

No. 709,493.

Patented Sept. 23, 1902.

J. J. LAWLER.
ATMOSPHERIC GAS HEATING BURNER.

(Application filed June 10, 1901.)

(No Model.)

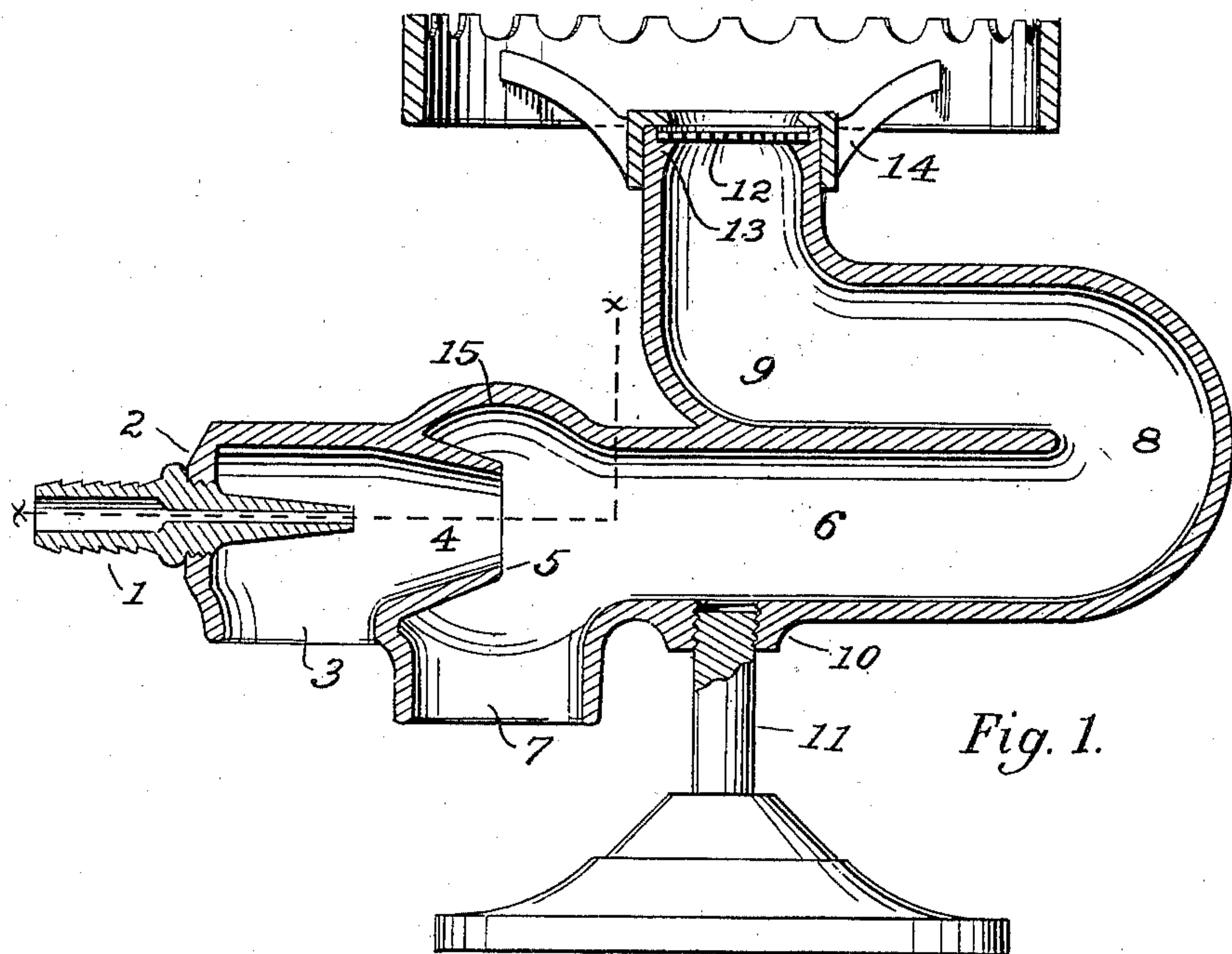


Fig. 1.

