

No. 720,021.

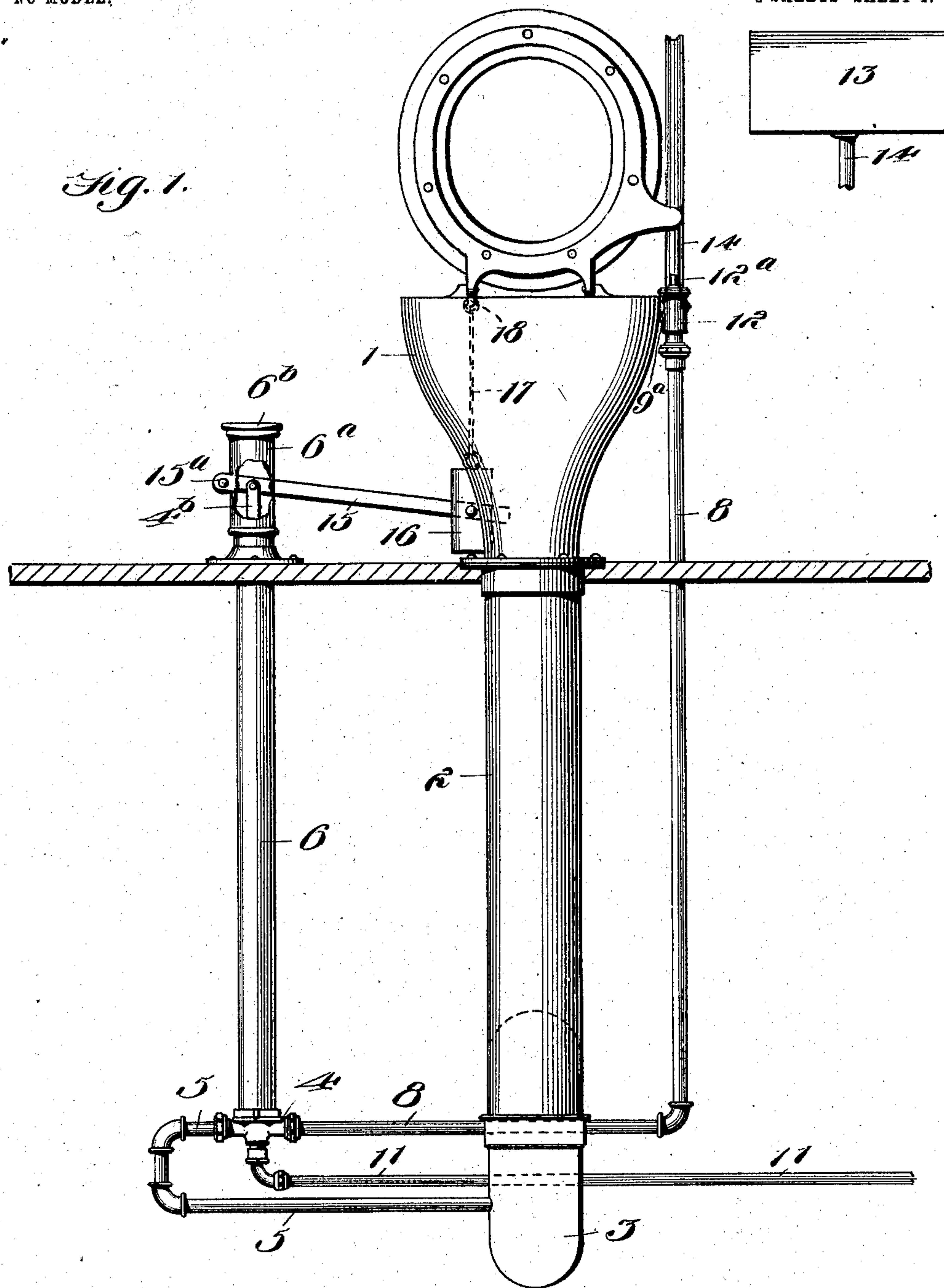
PATENTED FEB. 10, 1903.

P. HAAS.
WATER CLOSET.

APPLICATION FILED MAR. 23, 1901.

NO MODEL.

