C. E. BALL.

Hydrocarbon Lamp.

No. 205,943. Patented July 16, 1878.

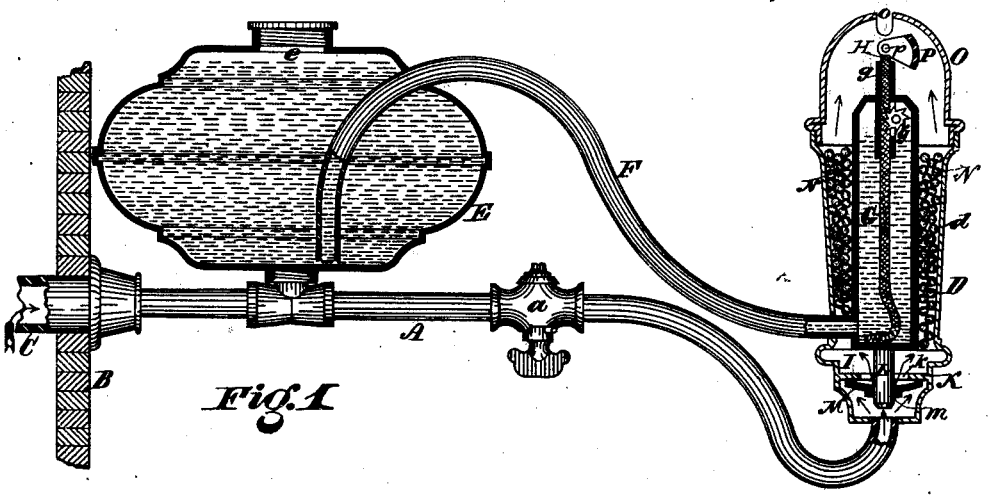

Fig. 1

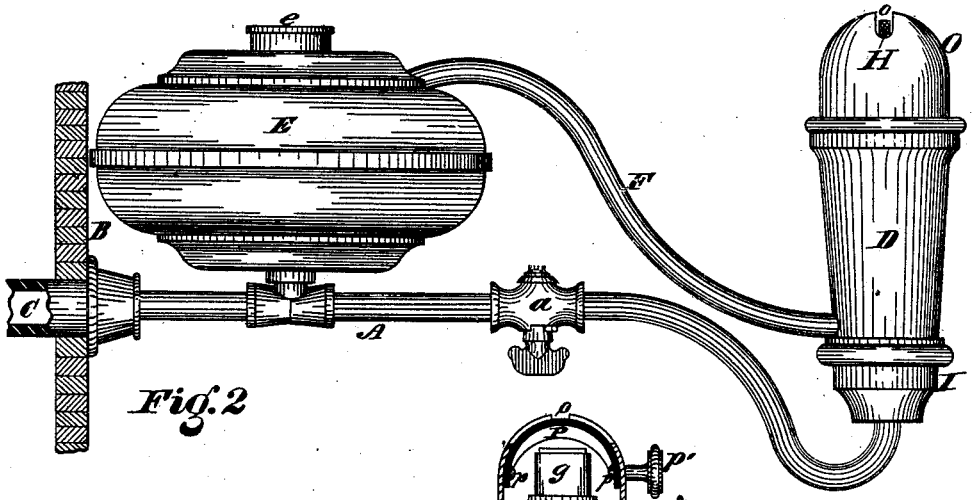

Fig. 2

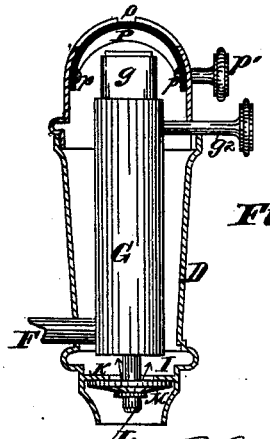

Fig. 3

WITNESSES:

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INVENTOR,

Chas E. Ball,

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UNITED STATES PATENT OFFICE.

CHARLES E. BALL, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN HYDROCARBON-LAMPS.

Specification forming part of Letters Patent No. **205,943**, dated July 16, 1878; application filed November 30, 1877.

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 Lamps for Burning Hydrocarbon Fluid; 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—

Figure 1 is a longitudinal vertical section, and Fig. 2 is a side elevation, of my invention. Fig. 3 is a detail section of the burner.

My invention has for its object to provide an improved lamp for burning hydrocarbon fluid with the aid of an artificial current of air as a substitute for hydrocarbon gas in a burner without a chimney.

