

(No Model.)

P. WHITE.
WATER CLOSET.

No. 441,045.

Patented Nov. 18, 1890.

Fig. 1.

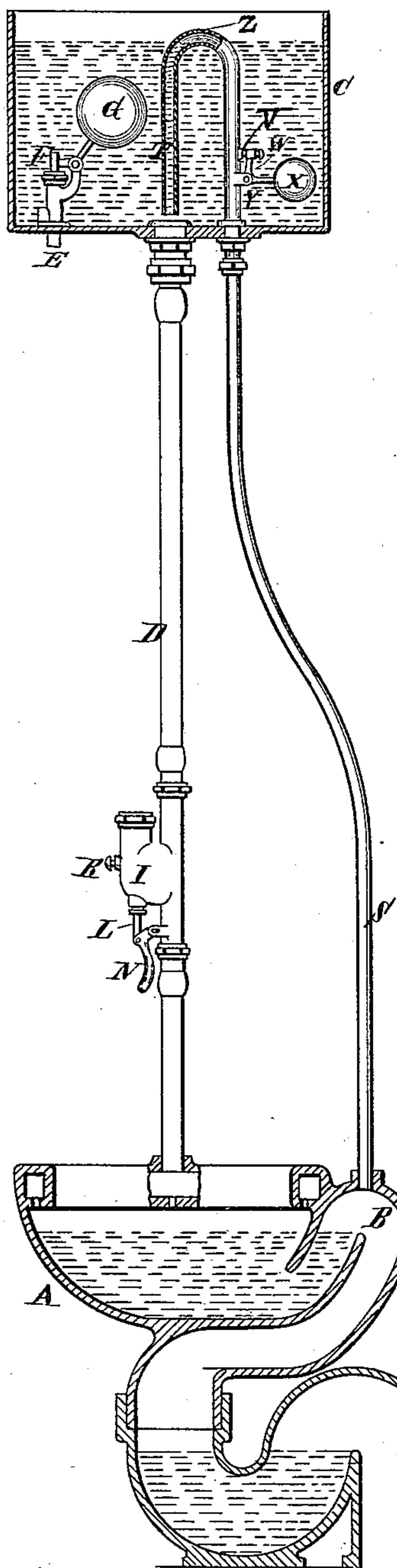


Fig. 2.

