

No. 835,198.

PATENTED NOV. 6, 1906.

J. M. PFAUDLER.

GAS BURNER.

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Fig. 2.

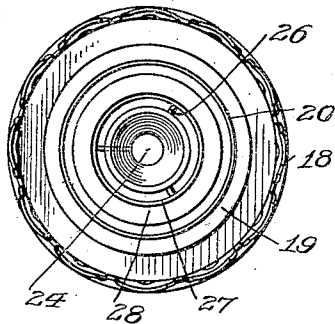


Fig. 4.

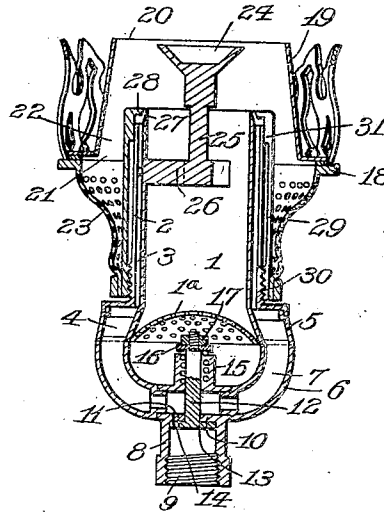


Fig. 5.

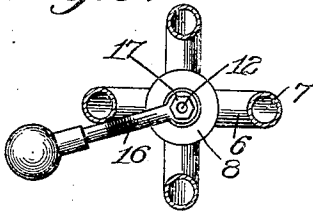


Fig. 3.

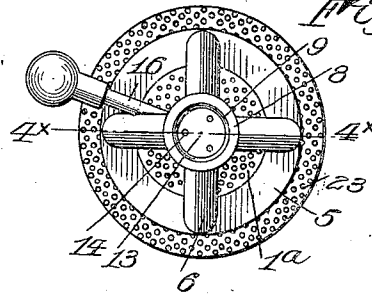
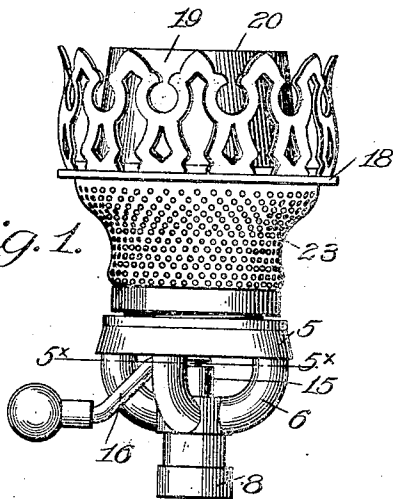


Fig. 1.



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GAS-BURNER.

No. 835,198.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN M. PFAUDLER, of Rochester, in the county of Monroe 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 same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to gas-burners, and particularly those for burning illuminating-gas, and it has for its object to provide one in which the proper proportion of air may be supplied to the gas-flame, so that the combustible products thereof may be thoroughly consumed to produce a flame of high illuminating power.

My invention has for its further object to provide means whereby the proportion of gas and air may be regulated, permitting the burner to be adjusted to gases varying in richness of carbon to produce flames of greater brilliancy than it has been possible to obtain heretofore.

To these and other ends the invention consists in certain improvements and combinations of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings, Figure 1 is a side elevation of a burner constructed in accordance with my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a bottom plan view. Fig. 4 is a vertical sectional view taken on the line 4^x 4^x of Fig. 3, and Fig. 5 is a horizontal sectional view taken on the line 5^x 5^x of Fig. 1.

Similar reference-numerals in the several figures indicate similar parts.

The gas-burner which I have shown to illustrate my invention consists of a central draft-tube 1, preferably cylindrical and open at its ends, the lower end being covered by a perforated plate 1^a. Surrounding this tube is a wall 2, spaced therefrom to form a narrow surrounding passage 3, which is connected at its lower end with a chamber 4. The latter is inclosed within the walls of a ring 5, forming the base of the burner, which is supported upon a plurality of tubes 6, comprising gas-inlet passages 7, leading from a head 8 and connected to the ring at various points to distribute the gas evenly at different points in

the chamber 4. The head 8 is provided with the interior thread 9, by means of which it may be connected to a gas-supply pipe, and intermediate the threads and the tubes 6 it is provided with a partition 10, having a plurality of apertures 11 therein and a central aperture through which extends a stem 12 on a valve-head 13, which is provided with apertures 14, adapted when in one position to register with the apertures 11. The valve-head is held in engagement with the partition 10 by means of a coil-spring 15, located in a recess in the head 8 and bearing against the lower side of the operating-arm 16, held in place by a nut 17 and having a laterally and downwardly extending end projecting between two of the tubes 6, forming a handle by means of which the valve-head 13 may be adjusted to regulate the volume of gas flowing to the burner.

