

(No Model.)

D. J. PRENDERGAST.
INCANDESCENT LAMP OR BURNER.

No. 597,430.

Patented Jan. 18, 1898.

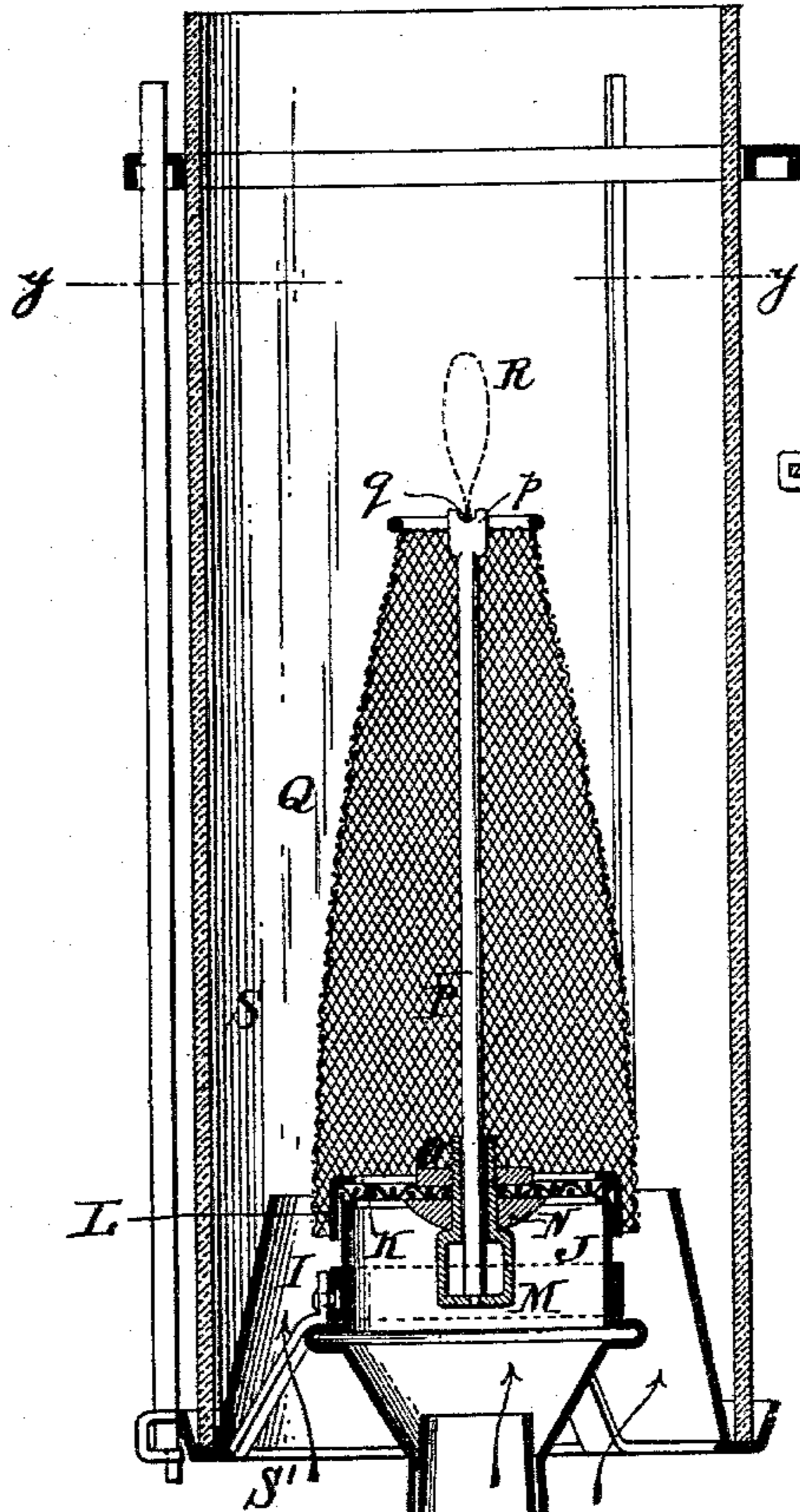


Fig. 1.

