

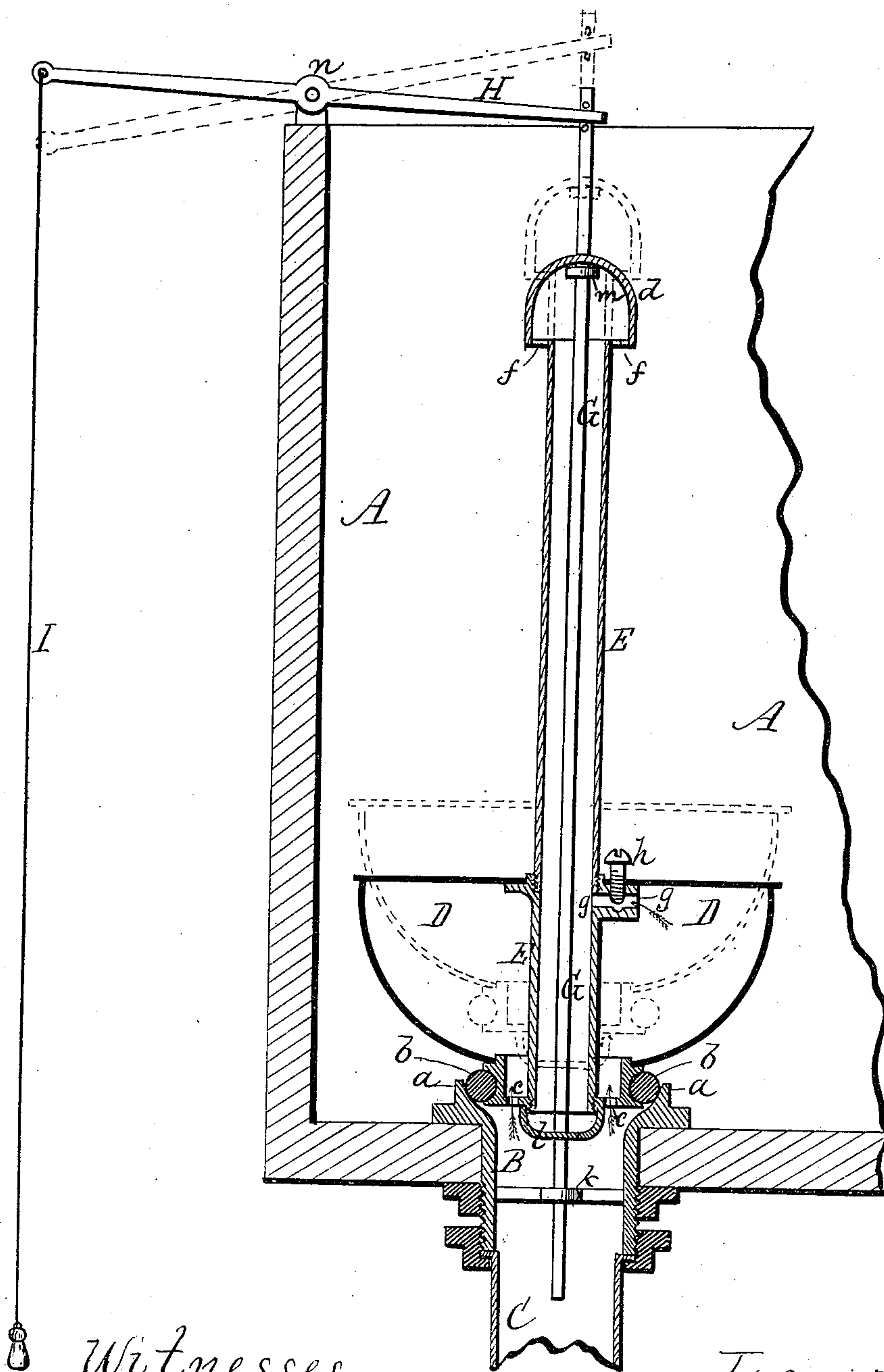
(No Model.)

P. J. MADDEN.

FLUSHING ATTACHMENT FOR WATER CLOSETS.

No. 566,990.

Patented Sept. 1, 1896.



Witnesses.
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UNITED STATES PATENT OFFICE.

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FLUSHING ATTACHMENT FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 566,990, dated September 1, 1896.

Application filed May 14, 1890. Serial No. 351,822. (No model.)

To all whom it may concern:

Be it known that I, PATRICK J. MADDEN, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Flushing Attachments for Water-Closets; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawing accompanying this application.

The present invention relates to that class of flushing attachments which have a water-tank provided at bottom with an outlet and a hollow valve for closing the outlet when seated, the valve being provided at bottom with an opening for the admission and escape of water and at top with an opening for the admission and escape of air, the construction and arrangement being such that when the valve is once unseated its buoyancy holds it so until it is filled with water entering its bottom opening and expelling the air from its top opening; whereupon it reseats itself and the water escapes from its interior through the bottom opening and into the discharge-pipe. This is a familiar type of valve, and the object of the present invention is to so improve it as to simplify its construction and make it more sensitive in its operation, to the end that it may be made to seat itself in any given length of time and thereby permit any desired amount of water to escape.

To these ends the invention consists in the features of novelty that are particularly pointed out in the claims hereinafter, and in order that it may be fully understood I will describe it with reference to the accompanying drawing, which is made a part hereof, and which shows a sectional elevation of a flushing attachment embodying the invention.

