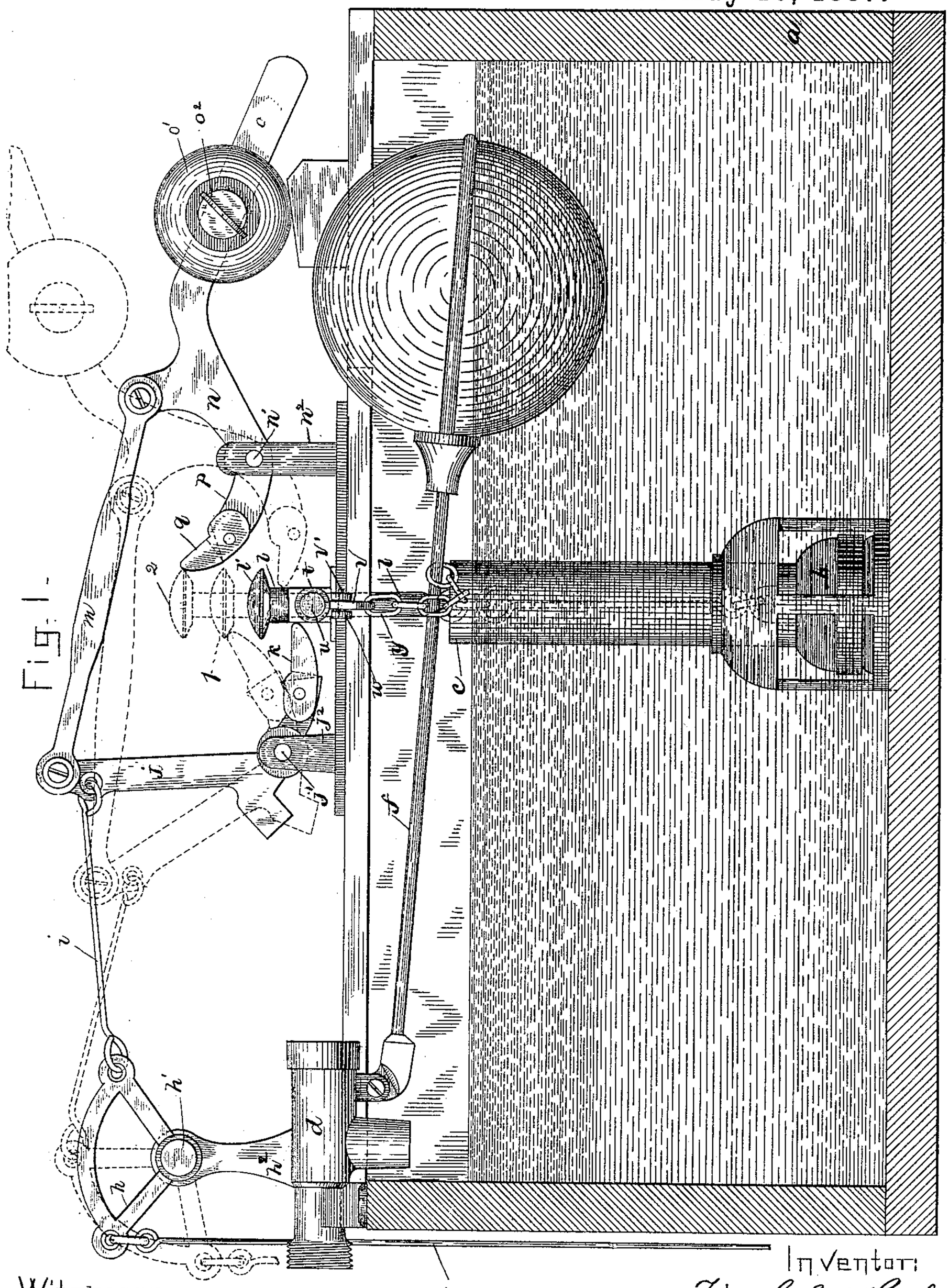
(No Model.) 2 Sheets—Sheet 1.

T. McHUGH.

DEVICE FOR CONTROLLING THE OPERATION OF VALVES IN TANKS.

No. 362,765. Patented May 10, 1887.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

T. McHUGH.

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No. 362,765. Patented May 10, 1887.

