H. Jones,

Water Closet.

No. 98,599. Patented Jan. 4. 1870.

Fig. 1.

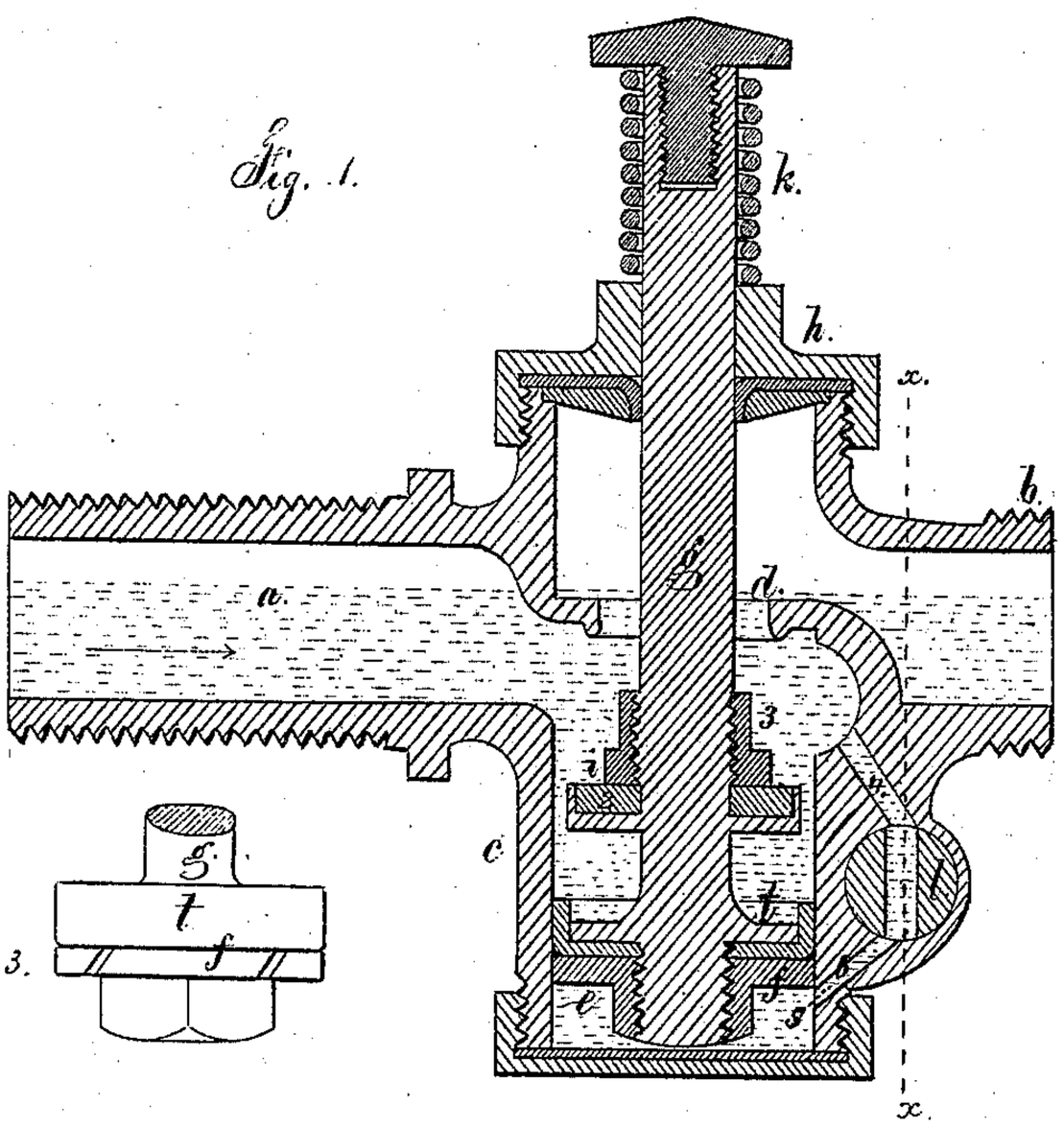
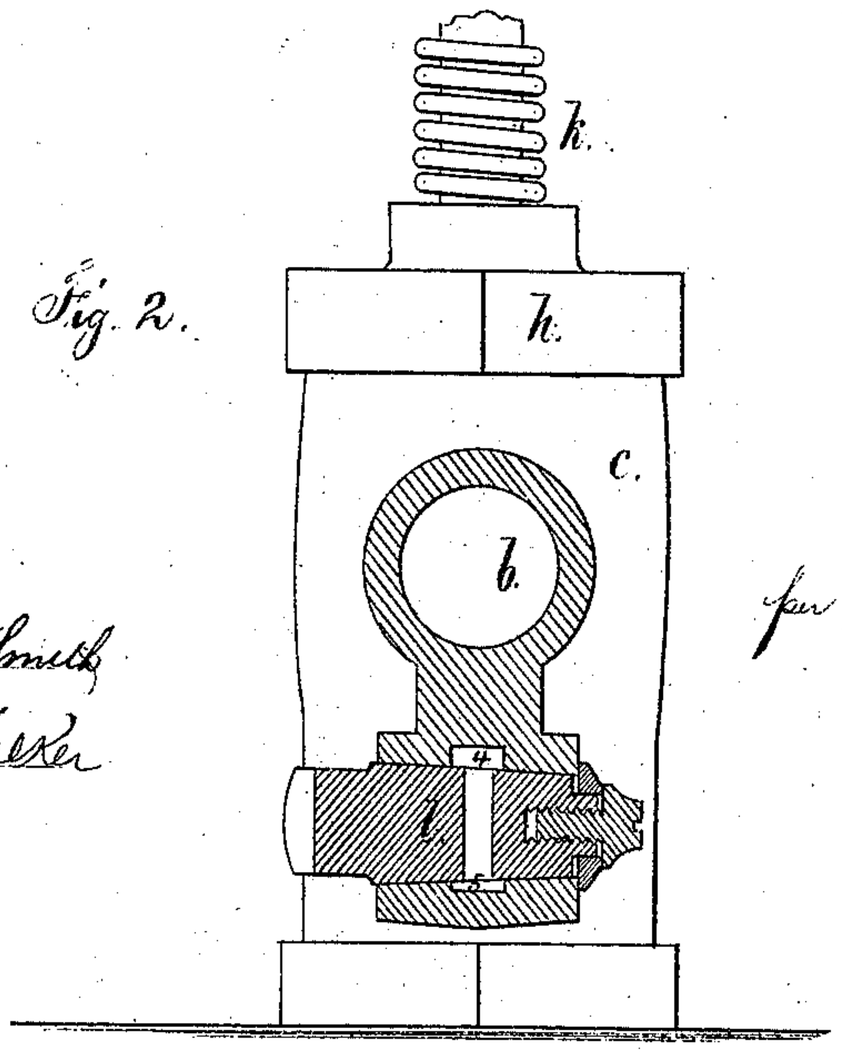


