Dec. 20, 1938. F. H. SCHNEIDER ET AL 2,140,681

DUAL OR COMBINATION RANGE

Filed Nov. 6, 1937

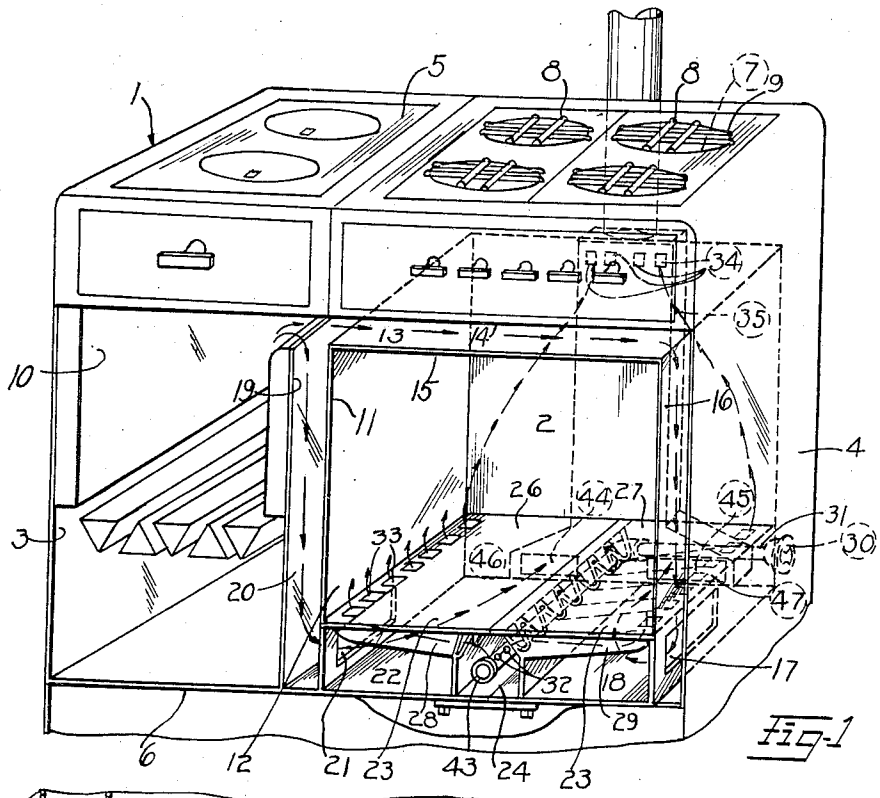


Fig-1

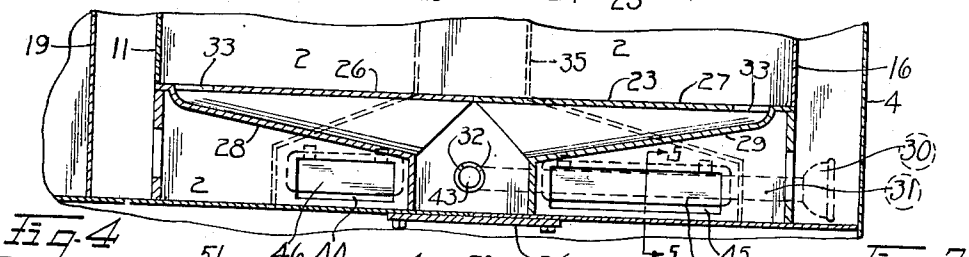


Fig-2

Fig-4

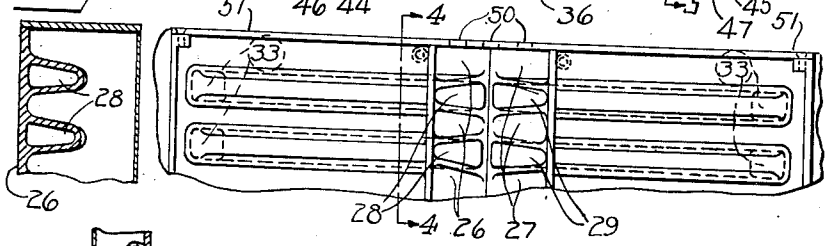


Fig-3

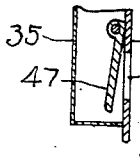


Fig-5

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Patented Dec. 20, 1938

2,140,681

UNITED STATES PATENT OFFICE

2,140,681

DUAL OR COMBINATION RANGE

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Application November 6, 1937, Serial No. 173,243

4 Claims. (Cl. 126—36)

Our invention relates to dual or combination ranges and the like.