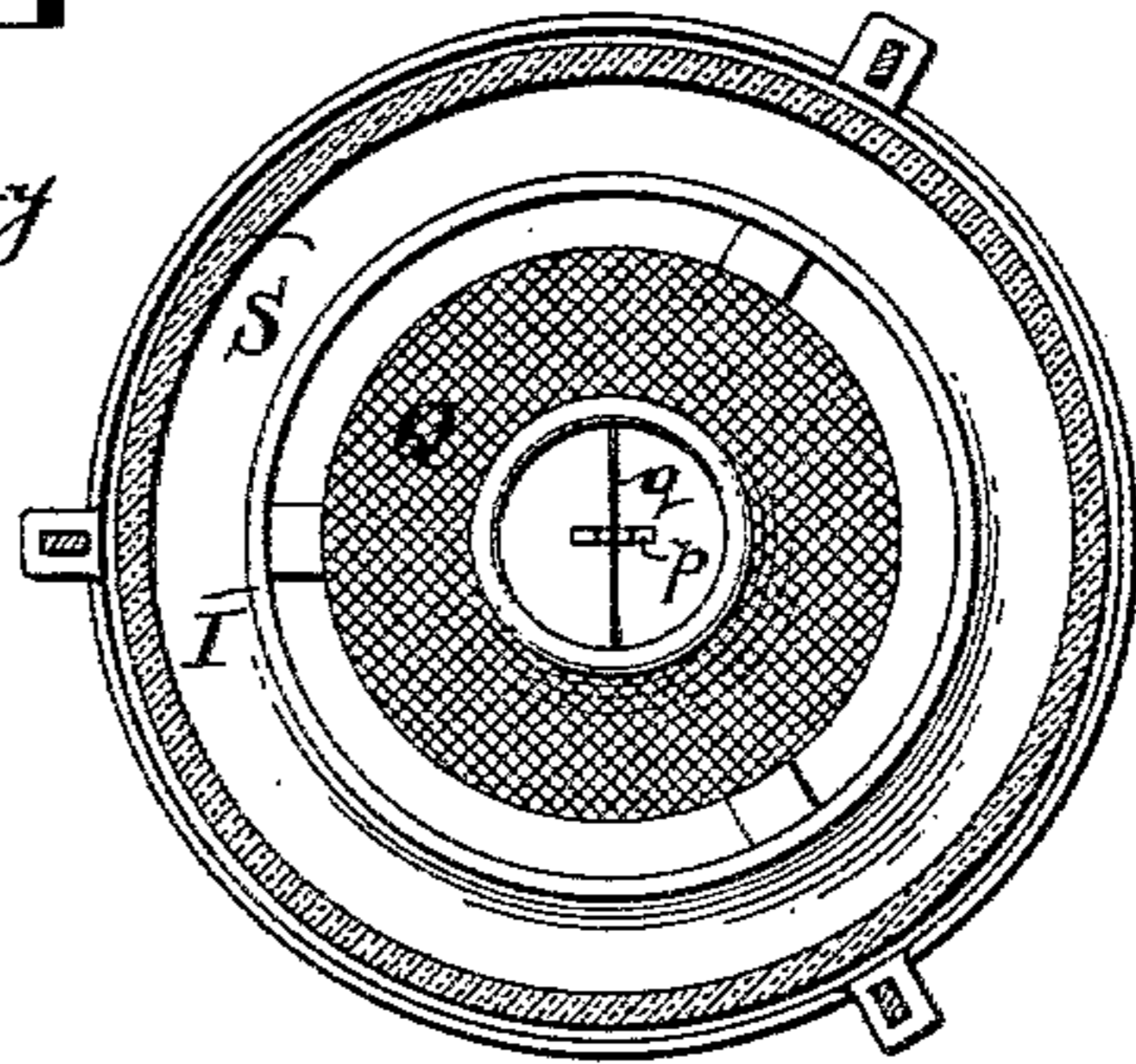


Fig. 2.

