

(No Model.)

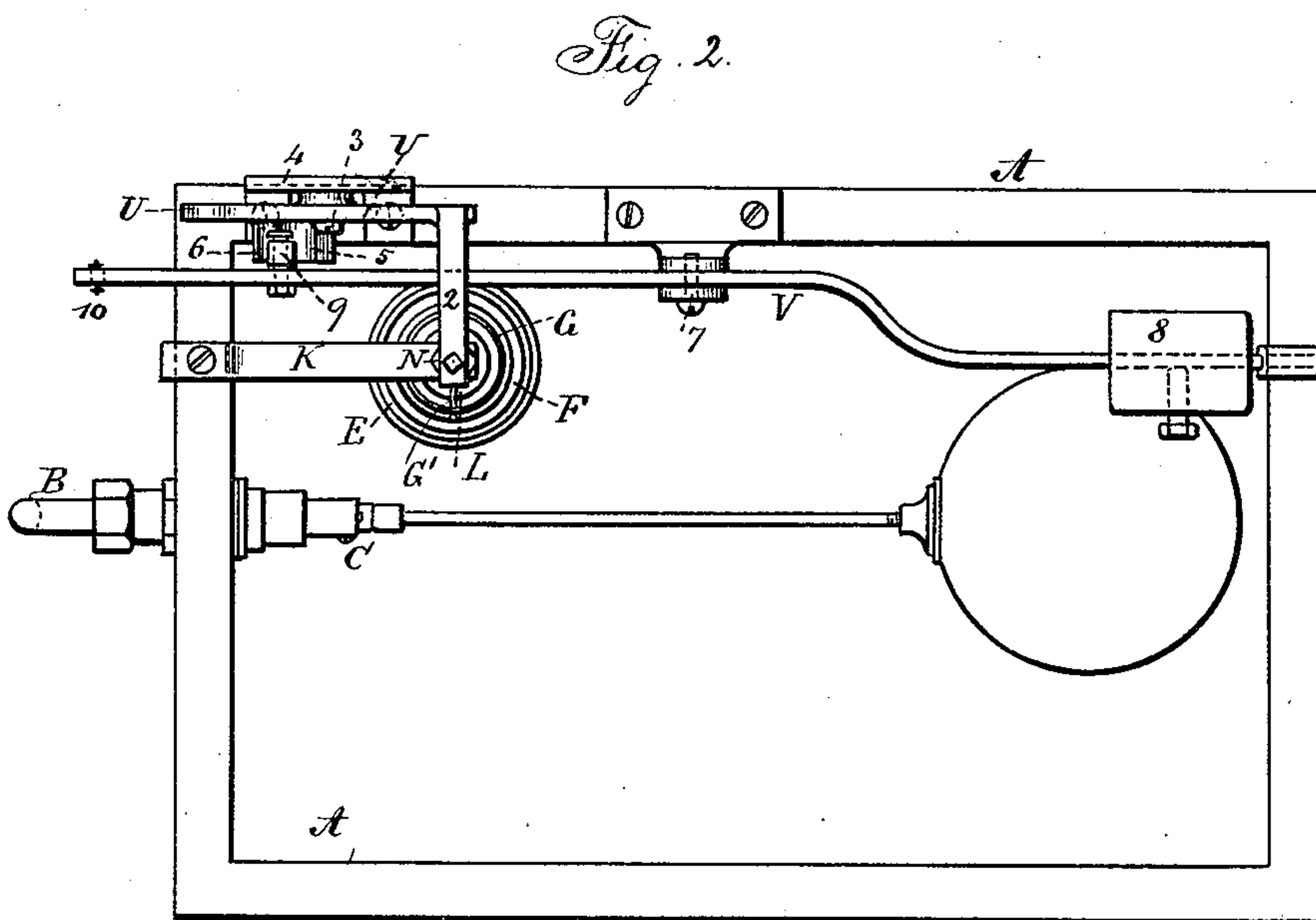
