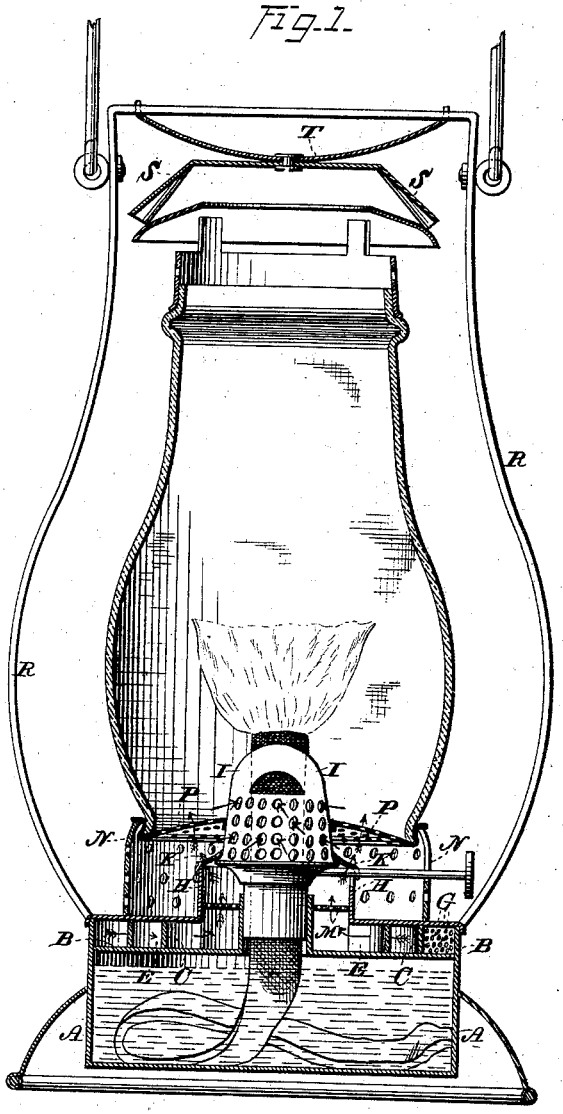
2 Sheets—Sheet 1

C. JOHNSTON.

Lantern.

No. 214,664. Patented April 22, 1879.

Fig. 1.



WITNESSES:

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C. B. Hale.

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2 Sheets—Sheet 2.

C. JOHNSTON.

Lantern.

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Fig. 2.

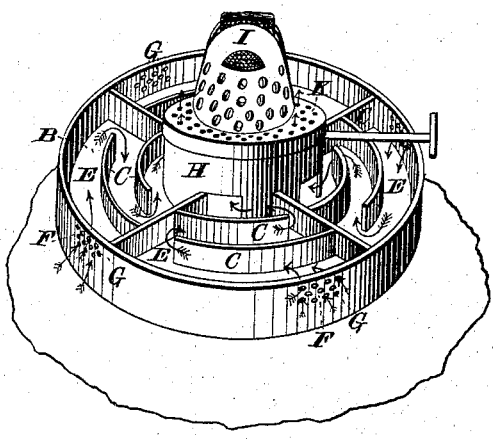
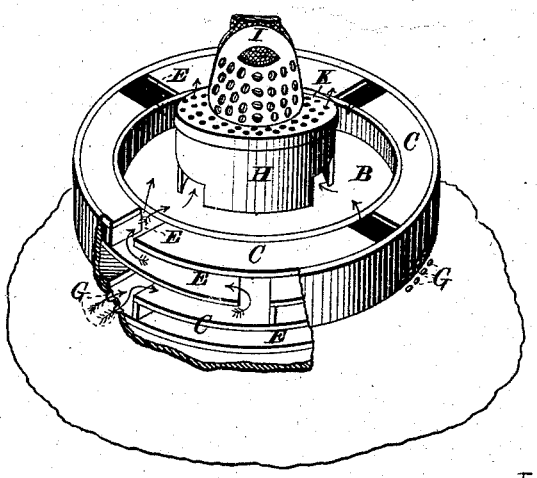


Fig. 3.



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UNITED STATES PATENT OFFICE.

CLARK JOHNSTON, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN LANTERNS.

Specification forming part of Letters Patent No. **214,664**, dated April 22, 1879; application filed March 4, 1879.

To all whom it may concern:

Be it known that I, CLARK JOHNSTON, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lanterns, of which the following is a specification.

This invention relates to certain improvements in lamps and lanterns, and it has for its object to supply a uniform draft or current of air to the burner in such manner that the light will not be affected by sudden gusts of wind, resulting either from stormy weather or from suddenly or rapidly shifting the position of the lamp or lantern, and also to provide for the consumption and utilization of the oil carried up and distributed outside of the burner-tube by capillary attraction of the wick, which has usually gone to waste by escaping down the side of the lamp, resulting in disfiguration of the same and rendering it extremely objectionable to handle.

