

Oct. 10, 1939.

W. M. NEUBERT

2,175,758

AIR CONDITIONING APPARATUS

Filed Oct. 27, 1938

2 Sheets-Sheet 1

Fig. 2.

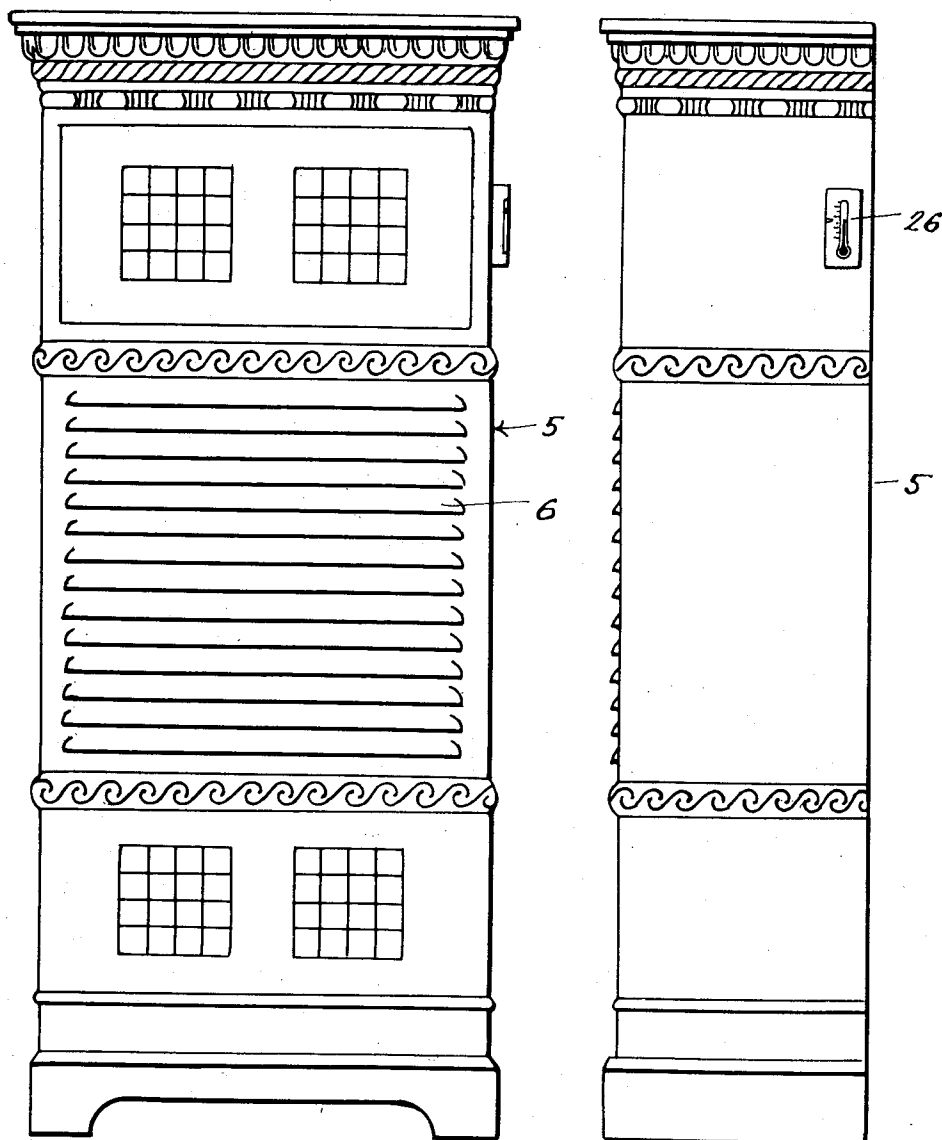


Fig. 1.

