

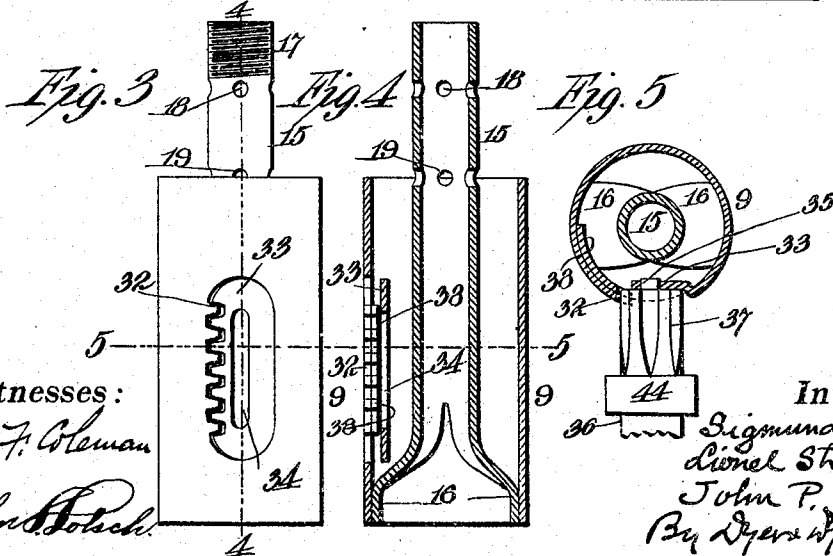
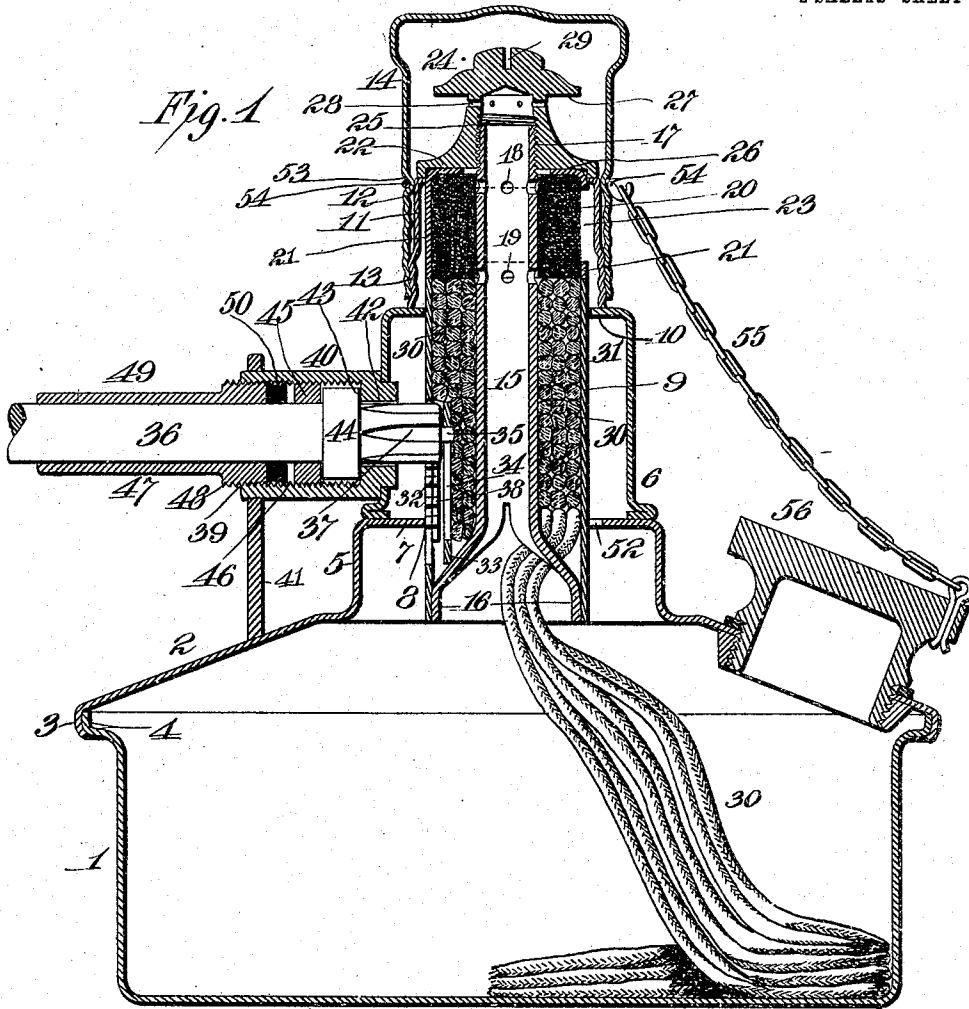
S. STERNAU, L. STRASSBURGER & J. P. STEPPE.
ALCOHOL LAMP.

