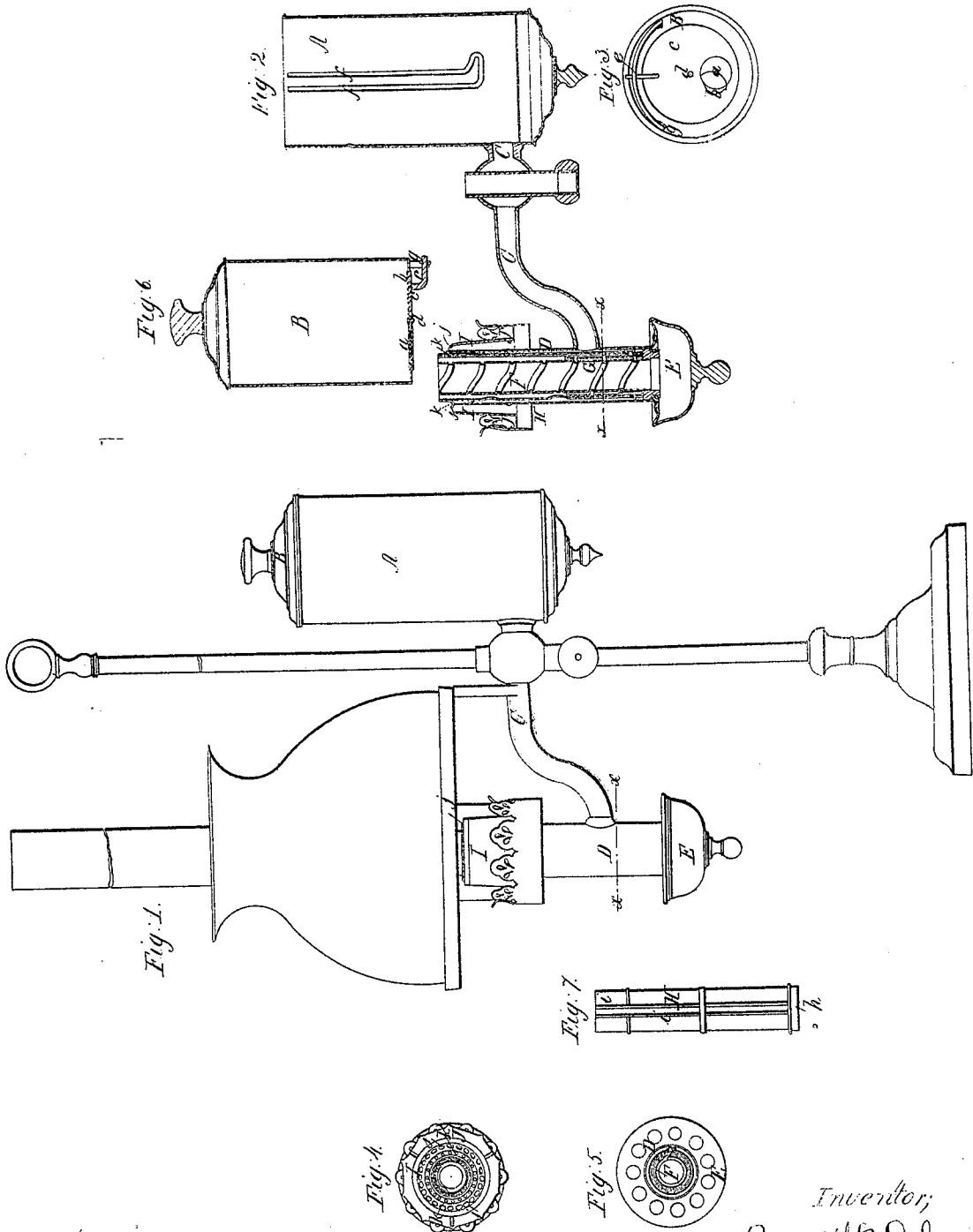


B. B. Schneider

Lamp.

N^o 102,163.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **102,163**, dated April 19, 1870.

Specification of certain Improvements in Lamps, invented by BENNETT B. SCHNEIDER, of the city, county, and State of New York.

Nature and Objects of the Invention.

A part of this invention relates particularly to lamps having a reservoir extending higher than the burner, and intended to supply oil to the burner at a constant level, or nearly so. In lamps of this class it has been found that unless some device is provided to cut off the supply of oil the changes in the temperature of the atmosphere, acting upon it or in the upper portion of the reservoir, are liable to produce an overflow of the oil when the lamp is not in use.

