

Sept. 28, 1926.

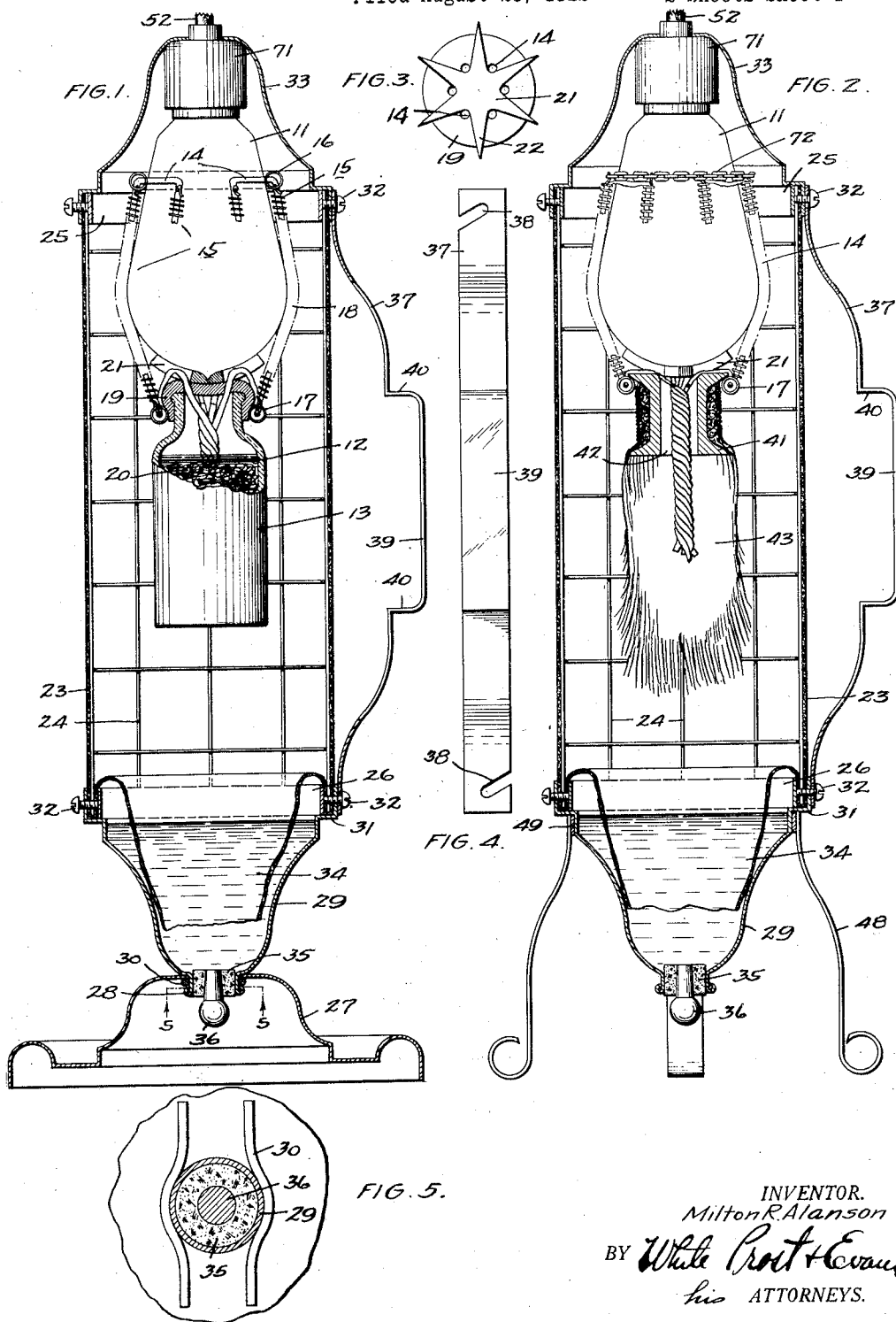
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M. R. ALANSON

