(No Model.) 2 Sheets—Sheet 1.

E. B. REQUA.

GAS BURNER.

No. 275,708. Patented Apr. 10, 1883.

Fig 1.

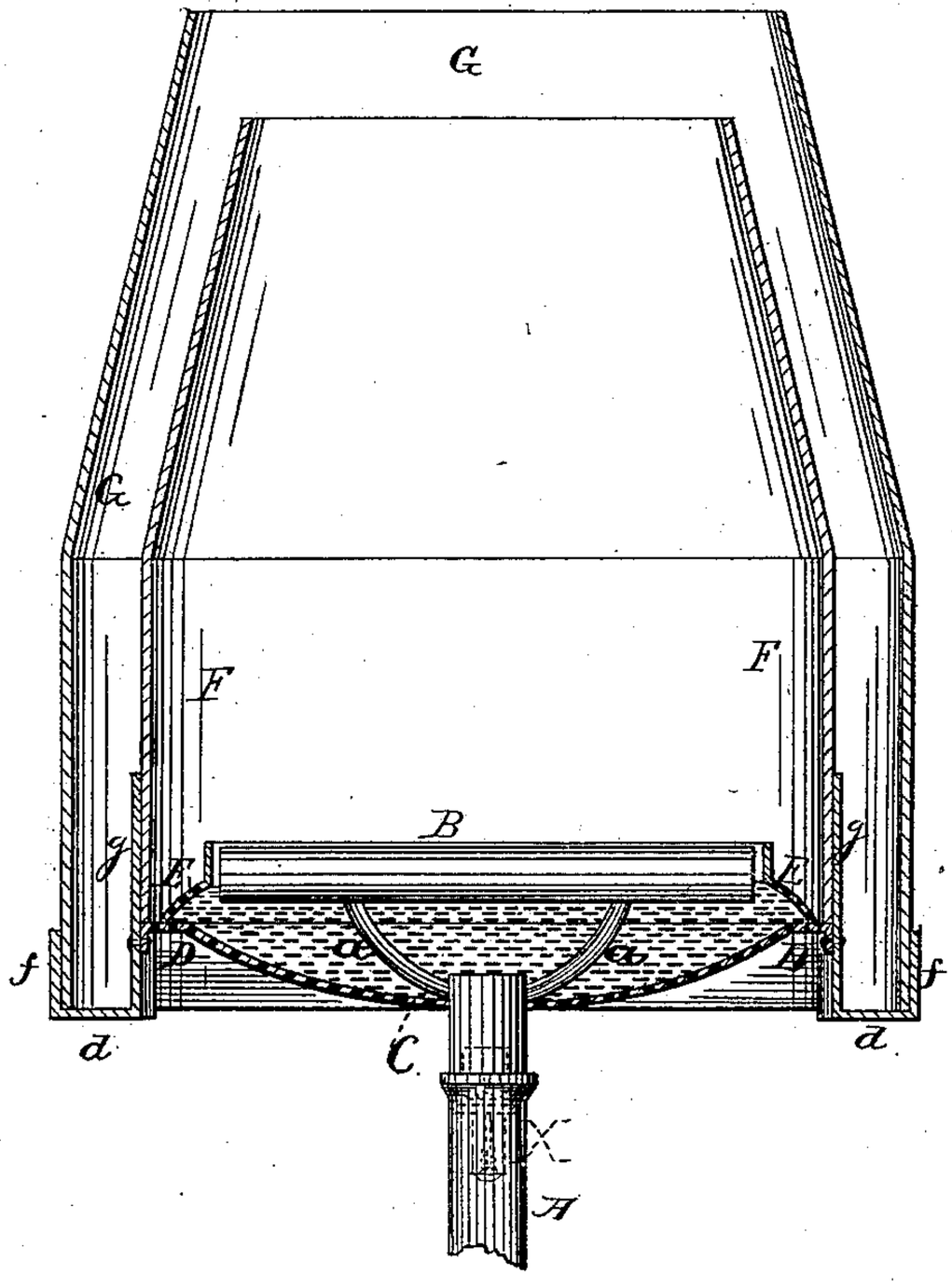
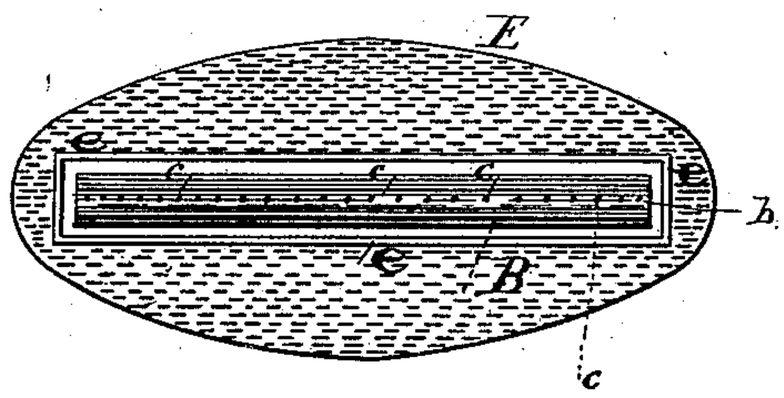
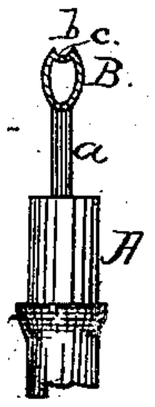