2 SHEETS--SHEET 1.



Witnesses

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by

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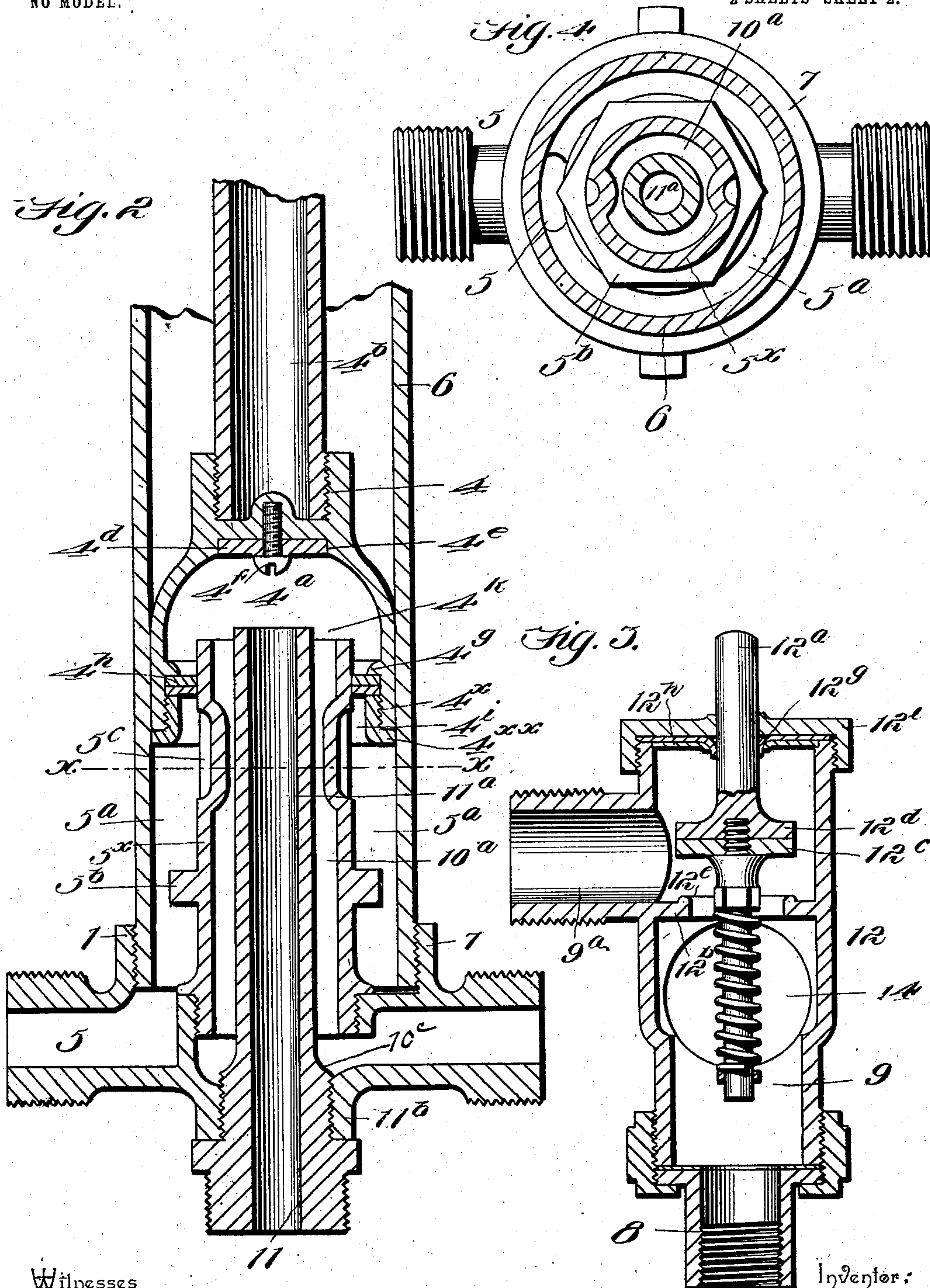
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UNITED STATES PATENT OFFICE.

PHILIP HAAS, OF DAYTON, OHIO.

WATER-CLOSET.

SPECIFICATION forming part of Letters Patent No. 720,021, dated February 10, 1903.

Application filed March 23, 1901. Serial No. 52,639. (No model.)

To all whom it may concern:

Be it known that I, PHILIP HAAS, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in 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 certain improvements in water-closets, more especially valves therefor.

