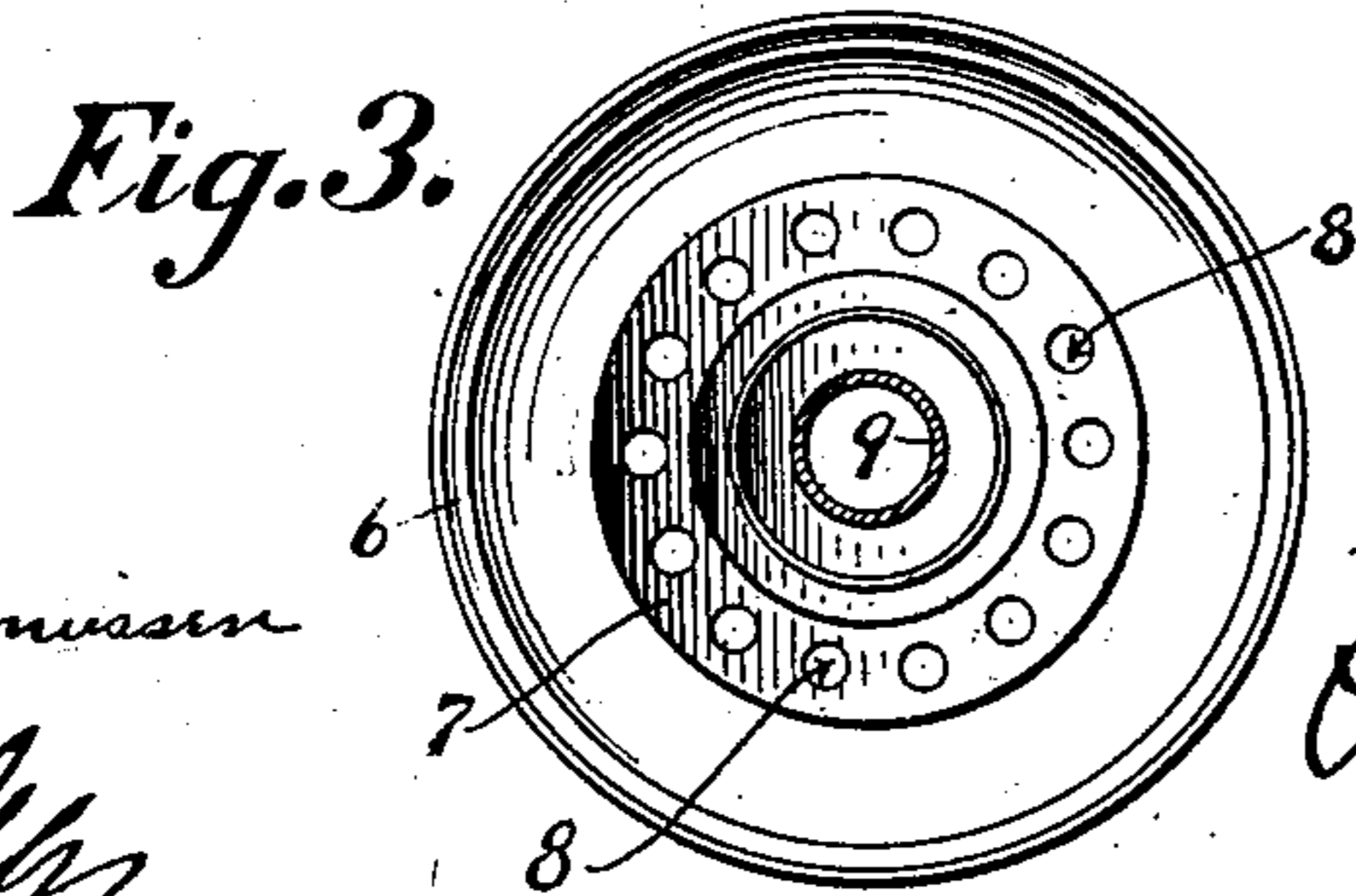
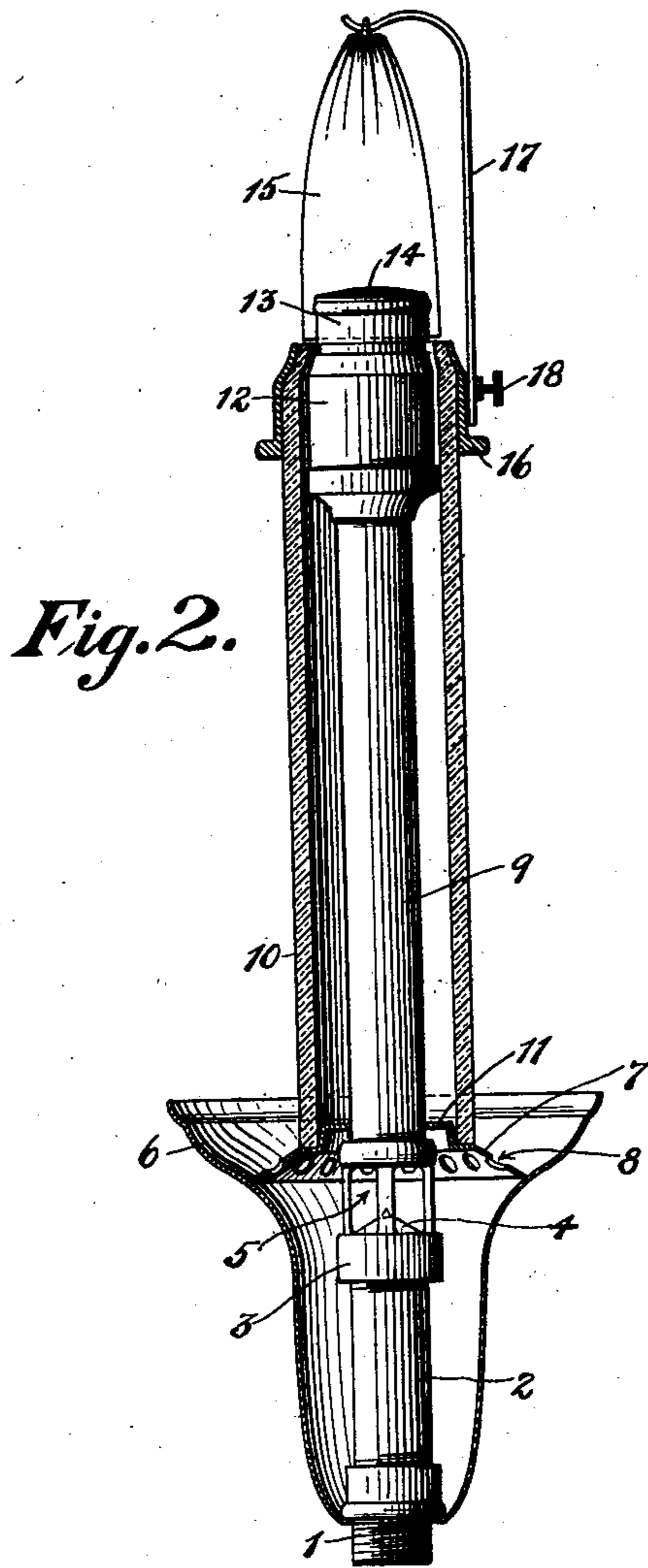
