

W. J. FRY.

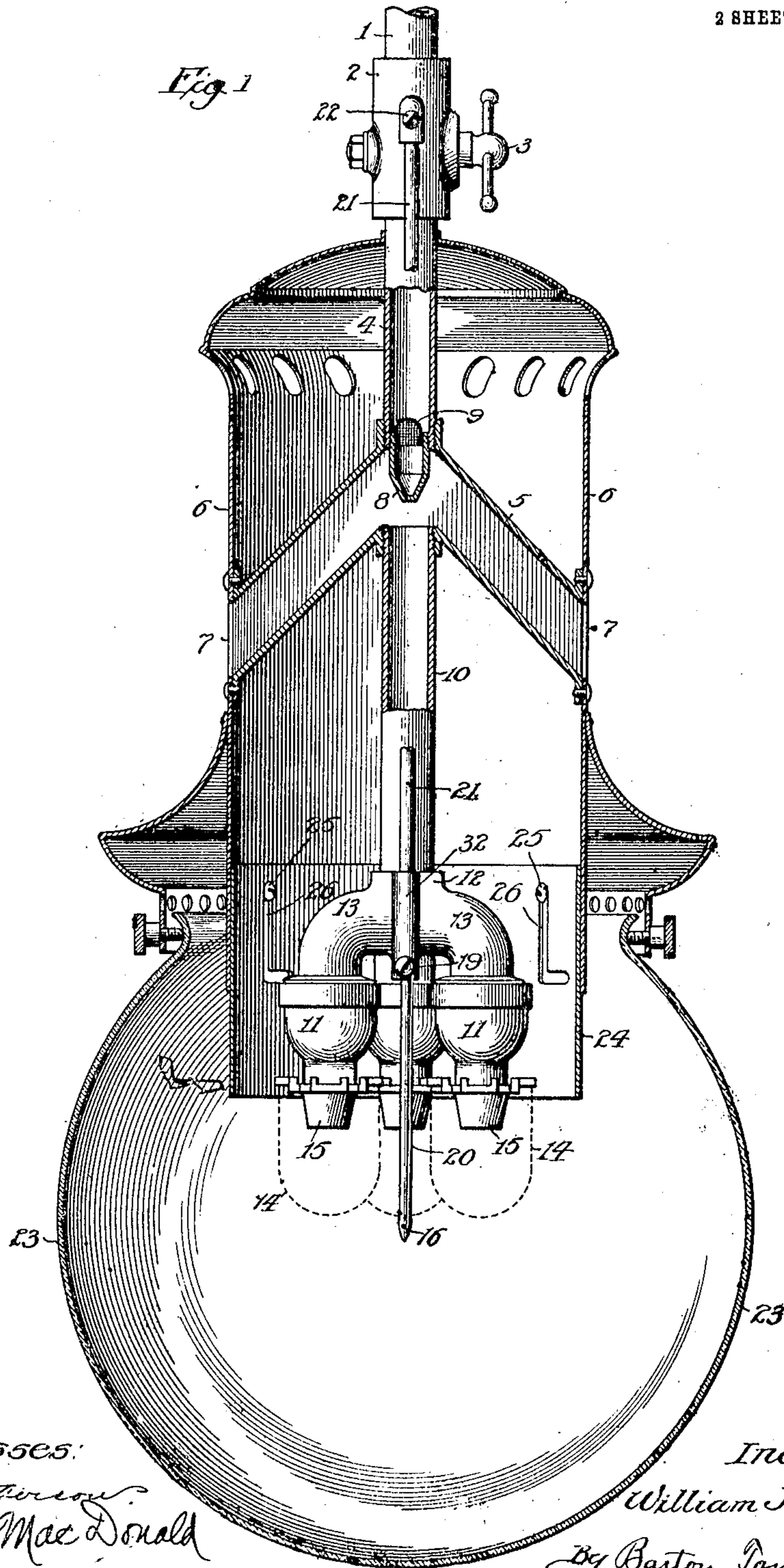
GAS LAMP.

APPLICATION FILED JAN. 26, 1908.

909,995.

Patented Jan. 19, 1909.

