FIG. 2. 72810

# HUGH H. CRAIGIE,

## IMPS. IN CISTERNS FOR WATER CLOSETS

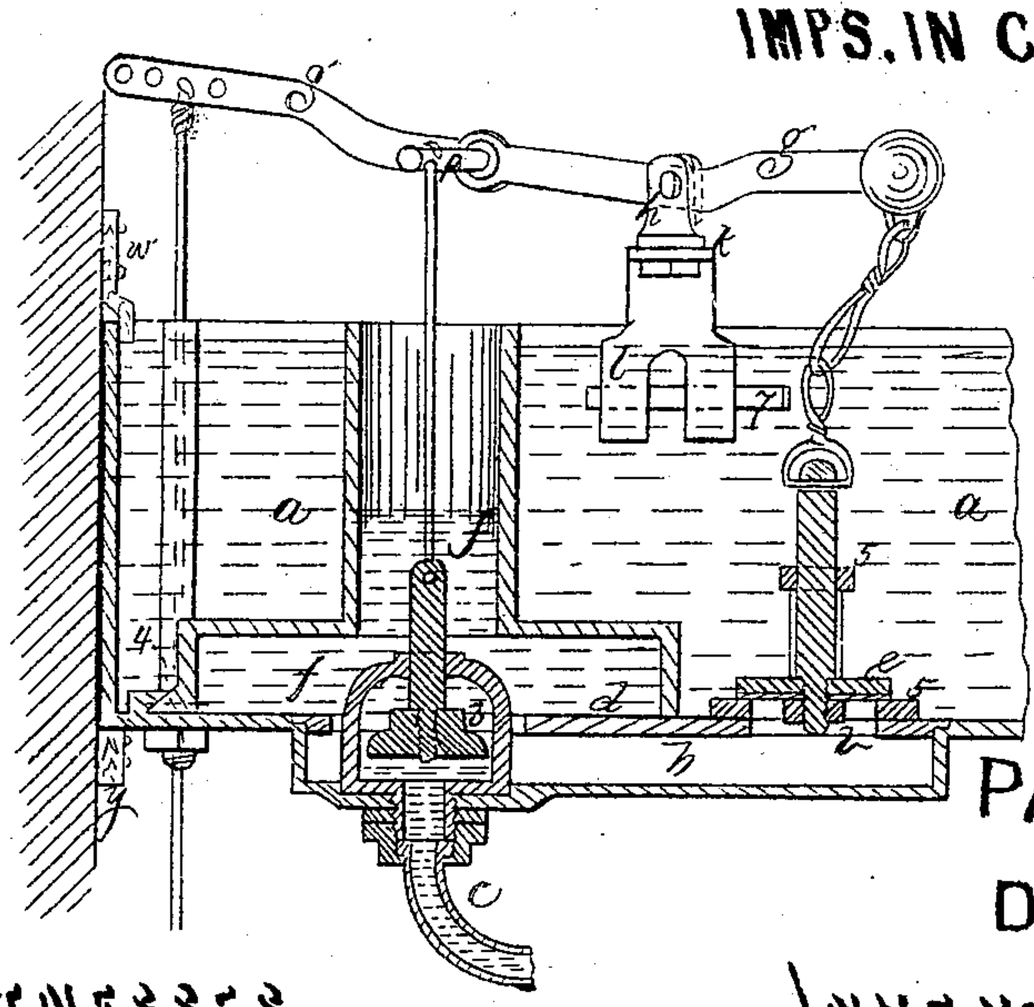
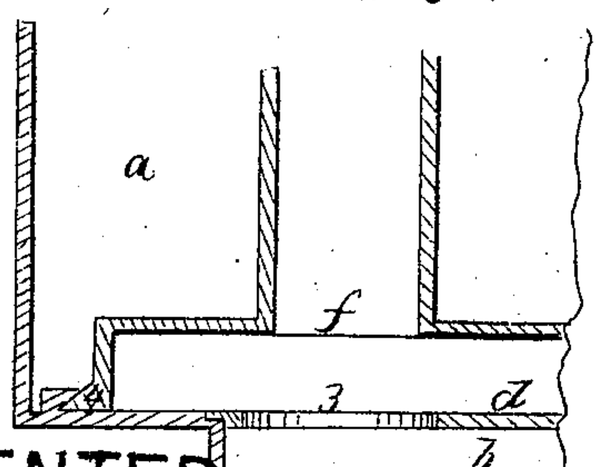


FIG. 3.



PATENTED

DEC 31 1867

WITNESSES,

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Chas. H. Smith

INVENTOR,

Hugh H. Craigie

FIG. 5.

