

# United States Patent

Perl

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[54] **CONCEALED SURFACE COOKING ASSEMBLY**

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[58] **Field of Search** .....126/37, 37 B, 39, 39 H; 219/444

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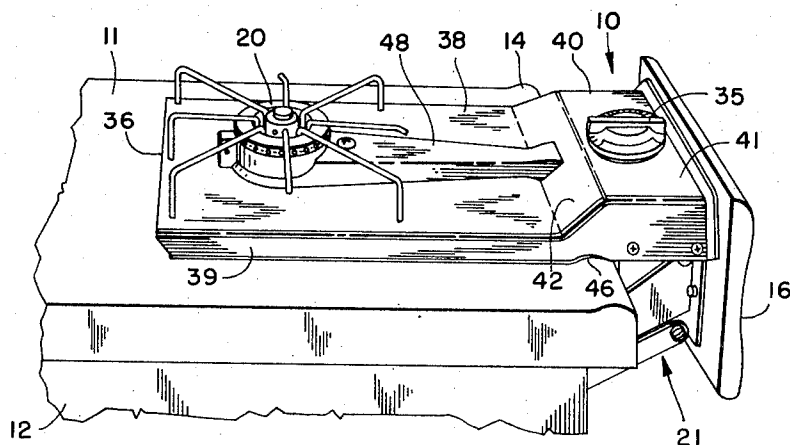
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[57] **ABSTRACT**

A concealed gas burner is stored in an enclosure beneath a counter and moved to an operative position on top the counter through horizontal and vertical displacement of same. A slidable carriage and parallelogram linkage allow such movement and maintain parallelism of the burner unit, the flow of gas being accommodated with a flexible conduit and being interlocked with a position responsive valve, for safety. The burner is supported on a sheet metal or die cast channel which forms a duct with the counter top through which air is forced for cooling purposes.

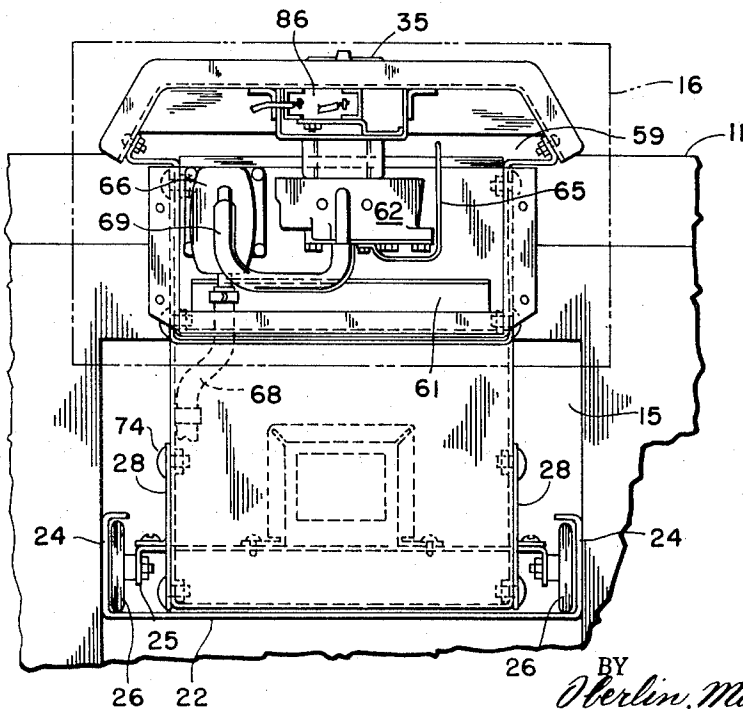
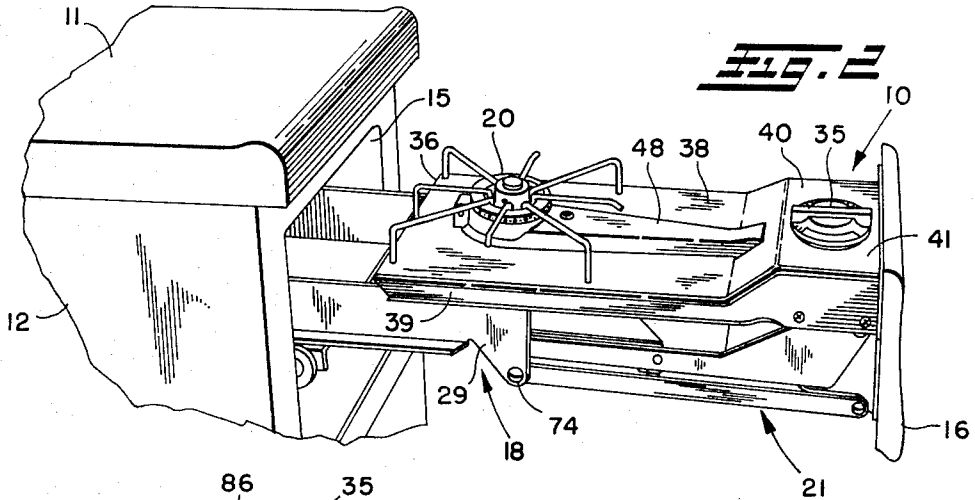
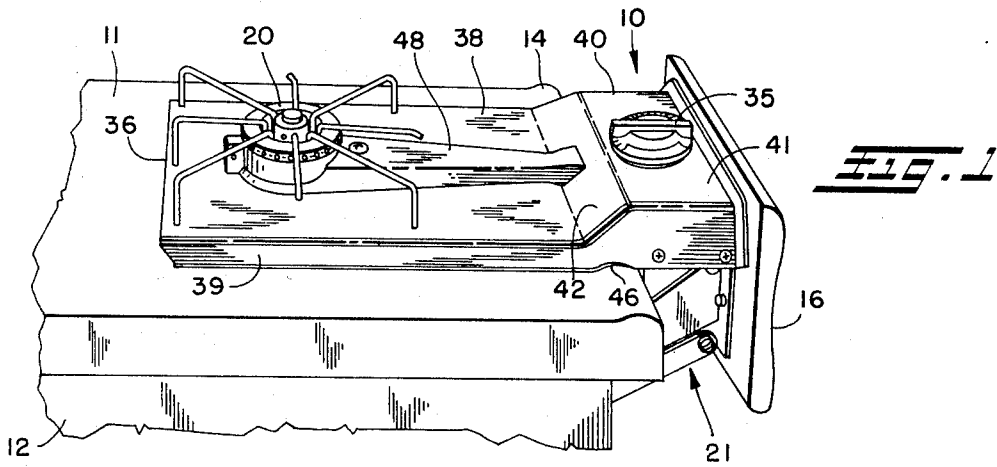
**9 Claims, 5 Drawing Figures**



