No. 662,827. Patented Nov. 27, 1900

H. R. SHEPPARD.

COMBINED GAS AND COAL RANGE.

(Application filed Aug. 27, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

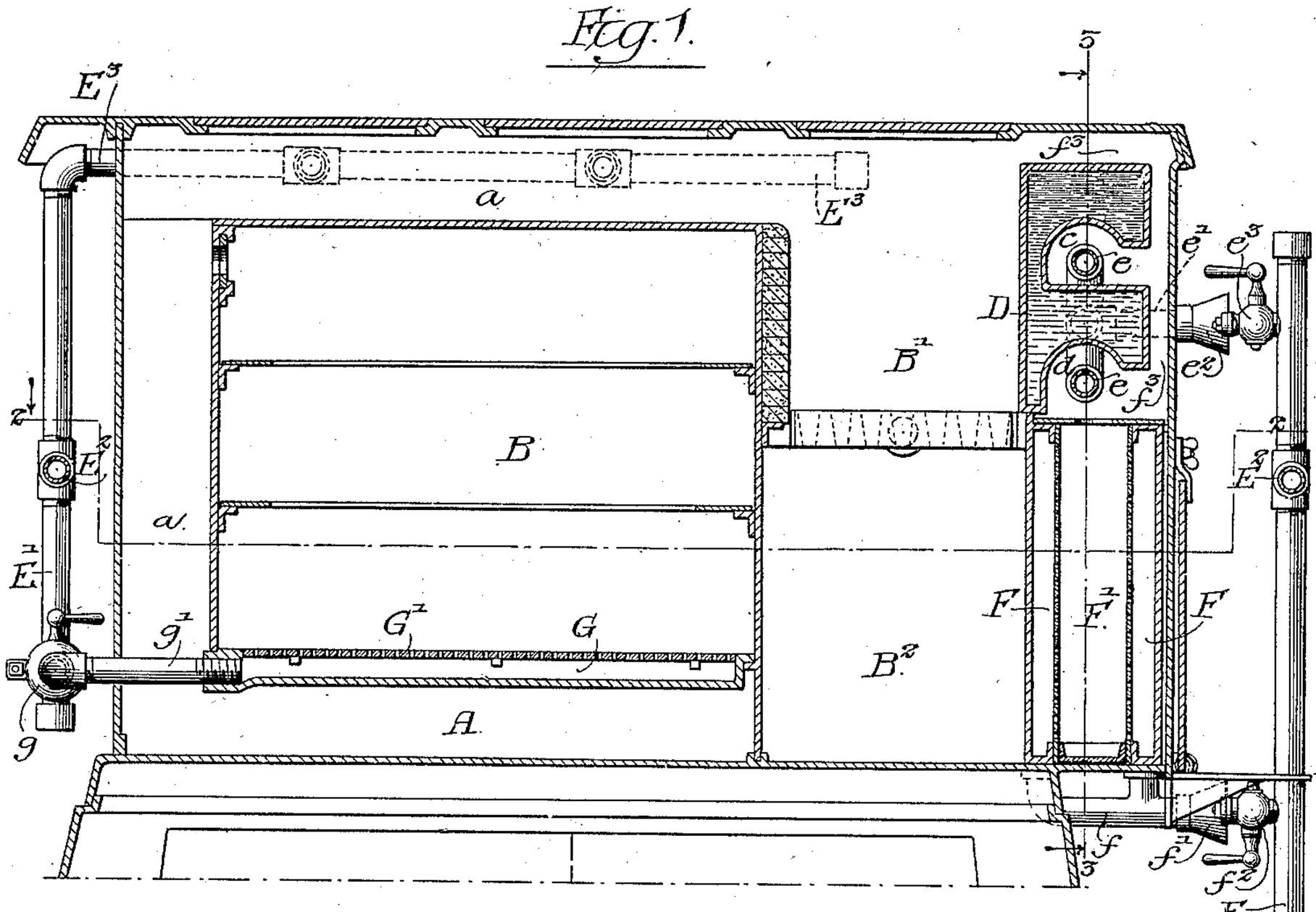
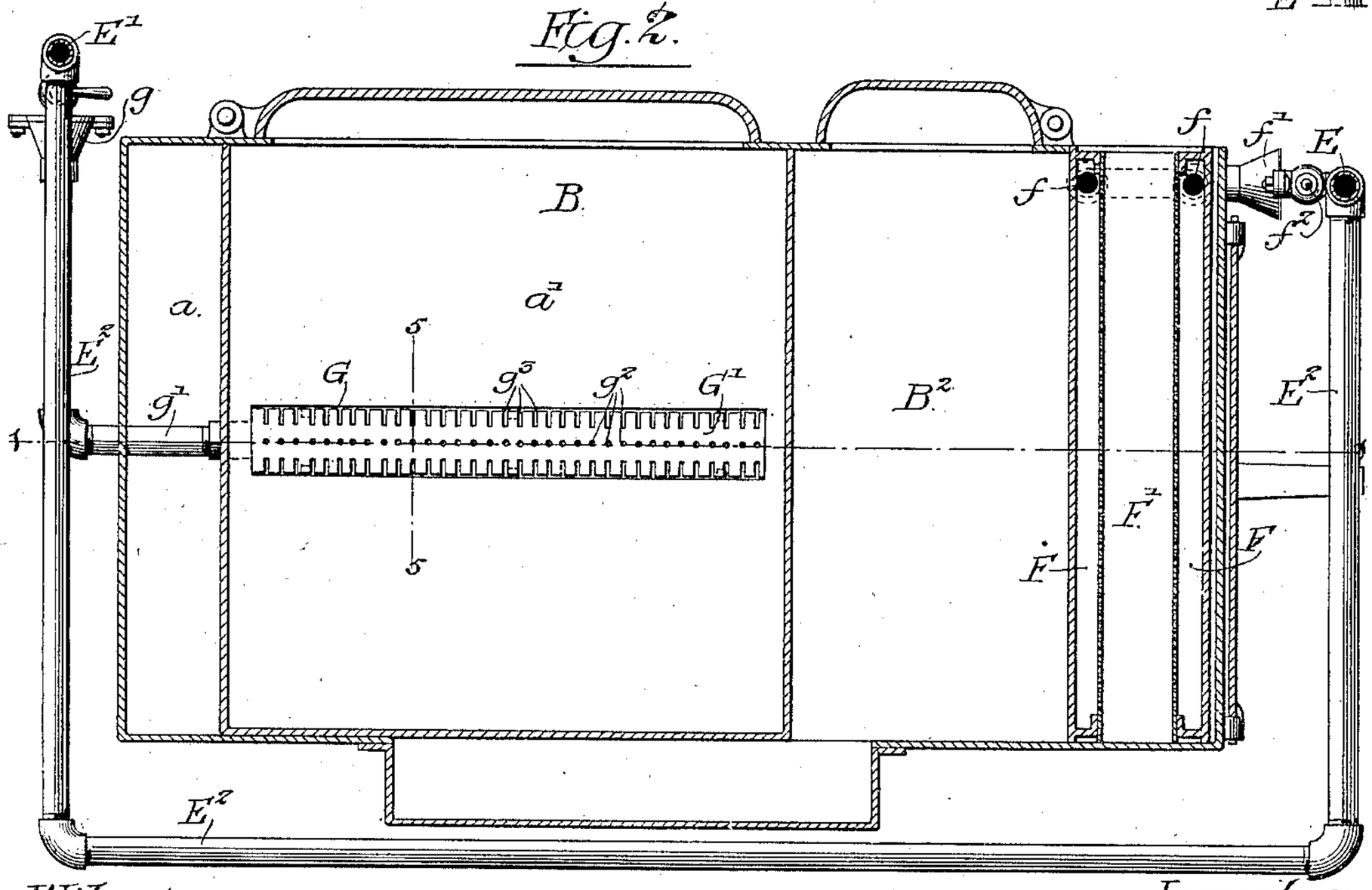


