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Evans et al.

[11] **3,859,499**

[45] **Jan. 7, 1975**

[54] **AIRFLOW COOLING SYSTEM FOR HEAT-CLEANING RANGES**

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[73] Assignee: **General Motor Corporation**, Detroit, Mich.

[22] Filed: **June 12, 1974**

[21] Appl. No.: **478,688**

[52] **U.S. Cl.** ..... **219/396**, 126/21 A, 219/400, 219/460, 219/464

[51] **Int. Cl.** **F27d 11/02**

[58] **Field of Search** ..... 219/10.55, 393, 396, 400, 219/413, 460, 464; 126/21 R, 21 A, 200

[56] **References Cited**

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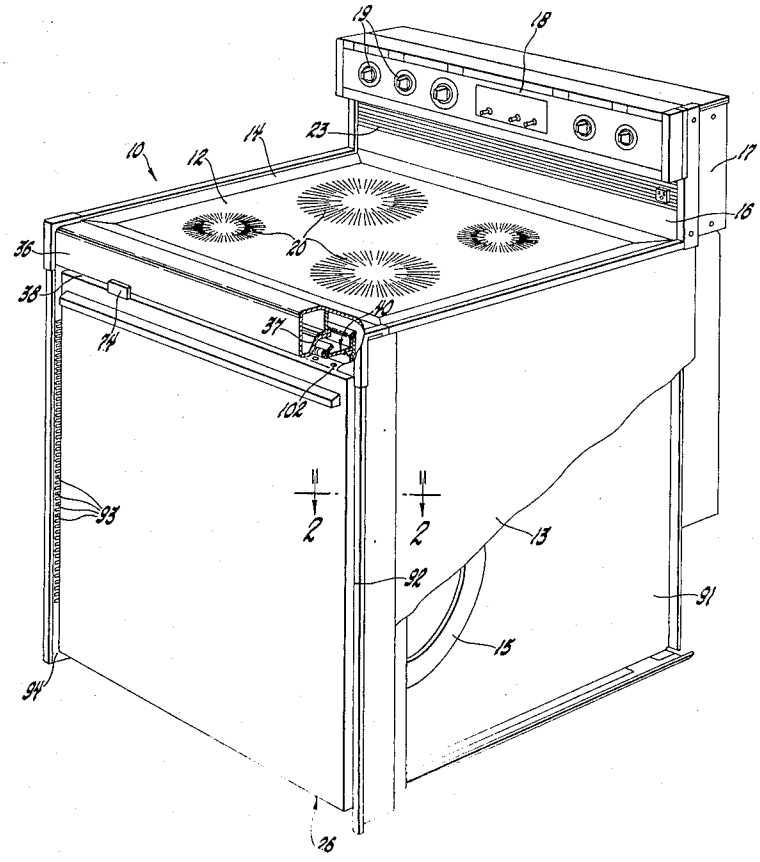
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Primary Examiner—Volodymyr Y. Mayewsky
Attorney, Agent, or Firm—Edward P. Barthel

[57] **ABSTRACT**

A domestic cooking range having an outer range casing supporting a sealed cooktop, an underlying heat cleaning oven and a control housing with a vented splash panel that overlies the back edge of the appliance. A blower, energized during oven heat-cleaning, draws room air through inlet ports in framing means along the sides and top of the oven door for movement into a horizontally extending air flow passageway beneath the cooktop and conveyed by plenum duct means for exhaustion via the vented splash panel to the room. Valve means are provided in the top door frame which permits the blower to draw room air into the passageway through the inlet ports in the framing means along the top edge of the door during oven heat-cleaning. The valve means are normally closed when the oven door is opened to prevent the entry of cooking fumes into the passageway during a broiling operation.

