March 31, 1959 E. D. PELLEGRIN 2,879,760

FOLD-AWAY COOKING UNIT

Filed Sept. 6, 1955 3 Sheets-Sheet 1

Fig. 1.

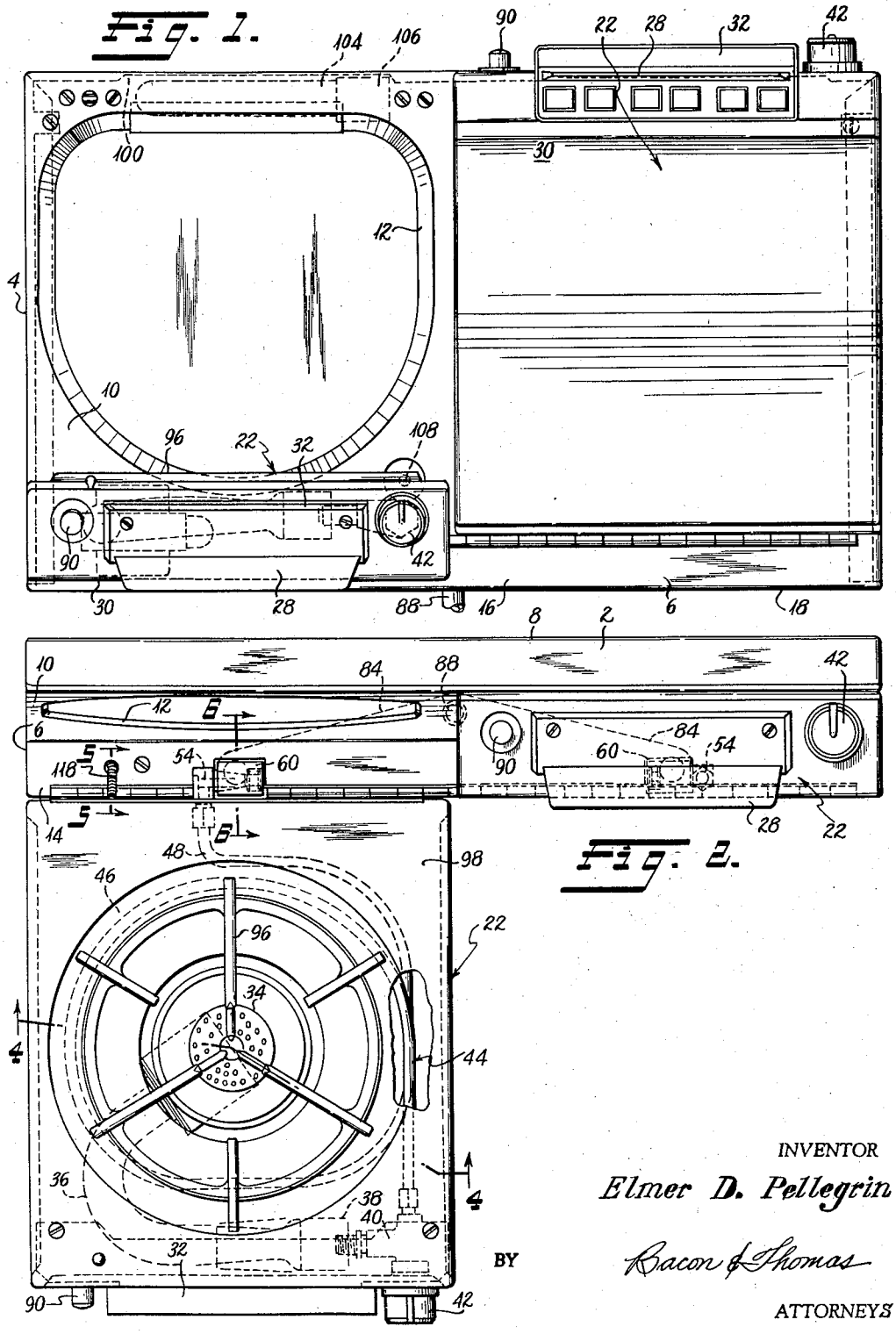


Fig. 2.