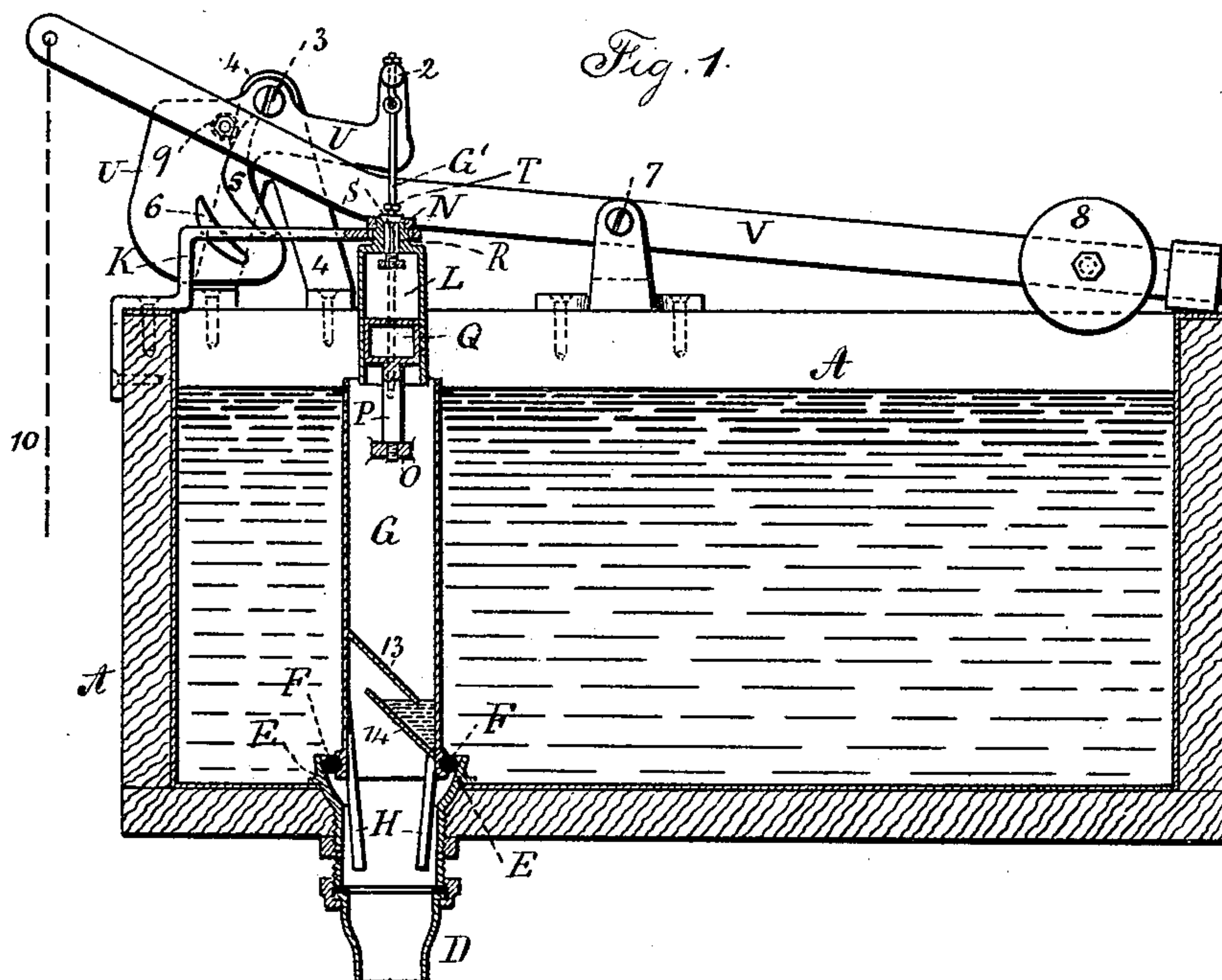
2 Sheets—Sheet 1.