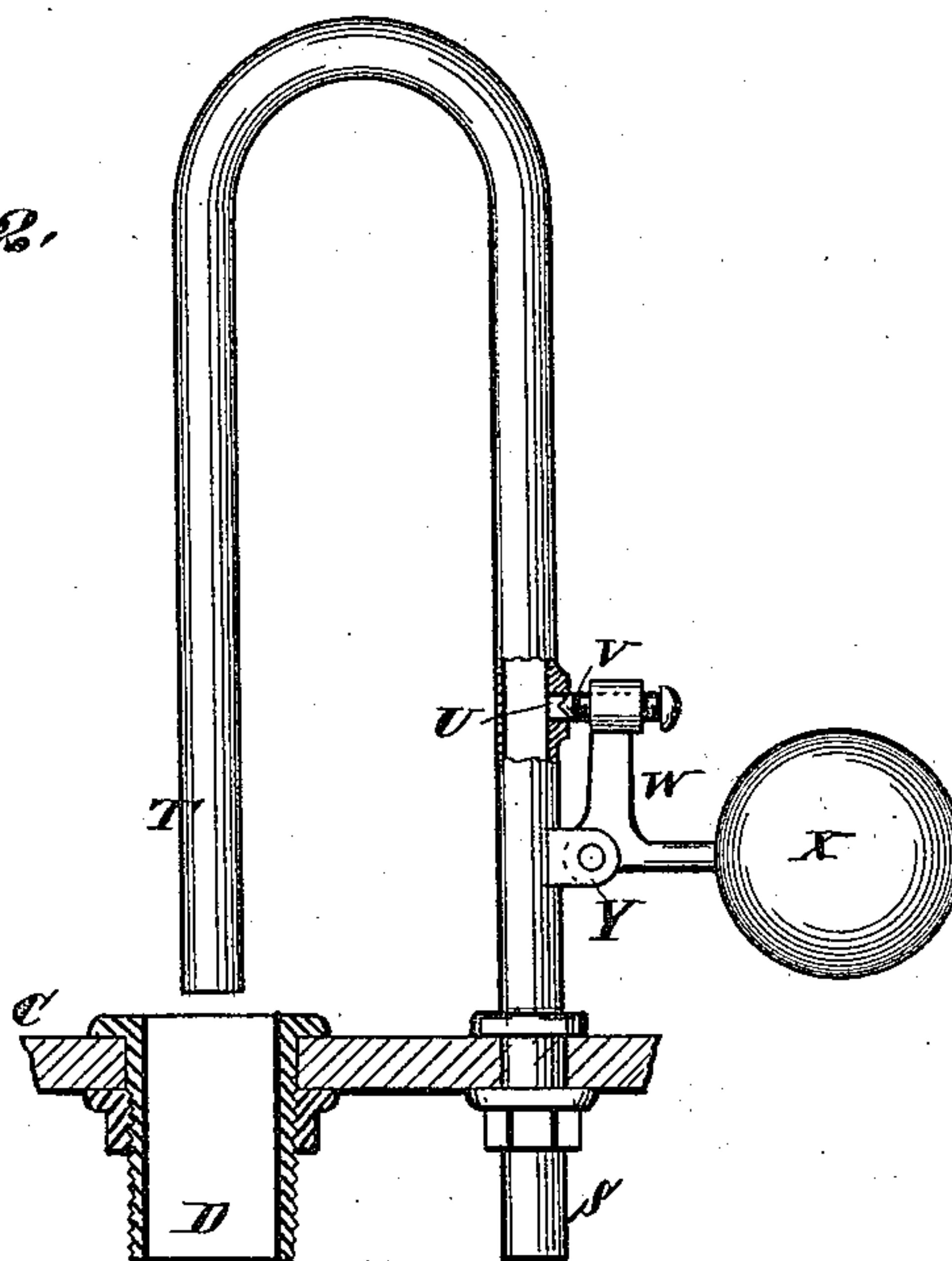


Fig. 3.

