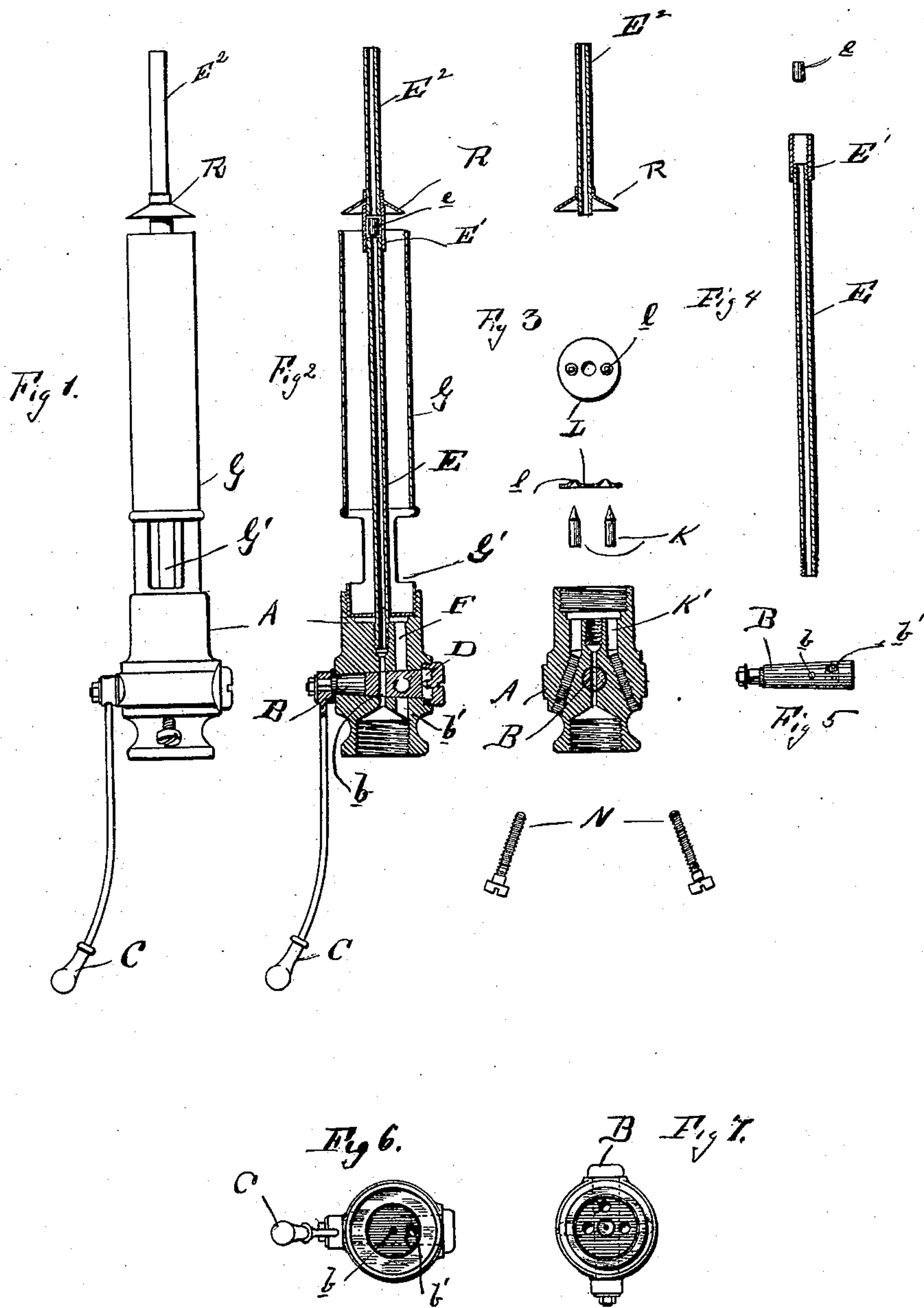


(No Model.)

W. L. SMITH.
INCANDESCENT GAS BURNER.

No. 599,809.

Patented Mar. 1, 1898.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM L. SMITH, OF CHICAGO, ILLINOIS.

INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 599,809, dated March 1, 1898.

Application filed May 14, 1897. Serial No. 636,590. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. SMITH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Incandescent Gas-Burners; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in incandescent gas-burners, and especially to an improved by-pass whereby a small jet of flame may be maintained without the likelihood of its being blown out by any sudden gust of air and which will afford a constant means for igniting the flame in a Bunsen burner when the gas is turned on the latter.

In carrying out the present invention it is my purpose to generally improve upon the construction of burner an application for Letters Patent on which is now pending in the Patent Office; and to these ends I provide means for regulating the flow of the gas to the different ducts and provide suitable valves and a peculiar construction of burner whereby a minute flame may be maintained constantly without liability of being extinguished by a gust of air, which is an important desideratum.

