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3,015,329

BURNER BOX FOR TOP BURNER UNIT

Filed Feb. 21, 1955

4 Sheets-Sheet 1

Fig. 1

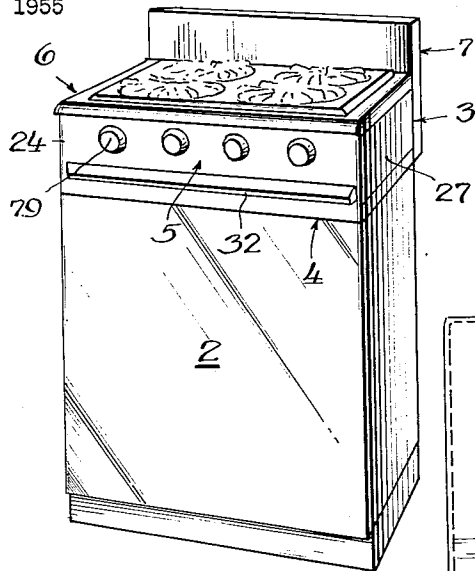


Fig. 9

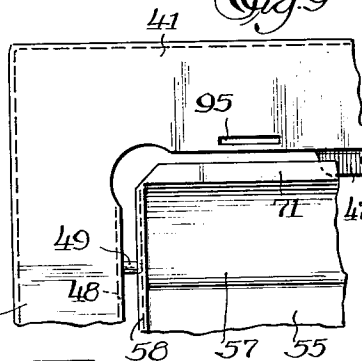
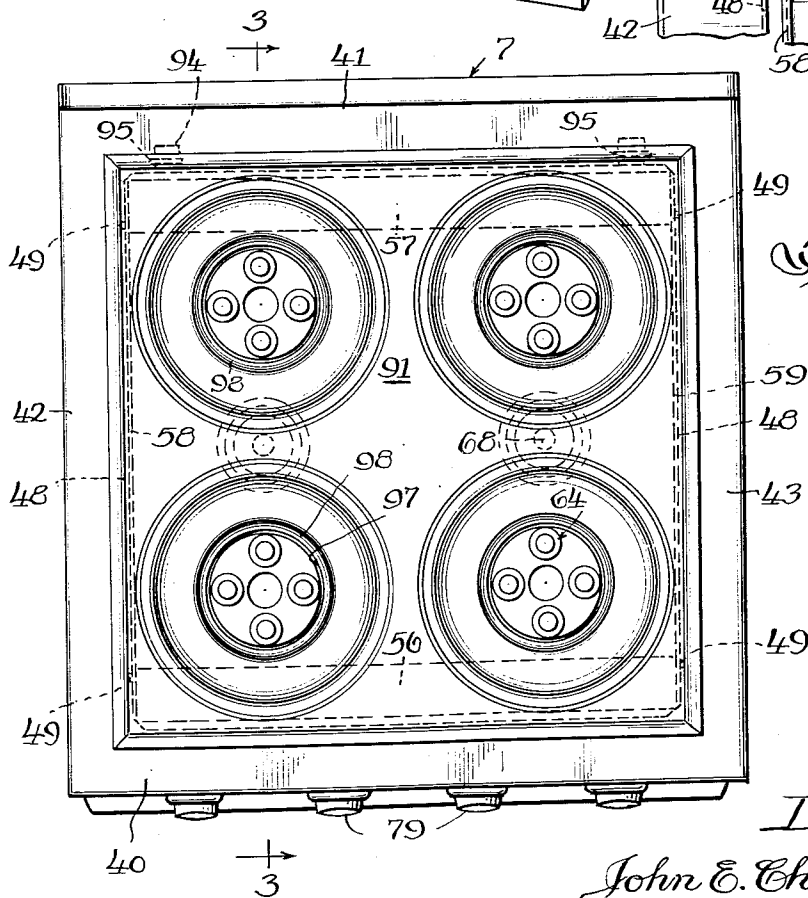


