J. J. MILLER.

Lamp.

No. 39,101. Patented June 30, 1863.

Fig. 3.

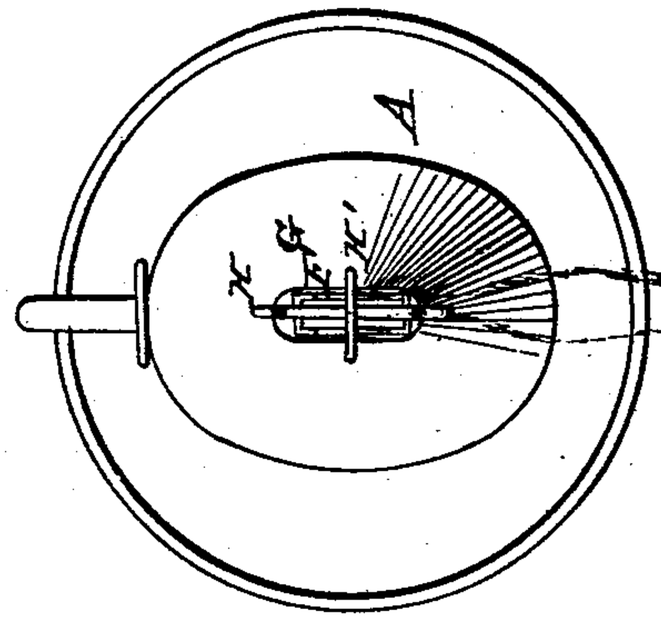


Fig. 2.

