July 16, 1940. L. S. CHADWICK 2,208,323

LIQUID FUEL RANGE

Filed May 6, 1938 5 Sheets-Sheet 1

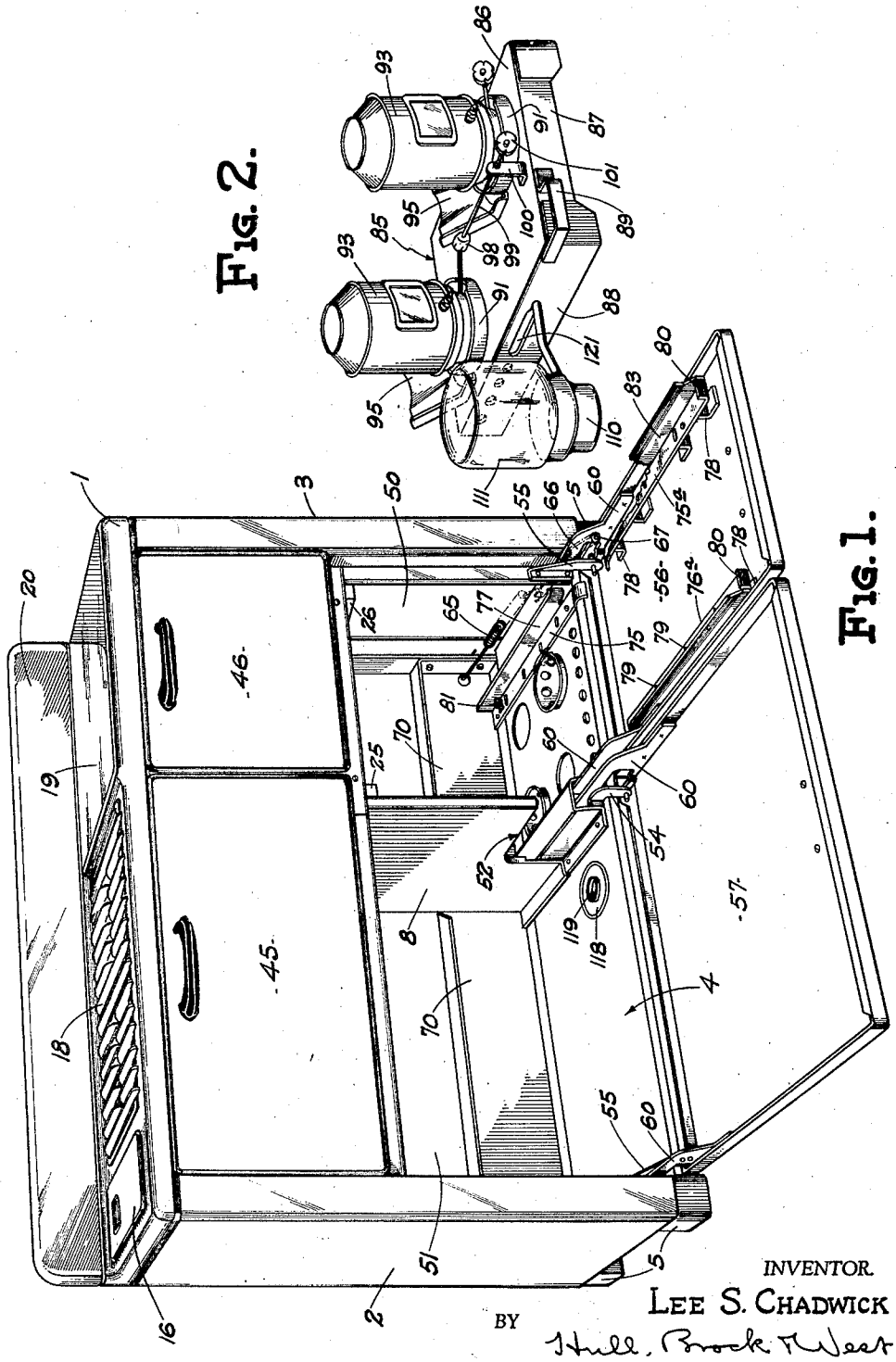


Fig. 2.

Fig. 1.

INVENTOR.
LEE S. CHADWICK
BY Hull, Brock & West
ATTORNEYS.