Fig. 2



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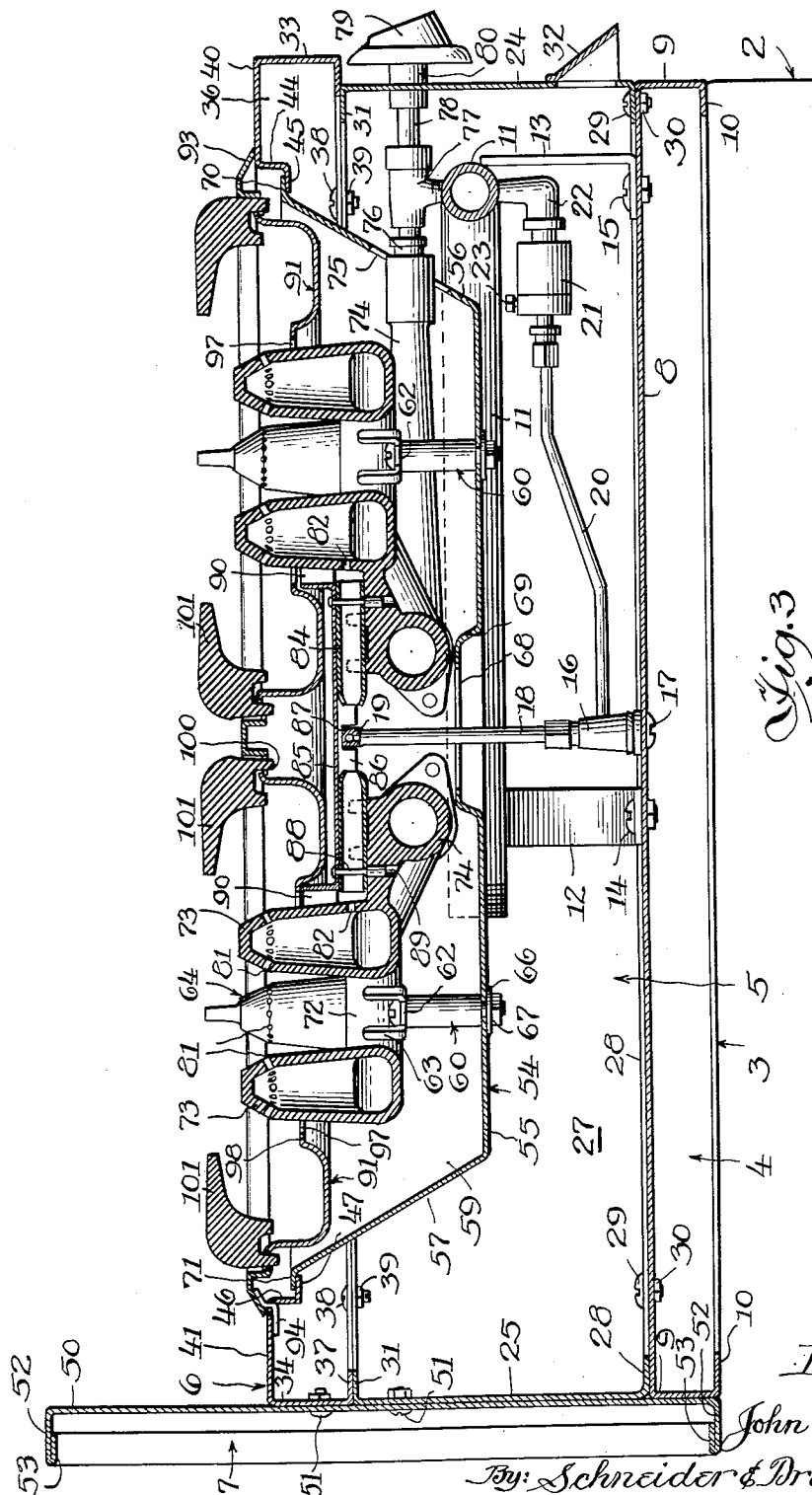