APPLICATION FILED SEPT. 28, 1904.

937,113.

Patented Oct. 19, 1909.

2 SHEETS—SHEET 1.



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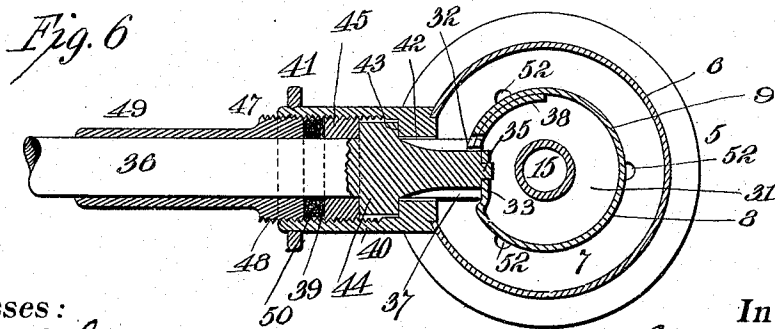
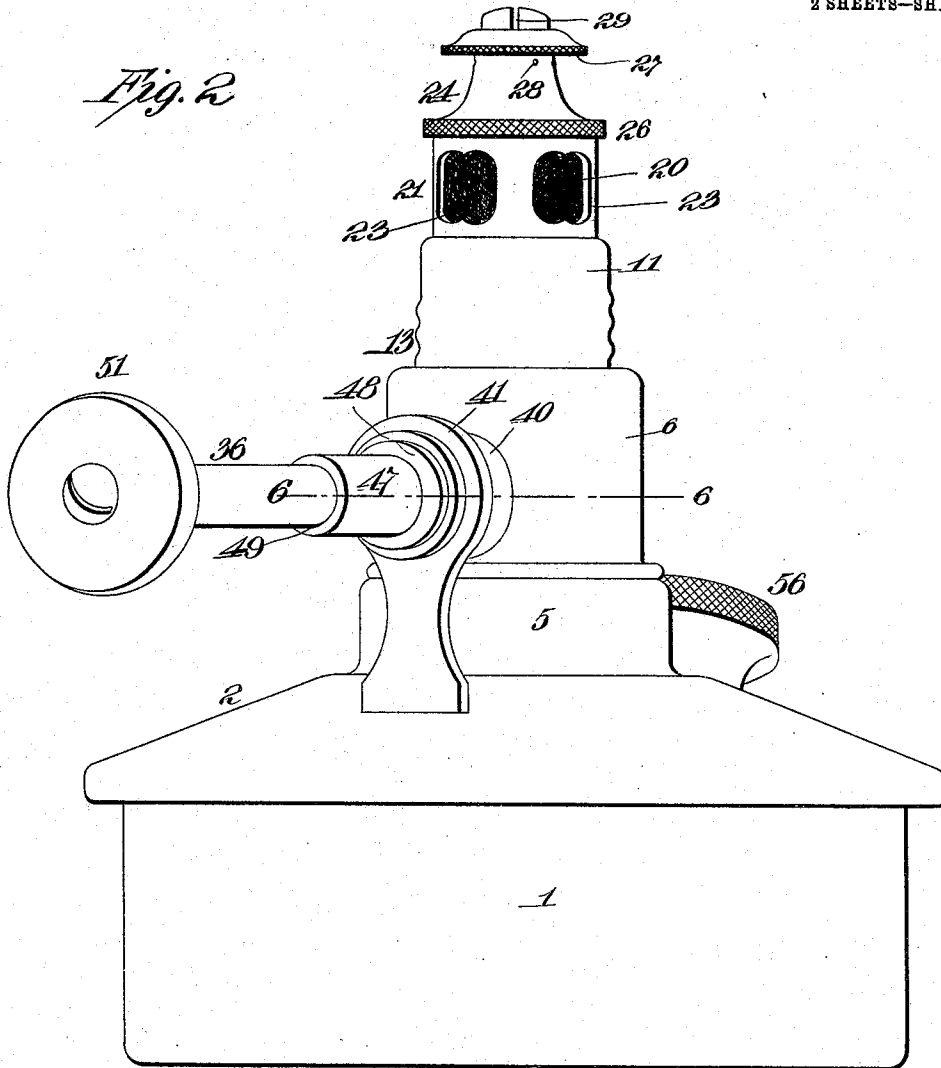
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

SIGMUND STERNAU, LIONEL STRASSBURGER, AND JOHN P. STEPPE, OF NEW YORK,
N. Y., ASSIGNORS TO S. STERNAU & COMPANY, OF NEW YORK, N. Y., A COPARTNER-
SHIP.

