Jan. 14, 1930. N. LAWNER 1,743,823

ELECTRIC VAPORIZER

Filed Feb. 19, 1929

Fig. 1,

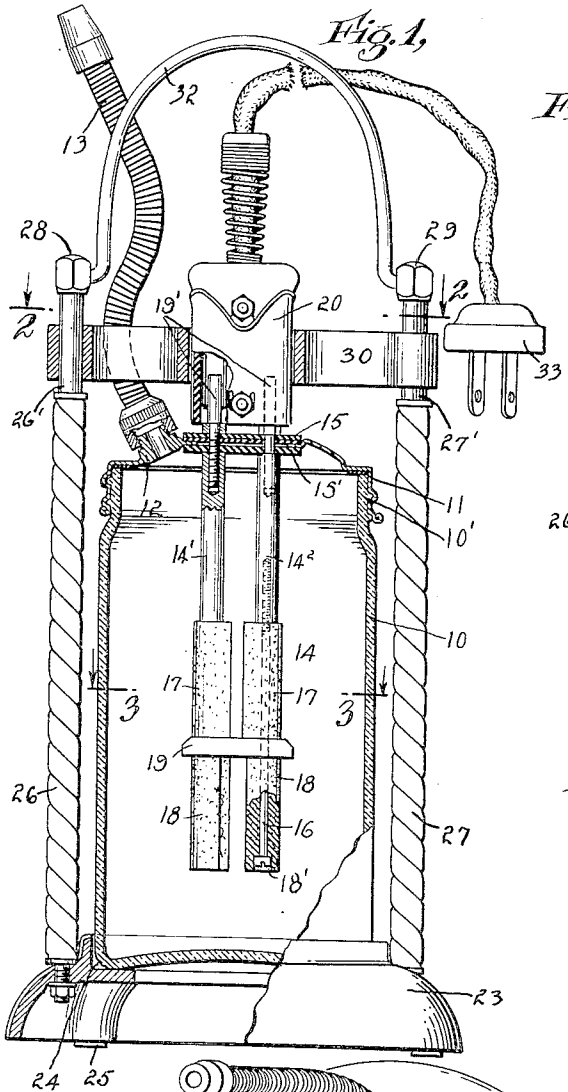


Fig. 4,

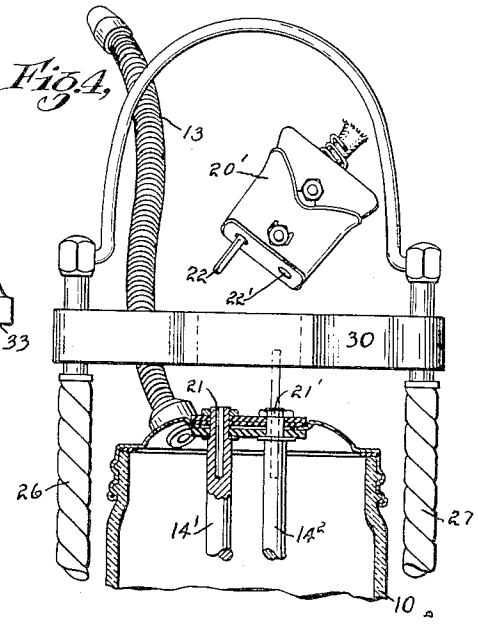


Fig. 3,

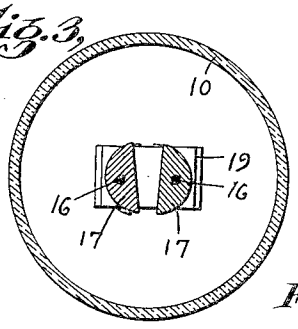


Fig. 5,

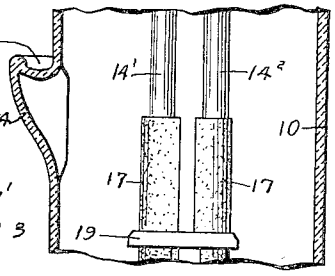
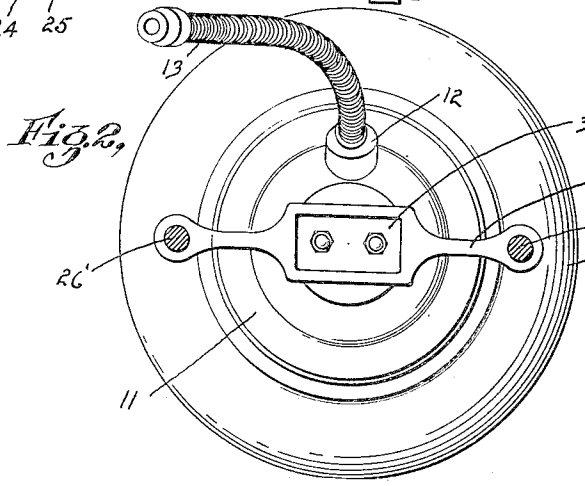


Fig. 2,



Nicholas Lawner INVENTOR.

BY Max D. Ordmann

ATTORNEYS.

Patented Jan. 14, 1930

1,743,823

UNITED STATES PATENT OFFICE

NICHOLAS LAWNER, OF BROOKLYN, NEW YORK, ASSIGNOR TO AMERICAN SUNDRIES CO., INC., OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK

ELECTRIC VAPORIZER

Application filed February 19, 1929. Serial No. 341,227.

This invention relates to an electric vaporizer of the type set forth in my Patent No. 1,625,034, April 19, 1927, and more particularly to improvements in the general construction thereof, for purposes hereinafter specified.

The main object of the present invention is to provide improved means for preventing the removal of the cover of the vaporizing receptacle while the current is on so as to avoid injury to the user.

A further object of my device, is to provide a novel heater construction which will permit of instantaneous automatic cut off when the vaporizing liquid gets below a predetermined level in the container.

Another object of my device is to provide means whereby it is possible to adapt my device to varying conditions of operating voltage, conductivity of liquid and the like and thereby making my device universal in its adaptability within practical limits.

Still another object of my device is to provide a device which is convenient to use and has a minimum number of parts liable to get out of order.

With these and other objects in view my invention consists in the novel construction, combination and arrangement of parts as will be hereinafter fully described and defined in the appended claims.

My invention is illustrated in the accompanying drawing in which similar reference characters denote corresponding parts and in which:

Fig. 1 is a side elevation of one form of my device,

Fig. 2 is a section along line 2—2 of Fig. 1 seen in the direction of the arrows,

Fig. 3 is a section along line 3—3 of Fig. 1 seen in the direction of the arrows,

Fig. 4 is a partial elevation showing a modified method of electrical connection of my electrodes.

Fig. 5 shows a modified receptacle.

In the drawing 10 denotes a receptacle of glass, or other suitable heat resisting material to contain water, benzoin or other liquid to be evaporated. The jar is formed with a threaded neck 10′ on which is screwed a threaded cover 11 of sheet metal or the like. This cover is provided with a nozzle 12 to which is adapted to be removably mounted by screw threaded means or the like, a rigid or flexible spout 13 which may be of the common coil spring type or any other suitable means.

Also suspended to said cover and insulatively mounted thereon is my electric heater 14 adapted to project downwardly in said receptacle and to be submerged in the liquid to be evaporated. In the present embodiment the same consists of two electrically conductive bar shaped members 14^1 and 14^2 suitably fixed to said cover and insulated therefrom by insulation discs 15 and 15′. Provided in the lower ends of said members are screw threaded apertures into which conductive bolts 16 are designed to screw. Mounted on each bolt 16 are carbon electrodes 17 and 18 separated by a spacer 19 which is adapted to extend between said two bolts and add rigidity to said electrode mounting. This spacer may be eliminated if the electrodes are small and only single or a few units are used on each bolt. Each lower electrode 18 is provided with a countersunk enlarged opening 18′ into which the bolt head is adapted to fit and whereby said head does not extend beyond the lowermost carbon and the entire bolt is below the surface of the electrode. Thereby instantaneous cut off of the current is obtained immediately when the liquid gets below the lowermost point of the electrodes.

