

J. W. DRUMMOND.
Gas-Meters.

No. 151,207.

Patented May 26, 1874.

Fig. 1.

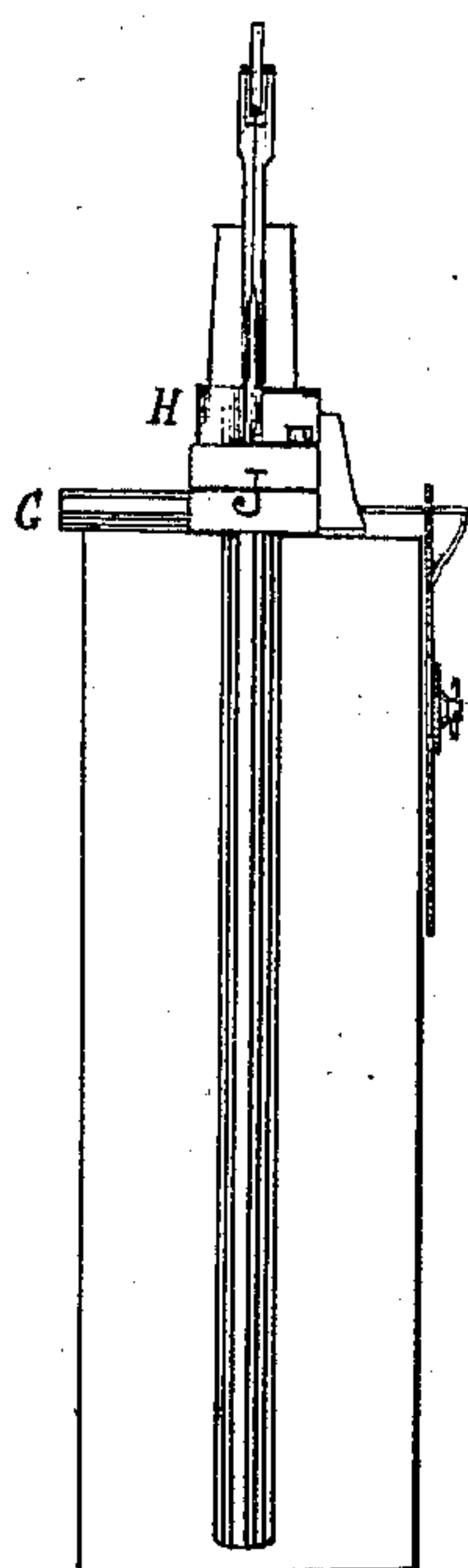
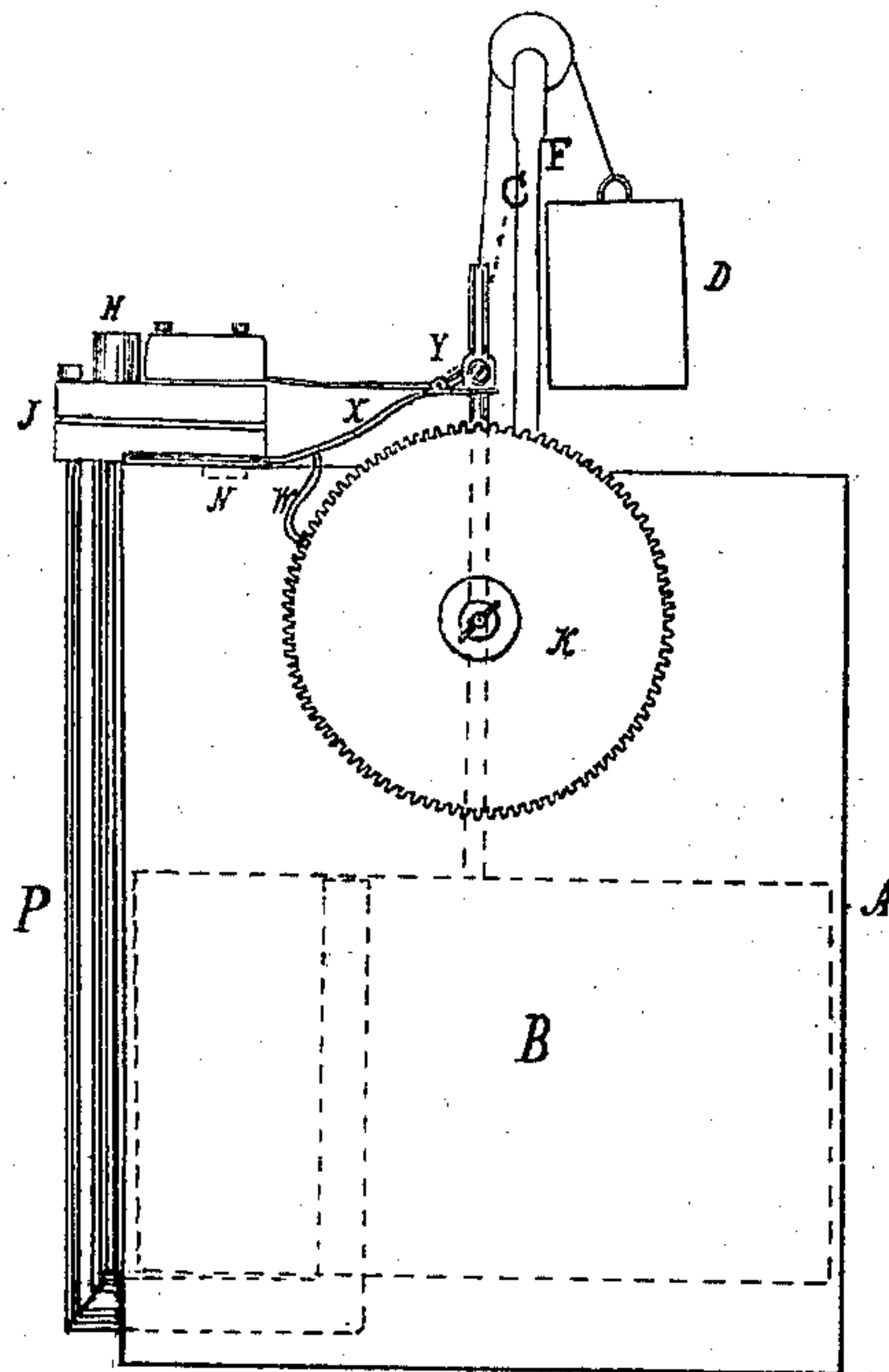


