

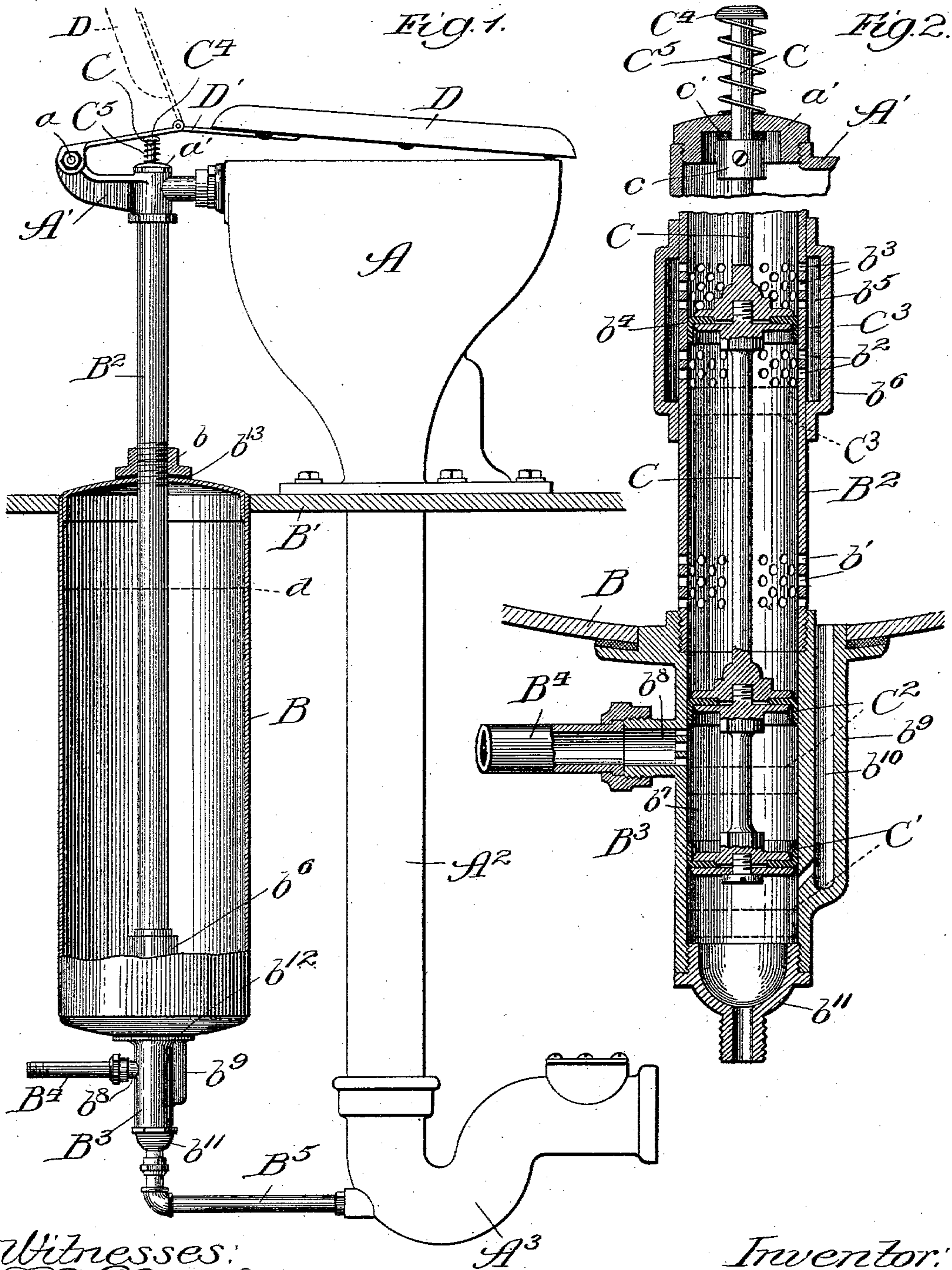
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J. W. KELLY.
WATER CLOSET.

APPLICATION FILED MAR. 21, 1903.

NO MODEL.



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UNITED STATES PATENT OFFICE.

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WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 752,906, dated February 23, 1904.

Application filed March 21, 1903. Serial No. 148,855. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. KELLY, a citizen of the United States, residing at Chicago, 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.

My invention relates particularly to self-flushing water-closets; and my primary object is to provide a closet of this character of improved general construction, particular attention being paid to securing simplicity of structure, certainty of operation, freedom from danger of freezing, and freedom from liability to get out of repair. In this construction the tank is located beneath the floor-line and suitably drained to prevent freezing. When the seat of the closet is depressed, water is admitted to the tank, compressing the air therein, and when the pressure upon the seat is removed the air furnishes the pressure for flushing the closet.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a side view of the closet; and Fig. 2, a broken vertical sectional view of the tank, flush-pipe, and valve mechanism.

