

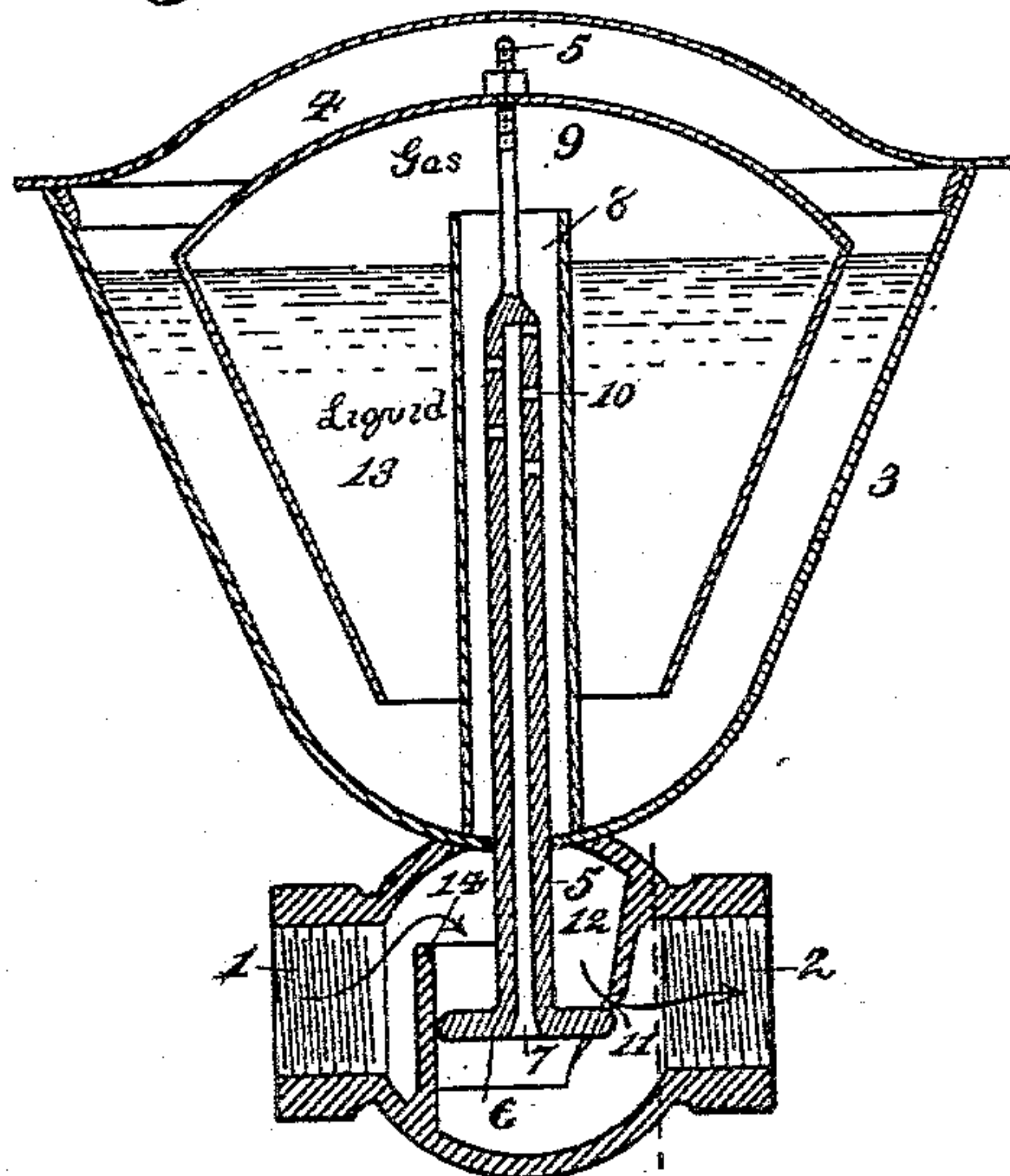
(No Model.)

