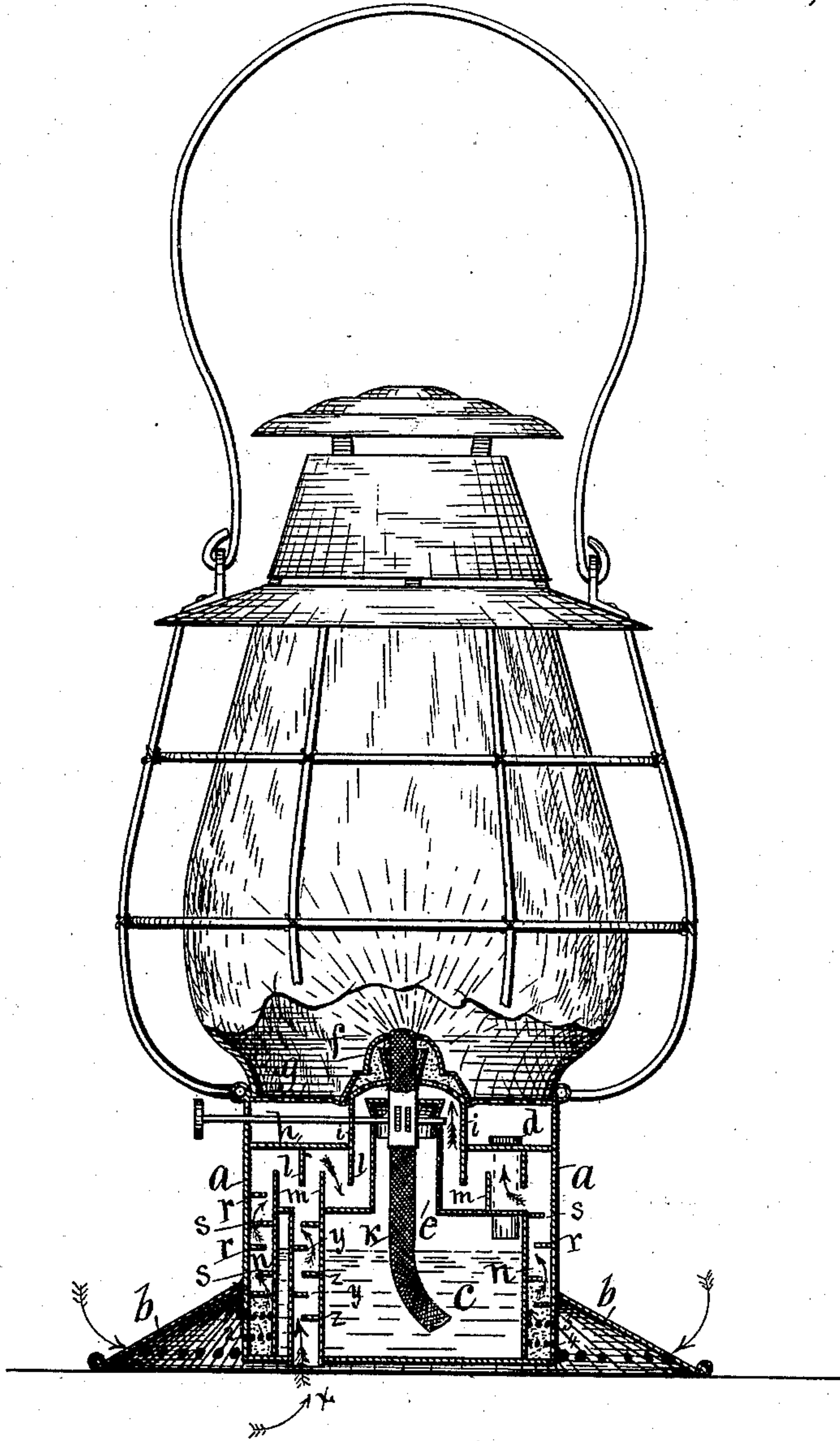


W. E., J. F. & E. R. MASON.
Lantern.

No. 222,145.

Patented Dec. 2, 1879.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM E. MASON, OF CHICAGO, ILLINOIS, AND JOHN F. MASON AND
EDWARD R. MASON, OF DES MOINES, IOWA.

IMPROVEMENT IN LANTERNS.

Specification forming part of Letters Patent No. **222,145**, dated December 2, 1879; application filed
November 23, 1878.

To all whom it may concern:

Be it known that we, WILLIAM E. MASON, of Chicago, Illinois, and JOHN F. MASON and EDWARD R. MASON, of Des Moines, Iowa, have invented an Improved Lantern, of which the following is a specification.

The object of our invention is to prevent lamps and lanterns from being affected by the pressure of the outside air and wind which frequently interrupt combustion, cause smoke, flickering, extinguishment, and accident.

It consists in forming, arranging, and combining breaks or deflectors in the air-passages and chambers used to conduct air and oxygen to the burners and combustion-chambers of lamps and lanterns in such a manner that the air will move in a zigzag or serpentine line and in a continuous steady flow, as hereinafter fully set forth.