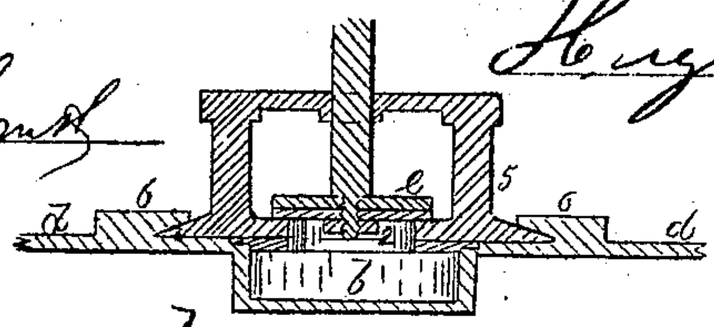


FIG. 1.

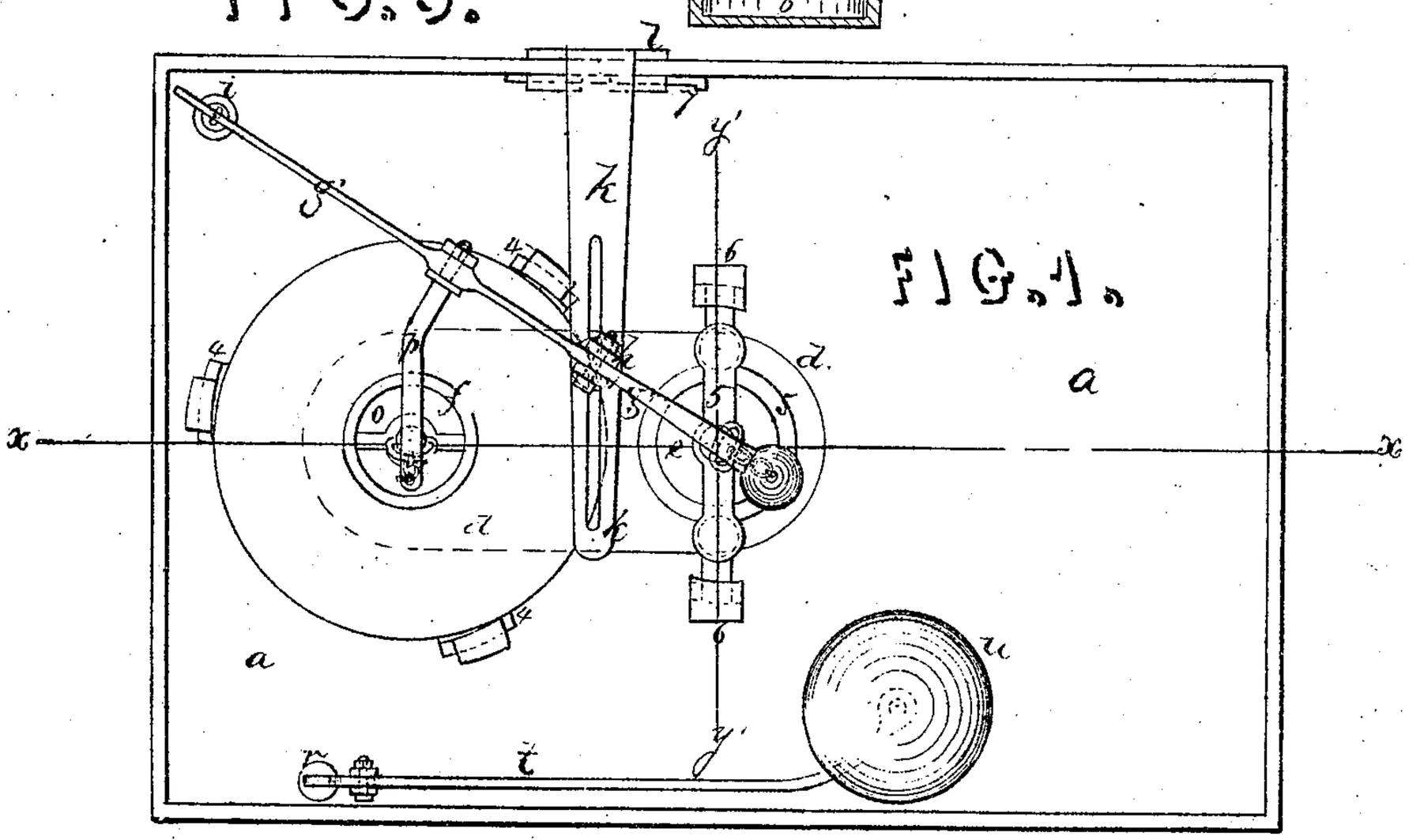
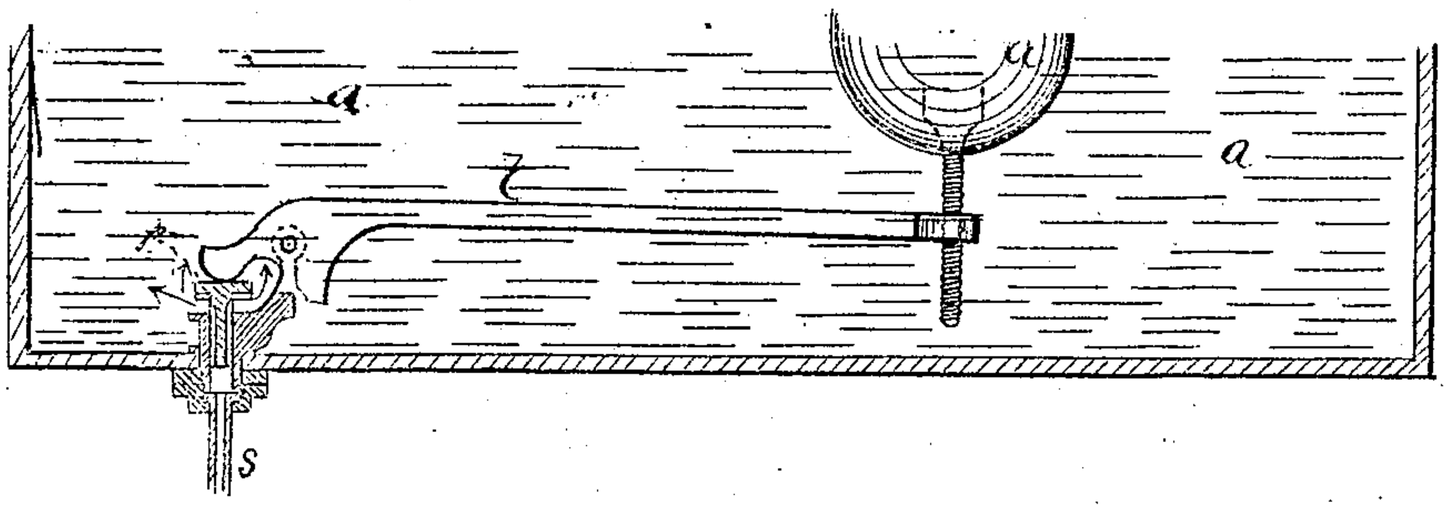


