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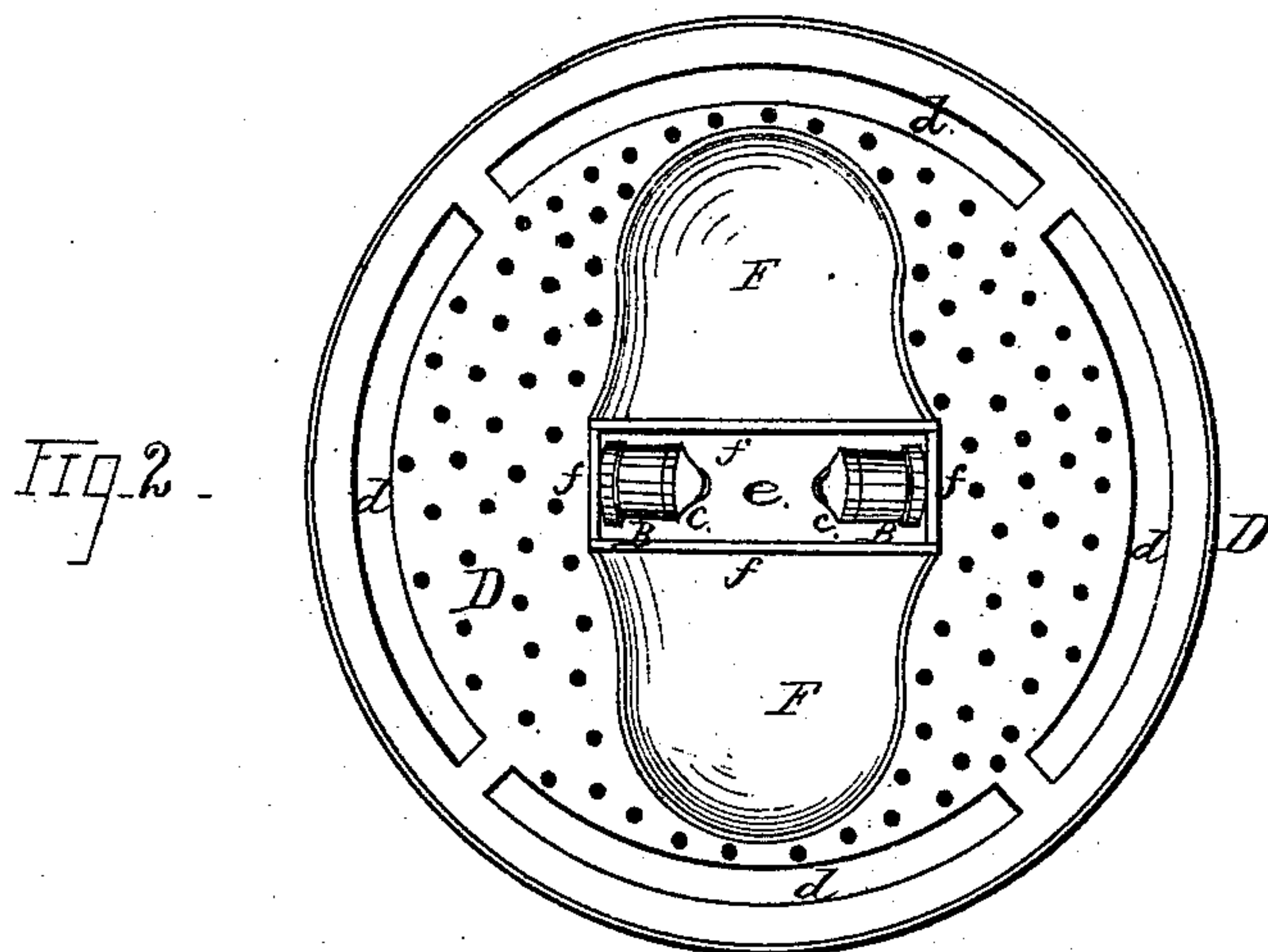
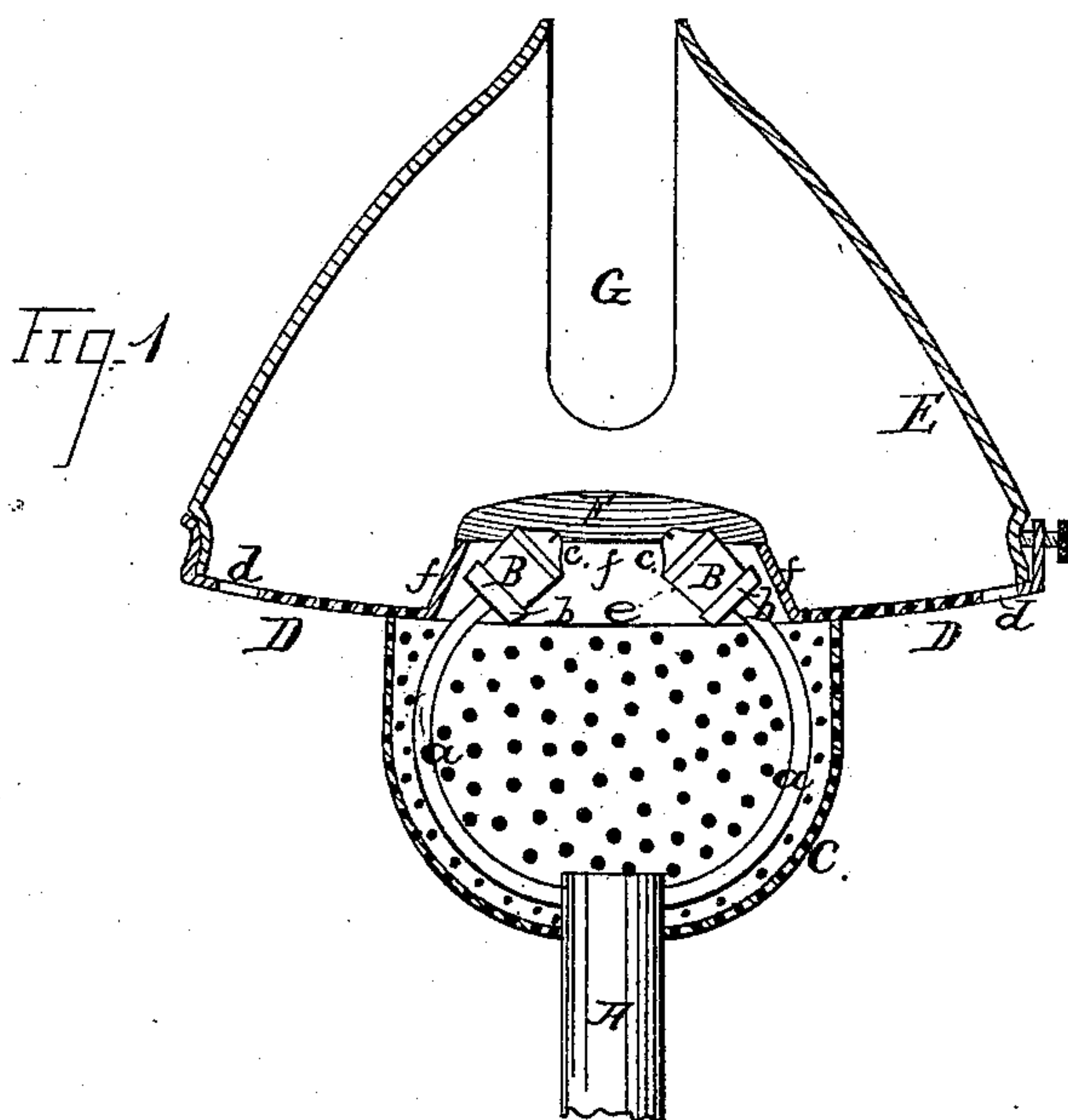
2 Sheets—Sheet 1.

