

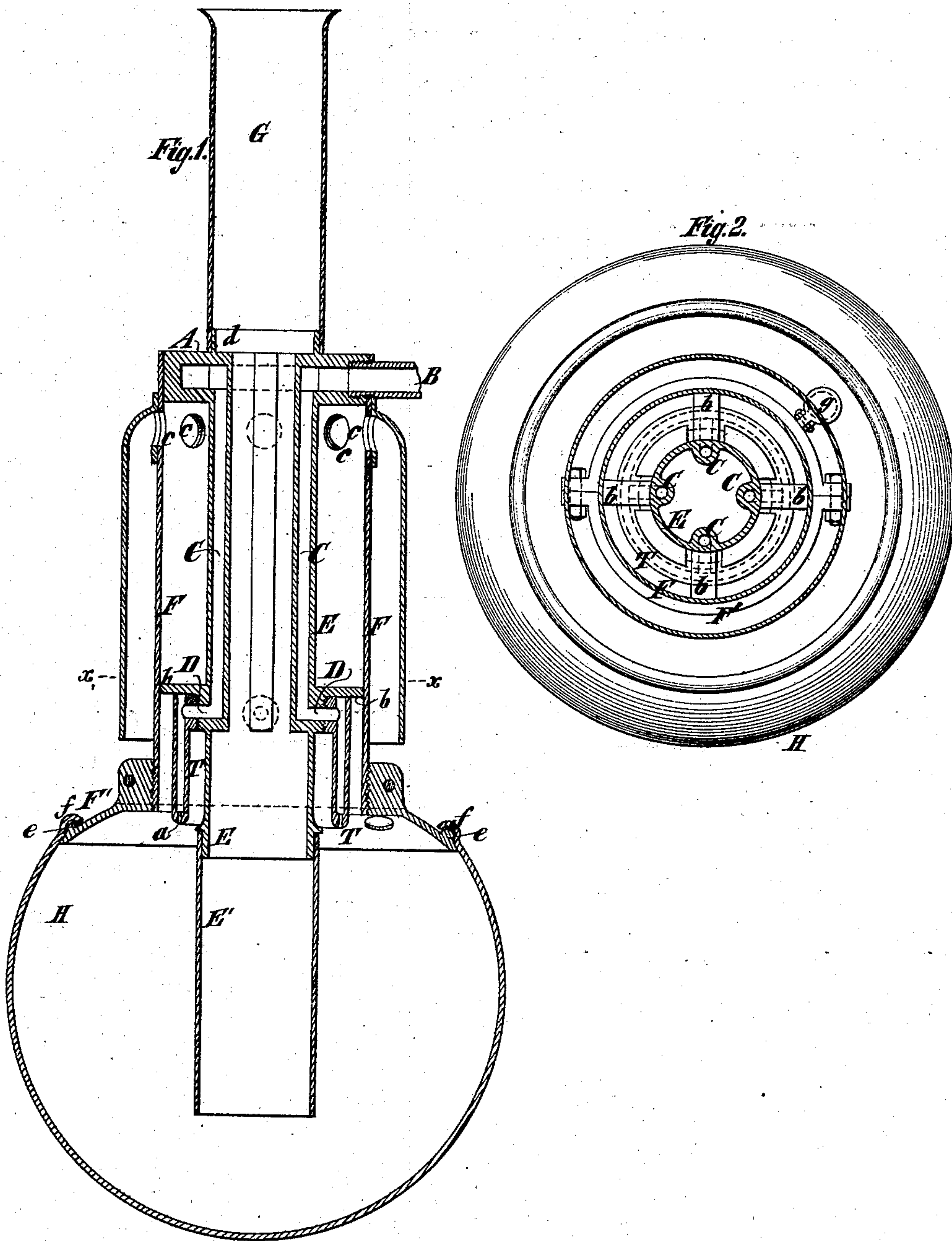
(No Model.)

A. B. LIPSEY.

GAS BURNER.

No. 282,337.

Patented July 31, 1883.



Witnesses:

James R. Bowen.
J. H. Kane

Inventor:

Andrew B. Lipsey,
by his attorney,
Edwin H. Brown.

UNITED STATES PATENT OFFICE.

