

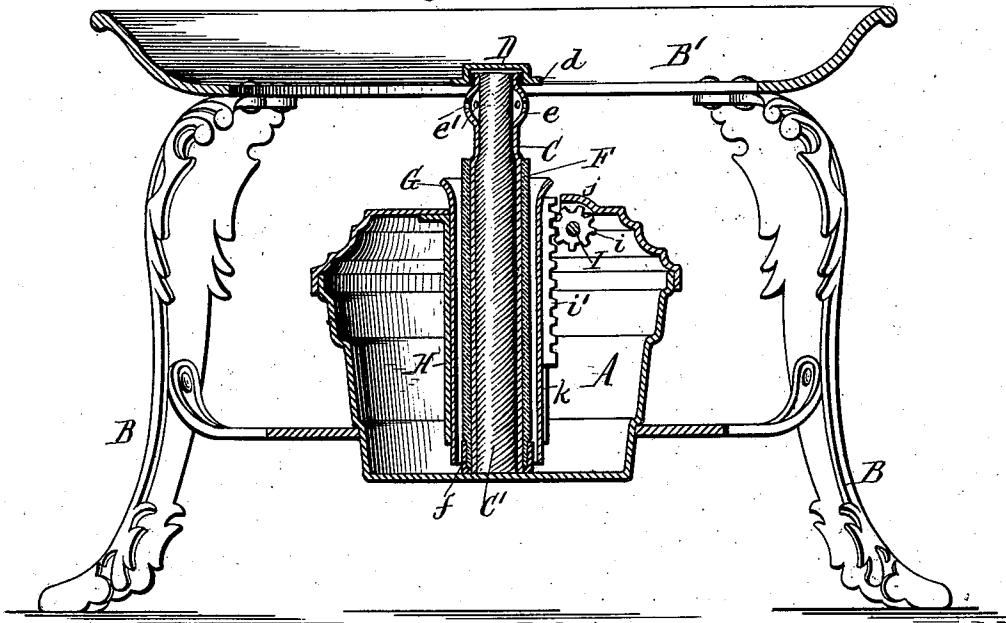
(No Model.)

W. J. D. MAST.  
VAPOR BURNER.

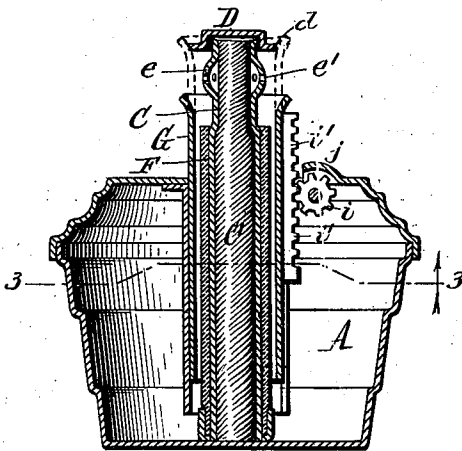
No. 506,243.

Patented Oct. 10, 1893.

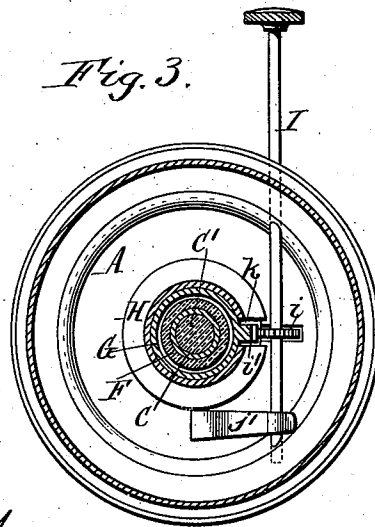
*Fig. 1.*



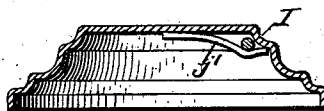
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses:

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By Wilhelm Hornum  
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# UNITED STATES PATENT OFFICE.

WILLIAM J. D. MAST, OF BUFFALO, NEW YORK, ASSIGNOR TO THE JOHN C. JEWETT MANUFACTURING COMPANY, OF SAME PLACE.

## VAPOR-BURNER.

**SPECIFICATION** forming part of Letters Patent No. 506,243, dated October 10, 1893.

Application filed June 23, 1893. Serial No. 478,558. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. D. MAST, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Vapor-Burners, of which the following is a specification.

This invention relates to a vapor burner for alcohol or similar lamps, and more particularly to burners of this kind which are provided with an auxiliary wick for starting the vaporization of the alcohol or other inflammable fluid, and a device for extinguishing the flame of the auxiliary wick.

The principal object of my invention is to so construct the burner that either the flame of the auxiliary wick alone or the flames of both the main and the auxiliary wick may be readily extinguished without the use of a separate cap or similar device.

My invention has the further object to improve the burner in several details of construction.

In the accompanying drawings:—Figure 1 is a sectional elevation of an alcohol lamp containing my improvements, showing the extinguisher in its lowered position. Fig. 2 is a similar view of the burner and the alcohol pot or receptacle, showing the extinguisher raised to the position in which it extinguishes the flame of the auxiliary wick. Fig. 3 is a horizontal section in line 3—3, Fig. 2. Fig. 4 is a vertical section of the upper part of the alcohol pot showing the spring for holding the operating shaft of the extinguisher against turning.

Like letters of reference refer to like parts in the several figures.

