

No. 740,150.

PATENTED SEPT. 29, 1903.

J. J. LAWLER.
BUNSEN GAS HEATING BURNER.
APPLICATION FILED APR. 21, 1902.

NO MODEL.

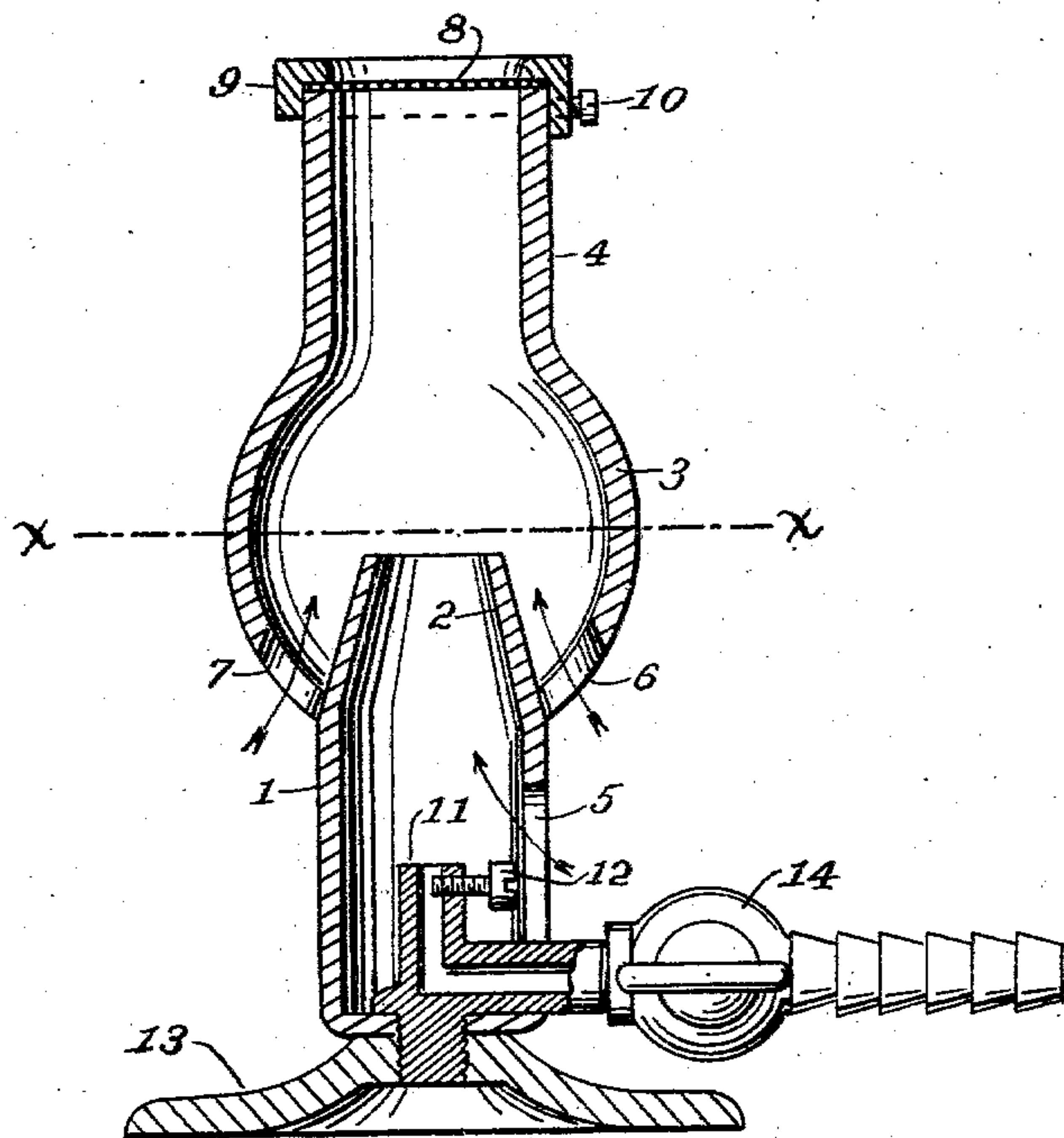


Fig. 1.