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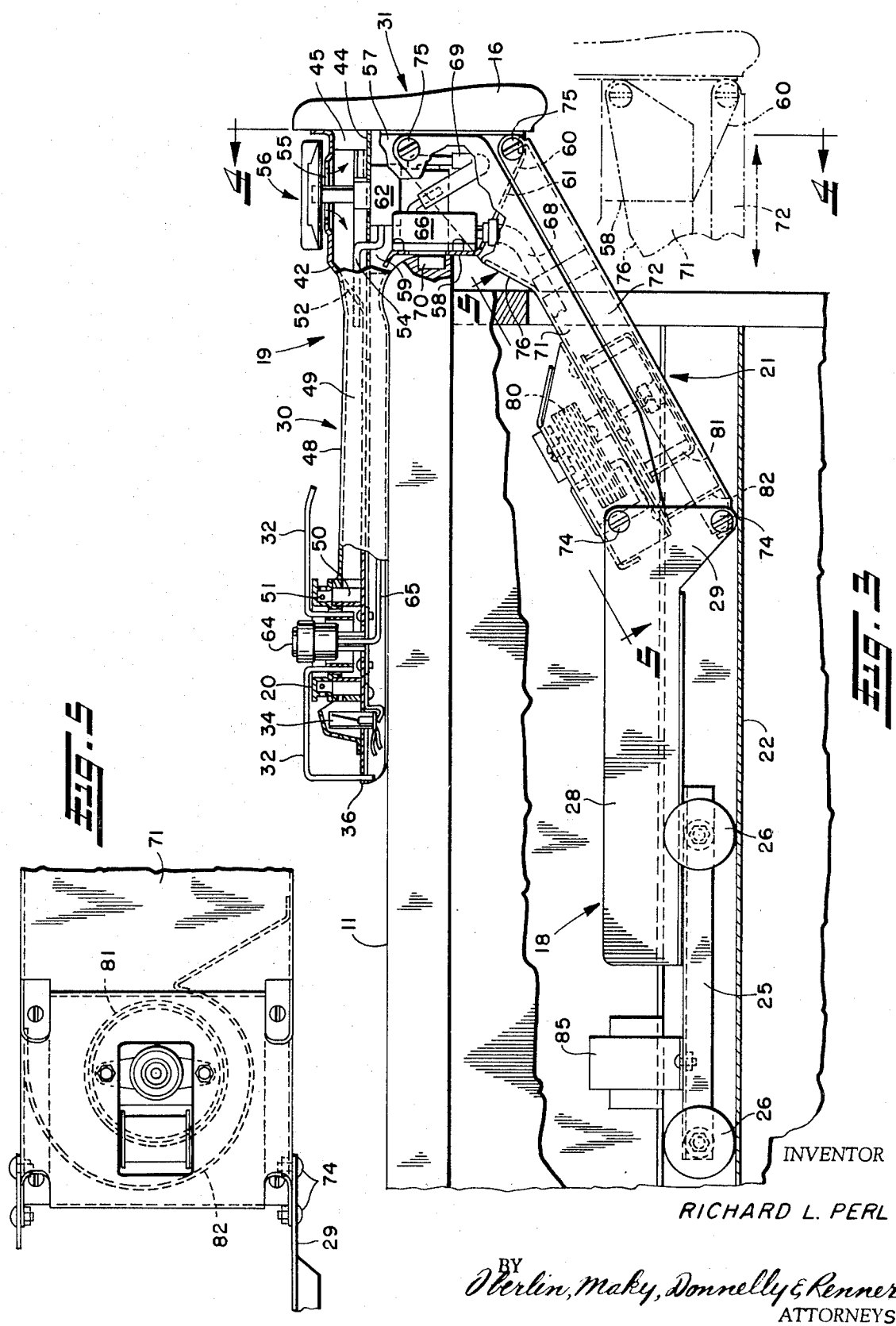
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**CONCEALED SURFACE COOKING ASSEMBLY**

