(No Model.)

E. B. REQUA.

GAS BURNER.

No. 266,889. Patented Oct. 31, 1882.

Fig. 1.

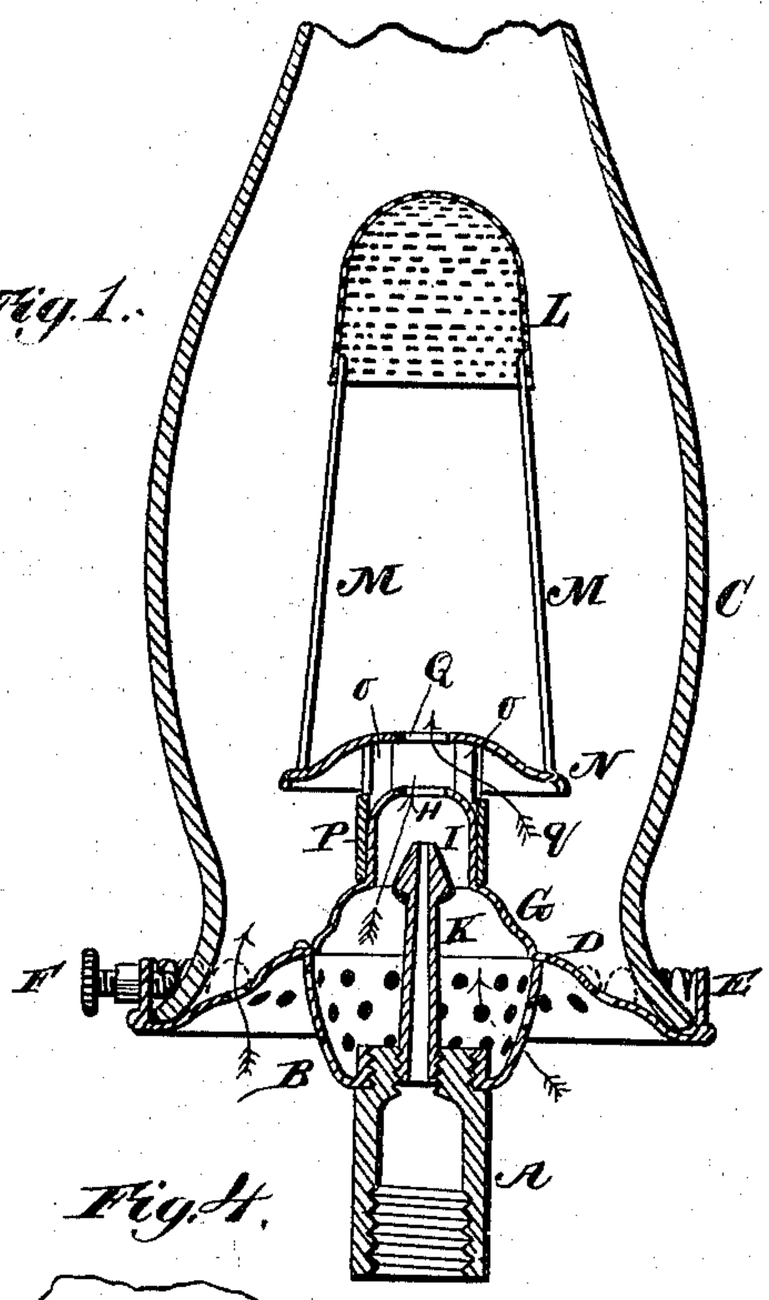


Fig. 2.