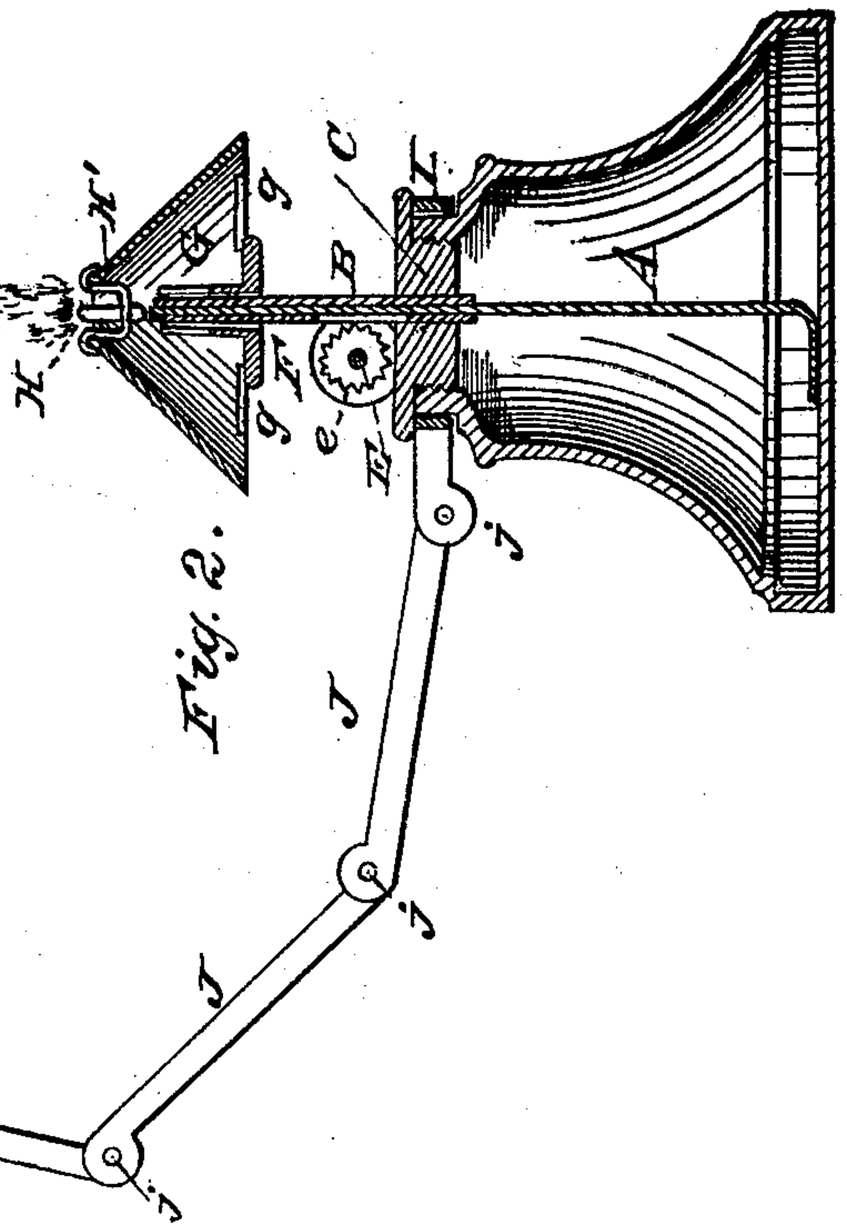
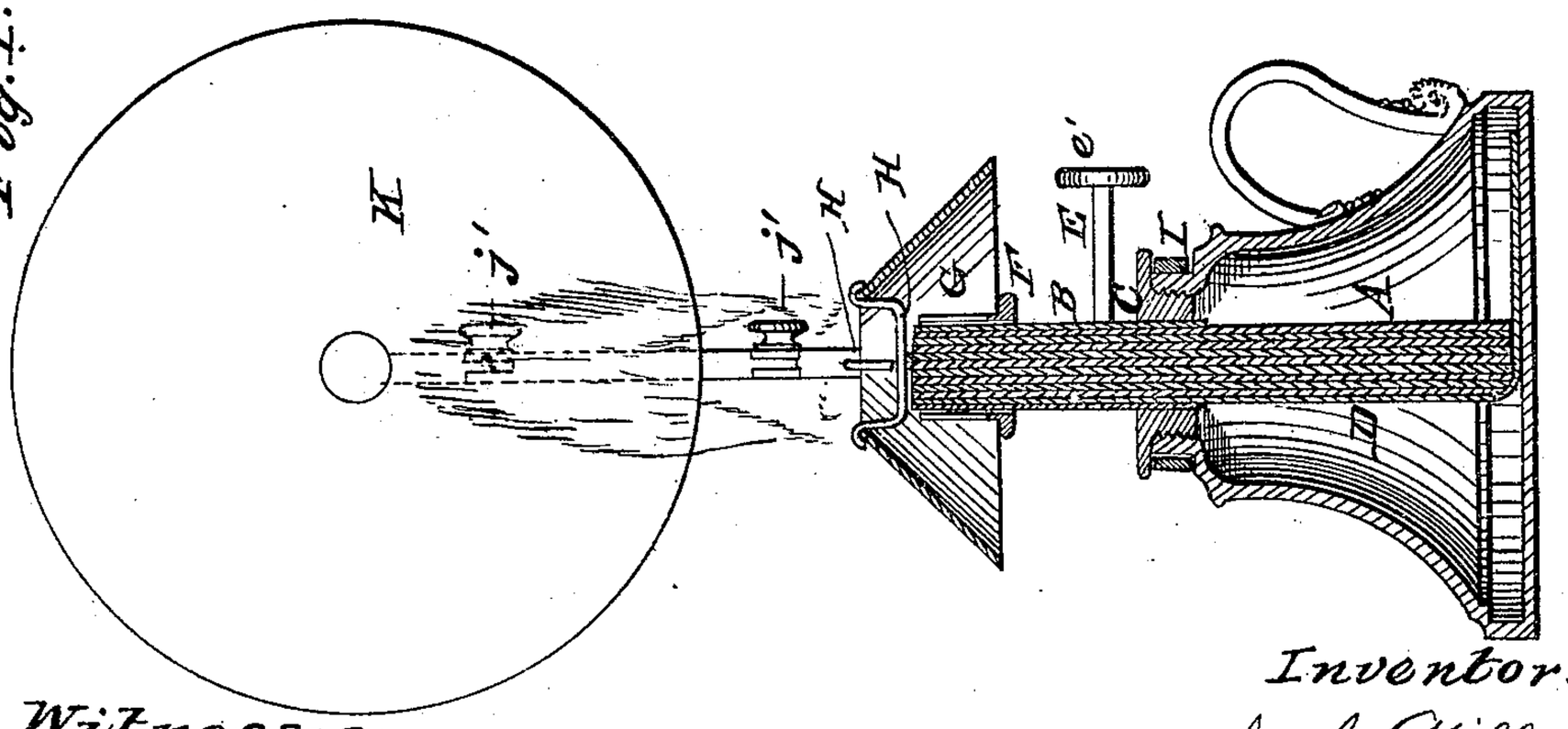


Fig. 1.



Witnesses:
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Charles Smith.

Inventor:
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By Munn & Co Attys.

UNITED STATES PATENT OFFICE.

JOHN JACOB MILLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND ERNST PRUSSING, OF SAME PLACE.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **39,101**, dated June 30, 1863; antedated February 14, 1863.

To all whom it may concern:

Be it known that I, JOHN JACOB MILLER, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Lamps; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section of my improved lamp. Fig. 2 is a similar view in a plane at right angles to the former. Fig. 3 is a plan of the same.

Similar letters of reference indicate corresponding parts in the several figures.

