

E. SAVORAL.  
Lamp-Stoves.

No. 145,531.

Patented Dec. 16, 1873.

Fig. 1.

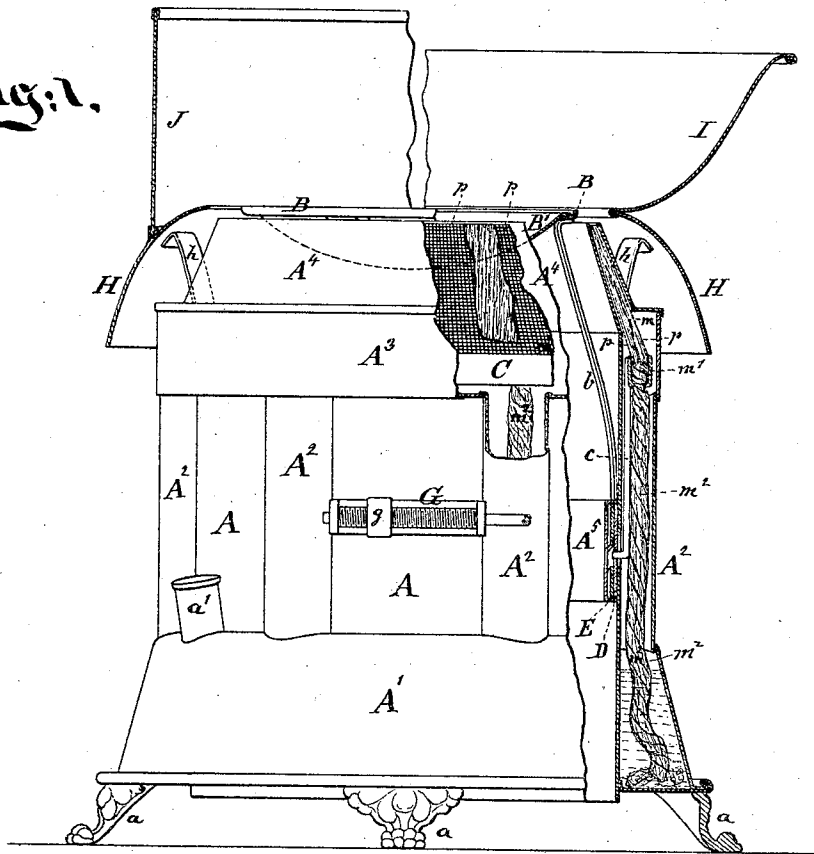
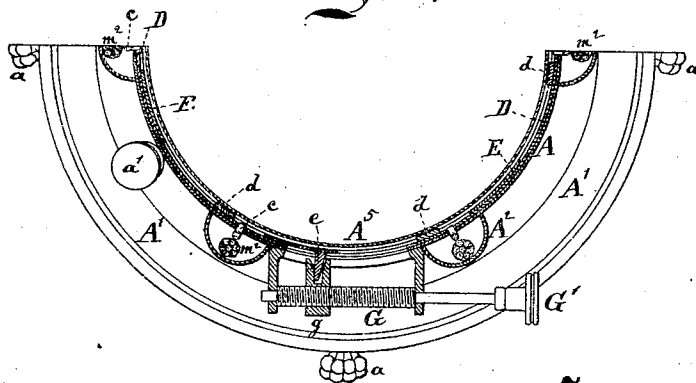


Fig. 2.



Witnesses:

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Inventor:

*E. Savoral*  
*by his atty J. L. Stetson*

# UNITED STATES PATENT OFFICE.

EDWARD SAVORAL, OF NEW YORK, N. Y., ASSIGNOR TO ELIAS SCHNAUTZ  
AND EDWARD SAVORAL, OF SAME PLACE.

## IMPROVEMENT IN LAMP-STOVES.

Specification forming part of Letters Patent No. 145,531, dated December 16, 1873; application filed September 4, 1873.

