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HUMIDIFIER

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Fig. 1.

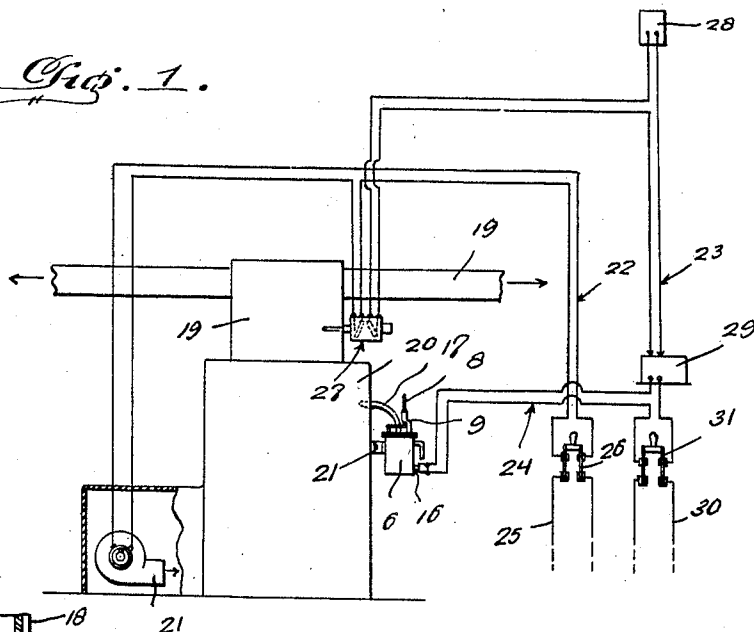
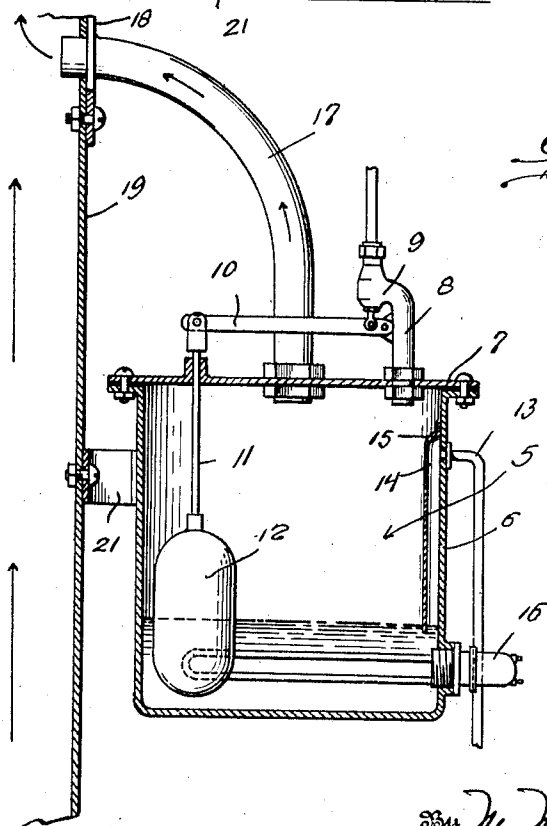


Fig. 2.



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UNITED STATES PATENT OFFICE

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HUMIDIFIER

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1 Claim. (Cl. 236—44)

This invention relates to a humidifier and is especially adapted to provide a desired amount of humidity in a room or closure which is being heated, by the injection of vapor under vapor pressure into the current of heat used in the heating of the room or closure.

Another object of this invention is the provision of a device of the above stated character which will provide positive means of adding and controlling the amount of moisture to the room heat by the generation of vapor from a liquid heated by a heating source independent of the heating source used in producing the room heat.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of my invention, reference is to be had to the following description and accompanying drawing, in which

Figure 1 is a side elevation, partly in section, illustrating a humidifier adapted to a heating system constructed in accordance with my invention.

Figure 2 is a vertical sectional view illustrating the humidifier.

Referring in detail to the drawing, the numeral 5 indicates a vaporizing chamber in which liquid may be readily converted into vapor through the use of heat. The vaporizing chamber is in the form of a receptacle 6 provided with a removable cover 7 and has connected thereto a liquid supply pipe 8. A float operated valve 9 is located in the liquid supply pipe 8 and includes a pivoted arm 10 operating exteriorly of the receptacle 6 and a float rod 11 slidably mounted in the cover 7 and a float 12 operating within the receptacle. The float and float valve act to control the amount of liquid in the vaporizing chamber 5 and should for some reason the valve 9 fail to close, an overflow pipe 13 connects with the vaporizing chamber 5 adjacent the cover 7 through which surplus liquid may escape. A ported baffle 14 is arranged over the intake of the overflow pipe 13 and extends into the liquid when at normal level to prevent the overflow pipe 13 from having a siphoning action on the liquid within the vaporizing chamber. The port of the baffle is indicated by the character 15.

