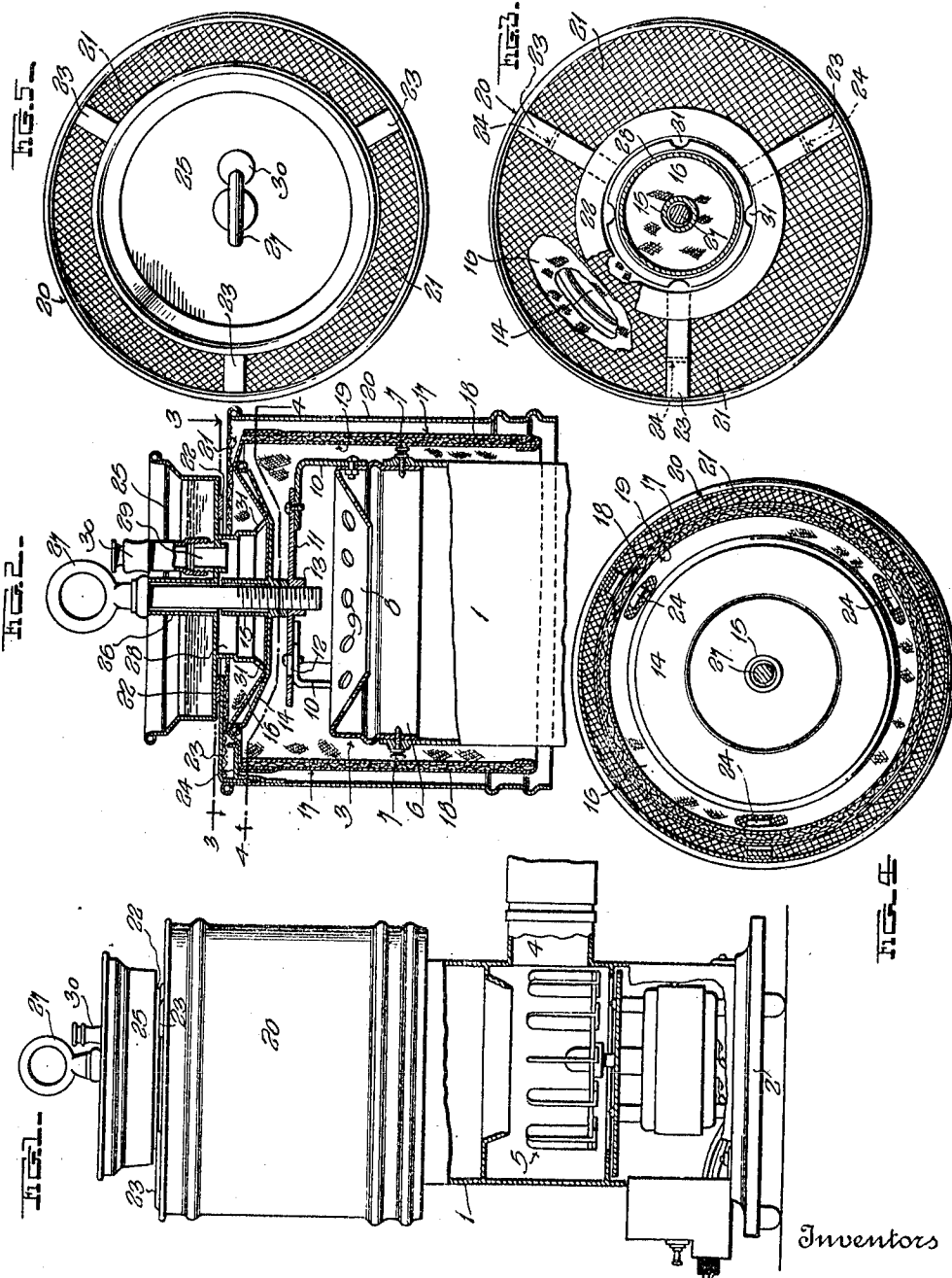


V. SLATER & L. D. WEST.
HUMIDIFIER.
APPLICATION FILED JUNE 9, 1916.

1,273,683.

Patented July 23, 1918.



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UNITED STATES PATENT OFFICE.

VERN SLATER AND LEONIDAS D. WEST, OF DENVER, COLORADO, ASSIGNORS, BY MESNE ASSIGNMENTS, TO VERN SLATER, OF DENVER, COLORADO.

HUMIDIFIER.

1,273,683.

Specification of Letters Patent.

Patented July 23, 1918.

Application filed June 9, 1916. Serial No. 102,689.