Fig 2.



Witnesses;
Chas. C. Gill
Herman Gustow

Fig 3.



Inventor;
Elias B. Requa.
By his Atty.
Rowland Cox

(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

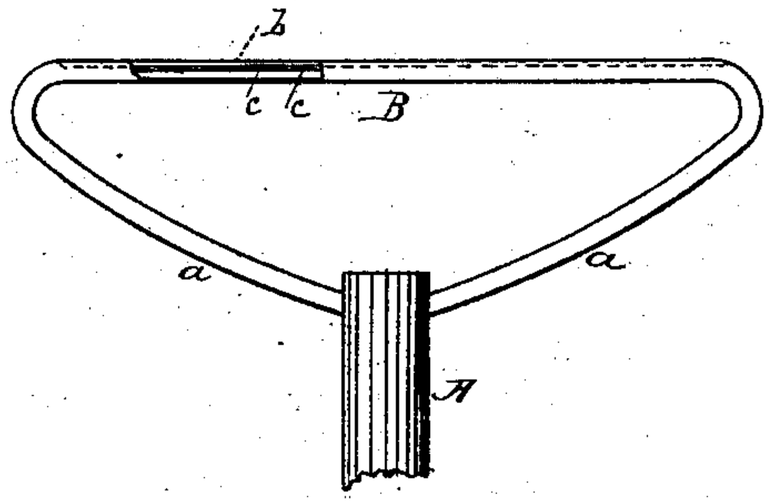


Fig. 5.

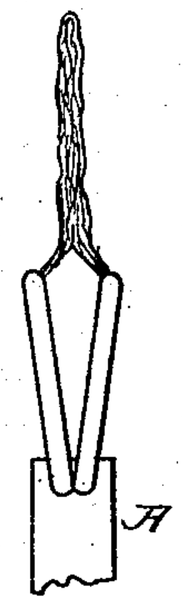


Fig. 6.

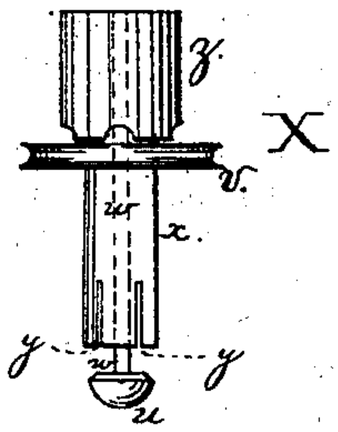
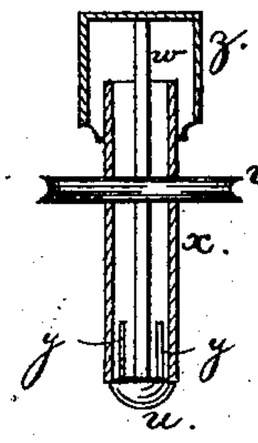


Fig. 7.