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Filed Sept. 6, 1955 3 Sheets-Sheet 2

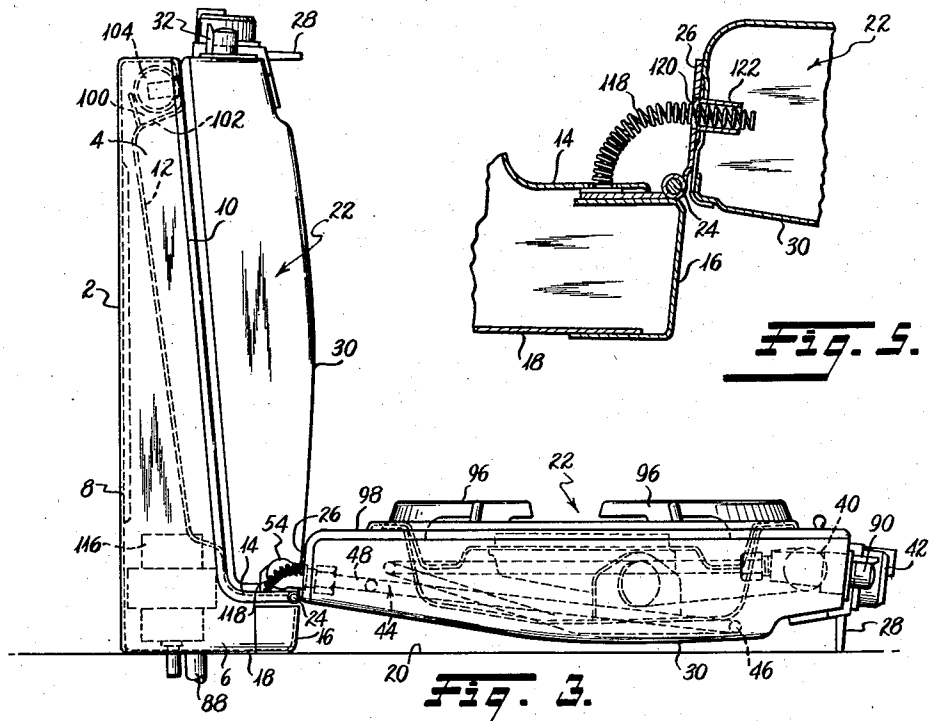


Fig. 3.

Fig. 5.

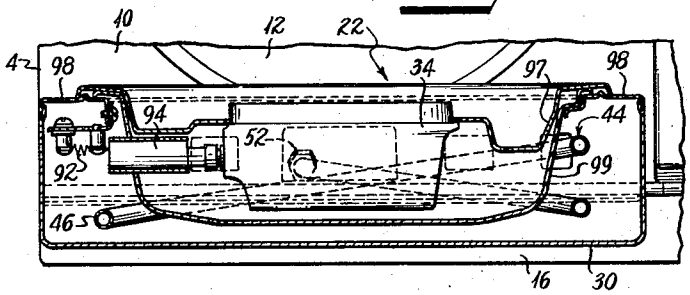


Fig. 4.

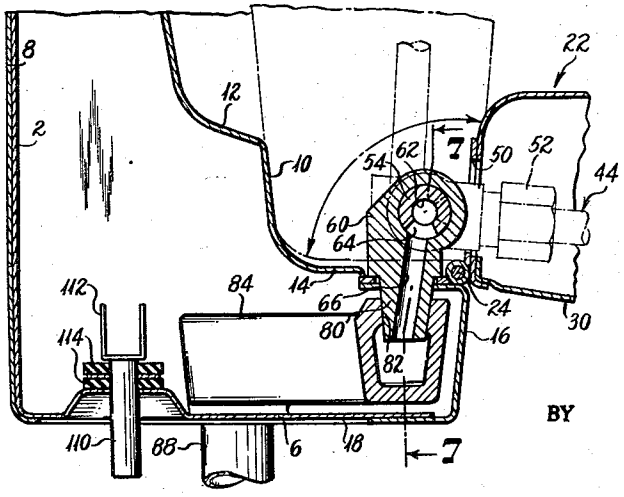


Fig. 6.

