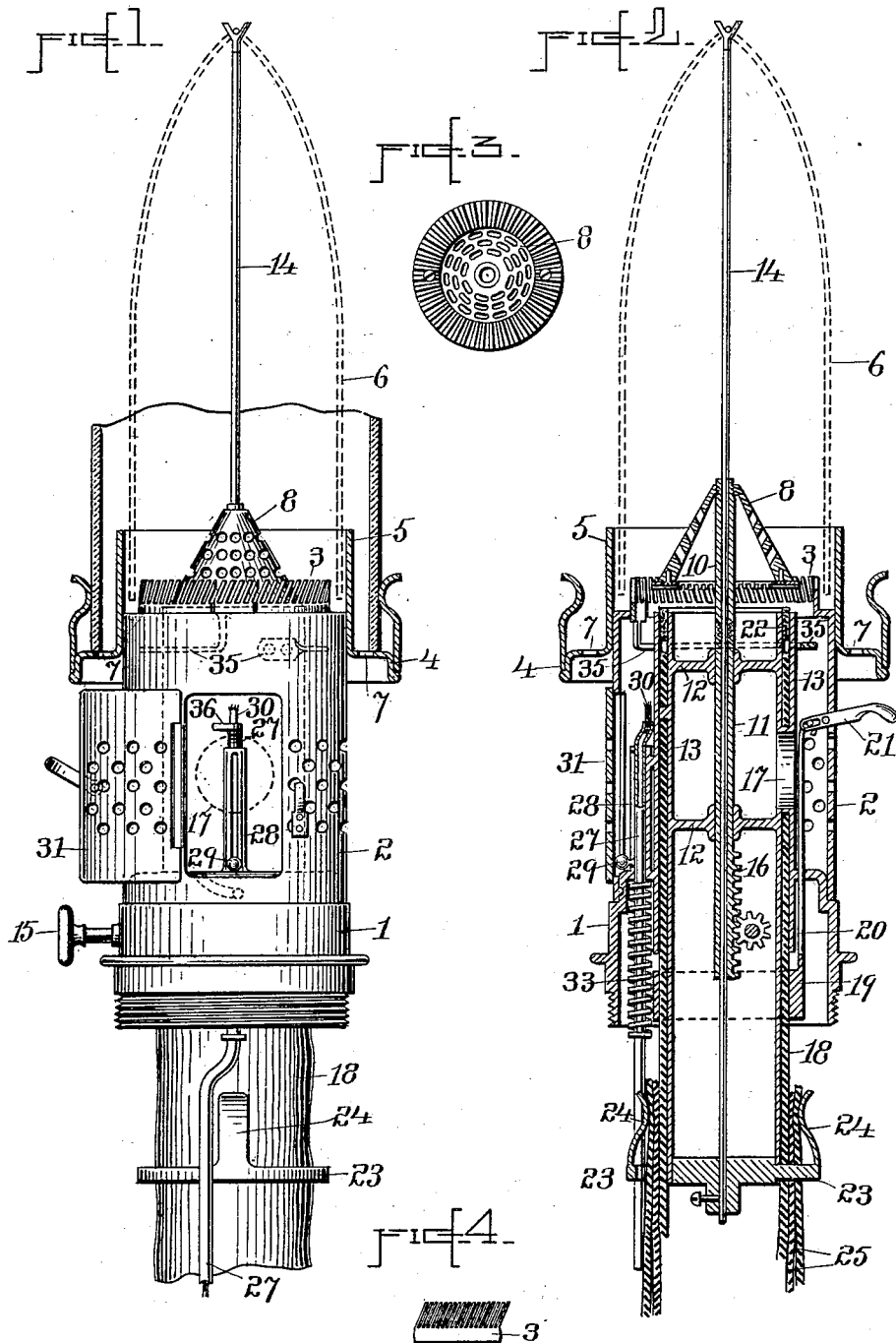


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S. M. MEYER.
VAPOR INCANDESCENT LAMP BURNER.
APPLICATION FILED APR. 30, 1902.

NO MODEL.



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UNITED STATES PATENT OFFICE.

SVEND MARTIN MEYER, OF BROOKLYN, NEW YORK.

VAPOR INCANDESCENT-LAMP BURNER.

SPECIFICATION forming part of Letters Patent No. 725,740, dated April 21, 1903.

