

March 6, 1962

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CONCEALABLE BURNER ASSEMBLY

Filed Feb. 12, 1953

3 Sheets-Sheet 1

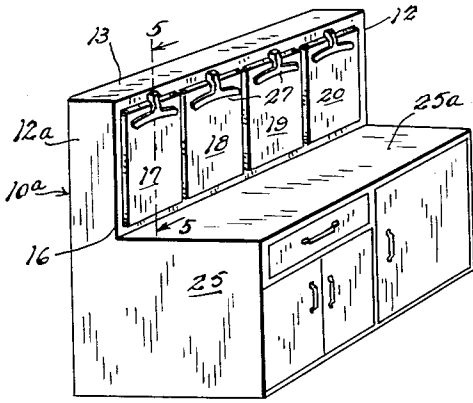


Fig. 1.

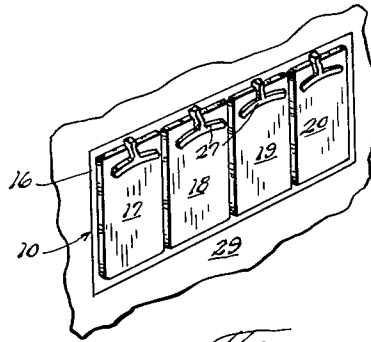


Fig. 2.

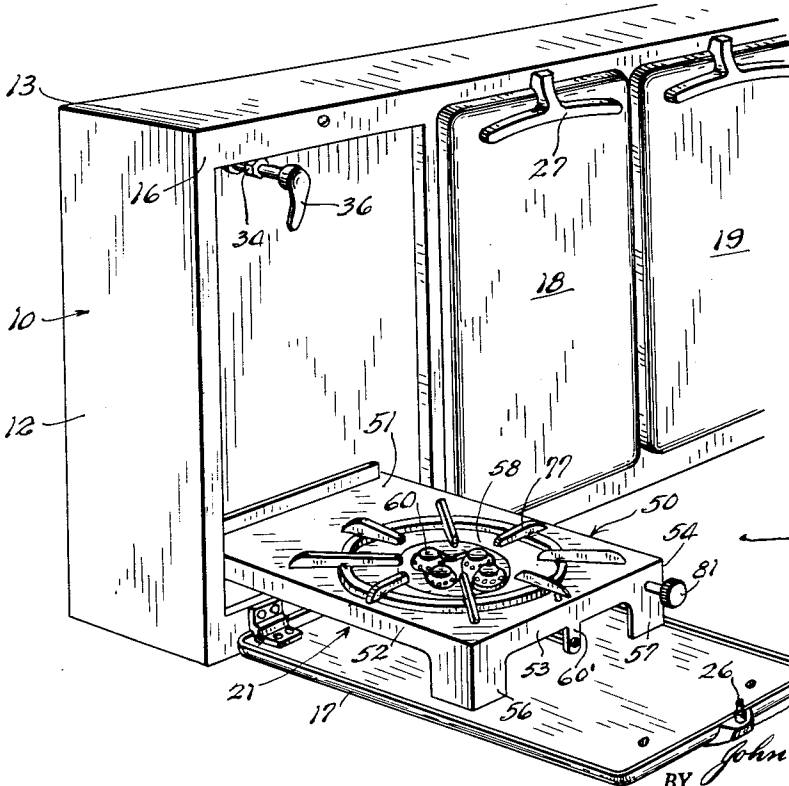


Fig. 4.