Fig. 2.



Witnesses:-
Frank A. Graham.
Louis M. Whitehead

Inventor:-
Howard R. Sheppard.
by his Attorneys:- Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 662,827. Patented Nov. 27, 1900.

H. R. SHEPPARD.

COMBINED GAS AND COAL RANGE.

(Application filed Aug. 27, 1898.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 3.

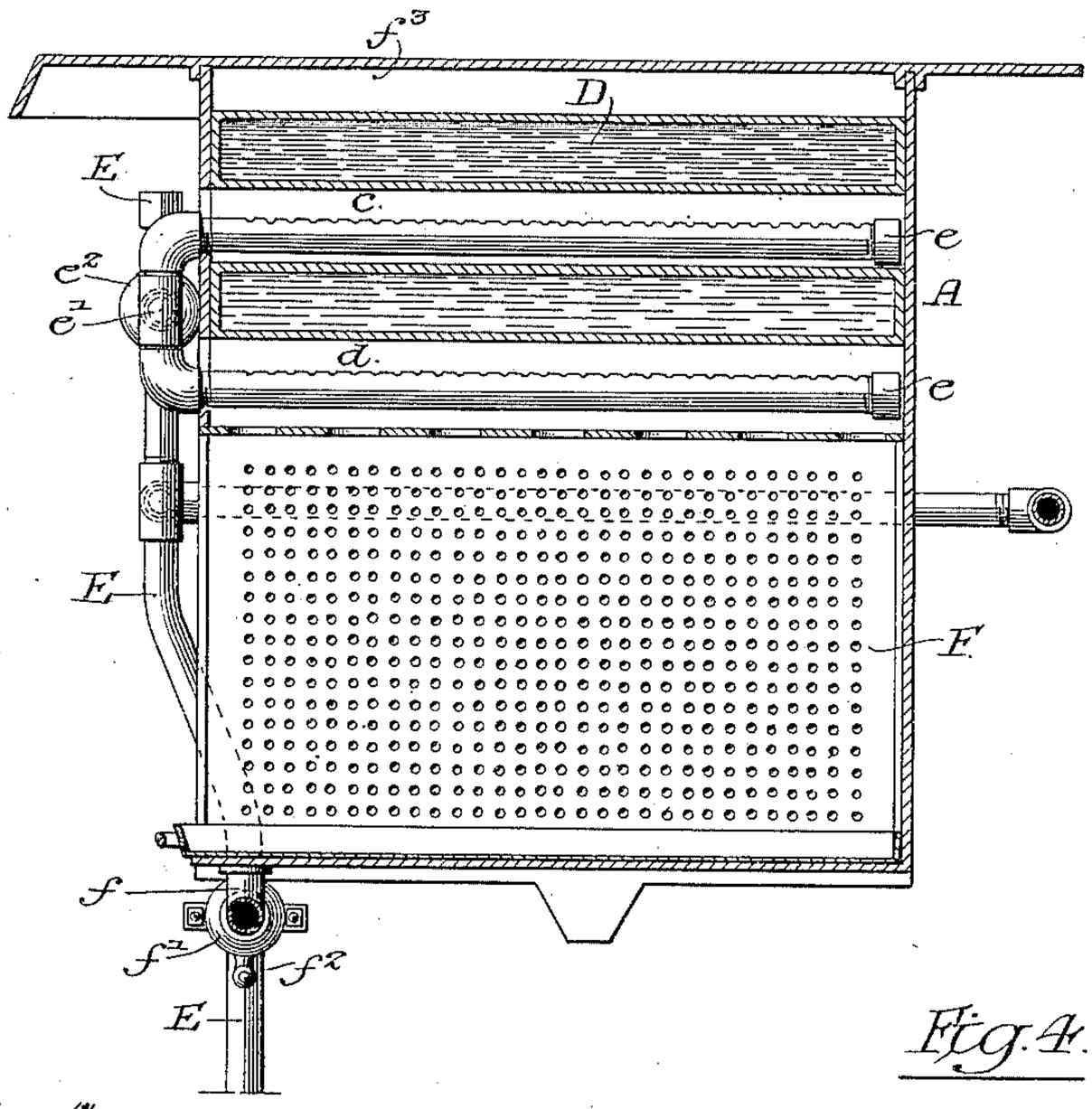


Fig. 4.