FIG. 4.



# United States Patent Office.

HUGH H. CRAIGIE, OF NEW YORK, N. Y.

*Letters Patent No.* 72,810, *dated December* 31, 1867.

## IMPROVEMENT IN WATER-SUPPLIES 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, HUGH H. CRAIGIE, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in Cisterns 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 part of this specification, wherein—

Figure 1 is a plan of said cistern complete.

Figure 2 is a vertical section of the same through the valves and water-way at the line *x x*.

Figure 3 is a section, showing the water-way and service-box, in the form adapted to a pan-closet in which the water is allowed to run at the time the pan is tipped, and continues to run sufficiently to fill the pan after it is returned to place.

Figure 4 is a section of the supply-valve and float, and

Figure 5 is a section through the water-way and its valve at the line *y' y'*.

Similar marks of reference denote the same parts.

Water-closet cisterns have heretofore been constructed with a service-box attached below the bottom. This is difficult to apply, and is unsightly.

The nature of my said invention consists in a cistern, having a water-way in its bottom, covered by a plate introduced from above, and to this water-way, the valve or valves are applied. The service-box is introduced within the cistern, and applied in connection with said water-way, to receive the sudden dash of water, and allow it to run gradually to the closet. The cistern is supplied with water by a valve, that is controlled by a float.

In the drawing, *a* is a cistern, of any desired size and shape; I prefer forming the same of cast iron. *b* is a water-way, formed in the bottom of the cistern, from which a pipe, *c*, passes to the closet, urinal, or other article to be washed by a supply of water. The water-way *b* is covered by a plate, *d*, set flush with the bottom of the cistern in grooves around the edge of the water-way *b*, cement of any suitable character being employed to make the parts tight. The plate *d* has two holes in it, one, 2, for the valve *e*, the other, 3, for allowing the dash of water, when the valve *e* is raised, to enter the service-box *f*. This box, *f*, is to be of any desired size or shape; I prefer that the same should be round, as shown, with a hollow column, open at top, rising higher than the water-level. This service-box, *f*, is provided with inclined cleats 4, locking under reverse cleats upon the bottom of the cistern. Putty or suitable cement introduced between the service-box and cistern, is employed to make a tight joint.

