

(No Model.)

R. VIOLET.
BURNER FOR INCANDESCENT GAS LIGHTS.

No. 575,183

Patented Jan. 12, 1897.

Fig. 1.

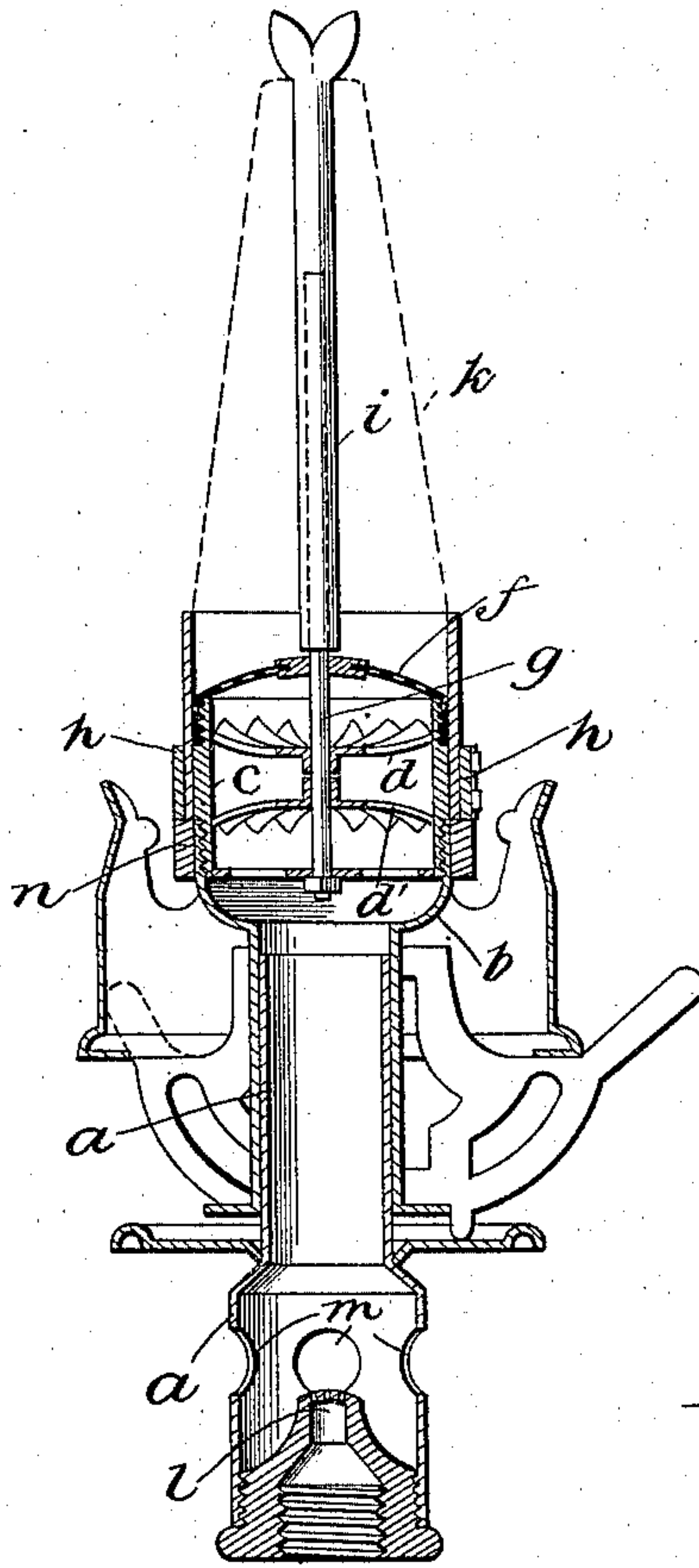


Fig. 2.

