Aug. 3, 1926.

1,594,744

F. I. MOORE

GAS HEATER

Filed June 4, 1925

2 Sheets-Sheet 1

Fig. 1.

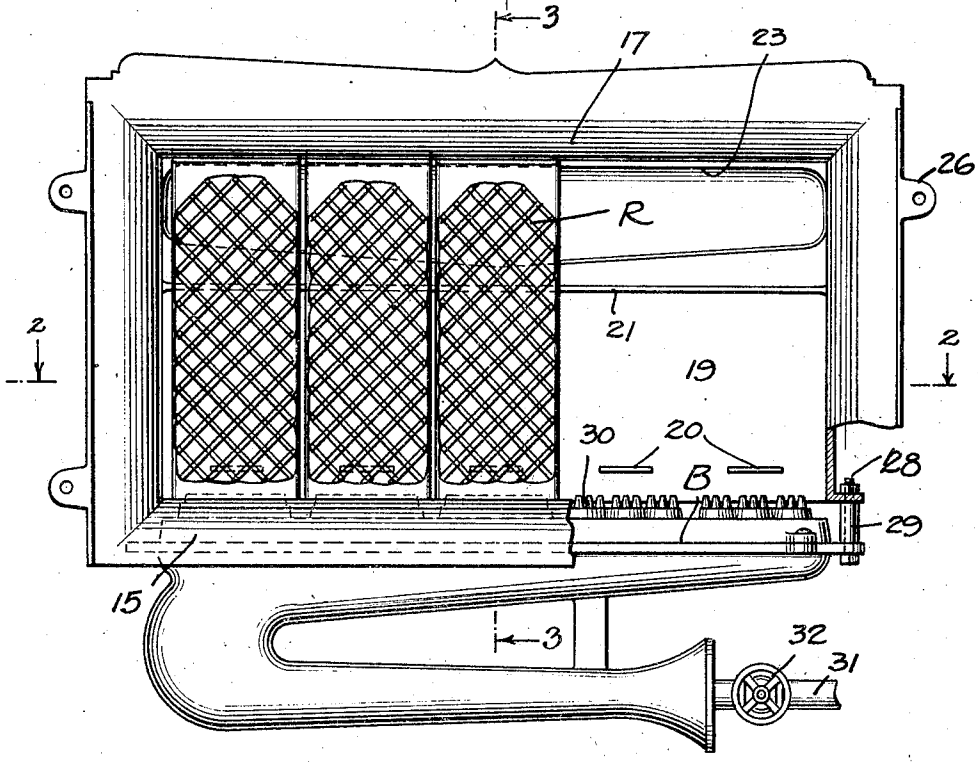
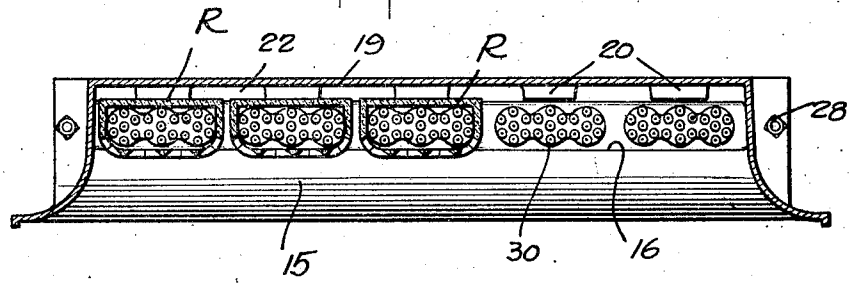


Fig. 2.



