

W. S. LEVINGS.

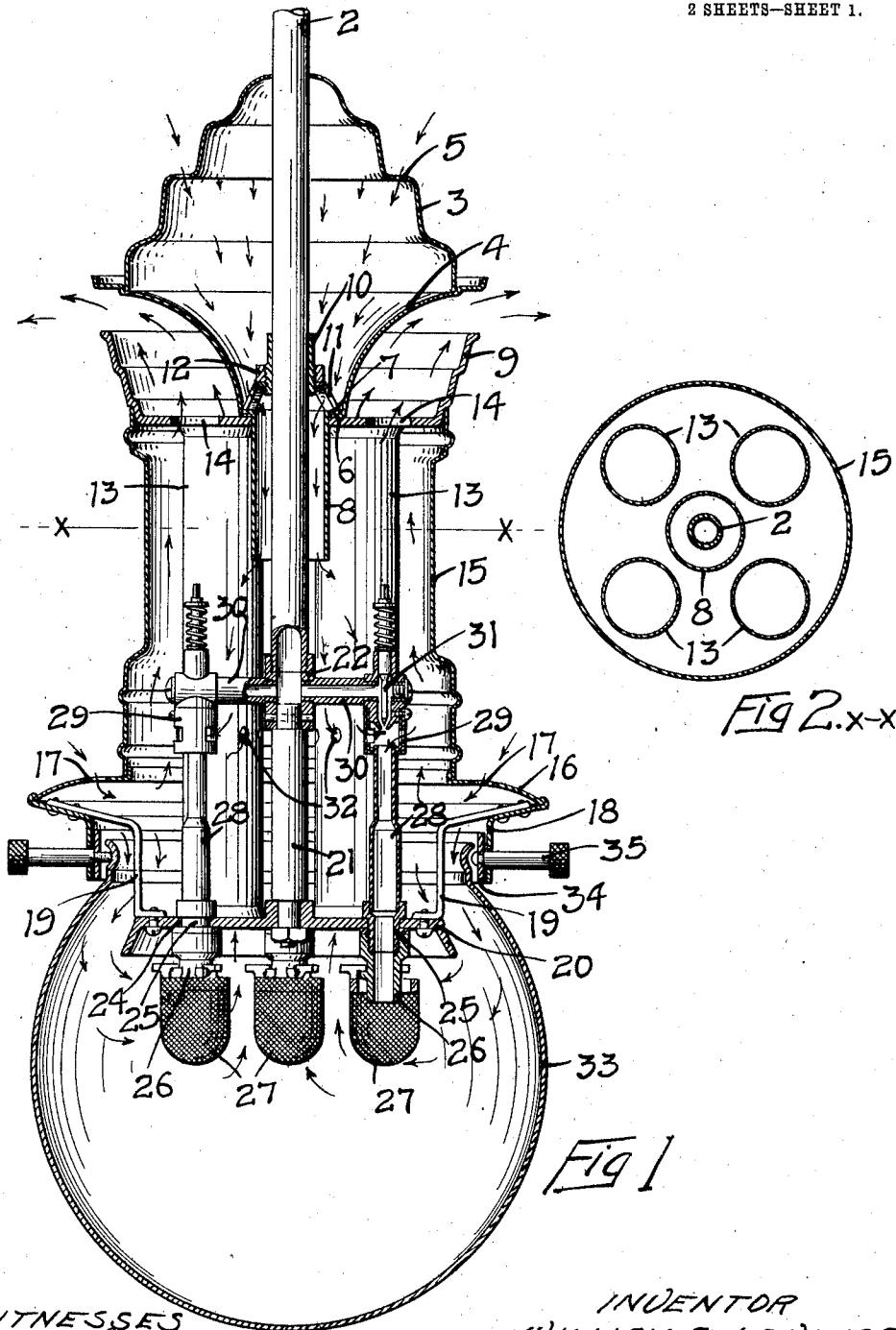
LAMP.

APPLICATION FILED OCT. 19, 1909.

1,038,161.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.