July 16, 1940. L. S. CHADWICK 2,208,323

LIQUID FUEL RANGE

Filed May 6, 1938 5 Sheets-Sheet 2

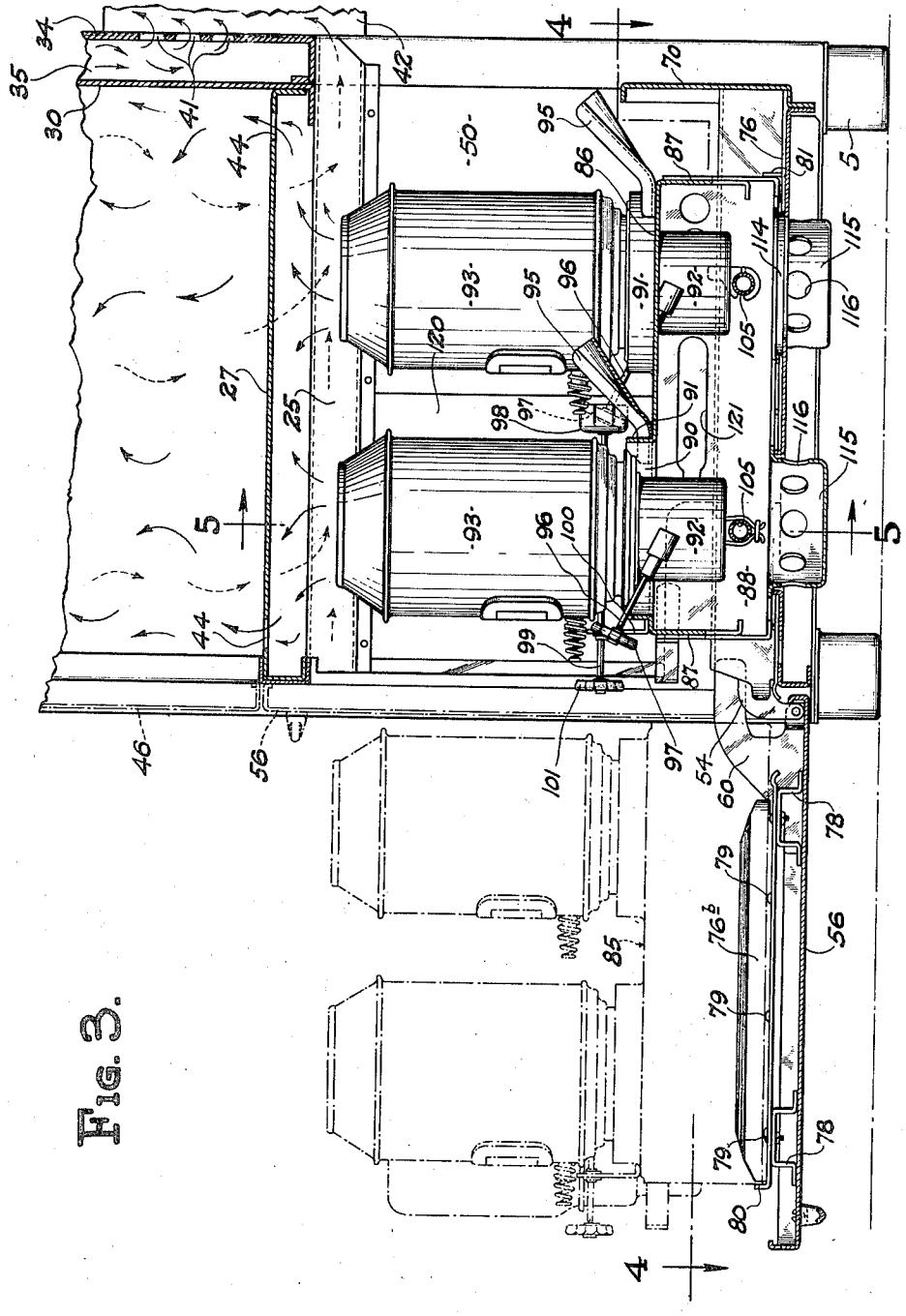


Fig. 3.

INVENTOR.
LEE S. CHADWICK

BY Hull, Brock & West
ATTORNEYS.

