

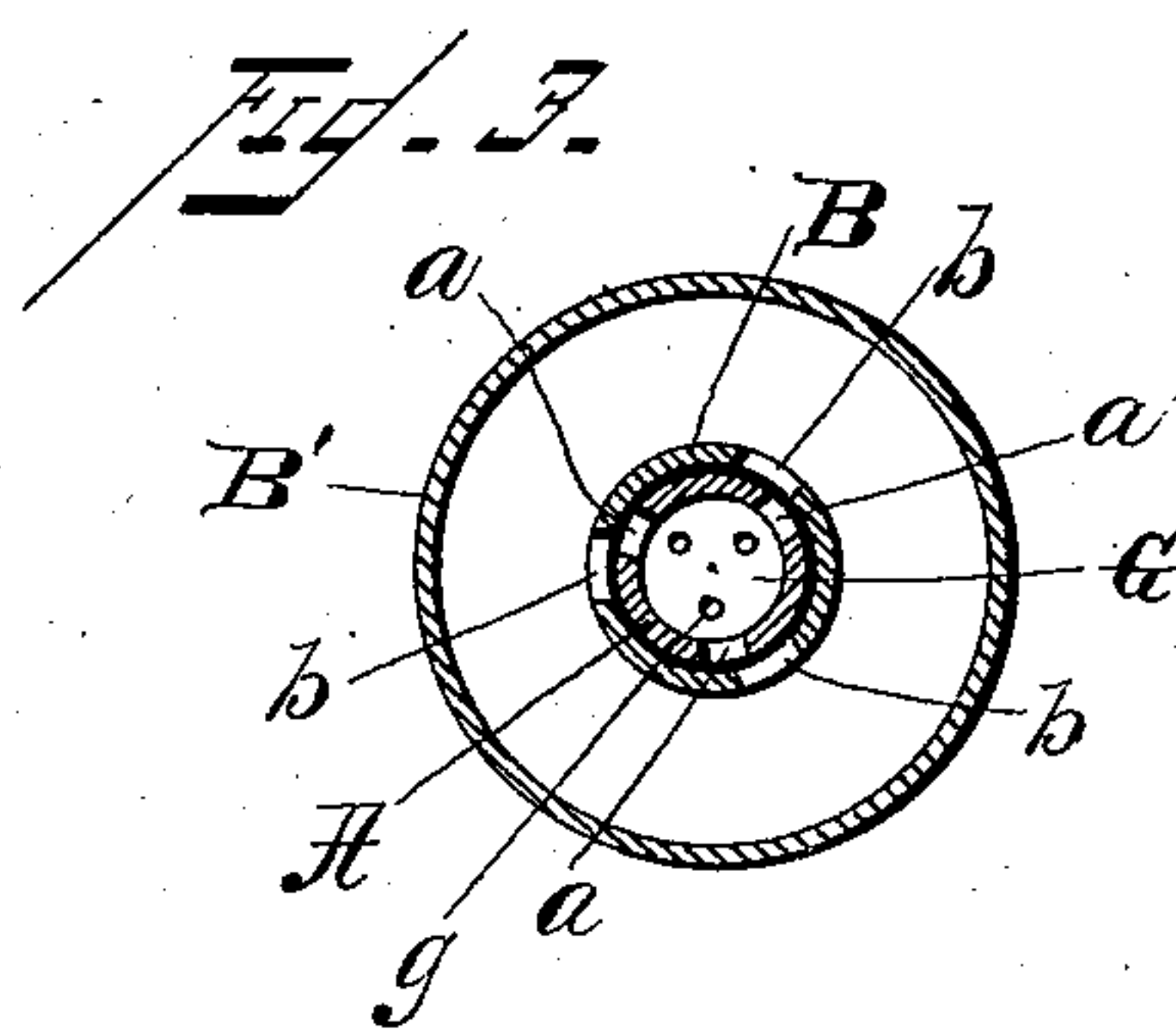
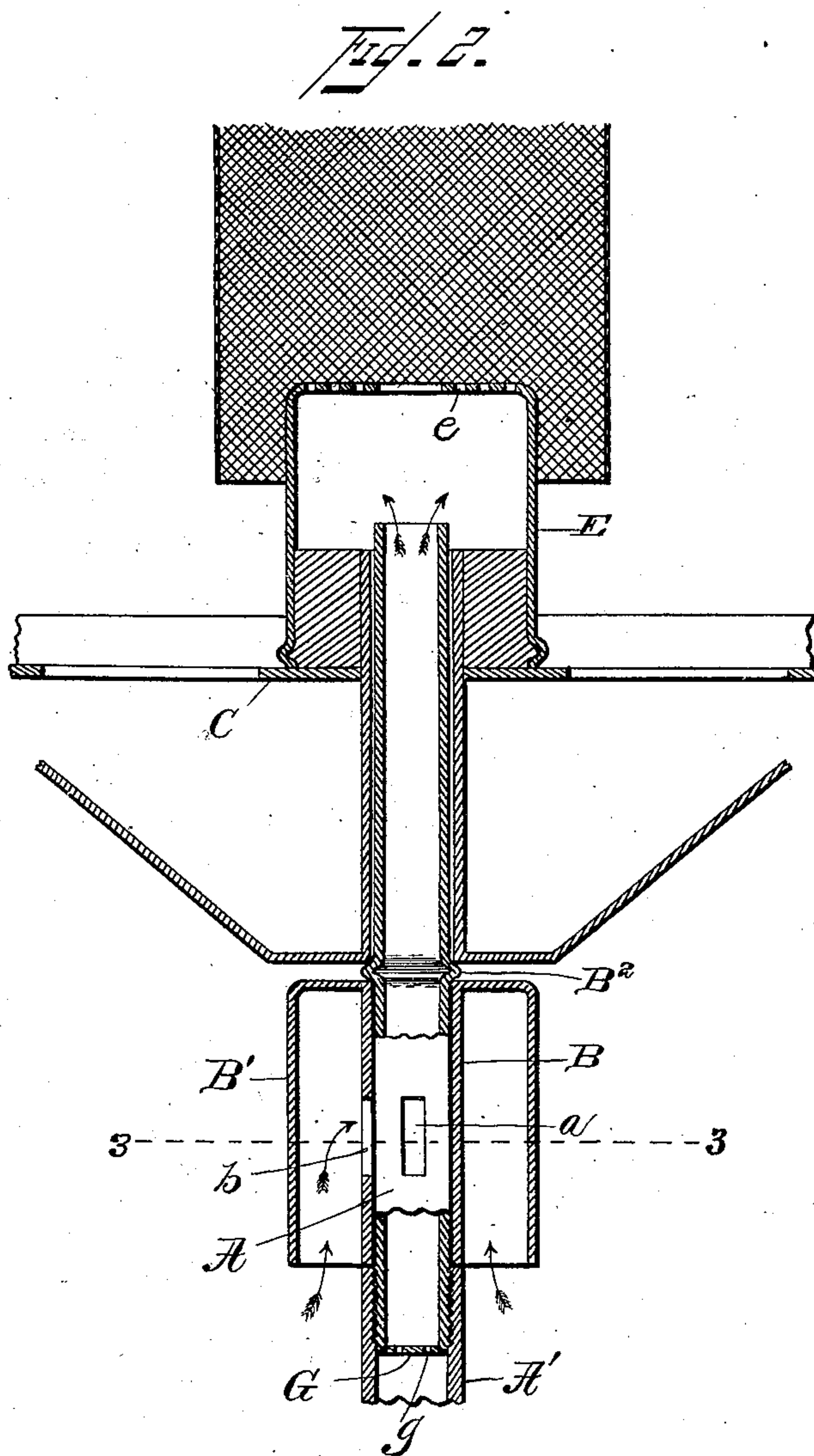
