

March 2, 1937.

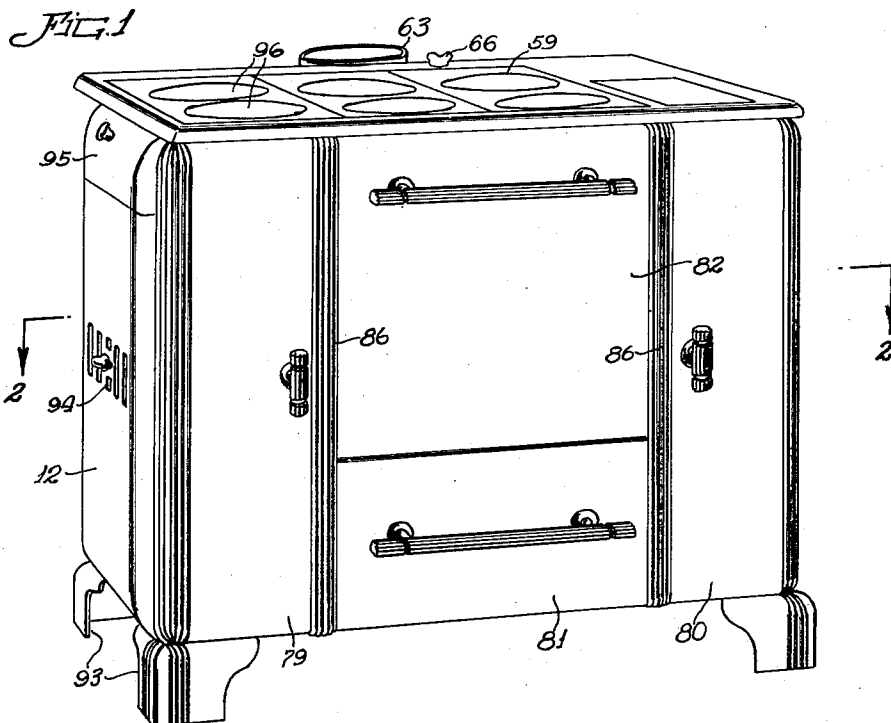
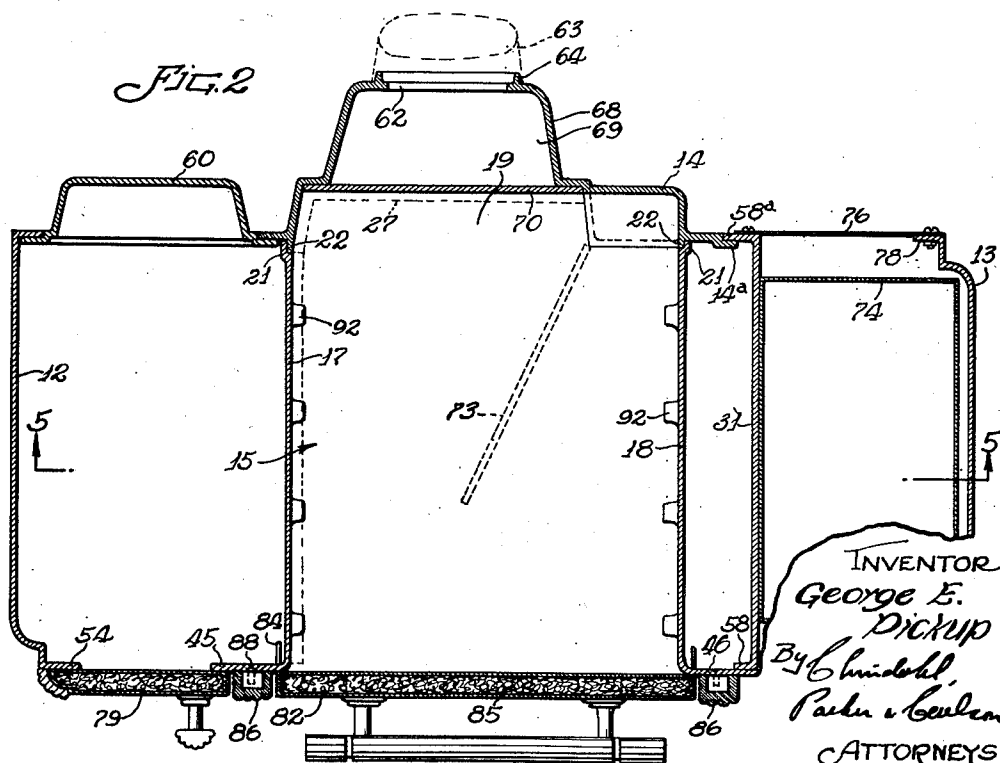
G. E. PICKUP