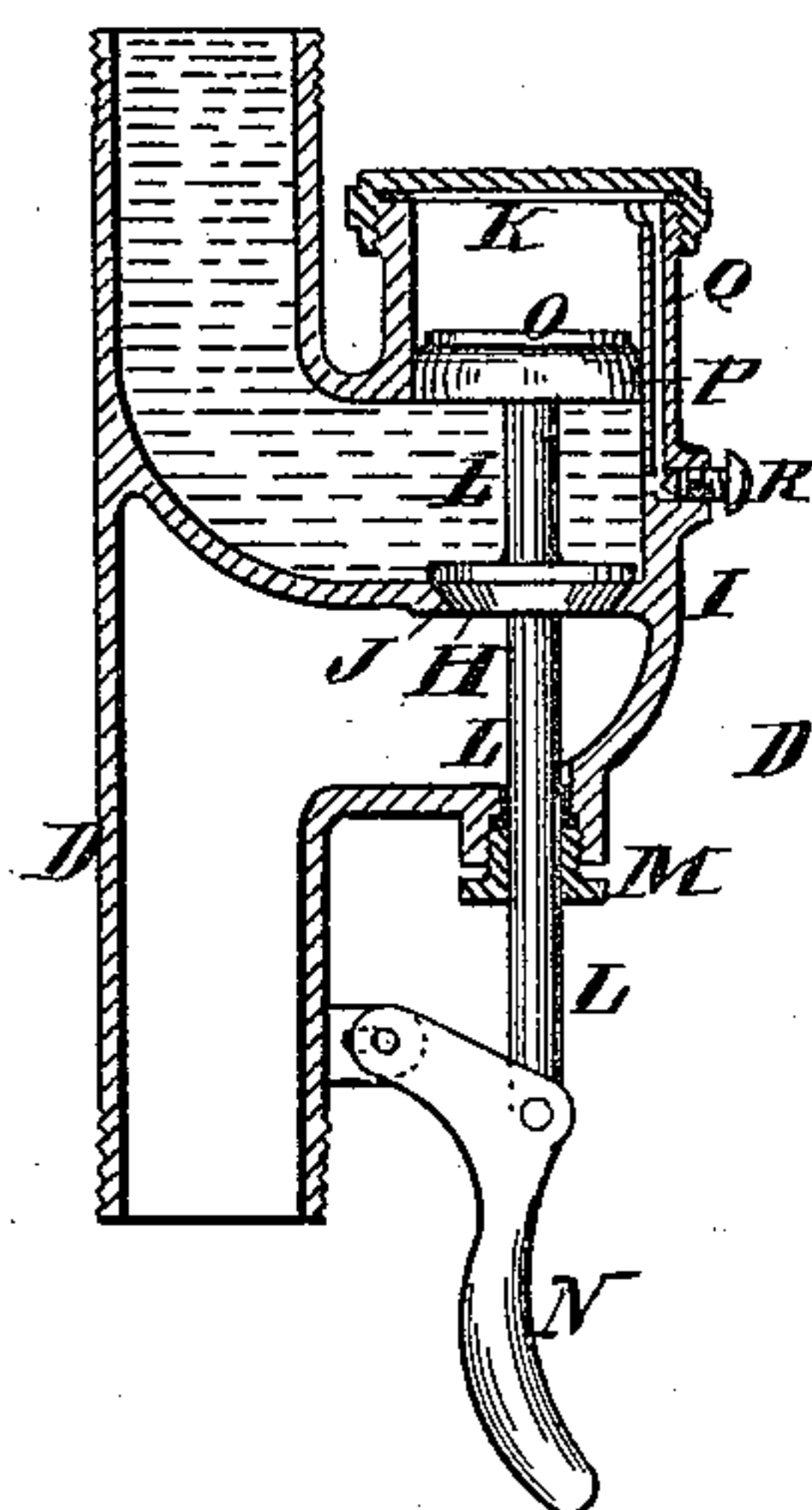


Fig. 4.