VOLATILIZING DEVICE

Filed August 23, 1922

2 Sheets-Sheet 1



INVENTOR.
Milton R. Alanson
BY *White, Prosser & Evans*
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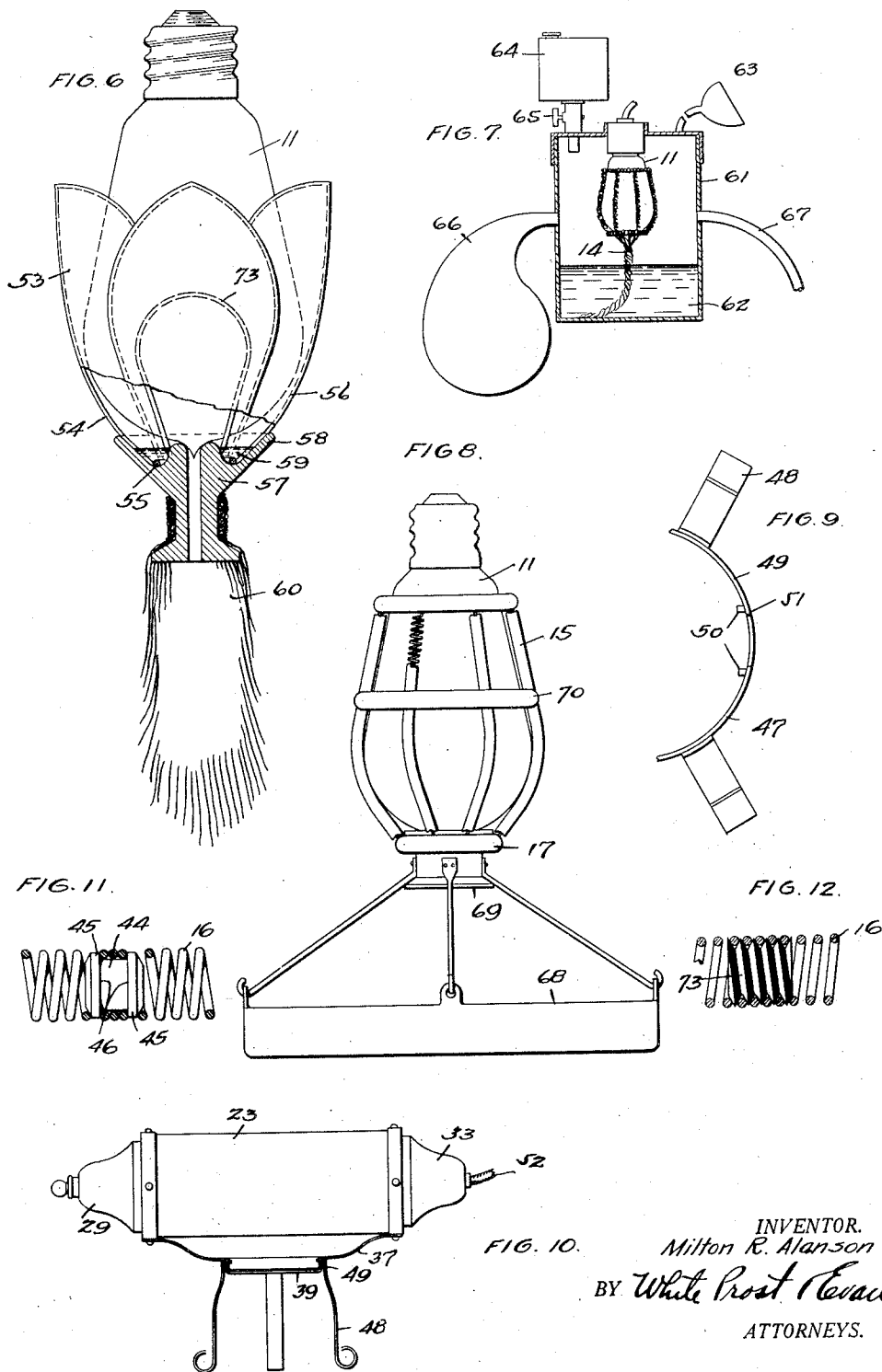
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INVENTOR.
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UNITED STATES PATENT OFFICE.

MILTON R. ALANSON, OF SAN FRANCISCO, CALIFORNIA.

VOLATILIZING DEVICE.

Application filed August 23, 1922. Serial No. 583,708.

My invention relates to a device for volatilizing liquids of various kinds, such as perfumes, or solutions having medicinal qualities, and is an improvement over the volatilizer shown and described in my co-pending application, entitled "Volatilizing device", having Serial No. 557,621, filed May 1, 1922.

My present invention contemplates the use of an ordinary electric light globe as a volatilizing means, as in my earlier application; but in addition it includes the use of a device which may be attached to the globe quickly and without any difficulty whatsoever, which device carries wicks or other absorbent material adapted to be impregnated with the liquid. Although this device is particularly well adapted for this purpose, it is of course possible to make use of it for supporting other articles or devices on a lamp globe, such as a reflector or a tray.

