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D. P. POTTER

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AUTOMATIC HEAT CONTROL RADIATOR

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Fig. 1

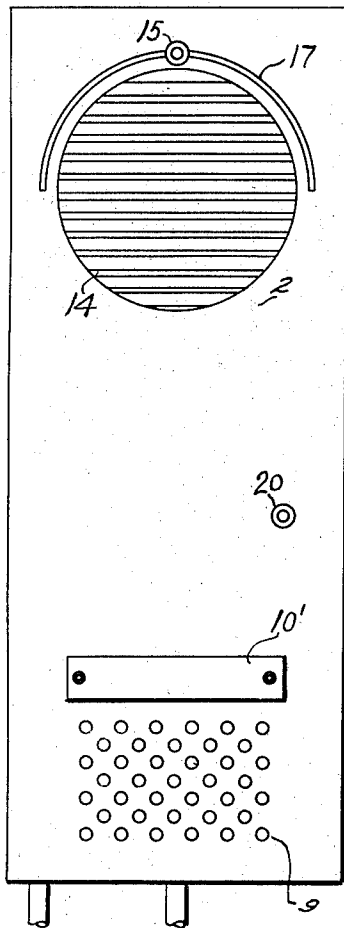


Fig. 2

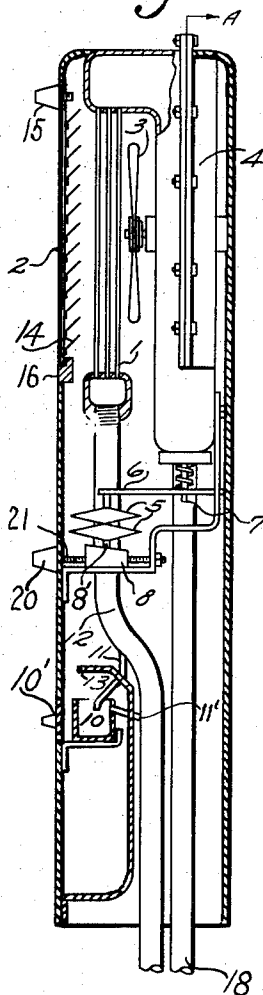
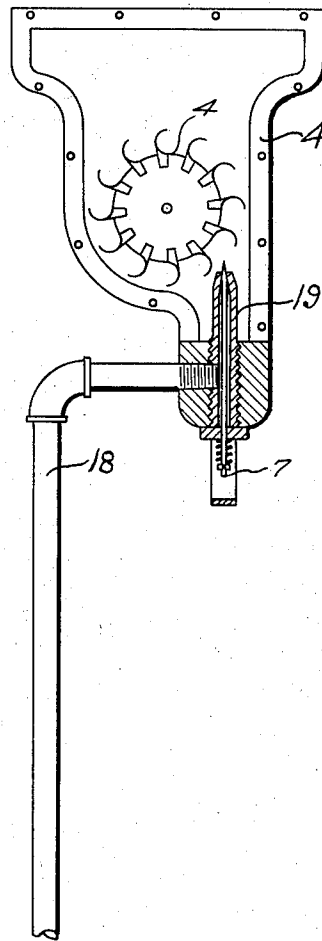


Fig. 3



INVENTOR.

David P. Potter,

BY

Samuel H. Davis.

ATTORNEY.

UNITED STATES PATENT OFFICE

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AUTOMATIC HEAT CONTROL RADIATOR

David P. Potter, Holt, Mich.

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2 Claims. (Cl. 257—137)

This invention relates to automatic heat controlled radiators in controllable steam heating apparatus, and has for its object the combination and association of members of special construction and arrangement, whereby the temperature of a room or public hall or the like may be definitely and fully controlled by devices of simple mechanical structure, readily and cheaply manufactured, and which may be easily assembled and installed, and which will not get out of order in regular service.

Of the accompanying drawing forming a part of this application,

Fig. 1 represents a front view of the invention.

Fig. 2 is a vertical sectional view showing all parts assembled.

Fig. 3 is an interior view of the motor case detached.

Throughout the drawing and description the same number is used to refer to the same part.

Considering the drawing, a radiator 1 in a housing 2 has arranged before the radiator a fan 3. In the housing is supported a motor case 4 within which is a steam motor 4' which receives and discharges steam in the case 4. It will be observed in Fig. 2 of the drawing that the motor case 4 provides a chamber in the housing which has a portion extending next to the top of the housing and over and in communication with the radiator. The parts thus far mentioned may be of any chosen formation, and this invention is in no sense limited with exactitude to the illustrations herewith. The fan is rotated by the motor.

