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FURNACE

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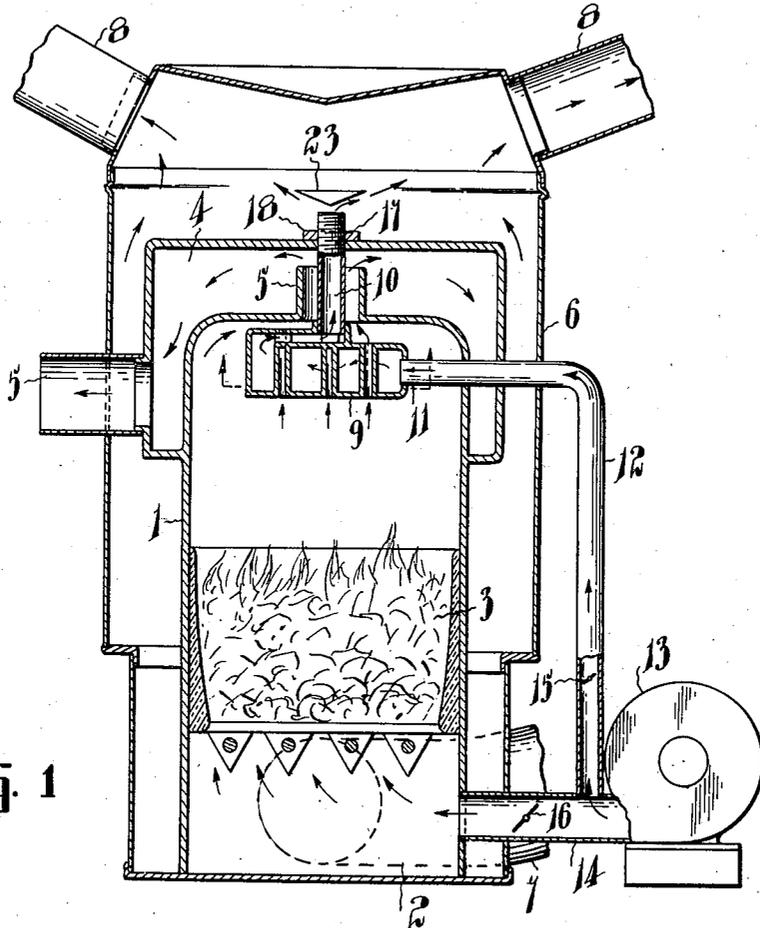


Fig. 1

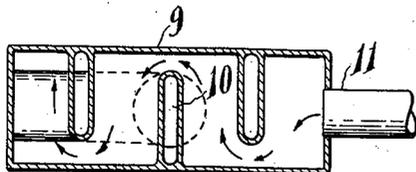


Fig. 2.

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UNITED STATES PATENT OFFICE

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FURNACE

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1 Claim. (Cl. 126—106)

This invention relates to furnaces, particularly of the hot air type, and has for its object the more effective heating and better circulation of the air.

I obtain my object by installing in the upper part of the combustion chamber an auxiliary air heater, into which air is forced by a fan and from which the air is intermingled with the air in the ordinary air chamber of the furnace and passes off through the usual pipes to the various rooms to be heated. The furnace is hereinafter more specifically described and illustrated in the accompanying drawing in which

Fig. 1 is a vertical section of a furnace; and

Fig. 2 a horizontal section through a preferred form of auxiliary air heater.

In the drawing like numerals of reference indicate corresponding parts in the different figures.

1 indicates the heater, 2 being the ash pit, 3 the firepot, 4 the heating jacket and 5 the smoke outlet. Surrounding the heater is the usual outer casing 6, provided with an air inlet or inlets 7 adjacent its bottom and outlets adjacent its top with which are connected the usual pipes 8 leading to the rooms to be heated. These parts are of ordinary construction.

Supported adjacent the top of the combustion chamber of the furnace is an auxiliary air heater 9, which is preferably constructed so as to form a circuitous air passage therethrough. This air heater is provided with an outlet 10 leading to the air heating space within the outer housing 6. Air is supplied to the inlet 11 of the heater by a pipe 12 leading from a blower 13. This blower 13 also supplies air by means of a pipe 14 to the ash pit 2 of the furnace. The pipes 12 and 14 are each provided with a damper numbered respectively 15 and 16 so that the amount of air passing to the ashpit 2 and to the air heater 9 may be regulated relative to one another.

It will be seen from the construction described that not only is there additional heating surface provided through the installation of the air heater 9, but there is a positive circulation of air due to the fact that the air going through said heater is under pressure and consequently there is a definite fan-driven flow of air through the pipes 8. Combustion is also improved by forcing air under pressure from the same fan to the

ashpit 2, and the dampers 15 and 16 may be regulated to obtain the most efficient results.

The air heater 9 may be of any suitable shape to fit the furnace with which it is to be employed, and the passage therethrough may also be arranged in many different ways. One convenient method of supporting the air heater 9 is shown in the drawing. In this form it is simply necessary to drill a hole in the upper wall of the jacket and connect a pipe 17 with the outlet of the heater while holding the heater, and a nut 18 is then threaded on the pipe 17 to prevent the latter drawing through under the weight of the air heater 9. The inlet pipe 12 is connected with the heater through holes in the side wall of the combustion chamber and jacket.

The pipe 17 is preferably provided with a spreader 23 to better distribute the heated air passing from the pipe 17 in the upper part of the outer casing.

It will also be apparent that the pipe connections and other details may be arranged in other ways than shown and described, and these details will depend considerably on the furnace installation with which the improvements are to be installed.

What I claim as my invention is:—

In a heating installation, a furnace having a combustion chamber at its upper part, a heat radiating chamber extending across the top and partly down the sides of the upper part of its combustion chamber and through which the products of combustion pass; an air jacket surrounding said furnace and heat radiating chamber, air ducts leading from said jacket; a return air duct thereto, a smoke flue leading from said radiating chamber through the wall of the air chamber below the top of the combustion chamber, said heat radiating chamber having an opening in its top, a tube supported in and depending from said opening, the upper end of which tube communicates with the upper part of the air jacket, said combustion chamber having an opening in its top of larger diameter than said tube and through which said tube extends; an auxiliary air heater in said combustion chamber above the bottom of the radiating chamber and supported by said tube and for which said tube forms the outlet; and means for supplying air to said auxiliary heater from outside the air jacket.

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