

(No Model.)

3 Sheets—Sheet 1.

A. F. BLESCH.

WATER CLOSET.

No. 313,281.

Patented Mar. 3, 1885.

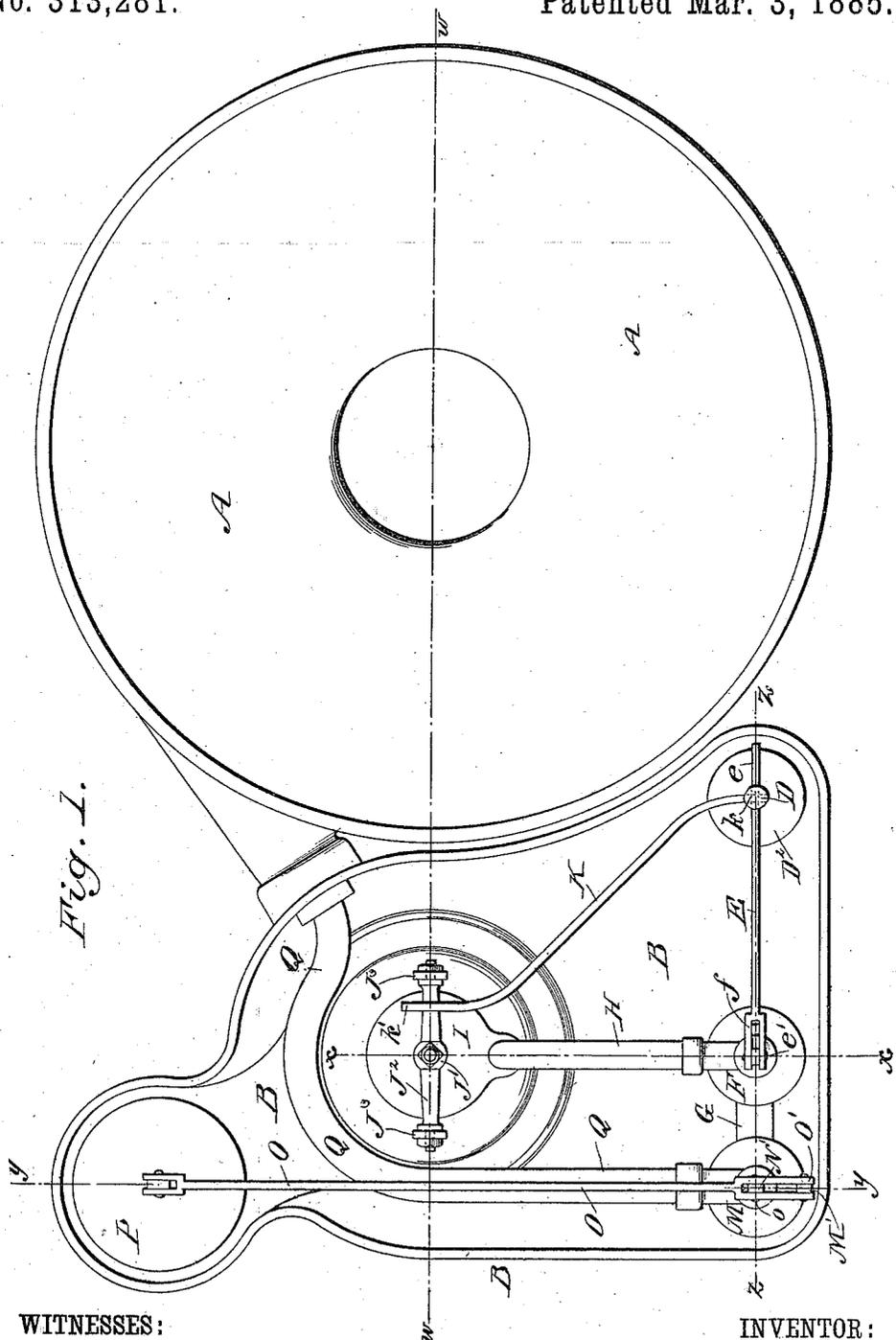


Fig. 1.

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WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 313,281, dated March 3, 1885.

Application filed February 23, 1884. (No model.)

