

F. J. HUMPHREY.

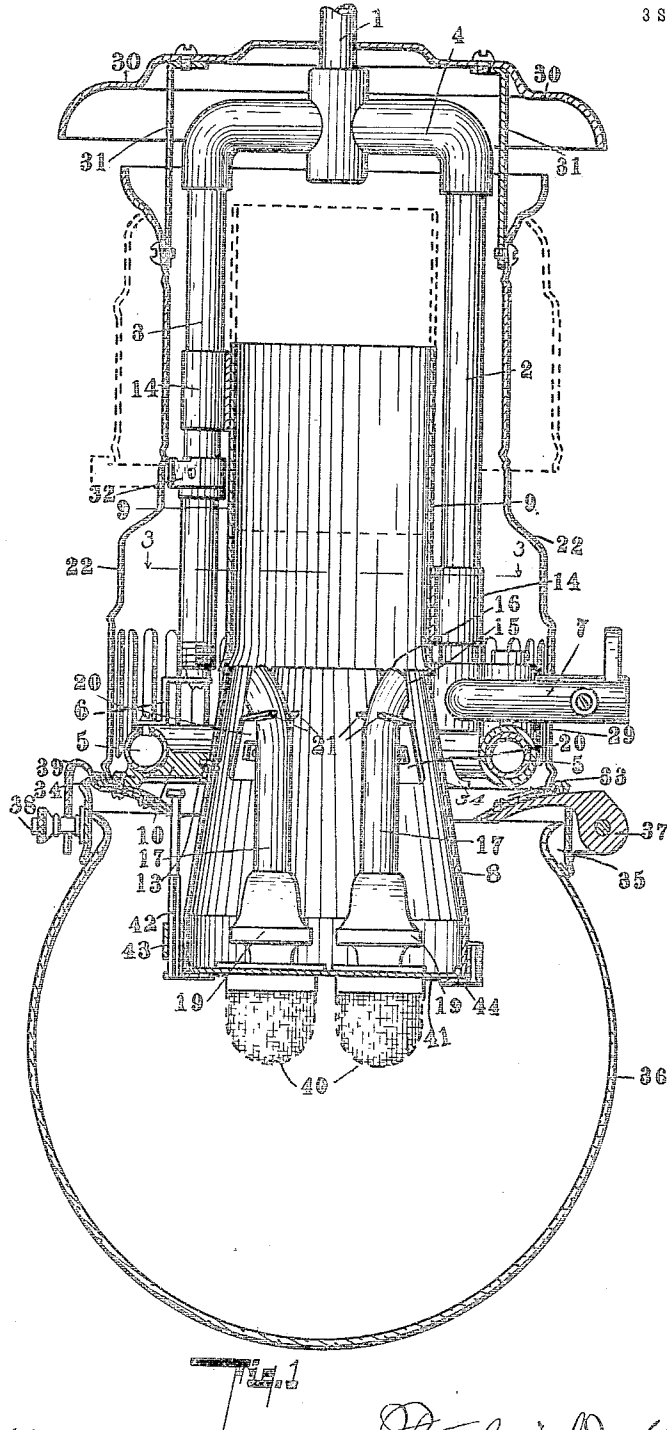
GAS LAMP.

APPLICATION FILED APR. 20, 1909.

953,836.

Patented Apr. 5, 1910.

