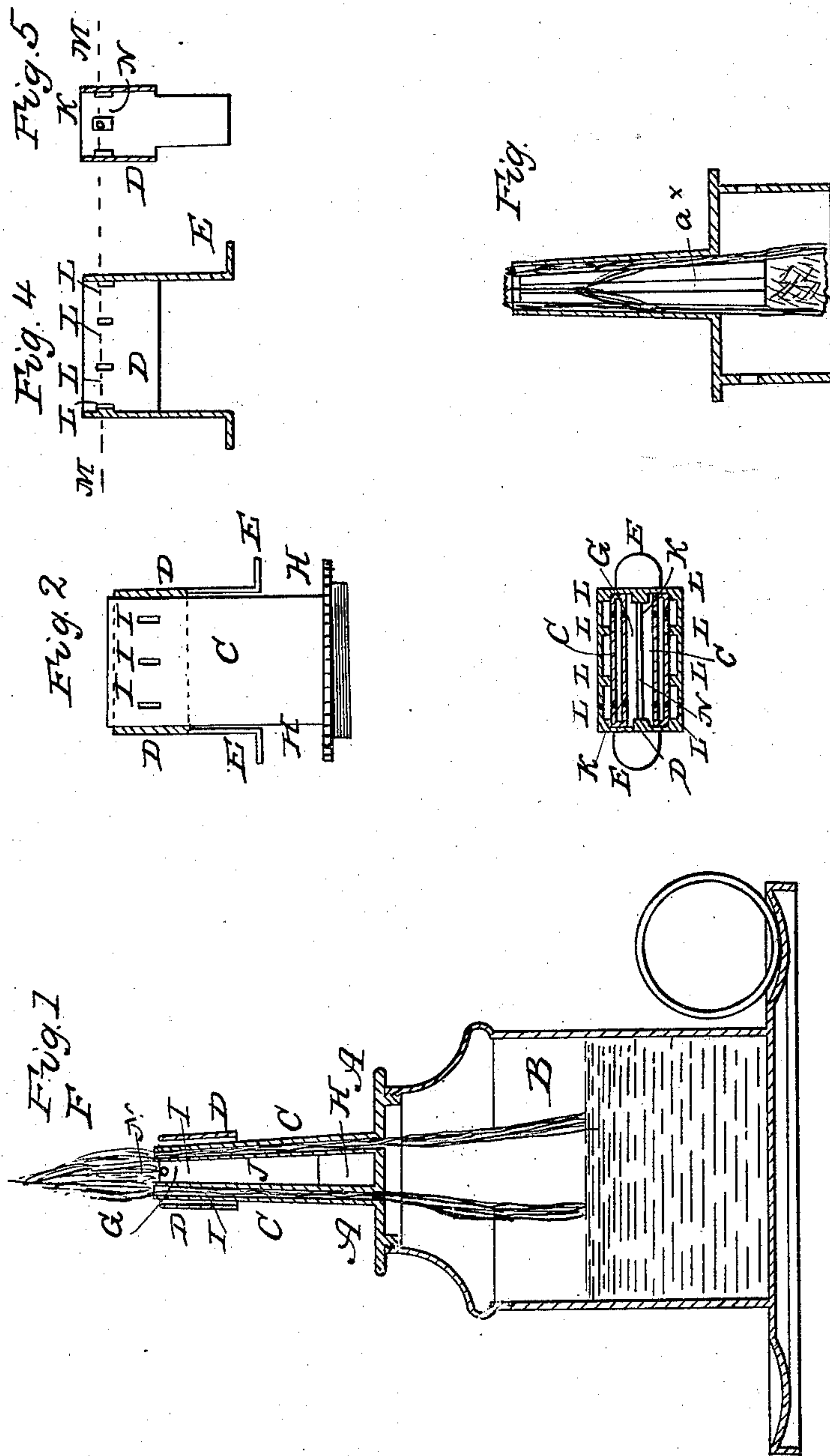


J. P. & E. KENYON.

Lamp.

No. 21,344.

Patented Aug. 31, 1858.



UNITED STATES PATENT OFFICE.

JAS. P. KENYON AND ELLEN KENYON, OF BROOKLYN, NEW YORK.

LAMP.

Specification of Letters Patent No. 21,344, dated August 31, 1858.