July 16, 1940. L. S. CHADWICK 2,208,323

LIQUID FUEL RANGE

Filed May 6, 1938 5 Sheets-Sheet 3

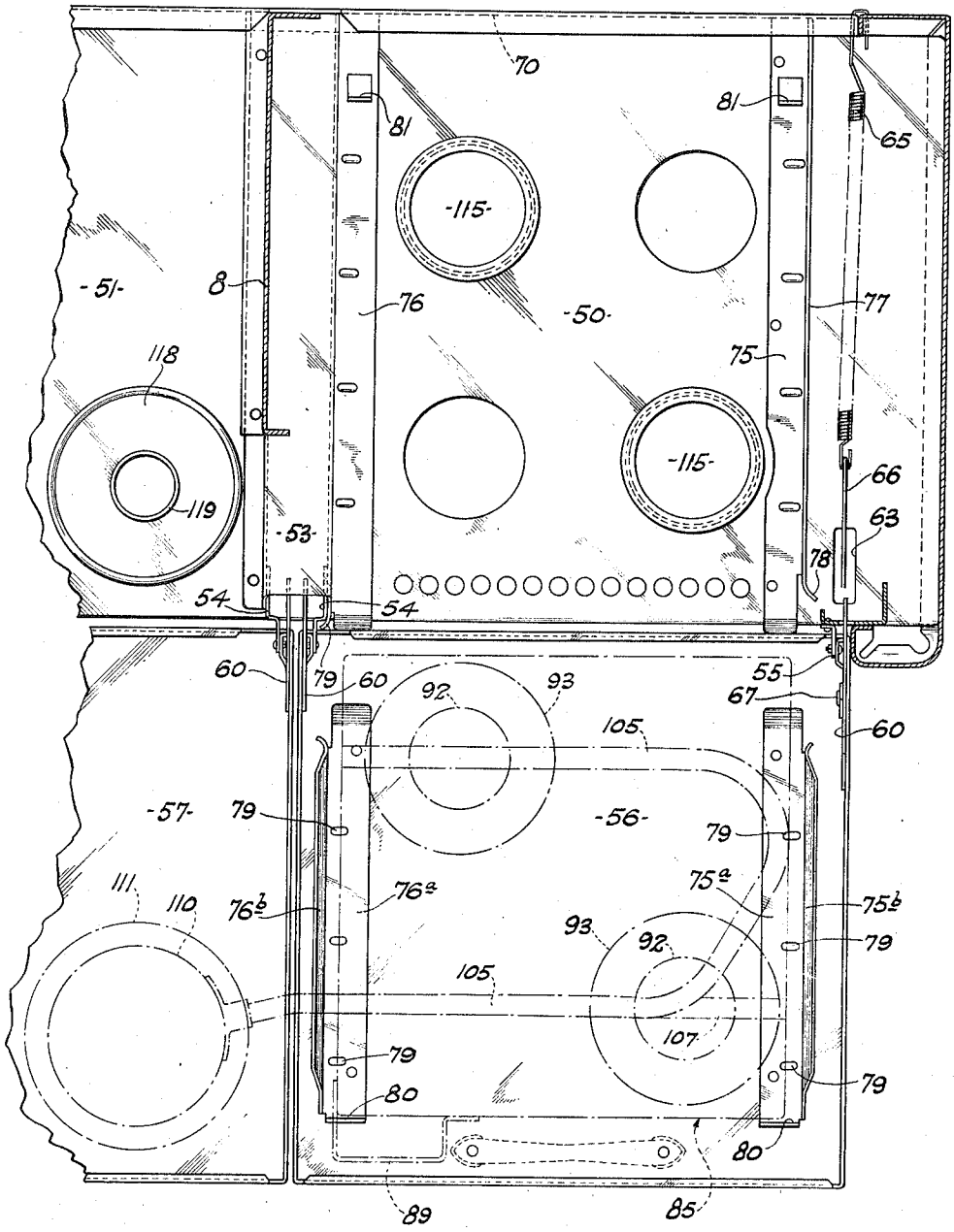


FIG. 4.

INVENTOR.

BY LEE S. CHADWICK

Hull, Brock & West

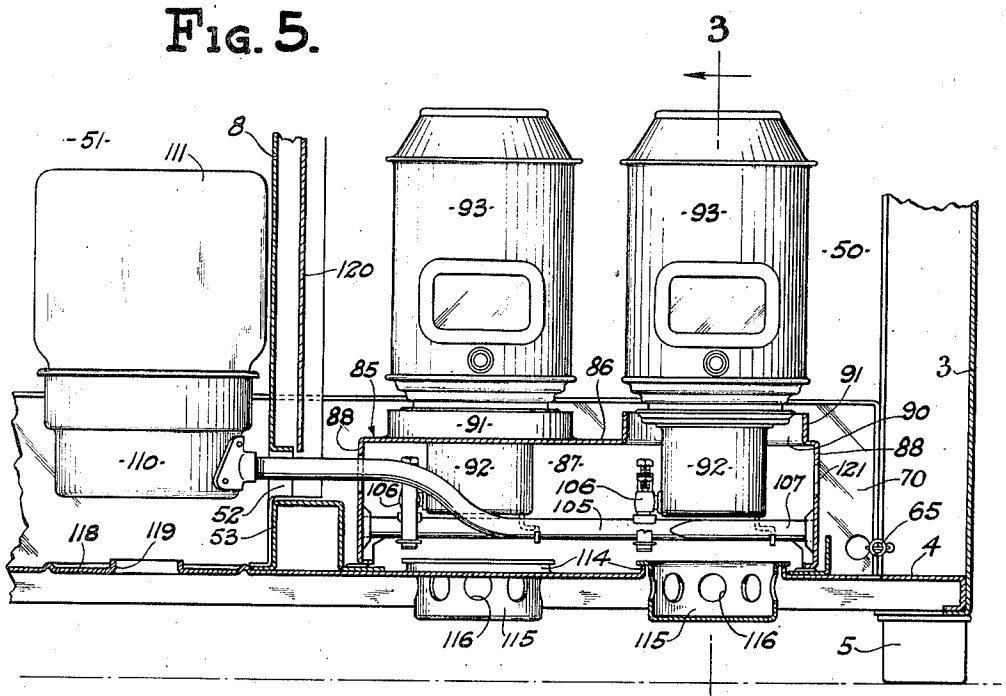
ATTORNEYS.

