

(No Model.)

2 Sheets—Sheet 1.

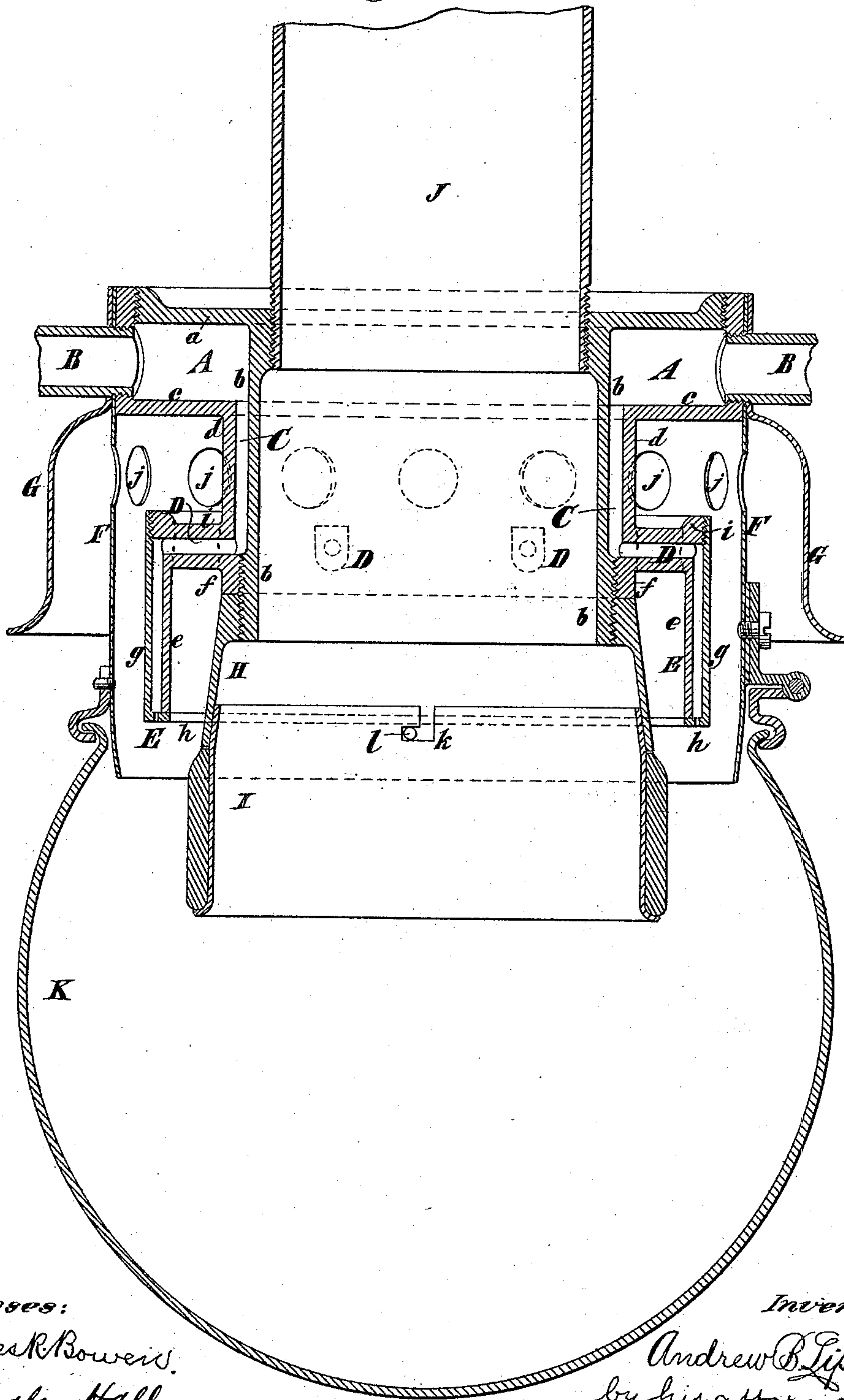
A. B. LIPSEY.

GAS BURNER.

No. 298,868.

Patented May 20, 1884.

Fig. 1.



Witnesses:

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Chandler Hall.

Inventor:

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

(No Model.)

