

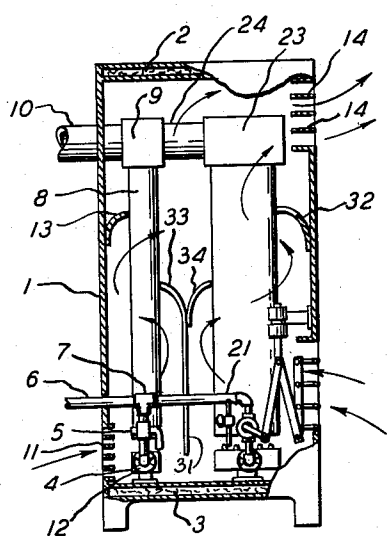
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O. M. JOHNSON

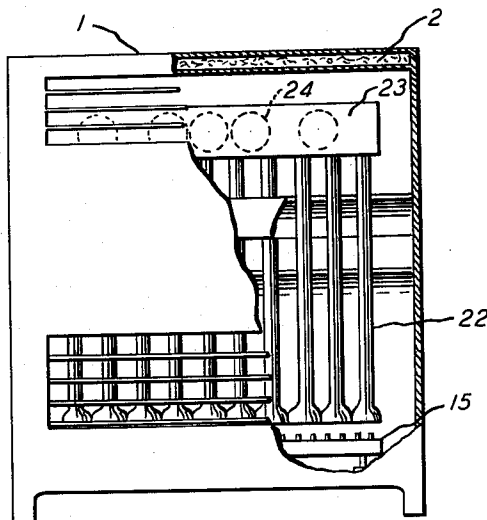
**2,626,599**

### CONSTANT TEMPERATURE GAS HEATER

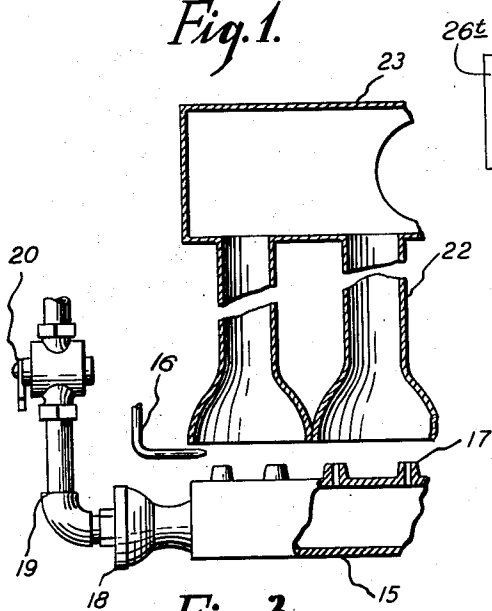
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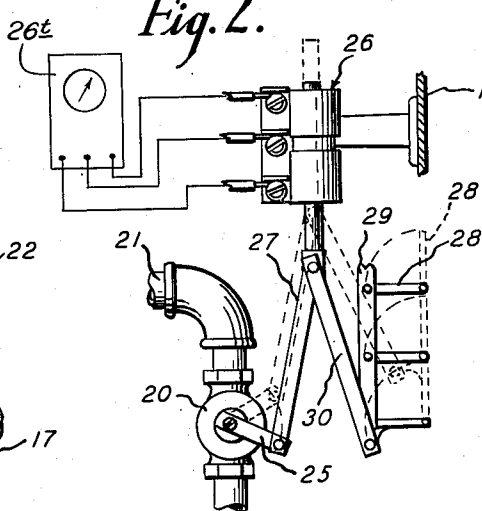
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig.4.*

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## UNITED STATES PATENT OFFICE

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## CONSTANT TEMPERATURE GAS HEATER

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1 Claim. (Cl. 126—90)

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This invention relates to heaters and the like, and has reference to a gas unit for heating rooms.

An object of the invention is to provide a heating unit which is capable of quickly heating an entire room when required, yet one which will operate economically after the room temperature has been sufficiently raised.

Another object of the invention is to provide an automatic burner which is capable of maintaining a smoother curve of temperature variation than those now used in gas heaters of the referred to type.

These and other objects of the invention will become apparent from the following description of the accompanying drawings, wherein:

Figure 1 is a broken sectional view of an end of a gas heater embodying the features of the present invention.

Figure 2 is a front elevational view, shown in partial broken section of the heater illustrated in Figure 1.

