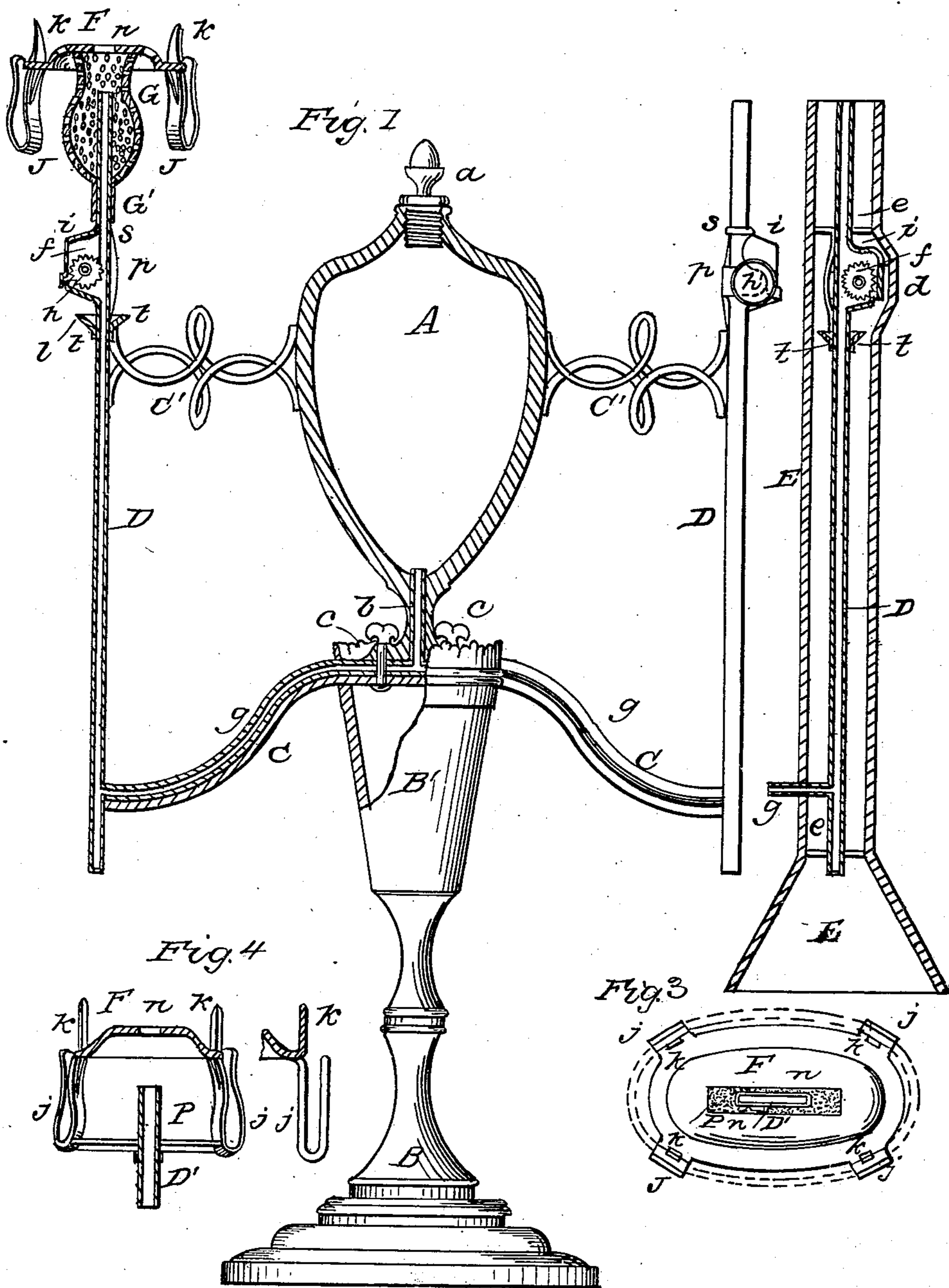


J. F. SANFORD.

Lamp.

No. 86,867.

Patented Feb. 9, 1869.



WITNESSES

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Letters Patent No. 86,867, dated February 9, 1869.