T. R. FIRTH.  
GAS REGULATOR.

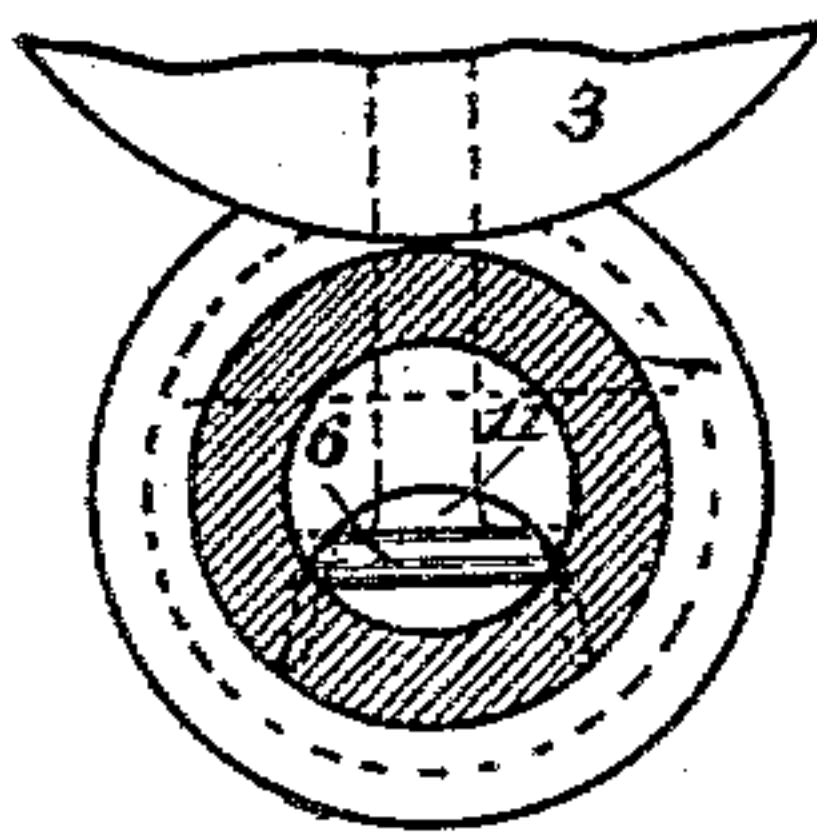
No. 356,684.

Patented Jan. 25, 1887.

*Fig. 1.*



*Fig. 2.*



**Attest**

*J. Watson Sims*  
*M. E. Millikan*

**Inventor**

*Thomas R. Firth*  
*by Wood Boyd*  
*His Attorneys &c*

# UNITED STATES PATENT OFFICE.

THOMAS R. FIRTH, OF NEWPORT, KENTUCKY, ASSIGNOR OF TWO-THIRDS  
TO JAMES M. REED AND EDWARD G. FIRTH, BOTH OF SAME PLACE.

## GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 356,684, dated January 25, 1887.

Application filed September 28, 1886. Serial No. 214,803. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS R. FIRTH, a resident of Newport, in the county of Campbell and State of Kentucky, have invented  
5 certain new and useful Improvements in Gas-Regulators, of which the following is a specification.

The object of my invention is to have a sensitive and durable automatic regulator for controlling or equalizing the pressure of gas in  
10 the pipes to distribute the same to the different apartments of the building, all of which will be fully set forth in the description of the accompanying drawings, making a part of this  
15 specification, in which—

Figure 1 is a vertical central section of my improvement. Fig. 2 is a sectional elevation of the tubular chamber and discharge-orifice.

1 represents the point of attaching the regulator to the gas-meter.

2 represents the point of attaching the supply-pipe for the burner-surfaces for the building to be lighted.

3 represents the liquid-chamber, in which is  
25 suspended a float, 4.

5 represents the stem, attached at its upper end to the dome 4, and its lower end projecting down through the same, and is provided with a pressure-plate, 6.

30 7 represents a passage leading up through the stem 5 and connected by orifices 10 to the

tube 8, which is open at the top, and over which dome 4 rises and falls with the regulation of the pressure.

9 represents the gas-compartment above the liquid 13 within the dome 4.

14 represents a partition which directs the gas normally through tubular chamber 12 and through orifice 11.

Mode of operation: The regulator is connected to the meter and pipe-surface, as before explained. The regulation of the pressure is effected by the rising and falling of the dome 4 and the compression of the gas in said dome between it and the liquid, thereby increasing  
45 and decreasing the size of orifice 11.

Having described my invention, what I claim as new is—

A regulator consisting of a liquid-chamber, a float therein, a gas-chamber, 12, a tubular  
50 stem, 5, a pressure-plate, 6, suspended in said gas-chamber from the float by the said stem, and the gas-outlet orifice 11, which is opened or closed more or less by the descent and ascent of the float and pressure-plate, substantially as  
55 described.

In testimony whereof I have hereunto set my hand.

THOMAS R. FIRTH.

Witnesses:

ROBERT ZAHNER,  
J. WATSON SIMS.