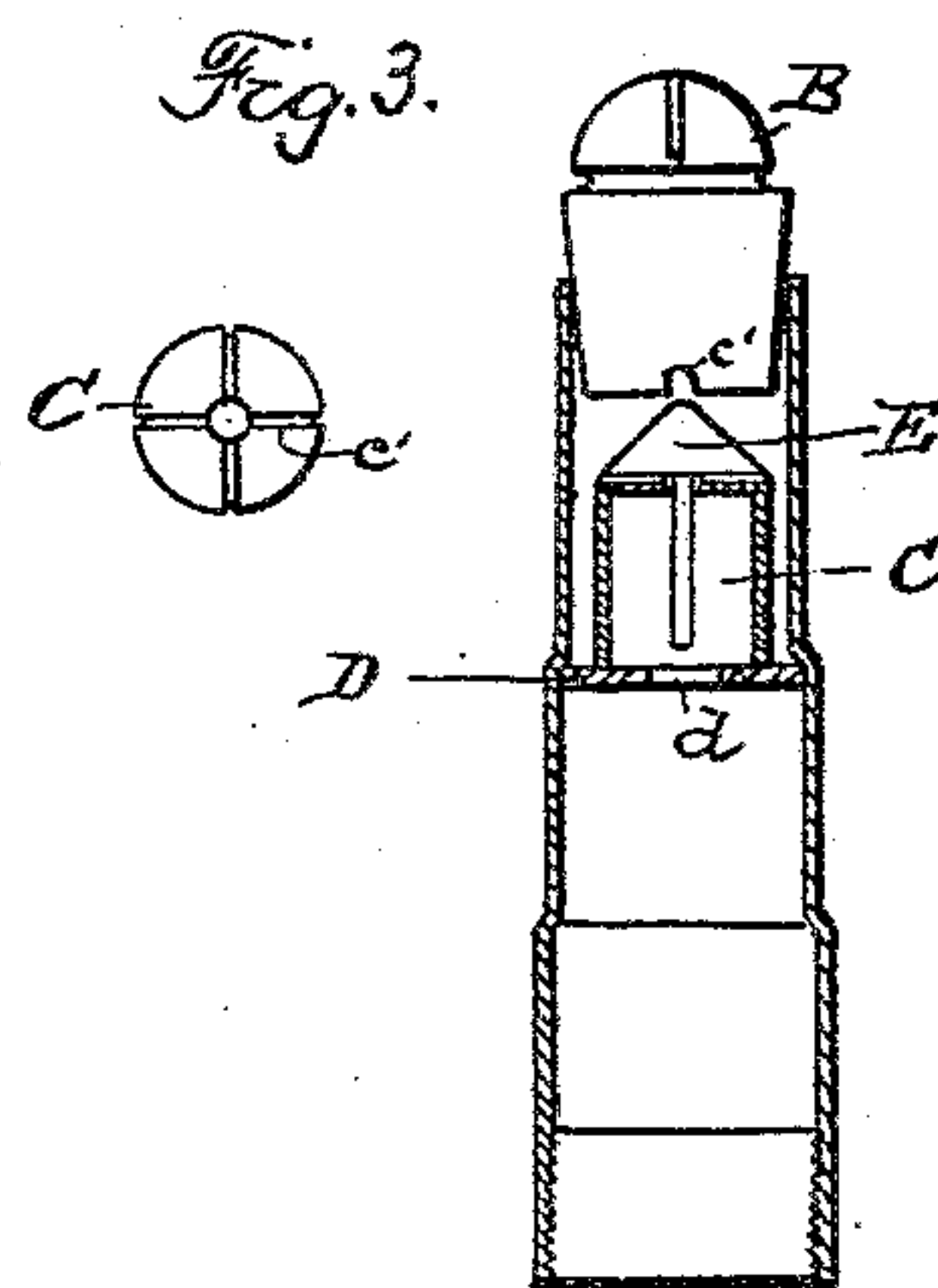
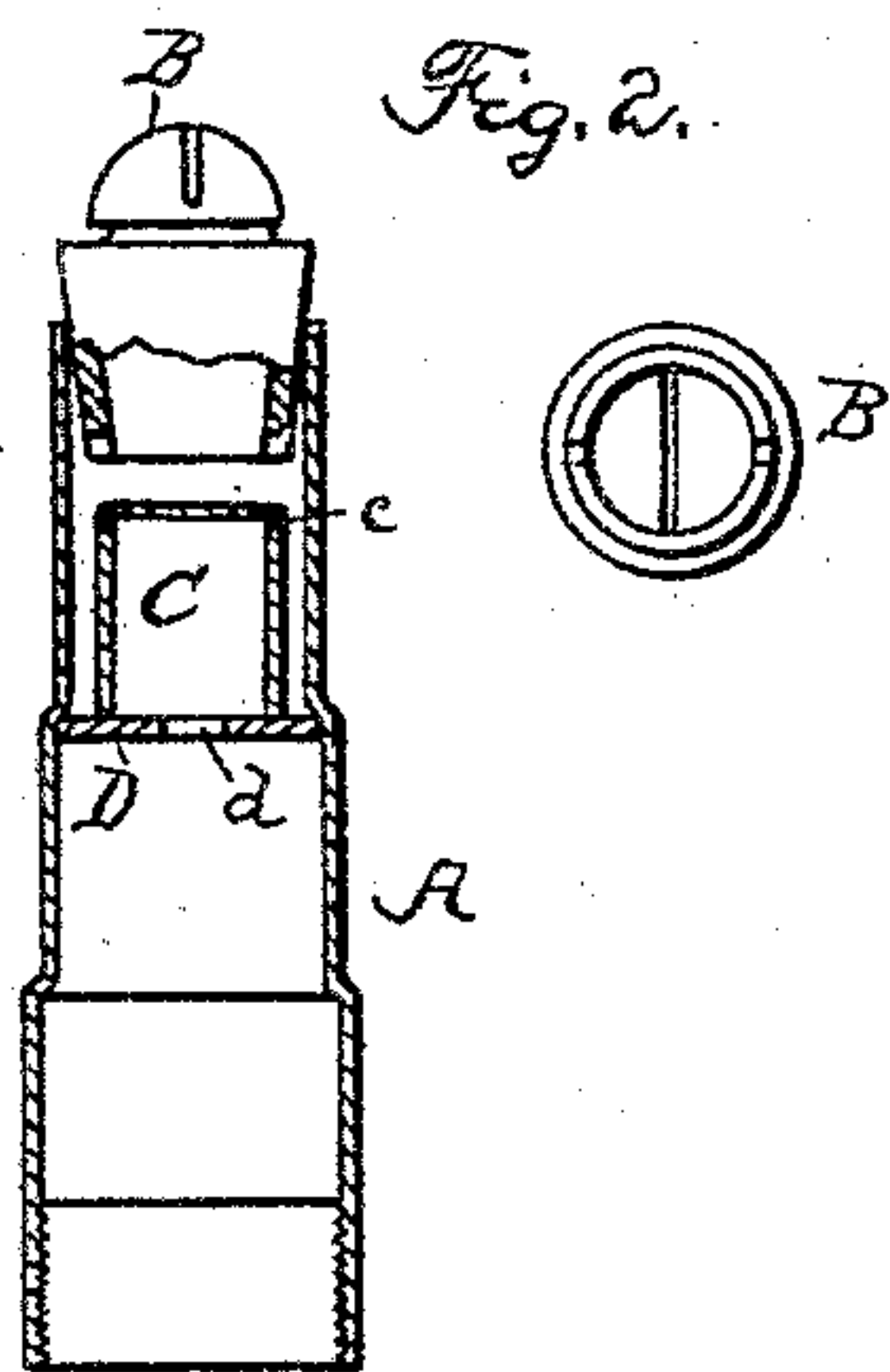
