Oct. 31, 1950 H. F. B. JORGENSEN 2,528,312

GAS HEATER

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Fig. 1.

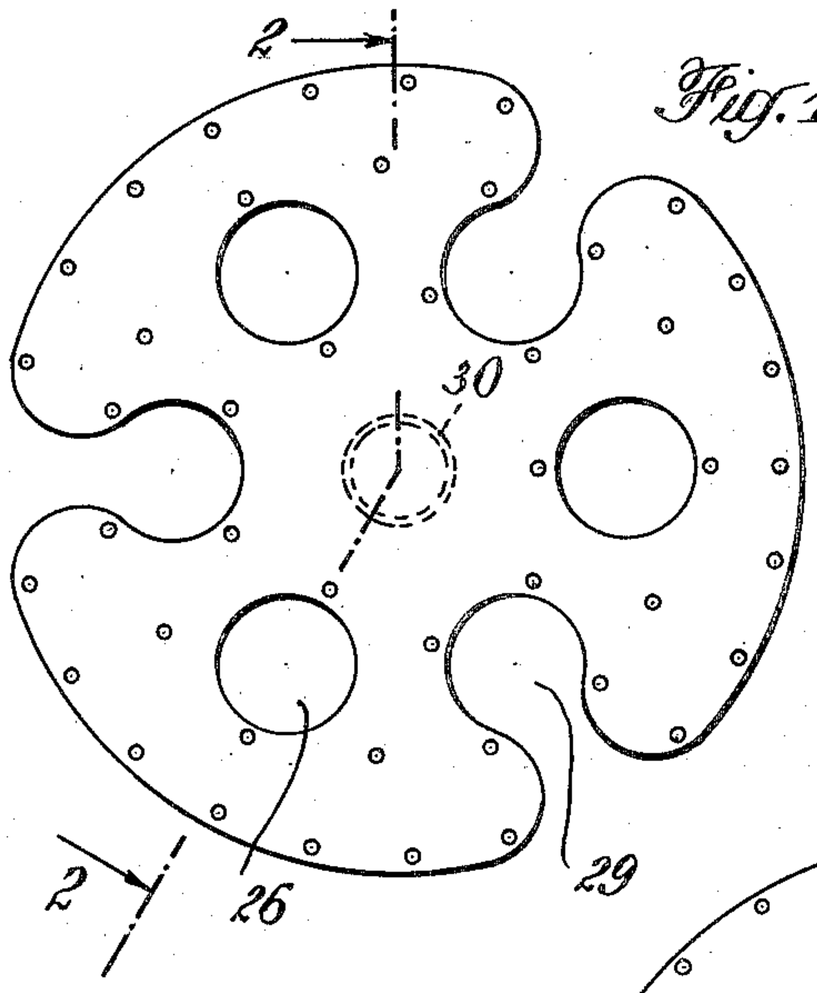

Fig. 2

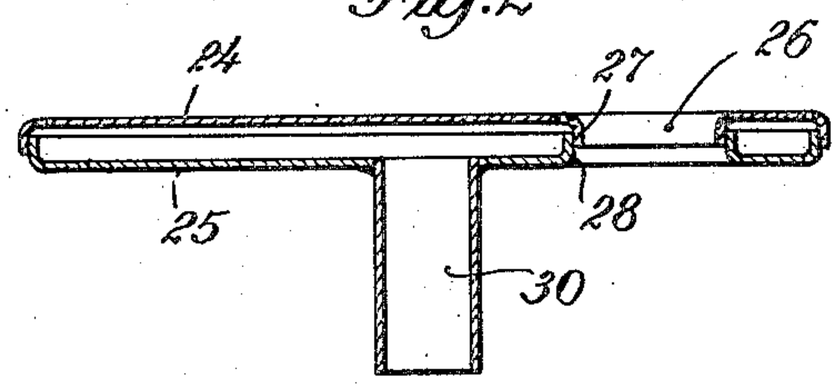

Fig. 3,

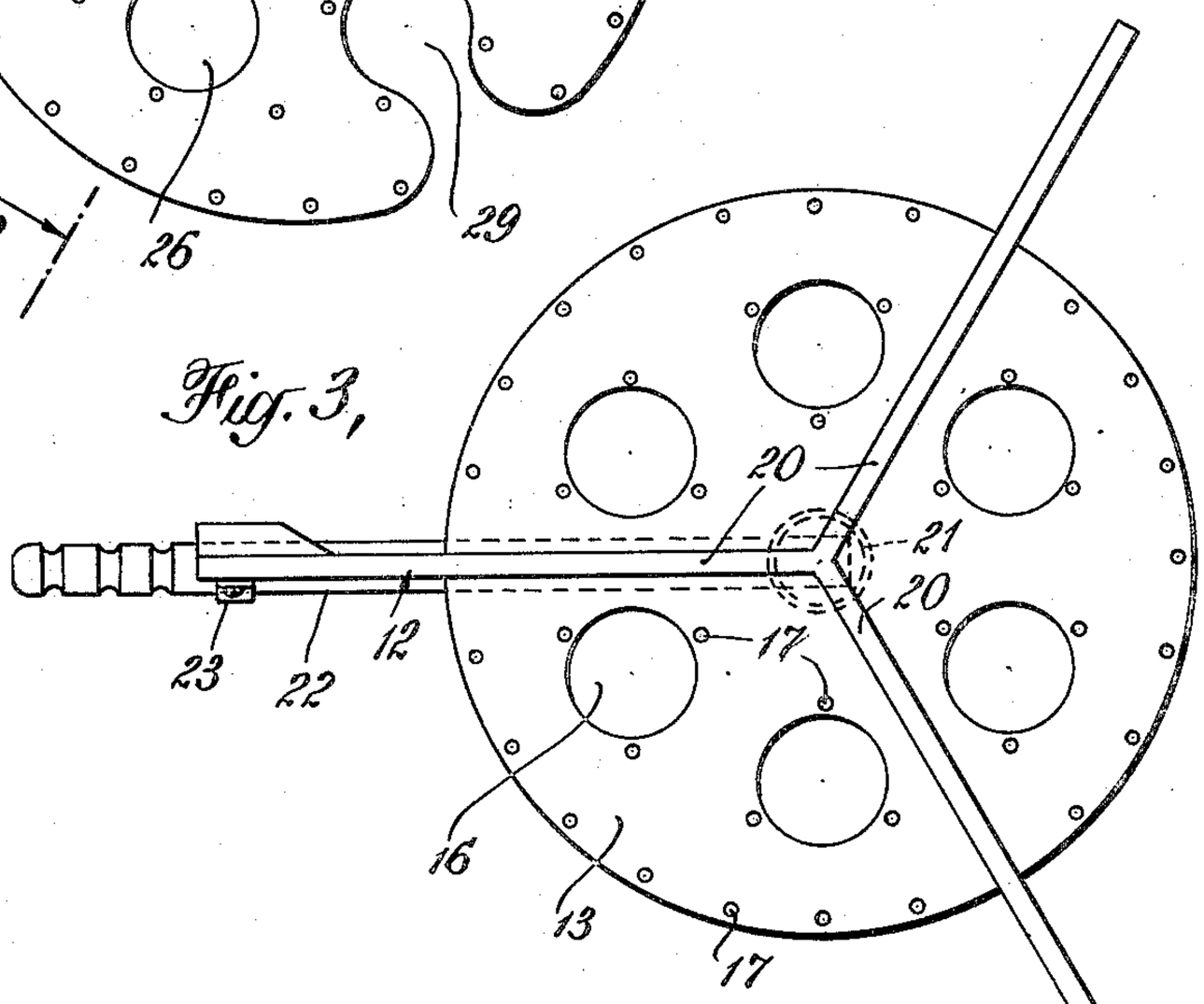

Fig. 4.

