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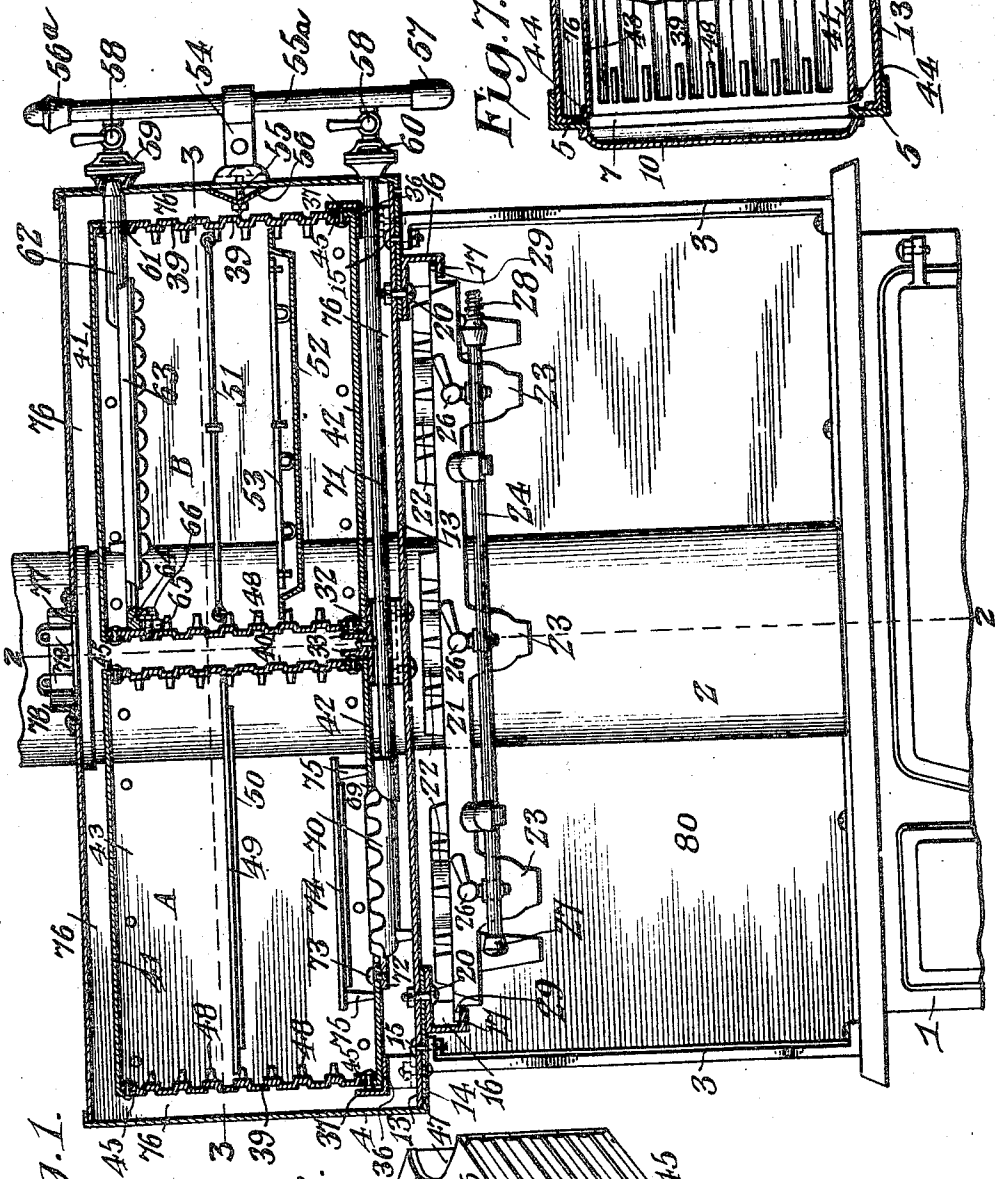
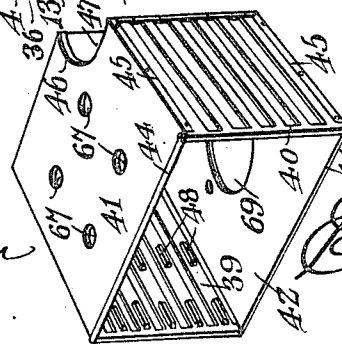


Fig. 1.

