Fig. 1.

Fig. 2.

Fig. 3.

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RADIANT GAS LOG
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Fig. 4.

Fig. 5.

Fig. 6.

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To all whom it may concern:

Be it known that I, JAMES P. CONROY, a citizen of the United States, residing at No.
10 Chelsea Place, East Orange, in the county of Essex and State of New Jersey,
have invented a new and useful Radiant Gas Log, of which the following is a specification.

My invention relates to gas logs such as are used in open fire places for heating purposes while simulating a burning wooden log, or pile of logs on andirons.

The primary object of my invention is to improve the light and heat radiating qualities of such artificial logs while greatly strengthening their resemblance to a wooden log or pile of logs both before burning and while burning.

Another object of my invention is to provide for convenient removal of the radiant portion of the log for replacement, cleaning or repairs, and also to facilitate replacement of the radiant portion.

Fire logs of this character have their front wall formed with a multiplicity of roughly elongated, irregular ridges and roughly elongated irregular depressions intervening the ridges to simulate the bark of the wood. The usual method of piercing this bark-like wall with small holes and lighting the gas escaping therethrough does not give the appearance of burning wood or throw out enough heat.

I have discovered that I can make such a gas log really effective as a heater and actually resemble a burning log, by forming roughly elongated irregular longitudinal apertures in the bottoms of the irregular longitudinal depressions and between the irregular longitudinal ridges, of the bark-like front wall, arranging a gas combustion chamber or chambers back of said apertured front wall, placing a refractory and non-conducting and reflecting wall at the back of said combustion chamber, and arranging a row of preferably Bunsen burners at the bottom of said combustion chamber, so that when the Bunsen burners are lighted at the bottom of the combustion chamber, the back wall will be heated to incandescence, and the hot incandescent gases rising in the combustion chamber as well as the incandescent rays from the back wall will escape wholly or partly through the roughly elongated longitudinal apertures on the front wall and play over the roughly elongated longitudinal depressions and ridges on the front wall, and thus throw all the heat forward while closely simulating the burning bark of a log.

In order that the invention may be clearly understood, I shall first describe in detail the mode in which I at present prefer to carry the invention into practice and then point out the distinctive features of the invention in the claims.

Reference is to be had to the accompanying drawings forming part of this application in which corresponding parts are designated by like numbers in all the figures.

Figure 1 is a front elevation of a radiant gas log embodying my invention;
Figure 2 is an end elevation of the same;
Figure 3 is a cross sectional view of the same;
Figure 4 is an enlarged front elevation of one of the radiant sections of the same;
Figure 5 is an end view of one of the radiant sections enlarged;
Figure 6 is a cross sectional view of one of the radiant sections enlarged;
Figures 7, and 8, are detail cross sectional views showing modified forms of radiant sections;
Figures 9, and 10 are front and side sectional elevations respectively of a gas log with radiant logs constructed according to my invention but arranged to give the impression of a plurality of smaller logs positioned vertically instead of the effect of one log extending horizontally.

Referring first to Figures 1 to 6 inclusive, the specific embodiment of my invention here shown is a gas log composed of four hollow horizontal log members, a lower front member 1, a lower back member 4, a medial member 2, and an upper member 3, which are by preference formed in one piece and of fireproof or refractory material such as terra cotta.

The outside of all the log members 1, 2, 3 and 4 is formed with a multiplicity of roughly elongated irregular ridges 5 and intervening roughly elongated irregular depressions 24, all said ridges and depressions extending generally lengthwise of the log and finished in close simulation of the bark of the log.

In the front of the medial log member 11...
2 is formed a preferably arched recess extending almost the full length of the log in which recess is seated a removable radiant part of the log, having in this case an arched front wall 9 to correspond with and continue the arched stationary end portions of the log member 2, a correspondingly arched back wall 11, preferably formed with facial incandescent teats 12, and arched gas combustion chambers 10 between the front and rear wall. In this instance the combustion chambers rise from the lower log member 1, into the hollow of which they open, to the bottom of the upper log member 3, into the hollow of which they also open, an outlet 25 being formed from the hollow of the upper log member 3 to permit the escape of the hot gases therefrom. But the upper ends of the chambers 10 may as well and in my practice more often do open in front of the upper log member 3, in which case the outlet 25 is not necessary.

As a matter of fact the entire back of the whole log may be made open for lightness if desired.

In the recess 7 back of the radiant portion 9, I prefer to fit a non-conducting refractory lining 8, against which the incandescent back wall 11 of the radiant portion rests, so that practically all the heat from the incandescent wall and combustion chamber will be thrown and reflected forward. In the hollow of the lower log member 1, I prefer to arrange the usual row of gas jets 16, on a manifold 15 supported on a bracket 18, and fed by a gas pipe 14, the bracket being secured in place by an ordinary bolt 19, headed in a recess 21. The tips 17 of the gas jets 16 lead into the open bottoms of the combustion chambers 10 so as to form Bunsen burners, whose flames heat the back wall 11 and teats 12 to incandescence.

To facilitate the removal and replacement of the removable radiant portion 9 for renewal, cleaning, or repairs, I prefer to form the part 9 of a plurality of independent interchangeable vertical sections as shown in Figures 1, 4, 5, and 6, each section being formed with in this instance, two enclosed separate combustion chambers 10, as best shown in Figure 6, so that any section or sections may be removed and replaced by any other like section or sections without necessarily disturbing the remaining sections.

