

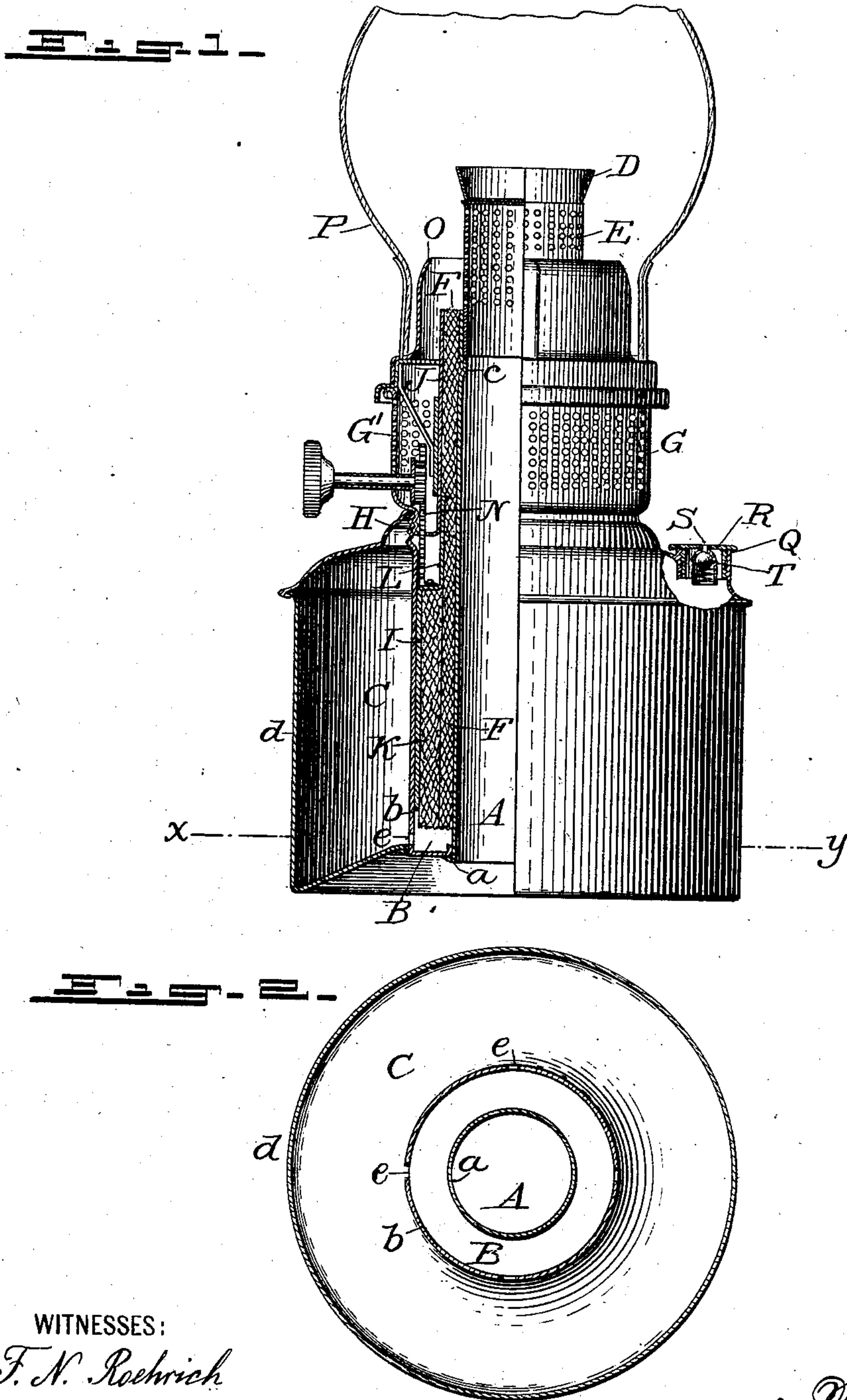
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P. FRASER.
SAFETY KEROSENE OIL LAMP OR HEATER.

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NO MODEL.



WITNESSES:

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SAFETY KEROSENE-OIL LAMP OR HEATER.

SPECIFICATION forming part of Letters Patent No. 724,840, dated April 7, 1903.

Application filed October 24, 1901. Serial No. 79,767. (No model.)

To all whom it may concern:

Be it known that I, PETER FRASER, a citizen of Canada, and a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Safety Kerosene-Oil Lamp or Heater, of which the following is a specification.

My invention relates to means for safely holding and burning oils, such as kerosene, the gases from which are liable to cause explosions when carelessly handled, and to cause an abundant supply of oil to the flame; and to this end my invention consists in certain elements and combinations of elements fully set out in this specification and claimed at the end thereof.

In order that persons skilled in the art to which my invention appertains may understand, construct, and use my invention, I will proceed to describe it, referring to the drawings herewith, in which—

Figure 1 is a part-vertical central section of my apparatus and part outside view. Fig. 2 is a horizontal cross-section on line xy of Fig. 1.

A is a vertical draft-tube for furnishing air to the flame at its upper end.

B is a wick-holding chamber contiguous to tube A, formed by an inner wall a and an outer wall b . The inner wall a is flared outwardly at the bottom, and at a short distance from its upper end an inwardly-projecting bead c is formed for the purpose of limiting the downward set of a perforated flame feeder and spreader located partly within and at the top of tube A. The outer wall b of the chamber B extends downward and inward and is soldered to the flaring lower end of inner wall a , thus forming the bottom of chamber B.