Fig. 8.



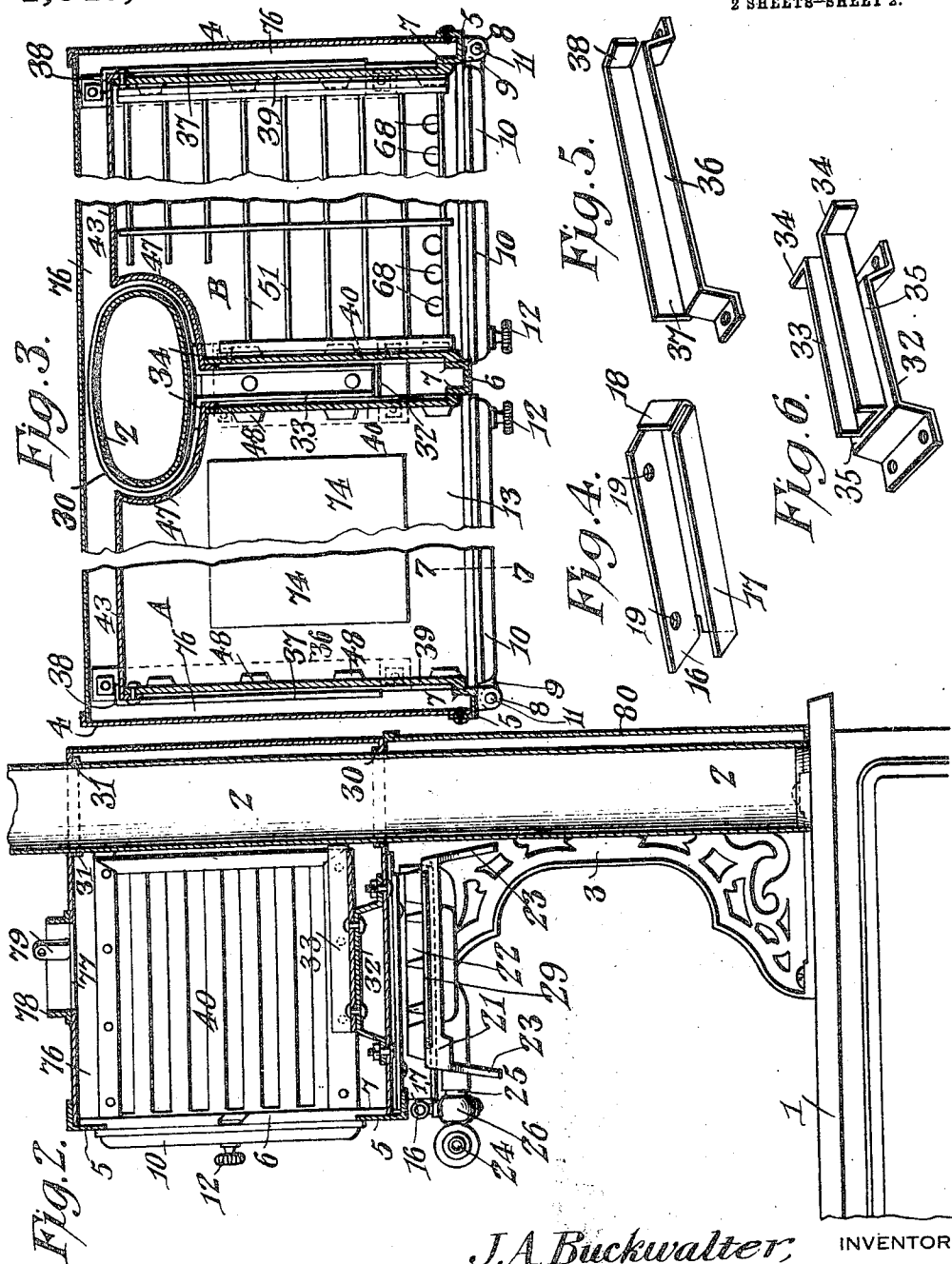
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J. A. BUCKWALTER.
GAS HEATED OVEN.
APPLICATION FILED SEPT. 30, 1910.

Patented Dec. 3, 1912.
2 SHEETS-SHEET 2.

