No. 741,818. PATENTED OCT. 20, 1903.

J. W. NETHERY.

FLUSH TANK SUPPLY SYSTEM.

APPLICATION FILED OCT. 11, 1902.

NO MODEL.

Fig. 1.

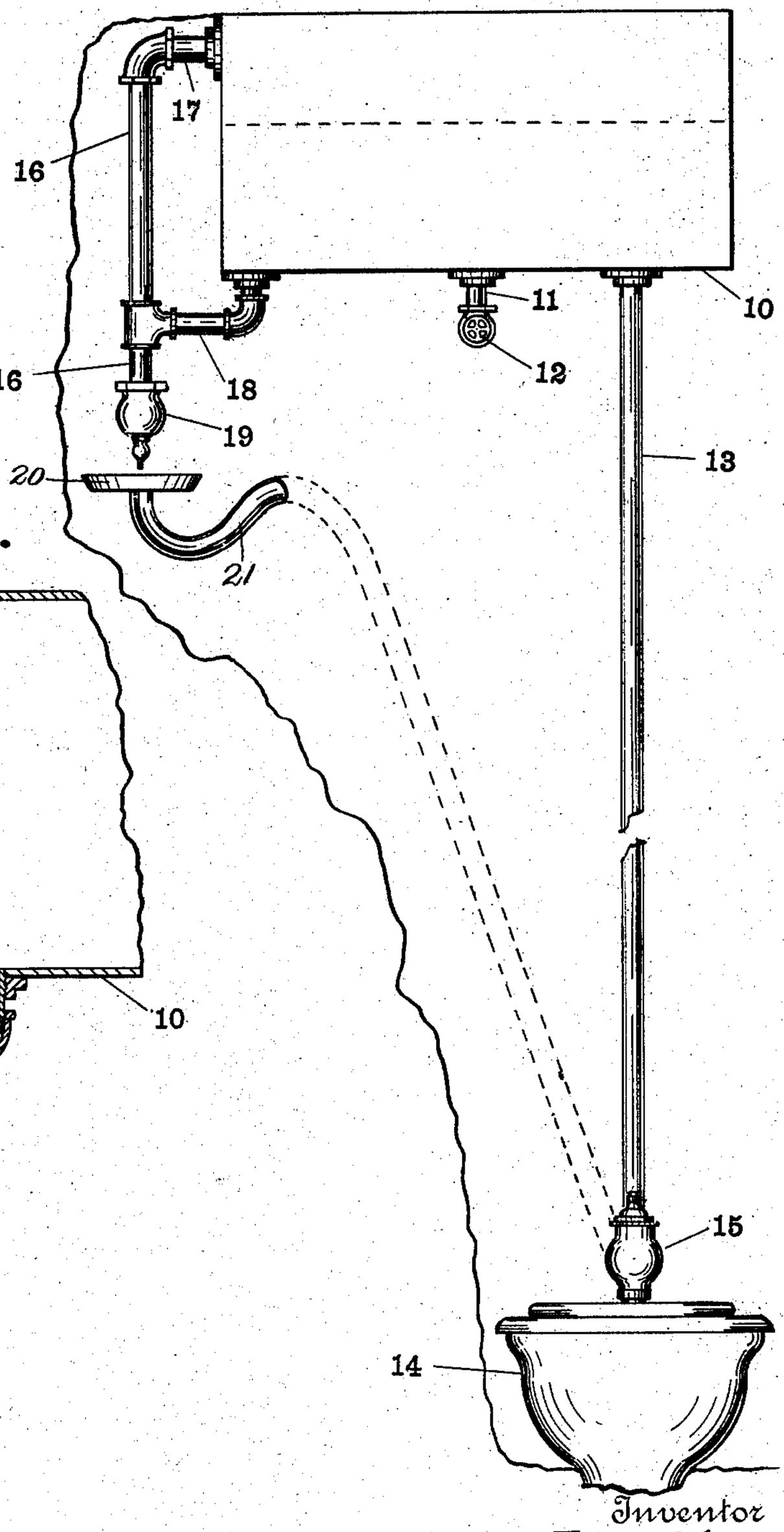
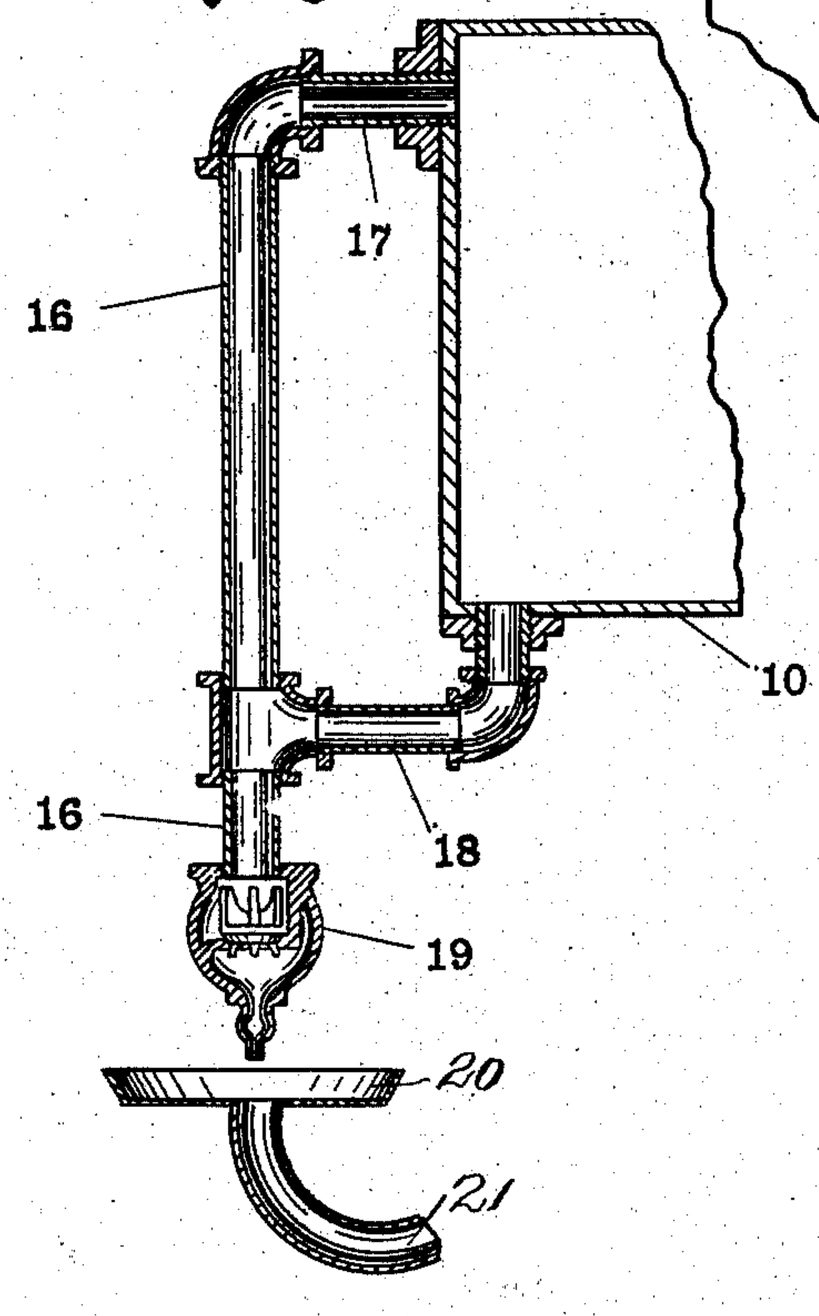


