

Oct. 28, 1952

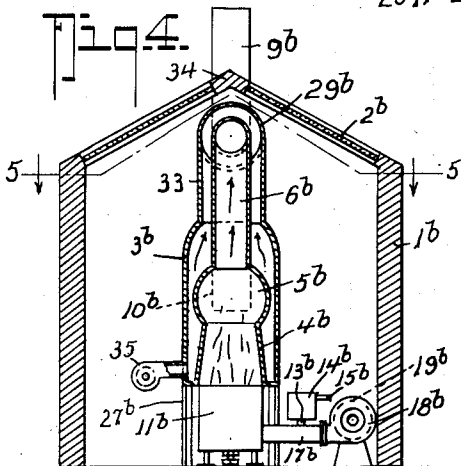
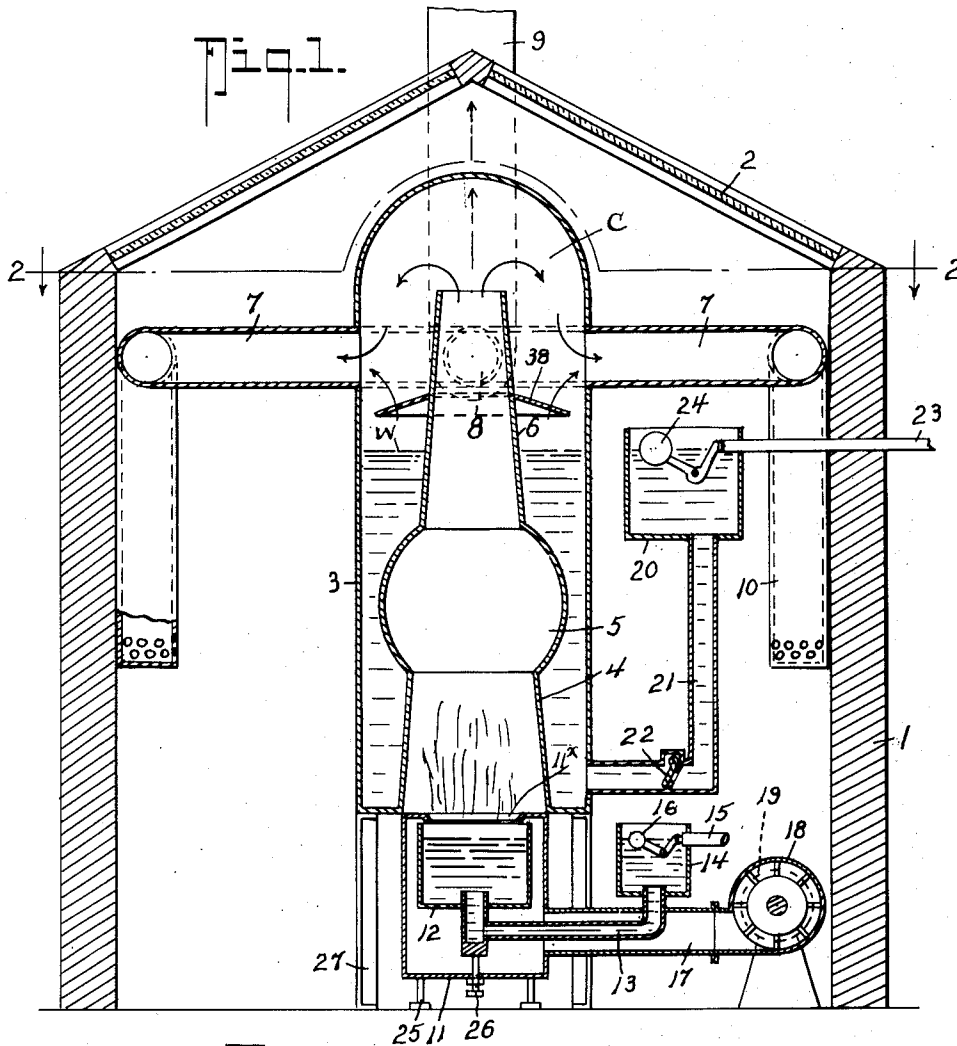
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HOTHOUSE, HOTBED, AND DOMESTIC HEATING SYSTEM