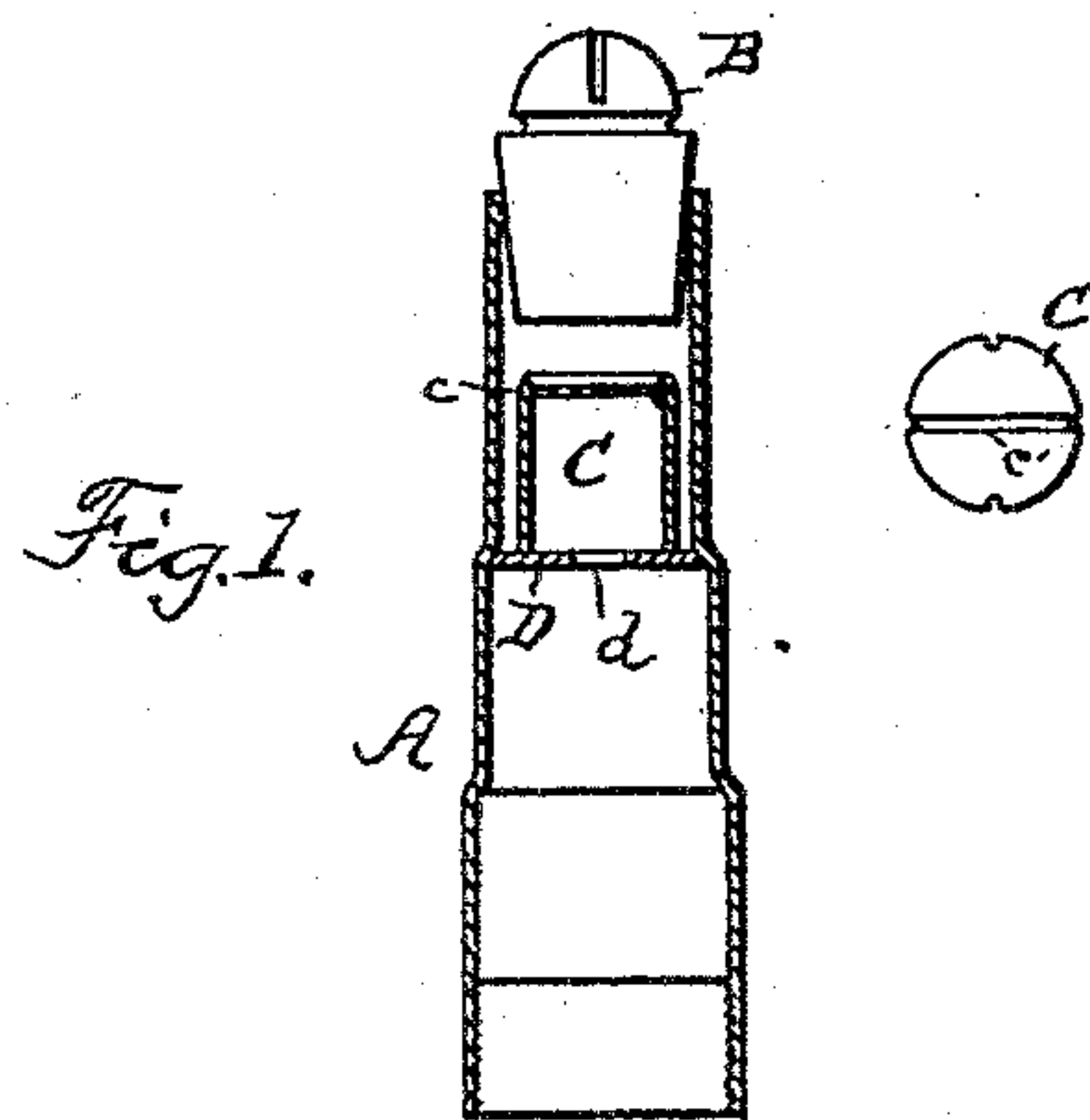