Fig. 4.

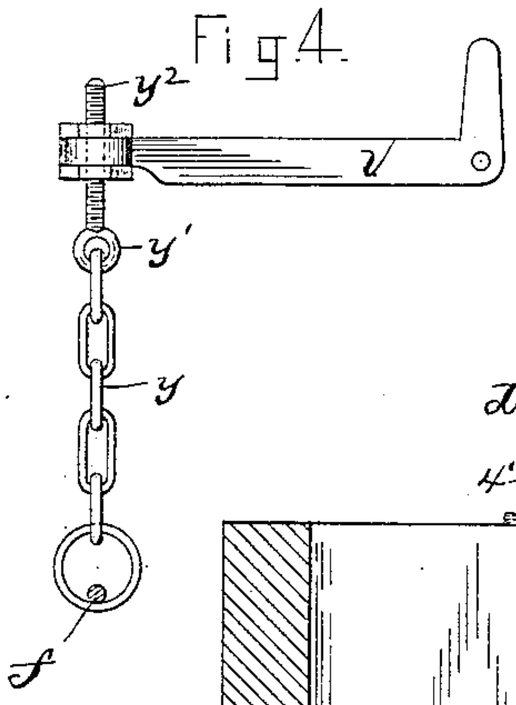
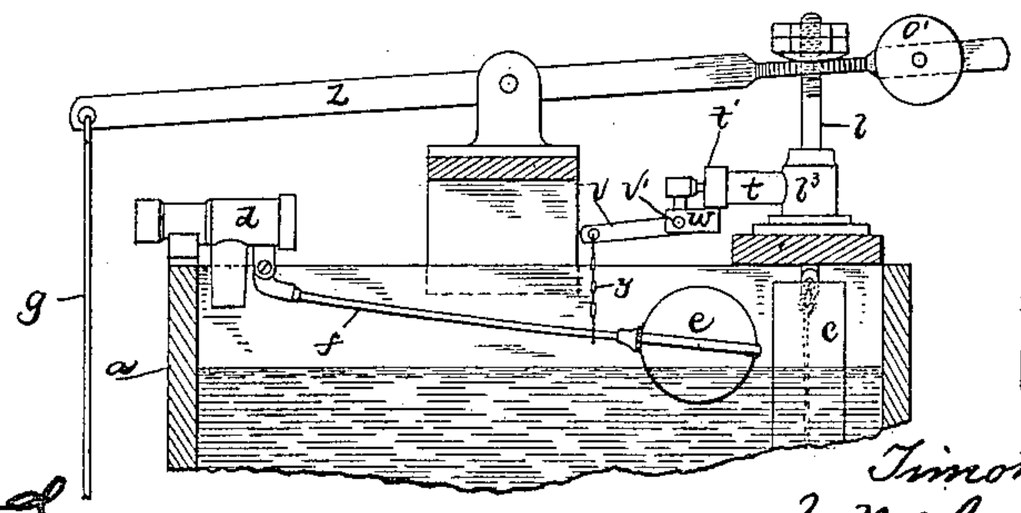


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

TIMOTHY McHUGH, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO WARD & CURLEY, OF SAME PLACE.

DEVICE FOR CONTROLLING THE OPERATION OF VALVES IN TANKS.

SPECIFICATION forming part of Letters Patent No. 362,765, dated May 10, 1887.

Application filed October 11, 1886. Serial No. 215,838. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY McHUGH, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Devices for Controlling the Operation of Valves in Tanks, of which the following is a specification.

This invention relates to devices connected with the valve and valve-operating lever in tanks for water-closets for securing a preliminary and after wash of the bowl of the closet.

It is the object of the invention to provide improved means whereby a brief preliminary wash may be given to the bowl at the commencement of its use, and a thorough and much more prolonged wash effected upon quitting the seat of the closet.

To this end my invention consists in the improved means for locking the valve in raised position to effect the after-wash, and the means connected with the float for unlocking or releasing the valve after the desired amount of water has been discharged from the tank into the bowl, all as I will now proceed to describe, so that others skilled in the art may be able to make and use the invention, reference being had to the accompanying drawings, and to the letters of reference marked thereon, the improvements being particularly pointed out in the claims hereunto appended.

