W. S. Carr,

Water-Closet Valve.

No. 15,474. Patented Aug. 5, 1856.

Fig. 3.

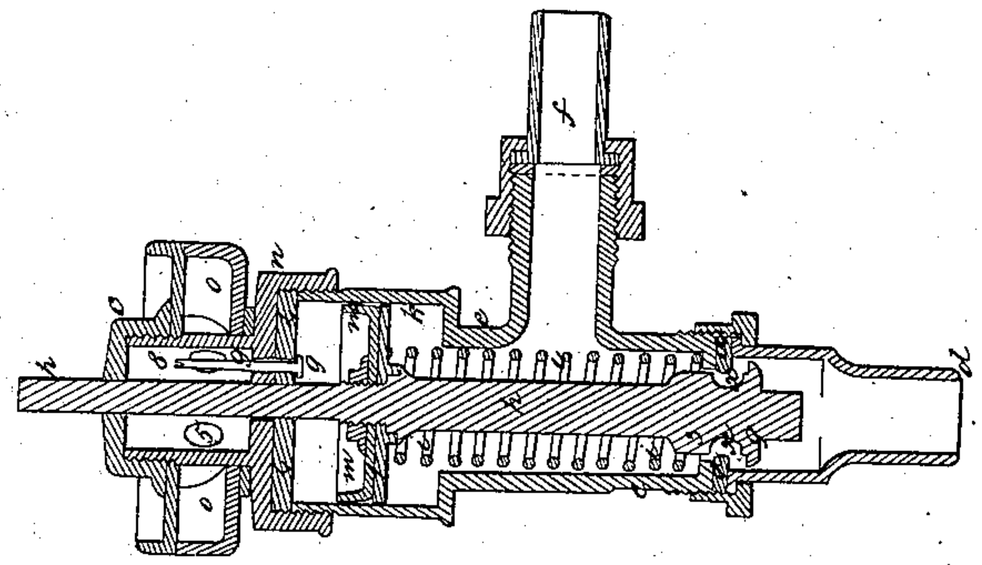


Fig. 1.