2,072,276

COOKING STOVE

Filed June 11, 1934

3 Sheets-Sheet 1



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FIG. 3

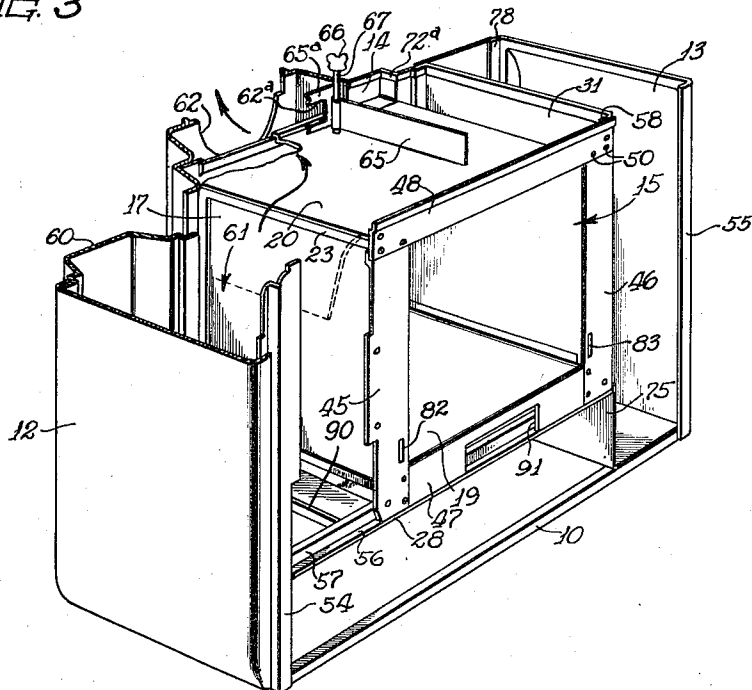
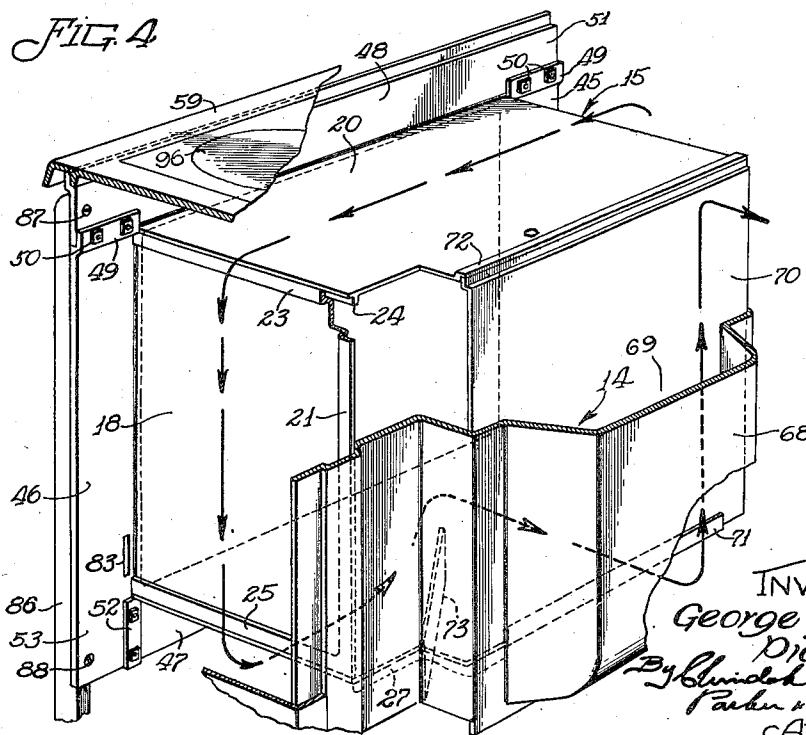