2 SHEETS—SHEET 1.



Witnesses:  
Geo. C. Brown  
Irving Mac Donald

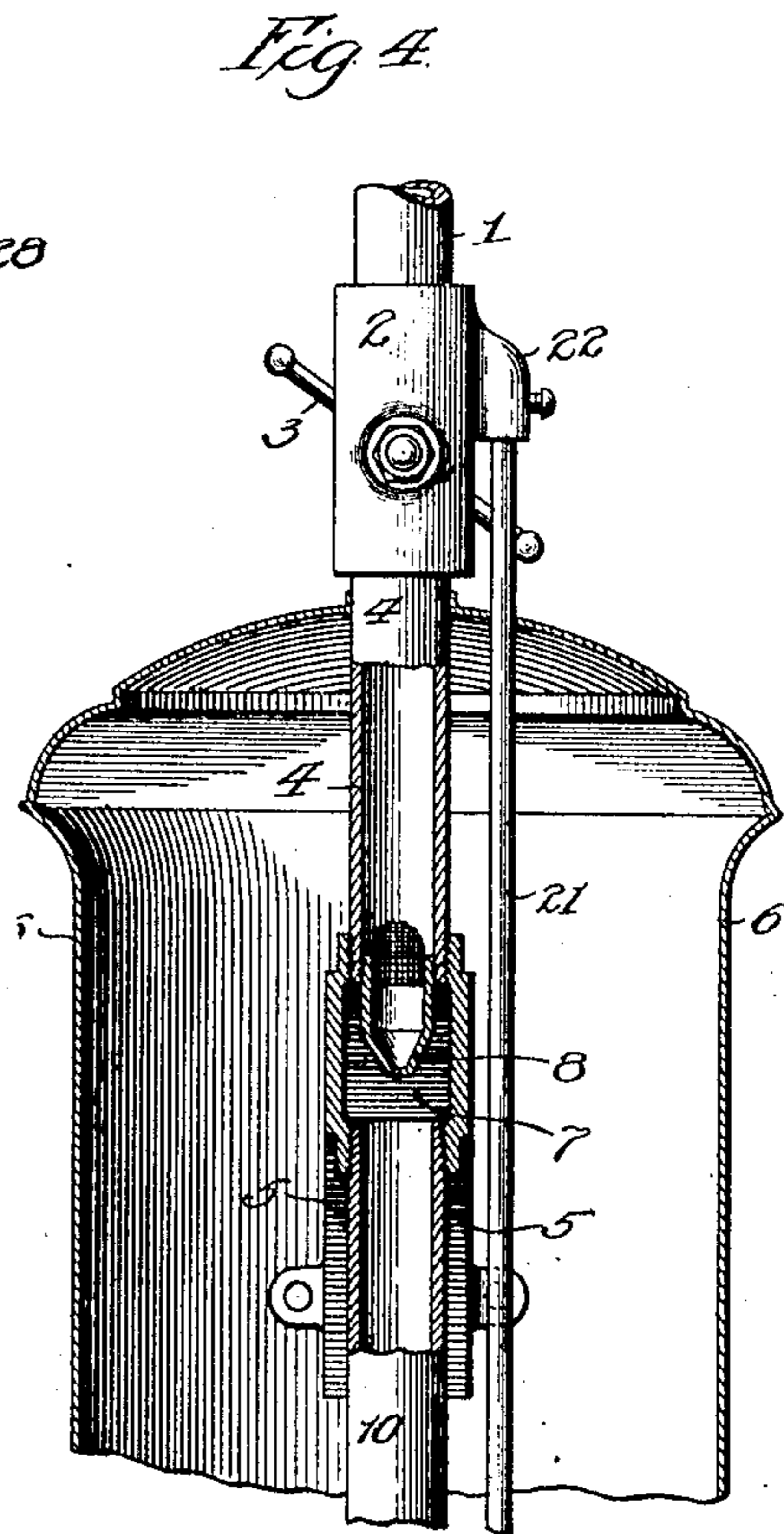
