A. W. PAULL.
Lantern.

No. 208,422. Patented Sept. 24, 1878.

Fig. 1.

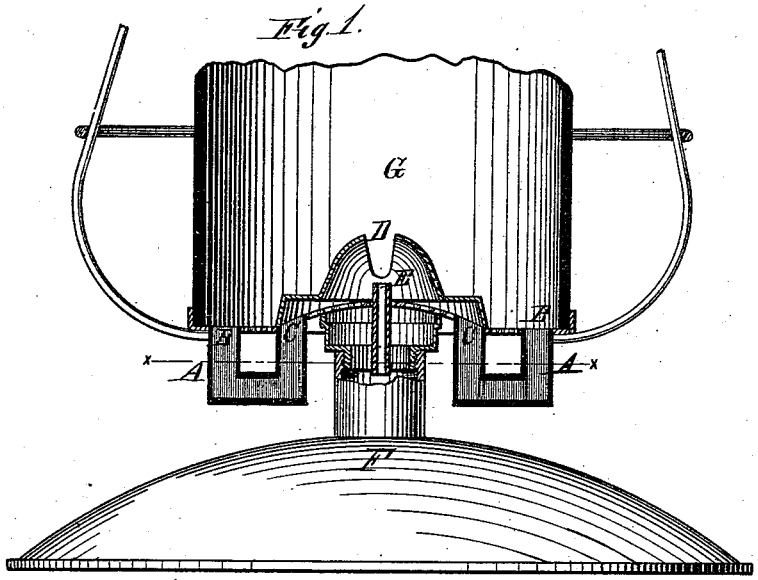


Fig. 2.

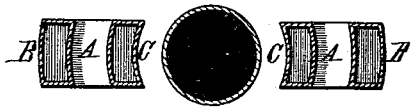


Fig. 3.

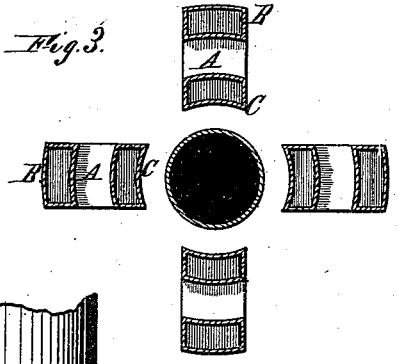


Fig. 4.

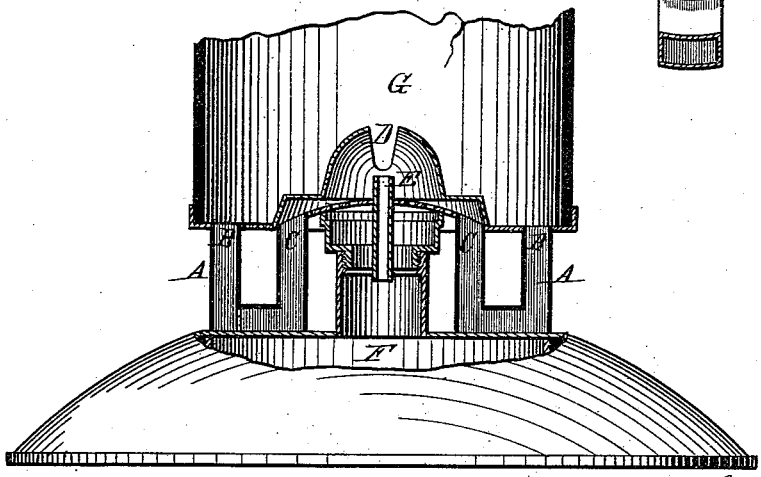
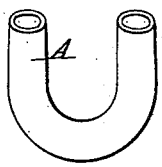


Fig. 5.



Witnesses:
Chas. H. Searle.
D. P. Cowl

A. W. Paull,
Inventor:
By North Asgood,
Attorney.

A. W. PAULL.
Lantern.

No. 208,422. **Patented Sept. 24, 1878.**

Fig. 6.