A represents the pot or receptacle which contains the alcohol or other inflammable fluid and which may be supported on a suitable stand having legs B and a ring B' arranged above the lamp, upon which the dish or other vessel to be heated is placed.

C is the main wick tube arranged centrally in the alcohol pot and extending through an opening in the top of the pot, and C' is the wick arranged in said tube. This wick tube is preferably cylindrical and open at its lower end to permit the alcohol to reach the wick, while its upper end is closed by an imperforate

cap D, which is preferably held on the adjacent flaring end of the wick tube, simply by frictional contact, so that it may be easily detached, if desired. This cap is formed at its lower end with an outwardly extending annular rim or flange d. The main wick tube is provided immediately below the cap D with a hollow bulge or enlargement e forming a vaporizing chamber, and in this enlargement are arranged a number of perforations e' through which the vapor issues.

F is the auxiliary wick which surrounds the main wick tube C and terminates with its upper end a short distance below the perforations of the same.

f is a collar or ferrule applied to the lower end of the auxiliary wick for holding the same in snug contact with the main wick tube so as to prevent accidental displacement thereof.

G represents the extinguisher which consists of a cylindrical tube surrounding the auxiliary wick and capable of being lowered below the upper end of the latter or raised above the same, and the perforations in the upper portion of the main wick tube, so as to extinguish the lamp. This extinguishing tube is guided in an upright tube or sleeve H arranged within the alcohol pot and depending from the top thereof, as shown in Figs. 1 and 2. This guide-sleeve is open at its lower end and terminates above the bottom of the pot to permit an unobstructed supply of alcohol to the main and auxiliary wicks.

I is a horizontal shaft whereby the extinguishing tube is raised and lowered. This shaft turns in openings or bearings formed in the top of the alcohol pot and is provided with a gear pinion i which meshes with an upright gear rack i' secured to the adjacent outer side of the extinguishing tube. The actuating shaft I is provided at its outer end with a knob or button for turning it, and it is held from longitudinal displacement by a raised hood j formed on the upper side of the top of the alcohol pot and inclosing the gear pinion i. This hood is preferably formed by indenting the top on its under side.

j' is a flat spring secured to the under side of the top of the alcohol pot and bearing with its free end against the actuating shaft H. This spring, by its frictional contact with the

shaft, retards the rotation of the same and thereby holds the extinguisher in any position in which it is placed.

The gear rack *i* projects through a vertical slot *k* formed in the adjacent side of the guide sleeve *H*, as shown in Fig. 3. This gear rack, being held against lateral movement by the edges of the slot *k*, holds the extinguishing tube from turning, thereby keeping the rack in proper engagement with the pinion of the actuating shaft.

In using the lamp, the extinguishing tube is lowered by means of its operating shaft to the position shown in Fig. 1, in which position its upper end is below the upper end of the auxiliary wick. The latter is then lighted, whereby the perforated enlargement of the main wick tube is heated and the alcohol or other fluid is vaporized. The vapor issuing from the perforations of the main wick tube is next ignited, after which the flame of the auxiliary wick may be extinguished as the heat produced by the burning vapor is sufficient to continue the vaporization of the fluid. The flame of the auxiliary wick is extinguished by raising the extinguishing tube sufficiently to inclose the upper end of said wick, as shown by full lines in Fig. 2. When it is desired to extinguish the main flame, the extinguishing tube is raised until its upper end comes in contact with and is closed by the flange of the cap *D*, as shown by dotted lines in Fig. 2, whereby the supply of air to the lamp is cut off. The upper end of the extinguishing tube is preferably flared and made of the proper diameter to receive the flange of said cap. Either the auxiliary flame or both the latter and the main flame may thus be readily extinguished by simply turning the operating shaft in the proper direction to raise the extinguishing tube, no separate extinguishing cap or similar detached part which is liable to become lost, being employed.

If desired, the extinguishing tube may also be employed for regulating the size of the flame by causing the tube to inclose a greater or less portion of the flame.

I claim as my invention—

1. The combination with the central wick tube provided at its upper end with a flanged imperforate cap, and below the flange of said cap with a number of perforations for the escape of the vapor, of an auxiliary wick surrounding the main wick tube below said perforations, and a vertically movable extinguishing tube surrounding the auxiliary wick and adapted to bear with its upper end against the flange of the imperforate cap, substantially as set forth.

2. The combination with the central wick tube having vapor escape openings, of the auxiliary wick surrounding said wick tube below said openings, a movable extinguishing tube surrounding said wick tube and auxiliary wick and having a gear rack, and an operating shaft having a pinion engaging with said rack, substantially as set forth.

3. The combination with the central wick tube, having vapor escape openings, of the auxiliary wick surrounding said wick tube below said openings, a movable extinguishing tube surrounding said wick tube and auxiliary wick, and having a gear rack, a tubular guide for said extinguishing tube having an upright slot through which said rack projects, and an operating shaft having a pinion engaging with said gear rack, substantially as set forth.

4. The combination with the central wick tube, having vapor escape openings, of the auxiliary wick surrounding said wick tube below said openings, a movable extinguishing tube surrounding said wick tube and auxiliary wick and having a gear rack, an operating shaft having a pinion engaging with said rack, and a spring bearing against said shaft, for holding the same from turning, substantially as set forth.

Witness my hand this 20th day of June, 1893.

WILLIAM J. D. MAST.

Witnesses:

JNO. J. BONNER,  
F. C. GEYER.