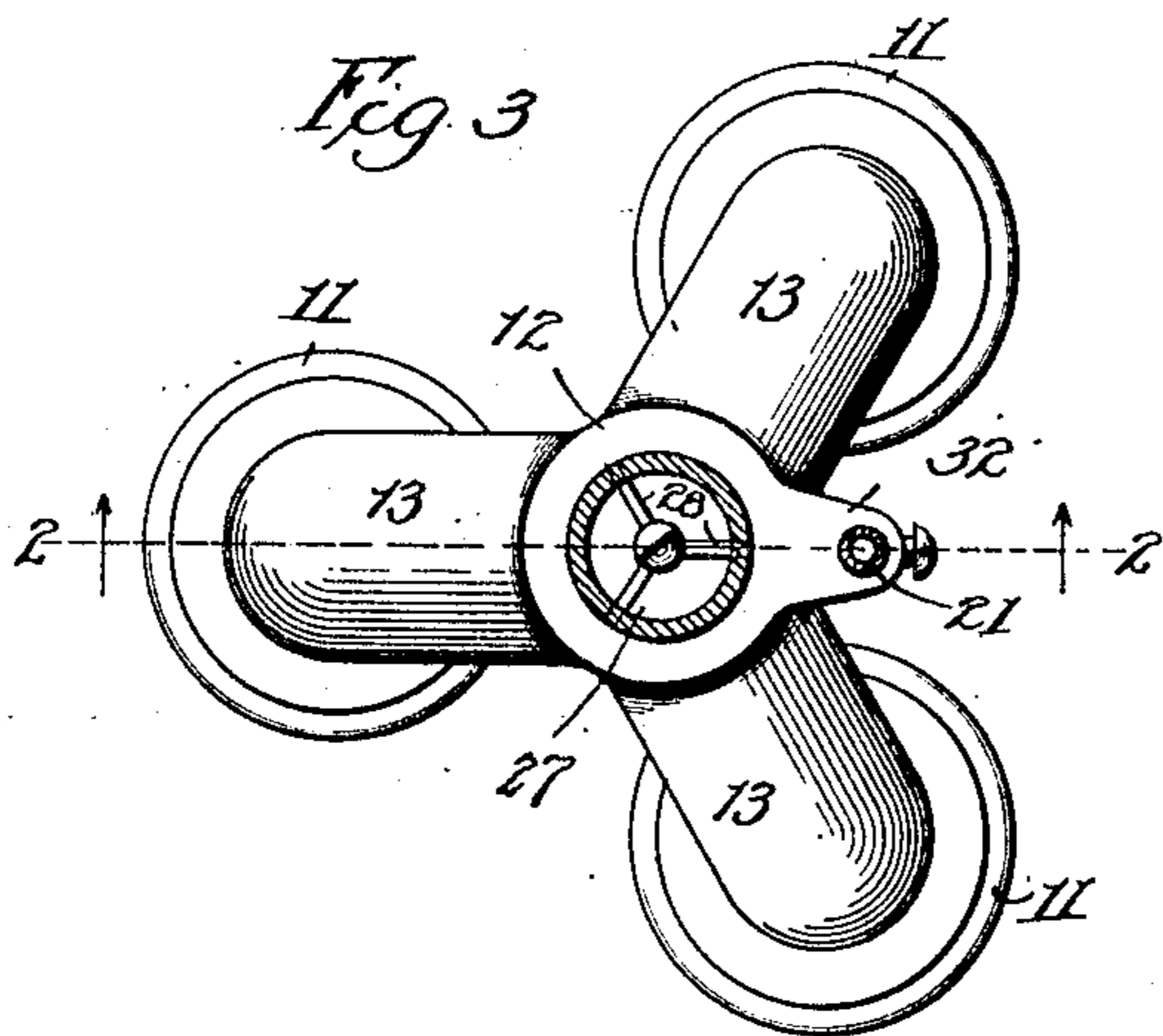
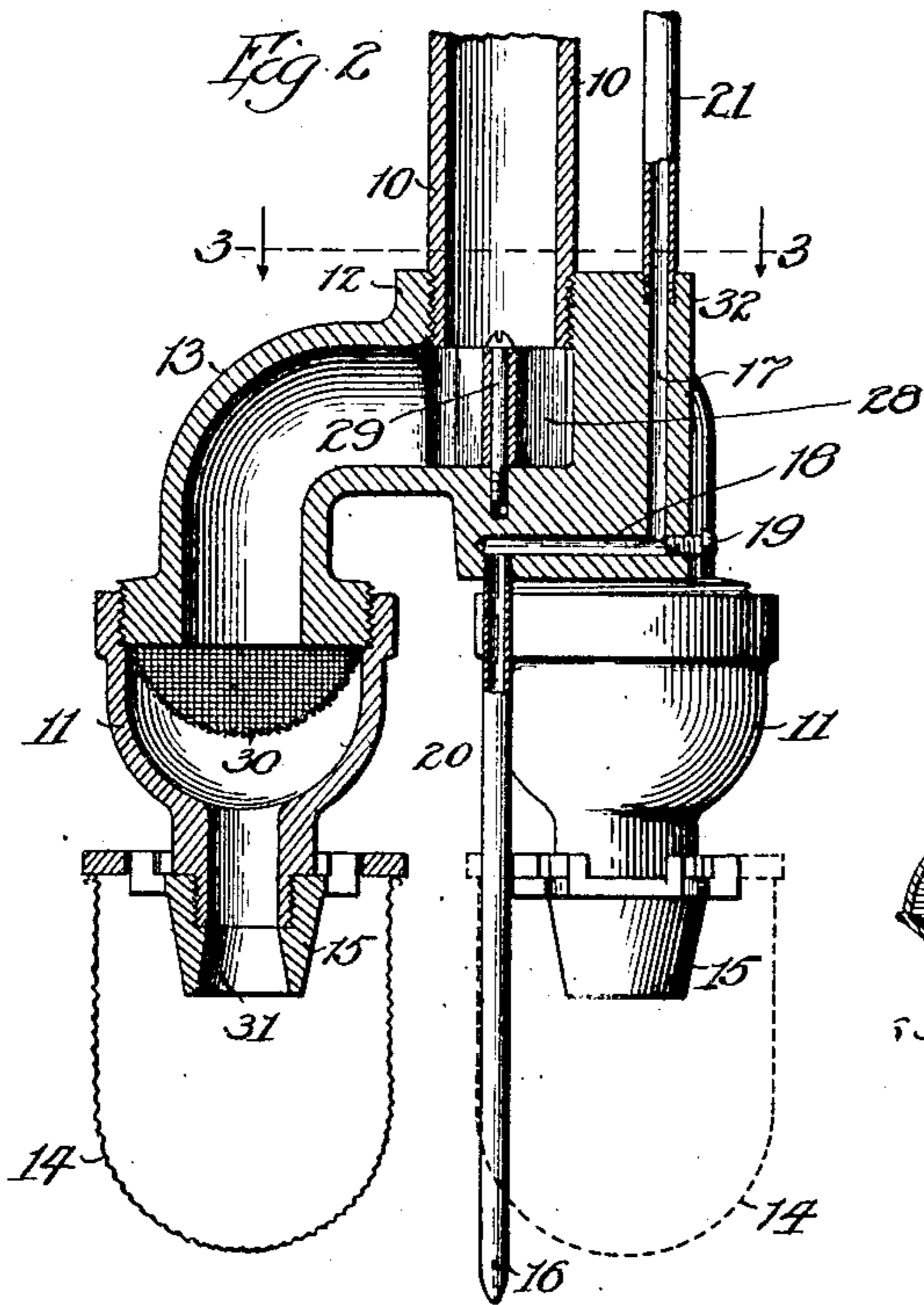
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GAS LAMP.  
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2 SHEETS—SHEET 2.



