

(No Model.)

J. M. DÖHRER.
GAS BURNER.

No. 490,764.

Patented Jan. 31, 1893.

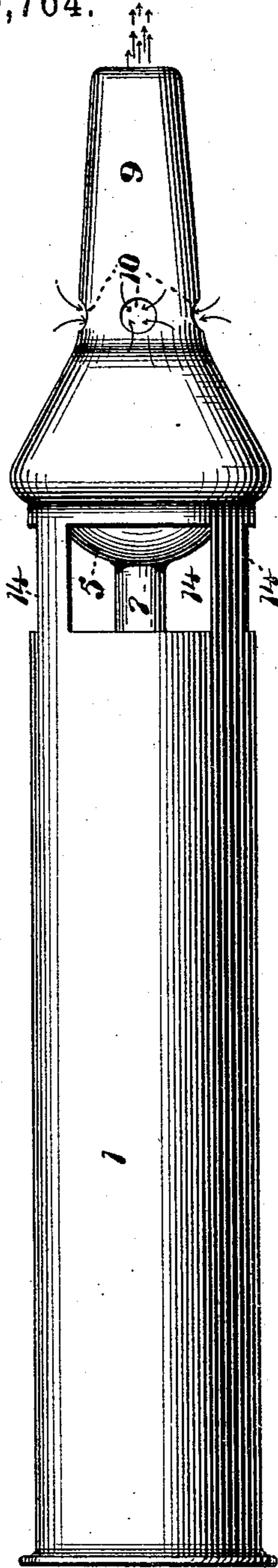


Fig. 1.

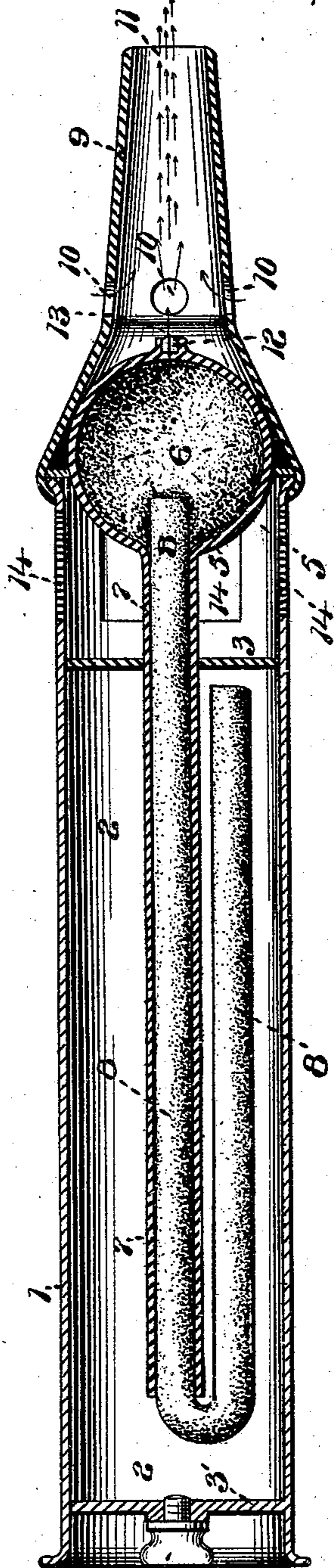


Fig. 2.

WITNESSES:

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BY

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JOHN M. DÖHRER, OF BRIDGEPORT, CONNECTICUT.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 490,764, dated January 31, 1893.

Application filed May 9, 1892. Serial No. 432,293. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. DÖHRER, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to that class of burners using naphtha, benzine, alcohol or other volatile liquids of like character.

Its object is to so construct a burner, that the vapor arising from the liquid will all be converted into gas within a chamber adjacent to and leading from the reservoir holding such liquid, and thus prevent any of the vapor escaping from said chamber wherein the gas is formed; which gas, owing to its expansive properties, will force itself through an orifice provided in said chamber and unite on the exterior with the proper amount of oxygen to support combustion.

The construction and operation of my device will hereinafter be more fully described in the specification and such features as I believe to be new and novel, particularly pointed out in the claim.

To enable others skilled in the art pertaining to my invention, to construct and use the same, reference is had to the accompanying drawings, which form part of this specification, in which;

Figure 1, is a vertical elevation of the burner showing the reservoir; portion of the gas generating chamber, and gas and oxygen combining tube or tip projecting beyond the same. Fig. 2, is a longitudinal sectional view of the entire device, showing the interior of the liquid reservoir; gas chamber, wick tube connected therewith, and extending well into the reservoir, and carrying a wick which communicates with the interior of said gas chamber, which chamber, is packed full of material calculated to exclude the liquid therefrom, holding nothing but the vapor, and, but little of that.