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3 Sheets-Sheet 2

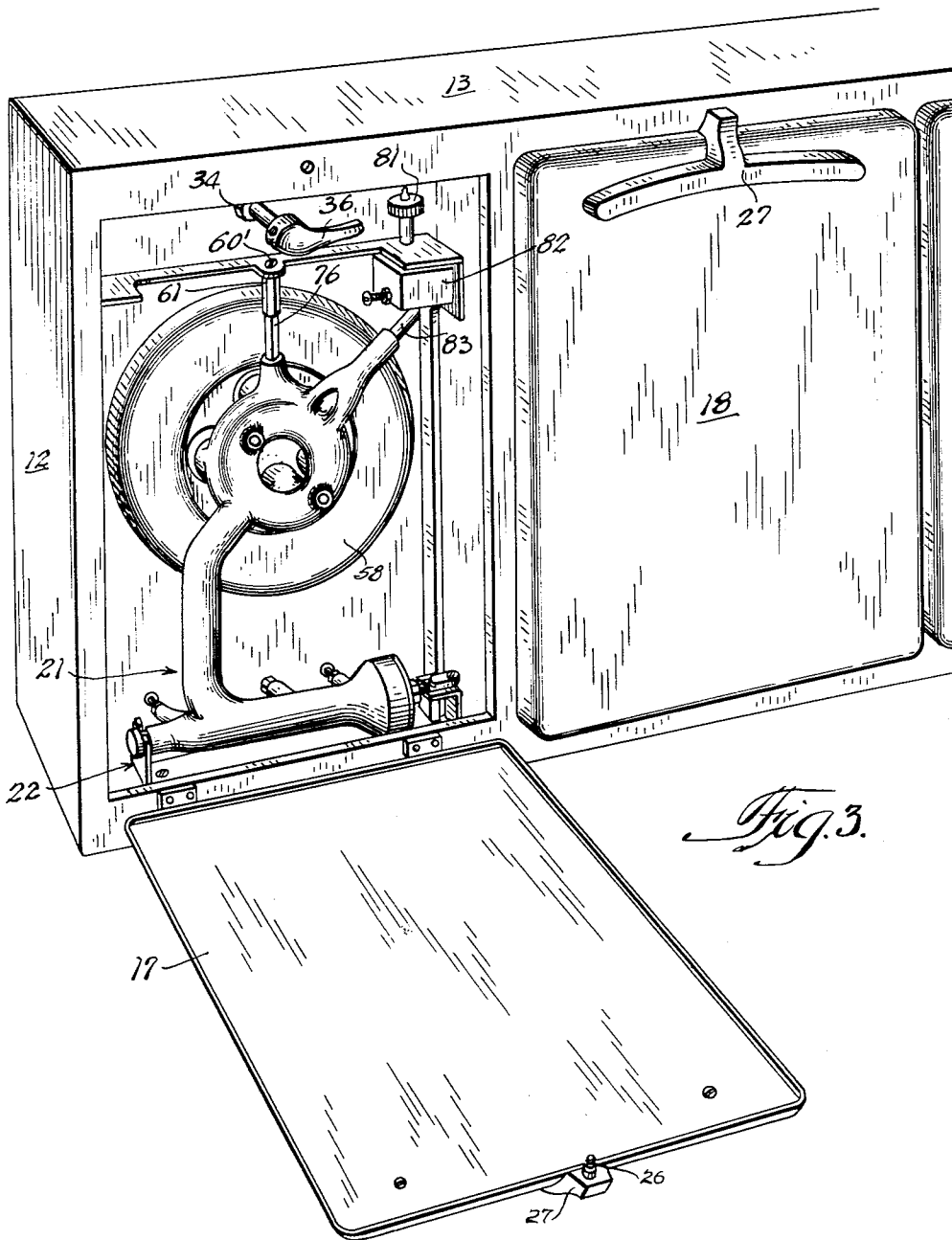


Fig. 3.