3 SHEETS—SHEET 1.



Inventor

Witnesses
Margaret L. Glasgow.
Gertrude Tallman

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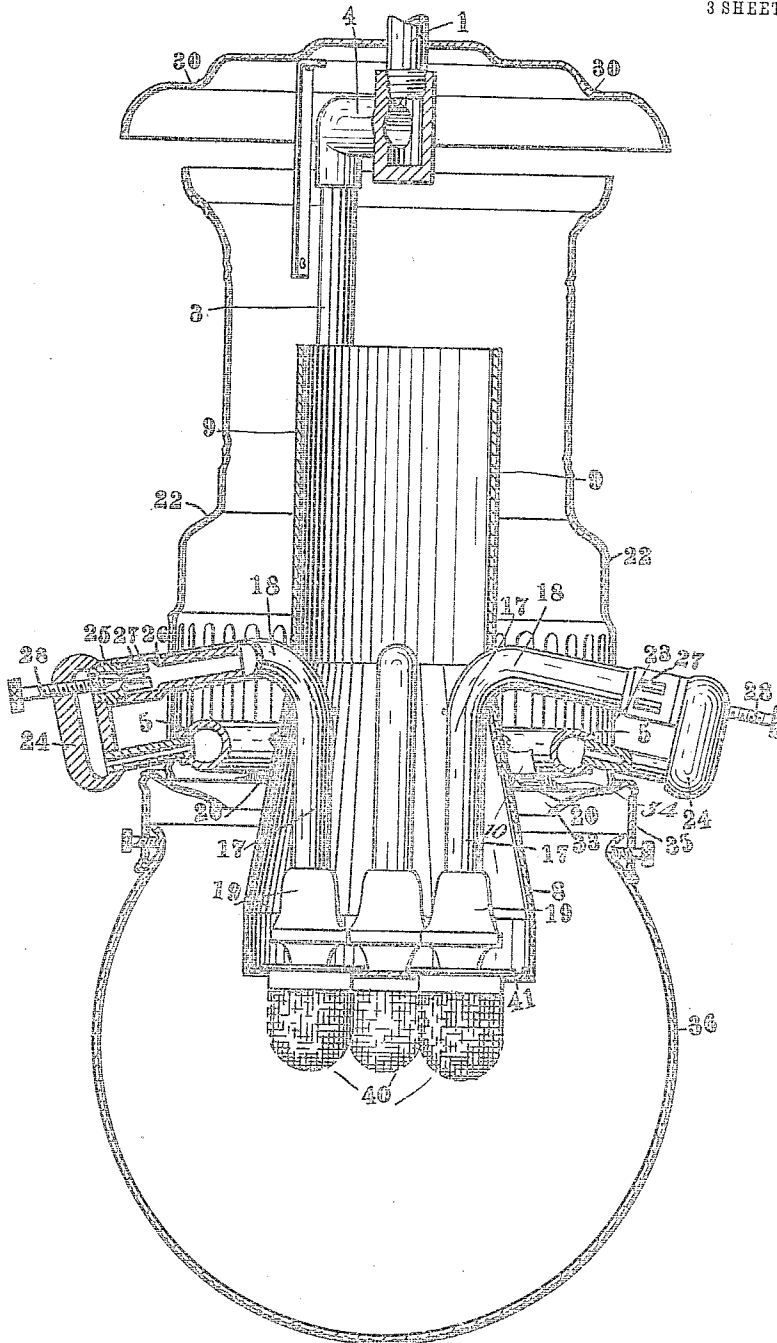
Frederick J. Humphrey
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3 SHEETS—SHEET 2.



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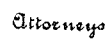
By

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APPLICATION FILED APR. 20, 1909.

3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

FREDERICK J. HUMPHREY, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO GENERAL GAS LIGHT COMPANY, OF KALAMAZOO, MICHIGAN.

GAS-LAMP.

953,836.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed April 20, 1909. Serial No. 491,010.

To all whom it may concern:

Be it known that I, FREDERICK J. HUMPHREY, a citizen of the United States, residing at Kalamazoo, Michigan, have invented certain new and useful Improvements in Gas-Lamps, of which the following is a specification.

This invention relates to improvements in gas lamps.

The main objects of this invention are: First, to provide in a gas lamp, of the inverted burner type, an improved arrangement of the burners. Second, to provide an improved construction and arrangement of the parts whereby they are economical to produce and easily assembled. Third, to provide in a gas lamp, an improved arrangement of parts whereby the burners and valves are readily accessible and easily cared for when the lamp is in use.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure 1 is a vertical central section of a structure embodying the features of my invention, the gas delivery pipe and valve being shown in full lines, the section being taken on a line corresponding to line 1—1 of Fig. 3. Fig. 2 is a vertical central section taken on a line corresponding to line 2—2 of Fig. 3, parts of the burner and burner tubes being shown in full lines. Fig. 3 is an enlarged horizontal section taken on a line corresponding to line 3—3 of Fig. 1.

