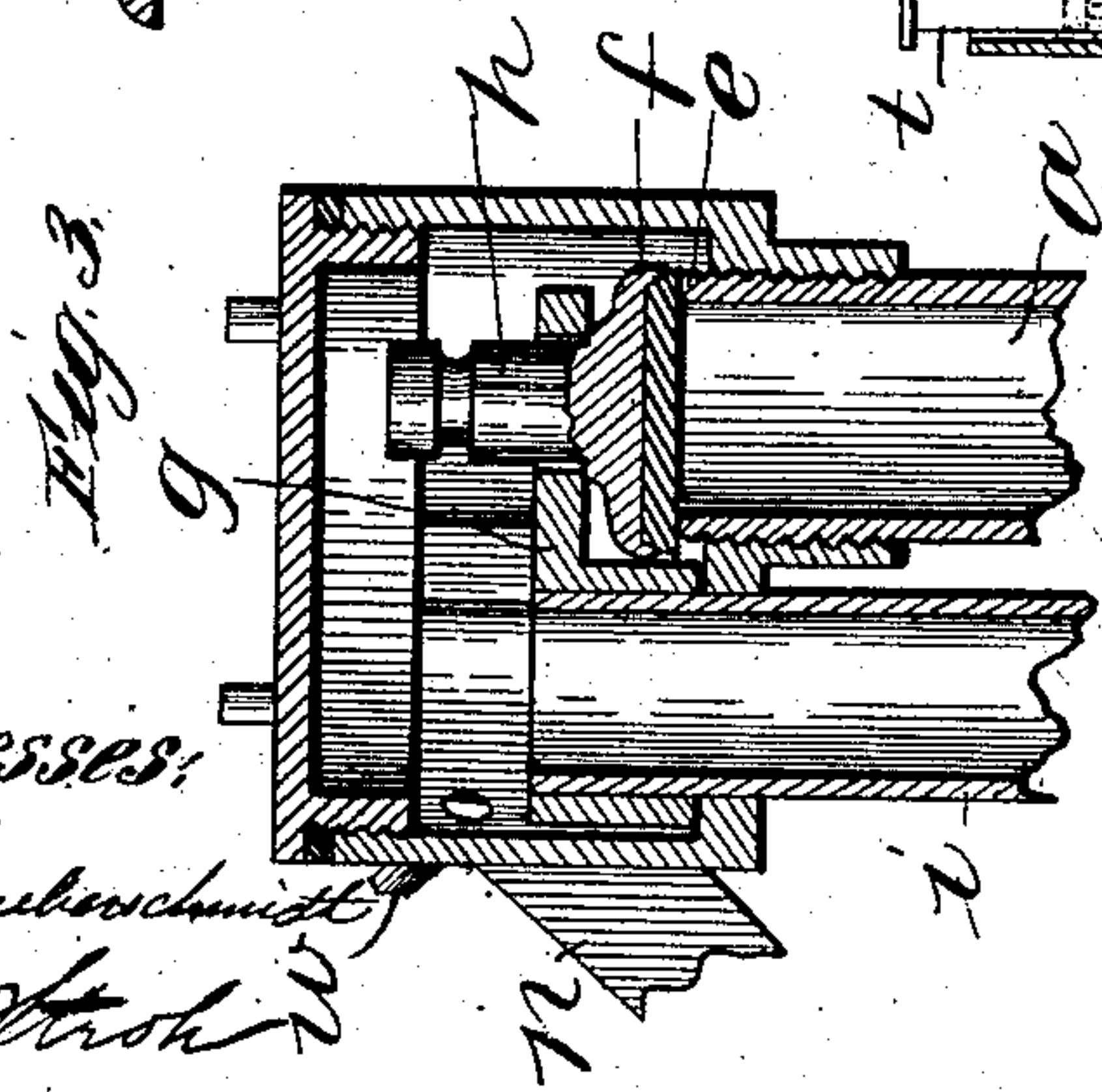
