

(No Model.)

2 Sheets—Sheet 1.

G. E. WRIGHT.
GAS BURNER FOR HEATING OR COOKING.

No. 427,651.

Patented May 13, 1890.

Fig. 1.

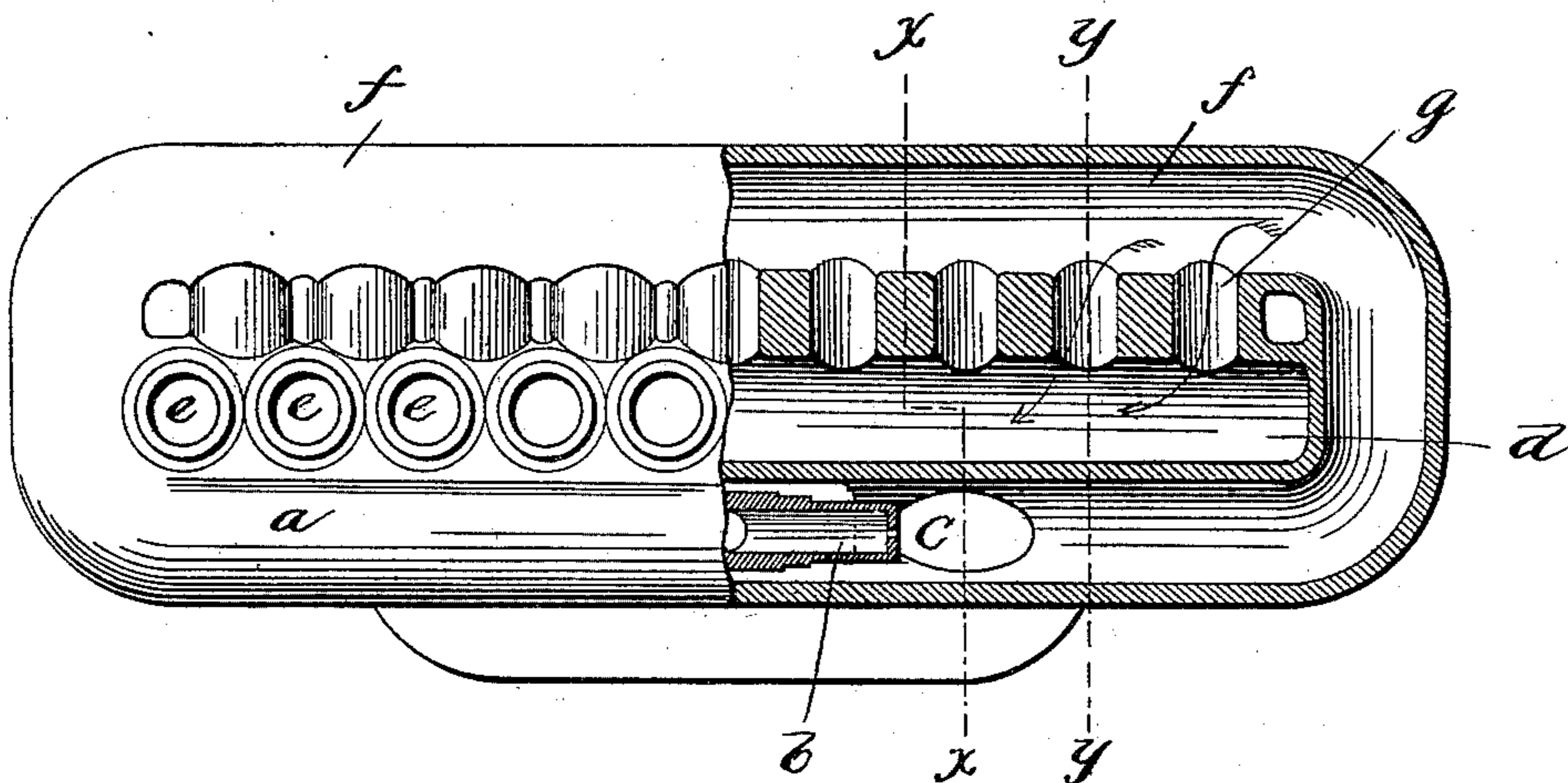


Fig. 2.

