(No Model.) 2 Sheets—Sheet 1.

A. W. MORTON.

Burner for Gas Stoves.

No. 238,301. Patented March 1, 1881.

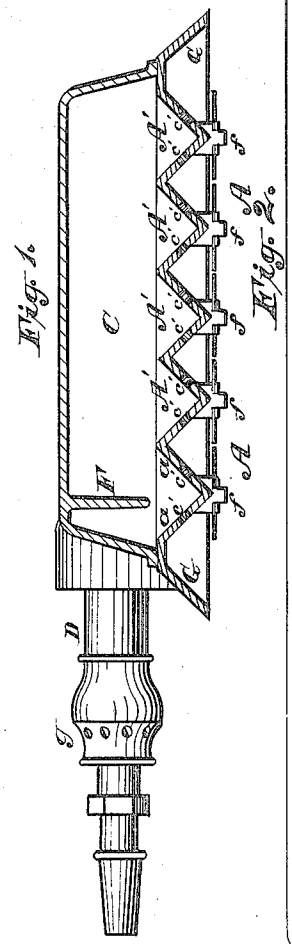


Fig. 1.

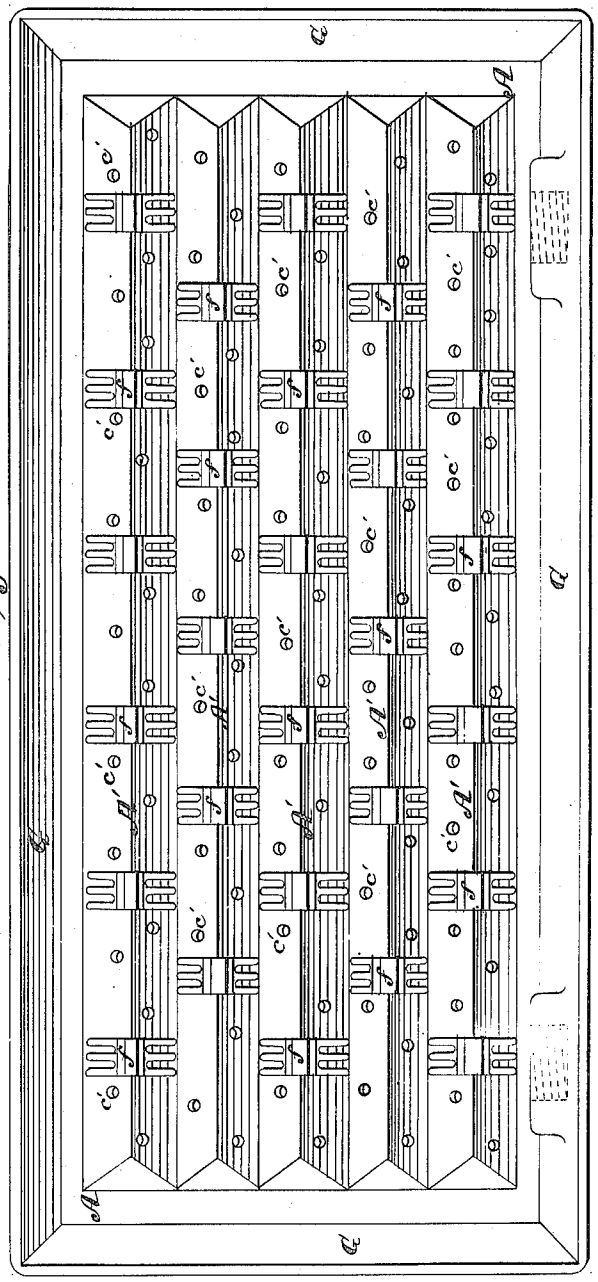


Fig. 2.

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Fig. 3.