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FOLD-AWAY COOKING UNIT

Filed Sept. 6, 1955 3 Sheets-Sheet 3

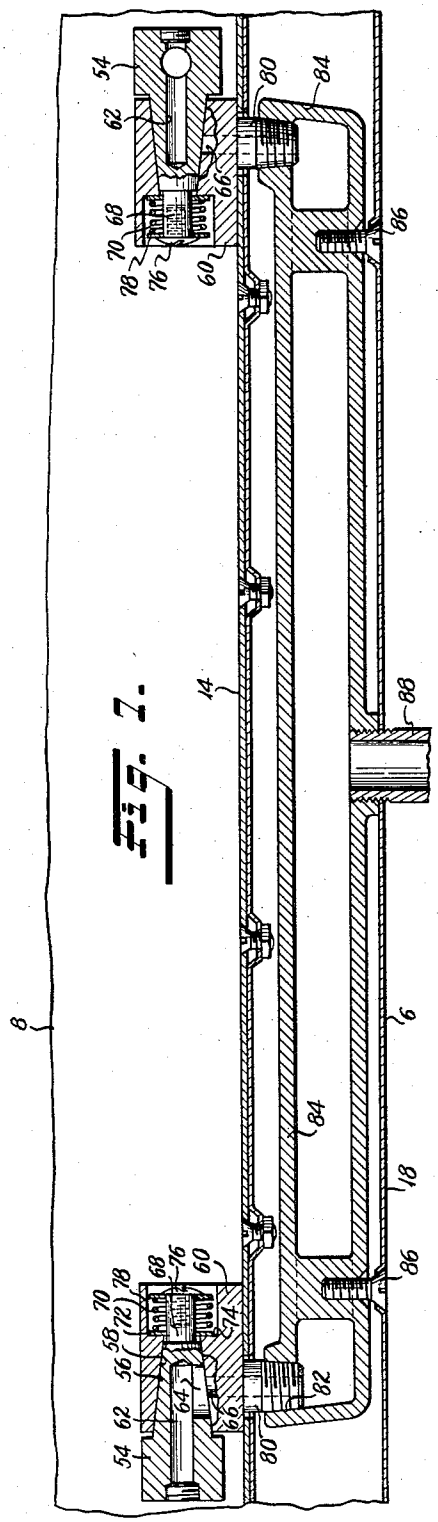


Fig. 1.

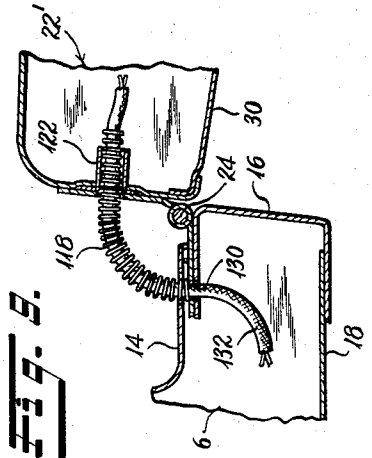


Fig. 3.

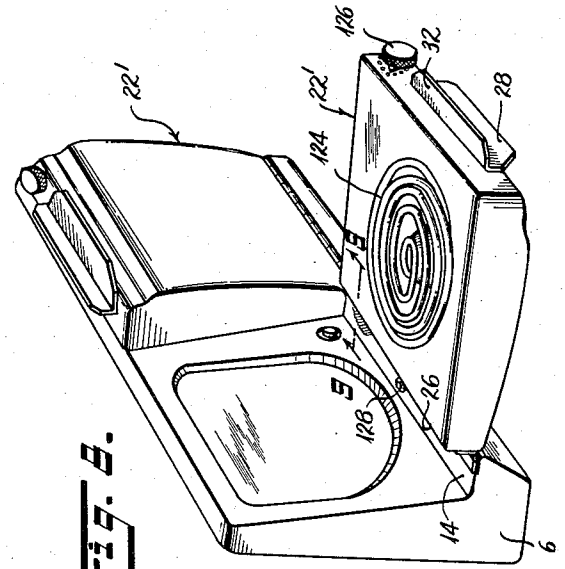


Fig. 4.