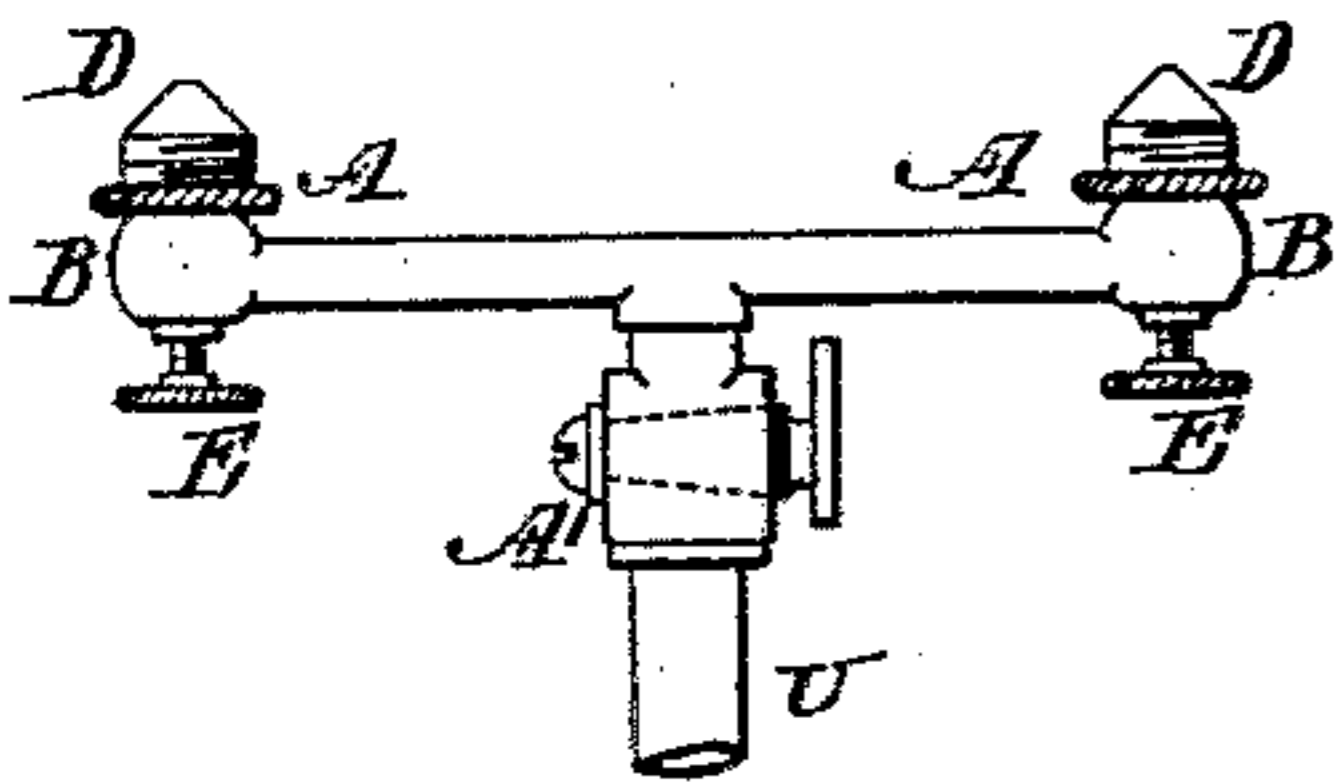


Fig. 4.