To these ends and to such others as the invention may pertain the same consists, further, in the novel construction, combination, and adaptation of the parts, as will be hereinafter more fully described, and then specifically defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which form a part of this application, in which drawings similar letters of reference marked thereon form a part of this specification, and in which drawings similar letters of reference indicate like parts throughout the several views.

Figure 1 is a side elevation of my improved burner. Fig. 2 is a central vertical sectional view of my improved burner. Fig. 3 is a sec-

tional view showing the relative arrangement of the parts of the burner. Fig. 4 is a sectional view longitudinally through the inner gas-conveying tube, at the upper end of which is designed to be seated the constant flame. Fig. 5 is a detail view of the turning plug. Fig. 6 is a bottom plan view of the burner. Fig. 7 is a top plan view of the by-pass.

Reference now being had to the details of the drawings by letter, A designates the body portion of the by-pass, having its lower portion screw-threaded for attachment to a gas-fixture, and mounted horizontally in the body portion thereof is the turning plug B, to which is secured at one end an operating-handle C, while its other end is held in place by means of a nut engaging in a recessed portion of the by-pass. The inner end of said retaining-nut is hollowed out, as seen at D, and in which space a lubricant may be carried. This turning plug is provided with two passages through its body portion, which are lettered in the drawings *b* and *b'*, the smaller of the two, *b*, being provided to allow gas to pass from the space beneath through the plug and into the inner tube E, which is screwed into a central screw-threaded hole in the body portion A. The larger of the said passages, *b'*, which is made at right angles to the direction of the passage *b*, is provided to allow gas to pass from the fixture through said passage and into the duct F above. From this construction it will be readily understood that by manipulating the handle attached to the turning plug the gas may be turned on through the larger duct or by turning a partial revolution the gas may be made to pass through the smaller passage, which leads to the inner tube.

Mounted in the upper screw-threaded portion of the body portion is the tubing G, which is provided with a series of apertures G' just above the portion which screws into the by-pass. This tube is open at its upper end, where the larger flame is seated, when the gas is turned on through the larger duct *b'*, a suitable amount of air being mixed with the gas as it passes by the apertures G'.

In order to more effectually regulate the flow of gas, I have devised certain valves in the body portion, which consist of short cy-

lindrical-shaped tapering pointed plugs K, which are carried in the vertical ducts K' with their points upward. Seated on a shoulder immediately below the screw-threaded portion of the by-pass is a disk L, which has a central aperture, through which the inner tube is designed to pass, and two tapering apertures *ll*, into which the points of the plugs are designed to pass when the said plugs are raised by means of the screws N being screwed up against the lower ends of the same.

Near the upper end of the tube G is secured to the top of the inner tube E a union E', within which is carried the valve-plug *e*, and E² is a tube screwed to the upper end of the said union, and R is a spreader secured to the tube E² and may rest on the shoulder formed by the upper end of the said union. This valve-plug is provided merely for the purpose of regulating the supply of gas, which is allowed to pass through the inner tube and is regulated by merely screwing up or down the upper screw-threaded tube E² in the union containing the plug.

From practice it has been demonstrated that a by-pass constructed in accordance with my invention as above described, and illustrated in the accompanying drawings, will allow the small flame to burn continuously without any liability of its being extinguished from sudden gusts of air and the larger flame will be automatically ignited as the operating-lever is operated, so as to allow the gas to pass from the fixture into the space surrounding the inner tube and within the walls of the surrounding larger Bunsen tube.

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

1. An incandescent burner for gas-fixtures comprising the body portion of the burner

having a turning plug mounted therein, means for operating same, an apertured disk mounted on a shoulder in the upper portion of the by-pass, tapering plugs, carried within the body portion or by-pass, and designed to regulate the supply of gas passing through the passages in said disk, the inner and outer tubes, and means for operating the regulating-plugs, combined substantially as shown and described.

2. An incandescent burner having in combination with the by-pass portion, provided with the turning plug with passages at right angles to each other through same, the disk mounted on a shoulder in the by-pass portion and having tapering apertures therein, the regulating-plugs, vertically movable in ducts in the body portion, set-screws mounted in inclined apertures and designed to force the tapering points of the said plugs into the tapering holes in the disk, and the inner and outer tubes, arranged substantially as shown and described.

3. In an incandescent burner for gas-fixtures, the combination with the by-pass, having the arrangement of regulating valves and ducts, as described, of the tube G mounted on the upper portion thereof, an inner tube secured to the by-pass, a union connected to the upper end of the inner tube, the tube E², secured to the union, a regulating-valve *e* carried within the union, and a spreader R mounted on said tube, all substantially as shown and described.

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

WILLIAM L. SMITH.

Witnesses:

WILL F. A. BERNAMER,
FREDERICK A. POMEROY.