WITNESSES
W. W. Watson
J. A. Byington

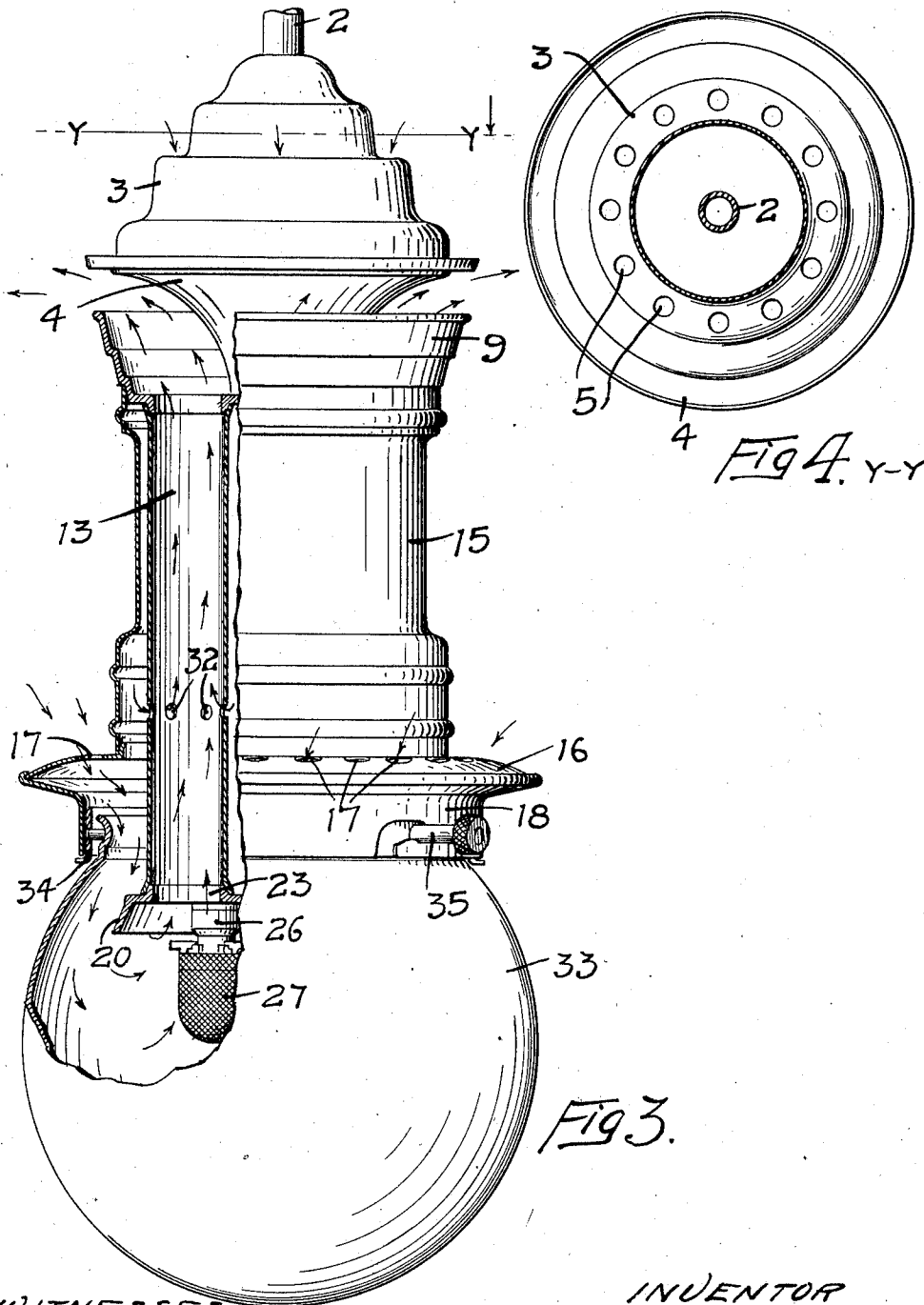
INVENTOR
WILLIAM S. LEVINGS
BY *Paul & Paul*
ATTORNEYS

W. S. LEVINGS.
LAMP.
APPLICATION FILED OCT. 19, 1909.

1,038,161.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 2.



WITNESSES
W. Walstrom
J. H. Bevington

INVENTOR
WILLIAM S. LEVINGS
BY *Paul & Paul*
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM S. LEVINGS, OF MINNEAPOLIS, MINNESOTA.

LAMP.

1,038,161.

Specification of Letters Patent.

Patented Sept. 10, 1912.

Application filed October 19, 1909. Serial No. 523,533.

