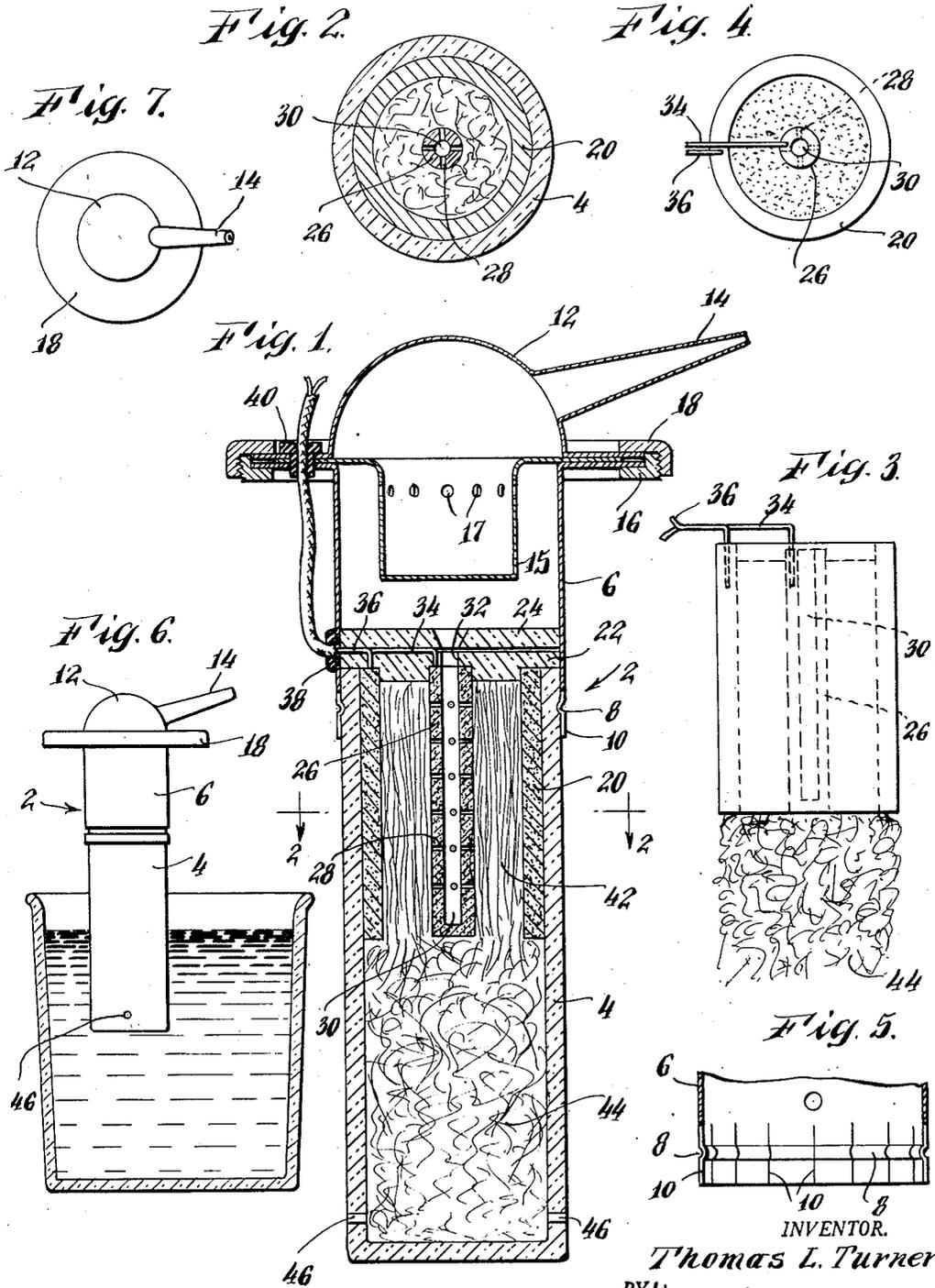


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ELECTRIC VAPORIZER

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ELECTRIC VAPORIZER

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The present invention relates to improvements in electrically heated steam producing devices in which the steam is mixed with a medication or with any other chemical composition, and by means of which a vapor is applied to furs, fabrics, and the like or is made available for inhaling, or for any other purposes.