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WITNESSES

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UNITED STATES PATENT OFFICE.

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GAS-HEATED OVEN.

1,045,940.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed September 30, 1910. Serial No. 584,715.

To all whom it may concern:

Be it known that I, JOSEPH A. BUCKWALTER, a citizen of the United States, residing at Royersford, in the county of Montgomery and State of Pennsylvania, have invented a new and useful Gas-Heated Oven, of which the following is a specification.

This invention has reference to improvements in gas heated ovens and its object is to provide a gas heated oven for an ordinary cooking stove where the fuel may be coal or wood.

In accordance with the present invention there is provided an elevated oven structure which may be made fast to the rear side of the top of an ordinary stove and this oven is provided with heating means of such character that the gas burners of the stove are grouped in a single frame readily placed in operative position with relation to the oven, or removed therefrom without the necessity of using tools of any kind, whereby the gas burners may be utilized at other points than immediately beneath the oven. Moreover, the oven members are made readily removable, the oven structure being provided with two compartments and these compartments are provided with gas burners for special purposes, but these gas burners are also readily removable requiring only the use of an ordinary screw driver. The removability of the oven compartment walls is of advantage for the purpose of repair and because of the ease with which the whole oven may be kept clean, no dismantling of the oven as a whole being at all necessary. Furthermore, provision is made for the passage of the smoke pipe of the stove through the oven without interference, so that this smoke pipe may be carried to any desired height and turned in any desired direction to reach the chimney.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings forming a part of this specification, it being understood, however, that while the showing of the drawings is that of a practical embodiment of the invention, various other embodiments of the invention may be made without departing from the spirit of the invention and while retaining the salient features of the invention.

In the drawings:—Figure 1 is a front ele-

vation of the oven structure with the oven casing and the linings for the oven compartments in longitudinal vertical section. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1, some parts being omitted. Fig. 4 is a perspective view of a supporting slide for the main gas burner. Fig. 5 is a perspective view of a supporting slide for one end of the linings of the oven compartments. Fig. 6 is a perspective view of a slide structure common to the adjacent ends of the oven compartment linings. Fig. 7 is a section on the line 7—7 of Fig. 3. Fig. 8 is a perspective view on a smaller scale than in the other views of one of the removable linings for the oven compartments.

Referring to the drawings, there is shown a portion of a stove 1 which may be taken as indicative of any suitable type of cooking stove designed ordinarily for the use of coal or wood as a fuel, and this stove is provided with a smoke pipe 2 for the conduction of the products of combustion from the fuel box of the stove to a chimney or other suitable point of disposal thereof.

Secured to the top of the stove 1 near the ends thereof are brackets 3 supporting an oven casing 4 generally rectangular in cross section and of approximately the shape and size of the warming ovens usually provided with cooking stoves. This casing is customarily made of sheet iron with the front of the casing open and bordered by an angle frame 5 provided with a central angle upright 6, thus providing the front of the oven with two openings about which the frame 5 is formed with inturned flanges 7, the flanges of the upright 6, which upright is of channel form, completing the flanged openings of the frame 5. This frame is provided with the usual lugs 8 matching lugs 9 on doors 10, pintles 11 securing the lugs 8 and 9 together to form hinges for the doors. Suitable knobs 12 are provided for the manipulation of the doors, which latter may be of cast metal or may be otherwise formed in accordance with the usual practice in gas stoves.

The oven structure is provided with a floor member 13 coextensive with the oven casing and at the ends of this floor member there are secured to the under side thereof reinforcing plates 14 through which are passed bolts 15 securing the casing 4 to the

brackets or standards 3. Secured to the bottom member 13 within the confines of each reinforcing plate 14 is a slide 16, best shown in Fig. 4, this slide comprising a piece of sheet metal bent into appropriate shape to form a lip 17 parallel with that portion of the slide designed to be secured to the under side of the plate 14, and at one end this slide is provided with an extension 18 bent across the space between the main body of the slide and the lip 17. The main body of the slide is formed with perforations 19 for the passage of bolts 20 which extend through the reinforcing plate 14 and bottom 13 to secure the slide 16 in place, the bent over extension 18 then occupying a position remote from the front of the oven structure, and the portion of the slide 16 extending toward the front of the oven structure being open. These slides 16 are located near the two ends of the bottom 13 within the space defined by the standards 3, the lips 17 facing toward the center of the oven.