FIG. 4



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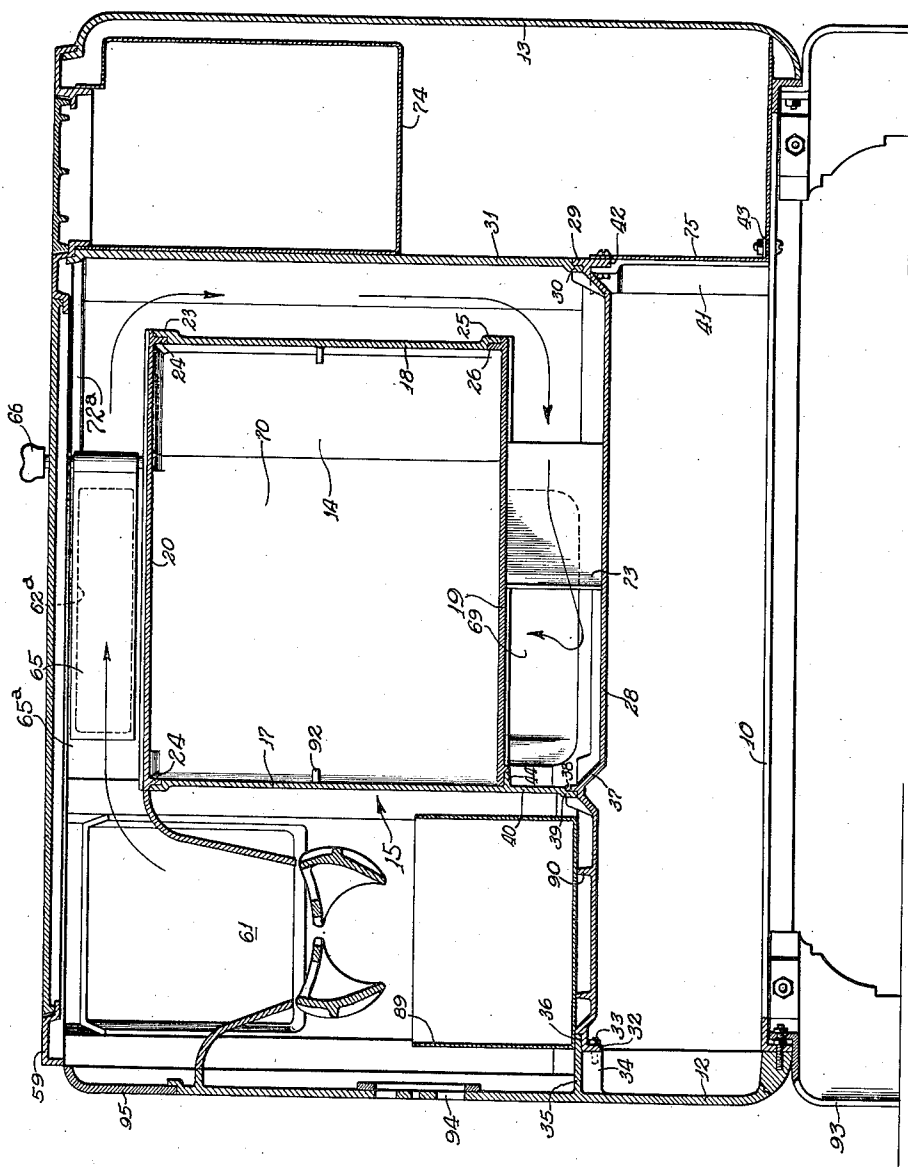


FIG. 5

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UNITED STATES PATENT OFFICE

2,072,276

COOKING STOVE

George E. Pickup, Newark, Ohio, assignor, by
mesne assignments, to Florence-Wehrle Stove
Co., Newark, Ohio, a corporation of Ohio

Application June 11, 1934, Serial No. 729,966

5 Claims. (Cl. 126—1)

This invention pertains to cooking stoves and has more particular reference to an improved cooking range and oven construction.

A primary object of the invention is to provide a practical stove construction of the character indicated, that is economical to manufacture, is simple in design, highly efficient, neat of appearance, rigid and durable.