The principal object of the invention is to provide an economical and highly efficient dual range construction.

A further object of the invention is to provide a novel centrally disposed burner and divided oven flue arrangement whereby heat can be evenly distributed to both sides of the oven.

Another object of the invention is to provide a dual range in which the amount of heat to be distributed to one or both sides of the oven can be conveniently regulated.

Another object of the invention is to eliminate the use of a baffle plate, thus simplifying changing from one fuel to another, simultaneous use of both coal or oil and gas not being possible where a baffle plate is employed.

A still further object of the invention is the elimination of cold spots in the oven adjacent the oven burner.

Other objects and advantages of the invention will be understood as the description is considered in connection with the accompanying drawing, in which:

Figure 1 is a front perspective view of a range embodying our invention;

Figure 2 is a fragmentary sectional view showing the construction of the oven heating tubes;

Figure 3 is a fragmentary bottom plan view showing the inlet openings in the beveled adjacent ends of the tubes 28 and 29;

Figure 4 is a section on the line 4—4 of Figure 3; and

Figure 5 is a section taken on the line 5—5 of Figure 2.

Referring more particularly to the drawing 1 designates generally a dual or combination range of conventional construction comprising rear and side walls 2, 3 and 4 respectively, a cooking top 5 and bottom 6. The range is provided with the usual top gas burners, not shown, arranged within a gas burner chamber or compartment 7, beneath the burner openings 8 in the top wall 5, conventional grids 9 being rested in these openings.

A fire box or combustion chamber 10, adapted for use of oil or coal fuel is arranged at the left side of the range and adjacent one side wall 11 of an oven 12, in communication with a sheet flue 13 or space which extends between the bottom wall 14 of gas burner compartment 7 and the top wall 15 of oven 12. This top flue space also continues down the other side 16 of the oven and communicates through an opening 17, in wall 16, with a bottom flue 18 extending from front to rear beneath the right hand side of the oven bottom wall 23. The back wall 2 of the range also serves as the back wall of the oven. The side wall 11 of the oven is spaced from the inner side wall 19 of the fire box to provide a diving flue 20, which communicates at its upper open end with the fire box and at its lower end with an opening 21, leading to a bottom flue 22, in turn extending beneath the left side of the oven bottom wall 23.

A preferably elongated oven gas burner 43 is mounted within a housing 24, centrally positioned beneath the bottom wall 23 of the oven and extending from front to rear thereof. The oven bottom wall 23 is preferably made in two closely fitting sealed sections 26 and 27, and on the under face of these sections are integrally cast a plurality of transversely extending tubes 28 and 29, of substantially rectangular cross section, for the left and right sides of the oven respectively. Secondary air is introduced to the housing 24 in any desired manner as through openings 50 in front plate 51. The gas burner 43, which is of a length approximating the depth of the oven, gets its primary air from a mixing tube 30, in turn connected by means of pipe 31, with a gas supply manifold not shown. Gas is jetted from diverging gas orifices 32, formed throughout the length of the burner, toward the opposed open inner ends of the tubes 28 and 29. When the jets are lighted in a conventional manner, not shown, the hot gases enter the tubes and pass laterally to and out through openings 33 in the outer ends of the tubes into the oven and thence out through flue openings 34, in the upper central portion of rear oven wall 2, which communicate with the smoke box 35. The ends of the tubes 28 and 29 are beveled to facilitate entrance of the hot products of combustion from the gas burner and also to facilitate heating of the tubes at this point by the hot gases from the fire box 24, as will presently be explained. A removable plate 36 covering the bottom of the housing permits of easy access for removal or repair.

While we have illustrated and described the bottom wall of the oven as being made in two closely interfitting sections, for some reasons, it is desirable to cast the bottom plate or wall 23 of the oven in one piece with the two sets of tubes 28 and 29 and the side walls of the oven gas burner housing, and the latter may also be integrally cast to the bottom face thereof.

