

(No Model.)

J. KING.
VALVE.

No. 461,440.

Patented Oct. 20, 1891.

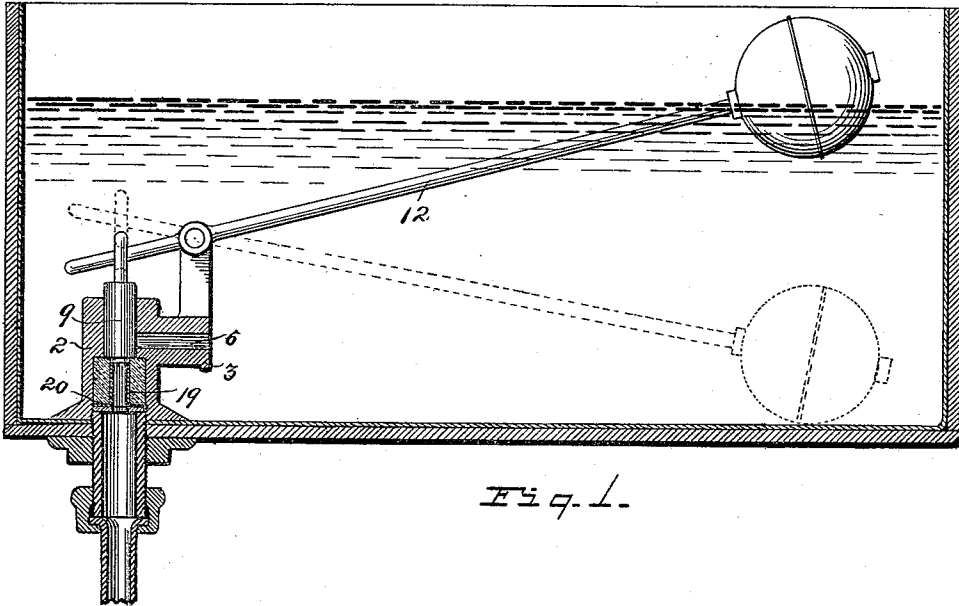


Fig. 1.

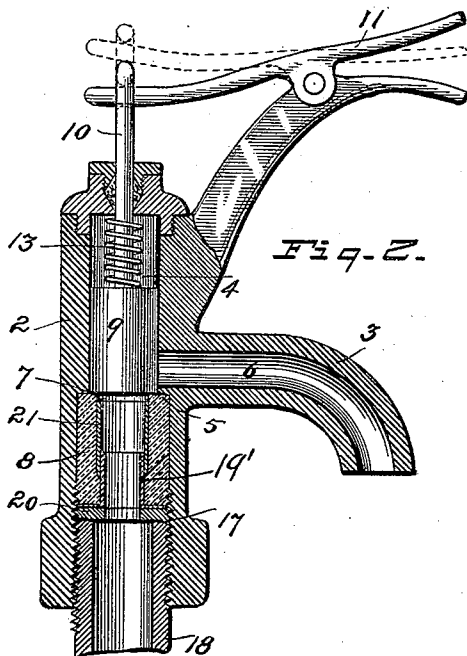


Fig. 2.

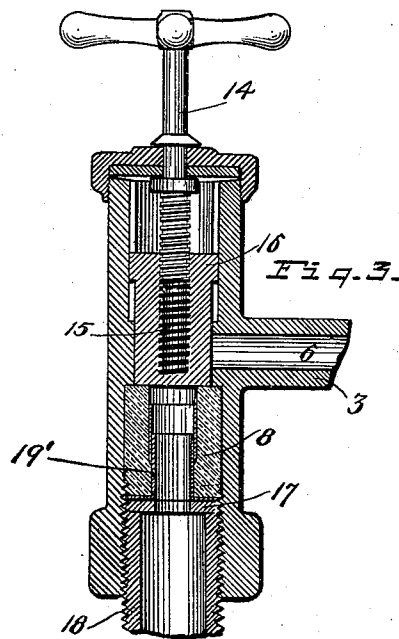


Fig. 3.

Witnesses.

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JOHN KING, OF MINNEAPOLIS, MINNESOTA.

VALVE.

SPECIFICATION forming part of Letters Patent No. 461,440, dated October 20, 1891.

Application filed April 20, 1891. Serial No. 389,587. (No model.)

To all whom it may concern:

Be it known that I, JOHN KING, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Valves, of which the following is a specification.

My invention relates to valves especially adapted to use with water or other fluids; and its object is to simplify and cheapen the construction of such valves and render the same more durable.

To this end my invention consists in a stationary valve-seat composed of rubber or other equally flexible material, in combination with a plunger adapted to close over a central opening in said seat and means for raising and lowering said plunger.