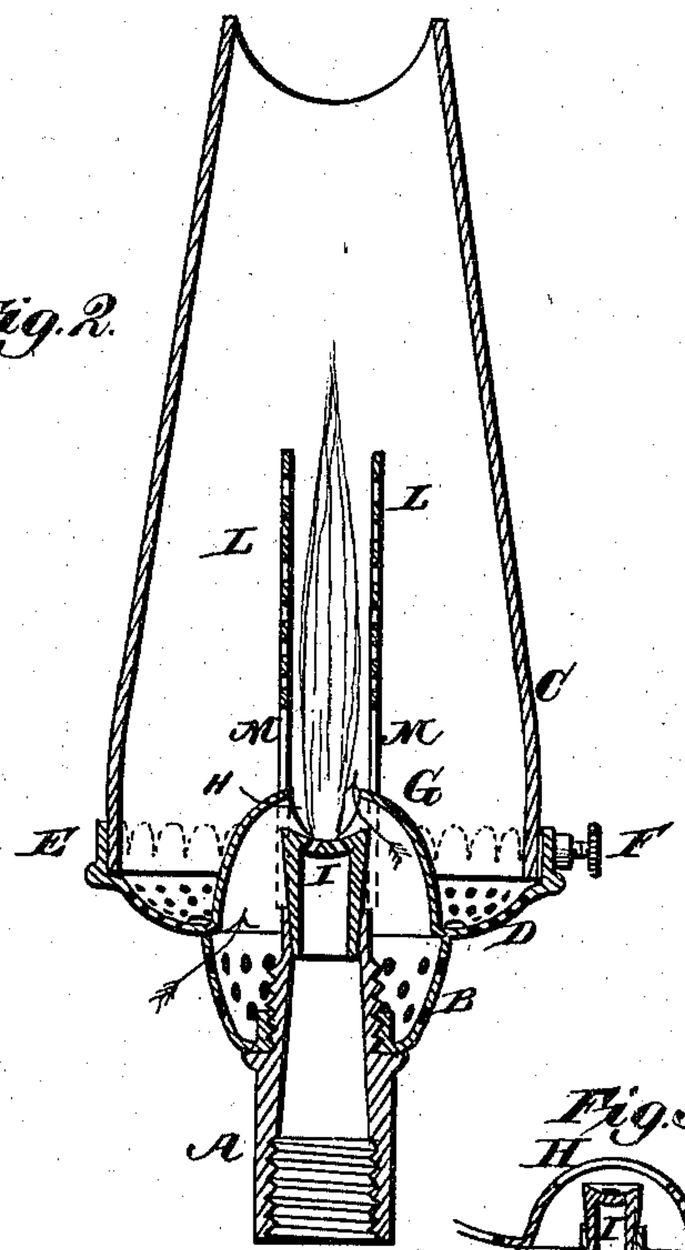


Fig. 4.

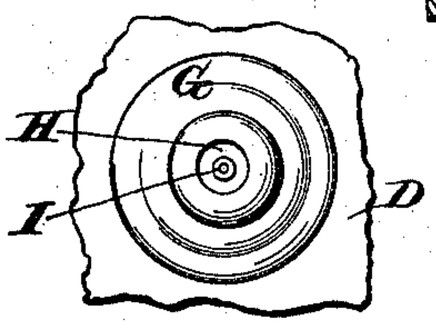


Fig. 3.

