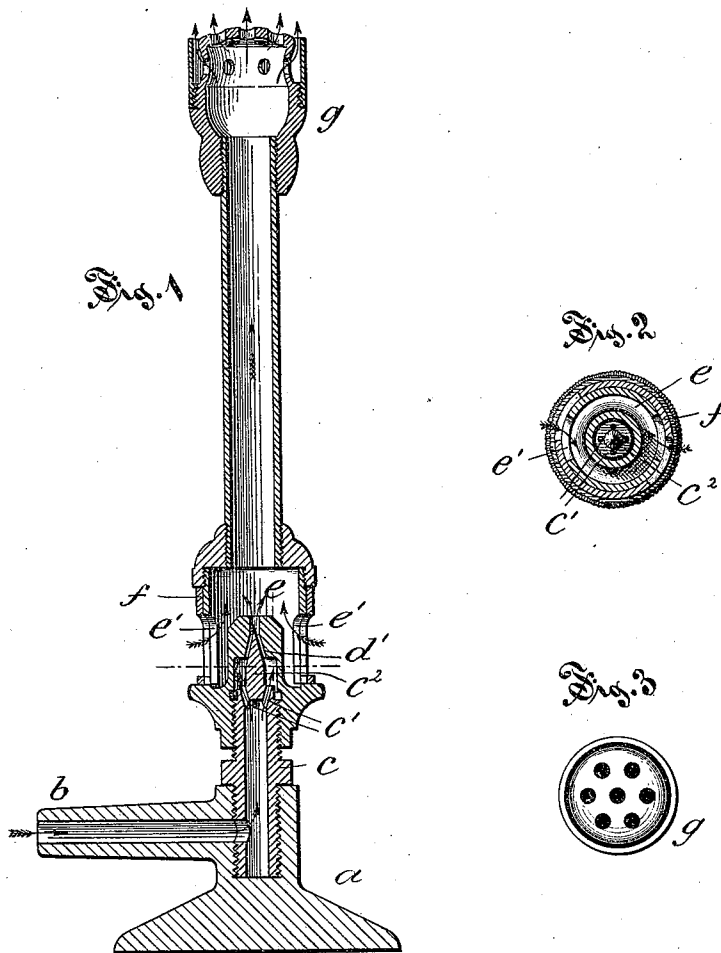


(No Model.)

J. F. BARKER.
GAS BURNER.

No. 434,013.

Patented Aug. 12, 1890.



Witnesses:

W. M. Yorkman,

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UNITED STATES PATENT OFFICE.

JOHN F. BARKER, OF SPRINGFIELD, MASSACHUSETTS.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 434,013, dated August 12, 1890.

Application filed December 14, 1886. Serial No. 221,496. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. BARKER, of Springfield, in the county of Hampden and State of Massachusetts, have invented certain
5 new and useful Improvements in Gas-Burners, of which the following is a full, clear, and exact description, whereby any one skilled in the art can make and use the same.

My invention relates particularly to the
10 class of burners used and adapted to burn gas for heating purposes, and is of the Bunsen type; and my object is to produce a burner to burn air-gas that is of a variable quality, richness, or candle-power.

My invention consists of a burner having
15 a base, a pillar, a mixing-chamber at the base of the pillar, and the peculiar arrangement of the independent and separately adjustable air and gas valves, and in the combination
20 of such parts with each other, and also with the enlarged jet, as more particularly herein-after described, and pointed out in the claims.

Referring to the drawings, Figure 1 is a
25 view in central vertical section of my improved burner. Fig. 2 is a view of the same in cross-section on plane denoted by line $x x$ of Fig. 1. Fig. 3 is a plan view of the burner top or jet.

In the accompanying drawings, the letter
30 a denotes the base of the burner, that is usually of metal cast to shape, with the tubular inlet b and an upright stem c , onto which is screwed or otherwise adjustably fastened the lower end of the pillar d . The upper end of
35 the stem c , which is hollow, has a number of openings c' for the passage of the gas, and between them a tapered or pointed spindle c^2 , which extends into an opening d' in the concave bottom of the pillar when the parts
40 are screwed together. The base of this pillar is enlarged so as to form an air-chamber e , and through the walls of this piece are the port-openings e' , while a rotary collar or sleeve
45 f surrounds the base and is movable on it, so that the openings through this gate may be made to register with the openings in the air-chamber, or the latter may be closed by turning the sleeve a sufficient distance. The main
50 body of the pillar extends above this chamber for a certain distance and terminates in a tip g , that is enlarged to several times the size of the main pillar, and has a number

of outlet-openings through the top of the tip and also through the side walls, the latter being within a chamber formed about the
55 sides of the top and opening on about the level of the top of the latter. By turning the base of the pillar upon the stem the valve-spindle may be made to open or close the valve-opening d' , that controls the flow of gas
60 into the mixing-chamber and through the pillar, and when the adjustment has been made for the desired quantity of gas a further adjustment of the parts may be made by moving the collar f , so that the exact quantity of
65 air necessary to produce either a yellow flame or a green flame may be allowed to enter the chamber e , and mixing with the gas pass through the pillar to the jet, where it may be ignited.

In the ordinary form of Bunsen burners
70 the gas-inlet is of a fixed size, as it is adapted to be used with coal-gas that is always of certain standard richness of about eighteen candle-power; but such a form of burner is not
75 adapted for use with carbureted air, in which this quality is very variable. By adjusting the gas-valve to admit the proper quantity of gas in relation to its richness at a given time there is danger of so increasing the velocity
80 as to blow the flame off the top of the burner, so that with merely this adjustment the burner would be of but little value. By providing means for regulating the supply of air also the desired kind of flame may be furnished
85 at the tip of the burner without its requiring any change in the size of the pillar that would otherwise be necessary to obtain the same result in the absence of an air-controlling valve.

By the term "independent," as applied to
90 the valves in the following claims, I mean to refer to the feature of separate adjustment that enables the quantity of air alone or the quantity of gas alone to be controlled or determined as it flows into the burner.

I claim as my improvement—

1. In a burner, in combination with a base having an inlet-opening, a projecting stem adjustable vertically in the base and terminating in a pointed valve-spindle, the pillar-
100 base having an inlet-opening for gas located opposite the end of the valve-spindle, the pillar adjustably mounted on the base and having the enlarged mixing-chamber with ad-

justable air-inlets through its wall, and the sliding collar for closing the air-inlets, all substantially as described.

2. In a burner of the within-described class,
5 the base having an inlet, the threaded stem vertically adjustable in the base, said stem terminating in a pointed valve-spindle, the pillar-base having the gas-inlet communicating with the mixing-chamber, the mixing-
10 chamber at the base of the pillar, having the openings through its walls for the admission

of air, the adjustable gate *f*, and the burner top or jet surmounting the pillar and having a diameter larger than that of the pillar and provided with a plural number of outlet- 15 openings on the top and sides, all substantially as described.

JOHN F. BARKER.

Witnesses:

GEORGE COSTER,

HERBERT A. HOLLAND.