

F. J. & H. R. HUMPHREY.

GAS LAMP.

APPLICATION FILED FEB. 15, 1911.

1,020,556.

Patented Mar. 19, 1912.

2 SHEETS—SHEET 1.

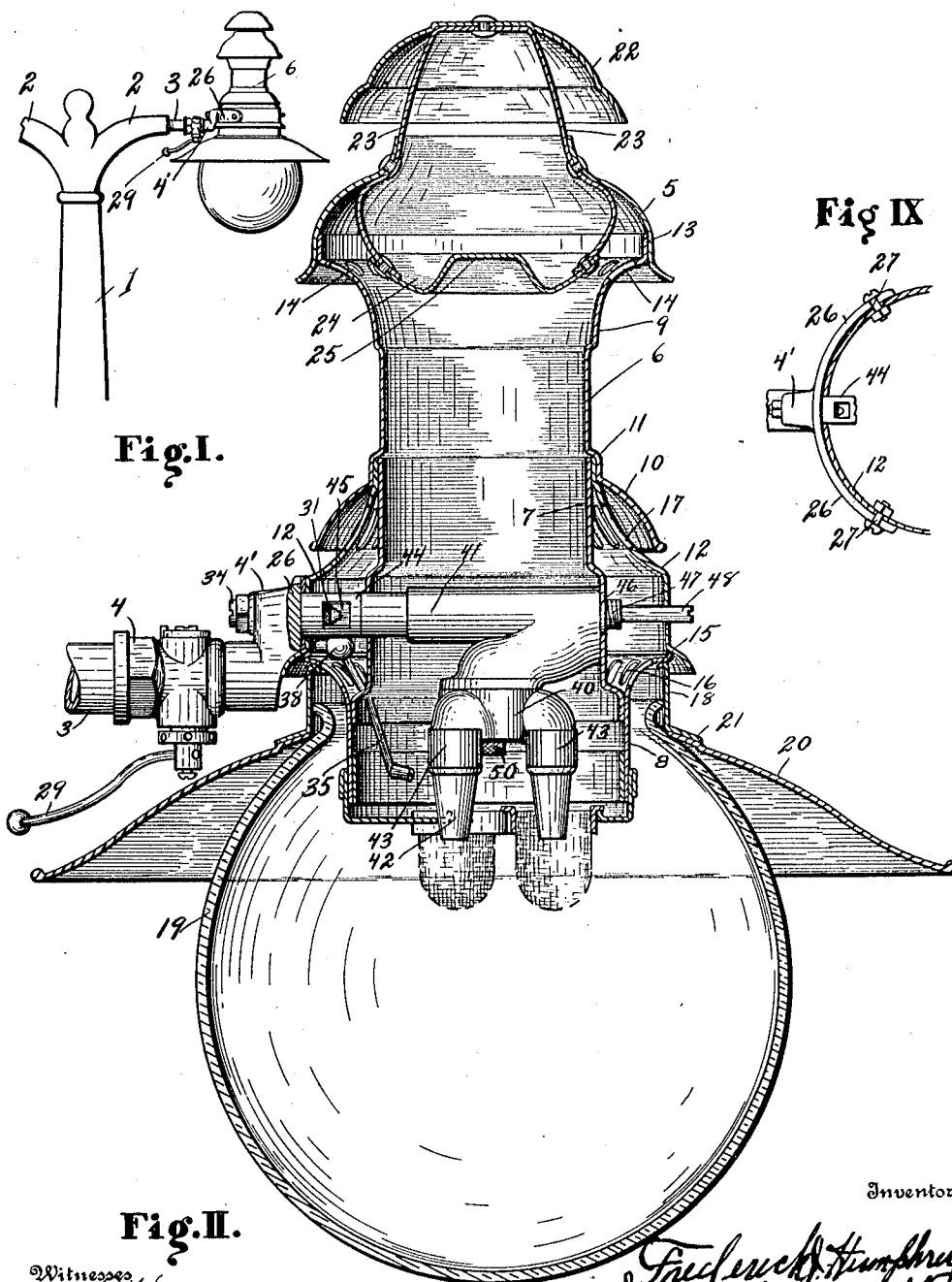


Fig. I.