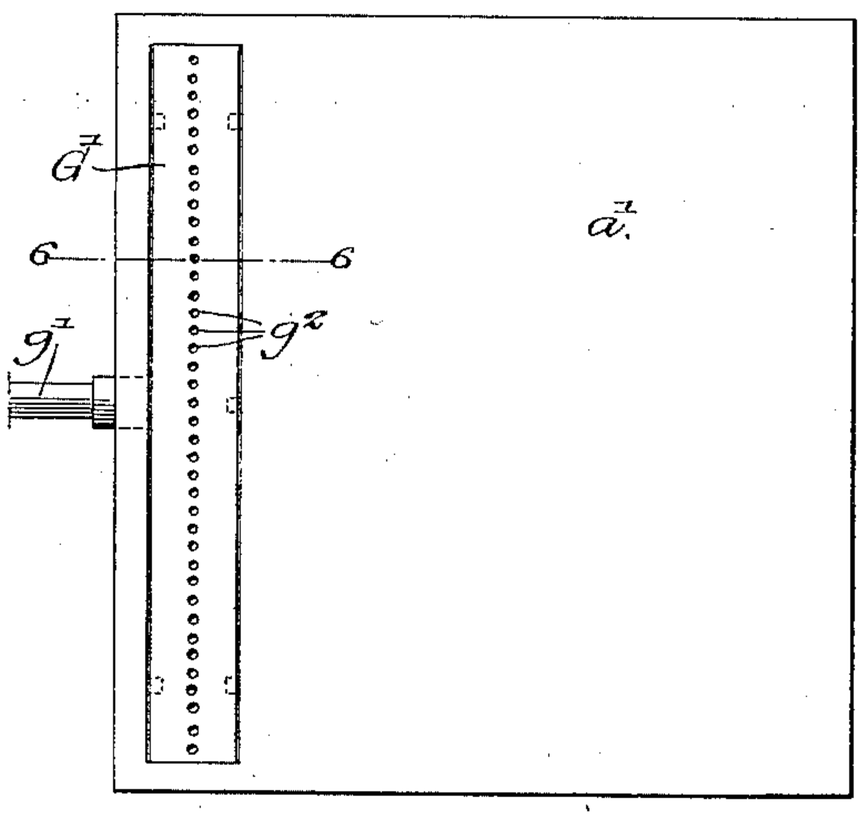


Fig. 5.

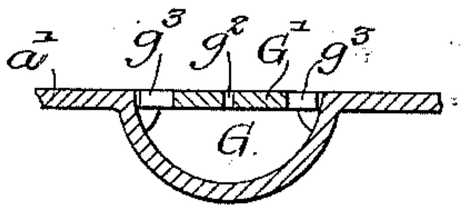


Fig. 6.

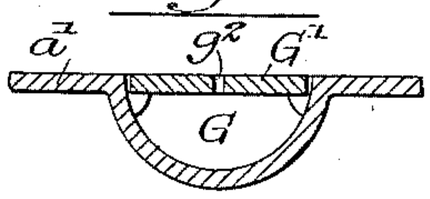
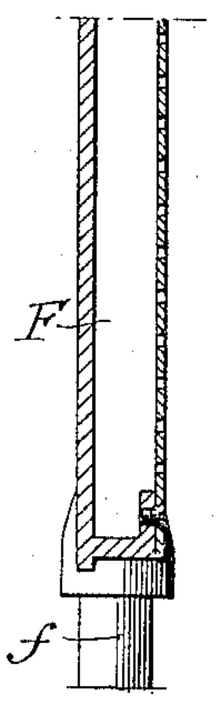


Fig. 7.



Witnesses:-
Frank H. Graham.
Louis M. F. Whitehead.

Inventor:-
Howard R. Sheppard.
by his Attorneys.
Howson & Howson

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HOWARD R. SHEPPARD, OF PHILADELPHIA, PENNSYLVANIA.

COMBINED GAS AND COAL RANGE.

SPECIFICATION forming part of Letters Patent No. 662,827, dated November 27, 1900.

Application filed August 27, 1898. Serial No. 689,670. (No model.)

To all whom it may concern:

Be it known that I, HOWARD R. SHEPPARD, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in a Combined Coal and Gas Range, of which the following is a specification.

My invention relates to certain improvements in combined gas and coal ranges in which gas is used for broiling or for heating the water in the water-back.

The object of my invention is to improve the construction of a range of this character by making a gas-broiler in an economical manner, which can be readily applied to the side of the range, and to so construct the water-heating apparatus that it can be applied to the water-back of a range, as fully described hereinafter.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of a range illustrating my improvements. Fig. 2 is a sectional plan on the line 2 2, Fig. 1. Fig. 3 is a transverse section on the line 3 3, Fig. 1. Fig. 4 is a plan view showing a modification of the arrangement of the oven-heater. Fig. 5 is an enlarged sectional view through the gas-chamber in the oven. Fig. 6 is a modification of Fig. 5; and Fig. 7 is a sectional view of the broiler-burner.

A is the body of the range.

B is the oven.

B′ is the fire-box, provided with the ordinary grate for burning coal, and B^2 is the ash-pit.

a is the flue, passing over the oven from the fire-chamber and around the oven to the smoke-pipe.

D is the water-back, forming one side of the fire-chamber, and the rear wall of this water-back has two longitudinal grooves *c* and *d* formed in it, preferably with arched tops, as shown in Fig. 1, and adapted to each one of these grooves is a gas-pipe *e*, having a series of perforations through which the gas can escape. The flame will play directly upon the overhanging arches of the water-back and heat the water therein. The pipes *e* are connected together at one end by a pipe *e′*, having a nozzle e^2, into which an extension e^3 of the main gas-pipe E projects. This extension has a controlling-valve regulating the flow of gas into the nozzle. The gas as it flows into the nozzle draws a certain amount of air into the pipe e^2, so that a blue flame is produced at the burners. Directly under the water-back, in the present instance at one side of the ash-pit, is a broiler, which consists of two chambers F F, one side of the chamber being perfectly plain, while the other side is finely perforated. These chambers are connected at the base to a gas-pipe *f*, having a nozzle *f′*, into which projects an extension f^2 of the gas-pipe E. The extension is also provided with a valve similar to that described in reference to the water-back, so that air will be drawn in with the gas and the mixture will escape through the perforations in the two plates of the chambers F F, which when ignited will produce a blue flame. The material to be broiled is placed in the space F′ between the chambers F F, and the heat will thus be on both sides of said material. It will be understood in some instances that only one of these chambers may be used, in which case the material to be broiled will have to be turned in order to broil both sides.

