

(No Model.)

C. M. LUNGREN.
ATMOSPHERIC GAS BURNER.

No. 474,063.

Patented May 3, 1892.

Fig. 1.

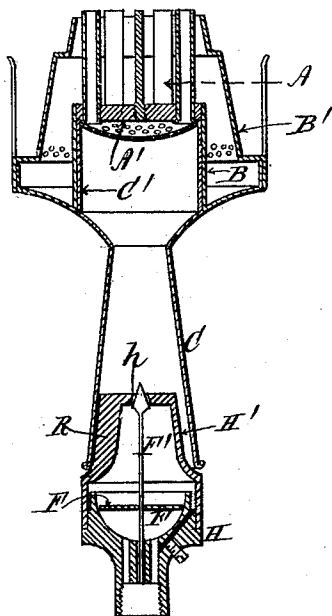
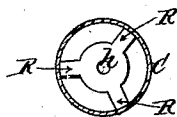


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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ATMOSPHERIC GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 474,063, dated May 3, 1892.

Application filed January 16, 1890. Serial No. 337,067. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. LUNGREN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Atmospheric 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.

This invention has reference to an improved construction of an atmospheric or Bunsen burner whereby it may be made to yield its maximum efficiency at varying gas-pressures. In such a burner to obtain the best results the eduction-jet of gas, by means of which the air is drawn in, should issue at as high a velocity as possible with any given pressure. This is attained by allowing the gas to come to the emission-orifice without any previous check, the size of this orifice determining the amount of gas that will pass. To adopt such a burner to different gas-pressures, so that at each pressure the burner will give the best possible results, I make this orifice adjustable and control the adjustment by means of the gas-pressure. I accomplish this by means of a governor-nozzle provided with a central opening in the head of its case, which opening discharges directly into the gas and air mixing tube of the burner. The size of this central opening is varied in accordance with the gas-pressure by the insertion and withdrawal of a taper-headed pin attached to a float, which rises and falls as the gas-pressure below it varies.

This improvement is applicable to any form of atmospheric burner, whether it is to be used in heating or cooking apparatus; but it is especially applicable to incandescent gas-lighting, in which it is important that the flame should always burn under the condition of maximum pressure available and should vary as little as possible.

In the drawing I have shown a form of atmospheric burner especially suitable for use in incandescent gas-lighting embodying my invention.

In the drawing, A is a group of tubes set in a head-plate A', from which the gaseous

mixture burns. The head-plate A' is set into the shell B, the outer upturned rim of which fits into the air-casing B'. The gas and air mixing chamber consists of a taper tube C, with an enlarged upper portion C', which fits into the shell B. The governor-nozzle fits into the lower end of this taper mixing-tube. It consists of a case in two parts H and H'. The part H' is provided with three or more taper ribs R, which fit the tube C, so that an air-space is left between the wall of C and the body of the case H', through which air is drawn into the tube C. The top of the case H' is provided with a central aperture h, into which enters the taper head of the pin F', which is attached to the float F. This float fits closely in the case H and is sustained in position by the pressure of the gas below it. As this pressure varies the float rises and falls, and thus varies the size of the gas-outlet h by the insertion and withdrawal of the taper-headed pin F'.

To adjust the amount of gas to be delivered by the regulator to a nicety, an adjustable by-pass J is provided around the float, by means of which gas may be admitted direct to the chamber above the float, its amount being controlled by the set-screw J'. In operation the gas issuing from the inlet below the float raises the float until a position of equilibrium is reached, the pin h entering the opening h' and diminishing the gas-outlet in proportion to the upward movement of the float. The admission of gas through the by-pass into the chamber above the float serves to increase the pressure above the float and cause it to descend and open the gas-outlet in proportion to the amount admitted. Any desired form of regulator may be used, a float-valve such as that described or a diaphragm, so long as the condition is observed that the discharge-orifice opening directly into the mixing-chamber of the burner is varied in size by means of the varying gas-pressure.

I claim—

1. In a gas-burner, the combination of a mixing chamber or passage to convey mixed gas and air to the burner-tip and a gas-nozzle arranged to deliver gas into said chamber or passage, the opening of which nozzle into the mixing-chamber is automatically controlled

by the pressure of the gas, substantially as specified.

2. An adjustable nozzle for an atmospheric gas-burner, comprising a gas-chamber provided with a gas-inlet, a gas-outlet opening
5 directly into the gas and air mixing chamber of the atmospheric burner and constituting the opening from which the eduction-jet of gas issues, a float arranged to move in said
10 chamber and be sustained by the gas-press-

ure, and a valve automatically operated by the float and serving to open and close the outlet into the mixing-chamber, substantially as specified.

In testimony whereof I affix my signature in 15 presence of two witnesses.

CHARLES M. LUNGREN.

Witnesses:

CURTIS LAMMOND,
ERNEST C. WEBB.