

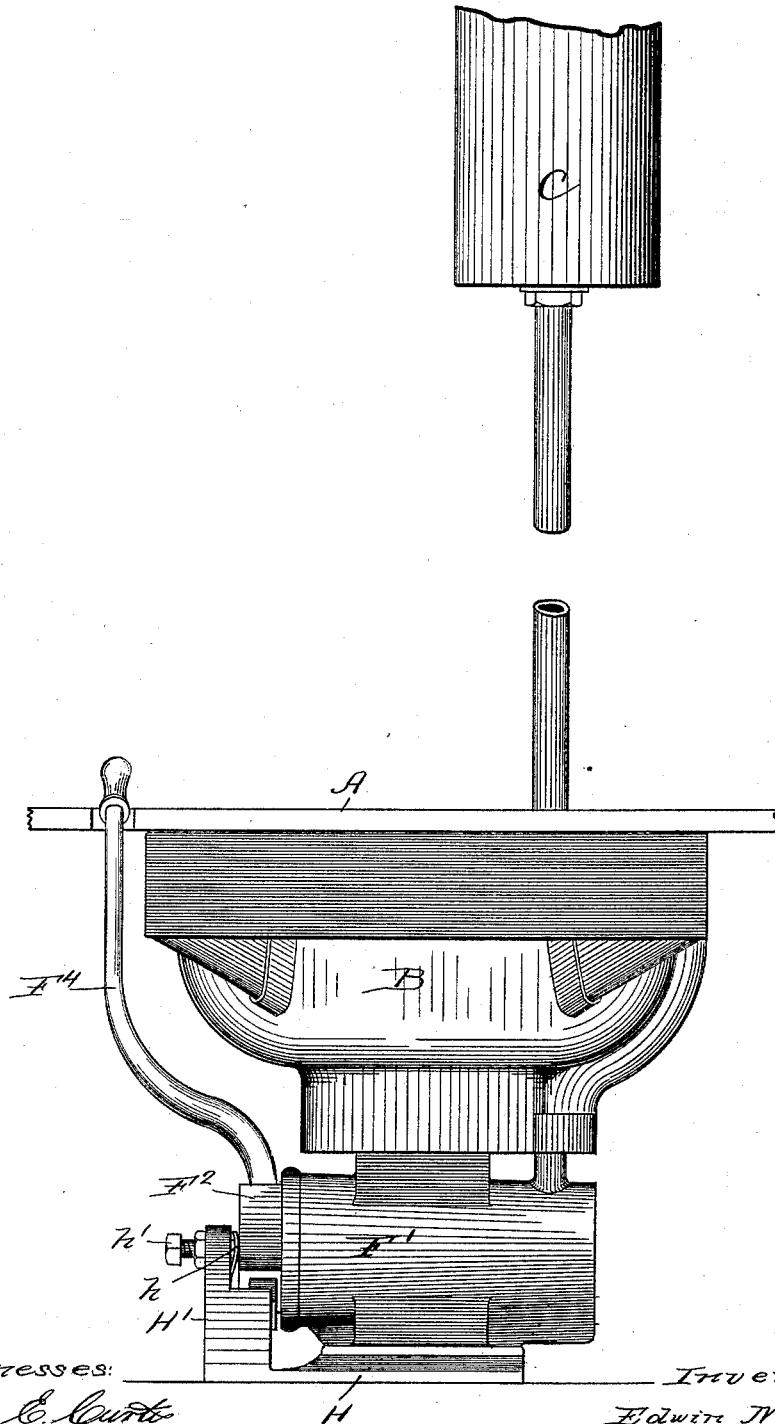
(No Model.)

2 Sheets—Sheet 1.

E. & LE GRAND M. NORTON.
WATER CLOSET.

No. 489,030.

Patented Jan. 3, 1893.