A description of the preferred construction follows.

A represents a closet-bowl provided at its rear upper portion with a combination pipe connection and bracket A'; A², a soil-pipe or soil-pipe connection provided at its lower end with a trap A³; B, a tank located beneath the floor B'; B², a flush-pipe extending through the tank and joined at its upper end to the connection A'; B³, a connection at the lower end of the tank, forming virtually an extension of the pipe B²; B⁴, a water-supply pipe communicating with the connection B³; B⁵, a drain-pipe connecting the member B³ and the trap A³; C, a valve-stem equipped at its lower portion with valves C', C², and C³ and having a projecting upper end equipped with a head C⁴, between which and the connection A' is confined a spring C⁵, and D a seat having its front portion resting normally on the front portion of the bowl and provided at its rear portion with a hinge D', one leaf of which

bears upon the upper end of the valve-stem or plunger-rod and has its rear end joined by a pivot *a* to the member A'.

The bowl A may be of any suitable construction. The connection A' is really a T-shaped pipe-section, with a bracket on the outer side of the vertical portion or cross of the T. The vertical channel of the T is capped by a suitable perforated cap or gland *a'*, through which the valve-stem passes. The tank B is provided at its upper end with a central opening for the pipe B², the latter being externally threaded adjacent to the opening to receive a nut *b*. The pipe B² is provided near its lower end with perforations *b'*, communicating with the tank, and at a short distance above the same with two series of perforations *b*² *b*³, separated by an imperforate portion *b*⁴. The perforations *b*² communicate with the perforations *b*³ through an annular passage or by-pass *b*⁵, formed by an enlargement *b*⁶ on the pipe. The member B³ comprises a tubular member *b*⁷, flanged at its upper end and having liquid-tight connection thereat with the lower end of the tank B, an externally-threaded nipple *b*⁸ at one side thereof for attachment with the pipe B⁴, a longitudinal enlargement *b*⁹, having a channel *b*¹⁰, constituting a by-pass from the tank to the lower end of the tubular portion, and a bottom cap *b*¹¹, having an externally-threaded stem connected with the pipe B⁵. The member B³ has its upper end enlarged at its inner diameter and threaded thereat to receive the lower end of the pipe B². Gaskets *b*¹² *b*¹³ serve to make liquid-tight joints, the tank being, as it were, clamped between the nut *b* and the flange of the member B³.

The valve-stem C is preferably constructed of thread-connected sections for convenience in applying the valves. Near the upper end is a collar *c*, which normally bears against a gasket *c'* at the under side of the gland *a'*. The inner diameters of the pipe B² and member B³ are equal, as are the diameters of all the valves. In the normal position of the closet the valves are located as indicated in full lines, which would permit water to pass from the tank by way of perforations in the pipe B² to the bowl of the closet, and when

the valve-stem is depressed the valves occupy the position indicated by the dotted lines, in which position communication with the bowl is cut off and communication between the admission-pipe and tank established.

The seat serves to depress the valves to permit the tank to receive a charge of water and the air in the tank to become compressed by the pressure from the hydrant. When the seat is relieved of its pressure, the valves are raised by the spring C⁵, disconnecting the tank from the hydrant, establishing connection between the tank and bowl, and reopening the drain-passage b¹⁰, the lower end of which has in the meantime been closed by the valve C'. The height to which the tank will become filled will of course depend upon the pressure at the hydrant. The dotted line d represents the water-level under a certain pressure. After the tank has become so nearly empty that the air-pressure no longer will serve to force the water through the bowl the tank and the pipe B² will drain through the pipe B⁵.

In addition to its function in depressing the valve-stem the hinge D' permits the seat to be thrown back, swinging upon the pintle of the hinge to the inclined position indicated by dotted lines, in which position it is free from danger of falling. An advantage incident to the construction is that the bowl may be placed close to a wall, and, moreover, it is unnecessary to inclose the front portion of the bowl.

Other advantages incident to the general construction will readily appear to those skilled in the art. For instance, the feature of locating the valves within the pipe B² obviates the necessity of having a pit for a valve located outside. When the valves are in the position indicated by the full lines, the pressure upon the lower surface of the valve C² is balanced by the pressure on the upper surface of valve C', and when the valves are in the position indicated by dotted lines the same thing is true, and in addition to this the pressure upon the upper surface of the valve C² is balanced by the pressure upon the lower surface of the valve C³. The valves are perfectly balanced, therefore, so that the valve-stem is readily depressed and is readily raised by the spring C⁵. The valves may be removed for repair by unscrewing the gland a' and withdrawing the valve-stem from above. Other advantages appertain to the construction, which will be understood by those skilled in the art.