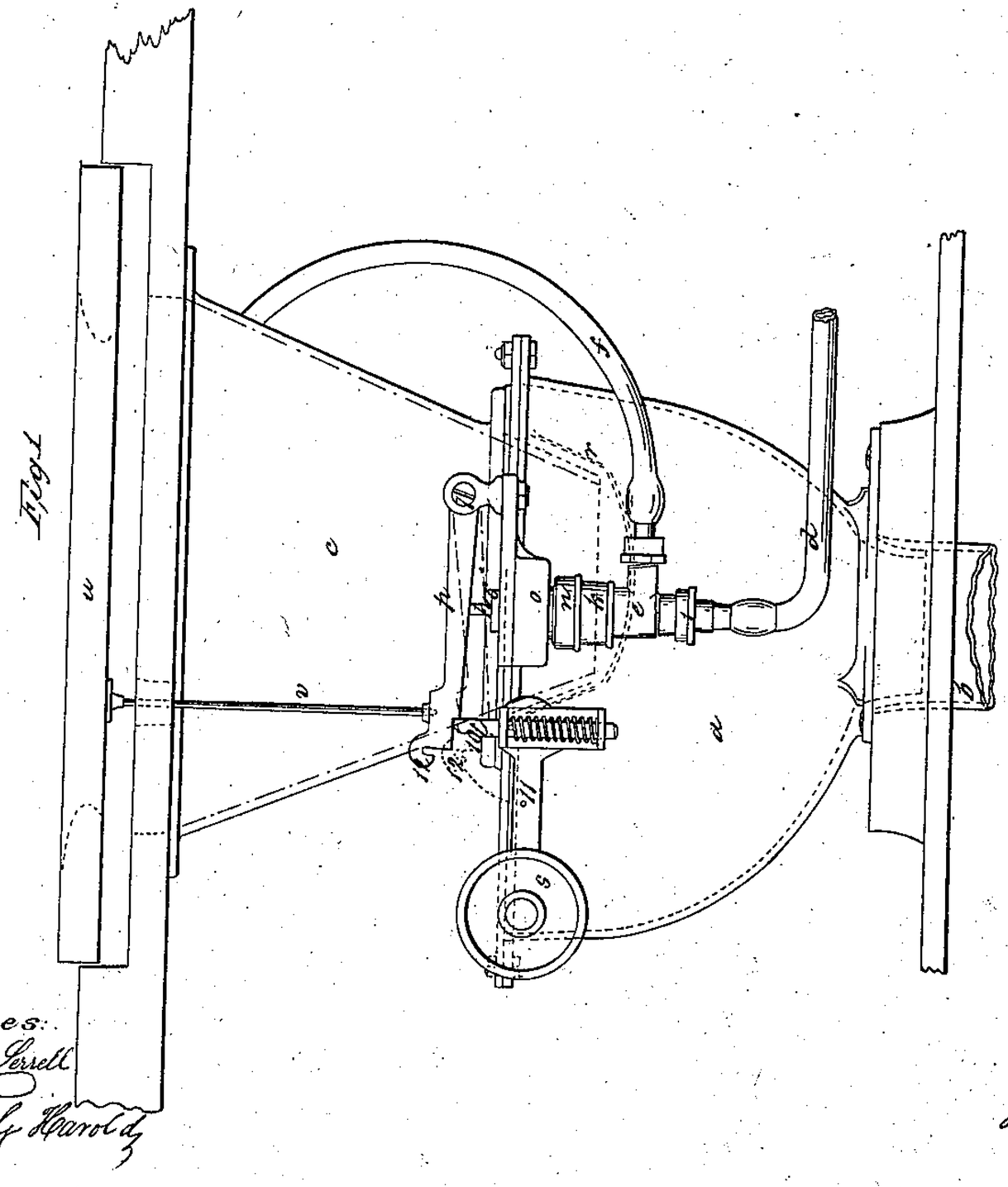
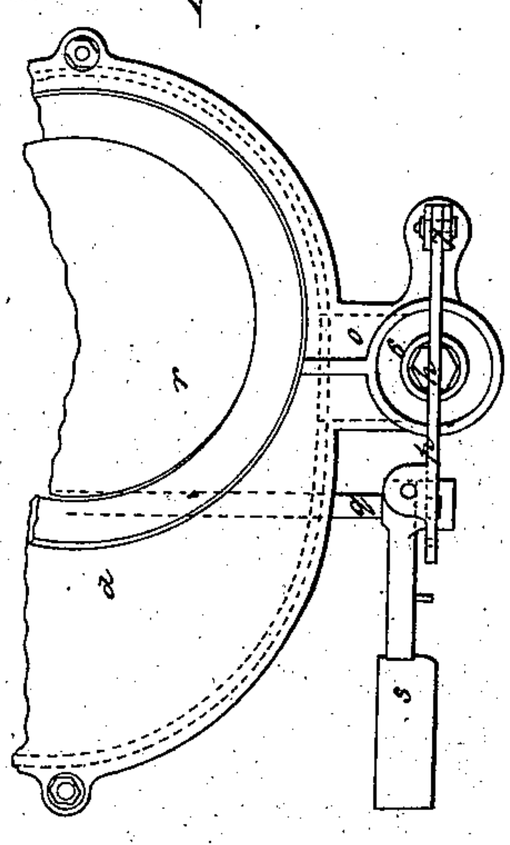


Fig. 2.



Witnesses:
Samuel W. Serrell
Thomas G. Harold

Inventor:
William S. Carr

UNITED STATES PATENT OFFICE.

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

WATER-CLOSET.

Specification of Letters Patent No. 15,474, dated August 5, 1856.

To all whom it may concern:

Be it known that I, WILLIAM S. CARR, of the city, county, and State of New York, have invented, made, and applied to use certain new and useful Improvements in Water-Closets; 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 drawing, making part of this specification, wherein—

Figure 1, is an elevation of my closet as in place for use. Fig. 2, is a plan of the cock and part of the pan of said closet and Fig. 3, is a vertical section of my cock made use of in letting the water into and shutting the same off from said closet.