Its construction and operation are as follows;

1 is the outer shell of the reservoir, 2 interior of same, 3, 3', end walls of the reservoir; 4 screw plug or stopper which closes an opening in the end wall 3', through which the reservoir is filled with the liquid; 5 gas chamber;

6 packing therein; 7 hollow tube opening into the gas chamber, and leading from thence into the reservoir; 8 wick filling the tube 7 and projecting therefrom into the reservoir; 9 gas and oxygen combining tube, which is attached to the outer shell of the reservoir, enveloping the gas chamber and projecting outward therefrom, said tube having holes 10 to admit the proper supply of oxygen to unite with the gas to support combustion; 11 outlet in the end of tube 9 through which the flame emerges; 12 is the gas jet plug situated in the front end of chamber 5, provided with the small outlet hole 13 therethrough for the passage of gas. The wick tube 7 extends nearly to the end 3' of the reservoir. The wick projecting therefrom extending nearly or quite to the opposite end 3. Chamber 5 is packed completely full of felt, wick, or other like substance that will arrest the vapor. The liquid in the reservoir 2 will have access to such portion only of the wick projecting without the open end of tube 7 in the reservoir. This arrangement precludes the possibility of any liquid, and but little of the vapor reaching chamber 5, and this, as before mentioned, is so firmly packed, that even the vapor cannot pass through it. What I wish to be understood by the vapor is that which passes off through the natural process of evaporation. To start the burner, a small quantity of the liquid is poured into the open mouth 11 of tube 9, down upon the outer front surface of the chamber 5, and there ignited. The walls of such chamber being thin, the temperature of the interior is quickly raised to a point sufficient to convert vapor into gas. Such raised temperature extending back into the chamber 5, and, if need be, into the tube 7, until, meeting the advance portion of the vapor, which, converting into gas, such gas instantly expands and fills the chamber, passing outward therefrom through hole 13 to combine with the oxygen entering through holes 10 of tube or tip 9. The flame is intensified by the pressure and density of the generated gas within chamber 5, being forced through such a minute opening.

In my construction the vapor is checked before it can pass through the gas chamber. and is converted into gas before it can emerge therefrom.

In the device shown, the flame can be continued until, not only the liquid, but all the vapor within the reservoir has been exhausted. After most of the liquid in the reservoir has passed into the wick in the form of vapor, and converted into gas as before mentioned, the temperature within such reservoir will become gradually raised to a point where gas is formed, whose expansive qualities will soon exhaust the reservoir. To check in a measure this tendency of the heat to follow up the reservoir too rapidly, the apertures 14 are cut in that portion of the shell 1 projecting beyond the end wall 3, to which projecting end is attached the combining tube. These apertures admit cool air to the exterior of the wick tube lying between the reservoir and gas chamber. The jet plug 12 is exteriorly threaded to fit a threaded hole in the front end of chamber 5 so that it may be removed for other plugs, having larger or smaller gas orifices, as required. If desired, the wick tube 7 could follow the wick by a return bend; so that all the wick would be inclosed. It will be understood that where the wick tube 7 passes through the end wall 3 of the reservoir, the aperture for such purpose will be effectually closed against the escape of either liquid or vapor.

30 Having thus described my invention, what

I claim as new and desire to secure by Letters Patent, is;

A gas burner of the character described comprising in combination, liquid reservoir 2, having closed ends as shown; wick tube 7 carrying wick 8, said tube extending well into the reservoir as shown and projecting outward therefrom and terminating in the gas chamber 5, having gas outlet leading therefrom, substantially as shown; said chamber firmly packed with a substance sufficient to arrest the vapor arising from the reservoir, so that, heat being applied to the external surface of the chamber the vapor therein, or in the wick leading thereto, is converted into gas and to be forced therefrom as shown, to unite with the proper amount of oxygen in tube 9 to support combustion, apertures 14 between the gas chamber and the closed end 3 of the reservoir to admit cold air to check the rapid rise in temperature between the gas chamber and the interior of the liquid reservoir, as described.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 2d day of May, A. D. 1892.

JOHN M. DÖHRER.

Witnesses:

GEO. D. PHILLIPS,
N. W. BISHOP.