(No Model.)

A. J. DOTY.

GAS HEATING BURNER.

No. 411,647. Patented Sept. 24, 1889.

Fig. 1.

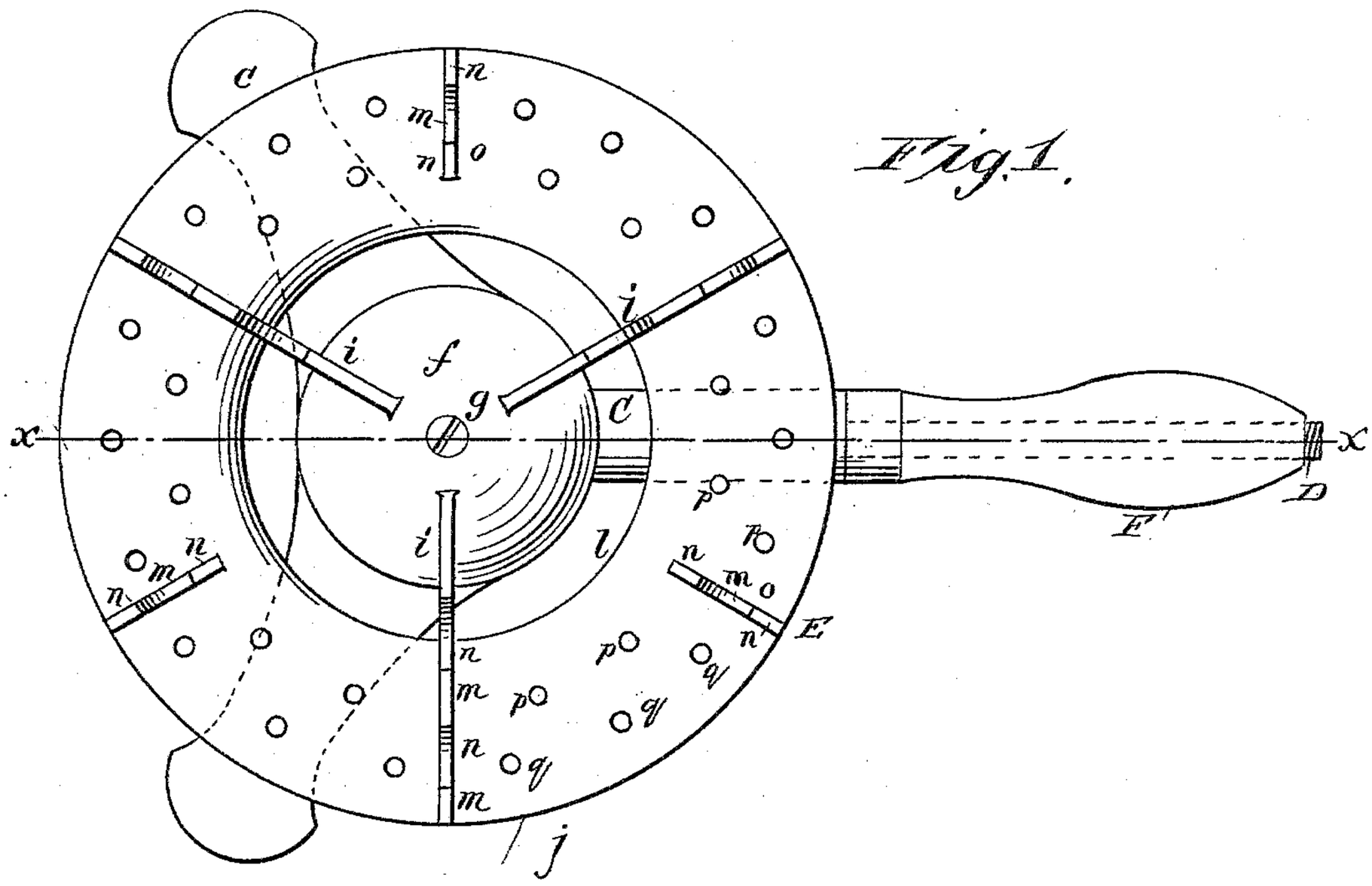
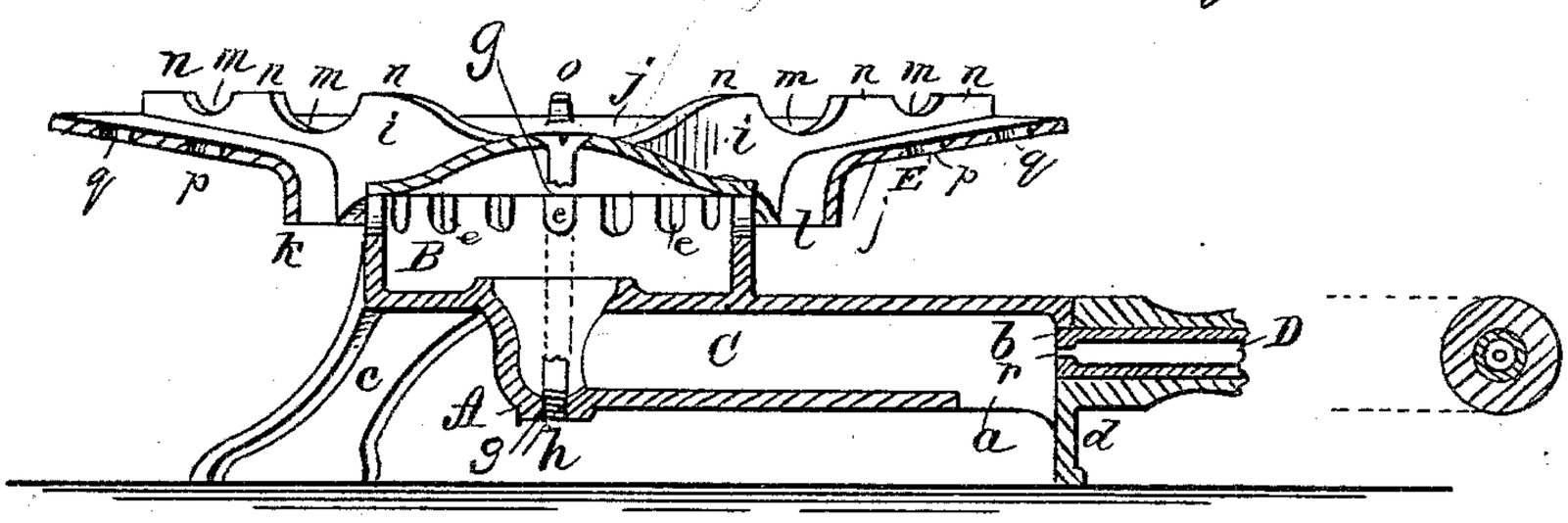