E. B. REQUA.

GAS BURNER.

No. 275,709.

Patented Apr. 10, 1883.



Witnesses;
Chas. C. Gill
Herman Gustow

Inventor;
Elias B. Requa,
By his Attorney,
Rowland Cox

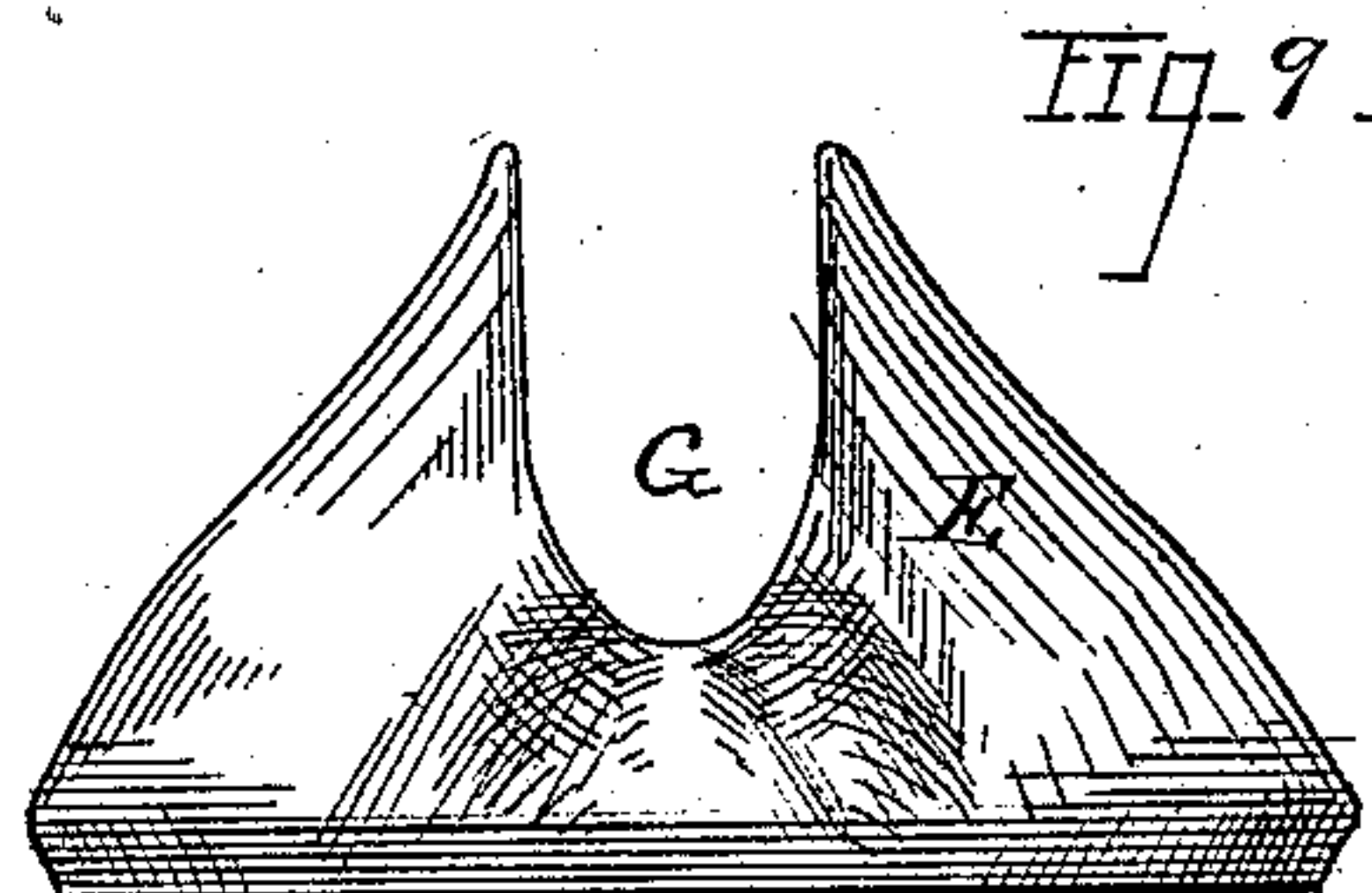