5 Claims, 7 Drawing Figures



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3 Sheets-Sheet 1

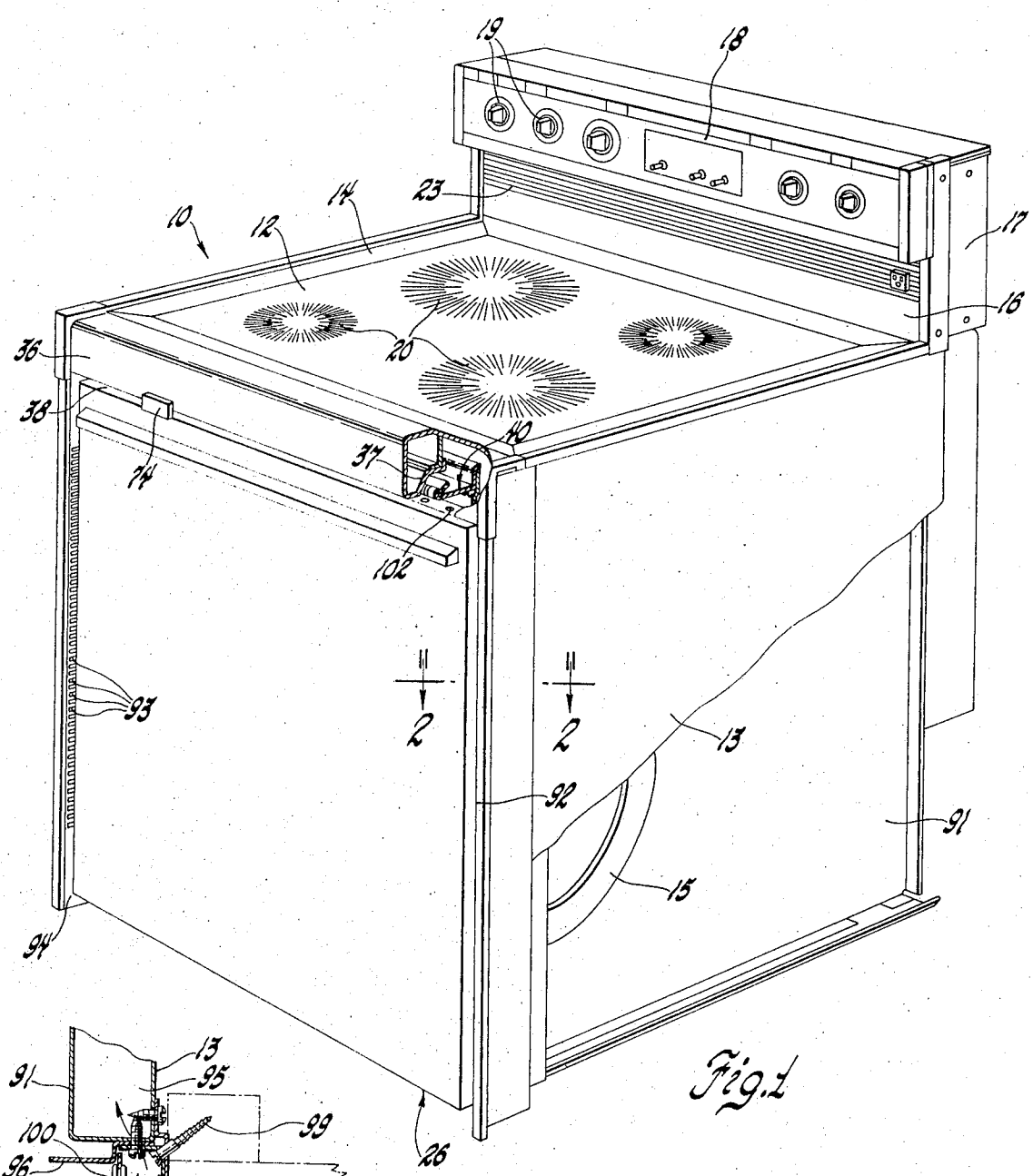


Fig. 1

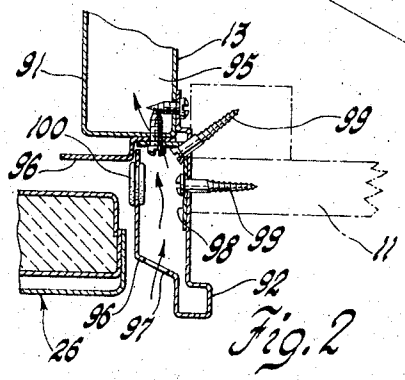


Fig. 2

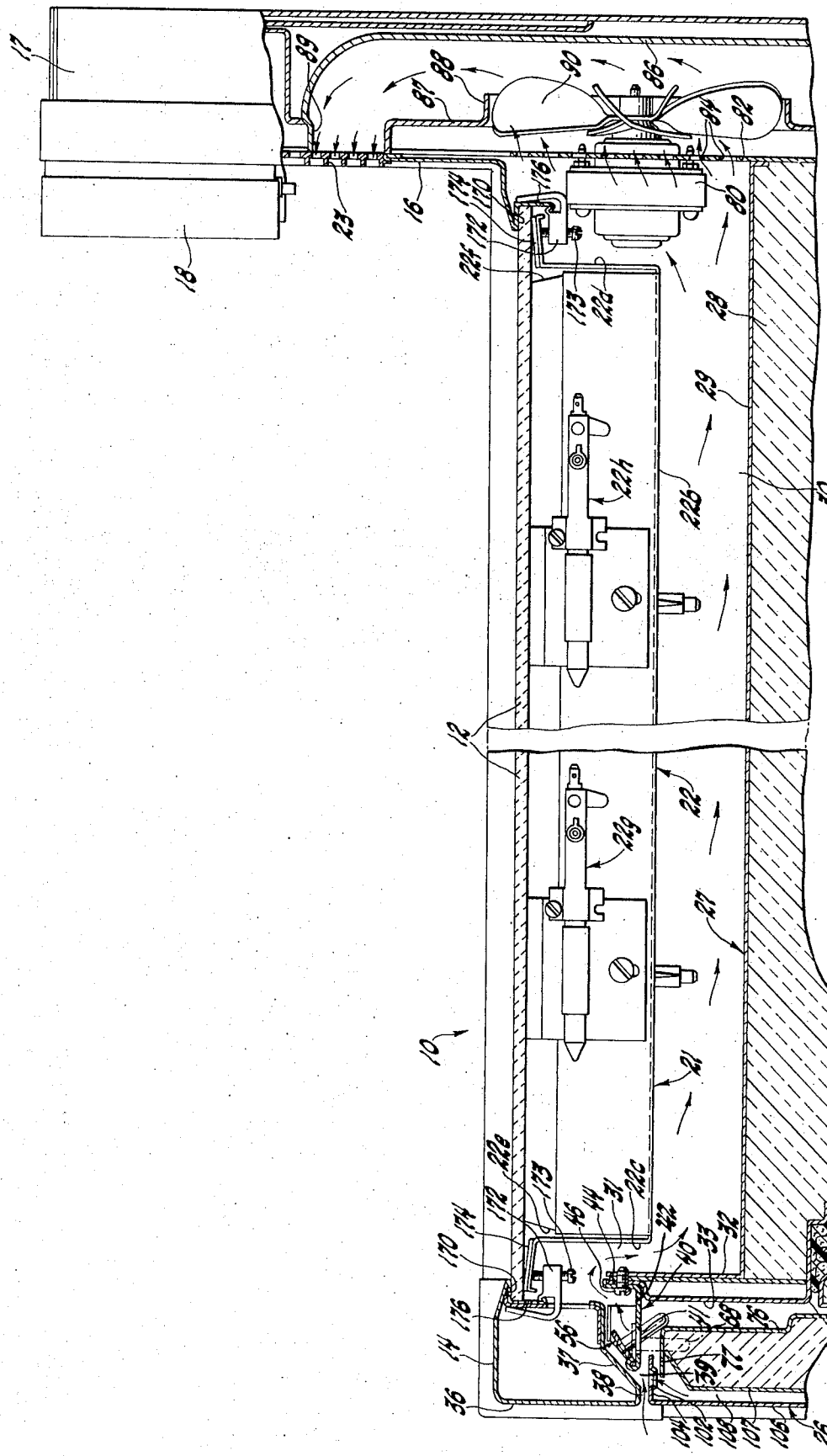


Fig. 3

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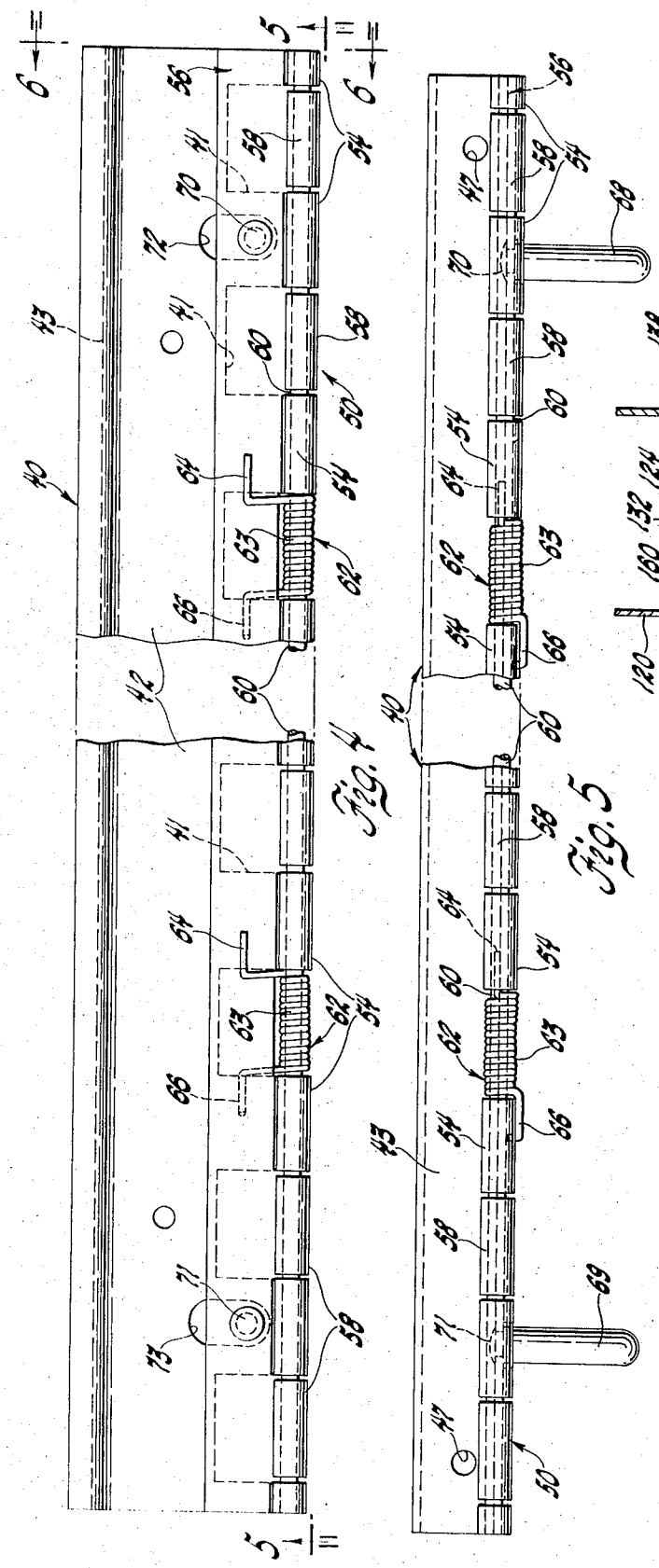


Fig. 4

Fig. 5

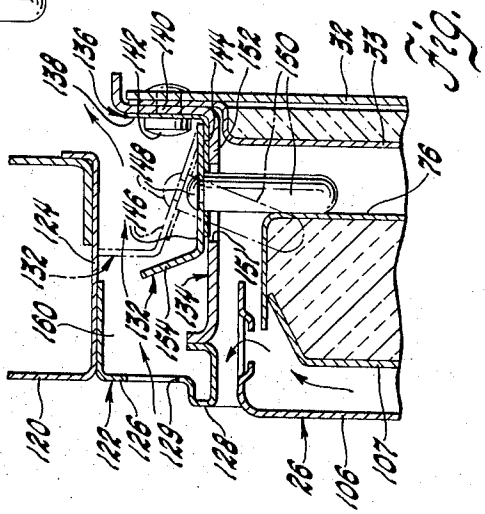


Fig. 7

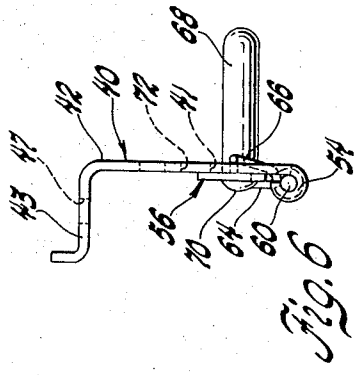


Fig. 6

AIRFLOW COOLING SYSTEM FOR HEAT-CLEANING RANGES

This invention relates to domestic ranges and more particularly to a ventilating system for a "drop-in" cooking range that is adapted to be built into a kitchen counter structure, where the appliance is furnished with a splash panel along the back edge of the range. Valved inlet ports are provided along the upper edge of the oven access opening for preventing the intake of cooking vapors from the oven compartment into a passageway beneath the sealed cooktop when the oven door is opened. Means associated with the valve of the inlet ports engageable by the oven door upon shutting same maintains the ports open to allow room air to be drawn by a fan through the gap extending along the top of the door and into the cooktop passageway for venting through louvers in the splash panel to cool the range during a heat-cleaning cycle.

Prior art heat-cleaning ovens of the built-in wall oven design provide air intake cooling systems to cool exposed surfaces during the heat-cleaning cycle. One example of such a built-in wall oven is disclosed in U.S. Pat. No. 3,686,476 to G. W. Schauer, Jr., issued Aug. 22, 1972, and assigned to the assignee of the instant application. Self-cleaning wall ovens of the type disclosed in the Schauer patent provide blower means in the form of a motor-driven fan positioned above the insulated top wall of the oven operable to pull cooling room air around the sides of the insulated oven liner and up the back thereof to a negative pressure chamber behind the fan from whence the cooling air is forced into a forward plenum chamber and out of air outlet means along the top edge of the oven door.