July 16, 1940. L. S. CHADWICK 2,208,323

LIQUID FUEL RANGE

Filed May 6, 1938 5 Sheets-Sheet 4

FIG. 5.



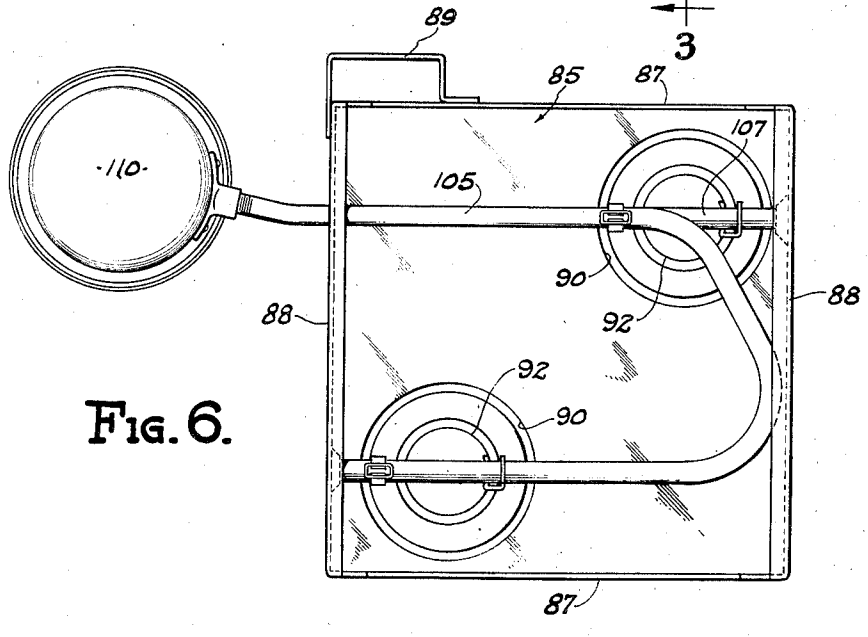


FIG. 6.

INVENTOR.
LEE S. CHADWICK
BY Hull, Brock & West
ATTORNEYS.

July 16, 1940. L. S. CHADWICK 2,208,323

LIQUID FUEL RANGE

Filed May 6, 1938 5 Sheets-Sheet 5

Fig. 8.

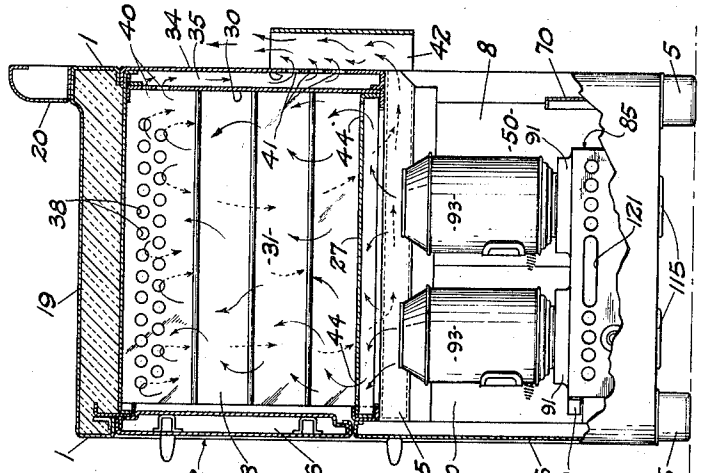
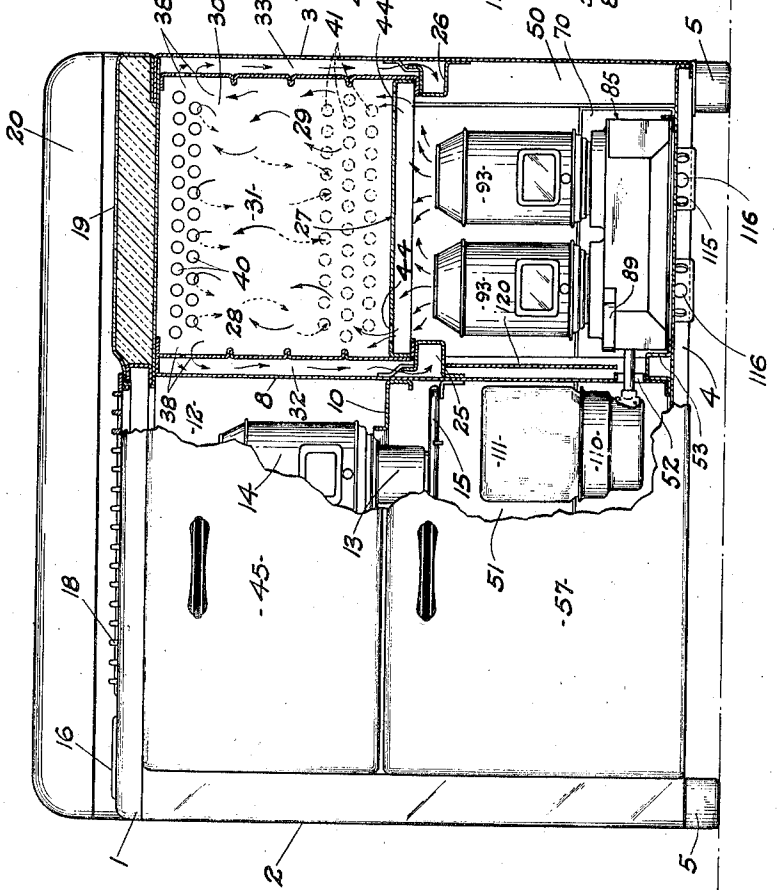