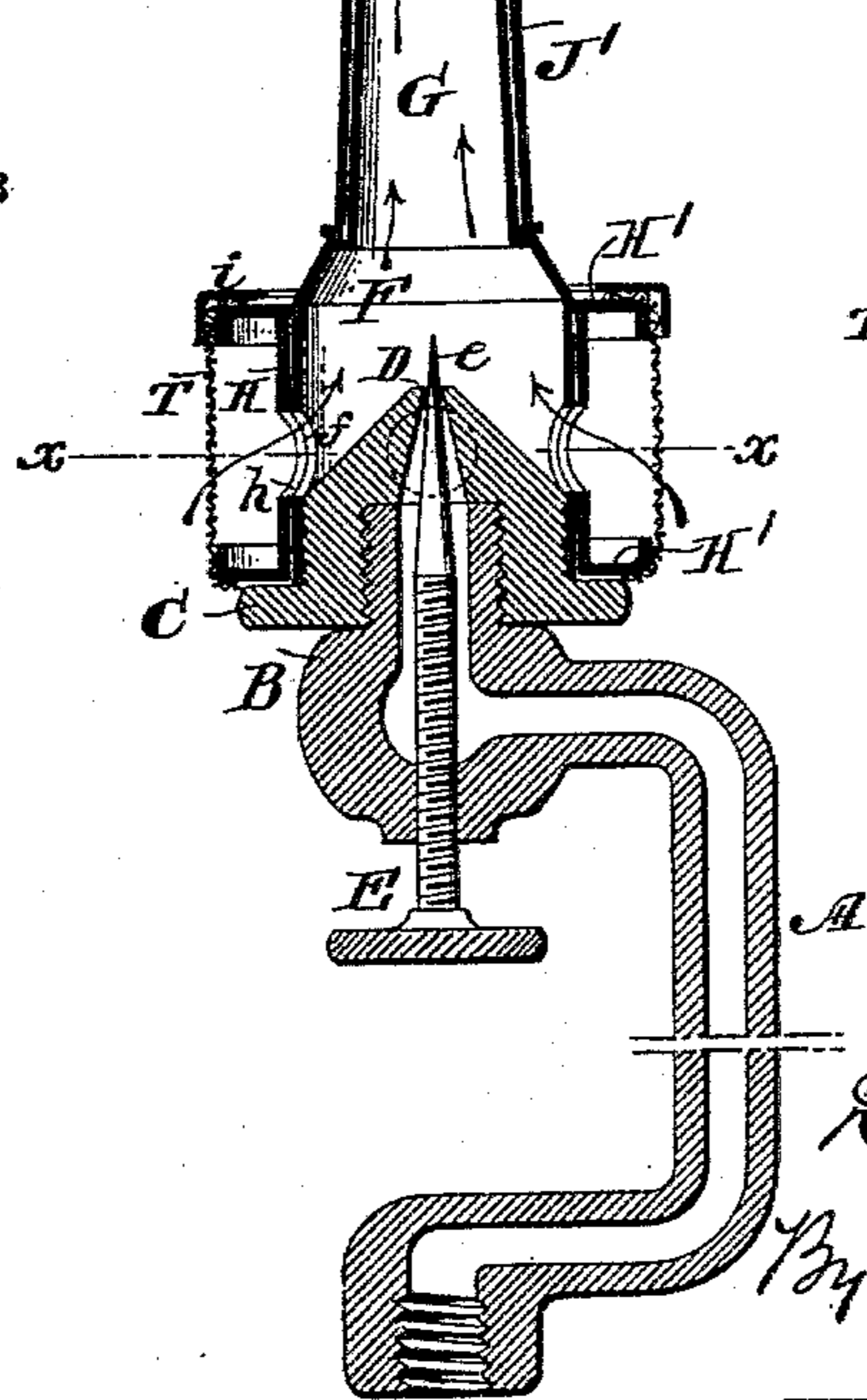


Fig. 3.

Witnesses.

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UNITED STATES PATENT OFFICE.

DANIEL J. PRENDERGAST, OF NEW YORK, N. Y., ASSIGNOR TO THE PENNSYLVANIA GLOBE GAS LIGHT COMPANY, OF PENNSYLVANIA.

INCANDESCENT LAMP OR BURNER.

SPECIFICATION forming part of Letters Patent No. 597,430, dated January 18, 1898.

Application filed November 10, 1896. Serial No. 611,581. (No model.)

To all whom it may concern:

Be it known that I, DANIEL J. PRENDERGAST, of the city and county of New York, and State of New York, have invented an Improvement in Incandescent Lamps or Burners, of which the following is a specification.