Similar marks of reference indicate the same parts in all the figures.

The nature of my said invention consists in a peculiar construction of cock which is opened by the motion of the seat of the water closet, and allows but little water to run into the pan of the closet until the weight is removed from the seat, when the cock gradually closing, of itself, allows the water to run for a limited and regulated time sufficient to wash out the basin; I also make use of a peculiar arrangement of levers and latch in connection with said cock to throw and empty the pan of said water closet.

In the drawing *a*, is the trunk on the upper end of the soil pipe *b*, fitted with the pan *r*, on the shaft or spindle *q*, and *c*, is the basin sitting onto the trunk *a;* these parts thus far are to be of any usual or desired character.

d is a pipe supplying water from any suitable head and said pipe is attached to the coupling *l*, that screws onto the body *e*, of the cock, and *f* is a pipe and coupling passing water (when admitted) as hereafter detailed to the basin *c*, where it is to be fitted with the deflector as usual.

The cock (*e*) that supplies water to the basin is constructed with a stem *h*, passing nearly or quite air tight through the leather washer 4, beneath the cap *n*, and the lower end of said stem *h*, is formed with a valve *g*, and with a cylindrical part 3, fitting, water tight or nearly so, the opening of the washer 2, between the coupling 1, of the pipe *d* and cock *e;* and the sides of this cylinder 3, are formed with notches or a groove *x*. It will now be seen that if the stem *h*, be pressed down by weight of the person acting on the seat *u*, rod *v*, and lever *p*, or by any other suitable means, the valve *g* will be forced away from the washer 2, and allow a dash of water to pass through the notches *x*, sufficient to fill up the parts of the cock and then that the cylinder 3 descending and filling the opening in the washer 2, will prevent, or nearly so, the passage of any more water into the closet.

i, is a spring around the stem *h*, which acts in aid of the pressure of the water on the valve *g* to close the same so soon as the force which opened the said valve is removed; but if this alone was used the concussion would be so great as to tend to break the parts, beside which sufficient water would not be supplied to the water closet to cleanse the same; I therefore make use of the following means which cause said valve *g* to close slowly and in a regulated amount of time, thereby allowing the desired quantity of water to dash past the washer 2, at the time the notches or openings *x*, are moving past the same: The upper part of the cock *e*, is formed as a cylinder *k*, in which is a disk *l* attached to the stem *h*, and a cup leather *m*, above the same; *n*, is the cap of the cylinder *k*, which is formed with a short tube *s*, passing up through a hollow projection *o*, from the side of the trunk *a*, and secured thereto by a nut 6. At the time the valve *g* is pressed down as before stated the water dashes momentarily into the cock and fills the same, passing the cup leather *m*, and filling the cylinder *k*, and upon the pressure on the stem *h*, being removed the cup leather expands by the slight rise of the stem, and would retain the valve *g*, open, were the cylinder *k* water tight, and therefore the closing of said valve will be regulated according to the extent of leakage provided in said cylinder *k*, and for this purpose the leakage at the washer 4, around the stem *h*, may in some cases be sufficient but I propose to use a screw 9, entered through the cap *n*, with a head next the washer 4, and part of one side of the screw filed away

so as to adjust the amount of leakage and regulate the time during which the water will run into the closet.

In order to drop the pan *r* of the water closet I fit the same on the shaft or spindle *q*, and provide the weight *s*, which is so adjusted as to be sufficient merely to replace the pan when empty beneath the basin, in the usual manner, and I make use of a peculiar locking arrangement for retaining the pan in a horizontal position under the basin *e*, or in an inclined position while being washed out, as shown in Figs. 1 and 2. The lever *p* is attached at one end at the fulcrum 7 and passes over the stem *h* and beneath the rod *v*, as before mentioned, and the end of this lever *p*, is fitted so as to take onto a spring latch *t*, placed vertically at the end of the spindle *q*, and is thrown upward by its spring when not otherwise acted on, and 12, is a hook on the end of the lever *p*, to take a pin 11 on the arm of the weight *s*, acting as hereafter detailed.

