

T. THORP.
GAS BURNER.

No. 314,630.

Patented Mar. 31, 1885.

FIG. 1.

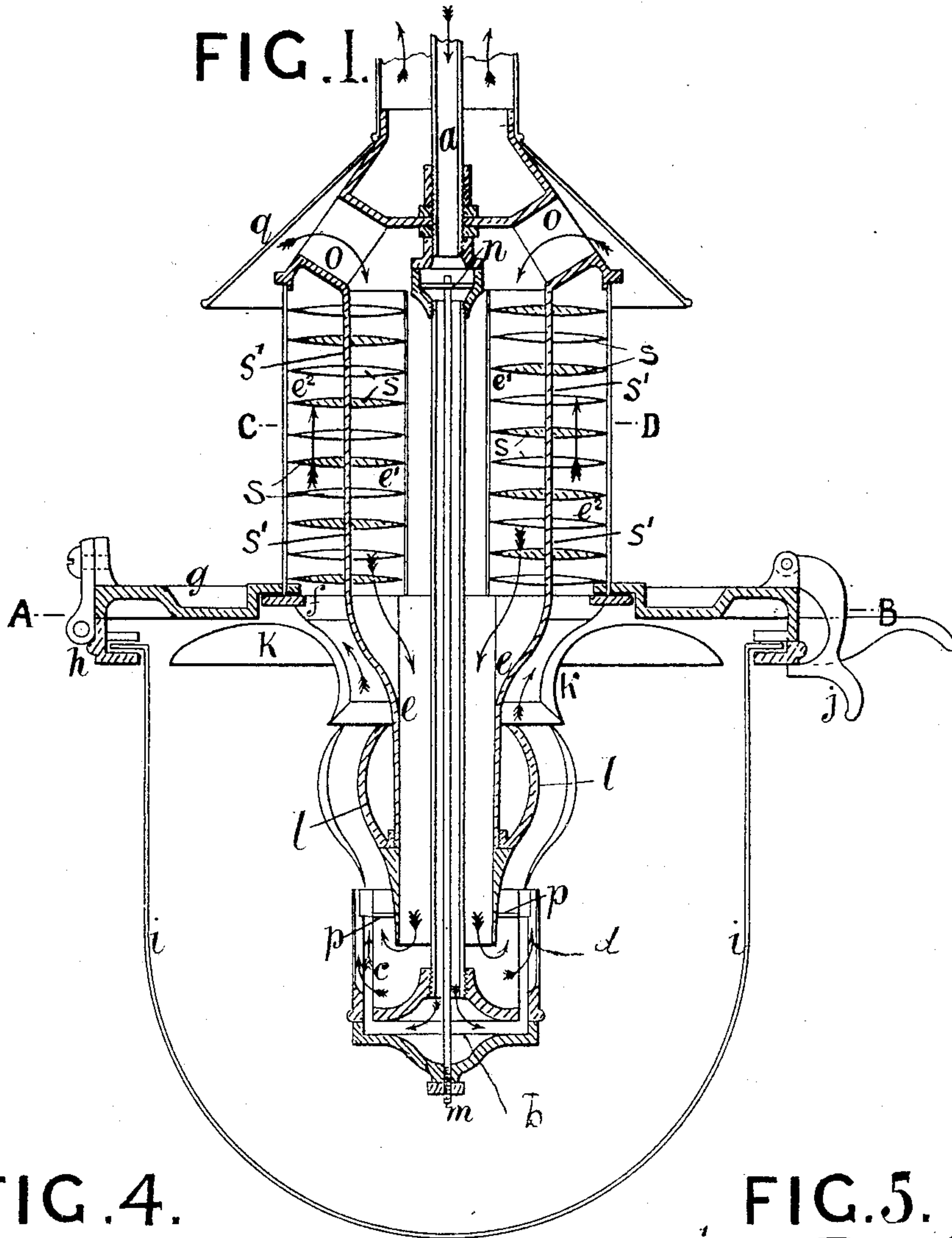


FIG. 4.

