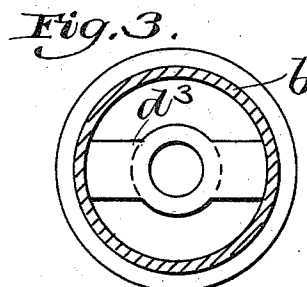
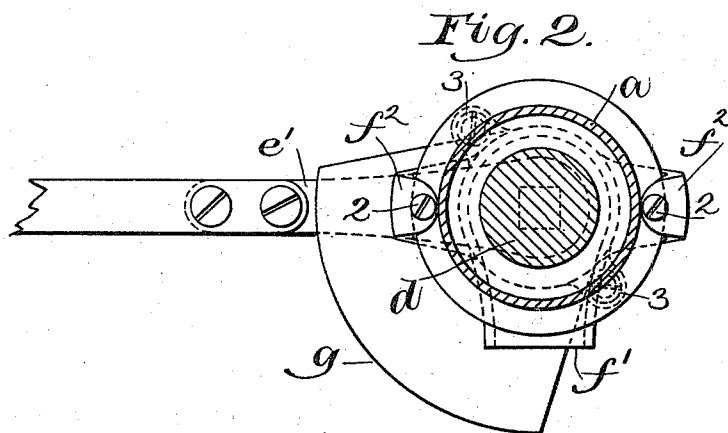
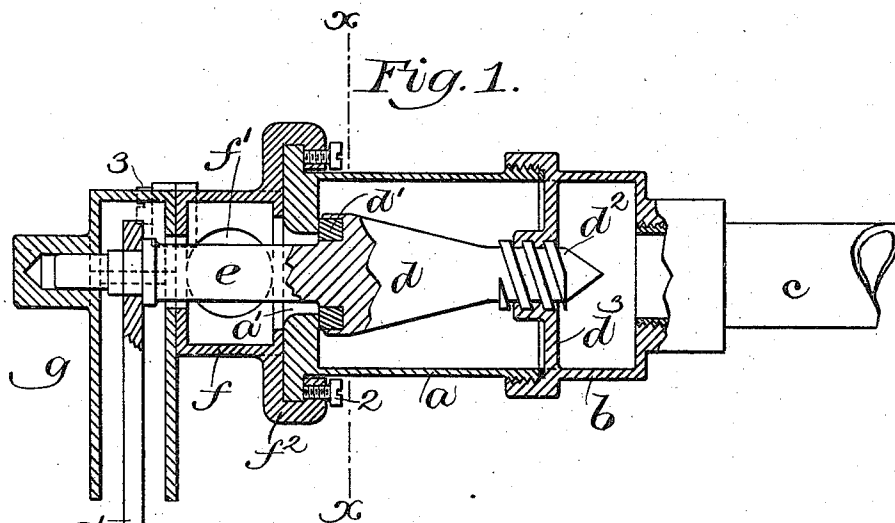


(No Model.)

B. F. MILLS.
TANK VALVE.

No. 573,025.

Patented Dec. 15, 1896.



Witnesses

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UNITED STATES PATENT OFFICE.

BENJAMIN F. MILLS, OF CAMBRIDGE, MASSACHUSETTS.

TANK-VALVE.

SPECIFICATION forming part of Letters Patent No. 573,025, dated December 15, 1896.

Application filed January 27, 1896. Serial No. 576,936. (No model.)

To all whom it may concern.

Be it known that I, BENJAMIN F. MILLS, of Cambridge, county of Middlesex, and State of Massachusetts, have invented an Improvement in Tank-Valves, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention relates to tank-valves, and has for its object to construct a tank-valve especially adapted for use in cases where the pressure of the water is very considerable.

In accordance with this invention a case is provided having a passage through it and having at its outlet a valve-seat, and a valve is contained in said case which is movable toward and from the valve-seat by rotary action, which is given to it by a rising and falling ball attached to the end of an arm which is connected to the stem of said valve outside of the valve-case.

As a simple way of constructing the parts in order that the valve shall move toward and from its seat by rotary action one end, as, for instance, the inner end thereof, may have secured thereto a projection which turns in a yoke or frame provided for it.

Instead of seating the valve against the pressure of the water, as is done by many forms of tank-valves, the valve is herein located at the inside of the valve-case and is movable toward and closes upon its seat with the pressure of the water.

The valve is made conical or tapering, so as to offer but little resistance to the passage of the water through it.

Figure 1 shows a longitudinal section and partial elevation of a tank-valve embodying this invention; Fig. 2, a cross-section of the valve shown in Fig. 1, taken on the dotted line $x x$; and Fig. 3, a cross-sectional detail to be referred to.