To all whom it may concern:

Be it known that we, JAMES P. KENYON and ELLEN KENYON, of the city of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Lamps; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a vertical central section of the lamp top invented by us, through its smallest diameter. Fig. 2, is a face or flat view of the wick tubes C, C, with the band D, indicated by dotted lines across, and the extensions or ears E, E, attached, and showing likewise, the trimming-slits or perforations I, I, I. Fig. 3, is a horizontal section of the tubes and band connected (the line M, M, Figs. 4 and 5, indicating the plane of section) representing the collapsing and air and vapor draft devices. Fig. 4, is an end view of the band and ears. Fig. 5, is a face or flat view of the same. Fig. 6, is a view of two conical wick tubes arranged according to our invention.

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

There are a number of provisions requisite in an invention of this nature (in order that it may be sufficing and successful) an enumeration of which will form a fitting, as it is an almost indispensable, preface to the usual explanation.

The simple lamp hereinafter described is mainly the embodiment of a theory, complete before the metal was touched. The present applicants conjectured—what experiment very promptly verified—that the several coal oils were variously carbureted—that is to say, that they contained a larger or less proportion of hydrogen, according to what may be called the degree of purity of the liquid. Thus, conformable to the theory, it was found by experiment that with carbon oil (the purest of these bases of artificial light) the exit space G, and the entrance opening H, were required to be and admitted of being enlarged, as compared with the same spaces when coarser oils were used, and so on through a graduation parallel with the relative proportions of carbon and hydrogen in the several oils. In other words, an opening at G, with a fixed area cannot be made to bring out the full illuminating effect of more than one kind of oil—

and not that, even, without a great amount of unnecessary trouble with the wick. Again, in the practical use of the lamp the earthy impurities of the oil will collect upon the wick as a crust, and the latter, by the obstruction of the passage of the illuminating vapor, reduces the size of the flame, which, exposed to the access of an un-reduced, and therefore disproportionate, amount of oxygen, is at once cooled and turned blue—in which event (without the peculiar feature of our invention) the lamp would require trimming or the wick raising; but with our lamp, in such a case, by simply drawing down the band D, the access area of the air channel J, at H, and the exit space G, are simultaneously reduced—the flame at once increasing in size and brilliancy by the restoration of the requisite equilibrium between the volume of the flame F, and the gaseous supply through H. This collapsible feature of our invention, furnishing, as it does, the means of a perfect control of the flame and its supply of oxygen, secures another very great desideratum—an equal intensity of draft under all circumstances, since the reduction of the space G, is intended to be exactly commensurate (in its relative proportions) with that of opening H.

Our object, as we now scarcely need say, has been the production of a lamp in which might be burned, for illuminating purposes, any of the coal oils, or other liquids rich in carbon, with the least possible inconvenience to the user, with almost (if not quite) an entire freedom from offensive odor; of the utmost simplicity and cheapness; susceptible of all desirable forms and adaptable to all necessary uses—either as a hand, standing, pendent or side lamp; that could be used with or entirely independent of a glass chimney or any other shield to the flame or extrinsic draft-creator whatever, and that would give, moreover, a light unsurpassed in its combined qualities of brilliance, softness, and purity by any artificial light whatever. This object is attained by supplying, in the manner described below, to the interior of an unbroken flame, through a passage of variable capacity, a properly-portioned and regulated quantity of air or oxygen—the latter uniting with the hydrogen ascending from the wick, setting the carbon free, and thereby producing perfect combustion and a pure and brilliant flame.

To enable those skilled in the art to fully

understand and construct our invention, we will proceed to describe it.

Figure 1 is a central vertical section of our invention through the middle trimming-slit I, in Fig. 2. A, and B, are a cap and body of an ordinary lamp. Into and across the former are inserted two flat tubes, C, C, approaching each other as they rise above the point of insertion, as shown, until they in-
 10 close at their upper ends a space G, varying according to requirement (as before explained) from about the one-fourth to about the one-thirty-second of an inch across—
 15 said space depending on the size of the lamp for its longest diameter. These tubes are intended to collapse and extend, as will be hereafter shown.

