

G. McMILLAN.  
GAS-REGULATOR.

No. 171,236.

Patented Dec. 21, 1875.

Fig. 1.

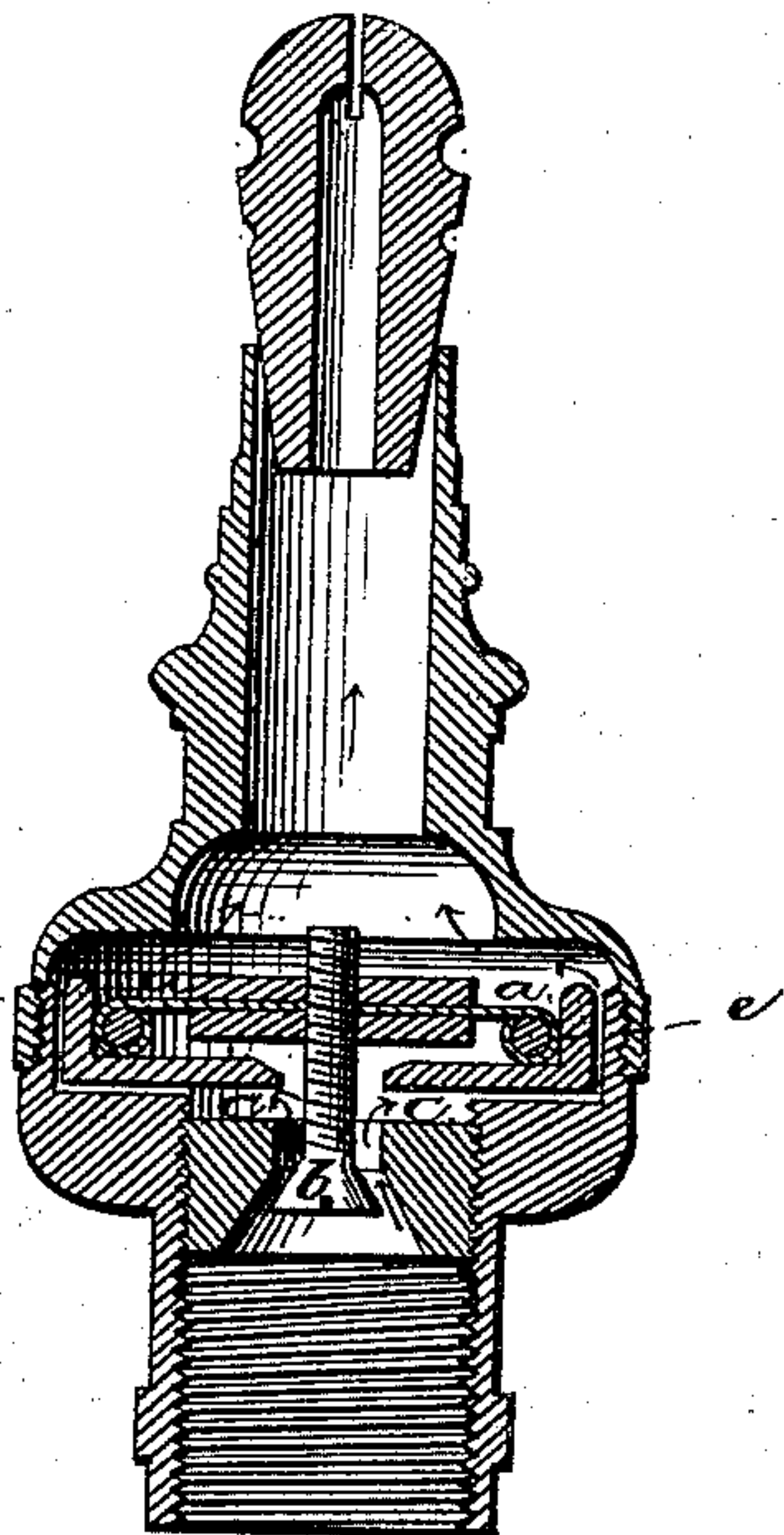


Fig. 2.