Among other objects it provides for the automatic draining of all waste water to guard against the freezing up thereof in the pipes, &c. It is also adapted to permit of the ready removal of certain parts, as the packing, &c., heretofore more or less difficult of easy access, being renewed when worn out. Also it contemplates simplicity of construction and cheapness of manufacture.

It consists of the novel features of construction and the sundry combinations of parts, substantially as hereinafter more fully disclosed, and specifically pointed out by the claims.

In the accompanying drawings, illustrating the preferred embodiment of my invention, Figure 1 is a side elevation. Fig. 2 is an enlarged broken sectional view showing more particularly the supply-valve. Fig. 3 is a like view of the hopper or flushing-valve. Fig. 4 is a cross-section taken on the line *xx* of Fig. 2.

In carrying out my invention I employ the usual form of hopper or bowl 1, suitably fastened in position to the floor, and in alignment therewith is secured also to the floor, preferably by the same fastenings, the sewer-pipe 2, with the usual trap 3 at its lower end. The supply-valve 4 is arranged within an outer casing 6, reaching upward through the floor, with a supplemental casing 6^a, suitably fitted upon its upper portion above the floor, and a cap 6^b, secured upon its upper end. Said valve comprises an inverted cup or valve proper, 4^a, connected to its stem 4^b by an upward internally-screw-threaded tubular extension 4^c, engaging a screw-thread of said valve-stem. Said cup or valve proper has in its upper end or surface, centrally thereof, a leather or rubber face 4^d, set into a circular

or other shaped recess 4^e therein and preferably fastened in place by a screw 4^f, passed therethrough and screwing into said upper surface of the cup or valve proper. Said cup or valve proper has upon the inner surface or circumference of its bell-like or pendent portion an integral circular shoulder or flange 4^g a short distance upward from its bottom edge, and below said flange it is screw-threaded, as at 4^x. A suitable leather or rubber packing or annulus 4^h, held against the under side of the flange or shoulder 4^g by a ring-shaped or circular nut 4ⁱ, engaging the inner screw-threaded surface 4^x of said cup or valve proper, contacts with or engages the inner wall of the vertical water-passage 5^a, communicating with the waste-water outlet. The circular or ring-shaped nut 4ⁱ has an out-turned flange or head 4^{xx}, engaging the bottom edge of said cup or valve proper, limiting its inward movement. An inner casing 5^x, constituting the dividing-wall between the passage 5^a and a similar passage, presently described, has an angular lateral extension 5^b for the convenient manipulation or turning of said inner casing in screwing or securing it into position, as shown. Said inner casing has its inner surface next to the plane of the movement of the valve indented to provide a bypass or channel 5^c therein, opposite which the packing 4^h of said valve is moved as the last-named makes its downstroke, thus providing for effecting communication with the waste-water passage interiorly of the valve to drain or pass off all waste water from the pipes, &c., which water would be liable to freeze if allowed to stand therein in cold weather.

A pipe-union 7 is screwed to the lower screw-threaded end of the casing 6 and to the corresponding end of the screw-threaded end of the inner casing 5^x. One arm of said pipe-union forms a continuation of said waste-water passage, and to a second arm thereof at its outer end is connected a pipe 8, leading to the hopper or bowl valve-box 9. Also with the last-named arm of said pipe-union at its opposite or inner end communicates or connects a passage 10^a, arranged exteriorly of and receiving water from a water-passage 11^a, itself receiving water from the supply-pipe 11. Said passages 10^a and 11^a are separated by a wall or pipe 10^c, screwed at its lower end

into the internally-screw-threaded lower end of the pipe-union 7. Said passage 11^a is also connected up with a third arm 11^b of said pipe-union and has in turn connected to it the supply-pipe 11, preferably as shown. Said passage 11^a has its upper end extending a short distance beyond or above the corresponding end of the water-passage 10^a, so that when the supply-valve 4 is closed communication will still be established between said passage 10^a and the chamber 4^k, provided interiorly of said valve, as shown, to permit the passage or drainage of the water from the pipe 8, leading to the hopper valve-chamber 9, into said chamber 4^k when the supply-valve has been closed, it finally passing into the waste-water outlet, as presently disclosed.