To this end my invention consists in constructing the lamp or lantern with a series of segmental concentric passages communicating with each other alternately at opposite ends, and leading from the open air near the top of the lamp-reservoir to the burner, whereby the draft for the support of combustion will be diverted and compelled to take a tortuous passage to the burner, by means of which it will be supplied uniformly to the same, as and for the purposes more fully hereinafter specified; second, in the combination, with the segmental concentric passages, communicating with each other as described, of a central cylinder or air-passage, into which all air is discharged from said segmental passages on its way to the burner, the perforated annulus at the top of said central cylinder or air-passage, and outer vertical perforated ring, whereby the light is prevented from being affected by sudden gusts of wind, substantially as specified.

In the drawings, Figure 1 represents a vertical sectional view of my improvement as applied to a lantern. Fig. 2 represents a perspective view of the lamp with its top wall removed to show the tortuous passage. Fig. 3 represents a modified form of my improvement.

The letter A indicates the lamp-fount, and B the top of the same, which is preferably made flat, as shown, for the convenient formation of the tortuous air-passages, although it may be made of other shapes if desired. The letter C represents a series of segmental concentric partitions formed on the top of the lamp-fount. The said partitions form a series of concentric air-passages, E, communicating with each other alternately at opposite ends, the outer passages communicating with the external air through suitable openings F in the outer shell of the lamp, which are preferably provided with foraminous coverings G. The inner passage communicates with a central cylinder, H, surrounding the burner, and communicating with the interior of the deflector or cone I, in order to conduct the air to the flame. Said burner and cone may be of any description or pattern. Surrounding said cone, and setting on top of the cylinder H, is a perforated annulus, K, which serves to establish communication between the interior of the lamp-glass and said cylinder, in order to provide an outward escape for air in case there is any backward pressure within said lamp-glass from any cause whatever.

Within the cylinder below the upper edge of the burner, and surrounding the same, is a perforated annulus, M, which serves to diffuse the air on its way to the burner, and to provide for the escape of any oil carried up by capillary attraction of the wick and over the outside of the burner into the air-passages, in order to distribute it over the same, where it will be in direct contact with the current of air on its way to the burner, in order that it may be taken up in the form of vapor and conducted to the burner and consumed.

In the modification shown in Fig. 3, the lantern-base is provided with double vertical walls, having a central cylindrical space for the reception of a removable lamp-fount, the tortuous passages being formed in this case between the vertical walls by means of a series of horizontal partitions divided by vertical partitions at each quarter of the circumference of the walls, and communicating alternately with each other at opposite ends in a manner similar to the concentric passages before mentioned. The lower passages in this

case communicate with the open air, and the upper passages with the cylinder surrounding the burner.

When constructed with the double vertical walls, as described, the lamp-fount may also be provided with concentric segmental chambers, as before mentioned, communicating with the chambers between the vertical walls and leading to the burners, in order to further divert the air on its passage to the burner and supply it more regularly to the same.

The letter N represents the glass-supporting annulus, which is perforated, as shown, to supply air to the outside of the burner, which passes through a foraminous partition, P, on its way to the burner; but said perforations may be dispensed with if desired, and the air supplied entirely through the tortuous passages.

The letter R represents the supporting-frame of the lamp, and S the top section of the lantern. Said section is provided with a curved spring, T, which sets under the horizontal portion of the frame R, and confines the top and lamp-glass in place.

The operation of my lamp will be readily understood in connection with the above description.

When the lamp is in operation the air enters the outer passage and courses alternately back and forth through the intermediate passages, by means of which it is diverted from a direct course and supplied uniformly to the burner. The oil escaping down the sides of the burner, instead of being distributed to the outside of lamp and wasted, will be carried into the air-passages and taken up in the form of vapor, and carried back to the burner and consumed, thus enhancing the light and economizing oil.

I am aware that air-supply passages for lanterns have been provided with plates on either side to compel the inflowing air to take a tortuous course on its way to the burner, and that these plates have been arranged in both a vertical and horizontal plane; but in such cases the air has been admitted near the base of the reservoir. I do not broadly claim such principle or arrangement as my invention; but

What I claim is—

1. The combination, in a lamp or lantern, of a series of segmental concentric air-passages, communicating with each other alternately at opposite ends, and with the open air at a point near the top of the lamp-reservoir and with the burner, whereby the air will be diverted on its way to the burner, and all liability of the light being affected by sudden drafts is prevented, substantially as specified.

2. In combination with the segmental concentric passages communicating with each other as described, a central cylinder or air-passage, into which all air is discharged from said segmental passages on its way to the burner, the perforated annulus or air-passage and outer vertical perforated ring, whereby the light is prevented from being affected by sudden gusts of wind, substantially as specified.

In testimony that I claim the foregoing I have set my hand in the presence of the subscribing witnesses.

CLARK JOHNSTON.

Witnesses:

W. B. HALE,

JAS. A. RUTHERFORD.