The electrodes 17 and 18 are shown as having a semicircular section whereby when they are rotated about the bolts 16 and 16′ the space between said electrodes may be varied and thereby cause my device to be adaptable for use with liquids of different conductivities or else for use in regions having differing voltages. It, of course, is not necessary that the electrodes have a semi-circular shape. They could have a circular section and be eccentrically mounted on said bolts or they could have a polygonical section or any other section whereby when either one or both were rotated about its supporting bolt, the space between the electrodes would be variable.

The upper ends of the bar members 14^1 and 14^2 which are insulatively mounted on the cover 11 serve as the terminals for my heater and are formed with prongs 19′ which project upwardly therefrom to receive the usual electric plug 20. It is of course not essential that this form of connection be employed in my heater and for instance I may use the modified form of Fig. 4 wherein I provide a recess 21 and terminal 21′, in the upper ends of bars 14′ and 14^2 and provide my plug 20′ with the projecting prong 22 and recess 22′ respectively. It is of course apparent that other modified forms of connection may also be employed.

It is desirable and in fact necessary to employ a suitable stand with my device which will perform the functions of adequate support therefor and also give my device the protective and other features indicated.

My stand comprises a base 23 of metal or other suitable material provided with a recess 24 in its upper side into which the receptacle is adapted to fit. Suitably mounted on the bottom of said base and projecting below it are feet 25 of rubber, felt or other material.

Arranged diametrically opposite each other and mounted in said base as by bolting through openings therethrough, are two vertical posts 26 and 27 of a length which is considerably greater than the height of the receptacle and cover. Each of the posts 26 and 27 from a point just a short distance above the cover of the receptacle to its upper end, is provided with a reduced portion 26′ and 27′ respectively and mounted at the end of said reduced portions are enlarged nuts 28 and 29 for a purpose hereinafter specified.

Slidably mounted between said two posts 26 and 27 and on the reduced portions thereof is a horizontal guide member or cross bar 30 having considerable width, preferably about one third of the width of the plug 20, and being provided centrally with an opening 31 of such dimensions as to snugly accommodate the plug 20 when it is connected to the terminals of the heater. The said member is freely slidable on the rods and tends under the action of gravity or otherwise to rest in its lowermost position. Now then when the plug 20 or 20′ is inserted in its respective terminals, passing of course through the opening 31 in the cross bar 30, it is impossible to remove the receptacle from the stand, thereby at all times influencing the user to first remove the plug before attempting to remove the cover.

Mounted between the posts preferably on the nuts 28 and 29 is a handle 32 whereby the device may be transported from place to place.

My device operates as follows:

The receptacle is filled so that the electrodes are immersed in the liquid to be evaporated and then the cover 12 is tightly screwed on to it. Then the guide member 30 is raised to its highest position and the receptacle inserted in the stand with the terminals in alignment with the opening 31 in the cross bar. The plug 20 or 20′ is then inserted through said opening 31 in the member 30 and mounted on the terminals and then the current may be switched on in the usual manner from any electric light outlet in which plug 33 is inserted.

Now then while plug 20 or 20′ is in place on the terminals of the heater 14 it is not possible to remove the jar or receptacle 13 from the stand or to remove the cover 12 due to the restraining action of the member 30. Thus the danger of shock or burning due to contact with the electrodes is eliminated, as a person in order to open the jar for refilling must first remove the plug 20 or 20′ from the heater terminals.

It may sometimes be desirable to provide added means for vaporizing externally additional vapors to be used in conjunction with the vapors generated inside my receptacle. For instance various medicated ointments, perfumes, fumigants and the like, may be evaporated in connection with the vapors generated inside the receptacle without the necessity of mixing them with the liquid in said receptacle which may not be possible. To this end I may provide a cup like projection 34 in one or opposite sides of or around my receptacle as shown in Fig. 4 into the cup portion 34′ of which I may deposit the ointment or other fumigant desired. Then when the heater is in operation the heat evolved inside the receptacle will be communicated to the contents of said cup and cause the evaporation thereof. Of course if desired merely a conductive water solution may be placed in the receptacle for the sole purpose of causing the vaporization of the matter in the cup. The position of said cup on said receptacle may be designed to be directly below the spout 13, if desired, so as to cause a mixing of the vapors being generated as they reach the user of said vaporizer.