Fig. IX

Fig. II.

Witnesses
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By

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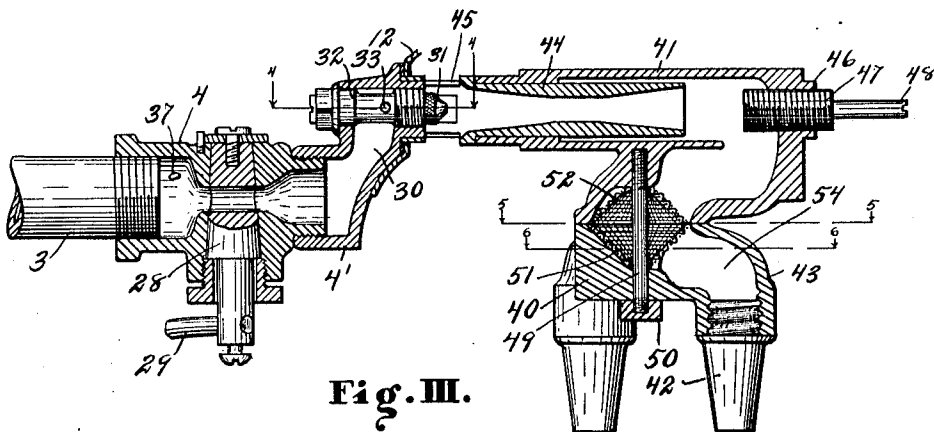


Fig. III.

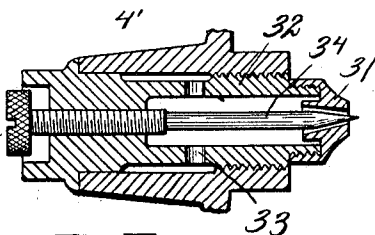


Fig. IV.

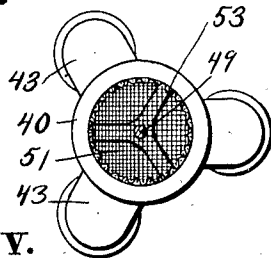


Fig. V.

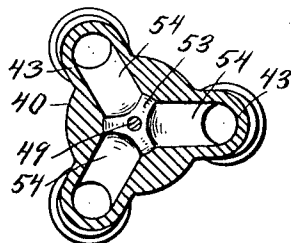


Fig. VI.

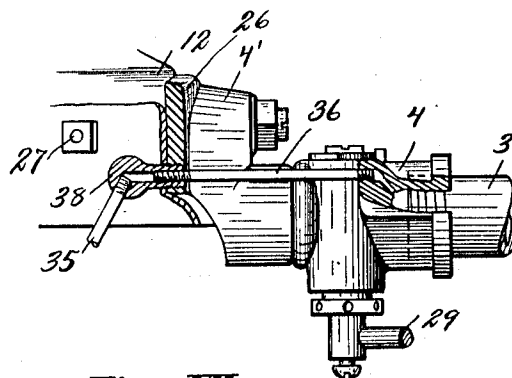


Fig. VII.

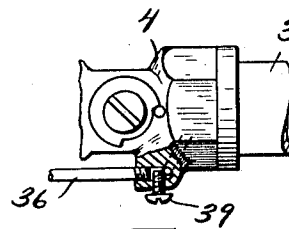


Fig. VIII.

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UNITED STATES PATENT OFFICE.

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GAS-LAMP.

1,020,556.

Specification of Letters Patent.

Patented Mar. 19, 1912.

