

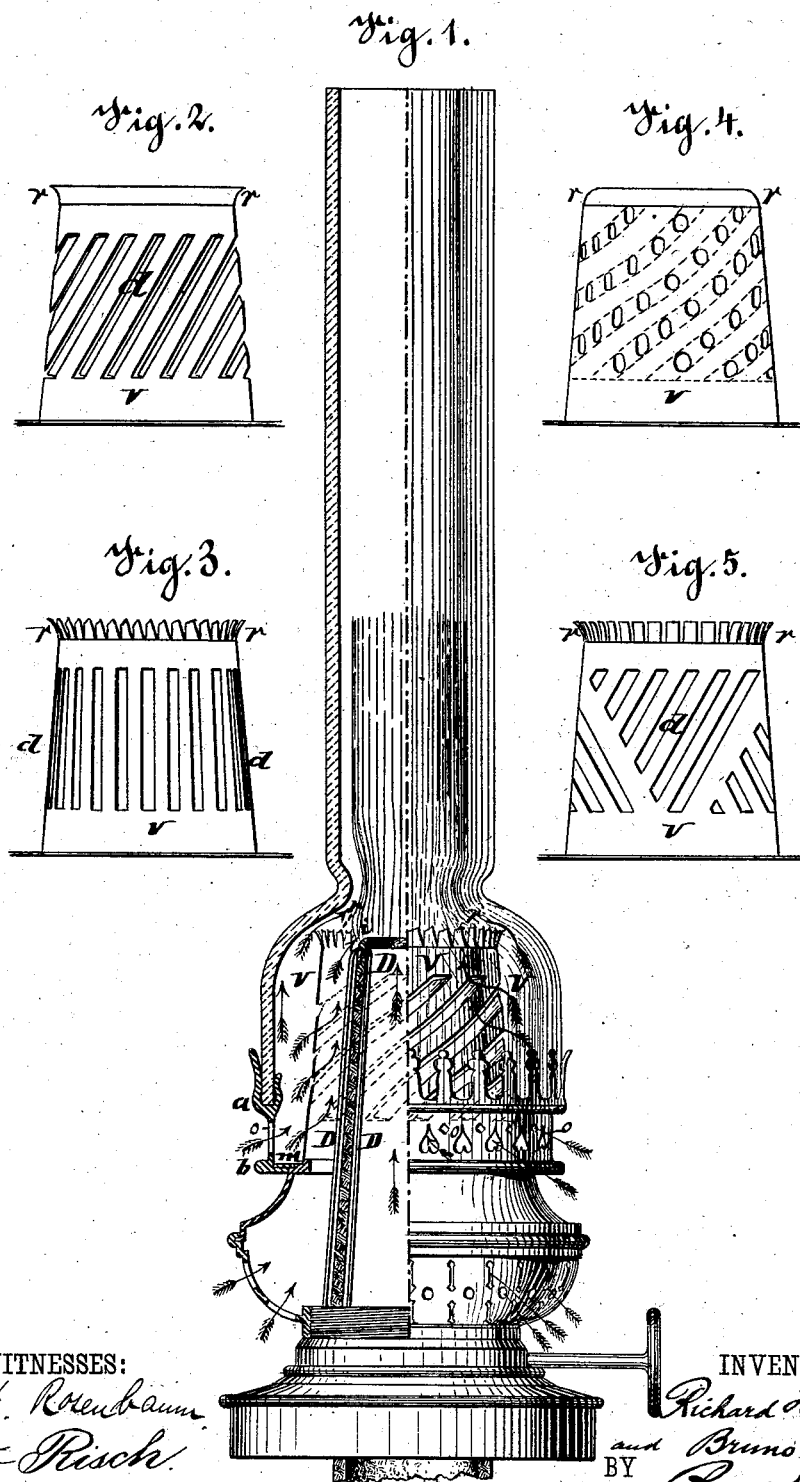
(No Model.)

R. HUPPERTSBERG & B. SCHWARZ.

LAMP BURNER.

No. 259,761.

Patented June 20, 1882.



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# UNITED STATES PATENT OFFICE.

RICHARD HUPPERTSBERG AND BRUNO SCHWARZ, OF BERLIN, GERMANY.

## LAMP-BURNER.

SPECIFICATION forming part of Letters Patent No. 259,761, dated June 20, 1882.

Application filed April 10, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, RICHARD HUPPERTSBERG and BRUNO SCHWARZ, both of the city of Berlin, Germany, have invented certain new and useful Improvements in Lamp-Burners; and we do hereby declare the following to be a full, clear, and exact description of the invention.

In the lamp-burners heretofore in use it was not possible to burn hydrocarbon oils of a specific gravity of 0.820 to 0.900, as, owing to an insufficient supply of oxygen to the flame, the required high temperature for combustion cannot be sustained nor the sufficient suction of the wick be kept up, so that in consequence thereof the flame grows dim and weak and begins to smoke. For utilizing hydrocarbon oils of the specific gravity referred to, various constructions of burners have been proposed—as for instance, burners with perforated burner-disks, or with an arrangement for supplying air into the wick-tube; but all these systems have been more or less subject to the following inconveniences:

First, as the burner-disk is in immediate contact with the flame it grows hot and communicates the heat to the oil-receptacle and the oil therein, thereby causing explosive gases to be accumulated, which may lead to explosions in case of the lamp being upset; second, the disk restrains the flame into a narrow lighting-ring; third, such lamps need continual supervision to prevent smoking and the exhalation of obnoxious vapors; moreover, in case of the wick being unevenly cut or the burner-disk bent the flame is liable to become irregular and pointed, thereby causing the chimney to crack and break.