It readily will be understood that changes in details of construction within the spirit of my invention may be made. Hence no undue limitation is to be understood from the foregoing detailed description, the same having been given for clearness of understanding only.

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

1. In means of the character described, a

tank in combination with a pipe extending thereinto and provided with a by-pass, a valve controlling said by-pass, an extension at the lower end of the tank in alinement with said pipe, an admission-pipe connected therewith, valves located above and below said admission-pipe in the normal position, and a common actuating-stem for said valves.

2. The combination with a suitable tank of a pipe extending thereinto and provided therein with a by-pass, a valve controlling said by-pass, an admission-pipe adapted to be placed in communication with the lower portion of said first-named pipe, valves located above and below said admission-pipe, a by-pass from the tank to the under surface of the lower valve, and a common actuating-stem for said valves.

3. In means of the character described, the combination of a bowl, a tank, a flush-pipe connecting said bowl and tank and extending into the tank and provided within the tank with a by-pass, an extension connected with said pipe at the lower end of said tank and provided with a by-pass, a lateral admission-pipe connected with said extension, valves above and below said admission-pipe, a valve controlling said first-named by-pass, and a common actuating-stem for said valves.

4. In means of the character described, a tank, a flush-pipe extending thereinto, and provided within the tank with a by-pass, an extension connected with said pipe at the lower end of the tank and provided at one plane with an admission-port and at a lower plane with a drain-port, a by-pass communicating with said tank and opening into the interior of said extension beneath the plane of said admission-port, a valve located normally above said admission-port, a valve located between said admission-port and the lower end of said last-named by-pass, a valve controlling said first-named by-pass, and a common actuating-stem for said valves.

5. In means of the character described, the combination of a bowl, a seat, a tank, a flush-pipe extending into said tank and in communication therewith, a valve controlling the passage from the tank through said flush-pipe, an admission-passage, a drain-passage, valves controlling said admission and drain passages, a valve-stem connected with said valves and having its upper end projecting above said flush-pipe to be actuated by said seat, and a spring serving normally to hold said valve-stem in the elevated position.

6. In means of the character described, the combination of a suitable bowl, a flush-pipe connected therewith, an air-tight tank located beneath said bowl and in communication with said flush-pipe, an admission-passage, a drain-passage connected with the lower portion of said tank, valves controlling the admission and drain passages, a valve controlling the passage from the tank through said flush-pipe,

and a seat-actuated valve-stem connected with said valves.

7. In means of the character described, the combination of a suitable bowl, a soil-pipe 5 connected therewith, a tank located beneath said bowl, a drain-pipe connecting the lower end of said tank with said soil-pipe, an admission-pipe at the lower end of said tank, valves controlling said admission and drain 10 pipes, a valve controlling the passage from said tank through said flush-pipe, and a common actuating-stem for said valves.

8. In means of the character described, a vertically-disposed tank, a flush-pipe extend- 15 ing through the upper end thereof, a pipe extension at the lower end of said tank having screw connection with said flush-pipe and provided with an admission-port and a drain-passage, valves controlling said admission-port 20 and drain-passage, a valve controlling the passage from said tank through said flush-pipe, and a common actuating-stem for said valves.

9. In means of the character described, the 25 combination of a vertically-disposed tank provided at its lower end with an opening, a pipe extension fitted to said opening and equipped with a suitable gasket, a flush-pipe extending through the upper end of said tank and having 30 threaded connection at its lower end with said

pipe extension, a nut having threaded connection with said flush-pipe above said tank, a gasket confined between said nut and tank, an admission-passage at said extension and valves 35 controlling said admission-passage and the passage from said tank through said flush-pipe.

10. In means of the character described, a pipe extension B^3 having an open upper end and provided with a lateral nipple b^8 , a vertical 40 drain-passage b^{10} , with an orifice at its upper end, and a circular flange near the upper end of the pipe extension and below said orifice, for the purpose set forth.

11. In means of the character described, a 45 tank, a flush-pipe extending therethrough provided near its lower end with an opening in free communication with said tank, and at a higher plane with openings separated by an imperforate portion, a valve located at said 50 imperforate portion, an enlargement fitted on said pipe and provided with a by-pass around said valve, an admission-port, a drain-passage, valves controlling said admission-port and drain-passage, and a common actuating-stem 55 for said valves.

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In presence of—

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