

D. L. PICKARD.

Lamp.

No. 52,316.

Patented Jan'y 30, 1866.

Fig. 4.

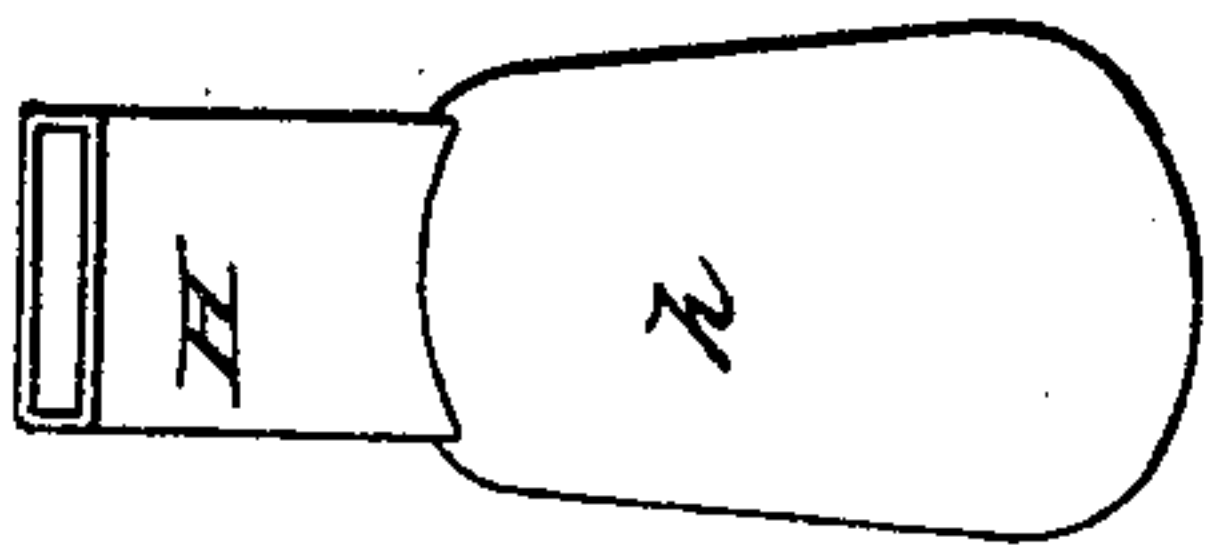


Fig. 3.

