J. H. IRWIN.

Lantern.

No. 42,856. Patented May 24, 1864.

Fig. 3.

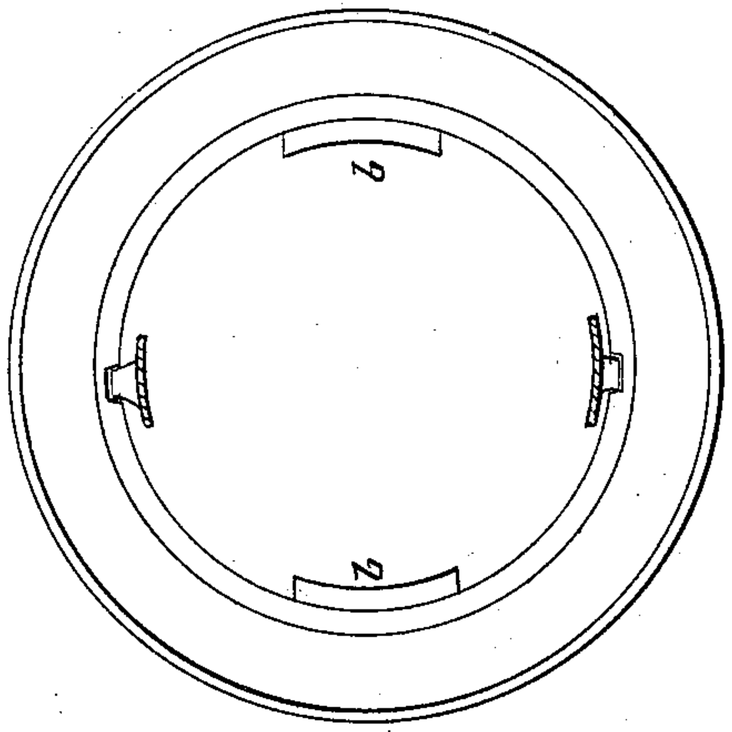


Fig. 1.