The lips 17 are designed to support a gas stove made up of a frame 21 carrying an appropriate number of burners 22, and the frame 21 is provided with legs 23. The burners 22 are fed from a common supply pipe 24 from which are branched off other pipes 25 to the burners, and each of these branched pipes includes a valve 26. One end of the supply pipe 24 is closed by a cap 27 while the other end is provided with a hose receiving nipple 28, the burner structure being similar to the low type of gas stoves with multiple burners, there being three burners in the showing of the drawings. The ends of the frame 21 are formed with overhanging flanges 29 adapted to the lips 17, so that the stove 21 may be pushed into position beneath the oven and supported in close relation thereto by the lips 17 then underriding the flanges 29, flames of gas issuing from the burners 22, or any number of them, then impinging against the under side of the bottom 13 to heat the oven and the contents thereof.

By supporting the stove frame 21 on slides fast to the under side of the oven structure, this stove is normally stored out of the way when it is desired to use the stove 1, but may be readily removed from the slides and placed upon the top of the stove 1 or may be carried to any other convenient point of utilization and there employed as an independent gas stove, the insertion and removal of the gas stove 21 into or out of operative relation to the oven being readily accomplished without the necessity of the use of any tools whatsoever. The bottom 13 at the rear central portion thereof in the showing of the drawings is provided with an opening therethrough surrounded by a flange 30, while the top of the casing 4 is provided with an opening sur-

rounded by a flange 31, and these two openings are in line with each other and are designed for the passage of the smoke flue 2 of the stove 1. Fast to the bottom 13 at the lower portion thereof is a bracket 32 and this bracket carries a channel strip 33 having at one end outturned portions 34. The bracket 32 is wider than the channel strip 33 so as to provide ledges 35 on opposite sides of the channel strip 33, and the outturned ends 34 of the channel strip 33 are in line with the ledges 35. Near the end walls of the casing 4 the bottom member 13 carries on its upper surface brackets 36, each having one upturned side 37 with one end of the latter inturned as shown at 38. The brackets 32 and 36 are of the same height and their upper surfaces form ledges or supports of a height approximately that of the lower flanges of the openings through the frame 5.

In the oven casing there are lodged the linings of two oven chambers, each of a size to be inserted into the casing 4 or removed therefrom through the appropriate openings in the frame 5. For convenience of description, one of these oven chambers is designated by A and the other by B. Each oven compartment lining is formed of end walls 39, 40, respectively, joined by a sheet metal top member 41, a sheet metal bottom member 42, and a sheet metal back member 43. For purposes of rigidity the front edges of the top and bottom members 41, 42 are turned back on themselves as indicated at 44, and the top and bottom members are turned over the end members 39 and 40 as indicated at 45, being there riveted or otherwise secured to the said end members. The top and bottom members are also turned over on the back member 43 and are likewise there riveted.

The top and bottom members at one corner are cut out as indicated at 46 into general conformity with the smoke flue 2 passing through the oven and this cut out portion has a filling-in wall 47 of sheet metal. The end member 40 is sufficiently shorter than the end member 39 to agree with this cut away portion of the top and bottom members, so that the front edges of the members 39 and 40 and the front edges of the top and bottom members 41 and 42 may all be in the same plane, while the rear edge of the end member 40 stops short of the smoke flue 2 when the respective compartment is in place in the oven.

The end members 39 and 40 may be cast into shape and for the purposes of rigidity and lightness are corrugated as best shown in Fig. 1, and on the inner walls these end members are formed with suitably disposed lugs 48 properly spaced to form ledges for the reception of various types of division walls or other structures used in ovens for

different cooking purposes. For instance, the oven chamber A may have an adjustable shelf 49 provided on its under surface with an asbestos sheet 50 for certain cooking purposes. The oven chamber B may be provided with a grid 51 of a size to be supported on matching ledges 48 and because of the arrangement of these ledges the shelves or grids are readily adjustable to different heights within the respective ovens. There may also be provided a pan 52 adapted to any set of ledges within the oven chamber B and this pan may contain a removable grid 53, these several holding devices being adapted to different cooking operations.