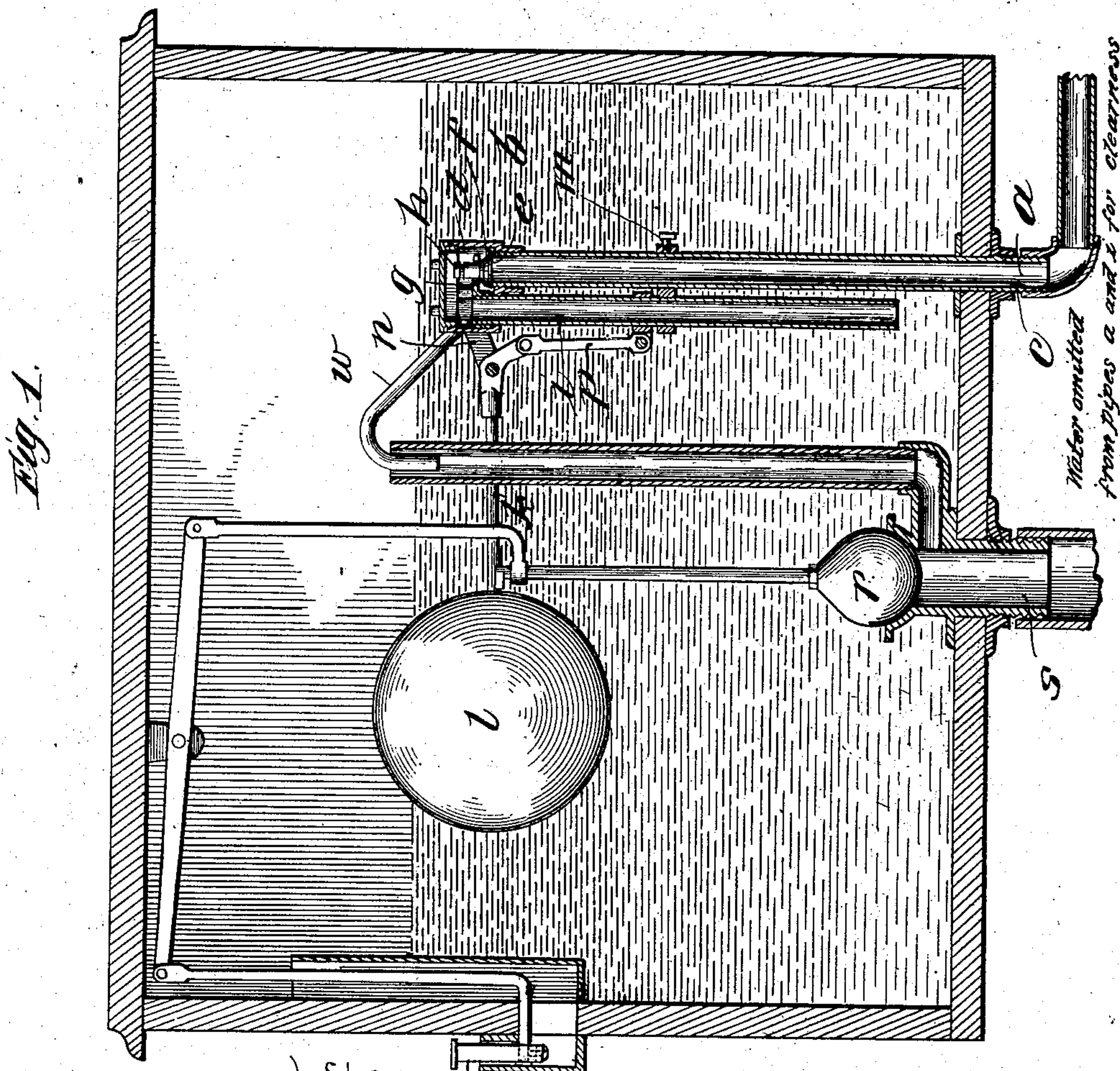