It will be noticed that the heat escaping from the broilers will pass up through a flue f^3 and around the water-back D. Thus when the broiler is in use the waste heat will warm the water in the water-back.

The products of combustion passing from around the water-back will escape through the ordinary smoke-flue to the chimney.

At the opposite end of the stove is a gas-pipe E′, connected to the gas-pipe E by a cross-pipe E^2, though this construction need not be adhered to. This pipe has an extension which enters a nozzle *g* of a pipe *g′*, which communicates with a gas-passage G, formed in the base-plate *a′* of the oven. This passage is trough-shaped and has a series of lugs on which rests a detachable plate G′, having a series of perforations g^2 therein. The plate is also preferably provided with slots g^3 at each side, so that the mixture of air and gas can escape from the chamber through the perforations and the slots into the oven. I have shown this plate arranged across the oven; but it will be understood that it may be arranged lengthwise in the oven, as indicated

in the modification, Fig. 4, or it may be in the form of a circular ring in the center of the base-plate of the oven, if desired.

The gas-pipe E′ has an extension E^3, to which may be coupled the ordinary burners situated below the top plate of the range.

I claim as my invention—

1. The combination in a range, of the fire-chamber, a water-back in front of and having a straight wall forming one side of the fire-chamber, said water-back adapted to be heated by the fire therein, the portion of said water-back opposite the straight wall having one or more grooves at the back, with perforated gas-pipes extending into said grooves whereby the water can be heated from a gas-flame or from fire in the fire-chamber, substantially as described.

2. The combination in a range, of the fire-chamber, a water-back having a straight wall forming one side of said fire-chamber and adapted to be heated thereby, said water-back having on its opposite side two longitudinal grooves with arched tops, and perforated gas-pipes adapted to said grooves, substantially as described.

3. The combination in a range, of the fire-chamber, a water-back arranged in front of the same, a vertically-arranged broiling device located directly beneath the water-back, and means for supplying heat to the broiling device, said water-back having an arched bottom adapted to receive the products of combustion passing from said broiler whereby the water-back may be heated, substantially as described.

4. The combination with a range of the character described, and a water-back therein, of a broiling device consisting of a gas-heated chamber located beneath the water-back, said chamber being formed by a solid back plate and a perforated front plate and having a space on one side of said front plate in communication with the gas-heated chamber through the perforations in the front plate, and from which space the products of combustion from the broiling device pass to the water-back, and a gas-pipe communicating with said gas-chamber, substantially as described.

5. The combination with a range of the character described and a water-back therein, of a gas-heated broiling device located in the front portion of the range directly beneath the water-back, said broiling device consisting of two chambers arranged face to face with a space between them, the back plates of each chamber being solid, and the front plates being perforated, said front plates facing the space between the chambers from which space the products of combustion pass to the water-back, with a gas-pipe communicating with said chambers, substantially as described.

6. The combination in a range having a fire-chamber, a water-back at one side of the fire-chamber, said water back being recessed at the back, gas-pipes in the recesses, a broiler mounted directly under the water-back, consisting of two chambers arranged face to face with a space between them, from which space the products of combustion pass to the water-back, the faces of the said chambers being perforated, a gas-pipe communicating with the said chambers, and a passage around the water-back communicating with the space between the chambers, so that the said water-back can be heated either by fire in the fire-chamber of the range, or by gas from the pipe in the recess of the water-back, or by the products of combustion from the broiler or by any two or all of said sources of heat, substantially as described.

7. The combination in a range having a fire-chamber, a water-back at one side of the water-chamber, said water-back being recessed at the back, a gas-pipe in the recess, a broiler mounted directly under the water-back, a gas-pipe communicating with said broiler, the passage around the water-back communicating with said broiler, whereby a passage is formed from the broiler to the water-back, so that the products of combustion from said broiler may heat the water-back, or said water-back may be heated by the fire in the fire-chamber, or by gas from the pipe in the recess of the water-back, or by any two or all of said sources of heat, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HOWARD R. SHEPPARD.

Witnesses:
F. E. BECHTOLD,
JOS. H. KLEIN.