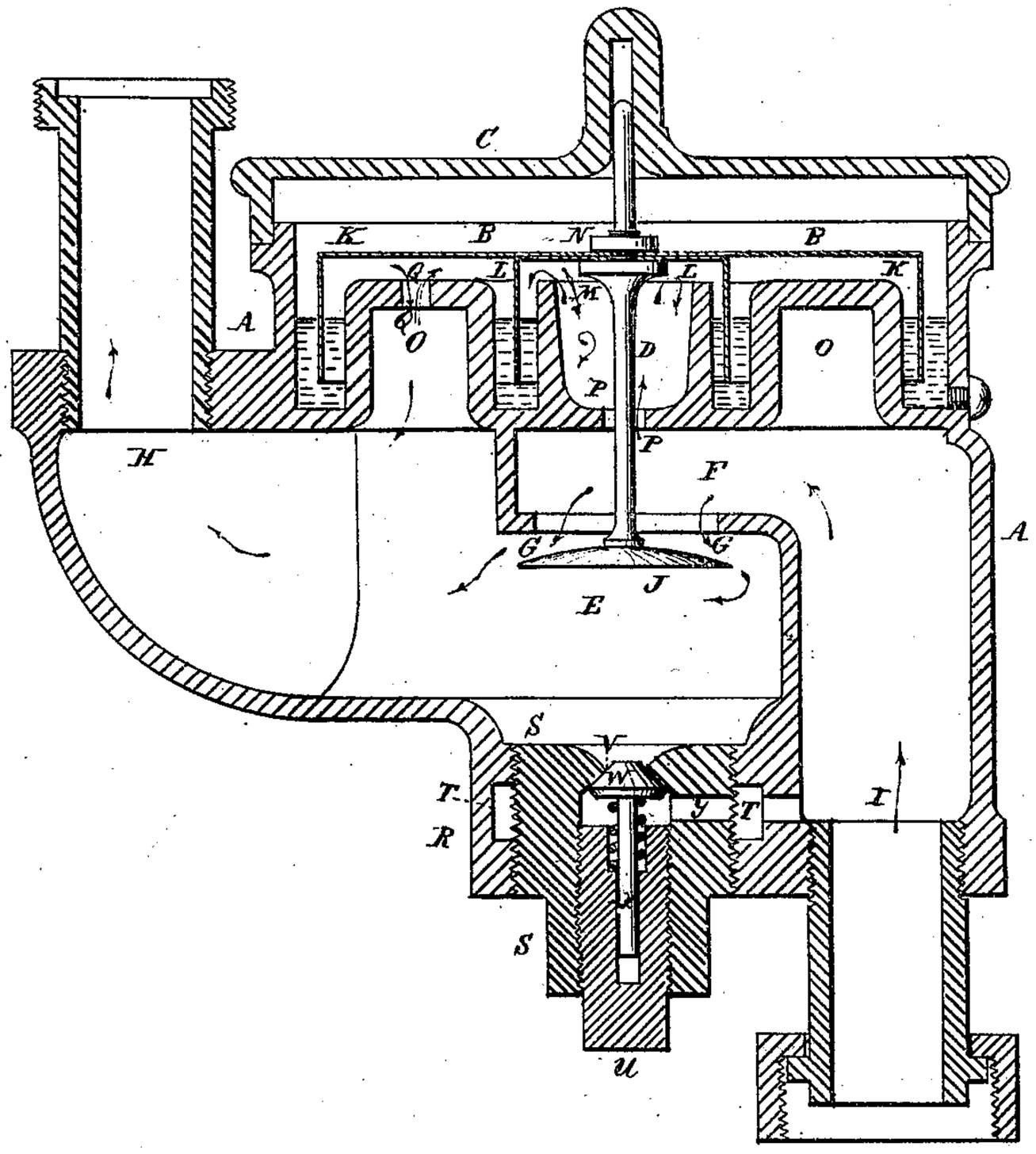
J. D. AVERELL.

GAS REGULATOR.

No. 179,467. Patented July 4, 1876.



Witnesses.

R. Boekler

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UNITED STATES PATENT OFFICE.

JOHN D. AVERELL, OF NEW YORK, N. Y., ASSIGNOR TO JOHN C. SCHOOLEY, OF SAME PLACE.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **179,467**, dated July 4, 1876; application filed June 7, 1876.

