

No. 702,830.

Patented June 17, 1902.

C. W. TAYLOR.
INCANDESCENT GAS BURNER.

(Application filed Apr. 7, 1902.)

(No Model.)

Fig. 1.

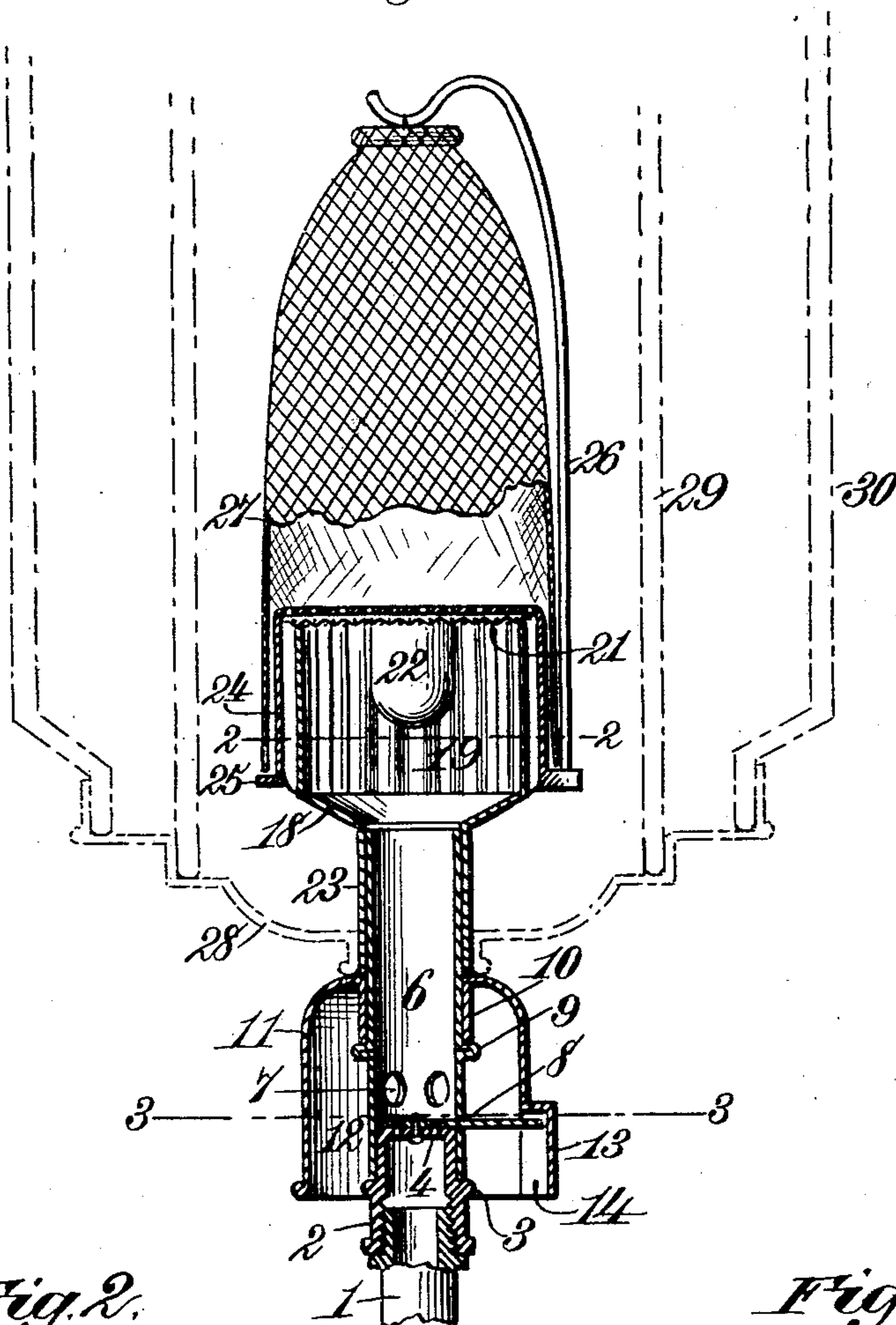


Fig. 2.

