

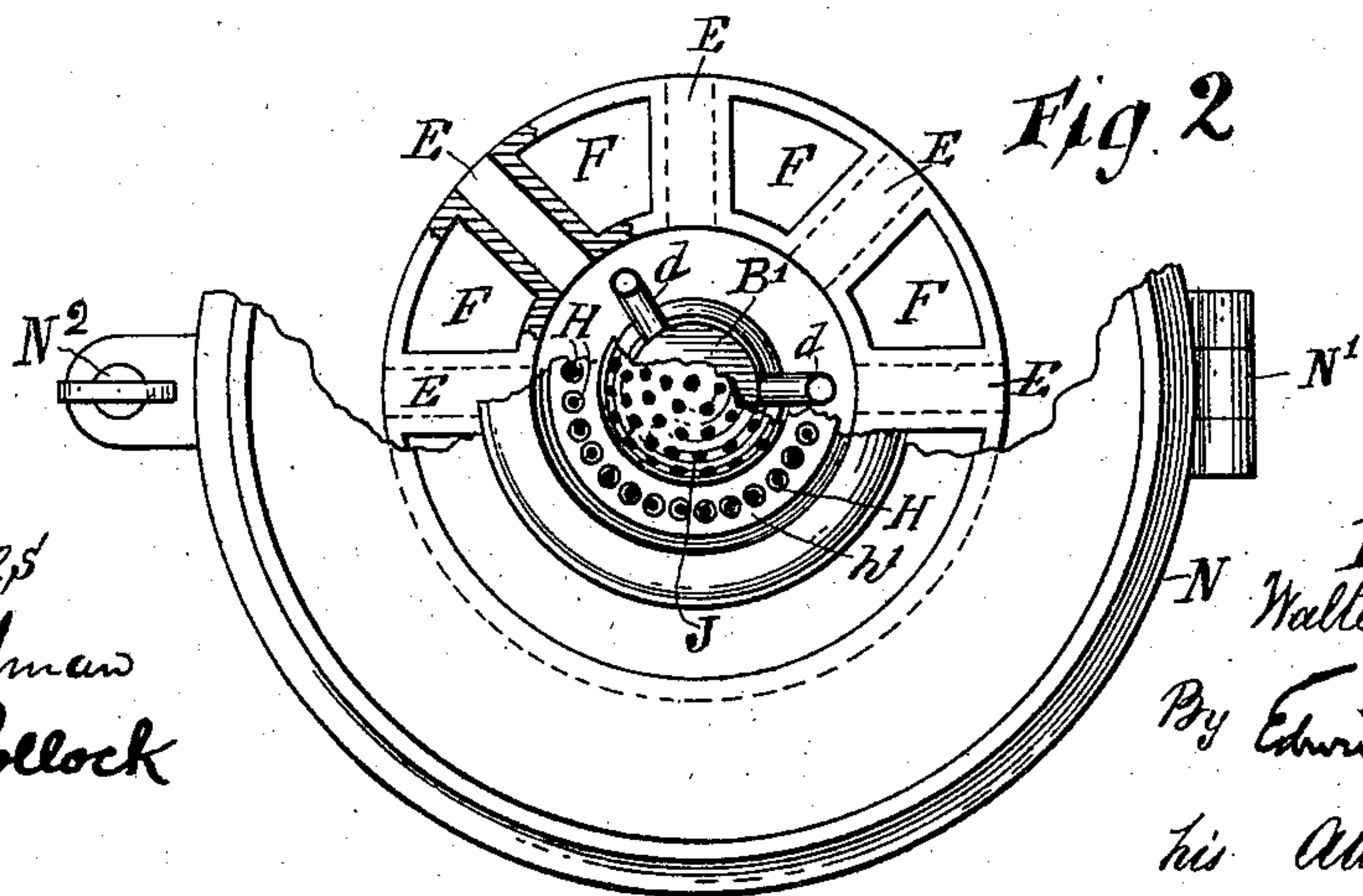
