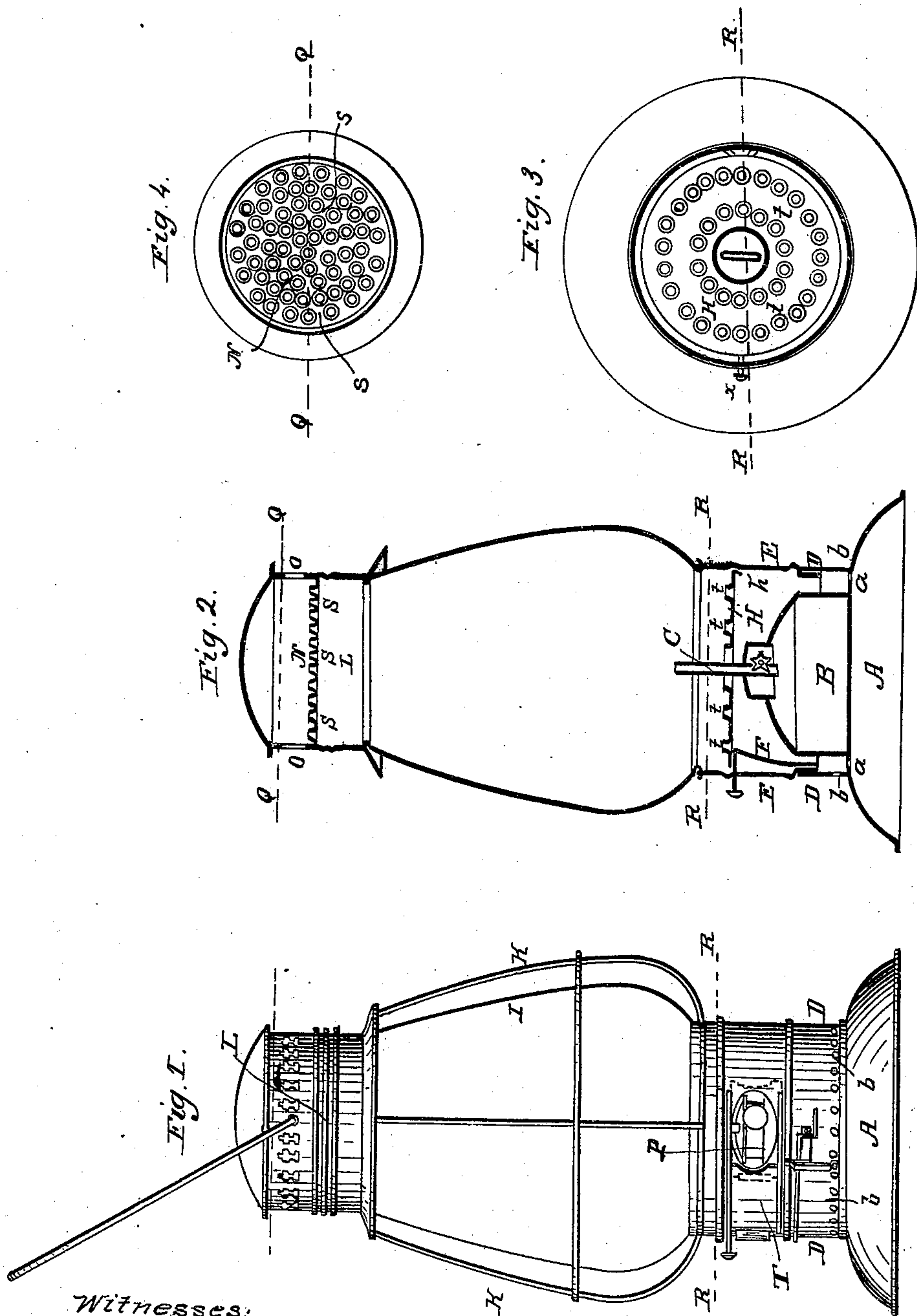


J. A. COWLES.

Lantern.

No. 42,928.

Patented May 31, 1864



Witnesses:
L. L. Bond
H. M. Shepard.

Inventor:
James A. Cowles

UNITED STATES PATENT OFFICE.

JAMES A. COWLES, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN LANTERNS.

Specification forming part of Letters Patent No. 42,928, dated May 31, 1864.

To all whom it may concern :

Be it known that I, JAMES A. COWLES, of the city of Chicago, county of Cook, in the State of Illinois, have invented certain new and useful Improvements in Lanterns; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in constructing a lantern with openings in the metallic wall below the globe, with sliding valves so placed that they readily work or slide before the openings in the wall, thus adjusting the draft to suit the circumstances of a light or strong wind, or of the atmosphere in a state of rest and quiet.

It also consists in constructing a diaphragm perforated with tubular holes above and below the flame, so far apart and located with respect to each other that no obstruction is afforded to the flame, and while admitting air sufficiently to support combustion, at the same time preventing the ingress in such quantities and with such force as to extinguish the flame.

It consists, additionally, in providing a proper and efficient means for retaining in and detaching from its proper position the lower diaphragm.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the description of my invention I use the terms "primary base" and "secondary base" to designate the two principal parts into which the lantern is divided. The lower part, to which is attached the oil-pot, I call the "primary base." All above this primary base and below the globe I call the "secondary base."

I construct my lantern of the ordinary form externally.

Figure 2 is a vertical sectional view. Fig. 1 is an upright view. Fig. 3 is a view of the lower diaphragm, H, through the line R R, Fig. 2, looking down. Fig. 4 is a view of the diaphragm N through the line Q Q, looking down.