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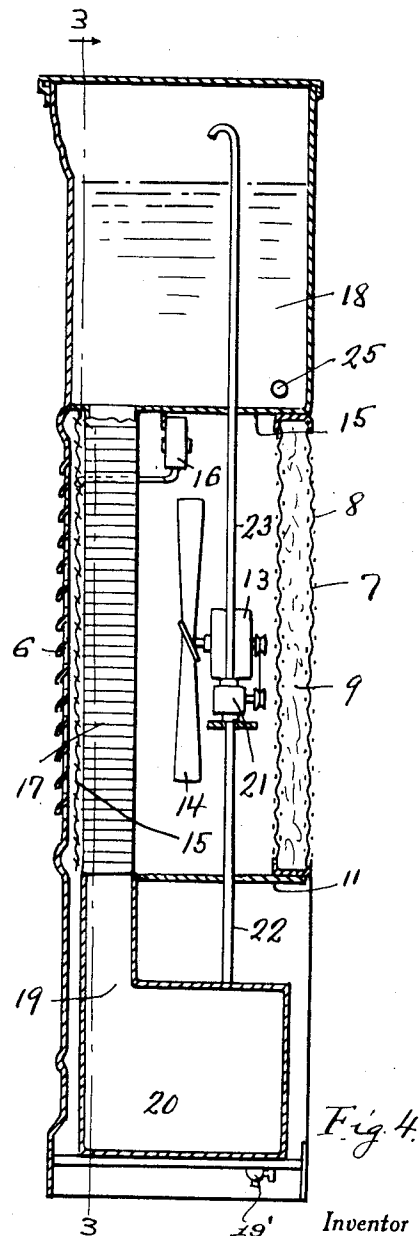
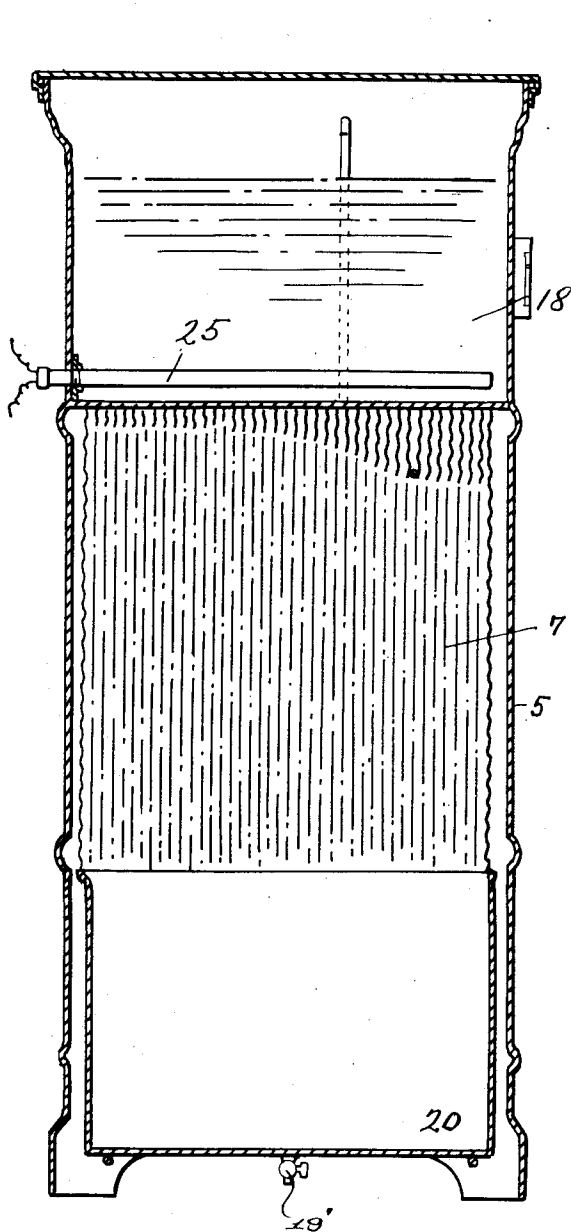
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UNITED STATES PATENT OFFICE

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AIR CONDITIONING APPARATUS

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Application October 27, 1938, Serial No. 237,331

1 Claim. (Cl. 257—9)

This invention relates to air conditioning apparatus, and has for the primary object the provision of an efficient and inexpensive portable device of this character which may be readily set up in a room for conditioning the air therein by removing foreign matter from the air and for either cooling the air or for heating the air depending on which way the apparatus is arranged for operation and also will humidify the air.

With these and other objects in view, the invention consists in certain other novel features of construction, combination and arrangement of parts to 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 drawings, in which

Figure 1 is a front elevation illustrating an air conditioning apparatus constructed in accordance with my invention.

Figure 2 is a side elevation illustrating the same.

Figure 3 is a vertical sectional view illustrating the device.

Figure 4 is a transverse sectional view illustrating the device.