Figure 3 is an enlarged broken sectional view of the heat exchanger and auxiliary burner of the invention, and

Figure 4 is a broken elevational view of the auxiliary burner gas cock, the adjustable louvers, and the solenoid connected therewith.

The form of the invention illustrated includes a housing 1 having insulation 2 and 3 in the top and bottom thereof. The unit also includes a primary burner 4 having a conventional manually operated cock 5 which, in turn, is connected with a supply pipe 6 by means of a T connection 7. Above the primary burner 4 there is a heat exchanger 8 which is hollow for radiating heat and for conducting the gas fumes upwardly into a duct 9, which in turn, is connected with a vent 10. Air is conducted to the primary burner 4 through stationary louvers 11 in the back of the housing 1 and near the primary burner air regulator 12. An arcuate baffle 13 is secured to the rear wall of the housing 1 so as to direct the heat radiated from the primary burner heat exchangers 8 toward the front of the unit, as indicated by the arrows, where it is directed into the room through stationary louvers 14 in the upper front of the said housing.

An auxiliary burner 15, which is preferably larger than the primary burner 4, is positioned in the lower front portion of the housing, and includes a pilot 16 above its jets 17. The auxiliary burner 15 also includes an air regulator 18, a connecting line 19, and a lever type cock 20. The cock 20 is connected with the T 7 of the primary burner 4 by means of a length of pipe 21.

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Above the jets 17 there is a multiple of relatively large heat exchangers 22 which are hollow and enlarged at their lower ends, and communicate with a manifold or collector 23 at their upper ends. The collector 23 in turn is joined by a duct 24 with the first referred to duct 9. A comparison between Figures 1 and 2 shows the auxiliary heat exchangers 22 to be elongated in lateral cross section.

Referring now to Figure 4, the lever 25 of the auxiliary cock 20 is mechanically connected with a double throw solenoid 26 by means of a connecting arm 27, the movement of which is shown by dotted lines in the referred to figure.

The solenoid 26 is electrically connected with a thermostat 26t which is preferably located in the side of the room to be heated which is remote from the heating unit. Louvers 28 are pivotally attached in the lower front of the housing 1 at their corresponding ends, and with an actuating bar 29 at their other ends, which bar, in turn, is mechanically linked with the solenoid 26 by means of another actuating arm 30.

In operation, the primary burner 4 is lighted and is manually regulated by the primary burner cock 5. The thermostat 26t is set for some predetermined temperature, and when the room temperature falls below the selected increment the solenoid 26 is caused to operate the auxiliary cock 20. By reason of the constantly burning pilot 16, the auxiliary burner 15 is lighted. At the same time, the adjustable louvers 28 are opened allowing additional air to enter the housing 1 and circulate over the auxiliary heat exchangers 22 from where the thus heated air is released into the room through the upper stationary louvers 14. A vertical baffle 31 is positioned between the primary heat exchangers 8 and the auxiliary heat exchangers 22, as shown in Figure 1, to separately direct air over the respective exchanger surfaces. An arcuate baffle 32 is attached to the inner front wall of the housing 1 for better circulation of the air over the auxiliary heat exchanger 22. Similarly, the vertical baffle 31 has opposing arcuate portions 33 and 34 at the top thereof for the same last referred to purpose.

By reason of the described construction and arrangement, the room temperature can be quickly raised as required, and after which the said auxiliary burner is closed and room temperature is maintained by the primary burner 4. By reason of the vertical baffle 31, the primary burner 4 does not heat the metal at the lower ends of the auxiliary heat exchangers 22 nor the mass of the

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auxiliary burner 15, thus effecting economy of operation.

What is claimed is:

In a heating unit, a housing including vertical side walls, a primary burner in the lower portion of said housing and adjacent one wall thereof, a vertically disposed tubular heat exchanger positioned over said primary burner, an auxiliary gas burner located within said housing adjacent said primary burner on the side thereof opposite the first said wall and near a second said wall, a vertically disposed auxiliary tubular heat exchanger positioned over said auxiliary burner, means carrying off fumes from both said heat exchangers and outwardly of said housing, a gas cock connected with said auxiliary burner, pivoted louvers within the second said wall and in the lower side thereof adjacent said auxiliary heat exchanger, thermostat control means operatively connected with both said gas cock and said louvers and arranged to open and close the same simultane-

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ously, a vertically disposed baffle between the first said heat exchanger and the second said heat exchanger, an air inlet in the first said wall adjacent said primary burner, and an air outlet within the upper end of said housing, and means directing heated air from both said heat exchangers to said outlet.

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