A device has already been devised to cut off the supply of oil from the reservoir, which, while working very well, nevertheless involves considerable expense in the manufacture.

A portion of my present invention is designed to furnish a device at trifling cost for cutting off the supply of oil from the reservoir when the lamp is not in use.

Another portion of my invention has relation to the burner; and one of its features consists in dispensing with the hollow tube which surrounds the shell outside of the wick-tube in the construction of Argand burners, which is generally adopted in what is known as the "student's lamp," and also dispensing with the arms which unite said hollow tube first mentioned to the deflector, and instead thereof uniting the deflector directly at its top to the tube which immediately surrounds the wick, (and which is revolved for the purpose of raising and lowering the said wick) in such a manner that, when completed, this outside wick-tube, the deflector, and the chimney-gallery form but a single piece, as hereinafter more fully set forth.

In most lamps of this class the outside wick-tube is made of tin, with a slot in one side of it to receive the spur or projection from the wick-carrier, so as to cause the revolution of this outside wick-tube to revolve the wick-carrier and raise the wick or depress it, as occasion may require.

It is found by experience that the projection from the wick-carrier above mentioned, acting upon the thin edge of the tin of which the outside wick-tube is composed, has a tendency to

indent it and cause the wick-elevating apparatus to work very unsatisfactorily.

Another feature of my invention consists in remedying this difficulty by attaching to the edges which form the slot in this outside wick-tube pieces of sheet metal, so folded over the said edges as to form the bearing for the projection from the wick-carrier, and thus protect the edges of the tube.

Another feature of my invention consists in forming a series of openings through the top of the deflector, or the piece which unites it to the top of the outside wick-tube, immediately contiguous to the said wick-tube, in such a manner as to cause any outward overflow of oil from the burner to flow down along the outside of the said wick-tube into the cup or tube or shell in which the wick-tube is placed.

Description of the Accompanying Drawings.

Figure 1 is a side view of the lamp complete, with shade and chimney, except that the chimney and the standard of the lamp are represented as being broken in two, to give them room on the page. Fig. 2 is a vertical central section in detail on a plane parallel to Fig. 1, showing the burner and the shell which contains the oil-reservoir. Fig. 3 is an under-side view of the oil-reservoir, a small portion being broken away to show the inside plate, which forms a portion of the cut-off, to arrest the discharge of oil from the reservoir. Fig. 4 is a top view of the burner. Fig. 5 is a horizontal section through the wick-tubes on the plane x of Figs. 1 and 2. Fig. 6 is a vertical central section of the oil-reservoir. Fig. 7 is a side view of the outside wick-tube, the deflector being omitted.

General Description.

A is a case or cup, in which the oil-reservoir B is placed when in use. This case A is made in the common form of cylindrical cases in use in students' lamps for the same purpose, and is united to the tube C in the same way, which latter conducts the oil from the cup A to the tube D, which surrounds the wick-tube.

The reservoir B is also made in a manner well known, with the exception of the lower portion of it and the appliances for shutting off and letting on the flow of oil from the reservoir to the burner. Instead, however, of

terminating with a tube and ball-valve worked by a stem, as in the old French lamps, this reservoir terminates at the bottom in a flat disk of sheet metal having an aperture through it at *a*, to allow the oil to be introduced, and to also allow it to escape when desired.

b and *c* are two disks or plates of sheet metal, one above and the other below the disk, which forms the bottom of the reservoir, which plates *b* and *c* are firmly united together by a center-pin at *d*, so that the rotation of one of them upon the said center shall also cause the rotation of the other. These plates *b* and *c* have holes in them corresponding in size and distance from the center with the hole at *a* in the bottom of the reservoir, and so arranged as when turned into a certain position to be coincident therewith, so as to make an opening into the bottom of the reservoir, to allow it to be filled with oil, or to allow the oil to escape therefrom when the lamp is in use. If, however, these plates *b* and *c* are turned around a sufficient distance to destroy the coincidence of their apertures with that in the bottom of the reservoir, the opening into the reservoir at *a* will be closed, so as to allow the reservoir to be inserted into its place in the cup *A*, and so as to prevent the oil from escaping from the reservoir when the lamp is not in use.

For the convenience of operating this device for cutting off the oil when the reservoir is in position, I attach to the plate *c* an arm, *e*, by which the plates *b* and *c* may be turned; and, if found desirable to give greater strength and security, an annular slot may be formed in the bottom of the reservoir, and the arm *e* made to extend through it to or through the plate *b*, and connect therewith. This arm *e* is of sufficient length to extend slightly beyond the periphery of the reservoir; and when the reservoir is put into place in the cup *A* the end of this arm should be inserted between the wires *f f*, which form between them a groove for its reception, and terminate in a notch at the bottom, as shown, which latter is designed to act as a check upon the users, to prevent their raising the reservoir out of the cup *A* before the oil has been turned off.