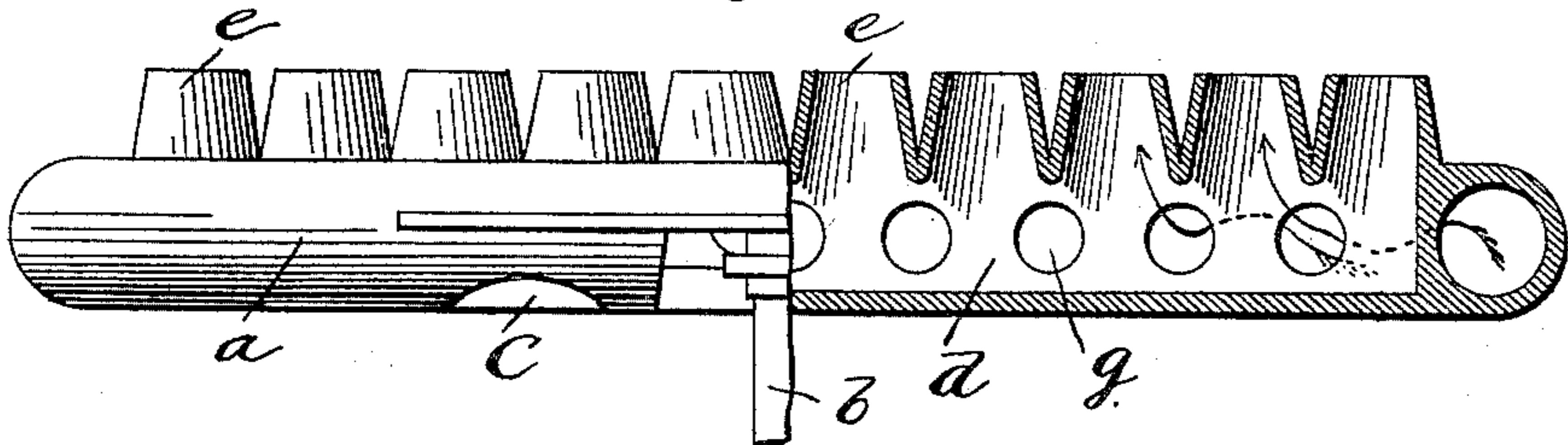
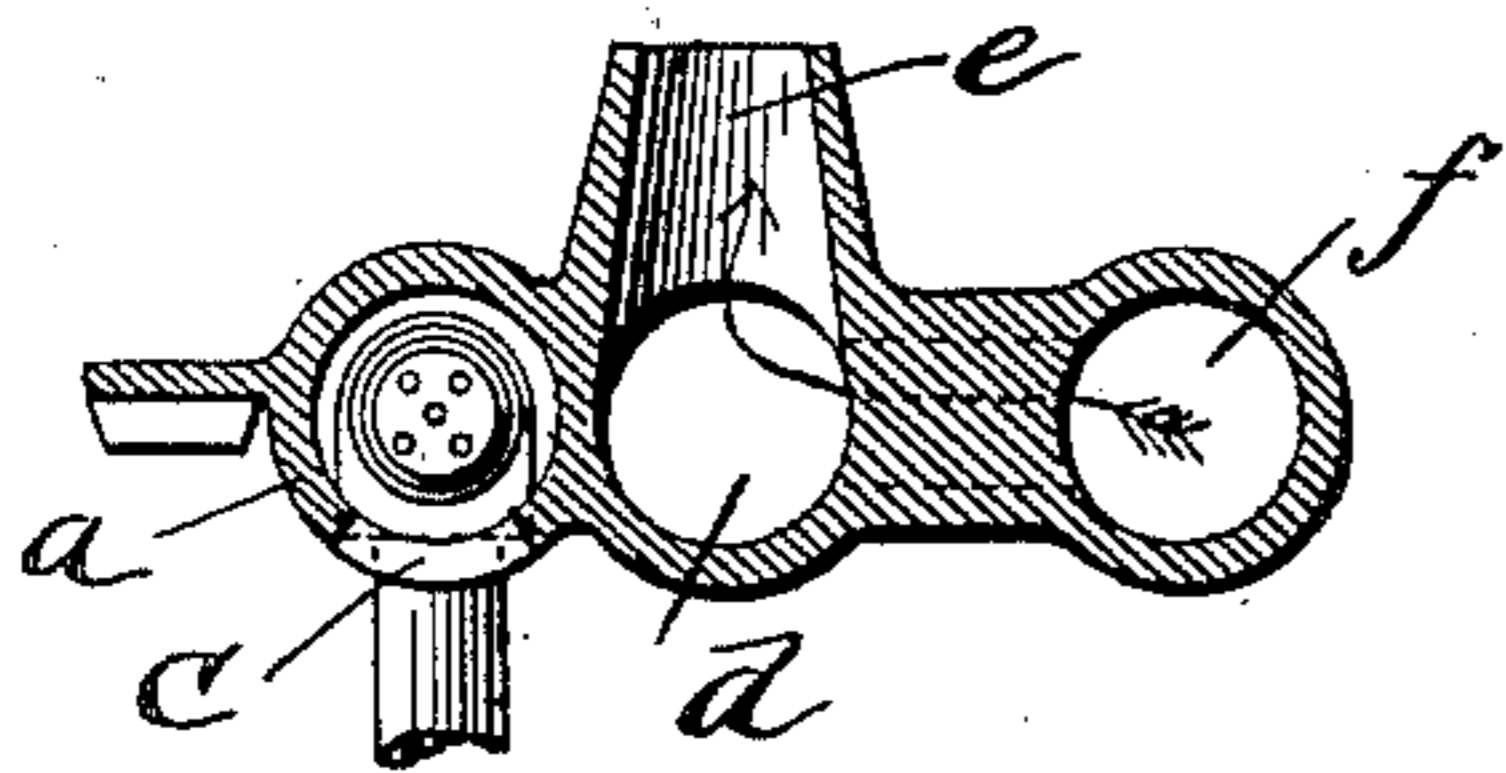