Witnesses;
Chas. B. Gill
Herman Gustow

Inventor;
Elias B. Requa
By his Atty.
Rowland Cox

UNITED STATES PATENT OFFICE.

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

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 275,708, dated April 10, 1883.

Application filed November 27, 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, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to an improvement in gas-burners; and its object is to produce a strong, regular, and brilliant light by means which will be hereinafter specifically described.

Referring to the accompanying drawings, Figure 1 is a central vertical longitudinal section of the invention. Fig. 2 is a detached top view of the upper jacket and the burner. Fig. 3 is a detached sectional view of the burner. Fig. 4 is a detached side view of a burner and branch pipes made from a single tube. Fig. 5 is an end view of a burner made from two of such tubes. Fig. 6 is a side view of the gas-regulator open, and Fig. 7 is a central vertical section of same closed.

The invention will be first described by reference to the accompanying drawings, and the advantages resulting from the different parts thereof will be specifically pointed out.

A denotes the pipe leading to the gas-supply, and from the upper end of this pipe two branches, *a a*, diverge upward, and have secured upon their upper extremities the elongated burner B. The burner B has a groove, *b*, extending the whole length of its upper edge, and centrally within the groove are formed the outlets *c* for the gas. The outlets *c* are arranged with suitable relation to each other to permit the flames from all of the outlets to combine, whereby a broad flat single flame is produced. The effect of the groove *b* is to draw the flame outward to the edges thereof, so as to thicken the light, and to hold it when the gas is ignited to a uniform size, and to prevent all flickering or irregularities therein. The thickness of the light may be regulated at will, according to the use to which it is to be applied, by the width of the groove *b*. The flame will in all cases follow the line of the groove up to its extreme upper edges, where the sides of the burner B converge with the groove.

Below the burner B, and arranged to inclose the branch pipes *a a*, is the perforated metallic shell C, upon the upper edges of which the metal is formed into an encircling base-plate, D, to the edges of which, at suitable points—say four in number—are arranged the double chimney-brackets *d*, and upon which, arranged to inclose the burner B, is a perforated jacket, E, having a central opening corresponding in outline with and being a little larger than the burner B.

The perforated portion of the jacket E terminates below the upper edge of the burner B, and has extending around this perforated portion the vertical flange *e*, which is not perforated, and which extends upward to a point about on a horizontal plane with the upper edge of said burner, being separated therefrom a sufficient distance to form an air-space entirely around the same, as indicated.

The perforated shell C is preferably made concave, and the jacket E convex, whereby is formed an air-chamber around and about the branch pipes *a* and the burner B.

The spring-fingers *d* are secured to the edges of the base D by small rivets or other convenient means, and consist of the vertical portions *f g* and connecting length of the material composing them.

Upon the base D, and closely within the portions *g* of the double brackets *d*, is placed the inner chimney or globe F, which is held in place by the said portions *g*.

Between the portions *g* and *f* of the double brackets *d* is placed the additional chimney or globe, G, which will be similar in outline to the chimney F, and will be separated a suitable distance therefrom to permit the passage of air in a free full volume between the same. The chimney F will be of transparent material, and the chimney G will be preferably translucent, and will extend a short distance above the chimney F. The form of the chimneys F G, I regard of particular value as assisting in the consummation of the objects of the invention. The lower portions of said chimneys are vertical, and from said vertical portions the sides and ends thereof converge upward at an angle, as illustrated in Fig. 1 of the drawings.

It will not be necessary in all cases to em-

ploy both chimneys F G; but it is thought advisable in cases where a very powerful light is to be produced to make use of the outer translucent chimney, G, for the purpose of mellowing the intensity of the flame, the result being that a mild, white, pervading light is thrown throughout the room.

