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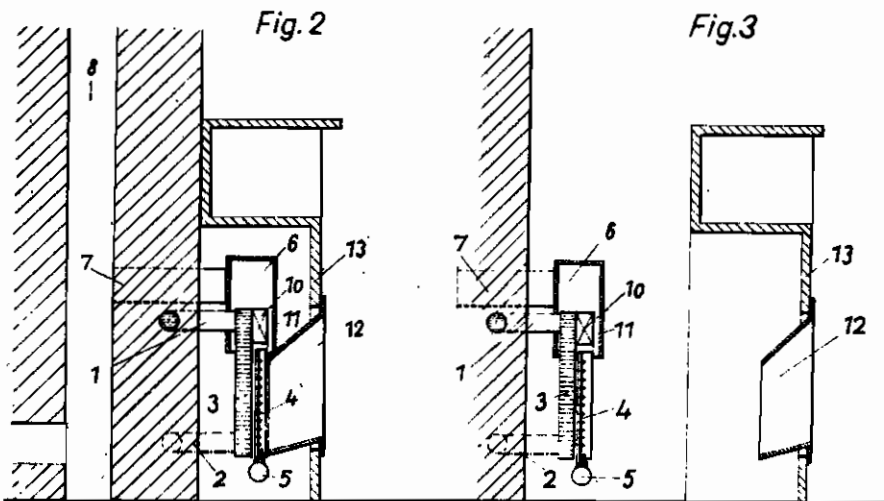
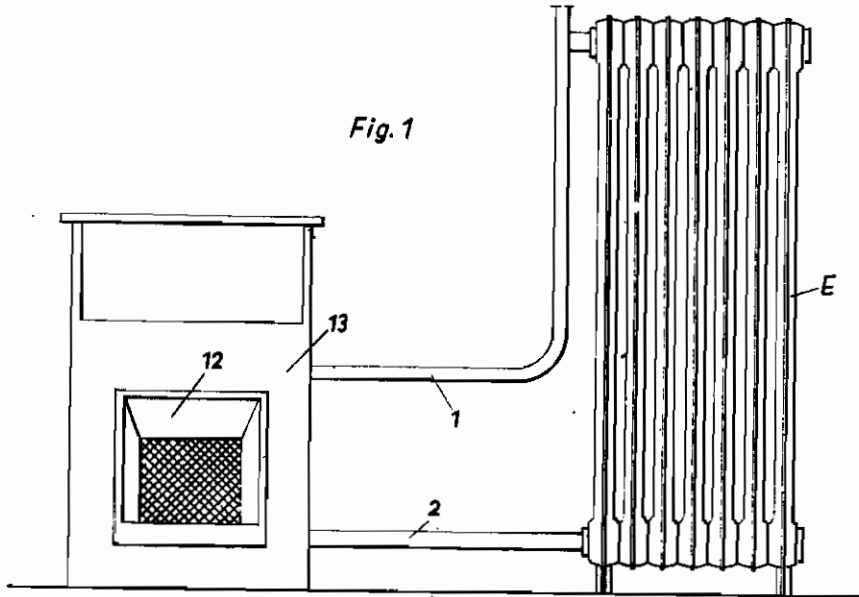
HEATING APPARATUS FOR THE HEATING OF ROOMS

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BY A. P. C.