Fig. 3

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4 Sheets-Sheet 3

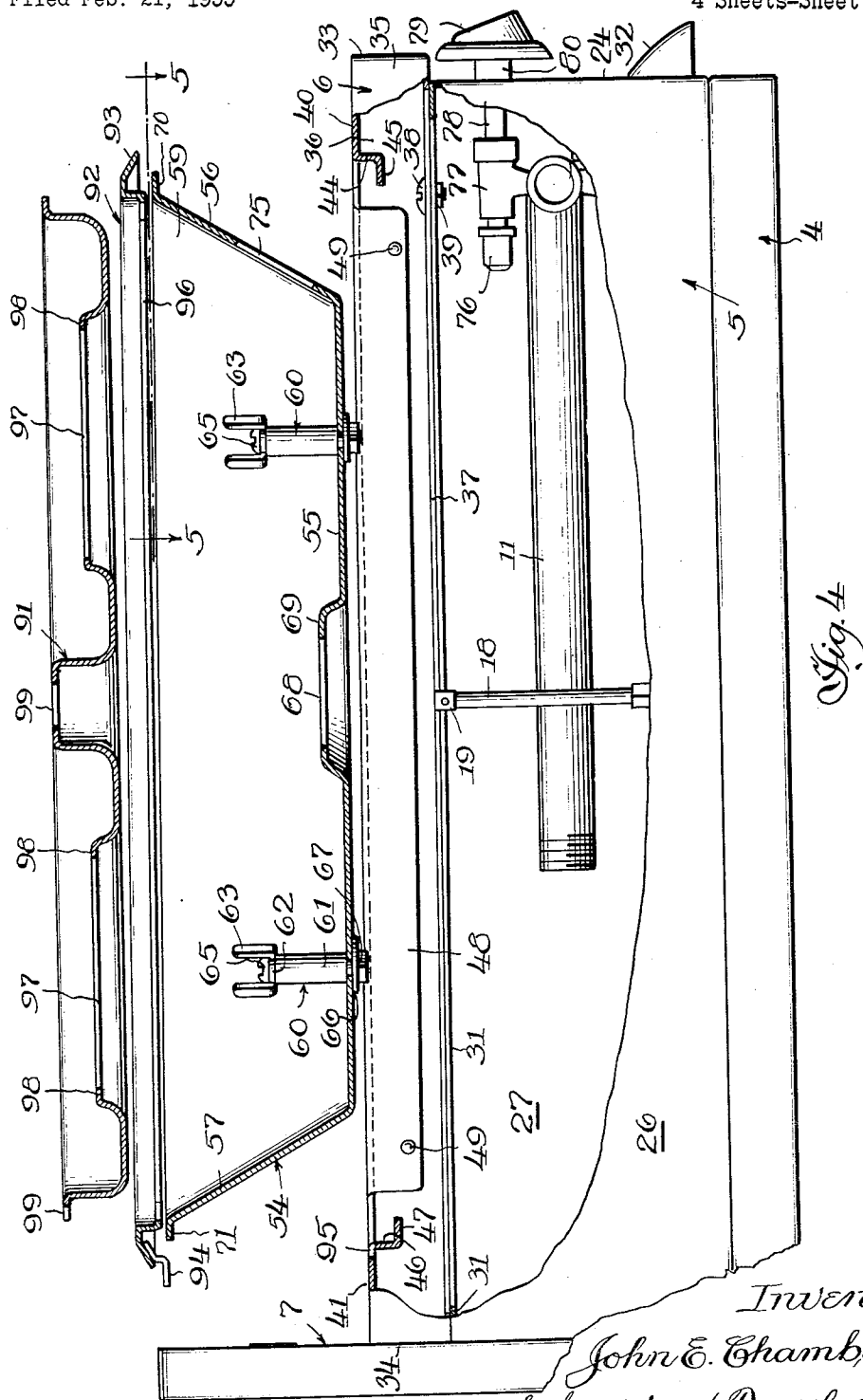


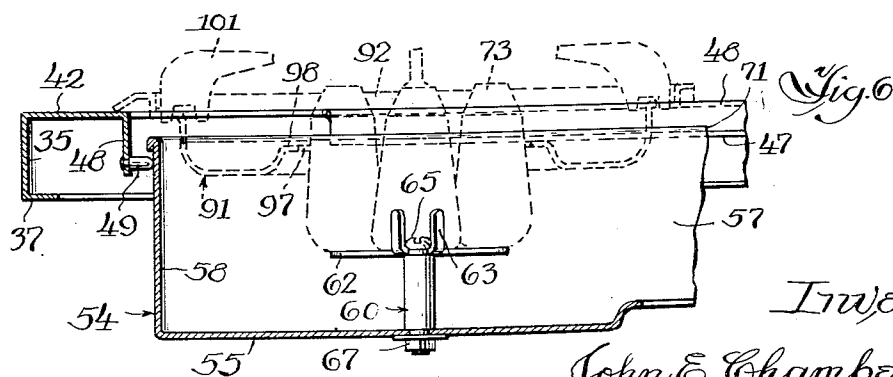
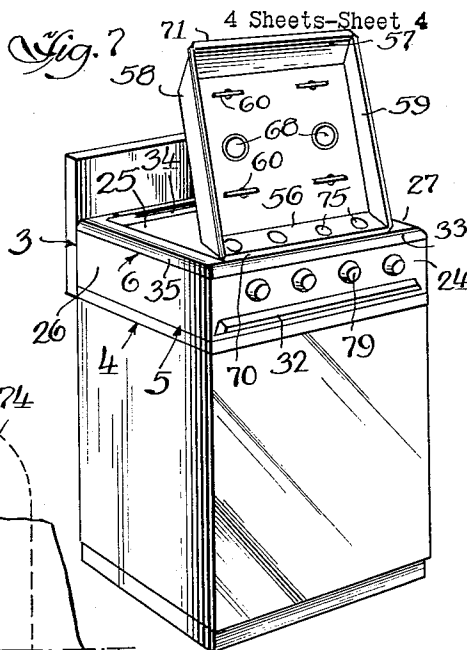
Fig. 4

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BURNER BOX FOR TOP BURNER UNIT

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5 Claims. (Cl. 126-39)

This invention relates to a burner box for a top burner unit or range, and is particularly concerned with a burner box that contains and supports burners and is insulated from the frame in which it is supported.

The burners may be easily removed from the burner box which is then freely removable from the frame on which it is supported. The ease of removal and replacement of the various elements facilitates cleaning the unit. The burner box is suspended from hooks or ledges, preferably on its front and back edges.

Spacing is provided at the sides between the box and the frame in which the box is suspended so that there is an insulating barrier or layer of air which prevents the transfer of heat from the burner to the sides of the frame. Where hooks are used to suspend the burner box, the hooks provide the spacing. Where the burner box is suspended by ledges, the spacing is maintained by spacing studs or similar elements.

The bottom wall of the burner box is provided with one or more apertures, and the pilot lighter tube or tubes project through the apertures to position the pilot light properly with respect to the burners which are ignited thereby. The edges of the bottom wall of the burner box surrounding the pilot lighter tube are embossed to prevent drippings from spilling out of the burner box. If electrical burners are used, no pilot light is required, and the bottom wall of the burner box is imperforate.

The structure by means of which the above mentioned and other advantages of the invention are attained will be described in the following specification, taken in conjunction with the accompanying drawings, showing a preferred illustrative embodiment of the invention, in which:

FIGURE 1 is a perspective view of a top burner unit embodying the invention, showing the unit supported on a cabinet;