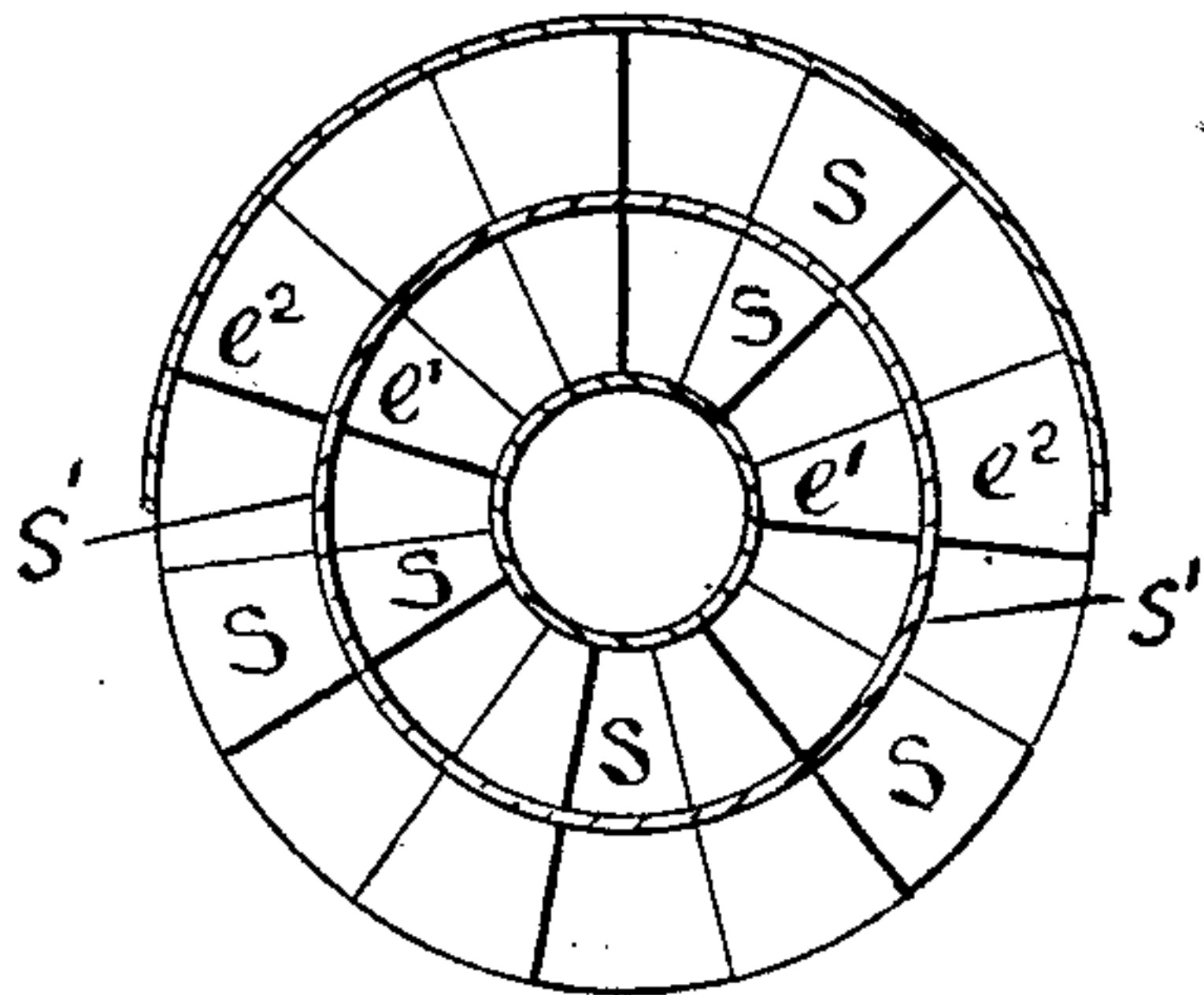
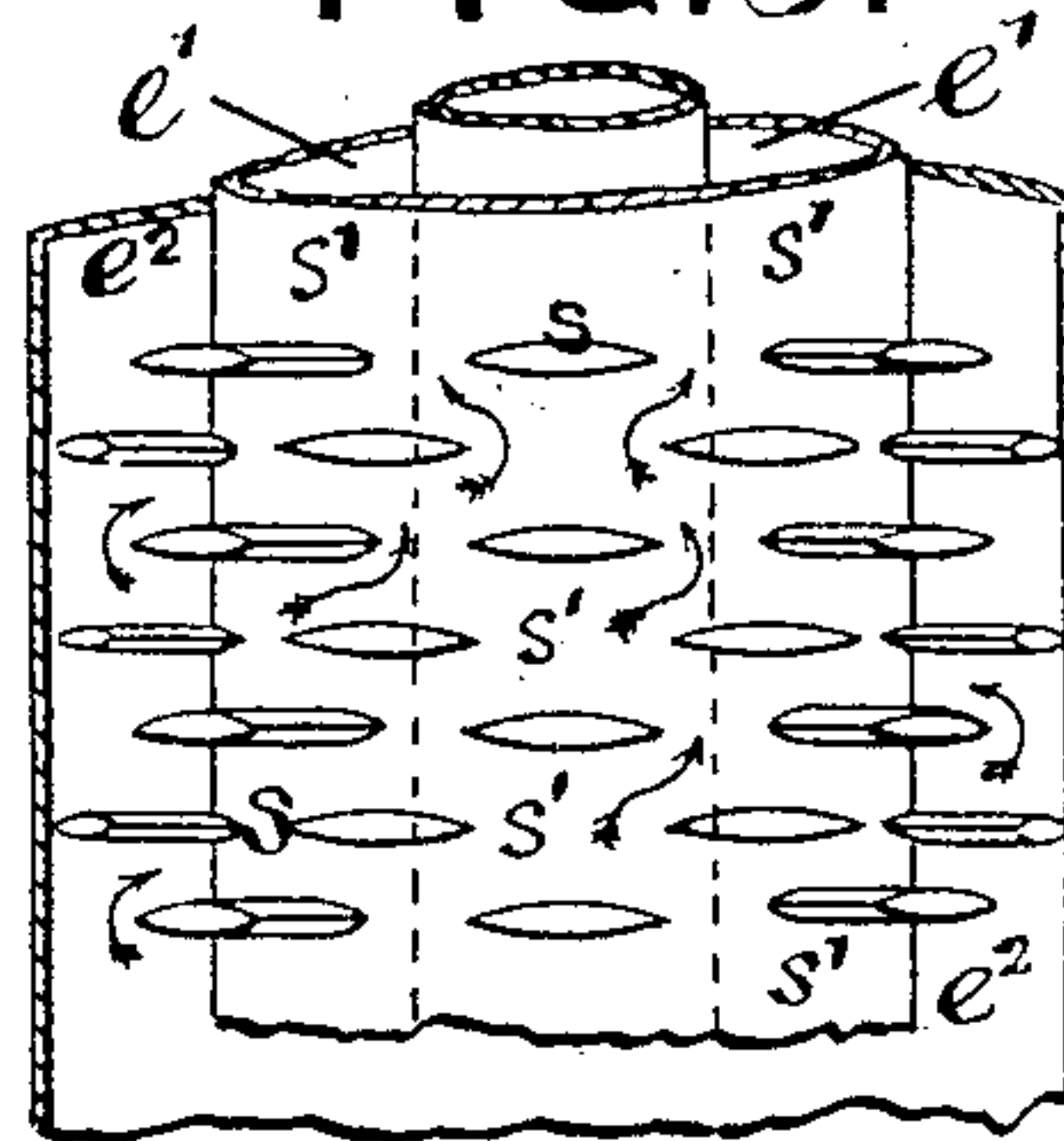