Fig. 2.



Witnesses

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No. 741,818. Patented October 20, 1903.

UNITED STATES PATENT OFFICE.

JOSEPH W. NETHERY, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE NETHERY HYDRAULIC VALVE COMPANY, OF INDIANAPOLIS, INDIANA, A CORPORATION OF NEW JERSEY.

FLUSH-TANK-SUPPLY SYSTEM.

SPECIFICATION forming part of Letters Patent No. 741,818, dated October 20, 1903.

Application filed October 11, 1902. Serial No. 126,829. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH W. NETHERY, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Flush-Tank-Supply Systems, of which the following is a specification.

The object of my present invention is to preserve in closed flushing-tanks the requisite supply of air to insure the advantages incident to the use of an air-cushion in connection with water under pressure. Where a closed supply-tank of the ordinary form is used which is intended to have a portion of its space occupied by air and the remainder by water, the repeated drawing off of the water from the tank, as when used when flushing a water-closet, gradually absorbs and exhausts the air until presently the air-supply becomes insufficient for the purpose. By means of my invention the proper air-supply will be automatically replenished.

Referring to the accompanying drawings, which are made a part hereof, and on which similar reference-characters indicate similar parts, Figure 1 is an elevation of a flush-tank water-supply system embodying my invention as the same appears when used in connection with an ordinary water-closet; and Fig. 2 is a central sectional view through the pipes and valves and the immediately-adjacent fragment of the tank which particularly illustrates my present invention.

The tank 10 is shown as an ordinary cylindrical or boiler-shaped tank. The water-supply pipe 11 may enter at any suitable point, but usually from the bottom, and this pipe should have near the point of entrance an angle-valve 12. The flush-pipe 13 leads from the bottom of the tank to the article to be flushed, as the water-closet 14, and the flushing-valve 15 is set in at a proper point. This flushing-valve is the subject of other patents and applications for patents, and not being peculiar to my present invention will not be illustrated in detail or further described.

In illustrating my invention I have shown a vertical pipe 16, positioned alongside the tank 10 and extending a short distance below it and connected to said tank at the top and bottom by the two branches 17 and 18. On the lower end of said pipe 16 is an ordinary check-valve 19. A dotted line placed on the tank 10 (and at the same level across the pipe 16) indicates the top of the water when the tank is charged ready for operation, it being understood that the space below this line is filled with water and the space above said line with air, the latter being under such compression as is produced by the water-pressure in the system. The water-line will of course vary with the amount of pressure, which is to be regulated according to the circumstances.

The operation is produced by means of the valve 15, which when opened permits the water to be discharged from the tank 10 into the closet 14, which it flushes in the ordinary manner. The system is so arranged that when the water is discharged the valve will close and the tank will refill. After numerous uses, however, the action is such that the air will be largely absorbed by the water and too small a quantity will remain in the tank to be effective for the designed purpose. By this time the pull of the water in passing out through the pipe 13 will have a siphoning action in respect to that contained in the pipe 16 and will draw it into the tank 10, leaving said pipe 16 free of the small quantity of water usually contained therein and which forms a water seal for the check-valve 19 and at the same time holds said check-valve 19 open, so that air will be sucked in therethrough and will pass into the tank, thus replenishing the tank with its proper and designed supply of air. This operation will be repeated as often as the air becomes exhausted to too great an extent, and thus the proper quantity of air will be continuously automatically maintained.

I have shown below the check-valve 19 a small drip-pan 20, with a waste-pipe 21 leading therefrom to carry off any small amount of water which may be discharged at the time the check-valve 19 is opened by the siphoning action, as above described.

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

1. The combination, in a flushing system, of a flush-tank, a flushing-pipe leading therefrom, a suitable valve thereto, a supply-pipe to said tank, a pipe extending vertically past said tank and connected thereto by two branches one at the top and the other at the bottom and extending a little distance below said tank, and a check-valve on the lower end of said pipe.

2. The combination, in a flushing system, of a flush-tank, a flushing-pipe leading therefrom, a suitable valve to said flushing-pipe, a supply-pipe to said tank, a pipe extending from a point below said flushing-tank up to and communicating with the air-space in the top of said tank, and also communicating with the lower portion of said tank, and a check-valve on the lower end of said pipe, whereby said check-valve is water-sealed in the ordinary operation of the apparatus but is subjected to a siphoning action when the air is exhausted and the quantity of water becomes consequently disproportionately large in the tank.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana, this 26th day of September, A. D. 1902.

JOSEPH W. NETHERY. [L. S.]

Witnesses:

CHESTER BRADFORD,

JAMES A. WALSH.