No. 666,923. Patented Jan. 29, 1901.

C. W. DICKEL.

INCANDESCENT GAS LAMP.

(Application filed Apr. 28, 1900.)

(No Model.)

Fig. 1.

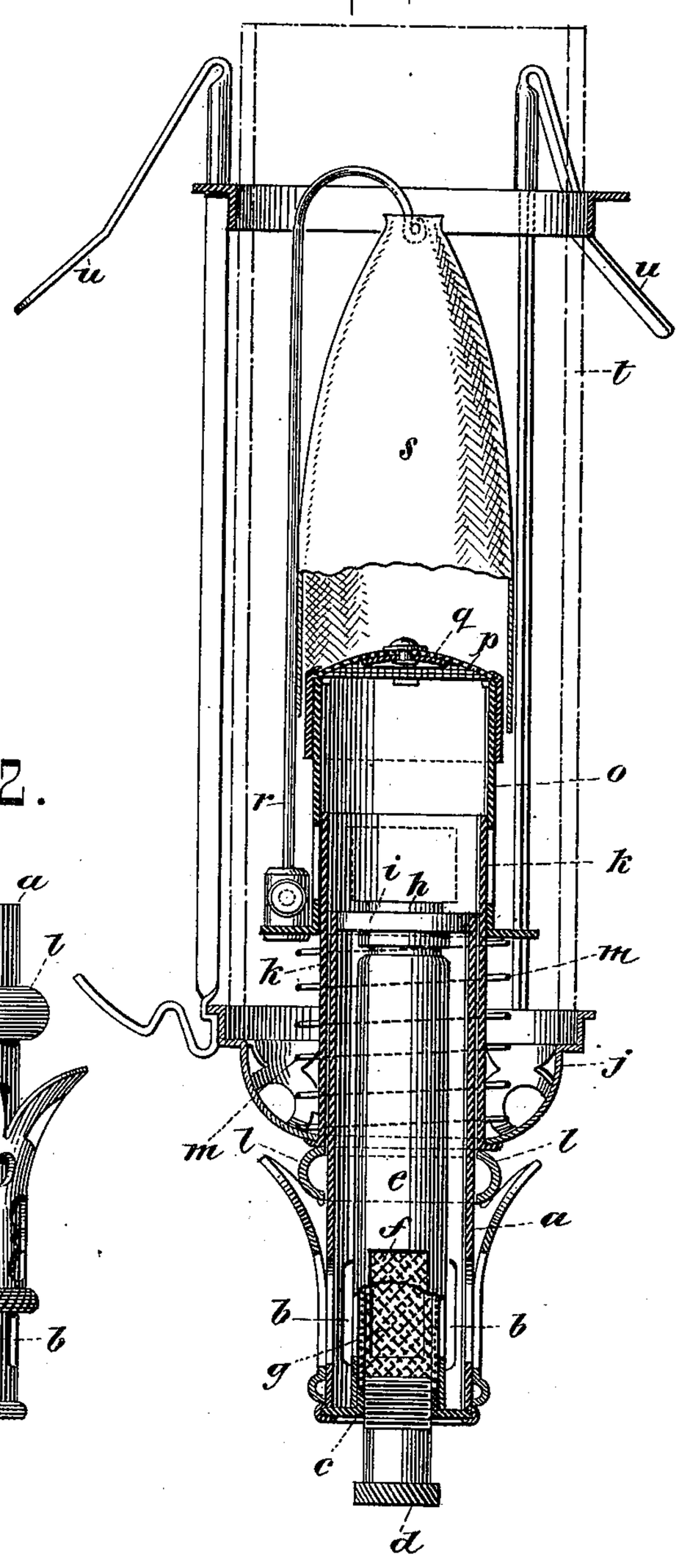


Fig. 2.

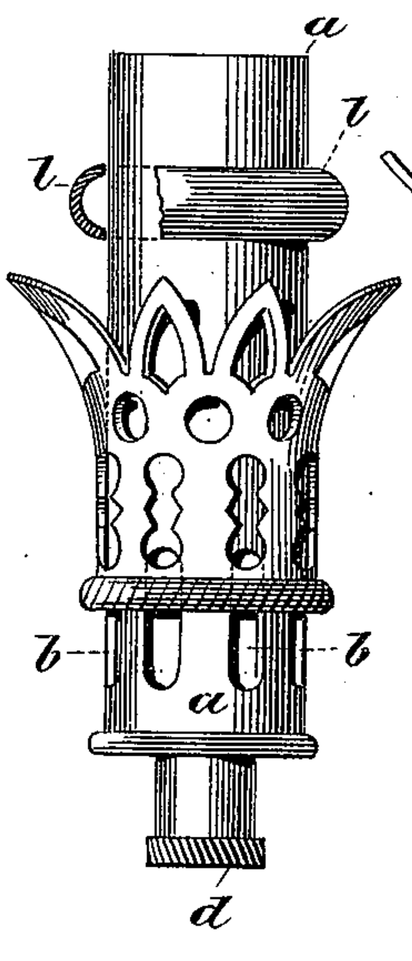
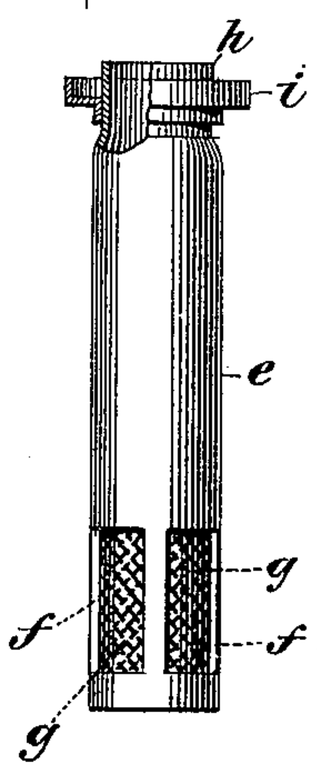


Fig. 3.