Within the housing are two temperature controlled expansion diaphragms arranged to act upon a lever 6 which in turn operates the needle valve 7 of the steam service to the motor as shown. The special expansion diaphragms illustrated bear the reference number 5, but it is not intended to restrict this invention to the formations and arrangements shown in the drawing. Any other known and proven temperature control mechanism for the valve 7 may obviously be substituted. It will be noted in Fig. 2 that the diaphragm devices are located near the pipe extending downwardly from the radiator and carrying the condensation therefrom. The expansion of the diaphragms is governed by the temperature of the condensation. To adjust the expansion members there is provided a sliding block 8 having an uppermost inclined side as shown in Fig. 2, and the inclined surface acts upon the stem 8' of the diaphragms. The sliding block is adjusted by means of the externally located knob and twin screws hereinafter described.

As customarily constructed the housing 2 has a series of perforations in the front wall for admission of air, marked 9.

As shown in Fig. 2, within the housing is supported a water trough 10, and the front of the housing has a door 10' as shown in Fig. 1 through which the tank may be reached. Connected with a curve of the condensation conducting pipe 12 is a downwardly extending tube 11 through which water falls into the trough, and a second pipe 11' extends downwardly from near the top edge of the tank to prevent overflow. It is thought to be within the purview of this invention to substitute any well known means for limiting the water contents of the tank, such, for example as a common float controlled valve system. To direct the entering air over the water tank in order that the air may be moistened and the dust deposited in the tank, there is arranged in the housing the shield 13 against which the air entering through the perforations 9 strikes and is thus directed over the water tank. The air from the perforations is in a state of constant agitation, and all portions thereof are brought into contact with the water in the tank thus removing a material item of the dust carried in the air.

In Figs. 1 and 2 will be noted in the front wall of the housing a circular register 14 with blades or slats set at an angle as usually made. The register is rotated by the external knob or finger piece 15, and travels in a track 16 which is curved correspondingly. The knob 15 follows a semi-circular slot 17 in the front of the housing.

Steam is served to the motor by steam pipe 18. The motor may be of the impact type with peripheral lips as illustrated in Fig. 3, or any well known equivalent thereof. The steam from the motor is discharged into the case 4, which is open into the radiator 1. The steam is controlled by the needle valve 7 in valve casing 19, operated by the lever 6 as stated. To control the expansion of the temperature controlled members an external knob 20 actuates the twin screws 21, and the block 8 with the inclined top side may be moved to permit greater or less motion of the stem 8' of the two diaphragm devices.

In operation, the steam served to the motor and thereafter to the radiator is controlled by the temperature of the compartment. The moistened and cleansed air is drawn up by the fan in the housing, and expelled by way of the heating radiator through the register into the room. The warmth of the air is controlled by the adjustment of the steam serving members, and the scope of

the control is obviously governed by the size and forms of the elements involved.

Having now described this invention and its use, I claim:—

- 5 1. In a controllable steam heating apparatus, the combination with a housing open at the bottom, of a motor case in the housing, a motor arranged in said case, means provided with a control valve for serving steam to the motor, a
10 radiator in said housing, said radiator being in open communication with the motor case whereby steam acting upon the motor is thereafter delivered to the radiator, a fan rotated by the motor and arranged to impel air from the open
15 bottom of the housing through the radiator, said radiator having a downwardly extending discharge pipe for the water of condensation, an expansible and adjustable diaphragm device located near said pipe and controlled by the tem-
20 perature of condensation, means for transmitting the movements of the diaphragm device to the said steam control valve, a water tank open at the top and arranged in the lower part of the housing, a tube constructed and arranged to conduct water
25 of condensation from said pipe to said tank, said tank being provided with an overflow tube connected with the said condensation pipe at a lower point, said housing having front perforations, and a shield constructed and arranged to direct

air from said perforations upon the open top of said tank.

2. In an apparatus for controlling and serving heated air, a vertically arranged external housing open at the bottom, said housing having at the top an internal chamber constructed with an
5 extended portion next to the top of the housing, a steam driven motor revoluble within the said chamber, means for directing steam to the motor, a revoluble air fan located outside the said chamber and within said housing and arranged to be
10 revolved by said motor, a radiator arranged before said fan and within said housing and in communication with the said extended portion of the chamber, a condensation pipe extending
15 downwardly from the radiator within the housing, an adjustable register in the front of the housing before said fan, an open top air moistening tank located within the housing and having
20 means in communication with said condensation pipe whereby the tank is supplied with water, a tube connected with said tank and with said condensation pipe whereby the overflow of the tank
25 is prevented, and an air shield within the housing whereby air from the lower portion of the housing is directed upwardly and over the open top of the said tank.

DAVID P. POTTER.