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2,879,760

FOLD-AWAY COOKING UNIT

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Application September 6, 1955, Serial No. 532,638

2 Claims. (Cl. 126—37)

This invention relates to cooking units, and particularly to burners or heaters mounted on a supporting base for swinging movement from a horizontal operative position to an upright inoperative position wherein a work top or the like is exposed and uncovered for normal use.

The unit of the present invention contemplates a supporting base having a forwardly extending foot portion of small fore-and-aft dimension and an upstanding backsplash panel extending upwardly from the rear portion of the foot or base. One or more heating units, which may be gas burners or electric heating devices, are pivoted to the base at the forward edge of the foot portion so it may be swung to a horizontal position overlying a portion of a supporting surface for use or may be swung to an upright position nested against the backsplash panel when not in use to uncover and expose the supporting surface for use as a counter top or work space. It is contemplated that the unit will comprise a base of sufficient length to mount a pair of heating units in side-by-side relation, either of which may be independently swung from inoperative to operative position or vice versa. The construction of the unit is such that it may be mounted on any conventional counter top or work top, although preferably against a back wall, without cutting or modifying the counter surface in any material respects. The unit is adapted to be mounted by merely being placed on the rear portion of the counter top and suitably connected to a source of energy, either gaseous fuel or electricity. The heating units are of smooth exterior configuration, and, when swung to upright position define with the base an exteriorly smooth compact structure of neat appearance occupying only a very minor portion of the work or counter top at the rear thereof. The heating unit is further provided at its outer edge with a foot or supporting element arranged to hold the heating unit in horizontal position over the counter top and out of contact therewith. The foot itself contacts the counter top for supporting the heating unit but the heating unit is held thereby spaced upwardly from the counter top to thus prevent direct heat transfer from the heating unit to the counter top and thereby avoid possible damage to the work surface.

The heating unit of the present invention also includes novel counterbalancing means for the swingable heating unit embodied in a relatively stiff helical spring, the tendency of which to straighten itself out is employed to provide a counterbalancing force. The unit of the present invention also includes a novel light arrangement for illuminating the burner when in operative position and novel valve and conduit means for maintaining communication between a source of gaseous fuel and the burner in all positions of the heating unit.

It is, therefore, an object of this invention to provide a

cooking unit adapted to be mounted on a horizontal work surface to be readily foldable to an out-of-the-way position and expose the work surface for other use.

Another object of this invention is to provide such a cooking unit with means to support the heating element thereof in spaced relation to a supporting surface to thereby avoid damage to that surface.

Still another object of this invention is to provide a compact cooking unit mountable on a counter top or work surface without the necessity of cutting the work top area or making other substantial changes therein.

A further object of this invention is to provide a foldaway cooking unit that may be folded to a compact and exteriorly smooth, attractive structure when not in use.

A still further object of this invention is to provide a foldaway cooking unit having a supporting portion and a heating unit nestable in said supporting portion when folded to inoperative position.

An additional object is to provide in such a device a novel form of pivoted connection in a gaseous fuel conduit.

Another additional object of the invention is to provide novel counterbalancing means for a swingable heating unit.

Another and further object is to provide a foldaway cooking unit of the nature referred to employing a novel combination of cooking unit and illuminating means.