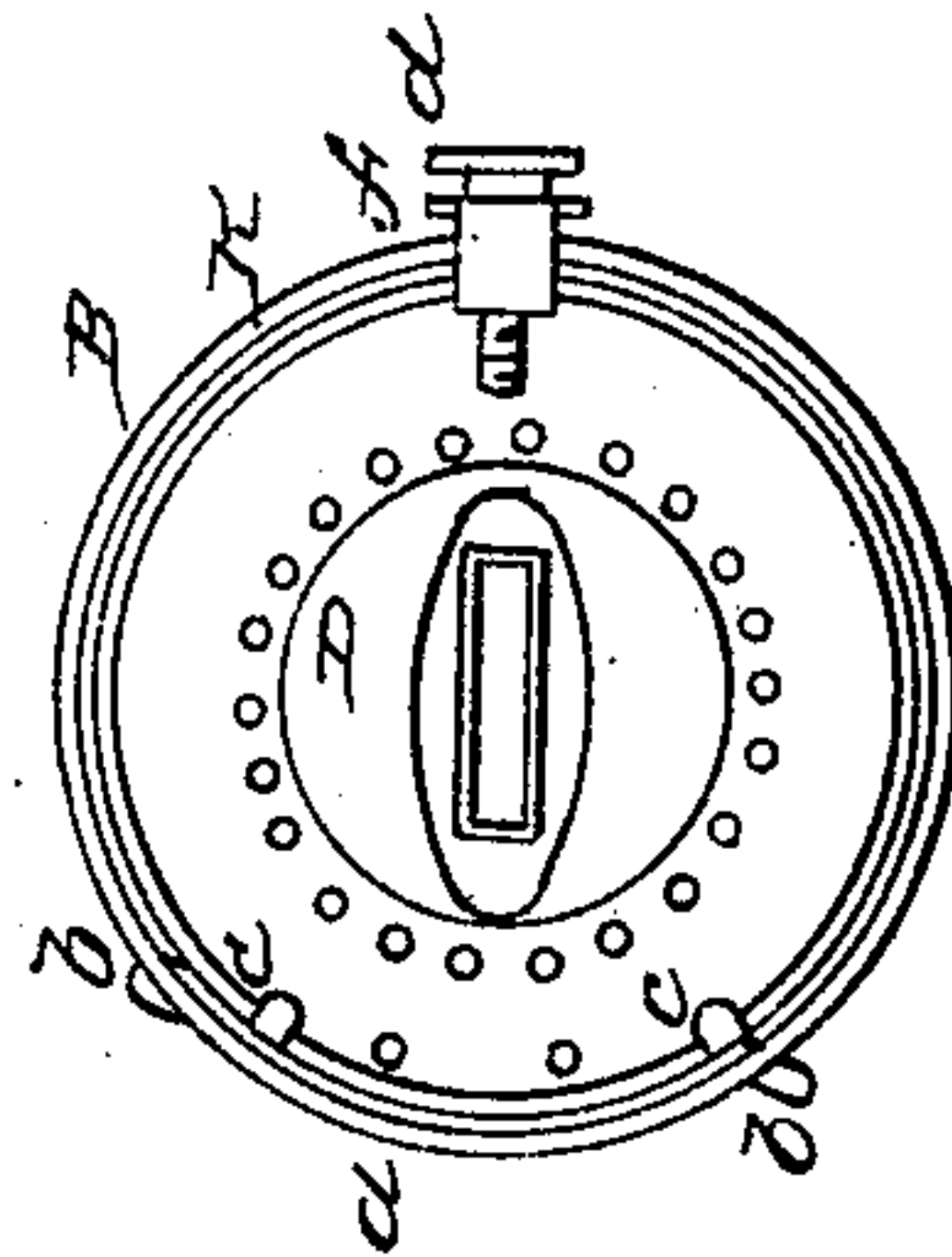


Fig. 2.