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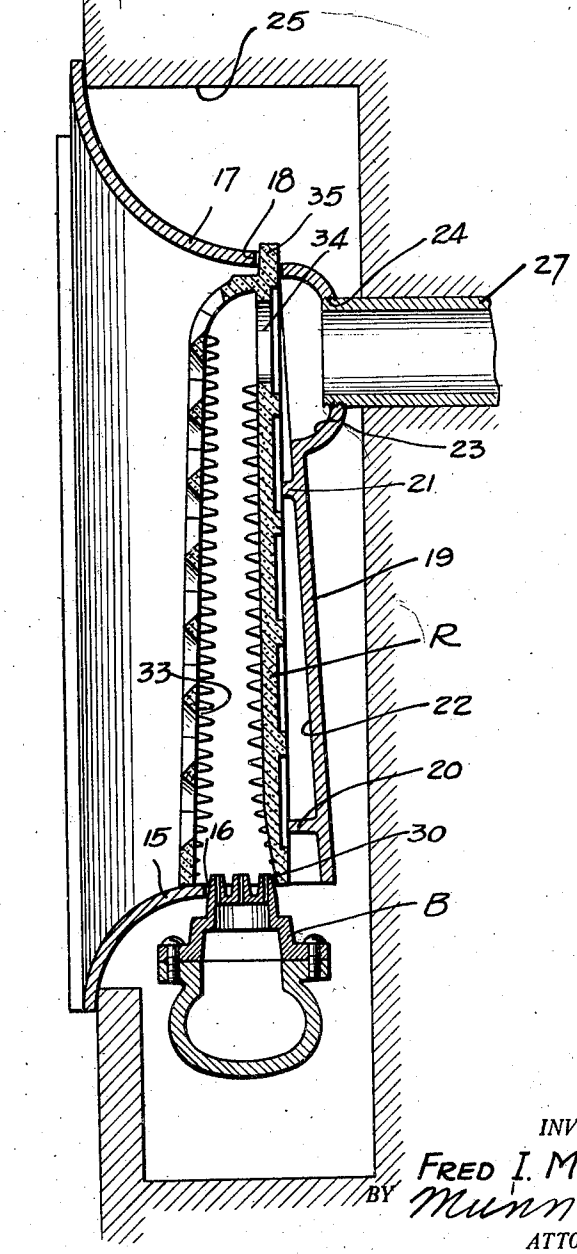
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Fig. 3.



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UNITED STATES PATENT OFFICE.

FRED I. MOORE, OF LONG BEACH, CALIFORNIA, ASSIGNOR TO MOORE HEATER CORPORATION, OF LONG BEACH, CALIFORNIA, A CORPORATION OF CALIFORNIA.

GAS HEATER.

Application filed June 4, 1925. Serial No. 34,936.

My invention relates to gas heaters and the like and the purpose of my invention is the provision of a gas heater in which the radiants thereof are associated with the firebox of the heater to produce a flue at the rear of the radiants through which air is free to circulate thus preventing loss of heat from rearward circulation and supplying additional air to promote perfect combustion and to insure the proper discharge of the products of combustion from the heater.

It is also a purpose of my invention to provide a gas heater having radiants formed interiorly with passages or flues in communication at their lower ends with the nozzles of a burner so that the flames emanating therefrom are directly received in the flues, and in communication at their upper ends with a common discharge channel through which unburned gases and other products of combustion are delivered to outlet flue.

I will describe only one form of gas heater embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawings:—

Figure 1 is a view showing in front elevation one form of gas heater embodying my invention with a portion of the frame of the heater being broken away.

Figure 2 is a horizontal sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a vertical sectional view taken on the line 3—3 of Figure 1.

Referring specifically to the drawings, in which similar reference characters refer to similar parts in each of the drawings, my invention in its present embodiment comprises a frame which in the present instance is of rectangular outline and includes a bottom wall 15 provided with a longitudinally extending slot 16, an upper wall 17 having a slot 18, and a rear wall 19 inclined rearwardly and downwardly as clearly shown in Figure 3 so that the lower edge is spaced from the rear edge of the bottom wall 15 by the slot 16. Adjacent the lower edge and on the front side of the rear wall 19 are forwardly extending projections 20 arranged at spaced intervals along the length of the frame, while above the projections 20 is another projection 21 which latter is in the form of a continuous rib extending horizontally from one end of the rear wall to the other. These projections 20 and 21 co-operate in maintaining radiants R in spaced relation to the rear wall 19 in order to provide therebetween a vertical flue 22 for a purpose which will be described hereinafter. Above the rib 21 the forward side of the rear wall 19 is recessed to form a longitudinally extending channel 23 increasing in depth from the opposite ends thereof to the center where an outlet opening 24 is provided.

In the present embodiment of my invention I have shown the frame constructed so as to be accommodated in a suitable wall pocket 25, ears 26 being formed on the frame for attaching the latter to the walls of the pocket so that the frame is supported in the elevated position shown in Figure 3. An outlet pipe 27 extends into the outlet opening 24 and constitutes a discharge flue through which the products of combustion may be conducted to a chimney (not shown) as will be understood.

