

No. 878,398.

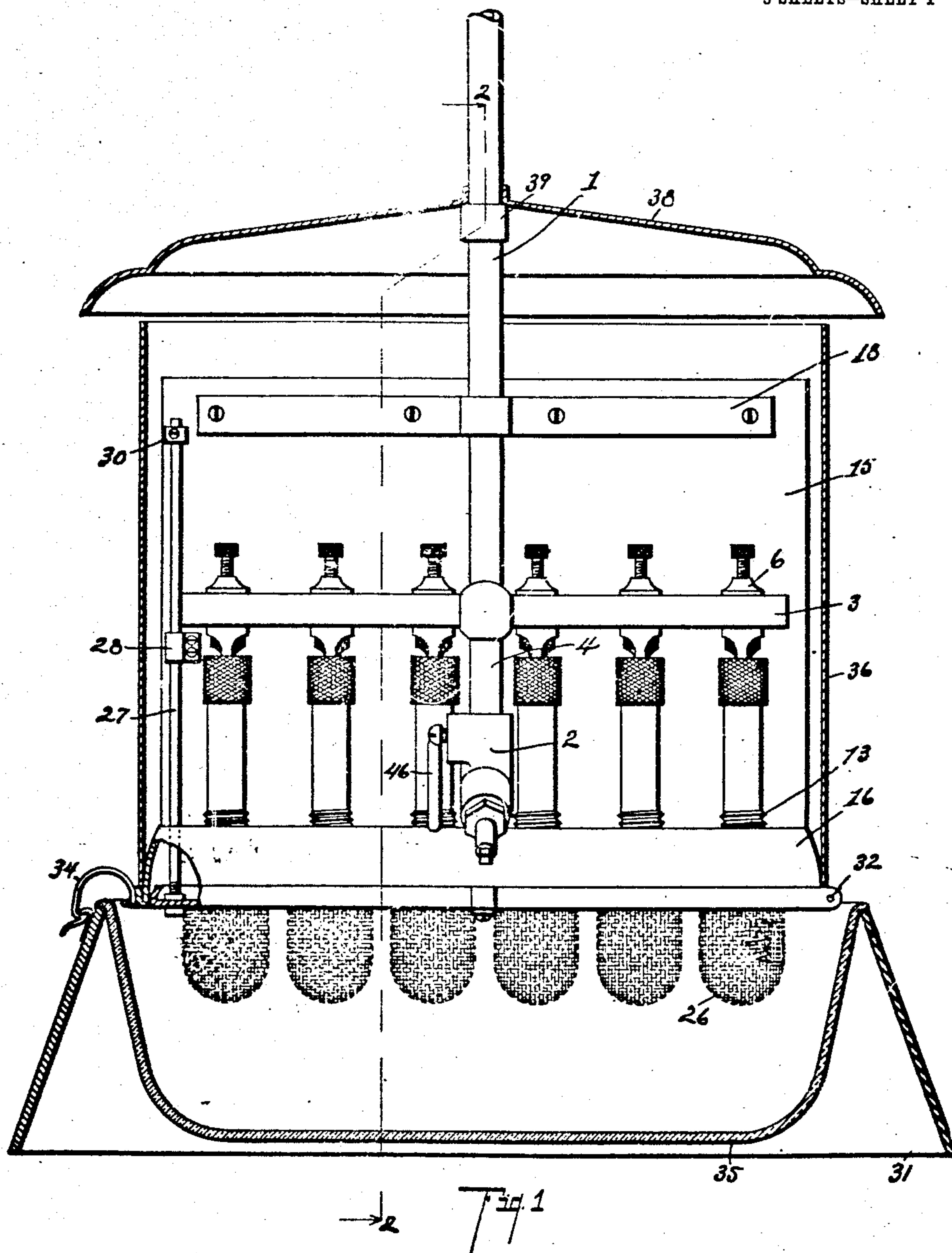
PATENTED FEB. 4, 1908.

A. H. HUMPHREY.

GAS LAMP.

APPLICATION FILED NOV. 26, 1906.

5 SHEETS—SHEET 1



Witnesses:

