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GAS BURNER.
APPLICATION FILED MAY 14, 1909.

1,002,684.

Patented Sept. 5, 1911.

Fig. 1.

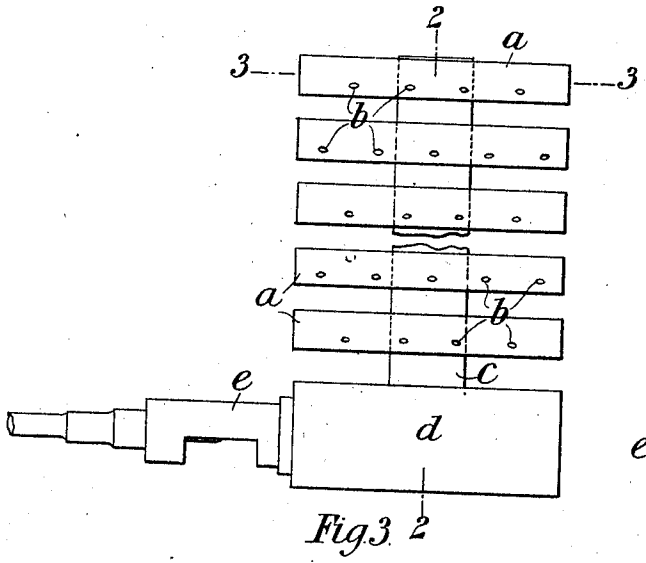


Fig. 2.

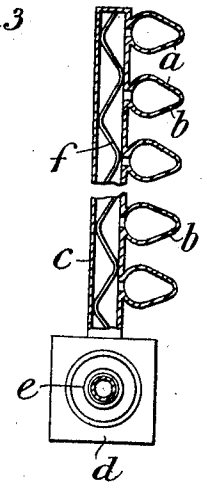


Fig. 3.

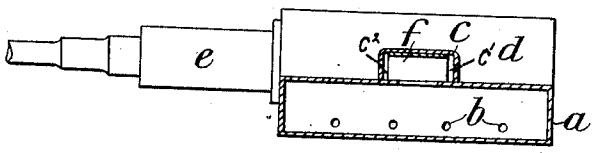


Fig. 4.

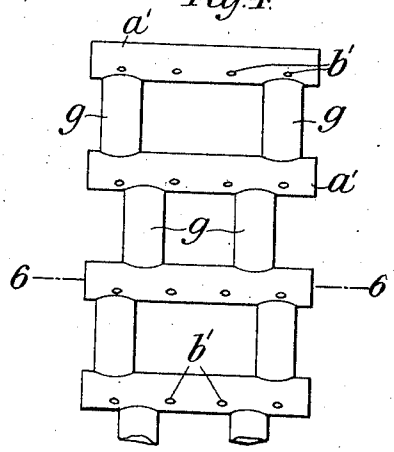
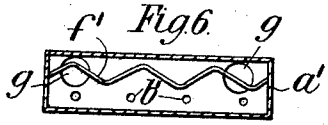


Fig. 5.

Fig. 6.



Witnesses
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UNITED STATES PATENT OFFICE.

ALFRED ELLIS HARRIS, DECEASED; HENRY ELLIS HARRIS AND ANNIE LOUISA HARRIS, EXECUTORS, OF LONDON, ENGLAND.

GAS-BURNER.

1,002,684. Specification of Letters Patent. **Patented Sept. 5, 1911.**

Application filed May 14, 1909. Serial No. 496,091.

To all whom it may concern:

Be it known that we, HENRY ELLIS HARRIS and ANNIE LOUISA HARRIS, both subjects of the King of Great Britain, and residing, respectively, at 64 Finsbury Pavement, and 136 Mile End road, London, England, the joint executors of the last will and testament of ALFRED ELLIS HARRIS, deceased, as by reference to the duly-certified copy of letters testamentary hereto annexed will more fully explain, are in possession of new and useful Improvements in Gas-Burners, of which the said ALFRED ELLIS HARRIS was the inventor and of which the following is a specification.

