

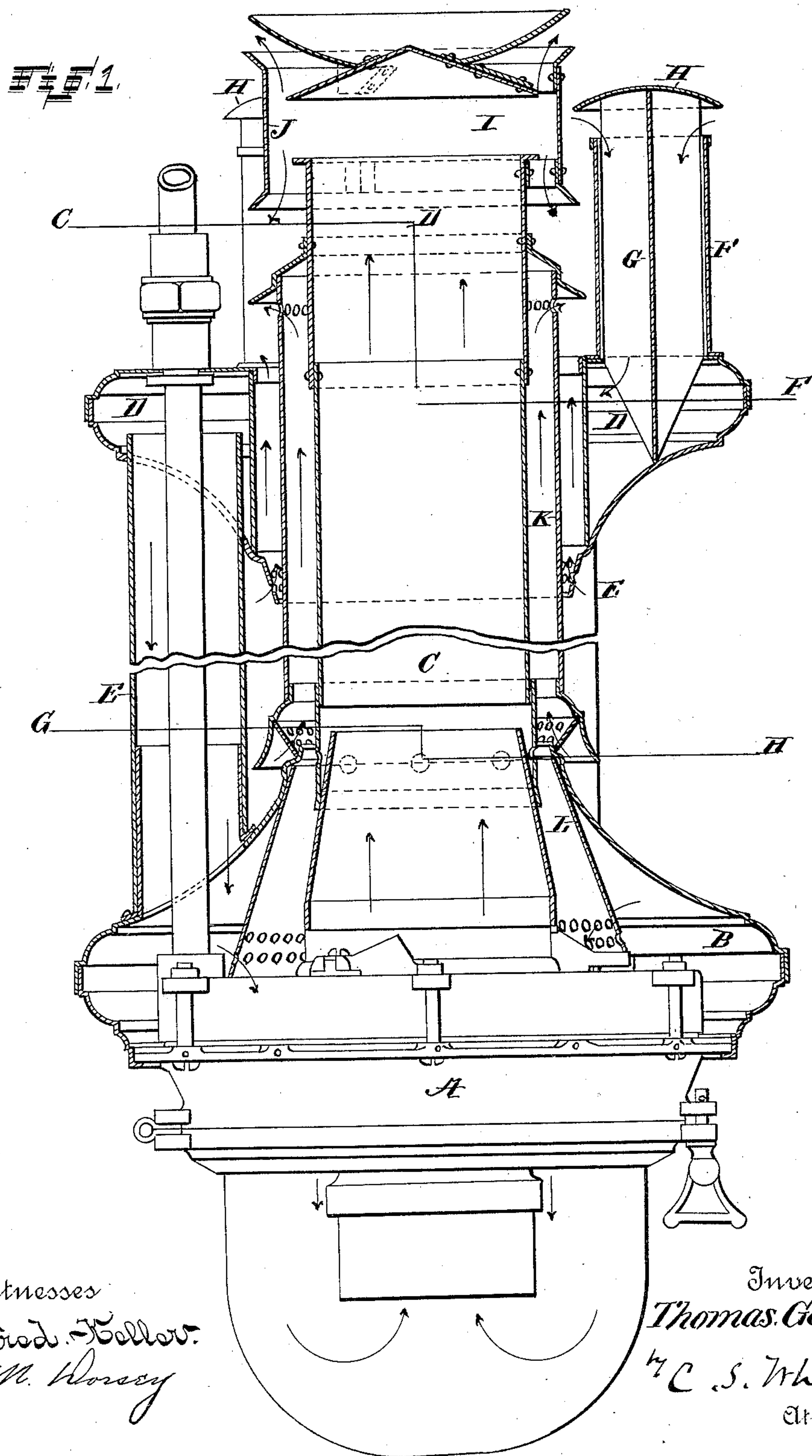
(No Model.)

2 Sheets—Sheet 1.

T. GORDON.  
LAMP.

No. 409,353.

Patented Aug. 20, 1889.



