2 Sheets—Sheet 1.

# A. GULLIFORD.

## LAMP-STOVE.

No. 180,474. Patented Aug. 1, 1876.

Fig. 1.

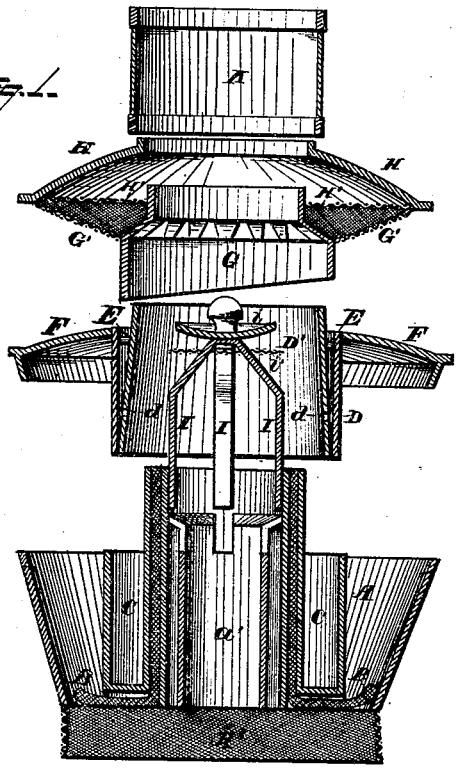



Fig. 3.

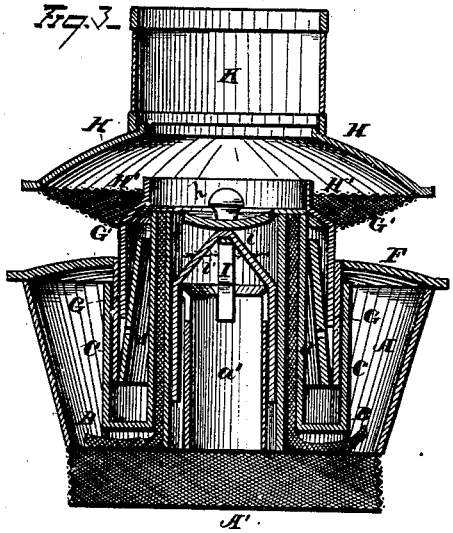
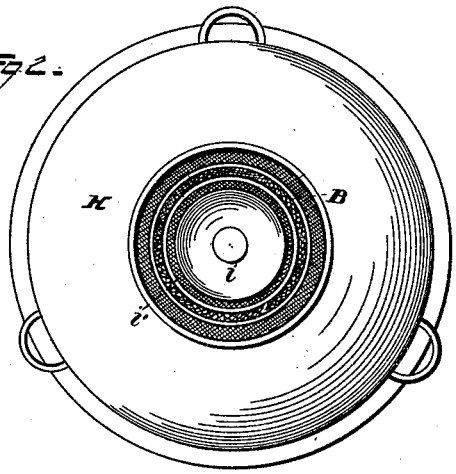



Fig. 2.

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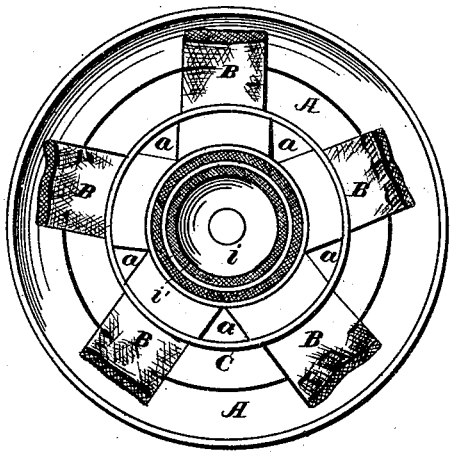
2 Sheets—Sheet 2.

# A. GULLIFORD.

## LAMP-STOVE.

No. 180,474. Patented Aug. 1, 1876.

Fig. 2.

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# UNITED STATES PATENT OFFICE.

ALDEN GULLIFORD, OF CLEVELAND, OHIO, ASSIGNOR TO M. L. HULL, OF SAME PLACE.

## IMPROVEMENT IN LAMP-STOVES.

Specification forming part of Letters Patent No. 180,474, dated August 1, 1876; application filed April 10, 1876.

*To all whom it may concern:*

Be it known that I, ALDEN GULLIFORD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Stoves designed for employing coal-oil, &c., for fuel; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in stoves designed to employ coal-oil or the like as fuel.

In the drawing, Fig. 1 represents, in vertical section, the different parts of my stove detached, and in the order of their adjustment from top to bottom. Figs. 2 and 4 represent plan views of the same. Fig. 3 represents, in vertical section, the said parts as adjusted and forming my stove complete.

