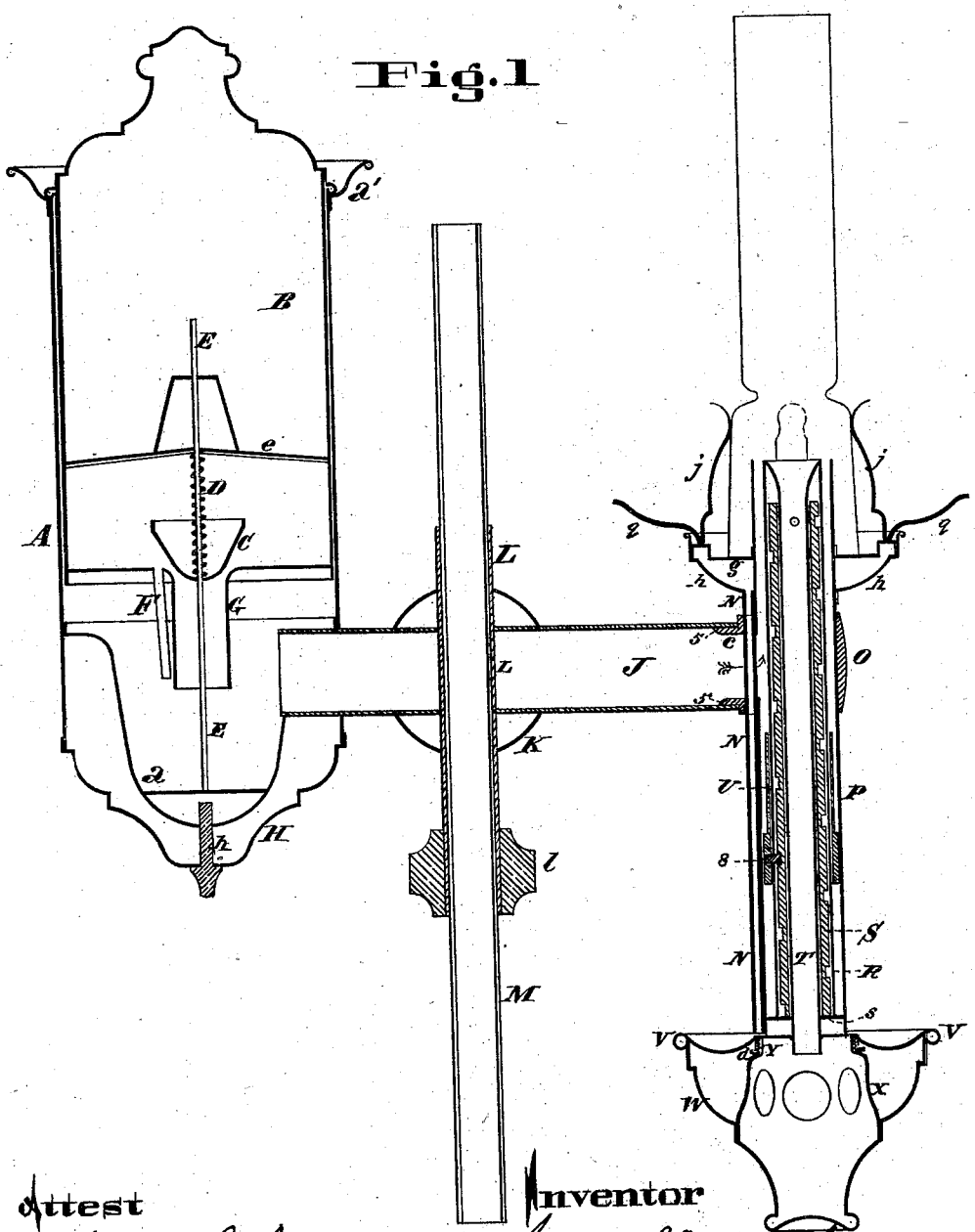
2 Sheets—Sheet 1.

J. KIRBY, Jr.

STUDENT LAMP.

No. 190,049. Patented April 24, 1877.

Fig. 1



Attest

John E. Jones

Edgar J. Gross

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John Kirby Jr.