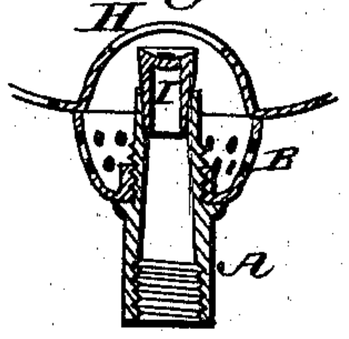


Fig. 5

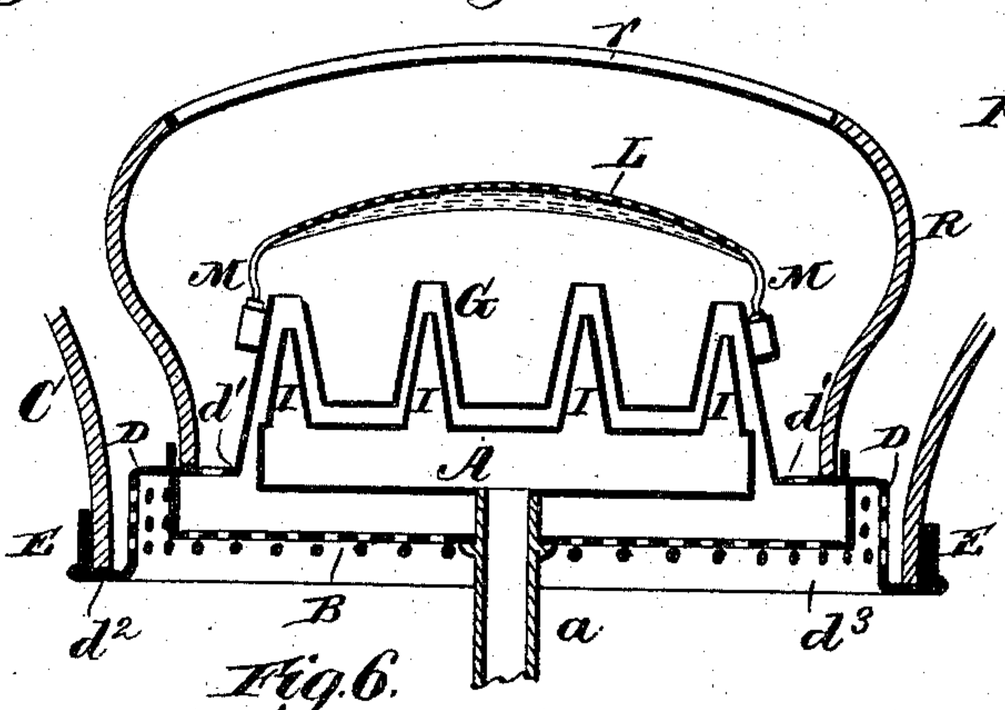


Fig. 7.

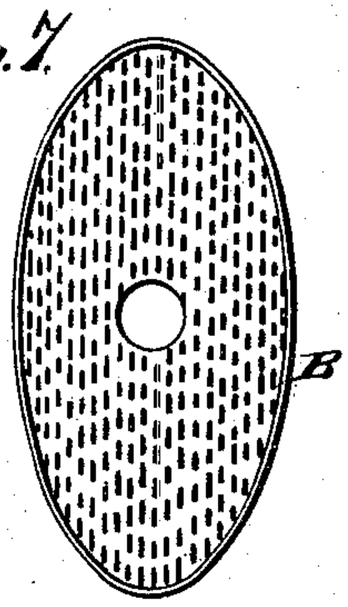
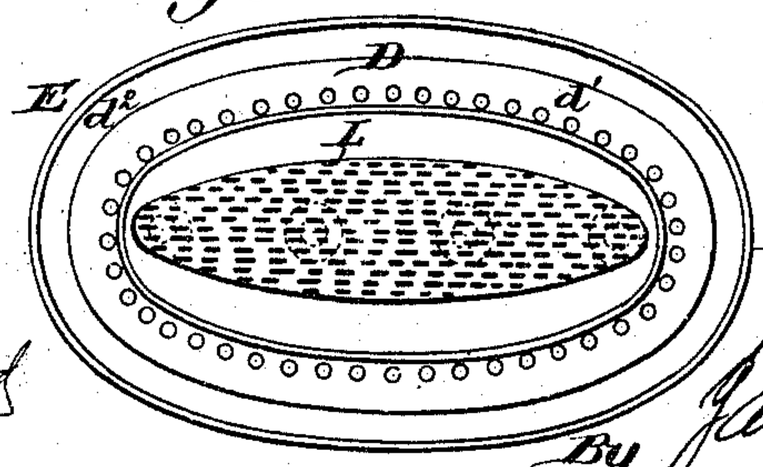


Fig. 6.



Witnesses.

Robert Everett.

J. A. Rutherford

Inventor.

Elias B. Requa.

By James L. Norris.

Atty

UNITED STATES PATENT OFFICE.

ELIAS B. REQUA, OF JERSEY CITY, NEW JERSEY.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 266,889, dated October 31, 1882.

Application filed September 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, ELIAS B. REQUA, a citizen of the United States, residing at Jersey City, Hudson county, New Jersey, have invented new and useful Improvements in Gas-Burners, of which the following is a specification.