This invention relates to surface cooking units and more particularly to an assembly on this order which may be used in conjunction with a counter top or standard kitchen cabinets and features a concealed construction.

Little attention has been directed in the past to removing the conventional surface elements from view within the kitchen area other than to provide covers which slide or fold to a rearward position, although it would be desirable to have such a unit which does not occupy needed counter space in the kitchen area and further may be concealed from view when not required for purposes of appearance. The instant invention is directed to the solution of these problems in providing a surface cooking assembly which is normally stored beneath a counter surface in that area conventionally occupied by a cabinet drawer, for example, and which is easily withdrawable from such storage area and elevatable so as to rest on the counter top for utilization. This invention also contemplates a unique configuration of a support in such assembly which forms a duct with the counter top through which air can be forced for cooling purposes.

Due to the cooling effect of such forced air circulation, the burner can be spaced a relatively small distance above the counter top in use and the assembly may be removed directly to the storage area immediately after use.

While the teachings of this invention will be described in detail as applicable to the gas type of burner, it will be apparent that the advantages are similarly attained in a structure suited for electric heater elements.

Therefore it is one object of this invention to provide a novel configuration of a surface cooking assembly which is suitable for use on the uninterrupted top of a counter.

It is another object of this invention to provide such an assembly which is normally concealed in a storage space and removable therefrom to an operating position, requiring only a sliding and lifting of the same.

It is a still further object of this invention to provide a novel assembly as indicated which incorporates ductwork formed in part in cooperation with a counter surface for channeling of air for cooling purposes.

It is a yet further object of this invention to provide improved cooking apparatus which is movable between concealed and use positions and operative only when in the latter position.

It is yet another object of this invention to provide heater support apparatus articulated to allow outward and upward movement of a surface cooking unit from a storage location to a counter top and forming ductwork communicating between the storage location and the counter top.

Other objects and advantages of the present invention will become apparent as the following description proceeds.

To the accomplishment of the foregoing and related ends, the invention, then, comprises the features hereinafter fully described, the following description and the annexed drawing setting forth in detail a certain illustrative embodiment of the invention, this being indicative, however, of but one of the various ways in which the principle of the invention may be employed.