My invention has reference to incandescent lamps or burners; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a construction of gas-burner adapted for rendering a mantle of refractory material incandescent, more especially for outside and street lighting. I have found the best results to be secured by providing a maximum air-supply and regulating the gas-supply to suit the pressure in the mains by use of an auxiliary needle-valve in addition to the main valve. In those cases where two burners are arranged upon the same gas-main—such, for example, as set out in application Serial No. 608,922, filed October 15, 1896—the use of these auxiliary valves has special merit, since it becomes possible to secure the proper supply of gas to each burner irrespective of any clogging of the pipes leading to either of the burners.

In carrying out my invention I provide the burner with a needle-valve carried by the gas-pipe and vertically adjustable therein and adapted to operate in connection with a valve-seat detachably secured upon the upper end of the gas-pipe. I arrange a Bunsen burner-tube over and secured to the valve-seat and formed with lateral air-openings at its base controlled by a cylindrical air-valve adjustable about the burner-tube. The burner proper is provided with a downwardly-extending tubular sleeve adapted to fit over the burner-tube and be supported thereby. More particularly the valve-seat of the needle-valve is formed with an upwardly-extending conical seat portion having a gas-orifice in the apex thereof, and the air-openings in the burner-tube are preferably extended below the conical valve-seat, so as to create a better admixture of air and gas. The above con-

struction enables the needle-valve to be readily removed for cleaning without dismantling the incandescent burner proper, a feature highly desirable in street-lighting lamps. It furthermore permits, in a fully organized lamp, a quick and accurate adjustment of the flow of gas to obtain the highest brilliancy from the incandescing mantle.

Another portion of my invention has reference to the construction of the support for the mantle, whereby it may be arranged within the mantle and central upon the top of the burner. The strain upon this support is centrally disposed, thus insuring less jar and vibration to the mantle, and being within the mantle it does not obstruct the light or come into contact with the mantle in case it curves outward under the action of the heat and draft, as so frequently happens in practice. The specific improvements relating to this part of my invention are fully referred to hereinafter and include, in connection with the construction of the support proper, the provision of the mantle with a non-combustible transverse wire support adapted to sustain it when in use and a combustible adjusting-loop or suspending-piece for adjusting it in position when setting up the lamp.

Another feature of novelty of my improved burner is in the support for the gauze screen or insect-guard, whereby it is carried by and moves with the air-valve and forms an immediate means for adjusting the air-valve.

My invention will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of an incandescent burner embodying my improvements. Fig. 2 is a sectional plan view of same on line *y y*. Fig. 3 is a sectional plan view of same on line *x x*, and Fig. 4 is an elevation of the branching pipes for a duplex or double burner.

A is an angular gas-supply pipe leading from the top of the gas-main of any street-lamp post or other fixture, and has screwed onto its upper end B a valve-seat C, formed somewhat conical and terminating in a central opening D.

E is a needle-valve screwed into the top B

of the angular gas-tube A and having the needle-point *e* working through the central aperture D of seat C. The milled head or thumb-piece of the needle-valve operates
 5 freely in the space below the upper offset or angular part of the gas-pipe and is so formed as to permit the same to be wholly withdrawn, if desired, for cleaning without removing the incandescent burner proper. Screwed upon
 10 the top of the angular gas-pipe or its valve-seat C is the Bunsen burner-tube G, which has at its bottom F the air-apertures *f*, which, as shown, are somewhat below the nozzle D, so as to increase the suction tendency of the
 15 gas upon the air. Surrounding the lower or enlarged part F of the tube G is the air-valve H, consisting of a cylindrical case having apertures *h*, corresponding to the apertures *f*, and also having its top and bottom flanged, as at H'. A screen or gauze cylinder T is
 20 slipped over the flanges, and its top is bent inward, so as to sustain the weight. A flanged annular ring *i* is placed over the upper edge of the gauze and flange H' to hold the two
 25 firmly together and provide a solid means for adjusting the air-valve. It will be seen that in this manner the screen or gauze moves with the air-valve and is directly supported by it. This screen is to keep bugs and in-
 30 sects generally out of the burner, they being a source of great trouble in outdoor lighting.

