(No Model.)

W. T. BRADBERRY.

GAS BURNER.

No. 344,808. Patented July 6, 1886.

Fig. 5.

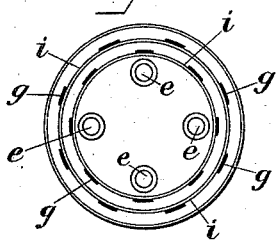


Fig. 1.

Fig. 4.

Fig. 2.

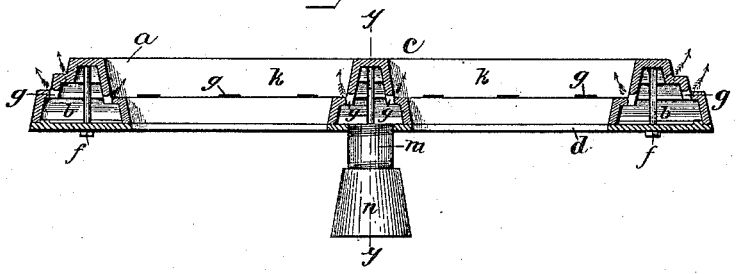
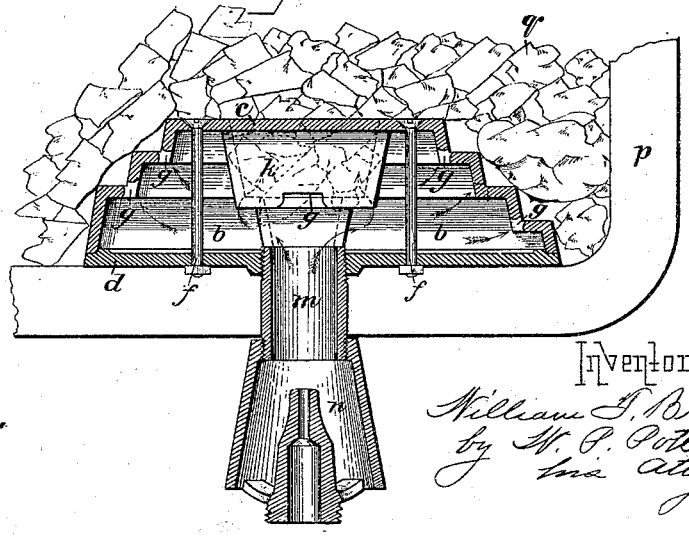


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

WILLIAM T. BRADBERRY, OF ALLEGHENY, PENNSYLVANIA.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 344,808, dated July 6, 1886.

Application filed December 11, 1885. Serial No. 185,327. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. BRADBERRY, of Allegheny, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Natural-Gas Burners; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a perspective plan view of my invention—an improved burner for natural gas or other fuel-gas—showing its mode of construction as generally applied to grates in open fire-places. Fig. 2 is a longitudinal sectional view of the same, taken in the line *x x* in Fig. 1, and showing also a portion of the connection with the air-chamber, or "mixing-chamber," as it is commonly called, and the supply-pipe. Fig. 3 shows an enlarged transverse section taken on the line *y y*, Figs. 1 and 2, showing also a sectional view of the mixing or air chamber and the mode of connection with the supply-pipe. Fig. 4 shows the shape and appearance of the flame as the gas is ignited after passing through the slotted escape-holes of the burner; and Fig. 5 is a plan view of a circular form of my burner as adapted to use in stoves or furnaces, or wherever the circular form is desirable.

The use of natural gas for heating purposes is becoming very extensive, and it is being rapidly introduced into private houses for burning in grates, open fire-places, stoves, &c., in localities where the gas may be obtained. In such use of the gas the best results are not obtained by simply setting fire to it as it escapes from the pipe and allowing it to consume in the open air; but the customary way of using it is to introduce the gas into the bottom of the grate, stove, or fire-place, and then fill it up with some indestructible material—such as asbestus, pumice-stone, or fire-brick broken in small pieces—and allow the gas to burn through and around this material, the flame playing through its interstices, and the whole mass, becoming very soon thoroughly heated, not only throws out vastly more heat, but retains it in a glowing mass, giving much the same cheerful appearance as a good hard-coal fire; but the difficulty in this mode of use is in preventing the material with which the grate is filled from falling down upon the escape-holes in the burner and choking or smothering the gas, and thus preventing its ready escape.

To obviate this difficulty is the object of my invention.

By the formation of my burner I prevent the lodgment of anything over the holes of the supply-pipe that can obstruct the proper escape of the gas.

My invention consists in the construction of a fuel-gas burner, *a*, cast in two parts, inclosing the hollow gas-chamber *b*, the bottom plate, *d*, being secured to the rest of the burner by means of the bolts *f*, the bridge or connecting-bar *c* connecting the two divisions of the gas-chamber *b*.

Between the two divisions of the gas-chamber are air-passages *e e*.

The slotted escape-holes for the escape of the gas are indicated by *g*.

The steps or ribs forming the outer wall of the gas-chamber and of the burner are shown at *h h*.

At *i i* are indicated the inner angles of the steps, along which the slotted escape-holes are cast.

o o is the outer angle of the steps.

k k indicate the inner walls of the gas-chamber, surrounding the air-passages *e*.

m and *n* in Fig. 2 indicate the mixing-chamber (where the air and natural gas are mixed in suitable proportions for burning) and the supply-pipe, and *p* and *q*, Fig. 3, show, respectively, the grate-bar and the material in the grate placed over and around the burner. The gas is admitted to the burner directly beneath the bridge *c*, and thence readily fills the remainder of the gas-chamber *b*, and, flowing out through the slotted escape-holes *g*, ignites and forms a flame, as appears at Fig. 4. The slotted escape-holes *g* are cast longitudinally along the inner angle of the step *h* at *i*, and are beveled from the inner side—this, taken together with their position in the extreme inner point of the angle of the steps, preventing any of the material getting to the escape-hole, and thus shutting off or smothering the supply of gas—and the slotted form of the hole gives to the flame a shape very similar to that produced by an ordinary illuminating-gas

burner, being much preferable to the use of a round hole, giving a much more cheerful fire, and lighting up the grate more effectually.

From an inspection of Fig. 3 in the drawings it will readily be seen that the material as placed in the grate will rest against the outer angle, *o*, of the steps, leaving free space at all times for the exit of the gas through the escape-holes placed along the inner angle of the steps. The angle at which the steps are placed to each other is preferably a right angle, though any angle sufficiently acute to prevent the lodgment of the material in the grate over the holes may be used. The large air-passages *e* are also provided with a step or steps, *h*, around their sides, having the same kind of slotted escape-holes as on the outer walls of the burner, thus heating from the center of the burner as well as from the outside. The square edges of the burner also have a tendency to stiffen it and prevent its warping out of shape while in use.

I do not wish to limit myself in the use of my burner to natural gas alone, as it is equally productive of good results in the use of any fuel-gas.

Having described my invention, what I claim herein as my invention, and desire to secure by Letters Patent of the United States, is—

A gas-burner composed of hollow chamber *b*, bridge or connecting-bar *c*, the whole surrounding air-passages *e*, with escape-holes for the gas arranged along the inner angles of the steps composing the sides of the burner, substantially as shown and described.

In testimony whereof I have hereunto set my hand.

WILLIAM T. BRADBERRY.

Witnesses:
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H. L. CASTLE.