

(No Model.)

W. B. ROBINS.

Lamp.

No. 239,847.

Patented April 5, 1881.

Fig. 1.

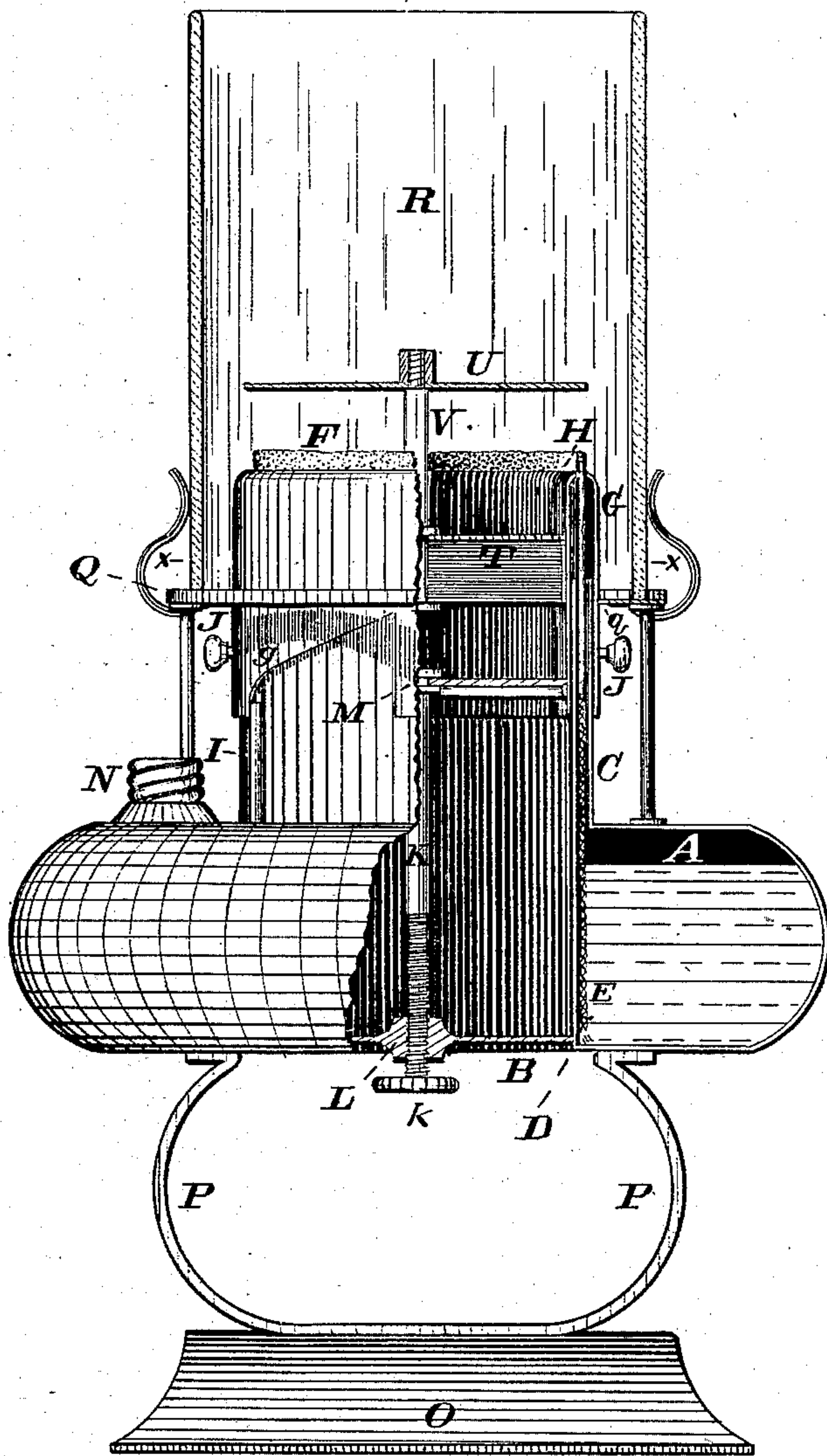
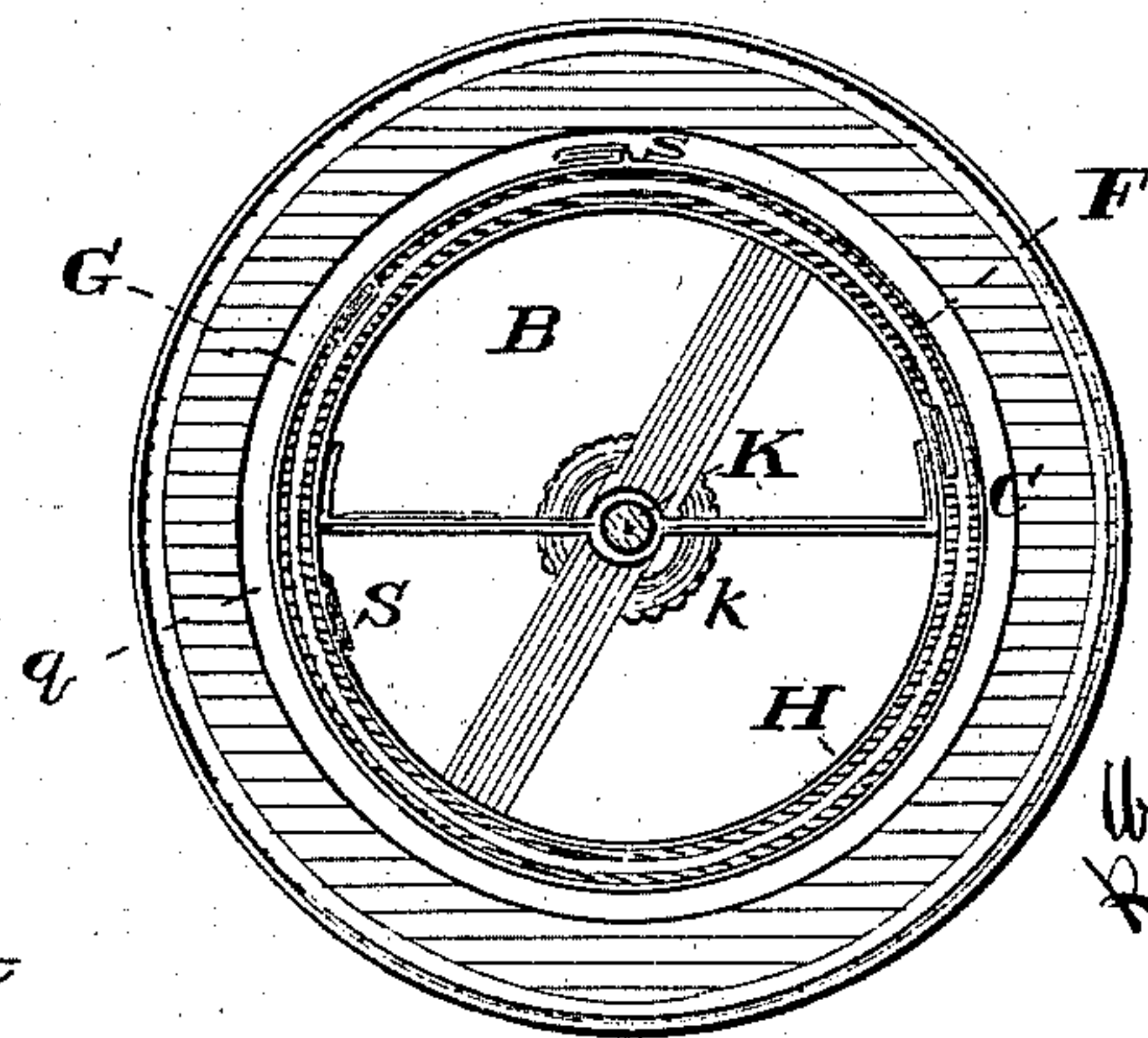