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To all whom it may concern:

Be it known that we, FREDERICK J. HUMPHREY and HUBERT R. HUMPHREY, citizens of the United States, residing at Kalamazoo, county of Kalamazoo, State of 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 an improved gas lamp of the inverted burner type. Second, to provide an improved gas lamp of the inverted burner type adapted for use as a post or bracket lamp, and for use out of doors or exposed places. Third, to provide in a gas lamp of the inverted burner type, an improved supporting means. Fourth, to provide an improved gas lamp in which all the parts are accessible for adjustment, or for the cleaning or renewing of the parts. Fifth, to provide in a gas lamp an improved valve.

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

We accomplish the objects of our invention by the devices and means described in the following specification.

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

A structure, which is a preferred embodiment of our invention, is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is a detail side elevation of a structure embodying the features of our invention, a post being shown in conventional form to illustrate our improved lamp in an operative relation. Fig. II is an enlarged vertical central section through the chimney and globe, the burner, valves and pipes being shown in full lines. Fig. III is an enlarged vertical section through the burner and the supply valve, some of the parts being shown in full lines to better illustrate their form. Fig. IV is an enlarged detail section taken on a line corresponding to line 4—4 of Fig. III, showing the gas delivery nozzle and the regulating valve therefor, the regulating valve being shown in full lines. Fig. V is a horizontal section taken on a line corresponding to line 5—5 of Fig. III.

Fig. VI is a horizontal section through the burner body, taken on a line corresponding to line 6—6 of Fig. III. Fig. VII is an enlarged detail, partially in section, showing the pilot connections. Fig. VIII is a detail plan of the valve casing, partially in section, showing the regulating valve and pilot. Fig. IX is a detail horizontal section showing details of the chimney bracket.

In the drawing, 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 a lamp post, having arms 2 thereon. The lamp is supported on one of the arms or brackets 2 by means of the delivery pipe 3, which is, in effect, an extension for the arm. The valve casing 4 is mounted on the end of the arm. The valve casing is provided with a chimney bracket 4'.

The lamp chimney, in the structure illustrated, consists of the downwardly-flaring top section 5, the body sections 6 and 7, and a bottom section 8. The body section 6 is provided with an upwardly-flaring flange 9 at its upper end and a downwardly flaring flange 10 at its lower end, and is provided with an annular offset 11 adapted to receive the upper end of the lower body section 7 and the upper end of the casing member 12. The flange 9 of the body section 6 is provided with an upturned rim 13 fitting the top section 5, as illustrated.

The flange 9 is provided with a plurality of openings 14 adjacent to its edge, or adjacent to the rim 13. The bottom section 8 is arranged on the lower end of the section 7. This bottom section 8 has an upwardly-flaring flange 15 on its upper end having air inlet openings 16 therein.

The casing 12 is arranged about the lower part of the chimney, its upper end being under the flange 10 on the chimney section 6, its lower end resting upon the flange 15. The casing 12 is provided with air inlet openings 17 under the flange 10. The casing and chimney thus arranged form an annular air chamber with air inlet openings at its upper and lower ends.

The globe 19 projects into the supporting ring while the shade 20 is secured to the outwardly-projecting flange 21 on the support-

ing ring. The connections for the globe supporting ring are not here illustrated, as they form no part of this invention.

The chimney structure described is that of my application for Letters Patent filed concurrently herewith.

The hood 22 is supported above the upper end of the chimney by the straps 23. These straps project downwardly within the chimney to support the deflector 24. This deflector is concaved in general form, preferably having a raised central portion 25. The upper edge of the deflector is supported in substantially the same plane as the openings 14, so that the air and gases passing through the chimney are deflected toward these openings, and should air blow into the top of the chimney, the deflector and the rising current of heated air and gases deflect the down-coming air to these openings and out through the same. Normally, the heated air and products of combustion are delivered past the deflector and out the upper end of the chimney under the hood, but in the event of a counter-current of air entering the upper end of the chimney, it, along with the heated air and products of combustion, are delivered through the openings 14 until the current again sets past the openings through the top of the chimney.

The straps 23 are preferably formed integrally and connected to the cap, to the deflector, and to the top portion of the chimney by rivets, as illustrated.