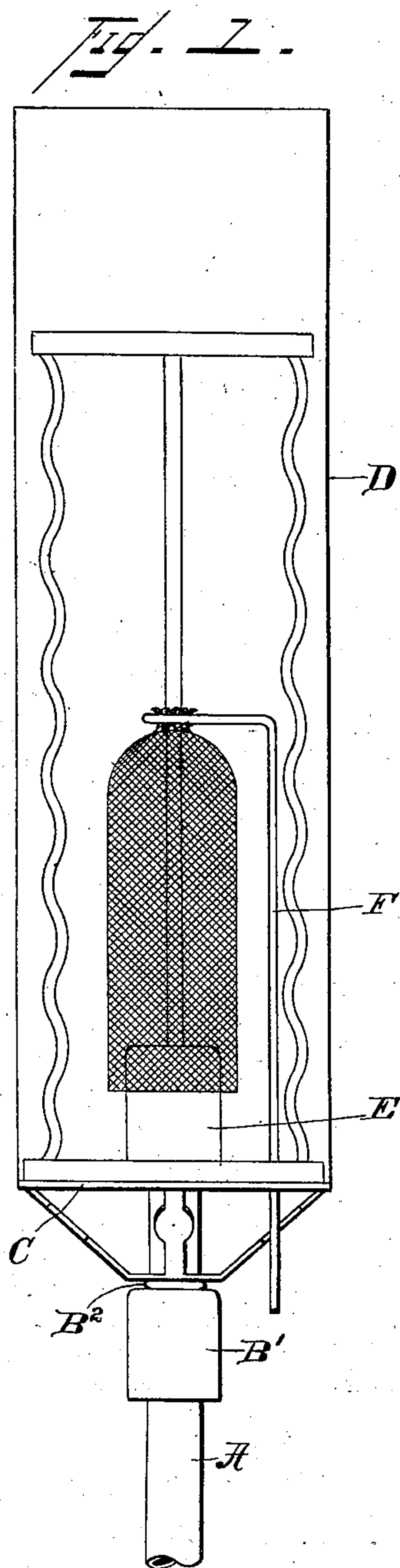
No. 694,695.