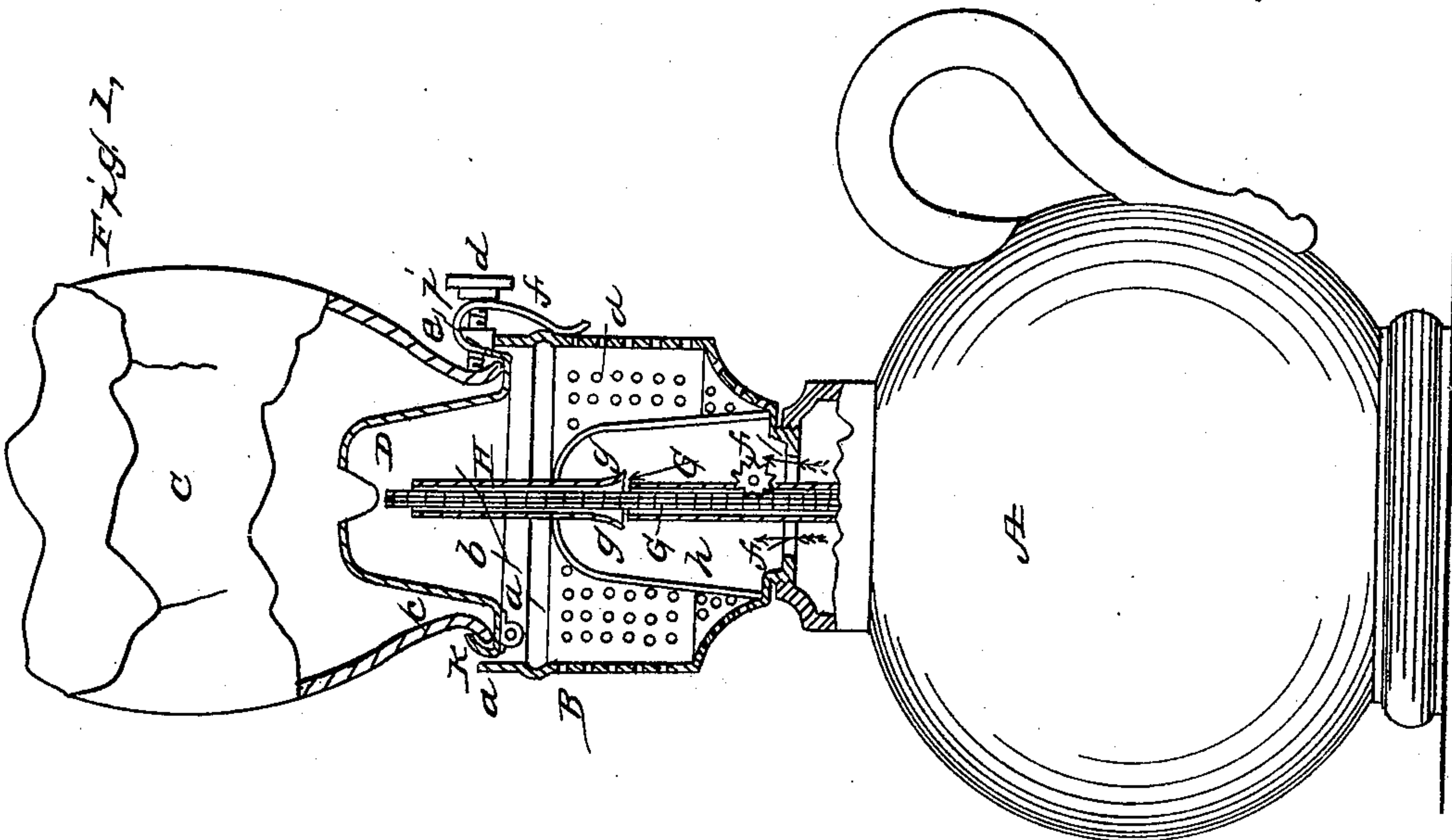
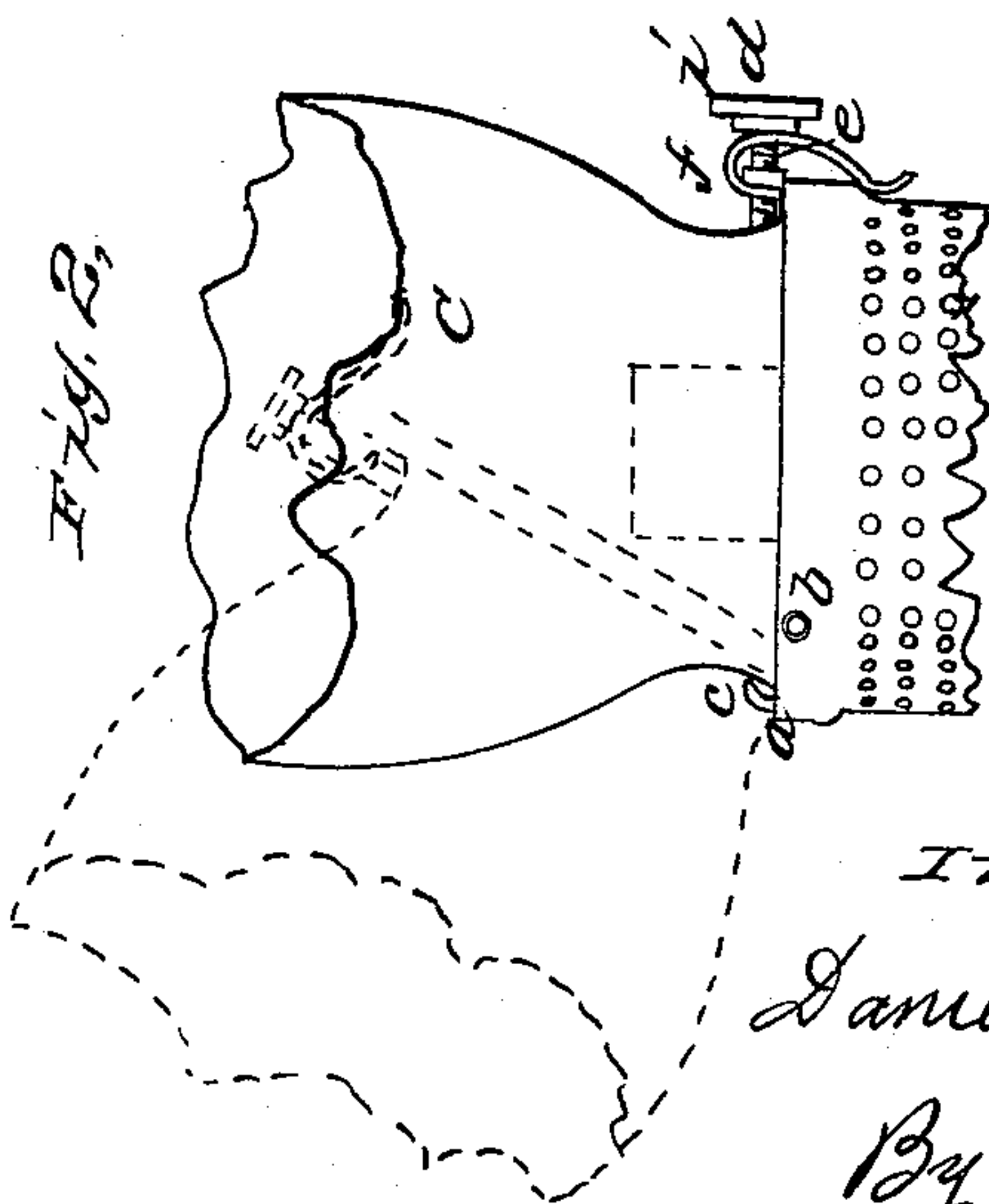


Fig. 1.