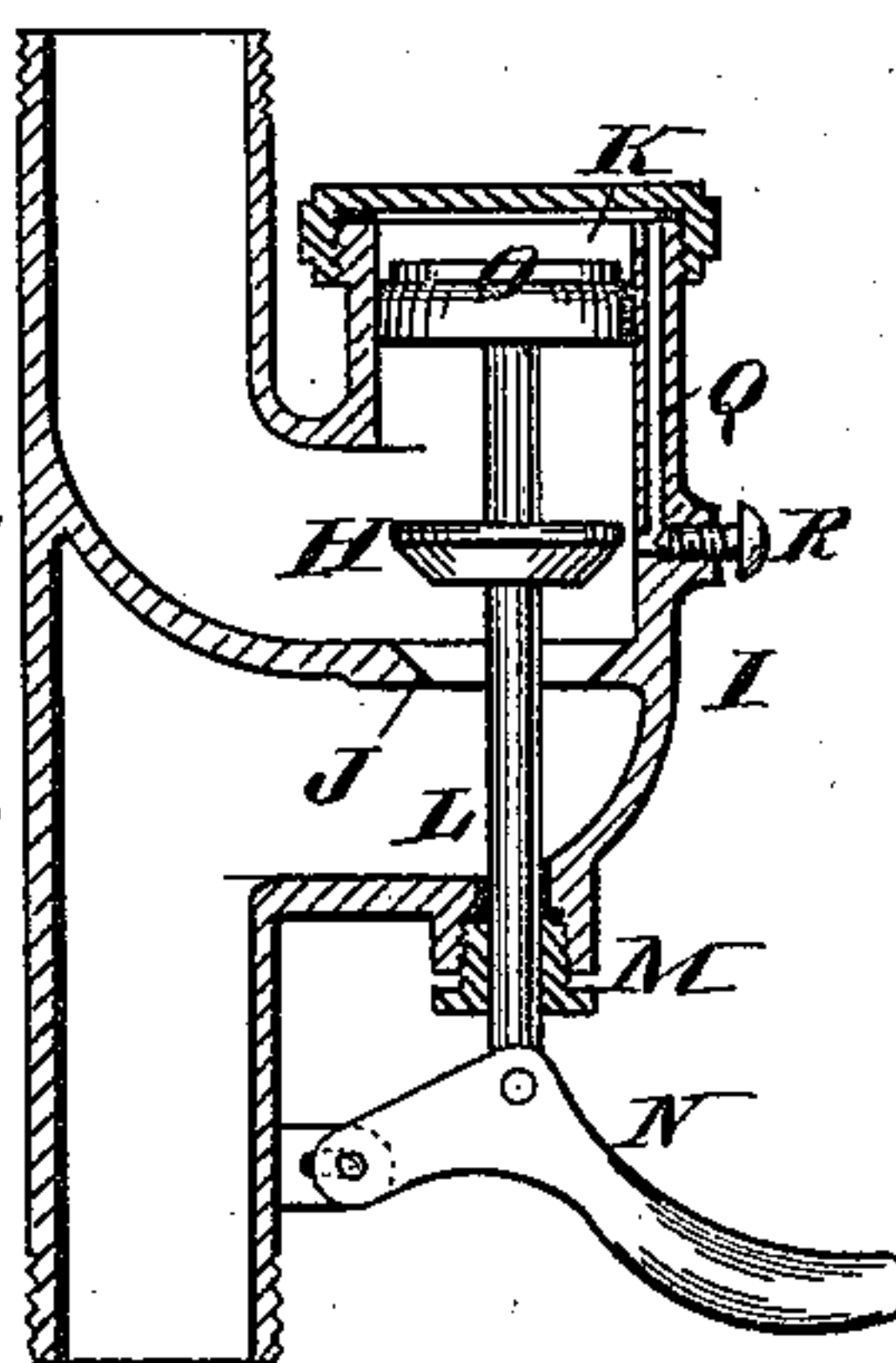
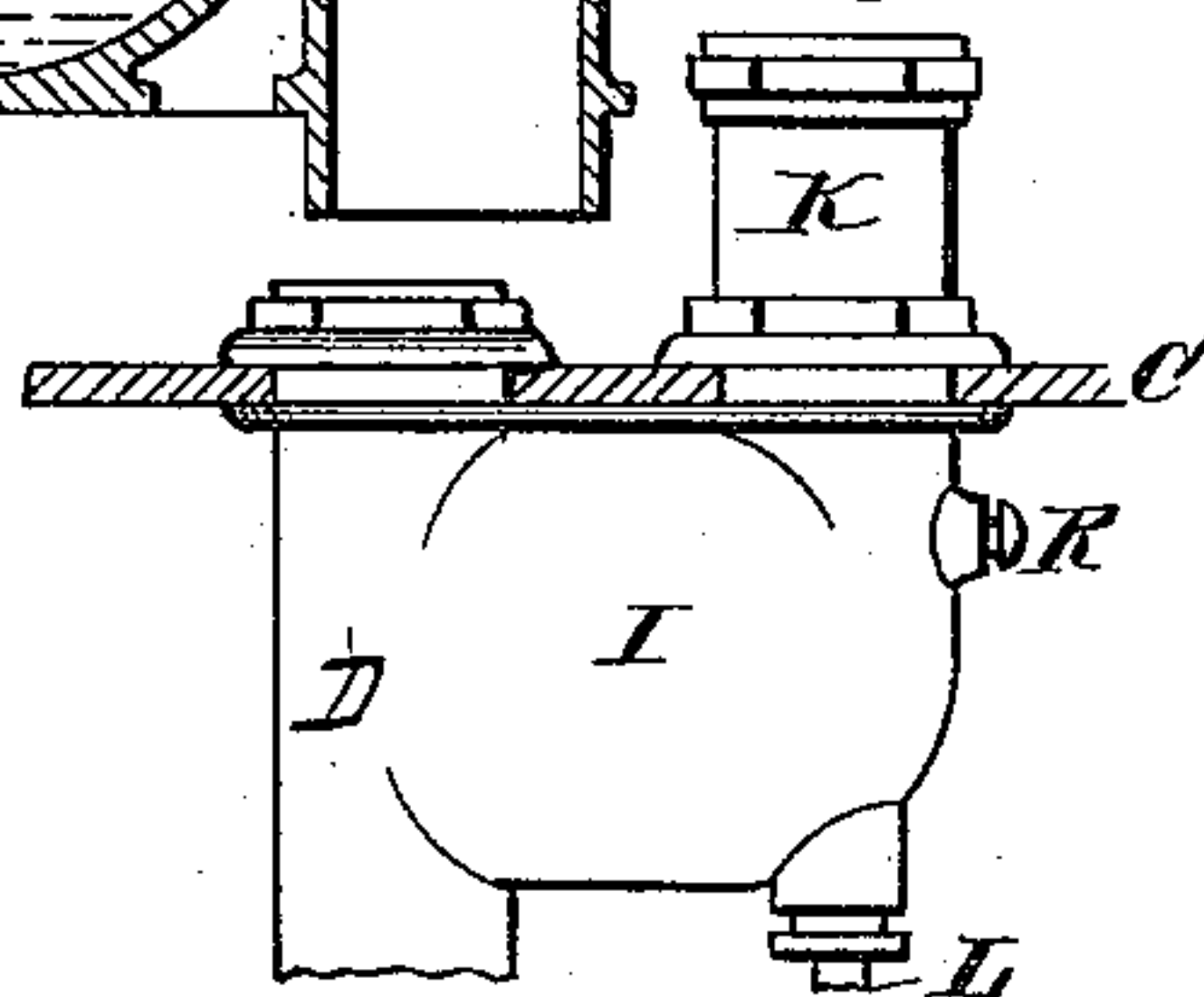