By F. Millard

Attorney

2 Sheets—Sheet 2.

J. KIRBY, Jr.

STUDENT LAMP.

No. 190,049. Patented April 24, 1877.

Fig. 2

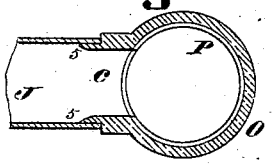


Fig. 3

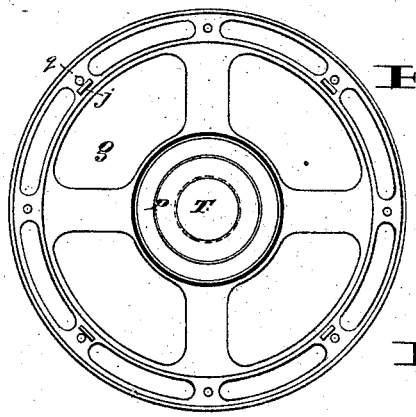


Fig. 4

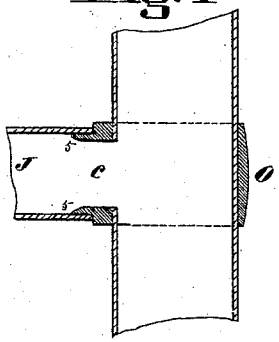


Fig. 5

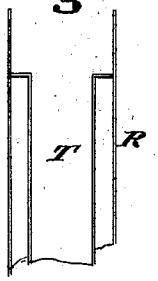


Fig. 6

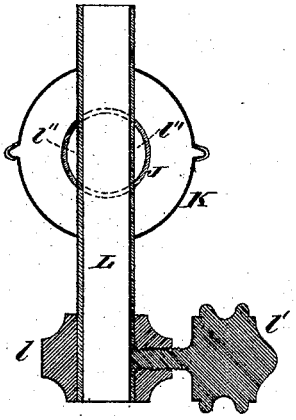


Fig. 7

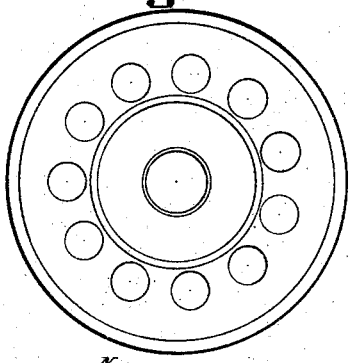


Fig. 8

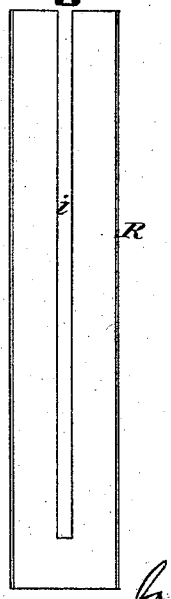


Fig. 9

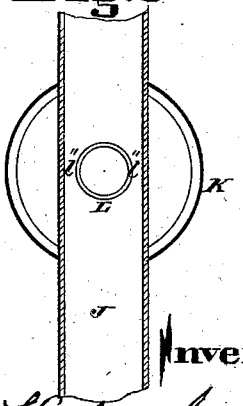


Fig. 10

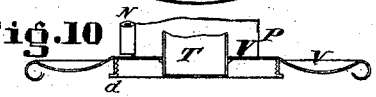
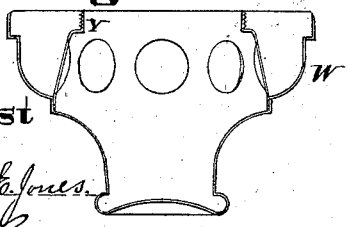


Fig. 11



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Edgar J. Gross

Inventor

John Kirby Jr.

By F. Millward

Attorney

UNITED STATES PATENT OFFICE.

JOHN KIRBY, JR., OF CINCINNATI, OHIO, ASSIGNOR TO POST & CO.

IMPROVEMENT IN STUDENT-LAMPS.

Specification forming part of Letters Patent No. **190,049**, dated April 24, 1877; application filed March 2, 1877.