This invention relates to atmospheric gas burners of the type wherein the gas burns simultaneously from a series of apertures or nozzles and which are especially applicable for use in connection with water heating apparatus, cooking appliances and the like, the object of the invention being to provide for an even distribution of gas over the whole series of burner apertures or nozzles so as to provide as far as possible that the several flames or jets of gas shall be uniform.

A burner constructed according to this invention comprises a series of superposed pipes or sections connected to a common supply passage or connected to each other by junction tubes (which may be staggered) the said supply passage or the burner pipes themselves being provided internally with baffle plates which serve to break up the gas currents so as to cause a thorough mixing of the gas and air and also to insure that the proper supply of gas shall reach each burner hole or nozzle.

To enable the invention to be fully understood we will describe the same by reference to the accompanying drawing, in which:—

Figure 1 is an elevation of a burner having a series of superposed pipes connected to a common supply pipe, and Fig. 2 is a vertical section on the line 2—2 Fig. 1, and Fig. 3 is a horizontal section on the line 3—3 Fig. 1. Figs. 4 and 5 are respectively a front elevation and a side elevation showing the arrangement wherein the burner tubes are connected together, and Fig. 6 is a horizontal section on the line 6—6 Fig. 4.

a, *a* indicate the burner tubes which are advantageously of a somewhat pear or oval shape in transverse section and *b*, *b* are the burner openings formed therein, preferably on the underside. As shown in Figs. 2 and 3 these tubes are all connected to a common supply pipe *c* preferably of rectangular cross section, the said supply pipe being connected with the mixing chamber *d* in which the mixture of gas and air is supplied in the usual manner through the mixer *e*, *f* is the baffle plate which, in accordance with the invention, is inserted in the tube *c*, the said baffle plate being of slightly less width than the tube *c* as seen at c', c^2, Fig. 3, and being of a zig-zag or sinuous shape so that when inserted in the said tube the angles or corrugations will come into contact with opposite walls of the chamber. With this arrangement it will be understood that as the gas leaves the mixing chamber *d* and flows upward through the channels at each side of the baffle plate, a sufficient supply for each of the burner tubes flows into said tubes, and by reason of the contact of the baffle plate with the wall of the tube *c* above the openings into said burner tubes, issues through the burner apertures.

In the arrangement of the invention shown in Figs. 4 to 6 the several burner tubes a', a' are directly connected by junction tubes *g*, *g* which are staggered in order to place them out of alinement so that the gas which enters them in connection with the lower burner tubes shall not pass straight upward but be caused to travel in a zig-zag or sinuous course.

In order to further distribute the gas each of the burner tubes may contain a sinuous or corrugated baffle plate f' as shown in Fig. 6. In this modification the baffle plate f' is placed in the tubes a', so as to divide the upwardly flowing current of gas. The part of the current on the side opposite the burner apertures will flow through the pipes *g* above the same, into the next burner tube. The portion of the gas flowing upward on the side adjacent to the burner openings, will fill the space in the tube on that side of the baffle plate, forcing a portion out through the burner aperture, the remainder passing over the baffle plate and joining the directly upward flowing current, as the baffle plates are of less width than the tubes a'. The corrugations in the baffle plates f' serve to

force the gas flowing upward from the tube *g*, over said corrugations, toward the burner apertures.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. An atmospheric gas burner, comprising a series of superposed burner tubes having burner orifices, and means for conducting a gaseous burning mixture to said orifices including a zig-zag baffle construction for taking from the current a portion for each burner tube and forcing said portion outward through the burner orifices.

2. An atmospheric gas burner comprising a series of superposed burner tubes having inlet openings, in combination with staggered junction tubes, and interior baffles in the burner tubes of less width than said burner tubes and located over the inlet apertures of said tubes.

3. In an atmospheric gas burner, the combination with a series of superposed burner tubes, of connecting supply pipes and baffles the latter being of zig-zag form within the burner tubes of less width than the tubes, to divide the flow of gas which enters the burner tubes.

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