Another object is to provide a stove in which all of the component parts are made in standardized interfitting units which are easily assembled and require a minimum of fastening means to secure the same together.

Another object of the invention is to provide a stove having a cooking top over an oven and in which the fuel is utilized most economically by not only using directly transmitted heat from the heat source, but also by causing the hot flue gases to pass in contact with the cooking top and with all walls of the oven not heated by radiated heat from the heat source, whereby to secure maximum heating efficiency from a minimum of fuel consumption, and in which an improved construction of the oven reduces to a minimum the joints between the parts constituting the same.

Another object is to provide an oven in which all the essential parts of the structure are made of flanged metal castings interfitted to the desired form.

Another object of the invention resides in the provision of an improved stove front in which flanges on the forward edges of the oven walls form the principal front face of the stove, thereby eliminating the necessity for a separate front frame construction for the reception of the oven door.

An additional object is to provide an oven construction in which the oven compartment is substantially surrounded by flue gas passages and in which the forward edges of the oven walls are flared outwardly and joined at the corners to form a collar-like quadrangular element about the oven opening, said element forming the front closure for the flue gas passages without joints where the closure joins the oven walls.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings, and in which

Figure 1 is a perspective view of the stove or range.

Fig. 2 is a sectional plan view taken on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary front perspective view

with parts broken away to show the oven construction.

Fig. 4 is a fragmentary perspective view of the back of the oven with parts broken away to show the construction.

Fig. 5 is a sectional elevation taken on line 5—5 of Fig. 2.

In general, the stove or range of the present invention comprises a lower or base frame, side and back walls supported on the frame, an oven section between and in substantially spaced relation to the side walls and preferably connected to the back wall, the spaces between the oven and side walls having a fire-box and ashpit on one side and a reservoir on the other side of the oven. A cooking top is supported by the walls and oven, and doors for closing the oven and side spaces are supported by the front of the stove. A series of flue passages is provided about the oven compartment by means of which the hot flue gases from the fire chamber may be diverted into contact with the oven walls, and a flue is provided in connection with the back wall of the stove for carrying off the spent gases. The oven is attached to the one piece back wall which provides a flue passage for the back of the oven, while an improved integral oven front forms the front closure for the flue passages as well as the support for the oven door.

Referring to the drawings which disclose an exemplary embodiment of the invention, there is provided a base frame 10 supporting end walls 12 and 13 and a back wall member 14 of the range. Each of these wall members is preferably formed as a unit of cast iron, although sheet metal of suitable gauge may be pressed into the required form if desired.

Intermediate and spaced from the end walls 12 and 13 are means defining an oven indicated generally by 15. This oven 15 comprises plates defining an inner oven chamber and other plates and parts defining outer walls spaced from the inner oven chamber and forming a plurality of connected flue spaces about the oven. To this end, there are provided oven chamber side wall plates 17 and 18 and bottom and top plates 19 and 20 respectively. These plates are also preferably formed of cast metal such as iron, but they may be of pressed metal if desired. The rear edges of the oven forming plates are provided with offset flanges 21 providing seats to interfit with complementary flanges 22 on the back wall member 14. The upper edges of plates 17 and 18 are transversely offset to provide angular flanges 23 defining seats for receiving inset

depending flanges 24 at the edges of the plate 20. The lower edge of plate 18 is also transversely offset to provide a longitudinal angular flange 25 fitting in a seat provided by an upstanding inset flange 26 at the edge of plate 19. Ledge means 27 is provided on the back member 14 for supporting the rear edge of plate 19.

A plate 28 is provided below and in spaced relation to the oven chamber 15, and has an upstanding flange 29 at one end in engagement with an angular flange 30 on the lower edge of a vertical plate 31 which is disposed in spaced relation to the oven side plate 18. The opposite end of the plate 28 extends beyond oven side plate 17 and has a depending flange 32 secured by suitable bolts 33 to bosses 34 on the end wall 12 of the range. A horizontal flange 35 on end wall 12 fits in a seat 36 which is formed above the flange 32 to form a snug and uni-planular connection with the plate 28. Intermediate its ends, the plate 28 is provided with a raised portion forming a ridge 37 having at its peak a flange 38 and providing a seat for receiving a flange 39 on a portion 40 formed as a downward extension of the oven side plate 17. The inner end of the plate 28 is supported upon the frame 10 by means of an angular support member 41 which is bolted at its upper end to a flange 42 on the plate. A lateral flange 43 on the lower end of the support 41 is bolted to the frame member 10. The oven side plate 17 is provided with a horizontal flange 44 upon which the adjacent end of the bottom plate 19 of the oven rests.

