(No Model.)

S. RUSSELL.

LAMP.

No. 247,114. Patented Sept. 13, 1881.

Fig. 2.

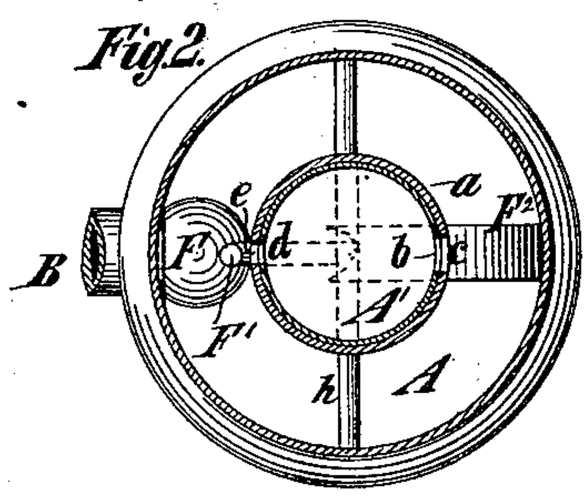


Fig. 1.

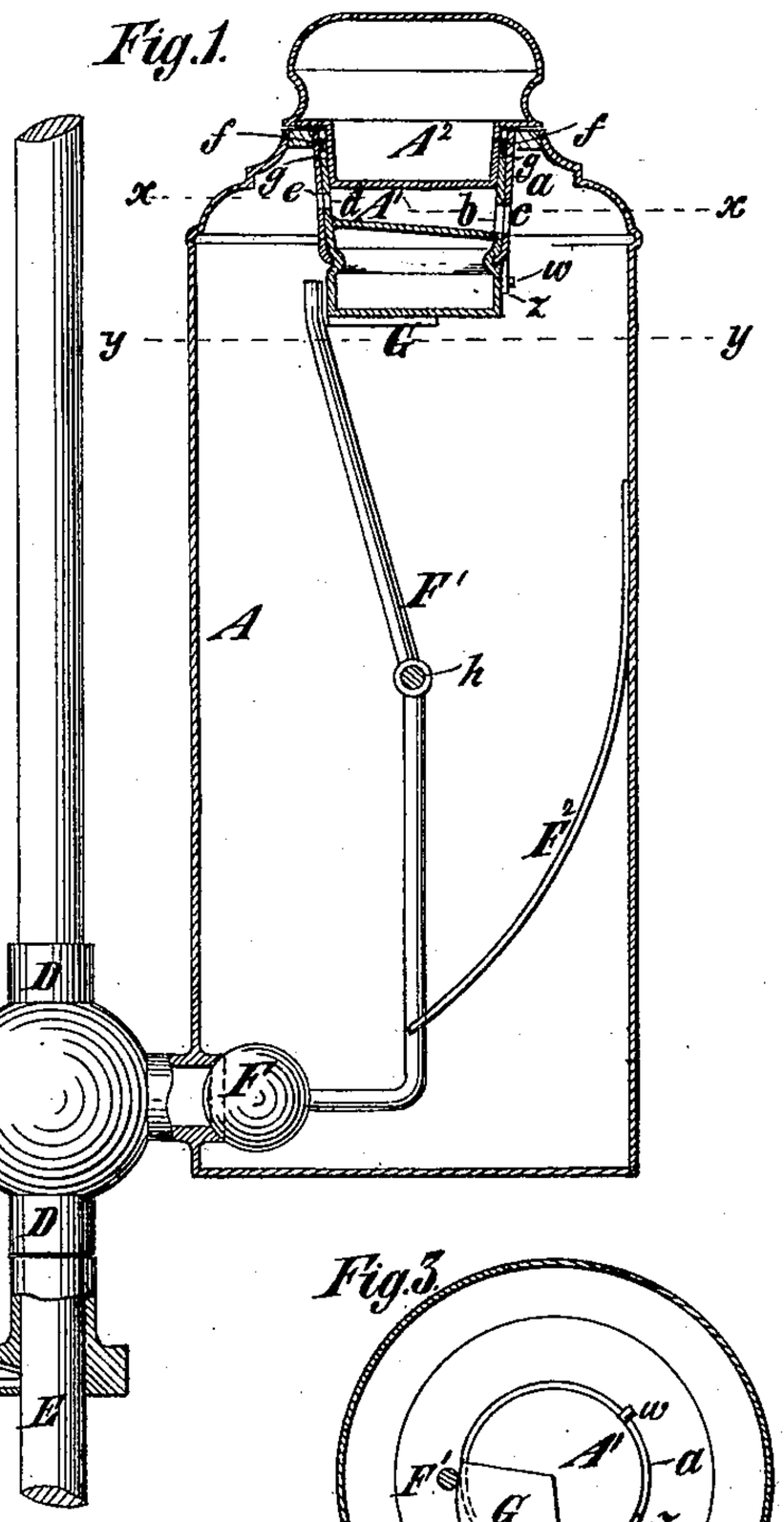


Fig. 3.

Fig. 6.

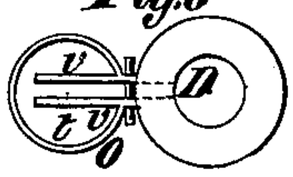


Fig. 7.

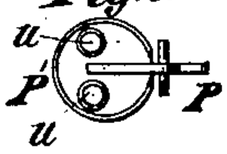


Fig. 4.

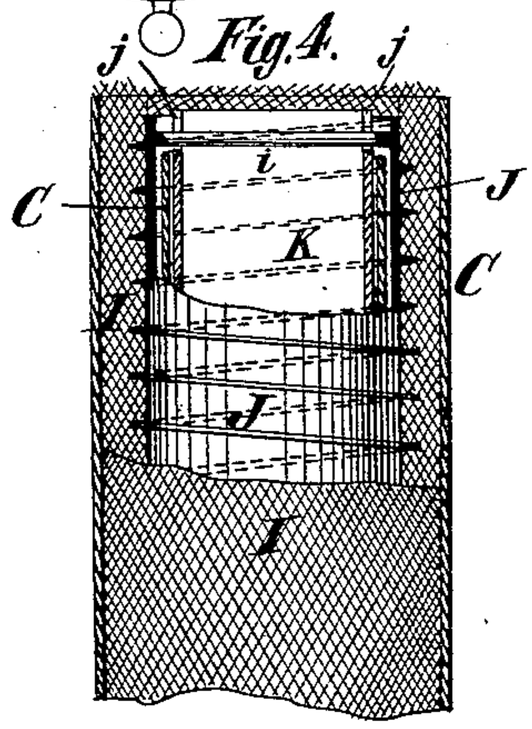
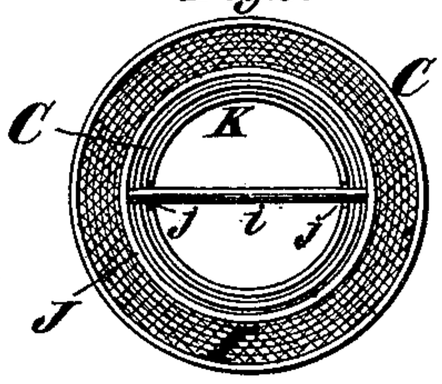


Fig. 5.



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UNITED STATES PATENT OFFICE.

STERNE RUSSELL, OF WATERBURY, CONNECTICUT, ASSIGNOR TO SCOVILL MANUFACTURING COMPANY, OF SAME PLACE.

LAMP.

SPECIFICATION forming part of Letters Patent No. 247,114, dated September 13, 1881.

Application filed May 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, STERNE RUSSELL, of Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

My improvements are especially applicable to the style of lamps known as "students' lamps," wherein the oil-reservoirs are isolated from the wick-tube and burner, and connected therewith by a laterally-extending supply-tube. Some or all of the improvements are, however, applicable to other styles of lamps.

The improvements consist in a novel means whereby the oil-reservoir of a lamp may be conveniently filled, and in means whereby the wick-tube will be prevented from overflowing while the reservoir is being filled.