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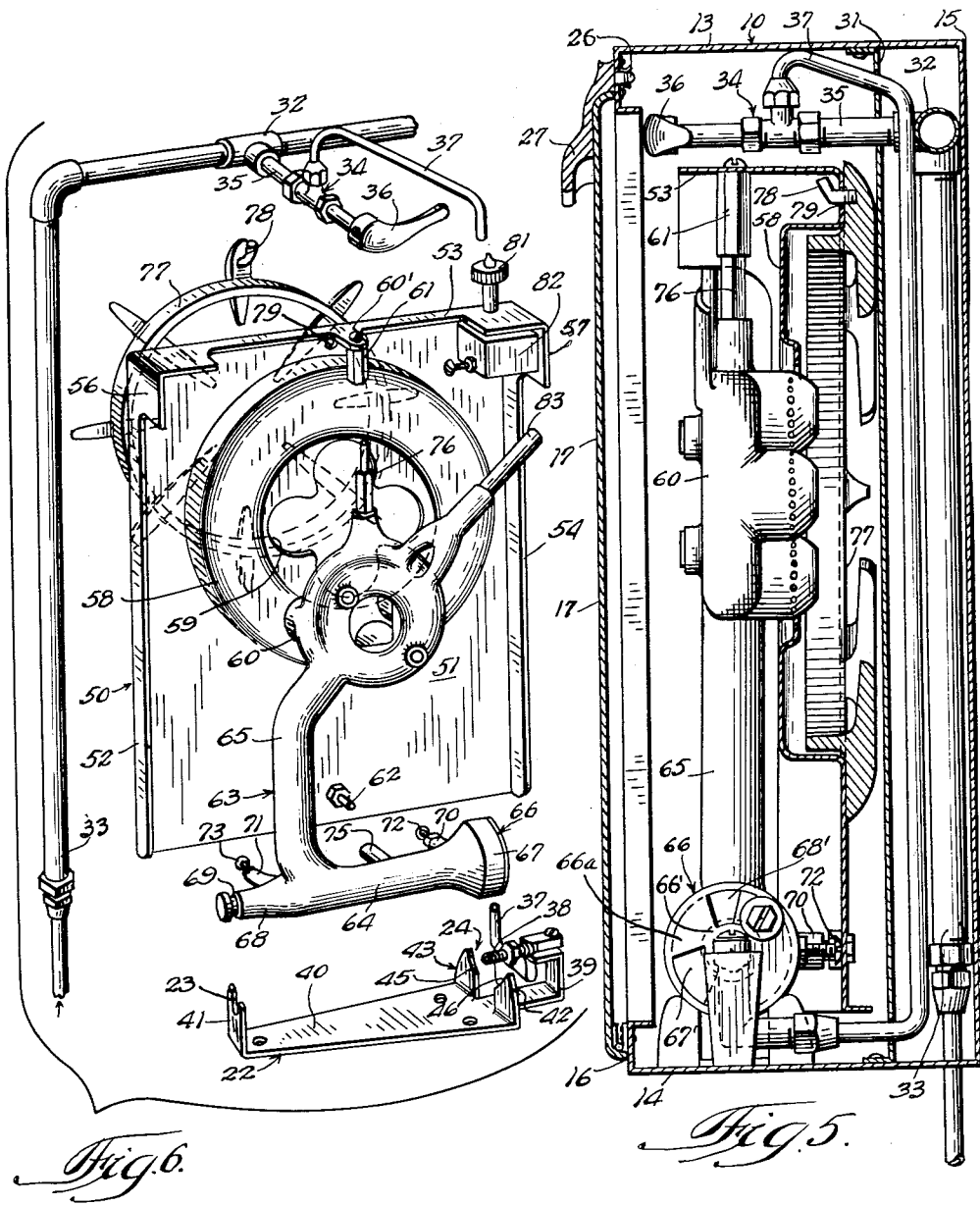
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CONCEALABLE BURNER ASSEMBLY

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3 Sheets-Sheet 3



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3 Claims. (Cl. 126-37)

The present invention generally relates to cooking units and more specifically, the present invention relates to open gas burner assemblies which may be used either alone or in conjunction with an oven unit to form a cooking stove.

Heretofore, in stove construction the open burner portion of the stove has been permanently fixed to form the top portion of the stove, and the oven portion thereof, when present, has been disposed beneath and/or to the side of the open burner portion thereof. Such a construction results in an unsightly cooking stove arrangement wherein the major portion of the top surface of the stove is not readily usable as a working surface, even when the burner units are not in use.

A step in overcoming the latter disadvantage was made in providing an oven construction which enables the oven to be physically separated from the burner units of a cooking stove, and which is readily associated with a cabinet grouping so as to save space, and present an attractive appearance.

The present invention provides an open gas burner construction which, when not in use, is concealed from view and occupies a minimum of space. With the construction of the present invention, it is readily possible to associate the gas burner assembly with other equipment of the kitchen in a variety of ways. For example, the burner assembly may be placed along one side of a table and, when not in use, will occupy only a small portion of the available work surface on the top of the table. If desired, the burner assembly of the present invention may be placed in a recess in a wall or simply hung from the wall. In such case, when the burners are not in use, the burner assembly will occupy little or no floor space, thereby adding to the efficiency of the kitchen arrangement. In such arrangements, it is preferable that the oven be physically separate from the burner assembly.

If desired, the open burner assembly of the present invention may be associated with a cabinet or with one or more ovens in a structure having the general outline of a conventional stove structure, but which has a top surface which is substantially free of interference from the burner units when they are not being used, and hence may be employed as a working surface.

