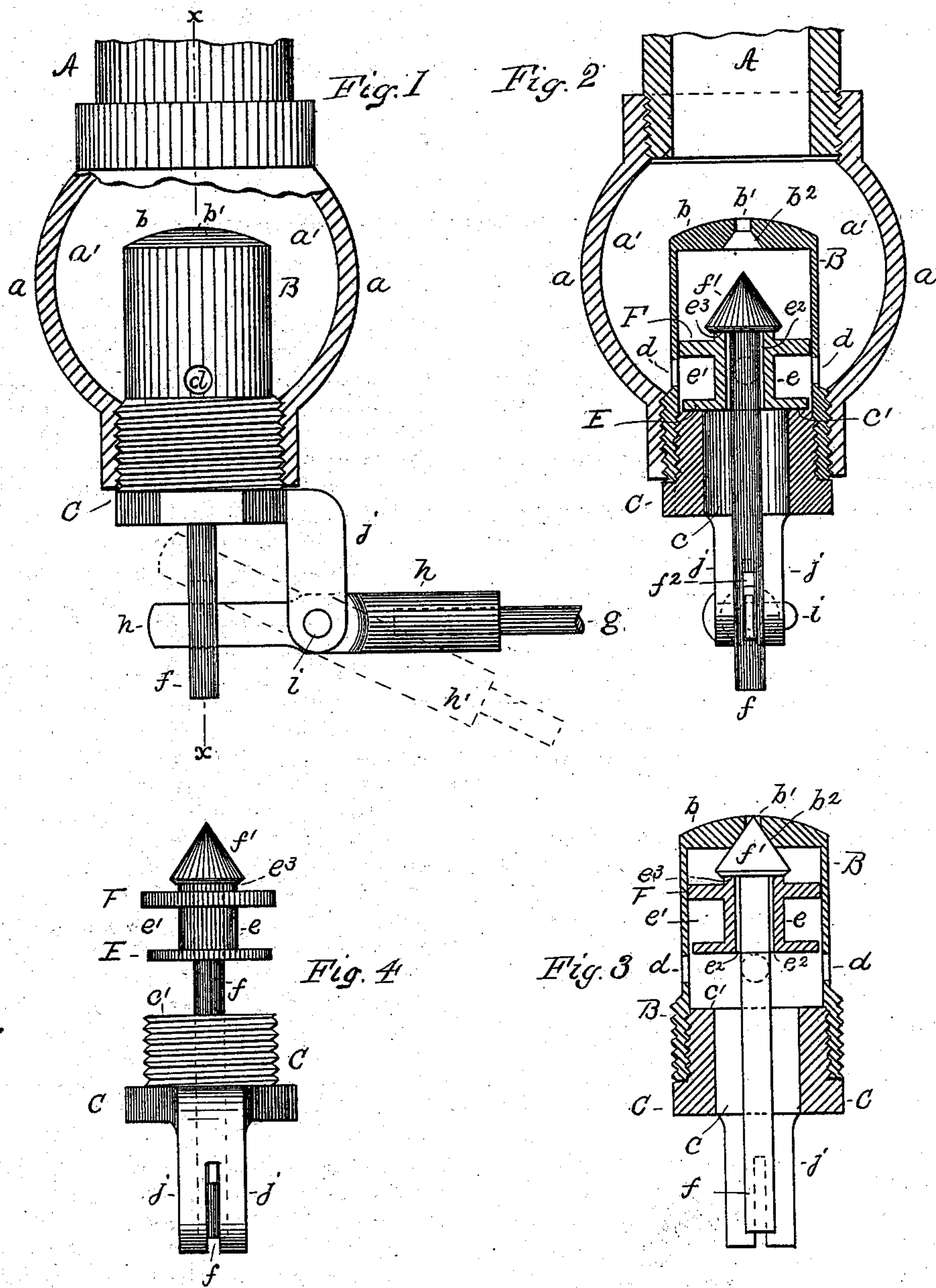


(No Model.)

J. BURKE.  
VALVE.

No. 402,228.

Patented Apr. 30, 1889.



Witnesses,

George E. La Caze  
Geo. P. Spencer

Inventor,

John Burke

By His Attorney

P. H. Gunkel



# UNITED STATES PATENT OFFICE.

JOHN BURKE, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO  
PATRICK H. GUNCKEL, OF SAME PLACE.

## VALVE.

SPECIFICATION forming part of Letters Patent No. 402,228, dated April 30, 1889.

Application filed February 2, 1889. Serial No. 298,429. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BURKE, 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 Valves, of which the following is a specification.