Witnesses  
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V. M. Horsey

Inventor  
Thomas Gordon.  
by C. S. Whitman  
Attorney

(No Model.)

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Fig. 2.

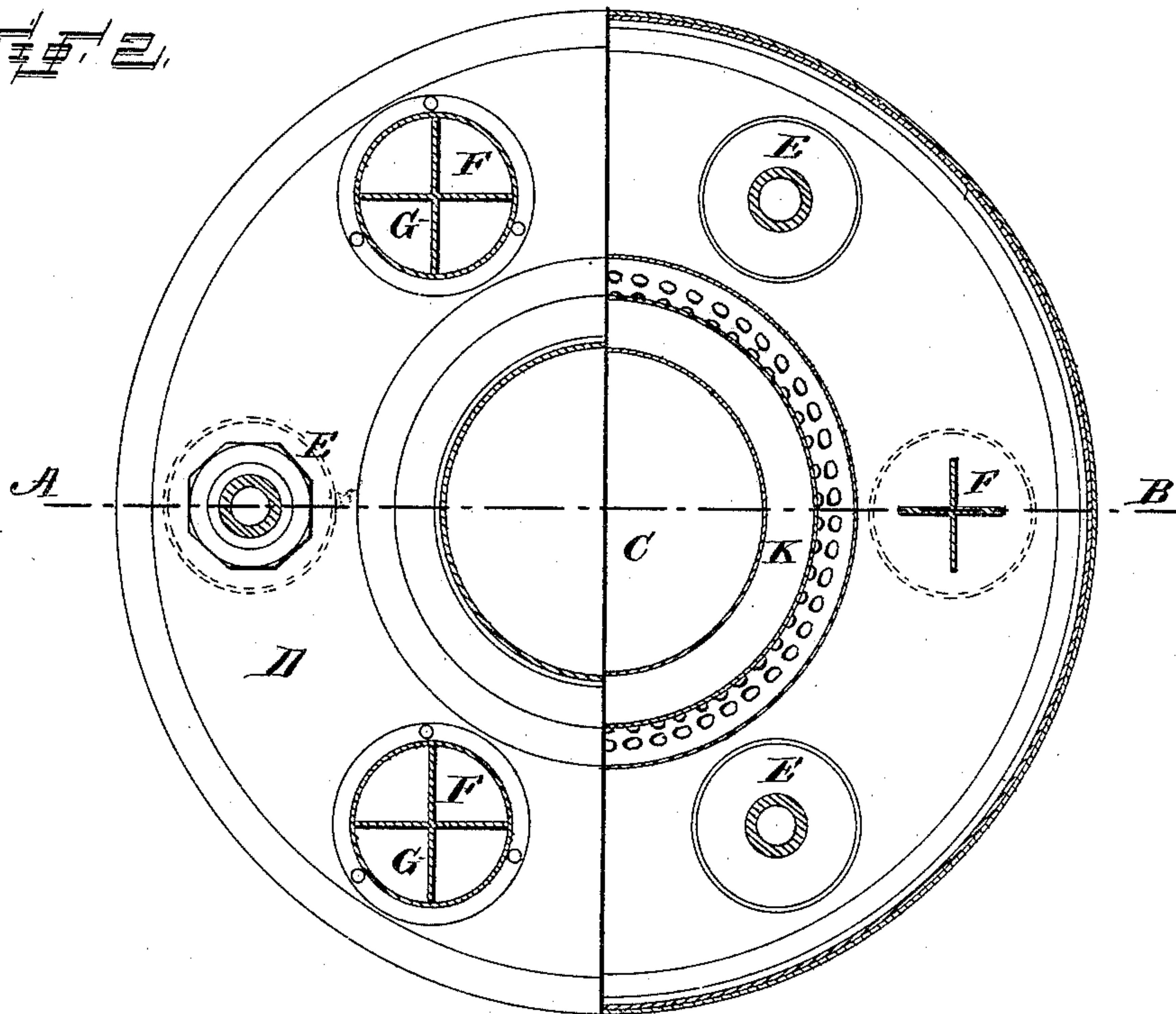
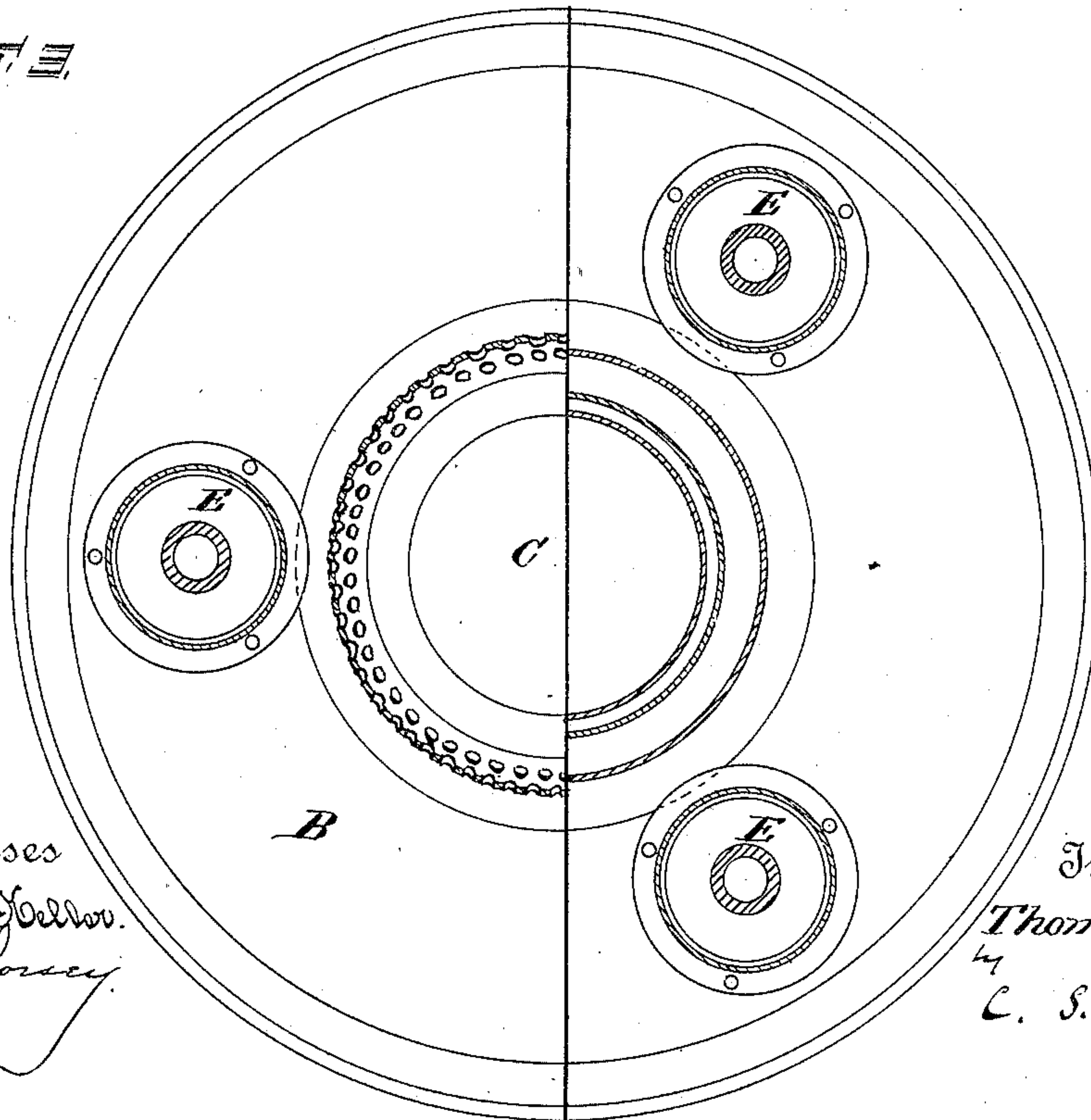