One object of the present invention is the provision of a device of the character described which is primarily cylindrical and which produces steam instantly when connected to a source of current and after it has been partially immersed into water for an instant. It is adapted for being filled with water or with any other suitable liquid by means of capillary attraction within a very short period of time; but once filled, it will furnish steam during a long period of time, so that the vaporizing procedure will have to be interrupted for an instant only from time to time.

Another object of the present invention is the provision of a device of the character described which does not require any wire resistors or the like that have to be replaced frequently, but which is provided with new and improved glass fiber resistor means which automatically will interrupt the electric circuit if the water in the device has been consumed, so that no damage can be done to the device by heating it while it is dry.

A further object of the present invention is the provision of a device of the character described which is light in weight and of a small size, so that it can be held conveniently in one hand of an operator while vaporizing.

Still another object of the present invention is the provision of a device of the character described which is simple in construction, consisting of only a few inexpensive parts which can be assembled easily and quickly, but which is also sturdy, durable, and well adapted for withstanding the rough useage to which devices of this type frequently are subjected.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts as shown, subject to changes without departing from the spirit of the invention as claimed.

In the accompanying drawing a preferred form of the invention has been shown.

In said drawing:

Figure 1 is a vertical sectional view of a preferred embodiment of my invention;

Figure 2 is a cross-sectional view on the line 2-2 of Figure 1;

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Figure 3 is a detailed side elevation of the electrical portion of the device;

Figure 4 is a detailed top view of the electrical portion of Figure 3;

Figure 5 is a detailed fractional vertical sectional view of a sleeve member;

Figure 6 is a reduced side elevation of the device immersed into a liquid; and,

Figure 7 is a reduced top plan view of the device.

Similar reference characters refer to similar parts throughout the several views.

In the drawing the numeral 2 denotes a complete embodiment of my invention whose outer main portion is an open vessel 4 of porcelain or of any other suitable insulating, water-resistant material. A sleeve member 6 is secured to the upper portion of the vessel 4 by any suitable means, preferably by means of indentations 8 of the vertically slotted lower portion 10 of the member 6 which engage an annular groove at the outer side of the vessel 4. A preferably dome-shaped cap 12 is adapted for closing the top of the member 6 and is provided with a nozzle portion 14.

A cup member 15, which is of a smaller diameter than the member 6 is extended into the latter, with its wall portions spaced from the member 6. The parts 6, 12 and 15 preferably are provided with outwardly extending flange portions which overlay one another and which are held together by any suitable means, for instance by means of a flange screw ring 16 or the like. The upper wall portion of the member 15 preferably is provided with perforations 17, and the ring 16 can be tightened on said flange portions by means of a nut 18. While any other suitable connection means can be used, I prefer the ring 16 and the nut 18 because they allow a detaching from one another or a securing to each other of parts 6, 12 and 15 speedily, simply and without the use of any tools in a manner well known from the operation of the closure means for Mason jars and the like. This arrangement facilitates the removal of the cap 12 for the purpose of placing a medication, or chemicals or the like into the cup member 15. A hollow conductive member 20, preferably of carbon, is provided at the inner side of the upper portion of the vessel 4, and the latter is closed by a disk 22 of ceramic or of any other suitable insulating material; and another disk 24 of the same material as the disk 22 is placed upon the latter. The disks 22 and 24 are of substantially the same diameter as the inner side of the member 6, so that they will be in a tight frictional engagement with the member 6.

A cylinder 26 of a smaller diameter than the member 20 is extended vertically through the latter and is suspended from the disk 22. The cylinder 26 is of the same material as the member 20 and is provided with perforations 28. The bottom of the cylinder 26 preferably is closed, so that the bore 30 if the cylinder 26 extends only through its upper and main portion. Perforations 32 in the disks 22 and 24 register with the bore 30 of the cylinder 26. A wire 34 is connected to the cylinder 26, and another wire 36 is connected to the member 20. The wires 34 and 36 are in spaced relation to one another interposed between the insulating disks 22 and 24, and are united in an insulated cable which passes through insulating sleeves 38 and 40 in the side wall of the member 6 and in the flange portions of the parts 6, 12, 15 respectively. By means of said cable the device can be connected to a source of current (not shown).

Fiber glass 44 is interposed between the parts 20 and 26, and the rest of the vessel 4 is filled with glass wool 44. The lower portion of the vessel 4 is provided with perforations 46.

