P. Hodge,

Gas Meter.

No. 108,263. Patented Oct. 11. 1870.

FIG. I.

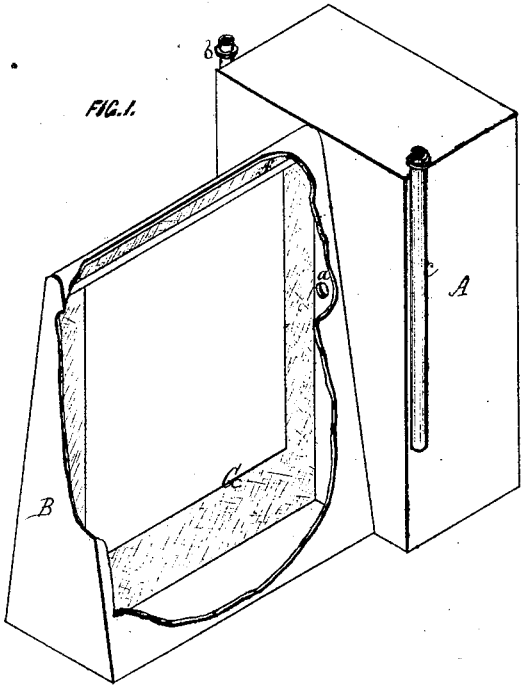


FIG. IV.

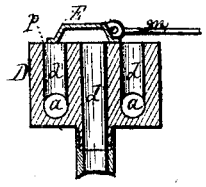


FIG. V.

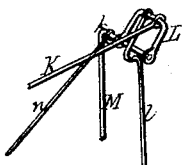


FIG. III.

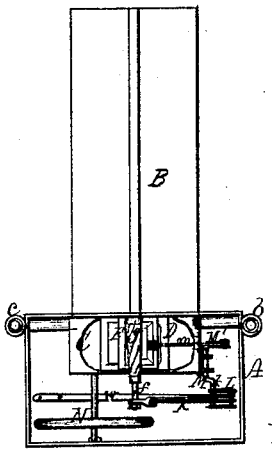
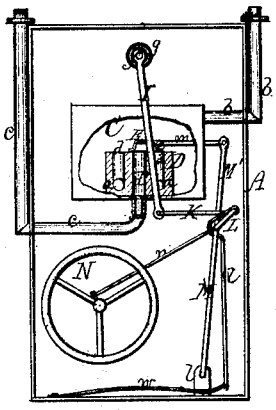


FIG. II.



Witnesses.

Benson Owen

Wm K Miller

Inventor.

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United States Patent Office.

PERRY HODGE, OF SENECA FALLS, NEW YORK.

Letters Patent No. 108,263, dated October 11, 1870.

IMPROVEMENT IN DRY GAS-METERS.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern:

Be it known that I, PERRY HODGE, of Seneca Falls, in the county of Seneca and State of New York, have invented a certain new and useful Improvement in Dry Gas-Meters, of which the following is a specification

Nature of the Invention.

This invention consists—

First, in such an arrangement of the valve, relatively to the valve-seat, that the flow of gas is not fully obstructed in the shifting of the valve.

Second, in the means employed for preventing the escape of the gas around the axis of the diaphragm.

Third, in the mechanical arrangement by which the shifting of the valve is produced.

General Description.

In the drawing—

Figure 1 is a perspective view, showing a portion of the rear chamber broken away, to exhibit the diaphragm.

Figure 2, a front elevation, with the outer plate removed, to exhibit the arrangement for operating the valve.

Figure 3, a plan, with the top of the case removed, to exhibit the same parts shown in fig. 2.

Figures 4 and 5, detail views.

A is the front, and B the rear portions of the case, the former holding the valve and its operating parts, and the latter receiving the gas through the ports *a a*, after it has passed the valve.

The front portion of the case has a valve-chamber, C, which receives the gas through induction-pipe *b b*, and discharges it through eduction-pipe *c c*, after it has passed the compartments of the measuring-chamber, as will presently be described.

In the valve-chamber is situated a valve-seat, D, with a valve, E, playing over it, in a manner similar to the slide-valve of a steam-engine.

The seat is provided with three passages, *d d d'*, the two outer ones of which communicate with the ports *a a*, which open into the measuring-chamber, while the middle one communicates with the exit pipe *c c*.

It will be seen that as the valve is alternately thrown, covering the middle and one outside passage, it will conduct the spent gas from the measuring-chamber off through the exit pipe.

The measuring-chamber has a central vertical diaphragm, G, which divides it into two compartments, with which the ports *a a* respectively communicate. This diaphragm is preferably made partially of metal and partially of leather, or other flexible material, so that it may be flexible or yielding, to admit the gas on one side, and expel it on the other.

The axis *f* of the diaphragm passes out into the front part of the case, and is kept gas-tight by a rubber, or equivalent tube, *g*, which incloses it, being fast at one end to the back of the case, and at the other to the axis itself. This does not interfere in the least with the rocking of the axis, but keeps it packed tight under all circumstances.

To the outer end of the axis is rigidly attached a rock-lever, I. To this, in turn, is attached a rod, K, which connects at the opposite end with a crank-arm, L. This crank-arm is jointed to the journal *k* of a double bent lever, M, which passes down and rests in bearings *l l*, thence rises upon the opposite side, to form the reverse bend M', to the top of which is attached a rod, *m*, connecting with valve E.

A rod, *n*, connects the bearing *k* with the shaft of a balance-wheel, N, and a rod, *l*, also connects the upper end of the crank-arm with a spring, *w*, below.

The action of the apparatus is as follows:

The gas flows into the valve-chamber through the induction-pipe; thence it passes through the uncovered passage *d* and port *a*, into one of the compartments of chamber B; here it presses upon the flexible diaphragm, and gradually forces it toward the other side of the chamber.

The turning of the axis *f* gives motion to rock-lever I, and consequently to the crank-arm L, through the medium of rod K.

The moment said crank-arm passes a vertical line, the drawing action of spring *m* pulls it over, thereby giving motion to the fly-wheel, and acting upon the lever M, to throw the valve, which then slides over the opposite port, and thus reverses the flow of the gas. This action is regular and uniform, and perfect in its result.

In the throw of the valve, the covering portion of the valve is a little less than the width of the gas-passage, thereby leaving a small portion open, as shown at *p*, fig. 4.

The ordinary dial or indicating arrangement may be used for registering the amount of gas.

I am aware that the general features of this meter are old, and I make no claim to such.

The novel feature is the arrangement of parts by which the valve is operated. This feature I believe to be new.

Claim.

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

The rock-lever I, rod K, crank-arm L, lever M, spring rod *w*, and balance-wheel N, when combined with the valve E, in the manner and for the purpose specified.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

PERRY HODGE.

Witnesses:

BENSON OWEN,

WM. K. MILLER.