

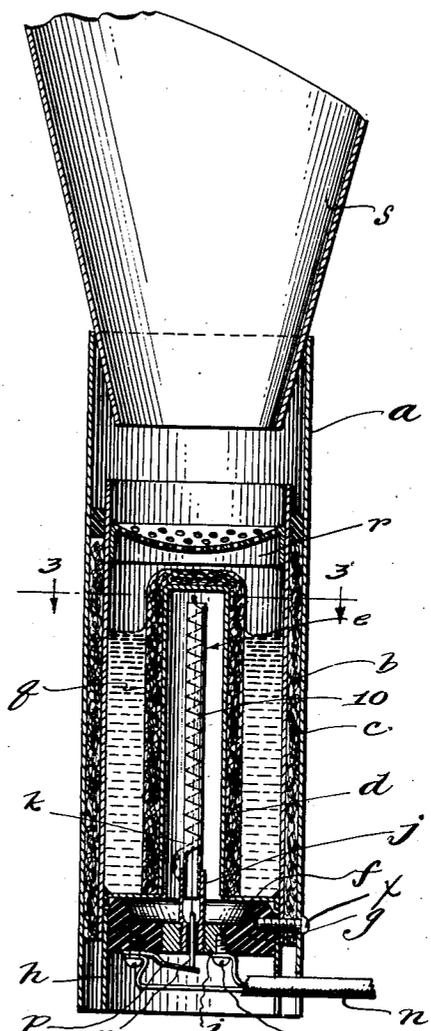
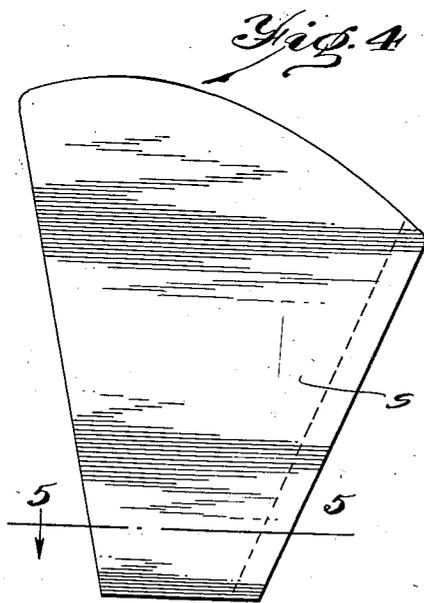
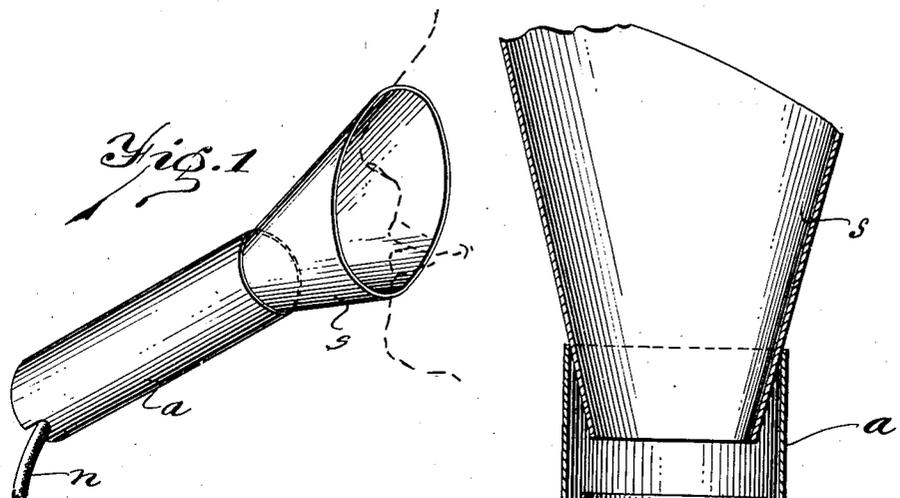
Nov. 11, 1924.

1,514,682

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ELECTRIC VAPORIZER

Filed May 3, 1923



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UNITED STATES PATENT OFFICE.

HAROLD WILSON, OF DETROIT, MICHIGAN.

ELECTRIC VAPORIZER.

Application filed May 3, 1923. Serial No. 636,279.

To all whom it may concern:

Be it known that I, HAROLD WILSON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Electric Vaporizers, of which the following is a specification.

This invention relates to an inhaling apparatus and more particularly to an improvement in what is known as electric vapor-inhalers in which it is desirable to vaporize a medicated liquid or solid.

The object of the invention is to provide a sufficient volume of continuous hot vapor by heating a quantity of medicated liquid or semi-solid to vaporize the same.

This inhaler is employed for the relief of inflammatory affections of the respiratory tract, as well as for the local application of heat to external portions of the body, such as the nose, eyes and ears, or to limited areas of the skin. In the employment of this inhaler by different persons it is desirable to provide a sanitary method by which the inhaler can be used. To obtain this result I employ a removable vapor guide whereby the vapor may be inhaled to secure its most efficient therapeutic effect. This guide is in the form of a bell or conoid which has the additional function of permitting the affected parts to come into contact with the vapor without liability of pain due to the vapor being too hot for the bell or conoid can be held at more or less distance from the affected parts.