The invention consists, further, in various details of construction and in combinations hereinafter described, and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a valve embodying my invention, the same being shown as employed in a tank or reservoir. Fig. 2 is a view, partly in section, showing a valve of a somewhat different construction. Fig. 3 shows different means for raising and lowering the plunger.

As shown in the drawings, the main body of the valve is formed by the casting 2, having a spout 3. This casting has a continuous opening extending through it longitudinally, the lower portion of the same being larger than the upper part 4, so as to form a shoulder 5 just beneath the outlet-opening 6. The top 7 of the long rubber tube 8 presses against this shoulder and forms the seat for the plunger 9, adapted to move longitudinally with respect to the face of the tube or washer 8. A stem 10 extends from the end of the plunger and is engaged by a hand or a float-lever 11 and 12, respectively, as shown in Figs. 2 and 1. Where the valve is used in a tank it is obvious that no precaution need be taken to prevent the leakage of water between the plunger and the confining guide-walls therefor. Where, however, the valve is to be used in the open room a packing-box must be provided to close the top of the opening in the

casting 2. As shown in Fig. 2, the plunger is normally held tightly against its seat by the coiled spring 13. In Fig. 3 I have shown a longitudinal screw-stem 14, adapted to engage the interior thread 15 of the plunger and held against movement through the valve-cap by suitable shoulders. When the screw-stem is turned, it is obvious that the plunger will be raised or lowered, as desired, to open or close the valve. Wings or lugs are provided on this plunger to prevent the same from turning, which movement is not desirable, as a greater wear on the end of the rubber washer or tube 8 would result therefrom. I provide a stout lead washer 17 beneath the end of the rubber tube and against which the end of the coupling-pipe 18 is firmly turned up to hold the upper end of the tube 8 against the shoulder 7.

I strengthen the inner walls of the long rubber tube or washer 8 by use of a light sleeve 19, inserted in the opening through the same. A flange 20 is preferably formed on the bottom of this sleeve to strengthen the same and to form a base for the rubber washer. This flange may or may not be re-enforced by a lead washer 17. The sleeve is shorter than the rubber seat washer or tube, so that the plunger being pressed down the end of the same will not be prevented from making a tight joint with the rubber on account of its striking on the sleeve.

The valve shown in Fig. 1 would need a new washer as soon as the top of the old had worn down so as to allow the plunger to strike on the end of the sleeve. In order to give a longer working life to each washer, I therefore make use of the two-part collapsible or telescopic sleeve shown in Figs. 2 and 3. The main part 19' is substantially the same as that shown in Fig. 1, except that it is shorter, extending only about half-way through the rubber washer. The upper part of the rubber washer is strengthened by the open-ended sleeve 21, adapted to slip down over the short lower part 19' as the action of the plunger and of the running water gradually wears away the top of the rubber. The plunger is quite long, so as to prevent any twisting or tilting of the same in its guides.

The advantages of my valve over others consist in the great durability of its elastic

rubber portion, owing to its novel construction and location in the valve. The rubber, being stationary, is subject to much less wear than the movable rubber parts of other valves.

5 Any small foreign substance lodging on the top of the rubber seat does not prevent the seating of the plunger, but is easily driven so far down into the soft thick rubber as to allow the plunger to firmly seat itself.

10 Having thus described my invention, I claim as new, and desire to secure by Letters Patent—

1. The combination, with the casting 2, having the longitudinal opening of varied diameter, of a plunger 9, arranged in the smaller portion thereof, and a rubber tube or washer 8, provided and secured in the larger portion, a support being provided for a lower end of said washer, substantially as described.

20 2. The combination, with the casting 2, having the longitudinal opening of varied diameter, of a plunger 9, arranged in the smaller portion thereof, a tube or washer 8, provided in the larger portion, and a metal washer provided at the lower or outer end of said washer 8 and adapted to receive the end of the coupling-pipe, substantially as described.

25 3. The combination, with the casting 2, having an outlet-spout, of a plunger adapted to

work in a longitudinal opening of said casting, a rubber washer or tube 8, arranged in an enlarged portion of said opening, and a strengthening-sleeve for said rubber washer, substantially as described.

4. The combination, with the casting 2, provided with the longitudinal opening, of the plunger 9, the outlet-spout 3, the rubber-seat washer 8, adapted to abut against the shoulder 7 of said casting, the pipe 18, and a telescoping or collapsing sleeve adapted to strengthen the inner walls of the washer or tube 8, substantially as described.

5. The combination of the casting having the longitudinal opening and adapted to receive the pipe 18 with the plunger 9, the long rubber washer or tube 8, a telescoping strengthening-sleeve, a flange 20 for said sleeve, an outlet above said washer, and means whereby said plunger may be forced into or released from engagement with the end of said washer, substantially as and for the purpose specified.

In testimony whereof I have set my hand this 14th day of April, 1891.

JOHN KING.

In presence of—

C. G. HAWLEY,
FRED S. LYON.