FIG. 2 is a top plan view of the top burner unit with the grates removed;

FIG. 3 is a cross sectional view, taken along the line 3-3 of FIG. 2, showing the burners supported in the burner box;

FIG. 4 is a view, partly in section and partly in elevation, taken substantially along the line 3-3 of FIG. 2, showing the various parts of the top burner unit in separated relationship;

FIG. 5 is a fragmentary top plan view, taken along the line 5-5 of FIG. 4, and showing one of the burners in dotted lines;

FIG. 6 is a cross sectional view, taken along the line 6-6 of FIG. 5;

FIG. 7 is a perspective view of the final step of disassembly, showing the burner box of the top burner unit of FIG. 1 being removed after all the other parts of the unit have been removed;

FIG. 8 is a detail perspective view of one of the burner supports, the parts being shown in disassembled relationship; and

FIG. 9 is a fragmentary plan view showing one of the rear corners of the burner box as assembled with the top burner unit.

Referring to the drawings, the reference numeral 2 indicates a cabinet on which a top burner unit 3 is supported. The top burner unit comprises a base member 4, an intermediate member 5, a top frame member 6 which serves to support a burner box suspended there-

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from, and a back member 7. Base member 4 has a top wall 8, vertical side walls 9, and horizontal flanges 10 extending inwardly from the lower edge of each side wall. Flanges 10 are supported on the top of cabinet 2, and serve to space the top wall 8 from the cabinet to provide an insulating air space to prevent transmission of heat to the cabinet. A gas manifold 11 is supported by a pair of brackets 12 and 13 secured to top wall 8 by bolts or screws 14 and 15, respectively. A pilot lighter base 16 is secured to top wall 8 by a screw 17. A lighter tube 18 extends upwardly from lighter base 16, and a lighter head 19 is mounted on the top of said tube. A gas line 20 connects lighter base 16 to a mixing chamber 21 which is connected to manifold 11 by means of a fitting 22. A valve 23, extending from fitting 22, remains open to permit a constant flow of a small volume of gas through the lighter head.