No. 891,283.

PATENTED JUNE 23, 1908.

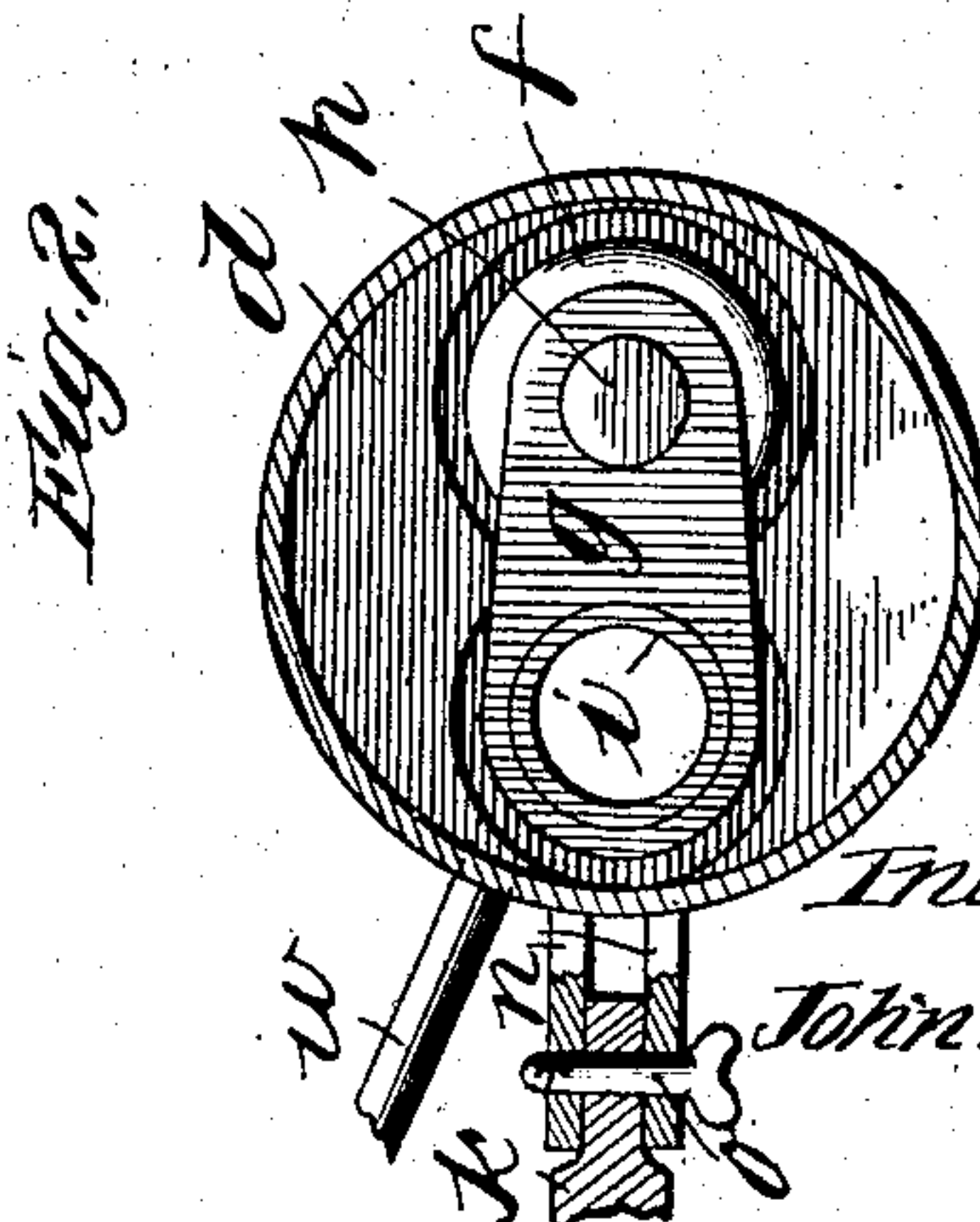
J. NELSON.
FLUSH TANK.