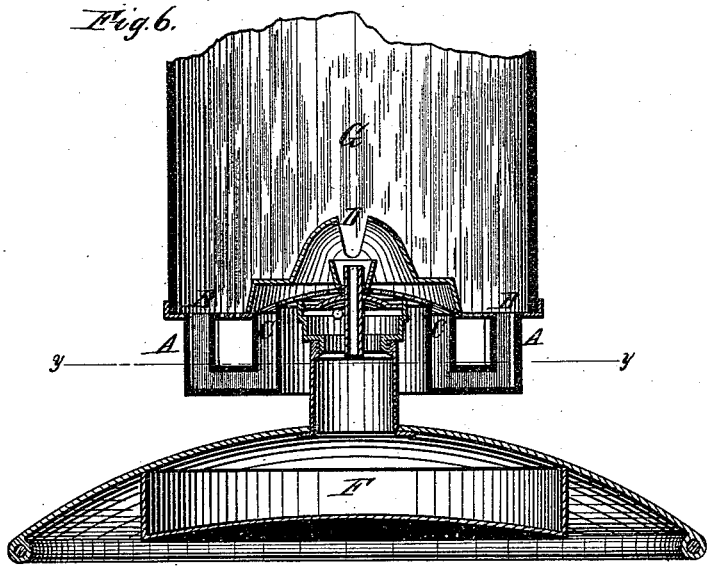


Fig. 7.

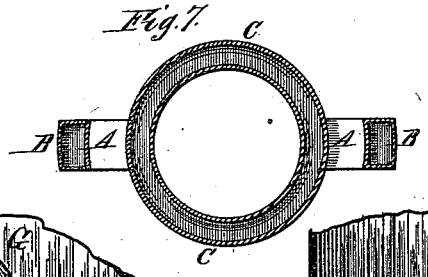


Fig. 8.

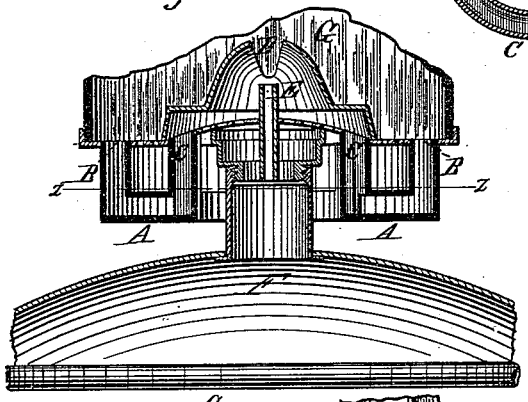


Fig. 10.

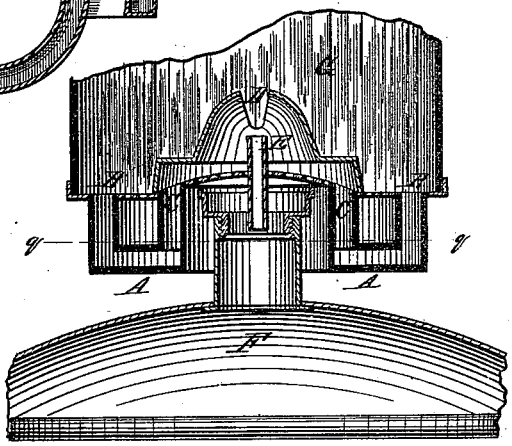


Fig. 9.

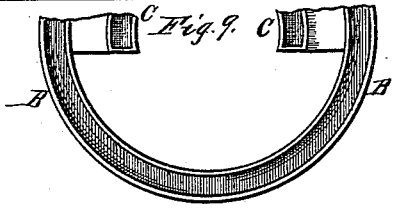
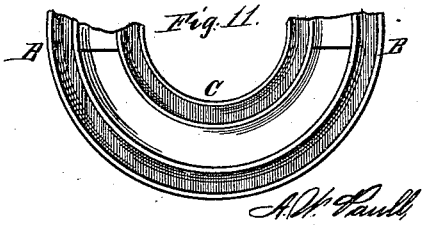


Fig. 11.



Witnesses:
Chas. H. Searle
D. P. Howl

A. W. Paull
Inventor:
By North Osgood,
Attorney.

UNITED STATES PATENT OFFICE.

