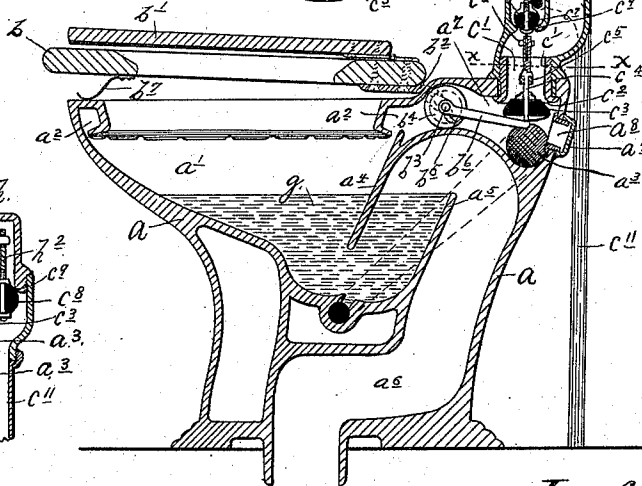
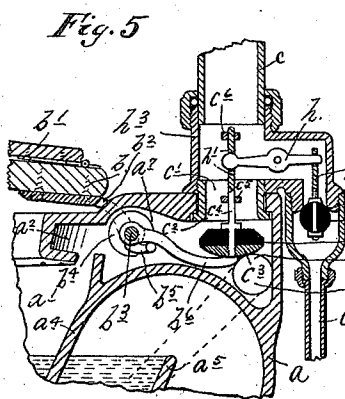
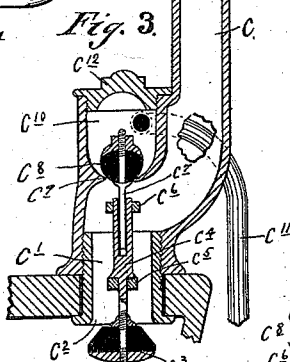
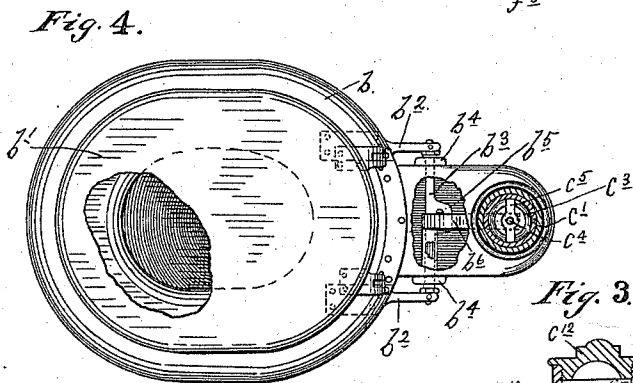
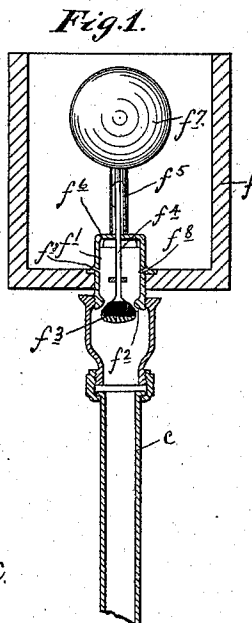
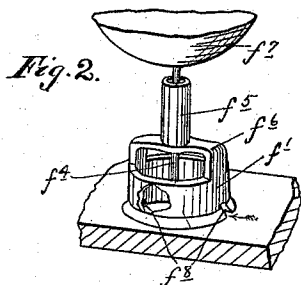


(No Model.)

J. P. COURTNEY.
AUTOMATIC WATER CLOSET.

No. 576,340.

Patented Feb. 2, 1897.



Witnesses.

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By his Attorney.

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AUTOMATIC WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 576,340, dated February 2, 1897.

Application filed November 1, 1895. Serial No. 567,621. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. COURTNEY, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Automatic Water-Closets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to water-closets, and has for its object to provide a construction whereby the charging and flushing actions are rendered completely automatic. The construction is such that the stand-pipe and tank are charged from the main while the weight of the person is on the seat and that when the weight of the person is removed from the seat the stand-pipe and tank will be emptied to flush the bowl.