To improve the radiating and heating qualities of the gas log while at the same time greatly strengthening the resemblance of the whole gas log before ignition to a corresponding unburnt wooden log or pile of logs, and also when ignited to a corresponding burning wooden log or pile of logs, I form the front wall 9 of the radiant portion with a multiplicity of roughly elongated irregular ridges 5 and roughly elongated irregular depressions 24 intervening said ridges, corresponding to, registering with and continuing the like elongated ridges and depressions formed in the front wall of the stationary end portions of the medial log member 2, and the upper and lower log members 3 and 1 respectively. In the bottoms of the elongated depressions in the front wall 8 of the radiant portion I also form similarly roughly elongated irregular apertures 6 opening rearwardly into the respective combustion chambers 10. All said ridges, depressions and apertures extend generally lengthwise of the log so that when the log is ignited part of the hot gases rising from the Bunsen burners will seek to escape through said apertures, and said hot gases, as well as the heat and light rays radiating from the incandescent reflecting back wall 11, will play upon the other log members and will issue from said elongated apertures in streams or rays corresponding in cross section with the irregular elongated shape of said apertures, depressions and ridges.

The effect of this construction and action will be greatly to increase the radiating and heating effect of the gas log as well as to simulate almost exactly the appearance of a burning wooden log or pile of logs.

To make the sections of the removable radiant part 9 readily interchangeable I make the sections or portions of the longitudinal ridges 5 and depressions 24 of all the sections at the corresponding abutting edges thereof identical in form and location, as best shown in Figure 1, so that each removable section may be placed in any other position between the stationary end walls of the medial log member without interrupting the continuity or changing the form of the ridges and depressions from one end of the medial log across the radiant section to the other end of the medial log.

In Figure 5 I have shown in detail the shape of the ends 26 and 27 of each radiant section and the retaining log 13 in the upper end thereof as used in this embodiment of my invention.

In Figure 7, I have shown the lower end 28 of each radiant section resting on a ledge 29 on the lower log member, as a modification of my specific construction.

In Figure 8, the lower end of the radiant section is shown resting on a projection 29 on top of the burner, as another method of construction.

In Figures 9 and 10 I have shown the removable sections 9 with the irregular longitudinal ridges, depressions and apertures previously described in the front wall thereof, arranged in an upright position, between the horizontal upper and lower log members 3 and 1 and between the stationary ends of the medial log member 2, to give the im
pressions of a number of smaller logs positioned vertically as another alternative form of construction.

In this modified construction as well as in the construction shown in Figures 1 to 6, the effect of the irregular longitudinal ridges, depressions and apertures is the same as previously described, namely greatly to enhance the radiating and heating qualities of the gas log as well as almost exactly to imitate the effect of a wooden log or logs both before burning and while burning.

It will be seen that owing to the special construction and arrangement of the parts of the gas log heretofore described and hereafter specifically claimed, and more particularly to the fact that the upper and lower members of the gas log project beyond the medial radiant section, and that the same is surrounded by the upper, lower and end members of the log, as well as the back lining of the recess, which are all made of terra cotta or other refractory non-conducting material, the escape of heat from the removable radiant section by conductivity, upwardly, downwardly laterally or rearwardly, is effectually prevented.

Thus the heat rays from the radiant section are practically all thrown forward, and all the heat units are effectually utilized to make an effective "heat machine," while preserving the highly desirable appearance of a natural log fire.

I claim as my invention:

1. A gas log comprising in its construction a body having a lower member, an upper member and a recess in its front wall between the upper and lower members, a radiant back wall in said recess, a removable radiant front wall in said recess continuing the front of the body and spaced from the back wall so as to form a combustion chamber therewith, and gas burners leading into the bottom of the combustion chamber, the radiant front wall being formed with extensive and irregular longitudinal openings separated by a net work of irregular longitudinal ridges, so that the flaming gases issuing from the combustion chamber through the front openings will heat to incandescence the radiant back wall and the net work of radiant longitudinal ridges in the openwork front wall, and the heat rays from the radiant back and front walls, which are set back from the upper and lower non-conducting members, and surrounded by said non-conducting upper, lower and end members and the nonconducting recess back lining, will thus be projected forwardly from between the upper and lower members of the gas log.

2. A gas log comprising in its construction a body having lower, upper and end members of refractory non-conducting material and a recess in its front wall between said upper, lower and end members, a back lining of refractory non-conducting material in said recess, a back wall of radiant material in front of said lining, a removable front wall of radiant material in said recess continuing the front of the body, and spaced from the radiant back wall so as to form a combustion chamber therewith, and gas burners leading into the bottom of combustion chamber, the radiant front wall being formed with extensive and irregular longitudinal openings separated by a net work of irregular longitudinal ridges, so that the flaming gases issuing from the combustion chamber through the front openings will heat to incandescence the radiant back wall and the net work of radiant longitudinal ridges in the openwork front wall, and the heat rays from the radiant back and front walls, which are set back from the upper and lower non-conducting members, and surrounded by said non-conducting upper, lower and end members and the nonconducting recess back lining, will thus be projected forwardly from between the upper and lower members of the gas log.

In witness whereof I have hereunto set my hand this 8th day of July 1921.

JAMES P. CONROY.

Witnesses:
ALBERT F. REITEMEYER,
JOHN F. MCCABE.