Filed Feb. 26, 1940

2 Sheets-Sheet 1



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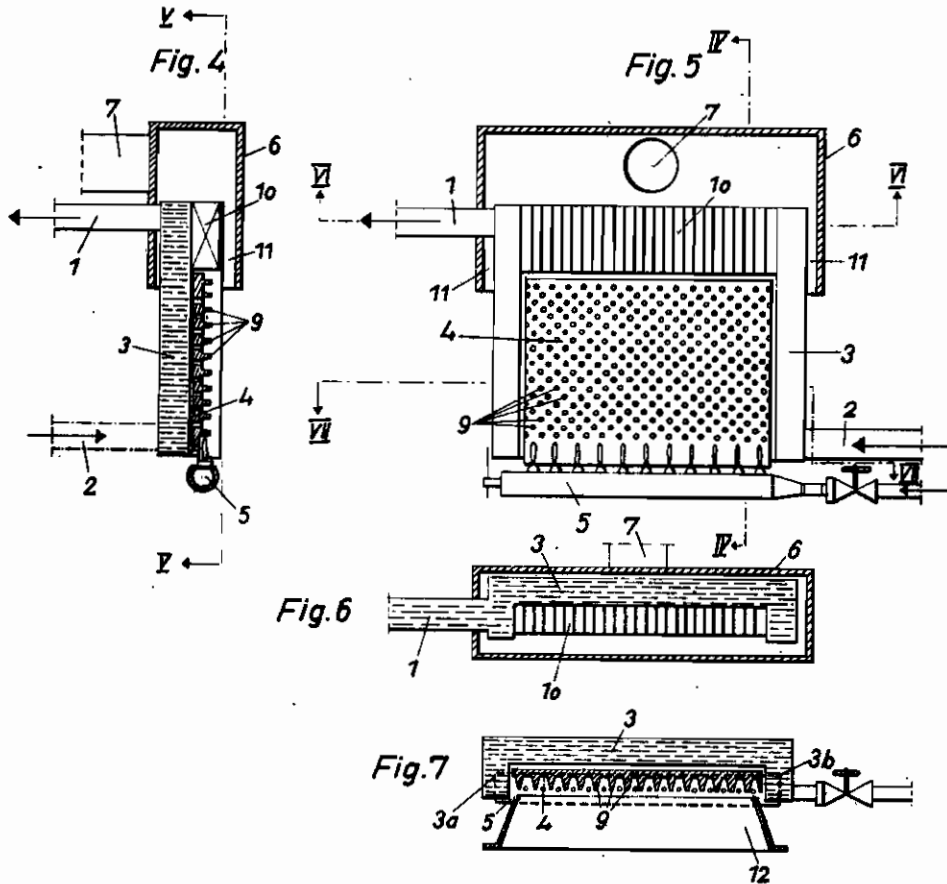
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ALIEN PROPERTY CUSTODIAN

HEATING APPARATUS FOR THE HEATING OF ROOMS

Guido Wunsch, Berlin, Germany; vested in the Alien Property Custodian

Application filed February 26, 1940

This invention relates to improvements in or relating to heating apparatuses for the heating of rooms of the kind comprising a gas heated glow radiant the radiation beam of which is directed forwardly into the room to be heated. The well known heating apparatuses of this type are provided with a water tank for the purpose of reducing the loss of heat of the waste or combustion gases. However, the use of such water tanks is connected with a serious disadvantage in that the vapor contained in the gas condenses on the outside of the cold tank wall thereby causing corrosion of that wall.

The present invention aims at removing this serious disadvantage without foregoing the utilization of the heat of the waste or combustion gases.

A further object of the invention is to provide means for exclusively directing the entire effective heat into said water tank and into said radiation beam so as to avoid any overheating of that part of the room in which the heating apparatus is situated.

Another object of this invention is to provide a wooden furniture casing mounted in front of the radiator and the water tank for enclosing both.

Other aims, objects and advantages will be dealt with in the following description in connection with the accompanying drawings wherein

Fig. 1 represents a view of a heating plant comprising a gas heating stove in accordance with the invention,

Fig. 2 is a vertical cross sectional view of the gas heated radiator, the water tank and the casing enclosing both,

Fig. 3 is the same view as that shown in Fig. 2 representing however the casing removed from the radiator and the tank,

Fig. 4 is a vertical cross sectional view of the radiator and the tank showing these parts on a greater scale,

Fig. 5 is a plan view of the radiator and the tank, and

Figs. 6 and 7 are horizontal cross sectional views along the lines VI—VI and VII—VII, respectively, of Fig. 5.

Referring now to the drawings, the heating plant shown in Fig. 1 comprises a gas heated radiant stove and a plurality of heating elements, one of which is shown in Fig. 1, said elements communicating via water pipes 1 and 2 with the water tank 3 (see Fig. 2). In front of said water tank 3 there is provided a radiator 4 heated by a gas burner 5, the waste or com-

bustion gases from said burner passing through a waste gas hood 6 and a channel 7 into the chimney 8. The radiator consists of any convenient ceramic material and possesses in front projections 9 (see Fig. 4) for increasing the surface of the radiator body relative to the volume. In this way the ceramic body more quickly reaches the glowing stage. The water tank extends upwardly above the radiator, the upper part being provided at the front wall with ribs, flanges, fins 10 or the like through which the waste or combustion gases pass before entering into the chimney so that the heat transfer from said gases to the water will be materially improved.