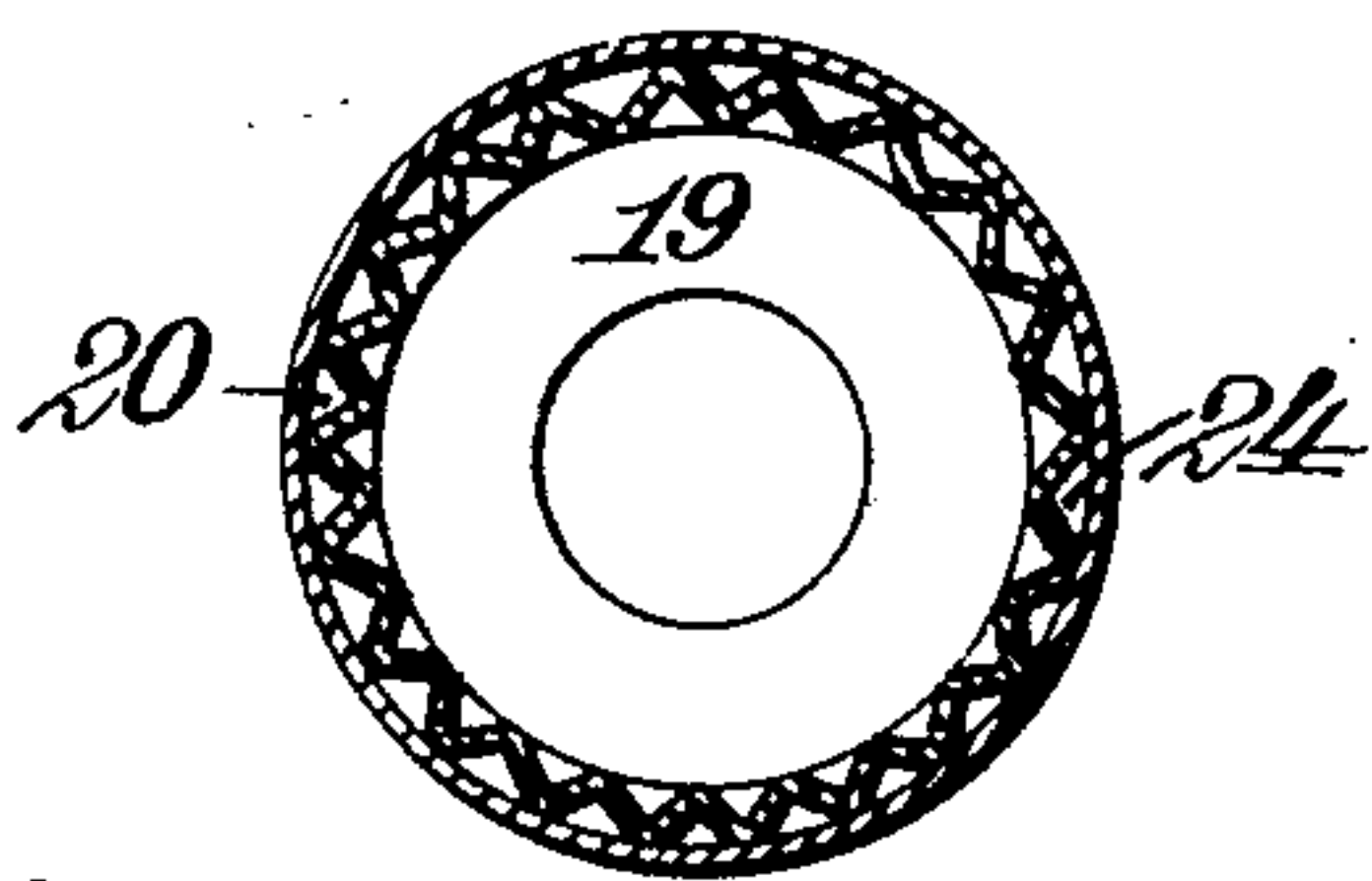
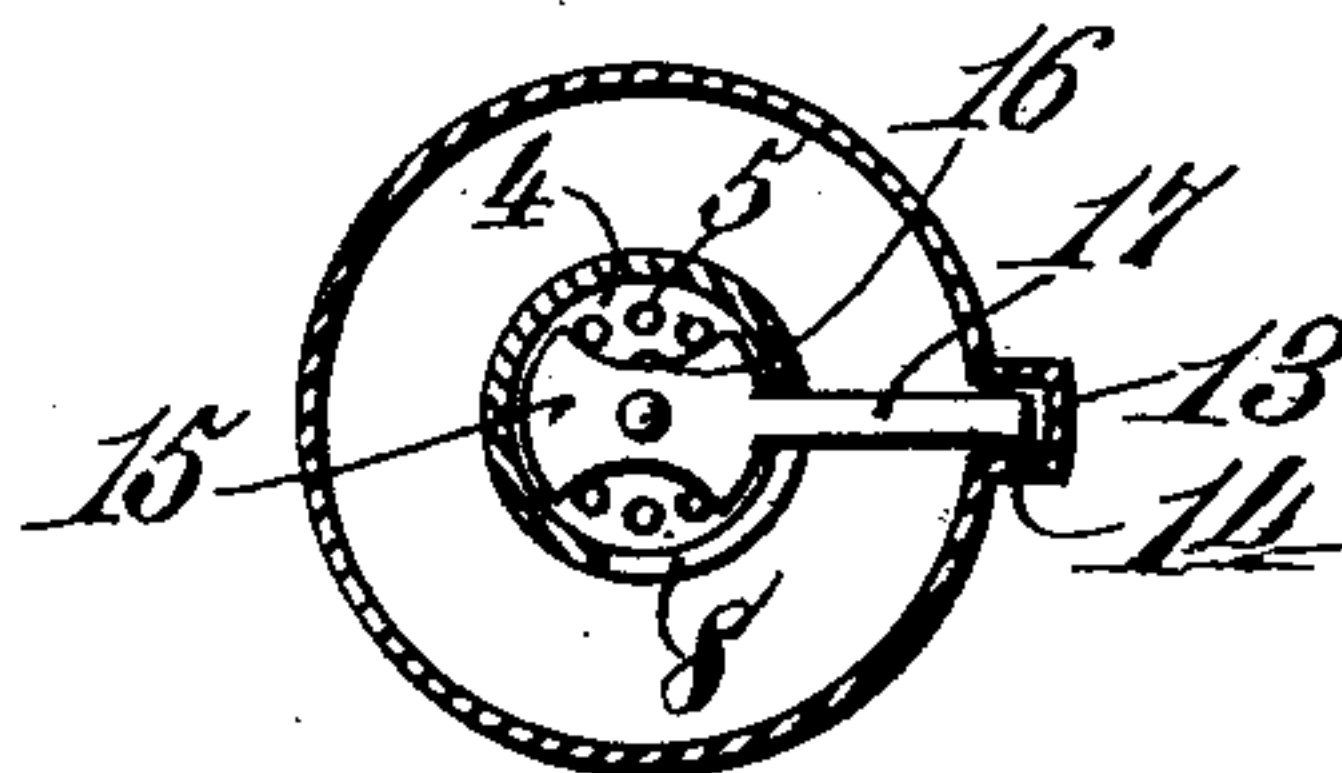