Still further and additional objects and advantages will become apparent to those skilled in the art as the description proceeds in connection with the accompanying drawings, wherein:

Fig. 1 is a front elevational view of a 2-panel unit embodying the present invention, showing one of the burner units in upright inoperative position and the other in horizontal operative position;

Fig. 2 is a plan view of the structure shown in Fig. 1;

Fig. 3 is an end elevational view of the structure of Figs. 1 and 2 as viewed from the left end thereof;

Fig. 4 is a fragmentary vertical sectional view taken substantially along the line 4—4 of Fig. 2 but on an enlarged scale;

Fig. 5 is a vertical sectional view through the counterbalancing means taken substantially along the line 5—5 of Fig. 2 but on an enlarged scale;

Fig. 6 is an enlarged fragmentary vertical sectional view taken substantially along the line 6—6 of Fig. 2;

Fig. 7 is an enlarged fragmentary vertical section taken on the line 7—7 of Fig. 6;

Fig. 8 is a perspective view of a foldaway cooking unit similar to that shown in Figs. 1 to 3 but illustrating an electric heating unit; and

Fig. 9 is an enlarged fragmentary vertical section taken substantially along the line 9—9 of Fig. 8.

Referring now particularly to Figs. 3 and 6, the cooking unit of the present invention comprises a supporting base portion defined by a hollow sheet metal member 2 of generally L-shape in fore-and-aft vertical section and consisting of an upwardly extending hollow blacksplash panel 4 and a horizontal hollow foot portion 6. The upstanding backsplash panel is provided with a rear wall 8 and a front wall 10, the front wall 10 being provided with a forwardly open recess 12 therein for a purpose to be described later. The blacksplash panel 4 and hollow foot portion 6 may be integrally joined, with the front wall 10 of the blacksplash panel merging integrally into an upper wall or surface 14 of the foot portion 6. The foot portion 6 is also provided with a front wall 16

defining a generally vertical forward surface. The overall fore-and-aft dimension of the foot portion 6 is, as shown, only a few inches. The foot portion 6 is further provided with a bottom wall 18 defining a generally flat horizontal surface adapted to support the entire unit on a counter or work top 20. The supporting member is preferably laterally elongated to a length about equal to the width of two of the heating units to be employed therewith. Each heating unit is identified generally by numeral 22 and comprises a hollow structure of substantially the same height as the backsplash panel 4 and of a thickness approximately equal to the fore-and-aft dimension between the front surface 10 of the backsplash panel 4 and the upstanding surface 16 of the foot portion 6. Each heating unit is hinged to the foot portion 6 along a hinge axis 24 extending generally along the upper forward edge of the foot portion. The axis 24 is parallel to the surface defined by wall 16 and is located adjacent the bottom edge of the rear wall 26 of the heating unit. By this construction it is evident that the heating unit may be swung from an upright position as shown in the drawings wherein it is nested within the angle of the L-shaped supporting member to a horizontal position extending forwardly from the foot portion 6 and above the front wall 16 thereof.

Each heating unit is provided with a supporting foot 28 extending forwardly from the upper edge thereof when the unit is in upright position and of such dimension as to engage the work top 20 when the unit is in horizontal position to hold the unit in that position with its outer wall or surface 30 spaced above the work surface 20. The supporting foot 28 may serve as a handle for manipulation of the heating unit or the unit may be provided with a separate upstanding handle portion 32. The outer surface 30 of the heating unit is preferably of smooth uninterrupted configuration and arranged to constitute a smooth upward extension of the forward surface 16 of the foot portion 6 when the heating unit is in upright position so that the entire assembly then defines a compact smooth and neat structure.