A. J. Adams
Lucas Greenfield

Inventor,

Alfred H. Humphrey
By *Chapman & Earl*
Att'ys

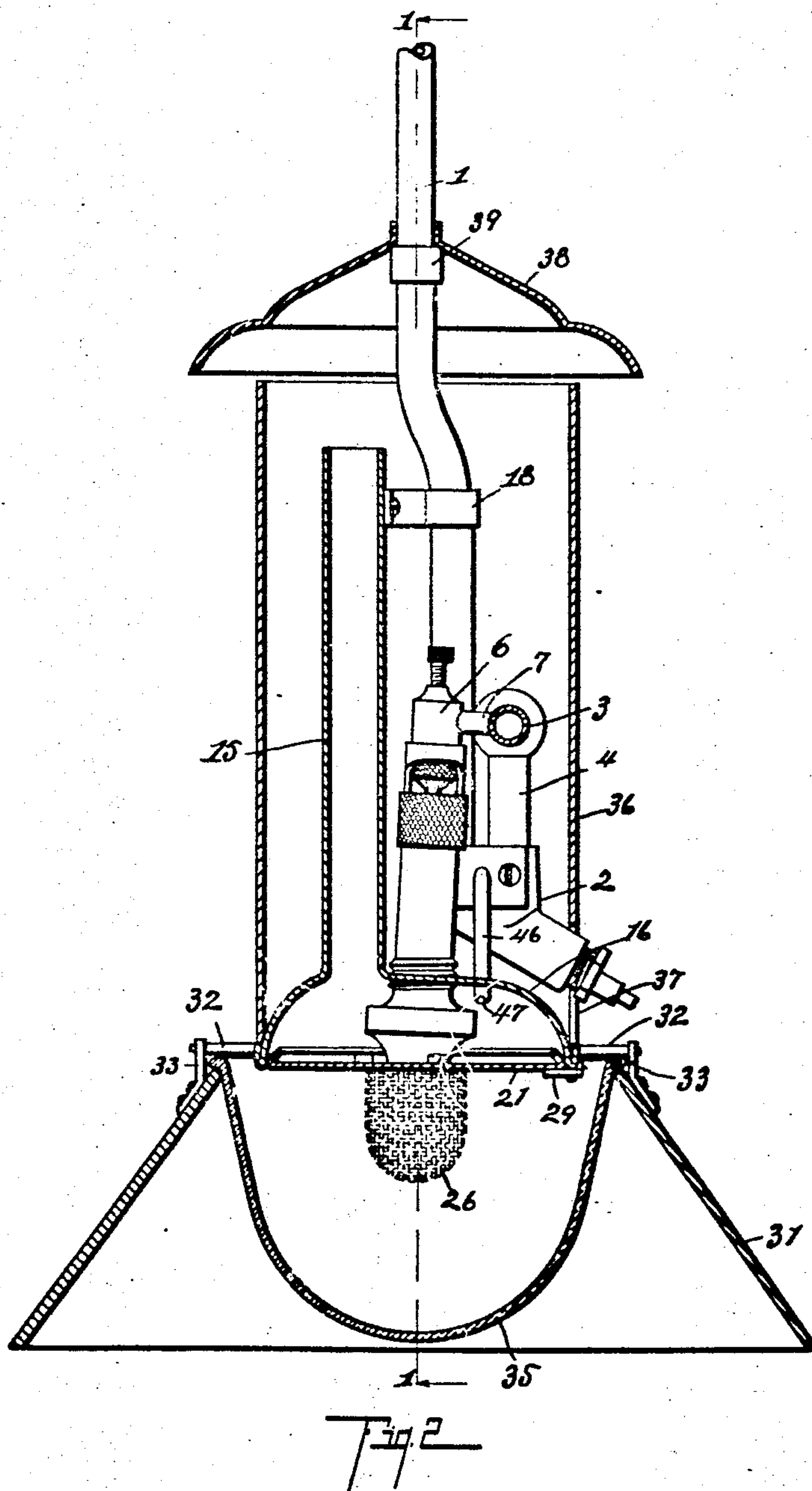
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5 SHEETS--SHEET 2.



Witnesses.

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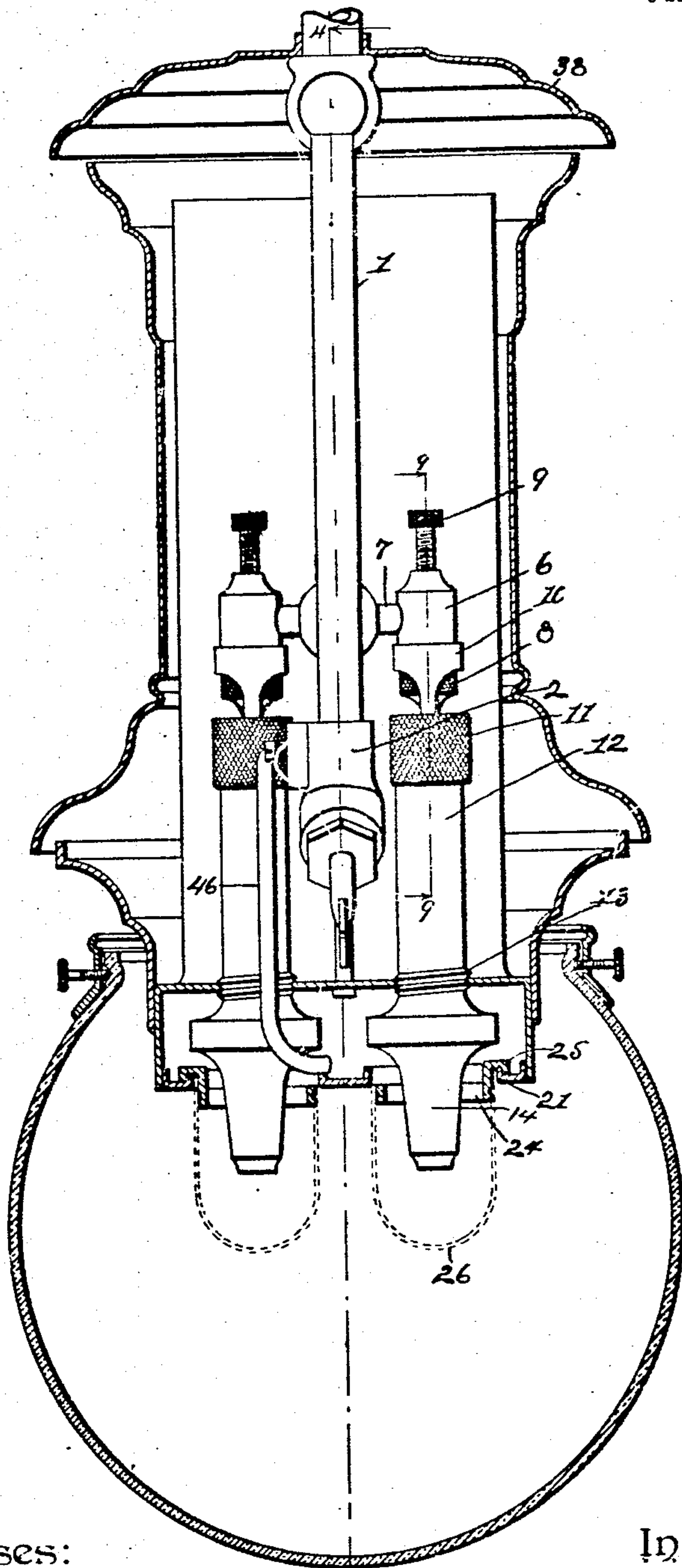
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5 SHEETS—SHEET 3.