A salient feature of the present invention resides in the simplified stove front construction. To the accomplishment of this, the oven side plates 17 and 18 are preferably provided at their forward edges with integral laterally extending flanges 45 and 46 respectively, and oven top plates 19 and 20 are provided with similar integral flanges 47 and 48 respectively. Said flanges are preferably extended at their ends to interengage with parts of the adjoining flanges to define a substantial quadrangular collar or framework about the oven opening. By referring to Fig. 4, it will be seen that flanges 45 and 46 are provided at their upper ends with rearwardly offset attachment flanges 49 which are secured by suitable bolts 50 to the lower edges of opposite end extensions 51 on the flange 48. The flange 47 is provided at its opposite ends with offset attachment flanges 52 engaging with lower end extensions 53 on the flanges 45 and 46. This collar-like arrangement of the flanges about the oven opening provides a rigid structure forming a part of the front of the stove and is preferably in a common plane with laterally extending flanges 54 and 55 on end walls 12 and 13, respectively, of the stove.

Through this arrangement it becomes unnecessary to provide separate framework at the front of the stove for supporting closure means for the oven or other openings in the stove. The lower edge of the flange 47 and the ends of the extensions 53 fit in a seat 56 formed at the forward edge of the plate 28 by a longitudinal rib 57 thereon inset from the forward edge. A flange 58 on the forward edge of the plate 31 is secured to the lateral flange 46 of the plate 18, and a flange 58^a on the rear edge of plate 31 engages in a seat flange 14^a on the edge of back member 14.

A cooking top 59 is supported by the end walls 12 and 13 and the back member 14 of the stove, as well as by the upper edges of the plate 31

and the flange 48 of the oven. A casting 60 is provided to enclose the space between the end wall 12 of the range and back member 14 to provide a fire box and ashpit chamber between the oven side wall 17 and the plate 12. Means defining a fire pot 61 are supported within this chamber adjacent the cooking top 59, and a flue opening 62 is formed in the upper part of the back member 14 to permit flue gases from the fire box to escape through a flue 63 connected by means of a flange 64 to the rear of the member 14. The fire pot 61 is illustrated as of the type generally used in a coal or wood burning range, for which the present exemplary construction has been primarily devised. Other forms of fuel may be used with but slight modifications of structure.

The wall 17 of the oven chamber will be heated by direct radiation from the fire pot 61, but since the source of heat is relatively remote from other parts of the oven, it is apparent that uneven heating of the oven would result if provisions for conducting heat to other portions of the oven were not provided. To obtain uniform oven heating, therefore, a damper 65 is placed adjacent a flue opening 62^a formed in a plate 65^a (Fig. 5) upstanding adjacent the rear edge of plate 20. The damper 65 is manually operable by means of an ear 66 extending above the cooking top 59, and is swung into open or closed position about the axis of a supporting pin 67 to the upper end of which the ear 66 is attached. When the damper is in the position shown in Fig. 5 it effectively prevents the flue gases from escaping through the opening 62^a, while with the damper in the open position (Fig. 3) the gases will immediately escape through the flue opening 62 to the flue 63.

Not only does the damper 65 serve to close the flue opening 62^a to divert the hot flue gases about the oven 15, but when the damper is opened to the position shown in Fig. 3, and the gases issue directly to the flue 63, the damper will substantially prevent the gases from reaching parts of the cooking top 59 beyond the confines of the damper. Therefore, when the oven is not in use, a relatively small fire in the fire chamber will provide sufficient heat for ordinary cooking purposes, since only a small area needs to be heated. While the oven is in use, shifting of damper 65 serves to regulate the oven heat by releasing directly to the flue all or part of the hot gases.