Fig. 7.



INVENTOR.
LEE S. CHADWICK
BY Hull, Brock & West
ATTORNEYS.

Patented July 16, 1940

2,208,323

UNITED STATES PATENT OFFICE

2,208,323

LIQUID FUEL RANGE

Lee S. Chadwick, Shaker Heights, Ohio, assignor to Perfection Stove Company, Cleveland, Ohio, a corporation of Ohio

Application May 6, 1938, Serial No. 206,398

11 Claims. (Cl. 126—44)

This invention relates to oil burning stoves or ranges used for cooking and baking.

Heretofore, in such apparatus, the oven has occupied a position above the plane of the stove top—an arrangement considered necessary to enable the oven burners to be reached with reasonable ease for cleaning, lighting and adjusting purposes.

The main object of this invention is the production of an oil burning cooking stove or range of the so-called table-top variety wherein the oven is below the plane of the stove top and which is characterized by a movable, and desirably removable, burner unit for heating the oven, the same being shiftable between an operative position beneath the oven and a second position laterally or forwardly thereof.

Another object is to include in such a stove or range an open front burner compartment below the oven, provided with a downwardly opening door onto which the burner unit may be shifted, when the door is open, and desirably from which the unit may be lifted so that it may be carried to a more suitable place and supported at a more convenient elevation for cleaning.

A further object is to provide a track in said compartment, and an extension thereof on said door, so that when the door is open the extension constitutes, in effect, a continuation of the track along which the unit is readily slidable between a position beneath the oven and a position upon the door.

A still further object is to include in the structure a second compartment alongside the burner compartment separated therefrom by a partition, and to provide a burner unit from one side of which extends a conduit that supports a fuel reservoir in spaced relation to the unit so that the unit may occupy the burner compartment while the reservoir is situated in the other compartment, the aforesaid partition having a forwardly opening notch for the accommodation of said conduit.

Another broad object of the invention is to provide, in a table-top stove or range wherein the space for the cooking burners and the oven are located side by side below the stove top, means for disposing of the products of combustion from the oven burners in such manner that they will have no effect upon the action of the cooking burners.

Additional objects and advantages will appear as this description proceeds, reference being had to the accompanying drawings wherein Fig. 1 is a perspective view of the stove or range of my invention with the oven burner unit removed; Fig. 2 is a similar view of said burner unit; Fig. 3 is a fragmentary sectional side elevation of the stove on a scale considerably enlarged over that of the previous views, the plane of section being indicated by the line 3—3 of Fig. 5, and the burner through which the plane of section extends being shown in elevation; Fig. 4 is a fragmentary sectional plan substantially on the line 4—4 of Fig. 3, the burner unit being omitted except as indicated in dot-and-dash lines on the track extension of the door; Fig. 5 is a vertical section substantially on the line 5—5 of Fig. 3; Fig. 6 is a bottom plan view of the oven burner unit, and Figs. 7 and 8 are a front elevation and an end elevation, respectively, of the stove, each being partly in section.

The frame of the stove comprises a top 1, ends 2 and 3, and a base 4, all suitably connected together. The frame is supported at its four corners by legs 5. A vertical partition 8 extends from the top 1 to the base 4, somewhat to the right of the longitudinal center of the structure as the same is viewed from the front, and said partition is approximately the same in width from front to back as the base 4. A horizontally disposed burner plate or baffle 10 defines the bottom of a space designated 12 that encloses the upper ends of the cooking burners and their drums or chimneys, one of such burners being shown at 13 in Fig. 7, the drum or chimney whereof is designated 14. This portion of the structure constitutes no part of my present invention and is disclosed and claimed in an earlier patent to Charles J. Kessler and myself, No. 2,068,122, dated January 19, 1937. Oil is supplied to the cooking burners through a pipe 15 that leads from an oil reservoir (not shown), access to which is had through an opening in the stove top, normally closed by a door 16. The cooking burners are situated below an opening in the stove top that is equipped with a grid 18. The top of the grid 18 is substantially flush with the portion 19 of the stove top that is over the oven, so that vessels may be slid from one to the other; and an apron 20 rises from the rear edge of the stove top and is coextensive in length therewith.