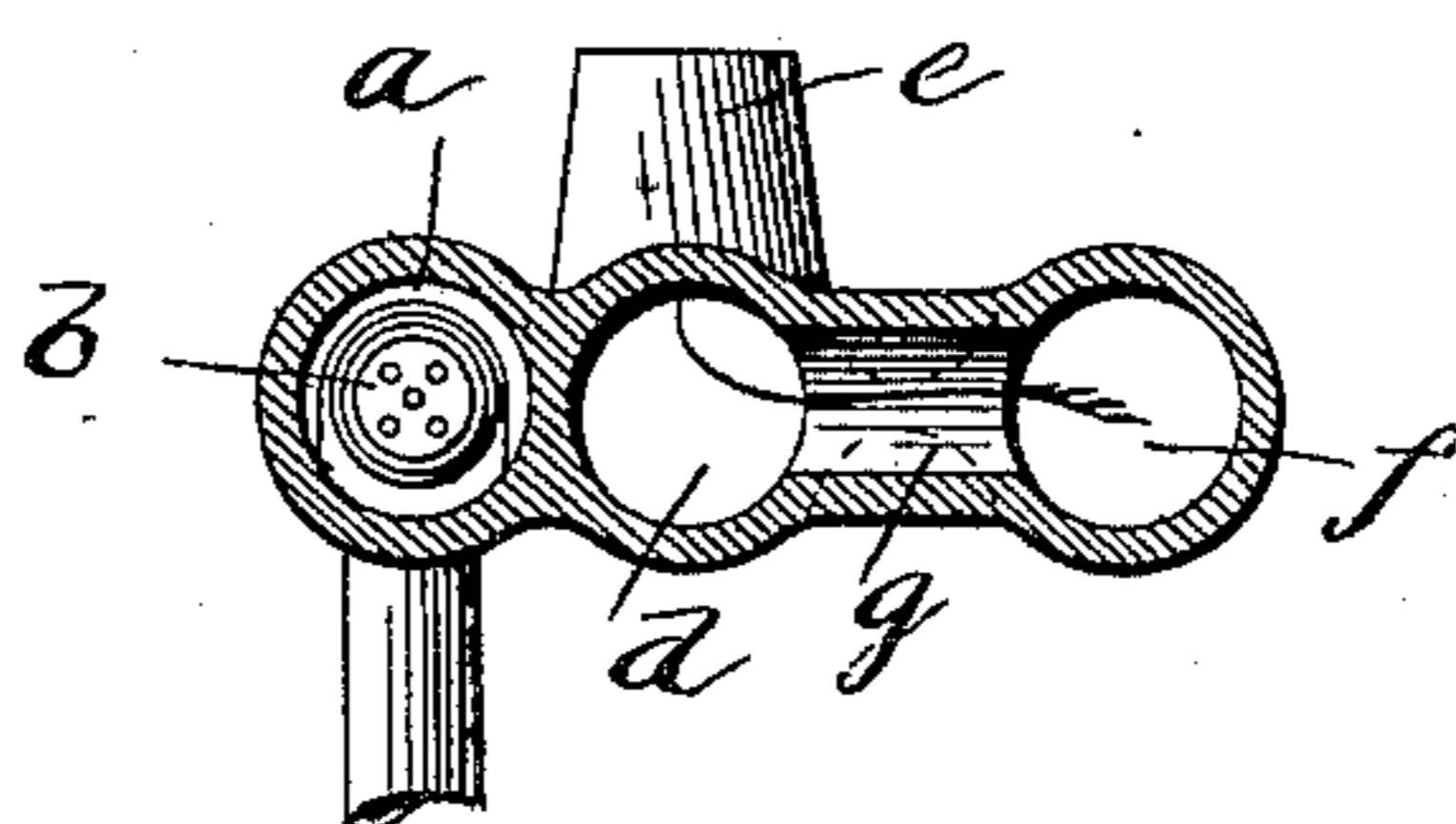
Fig. 3.



Witnesses

W. T. Keene.
H. Donaldson

Fig. 4.