Witnesses:
 Jay H. Hall
 & Son.

Inventor:
 Daniel L. Pickard
 By J. Weaver & Co
 attys

UNITED STATES PATENT OFFICE.

DANL. L. PICKARD, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. 52,316, dated January 30, 1866.

To all whom it may concern:

Be it known that I, DANIEL L. PICKARD, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lamps; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is an elevation of my improved lamp, the top or cap of the same, together with a portion of the chimney, being in section for the purpose of showing the interior arrangement. Fig. 2 is an elevation of a portion of the cap and chimney; Fig. 3, a plan of the cap detached; Fig. 4, a perspective view of one section of the wick-tube, together with the vapor or gas chamber to which it is attached.

Like letters of reference indicate corresponding parts in all the figures.

As ordinarily constructed, the parts forming the burner and cap in common lamps are so arranged that there is an unbroken connection from the flame to the lamp-body, thereby producing gas in large quantity in the latter that must escape, and which is uncontrollable and unsafe.

To obviate these difficulties two things are necessary.

First, to isolate the heat generated by the flame from the body of oil contained in the lamp below. This I do, first, by separating the deflector or cone from the surrounding cylinder at all points except at the joint; second, by dividing the wick-tube into two or more sections, thus disconnecting them—uniting the lower section with the base of the cap, as usual, the upper section or sections being supported by an air-tight chamber or chambers. Each section, as it rises from the one below, is made a little larger, with an increased size at the lower end, for the double purpose of allowing the wick to pass easily the farther it rises from the base, and allow the air, with such gas as may be mixed with it, to pass up into the flame. By this means the downward tendency of the heat through the wick-tube is intercepted before it reaches the body of oil.

Second, to employ an air-chamber to retain air, together with such gas as may enter from

the body of oil below, the purpose of which is, by means of the elasticity of the air, to produce a regular, uniform, and easy flow of air and gas upward through the upper section or sections of the tube, and thus insure a steady flame, and avoid the pulsation, throbbings, and blowing that is experienced in ordinary lamps.

As represented in the drawings, A is an ordinary lamp, to which is secured the top or cap B, surmounted by the usual chimney C. The cap consists, essentially, of a cylinder, *a*, perforated for the double purpose of allowing a passage of air to support the combustion, and to remove a portion of the metal, so as to impede, as much as possible, the conduction of heat downward to the liquid within the lamp.

The flange of the cone or deflector D, which rests within the top of the cap, is made of somewhat smaller diameter than the cylinder *a*, in order to leave a space, *k*, all around, except at the hinge, which is formed of small journals, *b b*, on opposite sides, passing out through the sides of the cap, by which means the chimney is turned back away from the wick-tube. These journals may be situated at any desired position from the center of the cap nearly to the periphery; but I prefer about the position shown in Figs. 2 and 3.

Thus arranged, when the chimney is turned back it strikes upon the rim of the cylinder *a*, which forms the stop to arrest the chimney and retain it in the proper position to trim the lamp, as indicated by the red lines at Fig. 2.

It will be seen that there is considerable intervening space between the rim *a*, on which the chimney rests, and the joint or hinge *b*, so that when the said chimney is turned back the weight of the same will not produce much leverage on the joint, as would be the case if *a* and *b* were coincident or situated closely together.

In other devices with which I am acquainted, where a stop is employed to arrest the motion of the chimney, the stop is connected with and forms the upper part of the hinge itself, so that the lower part will strike the upper in turning, and thus limit the motion. In such a case it is obvious that the strain on the stop must be very great, and where the hinge is

simply formed of thin brass, as is usually the case, it soon becomes torn off, so as to render the device worthless. In my arrangement this difficulty is obviated. In addition to this advantage of the peculiar form, position, and construction of the hinge, the space *k*, around the flange of the deflector *D*, cuts off all conduction of the heat therefrom to the cylinder *a*, except at the small journals *b*, and thus materially prevents the formation of gas in the body of oil below.