Intermediate member 5 comprises upstanding front and rear walls 24 and 25, respectively, connected by upstanding side walls 26 and 27. A horizontal flange 28 extends inwardly from the lower edges of walls 24, 25, 26 and 27. Intermediate member 5 is secured to base member 4 by means of a plurality of screws 29 extending through flange 28 and top member 8 and held by nuts 30. A horizontal flange 31 extends inwardly from the upper edges of walls 24, 25, 26 and 27. Front wall 24 is provided with a louver 32 to provide for entrance of secondary air to intermediate member 5.

Top frame 6 comprises upstanding front and rear walls 33 and 34, respectively, connected by side walls 35 and 36. A horizontal flange 37 extending inwardly from the lower edges of walls 33, 34, 35 and 36 is positioned on flange 31 and is secured thereto by screws 38 held in place by nuts 39. Top frame 6 is also provided with four horizontal top walls 40, 41, 42 and 43 extending inwardly from the upper edges of walls 33, 34, 35 and 36, respectively, having a rectangular opening therebetween. Wall 40 is provided at its inner edge with a downturned vertical section 44 and a horizontal flange 45 extending inwardly from the lower edge of section 44. Wall 41 is provided with a similar downturned section 46 and an inwardly extending horizontal flange 47. Side walls 35 and 36 each are provided with a downwardly extending lip 48. Spacing studs 49 are secured to each lip 48 and project inwardly therefrom to space a burner box, hereinafter described, from the side walls of the frame.

The back member 7 is provided with a front wall 50 which is secured to rear walls 25 and 34 by screws 51. Back member 7 preferably projects upwardly above top wall 41. Each edge of front wall 50 is provided with a flange 52 which extends rearwardly to space the unit from a wall against which the back member 7 may be positioned. The ends of flange 52 are folded against the flange, as indicated at 53, to reinforce the edges of back member 7.

A burner box 54, adapted to be suspended in the rectangular opening of top frame 6, comprises a bottom wall 55, front wall 56, rear wall 57, and side walls 58 and 59. A plurality of burner supports 60, four in the embodiment illustrated, project upwardly from bottom wall 55 to which they are secured. Each support comprises a tubular stem 61 having a pair of horizontal arms 62 (FIG. 8) and a plurality of upstanding arms 63 which cooperate to support a burner 64 and to prevent lateral displacement of the burner. A screw 65, extending through tubular stem 61, projects beyond the lower end of the stem and through an aperture provided therefor in bottom wall 55. A flat annular washer 66 is positioned against the underside of bottom wall 55 with screw 65 projecting therethrough. A nut 67, threaded on screw

65, is tightened against washer 66 to hold the burner support in place.

An aperture 68 is provided in bottom wall 55 between each pair of burner supports to permit pilot lighter tube 18 to extend therethrough so that lighter head 19 may be positioned at the level required for proper ignition of the burners. The area of bottom wall 55 surrounding each aperture 68 is embossed, as indicated at 69, to prevent any drippings from running out through apertures 68. A single pilot light may be arranged to ignite more than two burners, if desired. In such case aperture 68 would be centered between all of the burners to be ignited by the pilot light. Front wall 56 and rear wall 57 are inclined in opposite directions, as shown in FIGS. 3 and 4, to provide clearance when the burner box is to be inserted into or removed from the unit, thereby facilitating the assembly and the disassembly of the unit, as herein-after described.

A horizontal flange 70 extending forwardly from the upper edge of front wall 56 is adapted to seat on lip 45 of top frame 6, and a similar flange 71 extending rearwardly from rear wall 57 is adapted to seat on lip 47 to support burner box 54 in horizontal position within the frame. Side walls 58 and 59 of the burner box are vertical, and abut spacing studs 49 to space the burner box laterally and prevent either side from contact with lips 48 of frame 6. If desired, burner box 54 may be suspended by suitable hooks fitting into apertures provided therefor and arranged to prevent direct contact between the burner box and the sides of the frame. Spacing studs 49 would not be required with such structure. Spacing the side walls of the burner box from frame 6 minimizes the area of contact between the burner box and the frame sufficiently to reduce the transmission of heat from the burners to such an extent that the cabinet remains unaffected by the heat of the burners.