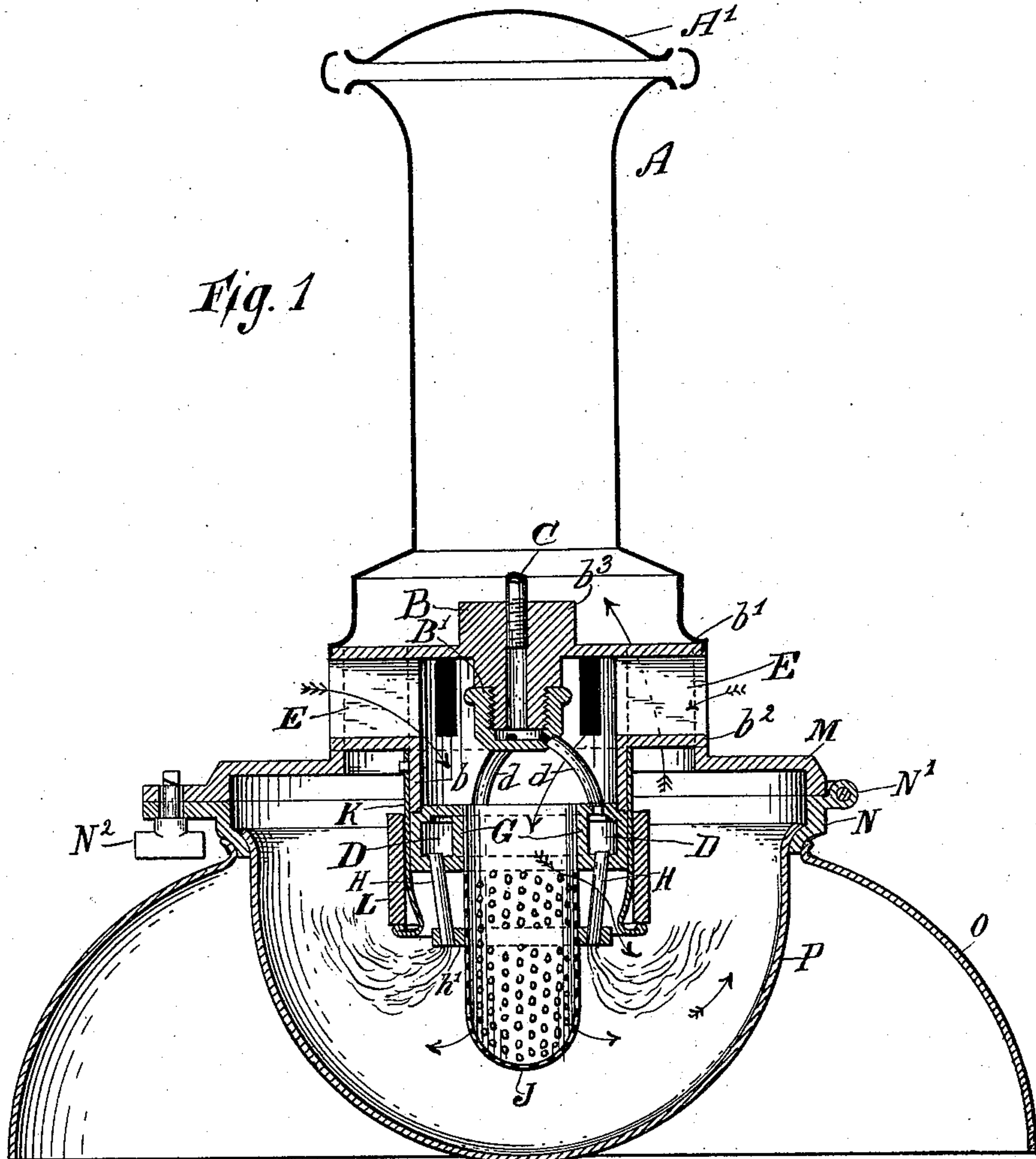
(No Model.)