In the drawings, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Referring to the drawing, 1 represents the gas supply pipe. This pipe is provided with depending arms 2 and 3, the arms being connected thereto by the T-coupling 4. The arm 2 is a gas delivery pipe, it being, in effect, an extension or part of the pipe 1.

At the lower end of the arm 2 is a gas delivery ring 5, a strap-like hanger being provided for connecting the ring to the arm 3, which is a dummy, and provided for supporting the parts. The delivery of gas to the ring 5 is controlled by the main burner valve 6, the details of which are not here illustrated as they form no part of the present invention.

I provide a chimney which is arranged through the ring 5, the chimney being preferably formed of lower and upper sections 8 and 9, respectively, the lower section being preferably mounted on the inwardly-projecting arms 10 on the gas delivery ring, securing screws 13 being tapped into the arms from the inside of the chimney. The upper section 9 is adjustably mounted relative to the lower section, clip-like straps 14 being arranged to slidably engage the arms 2 and 3. The upper end of the lower section and the lower end of the upper section are preferably provided with registering notches 15 and 16, respectively, to receive the burner tubes 17. These burner tubes are curved or bent, the bends 18 being adapted to be engaged in the notches of the lower chimney section, see Fig. 2, and when the upper chimney section is in its operative position, it engages these bends and assists in retaining the burner tubes in position,—that is, they cannot be slipped inwardly without the upper section being raised. To prevent swinging of the inner ends of the burner tubes by which the burners are carried, I provide members 20 having outwardly-projecting arms 21 thereon between which the burner tubes are arranged. The outer ends of the burner tubes preferably project through the outer casing 22, which is provided with slots 23 to receive the same, the gas delivery ring 5 being provided with outwardly and upwardly-projecting delivery arms 24 for the inwardly directed nozzles 25 thereon adapted to deliver to the burner tubes. The nozzles are preferably provided with coupling members 26 with which the burner tubes are adapted to telescope, the coupling members having air inlet openings 27 therein. The valves 28 are arranged through the arms 24 to control the nozzles 25. The outer casing 22 is also slotted at 29 to receive the main burner valve casing 7. This outer casing is adjustably mounted on

the gas supply pipe 1, it being preferably provided with a cap portion 30 arranged on the pipe, the body portion being connected to the cap portion by means of the strap-like members 31. The arm 32 is pivotally mounted on the gas supply pipe arm 3 so that it may be swung out to form a rest for the outer casing when in its elevated position. When in its lower position, the casing rests upon the deflector plate 33 which is secured to the downwardly-projecting arms 34 on the gas delivery ring, the parts thus being connected to the gas supply pipe.

The globe supporting band 35 for the globe 36 is connected by the hinge 37 to the deflector plate 33. The globe is retained in its closed position by the pin 38, which engages the arm 39, see Fig. 1. The details of the hinge and this supporting pin are not here illustrated.

The mantles 40 are preferably carried by the support 41, which is provided with a supporting rod 42 arranged to be vertically adjusted in the bearing 43 provided therefor, a button 44 being provided for holding the mantle support in its operative position. As the details of this mantle support form no part of the present invention, I do not illustrate the same herein.

The deflector plate 33 is preferably spaced at its inner edge from the chimney to allow the passage of air into the globe and thence to the burners, the current thus being directed down the outside of the chimney. The plate could, however, be fitted to the chimney at its inner edge, and suitable apertures for the passage of air provided. By this arrangement of the parts, the burners are effectively supported and are all readily accessible, it being possible to remove any burner quickly for the purpose of renewal or cleaning.

My improved lamp is comparatively simple in the structure of the parts and they can be readily assembled. The parts are so arranged as not to impede the circulation of air about the parts of the chimney which become heated in operation. At the same time, the air supply for the burners is not contaminated by the products of combustion.

I have illustrated and described my improvements in detail in the form in which I have embodied them. I am, however, aware that they are capable of considerable variation in structural details without departing from my invention, but as such variations will readily appear to those skilled in the art to which this invention relates, I have not attempted to illustrate or describe them in detail.