ALCOHOL-LAMP.

937,113.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed September 28, 1904. Serial No. 226,338.

To all whom it may concern:

Be it known that we, SIGMUND STERNAU and LIONEL STRASSBURGER, both citizens of the United States, residing in the borough of Manhattan, city, county, and State of New York, and JOHN P. STEPPE, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Alcohol-Lamps, of which the following is a specification.

This invention relates to improvements in alcohol lamps of the type disclosed in our Patent No. 696,507, dated April 1st, 1902.

The objects we have in view are to produce a lamp in which the asbestos wick will be readily removable. We find that where asbestos is used on the wick in connection with the regular cotton wick the asbestos in time will become crystallized and must be removed and another wick substituted.

Another object is to improve the arrangement of the elevating means so as to prevent the alcohol or vapor from burning out through the pinion opening.

A further object is to increase the size of the flame and the efficiency and appearance of the lamp.

We attain these objects by the mechanism illustrated in the accompanying drawings, in which,

Figure 1 is a vertical sectional view of the lamp showing the burner cap in place, and the burner lowered. Fig. 2 is a side elevation of the same, showing the cap removed and the burner elevated. Fig. 3 is a side elevation of the burner tube and inside tube showing the asbestos wick and cap removed. Fig. 4 is a vertical sectional view of the same taken on the lines 4-4 of Fig. 3. Fig. 5 is a horizontal sectional view taken on the lines 5-5 of Fig. 3, but with a fragment of the elevating shaft and pinion added, for the purpose of showing the relative position of the pinion and rack. Fig. 6 is a sectional view taken on the line 6-6 of Fig. 2.

In all of the several views like parts are designated by the same numerals of reference.

In carrying out our invention, we provide a body 1 of sheet metal which constitutes the font for containing the alcohol. To this is attached the top 2 also of sheet metal and

provided with a flange 3, which engages 55 with a flange 4 formed on the body, and by means of solder, if necessary, a tight and permanent joint is made. The cover 2 is provided with an integral neck 5 to which a stem 6 is soldered. The neck 5 is provided with an inturned flange 7 which forms 60 a circular opening 8, see Fig. 6, which opening serves as a guide for the wick tube 9. The stem 6 is also provided with an inturned flange 10 which forms a second guide 65 for the wick tube. To the stem 6 is soldered an extension 11 provided with an inturned flange 12 which also serves as a guide for the wick tube and in connection with the latter a closure for the top of the stem. This ex- 70 tension 11 is provided with threads 13 for securing the burner cap 14 constituting an extinguishing sleeve. The stem 6 and extension 11 constitute a regulating tube.

The wick tube 9 includes a central tubular 75 stem 15 which constitutes a vapor tube. This stem is split at its lower extremity and the two portions 16 separated and soldered to the inside of the tube 9 so that the stem 15 will be supported within the center of the 80 tube 9 and extend some distance above its upper edge. The stem 15 is open at both ends and is provided with threads 17, at the upper portion and holes 18, 19, the holes 18 being adjacent to the screw threads, while 85 the holes 19 are about on a level with the upper edge of the tube 9.

The asbestos wick 20 is preferably in the form of a section of hollow wicking. It closely engages with the stem 15 and is confined in place by a cylindrical casing 21 90 having an upper flange 22 with a central opening therein through which the stem 15 passes. The casing 21 is of the same diameter as the tube 9, and forms a continuation 95 thereof and is provided with numerous large openings 23 so that as much of the asbestos wick may be disclosed above the regulating tube as possible. The wick is closely confined within the casing 21 so that the latter 100 may be removed from the stem 15 and carry the wick with it.

The wick cap 24 is provided with a central threaded opening 25 which engages with the threads 17. This cap is provided with a de- 105 pending flange 26 which when the cap is screwed down upon the stem 15 will engage with the top of the casing 21 and force the

latter tightly against the top of the wick tube 9. The cap 24 is provided with a second flange 27 and immediately below the flange its stem has several small holes 28 which communicate with the central passage 25 and constitute vapor vents. The peripheries of the flanges 26 and 27 are milled as shown so that the cap may be screwed or unscrewed with the fingers, and the upper portion of the cap provided with a nick 29 so that a screw driver may be applied if necessary. The cotton wicks 30 extend through the wick tube 9 down into the font and their upper ends are coiled within the wick tube as shown at 31 so that they will be in close contact with the asbestos wick 20 when the casing 21 is in place.