In said annexed drawing:

FIG. 1 is a partial perspective view of a gas burner assembly according to the invention in operating position atop a counter;

FIG. 2 is a partial perspective view of the assembly withdrawn from a storage area beneath the counter and in a non-operative position;

FIG. 3 is a side view partly in cross-section of the assembly in the operative position of FIG. 1 and indicating in dashed lines an intermediate position of same;

FIG. 4 is a view of the burner assembly in the operative position taken along the lines 4—4 of FIG. 3; and

FIG. 5 is a view of the blower unit of the apparatus taken along the lines 5—5 of FIG. 3.

Referring now to FIG. 1 there is shown a gas burner assembly 10 of the invention in operating position on top of the counter 11 of a kitchen cabinet 12. For purposes of this description the burner assembly 10 is shown associated with a cabinet 12 of relatively small dimensions having accommodation for only a single burner assembly but it will be appreciated that a number of installations may be placed side-by-side and accommodated in a single cabinet. The counter 11 has an uninterrupted top surface with a raised rim 14 at the outer edge thereof and while a metal counter may be employed the apparatus of the invention is contemplated for use with the conventional pressed wood type of counter construction with a laminated heat resistant surface such as Formica and the like.

Beneath the counter 11 is an enclosure 15 similar to the opening for a conventional drawer and as can be visualized from FIGS. 1 and 2 the burner assembly 10 is adapted to be completely disposed within such enclosure 15, a drawer front 16 being attached for purposes of appearance and for facilitating movement. The burner assembly 10 comprises a carriage 18 slidable into and out of the enclosure 15, a burner unit 19 positionable upon the counter 11 and containing elements for controlling gas flow to a burner 20 and air flow associated therewith and an articulated chute 21 interconnecting the burner unit 19 and the carriage 18.

As seen in FIGS. 3 and 4 a sheet metal channel 22 is mounted in and spans the enclosure 15 to form a pair of rails 24 for support of the burner assembly 10. The carriage 18 comprises a sheet metal trolley 25 having rollers 26 thereon which ride in the rails 24 and allow inward and outward movement of the carriage 18, being restricted in outward travel to prevent excessive withdrawal of the burner assembly 10. The carriage 18 further includes a pair of elongated side brackets 28 affixed to the trolley 25 and extending outwardly therefrom in cantilever configuration to provide support for the chute 21 and burner unit 19. The length of the brackets 28 is selected to be sufficient to allow a complete withdrawal of the burner unit 19 from the enclosure so as to clear the forward rim 14 of the counter 11 while still maintaining the seating of the rollers 26 in the guide rails 24. The outer ends of the brackets 28 culminate in vertically elongated legs 29 for support of the chute 21.

The burner unit 19 comprises a counter portion 30 and an apron 31 secured thereto as a unit and affixed to the wooden drawer front 16 which is adapted, when the burner assembly 10 is in the storage position, to abut the opening of the enclosure 15. Located on the inward side of the counter portion 30 is a conventional gas burner 20 with associated utensil support rods 32 and a

glow-coil igniter 34, the outward side of the counter portion 30 locating the control knob 35 for actuation of the burner 20.

The counter portion 30 as best seen in FIGS. 1 and 3 comprises a structure formed primarily of sheet metal and including an elongated channel 36 having a top panel 38 of width only slightly greater than required for the utensil support rods 32 and length suitable to dispose the burner 20 inwardly of the rim 14 of the counter 11 a convenient distance for utilization, while far enough inward to be a safe distance from the counter edge and to provide a stable contact with the counter 11. The channel 36 further includes legs 39 which depend from the top panel 38 at a slight angle and which engage the counter 11 for support of the burner unit 19. The legs 39 extend outwardly of the counter 11 in increased width to form the sides of a housing 40 having an elevated surface 41 parallel with the top panel 38 of the channel 36 and connected by an inclined panel 42. A generally rectangular wall 44 of sheet metal is secured in place within the housing 49 at the lower juncture of the inclined panel 42 and engages the side legs 39 and the drawer front 16 to form an enclosure 45 separate from the channel 36. The legs 39 are provided with indentations 46 to clear the rim 14. The channel 36 in conjunction with the counter 11 thus forms an air wash duct below the burner 20 through which air may be drawn or forced to cool and prevent scorching both of the counter 11 and the counter portion 30 of the burner unit 19.