Fast to one end wall of the oven casing 4 is a bracket 54, a bolt 55 being provided for the purpose of securing the bracket to the casing 4, while interior to this casing the bolt passes through an angle strip 56 bearing against the inner wall of the corresponding end of the casing and serving to suitably stiffen the casing wall, which is made of sheet metal, to hold the bracket 54 in place. This bracket carries a pipe 55^a having at one end a cap 56^a and at the other end an elbow 57 by which latter the pipe may be connected to a suitable source of gas supply, the connections being omitted in the drawings as unnecessary for an understanding of the invention. Branched off from the pipe 55^a at appropriate points are other pipes each provided with a valve 58, and an air inlet member 59, 60, respectively, such as are commonly employed in gas stoves, and these two air inlets 59 and 60 are located exterior to the casing opposite appropriate openings through the corresponding end wall of the casing.

In the end wall 39 of the chamber B near the top thereof there is formed a passage 61 for a gas conduit 62 projecting from a broiler 63 carried in the compartment B near the upper portion thereof, the conduit 62 having its free end shaped to form a practically gas tight connection with the air inlet structure 59. At the other end of the broiler burner 63 there is provided a lug 64 having a slotted angle extension 65 through which is passed a screw 66 entering a threaded opening in an appropriate part of the end wall 40 of the chamber B. The screw 66 serves to support the corresponding end of the burner 63, the other end being supported by the conduit 62 passing through the opening 61 in the wall 39. By this means gas flames from the burner 63 may be directed downward into operative relation to any material carried by the grid 51 or by the grid 53 in the pan 52, whereby meats of various kinds may be broiled.

The top member 41 of each oven compartment A and B is formed with perforations 67 and the bottom member 42 of the compartment B may be formed with perfora-

tions 68, these latter perforations being preferably close to the front of the oven compartment while the perforations 67 may be distributed over the top 41.

In the bottom member 42 of the oven compartment A is a central opening 69 through which projects the active portion of a burner 70 which may be of a size to practically fill the opening 69. This burner, which may be termed the baking burner, is fed by a pipe 71 extending from the burner under the bracket 32, thence beneath the compartment B and under the bracket 36 at the corresponding end of the casing, and finally entering the air inlet device 60. The burner 70 is provided with a lug 72 on the side remote from the pipe 71 and a screw 73 passing through the bottom 42 and entering a threaded opening in the lug 72 serves to hold the oven compartment A and the burner 70 together. The compartment A may also be provided with a shelf 74 of a size to conveniently cover the burner 70 and this shelf is provided with legs 75 elevating it above the burner, these legs when the shelf 74 is in use resting on the bottom member 42.

When the oven compartments A and B are in place, the bottom members 42 rest upon the tops of the brackets 32 and 36 and are moved into engagement with the ends 34 and 38, respectively, constituting stop members. The oven compartments are therefore positioned with respect to the casing 4, so as to leave spaces 76 on all sides of these oven compartments except at the front where they meet the flanges 7 of the frame 5, these front portions being closed by the doors 10 when desired.

The top member of the casing 4 is formed with a central passage 77 to which is secured a flange 78 to receive a suitable flue and this flange has upstanding perforated ears 79, by means of which a smoke flue encircling the flange 78 may be secured thereto. Between the standards or supports 3 and between the top of the stove 1 and the bottom of the oven casing there is provided a backing sheet 80 which may be formed of sheet metal and may be made fast to the structures in any suitable manner.

The oven structure provides means whereby different cooking operations may be performed, because of the presence of the burners 63 and 70, or the general cooking operations due to the general heating of the oven may be brought about by the use of the burners 22, these burners heating the air within the passages 76 so that the compartments A and B are then practically enveloped in hot air.

As before pointed out, the stove frame 21 is readily removed bodily from the oven structure for use elsewhere if so desired, but when not in use or when in use in connection

with the oven structure this stove frame 21 is supported by the lips 17 in proper relation to the stove structure. When either or both of the burners 63 and 70 are to be used, gas is supplied thereto by the pipe 55 through the valves 58.