The hopper-valve 12 is preferably of the construction as shown, comprising two principal members or sections 12^a 12^b and arranged in the chamber or box 9, with one member projecting through an opening in said chamber and normally retained elevated to provide for engagement therewith and its actuation by the hopper cover or seat in the usual way as said seat is depressed or forced downward, as shown. The sections or members of said valve are screwed or otherwise suitably connected together, with a leather or rubber face 12^c interposed therebetween and upon the under side of the laterally-elongated or disk-like portion 12^d, adapted when the valve is depressed to engage the seat 12^e and shut off the passage of the water through the port or opening of said seat to the hopper or bowl when the closet is in use and the supply-valve is open. An arm 9^a of said valve-chamber is suitably connected up with the bowl or hopper to provide for said passage of the water to and the flushing of the bowl or hopper when the pressure of the seat is removed from the valve 12, permitting the raising or opening thereof. Said valve has its stem, preferably an integral part of its upper member or section, compassed and impinged upon by a leather or rubber disk or packing 12^f to properly pack the valve-stem. Said disk or packing may be held in place in any suitable way, preferably by a plate or disk 12^h, seated in a rabbet or seat produced in the inner corner edges of the upper part of the valve-chamber, and by the cap 12ⁱ, secured upon said upper part of said chamber, up through which passes the stem of the valve 12 and beneath which is arranged said rubber disk or packing.

A tank 13, suitably disposed or supported in an elevated position to contain the water for flushing the bowl or hopper, has pipe connection 14 with the valve-chamber 9.

To the upper end of the stem 4^b of the supply-valve 4 is suitably connected a lever 15, pivoted at one end, as at 15^a, to the casing 6^a and reaching outward to a convenient point for the weighting, as at 16, of its free end and the connecting up of said end by a line or wire 17 to a lever 18, suitably arranged for actua-

tion by the closet-seat when depressed. It will therefore be seen that as the closet-seat is depressed into engagement with the lever 18 the supply-valve 4 will, through the action of the line 17, lever 15, and stem 4^b, be opened, lifting it off the pipe 10^c. The water thus admitted from the passage 11^a will flow or pass down into the passage 10^a and from thence through one arm of the pipe-union 7 into the pipe 8 and be conducted thereby to and pass through the chamber 9, past the flushing or hopper valve 12, it thence finally passing through the pipe 14, and be supplied to the tank 13 for use in flushing the closet-bowl or hopper later on, as will presently appear. The closet-seat being raised or pressure removed therefrom, relieving the lever 18, the weight 16 of the lever 15 will drop a limited distance, predetermined by the extent of movement allowed the lever 18, as previously provided for, thus effecting the seating or closing of the supply-valve 4 upon the upper end of the pipe 10^c, cutting off the water. Simultaneously with the seating of said valve the packing or impinging surface 4^h of said valve is brought opposite the by-pass or channel 5^c, allowing all waste water in the pipes to be drained or pass off out through the waste-water passage or outlet 5 5^a, as and for the purpose aforesaid. With the lifting of the closet-seat the flushing-valve 12 is raised or opened, allowing the water from the flushing-tank 13 to pass or flow into and flush the hopper or bowl and pass off into the sewer, as usual, while no further water can by reason of the above-described construction and arrangement and operation of parts pass back up into and stand in the pipes while the closet is out of use.

If so desired, instead of supply-valve 4 being constructed with two different tubular stems, as herein shown, one stem properly arranged and divided into two apartments may be employed.

Among the numerous advantages of my invention may be mentioned the following: It can be readily repaired at the minimum expense and is instantly responsive, certain, and effective in its flushing action; it does not in any way waste water from supply when not in use nor does it require a pit; it will work under high or low pressure; it is capable of quick and proper drainage and of simple adjustment; it dispenses wholly with the use of stuffing-boxes, and there is no rotting, rattling, or hammering of parts and no swelling of rubber Fuller balls or washers, besides being perfectly sanitary in every respect and readily repaired.

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

1. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage having a by-pass, and an intermediate water-

passage connecting with a hopper and flushing-tank pipe, said intermediate water-passage stopping below the upper end of said supply-water passage and communicating with said valve water-chamber, substantially as set forth.

2. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage having a by-pass, and an intermediate water-passage connecting with a hopper and flushing-tank pipe, said intermediate water-passage stopping below the upper end of said supply-water passage and communicating with said valve water-chamber, and said by-pass communicating with said water-chamber and with said waste-water passage when the supply-passage is closed, substantially as set forth.

3. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage having a by-pass, and an intermediate water-passage connecting with a hopper and flushing-tank pipe, said intermediate water-passage stopping below the upper end of said supply-water passage and communicating with said valve water-chamber, and said by-pass communicating with said water-chamber and with said waste-water passage when the supply-passage is closed, and a pipe-union with one arm interposed between said hopper and flushing-tank pipe and said intermediate passage, substantially as set forth.

4. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage having a by-pass, and an intermediate water-passage connecting with a hopper and flushing-tank pipe, said intermediate water-passage stopping below the upper end of said supply-water passage and communicating with said valve water-chamber, and said by-pass communicating with said water-chamber and with said waste-water passage when the supply-passage is closed, said supply-water passage being arranged interiorly of said intermediate water-passage, and said waste-water passage and intermediate water-passage stopping below said supply-water passage, substantially as set forth.

5. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage having a by-pass, and an intermediate water-passage connecting with a hopper and flushing-tank pipe, said intermediate water-passage stopping below the upper end of said supply-water passage and communicating with said valve water-chamber, and a pipe-union, with one arm interposed between said intermediate water-passage and hopper and flushing-tank pipe and a second arm connect-

ing with the waste-water passage at its lower end, substantially as set forth.

6. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage having a by-pass, and an intermediate water-passage connecting with a hopper and flushing-tank pipe, said intermediate water-passage stopping below the upper end of said supply-water passage and communicating with said valve water-chamber, and said by-pass communicating with said water-chamber and with said waste-water passage when the supply-passage is closed, and a pipe-union with one arm interposed between said intermediate water-passage and hopper and flushing-tank pipe, and a second arm connecting with said waste-water passage, said pipe-union having centrally connected thereto a pipe forming the dividing-wall between said intermediate water-passage and said waste-water passage, substantially as set forth.

7. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage, an intermediate water-passage, a hopper and flushing-tank pipe connecting with said intermediate water-passage and an inner casing, terminating at its upper end below the upper end of said supply-water passage and arranged between said intermediate water-passage and said waste-water passage, said casing having a by-pass formed therein, establishing communication via said water-chamber of said valve between said intermediate water-passage and said waste-water passage, when said valve is seated or closed, substantially as set forth.

8. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage having a by-pass and an intermediate water-passage connecting with a hopper and flushing-tank pipe, said intermediate water-passage stopping below the upper end of said supply-water passage and communicating with said valve water-chamber, and said by-pass communicating with said water-chamber and with said waste-water passage when the supply-passage is closed, and a pipe-union with one arm interposed between said intermediate water-passage and hopper and flushing-tank pipe, and a second arm connecting with said waste-water passage, said pipe-union having centrally connected thereto a pipe forming the dividing-wall between said intermediate water-passage and said waste-water passage, and a pipe forming the dividing partition or wall between said supply-water passage and said intermediate water-passage and adapted to be connected to the supply-pipe, substantially as set forth.

9. In a valve of the character described, the combination of a supply-valve, having a cham-

ber below its face, provided interiorly with a bearing or packing, an inclosing tube, a waste-water passage having a by-pass or channel, a supply-pipe having one end extending beyond one end of said waste-water passage and forming the valve-seat, a delivery pipe or passage arranged intermediately of the supply and waste water passages and a pipe-union connecting up said tube, waste - water passages and supply-pipe, with its arms adapted to make other suitable pipe connections, substantially as set forth.

10. In a water-closet valve, the combination of a supply-valve having a water-chamber, adapted to be actuated by the closet-seat, a supply-water passage, a waste-water passage, an intermediate water-passage, a hopper and flushing-tank pipe connecting with said in-

termediate water-passage, an inner casing terminating at its upper end below the upper end of said supply-water passage and arranged between said intermediate water-passage, said casing having a by-pass formed therein, a pipe forming the dividing wall or partition between said supply-water passage and said intermediate water-passage and connected to the supply-pipe, and a pipe-union, with one arm forming the connection between said hopper and flushing-tank pipe and said intermediate water-passage, substantially as set forth.

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

PHILIP HAAS.

Witnesses:

A. L. HOUGH,
M. PERRY HAHN.