In accordance with the present invention, one or more gas burner units are pivotally mounted within a housing which completely houses and conceals the open burner units when not in use. The burner units are accessible through openings in the front wall of the housing adjacent each of the burner units, which openings are normally covered by separate doors hiding the burner units from view. When it is desired to use one of the concealed burner units, the corresponding door is opened and the burner unit is rotated from a vertical storage position to a horizontal operating position wherein the desired burner extends outside of the housing through the opening previously covered by the door.

The doors adjacent the burner units preferably pivot downward into a horizontal position and support the associated burner unit in a horizontal operating position. Where the burner assembly is associated with a table or other horizontal work surface, the burner units in their operating position rest on the associated door. The door, in turn, rests on the work surface in a horizontal position. Each burner unit is made separately pivotable

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so that only the burner unit being used extends horizontally from the burner housing. In this manner a minimum of space is occupied by the burner units.

The doors may be made self-supporting in a horizontal position to support the burner units when the burner assembly is supported from a wall and is not associated with a horizontal work surface.

In the structure of the present invention, means are provided so that the gas control valve must be turned off, and may not be opened when the burner unit is in its position within the housing, thereby avoiding the accumulation of explosive gases in the housing when the burner is not in use.

The structure of the present invention likewise may be readily disassembled without tools for cleaning or other purposes, but is so constructed that the parts of the burner assembly do not become separated when the burner units are rotated from one position to another.

The structure of the present invention by which the above and other advantages are obtained is described in more detail in the following specification, taken in conjunction with the accompanying drawings, showing preferred embodiments of the invention in which:

FIG. 1 is a perspective view of a cabinet or cooking stove incorporating the gas burner assembly of the present invention;

FIG. 2 is a fragmentary perspective view of an embodiment of the present invention in which the gas burner units are supported in a housing located within a recess in a wall;

FIG. 3 is a fragmentary perspective view of a burner assembly with one door of the housing open to show a burner unit in its vertical storage position within the housing;

FIG. 4 is a fragmentary perspective view of the gas burner assembly as shown in FIG. 3 with one burner unit pivoted to a horizontal operating position;

FIG. 5 is a view in vertical cross section of the burner assembly of the present invention, taken generally along section line 5-5 of FIG. 1; and

FIG. 6 is an exploded view of the burner parts and the associated gas supply conduits of a burner unit.

Referring now to FIGS. 2 through 6 of the drawings, reference numeral 10 indicates generally a housing in which a plurality of gas burner units of the present invention are housed when not in use. Housing 10 includes side walls 12, top wall 13, bottom wall 14, back wall 15 and front wall 16, the latter being provided with openings as hereinafter described. The number of openings correspond to the number of burner units to be provided, four being illustrated. Doors 17, 18, 19 and 20, pivoted at their lower ends, cover corresponding openings in the front wall of the housing. Mounted within housing 10 behind each of said openings is a burner unit, such as the unit indicated as a whole by the reference numeral 21. The burner unit is in a vertical position when not in use. Each burner unit is rotatably mounted on a cradle like the one indicated as a whole by the reference numeral 22. The cradle 22 has spaced bearing surfaces 23 and 24, on which the associated burner unit is pivotally supported.

When it is desired to use a particular burner, the door in front of that burner is swung open and the burner unit swung into horizontal operating position. In the embodiments shown in the drawing, the doors are hinged at the bottom of each of the openings in the front wall of the housing 10 and each door is swingable downward into a horizontal position beneath the associated burner unit. A suitable spring latch 26 is provided for each door to hold the door in closed position. A handle 27 of suitable non-conductive or heat insulating material is also mounted at the top of the exterior of each door.

In the embodiment shown in FIG. 1, the housing 10a

containing the burners in accordance with the present invention is a part of a complete cabinet 25 containing ovens as in a conventional stove, or cupboards and drawers, as desired, and provided with a horizontal table top or surface 25a. In this embodiment the handle 27 is so shaped as to provide a leg or support for the door and to space the door and associated burner parts, when in operation, from the table top. The handle 27, being non-conductive, likewise serves to prevent transfer of heat to the table top.

In the embodiment shown in FIG. 2, the gas burner assembly is not associated with a table surface, and the housing 10 may be situated within a recess in a wall 29. The front of the housing is shown flush with the wall. In this embodiment, the doors 17, 18, 19, and 20 are made self-supporting in a horizontal position, thereby acting, when open, as horizontal support surfaces for the associated burner units. The doors may be made horizontally self-supporting by means of any suitable hinge design well known in the art.