IMPROVEMENT IN LAMPS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN F. SANFORD, of Keokuk, in the county of Lee, and State of Iowa, have invented certain new and useful Improvements in Lamps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation of a fountain-lamp, shown partly in section, and having my improved burner and supply-tube applied to it.

Figure 2 is a vertical sectional view of the wick-tube of a fountain-lamp, enclosed by an air-duct, or chimney.

Figures 3 and 4 show my improved oblong burner.

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

One object of this invention is to improve that class of lamps which are known as "fountain-reservoir lamps," and adapt them for safely burning those oils or fluids which are very inflammable and explosive, by so regulating or adjusting the size of the supply-tube, which leads from the reservoir of oil to the wick-tube, with reference to the size of this tube, and the capacity of the wick therein for carrying up oil to the flame, that the supply of oil shall not at any time be greater than the actual consumption of it by the flame. Consequently, should such supply-tube be casually broken by the fall of a lamp, or otherwise, oil will not escape from the reservoir in such quantity as would be liable to do serious injury if it should take fire.

To enable others skilled in the art to understand my invention, I will describe the best means known to me for carrying it into effect.

In the accompanying drawings, fig. 1, I have represented a patentable fountain-reservoir lamp, with my improvement applied to it, but it will be obvious, from the following description, that my improvements are applicable to chandelier and bracket-lamps.

A is the oil-reservoir, having a screw-cap, *a*, in its upper end, for closing the filling-hole, and

B B' represent a pedestal, or stand, for supporting said reservoir.

Through the lower end of the reservoir A is a vertical passage, *b*, which communicates with tubes *g g*, that branch off from the base of the reservoir, and communicates with two wick-tubes, D D, near the lower ends thereof.

The wick-tubes D D are supported in vertical planes on opposite sides of the reservoir A, and at a proper elevation, by means of arms C C, and ornamental attachments C' C'.

The arms C C are of sufficient size and strength to strengthen and support the tubes *g g*, beneath which these arms lie, as shown in fig. 1.

Near the outlet-passage *b*, from the reservoir A, cocks *c c* are applied to the two supply-pipes *g g*, which cocks pass through the base, or foot-piece of the reservoir A; and have their places thus established in such a firm manner that there will be no liability of

the tubes *g* breaking at such points, nor at any point between these cocks and the discharge or outlet-passage *b* from the reservoir A.

In practice, the tubes or pipes *g*, and the arm-supports C C, may be rigidly secured to the base of the reservoir A, so that, should a break occur, it must be at some point between the wick-tube D and the base-support B'.

The tube or tubes *g* are made just large enough to supply the necessary quantity of oil to the wick-tubes D, and should it be required to reduce this supply, the cocks *c c* are turned more or less.

By thus having the supply-tubes no larger than is necessary to afford just the quantity of oil required, it is obvious that the lamp will be much safer than lamps having supply-tubes of larger diameter, inasmuch as the oil, which will escape through the small tubes, would not be liable, should it take fire, to do serious injury.

The size of the bore through each tube *g* is, therefore, adjusted with relation to the capacity of the wick in tube D for absorbing oil, and if less light, and consequently less oil are required, the supply is regulated by the cock or cocks *c*, as above described.

The drawing, fig. 1, shows two wick-tubes, D D, receiving oil from the reservoir A, but only one may be used, or more than two may be arranged around this reservoir, as may be desired.

On the upper end of each wick-tube D, a burner is arranged, and upon this burner may be applied a chimney. Any well-known burner suitable for the highly-volatile hydrocarbon-oils or fluids, may be used, but I prefer to employ a burner constructed substantially as shown in the drawings, by which several important advantages over the old circular burners are obtained.

The burner represented in fig. 1 consists of a flanged cone, of an oblong or elliptical shape, through which an oblong aperture, *n*, is made, and from which depend stirrups, *j j*, for supporting a chimney, whose base is of an elliptical shape, or shape corresponding to that of the said flanged cone. This flanged cone is sustained upon, and secured in a suitable manner to a perforated box, G, which terminates at its lower end in a sheath, G', for receiving through it the upper end of the wick-tube D.