Our drawing is a longitudinal partial section of a lantern, and illustrates the construction and operation of our complete invention.

a a represent the cylindrical body of a lantern. It is made of sheet metal, and may vary in size and configuration as desired. It has a flaring flange, *b b*, at its lower portion, which forms a broad base, upon which the complete lantern may rest. Perforations in this flange allow air to pass from the outside to the interior when the lantern rests upon a table or other solid surface.

c is an oil-chamber, fixed in the inside of the body *a a* in any suitable way. It may be filled through the induction-port and tube *d* that extends above the top plate of the body *a a*.

e is the neck of the oil-chamber and vessel *c*, that supports the burner and incloses the wick that extends from the burner to the oil.

f is a burner, which may vary in form. *g* is a perforated diaphragm surrounding the burner. *h* is the top plate of the body *a a*. It has a neck, *i i*, corresponding with the neck *e* of the oil-chamber, which neck *e* it incloses in such a manner as to produce an annular air-chamber and conduit leading from below the top plate, *h*, to the top of the burner and the burning wick *k*.

l l are circular rims fixed to the under side of the fixed plate *h*, and represent a graduated series of wind breaks or deflectors in a vertical

position, to affect the air moving at right angles thereto.

m m are corresponding rims fixed on top of the oil-chamber, to extend upward between the depending rims *l l* in such a manner that each one of the deflectors *l* and *m* will act as a break in regulating the flow of air that must pass around it in advancing toward the burner. A zigzag or serpentine line of advance is thus caused, and a continuous steady flow of air and oxygen to feed the flame as required to produce perfect combustion, and a good, safe, and steady light is the advantageous result.

n n is an annular chamber surrounding the oil-reservoir *c*. It has a series of perforations, 1 2 3 4, at its lower end, through which air is admitted to be conducted upward toward the burner.

r r represent a series of deflectors corresponding with the deflectors *m* and *l*, fixed in a horizontal position against the inside of the body *a a*. *s s* are corresponding deflectors, fixed against the outside of the oil-chamber *c*. These horizontal breaks *r s* in the vertical annular conduit *n n* may be used independently to accomplish, in some degree, the results contemplated by combining them with the vertical breaks *m l* in the horizontal conduit formed over the top of the oil-chamber *c*, to thereby lengthen the serpentine passage-way that conducts air from the outside of the lantern to the burner, to produce perfect combustion and a safe and steady light by preventing an irregular pressure of the continuous air-current required to feed the flame at the top of the wick *k*, and to keep every portion of the metal below the burner cool.

x is an auxiliary vertical tubular conduit passing through the oil-chamber *c*, to connect with the air-passage surrounding the burner. It has breaks *y* and *z*, corresponding with the breaks *r* and *s* in the annular conduit *n n*, and one or more of these tubes *x* may be used in lieu of the annular conduit, or in combination therewith, to supply the amount of air required, and to suit the different forms, sizes, and capacities of the lamps and lanterns that may be made by adapting our invention to all the practical purposes for which lamps and lanterns are required.

Any suitable and artistic form of lamp or lantern may be thus provided with one or more conduits, that will convey air in a continuous serpentine and steady stream from the outside to the burner, to produce an economical, satisfactory, and safe illuminator that can be advantageously used out of doors in a wind as well as in a house.

We are aware that deflector-plates of wave-like or serpentine form have been used in horizontal and also in vertical positions in lanterns to conduct air by indirect routes from the outside to the burner, to accomplish the results contemplated by our series of independent fixed deflectors or wind-brakes, standing in opposite directions from the opposite sides of the air-chambers or air-passages; but, when the continuous-waved plate is used as a deflector in a vertical position, it forms a series of pockets into which the air enters and then passes downward and out of the pockets before it ascends to feed the flame; and when it is used in a horizontal position it is simply an uneven partition that divides the air-chamber into two series of radial passage-ways, to conduct the air through numerous and distinct conduits from the outside toward the burner in the center.

Our series of independent and fixed deflectors do not divide the volume of air admitted into the chambers or passage-ways, but simply deflect it abruptly at intervals to resist outside pressure, and to cause a continuous steady flow, as required to produce a uniform and steady light.

We claim—

1. In a lamp or lantern, a horizontal air-passage having a series of independent and fixed wind breaks or deflectors, *m* and *l*, standing in opposite ways from opposite sides of the top and bottom walls, substantially as shown and described, to produce a zigzag or serpentine motion of the air, as set forth, for the purpose specified.

2. The annular chamber and conduit *nn*, having the air breaks and deflectors *rs* fixed to the opposite walls of said chamber, substan-

tially as shown and described, for the purposes specified.

3. The tubular conduit *x*, having the breaks and deflectors *y* and *z*, substantially as shown and described, for the purposes specified.

4. The body *a a*, having the fixed top *h*, neck *i i*, and wind-breaks *ll*, in combination with the oil-reservoir *c*, having a tube or neck, *e*, to support a burner and wind-breaks *m m*, substantially as shown and described, for the purposes specified.

5. The combination of the body *a a*, having top *h i i*, vertical breaks *l l*, horizontal breaks *r r* and perforations 1 2 3 4, with the oil-reservoir *c*, having top *e* and breaks *s s*, substantially as and for the purposes set forth.

6. The body *a a*, having a perforated flange, *b b*, a top, *h i i*, perforations 1 2 3 4, vertical breaks *l l*, and horizontal breaks *r r*, the oil-reservoir *c*, having a neck, *e*, vertical breaks *m m*, and horizontal breaks *s s*, when arranged and combined in a lamp or lantern, substantially as shown and described, to operate in the manner set forth.

7. The body *a a*, having a top, *h i i*, and vertical breaks *l l*, the oil-reservoir *c*, having a top, *e*, vertical breaks *m m*, and the conduit *x*, having breaks *y* and *z*, when arranged and combined in a lamp or lantern substantially as shown and described, to operate in the manner set forth.

8. The body *a a*, having a top, *h i i*, and breaks *l l* and *r r*, and perforations 1 2 3 4, the oil-vessel *c*, having top *e* and breaks *m m* and *s s*, and the tube *x*, having breaks *y* and *z*, when arranged and combined in an illuminator, substantially as shown and described, to operate in the manner and for the purposes specified.

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Witnesses:

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