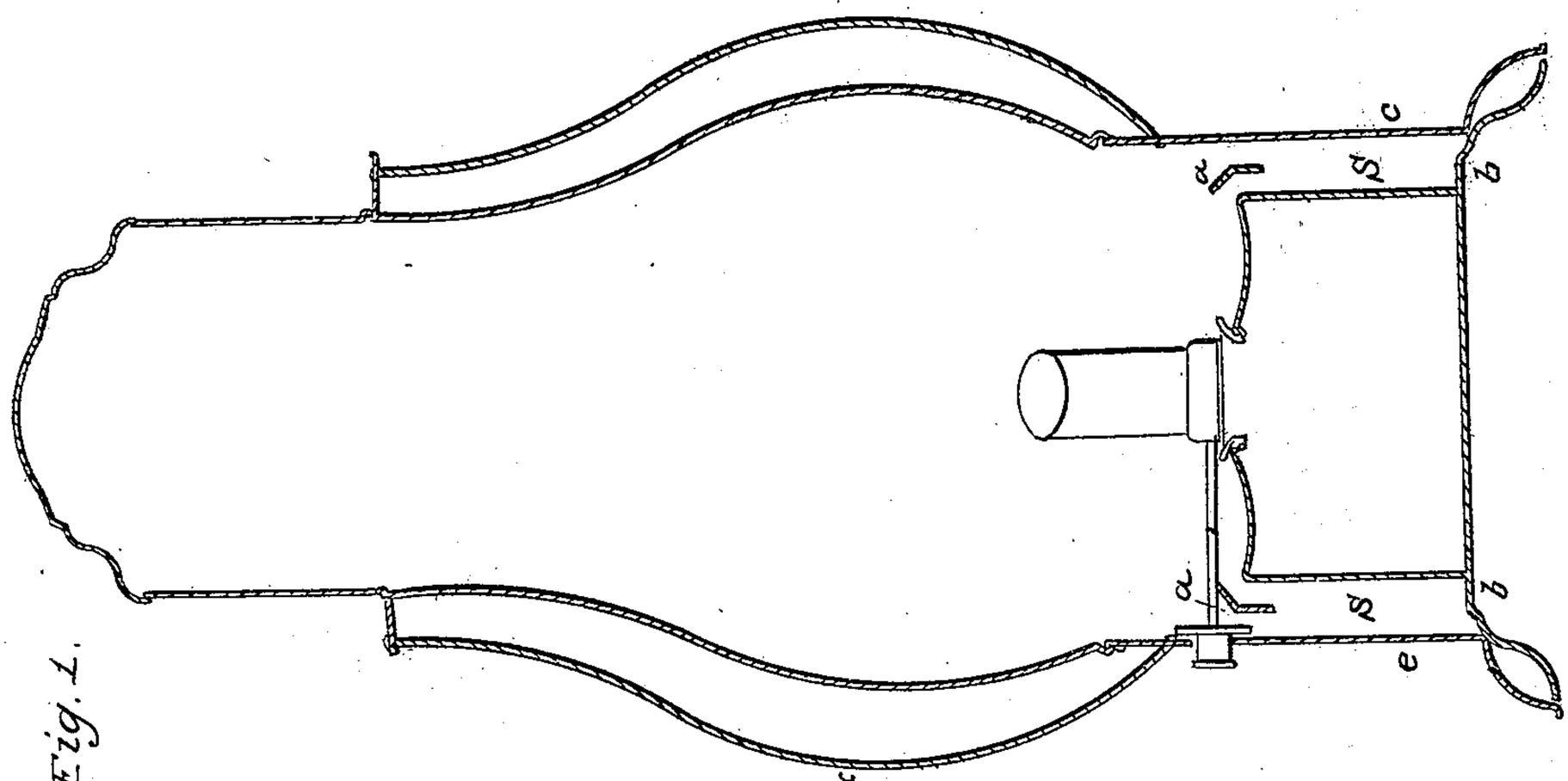
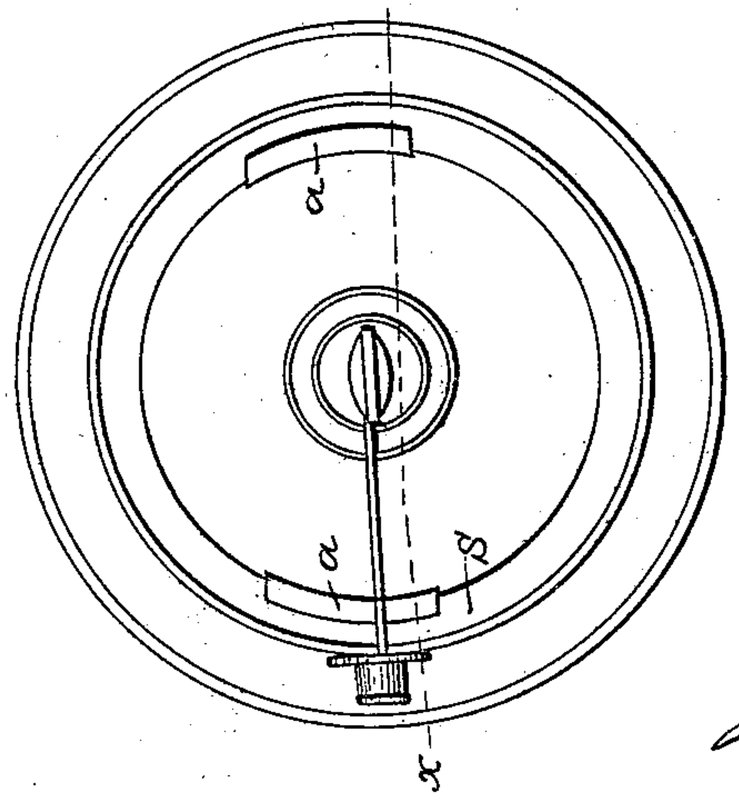


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN H. IRWIN, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN LANTERNS.

Specification forming part of Letters Patent No. **42,856**, dated May 24, 1864; antedated February 27, 1864.