ARCHIBALD W. PAULL, OF WHEELING, WEST VIRGINIA.

IMPROVEMENT IN LANTERNS.

Specification forming part of Letters Patent No. **208,422**, dated September 24, 1878; application filed August 13, 1878.

To all whom it may concern:

Be it known that I, ARCHIBALD W. PAULL, of Wheeling, county of Ohio, and State of West Virginia, have invented a new and useful Improvement in Lanterns, of which the following is a full, clear, and exact description.

It is well known that in all lanterns heretofore made, with the exception of what are known as "tubular lanterns," it has been impossible to make them so that sudden gusts of wind or a sudden jarring or shaking of them will not extinguish them. This is owing to the fact that, when subjected to any of the above tests, the air which should ascend through the globe or chimney is forced downward against the flame, and, passing out through the cone of the burner, from whence the flame issues, completely reverses the draft and extinguishes the light.

The object of my invention is to make a lantern which can be subjected to sudden and severe gusts of wind, and to any jarring, shaking, or swinging, without extinguishing the light or impairing it, in a manner novel and cheap, and differing entirely in principle and construction from tubular, tubular-globe, or double-globe lanterns, and this I accomplish by utilizing the downward draft, which would otherwise extinguish the light, for its support and more perfect combustion.

In describing my invention reference will be made to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is an axial section of a lantern embodying my improvements. Fig. 2 is a horizontal section on line *x x*, and Fig. 3 a similar view, showing an increased number of air-conducting tubes. Fig. 4 is an axial section, showing the tubes bent down sufficiently far to bear against the top of the oil-chamber, in other respects the arrangement being as indicated by previous views. Fig. 5 shows the air-conducting tubes (or one of them) as gradually curved, thus avoiding the angles previously shown. Fig. 6 is an axial section, and Fig. 7 a horizontal section upon line *y y* thereof, the inner air-conducting channel being made annular. Fig. 8 is an axial section, and Fig. 9 a horizontal section upon line *z z* thereof, the outer air-conducting channel being made annular. Fig. 10 is an axial section, and Fig. 11 a horizontal section upon line *q q* thereof, both the inner and outer air-conducting channels being made annular.

Like letters on all the figures indicate corresponding parts.

G is the glass globe or flame-chamber. D is the burner-cone, having the wick-tube E extending from it to the oil-cup F. A is an air-chamber or air-ducts situated at or near the base of the globe G, and having openings or communications B into the flame-chamber G, said air-chamber A also having openings or communications C into or at a point beneath the burner-cone D.

The object of the air-ducts or air-chamber A having openings or communication with the flame-chamber and openings or communication with the burner-cone is that, when a draft or current of air may from any cause be forced down the globe or chimney, instead of passing down and out through the burner-cone, it will pass through the openings B into the air-chamber A, and thence be directed through the openings C beneath or into the burner-cone, and thereby become a support to the flame instead a means of extinguishing it.

The exact form or location of the air-chamber, with the exception that it is situated at or near the base of the globe or chimney, is not a matter of importance. It may be constructed to entirely cover the base of the globe or chimney, or may be divided into arms or radii, as shown in one of the drawings, Fig. 3; or either the outer or inner conductors, or both, may be made in the form of annular chambers, as plainly indicated in the other figures.

The openings from the flame-chamber into the air-chamber may be of any suitable number and at any suitable point on the air-chamber, but must be so located as to receive the downward draft from within the globe, whence it is conducted to the cone in the manner described.

This invention must be distinguished from those having an air-chamber receiving fresh air from a point without the globe, as it has openings only into the flame-chamber and burner-cone. Any fresh air needed to support the flame may be admitted either to the flame.

chamber or to the cone by other air-chambers constructed for that purpose, or merely by openings into them from without.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

In combination with a globe or chimney for a lantern, an air chamber or conduit located entirely beneath the base thereof, having openings or communications with the flame-chamber through the base of the globe or chimney, and also having communications with the under side of the burner-cone, said conduits being adapted to convey air from the base of the flame-chamber to the space under the burner-cone, substantially as shown and described.

ARCHIBALD W. PAULL.

Witnesses:

GEO. W. WOODS,

ALFD. PAULL.