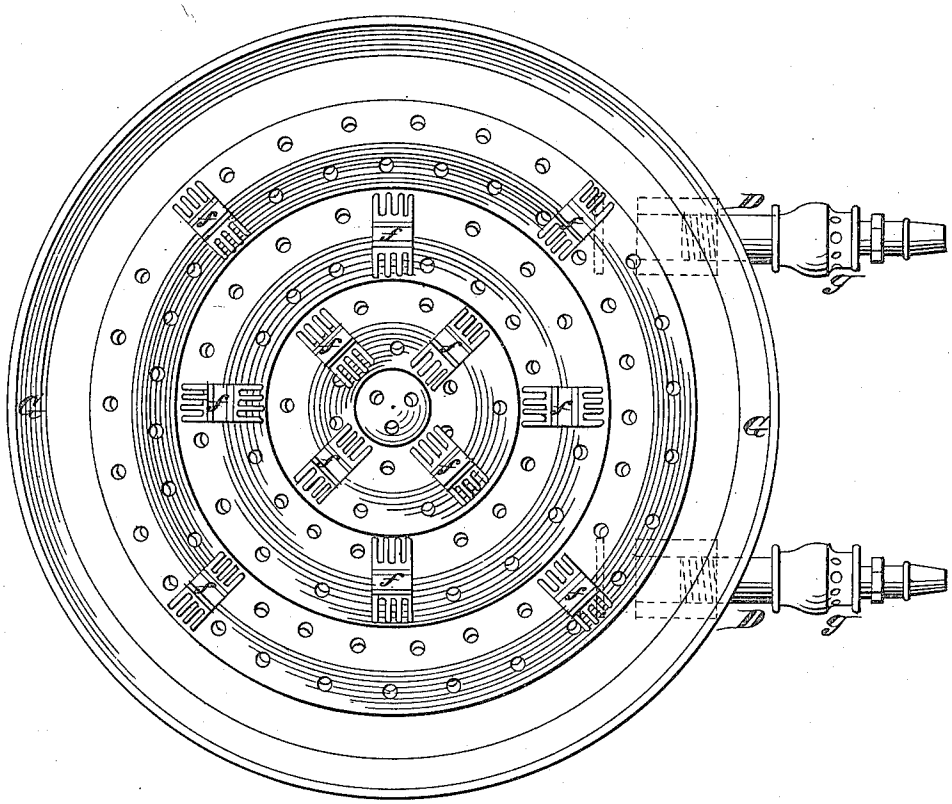
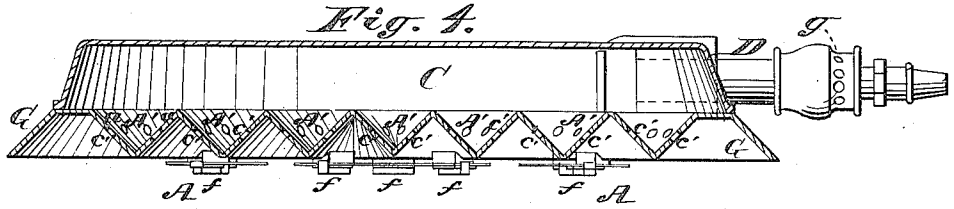


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALBANUS W. MORTON, OF BROOKLYN, NEW YORK.

BURNER FOR GAS-STOVES.

SPECIFICATION forming part of Letters Patent No. 238,301, dated March 1, 1881.

Application filed June 5, 1880. (No model.)

To all whom it may concern:

Be it known that I, ALBANUS W. MORTON, of Brooklyn, county of Kings and State of New York, have invented certain Improvements in Burners for Gas-Stoves and other purposes, of which the following is a specification.

This invention is designed more particularly for use in the ovens of "gas-stoves," commonly so called, but it may also be used for various other purposes.

It comprises certain novel combinations of parts, whereby a uniformly-diffused and intense heat is produced, and also by which the heat of the flame is transferred to solid materials which, when heated, possess the power of more freely radiating the heat than the flame itself.

The invention also comprises certain other novel combinations of parts, whereby the principle just hereinbefore indicated is carried into successful and effectual practical operation.

Figure 1 is a transverse sectional view, and Fig. 2 an inverted plan view, of an apparatus embracing my said invention. Fig. 3 is an inverted plan, and Fig. 4 a vertical transverse sectional view, representing a modified form of said apparatus.

A is a series of parallel burners, each of which, A′, is prism-shaped, as represented more clearly in Figs. 1 and 4. The walls *a* of each one are perforated with holes or gas-outlets, as shown at *c′*. Inasmuch as the walls *a* of each burner, A′, are substantially at right angles to the corresponding walls of the adjacent burners, it follows that the gas in issuing through the outlet *c′* of each burner will flow outward and downward at an angle to the gas-jets issuing from the burners next adjoining. Therefore the flames from each burner, A′, will impinge against the corresponding flames from the burners adjacent. When the outlets *c′* of a burner are placed directly opposite the corresponding outlets of the adjoining burners the flames will impinge at their extremities; but when said outlets are placed opposite the spaces between the outlets of the adjoining burners, as represented in Fig. 2, the flames will interlock and impinge, more or less, at their edges; but in either case the result is a sheet of flame of intense character, having in itself a comparatively slight heat-radiating power; but inasmuch as the sheet of flame aforesaid is in close contact with the cast-iron or other material of which the burners A′ are made, the said cast-iron or other material is highly heated, and inasmuch as it rapidly releases the heat after it has received it, the amount of sensible heat radiated from the burners is much greater and much more effective for practical purposes than could be obtained from the flames alone, if the latter were placed at such distances from the burners themselves that the substance of said burners could not absorb heat from the flames and then radiate said heat, as described.