2 Sheets—Sheet 2.

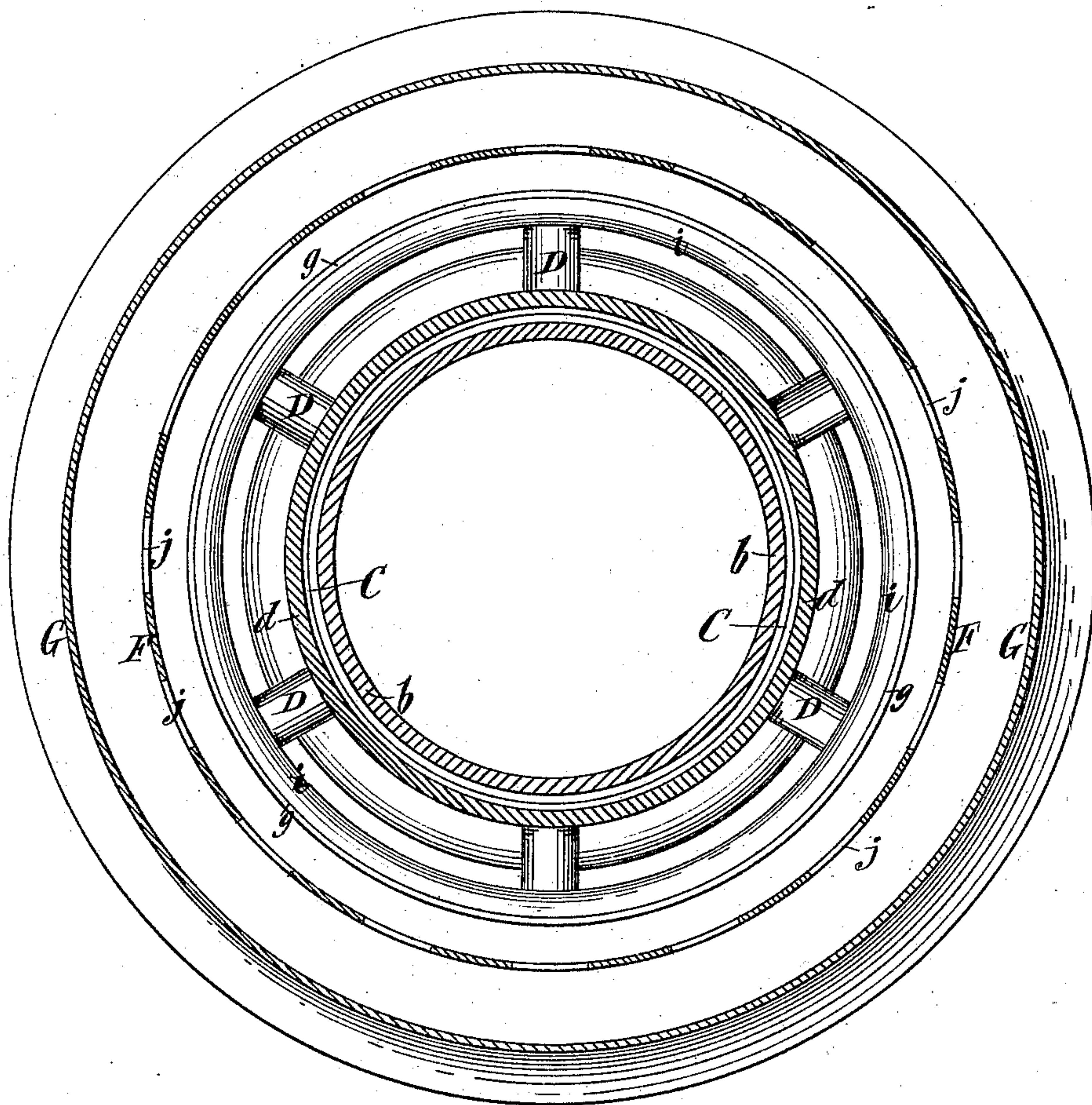
A. B. LIPSEY.

GAS BURNER.

No. 298,868.

Patented May 20, 1884.

Fig 2.



Witnesses
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Inventor
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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. 298,868, dated May 20, 1884.

Application filed July 2, 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 new and useful Improvement in Gas-Burners, of which the following is a specification.

This improvement I will first describe fully, and then I will indicate its salient features in the claim.

In the accompanying drawings, Figure 1 is a central vertical section of a gas-burner embodying the improvement; and Fig. 2 is a horizontal section taken in the plane of a series of holes which admit air to the burner, and which are designated by the letter of reference *j*.

Similar letters of reference designate corresponding parts in both figures.

A designates an annular gas-chamber, to which gas is conducted by any suitable number of pipes, B. From this gas-chamber there extends downwardly an annular gas-passage, C, which at the lower end communicates with a number of laterally-extending hollow arms, D. The annular passage C is best shown in Fig. 2. The arms D conduct the gas to an annular burner-tip, E.

As here shown, the top *a* of the gas-chamber A and the inner wall, *b*, of the said gas-chamber and of the annular gas-passage C are formed in one metal casting. The bottom *c* and outer wall, *d*, of the gas-chamber A and the outer wall of the annular gas-passage C are formed in another metal casting. This casting is united to the casting first described by screwing the outer wall, *d*, onto the circumference of the top *a* of the gas-chamber. The arms D and the inner wall, *e*, of the burner-tip are shown as formed in one casting, and united to the wall *b* by screwing a rim, *f*, which extends between the arms to the wall *b*. The outer wall, *g*, and bottom *h* of the burner-tip are shown as formed together, and secured in place by screwing the outer wall onto a rim, *i*, which extends between the arms D.