To this end my invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein, like letters referring to like parts—

Figure 1 is a central vertical section through the closet, stand-pipe, and tank. Fig. 2 is a detail in perspective, showing the float-controlled valve and valve box or cage which connects the stand-pipe and tank detached, some parts broken away. Fig. 3 is a detail in section on the same line as Fig. 1, but on a larger scale, for showing the relation of the charging and flushing valves to the stand-pipe and closet. Fig. 4 is a view of the closet, chiefly in plan, but partly in section, on the line $x-x$ of Fig. 1, with some parts broken away. Fig. 5 is a sectional view, on substantially the same line as Fig. 1, through a part of the closet, having a slightly-modified arrangement of the charging-valves, with some parts broken away.

With the exception of certain details, which will be presently noted, the porcelain structure or closet proper is of the ordinary well-known standard type known as the "siphon-action" or "siphon-jet" closet. For present purposes it will be sufficient to distinguish the porcelain body a , the bowl a' , the flush-

ing-rim a^2 , the siphon-jet passage a^3 , the trap flanges or walls a^4 , the soil-pipe outlet a^5 , the seat b , and the cover b' . The parts so far distinguished are all of the usual construction. The porcelain structure, however, differs from the ordinary form in being provided directly above the trap and rearward of the seat with a recess a^7 , for purposes which will presently appear.

The stand-pipe c connects with the recess a^7 of the porcelain structure by means of a screw-threaded thimble c' , properly formed at its lower end to afford a seat c^2 for the flushing-valve c^3 . The stem c^4 of the flushing-valve works through a guide-bridge c^5 in the thimble c' and is made larger in the portion of the same above the bridge than in the portion below the bridge for permitting the bridge to limit the downward movement of the said flushing-valve. The upper part of the valve-stem c^4 works through another guide-bridge c^6 in the stand-pipe and is made hollow to receive the stem c^7 of a charging-valve c^8 , which coöperates with a seat c^9 for the same formed in the bottom of the receiving-chest section c^{10} of the stand-pipe. The said chest c^{10} connects with the main or supply pipe c^{11} and is provided with a removable cap c^{12} .

At its upper end the stand-pipe c connects with the elevated tank through a valve box or cage f' , which is provided at its lower or stand-pipe end with a valve-seat f^2 . With the seat f^2 coöperates a valve f^3 , the stem f^4 of which passes up through a hollow extension f^5 from the yoke f^6 of the cage and is attached to a copper ball-float f^7 . The inside walls of the valve box or cage are provided with drip-passages f^8 , for a purpose which will presently appear.

The seat b is provided with hinge arms or lugs b^2 , which are made fast to the outer ends of a pivot or hinge rod b^3 , which extends through the recess a^7 in the porcelain structure and works through stuffing-boxes or other suitable water-tight joints b^4 in the side walls of the said recess. The said pivot-rod b^3 is provided with an angular lug b^5 . A lever-arm b^6 is loosely pivoted on the hinge bolt or rod b^3 in position to overlie the angular lug b^5 . The said loosely-pivoted lever-arm b^6 extends rearward and is of a length to underreach the flushing-valve c^3 .

In virtue of the connections just described the lever-arm b^6 will be forced against the flushing-valve c^3 when the seat is forced downward below its normal position, but the seat may, however, be raised and turned backward without causing any movement of said lever b^6 .

The forward end of the seat is shown as provided with a spring b^7 , which serves to normally hold the front end of the seat at a short distance above the bowl, as shown in Fig. 1.

The rear wall of the recess a^7 is shown as provided with a thimble a^8 , with which a cap a^9 has screw-threaded engagement, as a convenient means for affording access to said recess a^7 .