The valve-case a , represented as a hollow cylinder, is open at one end and is screwed into or otherwise connected to a shell b , and has at the end opposite said shell b a central outlet-passage a' . The interior of the cylinder around said passage a' is ground smooth or otherwise formed to serve as a valve-seat. The shell b is adapted to be connected with any suitable supply-pipe c .

The valve d is herein shown as a conical or tapering plug, the base of which is made considerably larger than the outlet-passage a' and is formed with an annular groove, in which is placed a suitable packing-ring d' , adapted to abut against the valve-seat. The smaller end of the conical plug d is extended for a short distance as a projection d^2 , the extremity of which is or may be pointed. This extension or projection d^2 is exteriorly screw-threaded and turns in a cross-piece d^3 , (see Fig. 3,) formed integral with or secured diametrically to and within the shell b . This serves as an end bearing for the valve.

The valve moves toward and from its seat as it is rotated or turned axially, and in order that it may move a considerable distance by but a partial revolution a double thread or a triple thread may be provided.

The taper given to the valve insures its offering but little resistance to the passage of the water.

A valve-stem e projects through the outlet-passage a' , it being formed integral with or connected to the valve, and to this stem an arm e' is attached, to the extremity of which the ball e^2 is secured.

As a nozzle to direct the water I have provided a more or less circular shell f , having an outlet f' , and said shell is adapted to be secured to the cylinder a , as, for instance, the cylinder may be formed with a circumferential flange, and the shell f may have several angularly-formed ears f^2 , which embrace said flange, and set-screws 2 may pass through said ears, impinging against the flange. Such a means of attachment permits the nozzle to be adjusted as desired.

As an end bearing for the stem e another shell, g , made as a sector, is provided, which is formed with a socket for the end of the stem, and it also has an interior recess in which the ball-carrying arm e' works. Such a shell obviates the necessity of providing a stuffing-box or packing for the stem at the point where it protrudes from the shell f .

The shell g will be secured to the shell f by screws 3 , passing through ears formed on the shell g and entering the shell f , or it may be otherwise attached; or in fact, if desired, the two shells f and g may be made in a single piece.

I claim—

1. The tank-valve herein described, consisting of a valve-case having an interior valve-seat, a valve contained in said case, having
5 a screw-threaded projection d^2 at one end, a support therefor, a valve-stem e projecting through the outlet of the valve-case, and made smaller in cross-sectional area than said outlet to leave a passage around it, a support for
10 the outer end of said valve-stem e , and a ball-carrying arm e' attached to said stem e , near said outer end support, and ball carried by it for turning said valve and thereby moving it toward and from its seat, substantially as described.

2. The tank-valve herein described, consisting of a valve-case having an interior valve-seat, a valve contained in said case, having a screw-threaded projection d^2 at one end, a
20 support therefor, a valve-stem e projecting through the outlet of the valve-case, and made smaller in cross-sectional area than said outlet to leave a passage around it, a support for the outer end of said valve-stem e , and a ball-
25 carrying arm e' attached to said stem e , near said outer end support, and ball carried by it for turning said valve and thereby moving it toward and from its seat, and a shell f adjustably secured to said valve-case over the outlet thereof and having a central passage
30 through it for the stem e , and also having a laterally-projecting nozzle f' , substantially as described.

3. The tank-valve herein described, consisting of a valve-case having an interior valve-seat, a valve contained in said case, having a screw-threaded projection d^2 , a support
35 therefor, a valve-stem projecting through the outlet of the valve-case, a shell f having a nozzle secured to the valve-case next to and communicating with the outlet, and having a passage through it for said valve-stem, a
40 ball-carrying arm attached to said stem outside of said shell f , and ball carried by it, and a shell, as g , inclosing the outer end of said stem and having a recess in which said ball-carrying arm works, substantially as described.

4. The tank-valve herein described, consisting of a valve-case having an interior valve-seat, a valve contained in said case, and having a screw-threaded projection d^2 , a support
50 therefor, a valve-stem projecting through the outlet of the valve-case, and a ball attached to said stem by an arm, for turning said valve and thereby moving it toward and from its seat, and a shell g having a support for the end of the stem, and a recess in which the ball-carrying arm works, substantially as described.

5. The tank-valve herein described, consisting of a valve-case having an interior valve-seat, a valve contained in said case, and having a screw-threaded projection d^2 , a support
60 therefor, a valve-stem projecting through the outlet of the valve-case, and a ball attached to said stem by an arm, for turning said valve and thereby moving it toward and from its seat, and a shell f having a nozzle, secured to the valve-case next to and communicating
65 with the outlet, and having a passage through it for the valve-stem, and a shell g placed next to said shell f , and having a support for the end of the stem, and a recess in which the ball-carrying arm works, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

BENJAMIN F. MILLS.

Witnesses:

B. J. NOYES,
F. H. DAVIS.