D, is a sliding band or tube, (made shorter or longer at pleasure,) with down-
 20 ward extensions or ears, E, E, as shown, said extensions being turned up at their lower ends, for the convenience of manipulation, and slightly bent inward from their parallel lines to give them a sufficient hold
 25 on the edges of the tubes E, E, to retain the band and themselves in any desired position. The uses of this band as constructed are various. In the first place, it carries the extensions aforesaid, which by their
 30 elevation or depression enlarge or contract the air-entrance H; secondly, it at all times covers the trimming slits I, I, I, and conveys the vapor escaping therefrom into sufficient proximity to the flame to insure its
 35 consumption; thirdly it approximates or separates the upper ends of tubes C, C, and consequently increases or diminishes the smaller diameter of space G; fourthly, it enables the user to consume more or less
 40 oil at pleasure; fifthly, it converts, on being raised to a proper height, the common hand or standing lamp into a night lamp; and sixthly it causes so much of air as passes between itself and the tubes to impinge upon
 45 the flame with an intensified force. Said band has on its inner surface, set a little below its upper edge, as shown in Fig. 3, a number of projections or indentations K, K, at the ends, and L, L, L, L, on the
 50 sides. K, K, are for the purpose of separating the tubes in the upward movement of the band, their diameter along their junction with said band being equal to the widest intended cross-diameter of space G,
 55 said widest cross-diameter coinciding with the maximum area of air-inlet H, in conformity to the practical requirements as before stated. The projections L, L, L, L, have the double use of collapsing the tubes
 60 in the downward movement of the band and of forming a thin space for the upward escape of the vapor before mentioned and the passage of a portion of atmospheric air as just specified. Said vapor would, but for
 65 this provision, condense upon the band and

drip down the surface of the tubes, creating an offensive odor of coal oil. It will be seen that the last described operations are due to the taper arrangement of the tubes, and the adaptation of the bearing surfaces
 70 of the projections thereto.

The ears E E, fit snugly to the edges of the tubes C, C, and thus form, in conjunction with said tubes, the air-channel J, extending from the cap A, to the flame F. The hori-
 75 zontal line above H, in Fig. 1, indicates the upper boundary of the air access H, and the position of the lower ends of the ears when the lamp is first lighted after trimming, and the dotted lines in Fig. 2, do the same of the
 80 position of the band under like circumstances. The lower edge of the band is intended to cover the slits I, I, I, when said band is at its greatest depression, while by
 85 bringing the lower ends of ears E, E, into contact with the face of cap A, the trimming-slits are exposed and the wicks raised with the utmost facility. This, however, will not be required while the lamp is in use,
 90 except when the oil is very impure.

The manner of using the lamp is as follows:—Having inserted the wicks (strips of canton flannel or the like), by drawing them through the tubes with a needle and thread, they are to be trimmed off smoothly to a
 95 height varying with the quality of the oil and the quantity of light desired—say from about the one-sixteenth to about the one-thirty-second of an inch; dip the tubes thus prepared into the filled lamp, screw on the
 100 top, and fix the band as per drawing. The lamp is then ready for lighting, and if a match be applied, it will burn with a splendid flame for three or four nights (sometimes for longer, even) without any more
 105 trouble whatever. With the most impure oils, however, in the course of a few hours it will be necessary to put down the band a little, which will restore the flame to nearly its first brilliancy. This downward move-
 110 ment of the band must be continued till it becomes ineffectual, and then the next proceeding is to put full down or remove the band, raise the wicks very slightly with a pin or the like, and replace the band in its
 115 first position. The next time the lamp is touched the scissors must be used, which can be done while it is burning, with the greatest ease.

We do not confine ourselves to the form of
 120 lamp specified, nor to the specific series of devices described, as there are quite a number of equivalent ways of producing the same results, and as we intend to make our
 125 lamps round, long, square, or triangular, according to the uses for which they may be intended. We in certain cases, contemplate, to use a small strip or a triangular or other
 130 formed piece of metal N, along the middle of space G, as shown in Figs. 1 and 3—the

strip with its flat face downward, or the triangular piece with one of its angles evenly dividing the ascending air. This device, when used, will be partly as a semi-equivalent of the collapsible principle, and partly to add a slight degree of power to the flame—the latter remaining unbroken and centered, nevertheless.

The supplementary top shown in Fig. 6, will indicate one of the many forms of which our lamp is susceptible—the inner slitted tube α^* , presenting the collapsible feature. All the forms of lamp, when complete and in market will be perfectly oil and air-tight, excepting the wick opening at the base of the flame.

What we claim as our invention and desire to secure by Letters Patent, is—

1. Constructing and arranging the wick tubes so that the orifice of the air passage at the upper ends of said tubes may be expanded or contracted without the necessity of changing the relative position or location of the lower ends of said tubes to each other, substantially as and for the purposes set forth.

2. The band D, provided with the ears E, applied to the wick tubes C, C, and used with or without the central strip N, for the purpose specified.

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ELLEN KENYON.

Witnesses:

J. H. BUCKLE,
MICH. HUGHES.