Other means may be substituted for the flat burner B and branch pipes *a a* for accomplishing the purposes of the invention, and in Figs. 4 and 5, I illustrate two modified forms of burners, which may be substituted for the burner B, if desired, without materially affecting the result sought to be secured.

The modification illustrated in Fig. 4 consists in forming the horizontal portion and the branches of a single tube, which will be bent into form and have its two ends connected with the gas-pipe A. This device is a very cheap and simple burner, and will contain the outlets for the gas on its upper edge, and will preferably have a small groove similar to that described concerning the burner shown in Fig. 1.

In Fig. 5 I illustrate a second modification, in which the burner consists of two bent tubes similar to that shown in the first modification described, the said bent tubes being bent at an angle to each other, and containing in their facing sides the outlet-apertures for the gas. In this form of burner, when the gas has been ignited the flames will approach from each separate bent tube and combine to produce one strong bright flame.

In the employment of the burner hereinbefore described the ignition of the gas produces a broad flat flame, as hereinbefore described, which is accelerated and sustained in a brilliant and effective form by the passage of the air through the lower jacket, C, and around the branch pipes *a* and the sides of the burner B, and also by the passage of the air upward between the chimneys F G and into the upper end of the inner chimney, F, whereby a perfect combustion is secured. The air passing through the lower jacket, C, and upper jacket, E, effectually prevents the overheating of the branches *a a*, and also the lower portions of the burner B, and the passage of the air between the chimneys F G preserves both chimneys in a moderate temperature, and the air flowing over the inner chimney, F, promotes combustion.

It will be noted that the branch pipes *a a* are smaller in diameter than the flat burner B, whereby when the gas escapes into the burner it suddenly expands in near relation to the points of ignition.

In order to control the flow of gas into the burner B and to secure an even supply therein whether the pressure be great or small, I place in the supply-pipe A a regulator, X, as indicated in dotted lines in Fig. 1 and in full lines on an enlarged scale in Figs. 6 and 7. The regulator or valve X consists of a tube, *x*, having slots *y* at its lower end, and surmounted by a cap, *z*, centrally within which is attached a stem, *w*, which depends from the cap *z* and sustains the button *u*. Encircling the body of the tube *x* is a wheel or circular plate, *v*, having a groove or thread cut upon its periphery which will mesh with the thread in the end of the pipe A, and be thereby sustained in position.

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

1. A burner for gas, consisting of a tube or hollow plate provided on its upper edge with a groove, in which a series of apertures are formed for the outlet of gas, the apertures being arranged in line and with such relation to each other as to produce a flat flame of a width controlled by the width of the groove, substantially as set forth.

2. A gas-burner consisting of the part B, having on its upper edge the groove *b* and series of outlets, and connected with a gas-supply by the branches *a a*, which are of lesser diameter than the part B, whereby the gas is permitted to expand at the point of ignition, substantially as set forth.

3. The gas-burner hereinbefore described, consisting of the perforated jackets C and E and the deflectors or flanges *e*, inclosing the flat burner, substantially as and for the purposes set forth.

4. The gas-burner hereinbefore described, consisting of the perforated jackets C and E and the deflectors *e*, inclosing the flat burner, the upper portions of the jacket C having a base upon which the chimney is placed and to which chimney supports are secured, substantially as set forth.

5. The combination, with the perforated base, of the jacket E, the deflectors or flanges *e*, and the flat burner, substantially as set forth.

6. The combination of the chimneys F G, perforated base, the jacket E, deflector *e*, and flat burner B, substantially as set forth.

7. A burner for producing a flat flame, consisting of the part B, having a series of outlets on its upper edge and connected with a gas-supply, the perforated base C, and perforated jacket E, the perforated portions forming an air-chamber around the burner, substantially as set forth.

8. The gas regulator or valve X, in combination with a gas-burner, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ELIAS B. REQUA.

Witnesses:
CHAS. C. GILL,
HERMAN GUSTOW.