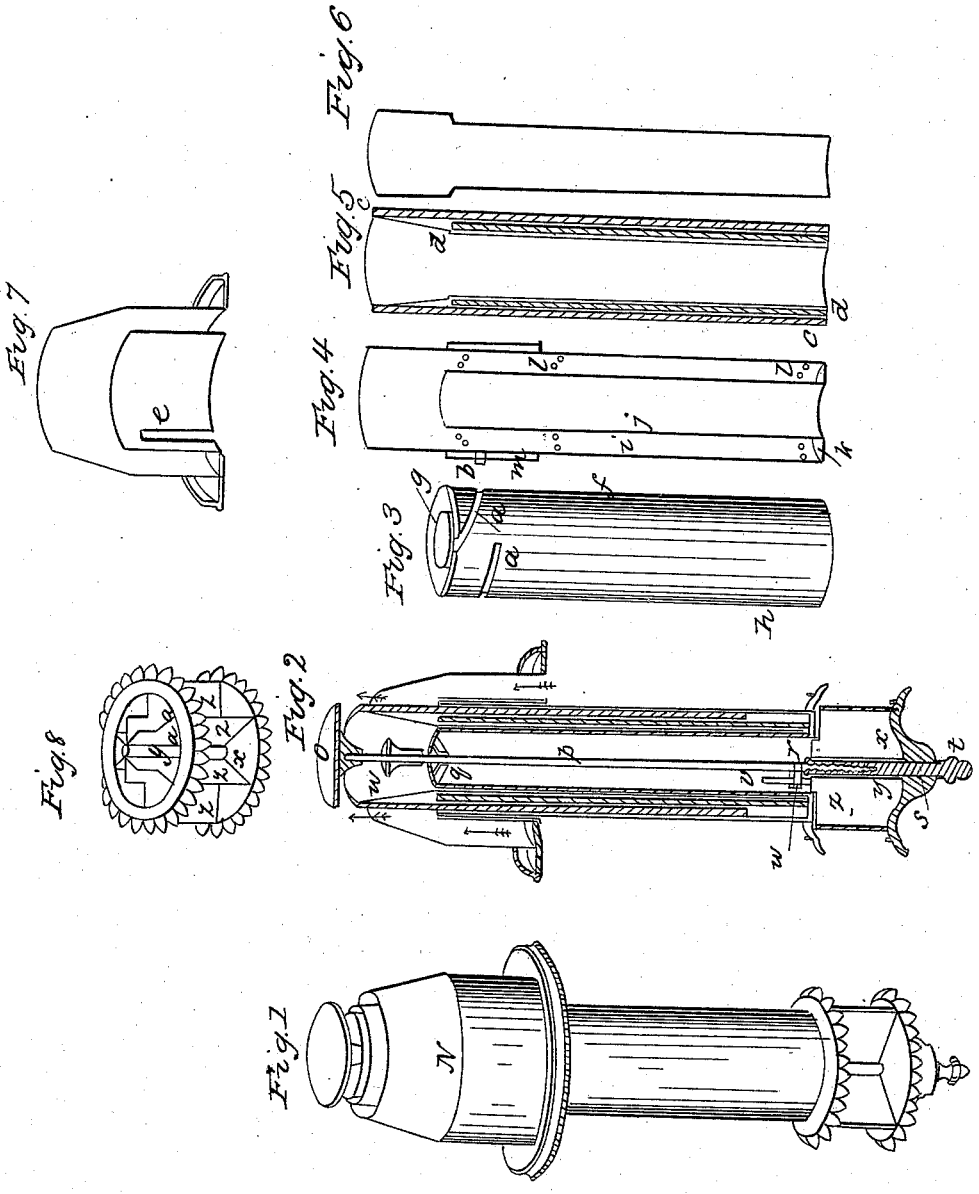
M. B. DYOTT.

Lamp.

No. 2,658. Patented May 30, 1842.



UNITED STATES PATENT OFFICE.

M. B. DYOTT, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN LAMPS FOR ESSENTIAL OILS, &c.

Specification forming part of Letters Patent No. **2,658**, dated May 30, 1842.

To all whom it may concern:

Be it known that I, MICHAEL BOYD DYOTT, of the city of Philadelphia and State of Pennsylvania, have invented and made new and useful Improvements in a Lamp for what is termed "pine oil," which oil is purified spirits of turpentine or other similar oil; and I do hereby declare that the following is a full and exact description of the construction, operation, and mode of using said lamp, reference being had to the annexed drawings, forming a part of this specification.