A represents the tank, which is located at the desired elevation and provided at bottom with an outlet or discharge-opening B, from which leads the discharge-pipe C. Surrounding the discharge-opening is a valve-seat *a*, which preferably flares upward, and upon which the valve D is adapted to seat. The valve is hollow and preferably of semiglobular form and is arranged with its convex side downward. At bottom it is provided with an opening, in which is secured a casting provided upon its exterior with an annular

groove, in which is arranged a packing-ring *b*, which forms the face of the valve and is adapted to seat within the flaring valve-seat *a*. Through this casting and through the top of the valve are formed openings for the passage of a pipe E, which performs the duties of a stem for lifting the valve, an overflow-pipe, and a passage for carrying off air from the interior of the valve, as is explained more fully hereinafter.

The pipe is preferably formed in two sections united by screw-threads, the lower one of which is provided with a flange coming against the under side of the top of the valve and secured thereto, so as to form an air-tight joint.

The bottom of the valve is provided with openings *c*, which are located within its annular working face, so that when the valve is seated the openings place its interior in communication with the discharge-pipe C, and when the valve is unseated and in position indicated by dotted lines said openings place its interior in communication with the interior of the tank and permit the entrance of water just so fast as the air is expelled through an opening *g*, which places the upper portion of the valve in communication with the interior of the overflow-pipe, and which is under the control of a screw *h*, so arranged that its end enters the opening and constitutes a valve. Thus it will be seen there is a passage formed in part by the opening *g* and in part by the overflow-pipe E, which places the upper portion of the valve in communication with the atmosphere, and, so far as I am aware, I am the first to use the combination of a hollow valve, a passage placing the upper portion of it in communication with the atmosphere, and an overflow-pipe connected with the valve, so that the two move together.

I am aware that it is old to use a hollow valve, an overflow-pipe connected with it, and an air-passage extending from the upper portion of the interior of the valve to a point above the normal high-water level and thence downward to the level of the valve; but such an arrangement is not the equivalent of my invention.

It is desirable to have the valve reseal when only a portion of the contents of the tank has been discharged, so that when the tank is

once filled, without replenishing it, two or three or a greater number of flushing operations may be had. It is for this reason that I place the upper portion of the interior of the valve in direct communication with the atmosphere, and it is in order to simplify the construction that I associate the overflow-pipe with the valve and make it serve as an air-outlet passage in addition to serving its primary purpose.

Preferably upon the upper end of the overflow-pipe is placed a hood or cap *d*, having openings *f* for the admission of water and an opening for the passage of a pull-rod *G*, the upper end of which is engaged by one end of a lever *H*, which is fulcrumed to the tank at *n* and to the other end of which is attached the pull chain or cord *I*. This rod passes completely through the pipe and through a spider *k*, arranged in the discharge-opening and adapted to confine its lower end against lateral movement, while permitting it to move freely endwise. Upon the rod is placed a shoulder *m*, which is adapted to engage the under side of the cap *d*, and to the lower portion of the pipe is secured an open yoke or spider *l*, through which the rod passes, the arrangement being such that when the rod is lifted the shoulder aforesaid comes in contact with the cap and lifts the overflow-pipe and its accessories to the positions indicated by dotted lines. The rod passes loosely through the cap *d* and yoke *l*, and hence it may return to its normal position (shown by full lines) and allow the overflow-pipe and valve to remain in the positions indicated by dotted lines until the water entering the valve displaces the air and reseats the valve, as already described, the rod serving as a means for guiding the valve to its seat.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a flushing attachment, the combination of a tank having a discharge-opening, a pipe leading therefrom, a hollow valve adapted to close said opening, and an overflow-pipe open at both ends and connected with the valve so that they move together, said valve being open at bottom and having at top an opening which communicates directly with the interior of the overflow-pipe, substantially as set forth.

2. In a flushing attachment, the combination of a tank having a discharge-opening, a pipe leading therefrom, a hollow valve

adapted to close said opening, an overflow-pipe open at both ends and connected with the valve so that they move together, said valve being open at bottom and having at top an opening communicating directly with the interior of the overflow-pipe, and a valve for regulating the escape of air from the hollow valve, substantially as set forth.

3. In a flushing attachment, the combination of a hollow valve open at bottom and having at top an opening for the escape of air, an overflow-pipe passing through and secured to the hollow valve, said pipe being open at both ends and the pull-rod extending through the overflow-pipe and movable endwise relatively thereto, means carried by the pull-rod for engaging and lifting the overflow-pipe, means interposed between the valve and pull-rod for holding them against relative lateral movement and means for holding the lower end of the pull-rod against lateral movement, substantially as set forth.

4. In a flushing attachment, the combination of a hollow valve open at bottom and having at top an opening for the escape of air, an overflow-pipe extending through and secured to the valve, a pull-rod extending through the pipe and movable endwise relatively thereto, a shoulder on the pull-rod, a cap secured to the overflow-pipe and adapted to be engaged by said shoulder, a spider secured to the lower portion of the pipe and engaging the pull-rod so as to hold them against relative lateral movement, and means for holding their lower ends against lateral movement together, substantially as set forth.

5. In a flushing attachment, the combination of a tank having a discharge-opening, a hollow valve adapted to close said opening, an overflow-pipe open at both ends and connected with the valve so that they move together, said valve being open at bottom and having at top an opening communicating with the interior of the overflow-pipe, and a valve located in the opening last aforesaid for regulating the flow of air from the valve to the overflow-pipe, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

PATRICK J. MADDEN.

Witnesses:

R. F. OSGOOD,

WM. J. MCPHERSON.