A burner tube 48 formed also of sheet metal and of tapered channel configuration is sealingly mounted on the top panel 38 of the channel 36 thereby forming a duct 49 communicating with the annular orifice 50 of the burner 20 leading to the outlet jets 51 at one end, and at the other end communicating with the enclosure 45 through an aperture 52 in the inclined panel 42. A gas ejecting spud 54 is located at the entrance to the burner tube 48 and projects through the aperture 52. The elevated surface 41 of the housing 40 includes an opening 55 below the control knob 35 to allow the entry of ambient air as indicated by the arrows 56 and aspiration of same in the burner tube 48 for production of a combustible mixture.

The apron 31 of the burner unit 19 is generally a sheet metal box having flanged sides 57 affixed to the drawer front 16 and a front wall 58 which is adapted to abut the outer edge of the counter 11, the wall 58 being flanged at the upper portion to form an aperture 59 which closely communicates with the air wash duct formed by the channel 36 and the counter surface 11. The lower wall 60 of the apron 31 is angled so as to communicate with the chute 21 and to allow freedom of movement when the burner assembly 10 is lowered to the storage position, and the wall 60 includes an aperture 61 therein for directing air flow through the apron 31.

Further located in the apron 31 of the burner unit 19 is the main gas control valve 62 supported on the wall 44 of the enclosure 45, having an outlet at the spud 54 and having a control shaft extending upwardly through the opening 55 in the elevated surface 41 of the housing 45. The main valve 62 may be of any conventional type but is depicted in this embodiment of the invention as a flame adjusting thermostatically controlled

valve, presettable by means of the control knob 35 to a desired heat level and regulated by a thermal detector 64 disposed in the central portion of the burner 20 and communicating with the valve 62 by means of a fluid line 65 which conveniently may be disposed in the channel 36 closely adjacent the top panel 38.

Also mounted in the apron 31, on the front wall 58, is a magnetically controlled gas interlock valve 66 receiving gas under pressure from a source of supply via flexible conduit 68 and communicating with the main gas valve 62 by means of a short length of tubing 69. A permanent magnet 70 is embedded in the outer edge of the counter 11 at a position adjacent the interlock valve 66 when the burner assembly 10 is correctly positioned on the counter 11 and is operative to energize the valve 66 to allow the flow of gas to the main gas valve 62 and prevent same when the burner assembly 10 is in any other position. While a magnetically operated valve is depicted in the preferred embodiment of the invention, it will be apparent that other suitable interlocks may be employed as well, of either the electrical or mechanical variety, for preventing the flow of gas to the burner assembly 10 when in any position other than the proper operating position.

Completing the burner assembly 10 is the articulated chute 21 which is formed of a pair of opposed channels 71, 72 each pivotally connected at one end to the legs 29 of the carriage brackets 28 by bolts 74, and at the other end to the side walls 57 of the apron 31 by bolts 75. The channels 71, 72 are positioned so as to form a duct in the proper operating position of the burner assembly 10 for channeling air through the apron 31 and into the channel 36 beneath the burner 20.

Upper channel 71 is enlarged at its outward end at sloped panel 76 and has the top surface relieved to receive the side walls 57 and front walls 58 of the apron 31. The panel 76 is closely adjacent the front wall 58 in the proper operating position of the burner assembly 10 as seen in FIG. 3 so that the duct formed by the channels 71, 72 is aligned with the opening 61 in the lower wall 60 of the apron 31. When the apron 31 and burner unit 19 are lowered to the storage position, as indicated in dashed lines in FIG. 3, the apron 31 is more fully nestled in the duct formed by channels 71, 72 with the lower wall 60 closer to the lower surface of channel 72 and front wall 58 spaced from panel 76.

The independent mounting arrangement of the channels 71, 72 forms a parallelogram linkage between the carriage 18 and the burner unit 19 and maintains substantial parallelism between the two in any position of elevation. As noted in the dashed lines of FIG. 3 when the burner assembly 10 is in the storage position, a slight separation of the channels 71, 72 will occur opening the lower duct but since no air flow is required at this time, such separation is inconsequential.

In the storage position of the burner assembly 10 as depicted in FIG. 2 the top panel 38 of the burner unit channel 36 will abut and be supported on the carriage brackets 28 and in combination with the rigidity of the parallelogram linkage of channels 71, 72 the burner unit 19 will be supported in this position for slidable movement into and out of the enclosure 15.