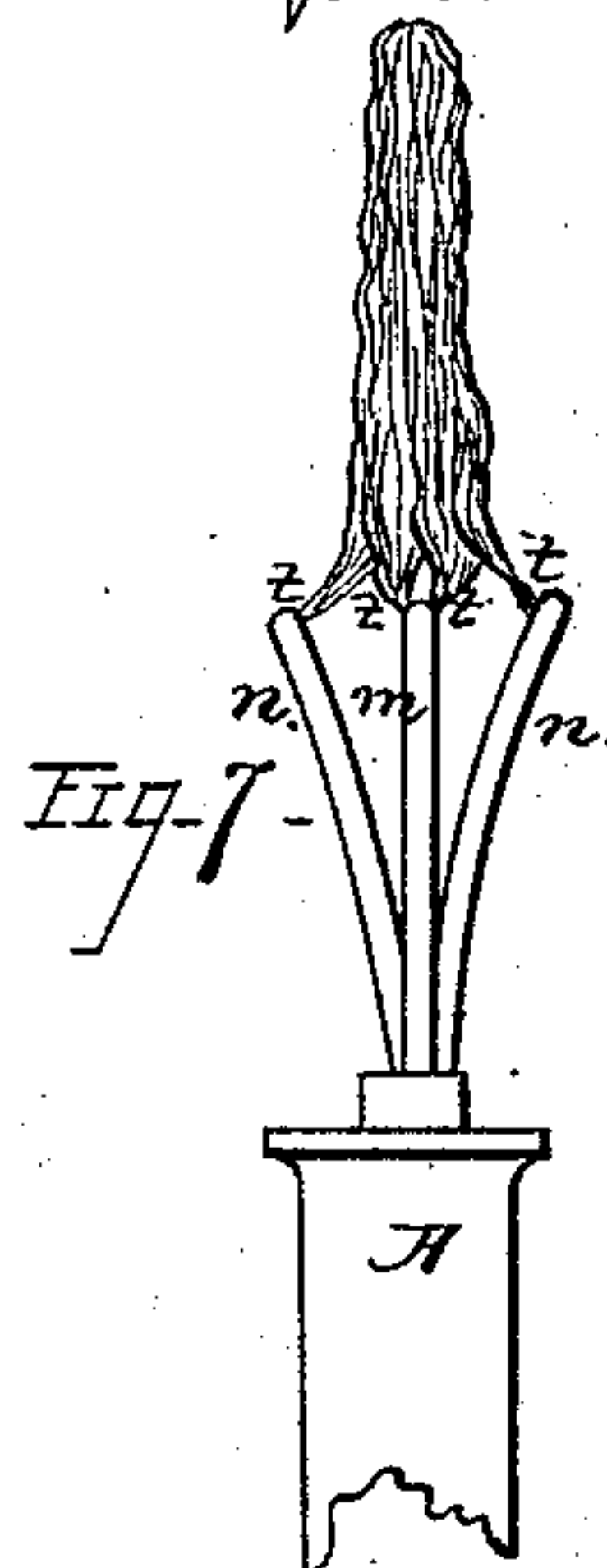
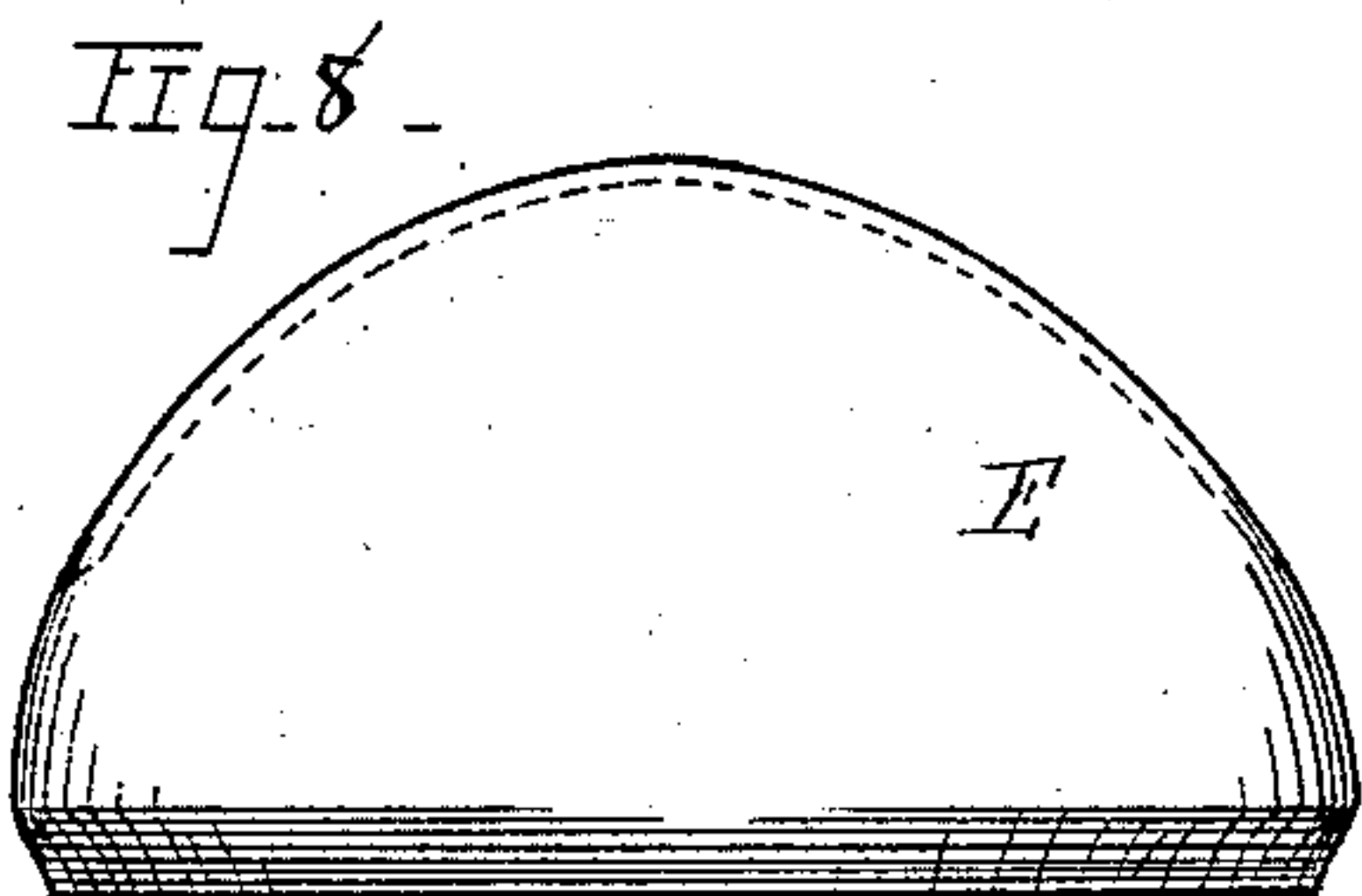
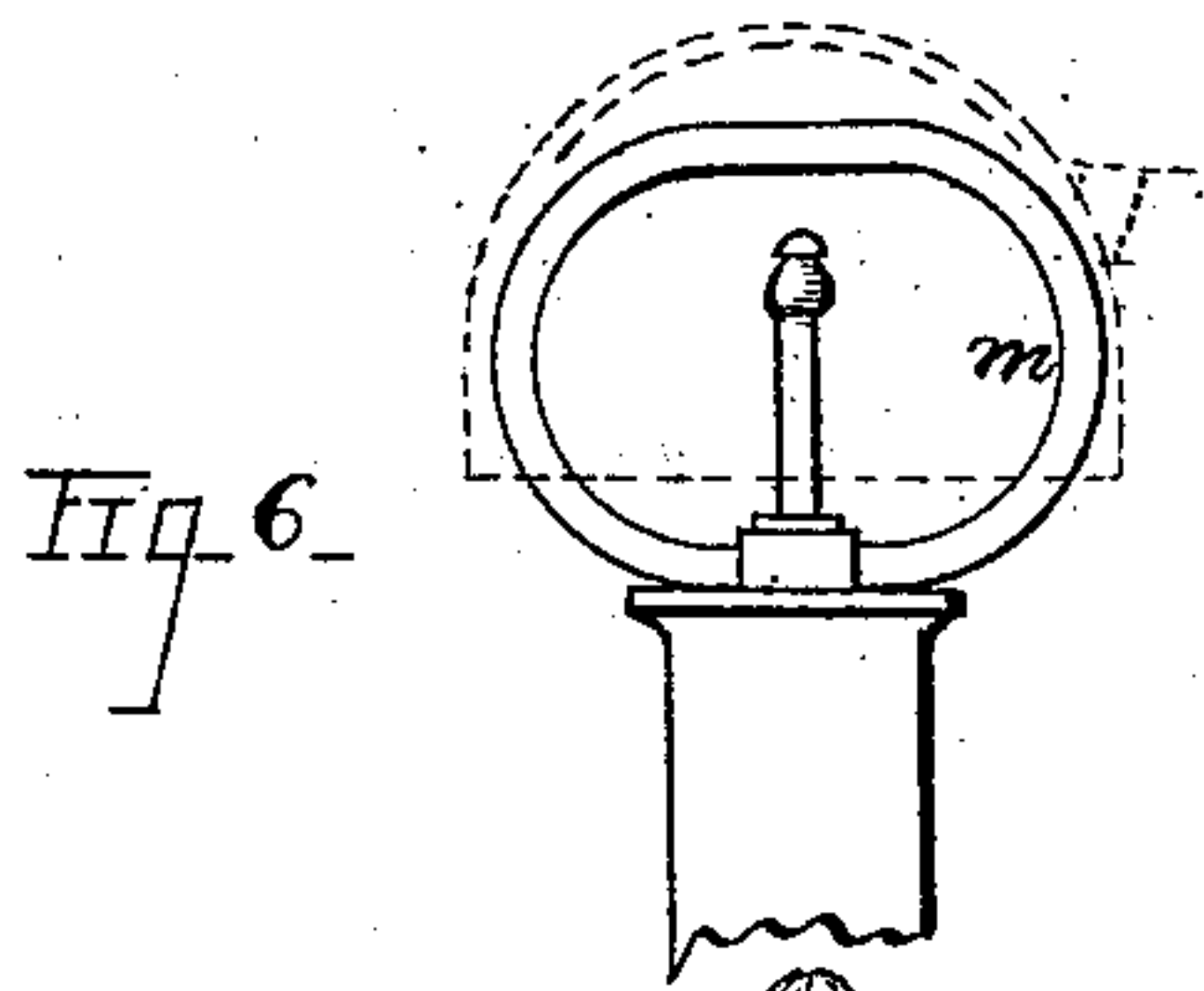