(No Model.)

G. H. GREGORY.
GAS REGULATING BURNER.

No. 414,638.

Patented Nov. 5, 1889.



Witnesses
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UNITED STATES PATENT OFFICE.

GEORGE H. GREGORY, OF BROOKLYN, ASSIGNOR OF ONE-HALF TO CHARLES S. UPTON, OF NEW YORK, N. Y.

GAS-REGULATING BURNER.

SPECIFICATION forming part of Letters Patent No. 414,638, dated November 5, 1889.

Application filed March 1, 1889. Serial No. 301,641. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. GREGORY, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Regulators for Gas-Burners, of which the following is a specification.

My invention is an improvement in gas-regulating devices in which the means for regulating the flow of the gas is located entirely within the burner proper and operates in connection with the tip through which the gas escapes.

It consists in the construction, combination, and arrangement of parts disclosed in the following specification, of which the accompanying drawings form a part, and in which like letters of reference indicate similar or equivalent parts wherever found throughout the several views.

Figure 1 is a central vertical section of a gas-burner provided with my improved regulator. Figs. 2 and 3 show modifications thereof.

Referring to Fig. 1, A indicates the body of an ordinary burner, and B the burner-tip. Arranged within the body of the burner is a diaphragm D, provided with a small central perforation *d*, through which the gas passes.