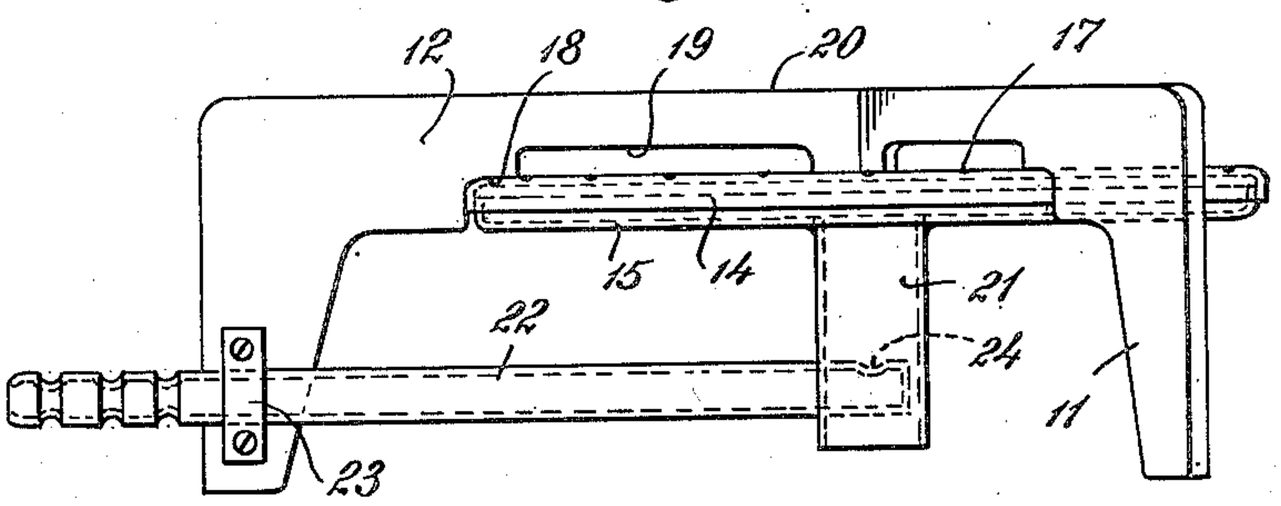

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Fig. 5,

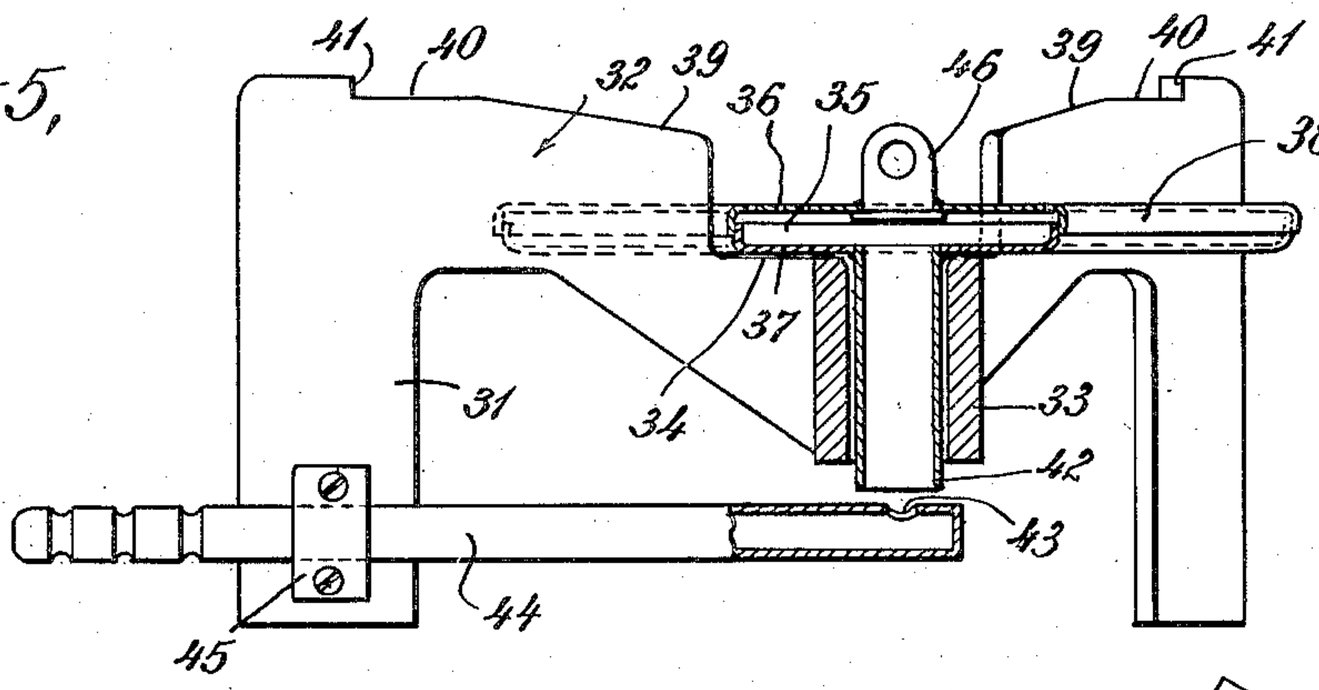


Fig. 6,

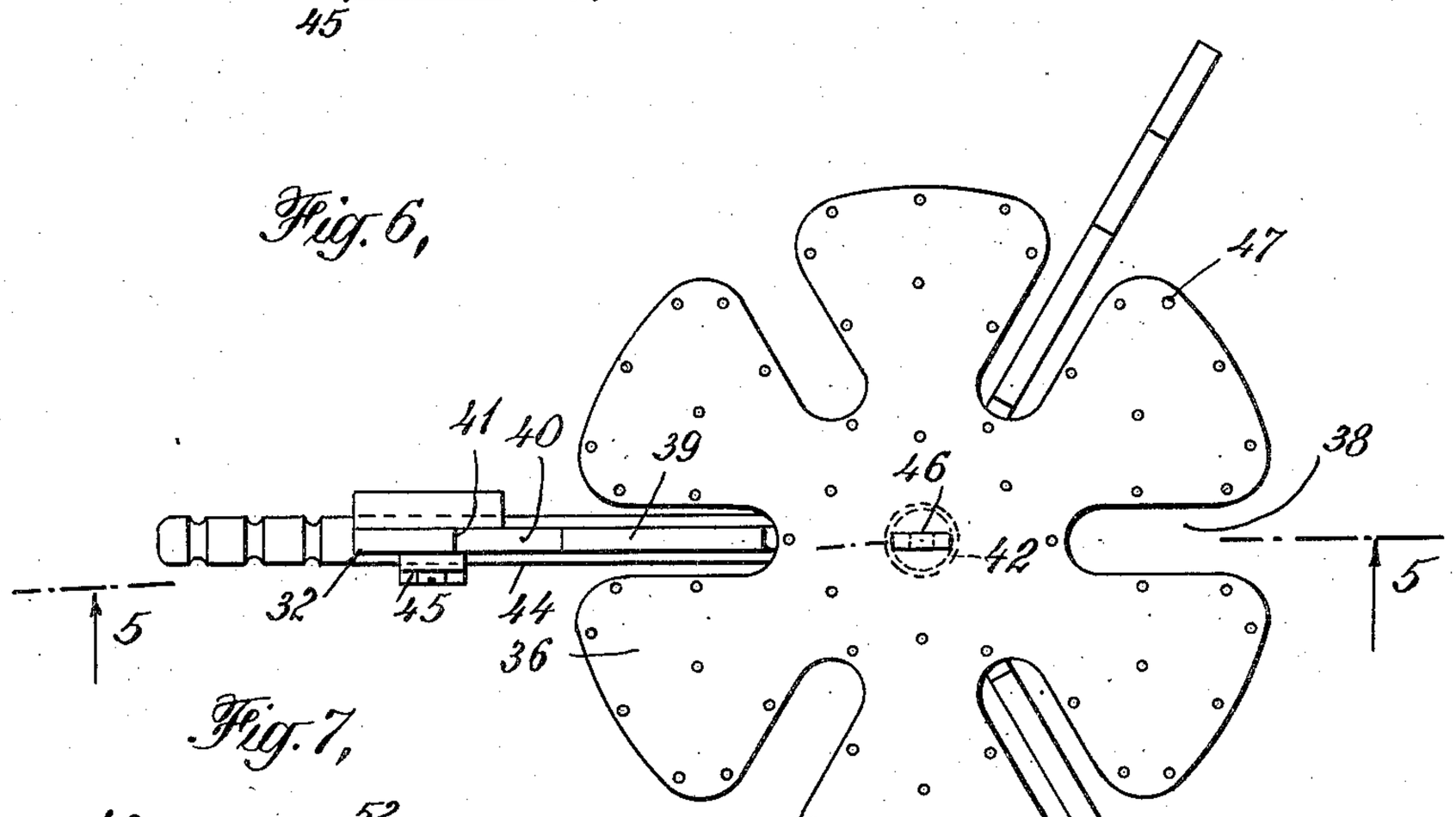


Fig. 7,

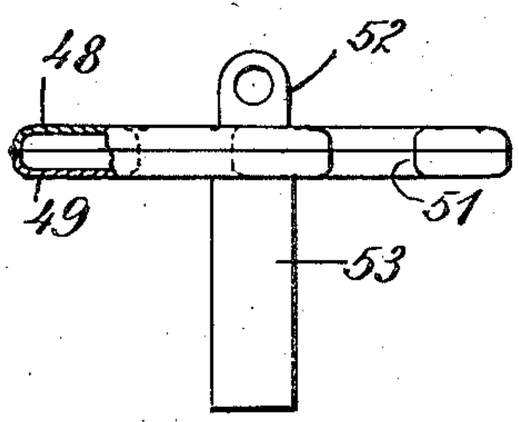


Fig. 8,

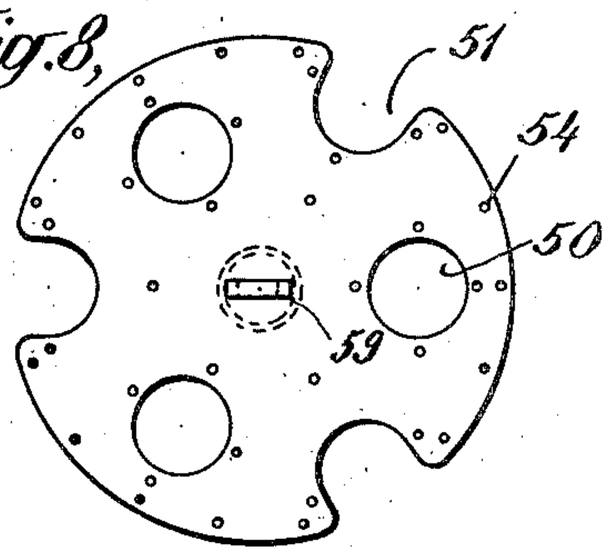


Fig. 9,

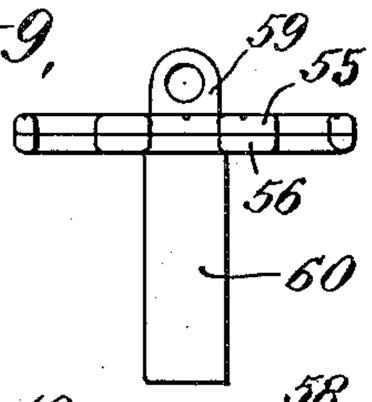
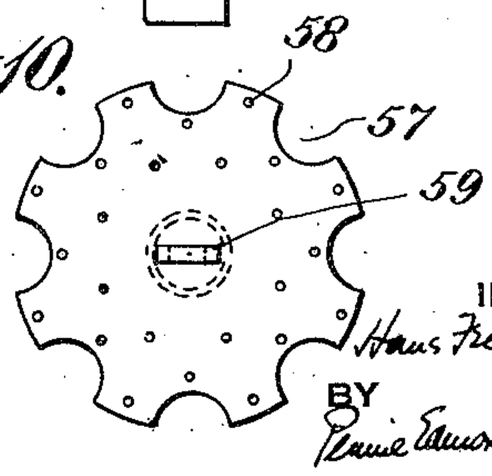


Fig. 10.



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GAS HEATER

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Application July 29, 1947, Serial No. 764,305
In Denmark November 9, 1945

Section 1, Public Law 690, August 8, 1946
Patent expires November 9, 1965

3 Claims. (Cl. 126—40)

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This invention relates to gas heaters suitable for domestic cooking and heating purposes and is concerned more particularly with a novel gas heater, which includes a supporting structure, on which the vessel to be heated may be placed, and a burner carried by the structure and constructed to cause an even distribution of heat over the bottom of the vessel. The new heater is of simple, inexpensive construction and it is highly effective in operation.

The supporting structure of the new heater includes a plurality of standards arranged in a closed, and usually circular, series and having inward extensions, which, in the preferred form of the heater, are connected together at their inner ends. The extensions have supporting surfaces at their tops and the burner is carried by the structure and the extensions project within the outline of the burner. The burner may be permanently attached to the structure, as, for example, by being secured to the structure beneath the extensions, or the burner may be removably mounted in place by being seated upon depressed portions of the upper edges of the extensions.

The burner comprises a thin flat chamber having flame orifices in its upper surface. Ordinarily the chamber is of circular outline and has flame orifices along its periphery and also inward therefrom. The chamber is provided with air passages through it within its outline and such passages may be wholly within the outline or have the form of indentations leading inwardly from the periphery. The outline of the top of the burner is of substantial area and usually its diameter is greater than half the diameter of a circle drawn through the outer ends of the supporting surfaces on the structure. A burner of the construction described insures excellent distribution of the heat delivered to the bottom of a vessel resting on the supporting surfaces of the structure.

