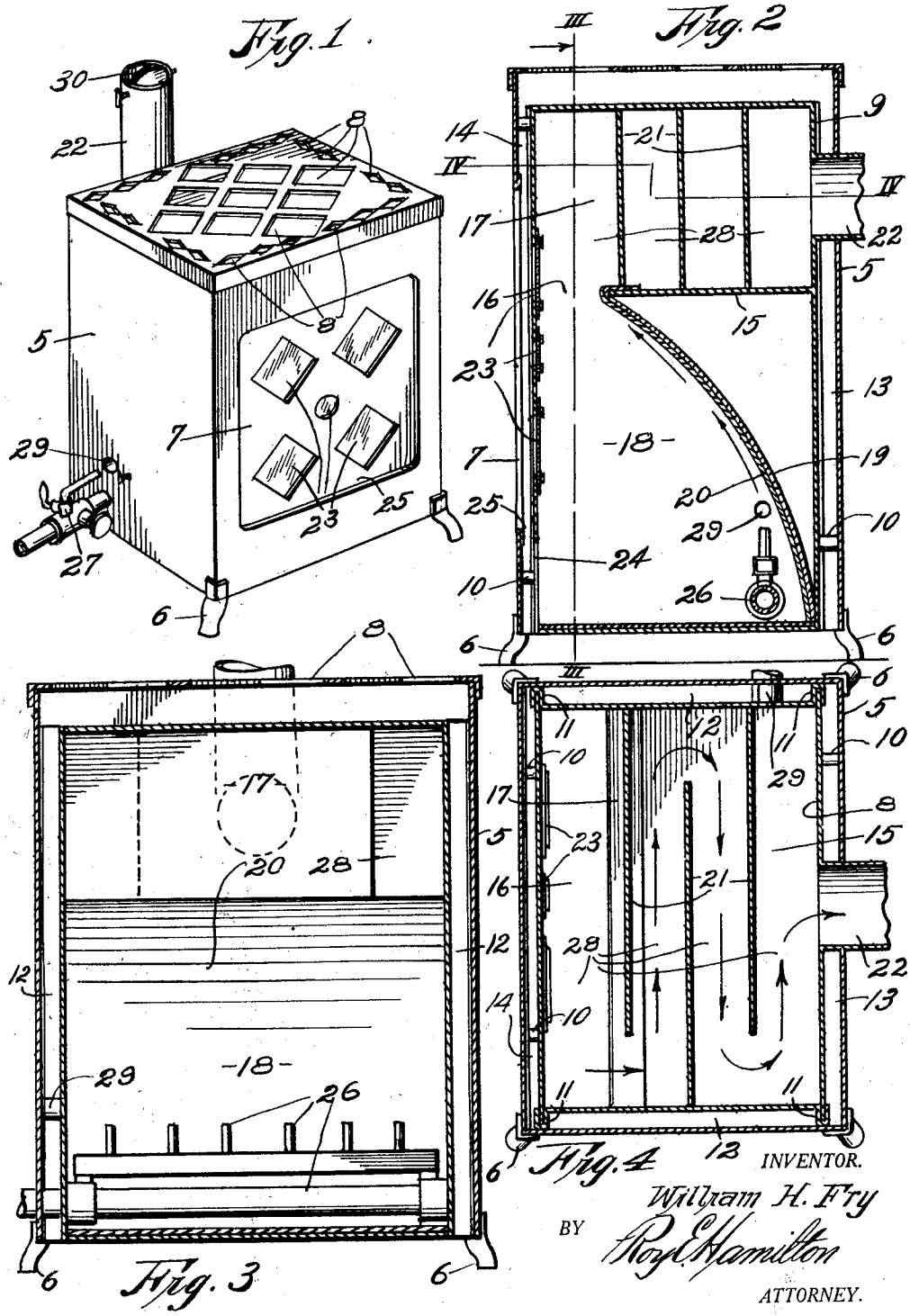
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W. H. FRY

GAS HEATER

Filed Dec. 19, 1927



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UNITED STATES PATENT OFFICE.

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GAS HEATER.

Application filed December 19, 1927. Serial No. 241,021.

This invention relates to gas heaters, and particularly to the hot air type, which is placed in the room to be heated.

An object of this invention is to provide a heating apparatus in which the heat is retained in the heating chamber a longer time than usual by means of especially constructed heat conducting passage-ways.

A further object is an economical and light construction, high heating efficiency, ease of operation, and the elimination of all fumes, including carbon monoxide, through the flue.