Filed Nov. 15, 1948

3 Sheets-Sheet 1



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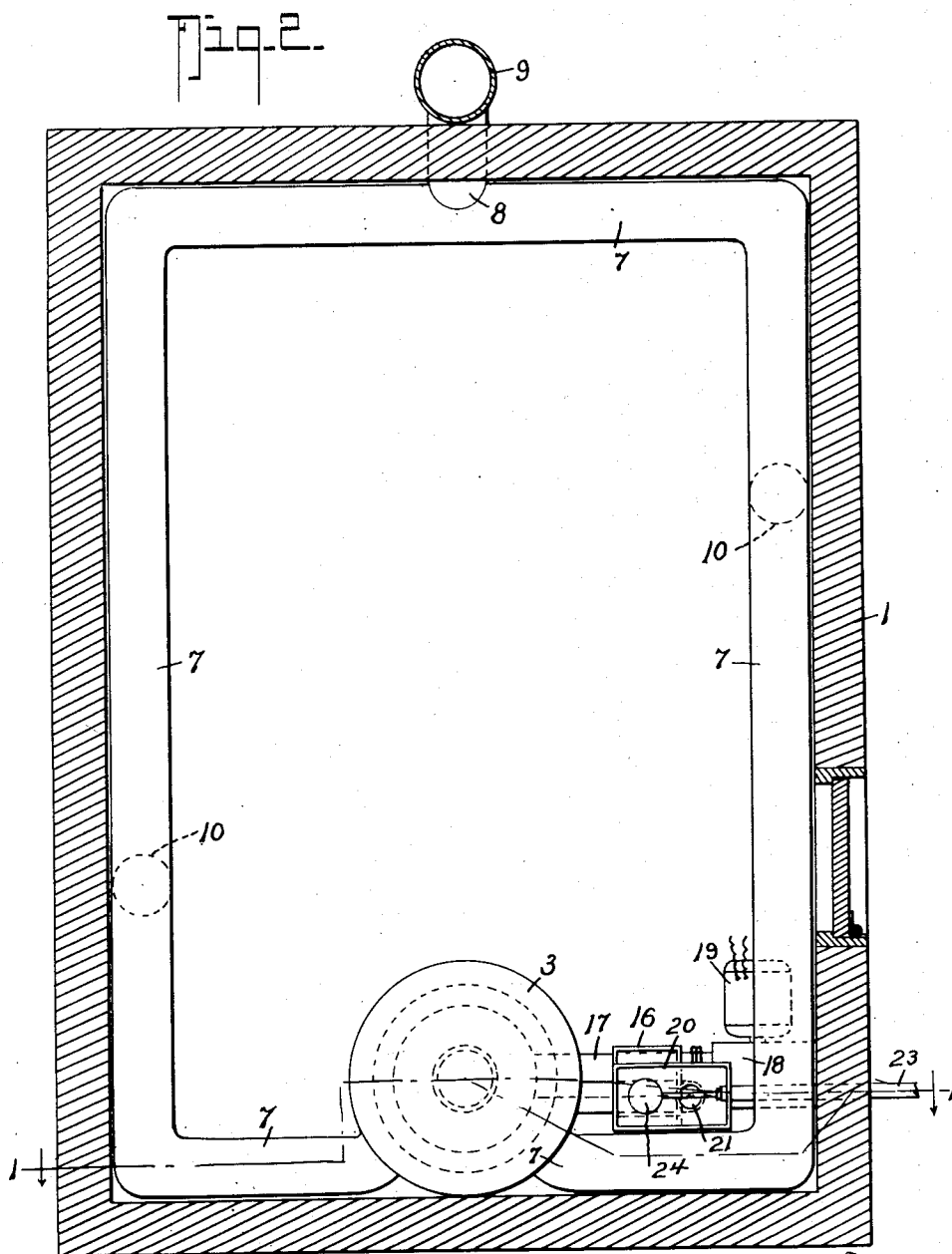
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HOTHOUSE, HOTBED, AND DOMESTIC HEATING SYSTEM