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Geo. C. Dawson  
Irving MacDonald

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# UNITED STATES PATENT OFFICE.

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## GAS-LAMP.

No. 909,995.

Specification of Letters Patent.

Patented Jan. 19, 1909.

Application filed January 25, 1908. Serial No. 412,532.

*To all whom it may concern:*

Be it known that I, WILLIAM J. FRY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Gas-Lamps, of which the following is a full, clear, concise, and exact description.

My invention relates to gas lamps, and more particularly to gas lamps provided with incandescent mantles, and its object is to provide a lamp of simple construction, having a high illuminating power resulting from an unusually low consumption of gas.

Certain features of my invention contemplate improvements in the parts which conduct a mixture of gas and air to the burner.

Another feature of my invention relates more particularly to the burner and consists in providing the burner with a tip having an opening or mouth which gradually flares outwardly, said mouth or opening being preferably cone-shaped.

Another feature of my invention relates to the structure and arrangement of the lamp casing, said casing in effect serving as a chimney, and being provided with an adjustable lower section surrounding the burner, which section is adapted to be raised or adjusted to permit of ready access to said burner.

Another feature of my invention consists in the location of the pilot lamp and the means for supporting the same.

These and other features of my invention may be more readily understood by reference to the accompanying drawings, in which—

Figure 1 is a view of the lamp partly in side elevation and partly in vertical section; Fig. 2 is a sectional view on the line 2—2 of Fig. 3; Fig. 3 is a plan sectional view taken on the line 3—3 of Fig. 2; and Fig. 4 is a fragmentary view, principally in section, at right angles to Fig. 1.

Like parts are designated by similar characters of reference throughout the several views.

The lamp of my invention is designed to be attached to the usual gas delivery pipe 1 by means of the coupling 2, in which is located the ordinary rotary valve 3 for controlling the flow of gas to the lamp. Extending from the lower end of the coupling 2 is a delivery pipe extension 4, which is se-

cured in an opening in the outer bend or vertex of an elbow pipe 5, which forms an air-supply pipe. The two arms of the pipe 5 extend downwardly, and said pipe is provided with aligned openings forming a vertical passageway through the bend thereof.

The lamp casing 6 is secured in any suitable manner upon the ends of the pipe 5, said pipe communicating through openings 7 in the lamp case with the exterior of said case.

It is well known that if the air is admitted in blasts to the Bunsen tube, there is surging or unequal pressure in the gas supply tube and a corresponding surging effect is produced on the flame. By thus extending the arms of the air-supply pipe downward, there is less tendency for the air to pass in the form of blasts into the passage where the gas is mixed with air. There is also less tendency for dust, rain, snow, etc., to blow in with the air, since to do so it must first pass in an upward direction. Moreover, the inclined walls of the air passages do not readily collect dust. The advantages resulting from the above-described structure and arrangement of the air-supply pipe are thus obvious.

Threaded in the lower end of the pipe extension 4, and projecting into the passageway through the air-supply pipe 5, is the usual injector nozzle 8. The base or inlet opening of the nozzle is covered with a wire gauze strainer 9, in the shape of a thimble. Any solid particles collecting on top of the thimble-shaped strainer 9 tend to roll off and hence do not tend to clog the strainer.

Threaded into the under side or inner bend of the elbow pipe 5 is the Bunsen tube 10 which conducts the mixture of air and gas to the burners 11. Said air-supply pipe 5 thus forms a coupling for uniting the pipe extension 4 and the Bunsen tube 10. The burners 11 are connected to the pipe 10 by means of a coupling 12. In the drawings a three way coupling is shown, having a tubular body portion from which three outwardly and downwardly curved branches 13 extend in a radial direction from said body portion. The burners 11 are threaded upon the ends of the coupling branches 13. Mantles 14 are depended from the burner tips 15 in the usual manner.

A pilot burner 16 extends to the lower ends of the mantles. In case a plurality of

burners 11 are arranged in a cluster, as shown, the pilot burner is arranged intermediate said burners 11 equi-distant from each mantle. The body portion of the coupling 12 is provided with a lug 32 down one side thereof and underneath the body portion to the center thereof. Said lug has drilled therethrough a vertical hole 17 and a horizontal hole 18, said latter hole communicating at one end with the hole 17 and at the other end with the exterior of the coupling at the central portion of its base. The outer end of the hole 18 may be closed in any suitable manner, as by a screw 19. Secured in the inner end of the hole 18 is a section 20 of the pilot tube, the other section 21 of which has its lower end secured in the hole 17 and its upper end secured to the lug 22 upon the coupling 2, thus communicating with the gas supply above the valve 3.