When such a volatilizer is used for medicinal purposes as for inhaling, it is beneficial to mix the volatilized vapors intimately with ordinary water vapor, or to use several kinds of medicated vapors simultaneously. With my device the proper mixture of the vapors may be easily effected, the same source being utilized to act upon the various medicaments and also upon the water. Furthermore the mechanical construction is such as to facilitate the proper intermingling of the vapors. It is well known that the best therapeutical effects are obtained when such a mixture is inhaled or otherwise applied but heretofore so far as I am aware, comparatively crude devices have been utilized and comparatively crude results obtained in this field.

The device is also advantageous where it is necessary to use a reservoir of the material to be volatilized, since the device may conveniently be used in any position without danger of spilling.

My invention possesses other advantageous features, some of which with the foregoing, will be set forth at length in the following description, where I shall outline in full those forms of the invention which I have selected for illustration in the drawings accompanying and forming part of the present application. In the drawings I have shown only a few embodiments of my invention, but it is to be understood that I do not wish to be limited to those forms, since

the invention as expressed in the claims may be embodied in other forms as well.

Referring to the drawings:

Figure 1 is a sectional view along a longitudinal axis of one form of my volatilizer, in which there is utilized a container for the medicament for permitting long and continued volatilization;

Fig. 2 is a similar view of a slightly modified form, in which the base support is different, and showing how it is possible to replace the container of Fig. 1 with some form of ornament in case there is no necessity for providing a large body of liquid;

Fig. 3 is a detail sectional view taken near the tip of the globe, showing how the elements which are used for absorbing the liquid are disposed around the globe top;

Fig. 4 is a detail view of the detachable handle which may be used with the device;

Fig. 5 is a sectional view along line 5-5 of Fig. 1, and illustrates how the device is supported on its pedestal;

Fig. 6 is a view showing a further modification of the volatilizer, especially adapted for ornamental forms;

Fig. 7 is a diagrammatic view showing the application of the device to an anesthetizer;

Fig. 8 is a view showing how the device may be utilized for purposes other than volatilization, as for example for supporting a tray on an electric light globe;

Fig. 9 is a fractional top plan view of the base used in the modification of Fig. 2;

Fig. 10 is a view showing how this base may be used for supporting the entire volatilizer on its handle so that its axis is horizontal and it is in an advantageous position for use as an inhaler;

Fig. 11 is a detail of construction of certain of the volatilizer elements; and

Fig. 12 is a modification of the detail shown in Fig. 11.

In the modification shown in Fig. 1, I show a volatilizing device supported on the globe 11, which serves both by its heat and light, to volatilize and diffuse the material 12 in a container or bottle 13. In order to carry the material 12 near to the globe in small quantities so as to secure rapid volatilization, I employ a plurality of wicks 14 or other absorbent material, which may be supported close to the surface of the globe by the aid of a cage-like resilient structure

15, closely embracing the globe 11 and supported thereon. The resilient cage may comprise a pair of annularly arranged helical springs 16 and 17 to which are hooked the connecting springs 18. These springs 18 are preferably evenly spaced around the circles formed by the springs 16 and 17 and there may be as many of these springs 18 as desired, although I have found that six
10 springs are ample for substantially all purposes.

Each of the wicks 14 are preferably threaded through two adjacent springs 18 and also through a small portion of the top
15 spring 16. In this way the two ends of the wick 14 extend downwardly and the wick forms a loop which is separated from the globe surface by the thickness of the wire used in the spring 18, although it is of
20 course possible to thread only a portion of the loop through the springs and permit the remainder to rest directly on the globe surface. The wire for the springs is preferably made of such material such as phosphor
25 bronze or steel so that it may the better withstand the conditions of service. The connection between springs 18 and 16 or 17 may be effected by hooks as shown but of course other mechanical arrangements may be utilized. Furthermore the ends of spring 16
30 or 17 are united by any appropriate means, so that the spring forms a circle; one means is shown in greater detail in Fig. 11. A stud 44 having enlarged, beveled ends 45 is used for this purpose. The diameter of the
35 ends is just a slight amount larger than the inside diameter of the spring when it is in a free condition, so that when the spring ends are placed over the parts 45, and made to
40 enter the space formed between these parts, they cannot be separated because they abut the rear shoulders 46 of the members 45, and the locking is thus made positive. The bevels are provided on the ends 45 in order to
45 facilitate the expansion of the spring end while it is being slipped over the part 45. It is possible to secure good effects in coupling the ends of the spring together by properly choosing the dimensions of the
50 stud 44. Thus I find it advisable to make the diameter of the ends 45 less than the outside diameter of the spring when in a free condition by about the diameter of the wire. Furthermore the width of this part
55 exclusive of the bevel should be about equal to the diameter of the wire, and the distance between the shoulders 46 should be about large enough to accommodate three turns of wire close together.