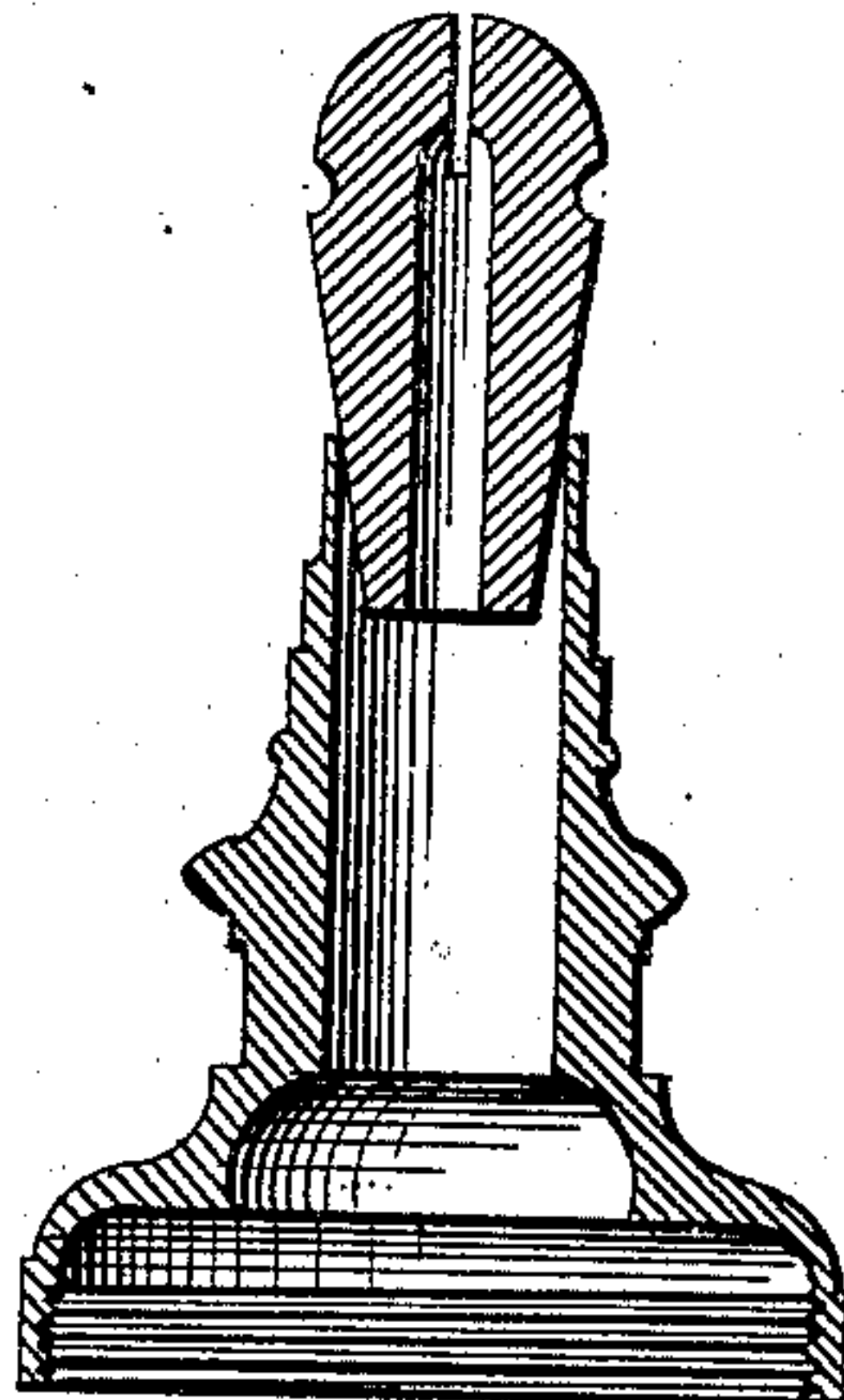


Fig. 3.