A further object is to provide means whereby the removable vapor guide may be cheaply and easily manufactured, so that it may be discarded and a new one inserted in its place when the apparatus is to be used by another person so as to prevent the transmission of infection from one person to another in the ordinary treatment of acute diseases of the respiratory tract.

A further object is to provide means whereby the entire heating surface of the heating element may be utilized for vaporizing the medicated liquid. This means is especially useful when the supply of medicated liquid in the reservoir is low when under ordinary circumstances, the heating element would only heat the liquid coming in direct contact with the surface of the heating element. But with my arrangement the liquid will be brought in contact

with the entire heating surface by capillary action thereby utilizing the maximum number of heating units in vaporizing the liquid.

In the drawings:

Fig. 1 is a perspective view of my apparatus.

Fig. 2 is a longitudinal section thereof.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is an elevational view of the collapsible and detachable bell-shaped or conoidal vapor guide.

Fig. 5 is a section on the line 5—5 of Fig. 4.

This apparatus consists of an outer barrel *a* in which is inserted a reservoir *b* the walls of which are spaced from the walls of the barrel, and a heat insulating material *c* inserted in the space between the walls to prevent the outer barrel from becoming too hot for handling. Secured within the reservoir, as shown in Fig. 2, is a sleeve *d* in which the heating element *e* is inserted, thus the walls of the sleeve *d* form the heating surface of the heating element. The sleeve *d* is provided with a flange portion *f* at the bottom the said flange portion being welded or soldered to the side wall of the reservoir to form a bottom for the reservoir while the upper end of the sleeve is closed thereby preventing any of the liquid from coming in direct contact with the resistance coils.

The heating element consists of a fibre plug *g* surrounded by a metal sleeve *h*, the said plug and sleeve adapted to fit into the extension formed by the wall of the reservoir below the flange *f*. The fibre plug is provided with a brass core *i* in which the heating element is adapted to be screwed. One end of the resistance coil 10 makes a contact with the metal shell *j* which supports the shell *h* of non-conducting material, around which is wound the resistance coil 10. The other end of the resistance coil is secured to a pin *m* suitably insulated from the shell *j*. This permits the resistance element to be unscrewed from the plug and sleeve when these parts are slipped out after the set screw *n* is removed. The electric cord *n* enters the barrel, one wire connected to a screw *o* in contact with the brass core *i*, the other wire in contact with the spring member *p* which is adapted to con-

tact with the pin *m* when the heating element is screwed in place, thus completing the circuit through the resistance coil of the heating element.

5 Surrounding and in contact with the sleeve *d* I provide a wick *q* as shown in Fig. 2 and near the top of the reservoir I secure an inverted perforated cap *r* preferably dished as shown.

10 In filling the reservoir I merely pour medicated liquid into the top of the reservoir through the perforated dished cap or place the semi-solid medicated material in the reservoir. The liquid or semi-solid is
15 then contained in that part of the reservoir between the walls and the wick, being in contact with the wick at all times. Obviously the wick will become saturated with the liquid or melted semi-solid and the
20 liquid will rise by capillary action and a thin film of liquid will be in contact with the heating surface of the heating element over the entire surface. This construction will enable the liquid to extract the maximum number of heating units furnished
25 by the electric heating element when the current is turned on. The liquid will be vaporized and the vapor will rise and pass through the perforated cap and thence upwardly out of the barrel into the sanitary
30 removable vapor guide now to be described.

In order to obtain the most sanitary method for employing the inhaling apparatus by each individual, I provide a paper
35 or fiber bell or conoid *s* which is adapted to be detachably secured in the end of the barrel to act as a vapor guide. The end of the bell or conoid is adapted to contact with that portion of the body which
40 is diseased, thereby allowing the medicated vapor to come in contact with the infected parts.

This sanitary paper or fiber bell or conoid is manufactured very cheaply and can be
45 destroyed after being once used and another one can be inserted in the end of the barrel when the next person desires to use the apparatus, thereby preventing any danger of the transmission of infection from one
50 person to another.

This bell or conoid is manufactured and is arranged to lie flat as shown in Fig. 5 but when the same is inserted in the upper end
55 of the barrel *a* it will be caused to flare as shown in Fig. 1. The upper edge of the bell or conoid is preferably cut as I have shown to fit the contour of a person's face when flared so that little of the vapor
60 may be lost. Obviously this bell or conoid can be cut in any desired form so as to fit any portion of the body.

