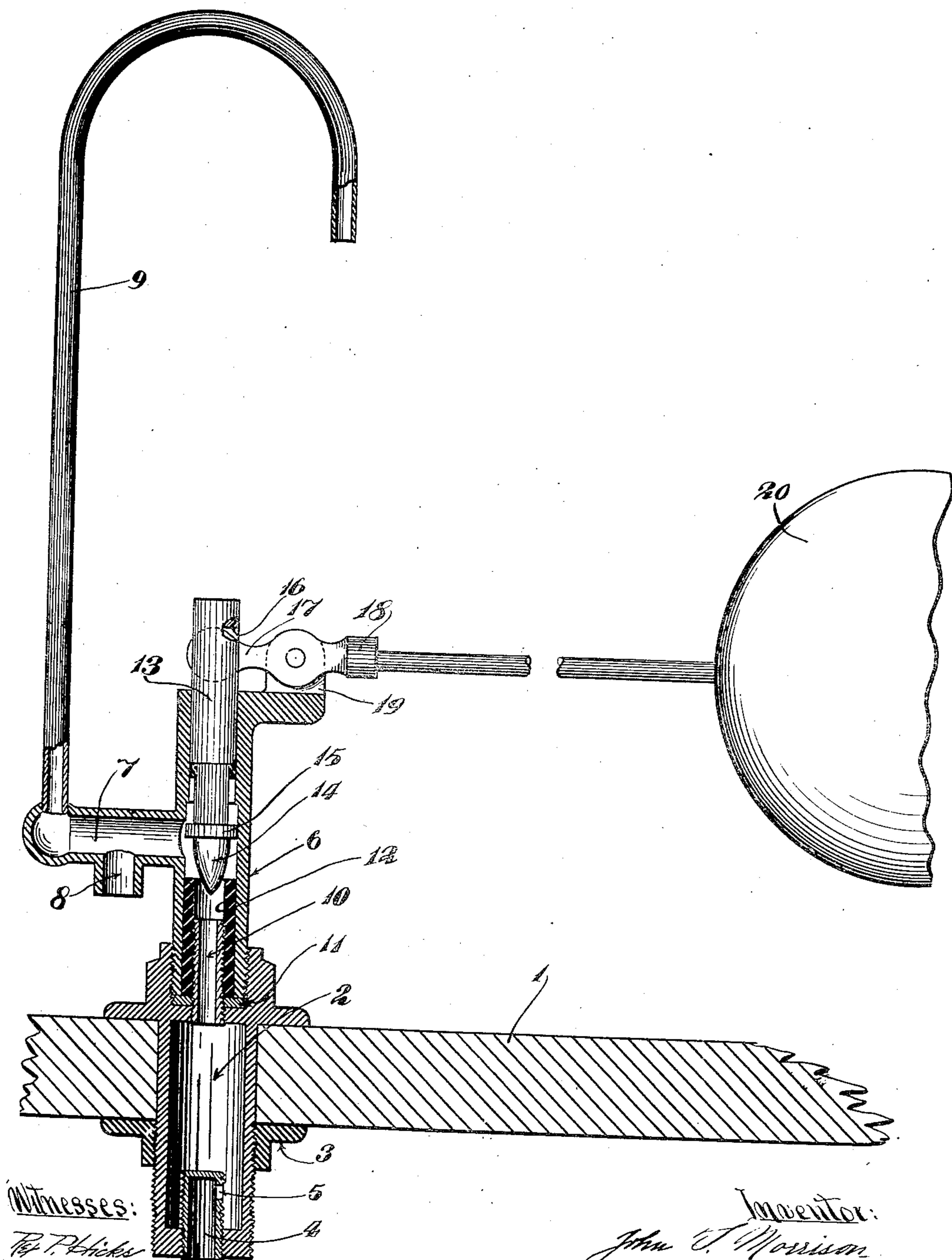


J. T. MORRISON.  
TANK VALVE.  
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943,755.

Patented Dec. 21, 1909.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN T. MORRISON, OF MINNEAPOLIS, MINNESOTA.

## TANK-VALVE.

943,755.

Specification of Letters Patent.

Patented Dec. 21, 1909.

Application filed April 19, 1909. Serial No. 490,901.

*To all whom it may concern:*

Be it known that I, JOHN T. MORRISON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Tank-Valves; 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 has for its object to provide an improved float controlled valve for flushing tanks, and to this end, it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

The invention is illustrated in the single view of the drawing, which view is chiefly in vertical section but partly in side elevation, and with some parts broken away.

The flushing tank is indicated by the numeral 1. Through the bottom of this tank, an intake sleeve 2 having a flanged upper end, and a threaded lower end is passed vertically. On the threaded lower end of the sleeve 2 is a flanged nut 3 that clamps the head of said sleeve tightly against the bottom of the tank 1, and forms a water-tight joint therewith. Opening through the lower end of the sleeve 2 is a small sleeve 4, the upper end of which is closed, but is provided near its upper end with one or more lateral openings 5.