Fig. 3.



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UNITED STATES PATENT OFFICE.

CLARENCE W. TAYLOR, OF SIOUX CITY, IOWA.

INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 702,830, dated June 17, 1902.

Application filed April 7, 1902. Serial No. 101,721. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE W. TAYLOR, a citizen of the United States, residing at Sioux City, in the county of Woodbury and State of Iowa, have invented new and useful Improvements in Incandescent Gas-Burners, of which the following is a specification.

This invention relates to certain new and useful improvements in incandescent gas-burners; and the object thereof is to provide a series of independent air-passages located between a supporting means for the mantle and the gas and air mixing chamber for the supplying of air to within the mantle at the point of exit of the gas and air mixture from the mixing-chamber of the burner.

A further object of the invention is to prevent the destruction of the lower end of the mantles employed in burners of this character by the drafts of air in the chimney or the passage of air through the independent air-passages.

A further object of the invention is to provide new and novel means for directing the air to the inlets of the burner-tube and constructed in such a manner as to keep permanently open the said air-inlets.

With the above and other objects in view the invention aims to construct an incandescent gas-burner which shall be simple in its construction, strong, durable, efficient in its operation, and comparatively inexpensive to set up; and to this end it consists of the novel combination and arrangement of parts hereinafter more specifically described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereunto appended.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, wherein like numerals of reference indicate corresponding parts throughout the several views, and in which—

Figure 1 is a vertical central sectional view of my improved burner, showing the chimney, globe, and gallery in dotted lines. Fig. 2 is a section on the line 2 2 of Fig. 1, and Fig. 3 is a section on the line 3 3 of Fig. 1.