They also consist in a novel means for adjusting the wick of a lamp.

They also consist in a novel means for fastening an adjustable wick-tube, oil-reservoir, and appurtenances in different positions upon a supporting-rod.

In the accompanying drawings, Figure 1 is a sectional elevation of a lamp embodying my improvements, with the chimney-gallery and the base omitted. Fig. 2 is a horizontal section taken through the oil-reservoir on the plane indicated by the dotted line *x x*, Fig. 1. Fig. 3 is a horizontal section through the oil-reservoir on the plane of the dotted line *y y*, Fig. 1, looking upward. Fig. 4 is a vertical section of the wick-tube on an enlarged scale. Fig. 5 is a top view of the wick-tube on the same scale. Fig. 6 is a view of the under side of the adjustable slide which fits the supporting-rod of the lamp and of certain of its appurtenances, and Fig. 7 is a top view of a catch for retaining said slide in position on the supporting-rod and of certain of its appurtenances.

Similar letters of reference designate corresponding parts in all the figures.

A designates the oil-reservoir of the lamp. It may be made in the usual cylindric form, as shown, and of sheet metal. At the upper end it is provided with a filling-chamber, A′, and near the lower end it communicates with a supply-tube, B, extending laterally to and communicating with an upright wick-tube, C. The reservoir is permanently connected with the supply-tube B, and may be considered as non-detachable from other parts of the lamp. The supply-tube, as shown, is provided with a slide-tube, D, fitting a supporting-rod, E, which may be erected on any suitable base. The reservoir and the wick-tube are arranged on opposite sides of the supporting-rod E.

The filling-chamber A′ of the oil-reservoir may be made of sheet metal, and it is fitted and supported within a flange, *a*, extending downwardly into the reservoir from the top, so as to be free to rotate or turn within said flange. In the upright wall of the filling-chamber A′ is an aperture, *b*, and at corresponding elevation in the flange *a* is an aperture, *c*. There is also in this wall of the filling-chamber an aperture, *d*, (shown at a slightly higher elevation,) and at a corresponding elevation in the flange *a* is an aperture, *e*. These apertures *b c* and *d e* are so arranged that when the filling-chamber is rotated or turned into one position the apertures *b* and *c* coincide, and the apertures *d* and *e* also coincide, and the former afford a passage for oil from the filling-chamber into the reservoir, while the latter at the same time afford a passage for the escape of air from the reservoir. The apertures *d* and *e* are shown as somewhat smaller as well as higher than the apertures *b* and *c*. The bottom of the filling-chamber preferably slants downward to the lower part of the aperture *b*, so that all the oil introduced into the filling-chamber will flow into the reservoir. When the filling-chamber is rotated or turned in the opposite direction the aperture *b* is thrown out of coincidence with the aperture *c* and the aperture *d* is thrown out of coincidence with the aperture *e*, so that all communication between the filling-chamber and the reservoir is cut off. Pins *w* on the filling-chamber, acting in conjunction with a lug, *z*, on the flange *a*, limit the rotation or turning of the filling-chamber.

A^2 designates a cap or plug fitting in an opening in the top of the filling-chamber A′, and provided with pins *f*, which engage with notches *g* in the top edge of the filling-chamber, so that by rotating or turning the cap the filling-chamber may be rotated or turned. This

cap is removed from the filling-chamber when it is desired to fill the reservoir, and oil may be introduced by means of an ordinary oil-can.

F designates a valve for controlling communication between the reservoir A and supply-tube B. As here shown, it is of globular form and adapted to fit a seat in the end of the supply-tube B and to be moved toward and from the end of said tube to close and open the same. It is arranged on the lower end of a lever, F′, which is fulcrumed at *h* in the reservoir, and whose upper end bears on the face of a cam, G, affixed to the filling-chamber. The lever F′ may swing or vibrate in a direction transverse to the length of the reservoir. This cam is rotated or turned with the filling-chamber, and hence constitutes a rotary device for operating the valve F. When the filling-chamber is rotated or turned so as to cut off communication between it and the reservoir through the apertures *b c* and *d e*, this cam G withdraws the valve F from its seat in the supply-tube B by rocking the lever F′; but when the filling-chamber is rotated or turned so as to establish communication between it and the reservoir, the cam G recedes and allows a spring, F^2, acting on the lower part of the lever F′, to rock the lever so that it will carry the valve F into its seat in the supply-tube. It will thus be seen that during the filling of the reservoir communication between the reservoir and the supply-tube is cut off, but that communication between them is afforded at all other times. If the filling-chamber A′ is turned so as just to remove the apertures *b d* out of line with the apertures *c e*, the valve F will still be left closed, owing to the position of the cam G with reference to said apertures.

