

J. STUBBERS.
VAPOR GAS BURNER.

Patented May 7, 1895.

Fig. 1.

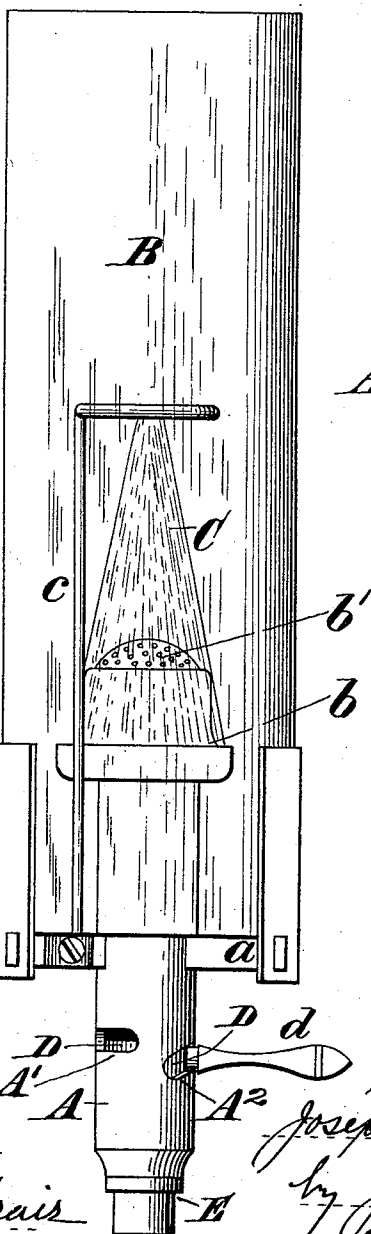


Fig. 3.

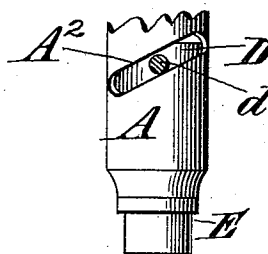
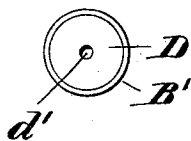


Fig. 4.



Attest

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UNITED STATES PATENT OFFICE.

JOSEPH STUBBERS, OF COVINGTON, KENTUCKY.

VAPOR-GAS BURNER.

SPECIFICATION forming part of Letters Patent No. 538,801, dated May 7, 1895.

Application filed November 10, 1894. Serial No. 528,408. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH STUBBERS, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Vapor-Gas Burners, of which the following is a specification.

My invention relates to vapor-gas burners, or those using gas made from gasoline, or other similar hydrocarbons, and, more especially speaking, to illuminating-burners using the well-known Welsbach incandescent mantle; and my invention consists in the novel features of construction hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of a vapor-gas burner complete embodying my invention and showing it in operation with said Welsbach mantle; Fig. 2, a central sectional elevation of the same, but omitting the glass chimney and its supports; Fig. 3, a broken elevation showing the lower end of the burner seen in Fig. 1, but at right angles thereto; and Fig. 4, a plan view of the gas and air regulating plug.

A, represents the burner-barrel, having the usual spring-arms or spider *a* for supporting the glass-chimney B.

C, is a conical Welsbach mantle supported over the burner-barrel by means of the customary standard *c*.

b and *b'*, respectively, represent the customary cup, and perforated diffuser-cap set on the top of burner-barrel A, to lie within the open lower end or mouth of mantle C.

A' is a horizontal slot or elongated opening pierced in the burner-barrel near its lower end, somewhat below the spider-arms *a*; and A² is an oblique slot, or inclined elongated opening, pierced in said burner-barrel directly opposite said slot A', its center being about on a level with the horizontal center of said slot A'. These slots A' and A² constitute atmospheric-air entrances or inlets to the burner, and the latter (A²) serves in another capacity presently hereinafter described.

D is a plug fitting within the lower, slotted-end of barrel A, and provided with a handle *d*, projecting laterally therefrom, through the inclined-slot A². This plug is preferably provided with a thin, pliable and readily con-

formable sheet-metal band or shell B' whereby it fits closely within said barrel, proof against leakage, but perfectly free to turn and reciprocate vertically, within said barrel, by means of said handle, which latter is slightly narrower in thickness than the width of said inclined-slot A², and freely rides in contact with either the lower or the upper wall thereof to simultaneously give the plug said rotary and vertical movements, whereby the atmospheric-air feeding-capacity through said slots may be increased or diminished and readily regulated. *d'* is a central gas opening or orifice in the plug, having an inclined or beveled under side to form a suitable valve-seat.

