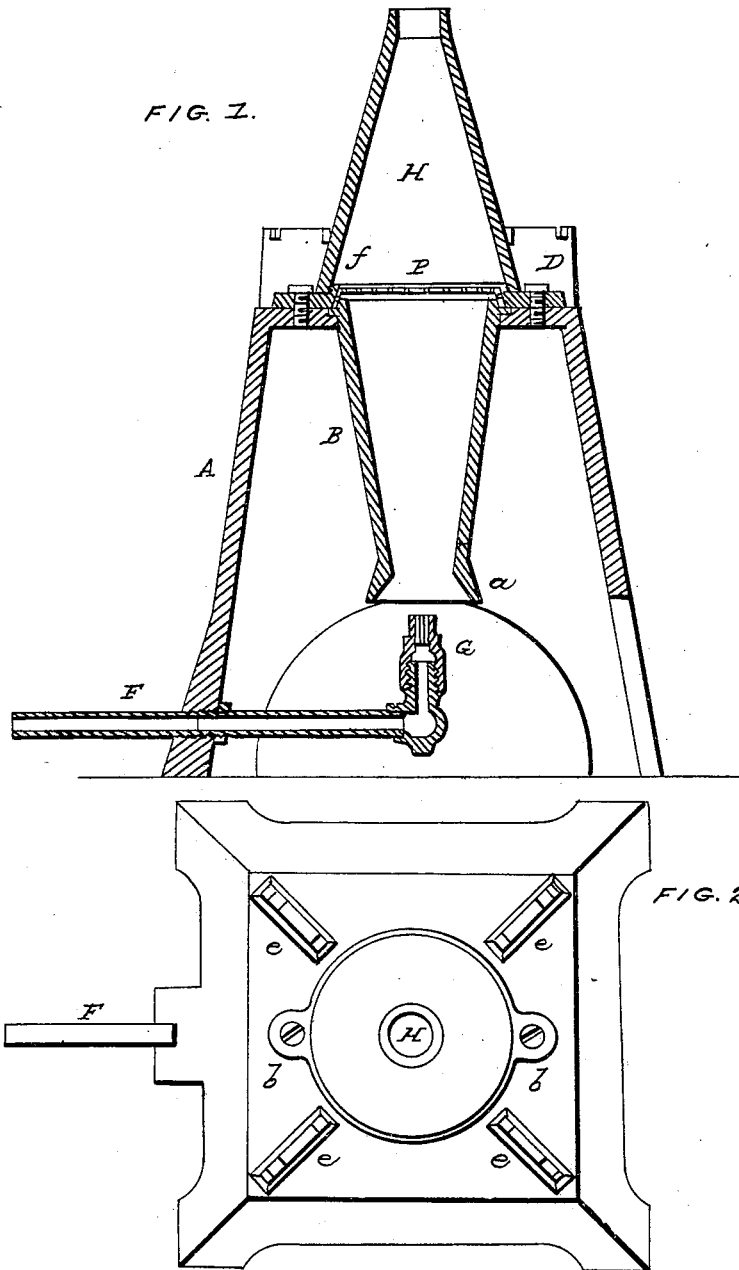


J. Q. BIRKEY.

Gas Heater.

No. 50,678.

Patented Oct. 31, 1865.



WITNESSES:

*Wm. Albert Steel*  
*John Parker*

INVENTOR.

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# UNITED STATES PATENT OFFICE.

JOHN Q. BIRKEY, OF PHILADELPHIA, PENNSYLVANIA.

## GAS-HEATER.

Specification forming part of Letters Patent No. 50,678, dated October 31, 1865.

*To all whom it may concern:*

Be it known that I, JOHN Q. BIRKEY, of Philadelphia, Pennsylvania, have invented certain Apparatus for Generating Heat from Illuminating-Gas; and I do hereby declare the following to be a full, clear and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention consists of certain apparatus, fully described hereinafter, for obtaining from ordinary illuminating-gas either a diffused or concentrated heat, the said apparatus having been designed with the view of thoroughly mixing atmospheric air with the gas, of consuming the carbon, and of obtaining a flame of intense heat, so that it may be used for culinary and a variety of other purposes.

In order to enable others skilled in the art to make and use my invention, I will now proceed to describe its construction and operation.

On reference to the accompanying drawings, which form a part of this specification, Figure 1 is a vertical section of my apparatus for generating heat from illuminating-gas; Fig. 2, a plan view.

A is a cast-iron casing, which, in the present instance, is square and tapering from the base upward. The form of this casing, however, may be modified without departing from the main feature of my invention. In the top of this casing is let the upper flanged edge of a tube, B, which is of the form of a truncated cone inverted, and which terminates at the lower end in the flaring mouth *a*. This tube B is confined to its place by an annular plate, D, through lugs on which pass set-screws *b* into the casing, and this annular plate contains a disk, P, of wire-gauze or thin perforated metal.

F is an ordinary gas-pipe passing through and secured to the casing A, and terminating in an ordinary tip, G, which is central with, but situated below, the flaring mouth *a* of the tube B.

On the top of the casing A are four projections, *e*, on which rest culinary vessels or other objects to be heated, and on the plate D is an annular projection, *f*, on which is cut a screw-

thread adapted to an internal thread at the lower edge of the cone-shaped tube H, which can be readily removed and replaced at pleasure.

Many plans have been devised for the purpose of rendering illuminating-gas available as a generator of heat, a thorough admixture of a plentiful supply of atmospheric air with the gas prior to both passing through a piece of wire-gauze or a perforated plate, and the consumption of carbon being the object aimed at, but never perfectly attained.

After many very careful experiments with apparatus of different construction I have ascertained that the desired admixture of the air and gas and the most thorough combustion of the carbon can be effected, and a flame of the most intense heat produced by the apparatus described above, in which two main features tend to produce the desired effect: First, it is essential that the gas and air should be directed to the perforated plate E through a tube, B, of the form of a truncated cone inverted; second, it is essential that the opening in the tip G for the exit of the gas should be central with and below the mouth of the tube B. Experiments have convinced me that the best results depend upon the position of the tip below the mouth of the tube B.

When the apparatus is required for heating culinary vessels or other objects the tube H is removed and the objects to be heated placed upon the projections *e* so as to be a proper distance above the flame which is diffused over the upper surface of the perforated plate E. When a concentrated flame is required the tube H is adjusted to its proper position above the perforated plate, when a flame of intense heat, equivalent to that caused by a blow-pipe, will issue through the top of the tube.

It will be evident without further description that the apparatus is applicable to a number of purposes, either when diffused or concentrated heat is desired.

It will also be evident that the exterior casing, A, may be modified in form without departing from the main feature of the invention.

I therefore claim and desire to secure by Letters Patent—

1. The combination of the hollow inverted truncated cone B, the wire-gauze or perforated plate P, and a suitable tip, G, the whole being arranged substantially as and for the purpose herein set forth.

2. In combination with the above, the concentrating-tube H, for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN Q. BIRKEY.

Witnesses:

JOHN WHITE,

W. J. R. DELANEY.