With these general objects in view, as well as minor objects, which will appear during the course of the detailed specification, the invention will now be described with reference to the accompanying drawing, illustrating a construction embodying the improvements of this invention.

In the drawing—

Figure 1, is a perspective view of a gas heater, embodying this invention.

Fig. 2, is a vertical central section of the same.

Fig. 3, is a vertical longitudinal section taken on line III—III of Fig. 2, and

Fig. 4, is a horizontal section taken on line IV—IV of Fig. 2.

Similar reference characters refer to like parts throughout the several views, and the numeral 5 designates an outer casing, open at the bottom, and provided with suitable supporting legs 6. The front portion of casing 5 is provided with a large opening 7, while the top thereof has openings 8, through which the heated air may pass. An inner casing 9 is carried within said outer casing, by means of spacing members 10. In order to form air passage-ways between the inner and outer casing, said casings are spaced apart, as clearly shown in Figs. 2, 3 and 4.

Referring to Fig. 4, it will be noted that the inner casing is provided at its corners with vertical ribs 11, which extend to the outer casing, thus forming air passages 12 which are separated from air passages 13 and 14, located at the back and front of the heater, respectively.

The inner casing 7 is provided with a horizontal partition 15, positioned intermediate its top and bottom, and extends from the rear wall forwardly to form an upper chamber 17 and a lower chamber 18 in the inner casing. The front edge of the partition 15 is spaced apart from the front wall of the inner casing thus forming a narrow passage-way between said upper and lower chambers. Extending across the lower chamber from the lower rear portion thereof to the front edge of the horizontal partition 15 is a concave deflector 19, which is preferably lined with asbestos wool 20. The upper chamber 17 is provided with a plurality of vertical transverse partitions 21, which extend from horizontal partition 15 to the top of said inner casing. Partitions 21 extend part way across said chamber, alternately from each side thereof, thus forming a horizontal zig-zag passage-way 28, for the products of combustion. Communicating with the rear of chamber 17 is a flue 22 which is provided with a damper 30.

The front wall of the inner casing 9 is provided with transparent portions 23, which are visible through the opening 7, and also has an opening 24 adjacent its bottom portion. Due to the spacing apart of the inner and outer casings, an air passage-way 25 is formed, whereby air may pass into inner casing to supply oxygen for combustion, and also to create a proper draft.

A gas or oil burner 26, of any suitable type is positioned in the lower rear portion of the lower chamber, so that the heat produced thereby will impinge the concave surface of the deflector 19, pass upwardly through the narrow passage-way 16, into chamber 17, thence through the zig-zag passage-way, as indicated by the arrows, thence out through the flue 20. The air to be heated enters the passage-ways between the inner and outer casings from the bottom, passes upwardly and out through the openings 8 in the top of outer casing 5.

In order to facilitate the ignition of the gas from the burner, a lighting device 27 is provided. When the valve in 27 is opened and the gas issuing from the same is ignited, a flame is projected through the tube 29 which extends through the two casings and communicates with the chamber 18 at a point above said burner. Due to the construction of the stove and the long distance that the heated gases produced by the burner must travel before leaving the heater, most of the heat therefrom is utilized in heating the air that passes between the casings, thus preventing the escape of any appreciable amount of heat through the flue.

I do not limit this invention to the construction shown and described, as many modifications may be made within the scope of the appended claims without departing from the spirit thereof.

What I claim as new and desire to be secured by Letters Patent is:

1. In a gas heater, an outer casing having an open lower end, and openings in its top side, an inner casing carried within said outer casing and spaced apart therefrom, a plurality of vertical ribs extending from said inner to said outer casing to form a plurality of vertical passages between said outer and inner casings, a lower and an upper chamber in said inner casing having an opening therebetween, a forwardly and upwardly extending deflector in said lower chamber, a burner in said lower chamber positioned adjacent said deflector, a flue communicating with said inner chamber and a series of vertical partitions in said upper chamber to form a horizontal zig-zag passage-way from said lower chamber to said flue.

2. In a gas heater, an outer casing having an open lower end, and openings in its top side, an inner casing carried within said outer casing and spaced apart therefrom, a lower and an upper chamber in said inner casing having an opening therebetween, a forwardly and upwardly extending deflector in said lower chamber, a burner in said lower chamber positioned adjacent said deflector, a flue communicating with said inner chamber, a series of partitions in said upper chamber to form a horizontal zig-zag passage-way from said lower chamber to said flue, an opening in the side wall of said outer casing, and transparent sections in said inner casing visible through said opening in the side wall of said outer casing.

In testimony whereof, I hereunto affix my signature.

WILLIAM H. FRY.