The chimney is mounted on the arms 26 on the bracket 4', bolts as 27 being arranged through the arms and the casing member 12 of the chimney. The lamp is thus supported through the valve casing, which forms a supporting bracket therefor.

The valve 28 is of the plug type and is arranged in a vertical position. The valve lever 29 is arranged on the lower end of the valve and projects outwardly over the reflector or shade 20. With the lever thus arranged, the edge of the shade serves as means for locating the valve lever and guiding a pole used for operating the valve. A further advantage in this arrangement is that the supply pipe delivers upwardly so that condensation or sediment in the gas is not delivered to the burner.

The delivery passage 30 in the bracket 4' delivers upwardly, as shown in Fig. III, to the delivery nozzle 31. This nozzle is threaded upon the member 32 which is threaded into the bracket 4', as illustrated. The member 32 is chambered and provided with inlet openings 33. The nozzle is controlled by the regulating valve 34 threaded into the member 32, see Fig. IV. This delivery nozzle structure is substantially that described in my said application.

The pilot 35 is arranged through the chim-

ney and connected to the valve casing in front of the valve by means of the tube 36, which is connected to the passage 37, the tube being threaded into the casing and into the coupling member 38 into which the burner 35 is threaded, the coupling member being threaded into the bracket 4', see Fig. VII. The pilot is regulated by means of the valve 39, see Fig. VIII.

If desired, the bracket 4' and the valve casing 4 may be formed integrally, it being a matter of structural convenience to form them separately, as shown.

The burner comprises a body portion 40 and the inlet passage member 41. The burners 42 are supported on branch-like arms 43 formed on the body 40. The inlet passage member is provided with a horizontal portion adapted to receive the mixing tube 44. This mixing tube is provided with air inlets 45 opening into the space or chamber between the chimney and the chimney casing member. The mixing tube is arranged through the walls of the chimney casing and forms a support for the burner.

The burner member 41 is provided with a nipple-like projection 46, which projects into the opening in the opposite side of the chimney. The control valve 47 is arranged at the inner end of the horizontal portion of the inlet passage and is adjusted to regulate the mixture delivering to the burners, the stem 48 of this valve being arranged through the casing so that it can be adjusted from the outside.

The burner body 40 is supported on the passage member 41 by means of the bolt 49, which depends centrally from the member 41, the member 40 having a central opening adapted to receive it. The nut 50 secured on the lower end of the bolt is preferably a cap nut adapted to form a tight joint at this point.

In the delivery chamber of the burner, we arrange a screen consisting of a pair of conical members 51 and 52, the member 51 being inverted and resting in the chamber of the body member of the burner, while the member 52 rests on the upper end of the member 51, the bolt 49 being arranged centrally through both of the members. The burner body can be readily removed for the purpose of cleaning the screens, as desired. A single supporting rod or bolt supports the body of the burner in position.

The chamber in the body 40 is conical in shape and provided with radial ribs 53 on its walls disposed between the burner passages 54. These ribs are provided to insure an even distribution of the gas to the several burners, the bottom screen 51 resting thereon. By this arrangement of the screen, the gas passes freely therethrough and a double screen is not only provided between the gas supply and each burner, but also between

the several burners so that back firing from one burner to the other and to the mixing tube, is prevented.

It is found that in shutting the supply valve 28, the burners are not always simultaneously extinguished, and there still being an explosive mixture in the burner and burner tubes, an explosion is likely to occur unless guarded against by some means, as illustrated.

We have illustrated and described our improvements in a preferred embodiment. We are aware that various modifications in structural details are possible, but as such modifications will no doubt be readily understood by those skilled in the art to which this invention relates, we have not attempted to illustrate or describe the same herein. We desire to be understood as claiming our invention specifically, in the form illustrated, as well as broadly within the scope of the appended claims.

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

1. In a gas lamp, the combination with a horizontally-disposed gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe; a chimney supporting bracket on said valve casing and having a delivery passage communicating with the passage of said valve casing and leading upwardly therefrom; a gas delivery nozzle member arranged through said bracket above said valve casing and communicating with said bracket passage; a delivery nozzle on the inner end of said nozzle member; a mixing tube arranged on said bracket and adapted to serve as a burner supporting member; a pilot burner; a coupling member for said pilot threaded into said bracket; and a delivery tube threaded into said valve casing and coupling member.