Witnesses:

Geo. C. Curtis
A. M. Munday

Inventors:

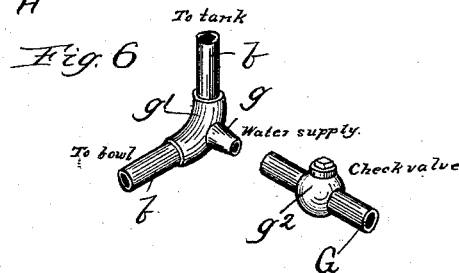
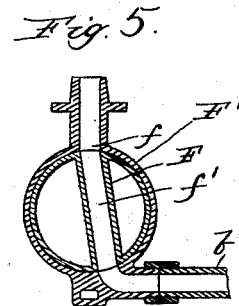
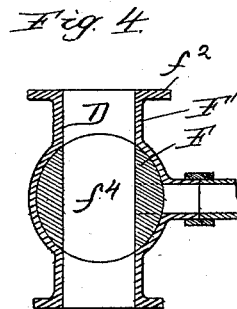
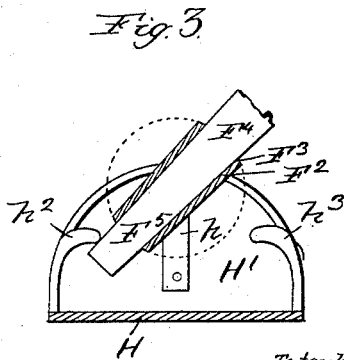
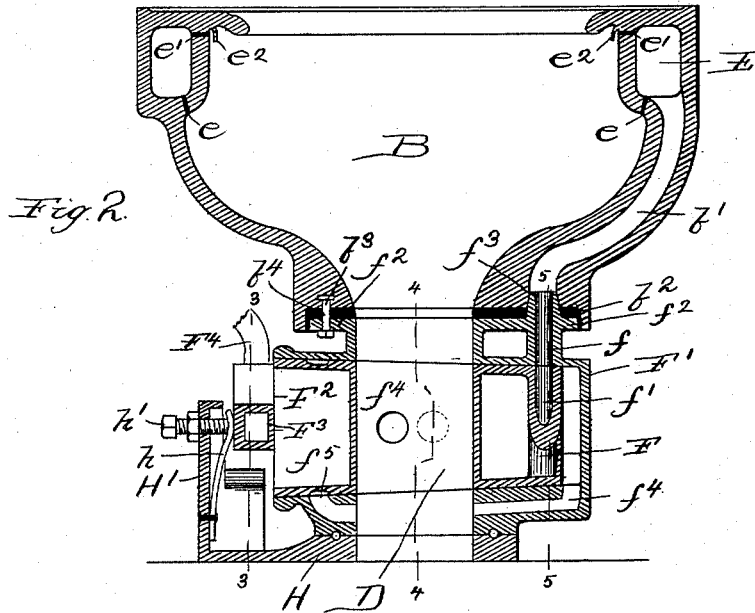
Edwin Norton
LeGrand M. Norton

By *Munday, Curtis &*
Adcock
their Attorneys.

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A. M. Munday,

Inventors:
Edwin Norton
Le Grand M. Norton
By Munday, Curtis & Adcock,
their Attorneys.

UNITED STATES PATENT OFFICE.

EDWIN NORTON AND LE GRAND M. NORTON, OF MAYWOOD, ASSIGNORS TO
SAID EDWIN NORTON AND OLIVER W. NORTON, OF CHICAGO, ILLINOIS.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 489,030, dated January 3, 1893.

Application filed December 30, 1891. Serial No. 416,528. (No model.)

To all whom it may concern:

Be it known that we, EDWIN NORTON and LE GRAND M. NORTON, citizens of the United States, residing at Maywood, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Water-Closets, of which the following is a specification.

Our invention relates to improvements in water closets and more particularly to certain improvements upon the water closet heretofore patented to me and Le Grand M. Norton, in Letters Patent of the United States No. 247,210 of September 20, 1881.

