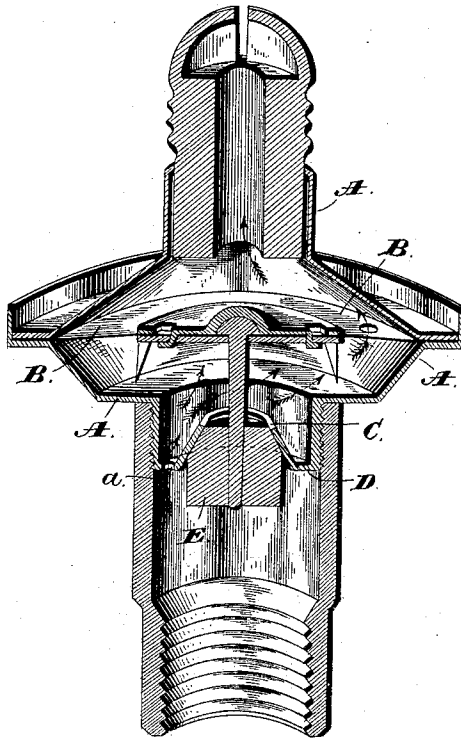


(No Model.)

W. M. JACKSON.
GAS BURNER.

No. 375,070.

Patented Dec. 20, 1887.



Witnesses:
Jas. E. Hutchinson.
L. F. Downing.

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UNITED STATES PATENT OFFICE.

WALTER MARSH JACKSON, OF NEW YORK, N. Y., ASSIGNOR TO THE GAS CONSUMERS BENEFIT COMPANY OF THE UNITED STATES, OF SAME PLACE.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 375,070, dated December 20, 1887.

Application filed February 9, 1887. Serial No. 227,026. (No model.)

To all whom it may concern:

Be it known that I, WALTER MARSH JACKSON, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to the construction of gas-burners, and more particularly to an improved method of construction as applied to my improved burner-body, a patent for which was allowed, circular of allowance being dated December 10, 1886, Serial No. 204,866.

In the device shown in the allowed patent just mentioned a transverse diaphragm is employed, which is provided with a central re-enforce plate and a pendent conoidal valve adapted to engage a seat formed on the horizontal base-plate of the threaded projection of the lower chamber of the burner-body. A proper-sized orifice is made in the diaphragm, which is proportioned to the diameter of the burner slit or opening, to effect differential pressure in the burner-body, and thus equalize the discharge of gas from the tip under varying pressures from the feeder, by the influx of gas operating upon the base of the diaphragm to regulate the valve-adjustment relative to its seat.

It has been found by practice that where a burner constructed as above described is subjected to more than an ordinary pressure of gas upon its diaphragm the pendent valve is raised rapidly, and the frictional resistance of the narrow annular gas-passage thus produced destroys the differential pressure previously established between the gas in the upper and lower chambers of the burner, and in consequence the valve is further closed and the volume of gas cut nearly off from the exit or flame-slit of the burner-tip by superabundant pressure on the base of the valve.

To obviate this defect is the object of my present invention. I will now proceed to describe my method of accomplishing the desideratum, reference being made to the accompa-

nying drawing, in which a side elevation in 50 section is shown of my improved burner.

A represents the body of the burner. It is constructed of two half-shells that are joined at a center line, the junction as effected securing the diaphragm B in place, the base-plate D of the burner-body having a gas-aperture, C, formed central to its threaded periphery, the conical wall of this perforation being adapted to receive a pendent cone-pointed valve, E. These features are shown in my allowed patent. Now, in order to overcome the deficiencies incident to this device, a perforation, *a*, of proper diameter is made in the base-plate D between the central valve-seat and circumferential edge of this plate, thus producing a secondary gas-passage from the pillar-cock to the lower chamber of the burner-body. The influx of gas thus effected through this small orifice *a* is sufficient to restore the differential pressure to the under side of the diaphragm that should exist relative to the back-pressure resulting from the restrained flow of gas expelled at the tip or slit orifice while in process of combustion as an illuminant.

By means of the by-pass for the gas, just described, the pendent conoidal valve E is relieved of the excess of pressure upon its base, and if the size of the perforation *a* is graduated to the highest pressure standard—that is, the quantity of gas which will flow through the by-pass alone—then the valve-inlet will be closed and all the gas will enter the burner proper through the by-pass, and any degree of pressure below this high standard to the lowest will cause the burner to consume automatically the set and uniform quantity of gas, the valve-inlet and by-pass being interdependent and reflexibly governing each other as to quantity of gas passed.

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

In a differential pressure gas-burner, the combination, with a body, a burner-tip, a flexible diaphragm dividing the interior of the body into two chambers and provided with an opening for the passage of gas, a valve-seat lo-

cated below the diaphragm and provided with
an opening adapted to be closed by a valve,
and a second opening or by-pass, the said open-
ing in the diaphragm and the by-pass in the
5 valve-seat being always open to permit of the
passage of a fixed quantity of gas at all times,
irrespective of the position of the valve or dia-
phragm, of a valve depending from the dia-

phragm and adapted to engage the valve-seat.

In testimony whereof I have signed this
specification in the presence of two subscribing
witnesses.

WALTER MARSH JACKSON.

Witnesses:

GEO. T. GADEN,

GEO. M. WARD.