C. S. DRAKE.

HUMIDIFIER.

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1,361,028.

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FIG. 3

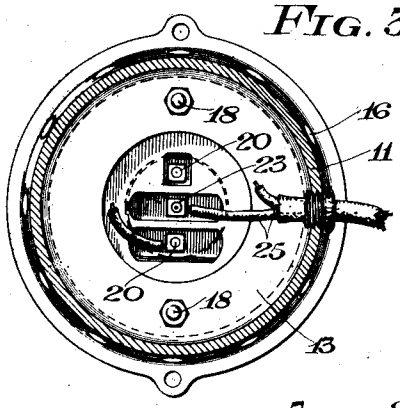
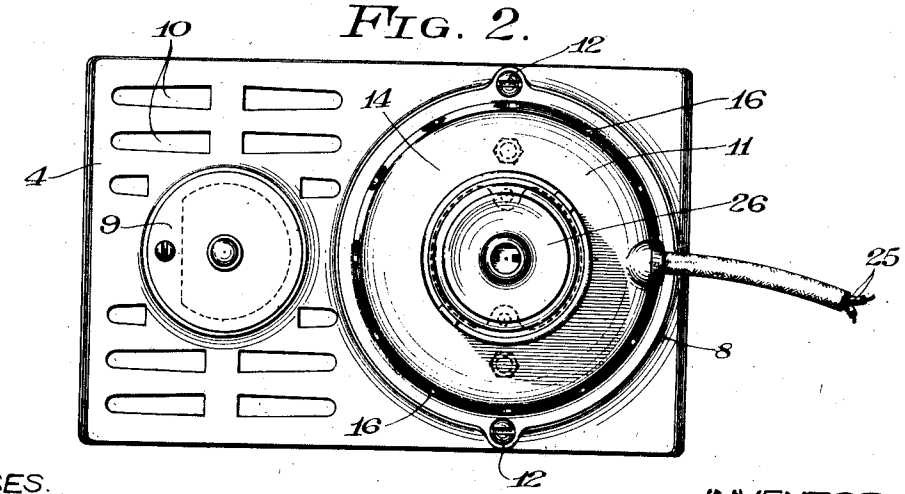


FIG. 1

FIG. 2.



WITNESSES.

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HUMIDIFIER.

1,361,028. Specification of Letters Patent. Patented Dec. 7, 1920.

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To all whom it may concern:

Be it known that I, CLARKE S. DRAKE, a citizen of the United States, and resident of Milwaukee, county of Milwaukee, and State of Wisconsin, have invented new and useful Improvements in Humidifiers, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The invention relates to humidifiers.

One of the objects of this invention is to provide an electrically heated humidifier in which the air may be efficiently circulated and expelled so as to dispense with the usual fan or other mechanical means used to create a circulation.

A further object of the invention is to provide a humidifier in which the water tank has a depressed bottom portion in that part in which the lamp or other heating element is located so as to concentrate the water around the lamp.

A further object of the invention is to provide the tank with a dome member which serves as a chimney and carries all the operating parts and is readily detachable from the base or tank portion of the device.

A further object of the invention is to provide an incandescent lamp with a ruby glass bulb as a heating element, thereby producing a more efficient and more attractive heater than the usual construction having a plain glass.

The invention further consists in the several features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Figure 1 is a vertical sectional view of a device embodying the invention; Fig. 2 is a plan view thereof; Fig. 3 is a section taken on the line 3—3 of Fig. 1.

The base 4 of the machine forms a water tank having a bottom portion 5 depressed from that of the portion 6. A filling opening 7 is located in the top of the base above the bottom portion 6 and an opening 8 in the top of the base above the bottom portion 5. The opening 7 is closed by an eccentrically pivoted cover plate 9. Air inlet openings 10 are provided in the top of the tank to one side of the opening 8.

A dome or chimney member 11 is mounted on the top of the tank in alinement with the opening 8 and is secured thereto by screws 12. This dome has an annular partition 13 forming with its top 14 a chamber 15. The dome has elongated openings 16 in its sides through which the humidified air passes out into the case or room in which the device is installed. The openings are sufficiently restricted so that the dome produces a chimney effect.

A lamp base 17 of insulating material, such as porcelain, is secured to the partition 13 by screw bolts 18 and has a socket recess 19 in which the threaded socket 19′ is secured by screw bolts 20 to the base and has a recess 21 receiving the tip contact 22 secured by a screw bolt 23 to said base. The heater 24, which is preferably an incandescent lamp, has its base engaging with the socket contacts in the usual manner.