Fig. 5.



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PETER WHITE, OF ST. LOUIS, MISSOURI.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 441,045, dated November 18, 1890.

Application filed March 31, 1890. Serial No. 346,060. (No model.)

To all whom it may concern:

Be it known that I, PETER WHITE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Water-Closets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in water-closets; and my invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure 1 is an illustration of my invention, part in side view and part in section. Fig. 2 is a detail view, part in elevation and part in section, showing a portion of the tank or cistern of the closet, a portion of the discharge-pipe, through which the water passes from the tank or cistern to the bowl, and showing also the portion of the foul-air pipe, with its float-valve, which is located within the tank or cistern. Fig. 3 is an enlarged section through the main valve and its housing. Fig. 4 is a similar view showing the valve open, it being shown closed in Fig. 3. Fig. 5 illustrates a modification.

Referring to the drawings, A represents the bowl of a closet having the usual air-chamber B.

C represents the tank or cistern, which communicates with the bowl through a discharge-pipe D, the latter extending directly from the bottom of the tank, whereby it (the pipe) will be permanently filled with water without the employment of a siphon or other means for this purpose, and its connection with the tank is preferably direct, for the further reason that such connection gives a maximum of pressure in the pipe D, whereas the pressure of a siphonic flow through said pipe would only be equal to the weight of the water within the pipe itself minus the weight of the water in the short leg of the siphon.

E represents a pipe, through which the water enters the tank or cistern C, and F represents a valve controlling the pipe E, and which is provided with a float G, as usual.

The operation of the valve F and its float is well understood and needs no explanation.

The upper end of the pipe D is open, having a free communication with the interior of

the tank or cistern C, as shown in Fig. 2. The water in its passage from the tank to the bowl is controlled by means of a valve H, located in a housing I, situated in the pipe D. The inside arrangement of the housing is illustrated in Figs. 3 and 4, it having a seat J for the valve H and a chamber or cylinder K, located over the valve.

L represents the stem of the valve, which extends through a stuffing-box M, and to the lower end of which a lever N is secured. The lever N has two arms, one being pivoted to the pipe D, (preferably to that portion of the pipe D upon which the housing I is formed,) and the other is formed at an angle to the first, so that it will rest against the pipe D and parallel therewith, out of the way when not in use. The stem L extends above the valve, and upon its upper end is secured a piston O, which fits and works in the cylinder K. The piston O has a downturned cup-leather P.

Q represents a small port or passage forming a communication between the upper end of the cylinder and the interior of the housing beneath the piston, the size of this port or passage being controlled by means of a screw or other suitable valve R.