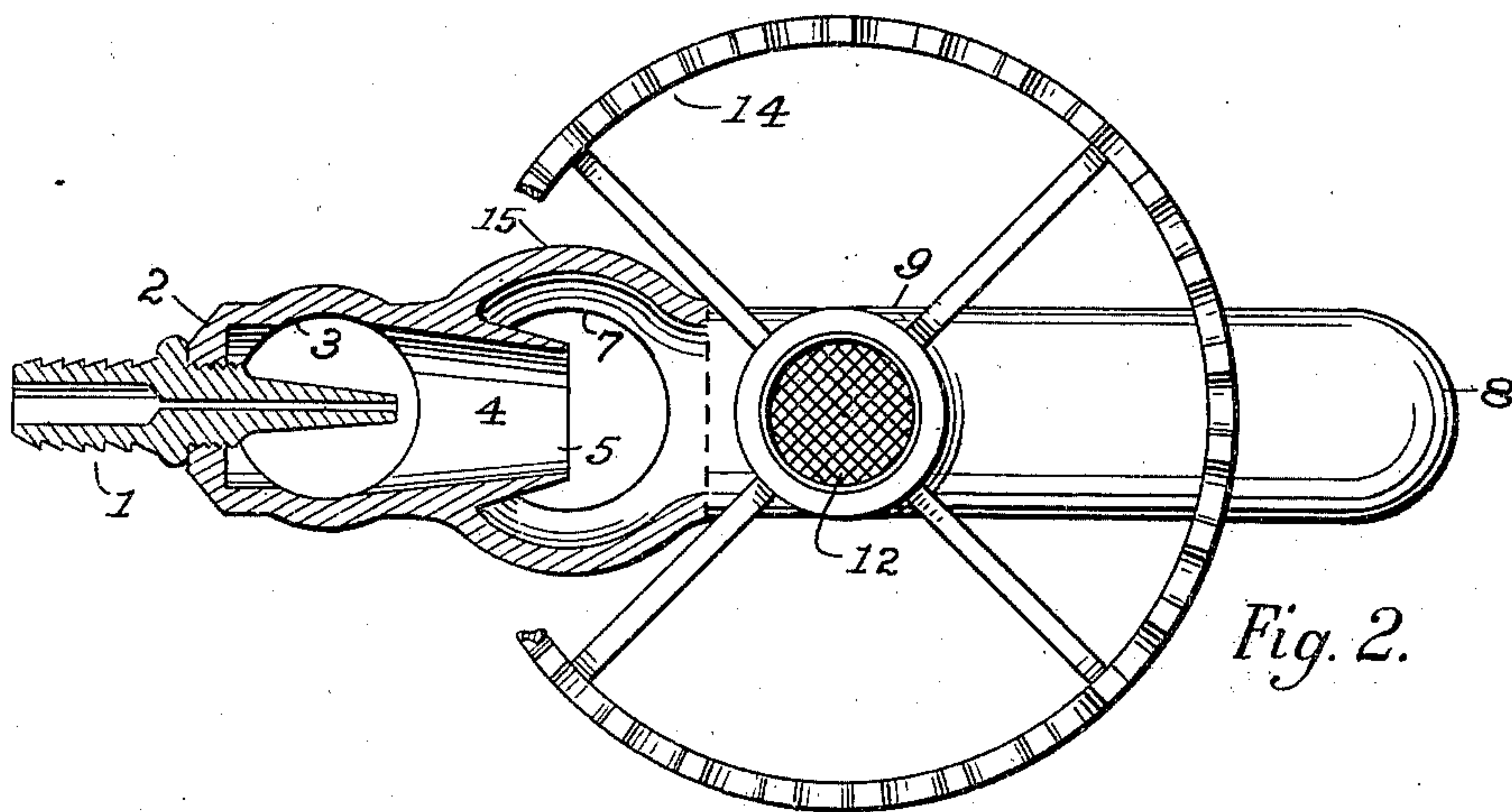


Fig. 2.

WITNESSES:

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JAMES J. LAWLER, OF MOUNT VERNON, NEW YORK.

ATMOSPHERIC GAS-HEATING BURNER.