I have found by experience that, in order to avoid the explosion frequently incident to igniting an incandescent burner, it is desirable to apply the igniting torch near the lower end of the mantle. By my arrangement of the pilot tube, the pilot lamp is firmly supported in the position to supply an igniting flame to each of the burners.

I preferably inclose the mantles 14 in a glass globe 23, which is supported by the lamp casing in any desirable manner. As before stated, the casing 6 forms a chimney for the burners, and hence it is desirable that said casing extend down about the burners. It is also desirable that ready access may be had to the burners in order to more easily place the mantles in position. I have, therefore, provided the casing 6 with a bottom extension 24 telescoped therein. Pins 25 upon the interior of the casing 6 project through bayonet slots 26 in the extension 24 and serve as a means for securing said extension in position. Obviously, said extension may be raised and held out of the way by turning the same so that said pins rest in the horizontal portions of said bayonet slots.

In case more than one burner 11 is connected to the Bunsen tube 10, I preferably place in the passage within the coupling 12, immediately beneath the tube 10, a partition member 27. Said member 27 separates the passages in the branches 13 from each other, each passage thus opening directly into the pipe 10. As shown in Figs. 2 and 3, where a coupling for three burners is employed, the member 27 has three radial walls 28. The partition member 27 is removably secured in position by a screw-bolt 29. I have found that by thus having each branch 13 communicate directly with the tube 10, the flow of gas to reach burner 11 and the pressure at the burner tips is better equalized, especially in case any of the spreaders 30 becomes more or less clogged.

The exit opening 31 of the burner tip 15

flares outwardly, said opening being cone-shaped with the base of the cone at the mouth of the opening. With the ordinary burner tip, having an exit opening of uniform cross-section, the flame is projected to a sharp point against the interior of the mantle, and this undue concentration of the flame at one particular point tends to burn out the mantle at such point as well as to unequally distribute the flame. By constructing the opening 31 in accordance with my invention, the flame is spread out and has a more rounded end, comes into better contact with the mantle, and increases the incandescence of the mantle.

Having thus described my invention, I claim:—

1. In a gas lamp, the combination with a Bunsen tube, of a burner, a coupling for connecting said burner to said tube, and a pilot lamp having a pilot tube formed in two sections, said coupling being provided with a small hole in the walls thereof into which one end of each of said sections is secured, said coupling thus also serving as a coupling for said pilot tube sections.

2. In a gas lamp, the combination with a plurality of burners, of a Bunsen tube for supplying a gaseous mixture to said burners, a coupling for connecting said burners to said tube, a mantle depending from each burner, and a pilot lamp supported from said coupling and extending between said mantles to a point near the bottom thereof.

3. In a gas lamp, the combination with a plurality of burners, of a Bunsen tube, a coupling for connecting said burners to said tube, said coupling being also provided with a small hole extending from the top of said coupling through the wall thereof and opening beneath said coupling approximately equidistant from said burners, and a pilot lamp having a pilot tube formed in two sections fitting into said small hole and thus connected by said coupling.

4. In a gas lamp, the combination with a plurality of burners, of a Bunsen tube, a coupling for connecting said burners to said tube, said coupling having a plurality of radially arranged arms to which said burners are secured, the body portion of said coupling being provided with a lug extending down one side thereof and beneath the same, said lug being provided with a small hole longitudinally thereof terminating at the bottom of said body portion concentric with said radial arms, and a pilot tube formed in vertically arranged sections connected by said coupling through said small hole, said lower section of the pilot tube terminating in a pilot burner, located approximately equidistant from the main burner.

5. In a gas lamp, the combination with a plurality of burners, of a Bunsen tube for supplying a gaseous mixture to said burners,

a coupling consisting of a tubular body portion provided with a plurality of tubular branches extending radially from said body portion, said body portion being adapted to  
5 be secured to said Bunsen tube and said branches being adapted to receive said burners, and a partition member consisting of radially extending walls located within said tubular body portion and dividing the same

into independent passageways from said 10 Bunsen tube to said branches.

In witness whereof I hereunto subscribe my name this 22d day of January, A. D. 1908.

WILLIAM J. FRY.

Witnesses:

ALFRED H. MOORE,  
GEORGE E. FOLK.