To all whom it may concern:

Be it known that I, WILLIAM S. LEVINGS, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

My invention relates to gas lamps and particularly to those of the inverted type.

The primary object of my invention is to provide a lamp having a maximum of durability with a minimum amount of heat at points where it would be undesirable or injurious to the lamp.

A further object is to provide a lamp capable of maintenance with a minimum amount of labor and material and one which utilizes such a mechanical construction that it is possible to construct a lamp with an outwardly attractive appearance.

A further object is to provide a lamp having parts which are easily accessible for cleaning purposes or repairs.

My invention consists generally in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming a part of this specification, Figure 1 is a vertical, sectional view of a gas lamp embodying my invention, Fig. 2 is a transverse sectional view on the line $x-x$ of Fig. 1, Fig. 3 is a side elevation, partially in section, illustrating the exterior appearance of the lamp, and a sectional view of one of its exhaust tubes, Fig. 4 is a sectional view on the line $y-y$ of Fig. 3.

In the drawing, 2 represents a gas supply pipe, 3 a shell or crown inclosing the said pipe and resting upon a wall 4 in the form of an inverted cone. The crown 3 is provided with a series of air intake openings 5. The lower end of the cone 4 is open and has an inwardly turned flange 6 upon which rests a flange 7 provided at the upper end of a down draft tube 8 which is open at both ends and incloses the pipe 2.

9 is a cup shaped part having a central opening to receive the pipe 2 and the down draft tube 8. A bushing 10 is secured on the pipe 2 and is exteriorly threaded at its lower end and a spider 11 is adapted to slip over said bushing and is held down upon the flange 7 by a lock nut 12. The engagement of the spider with the flange 7, holds it and the flange 6 securely on the cup 9. The bottom of the cup 9 has a series

of holes therein with which exhaust tubes 13 are connected, communicating thereby with the space between the walls of the cup 9 and the cone 4. The bottom of the cup also has a series of ports 14 between the exhaust tubes. The lower portion of the cup 9 is seated in the open upper end of a jacket or casing 15, which has imperforate walls and is seated at its lower end on a collar 16. The jacket is preferably circular in form, divided vertically into two parts, one of which may be hinged to the other to permit convenient access to the interior of the casing and the parts of the lamp inclosed thereby. The collar 16 has a series of perforations 17 extending around the lamp. A second collar or ring 18 is beaded to the outer edge of the collar 16 and straps 19 are secured to the collar 18 at their upper ends and extend inwardly and downwardly and are secured at their lower ends to a plate 20, which is located directly above the burners and is subjected to an intense heat and is preferably made of cast gray iron. The plate 20 is centrally secured to a steel shank 21 which, at its upper end, is attached to a burner body 22 carried by the lower end of the supply pipe 2. The top of the plate 20 has flanged openings therein to receive the lower ends of the exhaust tubes 13 and between the exhaust tube openings in said plate I provide openings 24 through which hollow sockets 25 pass, having threaded lower ends to receive the clay or other heat resisting material tips 26 whereon the mantles 27 are supported.

28 are burner tubes fitting within the upper ends of the sockets 25 and communicating with mixing chambers 29 carried by burner arms 30, which are in turn supported by the burner body 22. The gas from the pipe 2 passes down through the burner body and burner arms to the mixing chamber controlled by the needle valve 31 in the usual way. The exhaust tubes are provided preferably opposite the mixing chambers with a series of ports 32 leading from the chamber formed by the casing 15 to the interior of the exhaust tubes.

A globe 33, entirely closed at the bottom, is supported by a ring 34 within the collar 18. Studs 35 mounted in bayonet slots in the collar 18 engage and support the ring 34 and permit the convenient removal of the globe from the lamp.