In the form shown in Figs. 1 through 7, the heating unit 22 embodies a burner 34 for gaseous fuel. The burner element 34 (Fig. 2) is shown as of conventional configuration and comprises a perforated chamber into which an air and fuel mixture is conducted by a conduit 36. The conduit 36 includes a mixing chamber 38 into which air is admitted and drawn by a jet of gas issuing from a control valve 40 under the control of the user by means of a suitable control knob 42 rotatably mounted on the outer edge of the heating unit. The valve 40 has secured thereto a relatively flexible pipe 44 for conducting gas to the valve. The pipe 44 extends rearwardly from the valve 40 inside the hollow heating unit and then extends in a complete loop 46 around the interior of the heating unit and is then curved inwardly and rearwardly, as at 48, to extend outwardly through an opening 50 (see Fig. 6) in the rear wall 26 of the heating unit. Actually, a fitting 52 constitutes the portion of pipe 44 at the opening 50 and extends rearwardly therethrough. The fitting 52 comprises part of a rotary plug portion 54 (see also Fig. 7) of a master control valve in the fuel line. The plug portion 54 is provided with a tapered extension 56 extending into a complementary chamber 58 in valve body 60. A bore 62 through the plug portion 54 provides communication between the pipe 44 and a lateral passageway 64 in the plug portion and of about the arcuate extent shown in Fig. 6. The valve body 60 is provided with a passageway 66 communicating with the passageway 64 when the plug 54 is rotated to the position shown in Fig. 6. Since the pipe 44 and fitting 52 are rigidly secured to the plug portion 54, the latter will rotate about its axis in valve body 60 in unison with swinging movement of the heating unit about its hinge axis 24 and the passageway 64 is so arranged that the valve is open for flow of gaseous fuel therethrough into pipe 44 when the heating unit is in its horizontal or operating position. When the heating unit is swung to upright position, the plug 54 rotates in valve body 60 sufficiently to move passageway 64 out of communication with passageway 66 and thus close the valve to prevent flow of gaseous fuel into the pipe 44.

The rotary plug 54 is formed with an axial extension 68 about which a helical compression spring 70 extends. The compression spring 70 bears at its inner end against a washer 72 abutting a shoulder 74 in the valve body and a screw 76 holds a washer 78 in position to engage the other end of the compression spring 70. The screw 76 is threaded into the extension 68 and the spring 70 thereby urges the tapered portion of the rotary plug 54 into snug seating engagement with the wall of chamber 58 in the valve body 60.

The passageway 66 in valve body 60 extends downwardly through a tubular extension 80 of the valve body. The tubular extension is threadedly received in a threaded opening 82 of a gas manifold 84 mounted in the hollow foot portion 6 of the supporting member. The manifold 84 is of hollow construction and may be secured to the bottom wall 18 by screws 86. An inlet pipe 88 is shown extending through the bottom wall 18 of the foot portion 6 and communicates with the interior of the manifold 18. The inlet pipe 88 may be connected to any suitable source of gaseous fuel (not shown). Obviously, inlet pipe 88 could be arranged to extend from the manifold 84 rearwardly through the rear wall 8 of the supporting member, if desired.

As clearly evident from Fig. 7, the manifold 84 extends laterally inside the foot portion 6 to provide communication between the inlet pipe 88 and the master valves for each of the heating units mounted on the supporting base.

In the form shown, with particular reference to Figs. 1 to 4, the heating unit is provided with an electrical ignitor actuated by a push button 90 on the forward edge of the heating unit. Any suitable electrical circuits may be employed whereby upon depression of the button 90 a circuit is completed through a resistance element 92 (see Fig. 4) positioned at the outer end of an ignition tube 94 communicating with the interior of the burner chamber 34. The operation of the ignitor is conventional and need not be further described.

As is apparent from Fig. 6 particularly, the axis of rotation of the valve plug 54 is fixed relative to the base and is offset from the axis 24 about which the heating unit 22 swings. When the heating unit 22 is in upright position against the backsplash panel, the valve 60 remains in fixed position above the surface 14 and, therefore, must occupy a position within the hollow interior of the heating unit 22. To permit this to occur, the opening 50 in the rear wall of the heating unit 22 is made sufficiently large so that the valve 60 may pass therethrough. In other words, the rear wall 26 of the heating unit 22 swings over the valve 60 and moves the opening 50 to a surrounding position relative to the valve 60. When the heating unit 22 is in its upright position, the axis of valve 60 is dimensionally closer to the control valve 40 in the heating unit than when the heating unit is in horizontal or operative position and means must be provided to accommodate this change in distance without breaking or opening the gas line. Since the gas pipe 44 in the heating unit is provided with a loop 46 and since the material of the pipe is somewhat resilient, the described change in distance between valves 60 and 40 may occur and be accommodated by flexure of the loop 46 without danger of breaking the gas pipe 44.

