

(No Model.)

E. MOELLMANN.
WATER CLOSET VALVE.

No. 266,870.

Patented Oct. 31, 1882.

FIG. 1.

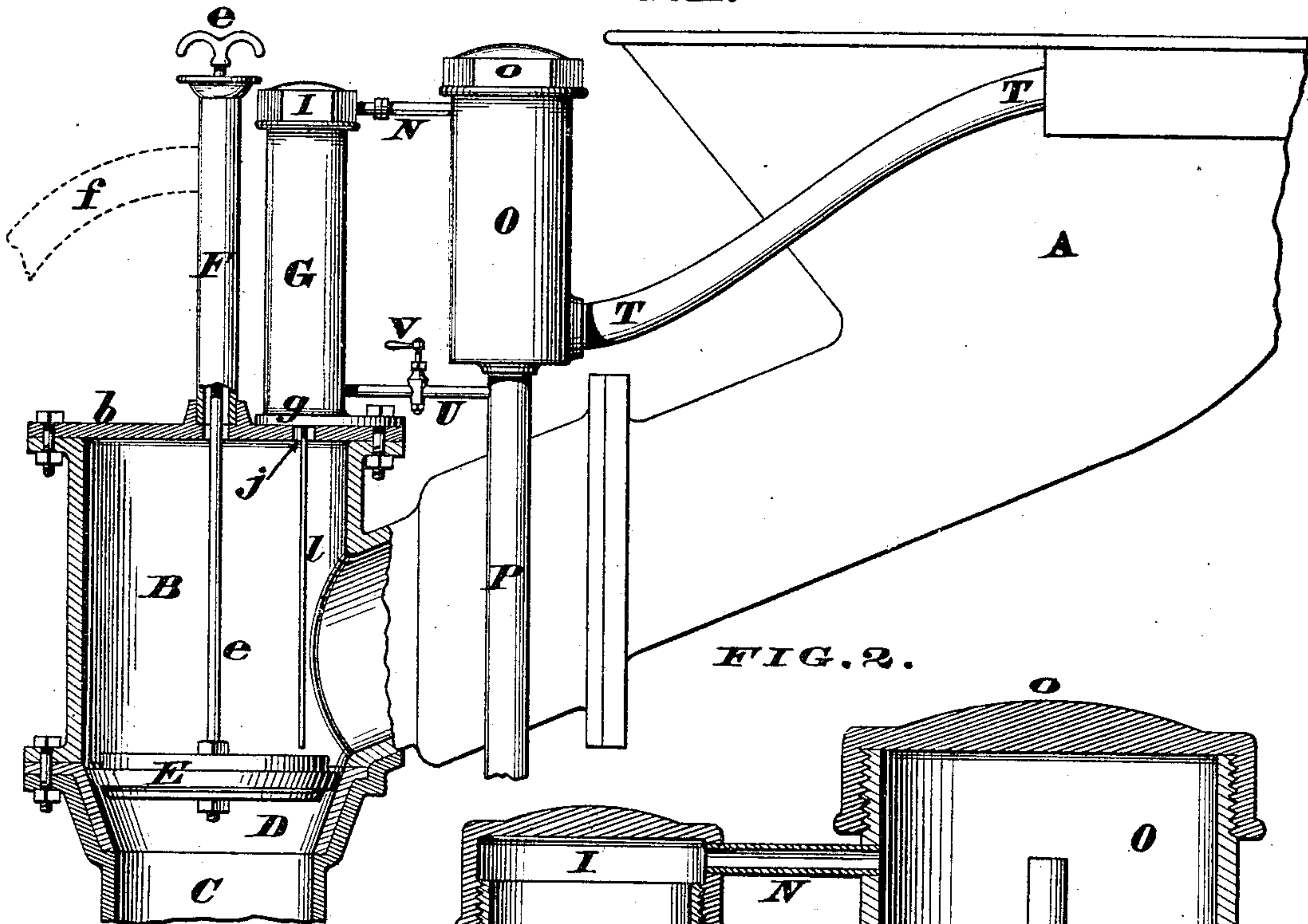


FIG. 2.