In the accompanying drawings which form a part of this specification, and in which similar letters of reference indicate like parts throughout the several figures, Figure 1 is a front elevation of a water closet embodying my invention; Fig. 2 is a central vertical section; Fig. 3 is a cross section on line 3—3 of Fig. 2; Fig. 4 is a cross section on line 4—4 of Fig. 2; Fig. 5 is a cross section on line 5—5 of Fig. 2, and Fig. 6 is a detail view of the connecting pipes.

In the drawings A represents the casing or frame and B the water closet bowl.

C represents the air compression water reservoir.

D is the drain pipe connecting the water closet bowl with the soil pipe.

E is the after wash tank, consisting preferably of a chamber formed integral with the bowl B. Openings *e* and *e'* through the inner wall of this after wash tank E connect the same with the interior of the bowl B, and thus permit the contents of the after wash tank to flow out of the same into the bowl. Guards or shields *e²* deflect the water issuing from the upper series *e'* of these openings and thus prevents the same from improperly splashing the bowl. The air compression water reservoir C is connected with bowl B by a pipe *b*, after wash tank E, channel *b'* formed in the bowl B, pipe or channel *f* in the valve chamber F, and the port *f'* in the valve plug F. The drain pipe D and pipe *b* are furnished with a common plug valve or ground cock F which, in connection with the shell F', serves to open or close simultaneously both said pipes. The valve shell F' is furnished with a flange or plate *f²* which fits in a suitable socket *b²*

formed in the bowl B. And the valve shell is connected to the bowl B by screws or bolts *b³*, a tight fit connection being formed by suitable cement or gasket *b⁴*. The valve shell is also provided with a tubular projection *f³* which fits in the water way or channel *b'* leading into the after wash tank or chamber E.

G is the water supply pipe connecting at *g* with the pipe *b* which leads from the reservoir C to the valve shell F', connection being made by a suitable three-way coupling *g'*. The supply pipe G is furnished with a check valve *g²*, so that when the pressure in the supply pipe happens to be less than that in the air compression reservoir C, the water will not flow backward from the air compression reservoir into the supply pipe.

The ground plug valve F is provided with two ports, one *f⁴* and one *f'*. The large port *f⁴* when the valve is turned properly forms an open communication between the drain pipe D and the bowl B. The smaller port *f'* in the valve plug F serves to form an open communication between the water pipe *b* and the water way *b'* in the bowl B leading to the after wash tank E. The valve shell F' has secured thereto a plate H furnished with a bracket H' which is provided with a steel antifriction plate *h* and adjusting screw *h'*, by which the valve F is held or pressed snugly into the tapering valve seat or socket in the shell F'. This insures a tight joint between the plug and shell. At the end of the valve plug F is a projection F² having a socket F³ to receive a handle F⁴. The lower end F⁵ of the handle engages two projections or stops *h²* *h³* secured to the bracket H' and which serve to limit the extent to which the valve plug may be turned. One of these stops is so located as to stop the valve plug in its fully opened position when the same is turned in the direction to open the valve; and the other to stop the valve plug in its fully closed position when it is turned in that direction.

By connecting the supply pipe G with the intermediate pipe *b* leading from the air compression reservoir to the bowl B I secure the important result of causing the water to flow to the bowl both from the air compression reservoir C and from the supply pipe G directly, thus getting the full force of both

sources of supply when the closet is in use, or the valve opened.

The plug valve F is made somewhat shorter than its shell F' to compensate for wear and thus always secure a snug fit between the plug and shell. To prevent any possible leakage, channels communicating with the waste pipe are formed in the shell F' and plug F. These channels are indicated in the drawings at f^4 and f^5 .

The air compression reservoir C is located above the water closet at an elevation of several feet, so that in addition to the expansive force of the compressed air in the tank the hydrostatic pressure of the water due to its elevation will be utilized to supply a sudden and ample flush of water to the bowl. If the tank C is an open one instead of a closed tank the weight of hydrostatic pressure of the column of water alone supplements the supply of water from the supply pipe G and affords an ample flush of water to the bowl.