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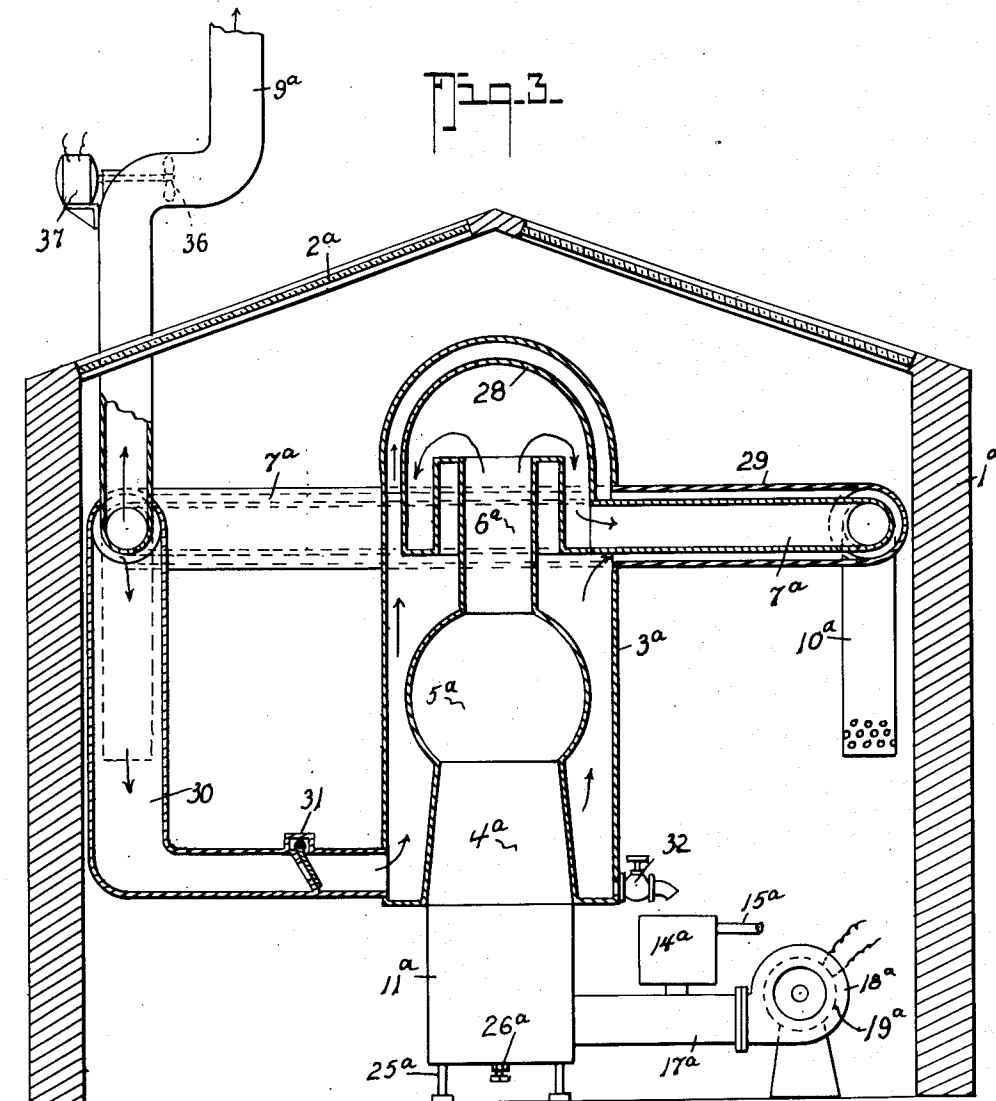
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3 Sheets-Sheet 3



UNITED STATES PATENT OFFICE

2,615,635

HOTHOUSE, HOTBED, AND DOMESTIC HEATING SYSTEM

Joseph Treunch Norman, Huntington Mills, Pa.

Application November 15, 1948, Serial No. 60,051

1 Claim. (Cl. 237-56)

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My invention has for its objects:

1. To provide a simple, inexpensive heating system for hot houses, other rooms or buildings.

2. To provide such a system that can be manufactured and installed at low cost and will require minimum maintenance.

3. To provide for the utilization of as much of the heat units of the fuel used as possible and thereby increase the efficiency of the apparatus employed.

4. To provide a heating system which will give an even heat throughout the entire area of the hot house, hot bed, or other rooms or buildings.

Other objects will in part be obvious and in part be pointed out hereinafter.

To the attainment of the aforesaid objects and ends invention still further resides in the novel details of construction, combination and arrangement of parts, all of which will be first fully described in the following detailed description, and then be particularly pointed out in the appended claim, reference being had to the accompanying drawing, in which:

Fig. 1 is a section on about the line 1-1 of Fig. 2.

Fig. 2 is a section on about the line 2-2 of Fig. 1.

Fig. 3 is a view similar to Fig. 1 showing a modification of the invention.

Fig. 4 is a view similar to Figs. 1 and 3 of another modification.

Fig. 5 is a section on about the line 5-5 of Fig. 4.

In the drawing in which like numerals and letters of reference indicate like parts in all the figures, 1 represents the walls of the hot house or hot bed having glass windows 2.

3 represents the outer shell of a boiler and 4 represents the lower cone of the inner shell while 5 is a combustion chamber of any desired shape and 6 the upper cone of the inner shell.