Witnesses:

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T. J. S.

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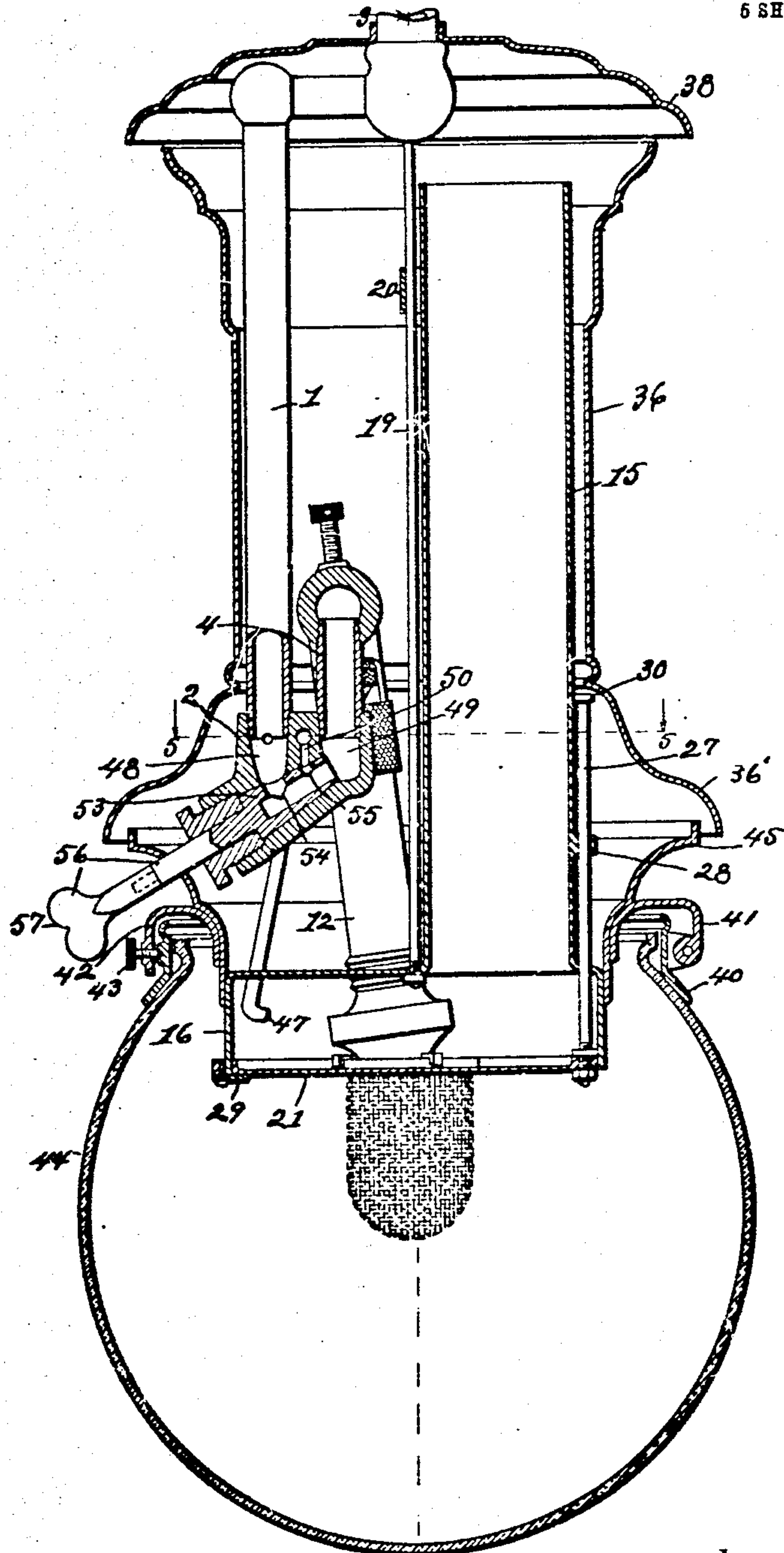
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GAS LAMP.

