected directly with a coupling by means of screw-threads.

My improved stop-cock is particularly applicable to hot-water boilers supplied by pressure, as in case of the supply being stopped the boiler, when emptied by the back suction, will not collapse, as the valve will be opened by it, thus admitting air to the boiler as required, which is not the case with the ordinary stop-cock.

The screw-thread on the plug may be dispensed with, and the wedge-shaped key be operated by a lever or other device, a spring being employed for returning the key to its original position.

Where my improved stop-cock is used for hot water no washer under the screw-cap or packing around the spindle is required, there being no back pressure, as the mouth of the tubular valve extends in front of the upright portion of the shell; and, as no water passes

up into the top of the shell no freezing occurs at this point in cold weather. Where, however, a hose or filter is to be used, an ordinary washer will be required under the cap.

Where my improved cocks are employed, and the supply of water to a house is cut off to prevent freezing, they will be automatically opened to allow the water to escape through the waste-cock.

Claim.

What I claim as my invention, and desire to secure by Letters Patent, is—

A slotted tubular valve, E, provided with one or more inlet - ports, *h*, and opened against the pressure of the water by a wedge-shaped key, D, operated by the spindle C, the whole arranged within the shell A, substantially as and for the purpose set forth.

Witness my hand this 27th day of May, 1872.

M. T. F. O'DONNELL.

In presence of—

N. W. STEARNS,
W. J. CAMBRIDGE.