To all whom it may concern:

Be it known that I, JOHN KIRBY, Jr., of Cincinnati, Hamilton county, State of Ohio, have invented an Improvement in Student-Lamps, of which the following is a specification:

This invention relates, principally, to improvements on the lamp known as the "German Student-Lamp." Parts, however, of the invention may be used in connection with other styles of lamps.

In constructing heretofore, the outer cylinder or oil-fount, which contains the reservoir, has been made straight and of uniform size from top to bottom, and in removing or replacing the reservoir it frequently happens that oil which accumulates at the lower edge of said reservoir drops on surrounding objects in the act of turning over the reservoir either in removing or replacing it. To remedy this difficulty I make the cylinder with a flange-shaped piece of metal extending upward and outward, so as to form a receptacle for oil, which may, by accident or otherwise, flow or drop over the sides of the cylinder, and this constitutes the first part of my invention. In this instance the flange is placed at the top; but it may be arranged at any desired point below the top, and may be made of a separate piece of metal or formed on the cylinder itself.

My invention consists, in the second part, in a peculiar construction of the lamp at the crossing of the fluid-tube with the slide-tube.

My invention consists, in the third part, in connection with the feed-tube and wick-tube, of a collar for the reception and security of the same in a substantial and durable manner.

My invention consists, in the fourth part, in the provision of a drip-tube leading from the upper drip-receptacle to the feed-tube or lower drip-cup.

My invention consists, in the fifth part, in constructing the interior draft-tube with an enlargement at the upper end, to cause an expansion of the air before it reaches the flame.

My invention consists, in the sixth part, in a certain combination of drip interior draft, and wick-supporting tube with connecting parts, by which the rotation of the drip-cup is caused to raise and lower the wick.

In the accompanying drawings, Figure 1 is a vertical section of my improved lamp. Figs. 2 to 11 are detail views of different parts of the lamp, Fig. 5 showing a modified form of the draft-tube. Fig. 7 is a plan of the said flange.

In the drawing, A is a cylinder, with a receptacle, *a*, at its lower end, and having an enlarged or flaring top, *a'*. B is a reservoir, provided with a valve, C, in the usual manner, and resting on top of the cylinder A. To this valve I attach a spring, D, which may be made in any of the known ways, a spiral spring being the most practical, and I have shown it of that description.

E is the wire, to which the valve C is attached, one end of which rests on the bottom of the cylinder, and the other is guided in the arm or cross-bar *e*, which forms a rest for the spring. The spring being light, it yields to the weight of the reservoir when in position, and the valve rises the same as in other lamps; but when the reservoir, after filling, is being turned over into the cylinder, the valve closes and prevents dripping.

F is a small tube leading from the bottom of B to a suitable distance below, to supply air to the reservoir B in small quantities, so as to cause as little bubble or motion to the oil as possible, that the flame may not be affected thereby. G is a projection of the reservoir B, and it extends below the orifice for the valve E to any desired point below the end of the air-tube F. By this device the oil rises in the cylinder A above the lower end of the projection G, which shuts off the air through G from the reservoir B, and the reservoir B can then only receive air through the tube F in small quantities as the oil burns away from its opening, and the air-bubble is therefore much smaller than it otherwise would be.

The receptacle *a* may be made of any suitable material, and connected to the cylinder in any preferred way; or it may form a part of said cylinder by making the whole in one piece. H is an ornamental disk connected to