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

1. In a gas lamp, the combination with a gas supply pipe having a pair of arms projecting downwardly therefrom, one of said arms being a gas-supply pipe; of a gas-delivery ring having inwardly projecting arms and downwardly-projecting arms thereon connected to said arms on said supply pipe; a chimney arranged through said ring and between said supply pipe arms, said chimney being made up of sections having registering notches in their upper and lower edges, respectively, the lower section being secured to said inwardly-projecting arms on said ring, the upper section being adjustably mounted on said supply pipe arms; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged with their bends in said notches in said lower chimney section with their outer ends directed outwardly, said upper chimney section being adapted, when in its operative position, to engage the bends in said burner tubes to assist in retaining them in position; gas delivery arms projecting outwardly from said gas delivery ring, said arms having inwardly-directed gas delivery nozzles thereon; coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein; an adjustable outer casing slotted to receive said burner tubes and said delivery arms of said gas ring; a deflector plate on which the said outer casing rests, secured to said downwardly-projecting arms on said gas delivery ring; and a globe-supporting band carried by said deflector plate.

2. In a gas lamp, the combination with a gas supply pipe having a pair of arms projecting downwardly therefrom, one of said arms being a gas delivery pipe, of a gas delivery ring having inwardly projecting arms and downwardly-projecting arms thereon connected to said arms on said supply pipe; a chimney arranged through said ring and between said supply pipe arms, said chimney being made up of sections having registering notches in their upper and lower edges, respectively, the lower section being secured to said inwardly-projecting arms on said ring, the upper section being adjustably mounted on said supply pipe arms; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged with their bends in said notches in said lower chimney section with their outer ends directed outwardly, said upper chimney section being adapted, when in its operative position, to engage the bends in said burner tubes to assist in retaining them in position; gas delivery arms projecting outwardly from said gas delivery rings, said arms having inwardly-directed gas delivery nozzles there-

on; coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein; and an adjustable outer casing slotted to receive said burner tubes and said delivery arms of said gas ring, supported by said downwardly-projecting arms on said gas ring.

3. In a gas lamp, the combination with a gas delivery ring having a pair of arms projecting downwardly therefrom, one of said arms being a gas delivery pipe, of a gas delivery ring having inwardly projecting arms and downwardly-projecting arms thereon connected to said arms on said supply pipe; a chimney arranged through said ring and between said supply pipe arms, said chimney being made up of sections, the lower section being secured to said inwardly-projecting arms on said ring, the upper section being adjustably mounted on said supply pipe arm; a plurality of bent burner-tubes having burners on their inner ends, the bends of said tubes being engaged between the upper and lower edges of said chimney sections; gas delivery arms projecting outwardly from said gas delivery rings, said arms having inwardly-directed gas delivery nozzles thereon; and coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

4. In a gas lamp, the combination with a gas supply pipe having a pair of arms projecting downwardly therefrom, one of said arms being a gas delivery pipe, of a gas delivery ring having inwardly projecting arms and downwardly-projecting arms thereon connected to said arms on said supply pipe; a chimney arranged through said ring and between said supply pipe arms, said chimney being made up of sections, the lower section being expanded downwardly and secured to said inwardly-projecting arms on said ring, the upper section being adjustably mounted on said supply pipe arm; a plurality of bent burner tubes having burners on their inner ends, the bends of said tubes being engaged between the upper and lower edges of said chimney sections; and nozzles for said gas delivery ring arranged to deliver to said burner tubes.

5. In a gas lamp, the combination with a gas supply pipe having a pair of arms projecting downwardly therefrom, one of said arms being a gas delivery pipe, of a gas delivery ring having inwardly projecting arms and downwardly-projecting arms thereon connected to said arms on said supply pipe; a chimney arranged through said ring and between said supply pipe arms, said chimney being made up of sections, the lower section being secured to said inwardly-projecting arms on said ring, the upper sec-

tion being adjustably mounted on said supply pipe arm; a plurality of bent burner tubes having burners on their inner ends, the bends of said tubes being engaged between the upper and lower edges of said chimney sections; and nozzles for said gas delivery ring arranged to deliver to said burner tubes.

6. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section having notches in its upper edge, said lower section being secured to said gas delivery ring and the upper section being adjustably mounted on said delivery pipe; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged with their bends in said notches in said lower chimney section with their outer ends directed outwardly, said upper chimney section being adapted, when in its operative position, to engage the bends in said burner tubes to assist in retaining them in position; gas delivery arms projecting outwardly from said gas delivery rings, said arms having inwardly directed gas delivery nozzles thereon; coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein; an adjustable outer casing slotted to receive said burner tubes and said delivery arms of said gas rings; a deflector plate on which the said outer casing rests, carried by said delivery ring; and a globe supporting band carried by said deflector plate.

7. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section having notches in its upper edge, said lower section being secured to said gas delivery ring and the upper section being adjustably mounted on said delivery pipe; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged with their bends in said notches in said lower chimney section with their outer ends directed outwardly, said upper chimney section being adapted, when in its operative position, to engage the bends in said burner tubes to assist in retaining them in position; gas delivery arms projecting outwardly from said gas delivery rings, said arms having inwardly directed gas delivery nozzles thereon; and coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

8. In a gas lamp, the combination with a gas delivery pipe, of a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, the

upper section being adjustably mounted on said delivery pipe; a plurality of bent burner tubes arranged with their bends engaged over the upper edge of said lower chimney section; members arranged within said chimney to engage said burner tubes; gas delivery arms projecting outwardly from said gas delivery rings, said arms having inwardly-directed gas delivery nozzles thereon; and coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

9. In a gas lamp, the combination with a gas delivery pipe, of a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, the upper section being adjustably mounted on said delivery pipe; a plurality of bent burner tubes arranged with their bends engaged over the upper edge of said lower chimney section; gas delivery arms projecting outwardly from said gas delivery rings, said arms having inwardly-directed gas delivery nozzles thereon; and coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

10. In a gas lamp, the combination with a gas delivery pipe, of a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, the upper section being adjustably mounted on said delivery pipe; a plurality of bent burner tubes arranged with their bends engaged over the upper edge of said lower chimney section; members arranged within said chimney to engage said burner tubes; and delivery nozzles for said ring arranged to deliver to said burner tubes.

11. In a gas lamp, the combination with a gas delivery pipe, of a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, the upper section being adjustably mounted on said delivery pipe; a plurality of bent burner tubes arranged with their bends engaged over the upper edge of said lower chimney section; and delivery nozzles for said ring arranged to deliver to said burner tubes.

12. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being secured to said gas delivery ring and the upper section being adjustably mounted on said delivery pipe; a plurality of burner tubes arranged between said chimney sections; members arranged within said chimney to engage said burner tubes; delivery nozzles for said gas delivery ring ar-

ranged to deliver to said burner tubes; an outer casing; a deflector plate on which the said outer casing rests, carried by said delivery ring; and a globe-supporting band carried by said deflector plate.

13. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being secured to said gas delivery ring and the upper section being adjustably mounted on said delivery pipe; a plurality of burner tubes arranged between said chimney sections; delivery nozzles for said gas delivery ring arranged to deliver to said burner tubes; an outer casing; a deflector plate on which the said outer casing rests, carried by said delivery ring; and a globe-supporting band carried by said deflector plate.

14. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being secured to said gas delivery ring and the upper section being adjustably mounted on said delivery pipe; a plurality of burner tubes arranged between said chimney sections; members arranged within said chimney to engage said burner tubes; and delivery nozzles for said gas delivery ring arranged to deliver to said burner tubes.

15. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being secured to said gas delivery ring and the upper section being adjustably mounted on said delivery pipe; a plurality of burner tubes arranged between said chimney sections; and delivery nozzles for said gas delivery ring arranged to deliver to said burner tubes.

16. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, and the upper section being adjustably mounted on said delivery pipe; a plurality of burner tubes arranged over the upper edge of said lower chimney section; members arranged within said chimney to engage said burner tubes; delivery nozzles for said gas delivery ring; and coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

17. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, and the upper section being adjustably mounted

on said delivery pipe; a plurality of burner tubes arranged over the upper edge of said lower chimney section; delivery nozzles for said gas delivery ring; and coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

18. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, and the upper section being adjustably mounted on said delivery pipe; a plurality of burner tubes arranged over the upper edge of said lower chimney section; members arranged within said chimney to engage said burner tubes; and delivery nozzles for said gas delivery ring.