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ALBERT J. DOTY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE GOODWIN GAS STOVE AND METER COMPANY, OF SAME PLACE.

GAS-HEATING BURNER.

SPECIFICATION forming part of Letters Patent No. 411,647, dated September 24, 1889.

Application filed June 6, 1887. Serial No. 240,421. (No model.)

To all whom it may concern:

Be it known that I, ALBERT J. DOTY, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Gas-Heating Burner, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a plan view of my improved gas-heating burner; and Fig. 2 is a longitudinal section of the burner, showing a transverse section of the handle in detail.

Similar letters of reference indicate corresponding parts in both views.

The object of my invention is to secure a partial combustion near the point of issue of the combustible mixture from the burner and afterward gradually complete the combustion by the addition of small quantities of air at different distances from the center of the burner, so as to secure a widespread flame, and finally a perfect combustion of all of the gas issuing from the burner.

My invention consists in means for securing these results; and also further consists in ribs connected with the burner adapted to support the vessel or surface to be heated and arranged to be subjected to the action of the flame, all as hereinafter more fully described.

The body A of the burner consists of a hollow cylinder B, communicating at its center with a gas-mixing tube C, having in the under surface thereof near the outer end an air-opening *a* and provided at its extremity with a screw-threaded opening *b*, into which is screwed the gas-pipe D. Feet *c* project from the sides of the cylinder B, and the extremity of the tube C is provided with a foot *d*, which, together with the feet *c*, supports the cylinder B in a horizontal position.