APPLICATION FILED SEPT. 9, 1907.



Witnesses:

W. F. Strohm



Inventor
John Nelson,

By G. K. Croff Atty

UNITED STATES PATENT OFFICE.

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FLUSH-TANK.

No. 891,283.

Specification of Letters Patent.

Patented June 23, 1908.

Application filed September 9, 1907. Serial No. 391,897.

To all whom it may concern:

Be it known that I, JOHN NELSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Flush-Tanks, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to flush tanks, and has several objects in view.

The main object of my invention is to simplify the construction of the float operated valve mechanism and desirably also to render such valve mechanism more accessible to the repairer.

Hitherto the in-take pipe has terminated near the bottom of a flush tank, valve mechanism being provided in the tank just above its bottom, the valve being positively seated and positively unseated by the direct action of the float coupled with the valve and operating to seat or unseat the valve according to the level of the water in the tank.

In accordance with one feature of my invention, the valve is positively seated through the agency of the float when water to the proper quantity has been received within the tank, but is not positively unseated by the float when the float descends upon discharge of the water from the tank, the device that forces the seating of the valve when the float is raised being separable from the valve when the float is lowered, so that the pressure of the incoming water itself may effect the unseating of the valve to permit entry of the water. By this feature of my invention, I am enabled to construct the valve and the float valve actuating element in distinct and readily separable parts, whereby the valve portion may readily be removed, repaired and replaced.

In accordance with another feature of my invention, the valve mechanism is located within convenient reaching distance from the top of the tank, the in-take pipe being extended in the form of a riser to the valve chamber, this valve chamber in addition to having communication with the interior of the tank also having a duct portion in direct

communication with the bowl of the stool, whereby an after-flow of water may be supplied to said bowl.

The device for seating the valve desirably includes in its formation a hollow operating rod or pipe that terminates at its upper end in an arm projecting above the valve, so that when said rod is brought to its lowermost position by the raised float, the valve is seated, and when said rod is in an elevated position through the agency of the lowered float, the incoming water may unseat the valve. This hollow rod has communication with the interior of the valve chamber at one end and with the tank at its other end, so that the incoming water may flow therethrough into the interior of the flush tank when the valve is unseated. This rod is articulated with the stem of the float, whereby the vertical position of the rod is determined by the quantity of water within the tank, as will be well understood.

I will explain my invention more fully by reference to the accompanying drawing, showing the preferred embodiment thereof, Figure 1 of the drawing illustrating a flush tank in vertical section, while Fig. 2 is a plan view, partially in section, of the valve chamber portion with the chamber cap removed. Fig. 3 illustrates a detail of the structure in sectional elevation.

Like parts are indicated by similar characters of reference in all figures.

The in-take pipe *a* projects through the bottom of flush tank *b* and is threaded at *c* to afford suitable connection with a suitable water supply. A valve chamber *d* is provided at the upper end of the in-take pipe *a*, said pipe being desirably elongated to constitute a riser, in order to make the valve chamber conveniently accessible. The bottom of the valve chamber is apertured in alinement with the bore of the pipe and is provided with a valve seat *e* within the interior of the chamber, the valve *f* being in engagement with this valve seat when sufficient water is within the tank, in which case said valve mechanism is held depressed against its seat by means of an arm *g* that extends over the valve and is provided with an aperture through which the valve stem *h* projects,

The other end of the arm *g* is mounted upon a rod *i*, desirably a pipe, which is articulated in any suitable manner with the stem *k* of a float *l*. In the embodiment of the invention shown, the rod *i* is adapted for vertical reciprocation, it being guided in this reciprocation by means of the bottom of the valve chamber *d* and the guide *m* located some distance downwardly from the valve chamber. Sufficient play is afforded the rod *i* in order that the arm *g* may be free to depress the valve with sufficient force against its seat. The wall of the valve chamber, in the form of the invention shown, is provided with a pair of ears *n* that constitute a bearing support for the float stem *k*, a pivotal shaft *o* being passed through the ears, this shaft being desirably in the form of a wing screw having threads upon one end only adapted for engagement with threads provided in one ear *n* only. A link *p* is interposed between the inner end of the float stem and the rod, in order that movements of the float may be imparted to the rod.

