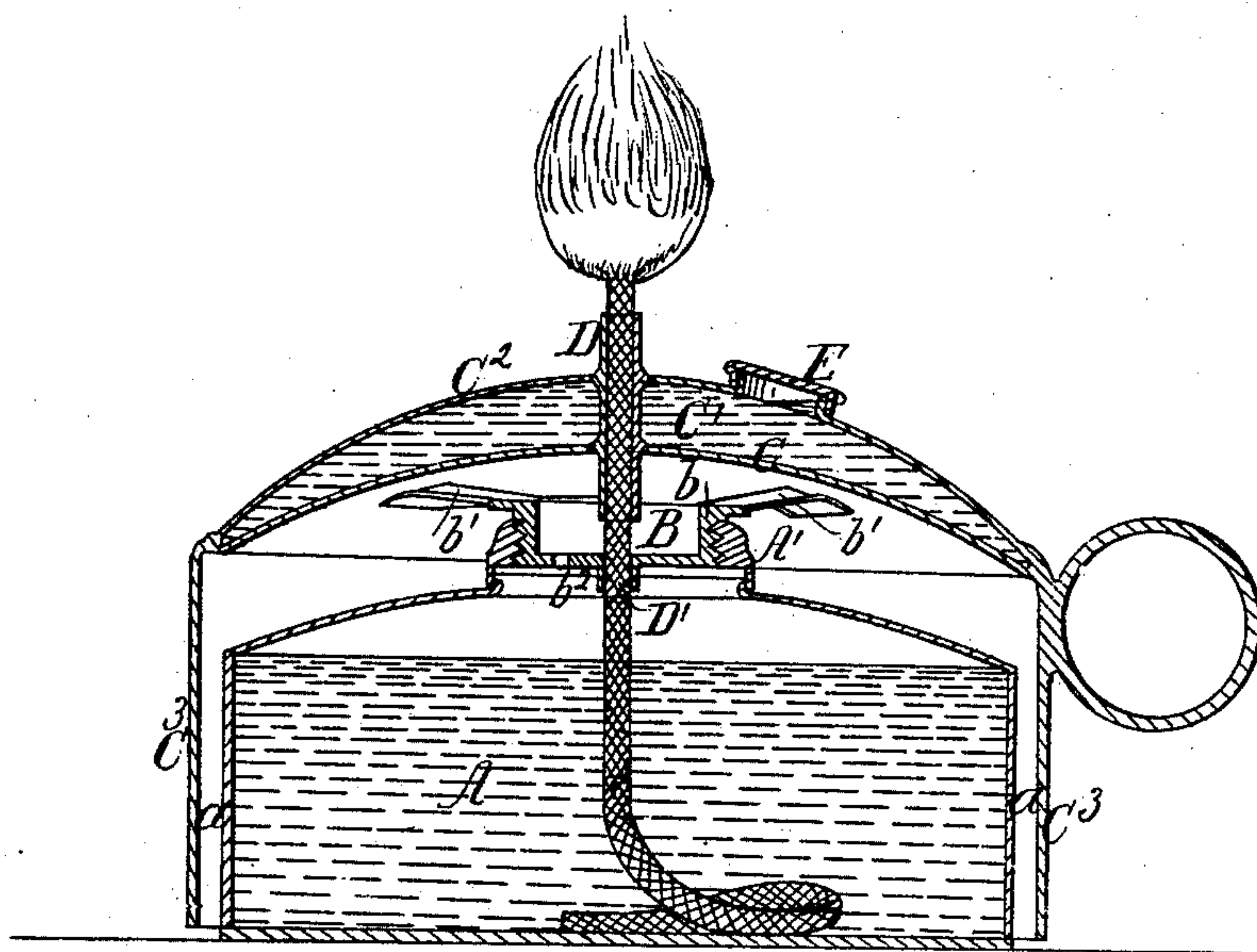


F. BURROWS.
LAMP.

No. 61,152.

Patented Jan. 15, 1867.



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FRANCIS BURROWS, OF PEORIA, ILLINOIS.

Letters Patent No. 61,152, dated January 15, 1867.