60 The connection of the spring ends may be effected in still other ways. Another convenient way is shown in Fig. 12, where the spring 16 has its end connected by means of a threaded piece 73 screwed into both ends
65 of the spring. This member 73 is so pro-

portioned that it spreads the turns of the spring 16 slightly as it is screwed in, and the threads are deep enough to prevent the separation of the ends by a straight pull.

As thus far described, it is evident that
70 the cage 15 with the associated wicks may readily be slipped over the globe 11, and the dimensions of the springs are so chosen that the globe is yieldingly and firmly clasped by the cage in the position shown in Fig. 1. In this position the combined
heat and light emitted by globe 11 serves to volatilize the material carried by the wicks in an efficient manner.

Although it is possible and sometimes
preferably to impregnate the wicks 14 by dropping the liquid directly on the wicks, I show these wicks 14 as dipping into comparatively large body of liquid 12 in the
bottle 13. This bottle is supported by the lower spring 17 of the spring cage, in the manner shown. In order that the globe 11 may be supported in positions other than the
horizontal, I preferably supply a water tight
90 stopper 19 for it preferably made of a good grade of yielding rubber. Apertures are provided in this stopper for permitting the entry of the wicks, and these apertures are
just large enough for this purpose without
95 compressing the wicks to any material extent. Furthermore in order to insure to a greater extent against spilling the liquid 12, I may use a large body 20 of absorbent material disposed in the container 13, to which
100 the wicks may connect, and leave no free liquid at all therein. In that case the bottle 13 merely serves to catch the drip which might otherwise occur. To permit the
wicks 14 to enter the apertures provided for them in the stopper 19, there may be provided a star shaped spacer 21 shown most
105 clearly in Fig. 3. The wicks 14 may then pass readily between the points 22 of the star. The star 21 may be used without the stopper 19, in which case the space between
110 the points 22 may be reduced merely to permit the entry of the wicks. Or on the other hand, the star 21 may be dispensed with, and knobs or projections may be formed on the stopper to space it from the tip of the globe
115 and to permit the wicks to enter the bottle without compression between the stopper and the globe.

The volatilizing device is especially useful where it is necessary to treat bronchial
120 troubles with vapors of such substances as menthol or eucalyptol. The beneficial effects of such treatment are greatly enhanced when they are intimately commingled with ordinary water vapor, or with
125 other materials where several medicinal vapors are simultaneously required. To produce this effect in a very simple and efficient manner, I place a tube 23 of absorbent
130 material about the globe 11, which tube may

be soaked in water or may be constantly supplied with water from a reservoir. The heat radiated from the globe 11 suffices to vaporize the water held in the tube 23.

5 This tube may be made of fabric or the like, and I have found several layers of absorbent gauze to serve this purpose well. In order to support this fabric I provide a wire screen 24 of tubular form about which the fabric 23 may be wound. To hold the fabric to the wire screen, there may be used a pair of collars 25 and 26 slipping tightly into the ends of the screen 24. The fabric 23 is turned into these ends before the collars 25 and 26 are slipped in place, so that the fabric is firmly held between these collars and the wire screen 24.

Each of the looped wicks 14 may be impregnated or supplied with different medicinal material. Of course under such circumstances the impregnation may be effected by dropping the liquid directly on the wicks, or by permitting their ends to dip into separate containers instead of the common bottle 12. In this way minute particles of several different kinds of liquids can be vaporized simultaneously, irrespective of their relative physical or chemical properties. For this purpose the wicks form a highly efficient medium for carrying small particles of the liquids near to the heating element; simultaneous generation and intimate commingling of vapors of various characteristics are obtained. This is of great importance for use in inhalers where the combined effect of such a mixture is known to be therapeutically different and better than the effect of one kind of vapor at a time administered in succession. So far as I am aware such an intimate commingling as I obtain has not heretofore been accomplished in inhalers. Furthermore I have noted that in an arrangement substantially like that of Figs. 1 and 2, there is considerable saving in the material volatilized, since only a few drops on the wicks are sufficient to produce an odor for several hours. I believe this effect to be due to the use of the relatively thin tube 23 of semi-permeable material, which acts as a screen for permitting only the highly volatilized vapors through. The remainder is condensed within the tube and is again volatilized, where some of it again condenses. Thus only those vapors which have the strongest effect are allowed to escape through the tube 23. This process thus results in a material economy in the use of the liquid.

