

W. S. Carr,

Water-Closet Valve.

N^o 27,522.

Patented Mar. 20, 1860.

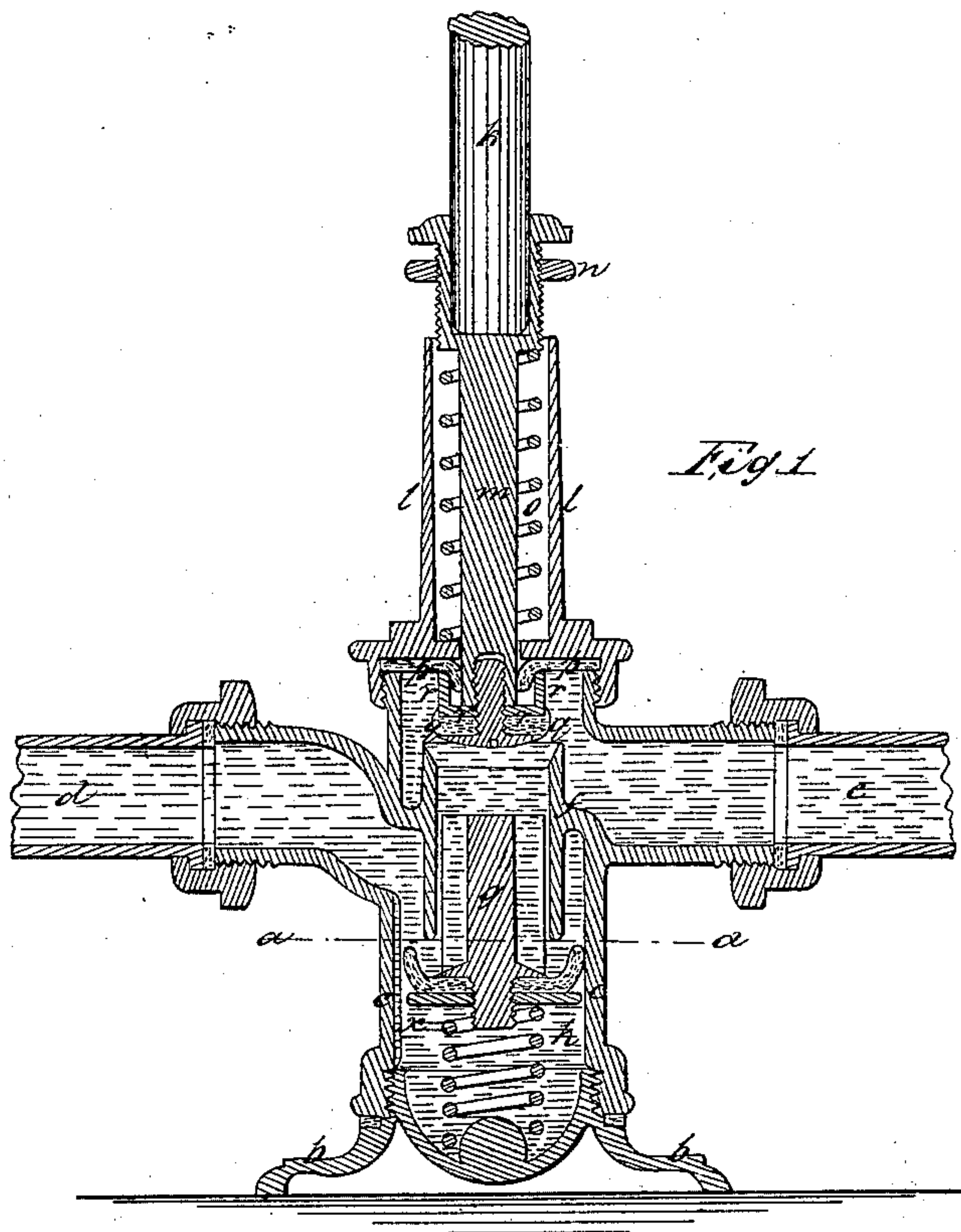


Fig. 1

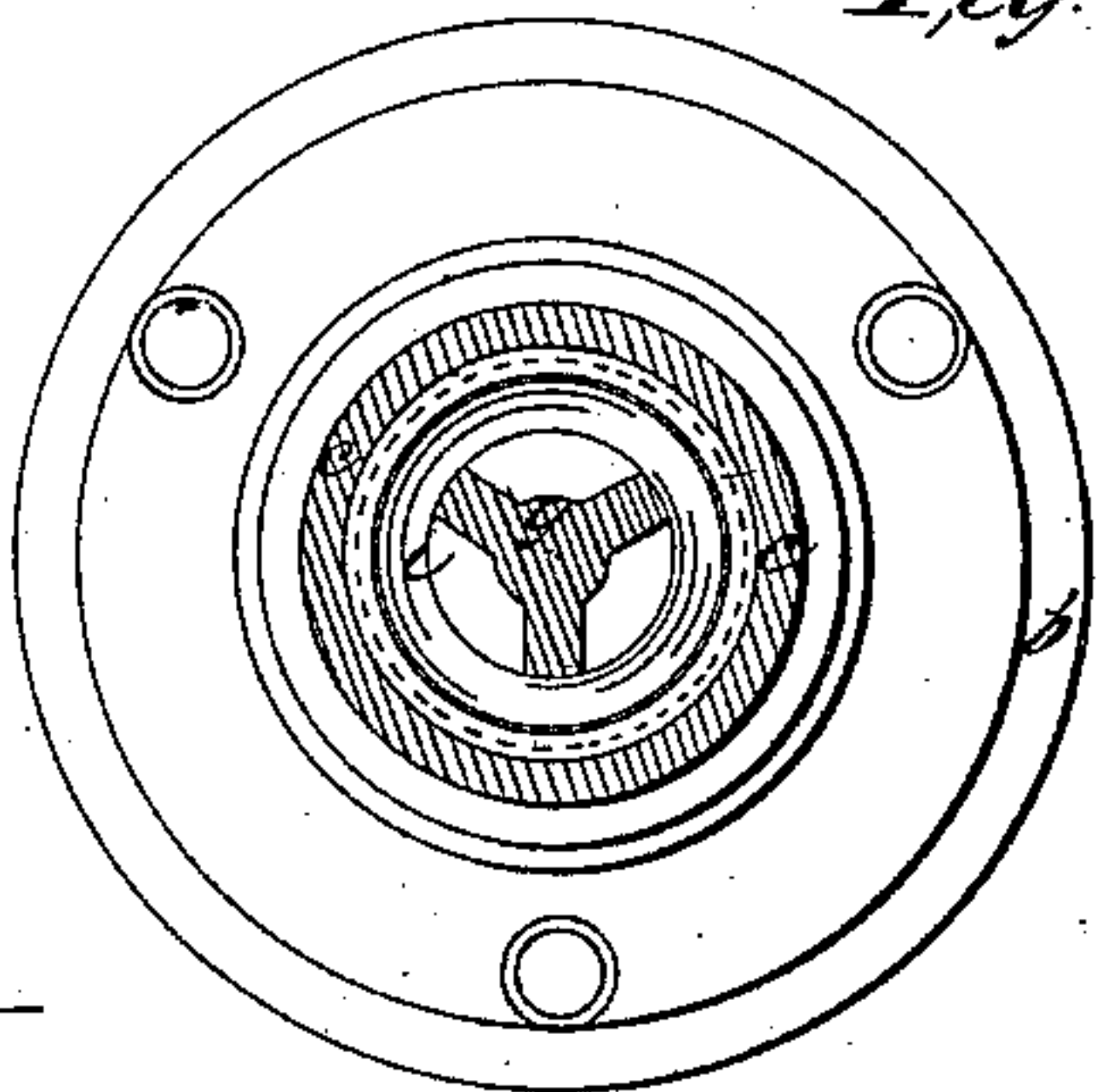


Fig. 2

Witnesses:

Lemuel W. Small
Chas. W. Harold

Inventor
William S. Carr

UNITED STATES PATENT OFFICE.

WILLIAM S. CARR, OF NEW YORK, N. Y.

VALVE FOR WATER-CLOSETS.

Specification of Letters Patent No. 27,522, dated March 20, 1860.

To all whom it may concern:

Be it known that I, WILLIAM S. CARR, of the city and State of New York, have invented, made, and applied to use certain new and useful Improvements in Water-Closet Cocks or Valves; 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, wherein—

Figure 1, is a vertical section of said cock or valve and Fig. 2, is a plan below the line *a, a*.

Similar letters indicate like parts.

My said invention relates to the valve or cock for admitting water into the closet by the motion of the seat when the person rises, and is a modification of, and improvement on, the water closet patented to me August 5th 1856.

My invention consists in detached double acting valves, one of which forming a plunger closes the water way and by its further motion opens the water valve, and then on the person rising from the seat the said plunger lifts out of the water way while the valve closes gradually allowing the water to run the necessary length of time.