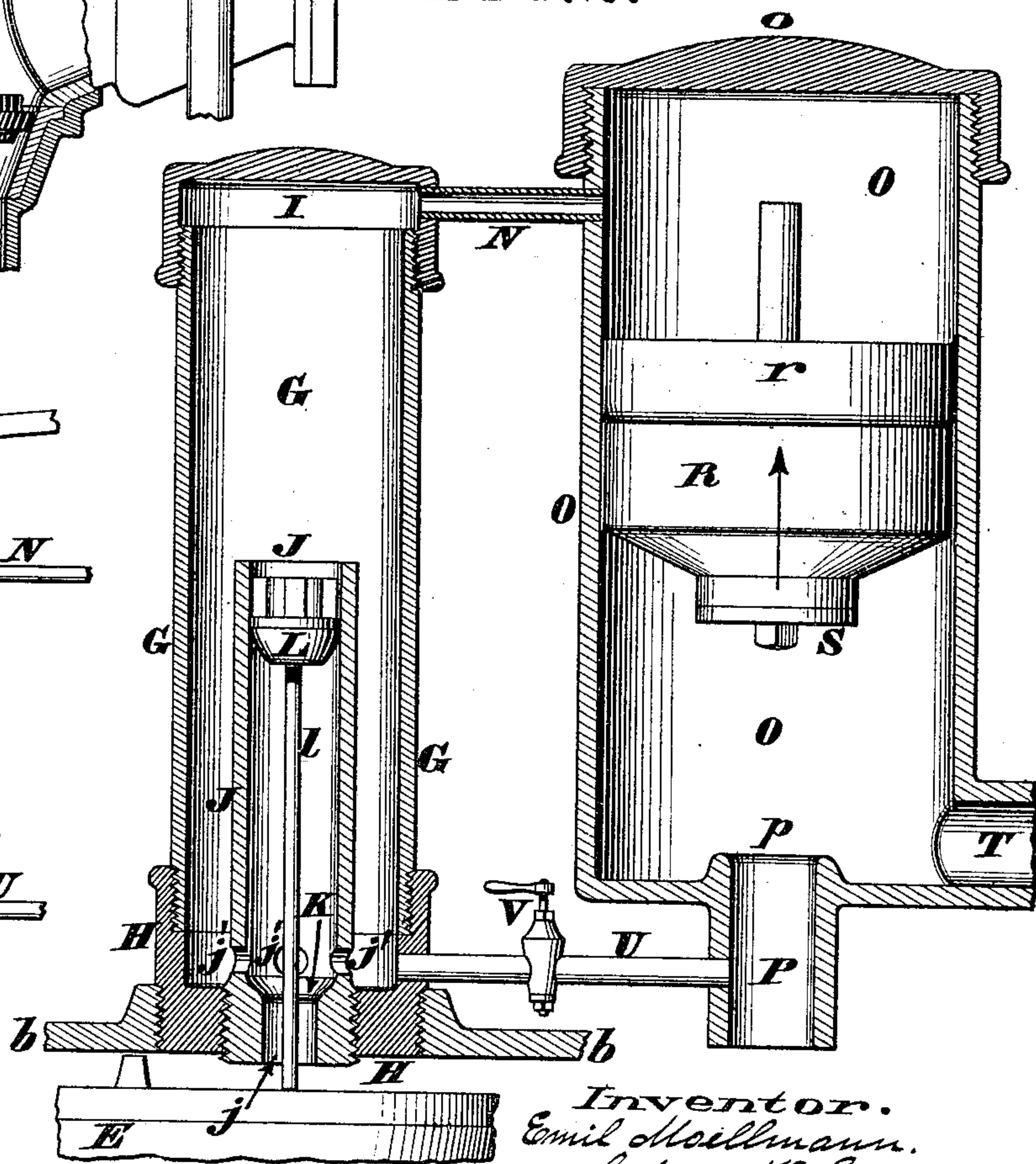
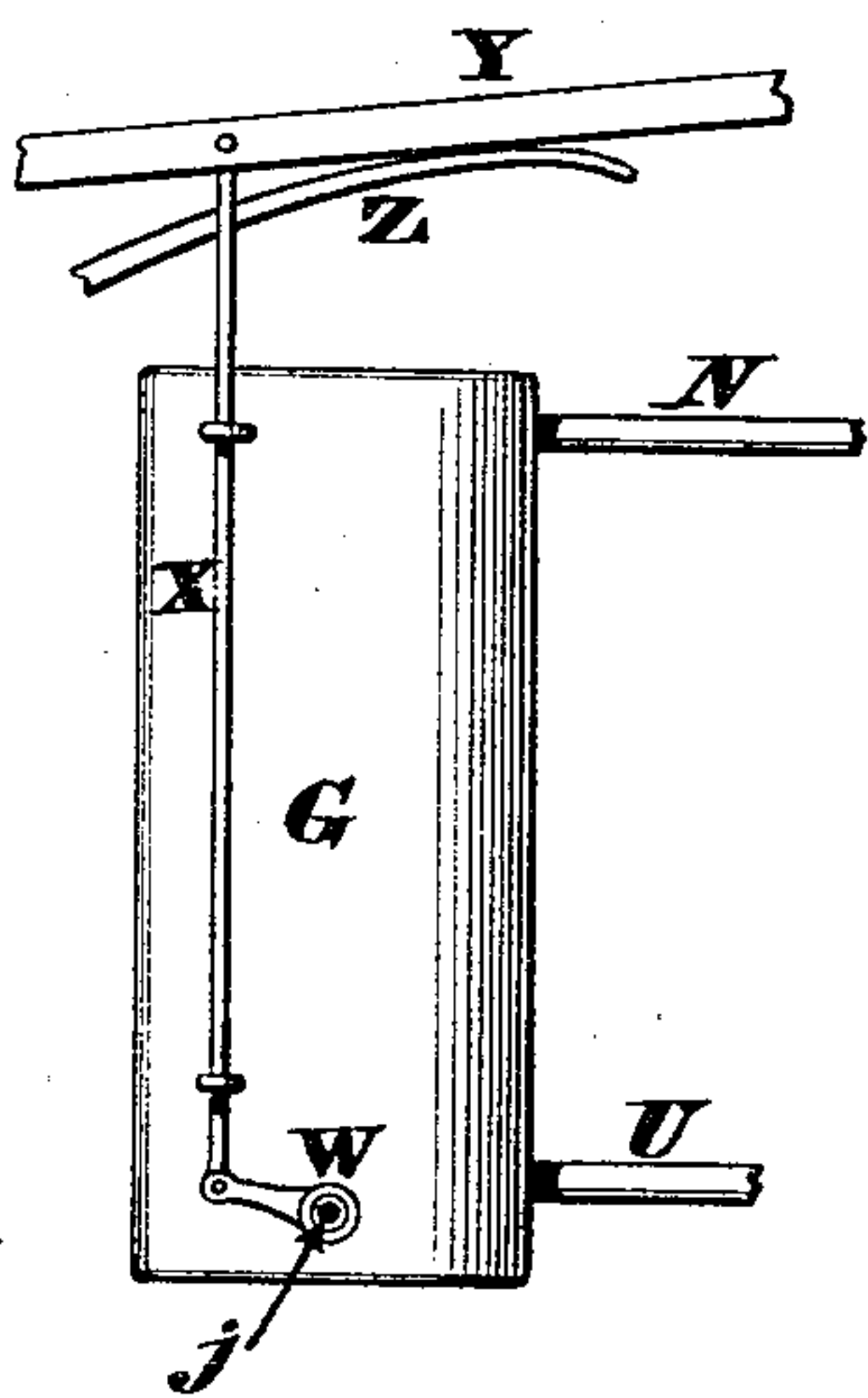