My device may be modified in many ways without departing from the spirit of my invention and I do not wish to be limited to the details shown and described.

What I claim is:—

1. In an electric vaporizer, a liquid receptacle having a threaded lid, a base for said receptacle, vertical guide means fixed to said base, a looped member slidably mounted on the upper end of said guide means, an electric heater carried by said lid and having terminals, and a terminal engaging plug adapted to freely pass through said looped member, said looped member serving to prevent rotation of said lid while said plug engages said terminals.

2. In an electric vaporizer, a receptacle for liquid, a stand for said receptacle, a cover for said receptacle, an electric heater having terminals and mounted in said cover, a guide

member slidably mounted on said stand above said receptacle, and a terminal engaging plug adapted to freely pass through an opening in said guide member.

3. In an electric vaporizer, a receptacle for liquid, a stand for said receptacle, a cover for said receptacle, an electric heater provided with terminals and mounted in said cover, a cross bar slidably mounted on said stand above said receptacle and having an opening and a terminal plug adapted to pass through said opening to engage said terminals.

4. In an electric vaporizer, a receptacle for liquid, a stand for said receptacle, a lid for said receptacle provided with a removable vapor outlet, an electric heater provided with terminals and mounted in said lid, a slidable guide member mounted on said stand above said receptacle tending to occupy its lowermost position and a terminal engaging plug adapted to pass through an opening in said guide member.

5. In an electric vaporizer, a receptacle for liquid, a stand for said receptacle, a lid for said receptacle, an electric heater provided with terminals and mounted in said lid, a gravity actuated slidable guide member mounted on said stand above said receptacle and a terminal engaging plug adapted to pass through an opening in said guide member.

6. In an electric vaporizer a receptacle for liquid, a stand for said receptacle, a lid for said receptacle, and an electric heater provided with terminals and mounted in said lid, guiding means mounted on said stand and a terminal plug adapted to cooperate with said guiding means, said heater comprising spaced parallel electric conductors and hollow electrodes mounted thereon, so as to extend below and conceal the lower ends of said conductors.

7. In an electric vaporizer a receptacle for liquid, a stand for said receptacle, a lid for said receptacle, an electric heater provided with terminals and mounted in said lid, a guide member mounted on said stand and a terminal engaging plug adapted to pass through an opening in said guide member, said heater comprising spaced parallel electric conductors, electrodes mounted thereon and having means whereby the electrode mounting portions of each of said conductors is arranged completely below the surface of said electrodes.

8. In a device as per claim 5, in which said heater comprises spaced parallel electric conductors, electrodes mounted thereon, and means whereby the electrode mounting portion of said conductors is arranged completely below the surface of said conductors.

9. In a device as per claim 5 in which said heater comprises spaced parallel electric conductors, electrodes mounted thereon and having countersunk recesses whereby the electrode mounting portion of each of said conductors is completely below the surface of said electrodes.

10. In an electric vaporizer, a receptacle for liquid, a stand for said receptacle, a lid for said receptacle, an electric heater provided with terminals and mounted in said lid, and means on said receptacle for evaporating auxiliary vapors.

11. In an electric vaporizer, a receptacle for liquid, a stand for said receptacle, a lid for said receptacle, an electric heater mounted in said lid, and a cup-like projection on said receptacle for evaporating auxiliary vapors.

12. In an electric vaporizer, a liquid receptacle, a stand for said receptacle, an electric heater in said receptacle, a slidable guide member supported on said stand and a terminal plug for said heater adapted to be engaged by said guide member.

13. In an electric vaporizer, a receptacle for liquid, an electric heater therefor for vaporizing said liquid and means on said receptacle for evaporating auxiliary vapors.

14. In an electric vaporizer, a receptacle for liquid, an electric heater therefor for vaporizing said liquid and a cup-like projection on said receptacle for evaporating auxiliary vapors.

Signed at New York city this 18th day of February 1929.

NICHOLAS LAWNER.