

J. KEELING.

Improvement in Gas Burners.

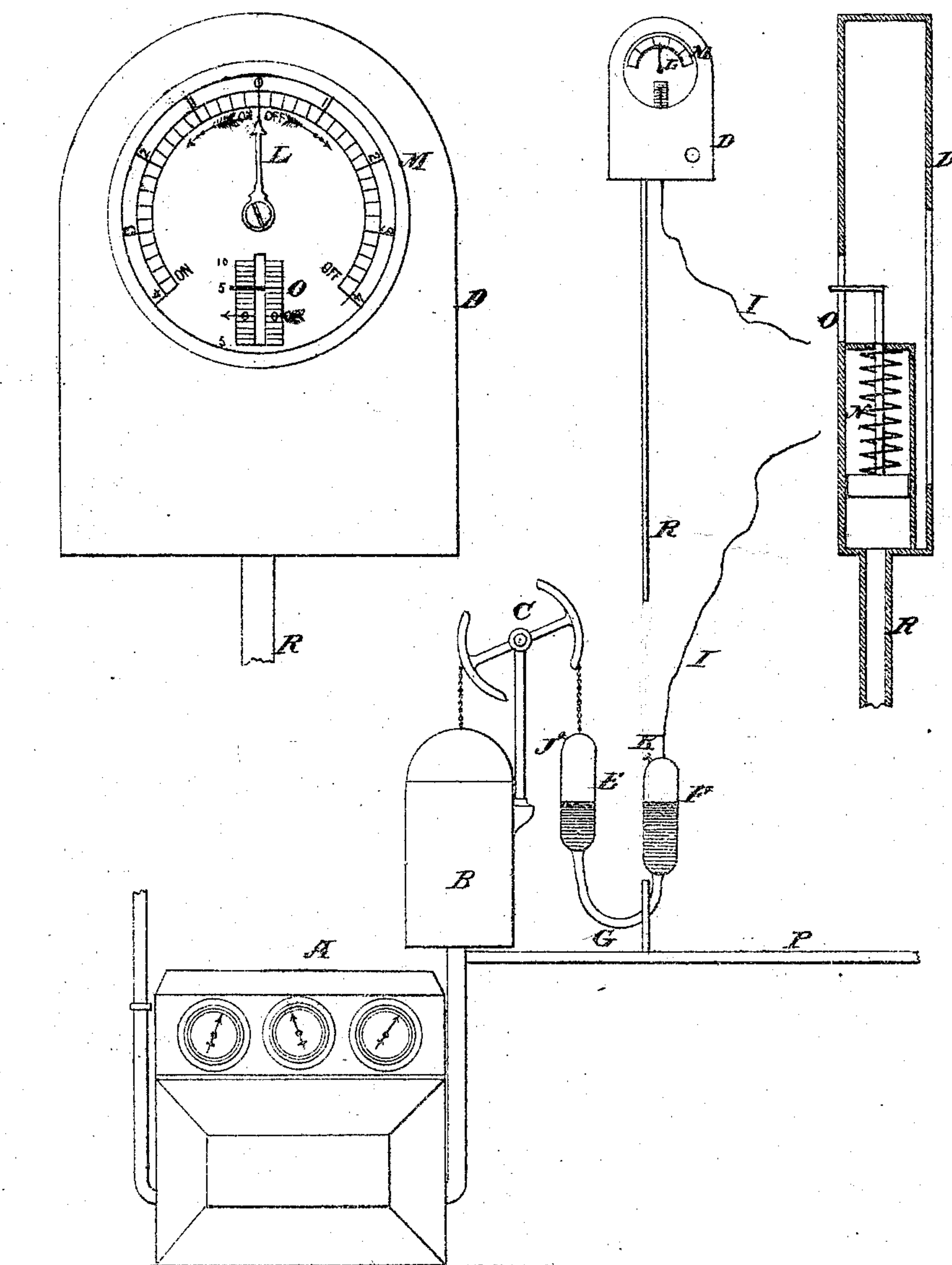
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Fig. 2

Fig. 1.

Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN KEELING, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. 120,280, dated October 24, 1871.