The object of the wires *f f* is to furnish a ready means of turning the disks *b* and *c* when the reservoir is in position for use. Of course, when the reservoir is inserted into place these disks are so turned as to shut off the supply of oil; but by turning the reservoir around to the right, or with the sun, after it has been inserted in the manner above stated, the arm *e* is first carried into the notch formed between the wires *f f* at the lower end, and, the rotation being continued, the aperture in the bottom of the reservoir is opened and the oil is allowed to flow out to supply the burner, as the consumption of oil by the burner allows the air to enter the reservoir to take the place of the oil to be discharged from it.

When the lamp is extinguished, the open-

ing in the bottom of the reservoir should be closed by turning the reservoir to the left, or against the sun, and the same should, of course, be done before the reservoir is removed to be filled, or for any other purpose.

g g are two stops or projections extending downward from the reservoir at its periphery, to restrict the motion of the arm *e*; and to open or close the aperture in the bottom of the reservoir the reservoir should be turned till the arm *e* strikes one of these stops.

For the purpose of preventing the arm *e* from being pulled downward by an effort to raise the reservoir when the arm is in the notch between the wires *f f*, and thereby bending away the plate *c* from the bottom of the reservoir, I attach a bar, *l*, to the lower ends of the stops *g g*, just below the arm *e*, as shown in Figs. 3 and 6.

The outside tube or shell, *D*, which surrounds the wick-tube and its appurtenances, is constructed in the manner usual in this class of lamps, and is provided with the usual drip-cup *E* and the inside spirally-grooved tube *F*, for elevating the wick, which latter is attached to the usual wick holder or carrier *G*.

H is the outside wick-tube, which is formed of sheet metal, with the slot in the side usual in this class of lamps, and is braced at intervals of its length by rings extending around it and soldered to it, the lower one, *h*, of which rings is provided with a flange projecting outward, so as to nearly fit the outside tube, *D*, and thus give greater steadiness to the tube *H*.

For the reasons already stated, I fold two strips of brass or other sheet metal, *i i*, over the edges of the wick-tube *H*, where it forms the slot to receive the usual projection from the wick-carrier, and secure these strips *i i* in position by soldering them to the tube along their entire length.

The deflector *I* is made in about the usual general form of deflectors used in lamps of this class, and is provided with the usual chimney-gallery *J*; but instead of being secured by arms to a separate short tube surrounding the tube *D*, and said short tube having inwardly and downwardly projecting flanges with the latter, connecting detachably to the wick-tube *H*, said arms and said short tube and its flanges are entirely dispensed with, and the deflector or cone *I* is directly and permanently attached to the outside wick-tube, *H*, near to its top, by an inwardly-projecting portion of the said deflector, or by a flange or connecting-piece attached thereto.

In practice, probably the better construction will be found to be to contract the metal at the top of the deflector, so as to make it fit snugly around the upper end of the tube *H*, and then solder it thereto. It is, however, necessary, or at least preferable, to form perforations *j j* in that portion of the metal which connects the deflector proper to the tube *H*, to allow the air to pass upward at that point from the inside of the deflector; and for the purpose already stated I form the metal in

side of this row of holes with an inwardly and downwardly depression to the wick-tube H, and perforate it close to the wick-tube H with small holes *k k*, which return any oil which may fall outside of the wick on the outside of the tube H, and by that means return it to the inside of the tube D.

Claims.

I claim as my invention—

1. The combination, with the bottom plate of the reservoir B, having an aperture therein for the admission and escape of oil, of one or more plates, *b* or *c*, having a corresponding aperture, and so attached to the bottom of the reservoir as to be capable of being turned thereon, substantially as hereinbefore set forth.

2. The combination of the bottom plate of the reservoir B, having an aperture through

it for the ingress and egress of oil, one or both of the plates *b* and *c*, the arm *e*, and the cup A, having a groove formed within it for the reception of the arm *e*, substantially as and for the purpose set forth.

3. The combination of the outside wick-tube, H, the deflector I, and the chimney-gallery J, all firmly united together, so as to form a single piece, substantially as set forth.

4. Constructing the plate or sheet of metal which unites the deflector I to the tube H with a series of apertures in close contiguity with the tube H, as set forth.

5. The combination of the tube H and strips of metal *i i*, substantially as set forth.

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