S. G. McFARLAND.

CISTERN FOR WATER CLOSETS.

No. 350,206.

Patented Oct. 5, 1886.



Witnesses:
J. Staib
Chas. H. Smith

Inventor:
Samuel G. McFarland
per Lemuel W. Perrell

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

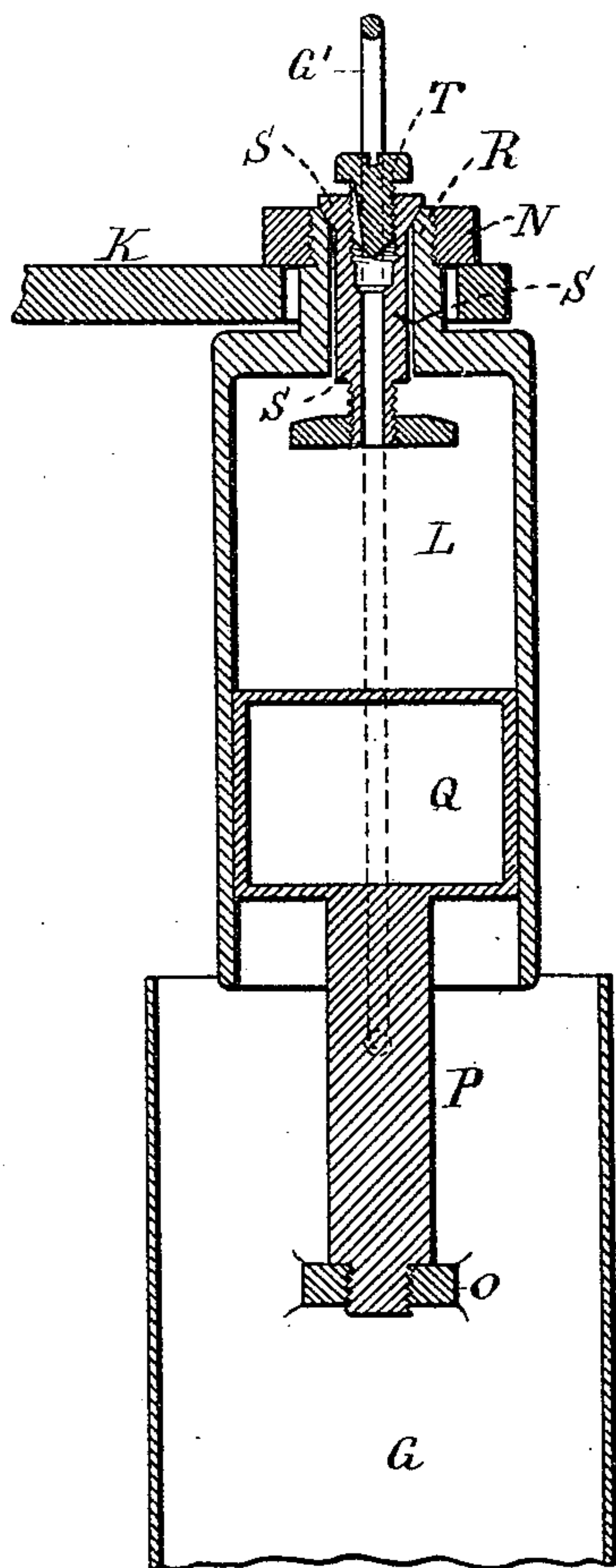


Fig. 4.