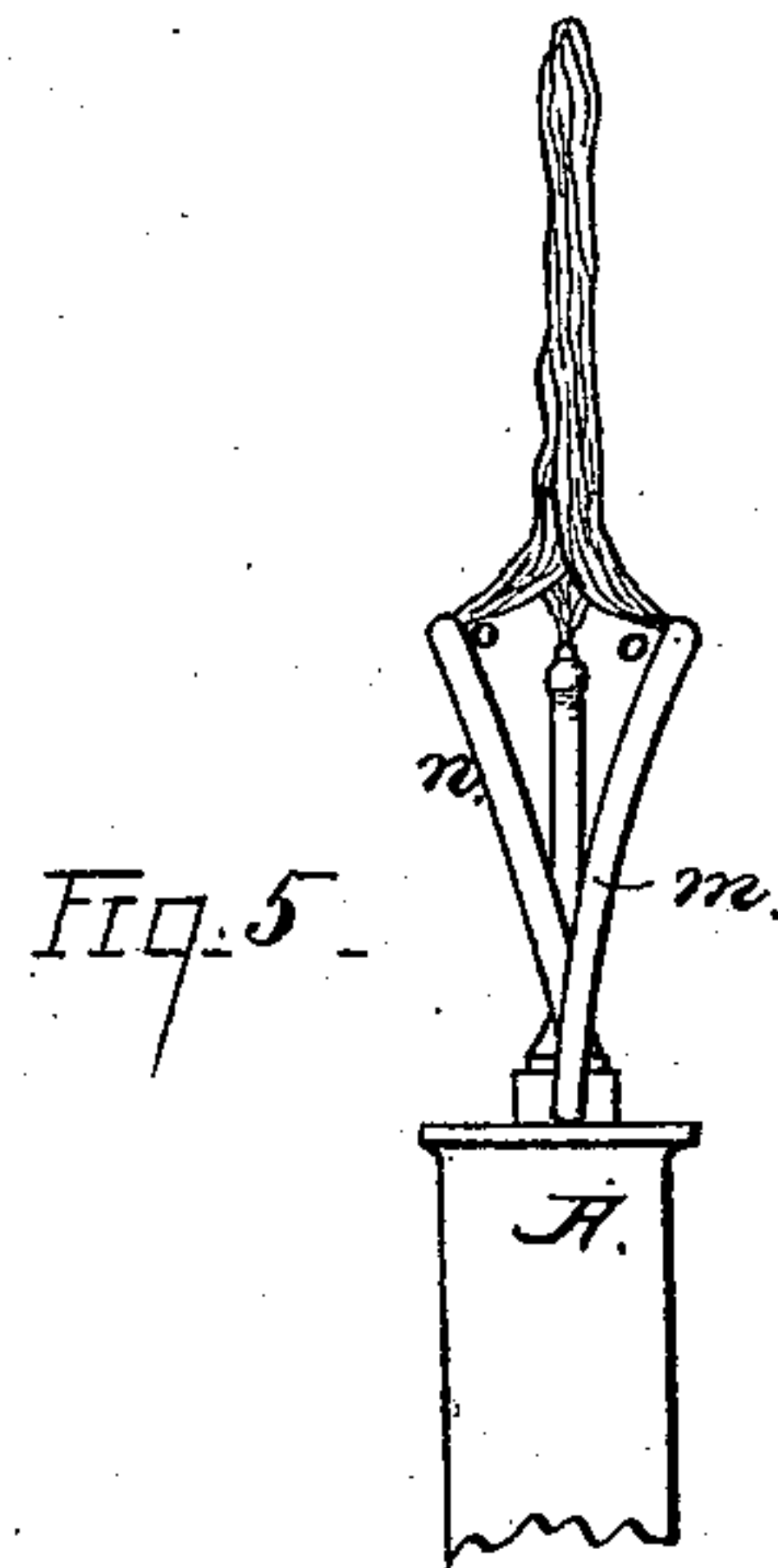
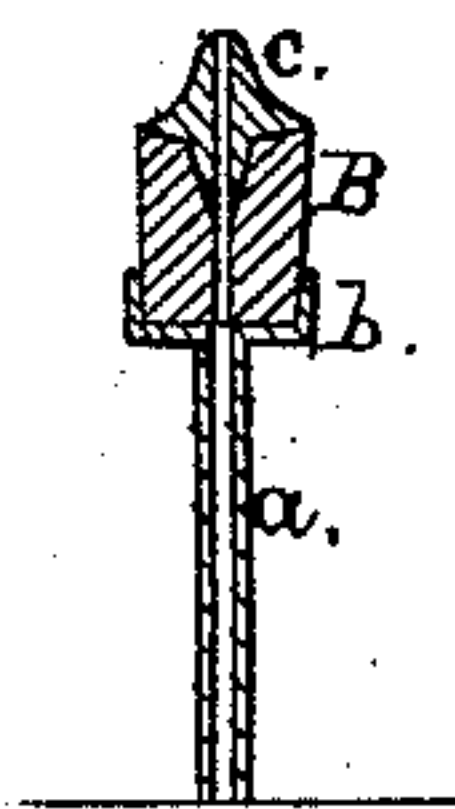
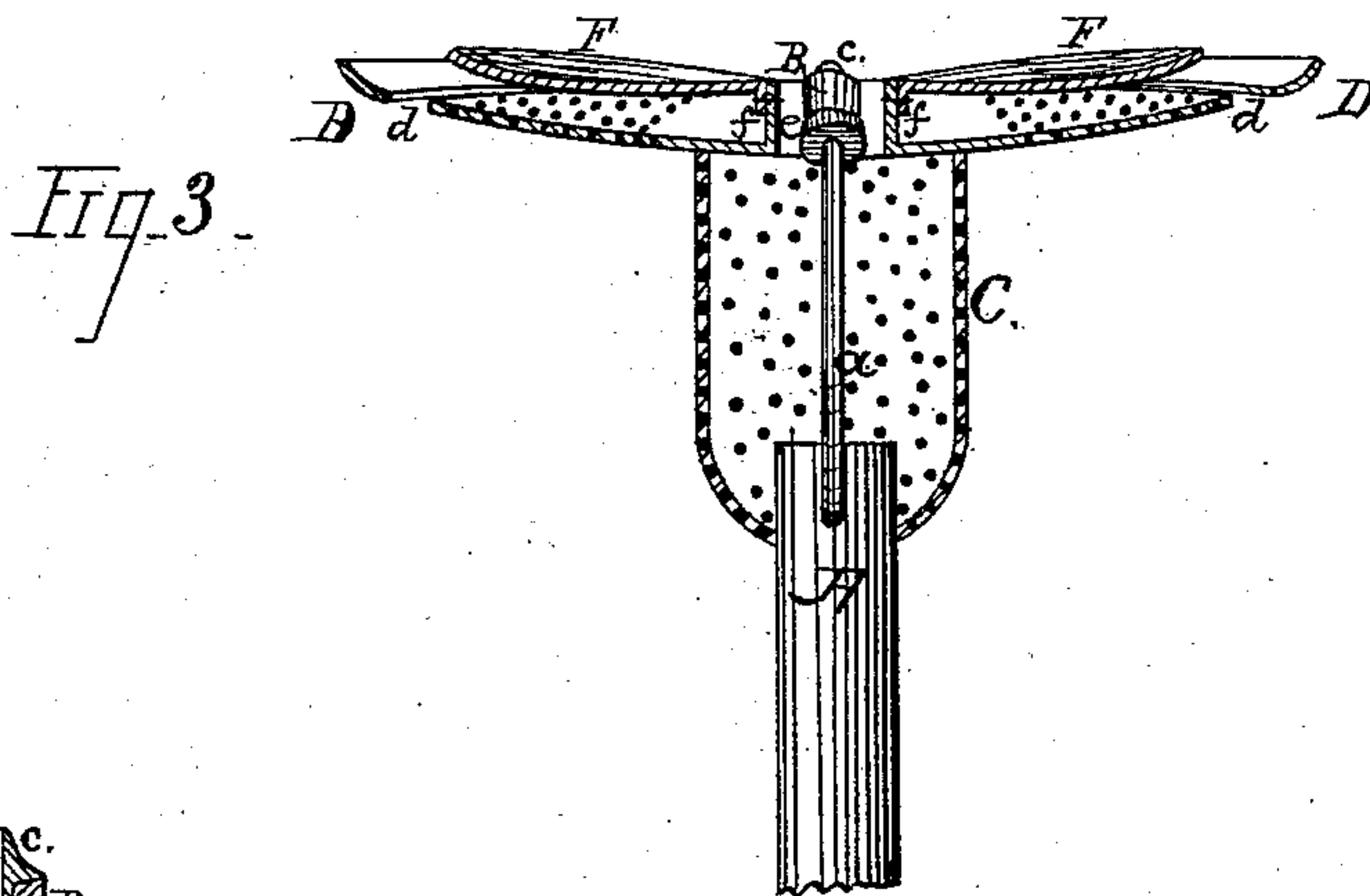
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2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