By this device there is no waste of water as with the valves to water closets heretofore in use, for in all other closet cocks with which I am acquainted the valve is either opened and runs all the time that the seat is depressed, or else said valve is formed double to act on opposite sides of a seat so that the water runs until the second valve comes down to its seat, and if the weight is not sufficient for this purpose or if the water closet seat is partially pressed down the water can run continuously through such double acting valves, thus causing great waste of water which is prevented by the use of my cock.

In the drawing *b*, is a base or other support to the cock; *c*, is a cylinder containing the parts of the cock and receiving water from the pipe *d*, and *e*, is the pipe leading to the water closet hopper or basin; *f*, is a cylindrical passage axial with the cylinder *c*, and between the pipes *d*, and *e*, so that all the water to the closet passes through the same; *g*, is a grooved guide (see Fig. 2), moving in this cylinder *f*, and carrying at its lower end the cup leather valve *i*, secured to said grooved guide by a metallic disk; *h*,

is a spring beneath the valve *i*, that balances the weight of the valve and acts in aid of the water in closing the same up to the end of the cylinder *f*, so that the said leather *i*, setting up against the end of the cylinder *f*, makes a perfectly tight valve, the pressure keeping it to its seat; *x*, is a small groove or channel cut in the cylinder *c*, parallel or nearly so to the axis thereof.

We will now suppose that the grooved guide *g*, be pressed down and the leather *i*, removed from the end of the cylindrical passage *f*. The edges of the cup leather *i*, are forced away from the cylinder *c*, and the water in the lower part of the cock becomes no impediment to forcing the cup leather valve *i*, down, and the water runs through *f*, and away by the pipe *e*. The spring *h*, however cannot close the valve (*i*,) suddenly, neither can the pressure of water, because the cup leather *i*, expands or sets tight to the cylinder *c*, and the valve can only rise as the water leaks through the slot *x*, and the pressure equalizes on both sides of the valve (*i*,); this operation allows sufficient to flow through the cock into the closet; and by depressing the valve (*i*,) more or less, so that the time for the flow of water will be increased or lessened. The slot groove or channel *x*, is particularly adapted to this purpose because there can no obstruction remain therein because the movement of the cup leather would free the same, and the slot being sufficiently small the cup leather is not embedded thereinto by the pressure.

In order to force down this valve (*i*,) any suitable means might be used. I however prefer and use the mechanism shown as combining additional advantages to the foregoing.

k, is a rod pressed on by the seat (or otherwise); *l*, is a cylindrical cap containing the rod *m*, and spring *o*; *p* is a hydraulic packing leather around the rod *m*, and *r*, is a metallic cup on the end of the rod *m*, which not only prevents the packing leather being compressed and injured by the spring *o*, causing the end of the rod (*m*,) to come in contact therewith, but it also forms an additional valve seat or surface to exclude water from passing the spindle *m*, because the upper edge of said cup takes the surface of the leather *p*; *q*, is a disk of leather or other elastic material secured to the under side of this cup *r*. The operation of this part is that the valve *i*, being closed, when a person sits

down on the seat the elastic washer *q*, is first driven into the cylindrical passage *f*, closing the same, and then the end of the rod *m*, forces the valve *i*, away from its seat, and the extent of motion given to the valve *i*, by the movement of this elastic plunger in the cylindrical passage *f*, and by consequence the time the water is allowed to run, may be regulated by a screw nut *n*, taking the top of the cylindrical cap *l*. On the person rising the spring *o*, and pressure of water cause the plunger *q*, instantly to rise and the flow of water to the closet commences and continues as before set forth.

The spring *o*, might be dispensed with in cases where the pressure of water on the plunger is sufficient to raise the seat up.

When desired a separate washer may be provided above the cup leather *i*, to take the end of the cylindrical water way *f*.

Having thus described my said invention what I claim and desire to secure by Letters Patent is—

1. The independent cup leather valve (*i*), controlled in its motion by a cylinder having a water leakage and closing against the end of a cylindrical passage between the supply and discharge pipe substantially as set forth.

2. I claim a slot (*x*), in a cylinder containing a cup leather or plunger for the purpose of allowing water to pass gradually from one side of said cup leather or plunger to the other, to regulate the gradual closing of a valve in water closets, as specified.

3. I claim closing the water passage in the valve before opening the induction valve so that there is no leakage or waste of water consequent upon the use of two valves acting successively in opposite directions, and neither of which may be upon their respective seats as set forth.

4. I claim a cylindrical passage or water way (*f*), between the supply and discharge pipes, combined with an elastic washer or plunger (*q*), that is forced into said water way and acts on the valve *i*, substantially as specified.

In witness whereof I have hereunto set my signature this eleventh day of February 1860.

WILLIAM S. CARR.

Witnesses:

LEMUEL W. SERRELL,
THOS. GEO. HAROLD.