IMPROVEMENT IN LAMPS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, FRANCIS BURROWS, of the city and county of Peoria, in the State of Illinois, have invented a new and useful Improvement in Lamps; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing, which makes a part of this specification, and represents a central section of a lamp embodying my invention.

This invention relates to a lamp which is to be chiefly employed in the laboratory as a heating medium, and in which highly combustible fluid is burned. The lamp may, however, be employed for illuminating purposes when desired. The invention consists in three novel expedients, which, as employed in mutual connection, serve to effectually prevent the heat from the flame being communicated to the fluid within the reservoir, and thereby obviate danger of explosion.

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 its construction and operation.

In the accompanying drawings, A may represent a reservoir having a central aperture at top, over which is fitted a socket, A', for the reception of the cap B, the latter being threaded in conformity with the socket A', in order that it may be inserted and removed with facility. The cap B has formed upon it, at top, a flange, b, which has its seat upon the socket A', and serves to form a perfectly tight joint between said cap and socket. The cap B is attached to a plate, C, by arms b', which retain and support the cap out of contact with said plate C, so that if the latter should receive heat from the flame it will not be transmitted to the cap by contact therewith. This plate, C, constitutes the lower wall of a chamber, C¹, the upper wall being formed by a plate, C², and the two plates being connected to a cylindrical casing, C³, which fits over the reservoir A, and is of such dimensions that between it and the reservoir will be a space, a, for the purpose to be explained. The chamber C¹ is adapted to contain a quantity of water to prevent the heat from the flame being communicated to the top of the reservoir A to such an extent as might produce the explosion of the lamp. The water within the chamber C¹ will, under ordinary circumstances, serve to prevent the plate C from becoming heated, but the space which exists between the top of the reservoir and the plate C renders impossible the transmission of any dangerous volume of heat. As the wick-tube must communicate from the reservoir to the exterior of the plate C², where the flame burns, it is manifest that if said tube were formed in the ordinary manner, that is to say, in one continuous piece, it would conduct the heat from the flame, in a greater or less degree, to the combustible fluid within the reservoir, and in this manner explosions have hitherto been frequently occasioned. To render it impossible for the fluid to thus become ignited, I form the wick-tube in two parts, D D¹, which are disconnected or separated from each other, as shown, the section D¹ of the wick terminating at its upper end at the top of the cap B, and the section D terminating at its lower end at a point below the under side of the plate C². Hence while the upper section, D, may become heated by the direct action of the flame, the lower section retains its normal temperature. Although I propose to employ water in the manner described as a safeguard against explosion, it is apparent that the peculiar manner of insulating the reservoir from the flame, by the interposition of the plates C C², chamber or space C¹, and the space between the top of reservoir and plate C, would be sufficient to effect the object in view, provided a free circulation of air be maintained within the chamber C¹ and space between the reservoir A and plate C. Free circulation within the chamber C¹ may be obtained by removing the screw-cap E, so as to expose or open the aperture through which water is supplied to the chamber C¹; or, if preferred, two or more apertures may be made in the plate C², when water is to be dispensed with. Adequate circulation between the reservoir A and plate C is admitted of by the space a, into which air may pass at the bottom or under side of the lamp. Explosions often occur in consequence of there being no communication between the interior of the reservoir and the external air, for the reason that when a portion of the fluid has been consumed and a vacuum thus formed within the reservoir, there is a tendency or effort on the part of the air to gain an entrance through the wick-tube, and this current in passing downward from the flame is very liable to cause the combustion of the fluid within the reservoir. I obviate this danger of accidental explosion by providing the cap B with an aperture, b², which constitutes an effectual ventilating medium for the reservoir, said aperture receiving a constant supply of air from the space between the reservoir A and plate C, which space communicates with the space a.

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

1. I claim the chamber C^1 formed in the manner herein described and adapted for the reception of water, to prevent the heating of the reservoir, as and for the purpose explained.

2. I claim the combination and arrangement of the reservoir A, two-part wick-tube $D D^1$, and casing $C C^2 C^3$, with their several adjuncts applied and operating in the manner and for the purpose explained.

The above specification of my improvement in lamps signed this eleventh day of July, 1864.

FRANCIS BURROWS.

Witnesses:

C. D. SMITH,

T. SCHEITLIN.