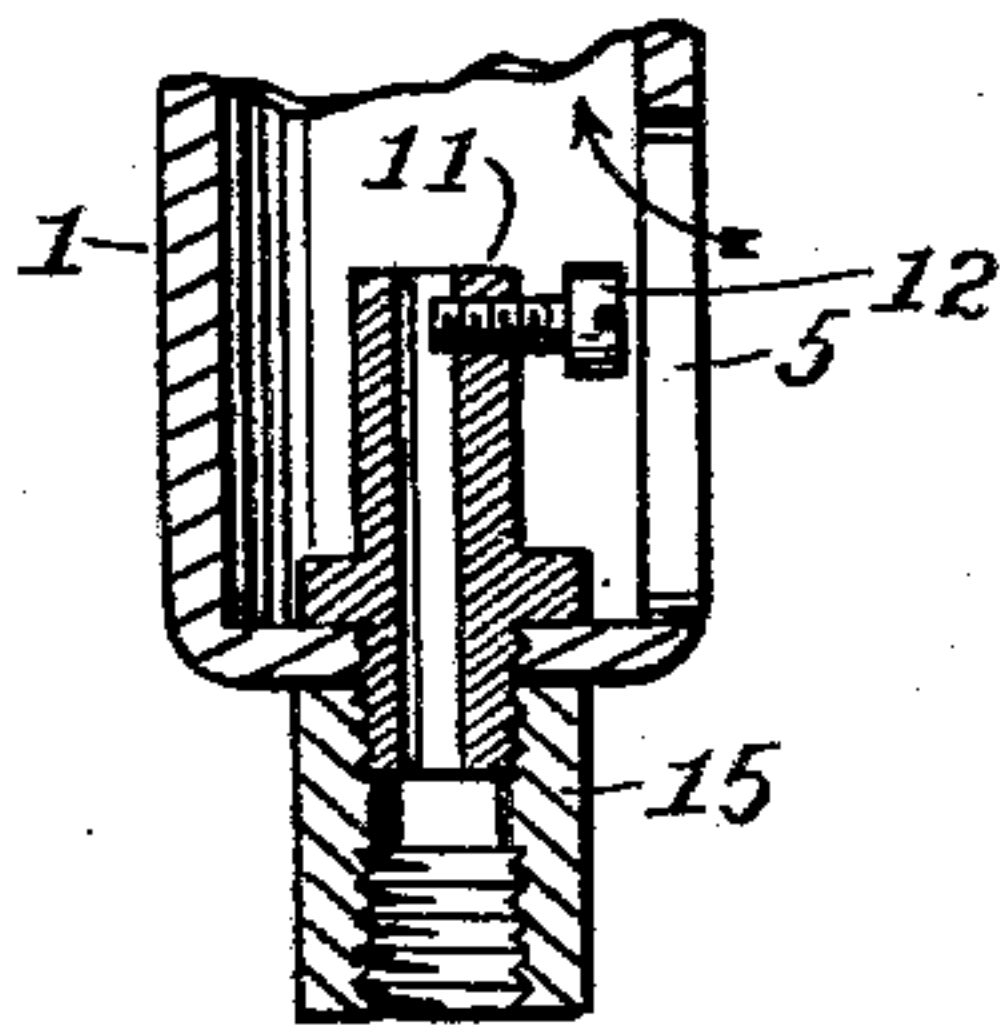


Fig. 3.