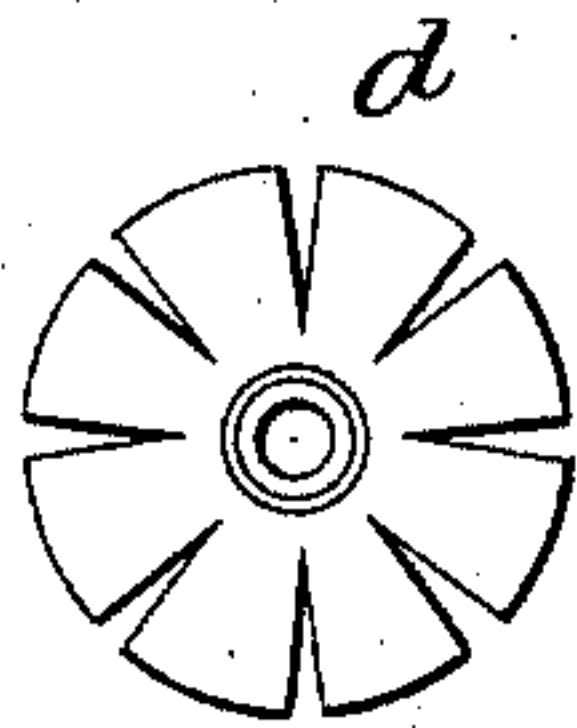
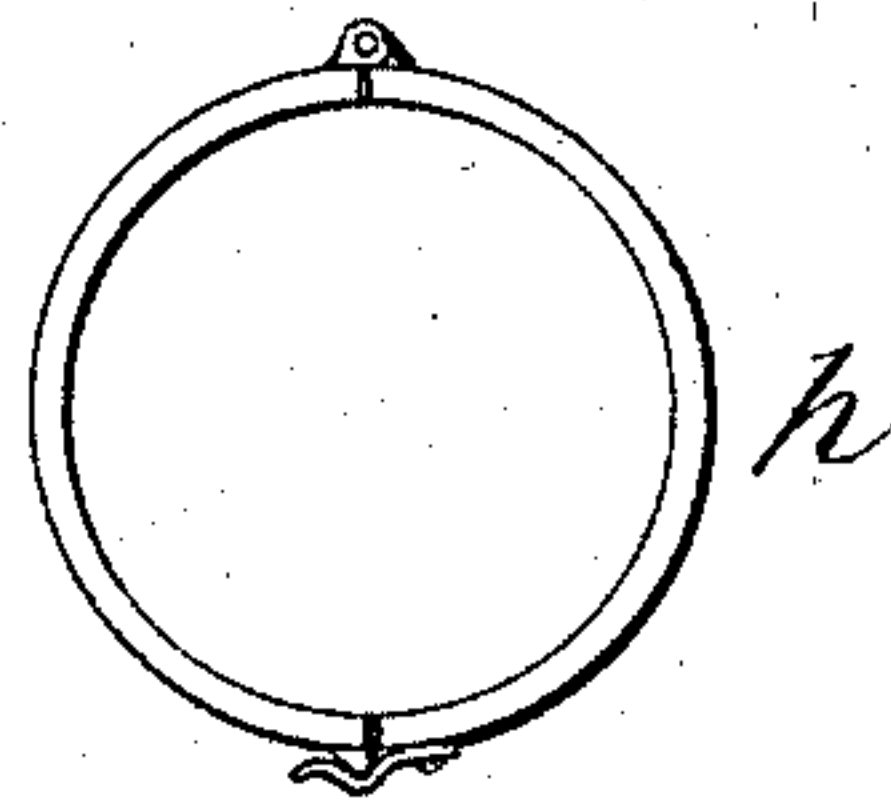


Fig. 3.



Witnesses:
Edw. T. Nugall Jr.
Atty. Bay ard

Inventor:
Richard Violet,
per Fred C. Vasker,
Atty.

UNITED STATES PATENT OFFICE.

RICHARD VIOLET, OF BERLIN, GERMANY, ASSIGNOR TO LOUIS H. HALL, OF PHILADELPHIA, PENNSYLVANIA.

BURNER FOR INCANDESCENT GAS-LIGHTS.

SPECIFICATION forming part of Letters Patent No. 575,183, dated January 12, 1897.

Application filed January 2, 1896. Serial No. 574,137. (No model.) Patented in Belgium February 16, 1895, No. 114,140, and in Luxemburg February 20, 1895, No. 2,241.

To all whom it may concern:

Be it known that I, RICHARD VIOLET, a subject of the King of Prussia, German Emperor, residing at Berlin, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Burners for Incandescent Gas-Lights, (for which I have received foreign patents as follows, to wit: Luxemburg, No. 2,241, dated February 20, 1895, and Belgium, No. 114,140, dated February 16, 1895,) of which the following is a specification.

My invention relates to improvements in burners for incandescent gas-lights; and the object of said improvements is to obtain not only the highest effect of illuminating power, but also the greatest economy of gas.

In Bunsen burners generally employed for producing incandescent gas-light an important faculty hitherto has been greatly neglected—that of producing the greatest possible heat—and in consequence neither the lighting power nor the economy of gas obtained have reached that degree to which they are capable of being developed.

The object of my invention accordingly is, in the first place, to create in a burner of the class described as high degrees of heat as may be practically attained, and for this purpose it is before all necessary to operate a perfect and most intimate mixture of the rising current of atmospheric air with the gas to be consumed, whereby a complete combustion of all combustible matter contained in the gas is obtained, and, further, it is of importance to accelerate the upward current of the mixture of gas and atmospheric air within the burner, whereby the flame will burn with a higher pressure than actually exists in the gas-feed pipe.