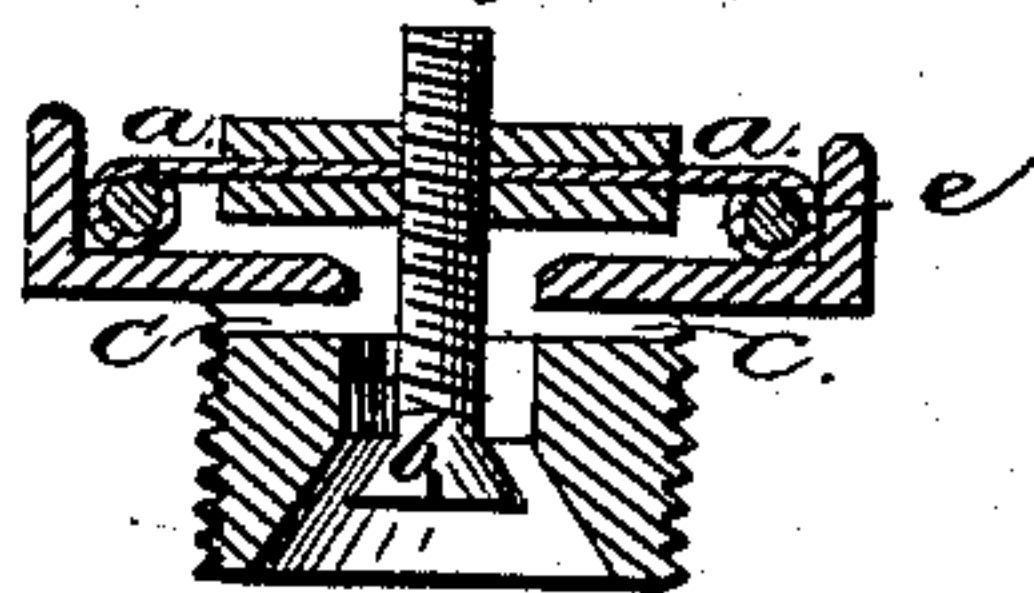


Fig. 5.