Of the drawings, Figure 1 represents a side view of a valve-operating apparatus embodying my invention, the tank being shown in section. Fig. 2 represents a transverse section thereof through the tank and locking devices. Fig. 3 is a side view, partially sectional, of a modified construction. Fig. 4 is a side view of the latch-operating lever, showing adjustable means connecting it with the devices for raising the valve.

Similar letters of reference indicate similar parts in all the figures.

The construction and relationship of the various devices connected with the invention for raising the valve to effect both the preliminary and after wash are substantially the same as that disclosed in the patent granted to me June 30, 1885, No. 320,950, so that a detailed description thereof herein is unnecessary. It may be mentioned, however, that *a* represents the tank, and *b* the valve for controlling the outlet-port of the tank. Said valve may be substantially the same as that shown and described in my application, Serial No. 196,496, filed March 25, 1886, provided with an overflow-pipe, *c*, adapted to perform the usual offices of such devices.

d represents a ball-cock of suitable construction, adapted to control the supply of water therethrough to the tank, through the medium of the float *e*, connected with the cock *d* by means of the rod *f*, all operating as usual.

g represents the rod, cord, or chain, preferably connected at its lower end to a spring-operated seat, (not shown,) and at its upper end to one arm of a bell-crank lever or segment, *h*, pivoted at *h'* to a bracket or post, h^2. A link, *i*, connects the other arm of said lever *h* with the upper end of an elbow-lever, *j*, pivoted at *j'* to a bracket or stud, j^2. The other end of said lever *j* is provided with a pivoted toe, *k*, adapted to project under a head, *l'*, formed on the upper end of a rod, *l*, connected at its lower end with the valve *b*.

m indicates a link connecting the upper end of lever *j* with a lever, *n*, pivoted at *n'* to a stud or post, n^2. The outer arm, *o*, of lever *n* is provided with a weight, *o'*, adjustable on arm *o* by means of a set-screw, o^2, for the purpose of regulating its leverage force. The other arm, *p*, of said lever *n* is provided with a toe, *q*, pivoted to said arm *p*, and also adapted to project under the head *l'* of rod *l*.

The operation of the contrivance as thus far described will now be readily understood by reference to my aforesaid patent. The occupant of the closet upon taking the seat will draw down on rod or chain *g*, and through the medium of the devices connecting it with toe *k* of lever *j*, operate said parts so as to raise rod *l* to the dotted-line position 1, which will effect the brief preliminary wash and bring the valve-operating levers and their connected devices to the dotted-line position in Fig. 1, which position is such as to bring toe *q*, connected with the end of arm *p* of lever *n*, under the head *l'* of rod *l*, toe *k* slipping off from engagement with said head and letting the rod *l* and valve *b*, connected therewith, fall. So long as the seat is depressed or draft downward on

rod *q* maintained the parts will be held in their dotted-line position, Fig. 1, and the valve will remain closed after the brief operation effected, as hereinbefore noted. When, now, rod or chain *g* is released, weight *o'* will effect the movement of the valve-operating devices to their full-line position, Fig. 1, which will cause toe *q*, operating under the head *l'* of rod *l*, to raise said rod to the dotted-line position 2, when said toe *q* will escape from engagement with said head *l'*, and have no further effect upon the latter or its connected rod. The latter operation effects what has been termed the "after-wash," and to prolong this operation, so as to make it as thorough as necessary, I have devised improved means for holding the valve raised in this after-wash position 2 until a predetermined amount of water has been discharged from the tank, when float *e* will operate to release the valve and permit it to close the outlet-port of the tank.

Rod *l* is provided with a circumferential groove, l^2, into which the rear end of a rod, *r*, is adapted to project, said rod *r* being pressed toward said rod *l* by means of a spiral spring, *s*, surrounding said rod *r* and bearing at one end against an offset or shoulder, *r'*, formed on the rearward end of said rod, and at the other end against a cap, *t'*, screwed on the outer end of a short pipe, *t*, connected at the other end with the bearing l^3 for the rod *l*, all as is clearly pictured in Fig. 2.