The hot gases from fire box 10, in which, as

previously explained, coal, oil or other fuel may be used, pass downwardly through the diving flue 20, and out through opening 21 into the bottom flue 22, where it heats the tubes 28 before passing through a preferably damper controlled opening 44 at the rear of the bottom flue 22. The coal or fire box gases from the diving flue thus contact the tubes exteriorly while these gases retain a maximum of heat. A portion of the coal gases also passes through sheet flue 13 across the top of the oven and thence down the right side thereof to opening 17, leading to bottom flue 18 for that side of the oven. A damper controlled opening 45 at the rear of the bottom flue 18 affords an exit for this portion of the coal gases. Both openings 44 and 45 communicate with the main discharge flue or smoke box 35.

It will be noted that there is no intermingling of the different gases, that is the coal gases do not enter the tubes, whereas the hot gases generated by the gas burner 43 pass through the tubes. By bringing the adjacent ends of the tubes 28 and 29 to a bevel, the entrance of hot gases from the housing 24 is facilitated, and the area at the end of the tubes, not contacted by the fire box heat is reduced to a minimum, thus eliminating the liability of a cold spot at the center of the oven.

While the openings 44 and 45 are provided with dampers 46 and 47 for regulating the volume of hot gases to be passed through the bottom flues 18 and 22, these dampers may be dispensed with and good results obtained by making the openings of proper relative sizes to each other and to the heating efficiency of one side of the range with respect to the other. Thus the opening 45 in the right side of the range will preferably be larger than the opening 44 in the left side. Obviously, where dampers are employed the housewife is able, by appropriate adjustment of the dampers, to secure a uniform temperature of desired degree throughout the entire oven or can at will increase or decrease the temperature at one side, or the other.

It will be understood that the range can be operated with oil or coal alone, gas individually or simultaneously with coal or oil and gas.

Having thus described our invention what we claim is:

1. A range comprising a fire box having a source of heat therein, an oven, separate bottom flues beneath opposite sides of the oven, a main discharge flue at the rear of the range into which said oven and oven bottom flues discharge, a vertical flue extending down one side of the oven and leading from said fire box to one of said bottom flues, top and side flues extending from the fire box across the top and down the other side of the oven to the other of said bottom flues, a housing sealed from oven and from said bottom flues and extending from front to rear of the oven and beneath the same, an elongated gas burner in said housing and tubes extending transversely of said burner and oven bottom and opening at opposite ends to said housing and said bottom flues respectively.

2. A range comprising a fire box having a source of heat therein, an oven having separate non-communicating bottom flues for opposite sides thereof and separate discharge exits leading from the interior of said oven and from each of said bottom flues, a top and side flue communicating at opposite ends with said fire box and one of said bottom flues respectively for conducting hot gases from the fire box to said bottom flue, a diving flue communicating with said fire box and the other of said bottom flues for conducting hot gases from said fire box to said last mentioned bottom flue, a centrally disposed chamber extending beneath said oven and between adjacent sides of said oven flues, a gas burner in said chamber, and means placing the interior of said oven in communication with said chamber.

3. A range comprising a fire box having a source of heat therein, an oven having separate non-communicating bottom flues for opposite sides thereof and separate discharge exits leading from the interior of said oven and from each of said bottom flues, a top and side flue communicating at opposite ends with said fire box and one of said bottom flues respectively for conducting hot gases from the fire box to said bottom flue, a diving flue communicating with said fire box and the other of said bottom flues for conducting hot gases from said fire box to said last mentioned bottom flue, a centrally disposed chamber extending beneath said oven and between adjacent sides of said oven flues, a gas burner in said chamber, and means integral with the bottom of said oven for passing hot gases from said chamber transversely of said oven bottom and thence upwardly into the interior of said oven.

4. A range comprising a fire box having a source of heat therefor, an oven having a bottom wall, separate spaced oven flues beneath opposite sides of the oven bottom, a main discharge flue communicating with the interior of the oven and with said bottom flues, a flue extending downwardly from the fire box to one of said bottom flues, and a flue extending from the fire box across the top and down one side of the oven to the other of said bottom flues for passing products of combustion from said fire box to said bottom flues, a housing between said bottom flues, a gas burner in said housing, a series of tubes on each side of the bottom face of the oven bottom extending inwardly toward each other and into the said housing, said tubes being beveled at their inner adjacent ends to facilitate flow of hot gases from the housing and opening at their outer ends into said oven.

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