Referring now to Figs. 1 and 3, the recess 12 in the front wall of the backsplash panel is of sufficent depth to accommodate a grid 96 provided over the burner 34 and to permit the peripheral border portion 98 of the top surface of the burner unit 22 to abut the front face 10 of the backsplash panel outwardly of the recess 12

when the heating unit is in upright position and thus present a smooth outer surface of the closed assembly. It is to be noted that the outline of the recess **12** lies entirely within the outer boundaries of the heating unit when the latter is in folded position.

The grid **96** is secured to an annular drip pan **97** surrounding the burner **34** which is, in turn, mounted within an upwardly open chamber defined by a dished wall **99** mounted in the heating unit **22**.

The backsplash panel **4** is also provided with means defining a chamber **100** (Figs. 1 and 3) therein immediately over the recess **12**. The chamber **100** is downwardly open, as at **102**, in communication with the upper edge of the recess **12**. A suitable electric lamp **104** is mounted in a suitable socket or fixture **106** in the chamber **100** and is controlled by a light switch **108** mounted in the front wall **10** of the backsplash panel in position to be engaged by the border surface **98** of the heating unit when the latter is in upright position. The electric circuits are not shown and need not be described in detail but are preferably so arranged that, when the heating unit is in horizontal or operative position, the switch **108** completes a circuit through the electric lamp **104** to provide illumination in the recess **12** and, therefore, over the cooking unit. When the heating unit is swung to its upright position its surface **98** engages the switch **108** to interrupt the circuit to lamp **104** and thereby turns the light out when the heating unit is folded to its inoperative position.

Fig. 6 illustrates a short section of conduit **110** mounted on and extending through the bottom wall **18** of the foot portion and provided with a bracket **112** within the hollow interior thereof. The conduit **110** and bracket **112** may be insulated, if desired, from the supporting unit by means of suitable insulating blocks **114**. The bracket **112** supports a transformer **116** (see Fig. 3) to provide current for the lamp **104** and/or the ignition coil **92**. For clarity of illustration, the transformer **116** has been omitted from Fig. 6. The nature and arrangement of such circuits need not be described since they form no part of the present invention and many types of circuit may be resorted to as desired, by those skilled in the art. The conduit **110** provides a passageway for leading electric power conductors from a suitable source to the interior of the supporting member.

Referring now to Fig. 5, which illustrates the counterbalancing arrangement for the heating unit, the upper wall **14** of the foot portion of the supporting member is shown as having a helical coil spring **118** mounted thereon. The coil spring **118** is preferably quite stiff and fixedly secured to the wall **14** at its lower end in an upright position whereby the spring tends to assume a vertical position. The rear wall **26** of the heating unit **22** is provided with an opening **120** therethrough and an inwardly extending tubular guide **122** in alignment with the opening **120**. The inner diameter of the tubular guide **122** is only slightly greater than the outer diameter of the spring **118**, which spring is mounted to extend slidably through the tubular guide **122**, as shown. It will be obvious that the stress in spring **118**, as shown in Fig. 5, tends to cause the spring to seek an upright position and thereby applies a counterbalancing moment about the axis **24** tending to swing the heating unit **22** to upright position. The strength of spring **118** is not sufficient in and of itself to swing the heating unit to upright position but is so proportioned as to materially assist such swinging movement. The spring **118** further acts to resist movement of the heating unit from upright to horizontal position and thereby minimizes the danger of damage to the heating unit if it is started down from its upright position and then "dropped."

The specific embodiment shown in Figs. 1 through 7 relates to a foldaway cooking unit employing gaseous fuel but it will be obvious to those skilled in the art that many of the novel features of this invention are readily

adaptable to a foldaway cooking unit employing an electrical heating element.