To all whom it may concern:

Be it known that I, JOHN D. AVERELL, of the city, county, and State of New York, have invented new and useful Improvements in Pressure-Governors for Gas, which improvements are described in the following specification, reference being had to the accompanying drawings and letters of reference marked thereon.

The class of gas-governors herein related to is of the kind in which the regulating-valve is operated by the pressure of gas under large and small inverted cups attached directly to the rod of said valve, and in which said cups have their bottom edges sealed by mercury contained in the mercury-chamber, in an annular groove for each cup, and in which the valve-seat is located under the mercury-chamber, between the inlet and outlet of the gas, and the inlet connected with the small cup and the outlet connected with the larger of said cups.

The object of this invention is to provide the chamber which has the gas-outlet with an automatic discharge for the condensation of the gas accumulating in said chamber back into the inlet of the governor, instead of the removable screw-plug now used for drawing off said condensation in the bottom of said chamber from time to time by the user of the governor, so that by these means nearly all attention for the proper operation of the governor is dispensed with after it is once properly set in operation.

The drawing annexed represents a vertical central longitudinal section of the governor with my improvements.

A represents the governor-case. Its upper portion has the mercury-chamber B, which is covered by the cap C, in the center of which the valve-rod D is guided. The lower portion of the case has the discharge-chamber E, the inlet-chamber F, and the valve-seat G between said chambers. The discharge-chamber has the upward outlet H, and the inlet-chamber the downward inlet-opening I, and both of said openings are each provided with a pipe union-coupling, to connect the inlet with the gas-meter outlet, and the governor-outlet with the gas-pipe leading from the meter to the user's burners. J represents the regulating-valve, which is secured under the valve-seat to the valve-rod D, and to the upper portion of the same rod are attached, upon one another, the inverted cups K and L, between the shoulder M and the nut N on said rod. The bottom of the mercury-chamber is formed with a hollow annular upward projection, O, between the rim of the large cup K and the rim of the small cup L, to displace a large amount of mercury between said rims, and save the expense for the same. Said bottom has also an upward circular rim cast to it, between the rim of the small cup L and the valve-rod D; and it has a central opening, P, through which the gas passes from the inlet-chamber, around the rod D, into the space under the small inverted cup L. The hollow rim O has also a small opening, Q, through which the gas passes into the space under the large inverted cup K from the discharge-chamber E. Said bottom of the mercury-chamber heretofore has been formed straight across, and, to displace the larger part of the mercury between the rims of said cups, a separately-cast rim was employed, which was secured with screws to said bottom. By means of forming and casting said bottom with the hollow rim O, less metal is required, and the expense for separately securing said rim is avoided. The bottom of the discharge-chamber E is cast with a downward hub, R, located centrally under the valve J. Said hub unites with the hub of the inlet-opening I, and the hub R has a threaded large opening, into which a large plug, S, is fitted. The threaded opening of said hub R has a circular groove, T, from which an opening is made into the inlet-opening I. The plug S has also a central threaded opening, in which a secondary small plug, U, is fitted. The upper part of said opening in the plug S is contracted and formed with a valve-seat, V, in which a small valve, W, is employed, having its rod X guided in a central opening made in said small plug U for the purpose. By means of a small spiral spring employed under the valve W the same is nearly balanced and held loosely to its seat. A small space is left between the top end of the plug U and the bottom side of the valve W, and from said space is made a small opening, Y, into the groove T, so that by these means,

while the pressure in the inlet I is greater than that in the discharge-chamber E, which is the case while the gas is used and passing through, said valve W is caused to be and remain closed; but as soon as the gas is stopped or not used, the pressure in both the discharge-chamber and inlet becomes equal, and, by the aid of the weight of the fluid or the condensation of the gas accumulated in the discharge-chamber E, said valve is caused to open and allow said condensation to pass down through the valve-opening into the space between said valve and the top of the plug U, and from there, through the opening Y, into the groove T, and from it into the inlet I, through the opening above mentioned.

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

The combination of the automatic drip-valve W with the discharge-chamber E of the pressure-governor and its inlet I, substantially as and for the purpose herein set forth.

In witness whereof I hereunto set my hand and seal.

JOHN D. AVERELL. [L. S.]

In presence of—

R. BOEKLEN,

W. FARRELL.