When it is desired to remove the oven compartments A and B or either of them for repairs, or for the cleaning of the interior of the casing 4, the screws 66 and 73 are removed with the aid of an ordinary screw driver. The burner 63 is then readily taken from the oven compartment B since it is only frictionally connected to the air supply means 59, and then both oven compartments A and B may be pulled out from the interior of the casing 4 through the respective openings in the frame 5, the front edges of the top and bottom members 41 and 42 yielding readily to a moderate force applied thereto if it be necessary to bend these members at all in order to remove the oven compartments from the casing. After repairs have been made, if necessary, and the cleaning of the interior of the casing 4 has been completed, the oven compartments A and B are readily replaced by being inserted through the openings in the frame 5, sliding on the brackets 32 and 36 until stopped by the members 34 and 38, respectively. Now, the screw 73 is reinserted through the bottom 42 and into the lug 72 of the burner 70, thus fastening the oven chamber A in place. The burner 63 may now be replaced by having its conduit 62 passed through the passage 61 in the wall 39 of the oven compartment B and into the air inlet member 59 and the screw 66 may then be passed through the lug 65 and into the end member 40 of the compartment, thus fastening the compartment in place. The removability of the oven chambers greatly facilitates and economizes repairs of these parts, since the walls of the oven compartments are the parts subject to the greatest wear and require repairs sooner than other parts. Such repairs may be made without in any manner disturbing the main structure. The oven compartments being so readily removable it is an easy matter to thoroughly cleanse the oven structure at frequent intervals, so that sanitary conditions may be readily maintained.

The passage of the smoke pipe of the stove directly upward through the gas range between the oven compartments simply causes the cutting off of a small portion of a non-usable corner of each oven compartment so that the effective size of the oven is not reduced. By connecting the supports or standards to the under side of the oven casing one size combination oven and gas stove may be used on any domestic size of coal range by simply shifting the brackets to suit the coal range.

When the stove 1 is used, the gas oven may be utilized as a warming oven.

What is claimed is:—

1. A gas oven provided with a suitable casing, supports for the oven near the ends thereof, supporting guides each made fast to a respective end of the oven nearer the center of said oven than the oven supports, said guides being each provided with a supporting lip spaced from the bottom of the oven but parallel therewith and having a stop member at one end, and a gas burner structure comprising a suitable frame with burners and with means for connecting a source of gas supply thereto, the frame of the gas burner structure being provided at opposite ends with projecting ledges adapted to engage and be supported by the lips of the supporting guides.

2. A gas oven provided with supports near the ends attachable to a stove for holding the oven in an elevated position with relation to the stove, said oven being provided at the bottom with depending supports closer together than the oven supports and each comprising an L-shaped member with a marginal flange for attaching the member to the oven body and with a terminal stop at the end remote from the receiving end thereof, and a gas heater adapted to said supports.

3. A gas oven having supporting means for holding the oven in an elevated position with reference to a stove, and provided with a passage for the smoke flue of the stove, and a gas heater, said oven having depending supports for the gas heater on the bottom of the oven on opposite sides of the smoke flue, said supports having stop members at the rear ends adapted to engage and arrest the movement of the gas heater short of contact with the smoke flue when the gas heater is introduced into said supports.

4. A gas oven provided with a suitable casing having reinforcing members for the bottom of the casing near the ends thereof, supports for the oven within the area of reinforcement, supporting guides each made fast to a respective end of the oven at the reinforced portion thereof and nearer the center of the oven than the oven supports, said guides each being provided with a supporting lip spaced from the bottom of the oven but parallel therewith, said guides having a stop member at one end, and a gas burner structure comprising a suitable frame with burners and with means for connecting a source of gas supply thereto, the frame of the gas burner structure being provided at opposite ends with projecting ledges adapted to engage and be supported by the guides.

5. A gas oven having supports for attaching it to a stove, and a gas burner structure adapted to be carried by the oven, said oven having at separate points on the under side

thereof supporting slides for the ready introduction and removal of the gas burner structure, each slide comprising a piece of sheet metal having means for the attachment thereof to the oven and bent to form a lip parallel with the portion of the slide designed to be secured to the oven and at one end provided with an extension bent across the space between the main body of the slide and the said lip, and the gas burner structure having members adapted to the slides to rest in the lips and engage with the extensions at the ends of the slides.