Application filed April 30, 1902. Serial No. 105,300. (No model.)

To all whom it may concern:

Be it known that I, SVEND MARTIN MEYER, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Vapor Incandescent-Lamp Burner, of which the following is a specification.

My invention relates to incandescent-lamp burners of that class in which the oil supplied from the font by capillary action is vaporized at the burner-tip and subsequently mixed with air and burned to produce a flame of high temperature suitable for use with incandescent mantles.

My invention has reference more particularly to burners of the class known as "central-draft" burners, although some of its features are applicable also to other kinds of burners, as will be apparent from the following description.

The object of my invention is to produce a vapor incandescent-lamp burner which shall be reliable in operation, capable of easy regulation, and which may be readily lighted without the risk of damaging the mantle.

A further object of my invention is to provide a ready means for extinguishing the lamp and also for giving to the vapor-generating portion thereof a self-regulating character which will regulate the vapor-producing action and prevent an oversupply of vapor from the wick-tube or tip at which the vapor is generated by the heating action of the gasifier.

My invention consists also in other details of construction and combination of parts, as hereinafter more particularly described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a lamp-burner embodying my invention, and Fig. 2 is a vertical central section through the same. Fig. 3 is a view of the gasifier and mixer looking from beneath. Fig. 4 shows a portion of the air-distributor which encircles the lower edge of the mixer and vaporizer.

1 indicates the base of the burner, constructed in the usual way to permit it to be detachably secured to the mouth or opening of an oil-font, while 2 indicates the sheet-metal shell or casing, provided with openings for the inlet of air to the burner and rising

from said base, as shown. At the top thereof is provided an air-distributor 3, located within the detachable chimney-supporting ring 4, which preferably has a cylindrical inner portion 5 rising considerably above the burner, so as to encircle and protect the mantle 6, while aiding also to direct the air admitted around the base of the lamp-chimney through the openings 7 and cause it to pass along the outside of the lower portion of the mantle and to the air-distributor 3. The distributor 3 serves, as usual, to provide a uniform or equable supply of air to the burner. Instead of making the same of perforated sheet metal I prefer to construct it in the manner shown by forming a number of fine slits extending downwardly from the edge of said distributor, as clearly shown, and to secure a still better distribution I give said slits an inclination from the perpendicular, as shown. In Figs. 1 and 2 the size of the slits is shown exaggerated and their number as smaller than would be preferable in practice. They should be as many in number as practicable and each of very narrow width, so as to produce, in effect, a brush-like structure the bristles of which stand upright and form a narrow line of bristles separated by very fine spaces. A nearer approach to the actual number and width of the slits is shown in Fig. 4. The sheet-metal ring of which said air-distributor is formed may constitute a continuation of the shell 2 or may be supported and suitably secured to an inwardly-extending shoulder at the upper end of said tube. A section of said distributor, or, if desired, the whole of the same, is made capable of being lifted away from immediate proximity to the tip of the wick-tube for a purpose to be presently described.

8 is the gasifier or mixer, supported centrally on the burner and acting at its lower edge as a vaporizer to vaporize the oil drawn by capillary action up to the wick in the end of the wick-tube. Said vaporizer becomes highly heated by the burning gas, and the heat being communicated to the lower edge thereof, which is in immediate proximity to the end of the wick-surface, produces the petroleum-vapor, which, being mixed with air, is burned after the manner of a gas-flame. The perforations in the mixer or gasifier 8

serve to convey air brought up centrally through the wick-tube to the vapor circulating from the end of the wick around the lower edge of the gasifier or vaporizer.

- 5 The gasifier 8 may be made of lava composition, preferably, and the plate at the lower edge thereof may be made of metal secured thereto in any suitable manner. The plate forming the lower edge is made irregular or
10 corrugated, as shown in the view Fig. 3, to form a number of passages or openings through which the vapors may pass, while at the same time the portions between said openings or grooves will come down close to the
15 wick and will serve the purpose of generating the vapors by their heat and will at the same time prevent the flame from forming at the wick itself.

- In order to prevent the overproduction of
20 vapor by the gasifier after it becomes heated and to secure a self-regulating action, I propose to so mount or construct it that by the differential heating effects of the flame upon the metal parts it will be automatically lifted
25 away from the wick with increase of the heat. For this purpose I mount the gasifier upon a stem or rod 10 of some material which has a large coefficient of expansion by heat and which may be fastened by a screw-joint or
30 otherwise to the stem 11, suitably supported on cross-bars 12 within the wick-tube 13. Cobalt may be used for this purpose.