The upper edge of the walls of the cylinder B are provided with orifices *e* for the escape of the combustible mixture, and the top of the said cylinder is closed by the solid central part *f* of the casting E, forming both the support for the object being heated and the distributer of the combustible mixture and flame. The central part *f* of the casting E is secured to the cylinder B by a screw *g*, passing through the said central part and downward into a threaded aperture or nut *h* in the lower side of the tube C.

From the central part *f* of the casting E project radial arms *i*, which are connected with an annular plate *j*, which is slightly concaved and provided with a downwardly-projecting collar *k* at its inner edge, leaving between the said collar and the cylinder B the space *l*. In the arms *i* are formed series of notches *m*, leaving the intermediate level surfaces *n* for the support of the vessel or other object to be heated. Intermediate between the arms *i* are placed ribs *o*, corresponding in form with the outer ends of the arms *i*, and also forming an additional support for the object placed upon the stove. In the annular plate *j* are formed series of holes *p* near the inner edge thereof and series of holes *q* near the outer edge thereof, for admitting air to the flame passing between the said plate and the surface being heated, so that the gas issuing from the orifices *e* (and partly consumed by the air entering the annular space *l*) receives through the holes *p q* full supplies of air, so that the combustion is complete and the flame is prolonged and distributed. The annular plate *j* is placed in such position relative to the upper surface of the projecting radial arms *i* and ribs *o* as will afford only sufficient space between said plate and the under surface of the object being heated, to allow of the free passage of the flame or products of combustion, and by this means confine the heat more closely to said surface.

In the case of single burners a handle F, of non-conducting material, is placed on the pipe D for convenience in moving the stove, and the extremity of the pipe D within the handle is threaded to receive a stop-cock or a coupling for flexible tubing. The inner end of the pipe D is reduced in diameter to form a small orifice *r*, through which gas is projected into the tube C. The gas entering the tube C from the orifice *r* mingles with air entering the tube C through the opening *a* and passes forward to the cylinder B, where it is distributed to the several openings *e*,

after which it is burned in the manner already described. The concave plate prevents the downward radiation of heat from the flame and brings the flame more closely in contact with the vessel being heated.

It is obvious that I may make the gas-distributer of annular form, instead of making it cylindrical, as shown in the drawings; also, that I may dispense with the radial arms and support the object to be heated in some other way. Therefore I do not limit or confine my invention to the exact construction shown and described.

By means of my improvement great economy in the use of gas is secured.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a gas-heating burner, the combination of the following parts, viz: the plate *f*, plate *j*, and arms *i*, cast in a single piece, the gas-chamber B, having orifices *e* in the vertical sides thereof, and mixing-tube C, having an air-opening *a*, also cast in a single piece, a fastening rivet or screw *g*, passing from the plate *f* to the chamber B and holding both castings together, and a gas-supply pipe D, having a gas-orifice *r* opening into said mixing-tube C, said parts being constructed and combined substantially as set forth.

2. In a gas-heating burner, the combination of a gas-supply pipe D, having a gas-orifice *r*, the mixing-tube C, having an air-opening *a*, the gas-chamber B, provided with orifices *e* in the vertical sides thereof, and the plate *f*, forming a top cover of the gas-chamber B and having radial arms *i*, supporting a surrounding annular plate *j*, so arranged with relation to said gas-chamber B as to form an air-passage between them, which shall supply air upwardly to the flame, said parts being constructed and combined substantially as described.

3. In a gas-heating burner, the combination of the pipe D, having a gas-orifice *r*, mixing-tube C, provided with air-opening *a*, gas-chamber B, having orifices *e* in the vertical sides thereof, a plate *f*, having radial arms *i*, and an annular plate *j*, having perforations *p* and *q*, supplying air to the flame above the point of ignition, said parts being constructed, combined, and arranged substantially as set forth.

ALBERT J. DOTY.

Witnesses:
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