An upright tubular valve casing 6 is threaded at its lower end into a seat formed therefor in the head of the intake sleeve 2. At its intermediate portion, this tubular valve casing 6 is provided with a lateral discharge pipe 7, shown as provided with a downturned discharge port 8, and with an upwardly extended after-wash pipe 9. Seated in the head of the intake pipe 2 and extending concentrically upwardly into the lower portion of the tubular casing 6, is an externally threaded tube 10, which, as shown, is also extended through a gasket or annular washer 11 pressed between the lower end of the valve casing 6, and the bottom of the seat formed therefor in the head of the intake sleeve 2. The valve seat proper is formed by a pliable tube 12 preferably of rubber or composition of rubber and binding fabric. Preferably the said valve seat

12 is made from a section of small reinforced rubber hose, the external diameter of which is such that it fits snugly within the lower portion of the tubular casing 6, and the internal diameter of which is such that it may be screwed firmly onto the threaded exterior of the small metal tube 10. The upper end of the pliable tubular valve seat 12 terminates below the discharge pipe 7, but extends very considerably above the upper extremity of the tube 10.

Mounted for vertical movements in the upper portion of the valve casing 6, is a plunger valve 13, the head 14 of which is conical or tapered, and is adapted when moved downward from its open position, shown in the drawing, to tightly engage and close the upper end of the said tubular valve seat 12. The said tubular valve seat being pliable, will adapt itself to the form of the valve head 14, regardless of whether or not the latter is perfectly true or is slightly worn, and will yield sufficiently to insure a perfectly water-tight joint. The valve head 14 is shown as provided with a collar 15 which serves as a centering guide therefor.

The upper end of the stem portion 13 of the intake valve has a seat 16 that receives the headed end 17 of an operating lever 18, which latter is intermediately pivoted to a lug 19 on the upper end of the valve casing 6, and at its free end is provided with the usual float in the form of a hollow air bulb 20.

The operation of this improved valve mechanism is as follows: The water which is delivered from a suitable source of supply under pressure is delivered into the inlet tube 4 and from thence is discharged radially through the port or ports 5 into the intake sleeve 2, and thus is not allowed to shoot directly upward through the tube 10. This also prevents chattering of the valve. When the water in the tank falls below a predetermined point, the float 20 will force the valve 13—14 into an open position, and the water will then run through the valve casing 6 and will be discharged into the tank through the port 8. A small part of the water will also be discharged through the pipe 9 into and through the tubular flush valve, not shown. When the water has filled the tank to a predetermined desired point,



the float 20 will close the valve 13—14 and stop the further flow of water into the tank through the valve seat 12.

This improved valve mechanism, while of simple construction and comparatively small cost, has in practice been found highly efficient for the purposes had in view. The pliable tubular valve seat will wear for a long time, and when worn out may be replaced at small cost. Furthermore, when one end thereof is worn, it may be reversed end for end and then used until the other end is worn out.

What I claim is:

1. In a valve mechanism, the combination with a tubular valve casing, having an internal axially located tube, of a tubular valve seat in said valve casing telescoped around said internal tube, and a valve mounted in said casing for reciprocating movements, and provided with a pointed end engageable with one end of said tubular valve, substantially as described.

2. A valve mechanism comprising a tubular valve casing having a rigidly secured internal externally threaded tube, of a pliable tubular valve seat in said casing placed around the threaded exterior of said threaded tube, and a float controlled valve mounted for endwise movements in said casing, and provided with a pointed end insertible into the adjacent end of said pliable tubular valve seat, substantially as described.

3. In a valve mechanism, the combination with an intake sleeve having in its lower end, an intake tube with a lateral discharge passage, of a tubular valve casing connected to the upper portion of said sleeve, a valve seat in said casing, said casing having a lateral discharge orifice, and a float actuated plunger-like valve mounted in the upper portion of said casing and provided with a

pointed end engageable with the adjacent upper end of said valve seat, substantially as described.

4. The combination with a tank, of an intake sleeve extending through the bottom thereof, a tubular valve casing connected at its lower end to the upper end of said intake sleeve, said casing having a lateral discharge orifice, of a metal tube axially secured within said valve casing, a pliable tubular valve seat surrounding the upper end portion of said internal tube and fitting the interior of said casing, and a float actuated plunger-like valve seated in the upper portion of said casing, and provided with a pointed lower end engageable with the upper end of said pliable tubular valve seat, substantially as described.

5. The combination with a tank, of an intake sleeve having in its lower end, an intake tube with a lateral discharge passage within said sleeve, of a valve casing connected to the upper portion of said sleeve, a valve seated in said casing, said casing having a discharge orifice, and a float actuated valve for opening and closing the passage through said casing, substantially as described.

6. In a valve mechanism, the combination with a valve casing, of an endwise reversible cylindrical valve seat, constructed at least in part of rubber and having flexible ends, detachably mounted in said casing, and a plunger-like valve having a pointed or tapered end for engagement with one of the flexible ends of said cylindrical valve seat, substantially as described.

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

JOHN T. MORRISON.

Witnesses:

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