The objects of this invention are to insure strong upwardly-induced currents of air around the top of a gas-burner and to deflect the said air-currents toward the flame from all sides, so as to perfect combustion; also, to induce strong upward currents of air around the gas-burner tip, so as to promote combustion and intensify the heat, whereby a surface of platinum presented to the flame will be rendered highly incandescent; also, to provide one or more burners with certain attachments whereby a strong draft is produced, and at the same time a steady light maintained. To such end I employ, in connection with the gas burner or burners, the attachments hereinafter described and illustrated in the annexed drawings, in which—

Figure 1 is a section taken on a vertical central plane through a gas-burner provided with my improved attachments. Fig. 2 is a like section of a modified form of construction. Fig. 3 is a detail sectional view of a portion of Fig. 2 on a reduced scale. Fig. 4 is a plan or top view of the deflector G, shown in Fig. 1. Fig. 5 is a section taken on a vertical plane through a multiple burner provided with attachments of a somewhat modified form, but involving the same principles of construction as the attachments shown in Figs. 1 and 2. Fig. 6 is a top or plan view of Fig. 5, and Fig. 7 is a plan view of the under side of the perforated jacket shown in said figure.

Referring by letter to Fig. 1 of the drawings, A indicates the base or body of the burner, which is adapted to be connected with an ordinary supply-pipe. B indicates a perforated cup-shaped jacket, which is fitted upon the upper end of the body of the burner, connection between the said two parts being preferably made by screwing the burner-body into an internally screw-threaded sleeve, which is formed at the bottom of the jacket around an opening through which the burner-body passes. The globe or chimney C rests upon a perforated rest or supporting-plate, D, which is provided at its rim with a flange, E, and with a thumb-screw, F, for the purpose of securing the chimney upon the plate. The plate is secured upon the perforated jacket, and is preferably formed in one piece with the deflector G, which serves to direct the upwardly-induced currents of air around the tip and against the base of the frame from all sides. The upper portion of this deflector is contracted and provided at its top with an opening, H, for the passage of the flame. The burner-tip I extends within the said upper contracted portion of the deflector, and has its body K, which is made somewhat longer than usual, secured in the upper end of the body of the burner. It will be observed, however, that this body K, which is below the tip proper, practically constitutes a portion of the burner-body which extends within the perforated jacket.

When the burner and its several auxiliaries are constructed and arranged as above described, it will be seen that by reason of the upward draft through the chimney and of the draft through the passage between the tip and the walls of the deflector, by reason of the rarefaction of the air within the deflector and the jacket, air will flow from all sides through the jacket, and thence pass upwardly around the tip to the opening H in the top of the deflector. The walls of the deflector will direct the air against the base of the flame, and by reason of its upper contracted form induce a strong upward current, which will increase the flame and intensify the heat. The upwardly-induced currents of air through the jacket and the passage through the deflector are indicated by arrows, an arrow being also employed to indicate the upward current of air through the globe or chimney holder, which latter being perforated will admit air within the chimney, and also allow the light to shine below the burner.

While in Fig. 2 the principles of construction are the same as in Fig. 1, the form of some of the burner attachments is slightly different—as, for example, while in Fig. 1 the plate forming the chimney-support and the deflector is concavo-convex or bell-shaped, with its irregularly-shaped concavity on the under side, in Fig. 2 the annular concavity of the chimney-supporting plate is on the upper side and the deflector G made somewhat similar to an ordinary cone-deflector. This deflector unites with

the concaved or flaring chimney-supporting plate at or about the line of connection between said plate and the perforated jacket by which the chimney support or rest and the deflector are upheld. The deflector in this instance is provided at the top with a slot or opening, H, and the burner-tip is located within the deflector, so that the walls of the latter will deflect the upwardly-induced currents of air against the base of the flame. In lieu of elongating the body of the tip, as in Fig. 1, it is made of ordinary size and the upper end of the burner-body extended up to a point which is above the perforated portion of the jacket. In either case, however, the result is the same, since in both instances the burner-tip, which is inclosed within a chamber formed by the perforated jacket and the superposed deflector, is located above the perforated walls of the jacket and below the orifice at the top of the deflector.