For a better understanding of the invention, reference may be made to the accompanying drawings, in which

Fig. 1 is a top plan view of one form of burner that may be used in the new heater;

Fig. 2 is a sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a top plan view of one form of the new heater;

Fig. 4 is a view in side elevation of the heater shown in Fig. 3;

Fig. 5 is a sectional view on the line 5—5 of Fig. 6, showing another form of the new heater;

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Fig. 6 is a top plan view of the heater shown in Fig. 5;

Fig. 7 is a view in side elevation, with parts broken away, of another form of a burner that may be used in the heater;

Fig. 8 is a top plan view of the burner of Fig. 7; and

Figs. 9 and 10 are views in side elevation and top plan, respectively, of another form of burner.

The heater in the form shown in Fig. 4 comprises a supporting structure consisting of a plurality of standards 11 arranged in a circular series and having inward extensions 12 from their upper ends, the inner ends of the extensions being connected together. The burner 13 used in the heater includes an upper disc 14 and a lower disc 15, which are formed with peripheral flanges and are secured together with their flanges projecting toward one another and overlapping, so that the discs define a thin flat chamber. The flanges may be secured together by welding or in any other convenient manner, or the discs may be so formed that the flanges fit sufficiently tightly against one another to hold the discs together. Preferably, the burner is provided with a plurality of air passages 16 through it, which are defined by overlapping flanges formed on the discs. The upper disc has a plurality of flame orifices 17, which are located along the periphery of the disc, the outlines of the air passages, and wherever else desired. The top of the burner is of substantial area and its diameter is preferably greater than half the diameter of a circle drawn through the outer edges of the standards.

In the heater of Figs. 3 and 4, the burner is permanently attached to the supporting structure and, for this purpose, the central portions of the under sides of the extensions 12 are cut away to form seats 18. The top of the burner is placed to engage the seats and is secured thereto by welding or in any other convenient manner. Inwardly from the seats, the under surfaces of the extensions 12 are further cut away, as indicated at 19, so that these surfaces are free of the top of the burner. The top edges 20 of the extensions form supporting surfaces, which lie a substantial distance above the top of the burner.

The lower disc 15 of the burner has a central opening, around which a pipe 21 is secured by welding. The lower end of the pipe is open and, near that end, the pipe has a lateral opening, through which extends a gas tube 22 at-

tached to one of the standards 11 by a clip 23. The end of the gas tube within pipe 21 has an opening 24, through which gas can escape into the pipe. Air is drawn in with the gas through the lower end of the pipe to form a gas-air mixture, which flows into the burner chamber to escape through the flame orifices.

The burner shown in Figs. 1 and 2 is also of circular outline and is formed of upper disc 24 and lower disc 25. The burner has air passages 26 defined by overlapping flanges 27, 28 on the discs, and the discs are formed with indentations 29 leading inwardly from their peripheries to form additional air passages. Gas is supplied to the chamber between the discs by a pipe 30 attached to the lower disc and surrounding an opening therethrough.

The heater shown in Figs. 5 and 6 includes a plurality of standards 31 having inward extensions 32, the inner ends of the extensions being secured to a vertical tube 33 centrally of the structure. The top edges of the extensions have depressed portions 34 adjacent tube 33, and a burner 35 is seated on the depressed portions of those top edges. The burner comprises an upper disc 36 and a lower disc 37 having overlapping peripheral flanges. The discs are formed with indentations 38 from their peripheries and the indentations are so arranged that, when the burner is seated on the depressed portions 34 of the top edges of the extensions 32, the portions of the extensions outward from the depressed portions project upwardly through indentations 38. The top edges 39 of extensions 32 lying outwardly from the depressed portions 34 lie at a substantial distance above the level of the top of the burner and the outer ends 40 of the edges 39 form supporting surfaces on which a vessel may be placed. If desired, the supporting surfaces may be defined at their outer ends by vertical shoulders 41.