To all whom it may concern:

Be it known that I, JOHN H. IRWIN, of the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Lanterns; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings and letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a vertical sectional view of my improved lantern at the red line *x* in Fig. 2. Fig. 2 represents a horizontal sectional view above the top of the oil-cup. Fig. 3 represents a bottom view.

The nature of my invention consists in constructing a lantern so as to introduce air into its base outside of the oil-cup, and by a simple device attached to or arranged near the top of the oil-cup deflect said air to the top of the wick-tube in such a manner as to support an even combustion for illuminating purposes under all circumstances and conditions of said lantern.

As my invention relates to that class of lanterns which are designed for burning coal-oil and other similar hydrocarbons which require an excess of oxygen to support combustion, the air is admitted quite freely both through the bottom of the lantern by one or more openings through that part of the bottom between the oil-cup and the outside case of the lantern, as shown at *b b*, and through the ordinary perforations in the case, as shown at *c c*. This air mingles together in the space S, and when the lantern is at rest the heat of the flame rarefies the air round it, causing it to rise when the air comes up from the space S and supplies the required oxygen; but a lantern in being carried about is very liable to receive sudden downward motions, and it is readily seen that in such instances the air rushes out at the top of the lantern, and when it is not supplied at the bottom becomes rarefied in the lantern and the flame is extinguished, and when the air is supplied at the bottom of the lantern there is a partial vacuum created by the sudden downward motion immediately above the oil-cup, and the air coming up in the space *s* does not pass over the top of the oil-cup around the wick-tube to the base of flame readily enough to supply it with oxygen and prevent it from being extinguished. To overcome this difficulty the deflector or deflectors *a* are so constructed as to turn a sufficient quantity of the air which passes up the space *s* in over the top of the oil cup to the base of the flame to supply it with oxygen. I do not extend the deflector *a* to the top of the wick-tube, nor high enough to bring a strong current of air directly in contact with the flame; but my object is to simply turn or deflect the air in over the top of the oil-cup around the wick-tube at or below the base of the flame. It would be very different to extend the deflector to or above the flame, as is the case in Hale's patent. By carrying the deflector up under the base of the cone and chimney he confines the air until it reaches the top of the chimney, and in effect extends the deflector to the top of the chimney—that is to say, that when the chimney is not used, as is the case in my invention, in order to control the air as he controls it, the deflector would have to be extended as high as the top of the chimney he uses, which, in practice, carries so strong a current of air directly to the flame, and at the same time the chimney creating so strong a draft that the flame is exceedingly liable to be extinguished.

Another great difficulty experienced in the use of coal oil lanterns is the danger of the light being extinguished in a rapid lateral motion of the lantern or when it is placed in a strong wind. Under either of these circumstances the wind passing rapidly by the bottom of the lantern sucks the air out of the lantern at the openings in the bottom, and when these openings are closely fitted with tubes extending to the top of the oil-cup, as is the case in my former patents, as well as in Merrill's patents, the air that is sucked out of the latern is taken from the top of the oil-cup near the flame, greatly agitating it, and frequently extinguishing it, but by removing said tubes, as in this improvement, (shown in Fig. 1,) and leaving the space between the oil-cup and the lantern-case unobstructed, it is readily seen that the air that is drawn from the aperture *b* is supplied by the air, which the wind, striking against the lantern-case, forces through the perforations *c c*.

It is evident, then, that my improved lan-

tern will endure a much stronger wind and a much swifter lateral motion without extinguishing the light than any other lantern in use. It is also manufactured cheaper than any of the patents herein referred to.

Having fully described the construction and operation of my improved lantern, what I claim as my invention, and desire to secure by Letters Patent, is—

1. The deflector *a*, when constructed and arranged substantially as and for the purposes herein set forth.

2. The combination and arrangement of the deflector *a*, the oil-cup, and the apertures *b*, all constructed and arranged substantially as set forth.

3. The deflector *a*, the oil-cup, and the side openings, *c c*, when constructed substantially as and for the purposes set forth.

JOHN H. IRWIN.

Witnesses:
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