In Fig. 1, L indicates an inverted basket or hollow frame of platinum, supported within the globe or chimney and over the burner-tip by means of rods M, which are secured at their lower ends to a concavo-convex plate, N. This plate is held in place over the deflector G by vertical supports O, connected with a collar, P, which is fitted around the upper contracted portion of said deflector. This plate N is provided with a central aperture, Q, for the passage of the flame which issues from the aperture in the top of the deflector G, and it serves as an upper auxiliary deflector for inducing and directing against the flame a current from the surrounding air within the chimney, as indicated by the arrow *q*. The flame will heat the platinum basket or frame, which, upon becoming incandescent, will emit a brilliant light, and thus add greatly to the light from the flame.

In the construction shown in Fig. 2 two pair of rods or supports, M, will be respectively located on opposite sides of the deflector. These rods will be connected above the deflector by carbon wires or cross-bars *m*, (shown in cross-section,) thereby forming the carbon frames L in planes parallel with the sides of the flame.

Referring now to Figs. 5, 6, and 7, which illustrate a multiple burner, such as shown and described in Letters Patent granted to me on the 29th day of August, 1882, and therein expressly stated as forming no part of said patent, but reserved for a subsequent application, A indicates the base or body of the gas-burner, which is provided with a single lower pipe, *a*, the latter being adapted in any suitable way to connect with the supply-pipe, and being considered as a part of the burner-body. The burner-tips I are either formed with or secured to said burner base or body, and each tip is surrounded by a deflector, G, which is in the form of a truncated cone. The perforated plate D, for supporting the chimney C, is also adapted to support a glass flame-protector, R, having a slot, *r*, parallel with the line of deflectors. The flame-protector rests upon an annular seat, *d'*, formed by a horizontal flange of plate, D, while the chimney C rests upon a lower annular lip, d^2, between an annular vertical portion, d^3, of the plate and its marginal flange E. The plate D is perforated between the deflectors and the flame-protector R, and the vertical portion d^3 of said plate is also perforated, as shown. The perforated jacket B rests upon and is supported by part *a* of the burner-body, and is connected with plate D, so as to support both said plate and the deflectors. The platinum in this instance is preferably made into the form of an oval-shaped plate, L, concaved in cross-section and provided with perforations or slits. This strip has at its ends the supports M, which can be fixed at their lower ends in any suitable insulated blocks fitted in tubes or sockets secured to the end deflectors of the series. The upwardly-induced currents of air in the last-described construction pass through the perforated jacket, and thence up and around the tops to the flames, the deflectors performing the same service as that described in connection with the other figures. Air will also enter the space between the chimney and the flame-protector through the perforated portion d^3 of plate D, while air will also pass up into the space between the deflectors and the flame-protectors through the perforations in the flange *d'* of the said plate.

Having thus described my invention, what I claim is—

1. The combination, substantially as herein-before described, of the perforated cup-shaped jacket B, the conical deflector G, secured over the same, the perforated base-plate D, forming a chimney-rest, and a gas-burner the body of which projects into the chamber formed by the jacket and the deflector and is provided with a gas-burning tip terminating at a point beneath the top portion of the deflector, whereby the inflowing currents of air are directed onto the base of the gas-flame on all sides beneath the top portion of the deflector, substantially as described.

2. The combination, substantially as herein-before described, of the perforated cup-shaped jacket B, the conical deflector secured over the same, the perforated base-plate forming a chimney-rest, a gas-burner the body of which projects into the chamber formed by the jacket and the deflector, and is provided with a gas-burning tip terminating beneath the top-portion of the deflector, and a platinum structure supported above the deflector in the plane of the flame issuing through the slot therein, as set forth.

3. The combination, with one or more gas-burner tips inclosed by deflectors, of a perforated strip of platinum supported above the deflectors by means of intermediate connections, the body of said burner being surrounded by a perforated jacket which is fitted to its body portion, whereby air entering the jacket will pass upwardly through the deflectors so

as to feed the flames and thereby develop greater heat for rendering the platinum incandescent, substantially as described.

4. The combination, with the body of a gas-burner provided with one or more tips, of a combined chimney-supporting plate and deflectors supported by a perforated jacket which is fitted to the burner-body and a platinum structure located above the deflectors, the burner-tips being inclosed within the deflectors above the perforated jacket, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELIAS B. REQUA.

JAMES L. NORRIS,
JAMES A. RUTHERFORD.