We claim:

1. In a water closet the combination with the bowl B having formed integral therein an annular chamber E and water way or channel b' , of a plug valve F furnished with two ports f^4 and f^5 and its shell F', the ports of said valve communicating respectively with the drain pipe and the water supply pipe and operating simultaneously to open and close the same, and said channel b' connecting said chamber E with said water supply port f^5 , substantially as specified.

2. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, said water closet bowl having a socket b^2 and said valve shell F' having a flange or plate f^2 fitting said socket, substantially as specified.

3. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, a handle or lever for turning or operating said valve plug, and a stop or projection for limiting the opening throw of said valve plug to insure its being fully and properly open, substantially as specified.

4. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, and a handle or lever for turning said valve plug, and

two stops or projections for limiting the opening and closing movements of said valve plug, substantially as specified.

5. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground plug valve F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, said valve plug being made tapering and shorter than its shell, and an adjusting or pressure screw fitting against the end of the valve plug to insure its being held snugly in place against its seat or shell, substantially as specified.

6. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, and a steel anti friction plate pressing against the end of the valve plug to hold the same in place in its shell, substantially as specified.

7. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, and a steel anti friction plate and adjusting screw abutting against the end of the valve plug to hold the same in position in its shell, substantially as specified.

8. The combination with water closet bowl B, having a socket b^2 at its base, of a valve shell F', having a flange or plate f^2 fitting in said socket b^2 , and a ground plug valve F having two ports, one for opening and closing the waste passage and one for opening and closing the water supply passage, said plate f^2 having openings extending through the same and registering with the two ports in said valve plug F, substantially as specified.

9. The combination with a water closet bowl B, having a socket b^2 and a water way or channel b' , of a valve shell F', having a flange or plate f^2 fitting in said socket b^2 , and a tubular projection f^3 projecting into said water way b' , and a ground plug valve F having two ports, one for the waste passage and one for the water supply passage, substantially as specified.

10. The combination with a water closet bowl B, after wash tank or chamber E communicating therewith, and an elevated air compression water reservoir C, above said bowl and a connecting pipe b leading from said tank G and communicating with said bowl, after wash tank E, a valve shell F' and a ground plug valve F having two ports, one

for the water supply and one for the waste, substantially as specified.

11. The combination with a water closet bowl B of after wash tank E above said bowl 5 and communicating therewith, elevated air compression tank C communicating with said after wash tank, valve shell F' and valve plug F having two ports, one for the wash and one for the water supply, substantially as specified. 10

12. The combination with a water closet bowl B of the waste or drain pipe and a water pipe, a single ground valve plug F and its shell F' having two ports or openings, one 15 communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, air compression reservoir C, pipe *b* leading from said 20 tank C and communicating with the bowl, and water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as well as from the tank C, substantially as 25 specified.

13. The combination with a water closet bowl B of the waste or drain pipe and a water pipe, a single ground valve plug F and its shell F' having two ports or openings, one 30 communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, of after wash tank E, elevated water reservoir C, pipe 35 *b* leading from said tank C and communicating with said after wash tank, and a water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as well 40 as from said tank C, substantially as specified.

14. The combination with water closet bowl

B of the waste or drain pipe and a water pipe, a single ground valve plug F and its shell F' having two ports or openings, one 45 communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, of after wash tank E, elevated water reservoir C, pipe 50 *b* leading from said tank C and communicating with said after wash tank, and a water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as well as 55 from said tank C, and a check valve *g*² in said supply pipe G, substantially as specified.

15. The combination with a water closet bowl B of the waste or drain pipe and a water pipe, a single ground valve plug F and its 60 shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, air com- 65 pression reservoir C, pipe *b* leading from said tank C and communicating with the bowl, and water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as 70 well as from the tank C, and a check valve *g*² in said supply pipe G, substantially as specified.

EDWIN NORTON.

LE GRAND M. NORTON.

Witnesses to the signature of Edwin Norton:

H. M. MUNDAY,

EMMA HOCK.

Witnesses to the signature of Le Grand M. Norton:

MYRA K. STOLP,

MAY E. STOLP.