C is an inverted thimble, the lower open end of which rests upon the diaphragm D over the central perforation *d*. The upper end of the thimble C is closed, with the exception of small perforations *c*, and the outer or upper surface of said end is provided with a small groove *c'*, which extends from one of said perforations to another. There may be any desired number of these perforations, and also any desired number of the grooves, and it is not essential that the grooves should connect with the perforations. The thimble C should fit loosely within the body of the burner, so as to move readily and not be liable to become clogged or stuck therein. In the operation of this regulator the thimble C operates as an automatic valve, the lower end of the burner-tip serving as the valve-seat. The operation of this form of construction is as follows: The gas, being turned on, passes through the perforation *d* in the diaphragm

D up into the thimble C and out through the perforations in the top thereof, and thence through the slot in the tip B. The perforations in the thimble C are so graded as to permit any desired amount of gas to pass through—either two, four, six, or any other number of cubic feet per hour—and as long as there is no material pressure the thimble will rest upon the diaphragm and a very small amount of gas will pass through. As soon, however, as the pressure is increased, the thimble C will be lifted from its rest upon the diaphragm and pressed against the bottom of the burner-tip, and the gas will pass out through the perforations *c*, and through or along the small grooves *c'* in the top of the thimble and out through the tip. As the amount of gas which passes out depends upon the size of the perforations *c* and the grooves *c'*, it is evident that said amount will not vary to any perceptible degree under any ordinary increase of pressure, and experience has shown that with this regulator the flame is regular and steady at all times, and the average consumption of gas uniform under all circumstances.

In the construction shown in Fig. 2 the grooves in the top of the thimble are omitted, and small grooves or notches *c'* extend across the lower end of the tip, through which the gas passes when the thimble is pressed against the lower end thereof. The result would be the same if the holes *c* and the grooves *c'* in thimble C were both omitted and the thimble made small enough to allow the required amount of gas to pass up around it.

In Fig. 3 the body A, diaphragm D, and burner-tip B are the same as in Fig. 2, the lower end of the tip being provided also with the notches or grooves *c'*, as in that figure. In this case, however, the thimble does not act directly upon the burner-tip to regulate the flow of the gas. The top of the thimble is here provided with a central perforation, and small grooves extend from this perforation to the edge of the top of the thimble, and a small conical valve having a flat base rests upon the top of the thimble. This valve is provided centrally of its bottom with a small pin, which extends downwardly through the

perforation in the top of the thimble and serves to keep the valve in place. With this construction the gas passes through the perforation in the top of the thimble and out by means of the small grooves in the top thereof into the space below the tip. As soon, however, as the pressure is increased to any extent the thimble will be lifted, together with the valve on the top thereof, the latter will be pressed against the base of the burner-tip, and the amount of gas permitted to flow through the tip will be regulated by the size of the notches or grooves in the lower end thereof. With this exception the operation of the construction shown in Figs. 2 and 3 is the same as with that shown in Fig. 1, and the result produced is the same in each.

Having fully described my invention, its construction and operation, I claim and desire to secure by Letters Patent—

1. In a gas-regulating burner, the combination, with the body of the burner, of a diaphragm, as D, located therein, a thimble, as C, serving as a valve, and the burner-tip which serves as a seat for the valve, said tip and thimble constituting the parts by which the flow of the gas is regulated, one of said parts being provided with grooves or passages, through which the gas passes to the burner when the valve is seated, substantially as shown and described.

2. The combination, with the body of a gas-burner, of a perforated diaphragm, the thimble resting on said diaphragm over the perfora-

tion therein, said thimble being provided with perforations and serving as a valve, and the burner-tip which serves as a seat for the valve, said thimble and tip constituting the parts whereby the flow of the gas is regulated, and one of said parts being provided with grooves, through which the gas passes when the valve is seated, substantially as shown and described.

3. The combination of the body of the burner, the perforated diaphragm, the thimble C, having the perforations *c* and grooves *c'*, and the tip B, substantially as shown and described.

4. The combination of the burner-body, the diaphragm D, the thimble C, the conical valve on the top thereof, and the burner-tip provided with the grooves *c'* in its lower end, substantially as shown and described.

5. The combination of the burner-body A, the perforated diaphragm D, the thimble-valve C, having the perforations *c*, and the burner-tip B, which serves as a seat for valve C, said valve or tip being provided with grooves, through which the gas passes when the valve is seated, substantially as shown and described.

Signed at New York, in the county of New York and State of New York, this 28th day of February, A. D. 1889.

GEORGE H. GREGORY.

Witnesses:

FRANK B. WILSON,
S. SMITH.