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

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 275,709, 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 it consists in certain novel devices and arrangements thereof, whereby a light of a very desirable character is produced.

The specific objects accomplished by the various parts of the burner will be fully described hereinafter, and be specifically pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a central vertical longitudinal section of the burner on line *x x* of Fig. 2, which is a top view thereof with the globe removed. Fig. 3 is a sectional view through the line *z z* of Fig. 2. Fig. 4 is a detached view of the burner-tip. Fig. 5 is an end view of a flat burner employing three outlets. Fig. 6 is a side view of same having a hood or cone, which is indicated in dotted lines. Fig. 7 is an end view of a burner in which three elongated burners are combined to produce one flame. Fig. 8 is a side view of the deflector, and Fig. 9 is an end view of same.

A denotes the gas-supply, from which curve upward toward each other the branch pipes *a*, carrying upon their upper ends the sockets *b*, in which are secured the lava sections B, having in their upper extremities the metallic tips *c*, which tips are provided with the usual outlet for gas. The branches *a a* will be bent with such relation to each other that the burner-tips, when the gas is ignited, will produce one broad flat flame. By the use of the lava sections B, with the metallic tips *c*, I am able to secure in the same burner all of the advantages of the iron tip, and at the same time prevent the heat therefrom from passing downward and heating the branches *a a*. The lava section is a perfect non-conductor of heat, and is a very useful, effectual, and economical in-

strumentality for accomplishing the result desired.

In Fig. 4 I illustrate a detached sectional view of the burner, composed of the metallic tip, lava section, and supply-pipe, and the manner of securing these parts together.

Some modifications as to the details of constructing the metallic tip and lava section, and of securing them together, will suggest themselves to those skilled in the art, and which need not be specifically mentioned.

When employed in the burner the branch pipes *a a* will be inclosed by the perforated jacket C, upon the upper end of which jacket is the base-plate D, which extends outward from the jacket a proper distance and supports the globe E. The base-plate D is perforated on those portions immediately encircling the ends and side of the central opening through which the burners project, and beyond this line of perforations the base-plate is cut away, forming the elongated slots *d*, arranged adjacent to the periphery of the base-plate and beyond the point of its contact with the jacket C. That part of the metal which occupied the central slot, *e*, through which the burners project, as aforesaid, is bent upward to form the flanges *f*, which encompass said slot and form deflectors at each end thereof, the side flanges forming deflectors and supports for the extensions or flame-spreaders F. The extensions F are indicated in Figs. 2 and 3, and correspond in size and proportions with each other. They are preferably slightly concave, and secured to the flanges *f* by riveting. There is a space left between the flanges *f* and the burners, through which a current of air may pass, as hereinafter described.

The globe E is of particular importance, and by its use upon a gas-burner very desirable results may be secured. Its form is illustrated in Figs. 1, 8, and 9. The globe is preferably circular at its base, and its two opposite sides converge upward on slight curves toward the opening G, which extends from one end of the globe to the other, its point of commencement and termination being slightly elevated from the base-plate D. The opening G will be of sufficient width to permit the

flame to extend through it. The upper portions of the globe have the appearance of a flattened structure rising from a circular base, and its form and peculiar characteristics will
5 be understood by reference to Figs. 8 and 9.

In Figs. 5, 6, and 7 I illustrate a few modifications of the invention, which consist principally in the arrangement of the tube *m*, curving from the gas-supply, and provided with
10 one or more branches, *n*. Where the tube *m* is employed in connection with one branch *n*, the outlets for the gas will be at the points *o* on their two facing sides, and where the tube *m* is connected with the two branches
15 *n n* the outlets for the gas will be at the point *t* on each side of the pipe *m* and on the inner sides of the tubes *n*, whereby when the gas is ignited a single strong flat flame will be produced.