SPECIFICATION forming part of Letters Patent No. 709,493, dated September 23, 1902.

Application filed June 10, 1901. Serial No. 63,899. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. LAWLER, a citizen of the United States, residing at Mount Vernon, county of Westchester, State of New York, have invented a new and useful Improvement in Atmospheric Gas-Heating Burners, of which the following is a specification.

My invention relates to that class of heating-burners known in the trade as "atmospheric" burners—i. e., atmospheric air is mixed with illuminating-gas in such proportions that a non-luminous and smokeless flame of a high temperature is the result—the object being to make a long tortuous mixing-chamber, so that the particles of carbon in the gas will be thoroughly mixed with the air, and to produce a burner which is compact and cheaply made.

The accompanying drawings, which form part of this specification, show in Figure 1 a central sectional side view of my improved burner, and Fig. 2 is a plan view of the same, partly shown in section at line *x x* of Fig. 1, stand not being shown.

Similar characters of reference refer to similar parts in the two views.

The body is preferably made of a single piece of cored casting, shaped as shown.

1 is a tapering gas-nipple fastened in the inlet end 2.

3 is an opening for admitting air into the first or primary mixing-chamber 4.

5 is a contracted tapering nozzle integral with the casting, through which the mixed gases pass into the long mixing-chamber 6.

7 is an auxiliary or secondary air-inlet placed near the nozzle 5, so that an additional supply of air is induced to enter the chamber 6, where it intermixes with the mixed gases passing through the nozzle 5.

8 is a return-bend in the chamber, and 9 is an elbow-bend.

10 is a boss on a vertical central line with the elbow 9, into which boss a suitable stand 11 can be secured to support the burner.

12 is a gauze supported on an annular shoulder 13, and 14 is a holder detachably secured to the burner, upon which a vessel can be placed. I prefer to enlarge the mixing-chamber near the nozzle 5, as shown at 15.

From the foregoing description it will be

seen that the mixed gases on account of being compelled to take a tortuous route become thoroughly mixed, and by returning the long mixing-chamber on itself, so to speak, the burner is made compact.

The operation is as follows: When the gas is turned on, it is forced through the nipple 1, the gas-pressure induces air to be drawn in through the first air-inlet 3 on the principle of an injector. The mixed gases then pass through the second tapering nozzle 5, which extends some distance into the enlarged chamber 15. An auxiliary air-supply is drawn in through the opening 7, and the mixed gases are forced through the tortuous chamber by the initial pressure of the gas to and through the outlet, over which a gauze is placed to spread the flame and to prevent back-lighting.

To support vessels, soldering-irons, or any article to be heated while at rest, a holder 14 is made use of, which holder is removably attached to the outlet end of the burner.

Such being the construction of my improved burner, what I claim as new, and desire to secure by Letters Patent, is—

1. A device of the character described, comprising a horizontally-arranged nozzle connected to the gas-inlet, a primary mixing-chamber having a closed end and its other end continued to form a tapering nozzle, one end of said first-named nozzle extending into said primary mixing-chamber, said primary mixing-chamber having a vertically-arranged air-inlet, a secondary mixing-chamber formed integral with the end of the primary mixing-chamber and having a vertical air-inlet, the tapering nozzle carried by the primary mixing-chamber extending into said secondary mixing-chamber, the secondary mixing-chamber being continued to form a tortuous mixing-chamber with an elbow carried by the end of the last-named mixing-chamber, and a burner supported by said elbow, substantially as described.

2. A device of the character described, comprising a horizontally-arranged primary mixing-chamber having a closed end and means connected thereto for supplying the gas to said chamber, the one end of said chamber being continued to form a nozzle, said chamber having an air-inlet on its under side, a secondary mixing-chamber carried by the primary

mixing-chamber and having an air-inlet on
its under side, the said nozzle extending into
the secondary mixing-chamber, a tortuous
mixing-chamber connected to the secondary
5 mixing-chamber and carrying a burner, sub-
stantially as described.

In testimony whereof I have signed my

name to this specification, in the presence of
two subscribing witnesses.

JAMES J. LAWLER.

Witnesses:

GASTON E. CORDEAUX,
JOHN L. NOLAN.