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J. ROBINSON

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ELECTRICAL VAPORIZER

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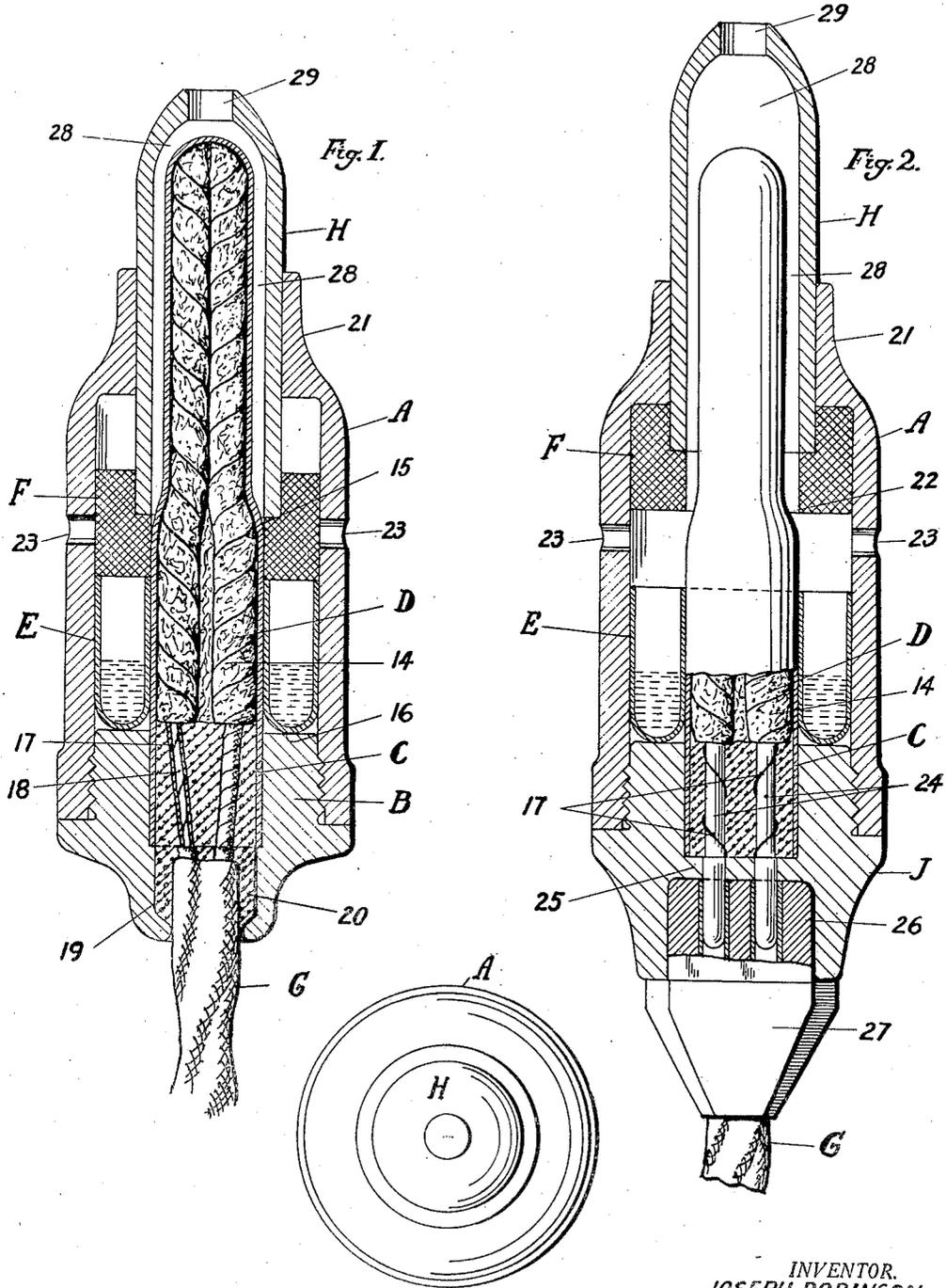


Fig. 3.

INVENTOR.
JOSEPH ROBINSON
BY *Robb & Robb*
ATTORNEYS.

UNITED STATES PATENT OFFICE

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ELECTRICAL VAPORIZER

Joseph Robinson, New York, N. Y.