The rear member 14 of the stove is provided with a rearwardly protruding portion 68 defining a substantial flue passage 69 adapted to permit the hot gases to contact the major area of the oven back. An oven back plate 70 is secured across the chamber 69 to close the same from the interior of the oven. An upstanding flange 71 on the rear edge of the oven bottom plate 19 engages over the lower edge of the plate 70 and prevents the flue gases from seeping into the oven. The upper edge of the plate 70 is seated with an angular flange 72 on the rear edge of oven top plate 20. An offset flange 72^a on the upper edge of the rear plate 14 provides a seat for receiving engagement means on cooking top 59.

The lower part of the flue chamber 69 opens toward the space formed between plates 19 and 28. When the damper 65 is closed to shut the opening 62^a, flue gases from the fire pot 61 can only escape to the flue 63 by taking a path indicated by the arrows in Figs. 4 and 5 about the oven 15 by passing through the space between the top plate 20 and the cooking top 59, then downwardly in the space formed between plates 18 75

and 31 into the space between plates 19 and 28, and finally into flue chamber 69 in the back member 14.

The lower extension 40 on side plate 17 serves to form a separation between the fire chamber and the lower flue passage beneath the oven, so that the flue gases will not return to the fire chamber but must pass into the chamber 69. The flanges 46, 47, and 48 form a close-jointed front closure for the flue passages in the respective spaces behind these flanges. By having these flanges integral with the oven plates, several joints are eliminated in the front of the oven whereby the cost of construction is reduced. By diverting the hot flue gases in the circuitous path about the oven every wall thereof is thoroughly heated, and the utmost heating efficiency is secured from a minimum fuel consumption. Since ordinarily the flue gases would be drawn immediately into the flue passage chamber 69 and thereby the forward part of the bottom plate 19 of the oven would not be thoroughly heated, a baffle 73 is placed diagonally across a portion of the space beneath the plate 19 from a position adjacent the opening to the chamber 69 in order to cause the gases to take a circuitous path through this lower flue passage and to direct the same against all portions of the surface of the plate 19.

A hot water reservoir 74 is preferably supported within the space formed between the end wall 13 of the stove and the plate 31 and is placed to receive heat from the hot flue gases passing through the passage between plates 18 and 31. The space below the reservoir 74 as well as the space below the oven 15 may be suitably enclosed to provide warming chambers, or utility spaces for the reception of utensils or the like. Thus, an angular sheet metal lower closure member 75 may be secured below the reservoir 74, to form a substantially dust-tight bottom. A sheet metal back plate 76 is attached to the flange 58^a and a flange 78 on end wall 31 and plate 13, respectively, to provide a back closure for the reservoir utility space. Similar sheet metal closure plates may be secured to frame 10 to form a bottom for the space below the plate 28.

The openings in the front of the oven are preferably closed by means of insulated doors which may be enameled to provide a pleasing appearance. The flange 54 hingedly supports a door 79 which closes the opening to the fire box and ashpit chamber, and a door 80 is supported by the flange 55 to close the reservoir chamber. A drawer 81 is supported by the frame 10 in the utility space below the oven 15, and a door 82 closes the opening to the oven. The door 82 may be supported by means of suitable hinges (not shown) on flange 47, and apertures 82 are formed in the flanges 45 and 46 for the purpose of receiving suitable means such as spur arms 84 for confining the forward swing of the door 82 to a horizontal plane when open. Suitable insulation material 85, such as asbestos, mineral wool, glass wool, or the like, is preferably filled into the various described doors enclosing the front of the stove so as to substantially prevent heat radiation when the doors are closed.

Ornamental columns 86 are preferably secured at each side of door 82 and extend from the frame member 10 to adjacent the cooking top 59. Columns 86 are secured near their tops by means of suitable bolts or screws 87 to the ends 51 of the flange 48 of the collar-like frame about the oven opening. Tappet screws 88 or the like

serve to secure the columns 86 at a point intermediate their ends, for example, to the lower extensions 53 of flanges 45 and 46, while the lower ends of the columns 86 are suitably secured to the framework 10. Not only do the columns 86 provide a decorative effect for the front of the oven, but they also provide a substantial support for the front of the oven 15 on the bottom framework 10.

An ash receptacle 89 is supported by the plate 28 in position below fire pot 61. The plate may be provided with a plurality of upstanding transverse ridges 90 of the same height as ridge 57 (Figs. 3 and 5) so as to maintain a spaced relationship between the ash receptacle and the surface of the plate whereby ashes which fail to lodge in the receptacle will not become wedged beneath the receptacle and impede insertion or removal thereof.