FIG. 3.



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EMIL MOELLMANN, OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO
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WATER-CLOSET VALVE.

SPECIFICATION forming part of Letters Patent No. 266,870, dated October 31, 1882.

Application filed September 4, 1882. (No model.)

To all whom it may concern:

Be it known that I, EMIL MOELLMANN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Water-Closet Valves, of which the following is a specification.

My invention consists in combining an accumulating-vessel with an automatically-acting water-closet valve, the connection between said vessel and the valve-chamber being such that when a wasteway in the former is opened the automatic valve will open and allow water to flow through the flushing-pipe into the basin, while the closure of said wasteway will cause a gradual seating of the automatic valve, and thereby stop said flushing operation, as hereinafter more fully described, and pointed out in the claims.

In the annexed drawings, Figure 1 is a sectionized elevation of a water-closet provided with my valve-regulating appliances, the wasteway of the accumulating-vessel being closed. Fig. 2 is an enlarged axial section of said vessel and the valve-chamber, the wasteway being open, and the automatic valve shown in the act of receding from its seat. Fig. 3 represents one of a number of modifications of my invention.

A represents any approved form of water-closet basin or bowl, said basin being connected to the trunk B in the customary manner. Secured to the lower end of this trunk is a soil-pipe, C, and seat D, the latter serving as a bearing for a suitable discharge-valve, E, operated by a lifter-rod, *e*, traversing a tube, F, to which an overflow-pipe may be connected, as indicated by the dotted lines *f*. This tube is screwed into the cap *b* of trunk B, and said cap *b* has fastened on it an accumulating-vessel, G, of any suitable shape and size, although it is preferably cylindrical. Vessel G may have a base-flange, *g*, capable of being bolted to this cap; but I prefer screwing the lower end of said vessel into a thimble, H, which thimble engages with the cap, as seen in Fig. 2. I is a detachable head of vessel G, within which latter is located a guide-tube, J, preferably screwed into the thimble H, and having