ANDREW B. LIPSEY, OF WEST HOBOKEN, NEW JERSEY, ASSIGNOR TO
WILLIAM BELL, OF NEW YORK, N. Y.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 282,337, dated July 31, 1883.

Application filed May 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, ANDREW B. LIPSEY, of West Hoboken, in the county of Hudson and State of New Jersey, have invented a certain
5 Improvement in Gas-Burners, of which the following is a specification.

This improvement relates to the construction of gas-burners wherein the gas and air which are supplied to support combustion are
10 heated before arriving at the point where combustion takes place.

The improvement consists in various combinations of parts, which are hereinafter described and claimed.

15 Burners embodying the improvement may be supplied with gas of any suitable kind.

In the accompanying drawings, Figure 1 is a central longitudinal section of a burner embodying my improvement; and Fig. 2 is a horizontal section of the same, taken at the plane
20 of the line *x x*, Fig. 1.

Similar letters of reference designate corresponding parts in both figures.

A designates the gas-chamber, shown as of
25 annular form, into which gas is delivered by a pipe, B, from any suitable source. Passages or conduits C extend downwardly to a number of tubular arms, D, which extend laterally to a burner-tip or a circular series of burner-tips.

30 The gas passes from these arms D to the burner tip or tips. I have shown the passages or conduits as cast of metal in one piece with a shell, E, and the chambers A and arms D as also formed in the same casting.

35 I have here represented a single burner-tip, T, of annular form, and it is secured in place by being screwed onto the exterior of the heads in which the arms D are formed, its internal space being in communication with the
40 space within the said chambers. The gas issues from apertures *a* in the lower end of the burner-tip. Flanges *b* extend laterally from the shell E. To the exterior of the chamber A and flanges *b* is fitted a cylindric shell, F,
45 which is provided with openings *c* near the upper end. Air enters these openings and passes down between the shell E and the shell F and past the flanges *b* to the burner-tip. The space between these shells forms the air-flue. The space between the shell E and the
50 shell F and between the arms D forms a pas-

sage through which air may pass to the space encircled by the burner tip or tips.

There extends above the chamber A a chimney, G, which may consist of a separate piece
55 of sheet metal or other material fitted to a flange, *d*. It forms in effect a continuation of the shell E. The shell E extends down within the annular burner-tip, and it also either extends below the latter or is provided with a
60 renewable section, E', of suitable material, which extends below the same. I shall preferably employ a renewable section, as I can thus prolong the life of the burner, and in
65 many cases I shall make it of carbon or magnesia, or of any suitable substance which will become incandescent when heated.

On the lower end of the shell F, I provide a holder, F', for a glass globe or casing, H,
70 which may be of any suitable form. This holder may be of any suitable form; but it will be found advantageous to make it of such character that a tight fit between it and the globe may be obtained in order that the entrance
75 of air to them may be avoided. I have shown a holder which also constitutes a reflector for throwing the light emanating from the burner downwardly below the burner. This holder
80 is shown as screwed onto the exterior of the shell F, and as provided on the upper side with a circular rib, *e*, over which an inwardly-
turned rim, *f*, formed on the globe fits so as to form a lap-joint. It may be made in sections
85 secured together by screws, in order to provide for introducing it into and removing it from the globe. To remove the globe from
the burner the holder may be screwed off.

In lieu of employing an annular burner-tip, I may use a number of ordinary round burner-tips, and fit one to each of the passages or con-
90 duits C.

The gas enters the chambers A, and passes thence through the passages or conduits C to the burner-tip, where it is consumed. The
95 air necessary to support combustion enters the shell F, and passes thence to the lower end of the burner-tip. Owing to the length of the extension E' of the shell E, the draft is caused to extend down into the lower part of the globe. The waste products of combustion
100 pass up the shell E and off through the chimney G. The shell E forms a flue for the waste

products of combustion. As the waste products of combustion, in passing off, are in one side of the shell E and the passages or conduits C, and the incoming air and gas are separated from them only by the said shell and the walls of the said passages or conduits, both the air and the gas are highly heated before arriving at the point where combustion takes place.

10 The burner can be lighted by taking off the holder and globe, or in any other suitable manner. I may, to facilitate lighting, provide an opening in the holder or deflector and furnish it with a cover, *g*.