The subject of my invention is a lamp adapted to convert hydrocarbon oil, camphene, or other liquid lighting material into gas and burn the gaseous product in a separate illuminating-flame apart from the wick, without the use of a chimney.

The invention particularly consists, first, in an improved manner of forming and applying the deflector, by which air is furnished to the flame in the most advantageous quantity, direction, and condition; second, in an improved device for supporting the said deflector adjustably upon the wick-tube; third, in a device for supporting a reflector, shade, nursing-cup, or other article to be used in connection with the lamp.

To enable others skilled in the art to which my invention appertains to fully understand and use the same, I will proceed to describe its construction and operation.

A represents the body of the lamp.

B is a wick-tube, secured in a screw-cup, C.

D represents the wick, which may be raised and lowered by ratchet-wheels *e* upon a shaft, E, journaled in the wick-tube and provided with a milled head, *e'*.

The above-described parts may be of common construction.

F is a flanged tube, fitting the wick-tube and slotted or notched at its upper end, so that it may press upon the wick-tube with sufficient force to retain the flanged tube at any height at which it may be set.

G is a conical deflector, with sides converging upward in every direction at an angle of forty-five degrees, or thereabout, from the axis of the wick-tube. The said deflector is supported by horizontal or inclined rods *g* from the flange of the sliding tube F. The aperture in its top is in a horizontal plane, and is equidistant at all points from the top of the wick-tube.

H H' are wires depending from the top of the deflector, the lower one being parallel with the top of the wick, and nearly or quite in contact therewith, and the other in a transverse position immediately above it.

I is a collar fitting around the neck of the lamp and carrying a rod, J, which is provided with a number of joints, *j*, tightened as needful by means of clamp-screws *j'*. The upper member of the said jointed rod is provided with a screw, j^2, or other convenient means of attaching a reflector, K, or a nursing-cup or shade or any other object desired. The collar I is adapted to turn around the neck of the lamp, that the reflector, shade, or other article attached to the jointed rod may be placed in any position.

In carrying out this invention the wick-tube and wick may be of flat, round, cylindrical, or any preferred form, the deflector being formed with a base corresponding to the form of the wick-tube, so that as the deflector converges upward equally in all directions its periphery will be in every horizontal plane exactly parallel with the periphery of the wick-tube. The deflector converges inward in all directions at angles of forty-five degrees, or thereabout, from the perpendicular—that is to say, the opposite sides are inclined at about ninety degrees from each other. I have discovered by experiment that straight sides converging at about this angle are best adapted to furnish the flame with the required supply of air in a heated state, duly mingled with the gaseous products of combustion without sudden or unequal draft and in the most advantageous direction to maintain a uniform, strong, and brilliant flame. If the angle of the sides of the deflector be much greater than ninety degrees, the gases generated will not receive a sufficient supply of oxygen to insure their complete combustion. If it be smaller, a superfluous quantity of air will be supplied, the draft created being too strong to allow a satisfactory mixing of the

oxygen with the gases generated by the heat of the wick-flame. The aperture in the top of the deflector corresponds accurately in form with the top of the wick-tube, but is large enough to pass a sufficiency of air to saturate with oxygen the richest description of oil. In practice it has been found that the aperture should exceed the dimensions of the wick-tube in every direction to an extent equal to the thickness of the substance of the wick itself.

The wires H H′ operate as conductors to heat the generated gases and the air which supports combustion. They may be applied and secured in any suitable way. If preferred, two or more wires in each direction may be used, or thin plates or coarse wire-gauze attached to the deflector may be employed.

The vertical adjustment of the sliding tube and deflector may be effected by means of a rack and pinion or other suitable device.

The reflector, shade, cup, or other article attached to the rod J may be set at any angle or height by means of the joints therein, and may be secured by the clamp-screws *j′* with sufficient rigidity to support any required weight.

In some cases it may be found preferable to make the top of the wick-tube convex, instead of horizontal. In this case the aperture in the top of the deflector will be curved to correspond therewith, so that the sides of the said aperture shall still be equidistant at all points from the top of the wick-tube.

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

1. In combination with a wick-tube of any suitable form, a conical deflector with straight sides of equal vertical length converging at an angle of about forty-five degrees to the perpendicular, and an aperture at top formed with sides parallel with the top of the wick-tube, all substantially as herein set forth.

2. Supporting the said deflector adjustably upon the wick-tube by means of rods J, projecting from a flanged and slotted tube, G, fitting upon the said wick-tube with a yielding pressure.

3. The collar I, jointed rod J *j*, and clamp-screws *j′*, employed in the manner described, to support a reflector, shade, or other article in any desire position.

JOHN JACOB MILLER.

Witnesses:
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