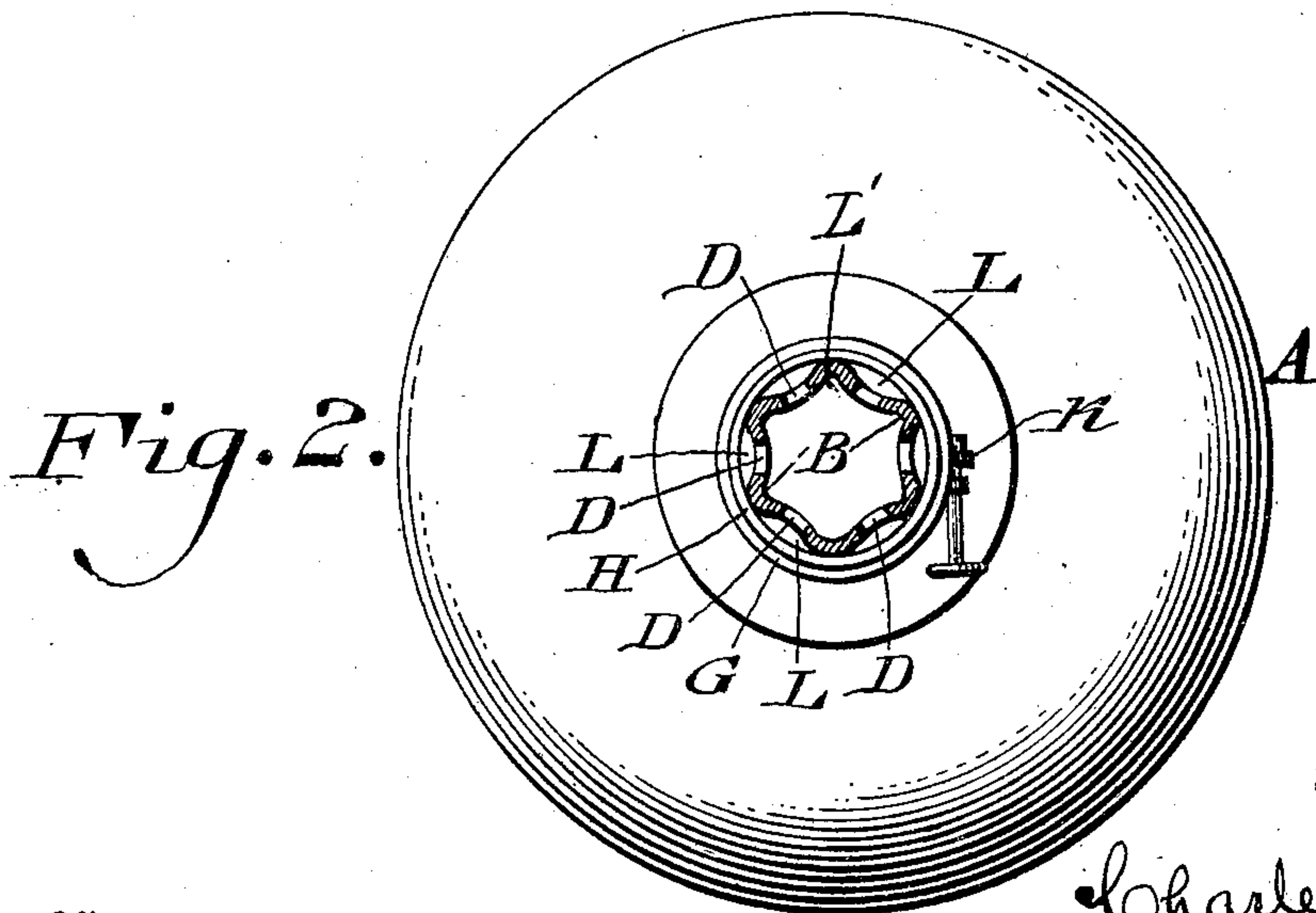
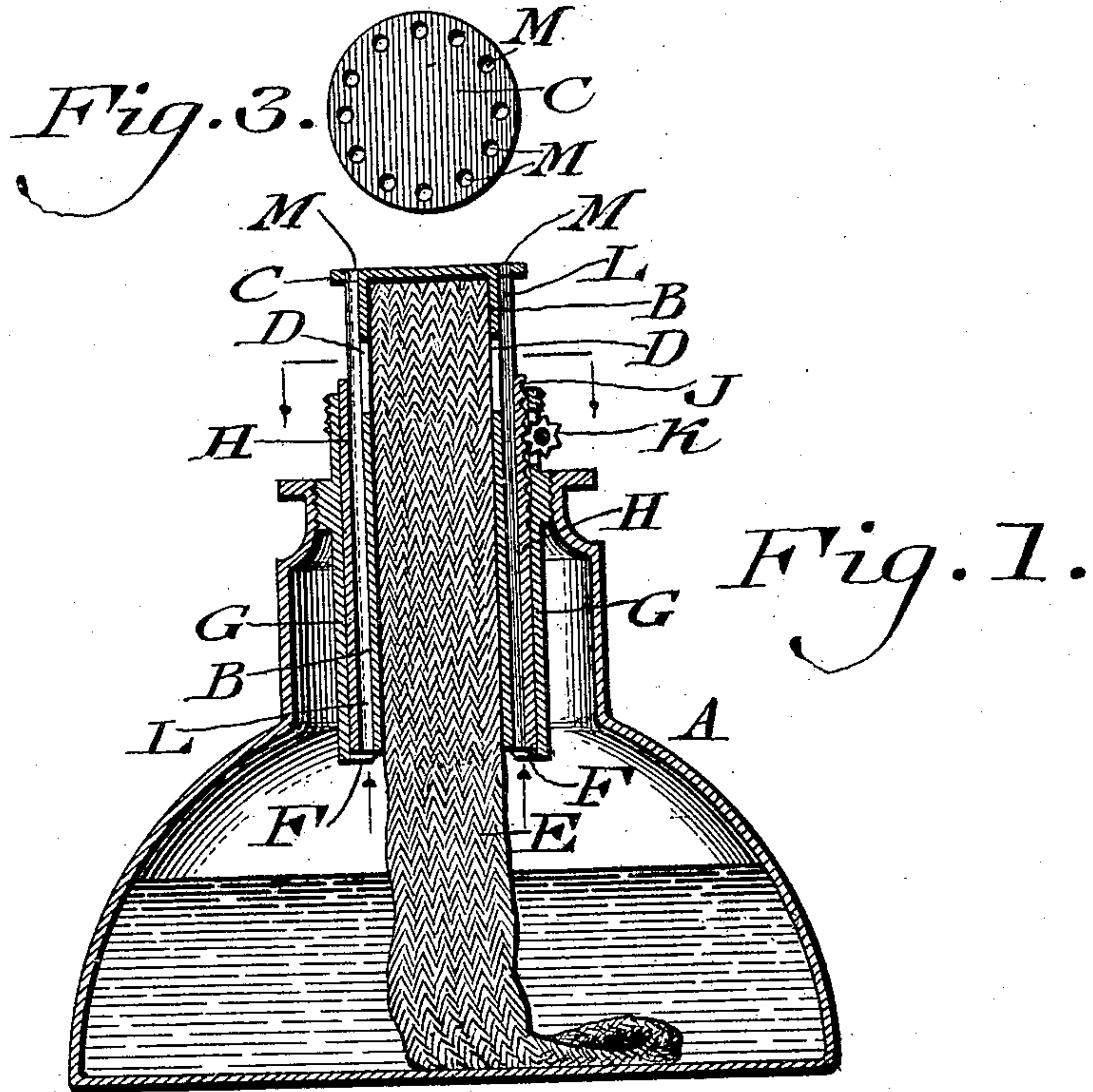