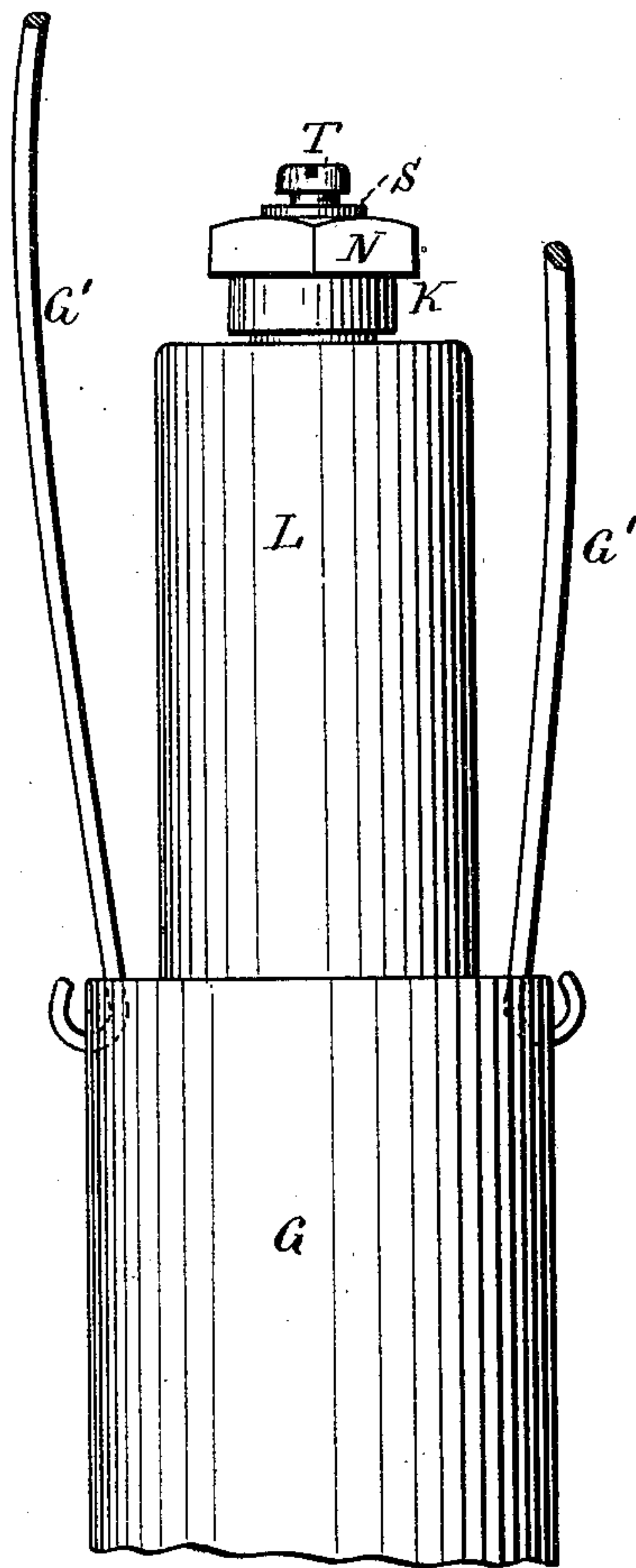


Fig. 5.



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UNITED STATES PATENT OFFICE.

SAMUEL G. MCFARLAND, OF NEW YORK, N. Y.

CISTERN FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 350,206, dated October 5, 1886.

Application filed January 25, 1886. Serial No. 1-9,583. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL G. MCFARLAND, of the city and State of New York, have invented an Improvement in Cisterns for Water-Closets, of which the following is a specification.

The object of this invention is to allow a small preliminary wash to pass into the closet when the seat of the closet is depressed, and to allow a full wash after the seat rises, and to prevent the disagreeable whistling noise often experienced when air rushes along with the water into the pipe leading to the water-closet.

In the drawings, Figure 1 is a vertical section of the cistern. Fig. 2 is a plan of same. Fig. 3 is a vertical section in nearly full size. Fig. 4 is an elevation of the variable chamber at the upper end of the overflow-pipe, and Fig. 5 is an inverted plan of the valve and stem at the upper end of the variable chamber.

The cistern A is to be of wood lined with sheet metal or of cast-iron, and of any desired size or shape. The water is to be supplied by the pipe B and ball-valve C, and D is the pipe leading to the water-closet. There is a valve-seat, E, at the upper end of the pipe D within the cistern.

F is a valve, preferably in the form of a rubber ring around the lower part of the overflow-pipe G, and H are guide-fingers extending below the overflow-pipe and within the valve-seat. There is a bracket, K, extending out from the top of the cistern above the upper end of the overflow-pipe G, and from this bracket a variable chamber, L, is hung by means of a nut, N, that screws upon a tubular shank passing freely through a hole in the bracket K, so that this variable chamber L can move laterally to accommodate itself to the overflow-pipe G as the latter is raised or lowered.