Current is supplied to the lamp through the conductors 25, one of said conductors having a suitable switch 26, which may be either manually or automatically controlled, in circuit therewith and connected to one of the bolts 20 and the other conductor is connected to the screw bolt 23. The conductor is provided with the usual plug, not shown, so that it may be connected up to any electrical light socket or other source of electrical energy. After the terminal connections to the socket are made the chamber 15 may be filled with an insulating compound so as to cover the connections and terminals and thus form a moisture proof and insulated body above the lamp base.

The lamp 24 is preferably one having a ruby glass bulb 27 which has distinct advantages over the plain glass bulb usually employed, in that it furnishes a greater heating effect, due to absorption and the diffusion of light rays, and also enhances the appearance of the device. The greater portion of the bulb is immersed in that portion of the tank which is of greater depth and the depressed bottom portion 5 insures a supply of water around the lamp. This lamp also affords a visual means of determining if the machine is in operation and prevents a store-keeper from leaving the machine on unintentionally.

The lamp base 17 has a conically curved outer surface 28 which acts as a deflector for the vapor passing up through the dome, deflecting the moistened air out through the openings 16.

When the electric current is turned on, the lamp 24 begins to glow and becomes hot, warming the water and air about it and

thereby starting a circulation of warm air. The warm air rises and passes out through slots 16 in the dome 11 and is replaced by colder air passing into the tank through the openings 10 in the top of the tank. This air is warmed and passing over the surface of the warm water takes up moisture. The amount of moisture that the air will take up is, of course, dependent upon its humidity. As the air leaving the device is warmer than the surrounding air, it rises to the top of the show case or room in which the device is located and on cooling imparts its moisture to the surrounding air. The cooler air gradually returns to the device and is again warmed and expelled. If the cigars, tobacco or other material contained in the case or room are dry they will take up moisture from the air and the more moisture they take the more the air in turn will take up in passing through the device. The converse of this action is also true making the machine semiautomatic in its action.

The openings in the dome are sufficiently restricted so that the dome forms, in effect, a chimney in which the draft serves to aid the circulation of air through the device and over the water, and the circulation of air is maintained as long as the lamp is burning, without the use of a fan or other mechanical means, thereby freeing the device of complicated parts and producing an easily and cheaply maintained construction.

The removal of the screws 12 permits a removal of the dome member together with the lamp and circuit connections so that the lamp may be changed, if desired, and so that the tank may be easily cleaned of any deposits thrown out of solution in the water.

The closing in of the top of the tank and the provision of the inlet openings near or at the top of the tank presents several advantages over the open tank usually employed, in that it compels the incoming air currents to travel over a greater surface of warm water, retains the heat and prevents spilling of the water from the tank when jarred or carelessly handled.

I desire it to be understood that this invention is not limited to any specific form or arrangement of parts except in so far as such limitations are specified in the claims.

What I claim as new and desire to secure by Letters Patent is:

1. In a humidifier, the combination, with a tank having inlet openings for introducing air above the surface of the water, a hollow member in communication with the tank and provided with outlets above said inlet openings, and means supported by said member and immersed in said tank for heating the water in the tank and the air in said member to create a circulation of air through the device and moisten the air during its passage therethrough.

2. In a humidifier, the combination of a tank having inlet openings in its top, a chimney member secured to and extending above the top of the tank and provided with outlets above said inlet openings, and a heating element suspended within said member with its lower portion immersed in the tank.

3. In a humidifier, the combination, of a base member forming a tank provided with an air inlet and outlet in its top, an apertured dome member mounted on the base over said outlet, a heating element and its connections carried by said dome member, and means for connecting said dome member to the base member to permit of its ready removal.

4. In a humidifier, the combination of a tank having air inlet openings in its top and a dome portion forming an air outlet from the tank and provided with openings, a heating element suspended within the dome portion with its lower end immersed in the tank, and a deflector above said element for directing the air and vapor through the openings in the dome portion.

5. In a humidifier, the combination of a tank having a top provided with inlet openings and an outlet, a dome member secured to the top above the outlet and having side openings and a partition, a base mounted on said partition and having an outer surface for deflecting the air and vapor through said side openings, a heating element secured to said base with its lower portion immersed in the tank, and terminal connections for the element disposed in the space between the top of the dome member and said partition.

6. In a humidifier, the combination of a tank having one end deeper than the other and provided with an air inlet and an outlet in its top, an apertured dome member mounted on the tank over said outlet and the deeper portion of said tank, and a heating element carried by said dome member and having a part immersed in the deeper portion of the tank.

7. In a humidifier, the combination of a tank having a top and one end deeper than the other, said tank having an outlet in its top over the deeper portion and a filling opening over the shallow portion, an apertured dome member mounted on the tank over said outlet, and a heating element carried by said dome member and having a part immersed in the deeper portion of the tank.

In testimony whereof, I affix my signature.

CLARKE S. DRAKE.