A heater is provided for the tank 5 to vaporize the liquid and may be arranged interiorly or exteriorly of the tank or receptacle 6 and in this instance is in the form of an electric heater 15

extending into the receptacle with the heating element submerged in the liquid.

A vapor outlet pipe 17 connects with the cover 7 and is equipped with an attaching flange 18 to permit the securing thereof to a heat duct or the like, as indicated at 19, of a heating system 20 which in this instance is in the form of a furnace equipped with an electrically operated heat circulating fan 21. To permit the mounting of the receptacle 6 on the heating system 20, a suitable bracket 21 is provided. Thus it will be seen as the vapor is generated in the chamber 5 it may pass under vapor pressure into the heating system or the heat conveying conduit 19 thereof which leads to a room or rooms or any other closure to be heated.

For the operation of the humidifier, electric circuits 22, 23 and 24 are provided. The electric circuit 22 connects the electrically driven fan 21 to electric feed lines 25 with a hand operated main control switch 26 therein.

Also connected in the electric circuit 22 is an automatic temperature actuated switch 27 frequently known as a "Bonestat" or a "Furnacestat" manufactured by the Minneapolis Honeywell Corporation. This automatic temperature operated switch 27 is of a type which can have its operation of opening and closing the circuit 22 varied for different temperatures, and includes double mercury switches one of which connects in the circuit 22 while the other is connected in the circuit 23. The automatic switch is installed on the heating system or the heat conveying conduit thereof, as clearly shown in the drawing. The electric circuit 23 has connected therein a humidostat 28 of a conventional construction also manufactured by the Minneapolis Honeywell Corporation.

The humidostat 28 is located in the room being heated. Further connected in the electric circuit 23 is a relay type switch 29 controlling the electric circuit 24. The electric circuit 24 connects to the electric heater 15 and to electric feed lines 30. A manually operated main control switch 31 is connected in the electric circuit 24 or between the latter and the feed lines 30. The other mercury switch of the automatic temperature actuated switch 27 is connected in the electric circuit 23.

The electrical equipment used in connection with the humidifier is well known and is frequently employed in automatically controlled heating systems. While the present invention has been shown associated with this kind of electric system, its use or application to other electric systems may be easily carried out, or if the humidifier employs

a heating medium other than an electrical heater, other types of controls may be provided for the humidifier which are well known in the art.

Whenever the heating system furnishes heat to the room or closure, the heat actuates the automatic switch 27 completing the electric circuit 23 providing that the humidostat 28 calls for humidity so that the relay type switch 29 will be actuated to close the circuit 24, thereby energize the electric heater. The electric heater being in operation vaporizes the liquid and the vapor under its own pressure passes into the conduit conveying the heat to the room so that the heat will contain a desired amount of moisture obtaining the desired humidity in the room. Whenever the heat from the source to the room is discontinued, the circuit is automatically broken to the electric heater 16 through the action of the automatic switch 27 or by the humidostat 28.

From the foregoing description taken in connection with the accompanying drawing, it will be seen that means has been provided for positively providing moisture in the heat furnished to a room whenever proper humidity is lacking in the room and that the moisture will be in the form of a vapor generated from a source having a heating medium independent of the heating medium employed for the heat, thereby providing a very efficient and practical arrangement for obtaining desired humidity within a room which besides adding comfort to the occupants of the room also conserves heat.

While the receptacle has been shown and described as being located exteriorly of the heat conduit it may be located interiorly thereof.

While I have shown and described the preferred embodiment of my invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim is:

A humidifier comprising an open container, a cover closing said container and detachably secured thereto, a pipe connected to a heat conduit and extending through the cover and detachably secured thereto whereby vapor in the container under its own pressure may pass into the heat conduit, a float controlled water supply means in communication with said container and detachably secured to the cover, an electric heater for vaporizing the water in said container, an electric circuit for said heater associated with an automatic electric control system of a heating system, a humidostat controlling the circuit to the electric heater, an overflow connected to said container adjacent the cover, and a ported baffle arranged over the intake of the overflow and secured to the container above the overflow intake and terminating in the liquid of the container.

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