- After the preliminary adjustment of the gasifier or vaporizer to start the lamp with
35 the proper kind of a flame it will be automatically lifted by the effects of the heat, so that its lower edge will move away from the wick, and thus prevent the same from furnishing an oversupply of vapor. The operation
40 is practically a regulation of the vapor-producing action of the vaporizer or gasifier.

- Passing centrally down through the burner is a rod 14, upon which the mantle may be supported. This rod 14 extends through rods
45 10 and 11 and may be securely fastened at the lower end of the wick-tube by means of a set-screw, as shown, or by other devices.

- The rod 11, which supports the gasifier, is mounted in the cross-arms 12, so as to be capable of vertical motion therein, and is adapted
50 to be adjusted up and down by means of the adjusting-handle 15, secured to a stem which rotates in bearings in the tube and carries a pinion engaging with a rack 16 upon
55 the rod 11, as shown more clearly in Fig. 2. By this means the gasifier and means for adjusting the same are a part of the burner construction and may be applied and fitted to any type of font or lamp-base.

- 60 The wick-tube 13 is secured to or may be a part of the base 1 in the usual or proper manner and is furnished with openings, one or more, as indicated at 17, to allow air to pass up through the center of the same to the inside of the burner-tip. The wick (indicated
65 at 18) may as to its lower portion be of cotton or other material, as usual in the art, hav-

ing good capillary action and capable of adjustment up and down in the wick-tube by means of the spring ring or clip 19, encircling
70 the wick and secured to the rod 20, which is capable of operation by means of the lever 21 or other device mounted on the shell 2, the whole forming a wick-lift for the capillary feed portion of said wick. The tip or upper
75 end of the wick exposed at the end of the wick-tube and which is subjected to high heat is made of a section or piece 22 of some porous, but non-combustible material set in the end of the tube and disconnected from the
80 capillary feed portion 18, as clearly shown in the drawings. The clip portion 22 may be made of fire-clay. The portion 18 when adjusted up into contact therewith by the lever
85 21 will feed oil thereto while the lamp is burning. By throwing the lever so as to lower the capillary portion 18 just out of contact with the tip portion 22 the supply of oil to the wick end 22 is shut off and the lamp becomes extinguished. On the lower end of the wick-tube
90 is a ring or frame 23, carrying a number of spring-fingers 24, adapted to hold supplemental wicks 25 in contact with the wick 18 and to aid thereby in drawing up the oil from the oil-font. The supplemental wicks 25 pass up
95 through openings in the frame 23, as shown at the left of Fig. 2.

The lighting attachment whereby the lamp may be lighted without disturbing the chimney or the mantle 6 is provided by mounting
100 a supplemental vertically-adjustable lighter 27 on the outside of the wick-tube or on any other suitable support. This lighter consists of a wick-tube guided in a projection or tube 28 and furnished with an operating-knob 29.
105 Within the tube 27 is a wick which leads from the oil-font and at its tip or burner portion is furnished with a piece 30 of rock-asbestos or other suitable material. I prefer to use rock-asbestos because of its non-combustible
110 character, although I might use other non-combustible material for this purpose. Rock-asbestos, moreover, has the advantage that its capillary capacity is comparatively limited, so that after being lighted at its tip
115 it will burn for a very short time and will then, through the exhaustion of the oil in its pores or capillaries, become automatically extinguished. After a time, however, it will absorb sufficient oil from the wick in tube 27
120 and will be capable of being lighted again. By this means I secure the following advantages: First, I avoid unnecessary consumption of oil; secondly, the tendency to flickering in mantle-lamps which would result from
125 the presence of a flame at the lighting-burner is avoided. I prefer to use asbestos rock for the tip because it has the peculiar quality just described of absorbing just sufficient oil to produce a flame for a very short time, sufficient, however, to light the lamp, while at
130 the same time it is free from the objections attaching to the use of plaster-of-paris, porcelain, or other refractory porous substance

which have a decided tendency to finally become clogged and lose their capacity for absorbing oil. The lighter 30 is accessible through the door 31 in the side of the tube 2.