The wick tube 9 as already explained rests within the regulating tube and engages within the openings formed within the flanges 7, 10 and 12. When lowered to the position shown in Fig. 1 the flange 26 of the cap 24 will rest upon the flange 12 and form a closure therewith to prevent evaporation of alcohol.

In order to elevate the wick tube and expose the asbestos wick above the top of the regulating tube, a novel form of rack and pinion mechanism is employed. A rack 32 is formed upon one side of the stem 9, by stamping one of the walls of the tube inward with a suitable die so as to cut the metal to form the teeth of the rack and force a leaf or flap 33 inward. This leaf or flap is provided with a vertical slot 34, which engages with a small projection 35 formed on the stem 36 which carries the teeth 37, which constitutes a pinion. In order to give additional width to the rack teeth 32 a plate 38 is soldered within the wick tube 9, and has teeth formed upon one edge which register with the teeth 32 and form a part of the same. The extension 35 engaging within the slot 9 will always keep the rack in engagement with the pinion. Furthermore, it accurately limits the extent of vertical movement of the wick tube 9 and prevents twisting of the latter as will be evident.

The stem 36 passes through a threaded opening 39 in a tube 40. This tube is soldered to the stem 6 and is supported by a standard 41 from the top 2 of the lamp. Connecting the central opening 39 with the inside of the stem 6 is a smaller opening 42 which forms a shoulder 43 where it connects with the opening 39. The stem 36 is provided with a fixed sleeve 44, forming a shoulder, and which engages with the shoulder 43 and holds the stem 36 in proper position, yet permits it to readily turn. A threaded washer 45 surrounds the stem 36 and engages with the threads 39. This washer is screwed inward until it makes light contact with the sleeve 44 and permits the latter to turn between it and the shoulder 43 and yet pre-

vent longitudinal movement of the stem. In order to turn the washer 45 it is provided with a notch 46 for engagement with a suitable tool. Beyond the washer 45 and surrounding the stem 36 is a gland 47, having a threaded portion 48 and an extension 49, the latter serving as a handle for adjusting the gland and also as a bearing for the shaft 36. Between the gland 37 and the washer 45 is a suitable packing 50, constituting a stuffing box. The shaft 36 is provided with an adjusting wheel 51 by means of which it may be rotated.

The flange 7 of the neck 5 is provided with notches 52 to allow alcohol to flow into the adjusting tube and saturate the wick by reversing or shaking the lamp, before igniting the wick. These notches also permit alcohol which may enter the adjusting tube to drain back into the font.

The burner cap 14 is provided with a groove 53 within which is mounted a ring 54 to which is attached a chain 55. The other extremity of the chain is attached to the filling cap 56, so that only one chain is required to secure the two caps, and no attachment has to be made to the body. But one of the caps is ordinarily removed at the same time, therefore there is no chance of either becoming lost.

In order to remove the asbestos wick, the wick cap 24 is first unscrewed. The casing 21 may then be lifted out and the wick removed and a fresh one substituted. If desired, wicks may be supplied already placed within extra casings.

In operation the lamp may be first shaken or momentarily reversed, allowing alcohol to enter the adjusting tube through the notches 52, and also saturate the inside of both wicks through the holes 18, 19. If the burner tube is now elevated, and the wick exposed, the latter may be ignited and the flame will be diverged by means of the flanges 26, and 27, and the wick cap 24 will become heated. The tube 15 improves the flame, and causes it to be of increased size and efficiency. Upon the wick tube being lowered, until the flange 26 rests upon the top of the extension 11, the direct flame from the wick will be reduced and controlled and finally extinguished. Jets of alcohol vapor, however, will continue to issue through the holes 28, (entering the tube 15 from the bottom and also through the holes 18 and 19), and will be ignited before the main flame is extinguished. These jets will produce a gentle flame which is sufficient for many purposes and will continue to burn until blown out or the burner cap or extinguishing sleeve 14 is applied.

Before claiming our invention, we desire it understood that the terms "cotton" and "asbestos" used in describing the two wicks used, are only the preferred materials and

that other materials may be employed as necessary or desirable.

Having now described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In an alcohol lamp, the combination with a wick tube, of a central vapor tube therein, and a separable asbestos wick surrounding the vapor tube, the said tube having holes or vents adjacent to the asbestos wick, substantially as set forth.