My invention consists of the following parts and combinations, as hereinafter specified and claimed, wherein A is the oil-reservoir, resting either upon legs or upon a ventilated rim, A′, so as to admit of free admission and circulation of air beneath it. Through the bottom of the reservoir A are openings *a*, and through the reservoir rises upward the flue *a′*.

A wick-tube is located outside of the flue *a′*, forming an annular air-space between them, which space is utilized for ventilating purposes, and opens at its upper end by several mouths into the main flue *a′*. The wicking is inserted in its tube, and extends downward into the oil-reservoir A. Surrounding the wick-tube is another wall or wick-tube, C, rising to the height equal to or exceeding the height of the reservoir A. This wall serves the double purpose of preventing the escape of oil from the reservoir A, and of providing an air-space between the oil and the wick-tube.

The parts just described are shown in Figs. 1, 2, and 3 of the drawings, and constitute what may be termed the "bottom section" of my stove.

Proceeding now to what may be termed the "middle section," D D′ are two cylinders, united at their base, and diverging from each other as they proceed upward. The inner cylinder D′ is provided with perforations *d*, whereby air is admitted to the space between the two cylinders.

E E are lugs, crossing the space between the cylinders D D′, for a purpose which will hereinafter appear more fully.

From the upper rim of the cylinder D projects a flange, F, so constructed as to operate as a cover to the reservoir A.

The parts just enumerated and described constitute what may be termed the "middle section" of my stove.

Referring now to the upper section, G is a cylindrical extension, terminating in two similar and opposing cams. These cams, resting upon the lugs E E, will operate to raise or lower the superincumbent attachments as they are turned one way or the other.

From the upper rim of the cylinder G projects at an angle an annular perforated flange, G′. This flange G′, at its outer rim, is united with the crown-plate H, whose center is pierced with an opening somewhat greater than the diameter of the flue *a′*.

Between the perforated flange G′ and the crown-plate H is a perforated partition, H′, having a central opening somewhat larger in diameter than the flue *a′*. The outer rim of the partition H′ unites in common with the junction of the crown-plate H and perforated flange G′. The portion surrounding the central opening is so attached to the outer rim of the cam-cylinder G as to permit a free circulation of air through and around it.

At or near the junction of the perforated flange G′ and the crown-plate H may be provided one or more handles, *h*, for turning the upper section of the stove.

I will now proceed to describe what I term my "internal deflector," which consists of spring-supports I, which impinge against the inner wall of the flue *a′*, supporting the deflector at any desired elevation. *i* is a reflector, presenting a convex surface downward. Below the reflector *i* is a perforated plate, *i′*. K is a chimney, which may be constructed of mica, glass, metal, or any suitable material.

Operation: The reservoir A is filled with the

desired amount of oil, and the parts united, as shown in Fig. 3 of the drawings. The wick B, by the ordinary operation of capillary attraction, draws the oil to the upper exit of the wick-tube, where it is burned. Air is received through the perforated rim or base A′, beneath the reservoir A, and is conducted through the flue *a*, and between its inner wall and the wick-tube, and also outside of said wick-tube, in such a manner as to amply support perfect combustion, and at the same time to keep the wick-tube sufficiently cool. The air passing up the flue inside the wick-tube meets the convex reflector, and is projected upon the inner side of the flame, affording sufficient oxygen in that quarter, while the air admitted to the outside of the wick-tube acts partly to keep the wick-tube and oil-reservoir cool, and at the same time to afford oxygen to the outer surface of the flame. Additional oxygen, however, is received through the perforated flange G′, and, being conducted through the perforated partition H′, is so deflected and directed by the crown-plate H as to act in such a manner upon the outer surface of the flame that, in combination with the action of the air upon the inner surface of the said flame, a perfect combustion is accomplished. By turning the upper section of the stove, through its handles *h*, the cams upon the cylinder G, resting upon the lugs E, will operate to raise or lower the upper rim of the cylinder G, in such a manner as to impinge more or less upon the outer surface of the wick, and thereby increase or diminish the amount and intensity of the flame.

Although not an essential to perfect combustion, I prefer employing the chimney K, which, aside from its operation as a flue, may act as a support for anything to be heated.

What I claim is—

1. In a coal-oil stove, the combination with the reservoir, having a ventilated bottom and a central flue, *a′*, of an outer wick-tube, the outer wall of which is cut away to allow the wicking to extend outward on the bottom of the oil-reservoir, substantially as and for the purpose set forth.

2. The combination of the cylinders D D′, cover F, and reservoir A, substantially as shown.

3. The combination of the cylinders D D′, lugs E, or their equivalent, and the cam-cylinder G, substantially as and for the purpose shown.

4. The combination, with the wick-tube, of the lugs E or their equivalent and the cam-cylinder G, substantially as and for the purpose shown.

5. The combination of the perforated flange G′, perforated partition H′, and crown-plate H, substantially as and for the purpose shown.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALDEN GULLIFORD.

Witnesses:
FRANCIS TOUMEY,
EDWARD WALSH.