19. In a gas lamp, the combination with a gas delivery pipe; a gas delivery ring; a chimney arranged through said ring, said chimney being made up of sections, the lower section being carried by said ring, and the upper section being adjustably mounted on said delivery pipe; a plurality of burner tubes arranged over the upper edge of said lower chimney section; and delivery nozzles for said gas delivery ring.

20. In a gas lamp, the combination with a gas delivery ring; a chimney arranged through said ring; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged through the wall of said chimney; members arranged within said chimney to engage said burner tubes; gas delivery arms projecting outwardly from said gas delivery ring, said arms having inwardly-directed gas delivery nozzles thereon; coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

21. In a gas lamp, the combination with a gas delivery ring; a chimney arranged through said ring; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged through the wall of said chimney; gas delivery arms projecting outwardly from said gas delivery ring, said arms having inwardly-directed gas delivery nozzles thereon; coupling members on said nozzles adapted to receive the outer ends of said burner tubes, said coupling members having air inlet ports therein.

22. In a gas lamp, the combination with a gas delivery pipe; a chimney made up of sections, one of said sections being adjustably supported relative to the other; a burner tube arranged between said chimney sections; members arranged within said lower chimney section to engage said burner tube; and a delivery nozzle arranged on the out-

side of said chimney to deliver to the said burner tube.

23. In a gas lamp, the combination with a gas delivery pipe; a chimney made up of sections, one of said sections being adjustably supported relative to the other; a burner tube arranged between said chimney sections; and a delivery nozzle arranged on the outside of said chimney to deliver to the said burner tube.

24. In a gas lamp, the combination with a gas delivery ring; a chimney arranged through said ring; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged through the wall of said chimney; members arranged within said chimney to engage said burner tubes; gas delivery nozzles arranged to deliver to said burner tubes; and an adjustable outer casing slotted to receive said burner tubes.

25. In a gas lamp, the combination with a gas delivery ring; a chimney arranged through said ring; a plurality of bent burner tubes having burners on their inner ends, said tubes being arranged through the wall of said chimney; gas delivery nozzles arranged to deliver to said burner tubes; and an adjustable outer casing slotted to receive said burner tubes.

26. In a gas lamp, the combination with a gas delivery ring; a chimney arranged through said ring; a plurality of bent burner tubes having burners on their inner ends, said tubes being removably arranged through the wall of said chimney; supporting members arranged within said chimney to engage said burner tubes when in their operative position; and gas delivery nozzles arranged to deliver to said burner tubes.

27. In a gas lamp, the combination with a gas delivery ring; a chimney arranged through said ring; a plurality of burner tubes arranged through the wall of said chimney; nozzles on said ring arranged to deliver to said burner tubes; a deflector arranged below and carried by said ring; an outer casing arranged to rest on said deflector; and a globe supporting band carried by said deflector.

28. In a gas lamp, the combination with a gas delivery ring; a chimney arranged through said ring; a plurality of burner tubes arranged through the wall of said chimney; nozzles on said ring arranged to deliver to said burner tubes; a deflector arranged below and carried by said ring; and an outer casing arranged to rest on said deflector.

29. In a gas lamp, the combination with a gas supply pipe adapted to serve as a lamp support; a gas delivery ring secured to said gas supply pipe; a chimney arranged through said ring; a plurality of inverted burners; nozzles arranged to deliver to said

burners; an outer casing adjustably supported by said gas delivery ring; and a globe supporting band supported by said ring.

30. In a gas lamp, the combination with a
 5 gas supply pipe adapted to serve as a lamp support; a gas delivery ring secured to said gas supply pipe; a chimney arranged through said ring; a plurality of inverted burners; nozzles arranged to deliver to said

burners; and an outer casing adjustably supported by said gas delivery ring.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

FREDERICK J. HUMPHREY. [L. s.]

Witnesses:

CLORA ELLYN BRADEN,
 MARGARET L. GLASGOW.