Figure 1 of said drawings is a perspective view of the whole lamp. Fig. 2 is a vertical section showing the internal arrangement of its different parts and the manner in which the wick is held between the top of the cylinders forming the burner. Fig. 3 is a perspective view of the case into which the burner or wick-holder is to be inserted, showing the groove on the top, letter *a*, by means of which the burner is raised or lowered to regulate the flame. Fig. 4 is a section of the burner, in which may be seen the pin, letter *b*, which is intended to move in the groove, letter *a*, Fig. 3, raising or lowering the burner by turning said burner, Fig. 4, around the case, Fig. 3. Fig. 5 is a tube with its upper end made conical, on which may be seen the wick, letter *c*, and the feeder, letter *d*, marked in red lines. This tube is intended to slip inside of the section or part of the burner, Fig. 4, forming part of itself and making the burner or wick-holder complete. The upper end is made conical for the purpose of pressing and holding the wick in its place, and the lower part of this tube being smaller than at the top it will admit of a feeder being slipped on the bottom part of this tube, underneath the wick, without enlarging the diameter of the wick so as to press it against the outer part of the burner and thus make the insertion of the wick difficult. The object of this feeder is to supply the wick with oil when the wick is in part consumed and too short to reach the oil at the bottom of the lamp. Fig. 6 is a tube intended for the same purpose as Fig. 5, and is merely represented to show that the upper end may be enlarged instead of conical and produce the desired effect. Fig. 7 is a vertical section of the regulating-cone and glass-holder, the draft of which is intended to show the groove or slot, letter *e*, into which the pin, letter *b*, Fig. 4, slides, to prevent the cone from turning around the burner, so that when the glass-holder and cone are moved it will revolve the burner around the case, Fig. 3, the pin, letter *b*, moving in the inclined plane formed by the groove, letter *a*, and thus raising the burner and regulating-cone nearer the stationary center plate, letter *o*, will diminish the flame, and turning it in an opposite direction will reverse the effect. Fig. 8 is a representation of a contrivance designated an "air-regulator," for preventing the lamp from smoking.

The nature of my invention and improvement consists in applying equally simple and more effectual means of producing and supporting perfect combustion of pine oil, or purified spirits of turpentine, sometimes called "camphine-oil," or other similar oil, and in adopting a more convenient mode of adjusting the wick and trimming and regulating the lamp.

This lamp is made as follows: The case, Fig. 3, into which the wick-holder or burner is to be placed, is constructed with two concentric cylinders, letters *f* and *g*, united at the bottom, in the usual way of making the common Argand lamp. On the top of the outside cylinder there is an inclined groove, letter *a*, in which the small pin, letter *b*, Fig. 4, moves. There is also a hole a little distance from the bottom, letter *h*, where the oil is admitted from the reservoir containing the oil. Into this case is to be placed two other concentric cylinders, Fig. 4, letters *i j*, of sufficient size to fill as nearly as possible the opening between the two cylinders forming the above-described case. The inner cylinder, letter *j*, is the same length as said case, but the outer one, letter *i*, is about an inch longer, projecting above said case about that distance. These two cylinders are united at the bottom by a small rim, letter *k*, Fig. 4. The holes, letter *l*, are to admit the oil to the wick through the cylinder, letter *i*. To this cylinder is attached, about one inch from its top, another short cylinder, letter *m*, of sufficient diameter to admit the case, Fig. 3, inside of it. Through this cylinder there projects a small pin, letter *b*, on the inside. It moves in the groove,

letter *a*, and the projecting part of it on the outside prevents the regulating-cone from turning round the burner by fitting in the groove or slot which is made in said cone. (See Fig. 7, letter *e*.) The bottom part of this cylinder is turned out a little to form a shoulder for the cone, Fig. 7, to rest upon. To complete this wick-holder or burner there is a tube or cylinder, Fig. 5, of sufficient diameter to slip easily over the outside of the inner cylinder, letter *j*, Fig. 4, continuing of the same caliber the length of cylinder *j*. The top of this tube is then enlarged, so as to leave, when this tube is in its place, only sufficient space between the cylinder letter *i* and the top of this tube for the wick.

The feeder, letter *d*, red line, is made of the same material as the ordinary lamp-wick, or of cotton flannel, which should fit close to the tube, Fig. 5, being slipped on from the bottom. The wick is of the same material, and large enough in diameter to slip easily over the feeder, letter *d*. The wick is shown in red lines, letter *c*. The tube, Fig. 5, is about one-sixteenth of an inch longer than the cylinder, letter *i*, Fig. 4, projecting above it when in its place about that distance, that being the height of the wick necessary to be above the outside part of the burner.

The regulating-cone, Fig. 1, letter *n*, is constructed in the same manner as that used by B. F. Greenough, with the exception of its lower part being straight about half its length, making it a better support for the glass. The top of this cone is about one-fourth of an inch larger in diameter than the top of the wick-holder, leaving one-eighth of an inch space for the admission of air between them.