FIG. 5.



Witnesses
W. R. Haight
J. M. H. H.

Inventor
Thomas Thorp
by Wm. H. Babcock
Attorney

(No Model.)

2 Sheets—Sheet 2.

T. THORP.

GAS BURNER.

No. 314,630.

Patented Mar. 31, 1885.

FIG. 3.

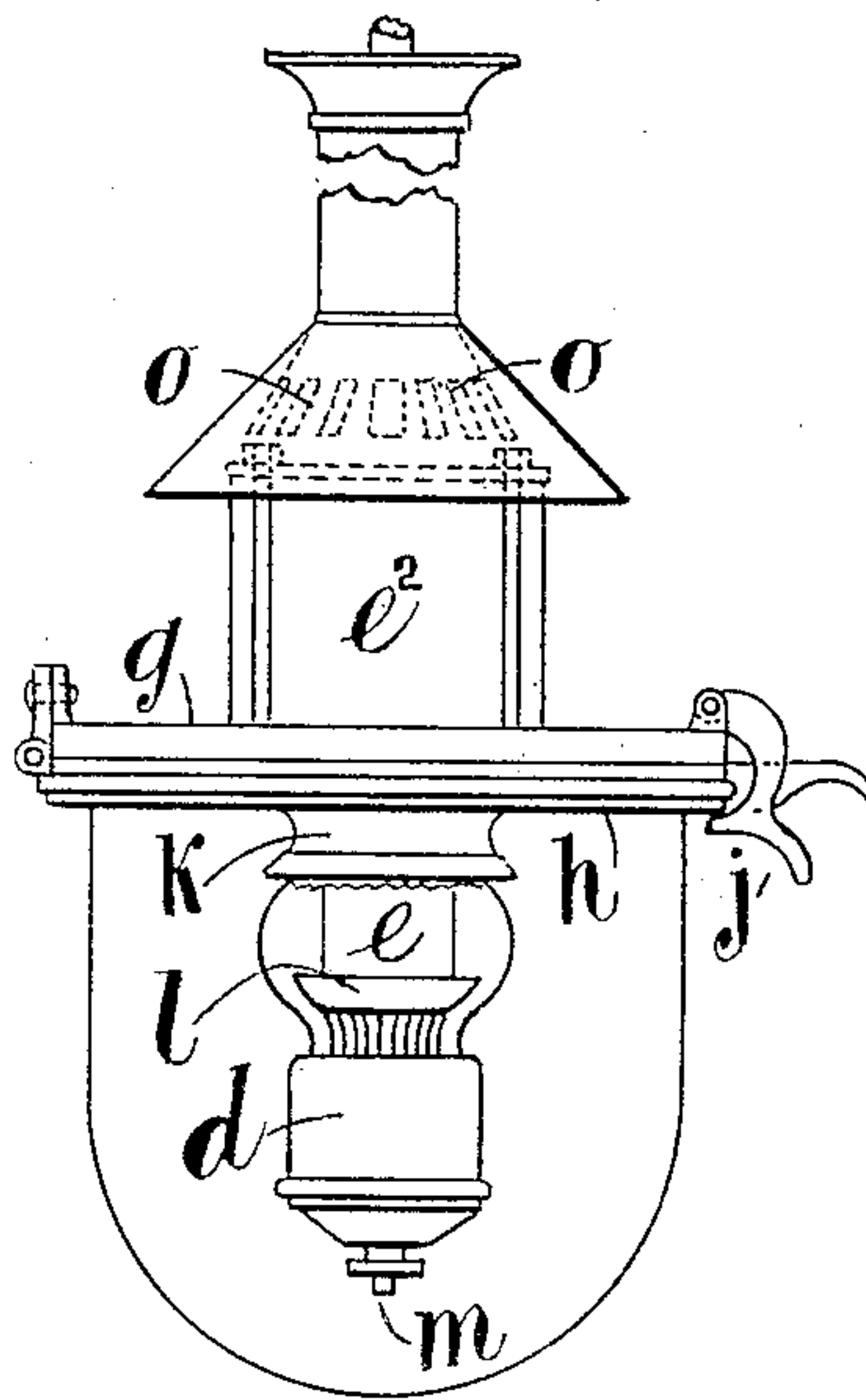
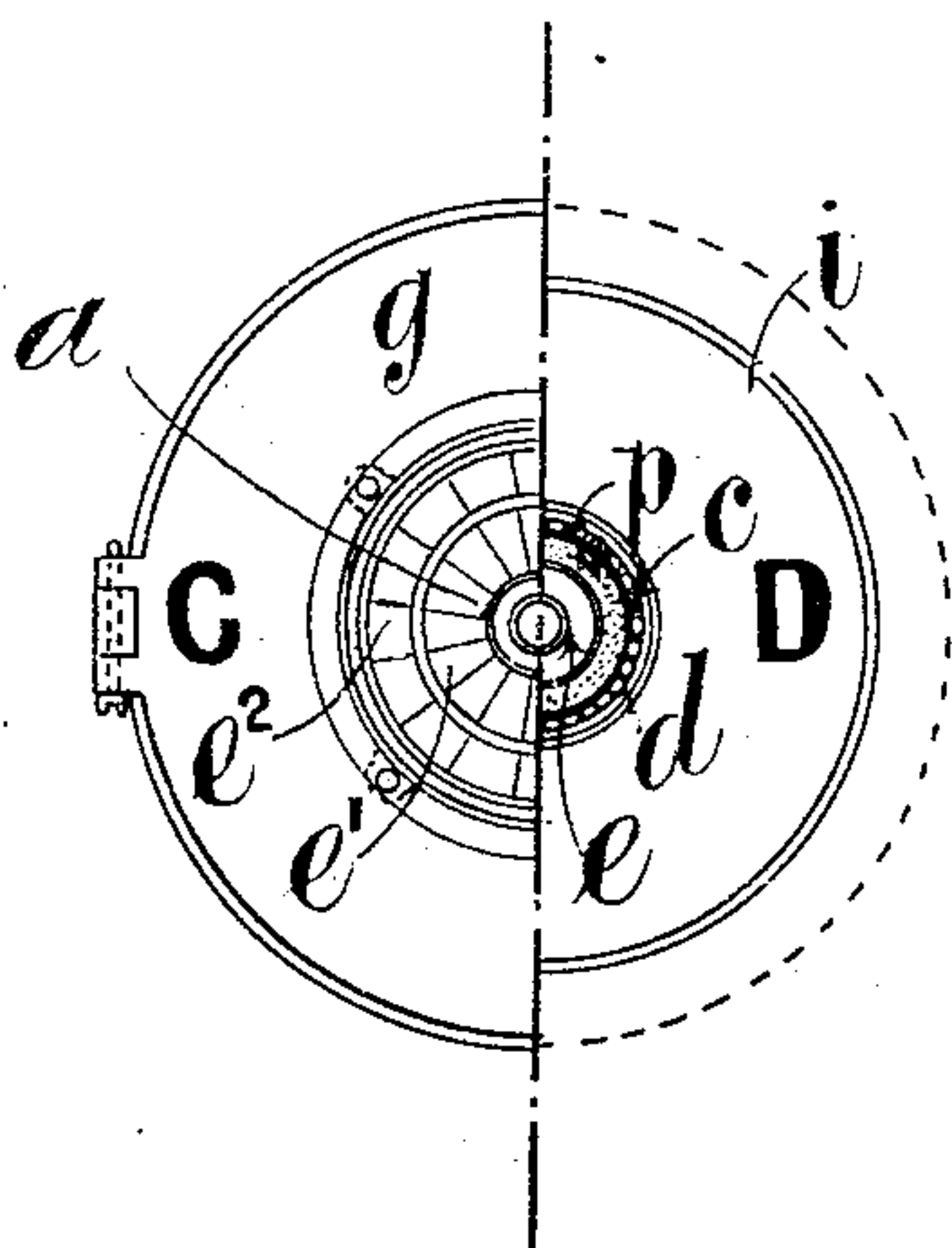