Fig. 2.



Attest.

Percy Knight  
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Atty.



# UNITED STATES PATENT OFFICE.

WILLIAM B. ROBINS, OF CINCINNATI, OHIO.

## LAMP.

SPECIFICATION forming part of Letters Patent No. 239,847, dated April 5, 1881.

Application filed September 6, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. ROBINS, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Improvement in Lamps, of which the following is a specification.

My invention relates to a construction of Argand lamp adapted for the use of kerosene and other mineral oils with safety and with freedom from unpleasant odor, and the production of light on a more extended and variable scale than has been heretofore practicable by a flame of absolutely uniform height around its circuit from an exceptionally high maximum flame down to one just short of complete extinguishment.

My invention is further beneficial in enabling the use, for actual contact with the flame, of a cheaper and also better wick material than those customarily employed, and is also useful in affording a secure and convenient means of promptly extinguishing the flame.

In the accompanying drawings, Figure 1 represents, partly in elevation and partly in axial section, a kerosene-lamp embodying my invention. Fig. 2 is a section on the line *xx*.

My oil-fount A has the represented annular form, so as to afford a central passage, B, which serves the double purpose of a draft-way and room for the adjusting mechanism of the inner movable tube, hereinafter described.

My wick is stationary, and preferably in two pieces, and of two dissimilar materials.

A portion of my wickway is stationary, as usual, but of considerably less height than that of the wick. It is composed of two tubes, of which the outer one, C, is fixed by its lower edge to the top of the oil-fount. The inner tube, D, is fixed at its lower edge in the bottom of the oil-fount, of which it constitutes the inner wall. The upper edges of both tubes stand at the same level. The wick-space thus formed receives a permanent wick, E, which extends from the bottom of the fount to about mid-height of the wickway. This permanent wick (which may be of the customary woven or plaited material) never comes in contact with the flame.

Resting upon the permanent wick E, so that its lower half occupies the said wickway, is my upper wick or wick-section, F, which is preferably of bibulous paper of about one-eighth of

an inch thickness. As neither wick-section is intended to be moved or shifted after its insertion in the lamp, I provide, to enable the regulation of the height of the flame, two slidable sheaths or regulating-tubes, of which one tube, G, closely surrounds the outer fixed tube, C, and the other tube, H, fits snugly within the inner fixed tube, D. The upper edges of the regulating-tubes G H are bent inward sufficiently to hug, without pressing, the upper wick-section on both sides. Each of these sheathing-tubes has, preferably, its separate mechanism for moving it up or down.

For operating the outer sheath, G, I give a portion of its lower edge a spiral form, as represented at *g*, Fig. 1, which edge is made to ride upon the top of a wire, I, which is soldered in a vertical position to the outer surface of the outer fixed tube, C. Knobs or handles J, that project outwardly from the sheath G, enable it to be rotated to right or left, so as to elevate or depress it at will. Any desired rapidity of adjustment of the sheath G is obtained by giving said spiral edge a corresponding steepness of pitch.

The inner sheath, H, I prefer to operate in a direct vertical line by means of a central screw, K, which, being tapped within a stationary cross-bar, L, is coupled by swivel-joint M to another cross-bar upon the said sheath. A knob or milled head, *k*, at the lower extremity of the screw, enables the operator to turn it to right or left, and thus to lower or raise the said sheath.

While the adjustment of the outer sheath, G, is preferably somewhat rapid, that of the inner sheath, H, is relatively much slower, each complete rotation of the screw operating to elevate said sheath only the pitch of the screw, which may be of any desired fineness for that purpose.

N may represent a customary screw-capped feed-neck.

The fount A is upheld a convenient distance above the base or foot O by two or more legs, P.

Q represents an annular gallery or bracket for support of any suitable glass chimney, R. This gallery, which is supported on pillars W, has its inner edge so much larger than the wickway as to leave an annular opening, *q*, between it and the said wickway.

T represents a perforated diaphragm, and



U a deflecting disk or button, upheld on stem V from cross-brace.

With the exception of the chimney the entire lamp proper, or portion above the stand O P, is preferably composed of sheet metal.