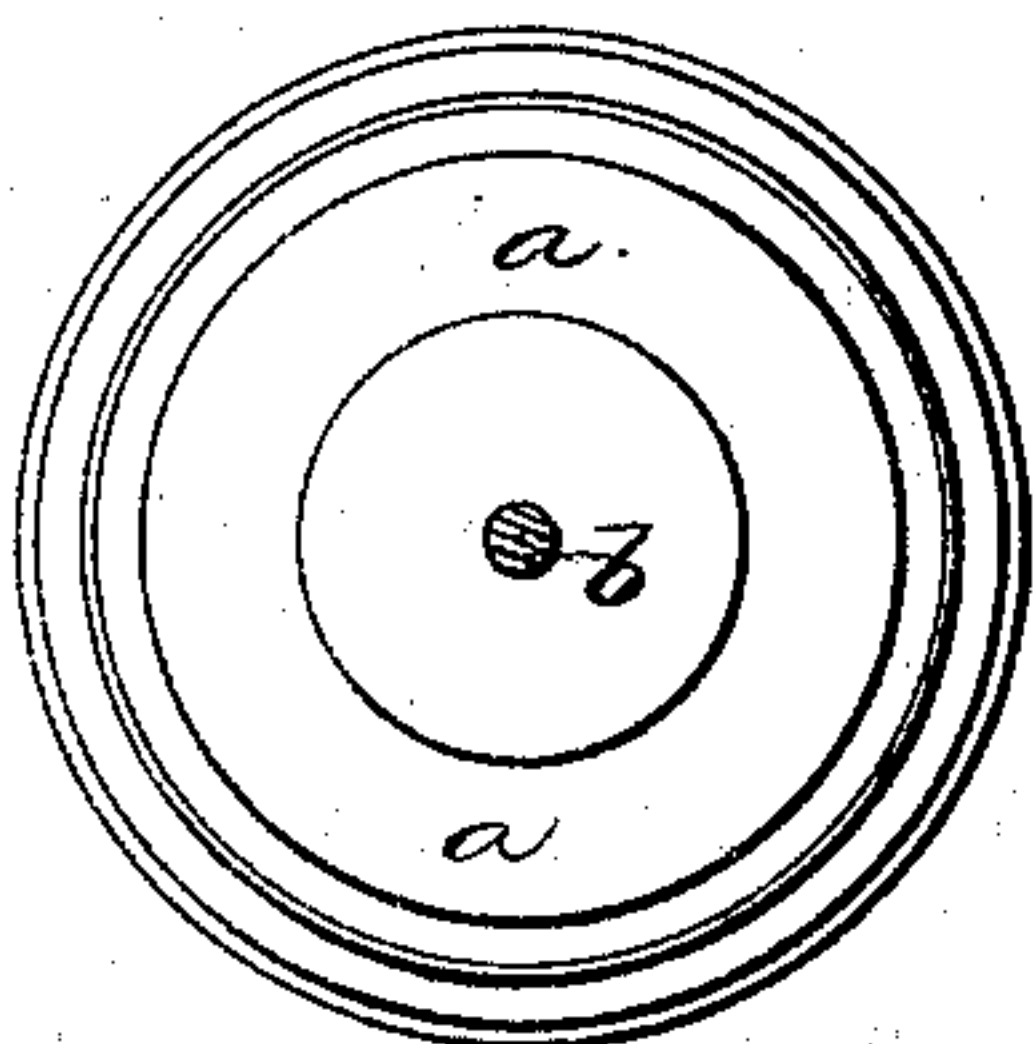
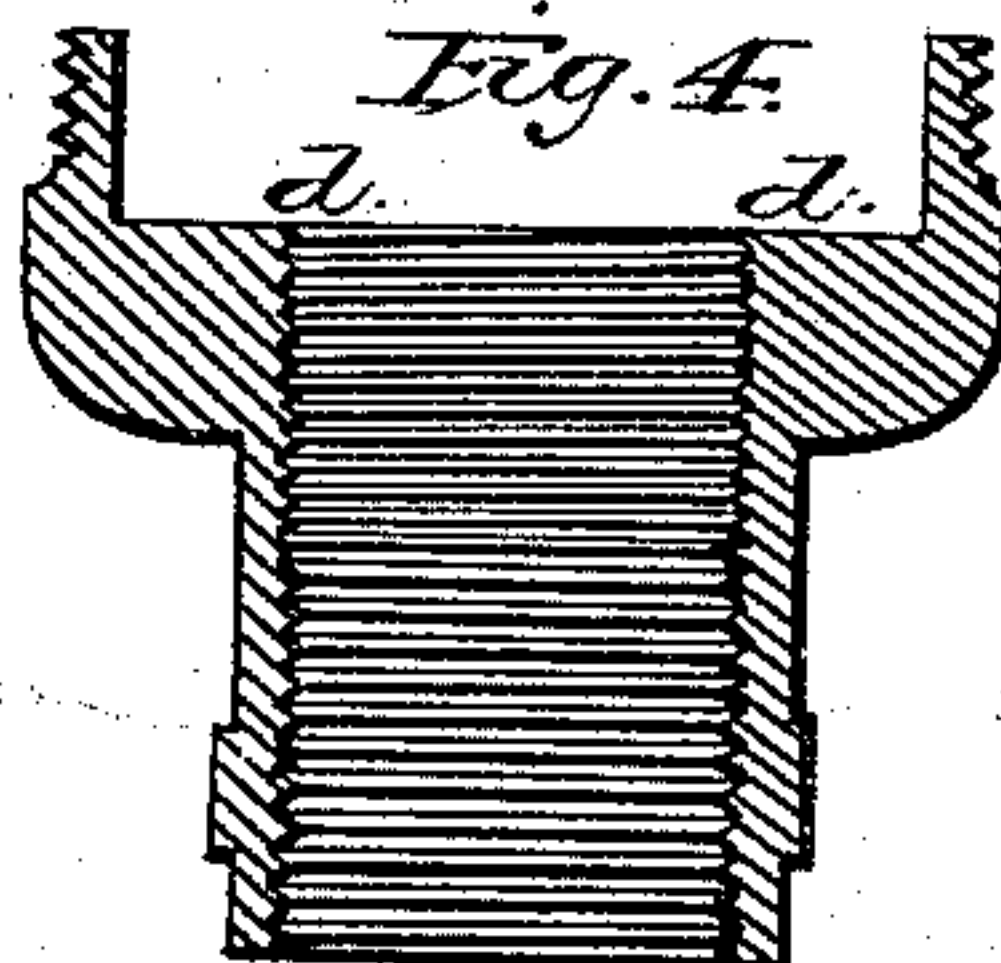