To all whom it may concern:

Be it known that we, VERN SLATER and LEONIDAS D. WEST, citizens of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented certain new and useful Improvements in Humidifiers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in humidifying devices and the main object thereof is to provide a comparatively simple yet highly efficient apparatus of this class which may be inexpensively manufactured and marketed. Other objects are to construct the device in a number of uniquely designed sections which not only render it easy to manufacture, but serve important functions when the device is in use.

With the foregoing general objects in view, the invention resides in certain novel features of construction and in unique combinations of parts to be hereinafter fully described and claimed, the descriptive matter being supplemented by the accompanying drawing which constitutes a part of this application and in which:

Figure 1 is a view, partly in elevation and partly in section, of a portable appliance provided with the improved device;

Fig. 2 is an enlarged vertical sectional view of the improved portion thereof;

Figs. 3 and 4 are horizontal sectional views as seen on the planes of the lines 3—3 and 4—4 of Fig. 2; and,

Fig. 5 is a top plan view.

In specifically describing the structure shown in the drawings above briefly described, similar characters will be employed to designate corresponding parts throughout the several views and reference will be herein made to the numerous elements by their respective indices. To this end the numeral 1 designates an upright cylindrical casing which rises from a suitable base 2, said casing having an openwork top 3 through which air is permitted to enter said casing and also having an air outlet 4, an electrically driven fan 5 being disposed in the casing for drawing air into the upper

end thereof and discharging it through the outlet 4.

The top 3 includes a sheet metal ring 6 fitting into the upper end of the casing 1 and secured in place by screws 7 or other suitable means, the upper edge of said ring being turned downwardly and inwardly to provide a frusto-cone-shaped flange 8 which is preferably perforated as shown at 9. Inverted L-shaped brackets 10 are secured to and rise from the ring 6, said brackets supporting thereon a horizontally disposed disk 11 perforated at 12 and having a central internally threaded boss 13.

A water pan 14 is provided at its center with a tube 15 which extends above and below the bottom of said pan, the lower end of said tube resting on the disk 11 in vertical alinement with the boss 13. A sheet of suitable fabric or other absorbent material 16 is disposed over the pan 14 resting on the beaded edge thereof, the edge of this sheet being stitched, cemented or otherwise secured to an apron 17 of similar material which depends around the upper end of the casing 1 in spaced relation thereto. A cylindrical sleeve 18 of woven wire or the like is disposed in contact with the inner side of the apron 17 to retain the same in shape and a lining 19 of absorbent material is preferably secured in said sleeve, the lower edges of the parts 17 and 19 being secured together, as shown clearly in Fig. 2, to prevent dislocation of the sleeve 18.

A cylindrical guard sleeve 20 surrounds and is spaced outwardly from the apron 17, said sleeve being constructed of metal and having a top 21 of wire gauze or the like to permit the entrance of air, said top having at its center a central opening and being secured at the edge of said opening to a ring 22 from which arms 23 radiate, the outer ends of said arms being secured to the upper end of guard 20. Suitable brackets 24 are secured to the inner side of the sleeve 20 to center the same in respect to the pan 14 as shown clearly in Figs. 2 and 4.

A water reservoir 25 preferably in the form of a pan open at its top, rests on the ring 22 and is provided at its center with a central opening from which a tube 26 rises, this tube being in vertical alinement with

tube 15 and boss 13 whereby a vertical screw 27 may be passed downwardly through these alining parts and threaded into said boss to retain all of the sections of the device in operative relation. Reservoir 25 is equipped with a base 28 in the form of an annular vertical flange which depends from its bottom, said base serving to depress the center of the sheet 16 into the pan 14, water being supplied to said sheet and pan from the reservoir 25 through a slit tube 29 whose slits may be exposed or covered to the desired extent by means of a suitable screw cap 30. The tube 29 delivers into the flange or base 28 and to permit the liquid to readily leave said flange to partly fill the portion of the pan 14 surrounding the same, the lower edge of said flange is notched as indicated at 31.

By constructing the improved device in the manner shown and described it will be a highly efficient air humidifier, it being obvious from Fig. 2 that the operation of the fan 5 will draw air into the casing between the lining 19 and said casing, while, owing to the open weave of said lining and the apron 17, a considerable amount of air will be drawn through these parts, and finally on account of the reticular top 21 of the guard sleeve 20, air will also be drawn through the portion of the sheet 16 which extends beyond the edge of the pan 14. All of these absorbent parts will be readily moistened by the water from the pan 14 and thus the air traveling in the manner set forth will be effectively humidified, this air being expelled from the casing 1 through the outlet 4 from which it may be conducted to any suitable point.