In the modification illustrated in Fig. 5 I provide an independent tube upon the upper end of the gas-supply, which tube passes upward below and on a plane between the pipe
20 *m* and its branch, and terminates below the upper edge thereof. The employment of the tubes *m* with one or more branches, *n*, will produce a broad and effectual flat flame, whether used alone or in connection with a hood, *T*,
25 or with a globe of transparent material and a perforated or slotted base.

When in use the currents of gas issuing from the burners *c c* will combine, and when ignited will produce a flat flame, the greatest length of which will be at right angles to the
35 vertical plane of and centrally between the branch pipes *a a*. At the same time the current of air will be induced upward through the perforated jacket *C*, perforated base *D*, and through the space formed between the
40 flanges *f* and the burners, the effect of which is, in its entirety, to promote a perfect combustion and to draw downward the ends of the flame close to the extensions or flame-spreaders *F F*, so as to increase the size thereof
45 and the brilliancy of the light produced. Below the extensions *F F*, adjacent to their inner portions, the base *D* is not perforated. I have found that this construction increases the strength of the current of air to draw the
50 ends of the flame downward toward the extensions *F*, and to hold it there without alterations in either its size or the brilliancy. The air passing through the perforated jacket *C* encircles the branch-pipes *a a* and the burners
55 *B B*, with their metallic tips, on all sides, and, especially, it passes in a current between the said burners at the point of ignition, and at the ends thereof, and over its two opposite sides. The effect of the current of air passing
60 through the perforated jacket *C* would be the same whether the burners illustrated in Fig. 1 were employed or the modified forms of burners indicated in Figs. 5, 6, and 7 were substituted therefor. In either case the air
65 would pass on all sides and between the pipes

adjacent to the outlets, whereby combustion is promoted and a desirable result attained. The base-plate *D*, sustaining the globe *E*, being removed, as hereinbefore described, at the points *d*, permits a strong and regular current
70 of air at the said points to pass upward on the inside of the globe *E*, promoting combustion and preserving the globe at a moderate temperature. The sides of the globe *E* being but slightly curved impels a continuous current of
75 air through the same along its inner sides.

I have found by experiment that when the base-plate *D* is perforated at the edges of the globe *E* the result secured is not nearly so desirable as when the elongated slots *d* are
80 formed, and that without the strong current which is promoted by the openings *d* the air will not pass sufficiently rapid through the globe to produce the result desired. The effect of the slots *d* will be the same if globes other
85 than the form described above were employed.

By the word "lava," as employed in this specification, I mean the stony material known to the trade as "lava" or "steatite."

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

1. A gas-burner composed of the metallic tip and the lava section, substantially as set forth.

2. In a gas-burner, the vertical flanges *d*, rising from a perforated base, and combined with
95 the extensions *F* or flame-spreaders, substantially as and for the purposes set forth.

3. In a gas-burner, the base-plate *D*, having the elongated slots *d* at its outer edges, in combination with a globe, a burner, and the flame-
100 spreaders, substantially as set forth.

4. In combination with a gas-burner, the flame-spreaders *F*, substantially as and for the purpose set forth.

5. A gas-burner consisting of the branches
105 *a a*, extending from a gas-supply, their upper ends converging toward each other and provided with burner-tips, in combination with a perforated base-plate, *D*, vertical flanges *f*, and flame-spreaders *F*, substantially as set forth. 110

6. In a gas-burner, the branches *a a*, extending from a gas-supply, and their upper ends converging toward each other and provided with burner-tips, in combination with the perforated jacket *C*, perforated base *D*, flanges
115 *f*, and flame-spreaders *F*, substantially as set forth.

7. In a gas-burner, the two gas-burning tips arranged to produce a flat flame, in combination with the flame-spreaders *F*, arranged on
120 opposite sides thereof, substantially as set forth.

8. In a gas-burner, the gas-burning tips secured upon the upper ends of the branches *a a*, connected with a common gas-supply, in combination with the perforated base *D*, flanges
125 *f*, and flame-spreaders *F*, an air-space being provided between the burners and the flanges *f*, substantially as set forth.

9. In a gas-burner, the base-plate *D*, flame-spreaders *F*, and the gas-burner passing
130

through the opening in the center of the base-plate, the said base-plate being not perforated adjacent to the inner edges of the flame-spreaders, whereby there is a strong current of air
5 induced through the central opening and over the flame-spreaders, substantially as and for the purposes set forth.

10 10. A gas-burner having outlets facing each other, so as to produce a single flat flame, in combination with the perforated jacket C, per-

forated base D, deflecting-flanges *f*, flame-spreaders F, and the globe E, the base-plate being provided with the openings *d*, substantially as set forth.

In testimony whereof I affix my signature in 15 presence of two witnesses.

ELIAS B. REQUA.

Witnesses:

CHAS. C. GILL,

HERMAN GUSTOW.