APPLICATION FILED NOV. 26, 1908.

6 SHEETS—SHEET 4.



Witnesses.

A. S. Adams
Lulu Greenfield

T. H. 4

Inventor.

Alfred H. Humphrey
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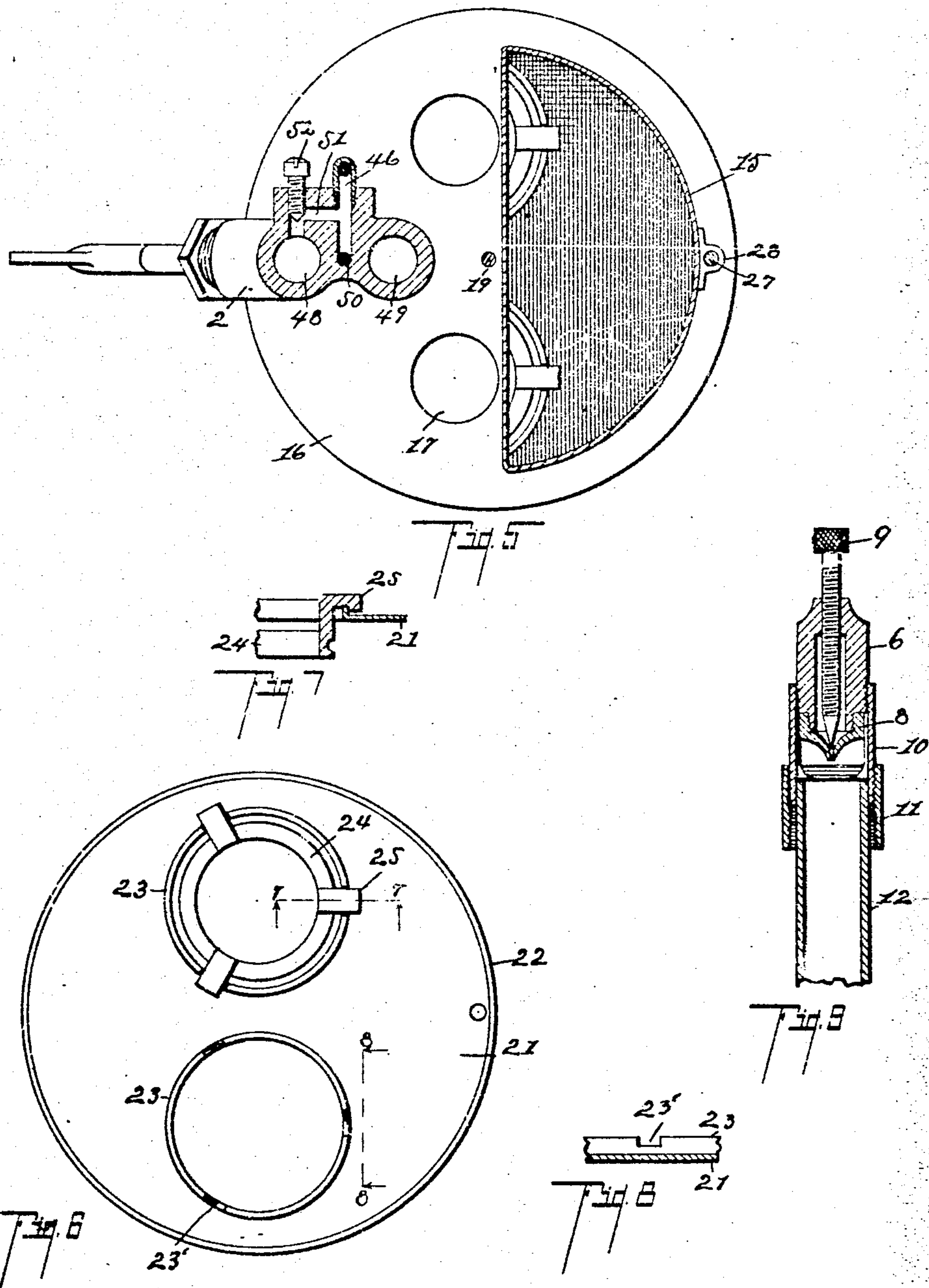
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PATENTED FEB. 4, 1908.

A. H. HUMPHREY.
GAS LAMP.

APPLICATION FILED NOV. 26, 1906.

5 SHEETS—SHEET 5



Witnesses.

A. F. Adams
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Inventor.

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UNITED STATES PATENT OFFICE.

ALFRED H. HUMPHREY, OF NEW YORK, N. Y.

GAS-LAMP.

No. 878,398.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed November 26, 1906. Serial No. 345,168.