It will be noted that the reservoir and the closed end sleeve which surrounds the resistance coil are entirely separate from the resistance coil. The resistance coil, to-

gether with the binding posts, are assembled into the reservoir by simply slipping the fiber plug *g* in place and applying the said screw *v*. When the plug and the resistance coil are removed, the resistance
70 coil may be unscrewed from the brass core *i* of the plug. This provides an easy means of cleaning the resistance element or replacing it without in any way disturbing the contents of the reservoir.
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The closed end sleeve that surrounds the heating element forms a stove or a cylindrical grid directly exposed to the heat of the resistance coil, while surrounding this
80 is the cylindrical wick which also passes over the top of the stove; a thin film of the liquid is kept continuously in contact with the grid of the stove securing the quickest and most efficient heating action
85 to start the vapor rising.

This vaporizer may be used not only as a vaporizer of medicated substances, but it may be also used to generate plain steam for use under a hood in treatment of certain disorders. The apparatus is adapted
90 to stand on end so it can be used on a table and it can also be grasped in the hand and used in this way due to the fact that the hot contents of the reservoir are insulated from the outside of the barrel.
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What I claim is:

1. In an apparatus for the purpose specified, the combination of a barrel provided with a container for holding a quantity of vaporizable material for therapeutic purposes, means for vaporizing the same, and a removable vapor guide detachably secured to said barrel for the purpose specified.
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2. In an apparatus for the purpose specified, the combination of a barrel provided with a container therein for holding a quantity of vaporizable material for therapeutic purposes, means for vaporizing the same, and a removable fiber vapor guide detachably secured to said barrel for the purpose specified.
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3. In an apparatus for the purpose specified, the combination of a barrel provided with a container for holding a quantity of vaporizable material having therapeutic properties, means for vaporizing the same and a removable paper vapor guide detachably secured to the said barrel for the purpose specified.
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4. In an apparatus for the purpose specified, the combination of a barrel provided with a container for holding a quantity of vaporizable material for therapeutic purposes, means for vaporizing the same and a removable bell-shaped vapor guide detachably secured to said barrel for the purpose specified.
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5. In an apparatus for the purpose specified, the combination of a barrel provided
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with a container for holding a quantity of vaporizable material for therapeutic purposes, means for vaporizing the same, and a removable conoid acting as a guide for the vapor and detachably secured to said barrel for the purpose specified.

6. In an apparatus for the purpose specified, the combination of a barrel provided with a container for holding a quantity of vaporizable material for therapeutic purposes, means for vaporizing the same, and a removable fiber bell or conoid acting as a guide for the vapor and detachably secured to said barrel for the purpose specified.

7. In an apparatus for the purpose specified, the combination of a barrel provided with a reservoir for holding a quantity of vaporizable material for therapeutic purposes, means for vaporizing the same, and a removable sanitary vapor guide detachably secured to said barrel for the purpose specified.

8. In an apparatus for the purpose specified, the combination of a reservoir for holding a quantity of vaporizable material, a heating element entirely enclosed by a wall and contained within the reservoir, and a wick in contact with the wall enclosing the said heating element for raising the liquid by capillary action into contact with the surface of the said wall.

9. In an apparatus for the purpose specified, the combination of a reservoir for holding a quantity of vaporizable material, a heating element contained within the reservoir, a sleeve forming a stove or grid about the heating element and a wick surrounding the sleeve and in contact with the same and with the vaporizable material said wick raising the liquid by capillary action into contact with the grid for the purpose of vaporizing the liquid.

10. In an apparatus for the purpose specified, the combination of a reservoir for holding a quantity of vaporizable material, an outer barrel the walls of which are spaced and suitably insulated from the walls of the reservoir and a heating element contained within the center of the reservoir for vaporizing liquid.

11. In an apparatus for the purpose specified, the combination of a barrel, a reservoir

contained within the barrel, heat insulation between the reservoir and the barrel, and an electric resistance element provided with a suitable enclosing wall rising in the centre of the barrel and separated from the barrel both by the contents of the reservoir and by the heat insulating material between the reservoir and the barrel.

12. In an apparatus for the purpose specified, the combination of a barrel in the form of a hollow member which can be set on end or grasped in the hand, a reservoir separated from the barrel by heat insulating material but contained therein and arranged to contain vaporizable material, and means for heating the vaporizing material, the heat generating from such means being insulated from the outside of the barrel by said insulating material.

13. In an apparatus for the purpose specified, the combination of a barrel provided with a reservoir therein and a closed end sleeve rising in the center of the reservoir to form a grid, and an electrical resistance element removably secured in the end of the barrel and in the hollow interior of the closed end sleeve.

14. In an apparatus for the purpose specified, the combination of a barrel provided with a reservoir therein, having rising therein a closed end sleeve forming a grid to heat the contents of the reservoir, a plug that can be fitted into the end of the barrel removably for carrying the electric connections, and an electric resistance element removably fitted into the plug and adapted to be projected into the hollow space formed between the closed end sleeve when the plug is in place.

15. In an apparatus for the purpose specified, the combination of a barrel provided with a reservoir having therein a closed end sleeve, a removable plug fitting into the end of the barrel and having a metal core, the said plug and core arranged to carry the electrical connections, and an electric resistance element screwed into the metal core and arranged to be projected into the hollow interior of the closed end sleeve when the plug is in place.

In testimony whereof I affix my signature.
HAROLD WILSON.