Patented Mar. 4, 1902.

W. TICE.
INCANDESCENT GAS LAMP.

(Application filed Feb. 6, 1899.)

(No Model.)



Witnesses
Marcus L. Bying.
Richard B. Cavanagh

Inventor
William Tice
by H. H. Bliss
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM TICE, OF NEW YORK, N. Y.

INCANDESCENT GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 694,695, dated March 4, 1902.

Application filed February 6, 1899. Serial No. 704,698. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM TICE, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Incandescent Gas-Lamps, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a front view of my improved incandescent gas-lamp. Fig. 2 is a vertical section of the same on enlarged scale, and Fig. 3 is a section on line 3 3 of Fig. 2.

Similar letters of reference indicate corresponding parts.

A in the drawings is a pipe which is connected with the main gas-pipe A' in any convenient manner and is provided with one or more lateral orifices *a*. By the main gas-tube a support, shoulder, or stop is formed, which may also be made by providing the pipe A with an annular flange. On the said shoulder rests a sleeve B, which is also provided with lateral orifices *b*, corresponding in location with the orifices *a* of the pipe A and which can be rotated on the said shoulder, so that by turning the sleeve around its axis on the pipe A the orifices *a* of the latter can be either closed or partly or entirely opened, as will be understood by Fig. 3. The sleeve has a surrounding jacket B', which overlaps the said orifices to prevent the entrance of dust and other impurities into the same and leaves at the lower end an opening for the necessary air-draft.