Fig. 4.



Witnesses:

H. J. Bliss.  
W. R. Sill.

Inventor:

George W. Millan—  
By E. H. McMillan  
his Attorney



# UNITED STATES PATENT OFFICE

GEORGE McMILLAN, OF LA CROSSE, WISCONSIN.

## IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. **171,236**, dated December 21, 1875; application filed October 28, 1875.

*To all whom it may concern:*

Be it known that I, GEORGE McMILLAN, of La Crosse, in the county of La Crosse, State of Wisconsin, have invented a new and Improved Adjustable Self-Regulating Gas-Burner, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical central section of my improved adjustable self-regulating gas-burner; and Figs. 2, 3, and 4, the same in detached portions, Fig. 2 being the tip portion, Fig. 3 the valve part, and Fig. 4 the base or lower portion.

Similar letters of reference indicate corresponding parts.

My invention relates to an improved adjustable self-regulating gas-burner, by which even pressure is maintained at the point of ignition, facility and ease of adjustment to any desired quantity of gas, perfect freedom from leakage by accident to the flexible diaphragm, or otherwise, and great saving in the quantity of gas for any given amount of light are combined with durability, simplicity, and cheapness of construction.

The invention consists of a gas-burner having flexible diaphragm and valve depending therefrom, secured in position by turning the outer edge of the leather diaphragm over a metallic ring having an outside diameter equal to the inside diameter of the upper portion of valve-section, Fig. 3, less the thickness of the leather or other material used for diaphragm, and placing the same below the diaphragm, within the upper portion of valve part, Fig. 3, by which it is securely held in place. A flexible diaphragm, *a*, of leather or other flexible suitable material, is interposed between the upper and lower sections in valve-section, Fig. 3, as above described. It supports centrally the stem of a valve, *b*, which opens according to the pressure of the gas on the diaphragm. The outside diameter of valve-section, Fig. 3, is made smaller than the inside

diameter of base-section, Fig. 4, so that when screwed in position, as at Fig. 1, it leaves an annular space around and under the valve-section for the delivery of the gas in the direction of the arrows, from the aperture *c* to the tip portion; the quantity of gas being regulated by screwing down the valve-section, Fig. 3, so that the delivery perforations *c c c c*, Fig. 3, will be covered to any desired extent, and the outflow of the gas lessened by the edge *d* of base-section, Fig. 4, giving perfect control of the quantity of gas used, said delivery perforations *c c c*, Fig. 3, being four or more in number, and situated below the upper thread of the screw on valve-section, Fig. 3. The flow of gas is thereby evenly kept up, giving a steady and uniform flame.

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

1. In self-regulating gas-burners, arranged with flexible diaphragm and valve depending therefrom, the combination of metallic ring *e* with diaphragm *a a* and upper vertical wall of valve-section, for the purpose of holding the diaphragm and valve in place, as described, and for the purpose set forth.

2. The gas-apertures *c c c c*, arranged in combination with internal screw *d*, as shown, so that by screwing the valve-section, Fig. 3, up or down, the apertures *c c c c* are enlarged or diminished, as described, and for the purpose set forth.

3. The combination of valve-section with base-section by means of screw *d*, as shown, so that a chamber for the transmission of gas is left between the two sections, and the gas-apertures *c c c c* may be enlarged or diminished, substantially as described.

GEORGE McMILLAN.

Witnesses:

H. I. BLISS,  
J. A. WALKER.