FIG. 2.



Witnesses
George Tilghman
R. F. Burton

Inventor
Thomas Thorp
by W. H. Babcock
Attorney

UNITED STATES PATENT OFFICE.

THOMAS THORP, OF WHITEFIELD, COUNTY OF LANCASTER, ENGLAND.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 314,630, dated March 31, 1885.

Application filed February 6, 1884. (No model.) Patented in England March 20, 1882, No. 1,348.

To all whom it may concern:

Be it known that I, THOMAS THORP, architect, a subject of the Queen of Great Britain, residing at Whitefield, in the county of Lancaster, England, have invented a new and useful Gas-Lighting Apparatus, (for which I have obtained a patent in Great Britain, No. 1,348, bearing date March 20, 1882,) of which the following is a specification.

My invention relates to improvements in that class of gas-burners wherein an Argand burner is employed in connection with a closed globe, and in which both the gas and air for the support of combustion are heated before arriving at the point of ignition. The means by which I attain these objects and in which my invention consists are clearly illustrated in the accompanying drawings, in which—

Figure 1 is an elevation, partly in section. Fig. 2 is a plan, partly in section, on the line A B, Fig. 1, the part C looking upward and the part D looking downward, the catch *j* not being shown. Fig. 3 is an elevation of my improved apparatus for gas-lighting. Fig. 4 is a plan on the line C D of Fig. 1, with part of the outer casing removed; and Fig. 5 is a side view of Fig. 4.