Inventor
George E. Wright.
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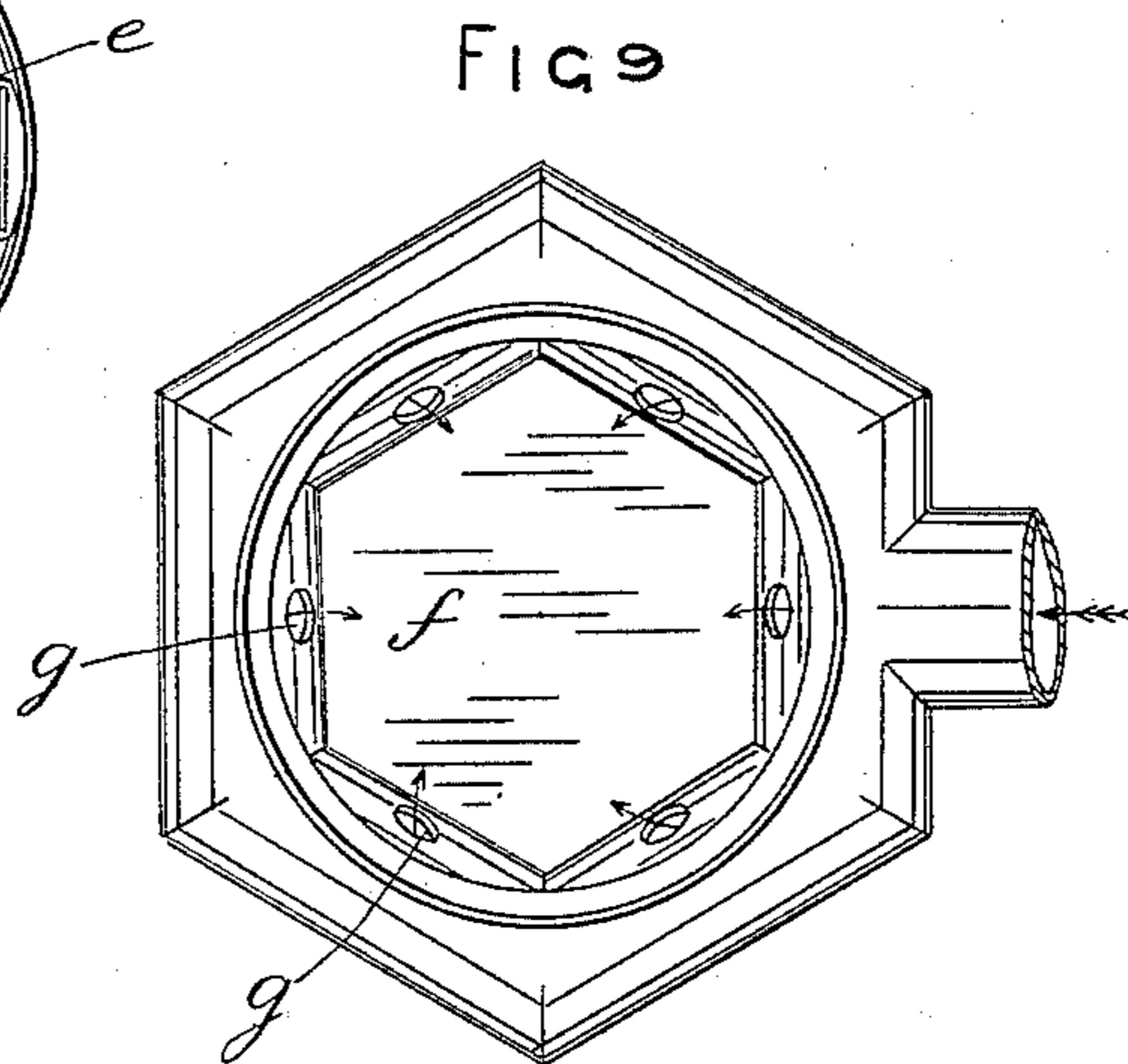
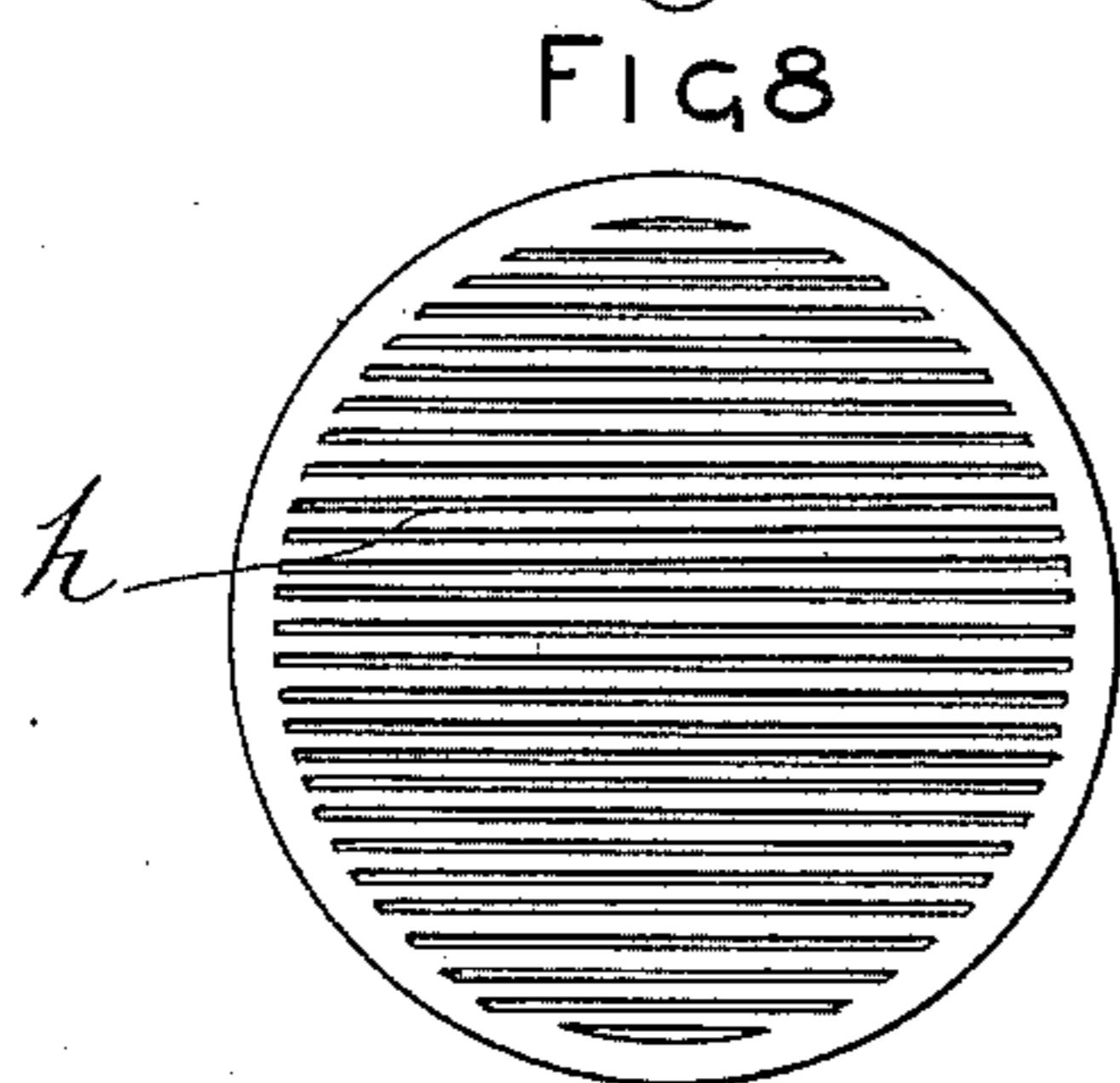