Fig. 3.



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# UNITED STATES PATENT OFFICE.

THOMAS GORDON, OF PHILADELPHIA, PENNSYLVANIA.

## LAMP.

SPECIFICATION forming part of Letters Patent No. 409,353, dated August 20, 1889.

Original application filed September 3, 1887, Serial No. 249,511. Divided and this application filed January 25, 1888. Serial No. 261,912. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS GORDON, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present improvements consist in surrounding the burner with an approximately air-tight chamber, extending air-tubes upward from said chamber, constructing an equalizing-chamber around the escape-flue of the burner, but not connected with said flue, connecting said air-tubes with said equalizing-chamber, extending air-tubes upward from said equalizing-chamber to a point approximately on a level with the outlet end of the escape-flue, placing division-plates within said upper air-tubes and extending the same downward some distance within the tubes, placing plates or caps over said upper air-tubes some distance above the ends of said tubes, and placing a wind-cap upon the escape-flue, constructed in such proportion that only part of the products of combustion can escape in any one direction through the cap, while the area of all the passages of said cap shall equal, but not exceed, the area of the escape-flue.

Referring to the drawings, Figure 1 represents a partial vertical section on line A B of Fig. 2. Fig. 2 is a horizontal section on lines C D E F of Fig. 1. Fig. 3 is a horizontal section on line G H of Fig. 1.

In the construction shown, A is a gas-burner.

B is an approximately air-tight chamber surrounding the burner.

C is the escape-flue of the burner.

D is an air-chamber surrounding the escape-flue.

E E E are air-tubes which connect the chamber B with the chamber D.

F F F are air-tubes which extend upward from chamber D.

G G G are partition-plates, which may extend downward within air-tubes F.

H H are caps or plates which rest upon or may be attached to the upper ends of the partition-plates G.

I is a wind-cap attached to the escape-flue of the burner. In this cap, when constructed as shown in Fig. 1, the cylinder J should be made small enough in diameter to allow of only about one-half of the waste products escaping at the top, while the rest should pass out at the bottom of said cylinder, as indicated by arrows. This serves to throttle the suction without impeding the draft, and prevents violent fluctuations in the flame.

It is obvious that caps fulfilling the above conditions may be made in various forms. I therefore do not limit myself to the form shown.

Surrounding flue C is arranged flue K, which may be ornamented. It is open top and bottom, and air is allowed to circulate between said flues C and K to prevent radiation of heat from flue C to tubes E; also to prevent the cooling of flue C by sudden blasts of cold air.

Any or all of the flues or tubes may be constructed of non-conducting material, or they may be made of such size as to admit of joints of non-conducting material being used.

When the burner is in operation, the waste products pass up through flue C, producing a draft and causing the cold air to circulate downward through flues or passages E E, and thence, as shown by the arrows in Fig. 1, through the regenerative chambers of the burner. The object of this form of construction is to overcome the principal difficulty experienced with lamps in which the outlet and inlet are at opposite ends of the fixture, viz., the reversal of the draft in the escape-flue caused by gusts of wind sweeping past the inlet. In this form the inlet and outlet are both at the upper end of the lamp and as close together as practicable.

The suction on the inlet is balanced by the arrangement of the partition-plates within tubes F F, as from whatever direction the wind may blow air is taken in on one side of said plates to compensate for that which may be drawn out on the other side.

To facilitate the lighting of the burner and to prevent the circulation from being started

in the wrong direction, a cone L is introduced within the chamber B, open at the bottom and closed at the top.

I have filed an application, September 3, 1887, Serial No. 249,511, for Letters Patent, and this application should be considered divisional therewith.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination of a regenerative gas-burner, an approximately air-tight chamber surrounding the burner, air-tubes leading upward from said chamber, an equalizing air-

chamber surrounding the escape-flue of the burner, into which said air-tubes open through its lower surface, air-tubes opening into said equalizing-chamber through its upper surface and extending upward, division-plates extending downward within said upper air-tubes, and horizontal plates located some distance above the ends of said tubes, substantially as shown and described.

THOS. GORDON.

Witnesses:

THEO. C. WARNER,  
HOWARD E. WARNER.