No. 856,142.

PATENTED JUNE 4, 1907.

C. HALSTEAD.  
ALCOHOL LAMP.

APPLICATION FILED JAN. 5, 1907.



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# UNITED STATES PATENT OFFICE.

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## ALCOHOL-LAMP.

No. 856,142.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed January 5, 1907. Serial No. 350,899.

*To all whom it may concern:*

Be it known that I, CHARLES HALSTEAD, a citizen of the United States, residing in the city, county, and State of New York, have invented a new and useful Alcohol Lamp, of which the following is a specification.

My invention consists of an alcohol lamp provided with means for relieving the burner head and font thereof of vapor or gas so as to prevent explosion or bursting of the same either during burning of the lamp or extinguishment of the same.

Figure 1 represents a vertical section of an alcohol lamp embodying my invention. Fig. 2 represents a horizontal section thereof on line  $x-x$  Fig. 1. Fig. 3 represents a top view of the burner of the lamp.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings: A designates the font of an alcohol (or other vapor lamp), and B designates the wick tube thereof. On the upper end of said tube is the horizontally extending flange C, and in the side of said tube below said flange are the openings D, at which the alcohol is burned, it being noticed that a wick E preferably of asbestos extends from the font A into the tube B to or toward the top thereof so as to supply the burner with alcohol at said openings D.