My invention relates to valves designed to be opened by means of a lever or equivalent device and to close by the fluid-pressure.

The object of my invention is to provide an auxiliary and a main valve, both seating with the fluid-pressure and so arranged that the auxiliary valve can be lifted by slight power, and when lifted the main valve will be caused to open by back-pressure of the fluid.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly sectional, of the devices containing my improvements. Fig. 2 is a vertical section of the same on the line  $x x$  of Fig. 1; and Figs. 3 and 4 show, in section and elevation, respectively, details of the devices.

In said drawings, A designates a water-pipe in vertical position.

$a$  is a coupling for attaching the valve-shell B to the pipe A, and it preferably has an enlarged chamber,  $a'$ , to receive the shell, which screws into its base. The valve-shell B may, however, be screwed directly into the end of the service-pipe, a sufficient water-space being provided between them. The shell B is a short hollow cylinder having a head,  $b$ , and its lower end open and interiorly threaded to receive a plug, C. In its sides are ports  $d$ , and in the plug is a central opening,  $c$ , constituting the outlet. The upper surface of the plug is made to serve as a valve-seat,  $c'$ , and E is a valve thereon.

F is a piston fitting water-tight in the shell B, and  $e$  is a short cylinder connecting the valve E and piston F and providing a water-chamber,  $e'$ , intermediate the two—that is, in communication with the ports  $d$  while the valve is seated.

A stem,  $f$ , of smaller diameter than the bore  $e^2$  of the cylinder  $e$ , extends from below the plug C through its central opening,  $c$ , and

through the opening  $e^2$ , and carries on its end above the piston a small valve,  $f'$ , for closing the outlet - opening  $e^2$  by seating on a valve-seat,  $e^3$ , formed on the end of the cylinder  $e$  or on the piston F. The valve  $f'$  is preferably of conical form with its apex above, and the shell-head  $b$  is provided with a small central opening or inlet-port,  $b'$ , at the upper surface, and the opening is made flaring, as at  $b^2$ , beneath, to conform to the shape of the valve-cone  $f'$ , the latter being designed to seat in turn on the seats  $e^3$  and  $b^2$  to close the outlet and open the inlet, and vice versa.

The stem  $f$  may be operated by means of a float in a tank (not shown) attached to a rod,  $g$ , which is secured to a lever,  $h$ , fulcrumed at  $i$  between lugs  $j$ , depending from the plug C, and having an arm extending into a slot,  $f^2$ , in the stem. Any other suitable devices may be employed to reciprocate the stem  $f$ . In their closed positions (shown in Fig. 2) the valve E is on its seat  $c'$  and the valve  $f'$  on its seat  $e^3$ , the outlets thus being closed, and the pressure of fluid admitted through the ports  $b'$  and  $d$  tends to hold both the valves on their respective seats. If then the stem F be moved, (by turning the lever  $h$  to the position shown by dotted lines  $h'$ , Fig. 1,) to lift the valve  $f'$  off its seat  $e^3$  and carry it upward to close the port  $b'$ , the fluid in the upper chamber of the shell B will discharge through the openings  $e^2$  and  $c$ , and the valve E, being thus freed from pressure on its upper surface, will be lifted by the pressure on the piston of fluid admitted through the ports  $d$ . Thus communication will be established between the ports  $d$  and outlet  $c$ , and the flow will continue until the stem is again moved to open the port  $b'$  and return both valves to their seats, assisted by the pressure of the fluid admitted through the port  $b'$ .

I do not wish to limit myself to the exact constructions shown, for obviously many modifications can be made to operate in substantially the same manner.

What I claim, and desire to secure by Letters Patent, is—

1. In a valve device, an inclosing-shell arranged within the fluid and provided at the



side and at the inner end with inlet-ports and  
at the other end with an outlet-opening, a  
valve for the latter, a piston in the shell, a  
hollow connection for the valve and piston,  
5 and providing an intermediate chamber in  
communication with the side port, and a slid-  
ing stem carrying a valve adapted to close in  
turn said hollow connection and said end  
inlet-port, substantially as set forth.

10 2. In a valve device, an inclosing-shell, a  
connected piston and valve therein providing

an intermediate chamber, inlet-ports at both  
sides of the piston, a main outlet controlled  
by said valve, a secondary outlet through said  
piston and valve, and a stem therein carrying 15  
a valve for alternately opening and closing the  
latter outlet and the inlet in front of the pis-  
ton, substantially as set forth.

JOHN BURKE.

Witnesses:

J. L. DOBBINS,  
P. H. GUNCKEL.