

No. 650,160.

Patented May 22, 1900.

F. T. WILLIAMS.
HEATER.

(Application filed July 21, 1899.)

(No Model.)

Fig. 1.

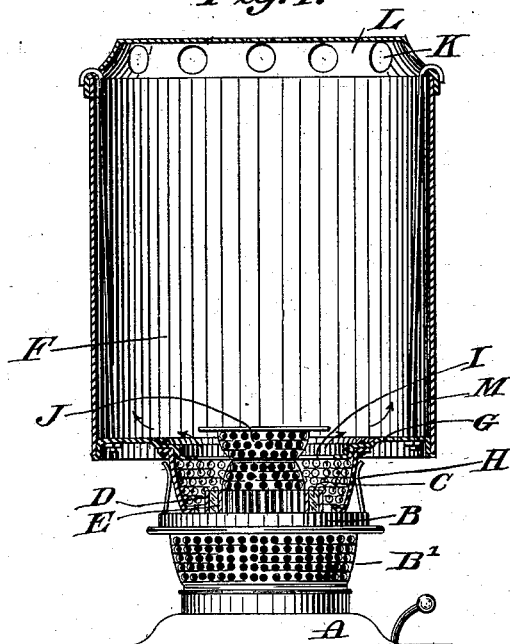
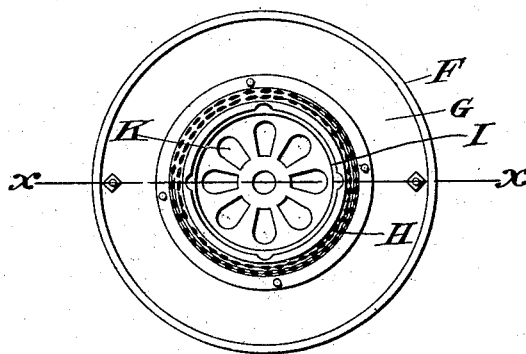


Fig. 2.



WITNESSES:

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HEATER.

SPECIFICATION forming part of Letters Patent No. 650,160, dated May 22, 1900.

Application filed July 21, 1899. Serial No. 724,632. (No model.)

To all whom it may concern:

Be it known that I, FRANK THEODORE WILLIAMS, a citizen of the United States, residing at Meriden, county of New Haven, State of Connecticut, have invented certain new and useful Improvements in Heaters, of which the following is a full, clear, and exact description.

My invention relates to heaters, is primarily designed to be used in connection with illuminating-lamps, and consists in several novel features of construction, which will be fully described hereinafter.

Among the chief objects of this invention may be mentioned complete diffusion of the heated air rising from the burner, extra provision for the inlet of air in addition to that given by the usual burner, and a consequent maintenance of a more satisfactory combustion.

In the drawings, Figure 1 is a vertical longitudinal section on the line *xx* of the invention and as applied to a lamp of the central-draft type. Fig. 2 is a view looking at the bottom of the heater when removed from the burner.

This heater is chiefly designed for use in connection with a central-draft lamp, and to that end it is shown with such a lamp in which a central air-supply is divided in the ordinary manner and in which the burner to be hereinafter referred to is provided with the usual air-inlets, also referred to.

A is the top of a lamp. B is a burner secured thereto in the usual manner and having air-inlets B'.

C is a wick which supplies the flame and is supported by the tubes D and E.

F is a heat-chamber, in this embodiment cylindrical in form, having at the top a series of holes or vents K, arranged for the escape of heated air. The part K has at the bottom an annular inwardly-extending skirt H. The flange G of the heat-chamber F has a circular opening I, through which heated air passes to the chamber F.

J is a cone secured to the burner B and extends upwardly into the heat-chamber F. The top of the cone J is located above the flange G and flares outwardly to approxi-

mately the same diameter as the diameter of the opening I into the heat-chamber.

Air upon entering the heater passes through the perforated inlet-skirt H and comes in close proximity with the flame, and as it rises through the constricted opening I it is impinged against the flaring top of the cone and thereby deflected outwardly. This outward deflection of the heated air causes it to strike against the sides of the lower part of the heat-chamber, as shown by arrows in Fig. 1, from which it rises and ultimately passes out through the openings K. A cover L forms the top of the heat-chamber F, being secured thereto by suitable means—for example, tie-rods M. It will be seen that the skirt H is perfectly adapted to be held by clips, and the heater can therefore be used with practically any lamp of the general type shown, it being of course necessary to first remove the glass chimney and substitute the heater.

One of the distinct and important features of this invention is the extra volume of air secured by using the inlet-skirt H. The combustion is much more satisfactory by the employment of this feature, since it minimizes creeping, streaking of the flame, and other common defects to the greatest degree possible.

Practical experience has demonstrated that this heater, although comparatively small, will develop unusual heating properties, because of the immediate radiation of the hot air upon leaving the flame. In many heaters it has been found that while the upper portion of the heater is extremely hot the lower portion is frequently relatively cold. This of course is a radical defect, since it shows that the full heating capacity of the flame is not economically availed of. By this improvement, however, the entire heating-chamber is kept at an almost-uniform degree of temperature, and it has been found that the size of the same may be considerably reduced, thus permitting a compactness of form heretofore unattained in heaters of this general character. By the use of the annular flange G, previously referred to, the air that enters both from above and below the heater must

- of necessity pass closely adjacent the flame, thus accomplishing the double purpose of supplying an unusual amount of oxygen and also heating the air in a very efficient manner instantly upon its entering. This is true not only of the air coming from outside the burner, but of the air which enters through the perforations in the spreader J. (Shown in the drawings.)
- 10 It is obvious that many changes may be made in the specific construction and arrangement herein shown without departing from the spirit or scope of my invention.
- What I claim is—
- 15 In a heater in combination, a central-draft burner having a wick-tube, a heating-chamber, an air-inlet skirt attached thereto and adapted to be placed over said burner said skirt having air-perforations therein extending to a point above the wick-tube of said burner, a spreader above said wick-tube, and an inwardly-directed flange located below the top of and adjacent to said spreader and leaving an air-space between it and said spreader whereby the air is directed inwardly toward the flame and said spreader and then outwardly above said flange.
- Signed at Meriden, Connecticut, this 19th day of July, 1899.
- FRANK THEODORE WILLIAMS.
- Witnesses:
I. B. MILLER,
CLAUDE V. SUTLIFF.