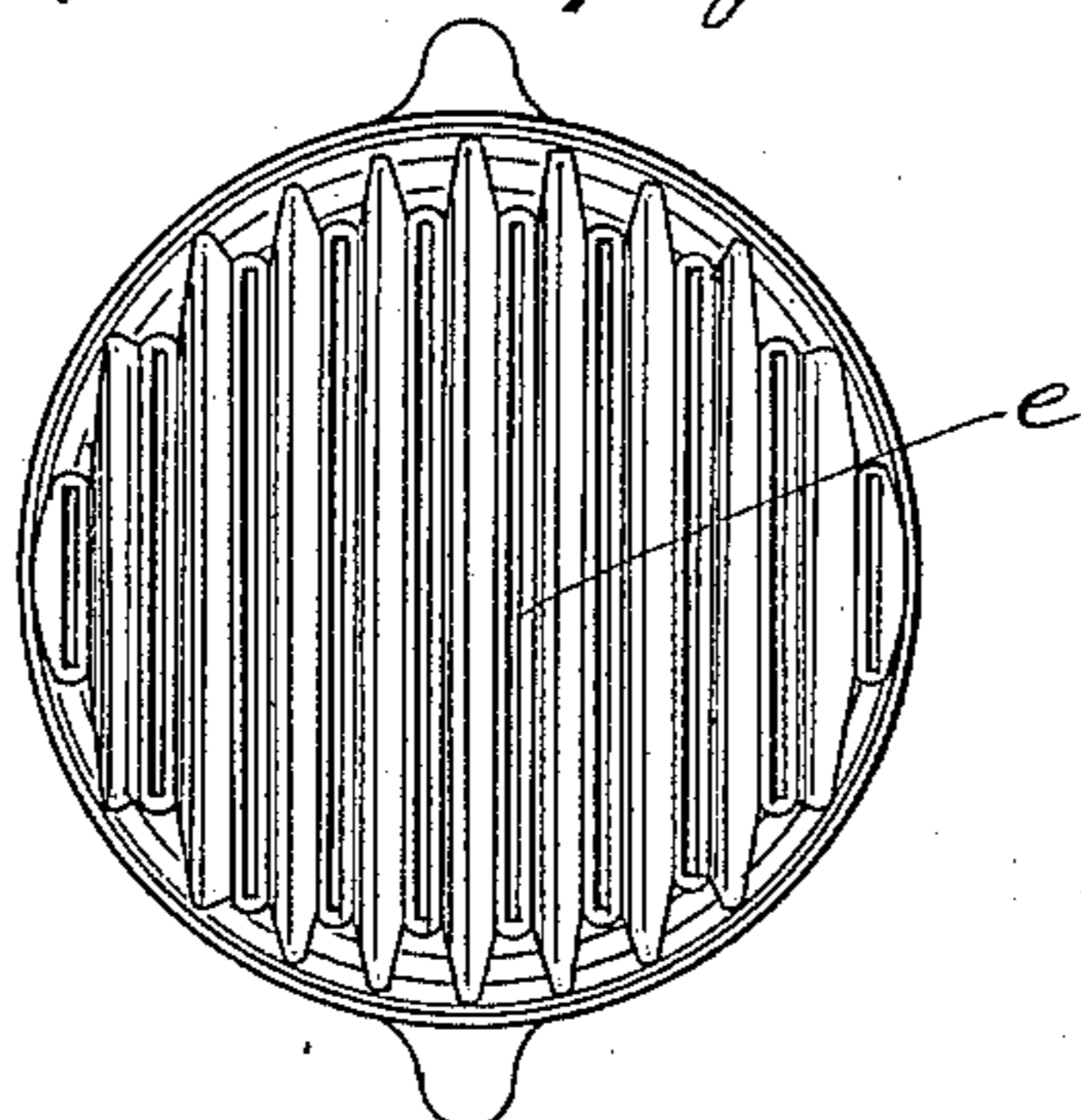
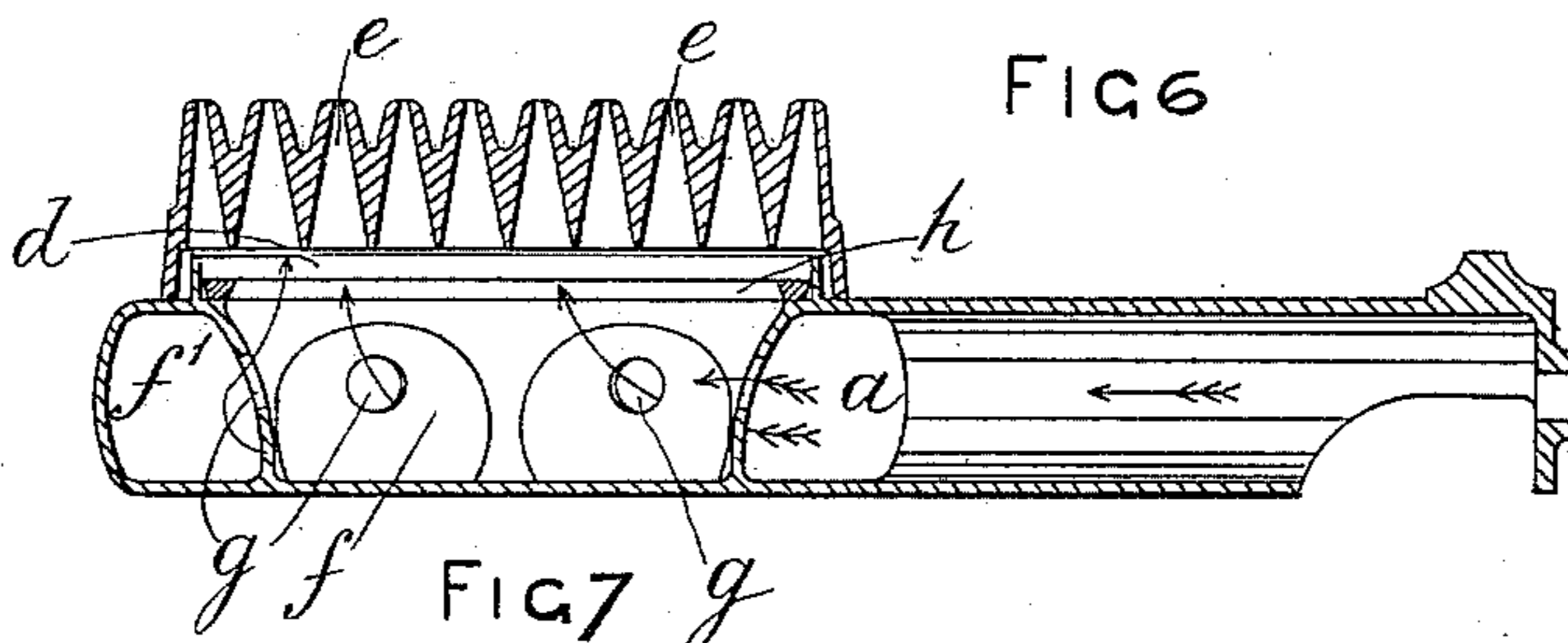
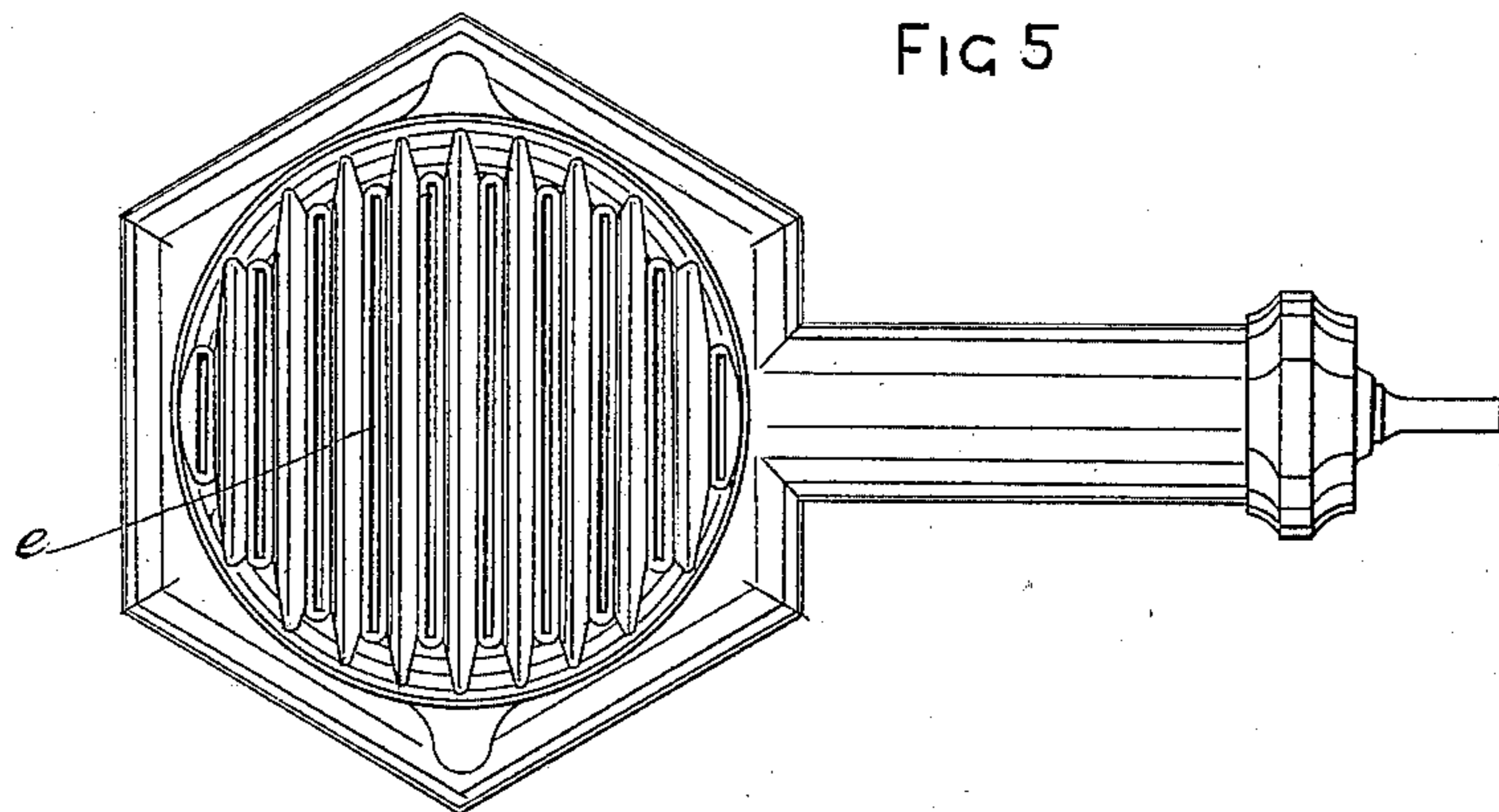
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2 Sheets—Sheet 2.

