G. W. MITCHELL.

Lamp.

No. 51,852. Patented Jan'y 2, 1866.

Fig. 1.

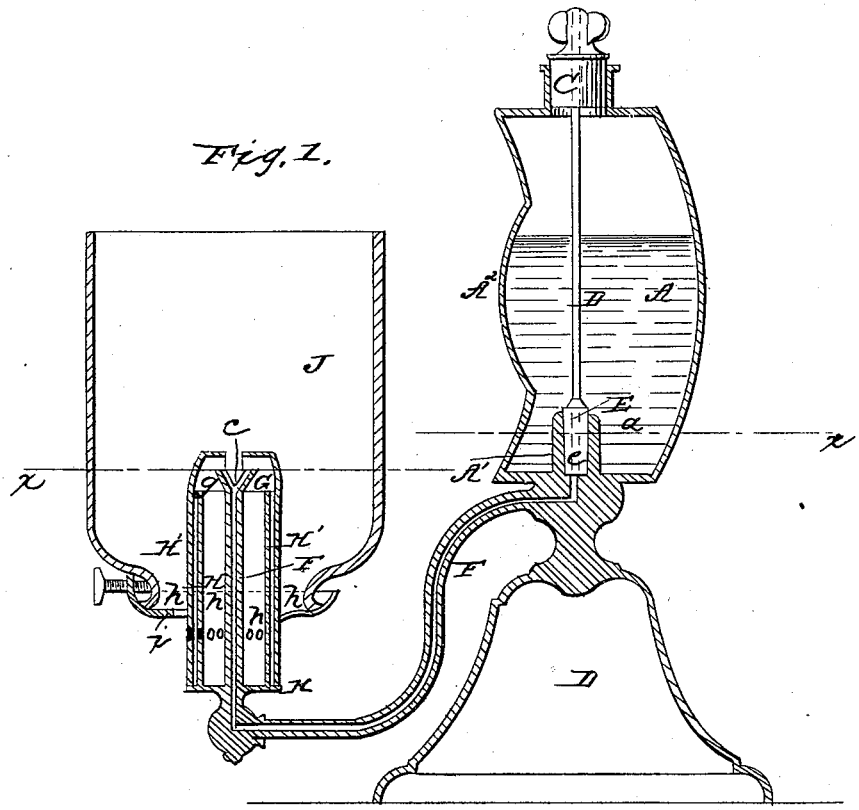
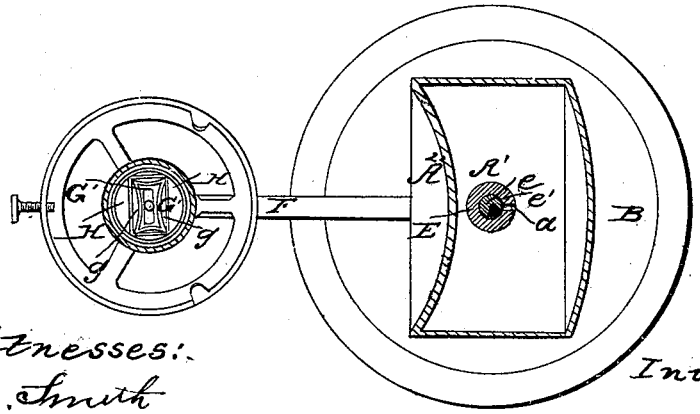


Fig. 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE W. MITCHELL, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. **51,852**, dated January 2, 1866.

To all whom it may concern:

Be it known that I, GEORGE W. MITCHELL, of the city and county of St. Louis, and State of Missouri, have invented a new and useful Improvement in Lamps; and I do hereby declare the following to be a full, clear, and exact description of the nature, construction, and operation of the same, reference being had to the accompanying drawings, which are made part of this specification, in which—

Figure 1 is a vertical central section of a lamp illustrating my improvement. Fig. 2 is a horizontal section of the same, the red lines *x x*, Fig. 1, indicating the plane of section.

Similar letters of reference indicate corresponding parts in the two figures.

My invention consists of a lamp of novel and simple construction in which the oil is supplied to the flame without the use of a wick. The oil is placed in a reservoir, which is mounted upon a suitable pedestal, and communicates with the burner through a pipe or tube. An adjustable faucet or cock is employed within the reservoir to graduate the flow of oil to the burner. The face of the reservoir which is presented toward the burner is made to constitute a reflecting-surface. The burner is so constructed that the oil, on issuing from the supply-pipe, is received into a continuous space, which flares outward, in order to give the desired volume to the flame.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe it in detail in connection with the accompanying drawings.