To all whom it may concern:

Be it known that I, ALFRED H. HUMPHREY, a citizen of the United States, residing at the city of New York, county of New York, and State of New York, 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 objects of this invention are, first, to provide an improved gas lamp having a plurality of inverted burners. Second, to provide an improved gas lamp having inverted burners in which all the parts are readily accessible so that it is not necessary to disassemble the lamp for the purpose of adjusting or arranging the parts. Third, to provide, in a gas lamp, an improved valve construction. Fourth, to provide, in a gas lamp, an improved pilot light construction. Fifth, to provide, in a gas lamp, an improved construction and arrangement of the burners.

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 an elevation of a structure embodying the features of my invention, the deflector-plate, casing, reflector and globe being sectioned on a line corresponding to line 1—1 of Fig. 2. Fig. 2 is a vertical section taken on a line corresponding to the broken line 2—2 of Fig. 1. Fig. 3 is a vertical section of a slightly modified construction, taken on a line corresponding to line 3—3 of Fig. 4, the structure here being adapted to two burners instead of to a number of burners, as shown in Figs. 1 and 2. Fig. 4 is a vertical section taken on a line corresponding to line 4—4 of Fig. 3. Fig. 5 is a horizontal section taken on a line corresponding to line 5—5 of Fig. 4. Fig. 6 is a plan view of the mantle supporting-plate, one of the mantle-holders being shown in position therein. Fig. 7 is a detail section taken on a line corresponding to line 7—7 of Fig. 6. Fig. 8 is a detail section taken on a line corresponding to line 8—8 of Fig. 6. Fig.

9 is an enlarged detail vertical section taken on a line corresponding to line 9—9 of Fig. 3.

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

Referring to the drawing, 1 represents the gas supply pipe which is, in the structure illustrated, also designed as the support for the lamp. At the lower end of the supply pipe is a valve 2. Projecting upwardly from this valve is a T-shaped delivery pipe. In the structure illustrated in Figs. 1 and 2, the gas delivery pipe section 3 is connected to the valve by the upwardly projecting pipe section 4, the delivery pipe section being arranged in a horizontal position and having a plurality of burners connected thereto, the structure illustrated having six burners arranged in a straight line.

The burner nipples 6 are connected to the delivery pipe 3 by means of the hollow arms 7. The burner nipples are provided with suitable delivery nozzles 8 which are controlled by the needle valves 9. Upon the nipples are threaded tubular valve sections 10 having suitable air ports therein. These air ports are regulated by the valves 11 which are threaded upon the sections 10. The burner tubes 12 are arranged through the openings 17 in the flange 16 at the bottom of the chimney 15. The burner tubes are provided with suitable threads 13 so that they may be threaded through the flange and are thereby supported, the upper ends of the tubes projecting into the valve sections 10. The flange 16 of the chimney projects to one side thereof and is provided with a substantially horizontal portion through which the burner tubes are arranged. By arranging the chimney at one side of the lamp, the burners are centered therein. The burner tips 14 are located below the flange and the chimney serves to conduct the products of combustion and heated gases therefrom.

By locating the chimney at one side, the burners are properly centered in the structure, as stated, so that, where the structure has a plurality of burners, as illustrated in Fig. 1, they may be arranged in a row, likewise where a single burner is used.

The flange of the chimney is flared downwardly, so that it effectively gathers the products of combustion and conveys them to

the chimney, and also causes the draft of fresh air to the burner to insure proper combustion. This arrangement also protects the air inlets or ports for the burner tubes from the products of combustion, so that pure air is mixed with the gas. The chimney, in structures having a number of burners arranged in a straight line, as shown in Figs. 1 and 2, is preferably flat and is preferably supported by the strip 18, which is wrapped around the chimney, as shown in Fig. 2.

In the construction shown in Figs. 3, 4 and 5, the supply pipe is offset by a right-angled coupling and the chimney is supported by the rod 19 depending from the coupling. A clip 20 secures the upper end of the chimney to this rod, preventing the same from tilting on the rod.

The mantles are supported below the burner-tips by the plate-like mantle-support 21. This mantle-support also serves as a reflector-plate. The mantle-support is preferably provided with an upwardly projecting flange 22 at its rim, the flange being adapted to fit within the flange of the chimney. The mantle-supporting plate 21 is provided with openings having upwardly projecting flanges about the same. The mantle-holders are preferably in the form of rings 24 having laterally projecting arms 25 thereon. The flanges 23 about the openings are provided with notches 23' adapted to receive these arms whereby the turning of the holders in the support is prevented, the mantle-holders being dropped into place from the top of the support. In order to conveniently permit of this, the mantle-support is supported by the rod 27 which is arranged through the flange on the chimney and through a suitable guide 28 on the side thereof.

On the upper end of the rod 27 is a head 30 adapted to engage this guide to limit the downward movement of the rod. When the mantle-support is in its lower position, it may be swung to one side from under the burners. It is held in its upper position by the button 29, the structure being similar and, in some respects, an improvement upon the mantle-support shown in my application for Letters Patent of the United States, filed on June 26th, 1906, Serial No. 322,890. The mantles 26 are secured to the holders 24 in any suitable manner.