Upon lighting the lamp gas will flow

down through the pipe 2 into the burner body, thence through the burner arms to the mixing chambers and through the burner tubes to the burner, air being mixed with the gas in the mixing chambers in the usual way. The products of combustion, superheated, will flow up through the exhaust tubes, creating a suction in the tubes through the ports 32, which communicate with the chamber within the casing 15. Fresh, cool air is by the suction in the exhaust tubes drawn into the globe through the perforations 17 and this cool air, will create a downward suction within the casing, causing the air therein to flow over the exterior surfaces of the exhaust tubes and down over the surfaces of the plate 20, mingling finally with the fresh air entering through the ports 17. The combustion products passing up through the exhaust tubes discharge finally into the space between the cone 4 and the cup 9 and from thence pass to the open air, the shape of the cone 4 tending to throw the combustion products outward, being aided by the cooling of the products within the walls of the cup 9. The taking in of air to the mixing chambers from within the casing 15 and the suction within the tubes, tends to exhaust the fresh air in said chamber, and to supply air to compensate for this depletion a circulation of fresh air is established through the ports 5 and down through the downdraft tube 8 into the chamber within the casing. The temperature of this air flowing downward through the exhaustion in the casing chamber is comparatively low, and its warmest portions will be at once eliminated by being drawn out into the cool area in the cup 9 through the ports 14. By this means an active series of drafts will be established throughout the lamp, the circulation being set up as soon as the lamp is lighted and steadily maintained during the burning period. The activity of these drafts will, of course, depend upon the degree of heat established in the exhaust tubes.

It will be noted from the foregoing that the fresh air intake is at a point where it will not mingle with the products of combustion discharged from the exhaust tubes and an ample supply of fresh air is delivered to the mixing chambers and all parts of the lamp exposed to the action of the heat are kept cool by the currents of cold air flowing past them.

I have shown the lamp equipped with a series of four burners and exhaust tubes, but it will be understood that a greater or less number may be employed, if desired.

I claim as my invention:

1. A lamp, comprising a supply pipe and burner supported thereon, a jacket or casing, an exhaust tube within said casing arranged to receive the products of combustion

from said burner, a collar below said jacket having a series of air intake ports, the space beneath said collar being in communication with the burner and with the interior of the jacket above the collar, and a globe inclosing said burner below said collar, said jacket having a down draft fresh air inlet opening in the upper part thereof and said exhaust tube having ports communicating with the interior of said casing, at a point above the openings in said collar, the suction established in said tube creating a circulation through the ports in said collar downward to the burner and upward through the jacket and also downward from the down draft inlet in said casing, substantially as described.

2. A lamp, comprising a gas supply pipe and a burner therefor, a jacket having a down draft fresh air inlet in its upper portion, an exhaust flue arranged to receive the products of combustion from said burner and having a discharge passage into the open air and inclosed by said jacket, a globe inclosing said burner, said jacket having air discharge ports at its upper portion through which the air, within the casing heated from said flue, may escape and the suction in said flue creating a draft through said down draft air inlet and within said jacket.

3. A lamp, comprising a gas pipe and a burner therefor, a crown mounted on said pipe and having down draft intake ports therein and a tube inclosing said pipe and communicating with said ports, a cup also inclosing said pipe and having a series of ports therein, exhaust flues connected at their upper ends with some of said ports, a casing inclosing said flues and spaced therefrom, a plate above said burner having a port therein to receive the lower end of said exhaust tube, said tube having ports in its walls communicating with the chamber in said casing, the products of combustion passing up through said tube creating a suction therein and drawing the air from within said casing and discharging it through the ports in said cup, the down draft fresh air tube inclosing said pipe supplying air to said casing and burner.

4. A lamp, comprising a pipe and mixing chambers and burners therefor, a casing inclosing said mixing chambers, exhaust tubes arranged to receive the products of combustion from said burners and conduct them upwardly through said casing, a cup provided at the upper end of said casing having ports therein, some of which are connected with said exhaust tubes, said cup being open at the top to permit the products of combustion to pass out therethrough, and a fresh air inlet pipe within said casing at its upper portion communicating with the outer air, said exhaust tubes having a series

of ports through the walls thereof leading from the interior of said casing, the suction in said tubes creating a circulation within said casing and drawing fresh air therein and expelling the foul air through said tubes and ports, a globe inclosing said burners and means having air inlet ports supplying fresh air to said globe and burners.

5
10 5. A lamp comprising a supply pipe and mixing chambers and burners, a casing inclosing said mixing chambers, inlets for admitting air to the casing and the burners, and exhaust tubes arranged to receive products of combustion from the burners and

conduct them upwardly through the casing, 15 said exhaust tubes having ports arranged to communicate with the casing adjacent to the mixing chambers to draw air from the casing toward the mixing chambers for supply of air to the chambers, substantially as 20 described.

In witness whereof, I have hereunto set my hand this 29th day of September 1909.

WILLIAM S. LEVINGS.

Witnesses:

RICHARD PAUL,
J. A. BYINGTON.

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