Fig. 2.

Fig. 3.

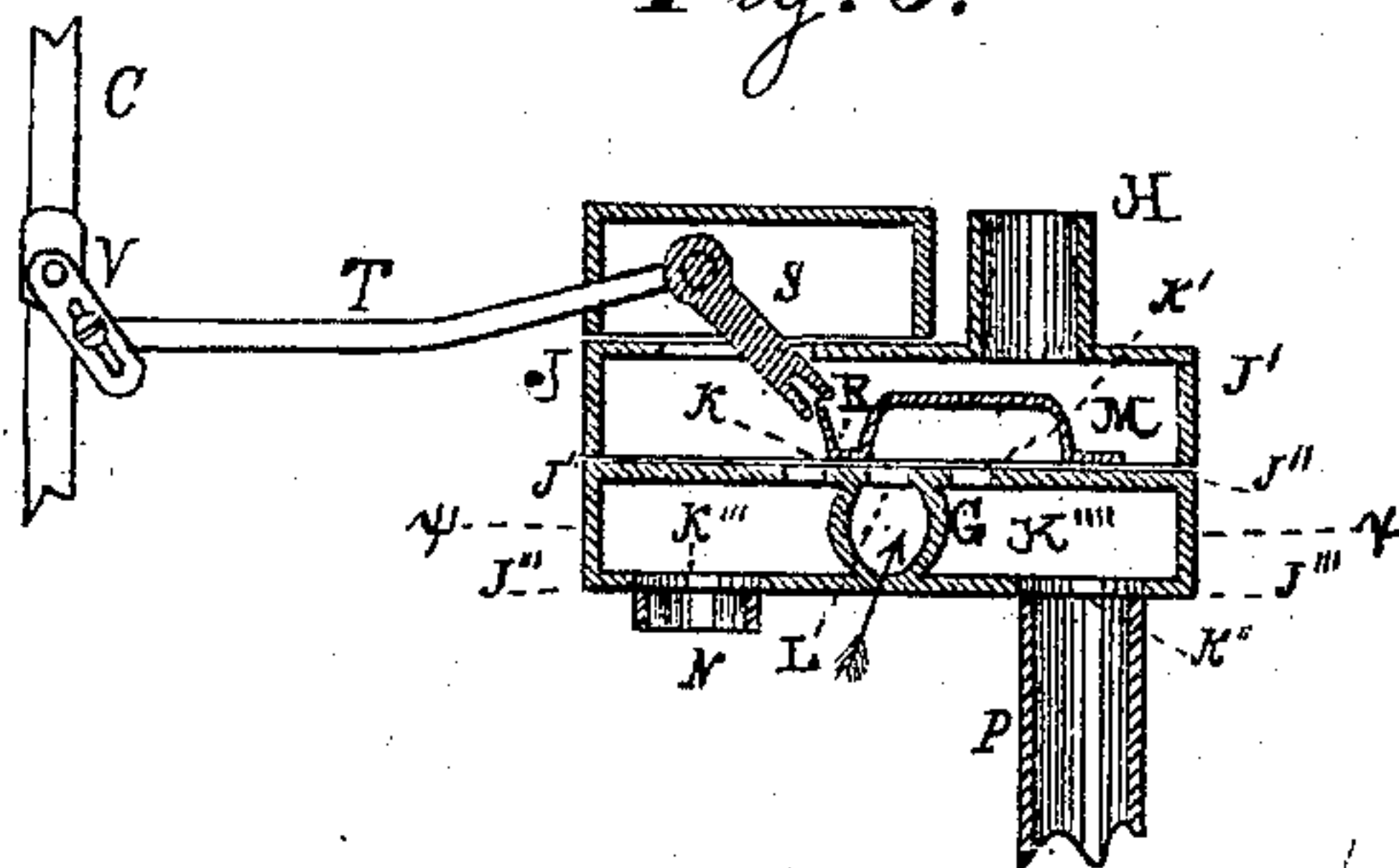


Fig. 4.