In the illustrated embodiment the burner housing has an upwardly embossed center 72 adapted to straddle arms 63 and a plurality of chimneys 73, two of which are adapted to be seated on arms 62. It will be obvious that the configuration of the burner support may be changed to fit a burner of different design, if different burners are used. Each burner 64 has a tubular arm 74 which projects through an aperture 75 provided therefor in front wall 56 of burner box 54. When the burner box is positioned in the unit, apertures 75 are aligned with fittings 76. Fittings 76 project rearwardly beyond the inner edge of top wall 40 and therefore make it necessary to incline front wall 56 of burner box 54. The angle of front wall 56 is arranged so that the aperture 75 is adjacent the inner end of fitting 76. The specific location of front wall 56 and aperture 75 makes it easy to connect or disconnect arm 74 of the burner and fitting 76 when the burner box is positioned in the unit. When the burners are removed, the burner box may be tilted forwardly with flange 70 fulcrumed on lip 45, as shown in FIG. 7, and thus readily removed for cleaning purposes.

Each fitting 76 is connected to a valve 77 projecting from gas manifold 11. Each valve 77 has a stem 78 which is operated by a knob 79. The knob 79 has a shank 80 which projects through an aperture in front wall 24 and fits over the end of valve stem 78. The shank of knob 79 is secured to stem 78 in any suitable manner so that valve 77 is moved towards open or closed position as knob 79 is turned. A knob 79 is provided for each burner 64. When any knob is turned to open the valve 77 operatively connected thereto, gas flows from manifold 11 through arm 74 and into the particular burner.

The chimneys 73 of the burners each have a plurality of burner openings 81 adjacent its top, and one chimney of each burner has an additional opening 82 which is positioned adjacent the outer end of a flash tube 84 to facilitate ignition of the gas flowing from the burner. Each flash tube has its inner end positioned adjacent the pilot lighter head 19. The flash tubes are riveted to

the underside of a saddle 85 which comprises a channel shaped member having its side walls 86 extending downwardly. Side walls 86 are recessed, as indicated at 87 in FIG. 3, to fit over lighter head 19. The pin 88, by means of which the flash tube is riveted to saddle 85, extends through the flash tube and projects beyond its opposite surface. The projecting portion of pin 88 fits into an aperture 89 provided therefor in burner 64 to position the flash tubes.

Saddle 85 is provided at its opposite ends with up-turned ears 90 which furnish support for the center portions of a drip ring 91 which fits within, and is supported around its outer edges by an annular rim 92. Rim 92 is provided with a flange 93 extending around its perimeter and adapted to seat on the walls 40, 41, 42 and 43 of top frame 6. A lip 94 welded to the underside of flange 93 fits into a slot 95 provided therefor in top wall 41. Preferably two lips 94 and two slots 95 are provided to permit rim 92 to be moved pivotally into position. Rim 92 is provided with an inwardly extending horizontal flange 96 which forms a seat on which the outer edge of drip ring 91 is supported. Drip ring 91 is provided with an opening 97 for fitting around each burner housing. The bottom wall of drip ring 91 is embossed upwardly contiguous to each opening 97, as indicated at 98, to prevent drippings to pass through apertures 97. The drip ring 91 is provided with a plurality of apertures 99 adapted to receive the feet 100 of a plurality of grates 101. One grate surrounds each burner.

The unit may be readily disassembled as follows. Grates 101 are removed by lifting them upwardly. Drip ring 91 is removed in the same manner. The front end of rim 92 is then lifted to pivot the rim on lip 94 and pulled forwardly to remove it from the top frame. Burners 64 are then removed by lifting them and disconnecting the end of arm 74 from fitting 76. The rear edge of burner box 54 is then lifted pivotally to permit apertures 75 to clear the inner end of fitting 76, as indicated in FIG. 7, so that the burner box may be removed. The unit is assembled by reversing the steps outlined above.