To all whom it may concern:

Be it known that I, AUGUST F. BLESCH, of Columbus, in the county of Franklin and State of Ohio, have invented a new and Improved Water-Closet, of which the following is a full, clear, and exact description.

This invention relates to that class of water-closets in which the valves are operated by the rise and fall of the seat, and is an improvement in the water-closets described in Letters Patent No. 238,836, granted to me March 15, 1881, and No. 256,541, granted to me April 18, 1882.

The present invention consists in improved means for lifting the main discharge-valve of the closet by a piston working in a cylinder, and controlled by a valve opened by a rise of the seat-spindle, to admit water to the cylinder for lifting the piston and the connected main valve, which valve is permitted to seat itself slowly by the gradual escape of the water from the cylinder after the inlet-valve is permitted to close by a trip-lever operated by the rise of the piston.

The invention consists also in improved arrangements of the flushing-valve, whereby a compound action or double closing of the valve is secured, to insure its noiseless closure by the water-pressure, and avoid the thumping or "water-hammer" of valves closed by a single movement.

The invention consists also in special constructions and combinations of parts of the closet, all as hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improvement. Fig. 2 is a vertical section on the line *w w*, Fig. 1. Fig. 3 is a vertical section on line *x x*, Fig. 1, looking to the right. Fig. 4 is an enlarged broken sectional elevation on the line *y y*, Fig. 1. Fig. 5 is a vertical sectional elevation on line *z z*, Fig. 1. Fig. 6 is a perspective view of the seat-spindle and valve-operating levers in part; and Fig. 7 is a sectional plan view on the line *v v*, Fig. 4.

A is the bowl or basin of the closet, connected by a pipe, *a*, with the water-chamber B, in which the valves and their operating

mechanism are placed. A valve, C, when lifted, permits discharge of the contents of the bowl A and chamber B through a pipe, *a'*, to the connecting soil-pipe.

D is the seat-spindle, which is normally lifted by a spring, D', in a case, D², to project above the top of chamber B, so as to be depressed by the occupancy of the closet-seat. *d* is a notch in the spindle, in which springs sidewise the end *e* of the lever E, which lever is fulcrumed at *f* to an arm of the case of the valve F, to the stem of which the lever E is pivoted at *e'*, and so that when the end *e* of the lever is lifted the valve F will be opened downwardly against the tension of a spring, F', in the valve-case, which latter connects with a supply-pipe, G; and the case has also a branch pipe, H, opening into a cylinder, I, in which is fitted a piston, J, which connects by its rod J', cross head or bar J², and vertical rods J³ with the main valve C, so that the said valve shall be lifted by a rise of the piston J in the cylinder I by the pressure of water entering past the valve F. The cylinder I and branch pipe H may be held rigidly by any suitable means, and a guide-lug, *z*, for one or both rods J³ may be provided on the cylinder.

K is a bar or lever, which is fulcrumed at *k* in the head of the seat-spindle D, and carries a hook-pawl, L, which enters the notch *d*, and is adapted to hold the end *e* of lever E raised for holding the valve F open. The free end *k'* of bar K extends to lie in the path of the rising cross-head J² of valve C, so that lever E shall be released from hook L by a rise of the valve to a given point for permitting valve F to be closed by its spring F'.

M is a case in which is held the valve N, which connects at *o*, by its stem N', with the float-lever O, having its fulcrum O' in a link or projection, M', of the valve-case M. The float P, hung from lever O, acts to close valve N as the float lifts by a rise of water in the chamber B and to open the valve by a fall of the water-level. When the valve N is open, water enters through pipe G, which connects with casing M, and the water passes the valve N into a pipe, Q, which enters the bowl A tangentially at A', near the top, for flushing the bowl.

The flushing-valve N is peculiarly construct-

ed so as to have a double closing and opening action, which permits a closing of the valve without the noisy shock or water-hammer common to valves closing by water-pressure and with a single action.

The stem N' of the flushing-valve has a cup-leather or other suitable packing, *n*, to prevent leakage at the top of the valve-case M, and below the packing the stem is reduced in size, as at N², forming a shoulder, *n'*, against which the grooved portion N³ of the valve seats itself as it rises on part N², to close against the gasket or packing R by its flange-face *n*³. The stem portion N² is longer than the part N³, and carries at its lower end the auxiliary valve N⁴, which closes against a suitable packing, *n*², held to the part N³ by a screw cap, *n*⁴, or otherwise.