Similar letters refer to similar parts throughout the several views.

In the drawings, *a* is the gas-supply pipe, at the bottom of which is a chamber, *b*, from which rise a number of small upright tubes, *c*, which together form an annular or Argand burner. The gas issues through holes in an annular plate fitted at the top of the tube *c*.

d is a deflector surrounding the burner and serving to prevent the flame from spreading before it reaches the globe.

Surrounding the gas-supply pipe *a* is a tube or chamber, *e*, through which the air for combustion is supplied. The upper part of the chamber *e* is divided longitudinally from the top to about the level of the shield *g* by a partition, *s'*, so as to form two annular chambers or passages, *e'* *e''*, provided with segmental (or other shaped) gills or projections *s*. These segmental gills *s* are made with or secured to the partition *s'*, and project into both the chambers *e'* *e''*. The outside of the chamber *e''* rests on a flange, *f*, to which is connected the shield *g*, to which is hinged an annular frame, *h*, that carries the globe *i*. A catch,

j, is provided to allow the globe *i* to be opened and to retain it in position when closed. *k* is a curved conical deflector extending downward from the shield *g*.

Surrounding the lower part of the tube or chamber *e* and inside the frame is a deflector, *l*, which gives the desired form to the flame within the globe, and in conjunction with the deflector *k* so directs the flame as to dispense with the necessity for a glass or other chimney surrounding the flame.

In the gas-supply pipe *a* is a rod, *m*, of brass or other suitable material, secured at the bottom of the chamber *b*. At the top of this rod *m* is a disk or valve, *n*, contained in a chamber formed in the pipe *a* and tapering in a downward direction. The disk *n*, when the gas is newly lighted, admits only a small quantity of gas to the burner; but as soon as the gas has been burning long enough to heat the pipe *a* and the rod *m*, the unequal expansion of the pipe and rod will cause the disk *n* to recede from the taper part of the chamber, and thus allow the full amount of gas to flow to the burner. One or more openings, *o*, are provided for the admission of air into the chamber *e'*, through which the air passes down the tube *e*, as indicated by the arrows in Fig. 1, to the inside of the Argand burner. The air in a highly-heated state rises through a mesh or perforated plate, *p*, (shown in Fig. 2,) and insures perfect combustion of the gas issuing from the burner, and a brilliant flame.

The top of the flame is drawn in between the upper part of the deflector *l* and the lower part of the deflector *k*, and the products of combustion pass upward to the chimney through the annular chamber *e''*, as indicated by the arrows on Fig. 5, thus passing between the segmental gills *s* and imparting a great amount of heat to them, which heat is transmitted by the gills *s* to the air for combustion, descending between them through the chamber *e'* to the inside of the burner *c*.

q is a cover secured to the lower part of the chimney, which prevents dust from entering the apertures *o* and protects the same from drafts.

The inner wall or tube of the chamber *e'* is of sufficient diameter to allow the chamber in which is the valve *n* to be passed through it.

Having stated the nature of my invention

and described the manner of performing the same, I declare that what I claim, and desire to secure by Letters Patent of the United States, is—

5 1. In an apparatus for gas-lighting, the combination of the chamber *e'* and tube *e* with the gas-supply pipe *a*, chamber *b*, ring of upright tubes *c*, perforated plate *p*, and chamber *e''*, all substantially as herein shown and described, for the purposes specified.

10 2. The combination of an annular burner with a deflector surrounding the same, an annular deflector arranged above the same and within the flame, and a curved conical de-

flector arranged above the flame, the first deflector preventing the flame from spreading too soon, and the second deflector causing it to spread into the desired shape within the globe, substantially as set forth. 15

The foregoing specification of my gas-lighting apparatus signed by me this 21st day of January, 1884. 20

THOMAS THORP.

Witnesses:

MARK SHAW,
Of 86 *Raleigh Street, Nottingham, law clerk.*

W. H. WARSOP,
Of 28 *Ilkeston Road, Nottingham, law clerk.*