Although I have described a few embodiments of my invention in considerable detail, it will be understood that the description thereof is intended to be illustrative, rather than restrictive, as many details of the structure may be modified or changed without departing from the spirit or scope of the invention. Accordingly, I do not desire to be restricted to the exact construction described.

I claim:

1. In a top burner unit, a top frame having four top walls forming an open rectangle, flanges extending downwardly from two opposite top walls, spacing studs extending inwardly from each of said downwardly extending flanges, horizontal flanges extending inwardly from said other two top walls, a burner box having a bottom wall and four upwardly extending side walls, a horizontal flange extending outwardly from each of two oppositely disposed upwardly extending side walls, said last mentioned flanges being adapted to seat on said inwardly extending flanges to suspend said burner box within said top frame, the opposite sides of said burner box being spaced from the side walls of said frame by said spacing studs whereby conduction of heat from said burner box to said frame is substantially reduced, and a plurality of burner supports rigidly secured to said bottom wall and extending upwardly therefrom whereby said burner box and said burner supports may be handled as a single unit in the assembly of said top burner unit, said bottom wall having an aperture through which a pilot lighter tube is adapted to extend, said aperture being positioned between two of said burner supports.

2. In a top burner unit, a top frame having a rectangular opening therein, horizontal flanges extending inwardly from two opposite sides of said frame, a burner box having a bottom wall and two upwardly extending side walls, a horizontal flange extending outwardly from

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the upper edge of each of said upwardly extending side walls, said last mentioned flanges being adapted to seat on said first mentioned flanges to suspend said burner box within said top frame, means on the other two sides of said frame cooperating with said burner box to position it in spaced relationship to said frame to minimize the conduction of heat from said burner box to said frame, said bottom wall having an aperture through which a pilot lighter tube is adapted to extend, and a pair of burner supports rigidly secured to said bottom wall on opposite sides of said aperture.

3. In a top burner unit, a top frame having a rectangular opening therein, horizontal flanges extending inwardly from two opposite edges of said frame, a burner box having a bottom wall and two upwardly extending side walls, a horizontal flange extending outwardly from the upper edge of each of said upwardly extending side walls, said last mentioned flanges being adapted to seat on said first mentioned flanges to suspend said burner box within said top frame, said bottom wall having an aperture through which a pilot lighter tube is adapted to extend, a pair of burner supports rigidly secured to said bottom wall on opposite sides of said aperture whereby said burner box and said burner supports may be mounted in said top frame as a unit, a burner mounted on each of said burner supports each of said burners having a tubular arm terminating in a common horizontal plane, and a plurality of gas fittings mounted in said unit outside said burner box, each of said gas fittings having an end aligned with and adjacent the end of one of said tubular arms, one upwardly extending wall of said burner box having a plurality of apertures aligned with each of said tubular arms and the adjacent gas fitting to facilitate connection of said burners with said gas fittings.

4. In a top burner unit, a member having a pilot light, a gas manifold, and gas fittings mounted therein, a top frame supported on said member, said top frame having an open top, a burner box mounted in said open top and supported by said top frame, said burner box comprising a bottom wall having an aperture fitting around said pilot light, a plurality of burner supports rigidly secured to the bottom wall of said burner box in spaced relationship to said pilot light, said burner box and burner sup-

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ports being adapted to be mounted in said open top as a unit, a burner mounted on each of said supports and a front wall having a plurality of apertures, said gas fittings each having one end terminating adjacent one of said plurality of apertures, and each of said burners having a tubular arm terminating adjacent one of said apertures to facilitate connection of said fittings to said gas burners through the apertures in said front wall.

5. A top burner unit comprising a member having a gas manifold, a plurality of fittings, and a pilot lighter mounted in said member, a top frame supported on said member, a burner box suspended from said top frame and depending into said member, said burner box having an aperture fitting around said pilot lighter and a plurality of apertures aligned with said fittings, a plurality of burner supports rigidly secured to said burner box for supporting burners, each of said burners having a tubular arm aligned with one of said plurality of apertures, each of said tubular arms terminating adjacent one of the apertures aligned with said fittings to facilitate connection of said tubular arms to said fittings, an annular rim supported on said top frame above said burner box, and a drip ring supported on said annular rim, said drip ring having openings to fit around burners mounted on said burner supports, portions of said drip ring contiguous to said openings being embossed to prevent drippings from spilling through said openings.

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