In order to do away with these inconveniences, we have constructed a lamp-burner that does not require the usual widened or bulged glass chimney, but which can be used with the common chimney having a contracted portion above the flame; and the invention consists, first, of a ventilator or casing arranged around the wick-tube, said ventilator having slits or openings for the ingress of the air, and being provided with serrations or projections at the upper edge.

The invention further consists of a chimney-holder which is extended below the gallery supporting the chimney, and provided with

openings for admitting an additional air-current to the outer surface of the flame.

In the accompanying drawings, Figure 1 represents a side elevation, one-half being in section, of our improved lamp burner; and Figs. 2, 3, 4, and 5 are detail side views of the ventilator or casing of the same.

Similar letters of reference indicate corresponding parts.

Between the wick-tube D, Fig. 1, of an ordinary petroleum-burner and the chimney, and at a suitable distance from both, is interposed a conical ventilator or casing, V, of sheet metal, glass, china, or other suitable material, which may be fastened to the chimney-holder or loosely placed on it. This ventilator-casing is extended at the upper edge somewhat above the wick-tube—say from one to five millimeters—according to the size of the burner.

The surface of the ventilator is provided with slits or openings *d*, which slits are made helical if intended for burning hydrocarbon oils of greater specific gravity, as shown in Figs. 1 and 2, the metal being bent inwardly, so as to conduct the air to the annular space inside of the ventilator.

Owing to the construction of the slits or openings *d* in the walls of the ventilator, the air drawn in by the flame receives a helical or spiral upward motion and supplies the necessary amount of oxygen to the flame, as it laps spirally around the flame and imparts a certain spiral motion or twist to the same.

For burning oils of a specific gravity of from 0.840 to 0.900, the upper edge of the ventilator may be serrated, the serrations being arranged straight or obliquely to each other, like the blades of a screw-propeller, as shown in Figs. 1, 3, and 5. For oils of less specific gravity than 0.840, ventilators with simple longitudinal slits will suffice, their edges being either smooth and bent inwardly, as in Fig. 4, or serrated; or ventilators with helically-arranged round openings, as in Fig. 4, may be used. The contraction of the chimney near the top of the casing leaves a space so narrow that the air is forced directly against the flame, and the current of air between the wick-tube and casing impinges the flame at a lower point, while the central current through the wick-tube comes in contact with the central portion of the flame. The effect is still further increased by the ser-

rated edge of the ventilator-casing, by which the middle current is divided into small jets of air. The flame is thus supplied with oxygen by means of three air-currents—one passing through the interior of the wick-tube, and two outer currents—while in ordinary burners there are only two air-currents to feed the flame—one inner and one outer current. The chief lighting-power is thus obtained at the outer surface of the flame, owing to the increased supply of oxygen furnished by the two outer currents, the outermost of which impinges upon the flame at a greater distance from the wick than the second outer current. A very perfect combustion of the carbon is thus obtained, which excludes the formation of smoke or vapors.

For keeping the chimney in the right position relatively to the ventilator, a new and very efficient arrangement has been devised. In ordinary lamps the chimney was placed air-tight upon the bottom of the chimney-holder, as in Fig. 1, and any ingress of air into the annular space between the wick-tube and the chimney entirely prevented. In our improved lamp-burner the chimney is supported at some distance above the bottom of the chimney-holder—say from ten to twenty millimeters—by means of a gallery or other supporting devices, *a*, so that air-openings *o* are provided below the gallery *a* for the free ingress of air. This abundant air-supply keeps the wick-tube cool, even if the lamp is kept burning for many hours in succession. It may be observed that the annular space between the contracted portion of the chimney and the ventilator should not be too large, but as narrow as possible. Therefore the lower portion or base of the chimney has to be made shorter in proportion to the length of the entire chimney; or the chimney-holder may be lengthened downward, as shown in Fig. 1, from *a* to *b*, in order to admit of the usual chimneys being used. For tightly clamping the chimney the gallery *a* is somewhat contracted near its bottom, as shown in Fig. 1. By these arrangements the annular space at *r* is kept as narrow as possible, and the air-ingress at *o* is not interfered with.

The advantages of our improved lamp-burner

are utilization of the cheaper mineral oils of high specific gravity; a light of greater power than the light usually produced by such burners; a more perfect combustion at the outer surface of the flame; a cool condition of the burner, even when the lamp has been burning for hours; no formation of explosive gases, smoke, or vapors, even when the lamp burns low; finally, its easy adaptation to every other system of lamps, and economy in the consumption of oil.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent—

1. In a lamp-burner, a ventilating-casing with oblique slits in its body and serrated upper edge helically arranged, in combination with a central flue and chimney-support provided with air-openings below the gallery, substantially as described.

2. In a lamp-burner, the ventilator-casing with air-openings in its body above the bottom of the chimney and serrated edge above the burner, in combination with the chimney-support provided with air-openings *o* below the gallery *a*, whereby an air-flue is formed between the said casing and chimney, and air supplied to the interior of the casing, substantially as described.

3. The ventilator-casing having openings in its body above the bottom of the chimney and serrated upper edge, in combination with the flue between the casing and chimney, the chimney-support provided with air-openings *o*, a flue inside the burner, and a chimney contracted near the top of the burner and enlarged downwardly, leaving an air-space between it and the casing, substantially as described.

In testimony that we claim the foregoing we have hereunto set our hands and seals this 8th day of October, 1881.

RICHARD HUPPERTSBERG. [L. S.]  
BRUNO SCHWARZ. [L. S.]

Witnesses:

BERTHOLD ROI,  
CARL NEUOR.