*To all whom it may concern:*

Be it known that I, EDWARD SAVORAL, of New York city, in the State of New York, have invented a certain new and Improved Device for Illumination and Cooking, which I term a "Lamp-Stove," of which the following is a specification:

I employ a hollow circular wick, of large diameter, peculiarly constructed and arranged, and make novel provisions for adjusting such wick, and for facilitating the use of the device for cooking, lighting, or both, as also, obviously, for heating, like ordinary stoves.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation, partly in section, and with certain portions, furthermore, broken away, to show the peculiarities. Fig. 2 is a horizontal section through a half of the structure.

Similar letters of reference indicate like parts in both the figures.

A is the main body of the device, constructed of sheet-iron or other suitable material, and provided with legs *a*. The interior is entirely open, as indicated by Fig. 2, with the exception of the concave plate or button B, (indicated in dotted lines in Fig. 1,) which is supported by rods *b*, so as to serve to deflect the air which rises through the interior, and cause it to impinge properly against the inner surface of the flame. The lower portion of the main body is an annular oil-vessel, A<sup>1</sup>. From this arise certain close channels, formed by the half-tubes A<sup>2</sup>, in which the oil rises, through suitable wicks, to an annular upper vessel or chamber, A<sup>3</sup>, from which two conical plates extend upward and inward, with a proper space between them for an annular wick. I call these conical plates, considered collectively, the "wick-tube." They are marked A<sup>4</sup>. I attach much importance to the form and position of this wick-tube. C is an annular trough, mounted adjustably in the annular chamber A<sup>3</sup> by means of wires *c*, each of which extends downward therefrom a considerable distance in one of the tubes A<sup>2</sup>, and then turns abruptly inward through a vertical slot formed

in the body, and is soldered or otherwise firmly joined to the ring D. This ring D is capable of no motion, except simply rising and sinking. It carries on its inner face projections *d*, which are received in oblique slots in another ring, E, which is wider than the ring D, and is confined within a casing, A<sup>5</sup>, so that it is capable of no motion except being revolved partially around. The motion of this ring E in one direction raises the ring D, and consequently the trough C, while the motion in the opposite direction lowers these parts. The trough C contains a quantity of cotton, *m*<sup>1</sup>, from which descend, through holes in the bottom of the trough, wicks *m*<sup>2</sup>, so that their lower ends are immersed in the oil in the vessel A<sup>1</sup>. There is one of these wicks *m*<sup>2</sup> in each of the semi-tubes or vertical chambers A<sup>2</sup>. The wick proper is above all of this. It is marked *m*, and is in the form of a hollow frustum of a cone. Its lower edge rests on and receives oil from the cotton *m*<sup>1</sup>, while its upper edge, when in use, is protruded a little from the upper end of the wick-tube.

Any suitable fibrous material which will conduct oil may be used with some success for the wick *m*<sup>2</sup>, but I propose to employ mainly asbestos, confined between two layers of wire-gauze, *p p*. Whatever material is employed, it is important that the wick be kept in good condition for the transmission of the oil, and that its upper edge be kept smooth and even. The turning of the ring E in one direction or the other raises or lowers the trough C and its several attachments, including the conical wick and the wire-gauze, which gives it stiffness and support.

To turn the tube E, I provide a stout spur, *e*, projecting therefrom outward, through an opening in the adjacent ring D, and take hold of this spur *e* by inclosing it in a nut, *g*, operated by an endless screw, G, fixed in bearings outside. By turning the screw G, the position of the ring E, and consequently the height of the conical wick, may be adjusted with very great delicacy. Other means may be employed for connecting, from an outer button, G', or analogous convenient device, to the ring E, such as gearing, or the like; but I prefer the screw and nut shown. H is a shield or deflector, corresponding somewhat in its form

and functions to the dome-shaped structure usually called the "cone," on kerosene lamps. It is supported in the position shown, relatively to the other parts, by the braces *h*. The right-hand side of Fig. 1 shows the deflector *H*, carrying on its upper edge a flaring plate, *I*, extending around and presenting the appearance of a wash-bowl. This construction protects the flame from gentle currents of air, and is very convenient when the device is used for cooking purposes. It supports a gridiron or analogous article perfectly.

