

No. 766,446.

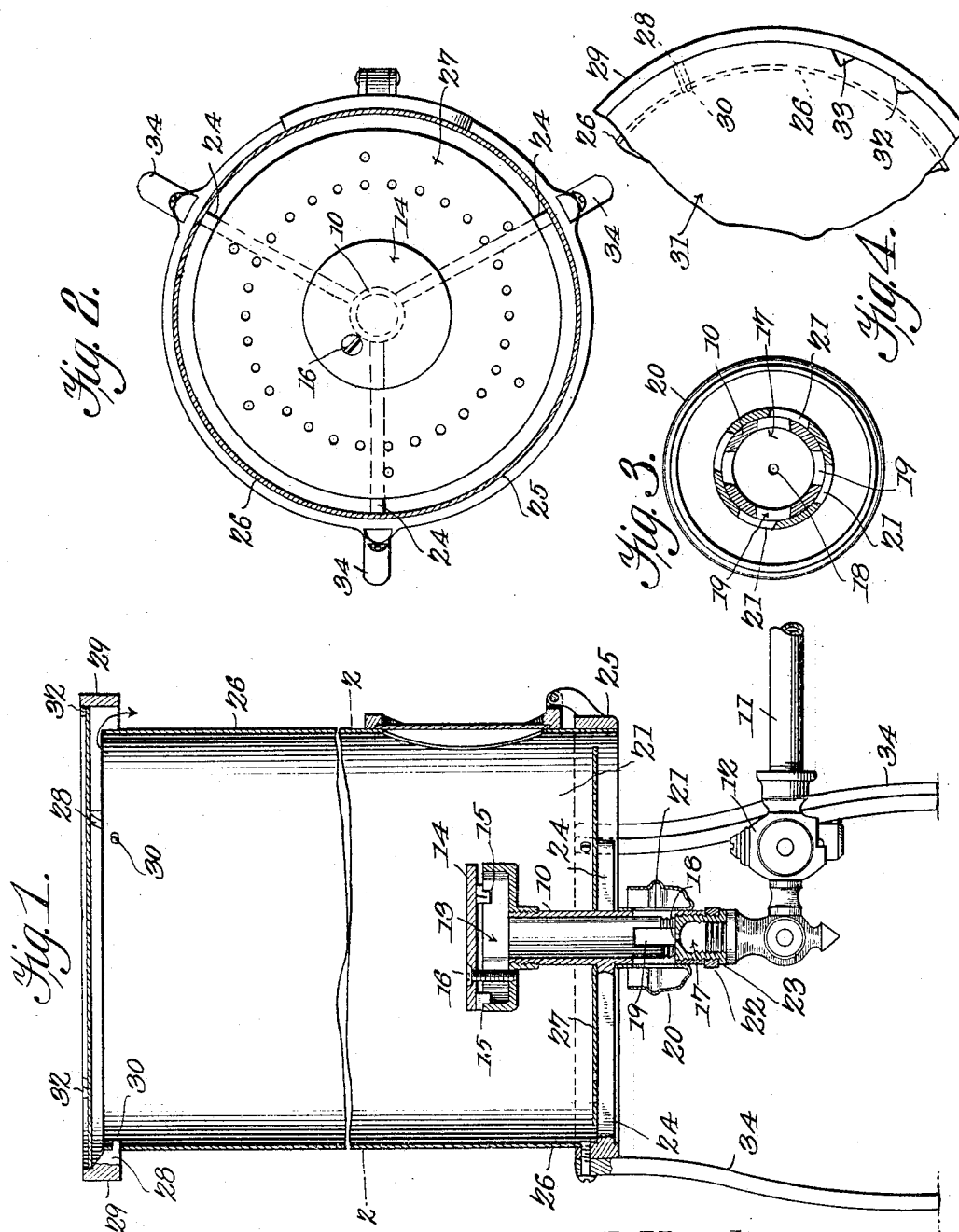
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GAS HEATER.

APPLICATION FILED FEB. 19, 1904.

NO MODEL.



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UNITED STATES PATENT OFFICE.

GEORGE J. KARLE AND RAYMOND M. HATCH, OF BUFFALO, NEW YORK.

GAS-HEATER.

SPECIFICATION forming part of Letters Patent No. 766,446, dated August 2, 1904.

Application filed February 19, 1904. Serial No. 194,363. (No model.)

To all whom it may concern:

Be it known that we, GEORGE J. KARLE and RAYMOND M. HATCH, citizens of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Gas-Heater, of which the following is a specification.

This invention relates to gas-heating stoves, and has for its object to simplify and improve the construction and produce a device of this character which may be cheaply constructed, easily installed, and in which the gas will be economically consumed and its heat-imparting qualities fully utilized and in which the supply of gas and air may be perfectly controlled and regulated.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of the embodiment of the invention, it being understood that the invention is not necessarily limited thereto, as various changes in the shape, proportions, and general assemblage of the parts may be resorted to without departing from the principle of the invention or sacrificing any of its advantages, and the right is therefore reserved of making all the changes and modifications which fairly fall within the scope of the invention and the claims made therefor.

In the drawings thus employed, Figure 1 is a sectional elevation. Fig. 2 is a transverse section on the line 2 2 of Fig. 1. Fig. 3 is a transverse section, enlarged, through the air-controlling valve. Fig. 4 is a plan view of a portion of the top of the radiating and circulating shell.