The burner-head proper, J, is provided with a downwardly-extending tubular part J', fitting loosely over the tube G and by which it
 35 is sustained. The head is provided with a wire-gauze screen K, held down by a flanged annular ring L. The central part of the screen K is provided with a socket M, formed of a tube-spine, so as to have a closed bottom,
 40 open top, and a shoulder intermediate. Over this socket and resting upon the shoulder is a rounded button N, and upon the opposite side of the screen is a nut O, screwed down upon the socket, so as to clamp it and the but-
 45 ton firmly to the screen. This construction spreads the gas and causes the flame to be produced like a cylinder. Supported in the socket M is a central wire P, having its up-
 50 per end flattened and notched, as at *p*.

Q is the mantle, of refractory material, and at its top it is contracted and formed with a transverse wire *q*, which rests in the notch *p*. This wire may have a thread R for handling the mantle when adjusting it into position,
 55 and this will be consumed when the burner is lighted. By this construction the mantle is centrally supported and subjected to uniform strains. It is devoid of the objections to the outside wire support—namely, the in-
 60 terception of the light, liability of touching and destroying the heated mantle, and the liability to injury to the mantle from jarring due to unevenly-distributed weight. It is evident that the socket may be arranged in

any other suitable manner, if desired, that
 65 illustrated being a simple and practical construction excellently adapted to the purpose.

S is the glass chimney, and is supported upon a suitable frame S' in the usual way. I is the conical shield, arranged about the
 70 burner and having for its object the protection of the lower part of the mantle and also to cause the upward draft of air to be directed toward the mantle and gas-burner.

In Fig. 4 I have two branching burner gas-
 75 pipes from the single main pipe. In this case the angular pipes A A unite in a T, which connects with the main gas-pipe U. The vertical part is provided with a valve A' for controlling the supply of gas to both burners, and
 80 each angular gas-pipe is provided with the needle-valve E for independently regulating the gas to the burners. Without these independent needle-valves it would be impossible to secure the best results from the burners.
 85 The burners proper are shown in Fig. 1.

While I prefer the construction shown, I do not limit myself to the details thereof, as they may be modified in various ways without de-
 90 parting from the principles of my invention.

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

1. In an incandescent lamp, the combination of a gas-pipe having an opening at the top, a needle-valve carried by said pipe and
 95 vertically-adjustable therein, a valve-seat detachably screwed upon the upper end of the gas-pipe and receiving the needle-valve, a Bunsen burner-tube secured to the valve-seat and formed with lateral air-openings at its
 100 base and a shoulder above them, a cylindrical air-valve adjustably surrounding the burner-tube and having air-apertures corresponding to those of the tube, and a burner proper having a downwardly-extending tubular sleeve
 105 adapted to fit over the burner-tube and rest upon the shoulder.

2. In an incandescent burner, the combination of the burner-screen K, a tubular socket M arranged centrally through the screen, but-
 110 ton N having a spherical under surface upon the under side of the screen and surrounding the socket and held thereby, nut O for holding the socket and button to the screen, an upright central supporting-wire P, and a mantle Q sus-
 115 tained by the wire P and encircling it.

3. In an incandescent burner, the combination of a central supporting-wire extending upward from the center of the burner, an encircling mantle surrounding the burner and
 120 support and having a transverse wire to hang upon the top of the support, and a loop or adjusting-piece formed of combustible material attached to the mantle at the top whereby after adjustment the loop or adjusting-piece
 125 will be consumed.

4. An incandescing mantle having at its top a transverse non-combustible wire to support

it when in use, and a combustible adjusting-loop or suspending-piece which shall become burned up upon heating the mantle in use.

5. In an incandescent burner, the Bunsen tube having air-apertures on the sides and a gas-aperture on the bottom, in combination with an air-valve formed of a cylinder surrounding the Bunsen tube having at both the top and bottom an annular flange or rim by

which to adjust it, and a cylindrical screen 10 extending between the two flanges or rims and supported thereby.

In testimony of which invention I have hereunto set my hand.

DANIEL J. PRENDERGAST.

Witnesses:

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J. F. CASSIDY.