In the practical construction of the device the tube 1 and its surrounding wall 2 are made of sufficient length to permit an even distribution of gas in the chamber 3, so that as it passes out of the unobstructed upper end thereof it will be emitted under equal pressure at all points of the outlet-orifice, preventing a streaking or uneven burning of the flame.

The chimney-gallery 18 surrounds the upper portion of the burner, and supported thereon is a frustum-shaped burner-cap 19, the upper edge 20 of which extends above the top of the draft-tube 1, while its lower edge or base 21 is arranged a short distance below the top of said tube and cooperating parts, providing an annular passage 22, into which air is admitted through the foraminous body or shell 23 to supply the outer side of the flame. Located above the tube 1 and preferably just below the upper edge of the cap 19 is located the deflecting-head 24, which may be conveniently supported, as shown, on a stem 25, held upon a web or spider 26 in the tube 1.

It is desirable upon occasion to regulate the volume of gas independently of the main valve 10 and to adjust the discharge or outlet orifice to increase or decrease the thickness of the annular sheet of gas emitted from the end of the chamber 3 without reducing its pressure, so that gas of different manufacture or different qualities of gas of one manufacture may be combined with the proper proportion of air to produce a flame of the

greatest brilliancy. To this end I extend the central tube 1 above the wall 2 and provide it with a beveled or inclined surface 27, with which coöperates a similar surface on the inner edge of a rim 28, projecting inwardly from an adjustable sleeve 29. This sleeve supports the chimney-gallery and the burner-cap and is provided at its lower end with screw-threads 30 of comparatively fine pitch, by means of which the sleeve may be elevated or lowered to increase or decrease the distance between the surface 27 on the tube 1 and the inner face of the flange 28. The sleeve is provided at its upper end with a bearing-surface 31, coöperating with the wall 2 to accurately center it thereon.

The operation of the burner embodying my invention will be readily understood. A rotary movement of the operating-handle 16 causes the valve-head 13 to be moved so that the apertures 14 therein will register with the apertures 11, permitting a free and unrestricted flow of gas into the tubes 6, through which it is conducted into the annular ring or chamber 4, in which the pressure of the inflowing jets is equalized before the gas flows upwardly through the long narrow passage 3, seeking an outlet at the upper end thereof, where it may be ignited and its combustion facilitated by a copious supply of air both at the inner and outer sides of the flame. If now from an inspection of the flame it appears that the gas is laden with too large a percentage of products of combustion in proportion to the amount of air supplied, the operator can regulate it by rotating the sleeve 29 relatively to the end of the draft-tube 1, and as the sleeve is accurately centered around this tube the sheet of gas emitted will be of equal thickness on all sides and may be regulated as desired to adjust the flame to that point where it will produce the greatest amount of illumination. By burning the gas in a comparatively thin annular sheet emitted from an orifice located within the burner-cap and arranged beneath the upper edge thereof it will be seen that the gas in its upward course obtains air at both its inner and outer sides. The air-deflecting head 24 may be omitted, if desired; but by locating it centrally of the draft-tube 1 and below the upper edge of the cap 19 it operates to direct the central air-supply outwardly in its upward course, causing it to more thoroughly commingle with the flame in proximity to the point of ignition.

I claim as my invention—

1. In a gas-burner having a continuous gas-orifice, the combination with a draft-tube arranged within the orifice and a burner-cap surrounding the draft-tube, of an air-deflecting head arranged centrally of the tube and located between the plane of the gas-orifice and that of the upper edge of the cap.

2. In a gas-burner, the combination with a supporting-head and a draft-tube, of a casing surrounding the latter forming a narrow annular passage open at its upper end and forming a continuous gas-orifice and an enlarged chamber at the lower end of said passage and a plurality of tubular supports connecting the head and chamber.

3. In a gas-burner, the combination with a draft-tube, of a surrounding wall separate from the tube and arranged in proximity thereto forming a narrow annular passage open at its upper end and a casing forming an enlarged supply-chamber connected to the bottom of said passage.

4. In a gas-burner, the combination with a draft-tube and a surrounding wall spaced therefrom, of a sleeve movably supported on the wall and means for adjusting it to regulate the area of the opening at the end of the chamber.

5. In a gas-burner, the combination with a draft-tube having an exterior beveled surface and a wall surrounding the tube beneath said surface and forming a gas-passage, of a longitudinally-adjustable sleeve mounted on the wall having an inwardly-extending rim coöperating with the beveled surface on the tube.

6. In a gas-burner, the combination with a draft-tube and a surrounding wall terminating below the end of the tube and forming a surrounding gas-passage, of a sleeve guided on the wall and adjustable thereon relatively to the draft-tube, a chimney-gallery supported on the sleeve and a burner-cap mounted on the sleeve.

7. A gas-burner comprising a draft-tube and a sleeve surrounding it forming a gas-chamber open at the end, one of said parts having an annular inclined surface and means for adjusting one of said parts relatively to the other to regulate the opening at the end of the chamber.

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