

Aug. 7, 1928.

1,679,406

L. COURTOT

COMBINED BOILER AND HEATING DEVICE

Filed Feb. 21, 1925

4 Sheets-Sheet 1

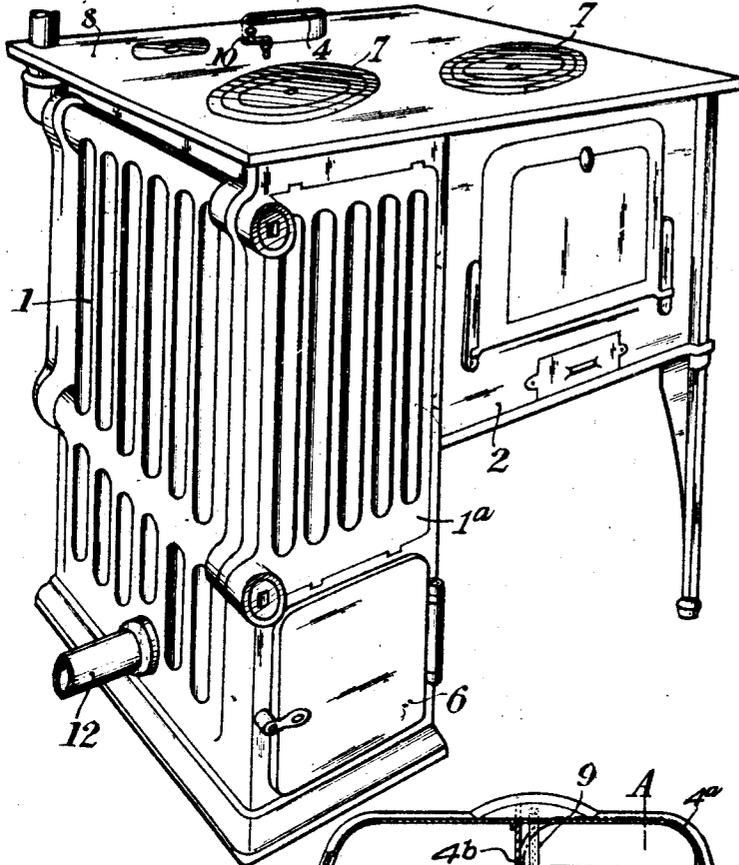


Fig. 1

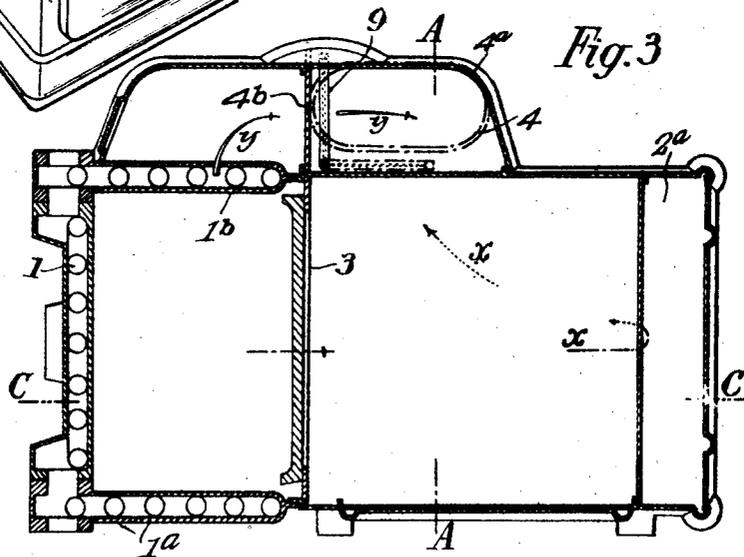


Fig. 3

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4 Sheets-Sheet 2