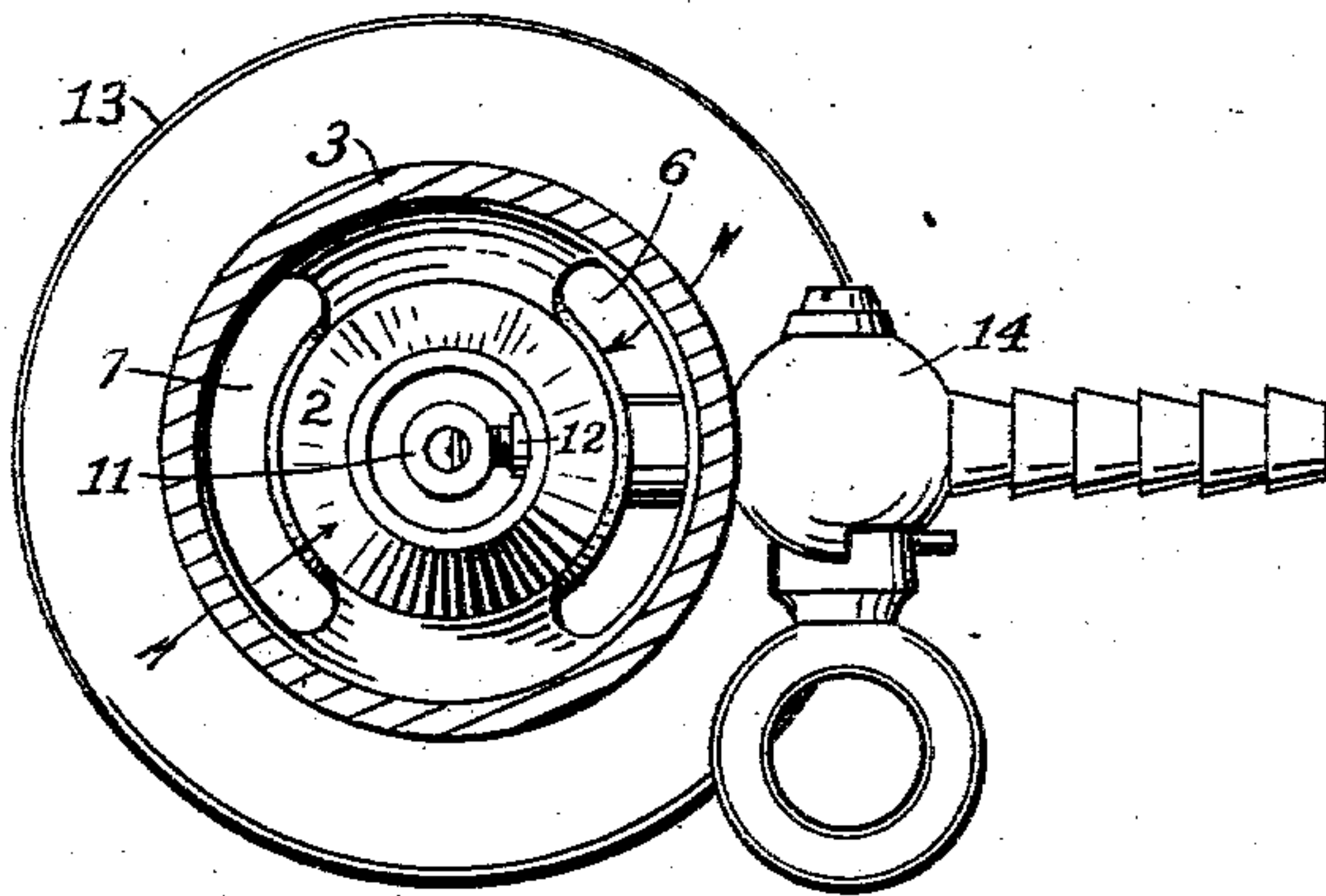


Fig. 2.

WITNESSES:

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

BUNSEN GAS HEATING-BURNER.

SPECIFICATION forming part of Letters Patent No. 740,150, dated September 29, 1903.

Application filed April 21, 1902. Serial No. 103,843. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. LAWLER, a citizen of the United States, residing at No. 314 South Third avenue, Mount Vernon, Westchester county, State of New York, have invented a new and useful Improvement in Bunsen Gas Heating-Burners, of which the following is a specification.

My invention relates to an improvement in that class of heating-burners known as the "Bunsen" type wherein illuminating-gas and air are mixed in certain proportions, so as to produce a non-luminous, but intensely hot, flame, the object being to produce a simple burner having two mixing-chambers for the better admixture of the two gases and to provide a simple means whereby the quantity of gas can be reduced at the outlet without reducing the pressure.

Reference being had to the accompanying drawings, which form part of this specification, Figure 1 is a central sectional view of my improved burner arranged to screw on a stand. Fig. 2 is a plan view on line X X of Fig. 1, and Fig. 3 shows the burner arranged to screw on a fixture.

Similar reference-numbers refer to similar parts in the several views.

The burner proper is composed of a casting comprising the primary mixing-chamber 1, having a contracted neck 2, which extends upwardly into an enlarged secondary mixing-chamber 3, and the tubular extension 4.

5 is an air-port opening into chamber 1, and 6 7 are air-ports to permit air to pass into chamber 3.

8 is a gauze or disk of perforated "lava" or metal, which rests on top of the tube 4, and 9 is a flanged ring provided with a set-screw 10 or other means for holding it in place.

11 is a nozzle set centrally in the base of the chamber 1 for admitting gas into the said chamber.