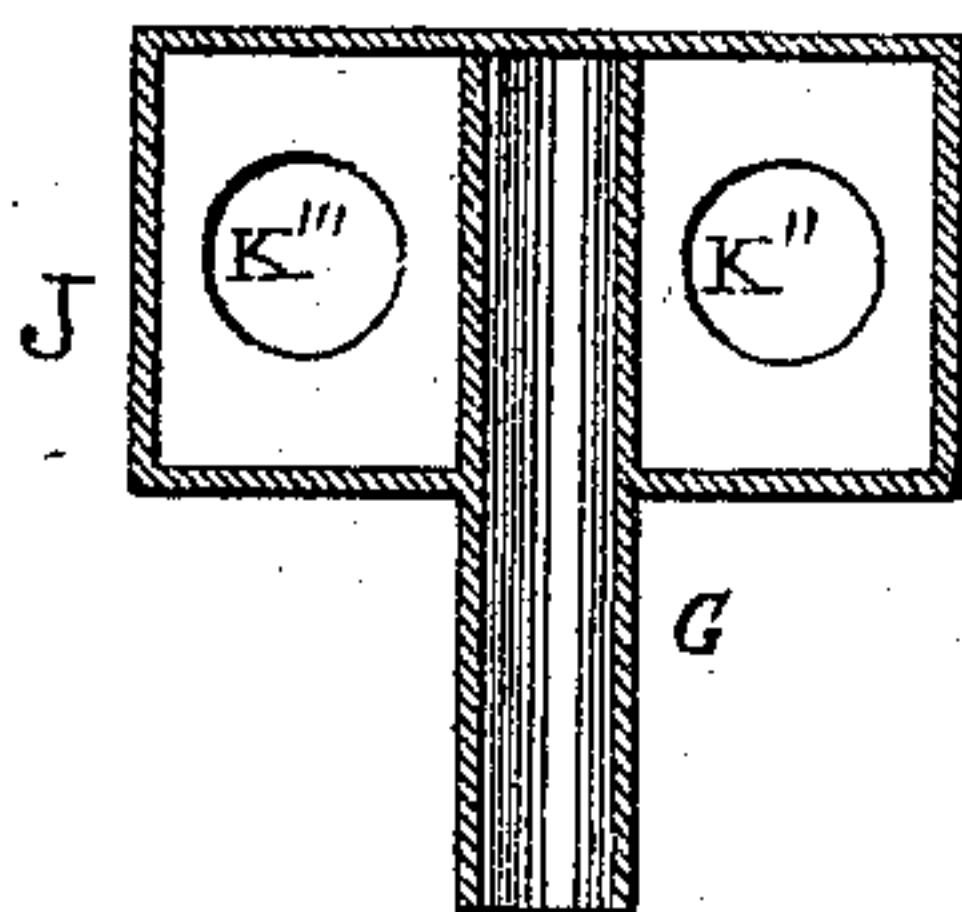
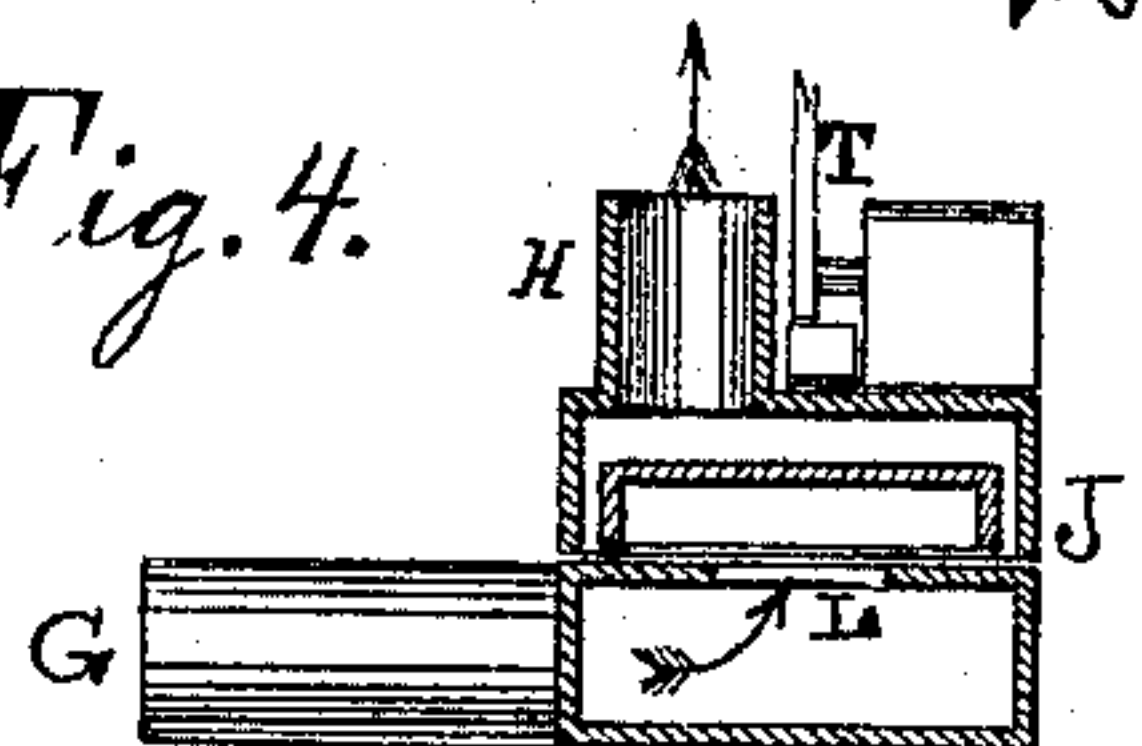


Fig. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN W. DRUMMOND, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
JOHN J. CARBERRY AND LIZZIE M. DRUMMOND, OF SAME PLACE.

IMPROVEMENT IN GAS-METERS.

Specification forming part of Letters Patent No. 151,207, dated May 26, 1874; application filed
December 27, 1873.

To all whom it may concern:

Be it known that I, JOHN W. DRUMMOND, of the city and county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Gas-Meters; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings making part of this specification, in which—

Figure 1 is a face view of the device embodying my invention. Fig. 2 is a side view thereof. Fig. 3 is a longitudinal section of the valve employed and connected parts. Fig. 4 is a transverse section thereof. Fig. 5 is a horizontal section in line *xx*, Fig. 3.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a float, of box or hollow form, and sealed in the case of the meter, in connection with pipes, one of which projects into the float above the bottom edge of the float, and the other opens into the case above the float.