- 5 A spring 33, applied, as shown, between a pin on the tube and the top plate or portion of the base 1, serves automatically to retract the lighter when it has performed its function of lighting the burner 22.
- 10 In order to prevent the lighter 30 from being extinguished when raised into the space between the air-mixer 3 and the end of the vapor-burner, I mount a section of air-distributor 3 immediately over the lighter 30, so
- 15 that it is capable of being lifted out of the way and allowing a free supply of air to the lighter-tip 30. For this purpose a section of said air-distributor may be secured to a spring 35, which is secured to the wick-tube and is
- 20 arranged in position to be engaged by a projection 36, extending laterally from the lighter-tip 27, when the same is raised by the knob 29 for the purpose of lighting the main burner. To light the lamp, the tip 30 is ignited by a
- 25 a match and is raised to position where the flame of the tip 30 will ignite the oil in the end section 22 of the main wick, oil having been supplied to the latter by properly manipulating the wick-lift 21 when it is desired
- 30 to start the lamp. After the burner 22 has been lighted the gasifier 8, which has been lifted by the knob 15, becomes heated and by said knob is then adjusted down until the flame is extinguished upon the tip 22, which there-
- 35 after acts to supply the vapor by reason of the heat of the ring 9. By the knob 15 the gasifier 8 is adjusted until the proper quality of flame is produced in the space above said gasifier. To extinguish the lamp, all that is
- 40 necessary is to operate the wick-lift 21 to cut off the supply of oil to the tip 22.

In place of rock-asbestos for the tip 30 I may use any desired material. The tip, however, should have a limited capillary capacity, so that it will immediately burn itself out, and thus automatically extinguish itself and finally becoming charged again with oil in the course of time ready for another use.

What I claim as my invention is—

- 50 1. In a vapor incandescent-lamp burner, the combination with the burner having a capillary oil-supply, of a vaporizer above the same and an expansible support for said vaporizer exposed to the heat of the burner so
- 55 as to automatically adjust the position of the vaporizer to the capillary supply-wick, as and for the purpose described.

2. In a vapor-generating lamp-burner, the combination of the wick-tube, the vaporizer
- 60 heated by the flame for producing a vapor, and a support for the vaporizer formed of some material having a high coefficient of expansion so as to automatically vary the rela-

tion of the vaporizer to the wick-tube and thereby regulate automatically the vaporizer 65 action.

3. In a vapor incandescent-lamp burner, a gasifier having a hollow adjustable support mounted within the wick-tube, and a mantle-supporting rod passing down through said
- 70 support.

4. In a lamp-burner, an air-distributor consisting of a sheet-metal ring whose upper edge is divided to form a brush-like structure between the bristles of which the air-supply
- 75 passes.

5. In a lamp-burner, an air-distributor consisting of a sheet-metal ring whose upper edge is divided into a number of bristle-like strips adapted to form a brush-like structure the
- 80 bristles of which are inclined, while the spaces between the bristles form passages for the air-supply.

6. In a lamp-burner, an oil-lighter having a lighting-tip composed of a material that has
- 85 a limited capillary capacity, whereby the lighter will automatically extinguish itself immediately after being lighted but will again recharge itself for another operation.

7. In a lamp-burner, the combination with
- 90 a wick-tube, of a supplemental wick-tube vertically adjustable in suitable guides upon the side of the main wick-tube, and means for adjusting the same up and down to bring the tip of the supplemental wick-tube into and
- 95 out of proximity to the main burner.

8. In a lamp-burner, the combination substantially as described with a vertically-adjustable lighter, of an air-distributor whose parts immediately over said lighter are also
- 100 capable of vertical adjustment, and means for lifting the same out of normal position by the action of the lighter when said lighter is raised to light the lamp.

9. In a vapor lamp-burner, a gasifier or
- 105 vaporizer made irregular on its portion in immediate proximity to the lamp-wick, as and for the purpose described.

10. In a lamp-burner, a gasifier or vaporizer mounted upon a rod vertically adjustable in guides within the wick-tube, and a
- 110 mantle-supporting rod passing vertically downward through said adjustable rod, as and for the purpose described.

11. The combination with a lamp-burner,
- 115 of a vertically-adjustable oil-lighter mounted on the wick-tube and having a tip of asbestos rock.

Signed at New York, in the county of New York and State of New York, this 28th day of

April, A. D. 1902.

SVEND MARTIN MEYER.

Witnesses:

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