The left side of Fig. 1 shows what I esteem a preferable construction when the device is used for illuminating alone. A cylindrical sheet of mica or other transparent material, *J*, being suitably supported upon the deflector *H*, extends up to a sufficient height. In cases where it is desired to use the device for both purposes, the flaring plate *I* may be formed partially of mica.

In operation, the oil is supplied through a filling-tube to a properly-secured filling-aperture, *a'*, in the annular vessel *A*<sup>1</sup>, and, rising through the fibrous matter, moistens the lower wicks *m*<sup>2</sup>, the wick material *m*<sup>1</sup> in the trough *C*, and the wick proper *m*, which extends to the top of the wick-tube. On raising the wick a little, and lighting it, an annular flame is produced, of a power which may be controlled, at will, by adjusting the ring *E* in one direction or the other.

I have tried the device very thoroughly. The conical form of the wick-tube and wick I have found to involve no difficulty in practice. The yielding character of the wick material and the wire-gauze allows it to contract as it is raised, and expand as it is lowered, within proper limits, with facility, while a very marked advantage is demonstrated to result in the effect on the air-currents and on the flame. The confining of the wick *m* between the wire-gauze *pp*, each sheet of which latter is soldered or otherwise firmly fixed on a rigid trough, *C*, with the connections shown, allows the whole to be raised and lowered exactly alike at every point.

It is important that the casing *A*<sup>5</sup>, which incloses the rings *D* and *E* within the main body, shall be tightly constructed, and that the parts adjacent to the hole for the spur *e* shall be tightly fitted, so that there shall be little evaporation from the inclosed kerosene or other volatile fluid at this point, and that little shall be spilled in consequence of over-filling the lamp-stove, so as to raise the level of the fluid above this point, or in consequence of any agitation of the fluid, so as to throw it occasionally up to this point. When the whole is properly constructed, there is practically no

escape at any point except the proper outflow from the top of the wick-tube; and gas may be employed in the lamp, by making a proper connection from the vessel *A*<sup>1</sup> to a gas-main. In such cases a little kerosene may be retained in the part *A*<sup>1</sup> to carbonize the gas. The main body *B'* of the button is made separate from the rim *B*, to allow of removal, when desired, without disturbing its supports. I esteem this an important feature of the construction, because it allows a kettle or other object to project downward in the middle, and because this insertion and removal of the central part of the button gives facilities for modifying the effect of the flame on the bottom of the vessel.

Many of the details may be modified without sacrificing the advantages of the invention. The mica *J* may be replaced by common glass, and in such case may be contracted at the top, or given various fanciful shapes. The main cylinder of metal below may be open-work between the tubes or semi-tubes *A*<sup>2</sup>, and in such case the bottom vessel *A*<sup>1</sup> may be extended across the central space. The entire lamp may be made semicircular, instead of circular, and may thus fit better against a show-window or the like. The upper part of the wick may be made separate from the main body, to allow of more frequent exchange or more convenient cleaning.

I claim as my invention—

1. In a lamp-stove substantially of the character herein described, the rigid wick-support *C* and wire-gauze *pp*, arranged as shown relatively to the system of wicks *m m*<sup>1</sup> *m*<sup>2</sup>, and a suitable annular wick-tube, oil-reservoir, and provisions for raising and lowering the wick-support and its connections, as herein specified.

2. In combination with the wick *m* and its supporting means *C pp*, with provisions for supplying oil thereto, the adjusting-ring *E*, having oblique slots receiving the internal projections *d* on the ring *D*, to allow of adjusting with great delicacy and uniformity all parts of the wick without obstructing the interior air-space, as specified.

3. The button having a permanently-supported rim, *B*, and a removable center, *B*<sup>1</sup>, in a lamp-stove having an adjacent circular wick, *m*, and an inclosing deflector, *H*, all combined substantially as and for the purpose herein set forth.

In testimony whereof I have hereunto set my hand this 26th day of August, 1873, in the presence of two subscribing witnesses.

EDWARD SAVORAL.

Witnesses:

ARNOLD HÖRMANN,  
ALFD. WESTBROOK.