The operation of the parts is as follows: The pan *r*, we will suppose has been returned into its horizontal position while empty, by the weight *s*, the latch *t*, in so doing being forced down and then springing up into its notch at the end of the lever *p*, prevents the pan *r*, from again assuming an inclined position in consequence of the water that runs into the same to exclude smell, and which is sufficient to overpower the weight *r*. When the seat *u* is forced down by the weight of the person occupying the same the lever *p* is also forced down by the rod *v*, and acts on the valve *g*, as before detailed, and its end forces down the spring latch *t*, also, but the pan *r*, cannot be dropped by this motion as the latch *t*, still sustains the same, but, in forcing down this latch *t*, a beveled notch 10, on the side thereof has been brought down to the slide through which said latch passes, and the weight of water in the pan *r*, tending to rotate the spindle *q*, the aforesaid beveled notch is pressed against the slide of the latch; and when the person rises from the seat the tendency of the weight of water in the pan still being to press the latch against the vertical part of the notch in the lever and the beveled notch onto the slide of the latch, said latch is prevented from springing out as the lever *p* rises by the action of the water and spring *i*, consequently said lever passes above the end of the latch *t*, and the pan drops emptying the same, and the latch being now liberated is projected by its spring.

The pan *r*, in dropping raises the weight *s*, and pin 11, but the lever *p*, rising gradually, has not by this time attained sufficient elevation to allow the pin 11 to take the end of the lever *p*, without lifting the same by passing under the inclined end, and then the lever *p* drops again and its hook 12, takes said pin 11, and holds the pan *r* in its inclined position until the further closing of the valve *g*, and raising of the lever *p*, disengages said pin and the weight *s*, returns the pan *r*, to place, where it is retained by the latch *t*, and filled by the further flow of water as the cock finally closes, and the closet is again ready for use. I am thus enabled to obtain a reliable and self acting water closet, and one that does not waste water while being used, but simply supplies sufficient to cleanse the basin after the user rises from the seat. In cases where this cock is placed below the ground to avoid frost the water in the pipe *f* will gradually waste past the cup leather *m*, but if this be not sufficiently fast in its operation a small hole may be inserted in the cylinder *k*.

I am very well aware that cocks have heretofore been fitted in such a manner as to avoid any sudden motion in either opening or closing, therefore I lay no claim to so doing, but I am not aware of any valve, closing in the same direction as the flow of water, having been fitted with a groove or notched cylinder 3, as herein set forth, whereby the water is allowed to pass the seat slightly on being forced down, and then the cylinder closes said seat almost or quite water tight, irrespective of the weight on the seat which may vary the position of said cylinder, but might not be sufficient to compress a valve tightly to its seat; and then on the pressure being removed from said valve it gradually closes, allowing the water to run for a limited time, and then the said valve finally closes in the same direction as the flow of water which also aids in making said valve tighter. I am also aware that a given amount of water leakage has been used to prevent a sudden motion in cocks, balances meters and a variety of other instrument, therefore I do not claim the same, but I am not aware that a cup leather has ever before been so fitted and applied, with a sliding valve, as to allow the water to pass the same freely in filling the chamber, in which it moves, and then act (upon the power being relieved from the valve) to force the water out of said chamber and gradually allow the valve to close.

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

1. The valve *g* with its cylinder 3, and openings *x*, constructed and acting in the seat 2, in the manner and for the purposes substantially as specified.

2. I also claim the cup leather *m*, in the cylinder *k*, fitted with the required amount of water leakage when combined with said valve or cock (*g*, *x*, 3) and spring *i*, the whole constructed and operating substantially as specified.

3. I also claim unlatching the pan *r*, from the lever *p* to empty the contents thereof and then retaining said pan in its depressed position while being washed out, by providing the notch 10, pin 11, and hook 12, the whole constructed and acting, in connection with the gradual motion of the stem *h* of the valve, substantially as specified.

In witness whereof I have hereunto set my signature this twenty-seventh day of May 1856.

WILLIAM S. CARR.

Witnesses:

LEMUEL W. SERRELL,

THOMAS G. HAROLD.