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WITNESSES

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INVENTOR

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UNITED STATES PATENT OFFICE.

GEORGE ERNEST WRIGHT, OF BIRMINGHAM, COUNTY OF WARWICK,
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GAS-BURNER FOR HEATING OR COOKING.

SPECIFICATION forming part of Letters Patent No. 427,651, dated May 13, 1890.

Application filed July 16, 1889. Serial No. 317,743. (No model.) Patented in England April 30, 1888, No. 6,372.

To all whom it may concern:

Be it known that I, GEORGE ERNEST WRIGHT, a subject of Her Majesty the Queen of Great Britain, residing at Birmingham, in the county of Warwick, England, have invented certain new and useful Improvements in Gas-Burners for Heating and Cooking Purposes, (for which I and my brother, John Frederic Wright, have obtained a patent in Great Britain, No. 6,372, bearing date April 30, 1888,) of which the following is a specification.

This invention has reference more particularly to those atmospheric gas-burners for heating or cooking purposes which are required to give a large body of flame, the objects being to so construct the said burners that they will give a level flame and one which will not "flash back" when turned down low.

The said burners as usually constructed each consist of a mixing-chamber, (which takes various forms, according to circumstances, and is commonly tubular,) into which the mixed gas and air enters horizontally by an injector-tube, and at the upper side of which are the openings or burners proper, through which the mixture escapes and where it is burned. As the gaseous mixture does not impinge directly on the openings or burners proper and its velocity is greatest where it enters the mixing-chamber, it follows that less gas escapes through the nearest openings or burners proper than through those which are farther away; hence the flame is higher at one part than at others. Moreover, by the injector-tube communicating directly with the mixing-chamber, and consequently being, comparatively speaking, nearer to the inlet-openings or burners proper, it follows that when the flame is turned down so low as to reduce the velocity of the gaseous mixture below a certain point the gaseous mixture in the mixing-chamber explodes or flashes back.

According to this invention, instead of the injector-tube communicating directly with the so-called "mixing-chamber"—that is, the chamber which is immediately below the outlet-openings or burners proper—an additional chamber or chambers is or are provided between the mixing-chamber and the injector-tube, which chamber or chambers may have

numerous inlets or outlets or perforated gratings, so as to split up the gaseous mixture and obtain a uniform pressure at all parts of the mixing-chamber, so as to insure a level flame and by the mixture having to travel through more numerous and tortuous passages prevent the flame flashing back.

This invention may be carried out in various ways.

In the accompanying drawings, Figure 1 represents in plan, partly in section, a burner for a gas fire constructed according to this invention. Fig. 2 is an elevation of the same, partly in section. Fig. 3 is a cross-section of the same on line *x x* of Fig. 1, and Fig. 4 is a cross-section of the same on line *y y* of Fig. 1. Fig. 5 represents in plan, and Fig. 6 in sectional elevation, a gas-burner more particularly for boiling or cooking purposes constructed according to this invention; and Figs. 7, 8, and 9 illustrate parts of the same separately.

The same letters of reference indicate corresponding parts in all the figures.

Referring first more particularly to Figs. 1, 2, 3, and 4, *a* is the injector-tube.

b is the gas-inlet pipe, and *c c* are the openings through which the air enters to mix with the gas.

d is the so-called "mixing-chamber" immediately below the burners proper *e*, and *f* is the additional chamber which is provided between the injector-tube *a* and the mixing-chamber *d*. The injector-tube *a* communicates with the ends of the additional chamber *f*, and this chamber communicates with the mixing-chamber *d* by the openings *g*, as shown by the arrows. The gaseous mixture thus has to pass from the gas-inlet *b* round to the additional chamber *f*, and from that through the openings *g* to the mixing-chamber *d*. Thus by splitting up the gaseous mixture and obtaining a uniform pressure at all parts of the mixing-chamber a level flame is insured, and by the mixture having to travel through the passages *f* and *g* the flame is prevented from flashing back.

In the example of this invention illustrated by Figs. 5, 6, 7, 8, and 9 an additional chamber *f* is provided below the mixing-chamber *d*, the communication between the chambers *f* and *d* being through the perforated grating

h. The gaseous mixture flows from the injector-tube *a* through the passage *f'* and enters the additional chamber *f* by the openings *g g*, and then passes up through the grating *h* 5 to the burners proper *e*, the passages and grating splitting up and thoroughly mixing the gaseous mixture and giving the desired results, as stated above.

The accompanying drawings show what is 10 considered to be the best way for carrying the said invention into effect; but it is to be understood that the invention is not limited to the precise details shown.

It will be noticed that in both forms described the passage leading from the injector 15 is a circuitous one, and in each instance the communication from said passage to the mixing-chamber is through a perforated wall.

What I claim as my invention, and desire 20 to secure by Letters Patent, is—

1. An atmospheric gas-burner consisting of the series of burners *e*, the mixing-chamber *d* in proximity thereto, the injector, and the circuitous passage therefrom, said passage

communicating with the mixing-chamber *d* 25 through a series of perforations in the wall of the burner, whereby the air and gas will be first mixed in the chamber *f*, then broken up by passing through a series of perforations, and finally recombined and mixed in 30 a chamber *d*, the said series of perforations insuring the proper feeding of the fluid to the burners without regard to the position thereof, substantially as described.

2. In an atmospheric gas-burner, the burn- 35 ers *e*, the mixing-chamber *d*, the injector-tube *a*, having air-openings, the additional chamber *f*, the passage *f'* between said chamber and the tube *a*, and the grating between the chamber *f* and the chamber *d*, substan- 40 tially as described.

In testimony whereof I have signed in the presence of two subscribing witnesses.

GEORGE ERNEST WRIGHT.

Witnesses:

CHARLES BOSWORTH KETLEY,
HERBERT WHITEHOUSE.