A cleanout opening 91 is preferably formed in the flange 47 adjacent the bottom of the oven to clean out ashes and soot which may collect in the flue chamber formed beneath the oven. All the joints between the various plates forming the oven are preferably grouted with a suitable cement to insure a gas tight structure and prevent infiltration of soot from the flue passages. The side plates 17 and 18 of the oven have lugs 92 thereon for receiving a tray (not shown).

Legs 93 are connected at the corners of the frame 10 and support the stove above a floor. The end wall 12 of the stove may be provided with apertures to provide draft openings 94 adjacent the fire pot 61. A removable closure member 95 is provided at the top of the end wall 12 to permit the insertion of fuel into the fire pot without removing closure plates 96 in the cooking top 59. The outer faces of the end members 12 and 13 as well as the front closure members and such other parts of the stove as may be desired, are preferably enameled in any desired color combinations to provide a pleasing exterior for the range.

By constructing the various parts of the stove as cast units having flanged edges to interfit with or form supports for adjoining parts of the construction, there is secured a simple yet effective connection of the parts which requires a minimum of bolts or screws in assembling the range. The parts are preferably constructed as standardized units and are easily and quickly assembled into the finished structure.

I will state in conclusion that while the illustrated embodiment of the invention discloses a preferred form, it is to be understood that the same may be considerably modified in detail without departing from the scope of the appended claims.

I claim as my invention:

1. A stove including a base framework and having an oven compartment, a front surface thereon surrounding the opening to said oven, a closure member supported by and engaging said surface and adapted to close the oven front, the side margins of said closure member extending short of the vertical marginal edges of said surface, and decorative supporting columns secured to said surface beside said closure member and extending to and being secured to said framework, whereby the front of the oven is supported by said columns and said surface is substantially entirely concealed by said closure and columns.

2. A stove comprising a bottom, vertical side plates, a rear member defining a flue passage, an oven between and spaced from said side plates,

said oven having double walls defining flue gas passages along its top, one side wall and bottom and communicating with said rear flue passage, a fire-box in the space between the other wall of said oven and the adjacent side plate and having a connection with said flue gas passages, the top, one side and bottom oven walls having integrally cast, laterally extending flanges at their forward edges forming closures for said flue passages, said flanges also forming a substantial part of the front of said stove, lateral flanges on the side plates and lying in a common plane with said laterally extending oven wall flanges, and closure means carried by said flanges to close the openings in the front of the stove.

3. A stove construction comprising a fire chamber; an oven on one side of said fire chamber including top, bottom, rear and spaced side plates; enclosing top and bottom walls spaced from said oven top and bottom plates, respectively, and an enclosing side wall spaced from the oven side plate remote from said fire chamber; laterally extending flanges formed integrally with the forward edges of said oven plates and connected together at their adjoining edges to define a rigid collar-like structure defining the mouth of the oven and holding the plates firmly together; the outer edges of the top and bottom plate flanges and the flange on said remote side plate being connected with said top, bottom, and side walls, respectively, and thus forming enclosing flue spaces about the top, remote side and bottom of the

oven from which waste products are permanently excluded from entering the oven chamber along the front edges of the oven plates due to the integral arrangement of said lateral flanges.

4. In an oven construction for cook stoves, the combination of a plurality of plates forming spaced side, top and bottom walls of the oven chamber; said plates being connected along their adjoining edges to form a substantially tight enclosure; integrally formed angular flanges of substantial width extending laterally of the front margin of each of said plates; and extensions on the ends of said flanges connecting adjacent flanges and securing the same into a rigid frame defining the mouth of said oven chamber; said frame serving as the front wall of the stove about the oven mouth.

5. In a stove construction, comprising, in combination, an oven including spaced side walls and top and bottom walls connected in sealed relation, the front margins of said side and bottom walls having flanges formed integrally thereon extending laterally in substantially the same plane and serving as a substantial part of the front of the stove surrounding the mouth of the oven, each of said flanges on said side walls having an aperture therein adjacent its lower end, and an oven door supported by the flange on said lower wall and having parts extending into said apertures.

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