Within the overflow-pipe G is a cross-bar, O, to which is attached the stem P of the plunger Q within the variable chamber L, and through the tubular stem R of the variable chamber a valve-stem, S, passes, the same having a valve at its upper end. The stem passes freely through the tubular shank R, to allow air to escape rapidly as the pipe G and plunger Q are lifted, but the valve closes tightly to prevent the plunger descending; but air is admitted through a regulating-screw, T, applied at the upper end of a hole passing through the

valve-stem. This regulating-screw T has a tapering slot in one side, so that the opening for the admission of air may be larger or smaller, according to the position of this regulating-screw, and thereby the time occupied by the overflow-pipe and valve descending can be regulated and the quantity of water passing to the closet determined.

In order to lift the overflow-pipe G, I provide a bail, G', passing up to an arm, 2, upon the tumbler-lever U. This tumbler is pivoted at 3 upon a standard, 4, bolted to the cistern, and upon this tumbler U are two cams, 5 and 6, and there is a lever, V, pivoted at 7, and having a counter-weight, 8, and a roller or pin, 9, that is adjacent to the cam 5; hence when the lever V is moved down by the wire or chain 10 passing to the closet-seat the roller 9 acts against the cam 5 to move the tumbler U, and by the arm 2 lift the pipe G and valve F, giving a momentary and preliminary wash to the closet-basin, and the roller 9, passing down between the cams 5 and 6, moves the tumbler U in an opposite direction, and said tumbler U swings back into the normal position and the cam 6 passes over the roller 9. When the seat of the closet is released and the weight 8 falls, moving the lever V back to its normal position, the roller 9 runs under the cam 6, moving the tumbler U, and by the arm 2 lifting the pipe G and valve F, and allowing the water to freely discharge from the cistern through the valve-seat and pipe D to the closet. By this improvement the devices for giving a small preliminary wash and a copious afterwash are very much simplified, and there is nothing that is liable to get out of repair; and it will be seen that, in consequence of the roller or stud 9 going entirely around the cam 6, the upward movement of the said roller 9 lifts the valve higher than the downward movement the distance due to the thickness of the said cam 6. As the pipe G is lifted the plunger Q is also lifted, and the air is forced out of the variable chamber L, the valve S lifting freely as the air discharges, and the atmospheric pressure, acting upon the plunger Q, holds the pipe G and valve in an elevated position, and it descends gradually as the air passes into the variable chamber.

In practice it is found that the water rushing

down through the pipe D draws in air through the overflow-pipe G and produces a disagreeable sound. To prevent this, I make use of the diagonal partitions 13 and 14 within said pipe G and near the lower end thereof. When the pipe G and valve are lifted, there is an upward dash of water into the pipe G, and the water is deflected by the partition 14 into the angle between the partition 13 and the side of the pipe, and then the water is directed downward between 13 and 14, filling up the space and making a trap, which so far interferes with the downward rush of air as to prevent the noise before spoken of. At the same time there is no risk of any drops of water being thrown out from the top of the pipe G, as sometimes happens by the "ram action" when the water is suddenly admitted at the bottom of said pipe.

I claim as my invention—

1. The overflow-pipe G and the valve F at the lower end of the same, the guide-fingers, and the discharge-pipe D, in combination with the variable chamber L above the upper end of the overflow G and the bracket for supporting the same, the plunger connected with and moved by the overflow-pipe, and the valve S, opening outwardly, and the regulating-screw T, substantially as specified, whereby the variable chamber and the parts connected with

the same are above the water in the cistern and easily accessible for regulating, cleaning, and repairs, substantially as set forth.

2. The combination, with the water-closet cistern and the valve and flushing-pipe to the closet, of a lever connected to the pull and a roller or stud thereon, a pivoted tumbler, an arm thereon, and a connection to the valve, and the curved cams 5 and 6, projecting from the face of the tumbler, and lying one below the other, with a groove between them, so that the roller, acting on the cam 5, gives a preliminary wash, and by passing around on the opposite side of the cam 6 as the lever rises gives a greater movement to the valve and a more copious afterwash, substantially as set forth.

3. The combination, with the valve and the overflow-pipe for the same in a water-closet cistern, of partitions 13 and 14 within the overflow-pipe for receiving water and lessening the noise, substantially as set forth.

Signed by me this 21st day of January, A. D. 1886.

SAMUEL G. McFARLAND.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.