The chimney is held in place on the flange of the cone on one side by lips *cc* of the flange, and on the opposite side by the usual screw *d*, that shuts over its base. To the bearing *e*, through which the screw passes, is secured a spring, *f*, bent over in the shape of a bow, to form the catch that shuts over the enlargement *g* of the cap, to hold the chimney in its upright position. The screw *d* also passes through the spring outside the bearing, in such a manner that when it is screwed up its shoulder *i* strikes the spring and presses it in so as to make it stiffer. A double result is thus accomplished, viz: The screw holds over the base of the chimney and retains it in place, as usual, and at the same time the spring *f* can be adjusted into any degree of stiffness by the shoulder *i* of the screw pressing in against it.

In ordinary devices the catch *f* soon loses its elasticity or becomes bent outward, so that it does not hold when shut down over the cap. The consequence is that the chimney is held very insecurely, and often becomes broken by falling over. I obviate all difficulty of this kind, for the shoulder *i* not only prevents the spring from being bent out, but if the latter gets loose an extra turn of the screw will restore all its stiffness and make it hold securely.

As the chimney turns back for the purpose of trimming, &c., it is not necessary to release the screw *d* under ordinary circumstances.

In order still further to prevent the conduction of heat as much as possible downward to the lamp-body, I make the wick-tube in two or more sections, *G H*, which are entirely disconnected from each other, leaving a space between the contiguous ends, but coming nearly together and coinciding in position, as shown at *g*, Fig. 1. The lower section, *G*, is made of the ordinary form of the wick-tube, and the wick fits in it closely; but the next section, *H*, is made of considerably larger size, so that the wick will enter and fit in it loosely, leaving sufficient space at the sides for the passage of air and gas freely from below. Its bottom is also enlarged or made flaring, as shown at *g*.

To the section *H*, at a suitable distance above its base, is attached a tight chamber, *h*, preferably, but not necessarily, of conical form, as shown, the bottom of which is open and sits closely upon the base of the lamp-cap,

through which are made one or more holes, *j j*, Fig. 1, for the passage of gas from the lamp-body.

In the usual burning of lamps there is necessarily much gas escapes from the lamp, especially when the same is generated by the heat from the burner. In ordinary lamps this gas is allowed to escape into the cap below the flame, where it takes fire, thus increasing the heat and producing more gas.

I design by my arrangement above described to avoid the production of gas as much as possible, but to utilize such gas as is produced by conveying it to the flame. It passes from the lamp-body through the holes *j j* into the chamber *h*, which serves as a receiver or air-chamber, thence it passes through the open section *H* of the wick-tube beside the wick to the flame, where it is consumed.

The construction of the wick-tube as shown serves a double purpose, viz: by being made in sections the connection is broken, so that the heat is not conducted down, while the employment of the upper section, *H*, allows the air and gas to escape freely upward. At the same time the lower section, *G*, by fitting the wick closely, insures the proper raising and retaining of the wick. The employment of the air-chamber *h* is a consequence of this peculiar construction of the wick-tube, for the gas must be allowed to pass outside the section *G*, (which is filled closely by the wick,) while at the same time it must be confined, or it will escape. Thus there is no escape for the gas except through the section *H* into the flame, where it is at once consumed. The gas being of a very light and ethereal nature, and passing upward readily, the chamber *h* serves as a reservoir in which it is collected, so that if the generation of the gas in the lamp-body is irregular the steadiness of the flame is not affected thereby, for it will constantly pass up the section *H* till the whole quantity is exhausted. By this means the throbbing or pulsation of the gas that is so often experienced in ordinary lamps is obviated, and also the blowing that results from its imperfect escape.

I do not claim, broadly, a hinge to the cone of a lamp that will prevent the chimney from being thrown out too far, as I am aware that the same has already been employed. Neither do I claim simply making the wick-tube in two or more disconnected sections to prevent the downward conduction of heat; but

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

My lamp, as fully described and set forth, consisting of a combination of an ordinary reservoir filled with wool as an absorbent, the hinge within the deflector forming a stop, as set forth, the spring-catch regulated by the screw, the wick-tube, made, as set forth, in two sections, to cut off heat, the upper section larger than the lower, with the lower end thereof en-

larged for the double purpose of allowing the wick to play easily, and of allowing the rising gas to pass into the gas-chamber and flame, as set forth, and the chamber *h*, to hold the gas and deliver it regularly, and not in puffs, to the flame, the whole combined and arranged as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

D. L. PICKARD.

Witnesses:

ADOLPHUS MORSE,
R. F. OSGOOD.