E represents a hollow, screw-threaded plug engaging the lower, internally-threaded end of the burner-barrel and provided with a conical or needle-point valve *e*, the latter projecting upward and lying within the said central orifice *d'* in plug D.

e' represents each one of a number of gas exit-orifices pierced in the upper end of hollow-plug E, and leading to the gas-chamber D' in the plug D, as best seen in Fig. 2. Plug E is internally screw-threaded, as customary, for securing in place on the threaded nipple of the bracket or chandelier.

In the operation of my device, it will be seen that the turning of the handle to the right raises the plug D and thereby diminishes the size and capacity of the air-inlets A' and A², the latter forming both an air-inlet and a guide or cam to raise or lower said plug simultaneously with the turning thereof.

In Figs. 1 and 2, the top of the plug D is at mid position in both the slots, thus cutting off about one-half the air-capacity, and in Fig. 3, the top of the plug D has passed beyond the upper portion of slot A', thereby cutting off all supply of air therethrough, and allowing a minimum quantity to pass inwardly through the upper portion of inclined guide-slot A². The needle-valve remains stationary in the bottom of the burner-barrel and, as the plug D rises on said turning of the handle to the right, the central gas exit-opening becomes greater, thus giving to the burner a greater supply of gas with less air, to suit the quality of said gas.

The proper admixture of the gas and atmospheric air is very readily accomplished

by means of my vertically-moving plug D and stationary needle-valve, the increase in gas-feed and decrease in air-feed being simultaneously done by said simple and single
 5 act of turning the handle to the right, and the decrease in gas-feed and increase in air-feed being also simultaneously done by said simple and single act of turning said handle to the left. A very fine adjustment can, also,
 10 be thereby facilitated for the proper admixture of the gas and air, and I am thereby enabled to use a very low grade, as well as the better grades, of gasoline in making the gas for supplying my burner.

15 The blue-flame necessary to heat the mantle to incandescence is obviously very readily attained and maintained in the use of my gas and air regulating and properly mixing device.

I claim—

20 1. In a vapor-gas burner, the combination with a burner-barrel having one or more air-inlet openings therein, of a gas-orificed plug in said barrel, and a needle-point valve mounted in said barrel below said plug and
 25 adapted to engage the gas-orifice therein, said air and gas inlets to the burner being collectively-controlled at any time by a single operation or movement whereby the supply of air may be increased and the supply of gas
 30 simultaneously decreased, and vice versa, or both admitted to the burner in equal proportions, and all said operations being subject to the quality of gas used, substantially as herein set forth.

35 2. In a vapor-gas burner, the combination with a burner-barrel having one or more air openings therein, of a centrally-orificed gas-inlet plug within said barrel adjacent said
 40 air-inlet and operating in regulating-connection with said air-inlet to simultaneously control the entrance or flow of both air and gas to the burner, and a needle-point valve directly engaging said gas-orifice to control the
 45 flow of gas, the operative-relations of said air-openings, centrally-orificed plug, and needle-point valve being such that the proper ad-

mixture of air and gas can be readily acquired and regulated at all times, and the supply of air increased and inlet of gas decreased simultaneously, and vice versa, or both admitted
 50 to the burner in equal proportions, all said operative-relations being effected by said plug and to suit the quality of gas used, substantially as herein set forth.

3. In a vapor-gas burner, the combination
 55 with a burner-barrel having one or more air openings therein, of a vertically-moving plug D having a central gas orifice, and a stationary needle-point valve engaging said gas-orifice, said plug D being raised or lowered
 60 in connection with said air inlet opening or openings and needle-point valve, whereby the gas-supply may be increased and the air-supply decreased simultaneously, and vice versa, substantially as herein set forth. 65

4. In a vapor-gas burner, the combination of a burner-barrel having one or more air openings therein, a mantle or filament C supported thereover by means of a suitable stand-
 70 ard c, a vertically-moving plug D having a central gas orifice d', and a stationary needle-point valve e engaging said gas-orifice, the whole being mounted within a suitable glass-chimney, and adapted to be operated whereby
 75 said mantle shall become incandescent, substantially as herein set forth.

5. In a vapor-gas burner, the combination of an upright air-orificed burner barrel or tube A; a gas and air regulator-plug D having a
 80 central gas-orifice d' and gas-chamber D', and mounted within said burner-barrel; a needle-point e; and a pliable, thin sheet-metal, readily-conformable band or cylindrical-shell B', vertically surrounding and attached to
 85 said plug and interposed between the latter and the inner wall of the burner-barrel, substantially as herein set forth.

JOSEPH STUBBERS.

Witnesses:

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