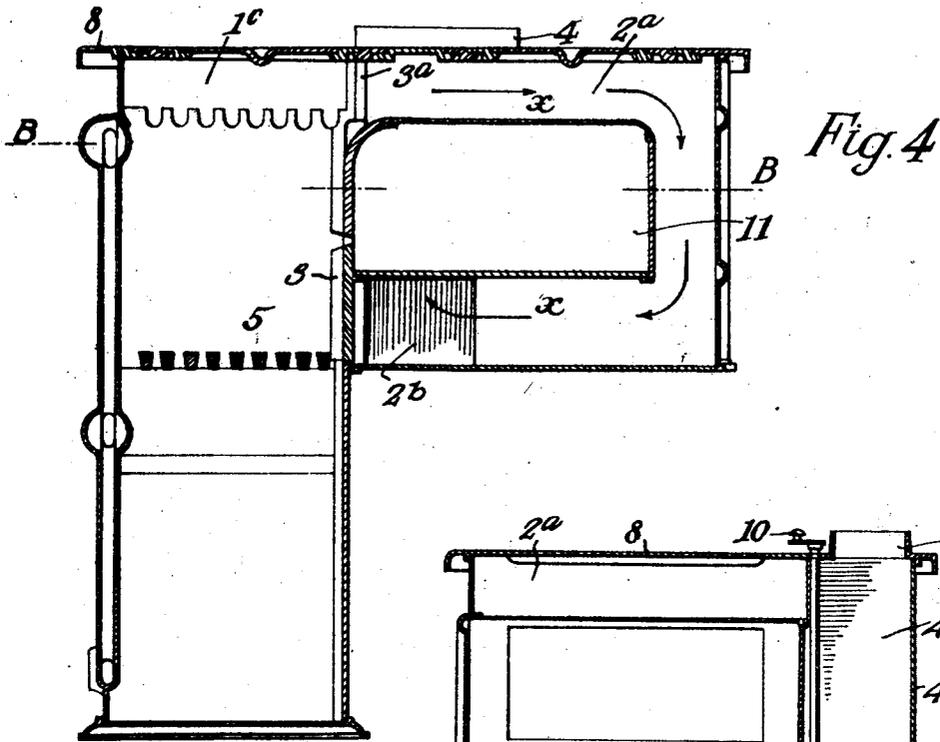


Fig. 4

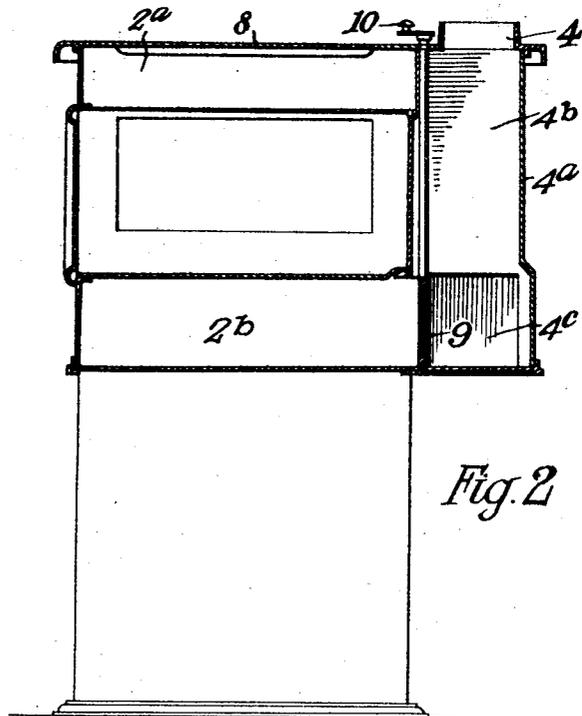


Fig. 2

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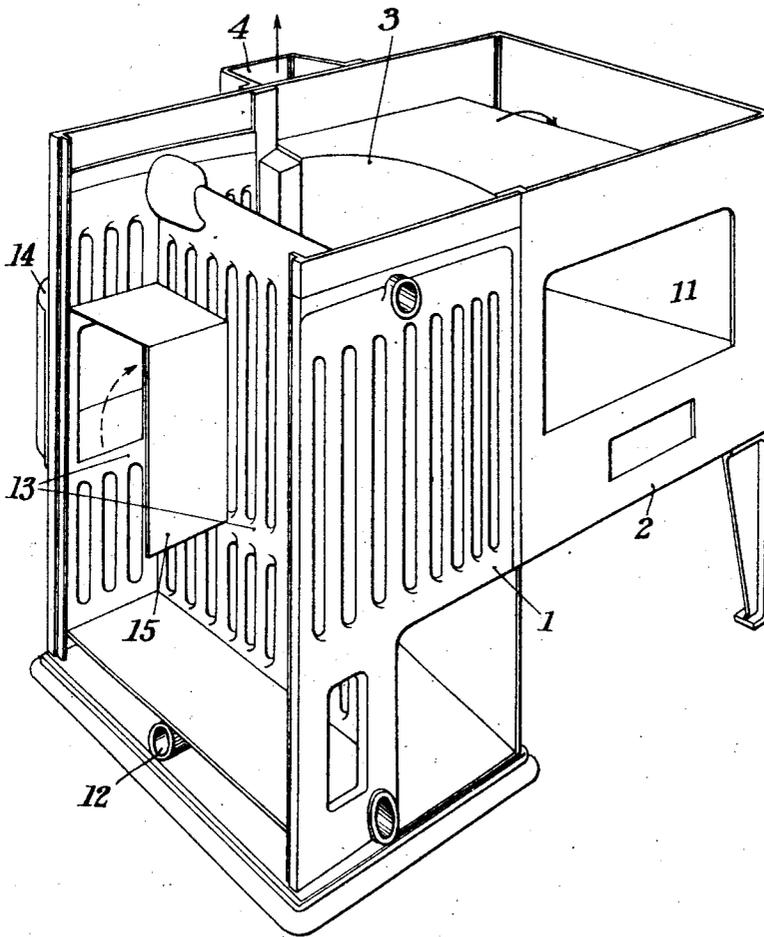
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Fig. 3