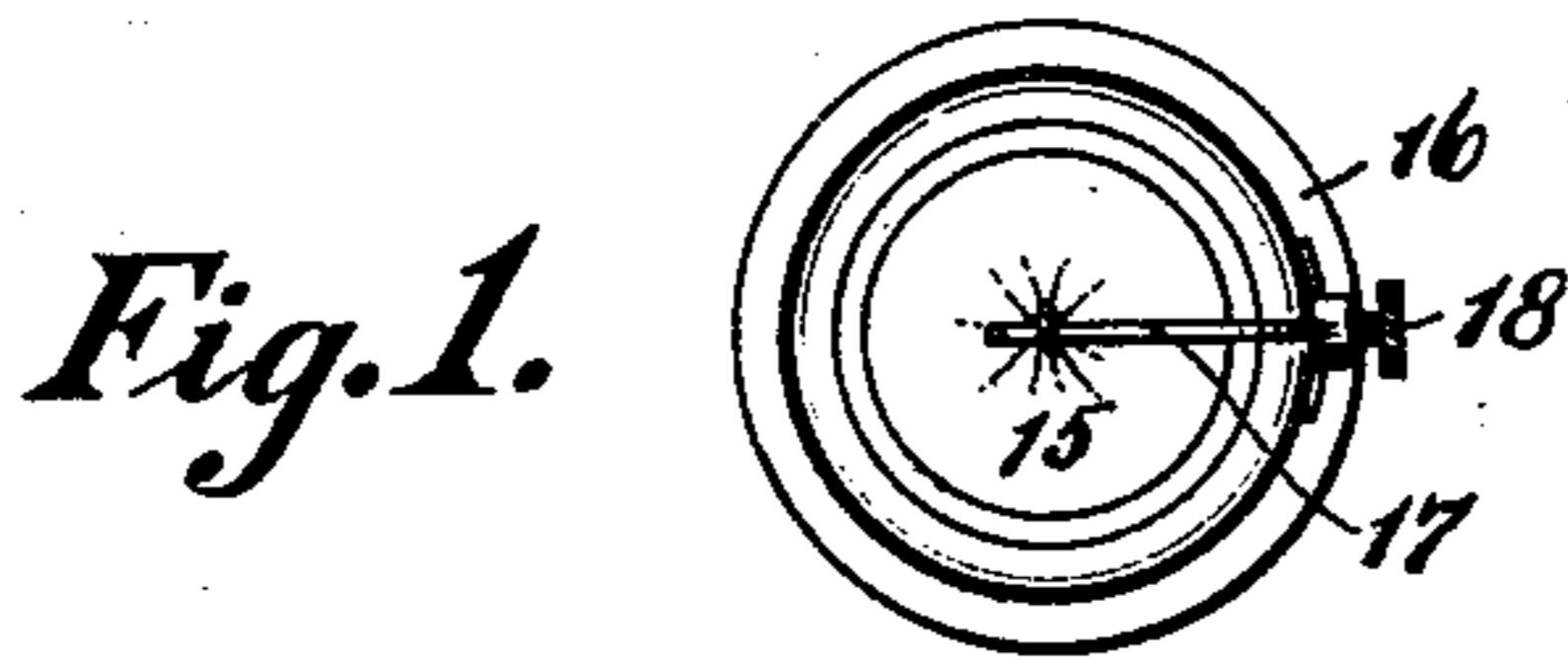