Referring to the drawings by reference-numerals, 1 denotes a gas-supply pipe, to which is secured in any suitable manner the

nipple 2, provided with an annular peripheral flange 3. The top of the nipple 2 has secured thereto in any suitable manner a diaphragm 4, provided with perforations or slots 5 for the passage of gas from the source of supply through the nipple 2 to the burner-tube 6, the latter being of the Bunsen type, and has its lower end surrounding the nipple 2 and resting upon the peripheral flange 3 of the latter. The tube 6 is secured to the nipple in any suitable manner. The tube 6 above the nipple 2 is provided with air-inlets 7, and further provided below the inlets with a slot 8 to permit of the operation of the gas-regulating plate, to be hereinafter referred to. The openings or inlets 7 always remain open for the passage of air to the burner-tube. The latter above the said openings or inlets 7 is formed with an annular bead 9 for supporting a sleeve 10, which surrounds the tube and is integral at its upper end with the hood 11, the sides of which extend downwardly in a vertical manner to near the flange 3 of the nipple. The hood is of such diameter that the air-space 12 is formed and is adapted to direct the air to the air inlets or openings 7, and is further provided with an offset 13, forming a vertically-extending groove 14, the function of which will be hereinafter described.

Mounted upon the top of the nipple 2 and within the burner-tube 6 below the air-inlets 7 is a gas-regulating plate 15, provided with a suitable opening or openings 16, adapted to register with the openings or slots 5 in the diaphragm 4. The opening or openings 16 in the plate 15 is or are so arranged that one or more or all of the openings or slots 5 will be opened or closed when the plate 15 is rotated upon the nipple 2 to bring the opening or openings 16 into or out of alinement with the openings or slots 5, thereby regulating the supply of gas to the burner. The plate 15 may be constructed without the opening or openings, but of such shape that when rotating it will cause the opening or closing of one or more or all of the openings or slots in the diaphragm 4. A construction of plate as referred to is shown in Fig. 3. By the adaptation of the plate in the manner set forth it will be obvious that the passage of gas can be suitably regulated at will from the gas-sup-

ply to the burner. The plate 15 is constructed with an outwardly-projecting stud 17, which extends through the slot 8 in the burner-tube 6 and into the vertically-extending groove 14 of the hood 11, so that when the hood is rotated it will carry the plate 15 therewith, thereby regulating the passage of gas through the diaphragm, as before stated, but in no manner closing the air-inlets 7 of the burner-tube. Consequently sufficient air can always be supplied to the burner-tube to meet the regulation of the gas-supply through the medium of the gas-regulating plate operated by the hood 11.

The reference-numeral 18 denotes an enlarged upper portion of the gas and air mixing tube and which forms the gas and air mixing chamber 19. This portion of the air and gas mixing tube is corrugated or fluted to form a series of independent air-passages 20. The top of the enlarged portion 18 has mounted thereon a foraminous diaphragm 21 and carries a heat-radiator 22 of any preferred form of construction, which depends downwardly into the chamber 19.

The reference-numeral 23 denotes the lower portion of the gas and air mixing tube and which is of much less diameter than the upper portion 18 and is adapted to surround the upper portion of the burner-tube 6 above the tube 11, as well as resting upon the latter.

The reference-numeral 24 denotes a cylindrical cap which is mounted upon the diaphragm 21 and has the sides thereof snugly fitting the side of the enlarged portion 18 of the gas and air mixing chamber, thus forming the series of independent air-passages 20 for admitting air to within the mantle at the exit of the gas and air mixture from the gas and air mixing chamber 19. The bottom of the cap 24 is formed with an outwardly-extending annular ridge 25, carrying the supporting-rod 26 for the mantle 27. This ridge 25 forms a protection for the lower edge of the mantle 27, and the cap prevents the drafts of air as they enter the air-passages 20 from contacting with the lower portion of the mantle, thus preventing the same from being split or torn.

The gallery 28, chimney 29, and globe 30 are shown in dotted lines; but any preferred form of these devices may be employed.