Centrally mounted on the upper channel 71 of the articulated chute 31 is a blower motor 80 having a vane 81 positioned in the duct formed of channels 71, 72

and enclosed in a vane housing 82 formed also of sheet metal and secured beneath the upper channel 71. The vane housing 82 abuts the lower surface of channel 72 in the operating position to form a blower enclosure and suitable apertures are provided in the upper channel 71 to allow entry of air. It will be evident that the blower motor 80 is operated to force air upwardly through the apron 31 and out over the air wash duct of channel 36 for purposes of cooling the counter 11 and the associated burner unit 19 or alternatively the blower configuration may be reversed to draw air into the air wash duct channel 36 from above the counter 11 and expel same generally in the enclosure area 15. In this latter manner of operation an additional advantage is obtained in that venting of the counter 11 can be achieved along with the desired cooling effect in the channel 36, the former being enhanced by the provision of hoods and the like (not shown), closely associated with the burner unit 19. Such hoods could direct the air from above the counter 11 so as to collect vapors and the like emitted from cooking utensils, the provision of cleaning filters and collectors at the lower portion of the articulated chute 21 in the enclosure 15 being possible due to the ducting of the air in the apparatus of this invention.

Further depicted as a part of the burner assembly 10 is a transformer 85 mounted on trolley 25, being energized from a conventional source of electric power and interconnected with the igniter coil 34 by operating switch 86 associated with the main gas valve 62 in a manner well understood in the art. Connecting wires (not shown) are routed through the ducts of the chute 21, apron 31 and channel 36 and a flexible connection to the power source allows inward and outward movement of the trolley 25.

The assembly will also be provided with suitable overheat protection, not shown, to shut off the gas supply for example in the event the temperature of the support adjacent the burner exceeds a predetermined degree, with this safety in addition to the position responsive interlock previously described as provided by the magnetically operated valve in the illustrative embodiment of the invention.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A concealable surface cooking assembly for use with a counter having an uninterrupted work surface and storage space therebeneath, comprising a carriage slidably mounted for movement in the storage space, a heater, means mounting said heater on said carriage in overlying relation for vertical movement in respect thereto, said heater thereby being positionable in the storage space and also adjacent the top surface of the counter, means below said heater forming a passage for air between the same and the top surface of the counter, and blower means for circulating air through said passage.

2. The assembly set forth in claim 1, wherein the mounting means comprises a parallelogram linkage pivotally connected to said carriage and to said heater

for maintaining substantial parallelism therebetween and duct means in communication with said air passage, said blower being provided to force air through said duct means and over the subjacent counter space.

3. The assembly set forth in claim 1, wherein the penultimate means comprises an inverted channel forming the air passage cooperably with the counter top.

4. The assembly as set forth in claim 1, further including interlock means for controlling the operation of said heater to allow operation thereof only when said heater is in position atop the counter surface.

5. The assembly as set forth in claim 4, wherein said interlock means comprises magnetically responsive means mounted for movement with said heater, and a magnet embedded in the counter for actuating said responsive means when the latter is positioned adjacent thereto.

6. A gas burner assembly adapted for storage below a counter and for outward and upward movement to the counter top surface for utilization, comprising a carriage supported for inward and outward movement relative to said counter, a burner unit including a gas burner thereon, means mounting said burner unit on said carriage for upward and downward movement relative thereto, said burner unit thereby being positionable on the counter surface, an air space formed by a channel movable with said burner unit cooperable with the counter surface to form an air duct under said burner, the mounting means including ductwork in communication with the area below said counter and with said air duct, and blower means for forcing air through said duct for cooling said counter.

7. The burner assembly as set forth in claim 6, wherein said mounting means comprises a pair of opposed channels pivotally mounted to said carriage and to said burner unit to form a parallelogram linkage for support of said burner unit in both the operative and storage positions.

8. A concealable surface cooking assembly for use with a counter having a top work surface and storage space therebeneath with a front opening, comprising a closure for said opening, a carriage slidably mounted for movement in the storage space, surface heating means secured to said closure at the rear thereof and extending inwardly therefrom, link means interconnecting said closure and said carriage for manipulation of the former to adjust the heating means between a first concealed condition closely overlying the carriage within the storage space and a second withdrawn and relatively raised condition from which the heating means can be moved by the closure inwardly over the counter top surface, and means for supporting the heating means on such top surface of the counter for utilization of the former after such last movement of the same.

9. The assembly set forth in claim 8, wherein the last named means forms a passage for air between the heating means and the counter top surface.

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