J. A. FREY.

GAS-STOVE.

No. 180,334. Patented July 25, 1876.

Fig. 1.

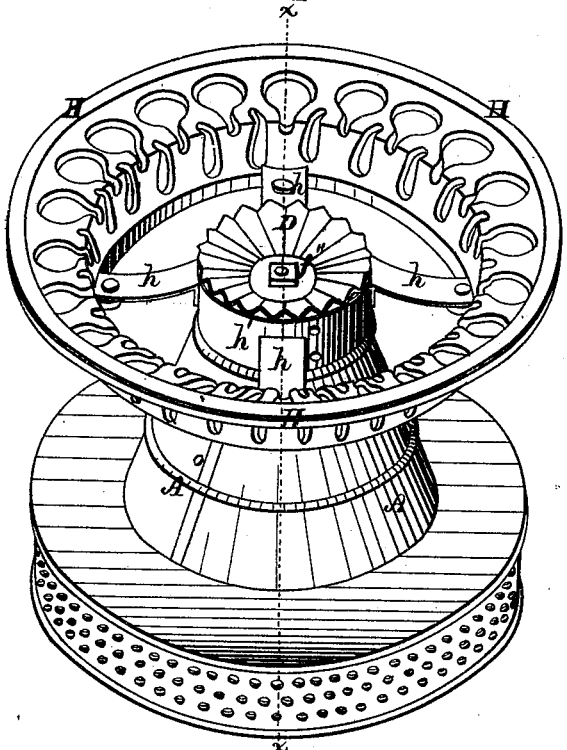
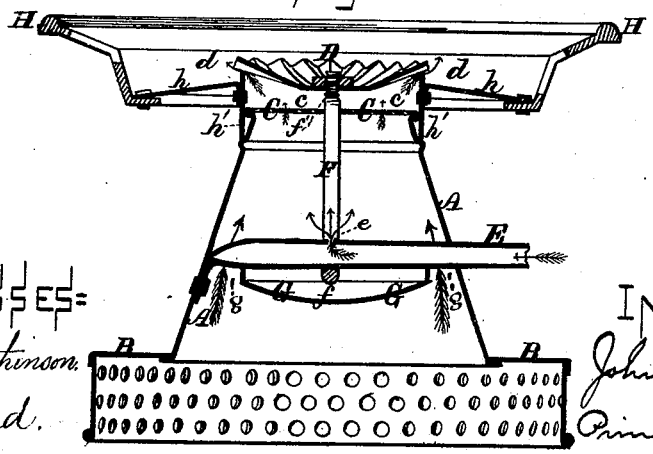


Fig. 2.



WITNESSES:

Jas. E. Hutchinson.

H. C. Hazard.

INVENTOR.

John A. Frey, by Pindle and Lay his attorneys.

UNITED STATES PATENT OFFICE.

JOHN A. FREY, OF NEW YORK, N. Y.

IMPROVEMENT IN GAS-STOVES.

Specification forming part of Letters Patent No. **180,334**, dated July 25, 1876; application filed July 6, 1876.

To all whom it may concern:

Be it known that I, JOHN A. FREY, of New York city, in the county of New York, and in the State of New York, have invented certain new and useful Improvements in Gas-Stoves; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved stove complete and ready for use, and Fig. 2 is a vertical central section of the same.

Letters of like name and kind refer to like parts in each of the figures.

My invention relates to that class of heaters which are modifications of Bünsen's burner, and are designed to consume common illuminating-gas for fuel, and has for its object thorough efficiency, coupled with cheapness of construction and operation; to which end it consists, principally, in the combination of a cone-shaped case or burner, a perforated diaphragm placed horizontally near its upper end, and a radially-corrugated burner-cap arranged above said diaphragm, and inclosing between said parts a mixing-chamber, substantially as and for the purpose hereinafter specified.

It consists, further, in the employment of an air-guard plate below the gas-inlet, for the purpose of equalizing the air-currents and preventing the downward passage of gas, substantially as is hereinafter shown.

It consists, finally, in the peculiar construction of the several parts of the burner, whereby a single bolt is enabled to secure the same in place, substantially as is hereinafter set forth.

In the annexed drawings, A represents the case of my burner, made conical, with its ends open, and having its lower largest end secured upon a cylindrical base, B, which has an open-work or perforated side wall, said parts being preferably constructed from sheet metal.

Near the upper end of the casing A is provided a perforated sheet-metal diaphragm, C, which extends horizontally across the same, while at the upper end of said casing is placed a cap, D, which is also composed of sheet metal, is made concave at its upper side, and is corrugated upon radial lines, so that when caused to bear upon the upper end of said casing it will only have contact with the latter at the points of the greatest depression of its said corrugations, and between such points of contact there will be left outward and upward extending air-passages *d*. Between the said diaphragm and cap is formed a chamber, *c*, the object of which will be hereinafter explained.

Extending transversely into the casing A, at or near its vertical center, is a gas-supply pipe, E, which has its inner closed end secured to or upon the inner face of said casing, and at a point near the axial center of the latter is provided with an opening, *e*, at its upper side for the upward escape of gas. A bolt, F, provided at its lower end with a hook, *f*, and at its upper end with a screw-thread, *f'*, and a nut, *f''*, is placed in the position shown in Fig. 2, its said hooked end in engagement with the gas-pipe E, while its said upper end passes through the center of the cap D, in which position the nut *f'* serves to press said cap downward firmly upon the end of the casing A, and to insure the relative position of parts.

In order that the upward currents of air may be equalized and a downward flow of gas may be prevented, a circular sheet-metal plate, G, which is convex upon its lower side, is secured upon the lower side of the pipe E at the axial center of the casing A, and has such horizontal dimensions as to close about two-thirds of the area of said casing at such point, and leave an annular opening, *g*, between the latter and its outer edge.

An open or skeleton ring, H, for the support of cooking utensils, is secured, by means of radial arms *h*, to or upon a short sheet-metal cylinder, *h'*, while the latter rests upon the upper end of the casing A, and at its upper end supports the cap D, and is thereby confined in position by means of the bolt F.

The device is now complete, and operates as follows: Upon the escape of gas from the orifice *e* of the pipe E, said gas passes upward and outward, and mingles with the current of air which ascends through the annular opening *g*, and both together pass into the chamber *c* through the perforated diaphragm

C, by which means the thorough union of said gas and air is completed, and, escaping through the openings *d*, they are consumed.

In consequence of the peculiar shape of the cap D, ample provision is made for the outward flow of the gas and air, as said cap rests upon the upper end of the casing, the course of the current being directed by the convexity of the lower face of said cap, while the cost of construction of the latter is but a fraction of the expense of the caps usually employed. The entire device is simple in construction, and can be furnished at a comparatively small cost.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. The casing A, perforated diaphragm C, and radially-corrugated concave cap D, substantially as and for the purpose specified.

2. In combination with the casing A and gas-supply pipe E, the plate G, placed centrally within said casing, immediately below the orifice *e* of said pipe, substantially as and for the purpose shown.

3. The casing A, cap D, pipe E, and cylinder *h'*, supporting the ring H, constructed as shown, and combined with each other by means of the bolt F *f f'* and nut *f''*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 5th day of July, 1876.

JOHN A. FREY. [L. S.]

Witnesses:
WM. M. BRUCE,
HAROLD A. BAGLEY.