The waste gas hood 6 surrounds the upper part of the water tank and the fins 10 in spaced relation leaving a passage 11 between the front wall of the waste gas hood and the fins so as to receive the flow of the combustion gases into the channel 7 even if the flow cross section between the fins is insufficient for the amount of combustion gases to be discharged. In this connection it is to be noted that the flow cross section between said fins is liable to be reduced for instance by deposits from the combustion gases.

As may be seen from Fig. 5, the two water pipes or conduits 1 and 2 are connected to the water tank in such a manner that the return flow of water from the heating element E enters the lower part of the tank heated exclusively or substantially by the rearward radiation from the radiator 4 whilst the other conduit 1 leading the heated water to said elements E communicates with the upper part of the tank provided with said fins. In order to prevent loss of heat, the water tank has a U-shaped cross section as shown in Figs. 6 and 7, the radiator being embraced by the lateral tank parts 3a, 3b so that the lateral radiation from the radiator 4 is likewise received by the tank. In this respect it is important that in accordance with the invention means are provided for receiving and directing that part of the radiation from the radiator 4 which is not received by the tank. In the embodiment shown a frame-like refracting screen or funnel 12 is arranged so as to surround the front surface of the radiator thereby preventing radiation in lateral direction between the tank 3 and the screen 12. I prefer to provide a screen having an inside refracting surface so that rays of heat incident on the inner refracting screen wall are refracted and thereby directed into the room to be heated. Furthermore the screen is in this way prevented from being overheated. I

desire to point out that the invention in the first place aims at protecting against overheating in the vicinity of the stove. For this reason it may be possible to use a screen which has not an inner refracting surface but consists of any suitable insulating material protecting against an overheating of the vicinity of the stove.

From the foregoing description it follows that, in distinction from the previous gas heated stoves of the type in question, the immediate vicinity of the tank and screen remains at the comparatively low temperature of 212° F so that it is not necessary to provide an incombustible casing for enclosing the radiator and the tank. Accordingly a casing may be used which may of course be given the appearance of a piece of furniture. In this way the casing may be chosen to match the furniture or other equipment of the room to be heated.

With a view to easy access to the radiator, tank and burner, the casing 13 of the illustrated embodiment of my invention may be removable. I prefer to arrange the screen of the casing so that it may be removed together with the casing as illustrated in Fig. 3.

As hereinbefore explained, the arrangement according to my invention is a material advance over the previous gas heated stoves.

On the one hand my invention ensures a more complete distribution of heat by directing the heat only into the forward radiation beam and into the water; therefore my invention not only ensures more economic heating but also constitutes a hygienic improvement, as experience has taught, any overheating of the stove jacket causes unpleasant odors and irritation of the respiratory organs. Moreover the means for pre-

venting any overheating of the stove jacket have a further important advantage due to the fact that the relatively low temperature permits the use of wood or any other combustible material for the stove jacket or casing. A wooden casing, for instance, may easily be executed in a form matching or harmonizing with any furniture or fittings.

On the other hand it is an essential improvement that the lower tank part will be heated exclusively or at least substantially by the rearward radiation from the radiator 4 and not by the combustion gases. In this way the combustion gases come into contact merely with the upper part containing the water of higher temperature (already preheated in the lower part by the radiation) where the combustion gases cannot deposit water by condensation. As is well known, such deposits comprise constituents causing a corrosion of the tank wall. In this respect I prefer, as pointed out above, to connect a water conduit 2 carrying the water to the tank to the lower part thereof, thereby obtaining the desired preheating of the water by radiation.

While I have described and illustrated my invention by a special embodiment shown in the drawing, it will be readily understood by those skilled in the art that the description is not to be taken in a limiting sense, many modifications of the embodiment as shown being possible within the scope of my invention. Moreover it is not indispensable that all the features of my invention be used conjointly since they may be employed advantageously in various combinations and sub-combinations.

GUIDO WÜNSCH.