The case, or box G encloses the upper portion of the wick-tube D, when in place thereon, and may be made of fine wire gauze, which will not allow flame to pass through it, or of perforated sheet-metal.

It will operate as a regulator for the currents of air passing through it to the flame, and so modify the force of these currents as to make a steady flame and brilliant light.

Instead of making this regulator and safety-attachment in a box-form, it may consist simply of a flat diaphragm, P, made of fine wire gauze, or of perforated sheet-metal, and applied to a sheath, D', and flanged cone, F, as shown in fig. 4.

Under this arrangement, the stirrups *j j*, which de-

pend from the edge of the flanged cone, have the diaphragm P secured to their lower ends, and the base of the elliptic chimney, resting on said stirrups *j*, will enclose the space between the flanged cone and diaphragm, and cause the air, on its way to the flame, to pass through said diaphragm.

The sheath or slide D', like the sheath or slide G', receives the upper portion of the wick-tube through it, and affords a means for attaching the burner to this tube, and supporting it upon a bead, or rib, *s*, upon the wick-tube.

The stirrups *j j*, which I do not claim under this petition for a patent, may be formed on the flanged cone, or made separately, and afterward soldered, or otherwise secured to it.

The manner which I have shown, of utilizing these stirrups, or chimney-supports, *j*, for sustaining the flanged cone F upon and securing it to the diaphragm P, as shown in fig. 4, is equally applicable to flanged cones which are made of a circular form, for chimneys having circular bases.

This combination of a flanged cone and diaphragm, forms a very open burner, which will allow the rays of light from the flame to pass downward, as well as upward and laterally, beneath, as well as above the said flanged cone.

In fig. 2, I have represented a wick-tube detached from its fountain, or reservoir, and surrounded by a tube, or chimney, E, which latter may be attached to the wick-tube D by means of small pins, *e*.

The lower end of this external tube may extend below the lower end of the wick-tube, and terminate in a flaring receiver, as shown, and the upper end of this tube E may terminate on a level with the upper end of the wick-tube, or it may be formed into a burner, with all the appendages necessary.

The oil-supply tube *g*, and the wick-adjuster *h*, are applied substantially as shown in fig. 2.

The object of the tube or chimney E is to furnish air to the flame in such quantities as to produce perfect combustion and a brilliant light, and admit of the use of a very short chimney above the flame, and, in some instances, to dispense with a chimney altogether.

The tube or chimney will become heated at and near its upper end, and thus induce currents of air to rise through it very rapidly, which currents will be caused

to impinge upon the flames as they issue from the upper end of the said chimney, and thus supply oxygen very freely.

In figs. 1 and 2 of the drawings, I have represented small cups, *t*, applied around the wick-tubes D, just below the wick-adjusting device.

At the base of each cup *t*, inside, small perforations, *l*, are made through the wick-tube, for the purpose of conducting back into the wick-tube any oil which might run down to the outside of the tube into the cup *t*.

For fountain-lamps, the cups *t* will be found very desirable, to prevent oil from running down the exposed wick-tubes, and dripping from their lower ends, and therefore I consider this feature of my invention valuable for such lamps.

I am aware that a patent was allowed to William H. Smith, in March last, for a cup around the wick-tube, to turn back the overflow of oil into the wick-tube, but his arrangement would not answer my purpose, inasmuch as he places his cup at the top of the wick-tube, whereas my main purpose is to arrest the oil which escapes through the aperture made to allow the feed-wheel of the wick to perform its functions, and must therefore be placed below that aperture.

I do not claim that contrivance broadly, but only in its connection with my particular organization.

Having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. A fountain-reservoir lamp, having its supply-tube *g* made so small that the supply of oil through it to the wick shall not exceed the actual consumption of oil by the flame, said tube being strengthened and supported substantially as described.

2. The cup *t*, applied to the wick-tube D, having one or more apertures, through which the oil caught by the cup shall pass backward into the wick-tube, when said wick-tube is constructed as above contemplated, and when the said cup is placed below the aperture made for the feed-wheel of the wick, substantially as above described.

JOHN F. SANFORD.

Witnesses:

R. P. LOWE,

E. S. HUBBARD.