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Aug. 7, 1928.

1,679,406

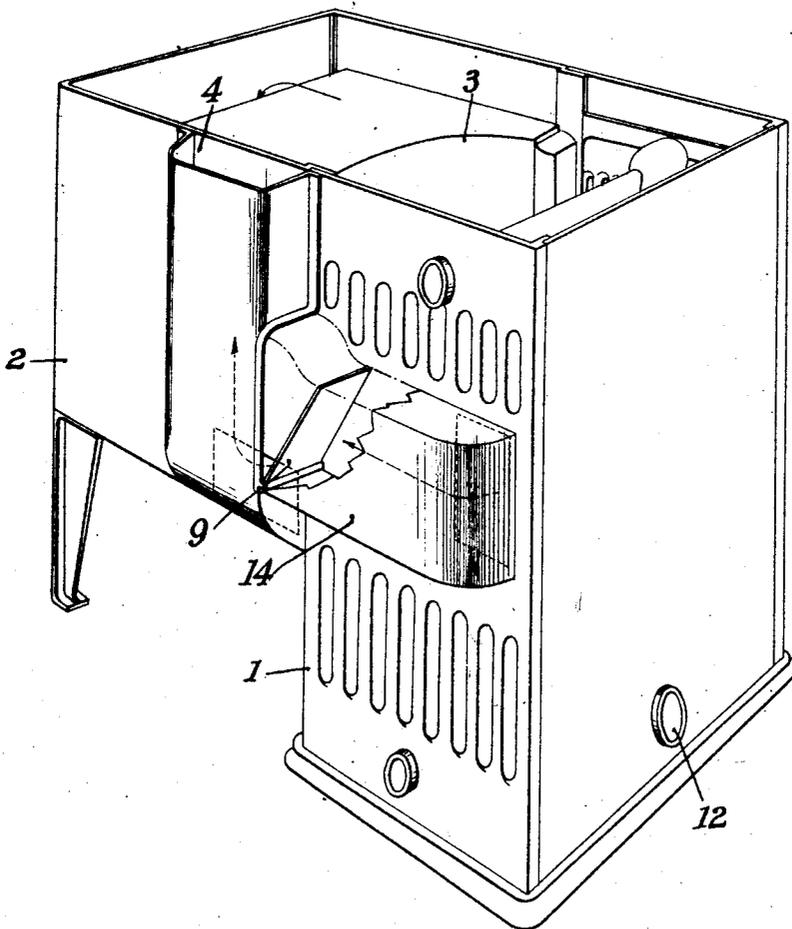
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Fig. 6



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UNITED STATES PATENT OFFICE.

LOUIS COURTOT, OF PARIS, FRANCE, ASSIGNOR TO AMERICAN RADIATOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

COMBINED BOILER AND HEATING DEVICE.

Application filed February 21, 1925, Serial No. 10,799, and in France February 22, 1924.

The present invention relates to a heating apparatus which is composed of a low pressure boiler which can be employed with a central heating system, and a kitchen range without any special fireplace, the latter being heated when necessary by a suitable circulation of hot gas from the boiler.

When the boiler is not utilized for the supply of the radiators, as for instance during the summer season, it will supply hot water for all uses in the same manner as the water tank of a kitchen range; in winter, the said range is heated at the same time as the general premises without any additional expenditure for fuel.

An important feature of the invention consists in the use of a single damper according to whose position the products of combustion from the furnace of the boiler will be circulated either around the oven of the kitchen range or within suitable conduits disposed against the walls of the boiler, before they are discharged through the main offtake flue or chimney.

Fig. 1 is a perspective view of the combined apparatus.

Fig. 2 is a cross section of the same on the line A—A of Fig. 3.