The tubes C D G H are preferably formed out of tinned sheet-iron, each tube being constructed of a rectangular strip whose ends are so double-seamed together, as at S, as to present smooth cylindrical surfaces at those parts of the tubes which come in contact and rub against each other in the operations of adjustment. This mode of junction I prefer to soldering, because not liable to be injuriously affected by heat. That portion of the seam of tube D which constitutes the inner wall of the fount may, however, be closed with solder to prevent leakage.

The separate adjustability of the inner and the outer sheaths enables a great variety of manipulations, resulting in as many diverse effects upon the flame. For example, a condition of the respective sheaths, in which G is below, and H is slightly above, the wick-level, is accompanied by a high and very brilliant flame. After insertion of the wicks the sheaths are both elevated to the level of the wick-edge, and the wick is then trimmed to match the top edges of the sheaths. The wick itself, being undisturbed after being trimmed, remains at a constant true level, with a consequent even flame, forming a continuous ring of light of any desired size or delicacy.

The inner sheath, H, being elevated above the wick-level, the lamp can be instantly and safely extinguished by raising the outer sheath also above the wick-level.

The described system of stationary wicks in two portions, one superimposed upon the other, permits the employment for the upper section of so cheap and at the same time efficient a material as bibulous paper, (blotting-paper,) which can be manufactured in rectangular strips and put up and sold in blocks or pads at a low figure, the user putting each strip into cylindrical form before insertion in the wickway. Such wicks may, however, be made and sold in cylindrical form ready for use. The wick, if of bibulous paper, is preferably calendered on its outer surfaces, the interior being left in a spongy and porous condition. After being formed, the cylindrical wicks may be flattened and, being cut into proper lengths, be packed in suitable bundles or boxes.

These separately-adjustable sheaths G H, in association with a low wickway and stationary wick in two sections, have several obvious advantages. For example: irregularity of wick-level, resulting in broken and irregular flame, is avoided, the wick not being pushed or bent out of shape and position by the action of the wick-elevator; the wick may be made of cheap non-textile material—such as paper or felt—which is more easily and perfectly trimmed to a smooth level edge than is the thready or

ligamentous structure of woven wicks; capacity for greater nicety of graduations of flame is afforded by the facilities for separate and independent exposure of the interior and exterior surfaces of the wick, each sheath by its separate movement effecting one-half only of such uncovering or covering, as compared with the ordinary wick-movement in the common wickway; facility for burning low for night use without imperfect combustion and without noxious odors; facility for prompt and safe extinguishment; the air-channel, formed by the annular opening *q* in the gallery Q, acts to conduct a blast of hot air to the exterior of the flame, and to force it upward, and also operates to keep the wickway cool.

The present illustration is to a scale of six inches to the foot, and represents what I designate a "No. 4" lamp on my plan—that is to say, a lamp possessing a wickway of four inches diameter. My device is, however, well adapted for use with wickways of various sizes—from half an inch diameter of wickway up to twelve or more inches. In some cases, especially for the larger sizes, my wickway may have an elliptical, rectangular, oblong, or polygonal cross-section, in which case the outer sheath will be adjusted vertically, instead of spirally.

My double or composite wick principle is applicable to flat wickways, either with two independently-adjustable sheaths, as above described, or otherwise; but inasmuch as I contemplate making such the subject of a separate application for patent, I make no claim to such special adaptation of the idea in this.

While preferring bibulous paper, as above, for the material of my upper wick-section, I may employ other material, such as rolled cotton, or woolen cloth, or felted asbestos, or mineral wool.

For greater security and stability the outer stationary wick-tube, C, may extend down and be fastened to the fount-floor, openings being formed in the said extended portion for the passage of oil.

I claim as new and of my invention—

1. The combination, with a low and stationary wickway or holder, of the outer and inner separately adjustable sheaths or regulators G H, substantially as set forth.

2. The combination, substantially as described, of outer sheath having a steep spiral edge for quick adjustment, and inner sheath provided with central screw, K, for nice or slow adjustment.

3. The combination of annular fount or reservoir A, fixed tubes C D, and inclosing vertically adjustable sheaths G H, substantially as set forth.

In testimony of which invention I hereunto set my hand.

WILLIAM B. ROBINS.

Attest:

GEO. H. KNIGHT,  
J. L. LOGAN.