12 is a screw set with its head toward the air-opening 5, whereby the quantity of gas is regulated. This screw is placed near the outlet, so that while the supply of gas may be varied in quantity the pressure will not be affected, or, if at all, the pressure will be increased when the quantity is reduced, as in

the case of a water-nozzle, where the quantity of water is regulated at the extreme outlet.

In Figs. 1 and 2 I show a stand 13 and hose-cock 14, the nozzle 11 being of an L shape to suit the conditions. In Fig. 3 I use a straight nozzle having the essential set-screw 12 and a stiff joint 15, whereby the burner can be attached to a fixture, a handle, or any suitable gas connection.

Such being the construction, the operation is as follows: When the gas is turned on and permitted to enter the nozzle 11, the quantity is regulated by the screw 12 by means of a screw-driver or pliers. This regulation is very necessary to insure the proper mixture of the gas and atmospheric air. In high localities or in high buildings the gas-pressure is greatest in the upper floors, whereas in the basement or cellar of the same building the pressure will be quite low. By adjusting the screw 12 any desired quantity of gas can be had from a full opening to a complete stoppage or anywhere between these two extremes. The upward current of the gas passing through the nozzle 11 causes air to be drawn in through the opening 5 into the primary mixing-chamber, where, owing to the contracted neck 2, which acts like an injector, the upward current of the mixed gases draws an additional supply of air through the ports 6 7 into the secondary mixing-chamber 3. The arrows show the direction of the air. The enlarged chamber 3 with its rounding wall causes the air to create a vortex above the neck 2, whereby the two gases are thoroughly commingled, the volume then passing upward through the tube 4, which gives direction to the current and also to the flame above the disk 8 when the gas is lighted.

I prefer to make the burner proper (parts 1, 2, 3, and 4) of one integral casting, and as this burner is adapted for use of a journeyman plumber, tinsmith, painter, or other mechanic who carries a kit of tools it must be strong and not liable to get out of order. I find an iron casting best adapted for my use. The gas-nozzle 11 I make of brass.

The burner is handy for a plumber to heat his pot of lead, soldering-irons, for warming up pipe, heating water, and many other uses,

while it makes an admirable and economical paint-burner for removing old paint from surfaces or places where it is on too thick or uneven, as is usually done by scorching and then
5 scraping.

The burner is compact, will occupy little room in a bag or tool-box, and can be put in the pocket, if need be. The flame can be regulated to almost any size in a moment,
10 and being once set where it is used it cannot be accidentally altered, because the adjusting-screw is placed within the confines of the burner-base.

This invention is a modification of a somewhat similar burner which forms the subject-matter of another application allowed
15 March 19, 1902, Serial No. 63,899.

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

1. In a device of the type set forth, a primary mixing-chamber merging into a contracted neck and having an air-inlet, an enlarged secondary mixing-chamber surrounding
25 said first-named chamber and having air-inlets located beneath said contracted neck, and a nozzle having a set-screw extending into the inlet thereof and in horizontal alinement with the air-inlet of the primary mixing-chamber, substantially as described.
30

2. In a device of the type set forth, the combination of a primary mixing-chamber carrying an enlarged secondary mixing-chamber with the upper end of the former extending
35 into the latter, the secondary mixing-chamber being provided with air-inlets at its lower

portion located beneath the upper end of the primary mixing-chamber, the primary mixing-chamber being provided with an air-inlet on the side thereof, and a nozzle extending
40 into the lower portion of the primary mixing-chamber and carrying a set-screw in horizontal alinement with the inlet of the said chamber, substantially as described.

3. In a device of the character described, 45 the combination with a support, a primary mixing-chamber mounted thereon, said chamber having a contracted neck portion, and an air-inlet below the said neck, a nozzle having angularly-disposed portions extending
50 into said mixing-chamber, a screw-threaded projection formed integral with said nozzle and adapted to screw into said support and to hold the primary mixing-chamber thereon, a set-screw mounted in said nozzle,
55 opposite the air-inlet of said chamber for controlling the flow of gas therethrough, and a secondary mixing-chamber adapted to seat on the contracted neck portion, said chamber having an enlarged lower portion and an
60 upper tubular portion, and having oppositely-disposed air-inlets in the same, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of
65 two subscribing witnesses, this 18th day of April, 1902.

JAMES J. LAWLER.

Witnesses:

WILLIAM G. SCHERRER,
JAMES F. CUNNINGHAM.