Furthermore, the material vaporized directly at the globe 11 by the aid of the wicks 14 becomes very intimately commingled with the water vapor given off from the screen 23. This screen or absorbent material thus accomplishes two results; it

serves as a medium for suspending the water in fine particles, whereby it may the more readily be volatilized, and it also serves to produce a substantially homogeneous mixture of the different kinds of vapors as they are transmitted to the external air.

The support for the entire device may conveniently be an ornamental pedestal or base 27 having an aperture at the top, through which the projecting beaded tip 28 of the support 29 may enter and be engaged by the resilient clamps 30 fastened on the inside of the base 27. The support 29 is formed with a rim 31 into which telescopes the bottom of tube 23. Screws 32 passing through these rims serve to hold the parts securely together. At the upper end of the tube 23 a member 33 is utilized of the same general outline as member 29, and serves to support within it the socket or receptacle 71 for the globe 11. The entire device thus rests securely on the base 27. By providing suitable apertures in any or all of the members 23, 29 or 33, the vapors generated within the device may be disseminated to the outer atmosphere.

Where prolonged volatilization of water is desired the member 29 may serve conveniently as a receptacle for the water 34 which may have a level high enough to reach the extending fabric from the bottom of the tube 23. In most instances however it is sufficient if the tube 23 is simply soaked in water and no reservoir need be used to allow it to remain continually impregnated. A cork 35 may be inserted in an aperture in the bottom of member 29 so as to permit the water 34 to be drained off. An additional glass stopper 36 may also be utilized to permit only a small opening through member 29, and this may be of importance where the entire device is taken by the handle 37, and the aperture near the bottom of member 29 is placed near the mouth or nose of a patient. For this purpose the device is taken off the stand or base 27, and no water is used in member 29. Either cork 35 or stopper 36 is removed, depending on the size of the opening desired, and the opening is held up to the nostrils or mouth.

The handle 37, as shown in Figs. 1 and 4, is made of a strip of resilient metal, and has slots 38 at its ends. In this way the handle is detachable and may readily be manipulated to permit the slots 38 to fit around the fastening screws 32 in the members 29 and 33, as shown most clearly in Fig. 1. The handle 37 has a part 39 which forms shoulders 40 between part 39 and the other portions of the handle.

In Fig. 2 I show a form of my invention in which there is an ornamental device covering up the wicks 14, to take the place of the bottle or other container 13. Such a device is of use when there is no need of

volatilizing for an extended period, or where enough of the liquid may be soaked up by the wicks 14 to last the required time. A spool 41 is shown, engaged by the lower spring 17 in the same way as the bottle 13 is held in the modification of Fig. 1. This spool has a central aperture 42 into which the wicks 14 extend and a tassel 43 is formed around the spool body to cover these wick ends. This arrangement is especially useful where the spring cage 15 is visible, the tube 23 being removed or not in use. The tube 23 itself may of course be appropriately ornamented. The base 47 of the form shown in Fig. 2 is most clearly disclosed in the detail view of Fig. 9. It consists of a plurality of legs 48 which support a rim 49 engaging under the rim 31 of the member 29. In this form I also show a flexible, non-resilient element such as a chain 72 in place of the top looped spring 16 of Fig. 1. This form has the advantage of being less expensive and more easily assembled on globe 31.

The entire device in the form of Fig. 2 is capable of being supported by means of the handle 39 on the base 47 in a horizontal position. This is illustrated in Fig. 10. The length of the handle 39 between shoulders 40 is just enough to fit inside the rim 49. In order to insure proper support, I provide a pair of small lugs 50 on each side of the rim 49 between which the handle 39 enters, and slots 51 may also be cut in this rim for the same purpose. The horizontal position of the device is better adapted to its use as an inhaler. But under any circumstances the base 47 might be dispensed with since it is possible to suspend the entire device from the lamp cords 52.