Carried by the partition 8 and end 3 are air ducts 25 and 26, respectively, the same being closed at their forward ends and open at their rear ends. Supported by the ducts 25 and 26 are the bottom wall 27, side linings 28 and 29 and rear lining 30 of the oven that is designated generally by the numeral 31. The linings 28 and 29 are substantially parallel to and are spaced

from the partition 8 and end 3, respectively, thereby to provide passageways 32 and 33, while the rear lining 30 bears a similar relation to the oven back 34 so as to provide a passageway 35. The back 34 extends from the stove top 1 to the plane of the ducts 25 and 26. The passageways 32 and 33 communicate adjacent their upper ends with the interior of the oven through perforations 38 in the linings 28 and 29, and at their lower ends they open into the ducts 25 and 26 through slots provided by the spacing of the upwardly flanged top walls of said ducts from the partition 8 and end 3. The rear lining 30 has perforations 40 near its top, while the oven back 34 is provided with a series of holes 41 near its lower edge. A flue like member or shield 42 is attached to the back of the structure in the region of the holes 41 and the rear ends of the ducts 25 and 26. The oven bottom 27 has openings 44 adjacent its edges through which the products of combustion from the oven burners enter the oven. The products rising within the oven escape through the perforations 38 and 40 to the passageways 32, 33 and 35, those entering the passageways 32 and 33 descending to the ducts 25 and 26 by which they are carried rearwardly and are discharged into the flue provided by the shield 42, along with the products that escape from the passageway 35 through the holes 41. It is clear that by disposing of those products that are entrained down the side of the oven adjacent the space 12 in the manner described, they will be prevented from having any effect upon the action of the cooking burners 13. This would not be the case if the more common practice were pursued of perforating the side wall of the oven (which, in the present instance, is the partition 8) in about the plane of the holes 41 of the oven back. The employment of the flue 26 obviates the need of similarly perforating the end 3, which would be objectionable from the standpoint of appearance. Doors 45 and 46 close the open fronts of the burner space 12 and oven 31, respectively, and they are hingedly connected adjacent their lower edges to the frame structure.

Below the oven is the oven burner compartment 50, and separated therefrom by the lower portion of the partition 8 is a compartment 51. The lower front corner of the partition 8 is cut away to provide a forwardly opening notch 52 for a purpose that will presently appear. Applied to the base 4 immediately to the right of the partition 8, as the parts are viewed from the front, is a channel member 53. Extending forwardly and downwardly from the sides of said member are hangers 54 whose outer ends are substantially in transverse alignment with the corresponding ends of hangers 55 that are carried by the ends of the frame structure. Hingedly connected to these hangers 54 and 55 are doors 56 and 57 for closing the open fronts of the compartments 50 and 51, respectively. The hinge parts of the doors involve elements 60 that incorporate rearwardly extending arms, those located at the adjacent corners of the doors 56 and 57 entering the channel member 53 and being arranged to engage the web thereof to stop the downward swing of the doors as the doors assume substantially horizontal position. The arms of the end elements 60 similarly cooperate with parts adjacent the ends of the structure, and the base 4 is provided with openings through which the arms swing when the doors are closed, one of such openings being shown at 63 in Fig. 4.

As is common in stove structures of this character, springs are employed to retain the doors closed and to counterbalance them as they swing downward to open position. Such a spring is shown at 65 in Figs. 1, 4 and 5, the rear end of the spring being anchored to the stove structure while its forward end is connected to a link 66 that is pivoted at 67 to the adjacent element 60. A shallow back panel 70 rises from the base 4 at the rear of the compartments 50 and 51.

Within the burner compartment 50 is a track consisting of rails 75 and 76, the latter being formed by one of the base flanges of the member 53. A lateral guide associated with the rail 76 is formed by the adjacent vertical side of the member 55, while a similar guide for the rail 75 is formed by a vertical flange 77. The forward ends of said guides are flared outwardly at 78 and 79. A track extension is carried by the door 56 and consists of rails 75^a and 76^a that are, in effect, continuations of the rails 75 and 76, and they are provided with vertical flanges or guides 75^b and 76^b, respectively. The rails 75^a and 76^a are connected to and spaced from the door by trestles 78, the same being of an elevation to dispose the rails 75^a and 76^a in approximately the horizontal plane of the rails 75 and 76 when the door 56 is fully open. All of said rails are desirably provided with relatively small transversely disposed ridges 79, the purpose of which is to reduce the friction between the burner unit and track, as will presently appear, and the rails on the door are provided with stops 80 at their forward ends, and those within the compartment 50, with rear stops 81, to limit the sliding movement of and locate said unit. The adjacent ends of the aligned rails are turned downwardly, while the upper edges of the guides 75^b and 76^b are flared outwardly along their upper edges and at their rear ends.