Similar letters in the different figures refer to similar parts.

A B D D, Fig. 2, together constitute the primary base, of which A is the flange, B the oil-cup, and D D the wall of the primary base,

b b are small apertures in the wall of the primary base.

a a are apertures through the bottom of the primary base. Through these apertures a a b b the air is admitted into the body of the lantern.

C is the wick-tube.

E E is the wall of the secondary base, located above and partly within the primary base, as shown in Fig. 2. Upon this secondary base is placed the glass globe I, and immediately above the glass globe I is placed the metallic mounting or lantern-head L. From the upper part of the secondary base starts the guards K K, Fig. 1, and terminate at the metallic mounting or lantern-head, as shown in the drawings.

H, Fig. 2, is a perforated diaphragm, placed inside the secondary base and immediately below the globe. This diaphragm is punctured with small holes t t in such a way that the hole is continued longer than the thickness of the metal by raising a burr around each hole, thus forming a tube.

h is a ledge or rest placed on the inside of the secondary base, and a very short distance below the lower edge of the globe.

F is the spring, attached by one end at or near the lower edge of the secondary base, thence passing upwardly at an angle of from five to eight degrees with the wall of the secondary base to a horizontal line drawn through the ledge h, when it makes an acute angle, passes through the wall of the lantern, and terminates with the button x on the outside.

N, Fig. 2, is a perforated diaphragm located in the metallic mounting or head L, and immediately below the side apertures O O. This diaphragm is also perforated with small tubular holes s s, as shown. The diaphragm N is located with the tubes extending upward. As a current of air passes through the side passages O O it is prevented from passing down into the body of the lantern by these small tubes, while the egress of the heated air is not in the least hindered or retarded.

P, Fig. 1, is a large side passage or aperture in the secondary base of sufficient size to admit the thumb and forefinger if desired. But one is shown in the drawings, (two are shown in the model,) accompanying this specification. It is proposed to have two or more.

T is a slide working over the aperture or

side passage P, or such a portion of it as is desired.

The diaphragm H can be readily removed for cleaning the globe or for any other purpose desired by separating the primary and secondary bases. This removes the oil cup. The spring F is then compressed by drawing the button *x*, when the diaphragm H readily falls out, or can be easily taken out.

The operation of this lantern is as follows: The oil-cup is filled with the requisite fluid, and the two bases are properly adjusted. The air is admitted inside the lantern through the apertures *a a b b*. It can also be admitted through the large side passage or aperture P, Fig. 1. It passes up through into the body of the lantern, when, having discharged its function in supporting combustion, it passes up through the tubular apertures *s s* in the diaphragm N and out at the side passages O O.

There are many difficulties attending the use of kerosene-oil for illuminating purposes. In consequence of the great amount of oxygen required to support the combustion of kerosene-oil, it is very difficult to admit a sufficient quantity of air into the body of the lantern so softened and toned down that a current or agitation is not created sufficiently to extinguish the flame. The different circumstances under which it is placed, arising from the various states of the atmosphere, of a calm, a considerable motion, and a heavy gale, are also additional difficulties that are found in the way of successfully using kerosene-oil in lanterns. These objections are believed to be obviated to a considerable extent, if not wholly, in the improvement shown in this application. When the atmosphere is in a state of rest, wider spaces or apertures are necessary to admit a sufficient quantity of atmosphere from without to the inside of the lantern to supply combustion. When the atmosphere is more or less in a state of motion, or in a violent agitation—such as high winds—or when caused by the rapid motion of bodies—such as vessels, steamboats, railroad cars—a smaller aperture is necessary to accomplish the purposes required.

To meet the difficulties above alluded to, the slide T is made to entirely or partially close the large apertures, as the person using the lantern may desire, thus adjusting the draft and conforming to the various states of the atmosphere.

I am aware that a single side opening or passage of or nearly the size herein shown, has been before known and used for the pur-

pose of operating the wick-ratchet without removing the oil-cup, and was patented by one P. J. Clark, February 17, 1863.

I claim my improvement as an addition to the invention of Clark, as I am not only able to operate the ratchet from the outside, but also to regulate the draft or currents of air in the lantern, for in a lantern constructed on Clark's invention, when the side passage is open and a current of air is blown in, it is forced by the construction of the lantern upward and in contact with the flame. While I am enabled to control and regulate the draft or currents of air, and when the wind blows into the lantern, I afford it a passage through the base and below the flame without bringing the current in contact with the flame, so that I can construct the lantern in a less complicated manner than can be done by a construction on Clark's plan. An additional barrier is presented to the violent agitation of the air within the lantern in the use of the perforated diaphragm H. By placing this diaphragm with the tubes running downward no air will pass through into the body of the lantern, only what strikes squarely against the end of the tube, and by the combination of the tubular holes in diaphragm H and N, I am enabled to prevent reversed currents of air passing through the lantern when it is tipped sideways or inclined from the perpendicular, and thereby extinguishing the flame, which frequently happens in lanterns not properly constructed.

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

1. The use and employment of tubes in the perforated diaphragm N, substantially as and for the purpose described.
2. The combination of the small tubular holes *s s* with the side passages O O.
3. The use and employment of tubes in the perforated diaphragm H, substantially as and for the purpose described.
4. The tubes in diaphragm H and N, in combination with a metallic cap or mounting, glass globe, and metallic base, substantially as and for the purpose described.
5. The side openings P, when two or more are used, provided with slides T to regulate the draft, in combination with the diaphragm H and tubes *t t*.

JAMES A. COWLES.

Witnesses:

L. L. BOND,

H. M. SHEPARD.