The forward end of rod *r* projects through cap *t'*, and is provided on this end with an enlargement or head, *u*, in which is formed a hole, *u'*, adapted to receive the upper end of an elbow-lever, *v*, pivoted at *v'* to a bracket, *w*, secured to or forming a part of the cap *t'*. The forward end of elbow-lever *v* is connected by a chain, *y*, with rod *f* of float *e*.

The circumferential groove l^2 is provided in rod *l* at such point that when said rod is raised to its position 2 the rear end *r'* of rod *r* will be caused to engage said groove by the action of spring *s*, and thus lock said rod and valve in said raised position 2 until enough water has been discharged from the tank to lower float *e* to an extent that will cause its rod *f* to operate elbow-lever *v*, through the medium of chain *y*, so as to draw forward rod *r* against the tension of spring *s*, releasing rod *l* and allowing it and valve *b* to drop to the full-line position, Fig. 1, closing the valve. Meanwhile supply-cock *d* will have been operated by the lowering of float *e*, so as to admit water to the tank, which will continue to fill until the float *e* is raised high enough to close said cock.

By lengthening or shortening chain *y*, or by fixing its upper end in either hole 4 or 4', the amount of water supplied to the closet-bowl in the after-wash can be regulated, as will be readily understood. In Fig. 4 I have shown the upper end of the chain *y* as connected with an eye, *y'*, of a bolt, y^2, having a screw-threaded connection with the forward end of lever *v*, whereby the length of the connecting means between said lever and valve can be adjusted, for the purposes above stated.

It is obvious that the precise form and arrangement of parts shown may be varied without departing from the nature or spirit of the invention. For instance, instead of the system of levers for raising the rod *l*, I may employ a single lever, *z*, as shown in Fig. 3, and by first drawing down a short distance on rod or cord *g* and releasing the same, effect a brief preliminary wash, and by subsequently drawing down on said rod or cord to a greater distance and releasing the same, a longer after-wash can be given, substantially as before described. It is also obvious that a weight might be employed as the equivalent of the spring *s*, and instead of connecting chain *y* to rod *f* it might be directly connected to float *e*, and operate the device in the same way, with the exception of ball-cock *d*, which would be dispensed with, and instead of a chain, *y*, for connecting rod *f* with lever *v*, a cord or similar equivalent device may be used. Again, by constructing the rearward end of rod *r* as a friction device, so as to engage and hold rod *l* raised at any point, the preliminary wash might be prolonged until float *e* had descended far enough to withdraw latch-rod *r* from engagement with rod *l*.

I claim—

1. A tank, a valve connected therewith for regulating the outflow of water from the tank, a rod connected with said valve for raising the latter, and a spring-pressed rod to engage said first-mentioned rod to latch or lock it and the valve in raised position, all constructed, combined, and operating substantially as and for the purposes hereinbefore set forth.

2. A tank, a valve connected therewith for regulating the outflow of water from the tank, a rod connected with said valve, a lever for raising said rod and valve, a rod for locking said first-mentioned rod and the valve in raised position, a lever connected with said locking-rod, a float, and a chain connecting it with said last-mentioned lever, all constructed, arranged, and combined substantially as and for the purposes specified.

3. The tank, a valve connected therewith for regulating the outflow of water from the tank, a rod provided with a groove connected with said valve, levers for raising said rod and valve, a spring-pressed rod constructed at one end to engage the groove in said first-mentioned rod and locking it and the valve in raised position, an elbow-lever connected with the other end of said spring-pressed rod, a float, and a chain connecting it with said elbow-lever to withdraw said spring-pressed rod from the groove in said first-mentioned rod, constructed, arranged, and combined substantially as and for the purposes specified.

4. The tank, a valve connected therewith

for regulating the outflow of water from the tank, a rod connected with said valve, a lever for raising said rod and valve, a spring-pressed rod for locking said first-mentioned rod and the valve in raised position, a lever connected with said spring-pressed rod, a float, and an adjustable chain connecting it with said last-mentioned lever to withdraw said spring-pressed rod from holding said valve and rod in raised position, all constructed, combined, and arranged substantially as hereinbefore set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 6th day of October, 1886.

TIMOTHY McHUGH.

Witnesses:

C. F. BROWN,

ARTHUR W. CROSSLEY.