With the arrangement thus far described, it is apparent that the burner units when not in use are concealed from view by the doors 17, 18, 19 and 20. In such condition the burner units are stored in a vertical position and occupy a minimum of space. Thus, in the embodiment of FIG. 1, a major portion of the top surface of cooking stove or cabinet 25 may be used as a working surface unencumbered by the presence of the burner units when the burners are not in use. The resultant structure presents an attractive appearance to the kitchen and in general results in a more efficient kitchen arrangement. An oven may be mounted separately from the burner assembly, or, in the alternative, may be housed in the same cabinet with the burner assembly, as for example in the bottom portion of cooking stove or cabinet 25.

It should be understood that the individual burner units and their mountings as provided in each section of the housing 10, are similar, and consequently only one will be described in detail.

The housing 10 includes an intermediate panel 31 spaced from the back wall 15 thereof. Between intermediate panel 31 and rear wall 15 of housing 10 a gas manifold pipe 32, which runs the entire length of housing 10, is mounted. A main gas pipe 33 connects manifold 32 to a gas supply. Pipe 33 enters housing 10 through a suitable opening in the bottom panel 14 thereof and the manifold 32 extends across each of the burner openings in housing 10. Each burner unit has associated with it a gas control valve 34, mounted in connecting pipe 35 joining the gas manifold pipe 32. Each valve 34 is provided with a handle 36 to control the flow of gas from the gas manifold pipe 32 to the associated burner unit. A conduit 37 extends between valve 34 and a horizontally positioned gas nozzle 38, which is mounted on cradle 22 by a suitable bracket 39. The exit opening of gas nozzle 38 overlies bearing surface 24 of cradle 22 for reasons which will be hereinafter explained.

Cradle 22 includes a horizontal base plate 40, upward extending flange 41 on one end of the cradle, and upstanding ears 42 and 43 near the opposite end of cradle 22. At its upper end the flange 41 carries the arcuate bearing surface 23 for receiving the neck of a burner as hereinafter described. Upturned ears 42 and 43 have arcuate curved bearing surfaces 45 and 46, respectively, which together define the bearing surface 24 which is lower than the bearing surface 23 associated with upturned flange 41 and coaxial therewith. The horizontal base plate 40 of cradle 22 is fixed to the bottom wall 14 of housing 10 in any desired manner, as by screws.

The description of the pivotally mounted burner units to follow will assume a horizontal position thereof for purposes of simplifying the description thereof.

Burner unit 21 preferably includes a cooking top indicated generally by the reference numeral 50. The cooking top comprises a panel 51 having down-turned walls

52, 53 and 54 on three sides, provided with extensions 55 and 57 acting as legs for the burner unit 21. In use, the panel 51 is horizontal and 53 is at the front and will be hereinafter designated as the front wall of the cooking top. In the central portion of the top panel 51 of cooking top 50 is formed or otherwise provided an annular-shaped drip pan 58. Drip pan 58 has a clover leaf-shaped opening 59 which surrounds the chimney portion 60 of a burner. The shape of the chimney 60 and the corresponding shape of the opening 59 in drip pan 58 are such that, when in use secondary air for combustion is provided for the burner. It should be understood that any conventional gas burner structure may be adapted for use with the present invention.

Connected by means of a screw to an extension 60' of the front wall 53 of cooking top 50 is a boss 61 having an opening therein facing inward from the front wall of the cooking top 50. Extending downward from the underside of horizontal panel 51 of cooking top 50 is a pin 62, the function of which will be described.