the cylinder A, and held in position by a casting or other ornament, *h*, which passes through said disk, and is soldered to it and the receptacle *a*. J is a tube leading from the cylinder A to the burner to supply oil to the wick. This tube is, as usual, connected with a globe or ball, K, and a sliding tube, L, with an enlarged solid base, *l*, and set-screw l^1, to tighten the standard M. To simplify the construction of this combination, and thereby lessen its cost, I have invented a new and quick way of forming the intersection of the tubes J and L, and the ball K, as follows: The tube J may be made straight, as shown in the drawing, or it may be bent to any shape outside of the ball. I make a hole through the tube J, through which is passed the sliding tube L, which is smaller than J, so as to leave a passage, l^2, on each side of tube L, Figs. 1, 6, and 9. I then solder the joints, and place the sheet-metal ball K, or other ornament formed in two sections divided horizontally, as shown, over or around the joints, and connect them by forming one dye over the other, as shown at 4, Fig. 6. By this plan I avoid the expensive device of a cast-metal globe, and avoid the usual method of bending the tube J around one side of the tube L. O is a collar, which may be cast or formed of sheet metal. Said collar encircles the burner-tube, and is provided with a projecting lug, 5, which enters the tube J; or the said projection may be made large enough for the tube J to pass into it. By this device the joint at the intersection of the tube J and the burner-tube is made much stronger and less liable to leakage than by the old method of soldering the end of the tube J to the burner-tube without other support. The collar O has a hole, *c*, through which the oil passes to the burner through a corresponding hole in the tube P. This part of the invention will be best understood by reference to Figs. 2 and 4 of the drawings. In my lamp I also make a burner-regulating device, differing materially from those used in other lamps. I regulate the wick by turning the flange V at the lower end of the burner, which is a more convenient and durable mode than by regulating it by the chimney or shade holder. P is the outside burner or wick tube. S is a screw-tube, connected to P at the lower end by flange *s*. R is another tube, which fits the outside of tube S, and has a slot, *i*, extending from the top longitudinally nearly its whole length, as shown in Fig. 8. T is another tube that fits the inside of the screw-tube S, and forms the interior draft-tube of the burner, and it is connected at or near its upper end to the slotted tube R, as shown.

It is advisable that this tube should be enlarged at or near the top to allow the air to expand before reaching the flame, and this I do by flaring it, as seen in Fig. 1, or by making it shorter, and connecting it to the slotted tube R, at or near the upper end of the screw-tube S, as shown in Fig. 5, and the result is the same as when the inside tube T is made flaring at the top. By allowing the air to expand before reaching the flame the light is made clearer and the flame larger.

The slotted tube R extends from the upper end to the bottom *s*, Fig. 1, of the burner, and the tube T extends below the burner a little. At or near the lower end of T I attach a flange, V, which, when turned with the fingers, rotates the tubes S and T. The wick-sleeve U, Fig. 1, is provided with a pin, 8, and said pin passes through the slot *i* into the screw-thread of the tube S, and is adjusted vertically by the rotation of the tubes T and S, caused by turning the flange V. To this flange V I attach a drip-cup, W, by means of the screw-threads *d* and Y.

The drip-cup may be made in the usual way, or with its top X attached below its upper edge, as shown in the drawing. N is a small tube leading from the base or receptacle *h* of the burner to the drip-cup; or said tube may lead only into the feed-tube J. The object of this tube is to carry off all overflow of oil from the burner. In the former instance, the dripping oil is carried down and through the tube J or collar O to the drip-cup W, and in the latter instance it is carried back into the burner. I consider the latter preferable to the former, but, to better protect my invention, have described both ways.

A raised vertical groove may be made in the tube P, leading from the receptacle *h* to the hole *c*, and having an opening at each end as a substitute, in place of the tube, if preferable, the spring-tongues *j* extending upward from the adjustable cap *g* to support the chimney; and *q* represents sections of wires extending upward and outward, to carry and support the shade, all of which forms no part of my invention.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A reservoir or cylinder, A, having a flaring flange, *a'*, to receive any oil that may escape from the reservoir B while being removed or placed in position, substantially as specified.

2. The combination of feed-tube J and smaller slide-tube L, united at the intersection, and covered by globe or ornament K, substantially as and for the purpose specified.

3. The collar O 5 *c*, in combination with the burner-tube P and feed-tube J, substantially as before set forth.

4. The drip-tube N, leading from the receptacle *h* to the aperture *c*, or through said aperture to the drip-cup W, substantially as described.

5. An interior draft-tube, T, constructed so as to form an enlargement at the top, to

admit of the expansion of the air before it reaches the flame, said enlarged upper end being wholly within and surrounded by the wick-tube, substantially as and for the purpose set forth.

6. The wick-adjusting flange V, in combination with the interior draft-tube T, screw-tube S, slotted tube R *i*, and wick-sleeve U 8, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN KIRBY, JR.

Witnesses:
E. V. CHERRY,
CHAS. ANDERSON.