An iron pipe 7 runs around adjacent the four walls 1 and conducts the products of combustion or steam or both from the boiler to a remote smokestack 9 via an outlet 8.

Pipes 10 perforated at the lower ends lead from or are dependent from the pipe 7 at suitable intervals and extend down to just above the level of the plants in the hot house.

Beneath the boiler, which is suitably supported, as for example by legs 27, is the oil burner which is a part of the plant and includes an outer shell 11 open at the top and there provided with an internal lip 11^a that lies over the pot of an oil pot 12, that is adjustably supported and vertically adjustable by means of a screw device 26.

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An oil duct 13 leads from an oil reservoir 14 to pot 12, while a float valve 16 controls the intake of oil from the oil supply line 15.

Air is fed to the casing 11 via a duct 17 from a blower 18 that is driven by an electric motor 19.

20 is a water reservoir which receives water from a supply pipe 23 via a float valve 24. The reservoir 20 delivers water into the boiler shell 3 via a pipe or duct 21 and back-check valve 22.

The burner shell 11 is supported on legs 25 while the boiler is supported in any suitable way, legs 27 being shown for purposes of illustration only.

In operating the above described embodiments (Figs. 1 and 2) the products of combustion of the oil pass into the chamber C above the water level W and mix with the vapor or steam. The mixture then passes through pipes 7 to outlet 8 and from thence to atmosphere via stack 9.

Cool air at the lower level of the hot bed is drawn into pipes 10 and displaced by hot air. Pipes 7 are located just below the windows 2 as shown in Fig. 1. Since both the hot products of combustion and the steam generated pass through the same ducts little or none of their energy is lost.

38 indicates a surge plate.

The embodiment shown in Fig. 3 differs from that shown in Figs. 1 and 2 mainly in keeping the products of combustion and water separated. In this embodiment the upper part 6^a of the inner wall of the furnace is provided with a dome 28 from which pipes 7^a extend around the two sides of the house 1 and the far end wall and connect with a stack 9^a located at the same end of the building as that where the furnace is located. Surrounding but spaced from the pipe 7^a is a hot water pipe 29 which at the stack end connects with a return duct 30 that connects to the shell 3^a adjacent its bottom, a back-check valve 31 being provided in the pipe 30. The shell 3^a and pipes 29, 30 are filled with water and the system then constitutes a combined hot water and products of combustion system instead of a combined steam and/or products of combustion system as in Figs. 1 and 2. In Fig. 3 those parts which correspond to like parts in the preceding figures bear the same reference number plus the index letter a and need not be further described here. From the foregoing it will be seen that the entire path of the products of combustion from furnace to stack have their heat transferred to the water jacket 3^a, 29 and thus the stack temperature will be very low.

In Figs. 4 and 5 is shown a hot air heating system wherein the smoke pipe 7^b is in part at

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least enclosed in a larger pipe 29^b that is connected to the upper end of the shell extension 33. The pipe 29^b is open at its end to discharge warm air into the hot house at the desired place. The pipes 29^b and 7^b in this embodiment may lie adjacent the peak 34 of the top of the hot house instead of running around the sides and end of the same as in the preceding figures.

A blower 35 may be provided to regulate the air inlet to shell 3^b, see Fig. 4.

In Figs. 4 and 5 those parts which correspond to like parts in the preceding figure bear the same reference number plus the index letter b and need not be re-described here.

A suction blower driven by a suitable motor may be provided in the stack connections (as for example, see illustration of blower 36 and motor 37 in Fig. 3) to induce forced draft where natural draft is insufficient. Such method of creating forced draft being well known in the art, I make no claim thereto per se.

In this application I make no claim to the oil burner per se shown and described as that constitutes the subject matter of my application Serial No. 2,287, filed January 14, 1948.

From the foregoing description, taken in connection with the accompanying drawings, it is thought that the construction, operation and advantages of the invention will readily appear to those skilled in the art.

What I claim is:

In a heating system for a hot house, the combination of a walled building and a hot water

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furnace having a boiler and firebox, a pipe connected to the firebox for conveying the products of combustion extending in a horizontal plane about the walls of said building, a stack connected to said pipe for conducting the products of combustion to atmosphere, a hot water pipe surrounding said first mentioned pipe, said hot water pipe having the ends thereof connected to said boiler, and cold air pipes connected to said first mentioned pipe and extending downwardly therefrom in parallelism to said boiler, said cold air pipes being open at their lower ends for conducting cold air to said first mentioned pipe.

JOSEPH TREUNCH NORMAN.

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