From the foregoing construction it will be evident that by employing the cap 24 in the manner set forth to form the independent air-passages obviates the destruction of the mantle, in that the lower end of the mantle is not split or torn by the drafts of air in the chimney, as the mantle will rest against the outer wall of the cap and at its lower edge protected by the ridge 25. Consequently from this arrangement the strong currents of air are passed between the inner wall of the cap and the outer wall of the gas and air mixing chamber, therefore increasing the life of the mantle. It will also be evident by employing the series of independent air-pas-

sages 20 in the manner as set forth that the air when fed to the interior of the mantle is heated when it comes in contact with the mixture that emerges from the gas and air mixing chamber.

The air-inlets in the burner-tube 6 are permanently open for supplying air to the incoming gas; but by the employment of the regulating plate in the manner set forth the supply of gas can be regulated so that the proper mixture of gas and air is produced when it finally reaches the point of combustion—that is to say, by regulating the supply of gas through the medium of the plate it will be evident that a proper mixture can be obtained.

It will be evident that by constructing an incandescent burner in the manner set forth the ordinary air-channels or air-shutters used in devices of this character can be dispensed with, and it will also be evident that owing to the arrangement of the regulating-plate the supply of gas can be regulated at will from the gas-supply to the burner by the rotation of the hood 11 and that by the employment of the independent air-passages heated air is supplied at the point of combustion within the mantle or to the mixture as it emerges from the gas and air mixing chamber. Not only is a thorough incandescence of the mantle obtained, but also the carbonizing of the mantle prevented.

It is thought the many advantages of an incandescent gas-burner constructed according to the foregoing specification, taken in connection with the accompanying drawings, will be readily understood, and it will also be noted that minor changes may be made in the details of construction without departing from the general spirit of my invention.

The subject-matter disclosed and not claimed in this application is disclosed and claimed in my concurrent applications, Serial No. 99,001, filed March 19, 1902, and Serial No. 101,720, filed April 7, 1902.

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

1. In an incandescent gas-burner, the combination with a mantle and a burner-tube, the latter provided with air-inlets, of a mixing-tube having a portion thereof corrugated or fluted, a cap mounted upon said corrugated portion for forming a series of air-passages independent of the mantle, a hood mounted on the burner-tube for supporting the mixing-tube, and a regulating-plate mounted in the burner-tube and adapted to be engaged by the hood for operating it.

2. In an incandescent gas-burner, a burner-tube, a gas-regulator mounted therein, a mixing-tube, and a cap mounted thereon, said cap and mixing-tube forming a series of air-passages independent of the mantle of the burner.

3. In an incandescent gas-burner, a mantle, a mixing-tube, means mounted upon the said

mixing-tube to form air-passages between it and said tube, a burner-tube, a gas-regulating plate mounted therein, and means supported by the burner-tube and supporting the
5 mixing-tube and adapted when rotated to operate the regulating-plate.

4. In a gas-regulating burner, a mantle, a gas and air mixing chamber, means mounted upon the gas and air mixing chamber to form
10 permanent air-passages between said mantle and chamber, a burner-tube provided with permanent air-inlets, a gas-regulating plate within the burner-tube for supporting the gas and air mixing chamber, and a depend-
15 ing hood mounted upon the burner and engaging the plate for operating it.

5. A gas-burner consisting of a burner-tube provided with permanent air-inlets, a gas-regulating plate arranged in the burner, a
20 sleeve supported by the burner, a hood carried by the sleeve and engaging with the said plate for operating it when said hood is rotated, a mixing-tube supported by the hood,

said mixing-tube having its upper portion forming a gas and air mixing chamber with 25 the walls thereof corrugated, a cap mounted upon the corrugated portion of the mixing-tube for forming between the said cap and walls of the mixing-chamber a series of independent air-passages, and a mantle sup- 30 ported by the said cap.

6. In an incandescent gas-burner, a burner-tube, a gas and air mixing tube having its upper end forming a gas and air mixing chamber with the walls thereof corrugated, 35 and a cap mounted upon the upper end of the mixing-tube and forming a series of independent air-passages between it and the walls of the mixing-chamber.

In testimony whereof I have hereunto set 40 my hand in presence of two subscribing witnesses.

CLARENCE W. TAYLOR.

Witnesses:

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E. G. MAXON.