S represents a pipe extending from the air-chamber B of the bowl in an upward direction, and entering the tank extends upward therein and is formed with an unbroken return-bend T, thus forming a siphon whose shorter leg extends in a downward direction within the tank and terminates near the bottom of the tank over the upper end of the pipe D. (See Figs. 1 and 2.) Within the tank this pipe S is perforated at U, and this perforation is controlled by a valve V, secured to one arm of a bell-crank lever W, to the other arm of which a float X is secured. The lever is pivoted at Y to the pipe.

The operation is as follows: When the bowl is to be flushed, the lever N is moved outwardly from the pipe D from the position shown in Fig. 3 to or toward the position shown in Fig. 4. This lifts the valve H from its seat, allowing the water to pass from the tank or cistern through the pipe D into the bowl. As the valve is raised, the piston O is moved upwardly in the chamber or cylinder K, the water above the piston escaping through

the port or passage Q, and around the piston O, past the cup-leather, the cup-leather being collapsed or forced inwardly from the walls of the cylinder by the pressure of the water.

5 When the lever has been thus moved to raise the valve, it is released and gradually descends or closes, this movement being regulated by the water entering the chamber or cylinder above the piston through the port Q, the cup-leather P preventing an upward flow of water past the piston. The duration of the flush depends upon the period of time it takes the valve to close, and by adjusting the valve R this duration may be regulated at 15 will.

By locating the valve J and its housing in the pipe D it is in a convenient and accessible place and within handy reach.

20 In Fig. 5 I have shown a modification with the valve H and its housing located at the tank. With this arrangement the stem L of the valve would be extended downwardly, so that its lever N would be within convenient reach. As the bowl is being flushed, the 25 foul air in the chamber B is carried down by the water. As soon as the flush commences the water in the bend T of the pipe S, which of course is on a level with the water in the tank, passes down the pipe D, creating a suction in the pipe S, and by purifying the air 30 in the chamber B permits the siphonic action in the bowl. By providing the pipe S with the valve V and float X, located in the tank near the bottom, the suction in the pipe 35 ceases just as the flush is completed and air is permitted to enter the chamber B of the bowl to break the siphonic action therein before all the water has passed out of the pipe D into the bowl, so that a sufficient amount of water 40 will be left in the bowl to produce the necessary seal. It will be seen that the water in the tank will form a seal, preventing gases from escaping from the chamber B through the pipe S, and at the same time the pipe S 45 prevents an overflow of the tank, as its bend Z is beneath the top of the tank, so that the water before it will overflow will pass up the bend T and down the main part of the pipe into the bowl.

I claim as my invention—

1. The combination, with the tank and the bowl, of the discharge-pipe D, extending directly from the bottom of the tank to the bowl and forming the sole communication between said tank and bowl for permitting the 50 water to flow directly from the bottom of the tank downward, a gradually-closing valve in said discharge-pipe for entirely shutting off 55 communication between the bowl and tank, the trap B, the pipe S, of smaller diameter 60 than the discharge-pipe, extending from the trap and having an upwardly-extending return-bend in the tank, and a valve V, arranged in said pipe S near the bottom of the 65 tank, said bend being closed throughout its whole extent above said valve V, and extending near the top of the tank, but not above it, with its end arranged near the bottom of the tank directly over the end of the discharge-pipe, substantially as set forth. 70

2. The combination, with the tank and the bowl, of the discharge-pipe D, extending directly from the bottom of the tank to the bowl and forming the sole communication between said tank and bowl for permitting the 75 water to flow directly from the bottom of the tank downward, a gradually-closing valve in said discharge-pipe for entirely shutting off communication between the bowl and tank, a lever for opening said valve having two 80 arms, one of its arms being pivoted to the pipe D with its other arranged parallel with said pipe, the trap B, the pipe S, of smaller diameter than the discharge-pipe, extending 85 from the trap and having an upwardly-extending return-bend in the tank, and a valve V, arranged in said pipe S near the bottom of the tank, said bend being closed throughout its whole extent above said valve V, and extending near the top of the tank, but not 90 above it, with its end arranged near the bottom of the tank directly over the end of the discharge-pipe, substantially as set forth.

PETER WHITE.

In presence of—

E. S. KNIGHT,
A. M. EBERSOLE.