Referring now to Figs. 8 and 9, the modification shown therein is substantially identical in most respects to that previously described in connection with Figs. 1 to 7 but schematically illustrates the adaptation of the invention to an electrical cooking unit. Portions of Figs. 8 and 9 bearing the same reference numerals as portions shown in Figs. 1 to 7 are substantially identical therewith and function in the same manner. However, the heating unit **22'** of Fig. 8 is provided with an electrical resistance element which may be a conventional heating coil **124** in place of the gas burner shown in Fig. 2. The heating coil **124** is controlled by a multiposition control switch having a knob **126** at the outer end of the heating unit **22'**, which switch may be manipulated to control the degree of heat produced by the heating coil **124**. Preferably, the control switch **126** is arranged in series with a master switch located within the hollow foot portion **6** of the supporting member and having an actuating button **128** projecting upwardly through the upper surface **14** of the foot portion. The button **128** is in position to be engaged by the rear wall **26** of the heating unit **22'** when the latter is in upright position to thereby open the electrical circuit to the control switch **126** and heating coil **124**. This master control switch provides a safety feature whereby current will be cut off from the heating coil **124** by the mere act of swinging the heating unit to its upright position even though the control knob **126** be left in one of its "on" positions.

Fig. 9 illustrates a manner in which electrical conductors may be flexibly mounted between the master control switch and the swingable heating unit **22'** in the region of hinge axis **24**. Fig. 9 illustrates a counterbalancing spring **118** which may be identical to that described in connection with Fig. 5 but in this embodiment the upper wall **14** of the foot portion **6** is provided with an opening **130** completely therethrough in alignment with the interior of the spring **118**. Thus the spring **118** and the opening **130** define a convenient passageway through which suitable electrical conductors **132** may be threaded to provide electrical communication between the master control switch having button **128** and the manual control switch **126**. The manner of operation of this flexible conductor guide will be obvious and need not be described in detail.

It is to be noted that, in both forms of the invention, the supporting member **2** is so configured that it may be readily placed on any convenient or conventional counter or work top of the type commonly provided in kitchens, without cutting recesses therein. The cooking unit occupies only a few inches of the counter space, at the rear thereof, and may be fitted snugly against the usual wall adjacent the counter top without being actually secured thereto and without marring the wall.

While a limited number of specific embodiments of the invention have been shown and described herein, it is to be understood that the invention is not limited thereto but may encompass other modifications falling fairly within the scope of the appended claims.

I claim:

1. A cooking unit having a laterally elongated base defined by a hollow upstanding backsplash panel and a hollow foot portion extending forwardly from the lower edge thereof, said hollow foot portion having an upper surface extending forwardly from the front surface of said backsplash panel, a hollow heating unit hinged to said foot portion on an axis extending along the forward edge of said foot portion and having a rear edge wall arranged to abut said upper surface when said heating unit is swung to upright position, a gas conduit in said foot portion extending upwardly through said upper surface and communicating with a valve adjacent but above said upper surface and said axis, said rear edge wall having an opening therein of such size and position that said

valve extends therethrough when said heating unit is in upright position, a gas burner on said heating unit and a bowed resilient gas line providing communication between said valve and said burner.

2. A cooking unit having a laterally elongated base defined by a hollow upstanding backsplash panel and a hollow foot portion extending forwardly from the lower edge thereof, said hollow foot portion having an upper surface extending forwardly from the front surface of said backsplash panel, a hollow heating unit hinged to said foot portion on an axis extending along the forward edge of said foot portion and having a rear edge wall arranged to abut said upper surface when said heating unit is swung to upright position, a relatively stiff helical spring fixed at one end to said hollow foot portion to normally extend upwardly from said upper surface but being resiliently bendable from its upright position, an opening in said rear edge wall and through which said spring extends, and a tubular guide fixed to the interior of said heating unit substantially normal to said rear edge wall and slidably embracing said spring whereby said spring acts to resiliently counterbalance said hinged heating unit.

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