2. In a gas lamp, the combination with a horizontally-disposed gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe; a chimney supporting bracket on said valve casing and having a delivery passage communicating with the passage of said valve casing and leading upwardly therefrom; a gas delivery nozzle member arranged through said bracket above said valve casing and communicating with said bracket passage; a delivery nozzle on the inner end of said nozzle member; and a mixing tube arranged on said bracket and adapted to serve as a burner supporting member.

3. In a gas lamp, the combination with a horizontally-disposed gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe; a chimney supporting bracket on said valve casing and having a delivery passage communicating with the passage of said valve casing; a

pilot burner; a coupling member for said pilot threaded into said bracket; and a delivery tube threaded into said valve casing and coupling member.

4. In a gas lamp, the combination with a horizontally-disposed gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe; and a chimney supporting bracket having curved arms embracing the side of the chimney and secured thereto, said bracket being mounted on said valve casing and having a delivery passage communicating with the passage of said valve casing.

5. In a gas lamp, the combination with a gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe and having a chimney bracket thereon provided with a delivery passage communicating with the passage of said casing; a gas delivery nozzle member arranged through said bracket and communicating with said bracket passage; a delivery nozzle on the inner end of said nozzle member; a burner tube arranged on said bracket and adapted to serve as a burner supporting member; a pilot burner; a coupling member for said pilot carried by said bracket; and a delivery pipe connecting said valve casing and coupling member.

6. In a gas lamp, the combination with a gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe and having a chimney bracket thereon provided with a delivery passage communicating with the passage of said casing; a gas delivery nozzle member arranged through said bracket and communicating with said bracket passage; a delivery nozzle on the inner end of said nozzle member; and a burner tube arranged on said bracket and adapted to serve as a burner supporting member.

7. In a gas lamp, the combination with a gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe and having a chimney bracket thereon provided with a delivery passage communicating with the passage of said casing; a pilot burner; a coupling member for said pilot carried by said bracket; and a delivery pipe connecting said valve casing and coupling member.

8. In a gas lamp, the combination with a gas supply pipe, of a burner; a chimney; a supply valve casing mounted on said gas supply pipe and having a chimney bracket thereon provided with a delivery passage communicating with the passage of said casing; a pilot burner; and a delivery connection from said valve casing to said pilot arranged through said bracket on said valve casing.

9. An inverted burner comprising a body member having a delivery chamber open at

its upper end and a plurality of burner passages leading therefrom, said burner chamber being of conical shape and having radial ribs disposed between said passages; an inverted conical screen arranged in said chamber to rest on said ribs; an inlet passage member having a chamber registering with said chamber of said body; and a conical screen arranged in said inlet member chamber to rest on said screen arranged in said burner.

10. An inverted burner comprising a body member having a delivery chamber open at its upper end and a plurality of burner passages leading therefrom, said burner chamber being of conical shape and having radial ribs disposed between said passages; and an inverted conical screen arranged in said chamber to rest on said ribs.

11. An inverted burner comprising a body member having a delivery chamber open at its upper end and a plurality of burner pas-

sages leading therefrom, said burner chamber being of conical shape; an inverted conical screen arranged in said chamber; an inlet passage member having a chamber registering with said chamber of said body; and a conical screen arranged in said inlet member chamber.

12. An inverted burner comprising a body member having a delivery chamber open at its upper end and a plurality of burner passages leading therefrom, said burner chamber being of conical shape; an inverted conical screen arranged in said chamber.

In witness whereof, we have hereunto set our hands and seals in the presence of two witnesses.

FREDERICK J. HUMPHREY. [L. s.]
HUBERT R. HUMPHREY. [L. s.]

Witnesses:

L. G. GREENFIELD,
M. P. WOODRUFF.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."