No. 747,550.

PATENTED DEC. 22, 1903.

L. R. HOPTON.  
INCANDESCENT GAS BURNER.  
APPLICATION FILED APR. 20, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

LEMUEL R. HOPTON, OF NEW YORK, N. Y., ASSIGNOR TO THE OXLEY ENOS COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## INCANDESCENT GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 747,550, dated December 22, 1903.

Application filed April 20, 1903. Serial No. 153,352. (No model.)

*To all whom it may concern:*

Be it known that I, LEMUEL R. HOPTON, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Incandescent Gas-Burners, of which the following is a full, clear, and exact description.

My invention relates to improvements in incandescent gas-burners. In burners of this general character it is desirable that there be a long and comparatively unimpeded path for the mixture of gas and air before it reaches a point, which is termed the "burner-head," at which the inflammable mixture is allowed to expand as it becomes heated, and thus flow to the flame with a decreased velocity in order to effect a more perfect combustion. I have found that better results are obtained if the mixing-tube and the burner-head are protected against changes of temperature.

It is therefore my purpose to prevent undue changes in temperature in the parts and also to construct the burner about the air-inlets in such a manner that the inlets are protected against the entrance of foreign particles and are also protected from drafts, which might otherwise interfere with the economical and uniform operation of the burner.

The mechanical construction of the parts is such that the burner may be economically manufactured and readily assembled. The parts also are so related to one another that they can be all readily dismembered and parts interchanged or removed or replaced, as desired.

The construction is more fully seen in the accompanying drawings and by a reading of the following specification.

Figure 1 is a plan view showing the top of the gas-burner and incandescent-mantle support. Fig. 2 is a side elevation of the burner-tube and the burner-head and showing the protective covering for the base of the burner and the mixing-tube and head in cross-section. Fig. 3 is a plan view of the support for the burner, the mixing-tube being shown in cross-section and the protective covering removed.

1 is a nipple of suitable construction for

attaching the burner to a bracket, chandelier, or other gas-supply.

2 is an extension-pipe from the nipple extending upward to the inlet member 3. This member 3 is provided with a suitable form of gas-inlet regulator 4 and with air-inlets 5.

6 is a cup-shaped member which surrounds the extension-pipe 2 and inlet member 3 and extends upward, substantially as shown, above the base of the burner-tube.

7 is a platform which is situated in the interior of the cup member 6 and is preferably in the form of the frustum of a cone, which is supported by the interior of the cup.

8 8 are a series of holes or perforations in the platform 7 for the purpose of admitting air to the burner.

9 is the main tube or mixing-tube of the burner forming a mixing-chamber for the air and gas.

10 is a protecting shield or casing which surrounds the mixing-tube 9 and is supported inside the cup 6, there preferably being a raised portion 11 of the platform 7 for the purpose of more securely holding the casing 10 in place.

12 is the burner-head, which is of a suitable construction and of a larger diameter than the mixing-tube 9.