In order to eliminate noise occasioned by the inrushing water, the water is discharged into the tank near its bottom and below the lowest level that the water is permitted to reach, and in order that the structure may be economically and satisfactorily constructed to accomplish this result, the rod *i* is made hollow, the passage afforded by the bore of this rod being extended through the arm *g*, whereby water rushing into the valve chamber may find passage through said arm down through the rod *i* and into the tank below the lowermost level of the water, without material noise.

The tank is provided with the usual valve construction *r* for permitting the flow of water from the tank through the exit opening *s* into the bowl of the stool, a thumb push *t* being illustrated upon the side of the tank for convenience in illustration, for operating the link mechanism *u* intervening between the element *t* and the valve *r*. In practice it is preferred to locate the thumb push *t* upon the front of the tank, but in the drawing it is illustrated upon the side of the tank to show more clearly the coöperative relation between it and the parts coöperating with it. An after fill pipe communicates with the exit opening *s* below the valve *r* and extends well up toward the top of the tank. A small pipe *w* affords communication between the upper end of the after-fill pipe and the valve chamber, so that water may continue to flow in the bowl of the stool while the tank is being refilled.

It is obvious that many changes may be made in the device of my invention herein shown and particularly described, without departing from the spirit of my invention,

and I do not, therefore, wish to be limited to the precise construction shown, but,

Having thus described my invention, I claim as new and desire to secure by Letters-Patent the following:—

1. A flush tank including in its mechanism a riser for admitting water into the tank, a valve chamber at the upper end of the riser, valve mechanism in the chamber for opening and closing communication between the riser and the valve chamber, and means for seating the valve and adapted to be released from the valve to permit the incoming water to unseat the valve, said valve depressing means including a reciprocating open pipe projecting from the valve chamber downwardly.

2. A flush tank including in its mechanism a riser for admitting water into the tank, a valve chamber at the upper end of the riser, valve mechanism in the chamber for opening and closing communication between the riser and the valve chamber, means for seating the valve and adapted to be released from the valve to permit the incoming water to unseat the valve, said valve depressing means including a reciprocating open pipe projecting from the valve chamber downwardly, and an arm projecting from the pipe into engagement with the valve.

3. A flush tank including in its mechanism a duct for admitting water into the tank, a valve chamber in communication with the duct, valve mechanism in the chamber for opening and closing communication between the duct and the valve chamber, and means for seating the valve and adapted to be released from the valve to permit the incoming water to unseat the valve, said valve depressing means including a reciprocating open pipe projecting from the valve chamber downwardly.

4. A flush tank including in its mechanism a duct for admitting water into the tank, a valve chamber in communication with the duct, valve mechanism in the chamber for opening and closing communication between the duct and the valve chamber, means for seating the valve and adapted to be released from the valve to permit the incoming water to unseat the valve, said valve depressing means including a reciprocating open pipe projecting from the valve chamber downwardly, and an arm projecting from the pipe into engagement with the valve.

5. A flush tank including in its mechanism a duct for admitting water into the tank, a valve chamber in communication with the duct, valve mechanism in the chamber for opening and closing communication between the duct and the valve chamber, said valve mechanism including a valve controlling portion that is apertured to permit passage of

water from the chamber to the tank, said
valve controlling portion serving to depress
the valve to break communication between
the valve chamber and the duct supplying
5 water thereto and being separable from the
valve so that the incoming water may itself
'unseat the valve.

In witness whereof, I hereunto subscribe
my name this 27th day of August A. D.,
1907.

JOHN NELSON.

Witnesses:

CHAS. H. MILZ,
H. C. DYER.