If the lower portion of the vessel 4 is immersed into water, or into any other suitable liquid, as is indicated in Figure 6, the glass wool 44 immediately becomes permeated by the liquid, and the latter is moved instantly upward between the parts 20 and 26 by the capillary attraction of the fiber glass 44. The latter—when dry—acts as an insulator between the parts 20 and 26, but when wet constitutes a resistor which allows a flow of the electric current between the parts 20 and 26, if the wires 34 and 36 are connected to a source of current. The electrical resistance of the wet fiber glass 42 causes the development of heat which transforms the liquid into steam that passes through the perforations 28, the bore 30, the perforations 32, the member 6 and the perforations 17 to the cap 12 and escapes through the nozzle 14. Thereby the steam will be mixed with some of the medication or the like which is contained in the cup member 15. The production of steam will continue for a considerably long period of time, until the liquid has been consumed. As soon as the fiber glass 42 becomes dry, its resistance is increased to such an extent that it will interrupt the electrical circuit like an insulator. Thus the operator cannot heat the dry device and by so doing damage or burn it. However, if the device is partially immersed into a liquid (Figure 6) for an instant only, it will soak in sufficient liquid for further operation.

Since certain changes may be made in the above article and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

Having thus fully described my said invention, what I claim as new and desire to secure by Letters Patent in the United States is:

1. An electric vaporizer comprising an insulating vessel which is open at its top and whose lower portion is perforated, a conductive hollow member being extended into the upper portion

of said vessel and being open at its top and at its bottom, a conductive perforated cylinder which is closed at its bottom and open at its top being extended into said hollow member and being in spaced relation to said hollow member, fibrous material of high electrical resistance and adapted for capillary attraction being interposed between the inner side of said hollow member and the outer side of said cylinder, glass wool being inserted into the lower portion of said vessel to fill it up to said cylinder and said hollow member, a first insulating disk provided with an opening being placed upon the open top portion of said vessel and having said cylinder secured to a portion which surrounds said opening, a second insulating disk being placed upon said first disk and having an opening which registers with the opening in the first disk, a sleeve member provided with an upper outwardly extending flange portion being secured with its lower portion to the outer side of said vessel and protruding beyond the upper end of said vessel as well as beyond said disks, a cup member having a bottom and a wall portion whose upper section is perforated and provided with an outwardly extending flange portion which rests upon the flange portion of said sleeve member being extended into said sleeve member and in spaced relation to the wall portion of said sleeve member as well as to said second disk, and a dome member having in its upper portion an outwardly extending nozzle section and an outwardly extending flange section at its lower end and being secured to the flange portions of said cup member and said sleeve member, terminals of an electric circuit being extended through said sleeve member and in spaced relation to each other interposed between said disks, and one terminal being connected to said cylinder while the other terminal is connected to said hollow member.

2. An electric vaporizer comprising an insulating vessel which is open at its top and whose lower portion is perforated, a carbon layer being provided at the inner side of the upper wall portion of said vessel and being connected to a first terminal of an electric circuit, a perforated carbon cylinder which is closed at its bottom and open at its top being extended into the space surrounded by said carbon layer and being in spaced relation to the carbon layer and connected to the second terminal of an electric circuit, fiber glass being interposed between the inner side of said carbon layer and the outer side of said cylinder, glass wool being inserted into the lower portion of said vessel to fill it up to said cylinder and said carbon layer, a perforated insulating member closing the top of said vessel having said cylinder secured to its perforated portion, a sleeve member being secured to the upper portion of said vessel and upwardly extended beyond the vessel, a cup member having a bottom and a wall portion whose upper section is perforated and provided with an outwardly extending flange portion which rests upon the upper end of said sleeve member and being extended into said sleeve member and in spaced relation to the wall portion of said sleeve member as well as to said insulating member at the top of said vessel, and an outwardly bulged cap secured to the flange portion of said sleeve member being provided with a nozzle portion.

3. An electric vaporizer comprising a vessel of insulating material having a perforated lower portion and being provided with a carbon layer

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at the inner side of its upper portion, an insulating top closure on said vessel having a perforation in its center, a carbon cylinder being suspended from the perforated portion of said closure and extended into the upper portion of said vessel, fibrous material of high electrical resistance and adapted for capillary attraction being interposed between the inner side of said carbon layer and said cylinder as well as being contained in the lower portion of said vessel, a sleeve member being secured to the upper por-

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tion of said vessel and upwardly extended beyond the vessel, a cup member provided within said sleeve member being in spaced relation to the latter as well as to said top closure, and closure means being removably secured to the upper portion of said sleeve member and being provided with a nozzle.

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No references cited.