The seat 5 of the valve *e* is kept down at its ends, by being turned under the overhanging cleats 6, and cemented tightly, as aforesaid. From the seat 5 rises the cage or supports for the stem of the valve *e*.

The lever *g*, that actuates the valve *e*, is set on an adjustable fulcrum, *h*, in the slotted arm *k*, and said arm *k* is formed with a forked bracket, *l*, setting over the edge of the reservoir or cistern *a*, and secured by a wedge, 7, or by a set-screw.

By this construction, the fulcrum of the lever *g* can be accurately placed, so as to be on line with the valve *e* and cord-tube *i*, so that the parts will work correctly, thus avoiding the difficulty heretofore experienced in placing the fulcrum of said lever *g* on a piece of wood nailed to the box forming said reservoir.

Heretofore it has been usual to carry the wire or cord from the lever *g*, down outside the cistern, against the wall of the building; here it is liable to become stopped by grains of sand or mortar. I obviate this difficulty by using the tube *i*, that passes through the bottom of the cistern, and is secured by a flange and nut, the upper end of the said tube *i* being higher than the water-level.

If it is desired that the water run while the valve *e* is raised, at the time of tipping the pan of the closet, then the water will pass through the water-way *b* and pipe *c*, as illustrated by fig. 3; but, if it is desired to use a hopper-closet and moving seat, and prevent the water being wasted by running while the seat of the closet is depressed and the valve *e* open, then I introduce the valve *o*, operated by an arm, *p*, on the lever *g*, that allows this valve *o* to close as the valve *e* opens, and the reverse, so that when the seat of the water-closet is relieved of pressure and allowed to rise, then the valve *e* closes and the valve *o* is opened to allow the contents of the service-box *f* to run into the closet.

In order to supply the cistern I make use of a valve, *r*, at the end of the water-pipe *s*, and *t* is a lever, with a ball or float, *u*, at its outer end, connected thereto by a screw-stem.

This construction enables me to place the supply-entrance below the surface of the water in the cistern; it also causes the water to be thrown off horizontally, or nearly so, to avoid the agitation of water in the cistern, that sometimes makes it dash over the sides or up against the ceiling of the room containing the same. The adjustment of the valve-opening being effected by the screw-stem of the float, there is no motion when the end of that stem rests on the bottom of the cistern, until the water rises and floats the ball, shutting off the supply. By this construction the extended motion usual with float-valves is avoided, because the float remains stationary, with the valve open to its full capacity, until the cistern is nearly full, while the ordinary valve-float is constantly moving with the rise and fall of water.

In order to sustain the cistern I employ a support, *y*, nailed against the wall, and on which the cistern rests, and apply cleats *w*, that pass inside the upper edge, and are also nailed to the wall. By this construction the bracket and frames usually employed to support the cistern are dispensed with.

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

1. A water-way, *b*, formed in the bottom of the cistern, between the inlet-valve *e* and the outlet-pipe *c*, in combination with a covering plate, introduced substantially as set forth.

2. The valve *e*, seat 5 and supports, constructed as specified, in combination with the cistern *a*, to which it is attached by the ends passing under the cleats 6, as set forth.

3. The service-box *f*, applied inside the cistern, and rising above the bottom thereof, in combination with the supply-valve *e*, substantially as and for the purposes set forth.

4. The service-box *f*, attached as set forth, in combination with the water-way *b* and supply-valve *e*, as and for the purposes specified.

5. The adjustable arm *k* and bracket *l*, for the fulcrum of the lever *g*, in combination with the valve *e* and cord or wire, substantially as and for the purposes set forth.

6. The arm *p*, extending from the lever *g*, in combination with the valves *o* and *e*, as and for the purposes specified.

7. The tube *i*, passed through the bottom of the cistern, and secured by a flange and nut, in combination with the lever *g* and valve, as and for the purposes set forth.

8. The supply-valve or cock *r*, placed in the bottom of the cistern below the water, in combination with the lever *t* and float *u*, adjustable on its stem, as and for the purposes set forth.

In witness whereof, I have hereunto set my signature, this 26th day of September, A. D. 1867.

HUGH H. CRAIGIE.

Witnesses:

GEO. DENNETT WALKER,

CHAS. H. SMITH.