It is obvious that in lieu of the particular form of cam G and the spring F^2 which I have shown, a cam having a slotted or grooved operating face corresponding in shape to that of the face of the cam G, and receiving the upper end of the lever F′ within it, may be used, and that the spring F^2 may then be dispensed with. In such case the cam will operate the lever F′ and valve F in both directions, and the lever will preferably be made slightly resilient, so that it will yield to allow the cam to press the valve tightly in its seat after the valve is carried into contact with its seat.

The wick-tube C is of cylindric form, and may be constructed in any suitable manner and of any approved material. It is shown as permanently secured to and supported by the supply-tube B. As usual, it is composed of an inner and outer part, which are united at the bottom, leaving an annular open-topped space between them in communication with the supply-tube. In this space is contained the wick I, and also a wick-adjusting tube, J, having a screw-threaded exterior, which, when rotated, operates on the inner surface of the wick to raise or lower the wick, the outer part of the wick-tube, by its friction on the exterior of the wick, serving to prevent the latter from turning with the said wick-adjusting tube. At the upper end the wick-adjusting tube is provided with a cross-bar, *i*, which interlocks with notches *j* in the top of a tube, K, arranged inside the inner part of the wick-tube, and hence when the tube K is turned the wick-adjusting tube is turned also. The tube K is supported by means of a screw-ring, L, screwed into a socket on the bottom of the wick-tube, and embracing between it and the bottom of the wick-tube a flange extending from said tube K. This ring L is provided at its inner edge with a notch, *k*, to allow it to pass over a pin, *l*, with which the tube K is provided.

M designates a drip-cup, fitting on the lower end of the tube K and retained there by friction. At its upper edge is a notch, *m*, which interlocks with the pin *l* on the tube K. Hence by turning the drip-cup the tube K and the wick-adjusting tube J are turned, and the wick raised or lowered.

On the supply-tube B, near the wick-tube C, is a regulator controlling the flow of oil to the wick-tube. It consists of a chamber, N, mounted on the supply-tube B, and having communication with it through an opening, *n*. Above this opening the chamber is provided with transverse plates *o p*, which have in them openings *q r* at remote points. Near the top of the chamber and above its said plates is a hole, *s*, establishing communication between the chamber and the external atmosphere. When the oil by consumption becomes sufficiently lowered air enters the chamber and passes or bubbles up into the reservoir and permits more oil to flow to the wick-tube; but while the oil is high in the wick-tube air is precluded from entering the reservoir, and as no oil can then flow from it the overflowing of the oil from the wick-tube is prevented.

On a tube arranged below the slide-tube D is a laterally-extending hand-piece, O, by grasping which the said tube and attached parts of the lamp may be raised and lowered. In its under side is a cavity, *t*, in which is pivoted a lever, P, forming a catch or tooth, so that when its end which is adjacent to the supporting-rod E is impelled downward by pressing upward its other end it will be disengaged from the rod, and so that when its end which is adjacent to the supporting-rod is impelled upward it will engage with the rod and sustain the slide-tube and attached parts of the lamp. At its outer end this lever P has a finger-piece, P′, which may be conveniently manipulated, and conforms to the cavity *t* in the hand-piece O. The lever P and finger-piece P′ are approximately parallel with the hand-piece O. Between this finger-piece P′ and the hand-piece O are spiral springs *u*, which tend to depress the outer end of the lever P and to elevate its inner end, so as to cause it to engage with the supporting-rod. Hence whenever the finger-piece P′ is not manipulated the lever P is in engagement with

the supporting-rod, and the weight of the slide-tube and attached parts of the lamp tends to hold it in firm engagement with the supporting-rod.