a seat, K, for valve or plug L, which plug, when closed, prevents water escaping from wasteway *j* at the lower end of said tube. *j'* are inlet-ports of the tube J. Plug L is adapted to play freely within its guiding-tube, and has a depending stem, *l*, projecting down into the trunk B, as seen in Fig. 1. The upper portion of vessel G has a side pipe, N, communicating with a chamber, O, provided at top with a cap, *o*, and at bottom with an inlet-pipe, P, terminating with a raised seat, *p*. This chamber is traversed with a piston, R, provided with a cupped leather packing, *r*, and a disk-valve, *s*, the latter being adapted to close on the raised seat *p*. Furthermore, this piston should have an upwardly-projecting stem of such a length as to prevent said piston ascending so far within chamber O as to close the pipe N; or the same result may be accomplished by a stump depending from the cap *o* of said chamber. T is the outlet or discharge pipe of valve-chamber O, said pipe being arranged so as to wash the contents out of basin A. Connecting the lower portion of vessel G with supply-pipe P is another side pipe, U, having a cock or valve, V, that can be opened or closed to a greater or less extent, as occasion may require.

The operation of my valve attachments is as follows: In case the closet should be situated where there is a considerable head of water, valve V must be almost entirely closed, so as to allow but a very limited flow to take place through the pipe U into the accumulating-vessel G, while a reduced pressure would necessitate a corresponding opening of said controlling-valve. This valve having been properly adjusted, it is evident water will flow through pipe U into vessel G, and thence through pipe N into chamber O, thereby filling said vessel and the space above the piston-valve R S. Consequently said valve is maintained securely on its seat *p*, while at the same time plug L rests on the bearing K, by which arrangement the pressure of water in the apparatus prevents any escape either at the wasteway *j* or wash-pipe T; but as soon as valve E is raised, so as to empty the contents of basin A down the soil-pipe C, said valve comes in contact with the end of stem *l* and elevates plug L within the tube J,

as seen in Fig. 2. This elevation of plug L causes the contents of vessel G to drain out through the wasteway *j*, and the pressure being now removed from valve R S the latter at once ascends within chamber O, thus uncovering the seat *p* and allowing water to escape through pipe T, and thereby wash out the basin A. When discharge-valve E descends to its normal or closed position the plug L is instantly seated on its bearing K, thereby preventing further escape through the wasteway *j*. As a result of this closure of plug L, water gradually flows through the contracted passage of valve V, and in the course of several minutes vessel G is filled, and sufficient pressure is again brought to bear on valve R S to force the latter down on its seat *p*, and thus cut off the supply through wash-pipe T.

From this description it will be seen that the flow through the wash-pipe must continue until vessel G is completely filled and sufficient water has accumulated in the chamber O to close the valve R S, which continuous flow insures a thorough cleansing of the bowl A. It is also evident that the time required for filling the vessel G will depend entirely on the area of opening afforded by the controlling-valve V, which may be set so as to cause an almost instantaneous descent of the piston-valve R S, or so as to allow several minutes to elapse before this descent takes place.

The above is a description of the preferred construction of my water-closet valve; but the details thereof may be varied to suit circumstances—as, for example, a diaphragm or other form of valve may be substituted for the device R S; or the wasteway *j* may be opened independently of the discharge-valve E, one form of such a modification being seen in Fig. 3, where vessel G is shown provided with a valve, W, to close the wasteway *j*, said valve being operated by a rod, X, depressed by the seat Y. Z is part of the spring that elevates said seat. In another modification the valve-chamber O may be mounted directly on the vessel G, with the inlet P and outlet T at the upper end of said chamber O, in which event

the valve R S or its equivalent would close with an upward instead of a downward movement. In this construction the external pipes, N U, could be omitted and their office be performed by a suitable channel, either cast or bored in the side of valve-chamber O, a controlling-valve similar to the one V being applied to said channel. Finally, a special vessel, G, may be dispensed with and the pipe N be carried up a suitable distance, and then returned and connected to pipe U; or the same result may be accomplished by interposing a communicating coil between these conduits N U; but in either case some provision must be made for draining these pipe-reservoirs, so as to control the movements of valve R S, for the purpose herein described.

I claim as my invention—

1. The chamber O, having an outlet, T, and an inlet, P, which latter is opened and closed by an automatic valve, as R S, said chamber and inlet communicating respectively by the pipes N and U V with the vessel G, whose wasteway *j* is opened by some of the operating appliances of the water-closet, substantially as herein described, and for the purpose set forth.

2. In combination with the vessel G, communicating by pipes N U V with the cylinder O P T, traversed by the automatically-acting valve R S, in the manner described, the wasteway *j*, closed with the plug L, which latter is operated by the discharge-valve E of the closet, as herein described.

3. The vessel G, communicating with the valve-chamber O in the manner described, said vessel being screwed into the thimble H, with which latter is engaged the perforated guide-tube J *j'*, provided with the wasteway *j*, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

EMIL MOELLMANN.

Witnesses:

JAMES H. LAYMAN,
SAMUEL S. CARPENTER.