R. W. PARK.

LAMP.

No. 183,591. Patented Oct. 24, 1876.

Fig. 1

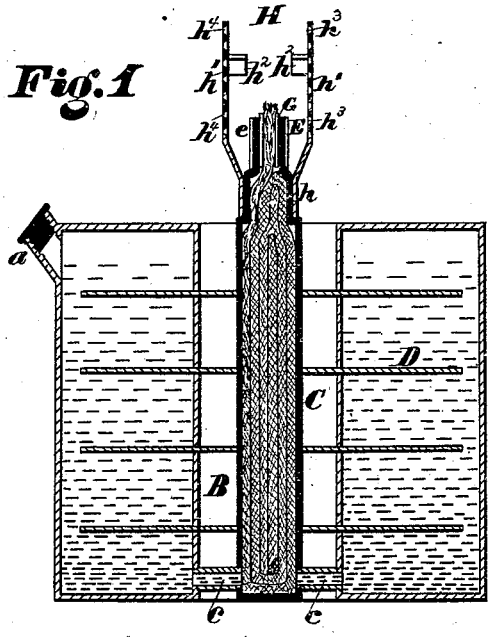
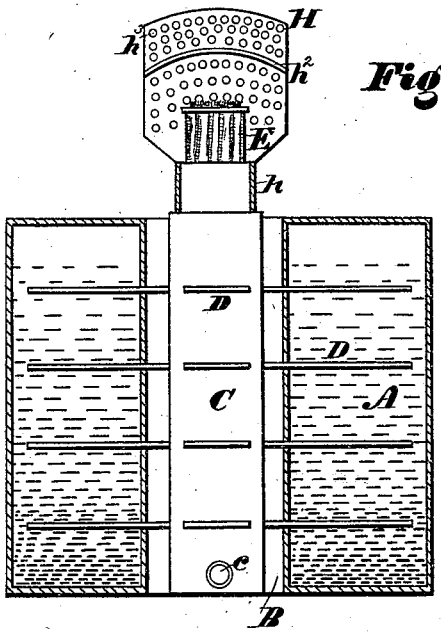


Fig. 2



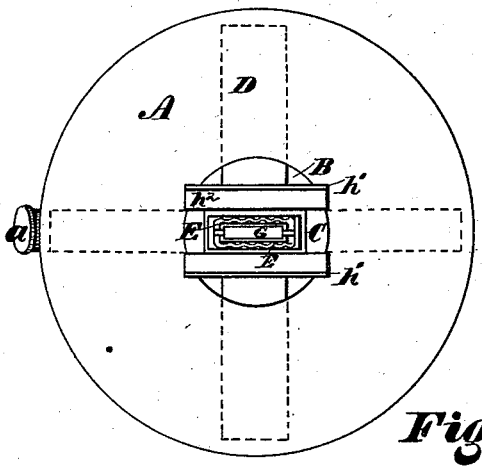


Fig. 3

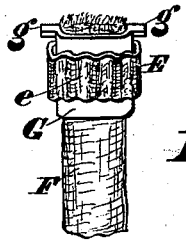


Fig. 4

Witnesses

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ROBERT W. PARK, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **183,591**, dated October 24, 1876; application filed February 12, 1876.

To all whom it may concern:

Be it known that I, ROBERT W. PARK, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in 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—

Figures 1 and 2 are transverse vertical sections. Fig. 3 is a plan view. Fig. 4 is a detail perspective of the wick and holder, and of the corrugated neck of the reservoir.

The object of my invention is to provide a lamp specially adapted to lighting streets, railroad stations, and other extensive spaces or apartments.

The nature of my invention consists in the peculiar construction and combination of parts whereby coal-oil of the common specific gravity is safely volatilized without danger of explosion, and burned at the point of combustion in a gaseous form.