In order that the flame may not be dispersed laterally away from the burners A′, a circumferential flange, G, is placed around the same in such manner as to confine the flame within due limits at all the circumferential portions of the system of burners.

It is to be observed that while the material or substance of the burners A′ is heated by contact with the flame to a degree sufficient to enable it to radiate heat, as explained, this heating of the burners themselves is not carried to a degree practically sufficient for the generation of light. To accomplish this last-indicated result recourse must be had to a material of a more refractory character, applied in such position and in such proportions that it may be heated to a white heat. Various refractory materials may be used for this purpose; but, in practice, platinum-foil is to be preferred. This is attached at the lowest portions of the burners, represented at *f*, and the foil preferably cut into thin strips or fringes at its extremities, as represented in Fig. 2, in order that by its state of fine subdivision its rapid and high heating may be secured.

In the operation of the burners, as hereinbefore explained, the platinum-foil *f* is immersed in the flame, and being thereby heated to a white heat is caused to emit light, and inasmuch as the platinum or equivalent material at this incandescent stage possesses a heat-radiating power many times greater than that of the blue flames issuing from the burners, it follows that the heating power of the apparatus is very materially increased thereby. Furthermore, when the apparatus is used under circumstances where light is more or less

to be desired—as, for example, in a "Franklin" stove, so termed—the light-giving effect secured by the platinum or its equivalent, as described, is of no small utility.

In order that the gas mingled with the air necessary for its combustion may be properly passed to the burners, there is provided above the latter a chamber, C, into which are extended the gas-pipes D for supplying the gas, each of said gas-pipes being provided with means for the inlet of atmospheric air—as, for example, the perforations *g*—so that gas and air commingled pass into the chamber C; thence to the burners A′, and thence out through the outlet-orifices *c*′, where, when ignited, they burn with the characteristic blue flame of a Bunsen burner. Placed within the chamber C, opposite the inlet from each of the gas-pipes D, is a narrow plate, F, which I denominate a "baffle." This plate or baffle F is so placed in relation to the inlet of the adjoining gas-pipe D as to render it necessary for the mingled gas and air from the said gas-pipe to pass around the lateral edges of said plate or baffle instead of passing direct into the chamber C. The object of this arrangement is to prevent any explosion of the mingled gas and air in the chamber C from passing to the pipes D, and I have found by experience that the effect desired is effectually secured.

In Figs. 1 and 2, the burners A′ are shown as straight and parallel with each other, but when preferred they may be made of circular form and placed concentrically parallel with each other, as represented in Figs. 3 and 4. The one form or the other may be adopted according as the circumferential contour of the apparatus is desired to be rectangular or circular.

What I claim as my invention is—

1. A gas-heater composed of a series of burners the outlets of which are arranged to throw the flames in immediate contact with the material or substance of the burners, and in a horizontal direction, or at an angle below the horizontal, substantially as and for the purpose herein set forth.

2. A gas-heater composed of a series of prism-shaped burners, A′, the gas-outlets of which are arranged to secure the contact or impingement of the flames, all substantially as and for the purpose herein set forth.

3. The combination, with the prism-shaped series of burners A′, of the downwardly-extending flange G, extended entirely around the circumference of said series, all substantially as and for the purpose herein set forth.

4. In a burner for gas-stoves, &c., the combination of the platinum-foil or other refractory substance with the burners, arranged in relation with each other as described, whereby light is produced by a comparatively small portion of the caloric of the flames, while the major part of said caloric is applied to heating the metal of the burners, in order that heat may be radiated therefrom, all substantially as and for the purpose herein set forth.

5. The baffle F, in combination with the chamber C, the series of burners A′, and the gas-inlet pipes D, provided with means for the admission of atmospheric air, all substantially as and for the purpose herein set forth.

ALBANUS W. MORTON.

Witnesses:
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R. H. GRIFFIN.