The spiral springs *u* may be attached to the finger-piece P′, and the lever P may fit between and be steadied by bars *v* in the cavity *t* of the hand-piece O.

It is obvious that the hand-piece O might be upon the slide-tube D, if desirable.

When the slide-tube and the tube or section of tube which is provided with the hand-piece O are made separate the slide-tube and attached parts can always be turned around to any position without manipulating the hand-piece or appurtenances.

It will be seen that by my invention I produce a lamp which may be very easily filled, which affords great convenience for the adjustment of the wick, and for the adjustment of the wick-tube and reservoir to different elevations.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lamp, the combination, with an oil-reservoir permanently connected with the supply-tube, of a filling-chamber arranged at the upper part of and connected to said reservoir, said filling-chamber having an opening at the top and being adapted to be rotated, while the reservoir remains stationary, to establish or cut off communication between it and said reservoir, substantially as specified.

2. In a lamp, the combination, with an oil-reservoir, of a filling-chamber adapted to be rotated to establish or cut off communication between it and the said reservoir, and a removable cap or plug adapted to engage with the filling-chamber to serve as a means for rotating it, substantially as specified.

3. In a lamp, the combination, with the oil-reservoir A, of the filling-chamber A′, flange *a*, and apertures *b c* and *d e*, substantially as specified.

4. In a lamp, the combination of an oil-reservoir, a rotary filling-chamber, a supply-tube for conveying oil from said reservoir, a valve adapted to move toward and from the end of the supply-tube for controlling communication between it and the reservoir, and a rotary device carried by and arranged below said filling-chamber for operating said valve, substantially as specified.

5. In a lamp, the combination of an oil-reservoir, a supply-tube for conveying oil therefrom, a valve adapted to be moved toward and from the end of said supply-tube for controlling the passage of oil from the reservoir, an upright lever to which said valve is attached, and which is pivoted so that it may swing or vibrate in a direction transverse to the length of the reservoir, and a rotary device or cam acting upon said lever for operating said valve, substantially as specified.

6. In a lamp, the combination of an oil-reservoir, a supply-tube for conveying oil therefrom, a valve adapted to move toward and from the end of said supply-tube for controlling the passage of oil from said reservoir, an upright lever to which said valve is attached, and which is pivoted so that it may swing or vibrate in a direction transverse to the length of said reservoir, a rotary device or cam acting upon said lever for operating the valve in one direction, and a spring for operating the valve in the other direction, substantially as specified.

7. In a lamp, the combination of the oil-reservoir A, the tube B, the rotary cam G, the valve F, lever F′, and the spring F^2, substantially as specified.

8. In a lamp, the combination of an oil-reservoir, a filling-chamber for said reservoir adapted to be put into or out of communication with said reservoir by a rotary movement, a tube for conveying oil from said reservoir, a valve for controlling the escape of oil from said reservoir, and a cam carried by the filling-chamber and serving to operate the valve, substantially as specified.

9. In a lamp, the combination of an annular wick-tube, a wick-adjusting tube fitting therein so as to be capable of being removed at will, a tube fitting inside the inner part of the wick-tube and interlocked with the wick adjusting tube, and a drip-cup interlocked with the said tube which fits inside the inner part of the wick-tube, substantially as specified.

10. In a lamp, the combination of the supporting-rod E, a tube fitting thereon, the laterally-extending hand-piece O, and the lever P and finger-piece P′, arranged approximately parallel with said hand-piece, so that the lever P may be operated by grasping the finger-piece P′ and the hand-piece O, substantially as specified.

11. In a lamp, the combination of the supporting-rod E, a tube fitting thereon, the laterally-extending hand-piece O, the lever P, the finger-piece P′, and the springs *u*, said lever and finger-piece being approximately parallel with said hand-piece, so that said lever may be operated by grasping the finger-piece and hand-piece, substantially as specified.

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