So far as the purposes of my invention are concerned it is not absolutely essential that the absorbent elements for bringing the liquid near the heated surface be in the form of wicks. In the modification shown in Fig. 6 there is substituted an enveloping shade or cover 53 of absorbent material such as cloth, which is held near the globe 11 by the aid of a wire cage 54. The cover 53 may take the form of flower petals, and in this way its decorative effect may also be materially increased. The cage 54 has a ring 55 to which the ribs 56 are attached, and this ring in turn may be fastened as by welding or brazing to the inner surface of flange 58 of a metal spool 57. This flange forms a groove 59 which may be used for holding a quantity of liquid to be volatilized; and into it the lower ends of the petal like cover portions may dip. As before, a tassel 60 is provided on the spool 57 for decorative purposes. A pair of resilient looped clamps 73 are also attached to the flange 58, and are adapted to hold the large part of globe 11 resiliently between them.

The device is also susceptible of use for administering anesthetics. One diagrammatic arrangement for doing this is shown in Fig. 7. In this form there is an enclosed receptacle 61 into which extends the electric light globe 11, carrying the spring enclosed wicks 14. These wicks are shown as dipping into the anesthetic 62 in the bottom of the receptacle 61. As before the globe 11 volatilizes the finely divided liquid brought near it by the wicks 14, and the vaporized material passes into the administering tube 63. In order to measure out the quantity of anesthetic, the inverted can or bottle 64 is provided, communicating with the interior of receptacle 61 and having a control cock 65. As is customary a rebreathing bag 66 is also provided, as well as an inlet 67 for conducting anesthetic of gaseous forms, such as nitrous oxide, to the interior of box 61, where it is commingled with the anesthetic volatilized by the lamp 11.

The mechanical features of the spring cage 15 are found to have many advantages. For example I have found that the cage is capable of supporting a substantial load, and may be readily applied to a globe or such device for carrying a tray or the like. Such use of the cage is illustrated in Fig. 8, where the springs making up the cage are shown as covered with felt or asbestos or other soft material in order to protect the globe 11 better. A tray 68 is suspended at several points from a spool 69 held in the bottom spring 17. To strengthen the structure still further, it is possible to use an intermediate encircling spring band 70 around the cage 15. The tray 68 is very convenient for example in a garage for holding tools or the like. Of course other forms of loads can be suspended from the cage 15, and the cage itself is susceptible of use in connection with a great variety of devices in addition to electric globes.

I claim:

1. In a volatilizer, an absorbent element for holding matter to be volatilized and adapted to be supported close to a source of heat, and another absorbent element for holding matter to be volatilized, said second element being positioned so as to extend around the first element, whereby simultaneous volatilization may be effected from both.

2. In a volatilizer, an absorbent element for holding matter to be volatilized and adapted to be supported close to a source of heat, and a cylinder of absorbent material for holding matter to be volatilized, said cylinder being disposed around the absorbent element, whereby simultaneous volatilization may be effected from both.

3. In a volatilizer, a tube within which the volatilization is adapted to take place, a base for detachably supporting the tube in sub-

stantially a vertical position, said base having a rim, and a handle for the tube, said handle adapted to support the tube on the base in a substantially horizontal position
5 by resting the handle portion on the rim.

4. In a volatilizer, a helical spring connected at its ends to form a loop, another loop of flexible material, and a wick extending between said two loops and supported
10 thereby.

5. The combination as set forth in claim 4, with the addition of a container adapted to hold material to be volatilized, resiliently held by the spring loop, and into which the
15 wick extends.

6. In a volatilizer, a pair of flexible loops, helical springs connecting the loops, and a wick threaded through at least some of the portions of the springs and supported
20 thereby.

7. In a volatilizer adapted to be supported on an electric light globe, a helical spring connected at its ends to form a loop, another loop formed of flexible material,
25 helical springs connecting the loops, the loop

formed of flexible material being adapted to encompass the globe, a container resiliently held by the spring loop, and urged toward the tip of the globe, and wicks disposed in some of the springs and extending into the
30 container.

8. The process of simultaneously volatilizing a plurality of materials, which comprises heating an absorbent element impregnated with one of the materials to be vola-
35 tilized, and passing the resultant volatilized material through an absorbent layer which carries another of the materials to be volatilized, while heating said layer so as to produce volatilization of the material asso-
40 ciated therewith.

9. A device for supporting articles upon an electric light globe comprising a loop formed of flexible material, a helical looped spring, springs connecting the loop and the
45 looped spring, and a supporting member resiliently held by the looped spring.

In testimony whereof, I have hereunto set my hand.

MILTON R. ALANSON.