F designates a shell, which may be of sheet metal, fitting around the outer wall of the annular gas-chamber, and extending therefrom to a point slightly below the burner-tip. This shell may be held in place by the pipes

B. It has in it just above the burner-tip a row of holes, *j*. The lower edge is bent to form a deflector. A petticoat or shell, G, is secured to the shell F, and extends downwardly outside the same. It is closed at the top, and has a bell-mouth at the lower edge. It covers the holes *j* of the shell F. The wall *b* of the annular gas-chamber and annular gas-passage is extended considerably below the arms D, and secured to it is a downwardly-extending shell, H. This shell H may be screwed onto the wall *b*, as shown. It is shown as slightly flaring, and hence as it extends downwardly it nears the burner-tip. To this shell H is detachably secured a shell, I, of sheet metal, having on its exterior an incandescing material, such as porcelain, magnesia, or lime. The shell I may be secured to the shell H by a bayonet-fastening, or, in other words, by being provided with L-shaped slots *k*, which may slip over and engage with pins *l* on the shell H. The exterior surface of the incandescing material of the shell I is almost as large diametrically as the inner surface of the inner wall of the burner-tip. A chimney, J, is screwed into the inner wall, *b*, of the annular gas-chamber and annular gas-passage. The air which is necessary to support combustion enters the shell G, passes through the holes *j* into the shell F, and proceeds thence between the arms D to the space encircled by the burner-tip and to the exterior of the burner-tip. The deflector at the end of the shell F and shell I causes the air to impinge closely upon the flame issuing from the burner-tip. The gas enters the chamber A, passes thence into the annular gas-passage C, and thence through the arms D into the burner-tip E. The products of combustion pass around into the interior of the shell I, and thence upwardly into the chamber J. In passing away they heat the gas and air which are on their way to the burner-tip.

It will be observed that the air enters the shell F at a point just above the burner-tip, and that the gas-chamber A is located just above where the air enters. I find that the air and gas will be sufficiently heated for many purposes by the escaping products of combustion when entering at these points. The chimney J, wall *b*, and shells H I form an upward-

ly-contracted flue for the waste products of combustion, intensifying the draft. A circular series of burner-tips may be used in lieu of an annular burner-tip.

5 K designates a globe supported from the shell F. This globe may be made of glass.

I have obtained Letters Patent No. 278,568, dated May 29, 1883, for an improvement in gas-burners. In this improvement a gas-pipe
10 passed upwardly into a flue, by which the waste products of combustion were conveyed away, and from the upper end of this gas-pipe a number of smaller gas-pipes extended downwardly to a large gas-pipe surrounding the
15 gas-pipe first mentioned and communicating with the burner.

I have also obtained Letters Patent No. 282,337, dated July 31, 1883, for an improvement in gas-burners. In this improvement I
20 employed an annular gas-chamber and a number of passages extending thence through a pipe, which conveyed away the waste products of combustion.

I have filed an application, No. 77,087, on the 4th day of November, 1882, for an improvement in gas-burners. This improvement involved the same construction of burner as that which is the subject of my Letters Patent No. 282,337.

30 I have also filed an application, No. 97,245, on the 12th day of June, 1883, for an improvement in gas-burners. In this improvement I used an annular gas-chamber and a concentrically-arranged gas-passage extending downwardly therefrom and communicating with the
35 burner-tip. Surrounding this gas-passage was a corrugated shell, the interior of which formed a flue for conveying away the waste products of combustion, and the exterior of which
40 formed one wall of an air-passage.

I have also filed an application, No. 100,490, July 11, 1883, for a patent upon gas-burners. In this improvement I have shown a very large cylindric gas-chamber, through which
45 the gas will flow or pass quite sluggishly, and in this chamber I arrange a number of pipes, which conduct away to a chimney the products of combustion that emanate from the burner tip or tips. These pipes are so small
50 and numerous that they secure the heating of

the gas in the gas-chamber at all points, and at the same time they afford a passage for the products of combustion, which in the aggregate is so large that the products of combustion can pass away easily.

I have also filed an application, No. 109,176, on the 16th of October, 1883, for an improvement in gas-burners. The construction of this burner is like that which is the subject of my present application for Letters Patent, except
60 for the presence of a deflector arranged between the burner-tips for directing air to the inside of the flame from one burner-tip and the outside of another.

I have also filed an application, No. 114,969, on the 18th day of December, 1883, for an improvement in gas-burners. The construction of this burner is very similar to that which is the subject of my Letters Patent No. 282,337. It differs therefrom principally in that in this
70 burner I show a flue for carrying off the products of combustion and a retort arranged in said flue in a position so as to be subjected to escaping products of combustion, a hydrocarbon or oil tank connected thereto, means for
75 connecting the retort with the burner-tip and a gas-holder, means for connecting the retort with the gas-holder, and means for connecting the gas-holder with the burner.

In the present application there are the same
80 parts as mentioned in my reference to Letters Patent No. 282,337; but these parts were in the last improvement differently arranged.

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

85 The combination, with a downwardly-extending annular burner-tip or a circular series of burner-tips, of an annular gas-chamber, an annular gas-passage leading from the annular gas-chamber, arms extending laterally from
90 the annular gas-passage to the burner tip or tips, and a central flue extending through the space encircled by the burner tip or tips and through the annular gas-chamber, and serving to carry away the products of combustion,
95 substantially as specified.

ANDREW B. LIPSEY.

Witnesses:

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LOUIS M. T. WHITEHEAD.