Referring in detail to the drawings, the numeral 5 indicates a cabinet preferably having grill and scroll work to add to the artistic appearance of the cabinet. The cabinet has a portion of its front wall struck out to form a series of louvers 6 to permit air to escape from the cabinet. The rear wall of the cabinet directly opposite the louvers is provided with an opening for the purpose of permitting air to enter the cabinet and has preferably arranged therein a filter 7. The filter 7 may be of any desired construction, preferably consisting of spaced foraminous material 8 with a fibrous material 9 arranged therebetween so that air passing there-through will be freed of all foreign matter.

Horizontal spaced walls 10 and 11 are arranged in the cabinet to form an air space 12 arranged between the louvers and the filter and in which is mounted an electric motor 13 for the purpose of driving a fan 14. The fan when in operation will draw air through the filter and expel the air by way of the louvers. It is also preferable to have arranged between the louvers and the fan 14 a foraminous material 15 acting to intercept any foreign matter that may be in the air after passing through the filter and also to act as an air moistener by having a suitable liquid discharged thereon by a device 16. The detail construction of this device is immaterial as far as

the present invention is concerned. It will, therefore, be seen as the air passes through the foraminous material 15 it will collect a certain amount of moisture to humidify the air.

A radiator core 17 is arranged in the space 12 and is preferably of the honey-comb construction and the upper end thereof is in direct communication with a water chamber 18 formed in the upper portion of the cabinet. The water chamber 18 besides containing water is also adapted to have ice placed therein for the purpose of cooling or chilling the water. The outlet for the radiator core 17 is preferably in the form of a neck 19 forming a part of a catch basin 20 arranged in the bottom of the cabinet. The catch basin has a drain valve 19'.

Mounted in the space 12, adjacent the fan 14 is a pump 21 driven by the electric motor 13. The pump 21 is connected to the catch basin 20 by a pipe 22. Also connected to the pump 21 is a pipe 23 which extends into the water chamber 18 so that when the pump 21 is in operation water will be drawn from the catch basin and returned to the water chamber after being circulated through the radiator core. The fan propels the air through the radiator core so that the air will be cooled on leaving the cabinet by way of the louvers also being free of foreign matter besides containing a desired amount of moisture.

An electric heating element of a water-proof construction and indicated by the character 25 is arranged in the water chamber 18 and may be connected to an electric source (not shown) in any well known manner. Whenever it is desired to change the operation of the device from air cooling arrangement it is only necessary to discontinue the placing of ice in the water chamber 18 and to heat the water therein by the electric heating element 25. The heated water in the chamber 18 passing through the core of the radiator will raise the temperature of the air for the purpose of heating the room in which the device is located.

In order that the temperature in the room may be automatically controlled a conventional type of thermostat 26 is arranged exteriorly of the cabinet and electrically connected in the circuit of the motor 13. Also the thermostat 26 may be connected in the circuit of the electric heating medium 25 when the device is to be employed for heating the air. When the thermostat 26 calls for heat the electric motor will be set in operation as well as the electric heating element 25. Of course, when the device is to be employed

for cooling the air the thermostat 26 will be disconnected from the circuit of the heating element 25 and then will only control the operation of the electric motor 13.

5 Through the use of the radiator core a comparatively large area is provided for the air to contact on its passing through the cabinet so as to be either cooled or heated depending in which way the apparatus is arranged for operation.

10 The louvers 6 while being shown as fixed on the cabinet they may be removably mounted thereon so that they may be readily adjusted to vary the direction of heated air leaving the cabinet.

15 It is believed that the foregoing description, when taken in connection with the drawings will fully set forth the construction and advantages of this invention to those skilled in the art to which such devices relate so that further detailed description will not be necessary.

20 What I claim is:
An air conditioning apparatus comprising a

vertically arranged portable cabinet including upper and lower fluid compartments and an air chamber arranged between said compartments, one vertical wall of the cabinet having an opening to admit air to said chamber, a filter mounted 5 on the cabinet within the opening to remove foreign matter from the air entering the chamber, louvers formed in another vertical wall of the cabinet to permit air to escape from the chamber, air circulating means in the chamber, 10 a heat exchange core connecting the compartments and arranged between said air circulating means and the louvers for the air to pass through from said opening before reaching the louvers, a humidifying sheet of material arranged between 15 the core and the louvers, power means in the chamber for operating the air circulating means, and a pump connected to said compartments for the circulation of fluid from the lower compartment to the upper compartment and driven by 20 said power means.

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