The part N³ or valve proper is counter-bored below its face *n*³, or is otherwise apertured at *n*⁵, to afford a passage of water through the lateral passages *n*⁶, opening into *n*⁵ to the pipe Q when the part N³ is closed on the packing R and the valve N⁴ has not yet closed because of an insufficient lift of the rising float P, as will be understood from Fig. 4.

The operation is as follows: When the closet is not in use, the water stands at about the level shown in Fig. 2 in the bowl A and chamber B, and the float P holds the valve N entirely closed, as in Fig. 5, the lever E being disengaged from the hook L of lever K. When the closet-seat (not shown) is occupied, the weight on it will depress the spindle D, and thereby cause the hook L to engage the end of lever E, and as the seat is vacated the spindle D will be forced upward by its spring D', and carry with it the end *e* of lever E, as in Fig. 6. thereby opening valve F, and admitting the full pressure of water from pipe G into pipe H and cylinder I, and forcing the piston J upward, which action promptly lifts the main valve C from its seat C' to the full height required for the free discharge to the soil-pipe of the contents of the bowl A and chamber B.

As the rising cross-head J² reaches a height permitting ample opening of valve C, said head J² strikes the free end of lever K and disengages hook L from the lever E, and permits the spring F' to close valve F and cut off the water-supply to the cylinder I, whereupon the gradual escape of the water from said cylinder through an orifice, I', in its bottom will allow the valve C gradually to fall by its gravity and quietly again close on its seat. The emptying of the bowl has meanwhile caused float P to fall, which first opens valve N⁴ of compound valve N, and then by pressure of the shoulder *n'* of stem N' on the head of valve part N³ the latter also is fully opened, which admits water freely from the supply-pipe G to the pipe Q, and thence to the bowl A, for flushing it, and this inflow will continue until the water rises in the bowl A and chamber B

nearly to its original level. The float P rises with the water and permits the water-pressure first to close valve part N³ noiselessly on the packing R, thus cutting off the main water-supply through this flushing-valve N; but the water still passes the valve into pipe Q through the passages *n*⁵ *n*⁶ until the full water-level in the bowl is established, the gradual rise of the float P quietly allowing the auxiliary valve N⁴ to close by water-pressure, wholly to cut off the flow of water from pipe Q to the bowl. The bowl A thus has been emptied, flushed, and recharged with water, and the valves, their operating-levers, and the seat-spindle have automatically resumed their original positions, ready for the next use of the closet.

It is evident that the form, location, and mode of action of a cylinder and piston device for opening the main valve C may vary within the scope of my invention.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a water-closet having a bowl, A, communicating water-chamber B, valve C, and the valve F and rod D, for operating the same, of a float, P, and the compound flushing-valve N connected to said float, and arranged between the supply and flushing pipes G Q, said flushing valve being formed of two independent parts, one of which is operated to be closed by the main flow of water and partially shut off the water, and the other of which parts is operated by the float P, to gradually and entirely shut off the flow of water to the bowl, substantially as set forth.

2. In a water-closet, the combination, with the float P, lever O, and the flushing and supply pipes G Q, of the compound flushing-valve N, composed of parts N³ N⁴, the latter being connected with the float, and the seats R *n*², whereby the part N³ will be forced against seat R by the main flow of water, and the part N⁴ forced gradually against its seat *n*² by the rise of the float after the closing of part N³, substantially as set forth.

3. In a water-closet, the combination, with the supply and flushing pipes G Q and casing M, of the valve N, having a shouldered stem, N' *n'*, auxiliary valve N⁴, part N³, mounted to slide on the spindle between shoulder *n'* and valve N⁴, and provided with a face, *n*³, and apertures *n*⁵ *n*⁶, leading from the supply-pipe to the flushing-pipe, whereby when the force of water from pipe G against the lower face of part N³ has closed it the auxiliary valve N⁴ on stem N' may have an independent movement to close the passages *n*⁵ *n*⁶, substantially as set forth.

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Witnesses:

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