C is a globe or chimney supporting frame which is so attached to the pipe A above the sleeve B that the latter is not hindered in its rotation. This frame bears the chimney or globe D, as shown in Fig. 1, and also the burner-cap E, which is located above the outlet-opening of the pipe A and surrounds and incloses the upper end of the pipe. The construction of the cap is as usual in incandescent gas-lamps, having on its top a screen or perforations *e*, above which the gas passing through the same is lighted. From the bracket F, attached to the globe-supporting frame, the incandescent mantle or other incandescent medium is suspended over the burner-cap, where it is set into incandescence by the heat of the gas-flame.

The gas-pipe A has below its orifices *a* a horizontally-traversing diaphragm or plate G, which is provided with one or more small openings *g*, whereby the supply of the gas from the main pipe to the burner is decreased to the volume needed for the lighting purpose. The exact location indicated for this diaphragm or plate is not absolutely necessary, for it can be placed at relatively higher points, if preferred, so long as it is relatively below the orifices in the pipe A, and its position should be selected with reference to the gas-jets and the air-jets being properly mingled.

The parts above described are more or less similar to those presented in my earlier patent, No. 583,344, dated May 25, 1897; but in the present construction I employ a device simple in nature, but of considerable importance with regard to the function it performs and the purposes that can be attained by it.

In many cases, particularly where the lamp or burner structure as a whole is cumbersome or heavy, it is desirable not to have the gallery or collection of parts which support the globe, the chimney, the shade, the mantle, &c., rest directly upon the air-regulating device, that is the valve-tube B and the shield deflector or jacket B'; but on the other hand it is desirable that these upper and heavier parts should be sustained independently of the air-regulator, so that the latter shall be entirely free to be delicately adjusted under a rotation independent of the gallery and its superincumbent parts, and vice versa, so that the latter can be rotated or adjusted without resting upon or interfering with the air-regulator.

Both my earlier construction and the present one are similar in several important novel respects—as, for instance, in both it is true that the outer rotary air-regulating or valve-tube B fits snugly and directly against the external surface of the mixing-tube A, so that the air-jets are controllable in direct proximity to the mixing region, the air being directed in sharply-defined jets entering on horizontal lines into immediate contact with the vertically-directed fine gas-jets. As a result the two gases are commingled with the utmost thoroughness and prepared in the mixing-tube to meet the requirements of the most advantageous Bunsen flame at the base

of the mantle. Further, in both my constructions the regulating-tube or valve-tube B is substantially cylindrical, and can therefore be readily moved vertically along the inner tube A; but the two constructions differ in that in the present one there is no possibility of accidentally moving the air-regulator by a rotary movement of the heavier and more cumbersome upper parts of the incandescent lamp, inasmuch as they are not in contact with the air-regulator, but are positively separated therefrom. Consequently after the desired adjustment of the air shutters or dampers has been once attained there is no danger of altering it by the movement of the upper part, and, on the other hand, if the upper parts of the burner should have been set or adjusted to any desired position the air-regulator can be turned to accurately set it as desired, irrespective of the position of the upper parts. These ends are attained in the present construction by providing a stop, shoulder, or an abutment, such as illustrated at B², on horizontal lines below the gallery-carrier and above the air-regulator. The carrier or frame and its attachments can be applied to the mixing-tube A by slipping them downward vertically over the latter until they are stopped by the shoulder at B² (which latter may be formed as a bead or flange on the mixing-tube or can be separately formed and secured thereto) and they can be removed upwardly therefrom. The regulator or shutter tube B, on the other hand, cannot in the present construction, as in the earlier one, be put into place by a downward vertical movement over the burner-tube A, but must be moved upward. To permit this, the above-described division of the two tubes A and A' is provided. The upper part A being secured by a screw-thread to the lower part A' they can be readily separated at any time to permit an air regulator or shutter, as at B B', to be slipped up into place or to allow the removal of the one which is in use.

