

No. 708,860.

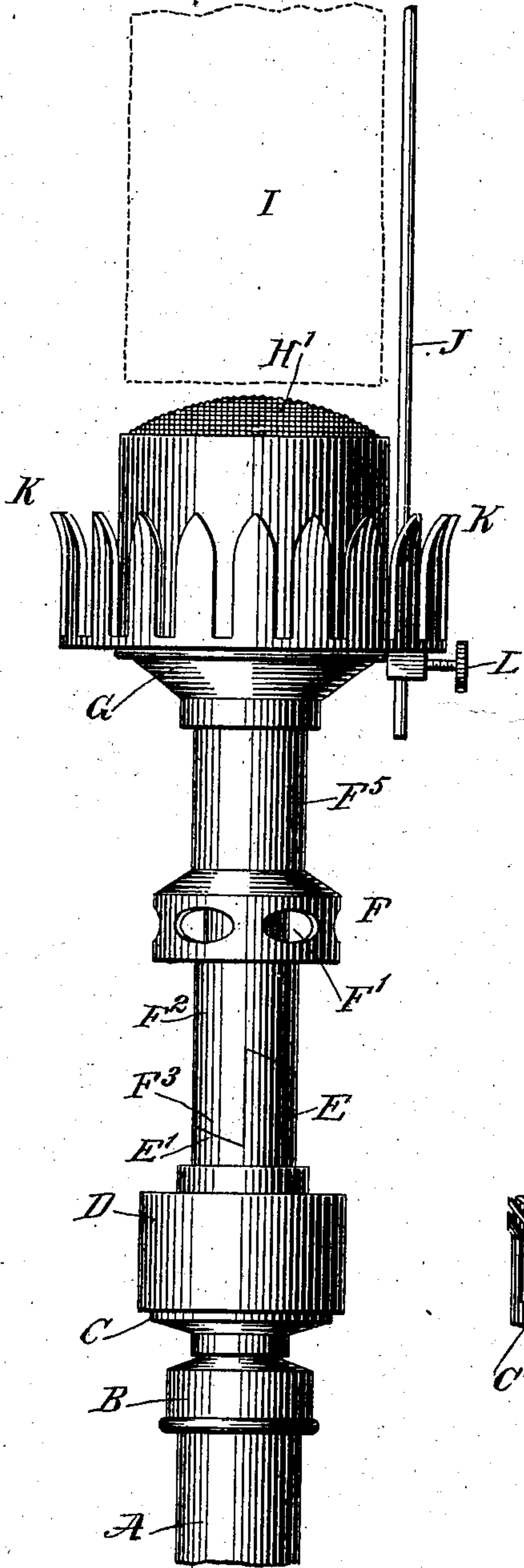
Patented Sept. 9, 1902.

J. BUCHANAN.
INCANDESCENT GAS BURNER.

(Application filed Jan. 9, 1902.)

(No Model.)

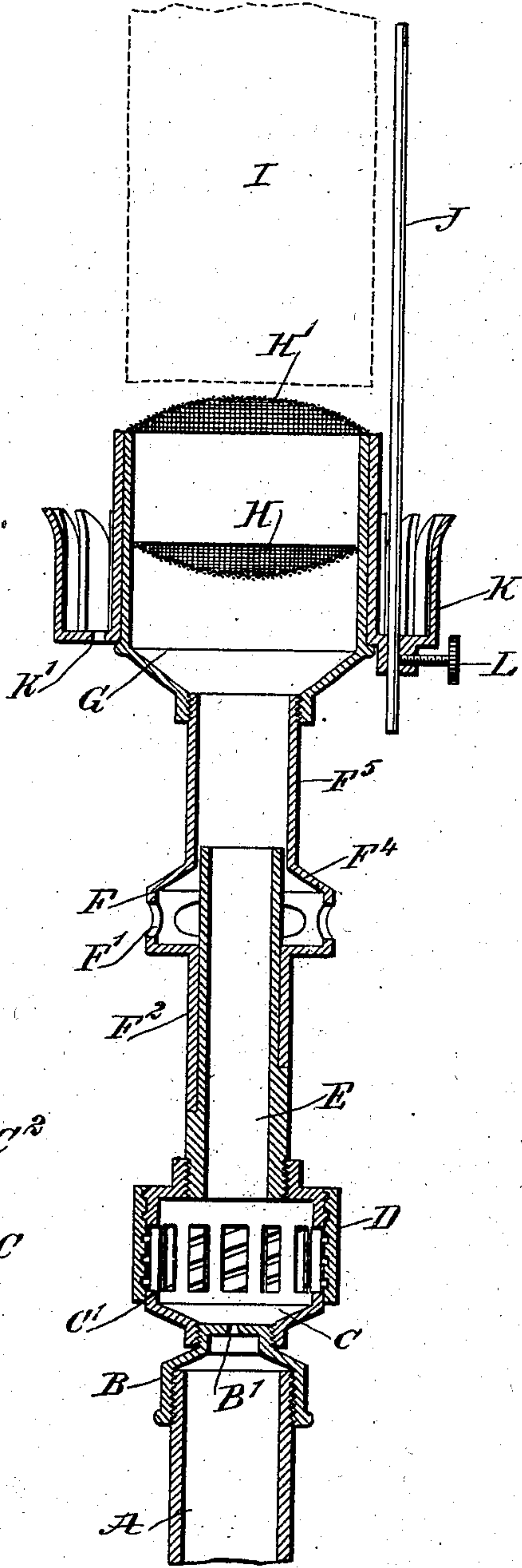
Fig. 1,



WITNESSES:

Edward Thorpe
Reed Hosh

Fig. 2,



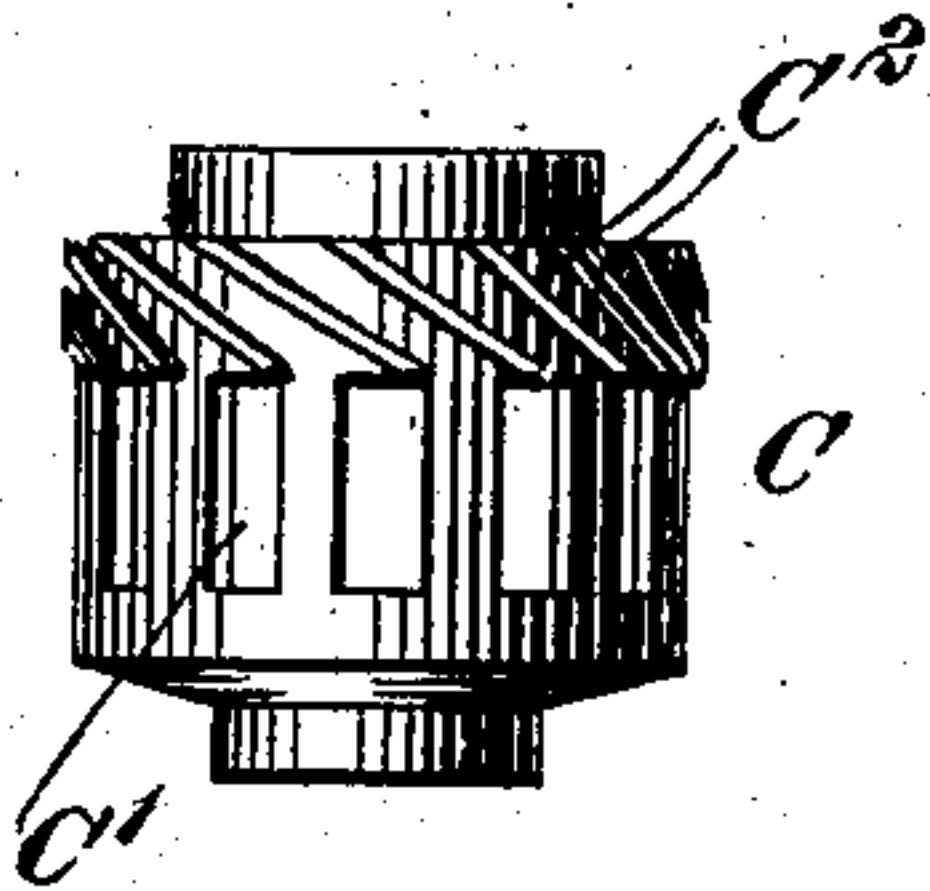
INVENTOR

James Buchanan

BY

Mumford
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Fig. 3.



UNITED STATES PATENT OFFICE.

JAMES BUCHANAN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO JOHN B. CONOVER, OF FREEHOLD, NEW JERSEY.

INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 708,860, dated September 9, 1902.

Application filed January 9, 1902. Serial No. 88,991. (No model.)

To all whom it may concern:

Be it known that I, JAMES BUCHANAN, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Incandescent Gas-Burner, of which the following is a full, clear, and exact description.

The invention relates to incandescent gas-burners in which a mantle is rendered incandescent by the burning of a mixture of gas and air within the mantle.

The object of the invention is to provide a new and improved incandescent gas-burner which is simple and durable in construction and arranged to insure a perfect mixture of the air and gas and at the same time use but a minimum of gas in the mixture, the arrangement causing a proper burning of the mixture to produce a complete and brilliant incandescence of the mantle, and hence a light of great strength, brilliancy, and softness.

The invention consists of novel features and parts and combinations of the same, as will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all of the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is a sectional side elevation of the same. Fig. 3 is a side elevation of the preliminary mixing-chamber.

The gas-supply pipe A is provided with a cap or a tip B, having a small outlet-opening B' for conducting the gas into the preliminary mixing-chamber C, provided in its side wall with apertures C', adapted to be closed or fully opened by a nut D, screwing on external screw-threads C², formed on the outside of the mixing-chamber C. Thus by the operator turning the nut D and screwing the same up or down the apertures C' are more or less uncovered to admit more or less air into the mixing-chamber to mix with gas therein.