Actual experience has proven that the device will deliver air to the outlet 4 at 25° lower than the temperature of the room in which the apparatus is operated, it being thus evident that it is an extremely effective air cooler. Furthermore since it moistens the air to the desired degree, the device prevents undesirable health conditions which exist in quarters where sufficient moisture is not supplied to the air.

From the foregoing taken in connection with the accompanying drawing, the construction, manner of operation and advantages of the improved device will be readily understood but in conclusion we will state that although certain specific details have been shown and described for illustrative purposes, numerous changes may be made within the scope of the invention as claimed without sacrificing the main advantages thereof.

We claim:

1. A humidifier comprising an upright casing open at its upper end, a water pan supported above the same, a sheet of absorbent material extending over said pan, with an

absorbent apron providing a depending continuation thereof, said apron surrounding the casing in spaced relation thereto, a water reservoir having a base resting on said sheet and depressing the same into the water pan, means for permitting slow passage of water from the reservoir into the pan, means in the casing for drawing air into the same in contact with the apron, and an outlet from said casing, substantially as described.

2. A humidifier comprising an upright casing having an openwork top formed at its center with a threaded opening, a water pan resting on said top and having a tube alined vertically with the opening thereof, a sheet of absorbent material extending over said pan, with an apron of similar material providing a depending continuation thereof, and surrounding the casing in spaced relation thereto, a water reservoir above the aforesaid pan and having a base depressing the absorbent sheet into said pan, said reservoir having a tube rising from its bottom and alined vertically with the aforesaid tube, a screw passed downwardly through the two tubes and threaded into the aforesaid opening in the top of the casing, means for permitting slow passage of water from the reservoir into the pan, means in the casing for drawing air into the latter in contact with the aforesaid apron, and an air outlet from said casing, substantially as described.

3. A humidifier comprising an upright casing open at its top, a water pan supported above the same, a sheet of absorbent material extending over said pan, with an apron providing a depending continuation thereof, and surrounding the casing in spaced relation thereto, a water reservoir above said water pan and having a base in the form of a depending annular flange bearing on the aforesaid sheet and depressing the same into the pan, a drip device for supplying water to the interior of said base from the reservoir, the lower edge of said base being notched to permit said water to travel into the remainder of the pan, means in the casing for drawing air into the upper end thereof in contact with the aforesaid apron, and an air outlet from said casing, substantially as described.

4. A humidifier comprising a casing open at its top, a water pan supported above the same, a wire mesh sleeve surrounding the upper end of said casing in spaced relation thereto and extending above said end, inner and outer absorbent sheets secured to the inner and outer sides of said sleeve, a third absorbent sheet secured to and forming a top for said sleeve, this top resting on the water pan, whereby the wire sleeve and both of the first named absorbent sheets are supported, a water reservoir above the pan having a base depressing the absorbent top of

the aforesaid sleeve into the water pan, means for permitting slow passage of water from said reservoir into the pan, means in the casing for drawing air into the upper end thereof in contact with the absorbent sheets, and an air outlet from said casing, substantially as described.

5. A humidifier comprising an upright casing having an openwork top, a water pan supported above said top, a stiff sleeve-like absorbent member surrounding the casing in spaced relation thereto and extending above said casing, a sheet of absorbent material secured to the upper end of said absorbent member and resting on the upper edge of the water pan to support said member, a guard sleeve surrounding the aforesaid member in spaced relation thereto, a reticulate top for said guard member resting against the aforesaid sheet at its points of engagement with the edge of the pan, whereby said guard sleeve is supported, said reticulate top having therein a central opening, a water reservoir above said reticulate top having a base member depending through said opening thereof, said base member depressing the aforesaid sheet of absorbent material into the water pan, means for securing the reservoir, the pan and the openwork top of the casing together, means for permitting the slow passage of water from said reservoir into said pan, means in the casing for drawing air into the upper end thereof through and

around the absorbent member and sheet, and an air outlet from said casing, substantially as described.

6. In an appliance of the character set forth, a portable casing, provided with a substantially open top, an air outlet, and means for drawing air in through said open top and positively discharging said indrawn air through said outlet, in combination with a liquid containing pan mounted distantly above said open top; a moistening element enveloping the upper open end of said casing, in substantially spaced relation thereto, said moistening element comprising a cylindrical foraminated body support, a flexible absorbent top covering therefor, adapted to extend over and be supported by said pan, and an absorbent apron, encompassing said foraminous support, providing a depending continuation of said absorbent covering; means for depressing said flexible absorbent covering into the liquid contents of said pan; and a spaced cylindrical envelop for said depending apron and its foraminated support, providing an annular air channel therearound, substantially as described.

In testimony whereof we have hereunto set out hands in the presence of two subscribing witnesses.

VERN SLATER.
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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."