A burner designated generally at B is supported from the rear wall 19 by means of bolts 28 extending through the opposite ends of the burner body and through flanges on the wall 19 all as clearly shown in Figure 1, with spacing sleeves 29 surrounding the bolts to maintain the burner in definite spaced relation to the lower edge of the rear wall 19 so that the nozzles 30 of the burner will extend upwardly into the slot 16. The specific construction of the burner will not be described herein as it forms the subject matter of a separate application. Gas is adapted to be supplied to the burner through a pipe 31 controlled by a valve 32.

As clearly shown in Figure 3, each radiant R is supported at its forward lower edge upon the bottom wall 15 and is constructed to provide a vertical passage or flue 33, the lower end of which is open and disposed directly above the corresponding group of burner nozzles 30 so that the flames emanating therefrom can pass upwardly of the flue. The upper end of the flue 33 is provided with lateral opening 34 which operates to discharge the burnt gases into the channel 23, and because of the contour of the latter such burnt gases are ultimately directed to and finally discharged into the outlet opening and through the pipe 27. Each radiant is secured against accidental displacement by means of a lip 35 formed on the upper end of and extending upwardly into the slot 18.

In practice, the flames from the burner nozzle 30 pass upwardly of the radiant flues

operating to heat the radiants thus causing a forward and horizontal radiation of heat, with the burnt gases being carried off through the openings 34 and ultimately into the pipe 27. With the burner in operation, air is caused to circulate upwardly of the flue 22 to prevent radiation of heat rearwardly of the radiants and to combine with the burnt gases on reaching the channel 23 so as to insure the proper discharge of the burnt gases from the heater into the pipe 27. The supply of air to the channel through the flue 22 also functions to promote perfect combustion so that maximum heating efficiency is obtained.

Although I have herein shown and described only one form of gas heaters embodying my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention and the spirit and scope of the appended claims.

What I claim is:—

1. A gas heater comprising a frame of substantially rectangular form in outline having slotted upper and lower walls and a back wall formed with projections on its front side and recessed at the top to form a horizontally disposed channel, an outlet opening in the back wall within the channel, radiants supported at their forward lower edges on the lower wall and having lips at their upper ends engaging within the slot of the upper wall, and a burner having nozzles and discharging flames through the slot in the lower wall into the radiants, said radiants having flues extending upwardly from said slot and provided with lateral outlets effecting communication between the flues and said channel.

2. A gas heater as embodied in claim 1 wherein the channel increases in depth from the opposite ends thereof to said outlet opening.

3. In a gas heater, a frame having a slotted bottom wall, and a rear wall formed with projections on the front side thereof adapted to maintain radiants supported on the bottom wall in spaced relation to the rear wall to provide an air flue therebetween, said rear wall adjacent its top being formed with an outlet opening and a channel increasing in depth toward the opening and arranged to receive burnt gases from said radiants.

4. In a gas heater, a frame having a slotted bottom wall, and a rear wall inclined rearwardly and formed adjacent its upper end with an outlet opening and a channel extending horizontally of the wall and increasing in depth toward said outlet opening for the purpose described.

5. A gas heater comprising a frame having slotted upper and lower walls, and a back wall inclined rearwardly from the top wall and formed on its forward side with projections and a recess at the top extending horizontally to form a channel, an outlet opening in the back wall medially of the channel with the latter increasing in depth from its ends toward said opening, radiants supported at the forward lower edges on the lower wall and having lips at their upper ends engaging within the slot of the upper wall, and a burner having nozzles for discharging flames upwardly through the slot in the lower wall and upwardly into the radiants, said radiants having flues extending upwardly from said slot and provided with lateral outlets for discharging burnt gases into said channel, said projections serving to maintain the radiants in spaced relation to the rear wall to provide an air flue between the two which is in communication at its upper end with said channel.

6. In a gas heater, a frame having a slotted bottom wall, and a rear wall formed with projections on the front side thereof, radiants supported at their lower forward edges on the lower wall and adapted to be arranged in spaced relation to the rear wall by the projections, to provide an air flue, with rear wall adjacent its top being formed with a longitudinal channel and an outlet opening and the flue being open at its lower end and having its opposite end communicating with the channel.

7. In a gas heater, a frame having a slotted bottom wall and a rear wall formed with transverse projections, radiants supported in spaced relation to the rear wall by the projections and forming an air flue therebetween, the rear wall adjacent the top being formed with an outlet opening and a channel increasing in depth toward the opening and adapted to receive gases from the radiants and the air flue being open at its lower end and having its opposite end communicating with the channel.

FRED I. MOORE.