The burner shown in the drawing includes an approximately T-shaped hollow neck indicated generally by the reference numeral 63 which connects the chimney portion 60 of the burner to the supply of gas which is discharged from the opening in the nozzle 38. The stem 64 of neck 63 is displaced laterally from the chimney portion 60 of the burner by shaft portion 65 of the neck. Stem 64 is provided with an enlarged mixing bell 66 at the end thereof. The mixing bell is provided with a conventional rotary air mixing valve 66a, having openings 67' and 68' for supply of primary air for combustion and with a central opening 66' into which the gas nozzle 38 extends. The mixing bell 66 at its enlarged portion has a cylindrical bearing surface 67, which rests on the arcuate bearing surfaces 45 and 46 of the bearing 24. At the opposite end of stem 64 is a cylindrical extension 68 having an annular groove 69 therein serving as a bearing surface. The groove 69 rests on the bearing surface 23. The bearing surfaces 23 and 24 of cradle 22 and the cooperating bearing surfaces 69 and 67 of the burner are coaxial with the gas nozzle 38 and the central opening 66' of the mixing bell. With this structure the burner unit is readily pivoted on cradle 22 from a vertical storage position to a horizontal operating position without disturbing the relationship of the gas nozzle and the mixing valve, and likewise may readily be disassembled.

Extending upward from stem 64 are bosses 70 and 71 into which screws 72 and 73 are threaded. Screws 72 and 73 abut the bottom of top panel 51 of cooking top 50 to support same at a desired level when horizontal, and are readily adjustable for this purpose. Also extending upwardly from stem 64 is a boss 75 having an opening thereon facing upward in the direction of pin 62 of cooking top 50. Pin 62 fits within the opening in boss 75 thereby holding the burner and cooking top together during movement from their storage to their operating positions and vice versa. A pin 76 extending horizontally from the chimney portion 60 of the burner is positioned to be received in the opening in boss 61 extending from the front wall 53 of cooking top 50. Two pin and socket connections are thus provided which extend respectively horizontally and vertically from opposed surfaces of the cooking top and burner, thereby insuring that the cooking top and burner remain together during the movement of the burner unit from a horizontal to a vertical position and the reverse. Because of these pin and socket connections, the cooking top is readily disassembled from the burner for cleaning or other purposes without the need for any auxiliary tools.

The pin and socket connections are made loose fitting to enable the cooking top 50 to be easily connected to the burner. During assembly, first one pin is inserted in the corresponding opening, and then the other pin is inserted in the associated opening by pivoting the cooking top, or burner, in place.

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A metal grate 77 overlies the drip pan 58 and serves the function of supporting the bottom of the cooking utensils as in a conventional stove. A hooked extension 78 projects from the grate and projects through an opening 79 in the top panel of the cooking top. The opening 79 is located on the side of the drip pan farthest removed from the location of the cradle support 22. The hooked extension 78 of the grate curves to a direction generally parallel to the top of the grate so that it effectively locks the grate to the cooking top 50.

In order to prevent a dangerous accumulation of gas within housing 10, the valve handle 36 is located entirely within burner housing 10 so that the door 17 must be opened before the handle can be accessible. The handle 36 is horizontal when in closed position, and when open is in the path of movement of the burner unit. Thus, the burner unit cannot be raised to vertical position unless the valve handle is in closed position, nor may the valve be opened when the burner unit is in its vertical position. Accumulation of gas in the housing while closed is thus prevented.

When door 17 is opened into its fully open position as shown in FIGURE 3, a handle 81 extending from an opening in the front wall of cooking top 50 is grasped and the burner unit is gently pulled down into the horizontal position shown in FIGURE 4. Handle 81 is preferably made of a poor heat conductive material such as Bakelite, or other well known plastic material, so that it is relatively cool to touch even when the burner has been on for a long period of time.

When valve handle 36 is turned in the clockwise direction to turn the gas on, the handle extends into the path of motion of the burner unit 21 so that the burner unit cannot be pivoted back into its vertical storage position within housing 10 unless the control valve is turned to its off position which is the horizontal position shown in FIGURES 3 and 5. This feature prevents the burner from being enclosed within housing 10 while the gas is on, thereby preventing the accumulation of gas within the burner housing.

Handle 81 may be connected to operate a conventional pyrophoric sparking device, located within a small housing 82 mounted underneath the top panel 51 of the cooking top 50. A flash tube 83 of conventional design extends from the chimney portion 60 of the burner through an opening (not shown) in housing 82 containing the sparking device. When the gas control valve 34 is opened by valve handle 36, the handle 81 is turned to produce a spark at the entrance of flash tube 83 to light the gas burner in a conventional manner. The sparking device operated by handle 81 takes the place of the more conventional gas pilot light. A gas pilot light would be undesirable since it would be a source of gas which could accumulate within housing 10 if the pilot flame went out. Further, a gas pilot valve would not be too practical where the pilot valve must be moved with the burner unit as in the rotatable burner unit of the present invention. A flexible conduit would then be needed to provide a connection with the source of gas which would be unsightly and also be a source of gas leakage should the flexible conduit become wedged between the door 17 and housing with consequent fracture thereof.

