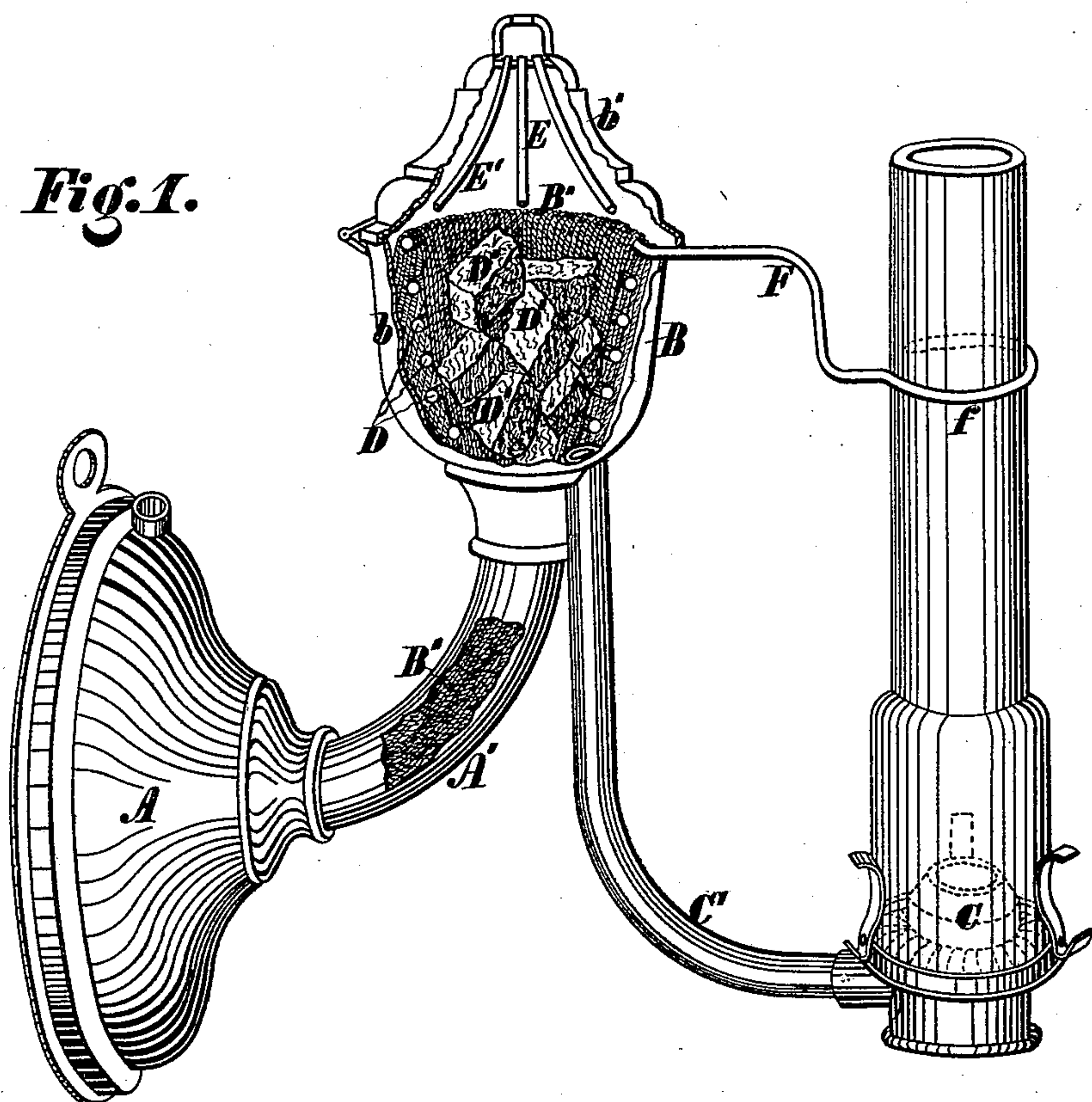


C. E. BALL.  
LAMP.

No. 177,191.

Patented May 9, 1876.

*Fig. 1.*



Witnesses

Saml. J. Van Stavern  
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# UNITED STATES PATENT OFFICE.