From the top of the mixing-chamber C extends upwardly an outlet-pipe E, surrounded near its upper end by an annular chamber F, having large air-inlet openings F' for con-

ducting the air into the said annular chamber and to the mixture of air and gas passing up the pipe E. On the bottom of the chamber F is arranged a sleeve F², engaging the pipe E, and the lower end of the said sleeve is formed with an incline F³, engaging a corresponding incline E', arranged on the pipe E, so that when the sleeve F² of the chamber F is turned then the chamber F is caused to move up and down, so as to allow more or less air to pass from the chamber to the upper end of the pipe E. When the sleeve F² is in a lowermost position, as shown in Figs. 1 and 2, then the upper end of the pipe E extends into the conducting-pipe F⁵, integral with the top of the chamber F. This conducting-pipe F⁵ supports the main mixing-chamber G, containing the wire-screens H H', spaced a suitable distance apart, and preferably the one concave and the other convex, as plainly indicated in Fig. 2. The screen H is located about midway of the height of the chamber G, while the screen H' is on top of the chamber directly under the mantle I, supported in the usual manner on the upper end of the supporting-rod J, held vertically adjustable in the chimney K and secured therein by a set-screw L. The chimney-carrier K is fitted on the outer face of the main mixing-chamber G and rests on a shoulder thereon, and in the bottom of the said carrier K are arranged small openings K', adapted to conduct air to the inside of the chimney and outside of said mantle, so that cool air passes between the mantle I and the chimney, thus protecting somewhat the chimney from the intense heat of the flame and mantle.

By the arrangement described a preliminary mixing of gas and air takes place in the chamber C and an additional amount of air is admitted to this mixture at the annular chamber F and in the pipe F⁵, and this mixture in passing through the screens H and H' forms an easily-combustible mixture, which when ignited renders the mantle I incandescent and produces a very powerful light, which combines brilliancy with softness.

It is understood that the gas and air in passing through the fine meshes of the screens H and H' become thoroughly mixed, and as but a small amount of gas is admitted into the

burner it is evident that great economy of gas is had.

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

1. An incandescent gas-burner, having a preliminary mixing-chamber for the gas and air and provided in its sides with apertures, a gas-supply cap having a small aperture opening into the said mixing-chamber, a valve in the shape of a nut screwing on the outside of the chamber to close or open the apertures thereof, an outlet-pipe extending from the said mixing-chamber, an annular air-chamber around the upper end of the said outlet-pipe, to admit air to the mixture of air and gas passing up the pipe, the said air-chamber being vertically adjustable on the said pipe, and a conducting-pipe into which the outlet-pipe projects, as set forth.

2. An incandescent gas-burner, having a preliminary mixing-chamber for the gas and air and provided in its sides with apertures, a gas-supply cap having a small aperture opening into the said mixing-chamber, a valve in the shape of a nut screwing on the outside of the chamber to close or open the apertures of the said chamber, an outlet-pipe extending from the said mixing-chamber, a vertically-adjustable annular air-chamber around the upper end of the said outlet-pipe, to admit air to the mixture of air and gas passing up the pipe, a conducting-pipe leading from the said annular air-chamber concentric with the said outlet-pipe, and a main mixing-chamber on the end of the said conducting-pipe, as set forth.

3. An incandescent gas-burner, having a preliminary mixing-chamber for the gas and air and provided in its sides with apertures, a gas-supply cap having a small aperture opening into the said mixing-chamber, a valve in the shape of a nut screwing on the outside of the chamber to close or open the apertures of the said chamber, an outlet-pipe extending from the said mixing-chamber, a vertically-adjustable annular air-chamber around the upper end of the said outlet-pipe, to admit air

to the mixture of air and gas passing up the pipe, a conducting-pipe leading from the said annular air-chamber concentric with the said outlet-pipe, a main mixing-chamber on the end of the said conducting-pipe, and spaced screens in the said main mixing-chamber, as set forth.

4. In an incandescent gas-burner, the combination with a preliminary mixing-chamber having an outlet-pipe extending from its top, of a vertically-adjustable annular air-chamber mounted on the outlet-pipe and provided with a conducting-pipe extending from its top and into which the outlet-pipe of the preliminary mixing-chamber projects, and a main mixing-chamber carried by the conducting-pipe, as set forth.

5. In an incandescent gas-burner, the combination with a preliminary mixing-chamber having an outlet-pipe extending from its top, of a vertically-adjustable annular air-chamber mounted on the outlet-pipe and provided with a conducting-pipe extending from its top and into which the outlet-pipe of the preliminary mixing-chamber projects, a main mixing-chamber carried by the conducting-pipe, and spaced screens in the said chamber, one screen being convex and the other concave, as set forth.

6. In an incandescent gas-burner, the combination with a preliminary mixing-chamber having an outlet-pipe extending from its top, said pipe being provided with an inclined surface, of an annular air-chamber having a sleeve fitting on the outlet-pipe and provided with an incline surface engaging the incline surface of the pipe, and with a conducting-pipe into which the outlet-pipe projects, and a main mixing-chamber carried by the conducting-pipe, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES BUCHANAN.

Witnesses:

THEO. G. HOSTER,
EVERARD B. MARSHALL.