In the structure shown in Figs. 1 and 2, I provide a reflector shade, the same being rectangular in form and having its walls set at an angle. This shade is preferably formed of mirrors, so that the light is reflected very effectively, being particularly effective in a structure having burners arranged in alignment, as shown in Figs. 1 and 2. The globe 35 is preferably suspended from the upper edge of the reflector. The reflector is sup-

ported at one end by the hinge pintles 32 projecting from the chimney flange.

The spring catch 34 holds the reflector and the globe carried thereby in their closed position. By thus supporting the globe and reflector, they swing down out of the way, so that the mantles and burners are thoroughly accessible. The supporting-rod 27 is secured to the mantle-supporting plate at the end of the lamp opposite the hinges for the reflector, so that it swings away from it, allowing full access.

The chimney, burner tubes and valves are preferably surrounded with the casing 36, the same being arranged to rest on the flange of the chimney, so that it may be lifted, when it is desired to manipulate or adjust the valves for the burners.

The main valve for the supply pipe projects through this casing, a suitable slot 37 being provided therefor. The deflector-plate 38 is loosely mounted on the gas supply pipe, so that it may be moved up and down thereon, a suitable collar 39 limiting its downward movement and holding it supported above the upper end of the casing and chimney to permit a free escape of the heated gases therefrom.

In the modified, or two-burner construction, the globe 44 is secured to a suitable globe-supporting ring 40, which is hinged to the projecting arm 41 at one side. Opposite the arm 41 is an arm 42 carrying a thumb-screw 43 by means of which the globe-supporting ring is secured. These arms 41 and 42 are carried by the upwardly flaring band 45 mounted on the flange of the chimney. The casing 45 in this construction is preferably provided with a downwardly flaring flange 46, the lower edge of which, when in its lower position, projects over the band 45. This casing is arranged practically the same as the casing 36 described and is adapted to be lifted to afford access to the burner valves.

The valve casing 2 is provided with passages 48, 49 and 50, the passage 48 being connected to the gas supply pipe; the passage 49 to the pipe 4; and the passage 50 to the pilot burner. The valve 53 is provided with a main passage 54 adapted, when the valve is open, to connect the passages 48 and 49 thereof, thereby admitting the gas to the delivery pipe and thence to the burners. The passage 55 is so arranged as to open into the passage 50 when the main valve is open, thereby admitting gas to the pilot to flash the same. The pilot 46 is connected to the passage 50, as clearly appears in Fig. 5. The passage 50 is connected to the passage 48 in the valve casing by a by-pass 51. This by-pass is controlled by a needle-valve 52 adapted to regulate the constant supply of gas to the pilot. The pilot light tip 47 is arranged through the flange of the chimney and is laterally directed to shoot the flame across

the mantle when flashed by the turning on of the main burner valve. The valve stem 56 is adapted to be manipulated by a key 57.

By arranging the pilot within the flange of the chimney; it is protected from draft, so that it is not likely to be accidentally extinguished, also it is hidden from view, which is of advantage when the lamp is extinguished. With the mantle-support shown it is entirely closed and protected, although it is quite effectively protected without this.

I have illustrated and described my improved gas lamp in detail in the form preferred by me on account of the structural simplicity and convenience with which it may be cared for in use, the parts being all easily accessible. I am aware, however, that it is capable of considerable variation in structural details without departing from my invention, and I desire to be understood as claiming the same specifically, as illustrated, as well as broadly.

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, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alignment below said flange; a downwardly flaring rectangular reflector hinged at one end of said chimney; a suitable catch therefor arranged at the opposite end of said chimney; a globe resting on the top of said reflector; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; a revolubly and vertically adjustable supporting-rod for said mantle-support arranged at the end of said chimney opposite the hinge for said reflector whereby said mantle-holder may be swung away from said reflector when the same is opened; a casing adapted to rest on said chimney flange; and a deflector arranged above the casing slidably mounted on said supply pipe, for the purpose specified.

2. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the flange;

inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alignment below said flange; a downwardly flaring rectangular reflector hinged at one end of said chimney; a suitable catch therefor arranged at the opposite end of said chimney; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; a revolubly and vertically adjustable supporting-rod for said mantle-support arranged at the end of said chimney opposite the hinge for said reflector whereby said mantle-holder may be swung away from said reflector when the same is opened; a casing adapted to rest on said chimney flange; and a deflector arranged above the casing slidably mounted on said supply pipe, for the purpose specified.

3. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alignment below said flange; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; a revolubly and vertically adjustable supporting-rod for said mantle-support; a casing adapted to rest on said chimney flange; and a deflector arranged above the casing slidably mounted on said supply pipe, for the purpose specified.

4. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alignment below said flange; a downwardly flaring rectangular reflector hinged at one end of said chimney; a suitable catch therefor arranged at the opposite end of said chimney; a casing adapted to rest on said chimney flange; and a deflector arranged above the casing slidably mounted on said supply pipe, for the purpose specified.

5. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plural-

ity of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flanges; a plurality of inverted burner tips on said tubes arranged in alinement below said flange; a casing adapted to rest on said chimney flange; and a deflector arranged above the casing slidably mounted on said supply pipe, for the purpose specified.

6. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alinement below said flange; a downwardly flaring rectangular reflector hinged at one end of said chimney; a suitable catch therefor arranged at the opposite end of said chimney; a globe resting on the top of said reflector; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; a revolvably and vertically adjustable supporting-rod for said mantle-support arranged at the end of said chimney opposite the hinge for said reflector whereby said mantle-holder may be swung away from said reflector when the same is opened, for the purpose specified.

7. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alinement below said flange; a downwardly flaring rectangular reflector hinged at one end of said chimney; a suitable catch therefor arranged at the opposite end of said chimney; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; a revolvably and vertically adjustable supporting-rod for said mantle-support arranged at the end of said chimney opposite the hinge for said reflector whereby said mantle-holder

may be swung away from said reflector when the same is opened, for the purpose specified.

8. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alinement below said flange; and a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; a revolvably and vertically adjustable supporting-rod for said mantle-support, for the purpose specified.

9. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed delivery nozzles carried by the horizontal portion of said T-shaped delivery pipe; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said chimney flange; a plurality of inverted burner tips on said tubes arranged in alinement below said flange; a downwardly flaring rectangular reflector hinged at one end of said chimney; and a suitable catch therefor arranged at the opposite end of said chimney, for the purpose specified.

10. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end thereof; a T-shaped gas delivery pipe projecting upwardly from said valve; a plurality of downwardly directed nozzles carried by the horizontal portion of the said T-shaped delivery pipe; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the flange; inverted burner tubes arranged through said flange; and a plurality of inverted burner tips on said tubes arranged in alinement below said flange, for the purpose specified.

11. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves, said burners being arranged in alinement through said chimney flange with their tips below and their valves without the same; a downwardly flaring rectangular reflector hinged at one end of said chimney; a globe resting on the top of said reflector; a pilot

burner arranged within said flange whereby the same is protected from drafts; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; and a revoluble and vertically adjustable supporting-rod for said mantle-support arranged at the end of the chimney opposite the hinge for said reflector whereby the mantle-holder may be swung away from the reflector, when the same is opened, for the purpose specified.

12. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves, said burners being arranged in alinement through said chimney flange with their tips below and their valves without the same; a downwardly flaring rectangular reflector hinged at one end of said chimney; a globe resting on the top of said reflector; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; and a revoluble and vertically adjustable supporting-rod for said mantle-support arranged at the end of the chimney opposite the hinge for said reflector whereby the mantle-holder may be swung away from the reflector when the same is opened, for the purpose specified.

13. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves; said burners being arranged in alinement through said chimney flange with their tips below and their valves without the same; a downwardly flaring rectangular reflector hinged at one end of said chimney; a pilot burner arranged within said flange whereby the same is protected from drafts; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; and a revoluble and vertically adjustable supporting-rod for said mantle-support arranged at the end of the chimney opposite the hinge for said reflector whereby the mantle-holder may be swung away from the reflector, when the same is opened, for the purpose specified.

14. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves; said burners being arranged in alinement through said chimney flange with their

tips below and their valves without the same; a downwardly flaring rectangular reflector hinged at one end of said chimney; a plate-like mantle-support having a row of mantle-holder openings therein adapted to fit into said flange on said chimney; and a revoluble and vertically adjustable supporting-rod for said mantle-support arranged at the end of the chimney opposite the hinge for said reflector whereby the mantle-holder may be swung away from the reflector, when the same is opened, for the purpose specified.

15. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves; said burners being arranged in alinement through said chimney flange with their tips below and their valves without the same; a downwardly flaring rectangular reflector; a globe resting on the top of said reflector; and a pilot burner arranged within said flange whereby the same is protected from drafts, for the purpose specified.

16. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves; said burners being arranged in alinement through said chimney flange with their tips below and their valves without the same; a downwardly flaring rectangular reflector; and a globe resting on the top of said reflector; for the purpose specified.

17. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves; said burners being arranged in alinement through said chimney flange with their tips below and their valves without the same; a downwardly flaring rectangular reflector; and a pilot burner arranged within said flange, whereby the same is protected from drafts, for the purpose specified.

18. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with a flange at its bottom, the chimney being at one side of the center of the said flange; a plurality of inverted burners provided with burner tips, and valves; said burners being arranged in alinement through said chimney flange with their tips below and their valves without the same; and a downwardly flaring rectangular reflector, for the purpose specified.

19. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a flat chimney provided with a flange at its bot-

tom, the chimney being at one side of the center of the said flange; and a plurality of inverted burners provided with burner tips, and valves; said burners being arranged in
5 alinement through said chimney flange with their tips below and their valves without the same, for the purpose specified.

20. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end
10 thereof; a gas delivery pipe projecting upwardly from said valve; a downwardly directed delivery nozzle carried by said delivery pipe; a chimney provided with an outwardly and downwardly projecting flange at
15 its bottom, the chimney being at one side of the center of the flange; an inverted burner arranged through said chimney flange; an inverted burner tip on said tube arranged below said flange; a plate-like mantle-support
20 having a mantle-holder opening therein adapted to fit into said flange on said chimney; a revolubly and vertically adjustable supporting-rod for said mantle-support; a
25 vertically adjustable casing; and a deflector arranged above the casing slidably mounted on said supply pipe, for the purpose specified.

21. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end
30 thereof; a gas delivery pipe projecting upwardly from said valve; a downwardly directed delivery nozzle carried by said delivery pipe; a chimney provided with an outwardly and downwardly projecting flange at
35 its bottom, the chimney being at one side of the center of the flange; an inverted burner arranged through said chimney flange; an inverted burner tip on said tube arranged below said flange; a plate-like mantle-support
40 having a mantle-holder opening therein adapted to fit into said flange on said chimney; and a revolubly and vertically adjustable supporting-rod for said mantle-support, for the purpose specified.

22. In a gas lamp, the combination with a
45 gas supply pipe, of a valve at the lower end thereof; a gas delivery pipe projecting upwardly from said valve; a downwardly directed delivery nozzle carried by said delivery pipe; a chimney provided with a flange
50 at its bottom, the chimney being at one side of the center of the flange; an inverted burner arranged through said chimney flange; an inverted burner tip on said tube arranged below said flange; a vertically adjustable casing;
55 and a deflector arranged above the casing slidably mounted on said supply pipe, for the purpose specified.

23. In a gas lamp, the combination with a gas supply pipe, of a valve at the lower end
60 thereof; a gas delivery pipe projecting upwardly from said valve; a downwardly directed delivery nozzle carried by said delivery pipe; a chimney provided with a flange at its bottom, the chimney being at one side
65 of the center of the flange; an inverted

burner arranged through said chimney flange; and an inverted burner tip on said tube arranged below said flange, for the purpose specified.

24. In a gas lamp, the combination with a
70 gas supply pipe, of a valve therefor; a chimney having an outwardly and downwardly projecting flange at its bottom, the chimney being at one side of the center of said flange; and an inverted burner arranged through
75 said flange with its tip below the same, for the purpose specified.

25. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a chimney having a flange at its bottom, the chimney
80 being at one side of the center of said flange; and an inverted burner arranged through said flange with its tip below the same, for the purpose specified.

26. In a gas lamp, the combination with a
85 gas supply pipe, of a valve therefor; a gas delivery pipe; a downwardly directed delivery nozzle carried thereby; a chimney provided with a flange at its bottom; an inverted burner tube threaded through said flange
90 whereby it is supported; and a burner tip therefor arranged below said flange.

27. In a gas lamp, the combination with a gas supply pipe, of a valve therefor; a chimney having a flange at its bottom; an inverted
95 burner tube threaded through said flange whereby it is supported; and a burner tip for said tube arranged below said flange.

28. In a gas lamp, the combination with the gas supply pipe, of a valve therefor; a
100 chimney provided with an outwardly and downwardly projecting flange at its bottom; an inverted burner arranged through said flange with its tip below the same; a pilot burner arranged within said flange; a plate-like
105 mantle-support having a mantle-holder opening therein adapted to fit within said flange whereby said pilot light is inclosed and protected.

29. In a gas lamp, the combination with a
110 gas supply pipe, of a valve therefor; a chimney having an outwardly and downwardly projecting flange at its lower end; a burner arranged through said flange; and a pilot burner arranged within said flange whereby
115 it is protected.

30. In a gas lamp, the combination of a gas delivery pipe; a chimney; a plurality of inverted burners with separate mantles therefor connected to said gas delivery pipe; a
120 casing opening at its upper end, arranged to embrace said gas pipe and the upper ends of said burners; a globe arranged to embrace said burner mantles; and a partition separating the chamber formed by said globe from
125 the lower end of said casing, said casing being adapted to admit air at the lower end thereof.

31. In a gas lamp, the combination of a gas delivery pipe; a chimney; a chimney
130 casing open at its ends arranged about said

chimney in a spaced relation thereto; a plurality of inverted burners provided with burner tips and valves connected to said gas delivery pipe; an outer casing; a globe inclosing said burner tips; and a partition for separating said chamber formed by said globe from the chamber formed by said outer casing, said outer casing being open at its upper end and being adapted to admit air at the lower end thereof.

32. In a gas lamp, the combination with the gas delivery pipe of a chimney; a burner arranged through the wall of said chimney with its air port on the outside thereof; and means for causing a current of air to flow about the portion of said burner on the outside of the chimney when the lamp is in operation.

33. In a gas lamp, the combination with a

gas delivery pipe, of a chimney for conducting the heated products of combustion from the burner; an inclosing casing for said chimney open at its upper end, arranged so that, when the lamp is in operation, a current of air drawn from without the lamp is caused to flow through said inclosing casing; and a burner comprising a burner tip and a mixing tube arranged with its mixing tube on the outside of said chimney and projecting into said inclosing casing, whereby the current of air passing through said casing is caused to flow across the mixing tube of the burner.

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

ALFRED H. HUMPHREY. [L. s.]

Witnesses:

PERRY GLEASON,
HENRY A. GAUBUT.