CHARLES E. BALL, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. 177,191, dated May 9, 1876; application filed November 8, 1875.

*To all whom it may concern:*

Be it known that I, CHARLES E. BALL, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Hydrocarbon-Gas Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which the figure is a perspective of a gas-lamp, partly in section, constructed with my improvements.

My invention has reference to that class of lamps in which liquid hydrocarbons are vaporized or converted into a gaseous form by atmospheric pressure before being forwarded to the burner, and are there consumed in such form without the employment of a wick, thus providing a veritable gas-flame, dispensing with the employment of wick, and keeping the liquid-reservoir remote from and out of possible contact with the flame, and thereby avoiding all danger of explosion.

The primary object of my invention is the steady and perfect volatilization of the liquid hydrocarbons, so as to maintain a uniform supply of gas to the burner, and thereby afford a luminous and unvarying flame.

The nature of my invention consists in the novel construction, combination, and arrangement of parts, as hereinafter more fully set forth.

Referring to the accompanying drawing, A shows the reservoir for the hydrocarbon liquid; B, the volatilizing-chamber, and C the burner. The reservoir A may be of any suitable shape and proportions, and should be located below the chamber B, so that its contents will not flow by gravity into the latter. A' represents a curved pipe, affording communication between the reservoir A and chamber B, being stuffed with fibrous material B', so as to induce the movement by capillary attraction of the liquid hydrocarbons from the former into the latter. C' is another curved pipe, supporting the burner C, and serving to convey to the latter gas or volatilized hydrocarbon from the chamber B. The chamber B is divided into two compartments or sections,

b and b', the latter being hinged to the former, and forming a cap or lid for it. In the lower section b is located a wire coil, D, upon which are hung strands of yarn B' or other suitable fibrous material, the ends of which pass through the pipe A', for the purpose already described. Inside of the coil are placed pieces of pumice-stone D', the porous nature of which permits the free absorption of liquids, thus preventing the accumulation of the hydrocarbon other than in a semi-vaporous form, at the same time keeping the center of the coil well supplied with the gas-producing element. E represents a short straight pipe, passing through the cap b', and E' are curved pipes, also passing through said cap.

The pipe E supplies air to the center of the coil, while the pipes E' furnish a similar supply to the space between the outside of said coil and the walls of chamber B.

It should be remarked that the coil D is made of copper wire, and is continued to form, or connected with, a depending arm, F, the lower extremity of which is bent into the shape of a ring, f, serving as a chimney holder or stay, said arm and ring being of the same material as the coil D. A beneficial effect flowing from the employment of this arm is this: The flame from the burner will serve to heat the ring, the caloric of which will be conveyed along the arm F to the coil D, owing to the high conductive power of the material employed, thereby producing a perfect volatilization of the liquid hydrocarbons. The heat conveyed to the ring f, and thence to the coil D, being only that which is radiated through the chimney, will never be sufficient to produce a too rapid volatilization of the liquid hydrocarbons, but only just enough to maintain the proper temperature, thereby insuring a free and uniform flow of gas to the burner, and a steady and unflickering light.

What I claim as my invention is—

1. The copper-wire coil D, located in the volatilizing-chamber B, and serving as a frame or support for the fibrous material B', in combination with an arm passing through the walls of the chamber B, and proceeding to the chimney or above the flame, for conducting heat therefrom to said coil to facilitate vaporization, substantially as shown and described.



2. In a hydrocarbon-lamp in which the fluid is drawn by capillary attraction from a reservoir to a volatilizing-chamber, and converted into a vapor in the latter, and before reaching the burner, the combination, with the fibrous packing of such volatilizing-chamber, of a central filling of pumice-stone, to prevent liquid accumulation and assist in the formation of gas, substantially as set forth.

3. In a hydrocarbon-lamp, the combination, with the chamber B, containing the coil D and packing B', of the pipes E and E', conveying air to the center and outer surfaces of the coil, substantially as described.

4. The arm F, made of copper wire, bent to form a ring, *f*, and connecting with the coil D, serving as a chimney holder or stay and heat-conductor, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of October, 1875.

CHAS. E. BALL.

Witnesses:

GEO. C. SHELMEKDINE,  
M. DANL. CONNOLLY.