6. A gas oven structure comprising a suitable casing provided with a plurality of openings at the front, a plurality of removable cooking compartments each introduci- ble wholly into the casing through a res- pective one of the openings in the front thereof, and end and intermediate supports for the cooking compartments within the casing, each support rising from the bottom of the casing and provided with side and end members for holding the respective cook- ing compartment in spaced relation to adja- cent walls of the casing.

7. A gas oven comprising a casing having a plurality of openings in the front thereof, a plurality of removable cooking compart- ments adapted to the interior of the casing and introducible through the openings in the front thereof, and spaced supports for the cooking compartments rising from the bottom of the casing, the supports being located both near the ends and intermedi- ately of the casing, each support having up- rising portions adapted to engage a corre- sponding side and the rear end of a respec- tive cooking compartment with a support between two compartments provided with means for holding the corresponding por- tions of the compartments in spaced relation one to the other.

8. A gas oven comprising a suitable cas- ing, a front frame therefor provided with openings having marginal flanges directed toward the back of the casing, and cooking compartments readily insertible wholly into and removable from the casing through the openings in the front frame, the marginal rearwardly directed flanges coacting with the corresponding portions of the cooking compartments to position the latter with relation to the end walls of the casing and with relation one to the other.

9. A gas oven comprising a suitable cas- ing, a front frame therefor provided with openings each with a marginal flange di- rected toward the back of the casing, cook- ing compartments readily insertible wholly into and removable from the casing through the openings in the front frame, the mar- ginal flanges coacting with the corresponding portions of the cooking compartments to position the latter with relation to the end

walls of the casing and with relation one to the other, and supports within the casing for said compartments for positioning the latter in spaced relation to the rear walls of the casing and also to the end walls thereof.

10. An oven structure comprising a suit- able casing with a front frame having open- ings therethrough, and doors for closing said openings, the top and bottom members of the casing having centrally located alined openings near the back wall of the casing for the passage of a smoke flue, and posi- tioning supports on the bottom of the casing near the ends, and at the middle portion thereof, and cooking compartments readily introducible into and removable from the casing through the openings in the front frame thereof, each cooking compartment comprising top and bottom, side and back walls, with the front open, one corner of the back wall of each compartment being inset into conformity with the shape of the smoke flue to traverse the oven.

11. An oven structure comprising a suit- able casing with a front frame having open- ings therethrough and doors for closing said openings, the top and bottom members of the casing having centrally located alined openings near the back wall of the casing for the passage of a smoke flue, and posi- tioning supports on the bottom of the casing near the ends and at the middle portion thereof, cooking compartments readily in- troducible into and removable from the casing through the openings in the front frame thereof, each cooking compartment comprising top and bottom, side and back walls with the front open, one corner of the back wall of each compartment being inset into conformity with the shape of the smoke flue to traverse the oven, a broiler burner in one compartment near the top thereof, and a baking burner in the oven for the other compartment, the latter being provided with an opening in its bottom for the said bak- ing burner.

12. A gas oven comprising a suitable cas- ing having a front frame with openings therethrough and doors for closing said openings, the casing being provided with a passage through its top for the escape of burnt gases and with alined passages through the top and bottom at the rear por- tion thereof for the passage of a smoke flue, guiding and positioning supports on the bot- tom of the oven within the latter and lo- cated near the ends and at the middle of the oven casing, guiding supports on the bottom of the oven exterior thereto and near the ends thereof, standards or supports for the oven secured thereto outside the supports on the exterior of the bottom of the oven, a gas heater having burners thereon and provided with end ledges adapted to the guiding sup- ports on the lower side of the bottom of the

oven, gas connections on the exterior of one
end of the oven, a gas burner within the
oven near one end thereof, and coupled to
the gas connections, cooking compartments
5 introducible into and removable from the
oven through the openings in the front
frame thereof, each compartment compris-
ing top, bottom, side and rear walls with
the front open and with the rear walls at
10 one corner inset to conform to the shape of
a smoke flue traversing the oven through
the openings provided for its passage, one
of the compartments having a passage there-

through for the said burner within the oven,
and another burner within the other one of 15
the compartments near the top thereof and
coupled to the gas connections at the ends of
the oven.

In testimony, that I claim the foregoing
as my own, I have hereto affixed my signa- 20
ture in the presence of two witnesses.

JOSEPH A. BUCKWALTER.

Witnesses:

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HARVEY L. LANDIS.