The inner draft of the lamp is regulated by the plate, letter *o*, Fig. 2. This plate is about the diameter of the outside of the burner or wick-holder, and is supported above the top of the wick about three-eighths or one-fourth of an inch upon a wire rod, letter *p*, which is supported at the top of the case or chamber for the burner by three small arms, letter *q*, which are attached to a small nut or cylinder in the center of said case. This wire rod, letter *p*, which is about one and one-fourth inch longer than the burner, passes down the center of case, Fig. 5, and having a screw cut upon its lower end it is raised and lowered by means of a nut, letter *r*, which fits said screw, revolving around said rod, said nut being held in the top of a small hollow tube, letter *s*, at the bottom of which is fixed a head, letter *t*. The screw-rod is prevented from turning by two small arms, letter *u*, which are fastened to the rod. Above the screw part of the rod there is a small arm or piece of metal, letter *v*, which is fastened at its lower end to one of the vertical plates of metal forming the air-regulator that passes up the center of the lamp between the two arms, allowing said arms to slide up or down on the side of the piece of metal, letter *v*, preventing the rod from turning. Thus the nut, turning around the screw, will raise or lower the plate *o* and rod *p* without revolving either of them. About an inch (more or less) below the plate, letter *o*, is placed another plate, letter *w*, which is about one-fourth or one-third the diameter of the plate, letter *o*. This plate may either be raised or lowered with the screw-rod, or allow the rod to pass through it. This plate will counteract the effect of the arms or obstructions in the center air-tube, which are necessary to support the screw-rod. This plate gives the air a direction which tends to even and condense the flame. It has been an invariable rule to avoid all obstructions in the air-passage. Consequently the neck, or whatever has been used to support the center regulating-plate, letter *o*, has been made as small as practicable, and as enlarging the bottom end of the button or center plate would constitute substantially a plate and produce a like effect, I consider it the same thing.

The air-regulator, Fig. 8, is constructed as follows: The bottom is a piece of metal about one-half an inch larger in diameter than the bottom of the lamp, letter *x*, Figs. 2 and 8. To this bottom is attached a hollow tube, letter *y*, at right angles with the bottom, and to this tube is attached plates of metal, letter *z*, with pieces taken out of their upper edges, fitting them to the bottom of the lamp for a short distance up the center air-passages, (see Fig. 2,) crossing the bottom of the lamp vertically. There is also a piece of metal, letters *a a*, which is attached to the bottom of the lamp for a support and finish to the top edges of those vertical plates. The hollow tube, letter *s*, Fig. 2, in the top of which is the nut-letter *r*, passes through the hollow cylinder or tube of the air-regulator, letter *y*, and is kept in its place by the nut, being larger at the top than will go through the tube *y*, and by the head, letter *t*, at the lower end, thus allowing the nut and tube to which the head is attached to revolve, but not to move endwise. By this air-regulator the lamp is prevented from smoking in the following manner: when the wind blows upon one side of the lamp it is intercepted by the vertical plates, letter *z*, that cross the bottom of the lamp, dividing it in sections, and thus on the opposite side the entrance of the air to the lamp is undisturbed; but there is another advantage gained by these cross-plates, letter *z*, combined with the bottom plate *x*. When the wind blows upon the side of the lamp, it forces its way in between the vertical plates, letter *z*, and the bottom plate, letter *x*, and there being no escape but upward a current of air is thus driven upward through the lamp, supplying it with air. The natural draft of the lamp is thus strengthened and is not so liable to be intercepted and stopped by the force of the wind across the top of the chimney of the lamp. Instead of the number of openings formed by the vertical plates in this air-regulator, there may be more or

less, as desired, by having more or less vertical plates. The lamp is wicked and trimmed by drawing the burner out of the lamp and taking the inner tube, Fig. 5, out of the burner. Then slip the feeder, letter *d*, red lines, upon the tube, Fig. 5, from the bottom and then slip the wick in the same manner over the feeder. The stick that is used to put the wick in the ordinary oil-lamp may be used to facilitate the wicking. Put the tube, with the feeder and wick upon it, into the other part of the burner and cut the wick off close to the inner cylinder. Then put the burner in its place again and put the center plate (which is made to lift off the rod) on the rod, and replacing the regulating-cone, the lamp, when filled with pine-oil, is ready to light, putting the same kind of glass chimney upon it as is used by Mr. Greenough.

The light is increased by turning the cone and burner around the lamp by taking hold of the glass-holder, and turning it to the right lowers the burner and regulating-cone from the center plate, letter *o*, and turning it to the left raises the burner and cone and diminishes the light. The light can also be regulated by letting the burner or wick-holder and regulating-cone remain stationary and raising or lowering the center plate by means of the head at the bottom of the screw-rod. Turning it to the left will raise the plate and increase the light, and turning it to the right will lower the plate and diminish the light.

In the place of the two plates *v* and *w*, which now form the top and bottom of a frustum of a cone inverted, Fig. 2, a frustum of a cone may be used, or an entire inverted cone.

I claim—

1. The air-regulator, substantially as above described.

2. The combination of the two horizontal plates, the one above and the other below or even with the top of the wick to regulate the interior draft of the lamp, substantially as above set forth.

3. The mode of regulating the light by raising or lowering the burner and outside regulating-cone combined, the center plate, letter *o*, being at the time stationary, substantially as above described.

4. The mode of constructing a wick-tube, (see Figs. 5 and 6,) its upper end being conical or enlarged, so as to admit of a feeder being placed under the wick without enlarging it in diameter, substantially as above set forth.

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Witnesses:
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