The oven burner unit, shown in perspective in Fig. 2, comprises a base or housing 85 that is constructed of sheet metal to provide a horizontal wall 86, front and rear flanges 87, and relatively deep side walls or flanges 88. To the front left corner of the housing 85 is attached a handle 89. The horizontal wall 86 has openings 90, surrounded by upstanding flanges or collars 91, centrally within which are disposed the burners 92, equipped with drums or chimneys 93. These drums or chimneys are of usual character and are removably and tiltably supported by the burners; and to sustain them in rearwardly tilted position are drum rests 95 that are inclined upwardly and rearwardly from the wall 86 immediately back of the collars 91. The burners 92 are of a common and well known type and incorporate wick adjusting spindles 96 having hand wheels 97 by which they may turned. The hand wheel of the more rearwardly disposed burner occupies a socket 98 on the rear end of a shaft 99 that is rotatably supported by a bracket 100 carried by the housing 85. A hand wheel 101 is secured to the forward end of the shaft 99.

Supported within the housing 85 a suitable distance below and parallel with the top wall 86 is a supply pipe 105, formed to provide parallel branches that extend transversely beneath the burners 92. The burners are suitably fastened to the pipe, and communicate therewith through elbow fittings 106. The forward branch of the pipe has an extension 107 by which it is fastened to the adjacent side wall 88 of the housing. The end of the rear branch of the pipe is sealed and similarly connected to the opposed

side wall 88, while the front branch is extended through an opening in the last mentioned side wall and projects a substantial distance therebeyond where it has secured to it a cup-like receptacle 110 into which the pipe opens. A fuel reservoir 111, in the present instance consisting of a glass bottle, is adapted to be supported in inverted position by and above the receptacle with its mouth liquid sealed therein at an elevation that determines the fuel level in the burners 92, the mouth of the reservoir being equipped with a suitable valve that is automatically opened when the reservoir assumes operative position over the receptacle. This is in accordance with common practice.

That portion of the stove base 4 that forms the bottom wall of the oven burner compartment 50 is provided with a liberal number of openings to insure an ample air supply for the burners. Two of the openings, which are relatively large, are located directly beneath the burners when the burner unit occupies normal position within the compartment, and said openings are surrounded by flanges 114. Occupying these flanged openings are drip basins 115 whose peripheral walls are provided with holes 116. The basins are removably supported within the openings by their flared upper ends resting upon the flanges 114, and their purpose is to catch any oil or char that drops from the burners 92. Within the portion of the stove base 4 that constitutes the bottom wall of the compartment 51 is formed an annular sump 118 which serves to collect and retain any fuel that drops from the receptacle 110 or reservoir 111, when the burner unit is in normal position. A hole that occupies the center of the sump 118 is surrounded by an upstanding flange 119. To better insulate the fuel reservoir from the heat of the oven burners, a shield 120, in the form of a plate, is attached to and spaced from the partition 8 in the region of the reservoir.

When it is desired to light the oven burners 92, the door 56 is opened and the drums 93 are tilted back against the rests 95 and a lighted match or taper is applied to the wicks, after which the drums are returned to their upright positions on the burners. The wicks of the burners may now be adjusted by the wick adjusting spindles, that of the rear burner being manipulated through the shaft 99, and when this is accomplished, the door 56 may be closed. If a fresh supply of fuel is needed, the door 57 is opened and the empty reservoir 111 is replaced by a full one. Should an individual find it at all awkward or inconvenient to light the burners or replenish the oil supply in the manner described, both doors 56 and 57 may be lowered to horizontal position and, grasping the handle 89, the individual may slide the burner unit from the compartment 50 onto the track extension on the door 56. For cleaning purposes, the burner unit should be slid to the front of the track extension, where its movement is arrested by the stops 80, and, if desired, the unit may be lifted bodily from the door 56 and carried to some suitable place for cleaning. To facilitate such handling of the burner unit, the side walls 88 are provided with hand holes or slots 121.

Having thus described my invention, what I claim is:

1. A light fuel stove including an oven and a burner compartment below the oven, a door for said compartment hinged adjacent its lower edge to the structure, stop means for maintaining the door substantially horizontal when open, a track located within the burner compartment, a track extension on the inner side of the door that constitutes, in effect, a continuation of the track when the door is open, the track and track extension each consisting of laterally spaced parallel rails and vertical guides along the outer sides of said rails, the adjacent ends of the rails of the track and track extension being inclined downwardly as they approach each other while the corresponding ends of the guides are flared outwardly, and a burner unit slidable on the track and track extension.

2. A liquid fuel stove structure including an oven and a burner compartment below said oven, the structure including also a second compartment to one side of the burner compartment, a partition separating said compartments, a burner unit within the burner compartment and removable therefrom, said unit having connected to it a laterally spaced fuel reservoir adapted to occupy the second mentioned compartment when the unit is in the burner compartment, the parts being designed to provide clearance for the connections between the reservoir and unit when the unit is placed in and removed from the burner compartment.