Having regard now to the action, the parts will normally stand, as shown in Fig. 1, with the flushing-valve c^3 open and the charging-valve c^8 closed. The float-controlled valve f^3 for the tank will also normally be in its open position. Upon the weight of a person coming onto the pivoted seat b the lever-arm b^6 will be lifted by the lug b^5 under the pivotal action of the seat and its pivot-rod, and thereby the flushing-valve c^3 will be raised and held closed against its seat c^2 and the charging-valve c^8 will be raised away from its seat and held in its open position as long as the person remains on the seat. Hence as quick as the weight of a person comes onto the pivoted seat the stand-pipe c will be cut off from the closet by the closing of the flushing-valve and will be thrown into communication with the main or supply pipe c^{11} by the opening of the charging-valve c^8 . The stand-pipe c and the tank f will therefore be charged or filled and the float f^7 will be rendered operative to close the passage from the stand-pipe to the tank and prevent the tank from overflowing. When the weight of the person is removed from the seat, the column of water in the stand-pipe c will become instantly effective to throw the flushing-valve c^3 into its open position and likewise the pressure from the supply or main pipe c^{11} will become effective to close the charging-valve c^8 . Hence when the person leaves the pivoted seat the column of water in the stand-pipe will be instantly thrown into communication with the closet for starting the flushing action, and under the suction from the siphon action the float-controlled valve f^3 of the tank will be thrown into its open position and the water in the tank will become available to reinforce the column from the stand-pipe to complete the flushing action. After the water in the tank has lowered to the level of the open top of the cage f' the remainder of the water within the tank can only escape through the drip-passages f^8 . This affords a supply for reinforcing the supply left in the bowl after the siphon action has been completed, so as to insure an abundance of water for affording the necessary water trap g , as shown in Fig. 1.

From the foregoing statements it must be obvious that the closet is completely automatic in respect to the charging and the flushing actions.

In the slight modification shown in Fig. 5 the action of the parts is exactly the same as in the form shown in the principal views. The construction differs simply in the substitution of a pivoted lever h for connecting the stems h^1 h^2 of the flushing-valve c^3 and the charging-valve c^8 and in the substitution of a valve-chest h^3 of the proper shape to bring the valves into the relation shown in Fig. 5 and to inclose the said pivoted lever h , while at the same time forming a connection between the stand-pipe proper and the closet.

The valves c^3 , c^8 , and f^3 are preferably all of the globe type and the seating portions of the same are preferably made of rubber, as shown in black in the drawings.

It will be understood, of course, that minor details of the construction might be changed without departing from the spirit of my invention.

It should be noted that in the construction shown in the principal views the valve-stem c^4 of the flushing-valve has a limited idle movement on the stem c^7 of the charging-valve, which construction insures freedom for the downward or closing movement of the charging-valve c^8 , regardless of the point at which the flushing-valve c^3 may be stopped by the bridge c^5 .

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a water-closet, the combination with the bowl and seat pivoted thereto, of a flushing-valve seat opening directly into the recess of the bowl-body, a charging-valve seat in communication with said flushing-valve seat, a charging-valve and a flushing-valve connected for reverse movements, and a lever having its fulcrum on the seat's pivot, operative within a recess of said bowl-body, underlying the flushing-valve and operative thereon to close the flushing-valve and open the charging-valve, when a person sits on the seat, substantially as described.

2. In a water-closet, the combination with a bowl having a recess back of the seat, of a pivoted seat having its pivot-rod extending into said recess, of a flushing-valve seat opening directly into said bowl-recess, a charging-valve seat in communication with said flushing-valve seat, a charging-valve and a flushing-valve connected for reverse movements, a lever fulcrumed on said seat's pivot-rod, within said recess, and underlying said flushing-valve; and connections from said seat to said lever for operating said lever under the downward movement of said seat, but permitting the seat to be raised without action thereon, substantially as described.

3. In a water-closet, the combination with a bowl having a recess back of the seat, of a pivoted seat having its pivot-rod, extending into said recess through water-tight joints in

the walls thereof, an angular lug on said pivot-rod within said recess, a lever loose on said rod and overlying said lug, means for holding the forward end of the seat normally above
5 the bowl, and the charging and flushing valves and valve-seats, with the valves connected for common movement, in reverse order, and arranged so that the flushing-valve is normally open by gravity, and the charging-valve
10 is normally closed, by gravity and pressure

from the main, but that the flushing-valve becomes subject to said loose lever and seat, when the weight of a person is on the seat, substantially as described.

In testimony whereof I affix my signature 15
in presence of two witnesses.

JOHN P. COURTNEY.

Witnesses:

JAS. F. WILLIAMSON,

F. D. MERCHANT.