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9 Claims. (Cl. 128—192)

Among the objects of my improvement is to provide a simple and inexpensive vaporizer characterized by unusual compactness and which though normally sealed liquid tight may be quickly opened for use and quickly resealed liquid tight after use. The sealing arrangement eliminates the necessity of emptying the vaporizer or standing it up after the medicament it contains has been liquefied. This convenient feature permits the instrument to safely be packed in luggage containing clothing when travelling and prevents spilling the contents thereof at any time. This novel sealing means includes a nasal member which telescopes or folds into the body of the instrument increasing compactness in packaging. My improvement also includes a special heating chamber in which the mixture of medicated vapors and air are "superheated" before they enter the nasal passage. The container for the medicament is easily removed from the instrument for cleaning, and the electric cord leading from the vaporizer to the lamp socket may be readily disconnected from the instrument to permit the instrument to be carried about whilst being used. This disconnect feature also serves as the electric switch of my improved vaporizer. Other novel features of my invention will appear in the following description and are illustrated in the accompanying drawing in which

Figure 1 is a vertical section, double size, through my improved vaporizer showing the sealing parts in the closed position, and illustrating a permanent connection of the electric cord E to the base B;

Figure 2 is a view, double size, similar to Figure 1 showing the sealing parts of my improvement in the open position, and illustrating the detachable, switch type connection of the cord E to the base B, and

Figure 3 is a plan view, double size, of the constructions shown in Figures 1 and 2.

My improvement includes a cylindrical hollow cover or shell A threading or otherwise secured at its lower end to a base B into which is tightly pressed, or to which is molded, a vertically extending elongated heater tube C made of any suitable material such as aluminum. A looped resistance coil D is tightly packed in the tube and is insulated with respect thereto as by an asbestos covering 14. Approximately midway its length the tube is reduced in diameter as at 15 and from this point down to the top 16 of the base B the tube preferably tapers slightly to facilitate removal therefrom of the container E which is U-shape in cross section into which the medicament to be vaporized is placed. To confine the major heating effect of the coil D to areas above the base B, I end the coil at approximately the bottom of the container E and, in the construction shown in Figure 1, I wrap the leads 17 of the coil

around the strands 18 of the electric cord G. The cord projects through a housing 19 provided for it in the base B and is locked therein by suitable cement 20, or otherwise. The nasal member or nozzle H fits closely in and slides in the upper end or neck 21 of the shell A and carries at its lower end a washer or gasket F which is cemented or otherwise strongly secured to this end of the nozzle. The gasket is made of suitable material and like the collar E is ring shaped and extends around the nozzle H and the heater tube C and fits tightly against the swelled or enlarged portion of the latter when in the sealing or closed position. At all times the gasket fits snugly against the inner walls of the cover or shell A. When the nozzle H is pushed downwardly in the shell or cover A against the open top of the container E, as shown in Figure 1, the container is tightly sealed, and the annular opening shown at 22 in Figure 2 between the inner wall of the gasket and the heater tube C is closed by the liquid tight engagement of the gasket with the swelled portion of the heater tube as the nozzle is shoved down as aforesaid. At the same time the air vents 23 are closed liquid tight. The reverse of this movement of the nozzle unseals all these openings including, of course, the container E.

In the embodiment of my invention shown in Figure 2 the means for connecting the cord G to the base B includes a pair of terminals or pins 24 mounted in the end of the heater tube C. These pins project into the tube sufficiently to confine the heating effect of the coil D to the areas previously mentioned. The lead wires 17 of the coil are wrapped around, and suitably secured to these pins or terminals and the end of the tube is filled with a suitable hard cement to seal the tube liquid tight and insulate the coil and terminals with respect to the tube and to each other. The terminals extend a substantial distance through the wall 25, which separates the lower end of the tube C and the opening 26 in the base J, to slidably receive a conventional form of plug 27 molded to or otherwise secured to the cord G. With this arrangement current is admitted to the resistance coil D, heating it and the tube C, by plugging the cord G into the base J, and is denied the coil by removing the plug. This construction has the advantage of permitting my improved vaporizer to be carried about while being used without having to carry with it the electric cord G, and it eliminates the need of a switch to open or close the electric circuit.

In putting my invention into use, the shell A is unscrewed from its liquid tight connection to the bases B or J, and the medicament is placed in the container E. The shell is then replaced on the base, the nozzle or nasal member H drawn out to the open position shown in Figure 2, and current is admitted to the coil D either by using 60

the switch at the lamp socket to which the cord is connected or by plugging the terminal 27 into the base J, or by doing both if using the embodiment of my improvement shown in Figure 2.