2 Sheets—Sheet 1.

W. J. SMART.  
GAS LAMP.

No. 599,873.

Patented Mar. 1, 1898.



Witnesses  
Geo. Wadman  
J. M. A. Pollock

Inventor  
Walter J. Smart  
By Edwin H. Brown  
his Attorney

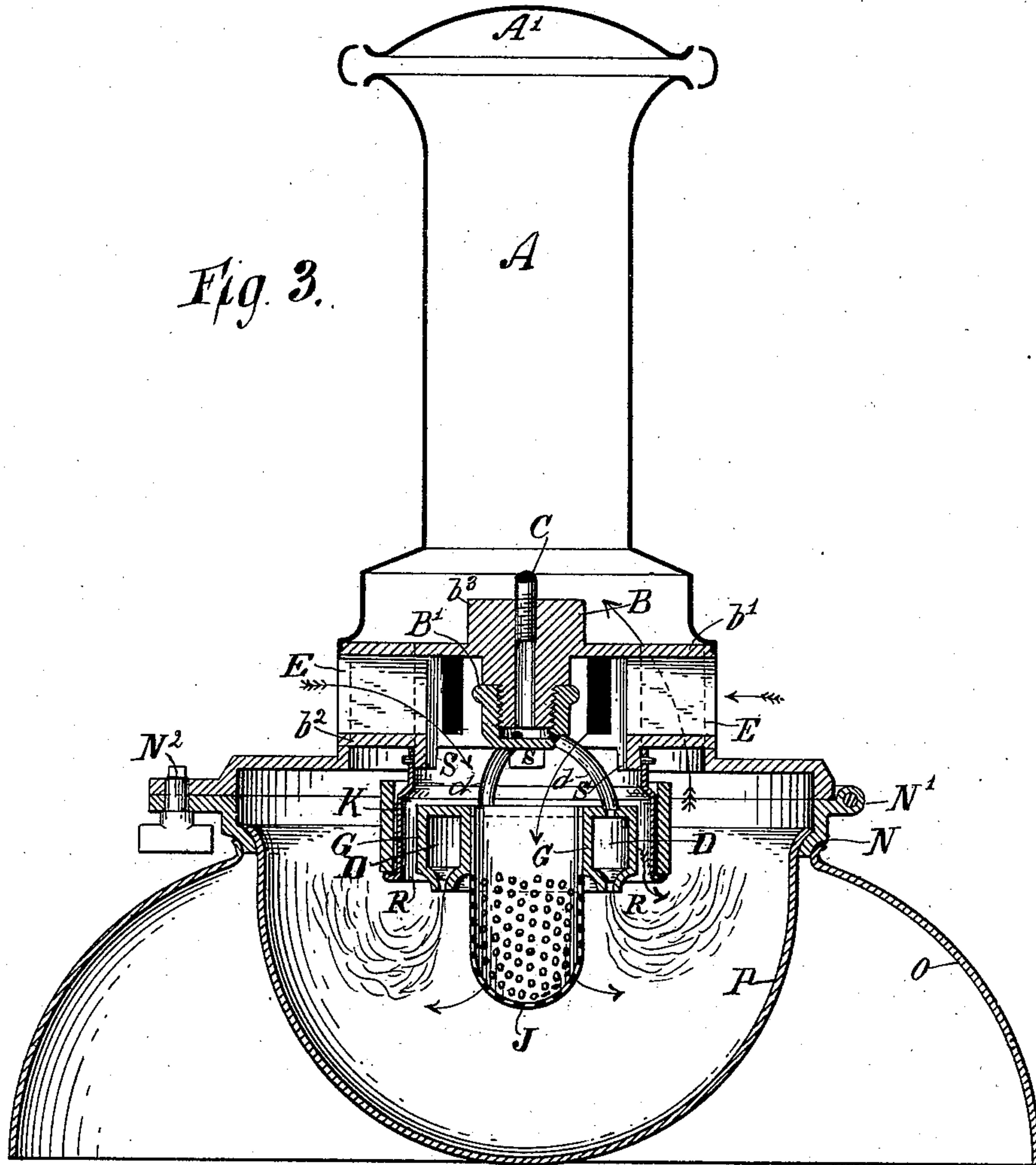
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# UNITED STATES PATENT OFFICE.

WALTER J. SMART, OF SOUTH ORANGE, NEW JERSEY.

## GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 599,873, dated March 1, 1898.

Application filed July 2, 1894. Serial No. 516,295. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER J. SMART, of the township of South Orange, county of Essex, State of New Jersey, have invented certain new and useful Improvements in Gas-Lamps, of which the following is a specification.

I will describe a burner embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a central vertical section of a lamp-burner embodying my improvement. Fig. 2 is partially an inverted plan and partially a horizontal section of this lamp, certain portions being wholly omitted. Fig. 3 is a central vertical section of a modification.

Similar letters of reference designate corresponding parts in all the figures.

A, Figs. 1 and 3, designates a pipe of suitable form and dimensions for removing the products of combustion from the lamp. It may be surmounted by a cowl A' of desirable form.

Referring now to Figs. 1, 2, and 3, but more particularly to the form represented in Figs. 1 and 2, B designates the body of the burner. It may be made of a single casting or formed in any desirable number of pieces.

As shown, it is made in one piece and is formed with a cylindric centrally-located hub-like portion  $b$ , a laterally-extending upper plate  $b'$ , and a laterally-extending flange  $b^2$ . The upper plate  $b'$  is provided with an enlarged or hub-like portion  $b^3$ , extending on both sides of the plate  $b'$ , to which a gas-supply pipe C may be attached. The supply-passage is continued downward through the enlarged portion  $b^3$  and opens outward through the lower surface of the same. The lower portion of  $b^3$  is fitted to receive a cap B', here shown as engaging by screw-threads therewith. The cap B' is hollowed out or recessed to form a chamber or cavity with the lower portion of  $b^3$ , from which pipes  $d$  pass outwardly and downwardly, opening at their lower extremities into the annular chamber D.