15 Preferably I arrange outside the shell F a shield extending outside the air-inlet apertures and down nearly to the holder. This prevents the air from rushing violently into the air-inlet apertures, and hence makes the supply more uniform than it would otherwise be. I have shown this shield as extending from a collar, J, which surrounds the air-inlet apertures. The collar has apertures corresponding to the air-inlet aperture, and can be
20 turned to bring the two sets of apertures more or less into line, so as to vary the quantity of air admitted.

What I claim as my invention, and desire to secure by Letters Patent, is—

30 1. In a gas-burner, the combination of a downwardly-extending burner-tip or downwardly-extending burner-tips, a flue or passage which serves to convey air downwardly to the burner tip or tips, and which leads not
35 only to the outer side of the burner tip or tips, but also to the space surrounded by the burner tip or tips, so as to supply air to the inner as well as the outer side of a flame emanating from the burner tip or tips, a conduit or conduits for conveying gas downwardly to the
40 burner tip or tips, and a flue or passage which serves to convey away the products of combustion, and which is arranged inward of the burner tip or tips, and extends a considerable
45 distance below the same, substantially as specified.

2. In a gas-burner, the combination of a downwardly-extending burner-tip or downwardly-extending burner-tips, a gas conduit or conduits for conveying gas downwardly, a number of conduits extending laterally from the latter to the burner tip or tips, a flue or passage which serves to convey air downwardly to the outside of the burner tip or tips, as also
50 to the space surrounded by the burner tip or tips, and a flue or passage arranged inward of the burner tip or tips, extending below the same, and serving to convey away the products of combustion, substantially as specified.

60 3. In a gas-burner, the combination, with a downwardly-extending burner tip or tips, of an annular flue or passage serving to convey air downwardly to the same, conduits for conveying gas downwardly to the burner tip or
65 tips, made integral with the inner wall of the air flue or passage, and a flue or passage ex-

tending through the air flue or passage between the gas-conduits to a point considerably below the burner tip or tips, and serving to convey the products of combustion upward, substantially as specified. 70

4. In a gas-burner, the combination, with a downwardly-extending burner tip or tips, of a flue or passage serving to convey air downwardly to the same, a conduit or conduits for
75 conveying gas downwardly to the burner tip or tips, and a flue or passage extending within the air flue or passage, serving to convey the products of combustion upward, and provided at the lower end with an extension made
80 of incandescing material, terminating at a point considerably below the burner tip or tips, and around which the products of combustion pass from the outer side into said flue or passage, substantially as specified. 85

5. In a gas-burner, the combination, with a downwardly-extending burner tip or tips, of a flue or passage serving to convey air downwardly to the same, an annular gas-chamber, conduits extending from the latter for conveying gas downwardly to the burner tip or tips, and a flue or passage located within said air
90 flue or passage, inward of the gas-conduits, and extending through the gas-chamber to a point considerably below the burner tip or tips, for
95 conveying the products of combustion upward, substantially as described.

6. In a gas-burner, the combination, with a downwardly-extending burner tip or tips, of a flue or passage serving to convey air downwardly to the burner tip or tips, a flue or passage arranged inward of the burner tip or tips, extending below the same and serving to convey away the products of combustion, an
100 annular gas-chamber, and a conduit or conduits extending downwardly from the same through the flue or passage for conveying away the products of combustion and communicating with the burner tip or tips, substantially as
105 specified. 110

7. The combination of the burner-tip T, the annular gas-chamber A, the flue or passage E, extending upward through said gas-chamber, the gas-conduits C, the shell F, containing the air flue or passage and provided with the
115 inlet-openings *c*, and the cylinder-shield I, surrounding the shell F, all substantially as described.

8. The combination of the burner-tip T, the annular gas-chamber A, the flue or passage
120 E, extending upward through said gas-chamber, the gas-conduits C, the shell F, containing the air flue or passage and provided with inlet-opening *c*, and the adjustable flange J, provided with corresponding openings and carrying the shield I, all substantially as described. 125

ANDREW B. LIPSEY.

Witnesses:

T. J. KEANE,
JAMES R. BOWEN.