A represents an oil-reservoir supported at a proper height upon the pedestal B. This reservoir is filled through an opening at the top, which is closed by the plug C, to which is attached one end of a rod, D. The lower end of the rod D carries a cock or plug, E, which sits within a corresponding seat in the boss or projection A′ rising from the bottom of the reservoir A, on the interior of the latter. In the plug E is a vertical aperture, *e*, which communicates with a groove, *e′*, diminishing in size and capacity as it approaches its terminus, as clearly represented in Fig. 2. The groove *e′* communicates with the interior of the reservoir A through the aperture *a*. Through the aperture *a* and groove *e′* the oil flows from the reservoir into the aperture *e* of the plug E, whence it passes into the tube F, in which it is carried by the pressure of the main body of the oil to the burner G G′.

That portion of the burner designated by G may be simply an oblong cup, secured to the top of the vertical portion of the tube F, and flaring outward at its sides and ends. In the cup G is placed the deflector G′, which corresponds in shape to the cup G, and is sufficiently smaller than the latter to leave between the cup and deflector a space, *g*. I prefer to arrange the tube F in such relation to the reservoir A that the oil shall be forced no higher than the top of the tube F, so that it shall rise within the space *g* by capillary attraction, and thus supply the flame with a limited quantity, the better to insure a steady combustion and a brilliant flame. The bottom of the deflector is open to allow the oil to pass up its inner as well as its outer surface by capillary attraction, which improves the flame, by supplying the kerosene to both sides thereof, as will be readily understood.

H represents a tube surrounding the vertical portion of the tube F, and surrounded by another tube, H′. The tubes H H′ are perforated at *h* at a suitable point below the burner, and air from the outside enters the space *h′* and supplies the flame. Air also passes within the tube H, and so reaches the flame at a point more strictly beneath or under the latter, which is thus prevented from being depressed in consequence of any vacuum or partial vacuum that might be formed below it.

J may represent a shade or shield supported upon a collar, J′, which is provided with the necessary devices for keeping the shade in place. A common lamp-chimney may be used instead of or in addition to the shade, if desired.

The plug C is provided with a square socket, which fits over the square end of the rod D. Hence by turning the plug C the plug E is partially turned within its seat, and by this means any portion of the diminishing groove *e′* may be brought opposite the aperture *a*, so as to regulate the quantity of oil which flows from the reservoir into the tube F.

To allow air to enter the reservoir A and replace the oil as it is consumed, the plug C may be fitted loosely in the opening of the

reservoir, or any other means may be adopted to meet this necessity.

I do not limit myself to any particular form or arrangement of the several parts, as they may be modified in various ways without departing from the essential principle of my invention.

The dispensing with the wick reduces the expense of the lamp and obviates the troublesome attentions and accessories which are incident to the use of the wick, and the flame produced by this lamp is fully as brilliant as, if not more brilliant than, that which is produced with the wick. The face A^2 of the reservoir adjacent to the lamp is polished or otherwise adapted to constitute a reflecting-surface, which is regarded as a feature of positive novelty and utility.

Instead of one deflector, G′, two or more may be placed within the cup G to increase the heat and enlarge the flame, and the tubes H and H′ may have isolators of any non-conducting substance between them and their connection with their base K, so as to cut the heat off from the tube F and the reservoir.

Having described my invention, the following is what I claim as new and desire to secure by Letters Patent:

1. A lamp in which the oil is conveyed directly from the lamp's reservoir to the flame without the employment of a wick.

2. Regulating the flow of oil to the lamp-burner by a device located within the reservoir, substantially as described, so as to prevent leakage.

3. The diminishing groove *e′* in the plug E, in combination with the aperture *a*, for regulating the flow of oil to the conducting-tube F.

4. The burner herein described, the same consisting of the external cup, G, and internal deflector, G′, so arranged as to leave an intervening space, *g*, as and for the objects specified.

5. The combination, with the burner G G′, of the perforated tubes H H′, arranged and employed substantially in the manner and for the purpose set forth.

6. Making the reservoir A with a reflecting-surface, A^2, substantially as described.

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