5 This admission of current lights the coil D, heating the container F and vaporizing the medication. The vapors thus generated are, on inhalation, lifted out of the container up along the hot tube C through the hot air chamber 28 and into the nasal passage. The currents of air which enter the vents 23 and carry the vapors through this route, are quickly heated, especially as they travel along the hot tube C and move through the heated chamber 28 and out of the opening 29 in the top of the nasal member or nozzle H.

What I claim is:

1. An electric vaporizer of the class described comprising, in combination, a base, an elongated heater extending away from said base, a container engaging said heater and supported thereon, a shell encircling said container and said heater, and means slidable in said shell for opening and closing said container, said means including a sealing member having liquid tight engagement with the inner walls of said shell and with the exterior of a part of said heater.

2. An electric vaporizer of the class described comprising, in combination, a base, an elongated heater extending away from said base, a container engaging said heater and supported thereon, a shell encircling said container and said heater, means slidable in said shell for opening and closing said container, said means including nozzle slidably mounted in said shell and carrying at one end a sealing member adapted to be shifted in said shell into and out of sealing engagement with said container and said heater.

3. An electric vaporizer of the class described comprising, in combination, a base, an elongated tubular heater supported on said base, a part of said heater being reduced in diameter, a container engaging the heater at its larger diameter, an annular sealing member extending around said heater and slidable longitudinally with respect thereto, the arrangement being such that when the sealing member is moved into engagement with said container it establishes liquid tight connection with said heater and the top of said container.

4. An electric vaporizer of the class described comprising, in combination, a base, an elongated tubular heater supported on said base, a part of said heater being reduced in diameter, a container engaging the heater at its larger diameter, an annular sealing member extending around said heater and slidable longitudinally with respect thereto, the arrangement being such that when the sealing member is moved into engagement with said container it establishes liquid tight connection with said heater and the top of said container, and a shell removably connected to said base and extending around said heater and said container and said sealing member and serving as a guide for the latter, said shell being provided with air vents which are opened and closed by the longitudinal shifting of said sealing member.

5. An electric vaporizer of the class described, comprising in combination, a base, an elongated heater secured to said base and extending vertically thereof, a medicament container surround-

ing said heater, an elongated shell enclosing the heater and said container and secured to said base, said shell being provided with an opening for admitting air to its interior, and a nasal tip attached to said shell for directing the vapors, said nasal tip being non-flexible and occupied by the upper portion of said elongated heater whereby the vapors continue to be "undiminishingly" heated by said heater as they travel through said nasal tip into the nasal passage.

6. An electric vaporizer of the class described, comprising in combination, a base, a nozzle for directing the vapors, an elongated heater secured to said base and extending into said nozzle, a medicament container provided with vertically arranged walls which surround the heater and which are spaced laterally from each other to form a receptacle, and a shell enclosing said heater and said container, said shell being removably secured to said base.

7. An electric vaporizer of the class described, comprising in combination, a base, a heater mounted on said base, a medicament container, a shell enclosing the heater and said container and secured to said base, said shell being provided with an opening, and a nozzle slidably mounted in said opening and adapted to be pressed into liquid tight engagement with the top of said container to prevent the contents of the container from spilling.

8. An electric device for heating an ointment, comprising in combination, a container for the ointment, an elongated hollow nozzle attached to one end of said container for directing the heated ointment, said nozzle being substantially less in diameter than the diameter of said container and being provided with an opening in its upper end through which the ointment passes when heated, a base removably secured to said container in liquid tight relation thereto, an elongated tubular heater mounted on said base and extending into said nozzle, said heater including a metal tube and a resistance coil mounted in said tube and sealed liquid tight therein and insulated with respect thereto, said coil filling the outer end of said tube, and means for restricting the major heating action of said coil to a predetermined area of said tube.

9. An electric vaporizer of the class described, comprising in combination, a base, an elongated heater secured to said base and extending vertically thereof, said heater including a tubular member, a resistance coil mounted in said member, a pair of terminals extending through said base into said tubular member and into circuit relation with said coil, said terminals being sealed liquid tight in said member and adapted to slidably receive a connector plug, a medicament container encircling said heater and adapted to contain the substance to be heated, an elongated shell enclosing the heater and said container and secured to said base, said shell serving to insulate said heater and said container and having an opening for admitting air to its interior, a nasal piece attached to said shell for directing the vapors, said nasal piece being non-flexible and occupied by the upper portion of said elongated heater whereby the vapors continue to be undiminishingly heated by said heater as they travel through said nasal piece to the nasal passage.

JOSEPH ROBINSON.