

J. P. WARNER.
GAS-REGULATOR.

No. 173,521.

Patented Feb. 15, 1876.

Fig. 1.

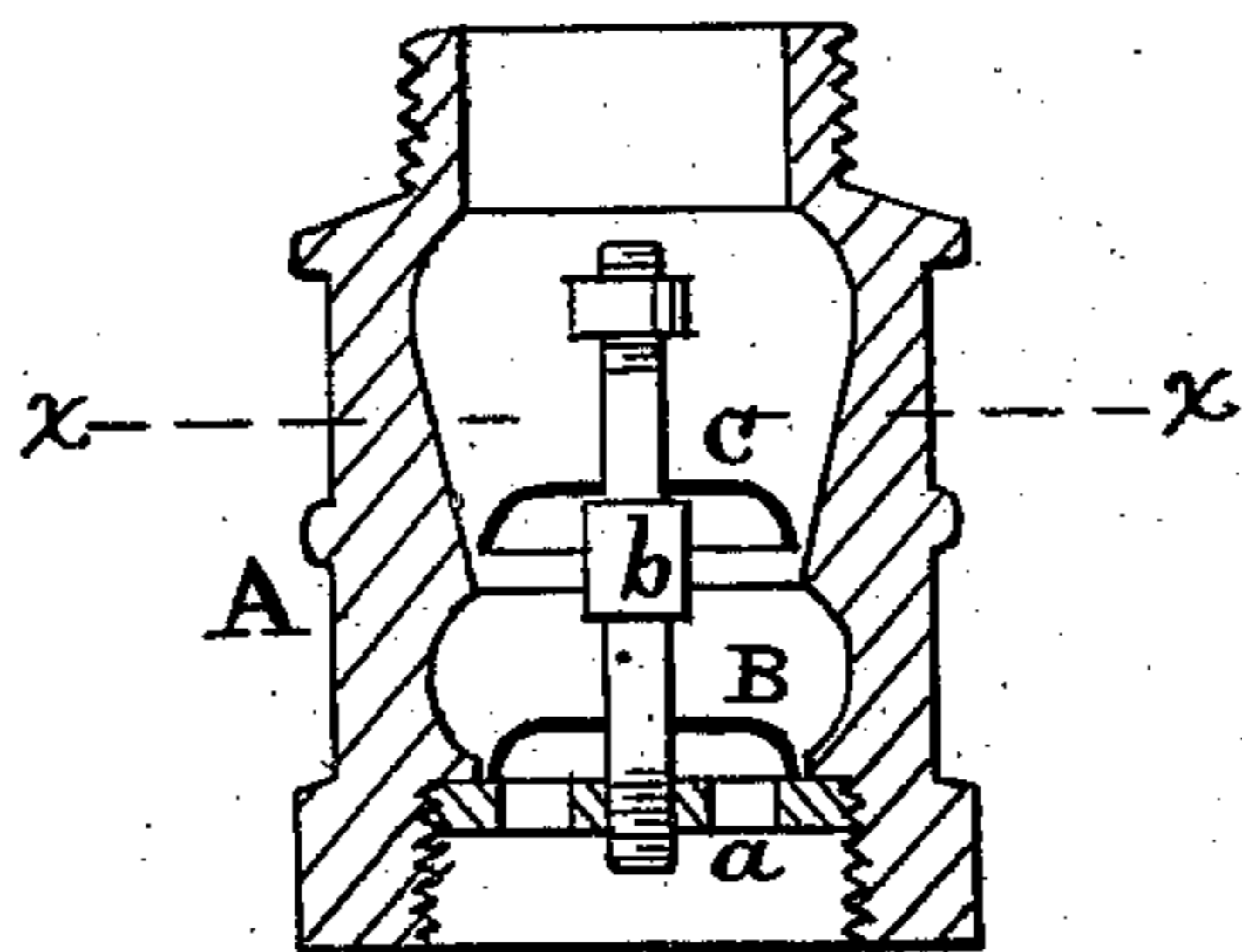
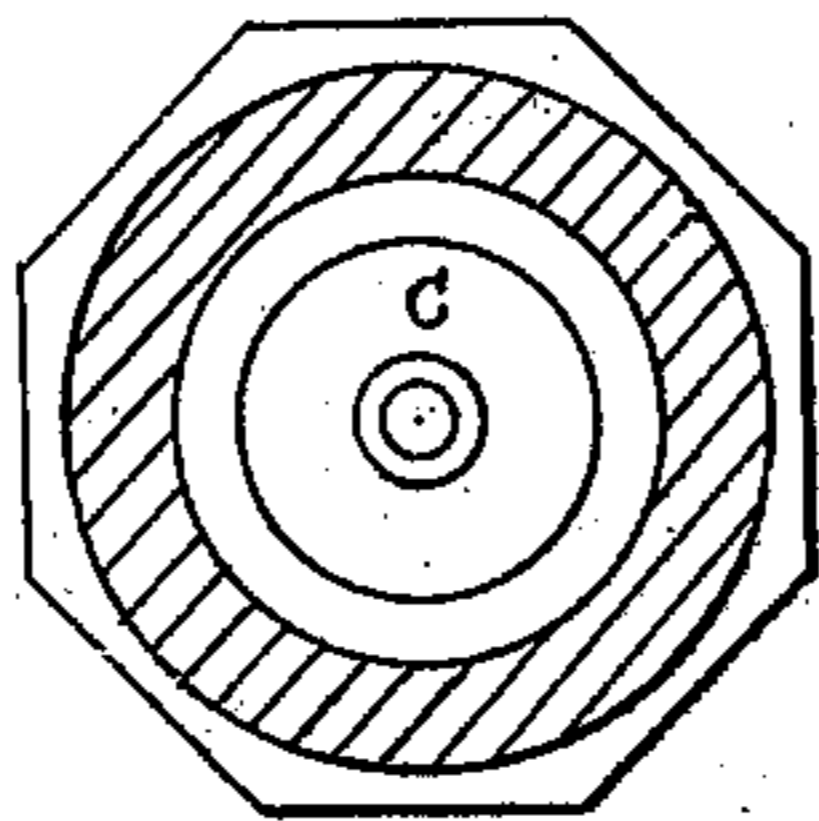