The wick tube is supported at its lower end on the lugs or projections F, which extends inwardly from the sleeve G which depends from the neck of the font and is suitably connected therewith. Interposed between said sleeve and the wick tube is the shutter H which is of tubular form and adapted to be raised and lowered, the means employed in the present case being the rack J on the outer side of said shutter and the pinion K, which is mounted on the portion of the sleeve G above the neck of the font and meshes with said rack, whereby by rotating the pinion, motion may be imparted to the rack and consequently to the shutter so that the openings D may be covered and uncovered.

The corrugations of the wick tube together with the sleeve on the outside and the wick on the inside form vertical passages of ducts L L' both on the inside and outside of the wick, as seen clearly in Fig. 2. The inner passages L' exist because of the re-entrant walls of the corrugation and the fact that the circular wick does not fill the outturned parts of the corrugations. Thus the hot vapor of the reservoir escapes from the same. Both

courses of the vapor burn at the openings D, but when the shutter is closed, the vapor will rise through the passages L and escape through the vents M in the flange C which latter forms a cap as the top closure of the wick tube and prevents the wick from passing upward beyond said flange. The exterior of the upper end of the sleeve is screw threaded for the engagement of a suitable cap, so as to prevent evaporation of the alcohol or fluid when the lamp is not in use.

The operation is as follows:—The font is supplied with alcohol, and the shutter lowered when the vapor may be ignited at the openings D, producing a flame usual in such cases. The gas or vapor generated in the font may enter the passages L, and so be directed from the font to the openings where it will be consumed, thus preventing explosion in the font and bursting of the same. When it is desired to extinguish the flame, the shutter H is raised, when the openings D are covered, the effect of which is evident. The vapor or gas that may now remain in the font owing to the resultant heated condition of the parts of the lamp, such vapor or gas, although the flame is extinguished, will be directed through the passages L into the vents M, and so escape from the latter into the atmosphere, thus relieving the font as is evident, it being noticed that the shutter H, while abutting against the flange C, and completely closing the openings D, do not cover and close the vents M, which latter remain in communication with the passages or ducts L and consequently with the interior of the font.

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

1. In an alcohol or similar lamp, a wick tube formed upon its interior with re-entrant walls, there being passages upon the inside and the outside of said tube, the same being in communication with the interior of the font and the place of consumption of the alcohol on said tube.

2. In an alcohol or similar lamp, a wick tube formed upon its interior with re-entrant walls, there being passages upon the inside and the outside of said tube, the same being in communication with the interior of the font and the place of consumption of the alcohol on said tube, and a cap for said tube having a vent therein.

3. In an alcohol or similar lamp, a wick



5 tube formed upon its interior with re-entrant walls, there being passages upon the inside and the outside of said tube, the same being in communication with the interior of the font and the place of consumption of the alcohol on said tube, and a cap for said tube having a vent therein, said tube having a lateral opening beneath said cap.

10 4. In an alcohol or similar lamp, a wick tube formed upon its interior with re-entrant walls, there being passages upon the inside and outside of said tube, the same being in communication with the interior of the font and the place of consumption of the alcohol on said tube, said tube having a lateral opening, a vent on the top closure of said tube in communication with said passages and the atmosphere, and a shutter removably fitted on said tube and adapted to cover said opening.

20 5. In an alcohol or similar lamp, a font, a corrugated wick tube formed with re-entrant walls, a sleeve adapted to be supported on said font and enter the same, and a movable shutter interposed between said wick tube and sleeve, there being passages inside and outside of said tube in communication with the font, a relative passage adapted to communicate with the atmosphere when the lamp is extinguished, and an opening at the place of consumption of the alcohol, said shutter being adapted to close said opening.

30 6. In an alcohol or similar lamp, a font, a corrugated wick tube formed with re-entrant

walls, a sleeve adapted to be supported on said font and enter the same, and a movable shutter interposed between said wick tube and sleeve, there being passages inside and outside of said tube in communication with the font, and an opening at the place of consumption of the alcohol, said shutter being adapted to close said opening, a relative passage being adapted to communicate with the atmosphere when the lamp is extinguished, said tube having an auxiliary vent which is in communication with the font by said passage.

7. In an alcohol or similar lamp, a wick tube formed with re-entrant walls, and a shutter, there being an auxiliary passage formed by said wick tube and shutter, the same being in communication with and leading to the place of consumption of the alcohol on said tube.

8. In an alcohol or similar lamp, a wick tube formed with re-entrant walls and, with the wick and shutter, forming exterior and interior vertical passages with openings communicating with the former at the place of consumption of the alcohol on said tube, a shutter, and a sleeve having means for supporting said wick tube, whereby the said tube and shutter are bodily removable with the sleeve.

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