As previously stated, numerous modifications may be made of the specific embodiments just described without deviating from the broader aspects of applicant's invention. For example, the doors 17, 18, 19 and 20 could be integrally connected to the associated burner unit structure and therefore be movable therewith, thereby utilizing the associated cradle as its pivot point. More specifically, the doors could be connected to the associated cooking top of the burner unit by suitable brackets, not shown.

In the embodiment above described, the burner units are separately movable from the associated door and in

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their vertical storage position lean against rear panel 31 of the housing. The center of gravity of the burner and associated parts in this position are back of the axis of rotation of the burner, so that the burner and associated parts will not fall forwardly when the door of the housing is opened. If desired, however, the burner units may be made to rest against the associated doors in their vertical storage position so that when the door is opened the burner units will move into a horizontal position with the door, rather than requiring the burner unit to be separately pivoted as above described. In this embodiment the bottoms of the burner unit would slide along the door as it is lowered into its operating position since the axis of rotation of the door and the burner unit are not the same. As is readily apparent, the doors may be pivoted along a vertical rather than a horizontal axis, in which case, in the embodiment of FIGURE 1, the burner units would rest directly on the horizontal work surface rather than on the associated door.

Although many aspects of the present invention find their primary utility in a gas stove assembly, other features lend themselves to a use with electric burners as well. As to these features, the scope of the present invention should not be limited to gas burners.

The present invention thus provides a simple and effective burner assembly wherein the burners, when not in use, are concealed and occupy a minimum of useable space in the kitchen arrangement.

Although the present invention has been described in connection with the details of a specific embodiment thereof, it is to be understood that these details are not to be regarded as limitations upon the scope of the invention, except insofar as included in the accompanying claims.

I claim:

1. A gas burner assembly comprising a rotatable gas burner unit capable of moving from a vertical to a horizontal position, a housing having a space therein for receiving and storing said burner unit when in vertical position, said burner unit including a cylindrical extension extending horizontally of the axis of rotation of the burner unit and being provided with bearing surfaces about which the burner unit is rotatable, a cooking top overlying said burner, separable pin and socket connections on said burner and said cooking top, one of said connections being substantially perpendicular to the surface of said cooking top adjacent one end of said cooking top and the other substantially parallel thereto adjacent the opposite end thereof whereby said burner and cooking top are retained in their relative positions with respect to each other in vertical or horizontal position of the gas burner, but are readily separable from each other, the housing being provided with an opening through which said burner unit may pass.

2. A burner unit comprising a burner and a cooking top, said cooking top overlying said burner and having a horizontal panel and a downward extending side wall, a pair of cooperating pin and socket connections mounted on said burner and cooking top for retaining said burner and cooking top together as a unit, one cooperating pin and socket connection extending parallel to the surface of the cooking top between a side surface of said burner and said downward extending wall of the cooking top, and the other cooperating pin and socket connection extending perpendicularly to the surface of the cooking top from a top surface of said burner and the opposed surface of said cooking top, said pair of cooperating pin and socket connections being spaced near opposite ends of said cooking top, whereby said burner and cooking top are held together when said burner is moved from a horizontal operating position to a vertical position, said pin and socket connections being loose fitting to permit easy separation of said cooking top from said burner.

3. An open gas burner assembly comprising a gas

burner, a cooking top overlying said burner, a cradle for rotatably supporting said burner including bearing surfaces spaced longitudinally of said cradle, said burner resting on the bearing surfaces of said cradle so that said burner is rotatable from a horizontal operating position to a vertical storage position, readily separable connecting means coupling said cooking top to said burner at two spaced points, each of said connecting means comprising detachably interengaging pin and socket members secured to said burner and cooking top, the pin and socket members at one of said points being both parallel to the plane of said cooking top, and the pin and socket members at said other point being both perpendicular to the plane of said cooking top, whereby the cooking top is movable with the burner upon rotation of the latter, and a grate overlying said cooking top and having a hooked extension, said cooking top being provided with an aperture spaced remotely from said cradle to receive said hooked extension to hold said cooking top and grate together in all positions of said cooking top when said burner unit is rotated.

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