I am aware of the fact that incandescent-mantle lamps or burners have had stops or shoulders of the nature of beads or flanges on the mixing or burner tubes, against which the gallery, together with the heavier or more cumbersome parts, had a downward bearing, such a construction being shown, for instance, in Patent No. 400,174, to H. J. Bell, dated March 26, 1889, and that with such a gallery-support use was made of an air-regulator having an outer shield or deflector, together with orifices and valves, and that such constructions are those which are now most generally in use in connection with burners of this class; but in the earlier devices referred to the air-regulator was also supported from the upper side of the said horizontal stop, bead, flange, or the like, and consequently it was impossible to bring the shutters or valves into direct contact with the external vertical surface of the mixing-tube, and therefore the movable or adjustable parts of the regulator were placed

in a horizontal plane at points remote from the inlet-orifices in the mixing-tube; but it has long been well known to designers of devices of this class that this remoteness of the adjustable shutters or valves is a matter of great disadvantage and the regulation is inferior to the more perfect control attainable by having them immediately adjacent to the orifices in the mixing-tube, where sharp horizontal jets of air are caused to impinge upon the upwardly-directed reduced jets of gas.

I am also aware of the fact that numerous attempts have been made to attain this thorough and intimate mixture by having the shutter or valve applied directly to the outer surface of the mixing-tube, as shown, for instance, in the Patent No. 396,260, to H. J. Bell, dated January 15, 1889, and in numerous others; but experience has shown that superior results can be reached and the cost of manufacture can be reduced to the minimum by employing a construction and arrangement substantially as herein shown, wherein the entire device consists of four elements—namely, the vertical cylindrical mixing-tube; secondly, the burner-tube with the gallery-carrier, the mantle and mantle-support, the globe, and other attachments all fitting snugly to and around, but removable from, the mixing-tube; third, the air-regulator with shutters or dampers fitting tightly to the external surface of the lower orificed part of the burner-tube and carrying the outside shield or deflector, and, fourth, the tube below the mixing-tube and detachably connected thereto, together with the gallery or burner-frame support on the mixing-tube and above the air-regulator and the supplemental support for the air-regulator below it, the regulator being prevented from upward movement and from receiving the thrust of the gallery or burner frame, but being capable of removal upon the withdrawal of the lower support.

The air-regulating device I herein refer to as "downwardly removable," it being removable from the burner-tube by moving it away from the stop above the air-orifices when said tube is disengaged from the gas-supply tube. I also refer to the fact that the burner-tube has a stop below the air-orifices, which stop in the construction shown is provided by having the gas-supply pipe so attached to the burner-tube that the end of said pipe constitutes such a stop—that is to say, in the present instance the stop can be regarded as a separable device attached and adjusted by means of a screw-thread.

What I claim is—

1. In an incandescent-mantle lamp, the combination with the vertical mixing-tube having an upper portion and a lower orificed portion of the same diameter, of a tube fitted to the upper portion and carrying a burner-tip, a mantle-support, and a chimney-support, all detachable upwardly from the mixing-tube, a stop projecting outwardly from the

mixing-tube above the air-orifices, an air-regulator below the burner-support, having a tube fitted to the external surface of the mixing-tube and an outer deflector, said air-regulator being rotatable independently of the burner-tube, and a stop for the air-deflector below the deflector, said stop or support on the mixing-tube preventing the upward movement of the air-regulator, substantially as set forth.

2. In an incandescent-mantle lamp, the combination with the vertical mixing-tube having an upper portion and a lower orificed portion, a stop above the orifices, a stop below the orifices, a rotary downwardly-removable air-regulator having an orificed tube fitting closely the external surface of the mixing-tube, and held from vertical movement

in either direction between the said stops, but adapted to be slipped off therefrom when the lower stop is removed, and a burner-tube fitted to and upwardly removable from the upper portion of the mixing-tube and secured to a mantle-carrier and to a chimney-carrier, and resting upon the upper stop on the mixing-tube, the burner-tube and the air-regulating tube being rotary independently of each other and independently supported, substantially as set forth.

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

WILLIAM TICE.

Witnesses:

CHARLES R. ELFELDT,
GEORGE M. HEINS.