

(No Model.)

C. BIRKERY.  
VALVE.

No. 476,511.

Patented June 7, 1892.

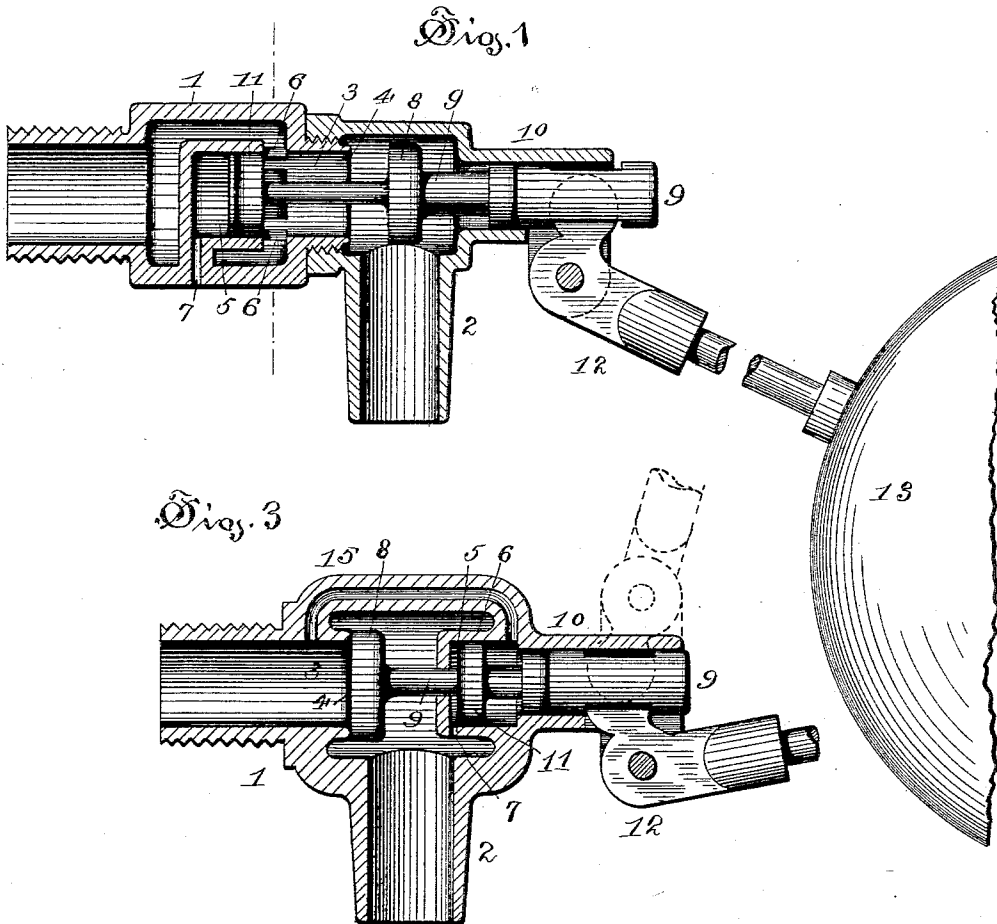
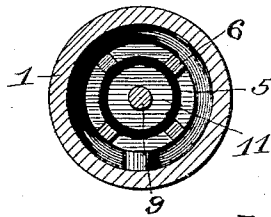


Fig. 2



Witnesses:

*W. B. Jenkins.*  
*J. Stern.*

Inventor,

*Cornelius Birkery,*  
by *Harry P. Williams*  
*att'y.*

# UNITED STATES PATENT OFFICE.

CORNELIUS BIRKERY, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE BIRKERY MANUFACTURING COMPANY, OF SAME PLACE.

## VALVE.

SPECIFICATION forming part of Letters Patent No. 476,511, dated June 7, 1892.

Application filed August 10, 1891. Serial No. 402,214. (No model.)

*To all whom it may concern:*

Be it known that I, CORNELIUS BIRKERY, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Valves, of which the following is a full, clear, and exact specification.

The invention relates more particularly to the class of tank-valves or ball-cocks, the object of the invention being to provide a simple and cheap cock of this class having a valve which is so balanced as to open gradually with and shut easily against the pressure of the water, whereby a large port may be employed and the cock used under high pressure without singing or hammering.

Referring to the accompanying drawings, Figure 1 is a central longitudinal section of the cock. Fig. 2 is a transverse section on the broken line, and Fig. 3 is a central longitudinal section of a modified form of construction of the same.

In the views, 1 indicates the body of the cock, which is cast to shape of any desirable metal, as brass or iron, with a suitable flange or thread for attachment to a supply-pipe at one end and an outlet-bib 2 near the opposite end. Between the ends around the port 3 is a valve-seat 4, near which is formed a cylindrical piston or plunger-chamber 5, open on one side to the water-pressure. This chamber is supported in place by arms 6 on the interior of the body, and has a small opening 7 leading from its bottom to the exterior of the body. A valve 8, supported on a suitably-packed spindle 9, loosely held in the hub 10, moves toward and from the valve-seat around the port. The valve-spindle also bears a packed piston or plunger 11, preferably, although not necessarily, smaller than the valve, adapted to reciprocate in the chamber 5. The spindle at its outer end is loosely connected with the end of a bent lever 12, pivoted to the hub and bearing a float 13, adapted to rise and fall with the level of the water in the tank in which the cock is located. If desired, instead of connecting the valve-spindle with a float-lever, it may be connected with a handle-lever, as shown in dotted lines in Fig. 3,

and the valves opened and closed by hand, as a faucet.

In Fig. 3 a modification of the above-described construction is illustrated. In this form the piston-chambers are located in the body on the opposite side of the outlet-port, but is connected with the pressure side by a small duct or channel 15, so that relatively to the pressure it is on the same side of the port. In this case the piston that fits the chamber is placed upon the shank of the valve-spindle instead of the outer end, as previously described. When the level of the water in the tank in which the valve is placed falls, the float drops and its lever draws out the spindle and opens the valve away from the port, allowing water to pass through the cock. Although the port may be large and the pressure great, this movement of the valve in the direction of the pressure is not sudden, on account of the resistance offered to movement by the piston as it moves out of its chamber. When the water in the tank rises to the predetermined level, the float and its lever pushes in the spindle and closes the valve. This movement is aided by the pressure of the water upon the piston, which is forced into its chamber. Air enters and escapes back of the piston through the small outlet, as will any water which leaks past the back of the piston. This construction permits the use of a large port with a correspondingly large valve, which opens gradually with and shuts firmly against the pressure, so that there is no singing or hammering, and as the piston aids in the operation of closing a large valve may be seated firmly against a flow of high pressure without the use of a large float. The size of the piston may be readily changed with relation to the size of the valve to balance the valve under varying pressures, so that it will close quickly or slowly, as desired.

The cock is simple, cheap, durable, effective, and operates under all pressures without suddenness or noise, and may be used as a faucet by simply substituting a handle-lever for the float-lever.

I claim as my invention—

A valve consisting of a body having a water-way with a port, a valve-seat around the

port, and a piston-chamber supported by arms  
in the water-way upon the pressure side of  
the port and provided with an opening, an  
outlet-bib screwed upon the body adjacent to  
5 the port, a piston movable in the piston-chamber  
in the water-way on the pressure side of  
the port, a spindle connected with the piston  
and supported at its outer end by a hub projecting  
from the outlet-bib, a float-lever bear-

ing a float attached to the end of the spindle, 10  
and a valve borne by the spindle on the escape  
side of the port, substantially as specified.

CORNELIUS BIRKERY.

Witnesses:

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