Fig. 2.



Witnesses:

G. B. Towles.
B. D. Forest

Inventor:

John P. Warner
by H. A. Daniels,
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UNITED STATES PATENT OFFICE.

JOHN P. WARNER, OF BALTIMORE, MARYLAND, ASSIGNOR TO JOHN R. HALL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **173,521**, dated February 15, 1876; application filed October 28, 1875.

To all whom it may concern:

Be it known that I, JOHN P. WARNER, of the city of Baltimore, in the State of Maryland, have invented certain Improvements in Gas-Regulators, of which the following is a specification:

My invention relates to a system of valves adapted to be used in combination with a case or valve-chamber of peculiar construction, for the purpose of regulating the flow of gas to a burner or series of burners connected thereto, to reduce the tension or pressure of the gas at the said burner or burners, as hereinafter set forth.

In the accompanying drawing, forming a part of this specification, Figure 1 represents a vertical section of the invention. Fig. 2 is a section on line *x x*, Fig. 1.

In the said drawing, A designates the casing or valve-chamber, the lower end of which is connected to the gas-supply. B is the lower valve, resting upon the perforated seat *a*, screwed into the valve-chamber aforesaid. The said valve B is guided in its vertical movement by means of a stem, *b*, which passes through the same at the center thereof, and is screwed into the seat *a*. The stem *b*, at a point above the lower valve B, is provided with a collar, the office of which is to sustain a second valve, C. This valve does not bear upon a seat, but forms a nearly close joint by coming into close proximity with the walls of the chamber when in its lowest position. The sides or walls of the chamber, from a point near the edge of the valve C when in the above position to a place considerably above it, are flaring or conically-shaped, to allow a gradual opening of the valve when elevated by the gas, as hereinafter described. The relative positions of the valves can be altered by the elevation or depression of the stem *b* and nut on the upper end of the same.

In operation, the gas entering the lower end of the chamber A is first obstructed by the lower valve B, and a portion allowed to pass at a reduced tension to the under side of the upper valve, when it is again impeded and its tension further reduced.

The operation of the upper valve, in conjunction with the flaring sides of the chamber, allows the annular opening caused by the elevation of the valve to be very gradually increased, the graduation of the increase being better defined than when a seat is used, as the valve has to be raised to a considerable height before a full opening can be secured. This arrangement of valve with the conical sides of the chamber causes a greater range of movement of valve and a much more regular pressure of gas at the burners than could be obtained by the use of an ordinary valve-seat with the valve resting thereon.

I am aware that gas-checks have been used having in combination a chamber and an ordinary valve and seat, the same being a common device; but in such arrangements the flow of gas fluctuates in consequence of the limited elevation of valve necessary to give the full opening—so I make no claim to such combination; but, as my invention,

I claim—

The valves B C and seat *a*, with the stem *b*, provided with the collar, as shown, in combination with the casing or chamber A, having the conical or flaring inner surface, all constructed and combined substantially as and for the purpose set forth.

JOHN P. WARNER.

Witnesses:

H. A. DANIELS,
THEO. MUNGEN.