To obtain the said objects in view, I have constructed an improved burner which is hereinafter more fully described with reference to the accompanying drawings, in which—

Figure 1 illustrates in vertical section a burner embodying the improvements of my invention. Fig. 2 is a detail plan view of the mixing-fan. Fig. 3 is a detail edge view of the hinged ring.

On a Bunsen burner *a*, of usual and well-known construction, a tube *b* is mounted, which tube may equally serve to support a lamp-chimney fitting into the gallery carried by said tube *b*. Within the enlarged upper end of said tube *b* a box or casing *c* is secured by screwing the same with its threaded outside into a tapped portion of the said tube *b*, or the tube *b* may be threaded outside and the casing *c* screwed over it. The bottom of the said box or casing *c* is perforated, as clearly shown, and its top is covered by a sieve *f*. In the center of the said box *c* the pin *g* is held by or secured through the bottom and top of the box. To the lower portion of said pin *g*, inside the box or casing *c*, one, two, or more fan-wheels *d d'* are mounted and adjusted in a proper distance to each other. The working effect of the burner as described is as follows:

The gas issuing from the nozzle *l* by suction carries along the atmospheric air entering through the apertures *m*, and in passing upward the current of gas and air encounters the lower fan-wheel *d'*, whereby the current is forced to assume a rotary motion, which serves to operate a more intimate mixture of the gas and air. If another fan-wheel, *d*, is applied, as shown, the mixture of gas and air in its upward flow must pass this wheel too, the wings of which have a position opposite to those of the lower wheel *d'*. The rising current thereby is forced to take a direction opposite to that followed before, and owing to this reversed rotary motion the mixture of gas and air is made as perfect and intimate as practically possible. Additional fan-wheels may be applied, but in practice it has been found sufficient to employ one or two fan-wheels of the kind described.

When the flame has been lighted, the amount of gas and air consumed by it and the increasing heat act to accelerate the rising current, and the fan wheel or wheels begin to operate, an effect of suction, by means of which the upward speed of the current of gas and air is further increased and the pressure in the flame raised to a higher degree. Owing to this pressure and to the intimate complete mixture of the gas and air, as described, the

useful effect of the burner is raised to the highest state to be obtained.

The incandescent body *k*, preferably in the known shape of a hose, is hung to the tube *i*, carried by the pin *g*, and forked at its upper end, as shown. To prevent the said incandescent body *k* from being displaced in a lateral direction, I secure the said body by means of a ring *h*, secured to the tube *b*. The said ring *h* may be open and hinged to a lug *n* of the tube *b*, and it may be locked against accidental opening by a suitable clasp. (See Fig. 3.)

In mounting the incandescent body by the aid of the said ring *h*, I proceed as follows: Before placing the incandescent body I open the hinged ring *h* and mount the tube *i* on the pin *g*. The lower edge of the incandescent body *k*, carried by the tube *i*, approaches the sieve *f*. Then I close the said ring *h* around the lower part of the incandescent body and thereby secure the latter against changing its position in the lateral sense.

Instead of using an open hinged ring, as described, I may as well employ a closed ring, which fits over the tube *b*, holding the lower end of the incandescent body secured around the tube *b* and preventing its lateral displacement.

It will be noted that the so-called "fan" wheel or wheels constitute either singly or jointly a stationary mixing device, through which passes a current of mingled gas and air. This stationary mixing device causes the upwardly-rising current of mingled gas and air to assume a rotary motion. The fan wheel

or wheels fit closely within the box or casing, and the central pin, which traverses the box or casing, passes centrally through the fan wheel or wheels.

I claim as my invention—

1. In an incandescent gas-burner, the combination of the burner-tube, a box or casing secured thereon and having a perforated bottom and a sieve top, a pin centrally traversing said box, a stationary mixing device within the casing, consisting of a blade-provided fan carried by said pin and fitting non-rotatively within the box, a tube or rod carried on the upper end of the pin to hold the incandescent body, and a ring to secure the lower end of the incandescent body against lateral displacement, substantially as described.

2. In an incandescent gas-burner, the combination of the burner-tube, a box or casing secured thereto and having openings at top and bottom, a central pin within the box supported at top and bottom of the latter, a stationary mixing device within the box, consisting of a blade-provided fan carried by the pin, a tube or rod carried on the upper end of the pin to hold the incandescent body, and a hinged ring for securing the lower end of the incandescent body against lateral displacement, substantially as described.

RICHARD VIOLET.

Witnesses:

W. HAUPT,

LOUIS H. HALL.