To all whom it may concern:

Be it known that I, JOHN KEELING, of the city, county, and State of New York, have invented a new and useful Improvement in Gas-Governors; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

The object of my invention is to furnish an improved means for regulating or equalizing the pressure of illuminating gas in the pipes through which it is conducted to dwellings, &c. It consists in the combination of an automatically-variable counterpoise with the bell of a gas-governor with which the service-pipe is connected. The counterpoise is formed of two vessels partly filled with water, provided with air-cocks, and connected by a flexible tube, through which the water may flow from one to the other according as the bell rises and falls. The use of a water counterpoise is described in a patent granted me in England in December, 1864. No cocks were, however, provided for passage of air from and into each vessel. Hence that invention was so far inoperative as to be practically useless, the flow of water from one vessel to the other being merely the almost inappreciable quantity necessary to fill whatever space might be formed by compression and expansion of the air in the vessels respectively. In this invention one of the vessels is connected with the same walking-beam as the gasometer-bell and the other with the spindle of a dial-hand or index. There being a spring connected with said spindle the support of the counterpoise will yield to suit the varying changes in the amount of water in the respective vessels.

In the accompanying drawing, Figure 1 represents a case containing a pressure-gauge and dial connected with the service-pipe from the gas-holder, giving also a view of the gas-governor and meter. Fig. 2 is a magnified view of the case. Fig. 3 is a vertical section of the case, showing the pressure-gauge.

Similar letters of reference indicate corresponding parts.

A is the gas-meter. B is the gas-holder of a gas-governor, containing a conical valve which is operated by means of the working-beam C. D

is the indicating dial-case. E is a vessel made of any suitable material, which is attached to the beam C. F is another vessel of similar size and make, but not necessarily so, which is suspended by a cord or wire, I, from the indicating-dial case. The cord or wire is attached to a wheel or pulley in the case. The two vessels E and F are connected by a flexible tube, G, attached to their bottoms, which communicates with the interior of each. The two vessels are partly filled with water or other liquid, and when it is deemed expedient to increase or diminish the pressure of gas it is only necessary to raise or lower the vessel F by means of the cord or wire I, as when that vessel is thus raised or lowered the water or other liquid will flow either into or from the counterpoise vessel E and increase or diminish its weight, and consequently affect the valve and pressure. The speed with which the change is made is regulated by the air-cocks J and K in those vessels. The wheel in the case D, to which the cord I is attached, is turned by means of a key or crank. L is an index-finger or pointer which is turned, with the wheel, over the face of the indicator-plate M and marks the variations made in the pressure. N is a pressure-gauge in the case D with an index-plate and finger, as seen at O, which gauge is connected with the service-pipe P by the pipe R. This gauge indicates the true pressure of the gas being consumed at all times. The cord or wire I may be extended like a bell-wire from the governor to any part of the building—to the office or desk, for instance—so that the required quantity, and no more, of gas may be consumed, the consumption depending upon the pressure in all cases. It will be now understood that while the pressure of the gas may be regulated at will by raising and lowering the vessel connected immediately with the wire I, yet, left to itself, the apparatus is entirely automatic, for in proportion as the volume of gas is increased it must be received in the bell of the gasometer or governor, and hence the bell is forced upward. But the bell being supported by water to the extent of its insertion therein, the pressure of gas in the service-pipe and its connections will be increased by the upward movement of the bell, since the water buoys it up less and less as it rises. The passage of water from the vessel F to the vessel E at such time has the effect to take off the extra pressure ex-

erted by the bell, and thus render the pressure of gas as nearly uniform as possible. The pressure-gauge N has no necessary or indispensable function in connection with the counterpoise, but is very essential in ascertaining the precise amount of pressure of gas, &c. The spindle or shaft of pointer L forms a support for the vessel F, which, by reason of its spring attachment, yields or allows the wire I to pay out when the said vessel becomes filled with water, and takes up the wire when the water flows out again. It is, therefore, in effect a spring-balance for the vessel F.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The counterpoise vessels E and F, when provided with the air-cocks J and K, and connected by the flexible tube G, in combination with the walking-beam C and valve or bell of the gas-governor B.

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Witnesses:

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