In the body B of the burner are provided two sets of chambers or passages E and F. The former of these are radial passages—

that is, they extend radially outward between the plate  $b'$  and the flange  $b^2$ , their inner ends opening into the passage through the hub-like portion  $b$ , while their outer ends communicate with the atmosphere. They constitute the air-passages. The passages F are longitudinal passages—that is, they extend through the body of the burner at right angles to the direction of radial passages and between the latter. They open through the plate  $b'$  and the flange  $b^2$  and constitute passages for the products of combustion.

G is an annular-shaped piece or gas-burner body provided with the annular chamber D. The bottom of this chamber is perforated to receive a number of pipes H, which converge slightly and which are fitted to a ring  $h'$  at their lower portions. These pipes receive gas from the chamber D, which issues from and burns at their outer ends.

J designates an air-distributor, here shown as being of a cylindrical form with a hemispherical end portion. It is fitted to the annular piece G and is closely encircled by the ring  $h'$ . The air-distributor is perforated above and below the ring. Such perforations are also shown as covering the lower extremity of the air-distributor, but may be dispensed with if found desirable.

K designates a shell fitted to the outside of the central hub-like portion  $b$  of the burner-body B and extending downward around the annular piece G and below the same, so that its extremity will surround the burner-pipes H near their lower extremities. It may have a ring of reflecting material L fitted to its exterior, and when this device is used it may rest upon an outwardly-turned flange formed at the lower extremity of the shell K. As shown, this shell K is contracted near its lower extremity, or, in other words, extended toward the pipes.

M designates a ring-like piece suitably secured to the body of the burner.

N designates a movable ring hinged to M at N' and provided with a thumb-catch at N<sup>2</sup>.

The purpose of the ring N is, in part, to support a globe P, and therefore it may be aptly termed a "globe-holder." The globe P is intended to be made of glass. It is in the main of a hemispherical form, but has its edge



turned outwardly to fit within the ring N. A reflector O, secured to ring N, may also be applied when desired.

Air enters the passages E and passes downward through the body portion B and thence to the air-distributor J. From the latter it escapes through the perforations both above and below the ring  $h'$ , to the inner surface of the flame in the latter case and to the outer surface of the flame in the former case, by way of the spaces between the pipes H and the annular opening between the shell K and the ring  $h'$ . It then, with the products of combustion, passes upward through passages F and finally out through the pipe A.

It will be seen that the air-distributor J is practically two air-distributors, because of the contact of the ring  $h'$  with its exterior, the latter having the function of dividing such air-distributor into a lower air-distributor for supplying air to the inner surface of the flame and an upper air-distributor for supplying air to the outer surface of the flame.

Instead of permitting the gas to issue in the form of individual jets and burning it in that form I may provide a device which shall have the effect of joining all the separate gas-burners in one to form a continuous circular burner. This may be effected with the apparatus illustrated in Fig. 1 by dispensing with the pipes H and ring  $h'$  and forming a circular opening of suitable dimensions through the bottom of the annular piece G into the annular chamber D. The air-distributor J, shell K, and deflector L may then be conveniently shortened. Fig. 3 represents such a modification. In order also to provide for discharging the air against the outside of the flame, the lower portion of the shell K may be conveniently enlarged in diameter, forming an annular passage R between the shell and the annular-shaped piece G.

In Fig. 3 I have also shown the body of the burner as being provided with lugs S, extending downwardly therefrom, instead of the central tubular portion  $b$  of Fig. 1. The shell K may fit over these lugs, extending upwardly and abutting against the flange  $b^2$ .

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

1. In a lamp, the combination of a gas-supply pipe carrying a circular gas-burner constructed of separate burner-tubes, a foraminous spreader contained within the circumference of the burner and supported by the gas-supply pipe, the said spreader being provided with holes both above and below the level of exit of the gas from the burner and means for supplying air from above to the spreader, whereby air is admitted from above and there are no obstructions for the light below the burner, substantially as specified.

2. In combination with a burner-body having a central tubular hub-like portion of an annular gas-burner body fitted to the lower end thereof, and a tubular air-distributor fitted to communicate with the central passage or opening of the gas-burner body; a number of pipes extending from the gas-burner body around the said air-distributor; and a ring at the extremity of the said pipes closely surrounding the air-distributor and dividing it into an upper and lower portion so that it will supply air for both surfaces of the flame.

3. In combination with a burner-body having a central tubular hub-like portion and which is provided with a series of passages extending from the central passage or opening of the burner-body radially outward, an annular gas-burner body arranged below the burner-body and communicating with a gas-space formed in the burner-body, a number of pipes extending downward from said gas-burner body, and a tubular air-distributor fitted to communicate with the central passage or opening of the gas-burner body and provided with perforations below said gas-burner body both above and below the ends of said pipes, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WALTER J. SMART.

Witnesses:

LEWIS P. TAYLOR,  
HARRY ROCKAFELLAR.