Witnesses
Gustave Dieterich.
Fred. C. Thomas.

Inventor
Charles W. Dickel
By Brisco & Prindle
Attorneys

UNITED STATES PATENT OFFICE.

CHARLES W. DICKEL, OF NEW YORK, N. Y., ASSIGNOR TO THE DIAMOND LIGHT COMPANY, OF SAME PLACE.

INCANDESCENT GAS-LAMP.

SPECIFICATION forming part of Letters Patent No. 666,923, dated January 29, 1901.

Application filed April 28, 1900. Serial No. 14,648. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. DICKEL, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Incandescent Gas-Burners, of which the following is a specification.

My invention relates to incandescent gas-burners, and has for its object to produce a thoroughly efficient Bunsen burner which will not be liable to flash back and which will produce an extremely hot Bunsen flame in which gas combustion is very thorough.

In the accompanying drawings I have shown a form of burner embodying my invention, which, however, is not limited to the form shown, and I have pointed out the characteristic features of the invention in the claims at the end of this specification.

In the drawings, Figure 1 is a sectional elevation of the Bunsen-burner incandescent gas-lamp. Fig. 2 is a broken-away detail view of the air-chamber and air-shutter, and Fig. 3 is a broken-away detail sectional elevation of the mixing-chamber.

In the drawings, *a* represents the air-chamber or exterior casing. The said chamber is provided with upright slots *b*, through which the air enters, and is likewise preferably provided with an annular flange or threaded nipple *c*, which receives the gas-nipple *d* and around which the mixing-chamber is adapted to fit. The mixing-chamber *e* is preferably of tubular form and rests within the air-chamber surrounding the upper end of the gas-nipple *d*. The lower end of the mixing-chamber is provided with apertures *f* and contains an adjustable foraminous casing *g*. The upper end of the mixing-chamber *e* is reduced and carries a collar *i*, which fits snugly within the air-chamber. The lamp-gallery *j* is supported by a gallery-tube *k*, which fits upon the air chamber or casing *a*, as shown. This gallery-tube *k* rests upon the ring *l*. This ring *l* is adjustable up and down on the mixing-chamber, so as to limit the upward movement of the air-shutter (see two positions shown in Figs. 2 and 1) and also to support and limit the adjustment of the gallery-tube. A spring *m* surrounds the gallery-tube and supports the adjustable cap *o*, which is provided at its upper end with a spreader consisting of a foraminous dished partition *p*, containing a dished disk or spreader-cup *q*. This cap *o* rides freely up and down, being springily supported by the spring *m*. The cap *o* is provided with an adjustable mantle-wire *r*, which supports an ordinary mantle *s*. The lamp may be provided with the usual chimney *t* and globe or glassware supports *u*. The operation of the structure is as follows: The gas enters at *d* through the nipple *d* and, passing upward through the apertured thin plate usual in such gas-nipples, passes into the mixing-chamber *e*. The powerful upward suction produced has the effect of drawing air into the mixing-chamber in a finely-subdivided condition through the foraminous casing, by which a thorough admixture of air and gas is produced. The mixture passes upward, being heated in its passage by the walls of the long mixing-chamber *e* and is finally injected by the reduced upper end *h* into the chamber formed by the cap *o* and the gallery-tube. The size of this chamber can be efficiently regulated by adjusting the ring *l* up or down on the tube *a*. The dished spreader plate or disk *q* has the effect of spreading the gas to produce a uniform flame to heat the mantle. By reason of the springy mounting the mantle will not be liable to become broken, as any jarring is taken up by the spring *m*.

Having described my invention and the chief advantages thereof, I declare that what I claim, and desire to secure by Letters Patent, is—

1. In an incandescent gas-lamp the combination with an air-chamber of a mixing-chamber apertured at its lower end and provided with a foraminous casing *g* covering the apertures and adapted to finely subdivide the air and a suitable spreader and mantle.

2. In an incandescent gas-lamp the combination with an air-chamber of a mixing-chamber apertured at its lower end and provided with a foraminous casing *g* covering the apertures and adapted to finely subdivide the air, said mixing-chamber being contracted or reduced at its upper end to produce an injector action and a suitable spreader.

3. In an incandescent gas-lamp the combi-

nation with an air-chamber of a mixing-chamber apertured at its lower end and provided with a foraminous casing *g* covering the apertures and adapted to finely subdivide the air, said mixing-chamber being contracted or reduced at its upper end to produce an injector action and a suitable spreader provided with a spreader-disk *q*.

4. The combination in an incandescent gas-lamp of a casing, means for mixing the air and gas, an air-shutter and a regulating-ring *l* movable on the casing and serving to limit the sliding motion of the air-shutter in one direction.

5. In an incandescent gas-lamp the combination of air and gas mixing apparatus, of an air-shutter, an inverted cap *o* forming a chamber for the reception of the air and gas mixture and a ring *l* adjustable on one of the casings of the burner and adapted to coöperate with the air-shutter and the inverted cap to limit the adjustment thereof.

6. In an incandescent gas-lamp the combination with an air-chamber of a mixing-chamber provided with a foraminous casing at its lower end adapted to finely subdivide the air, an air-chamber surrounding the mixing-chamber and a suitable spreader and mantle.

CHARLES W. DICKEL.

Witnesses:
GEO. E. MORSE,
OTTO V. SCHRENK.