Fig. 3 is a horizontal section on the line B—B of Fig. 4.

Fig. 4 is a vertical section on the line C—C of Fig. 3.

Figs. 5 and 6 show a second embodiment of the invention, certain parts being broken away or removed for the inspection of the interior.

As shown in Figs. 1 to 4, a boiler comprising tubular panels 1, 1^a, 1^b is placed adjacent a kitchen range 2, these two elements having a common wall 3 and a common flue or chimney 4; said boiler comprises a grate 5 and a door 6 for the discharge of ashes, it being filled through an aperture 7 in the top plate 8.

A member 4^a is disposed in overlapping relation with the adjacent wall portions of the heating element and the oven 2 at one side thereof to form said flue 4, and is divided into two chambers by a partition 4^b having an opening 4^c below the same.

The wall 3 has an outlet 3^a at the top thereof communicating with a passage 2^a extending around the top, side, and bottom of said oven 2 and provided with an outlet 2^b communicating with one of the chambers of

the flue 4. The panel 1^b has an outlet 1^c at the top thereof communicating with the other chamber of the flue 4. The outlet 2^b and the opening 4^c are controlled by the damper or door 9.

The damper 9 actuated by a handle 10 disposed upon the plate 8 may occupy the two positions shown in the full lines or the dot and dash lines in Fig. 3; when in the first position, the hot gas from the boiler cannot escape directly into the flue, and will be obliged to follow the path indicated by the arrows *x* in Fig. 4, thus surrounding the oven 11 of the said range which is thereby heated at the top, on both sides, at the bottom and on a part of the rear face.

But if the oven is not utilized, the door 9 is brought into the position shown in the dot and dash lines, and the gas will now circulate according to the arrows *y*, Fig. 3; it proceeds above the rear panel 1^b and descends along the rear wall thereof, escaping thence through the flue. It should be noted that the boiler may in all cases be employed for the cooking or heating of food by placing the vessels upon the aperture 7 or near the latter.

The tubular panels in the boiler herein represented are three in number and are mounted upon distinct sides of the boiler; the wall 3 may thus be heated to a higher degree than the water, as is necessary for the proper heating of the oven. The tubular panels of the front face and the rear face are limited to the upper level of the ash door 6, while the end panel 1 extends to the bottom of the apparatus, so that the conduit 12 for the inlet of water to the boiler may be placed near the floor, thus obtaining the proper circulation in the boiler, and in the heating conduits when the radiators are placed at the same level as the boiler.

In the modification shown in Figs. 5 and 6, the general arrangement of the boiler and oven is analogous to the preceding, and like parts are indicated by corresponding letters. But in order to increase the output of the boiler, the tubular panels are extended forwardly and rearwardly of the lateral panel and between the extensions a smoke chamber 13 is provided, it being connected with the main flue or chimney 4 by a smoke flue 14 disposed at the rear of the apparatus; herein the door 9 is pivoted on a horizontal axle and is so disposed that it may alter-

nately close either the smoke flue 14 or the lower part of the chimney communicating with the lower part of the oven. In the first case the products of combustion can only enter the chimney by circulating around the oven; in the second case they are obliged to descend into the smoke chamber 13 and to pass through the flue 14; a baffle partition 15 is preferably used in order to prolong, the circulation in the said smoke chamber.

Obviously, the said invention is not limited to the two constructional forms herein represented, and without departing from the principle of the invention the tubular panels may be replaced by flat cases either plain or corrugated, or by walls of any suitable nature providing for a water circulation.

Having thus described my apparatus what I claim as new therein, and my own invention, is:—

An apparatus of the character described comprising a heating element including a plurality of hollow sections disposed at the front, rear and one side, and communicatively connected to form a fuel receptacle, an oven disposed at the remaining side of said

heating element having a wall portion in common therewith forming the remaining side wall of said fuel receptacle capable of directly imparting the heat developed in said fuel receptacle to said oven, a top plate disposed upon and common to said heating element and said oven, a passage extending from the upper portion of said fuel receptacle around the top, side and bottom of said oven, a member overlapping the adjacent wall portions of said heating element and said oven at one side thereof and forming therewith a vertical collecting flue, a partition in said flue, an outlet from said passage below said oven to said flue, an outlet from the upper portion of said fuel receptacle to said flue, an opening below said partition, and a damper cooperating with said first-named outlet and with said opening to permit of the control of the passage of the hot gases and products of combustion through either thereof at will, substantially as specified.

In testimony whereof I have hereunto affixed my signature, this 27th day of January, 1925.

LOUIS COURTOT.