The improved apparatus comprises, primarily, a burner portion and a conductor shell or drum, the burner portion consisting of a tubular mixing-chamber 10, having at one end a gas-supply pipe 11 and feed-valve 12 of the ordinary construction and with the other end enlarged into a laterally-extending chamber

13, having attached to its upper open side and spaced from its rim a deflector-plate 14, the plate having spaced lugs 15 for holding it away from the chamber 13 and secured thereto, as by one or more clamp-bolts 16. Fitting into the bottom of the chamber 10 is a threaded plug 17, having a contracted orifice 18, the gas-feed valve 12 being connected to the lower end of the plug. Transversely disposed through the chamber 10 are spaced apertures 19 to admit air to the chamber and having a rotating valve 20, provided with corresponding apertures 21 to control the amount of air admitted. The threaded plug 17 is adapted to be projected into the interior of the chamber 10 opposite the apertures 19 to reduce their area, and thus correspondingly reduce the amount of air admitted there-through, and to prevent accidental displacement of the plug a stop-ring 22 is inserted between the lower end of the chamber 10 and a flange 23 on the plug. By this simple means the upward movement of the plug relative to the mixing-chamber is limited, and by varying the thickness of the stop-ring any desired size or area of air-inlet may be provided. This is an important feature of the invention and adds materially to the value and efficiency of the device.

Radiating from the chamber 10 are arms 24, having an annular frame 25 connected to their outer ends, the chamber, arms, and frame being preferably cast in one piece, and connected to the frame is a shell or drum 26, extending upwardly to any desired distance.

The frame 25 will be so positioned relative to the burner 13 14 that the lower line of the drum 26 comes below the lower line of the burner, and resting upon the arms 24 is a perforated plate 27 to retard the inflowing air-currents and prevent too strong currents from reaching the burner.

Surrounding the upper edge of the drum 26 and spaced therefrom by spreader-lugs 28 is an annular frame 29, the spreader-lugs having spurs 30 extending inwardly through apertures in the drum and by which means the drum and frame are connected. The lugs 28 do not extend to the upper rim of the frame 29, leaving shoulders to support a deflecting-

plate 31, spaced above the upper rim of the drum 26 to provide for the escape of the heated air.

Extending inwardly from the frame 29 are 5 stop-lugs 32, projecting above the plate 31 and preventing upward movement of the same, and to provide for the insertion and removal of the plate a notch 33 is cut in its periphery at one point, so that when the plate 10 is set with the notch opposite one of the stop-lugs the plate can be elevated or depressed and inserted or removed, as desired. After 15 insertion the plate may be rotated to bring the notch 33 out of alinement with the lugs 32 to prevent accidental displacement.

The lower frame 25 will preferably be supplied with spaced supporting-legs 34 to enable it to be moved from place to place by 20 employing a flexible or hose connection to the feeder-valve.

By this arrangement it is obvious that a very compact, simply and cheaply constructed heater is produced through which air-currents are caused to flow and in which they 25 will be rapidly heated and discharged between the shell or drum 26 and the frame 29 with accelerated force. The retardation of the air in the drum caused by the relatively contracted area between the plate 31 and shell 30 26 is an important feature of the invention and adds greatly to the effectiveness of the device and materially increases the volume of heated air passing through the shell or drum.

The device may be constructed of any desired size and capacity and of any suitable 35 material.

The frames 25 and 29, together with the legs 34, may be of any fanciful design and plated or otherwise ornamented, as desired.

40 Having thus described the invention, what is claimed is—

1. In a gas-stove, a tubular mixing-chamber having at one end a gas-supply connection and 45 enlarged at the other end into a laterally-extended chamber having a deflecting-plate spaced from its upper rim and forming the burner and with transverse air-apertures disposed intermediately of the mixing-chamber, 50 a valve for controlling the air entering said apertures, a circulating-shell inclosing said burner and extending above the same, an annular frame supported upon the upper end of said circulating-shell and extending laterally therefrom, and a deflecting-plate supported 55 by said annular frame and spaced from said shell.

2. In a gas-stove, a tubular mixing-chamber having at one end a gas-supply connection and

enlarged at the other end into a laterally-extended chamber having a deflecting-plate 60 spaced from its upper rim and forming the burner and with transverse air-apertures disposed intermediately of the mixing-chamber, a valve for controlling the air entering said 65 apertures, arms radiating from said mixing-chamber, an annular frame connected with said arms below said burner, a circulating-shell engaging said frame and extending above said burner, and a perforated plate resting upon 70 said radiating arms and controlling the air entering said shell.

3. In a gas-stove, a circulating-shell having a gas-burner positioned in its lower part, an annular frame inclosing the upper portion of 75 the shell and spaced therefrom and extending above the same and with inwardly-extending radial supporting-lugs having spurs for engaging apertures in said shell, and a deflecting-plate supported on said lugs and spaced 80 from said shell.

4. In a gas-stove, a circulating-shell having a gas-burner positioned in its lower part, an annular frame inclosing the upper portion of 85 the shell and spaced therefrom and extending above the same and with inwardly-extending radial supporting-lugs having spurs for engaging apertures in said shell and spaced below the upper line of the frame, said frame 90 having inwardly-extending stop-lugs spaced apart and spaced above said supporting-lugs, and a deflecting-plate supported upon said supporting-lugs and prevented from displacement by said stop-lugs.

5. In a gas-stove, a circulating-shell having a gas-burner positioned in its lower part, an 95 annular frame inclosing the upper portion of the shell and spaced therefrom and extending above the same and with inwardly-extending radial supporting-lugs having spurs for engaging 100 apertures in said shell and spaced below the upper line of the frame, said frame having inwardly-extending stop-lugs spaced apart and spaced above said supporting-lugs, and a deflecting-plate supported upon said supporting-lugs and provided with a peripheral 105 notch at one point to permit of its insertion between said radial lugs when placed in a certain predetermined position.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures 110 in the presence of two witnesses.

GEORGE J. KARLE.
RAYMOND M. HATCH.

Witnesses:

M. I. GRIFFIN,
JOHN G. CLOAK.