The casing 10 extends upward, so as to surround not only the mixing-tube 9, but the burner-head 12 as well, fitting close to the head, but leaving an air-space around the tube. The platform 7 preferably closes the bottom of the casing 10, so that no air can pass upward between the casing and the mixing tube 9. This casing 10 is constructed, preferably, of an insulating or non-thermal conducting material, such as porcelain or glass.

13 is a cap which fits down upon the top of the burner-head 12 and is provided with a gauze 14.

15 is a mantle of suitable construction for the purpose of incandescence.

16 is an annular collar which fits onto the top of the casing 10 and carries the mantle-supporting rod 17, there being an adjusting-screw 18 for the purpose of holding the latter in place. It will be noted that the mantle-supporting collar 16 rests upon the upper end

of the casing 10. This is the preferred construction. The inner diameter of the upper end of the casing 10 is larger than the outer diameter of the cap 13, so that the casing 10  
5 may be readily removed by merely lifting it from its support on the platform 7. In the assembling of the parts the operation is obviously merely the reverse.

The operation will be understood from an  
10 examination of the drawings, in which it will be seen that the air enters through the perforations in the platform 7, being deflected downward by the interior surface of the cup-shaped member 6. As the air has consider-  
15 able velocity as it enters through these openings, any foreign particles will be thrown downward and caught in the bottom of the cup, where they may be held to be removed afterward when desired. After the air has  
20 been deflected downward it passes through the air-inlets 5 as it is drawn in by the gas passing through the gas-inlet 4 and thence up into the mixing-tube 9, where the mixture is effected. From thence the mixture flows  
25 into the expansion-chamber 12 of the burner-head and from thence through the gauze covering 14 to the mantle. The construction will therefore be seen to be simple, of few parts, and nevertheless such as to give an effective  
30 and satisfactory operation. The burner-tube, which includes the member 2, inlet member 3, and mixing-tube 9, is protected from any change in temperature due to external causes. The burner-head 12 is also in like manner  
35 protected, except that there is little, if any, air-space between it and the casing. The principal protection is afforded by the non-conducting casing 10.

What I claim is—

40 1. An incandescent gas-burner comprising an inlet member having passages for the admission of gas and of air, a mixing-tube secured to the inlet member, a burner-head at the other end of said tube, a casing surround-  
45 ing the mixing-tube and the burner-head, and a cup-shaped member surrounding the inlet member and the lower end of the casing.

2. An incandescent gas-burner including  
50 a burner-tube having gas and air inlets and a mixing-chamber, a burner-head attached thereto, a glass casing surrounding the mixing-chamber of the burner-tube and the burner-head and a cup member surrounding the lower end of the burner-tube and the  
55 casing and a mantle-support carried by the upper end of the casing.

3. An incandescent gas-burner comprising a burner-tube with air and gas inlets, a burner-

head, a cylindrical casing surrounding a large part of the burner-tube and the head and of 60 greater diameter than either the tube or the head, and a cup member centered and supported around the lower end of the tube and providing a support for the casing.

4. An incandescent gas-burner including 65 a burner-tube having air and gas inlets, a cap at the upper end of larger diameter, a cup surrounding the lower end of the burner-tube, a casing surrounding a large part of the burner-tube and supported in the cup 70 said casing being of larger internal diameter than the greatest diameter of the tube or cap so that the casing may be removed without removing the cap.

5. An incandescent gas-burner comprising 75 a burner-tube having air and gas inlets and a mixing-chamber, a cup surrounding the lower portion of the same, a casing supported within the cup and extending upward and around the mixing-chamber, and a mantle- 80 support carried by the upper end of the casing, the casing and mantle-support being freely removable over the upper end of the tube.

6. An incandescent gas-burner including 85 a burner-tube having gas and air inlets, a cup surrounding the lower end of the tube, a platform supported by the cup having perforations therein above the air-inlets in the burner-tube, and a casing supported by the 90 platform and surrounding the greater part of the burner-tube but freely removable over the upper end thereof.

7. An incandescent gas-burner including a burner-tube having gas and air inlets, a 95 cup surrounding the lower end of the tube, a platform supported by the cup having perforations therein above the air-inlets in the burner-tube, a casing supported by the plat- 100 form and surrounding a large part of the burner-tube but freely removable over the upper end thereof, and a mantle-support carried by said casing.

8. An incandescent gas-burner including a burner-tube having gas and air inlets near 105 the base thereof and a mixing-chamber above, a supporting-platform centered by the tube and supported thereby, and a casing supported by the platform or frame and surrounding the mixing-chamber of the burner- 110 tube leaving an air-space between the tube and the inside of the casing.

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Witnesses:

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