3. A liquid fuel stove structure including an oven below the plane of the stove top and a burner compartment below the oven, the structure including also a second compartment to one side of the burner compartment, a partition between the two compartments, said compartments being open at the front, a burner unit adapted to be situated within the burner compartment and removable therefrom, a conduit extending laterally from the unit, a fuel reservoir supported by the conduit in spaced relation to the unit, said reservoir being situated within the second mentioned compartment when the unit is in the burner compartment, the partition having a forwardly opening notch for the accommodation of the conduit.

4. A liquid fuel stove structure including an oven below the plane of the stove top and a burner compartment below the oven, the structure including also a second compartment to one side of the burner compartment, a partition between the two compartments, said compartments being open at the front, a closure for the open front of each compartment, a burner unit adapted to be situated within the burner compartment and removable therefrom, a conduit extending laterally from the unit, a fuel reservoir supported by the conduit in spaced relation to the unit, said reservoir being situated within the second mentioned compartment when the unit is in the burner compartment, the partition being designed to provide clearance for the conduit.

5. A liquid fuel stove structure including a cooking burner space and an oven arranged side by side below the stove top, the structure including also a burner compartment below the oven and a second compartment below the aforesaid cooking burner space, a horizontal partition separating the cooking burner space from the last mentioned compartment, a vertical partition separating said compartment from the burner compartment, the cooking burner space, oven, and said compartments being open at the front, doors for closing the open fronts thereof hinged to the structure, one or more burners in the cooking burner space, a fuel supply therefor, a burner unit in the burner compartment, a conduit extending laterally therefrom for supplying fuel

thereto, a reservoir communicating with and supported by said conduit laterally of the burner unit so that the same may be situated within the second mentioned compartment when the unit is in the burner compartment, the vertical partition having a forwardly opening notch for the accommodation of the conduit and the burner unit being removable from the burner compartment when the doors for both compartments are open.

6. A stove structure enclosing a burner compartment, a burner unit removably supported therein, said unit comprising a base and a plurality of burners supported by said base, a fuel supply for said burners incorporated in the unit, the stove structure including a bottom wall for said compartment having openings below the burners when the burner unit is in normal position within the compartment, and drip cups within said openings the side walls whereof are provided with air admitting apertures.

7. A liquid fuel stove comprising a cabinet-like structure enclosing a cooking burner space and an oven that are arranged side by side below the stove top, and an oven burner compartment below the oven, burners in said space and compartment, a partition separating the cooking burner space from the oven, a lining for the oven spaced from said partition to form a passageway, said passageway communicating with the interior of the oven adjacent the top of said lining, a duct wherewith said passageway communicates adjacent its lower end, said duct leading outside the structure, products of combustion rising within the oven and descending through said passageway and escaping through the duct.

8. A liquid fuel stove comprising a cabinet-like structure enclosing a cooking burner space and an oven arranged side by side below the stove top and a burner compartment below the oven, burners within said space and compartment, the oven being enclosed in part by the end and rear walls of the structure, a vertical partition separating the cooking burner space from the oven, linings for the sides and rear of the oven that are spaced from the end wall, rear wall, and said partition thereby to provide passageways that communicate with the interior of the oven adjacent the tops of the linings, and ducts arranged horizontally below the lateral passageways and into which said lateral passageways open, the ducts opening through the rear of the structure, the rear passageway being vented adjacent its lower end.

9. A liquid fuel stove comprising a cabinet-like structure enclosing a cooking burner space and an oven that are arranged side by side below the stove top, and a burner compartment below the oven, burners within said space and compartment, the oven being enclosed in part by the end and rear walls of the structure, a vertical partition separating the cooking burner space from the oven, linings for the sides and rear of the oven that are spaced from the end wall, rear wall, and said partition thereby to provide passageways that communicate with the interior of the oven adjacent the tops of the linings, ducts arranged horizontally below the lateral passageways and into which said lateral passageways open, and a deflector carried by the structure at the rear thereof providing a flue into which the ducts discharge, the rear passageways being vented adjacent its lower end into said flue.

10. A liquid fuel stove comprising a structure including an oven and a burner compartment below the oven, a track situated within said compartment and extensible beyond an open side thereof, and a self-contained oven burner unit slidable on said track and otherwise detached from the structure and including a burner and a fuel reservoir communicating therewith, said unit normally reposing within said compartment and slidable therefrom along the track and track extension to a position outside the compartment where said unit may be lifted from the track extension.

11. A liquid fuel stove comprising a structure including an oven and a burner compartment below the oven, a downwardly opening door for an open side of the compartment, and a self-contained oven burner unit including a burner and a fuel reservoir communicating therewith, said unit being detached from the structure and normally reposing in operative position within the compartment and shiftable therefrom to a position upon the door when the latter is open and from which the unit may be lifted.

LEE S. CHADWICK.

CERTIFICATE OF CORRECTION.

Patent No. 2,208,323. July 16, 1940.

LEE S. CHADWICK.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, first column, line 72, claim 1, for the word "light" read --liquid--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 10th day of September, A. D. 1940.

(Seal)

Leslie Frazer,
Acting Commissioner of Patents.