2. In an alcohol lamp, the combination with a wick tube, of a vapor tube therein, an asbestos wick surrounding the vapor tube, a casing surrounding the asbestos wick and in engagement with the wick tube and a removable cap secured to the vapor tube, and forcing the casing in contact with the tube, substantially as set forth.

3. In an alcohol lamp, the combination with a font and a regulating tube thereon, of a movable wick tube therein, the said wick tube having a removable extension containing an asbestos wick and a removable cap, the said cap being of larger diameter than the tube, substantially as set forth.

4. In an alcohol lamp, the combination with a wick tube, of a vapor tube therein, and a wick cap secured to the vapor tube, the said wick cap having gas vents communicating with the vapor tube, substantially as set forth.

5. In an alcohol lamp, the combination with a wick tube, of a vapor tube therein secured to one extremity of the wick tube and projecting beyond the other extremity, substantially as set forth.

6. In an alcohol lamp, the combination with a wick tube, of a vapor tube therein, the said vapor tube having a bifurcated end secured within the wick tube adjacent to one end thereof, substantially as set forth.

7. In an alcohol lamp, a raising pinion and a wick tube which is provided with a rack and a slot adjacent thereto which engages with the stem of the raising pinion, substantially as set forth.

8. In an alcohol lamp, a raising pinion, and a rack formed integrally with the walls of the wick tube, and having a flap with a slot adjacent thereto which engages with the stem of the raising pinion, substantially as set forth.

9. An alcohol lamp, wherein the wick tube has a portion stamped inwardly to form an integral rack, substantially as set forth.

10. In an alcohol lamp, a raising pinion, and a wick tube which has a portion of its walls stamped inwardly to form a flap, the said flap having a slot which engages with the stem of the raising pinion, substantially as set forth.

11. An alcohol lamp, wherein the wick tube is provided with an integral rack formed by cutting its walls, the face of the

said rack being widened by a backing piece, substantially as set forth.

12. In an alcohol lamp, the combination with a wick tube, having a rack and a slot therein, of a shaft carrying a pinion, and a projection, the said pinion engaging with the rack and the projection working in the slot, substantially as set forth.

13. An alcohol lamp, wherein the wick tube is provided with a rack and a vertical slot adjacent thereto for engaging with a fixed projection, for limiting the vertical movement of the tube, substantially as set forth.

14. In an alcohol lamp, the combination with a font, of a bearing thereon, the said bearing having an enlarged portion, and a smaller portion communicating therewith and forming a shoulder, the said enlarged portion being screw-threaded, a shaft within the bearing, and having a portion engaging with the shoulder, and a screw washer surrounding the shaft and engaging with the threaded portion of the bearing, substantially as set forth.

15. In an alcohol lamp, the combination with a font, of a bearing thereon, the said bearing having an enlarged portion, and a smaller portion communicating therewith and forming a shoulder, the said enlarged portion being screw-threaded, a shaft within the bearing, and having a portion engaging with the shoulder, a screw washer surrounding the shaft and engaging with the threaded portion of the bearing, and a threaded gland surrounding the shaft and engaging with the washer, substantially as set forth.

16. In an alcohol lamp, the combination with a font, of a bearing thereon, the said bearing having an enlarged portion and a smaller portion communicating therewith and forming a shoulder, the said enlarged portion being screw-threaded, a shaft within the bearing and having a portion engaging with the shoulder, a screw washer surrounding the shaft and engaging with the threaded portion of the bearing, a threaded gland surrounding the shaft and engaging with the washer, and packing between the gland and washer, substantially as set forth.

17. In an alcohol lamp, the combination with a font and an adjusting tube thereon and a bearing, of a shaft within the bearing, and a pinion within the adjusting tube, a projection on the shaft, a wick tube within the adjusting tube and having a rack and a slot adjacent thereto, the said rack engaging with the pinion, and the pinion engaging with the slot, substantially as set forth.

18. In an alcohol lamp, the combination with a wick tube, of a vapor tube therein secured to the wick tube and projecting beyond the upper extremity thereof, substantially as set forth.

19. An alcohol lamp, wherein the wick tube is provided with a vapor tube having an outlet adjacent to the upper extremity of the wick tube, substantially as set forth.

20. An alcohol lamp, wherein the wick tube is provided with a vapor tube which projects beyond the upper extremity of the wick tube.

This specification signed and witnessed this 24 day of September 1904.

SIGMUND STERNAU.

LIONEL STRASSBURGER.

JNO. P. STEPPE.

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