C is an oil-reservoir formed exteriorly contiguous to wick-chamber B between outer wall b and wall d , which outer wall d at its base turns inwardly and is soldered to the wall b a little way above its bottom, so that the chamber B extends a short distance below the bottom of oil-reservoir C, forming a pocket. At the bottom of wall b a limited number of fine holes e are made which permit the oil in reservoir C to enter chamber B. The number and size of these holes is decided by the rate of consumption of oil by

the burner above the wick-chamber. A flame feeder and spreader D is formed above a perforated barrel, which barrel is closed at its top, and said barrel is located within the confines of the top of draft-tube A and rests upon the bead c to locate its position relative in said draft-tube. The upward flare of the spreader D is determined by the amount of draft required to burn the oil and gases from the oil which feed the flame from chamber B and wick. A wick F is located upon the circumference of wall a of draft-tube A and within the chamber B and is of suitable length to conduct the oil in this chamber B to the top of the draft-tube A. The draft-tube A arises an available distance above the top of oil-reservoir C, and above the said oil-reservoir C a framework G is fastened by screwing it into a thread formed within the upper end of wick-tube B. This framework is usually called a "gallery," and is common to all kerosene-oil lamps having a central draft-tube. This framework is provided with perforations G' in its outer surface to admit air to the outer surface of the flame proceeding from the wick F. This framework is tubular in form, and at its bottom it is drawn inward, and a vertical screw-thread H is formed upon it to fit and take into a screw-thread formed at the top of chamber B. Joined to the outer barrel G' and below the thread H is an inner barrel J, which is of a diameter proper to inclose the upper part of the wick F above the top of chamber B and, in fact, constitute an upper extension of chamber B when this gallery-framework is upon the lamp; but the width of said chamber extension is somewhat less than that within the confines of the oil-chamber below the gallery G'. It, in fact, is only wide enough to permit one thickness of wick to operate between its walls. Below the top of oil-reservoir C the wick-chamber B is the width of two thicknesses of wick plus the thickness of a tubular wick-carrier I, which at its lower portion embraces a stationary wick-feeder K. This wick-feeder K is of a length sufficient to reach near the bottom of chamber B and also to a point quite near the level of the top of the oil-chamber C and constitutes a supplemental oil-reservoir in wick-tube B. The barrel of the wick-carrier I at

its lower portion slides within the wall *b* in the wick-tube B, and at its upper portion L it is necked in to only embrace the main wick F, and this portion L slides within the inner surface of barrel J of the gallery-frame when upon the lamp. At the point M where the change in diameter of the wick-carrier is made vertical rack-bar N, provided with teeth, is attached, which rises upward through an opening made in the bottom of the gallery-frame, and a pinion operated by a small wheel and shaft takes into it to raise and lower it in the usual manner. The top of wick-carrier I has teeth turned inward, which take into the main wick F, and as the rack N is raised or lowered it moves the said wick with it. The feeder-wick K is designed to receive oil from the reservoir C through perforations *e* only and convey it upward to wick F by capillary action. The main wick F can move upward and downward within wick-feeder K to the extent of the length of wick-feeder K, and still wick F will receive sufficient oil to supply the flame of the lamp, and as the oil from reservoir C passes into wick-chamber B only through the perforations *e* no oil can flow out of the lamp excepting through wicks F and K, so that if the lamp is turned over either accidentally or designedly no danger of explosion can exist. The oil-reservoir C, being at a distance from the flame, is not heated thereby to any considerable extent, and as no oil excepting that in the wicks K and F can reach the top of the draft-tube or any of the parts connected with the burner except through the said wicks the effect of the heat which is communicated through the draft-tube A and other parts is only to vaporize the oil in said wicks, and consequently after the lamp has been burning a short time the wick F must be turned down below the top of draft-tube A and the oil-gases only are burned. When using the lamp as a heater or for increased light, a deflecting-cone O is used to throw the air which comes through the perforations in barrel G' against the outside of the flame above wick F. Then greater heat and increased light result.

P is the usual draft-chimney, which is made of glass for light and of metal and glass for heating purposes. Oil-reservoir C is filled

with oil through opening Q, which may be closed by screw-cap R, provided with small pin-hole S to admit air when needed to prevent a partial vacuum from occurring within the reservoir as the oil is burned up. No other means of equalizing the pressures outside and inside the reservoir being possible except through some device in the wall of the reservoir C itself, a ball T, pressed against the opening S by a spring from beneath, closes the hole S until exterior pressure opens it to relieve the difference of pressure.

Having now fully described my invention and the manner in which I have embodied it, what I claim as new and as my invention, and desire to secure by Letters Patent, is—

1. The combination in an oil-burner of an annular wick-tube open to the air at its top, with a wick-carrying means consisting of a tube enlarged at its lower portion and constructed to fit the larger diameter of the said wick-tube, and to embrace between its inner walls and the smaller diameter of the said wick-tube, two thicknesses of wick, and at its upper portion drawn in to a smaller diameter and constructed to embrace one thickness of wick, and to raise and lower said single wick as and for the purposes hereinbefore specified.

2. In a safety-lamp the combination consisting of a central draft-tube, a wick-chamber contiguous thereto; an oil-reservoir immediately contiguous to said wick-tube and communicating therewith by perforations near its bottom through the wall which divide said tube and reservoir; a device in said reservoir to admit air to its interior; a wick holding and raising device, within said wick-tube constructed to embrace a double thickness of wick at its lower end and a single thickness at its upper end, all constructed arranged and combined to operate substantially as and for the purposes hereinbefore specified.

Signed at New York, in the county of New York and State of New York, this 28th day of September, A. D. 1901.

PETER FRASER.

Witnesses:

JAMES M. HICKS,
CHARLES W. LOW.