Fig. 3.

Fig. 2.



Witnesses
Chas. A. Smith
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Atty.

United States Patent Office.

HENRY JONES, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, JAMES JONES, AND CHARLES HARRISON.

Letters Patent No. 98,599, *dated January* 4, 1870.

IMPROVEMENT IN COCKS FOR WATER-CLOSETS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY JONES, of Philadelphia, in the State of Pennsylvania, have invented and made a new and useful Improvement in Valves for Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing, making a part of this specification, wherein—

Figure 1 is a vertical longitudinal section of the said improved valve or cock, and

Figure 2 is a section at the line *x x* of fig. 1.

The same parts are referred to by similar letters.

This invention is for regulating the gradual closing of the valve supplying water to a water-closet, and for preventing concussion by the "ram action" of the valve in closing.

My invention consists in an adjusting-cock, applied between the inlet-water chamber and an exhausting variable chamber, that regulates the closing of the valve, in combination with a valve having a cylindrical plug, that gradually shuts off the water previous to the valve taking its seat.

In the drawing—

a is the inlet-pipe, and *b*, the coupling, taking the pipe to the water-closet.

c is the barrel of the cock, formed with a valve-seat, *d*, between the pipes *a* and *b*.

The lower end of the barrel *c* forms the variable chamber *e*, in which is a cup-leather piston, *f*, on a stem, *g*.

The piston *f* fits the interior of the chamber *e* closely, so that it becomes a guide, and relieves the cup-leather *t* of any strain or sidewise action in moving the stem *g*, and in the edges of this piston *f* there are diagonal grooves, as seen in fig. 3, to allow water to pass through freely as the valve opens, and said diagonal slots prevent injury to the interior of the chamber *e*, from the motion of the parts.

h is the cap of the barrel *c*, through which the stem *g* passes, and is acted upon by the spring *k*, to cause the valve *i* to close against the valve-seat *d*.

The valve *i* is made with a leather or elastic face, 2, and with a cylindrical hub, 3, that is of a size to fit into the smallest portion of the slightly-tapering opening in the seat *d*.

At the side of the barrel *c* is a projection containing the plug *l*, and 4 and 5 are water-ways between the variable chamber *e* and the water-space above the piston *f*, so that the plug *l* forms a cock to regulate the passage of water into the variable chamber *e*, as the valve rises. This plug *l* may be formed with a screw-stem, through which the hole passes, instead of having a washer and ground barrel, as seen in fig. 2.

It is to be understood, that when the stem *g* is pressed down, to open the valve *i*, the piston *f* is also forced down, and the water in the chamber *e* escapes around the edges of the cup-leather *t* of the piston *f*.

The water flows through the valve-seat to the closet, and when the force that opened the valve is removed from the stem *g*, the valve *i* commences to close, and the speed of movement is regulated by the cock *l*, which cock, when once set, does not require to be changed.

It is well known, that in cocks that close by a variable chamber, into which water is drawn, the pressure of water against the valve frequently closes the same suddenly, producing a partial vacuum in the chamber *e*, and causing a sudden concussion or a series of them, by the ram action of the water.

I prevent this by the cylinder 3, around the valve *i*, which cylinder, passing into the slightly conical opening in the valve-seat, cuts off, or nearly so, the passage of the water, without any ram action, as the cutting off of the water is gradual, as the valve *i* does not strike the seat until the variable chamber is sufficiently full to allow the necessary movement of the valve.

If the water-way 4 opened into the pipe *b*, as has before been done, the pressure of the water upon the cup-leather and piston *f* will act in the opposite direction to the spring *k*. Hence the closing of the valve is not regular, but by the water-way 4 opening into the supply-chamber, there is nearly the same pressure upon each side of the piston *f* and cup-leather, rendering the movement regular and reliable.

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

1. The cock or valve *l*, and water-ways 4 5, between the variable chamber *e* and the supply-water chamber, in combination with the piston *f*, valve *i*, and cylinder 3, as and for the purposes set forth.

2. The piston *f*, formed with diagonal slots in its periphery, in combination with the cup-leather *t* and variable chamber *e*, as and for the purposes set forth.

In witness whereof, I have hereunto set my signature, this 11th day of November, A. D. 1869.

HENRY JONES.

Witnesses:

CHAS. H. SMITH,

GEO. T. PINCKNEY.