The burner 35 is supplied with a gas-air mixture through a pipe 42, which is attached to lower disc 37 to surround an opening therein. When the burner is mounted on the supporting structure, the pipe 42 extends through tube 33 with its lower end overlying an opening 43 in the top of a gas tube 44 attached by a clip 45 to one of the standards 31. To facilitate removal of the burner from the structure, the top disc of the burner may be provided with a projection 46 having a hole therethrough. The top disc 36 of the burner is provided with a plurality of flame orifices 47 distributed over the surface of the disc in any desired manner.

Other forms of a replaceable burner, which may be used in the heater shown in Figs. 5 and 6, are illustrated in Figs. 7–10 inclusive. The burner shown in Figs. 7 and 8 is of generally circular outline and is made up of an upper disc 48 and a lower disc 49 having flanges secured together edge to edge. The discs have air passages 50 therethrough defined by flanges on the respective discs and the discs are also formed with peripheral indentations 51, through which air may pass. The top disc is provided with a projection 52 for removal of the burner and the lower disc carries a gas pipe 53 surrounding an opening in the disc. The top disc is formed with a plurality of flame orifices 54 ordinarily distributed around the periphery of the burner and around the edges of the air openings.

The burner shown in Figs. 9 and 10 is of smaller size than those previously described and it consists of an upper disc 55 and a lower disc 56 having peripheral flanges secured together edge to edge. The discs are formed with peripheral indentations 57 and the top disc has a plurality of flame orifices 58 and a central projection 59 to facilitate removal of the burner. The lower disc has a central opening through which the fuel may be supplied through a tube 60 surrounding the opening.

In all forms of the new heater, the extensions from the standards of the supporting structure project inwardly beyond the outline of the burner and the vessel is supported at the desired height above the burner. The top of the burner forms a radiating surface, from which heat is radiated to the bottom of the vessel, and an even distribution of heat to the contents of the vessel is thereby insured.

In the use of the heater shown in Fig. 5, burners of different size may be employed as desired, and these burners all have peripheral indentations, so that the burners may be placed in position with the extensions from the standards projecting inwardly beyond the outline of the burner top and extending upwardly through the indentations.

I claim:

1. A gas heater suitable for domestic use, which comprises a central tubular member, a plurality of extensions radiating from the tubular member, a plurality of supporting standards connected to the outer ends of respective extensions, the tops of the inner portions of the extensions adjacent the tubular member lying at a lower level than the tops of the remainder of the extensions, and a burner having a thin flat chamber resting on top of the inner portions of the extensions and an inlet pipe extending downwardly from the bottom of the chamber into said tubular member, the chamber having indentations extending inwardly from its periphery to form air passages within the outline of the chamber, and the chamber having flame orifices distributed over its top surface with certain of the orifices lying along the periphery of said surface and the edges of the indentations, the portions of the extensions outward from said inner portions thereof rising through respective indentations substantially from end to end thereof and having top surfaces lying at a level above the top surface of the burner.

2. A gas heater for domestic use, which comprises a central tubular member, a plurality of extensions radiating from the tubular member, a plurality of supporting standards connected to the outer ends of respective extensions, the tops of the inner portions of the extensions adjacent the tubular member lying at a lower level than the tops of the remainder of the extensions, and a burner having a thin flat chamber resting on top of the inner portions of the extensions and having an inlet pipe within said tubular member, the chamber having air passages therethrough formed at least in part by indentations extending inwardly from the periphery of the chamber, and the chamber having flame orifices distributed over its top surface with certain of the orifices lying along the periphery of said surface and the boundaries of said air passages, the portions of the extensions outward from said inner portions thereof rising through respective indentations and having top surfaces lying at a level above the top of the burner.

3. A gas heater suitable for domestic use which comprises a central tubular member, a plurality of radially extending standards connected at their inner ends to the member, the tops of the

inner ends of the standards connected to the tubular member and the top of the tubular member lying at a substantially lower level than the tops of the remainder of the standards, and a burner for heating a vessel supported on the remainder of the standards, the burner being freely supported on the tops of the inner ends of the standards and on the top of the central tubular member and having a downwardly extending tube received within the central tubular member, the burner also having indentations extending inwardly from its periphery to receive those portions of the standards extending upwardly from the lower level, the burner having a flat top surface in which are formed a plurality of flame orifices substantially evenly spaced from one another, certain of the orifices lying along the periphery of said top surface and the edges of the indentations so that heat will be uniformly distributed by the burner to the standard-supported vessel, the burner being vertically removable from support by the standards whereby a burner of

different peripheral extent may be substituted when a different size vessel is to be heated.

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