A represents the case of the meter, within which is arranged a rising-and-falling float, which is of box form, closed at top and open at bottom. The stem C of said float projects through the case, and is attached to a counterpoise, D, by a cord or chain passing over a pulley suitably mounted on a standard or upright, F, on the case. Water or other proper fluid or material will be placed in the case A for sealing the bottom edge of the float, for purposes well known. G represents the induction-pipe, by which gas is introduced into the meter; and H represents the eduction-pipe, for conveying gas from the meter to the pipe leading to the rooms or place of service. The pipes G and H are connected to and communicate with a valve, J, located on the case A, in juxtaposition to the indicating dial or dials K, which are suitably arranged for convenient inspection of the state of the meter. The valve J consists of a chamber or casing, J', within which is formed a seat-plate, J'', having side ports K K' and a central port, L, over which moves the sliding head or valve proper M,

whose working face is hollowed to form a cavity sufficiently large to cover two ports of the plate J'', and its ends are flattened for the proper operation of the valve. The valve may be held to its seat by a spring or other suitable appliances. The induction-pipe G communicates with the central port L, and the eduction-pipe H communicates with the side ports K K'. The lower wall J''' of the chamber J' has two openings or ports, K'' K''', which communicate respectively with the side ports K' K of the seat J'', and spaces are left between the seat and bottom wall to form a chamber, K'''. The communication between the valve J and the case A above the float B is by means of a pipe, N, which, communicating with the port K''', opens into the case A above the top of the float B. The communication between the valve and case below the top of the float is by means of a pipe, P, which, communicating with the port K'', passes down the side of the case A, and then into the case, and projects upwardly, opening into the float above the bottom thereof, the top of the float cutting off the communication between the inner openings or terminations of the two pipes N P. The valve-head or slide M has connected to it at one end a flange, R, with which engages a bifurcated piece, S, whose axis is mounted on a box located above the chamber J', and to which is secured an arm, T. This arm, constituting the stem of the valve, extends toward the stem of the float, and has at the adjacent end a connection with a link or slotted piece, V, which is jointed to the stem C of the float. The dial (or dials) K is operated by a pawl or tooth, W, secured to a spring-piece, X, one end of which is in line with a cross-head or piece, Y, attached to the stem C at or near the upper end thereof. The periphery of the dial (or dials) will be toothed or otherwise constructed to be moved by the tooth W; or the dial may be stationary, and fingers or indices applied, and rotated so as to sweep over the dial and indicate the quantity of gas consumed.

The operation is as follows: Gas is admitted to the meter by the pipe G. The float being at its lowest position, the valve-port K' is in communication with the port L, so that com-

munication is established between the pipes G P, whereby the gas enters the pipe P and is directed into the float, so as to elevate the same. As the float rises the valve-head M is gradually moved on its seat, the stem raising the arm T, and, by means of the piece S, imparting motion to the valve-head. When the float is at its highest point the port K' is uncovered, and the ports K L are in communication, whereby communication is established between the pipes G N. The gas thus being cut off from the pipe P, there is a cessation of upward pressure on the float. The entrance of gas through the pipe N causes a downward pressure on the float. The gas in the float now returns through the pipe P, and, escaping through the uncovered port K', is conveyed by the pipe H into the room or place of service. The float now falls, and moves the valve to its normal position. The port K being uncovered, and the ports K' L again in communication, gas enters the pipe P, thus elevating the float, and the gas in the case above the float returns through the pipe N, and, by means of the uncovered port K, reaches the pipe H, which conducts it to the room or place of service. This alternate action continuing, a reciprocating motion is imparted to the stem, whereby, by means of the intermediate mechanism, the dial K, or indices thereof, will be operated, and the consumption of gas indi-

cated. When the float drops or falls, it is in advance of the motion imparted to the arm T, due to the slotted connection or link V, so that the movement of the valve is quickly made, and at the proper time, without liability of partially uncovering two ports simultaneously, so that there will be no check or retardation of flow of gas to the pipe H, which operation will be assisted by the chambers in the valve, which, being filled with gas, cause a uniform passage of gas from the valve.

A spring may be arranged with the axis of the forked piece S, to cause a quick movement to said piece when it passes its center, whereby a quick motion will be imparted to the valve-head when it is proper to complete its stroke.

I claim as new and desire to secure by Letters Patent—

The box-float B, with stem C, in combination with the pipe P, passing from the valve or cut-off into the case A, and projecting into the float above the bottom edge of the latter, and with the pipe N, passing from the valve or cut-off, and opening into the case above the float, substantially as and for the purpose set forth.

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Witnesses:

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GEO. W. NEWMAN.