My improvements consist in the peculiar construction, combination, and arrangement of parts, as hereinafter fully set forth, having reference particularly to the following features: First, the combination of a lamp-fixture with an air-pipe, a wick-burner, a hydrocarbon-reservoir, and a siphon supply-pipe; second, to the combination, with the burner, of a device for regulating the air-currents, so as to prevent too strong a blast upon the flame; third, to means for preventing the creation of noise by the passage of air through the burner; fourth, to mechanical means for extinguishing the light of the lamp.

Referring to the accompanying drawings, A designates a common fixture or gas-pipe provided with a cock, *a*, and designed to be affixed to a wall, B, like gas-fixtures usually are, so as to be in communication with a pipe, C. D is a burner sustained on the outer end of said fixture, and E is a bowl or fluid-reservoir supported by the same, as shown. F is a siphon-tube proceeding from the fluid-reservoir E to a fluid-chamber, G, within the burner D. Said chamber G terminates in a tube, *g*, for the wick H, and is provided with the usual feed ratchet-wheels g^1 g^1 upon a shaft, g^2.

The shell *d*, which forms the exterior wall of the burner, is extended below the chamber G, forming an air-chamber, I, which is divided horizontally by a diaphragm, K, having a central opening, *k*. Through this opening projects downwardly a rod, L, rigidly secured to the bottom of the chamber G, and upon this rod, and below the diaphragm K, is placed a disk, M, having a central opening, *m*, the diameter of which is slightly greater than that of the rod L, as shown.

Between the shell *d* and the chamber G, shot, indicated by the letter N, is placed, for a purpose hereinafter specified. O is the dome of the burner, having a slotted opening, *o*, for the issuance of the flame from the former, and P is a hood or extinguisher, pivoted to said dome by means of its trunnions *p p* entering openings in the latter. One of said trunnions is extended, as shown, and provided with a thumb-nut, *p'*, by means of which said hood is turned so as to close the opening *o* when it is desired to extinguish the light.

The pipe C is to be connected to a blower of any suitable construction, and which may be located in any convenient place.

In practice, I would recommend the blower to be located in the cellar of the house and run by means of a weight, cord, and pulley. These parts, forming in themselves no part of my invention, I have not illustrated in the drawing.

Hydrocarbon fluid is admitted to the reservoir E through its neck *e*. As soon as the fluid rises in said reservoir so that its surface will be above the highest point of the siphon F said fluid will begin to flow through the latter into the chamber G. The cock *a* being closed, a light is first applied to the wick H. The cock *a* is now opened, allowing the air-current induced by the blower to pass into the burner and ascend to the flame to support combustion. As soon as the air-current meets the flame it at once causes the latter to spring up, expand, and increase in brilliancy, producing very effective illumination. The air, when it enters the chamber I, raises the disk M against the diaphragm K, seating said disk against the latter, as shown, and allowing the current to pass only through the central opening around the rod L. Should the air-pressure be diminished, the disk M will slide down upon the rod L away from the diaphragm, thus affording increased area for the admission of air to the burner. The shot N prevent

the air in ascending through the burner from making any objectionable noise, the air passing through the mass of shot and issuing from the surface thereof, as indicated.

When it is desired to extinguish the lamp, the hood P in the dome is turned over the flame by means of the thumb-nut *p'*. When the light is thus extinguished the cock *a* is shut, so as to cut off the air-current.

As long as the combustion at the burner continues the siphon F will supply fluid from the reservoir E to the chamber G in quantity sufficient to compensate for such combustion until the fluid in said reservoir is exhausted. Whenever the light is extinguished the siphon will cease feeding, and will automatically resume operation as soon as combustion begins at the burner.

What I claim as my invention is—

1. The combination of the fixture A with an air-pipe, C, a wick-burner, D, a hydrocarbon-fluid reservoir, E, and a siphon supply-pipe, F, substantially as and for the purpose set forth.

2. In combination with a wick-burner, D, and a pipe, A, for supplying air to said burner, the diaphragm K, rod L, and disk M, for regulating the supply of air and preventing a too violent blast, substantially as shown and described.

3. In combination with the burner D and air-pipe A, the shot packing for preventing noise, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of November, 1877.

CHAS. E. BALL.

Witnesses:

SAML. J. VAN STAVOREN,

CHAS. F. VAN HORN.