Referring to the accompanying drawing, A represents the reservoir or bowl, preferably of cylindrical form, having a central passage, B. C represents a retort placed within the passage B, and communicating with the reservoir A at the bottom of both by narrow tubes *c c*. D D are arms, of which any desired number may be used, radiating from the retort C, and passing through the inner wall of the reservoir A. E is a flat wick-tube, forming a continuation of the retort C, its sides being corrugated or grooved, as shown at *e e*, so as to leave passages between it and the wick. F shows the wick, on the upper extremity of which is placed a slide, G, having ears *g g*, by which it is retained and prevented from dropping into the retort. H represents the burner, composed of the collar *h*, which encircles the upper diminished end of the retort C and the wings h^1 h^1, which flare or spread from their point of connection with said collar until about on a level with the top of the wick-tube, whence they ascend vertically. h^2 h^2 are shoulders or ledges on the inner sides of the wings h^1, and h^3 h^4 are perforations in said wings, both above and below the shoulders h^2.

The operation is substantially as follows: The retort C being packed with wick, or equivalent material, the reservoir A is to be supplied with oil, either by pouring it in the tube E or by filling through a nozzle, *a*. If the latter plan be adopted, said nozzle should be remote from the burner, and be tightly closed, to prevent the admission of air or escape of gas after the filling has been accomplished. The slide G is then adjusted on the wick F, the latter being placed, as shown, in the tube E. The burner H is now fitted in position and a light applied to the wick. The oil soaked up by the latter at first takes fire, burning as in an ordinary lamp. Soon, however, the burner, wick-tube, and retort become heated, giving caloric to the arms D, by which it is conducted directly into the oil contained in the reservoir A. The application of this conducted heat volatilizes the oil in said reservoir, whence it passes into the retort C. There, being subjected to a still higher heat, it is completely volatilized, and passes in the form of gas through the grooved passages *e e* to the point of combustion.

It will be observed that while a high heat is conveyed to the oil in the reservoir, there is no chance for explosion, as said reservoir is perfectly air-tight. Should a great pressure of gas exist in said reservoir it will find its escape through the retort, and thence to the burner, where it will be safely consumed. It is believed, however, that too great a pressure will never occur, as the caloric conducted by the arms D, while sufficient to volatilize the oil to the required degree, will never be great enough to produce disaster or accident.

If desired, the wings of the burner may be inclined, instead of ascending vertically; or they may be curved to conform to the shape of a dome, in every case, however, having passages h^3 h^4 for the supply of oxygen necessary to support combustion.

The object of the ledges h^2 is to catch the flame ascending from the burner and cause it to be thrown to some extent back upon the collar *h* and tube E, thus heating the retort and arms D D. If desired, the tube E, as well

as the retort C and arms D, may be of copper, in order to better conduct the heat of the burner to the oil in the reservoir. The passage B leaves a space around the retort, thus, in a measure, disconnecting said retort from the reservoir A, and preventing the conduct of two great a degree of heat from the former to the latter. It also allows a current of air to pass up to the burner, said air becoming rarefied as it ascends, and thus better assisting combustion than if it were cold.

The openings h^3 h^4 also supply air to the side of the flame, both above and below the ledges h^2, thus insuring the necessary amount of oxygen required for perfect combustion.

What I claim as my invention is—

1. The reservoir A, formed with a central opening, B, in which is inserted a retort, C, from which heat is conveyed to the contents of said reservoir, substantially as shown and described.

2. In combination with the reservoir A, the inclosed retort C, having arms D, which penetrate the inner wall of said reservoir, and tubular communicating passages *c c*, substantially as shown and described.

3. The burner H, composed of the collar *h* and perforated wings h^1 h^1, having shoulders or ledges h^2, substantially for the purposes set forth.

4. The combination of the reservoir A, retort C, having tubes *c c* and arms D D, wick-tube E, and burner H, the several parts being constructed and combined substantially as described, for the purpose specified.

5. The method herein described of burning coal-oil, by partially volatilizing it in an air-tight reservoir, conducting it thence to a packed retort, where it is completely volatilized, and then supplying it in a gaseous form at the point of combustion, whence heat is conducted to produce volatilization in said reservoir and retort, as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 10th day of February, 1876.

ROBERT W. PARK.

Witnesses:
M. DANL. CONNOLLY,
CHAS. F. VAN HORN.