As explained in the U.S. Pat. No. 3,485,229 to Gilliam, one major concern of the design of built-in ovens is to protect the exposed front edge of the oven cabinet from overheating when the oven is operated at a temperature above 900° F. for an appreciable period of time, as required for heat-cleaning. Built-in oven structures have attempted to solve this problem by providing a blower fan in a chamber above the oven for drawing in the air from along the sides and/or the bottom of the oven chamber and exhausting the air through vent means along the upper edge of the oven door.

It is the general object of the present invention to provide an improved air flow system for use with a "drop-in" or compact domestic cooking range that is adapted to be built into a kitchen counter structure having a heat-cleaning oven supported beneath a cooktop wherein room air is drawn through air inlets located along the sides and top of the oven front opening such that the air may pass in the space between the range outer casing and the inner oven cabinet, and blower means mounted in an upper air flow passageway between the range cooktop and the upper wall of the oven inner cabinet for drawing air into the upper air flow passageway during an oven heat-cleaning cycle for exhausting the air via a vented splash panel to the atmosphere. Valve means are provided along the top oven door frame for preventing the entrance of cooking fumes into the upper air flow passageway during a cooking operation wherein the oven door is moved to a partially opened position.

It is another object of the present invention to provide an improved air flow system for use with a "drop-in" or compact domestic cooking range that is adapted

to be built into a kitchen counter structure including a heat-cleaning oven supported beneath a sealed cover plate cooktop wherein room air is drawn through air inlets located along both sides and top of the oven door frame means allowing the air to pass through the space between the range outer casing and the inner oven cabinet. Blower means are provided at the rear of a top air flow passage, defined between the sealed cooktop and the upper wall of the oven cabinet, for drawing the air into the top passage during an oven heat-cleaning cycle and exhausting the air into a vertical plenum duct located at the back wall of the range; which duct extends above the cook-top for communicating with air exhaust louvers in the range splash panel. The top door frame means includes air inlet openings and a movable valve means resiliently biased to close the inlet openings upon moving the oven door to an open position during a cooking operation, and the valve means including depending pins which are cammed to their air inlet open position upon the oven door being moved to its closed position.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings wherein preferred forms of the invention are clearly shown:

In the drawings:

FIG. **1** is a partly broken away isometric view of a drop-in, compact range with a heat-cleaning oven of one form of the invention;

FIG. **2** is a fragmentary horizontal sectional view taken on line **2—2** of FIG. **1**;

FIG. **3** is a fragmentary right side elevational view, partly broken and partly in section, of the range of FIG. **1**;

FIG. **4** is an enlarged top elevational view of the venting damper of FIG. **3**;

FIG. **5** is a front view taken on line **5—5** of FIG. **4**;

FIG. **6** is an end view taken on line **6—6** of FIG. **4**;

FIG. **7** is a fragmentary sectional view of a modified venting damper for use with applicants' invention.

Referring now to the drawings and more particularly to FIG. **1**, there is shown a compact one-piece range **10** of the drop-in type which is adapted to be received or built into a spaced opening or cutout portion in a kitchen counter structure and secured to the front of base cabinet **11**, partially shown in phantom in FIG. **2**. The compact range **10** includes a cooktop or cooking surface which in the disclosed form is a cover plate **12** preferably of one-piece glass-ceramic material providing a smooth surface which has four surface heating areas. A detailed description of the electrical heating elements for the ceramic top heating arrangement is disclosed in U.S. Pat. No. 3,612,828 issued to Donald C. Siegla and assigned to the assignee of the instant application, the disclosure of which is incorporated by reference herein.

The drop-in range **10** has an outer range casing or metal body **13** which is generally cubical and enclosed on all sides except the front. The range casing **13** supports an upper collar **14** around the top edge thereof forming a trim strip around the cover plate **12**. The peripheral collar **14** merges with a vertical back splash panel **16** supporting a control housing **17** having a rearwardly located forwardly projecting control panel **18** including a plurality of control knobs **19** thereon for selectively energizing surface heating areas **20**. In the

preferred form a pair of radiant heating assemblies, one of which is indicated at **21**, each includes a housing member or burner box **22** comprising a bottom wall **22***b* provided with marginal flange front and rear end walls **22***c* and **22***d*. The burner box **22** supports a pair of front and rear heating units **22***e* and **22***f*, the details of which are shown and described in the above-mentioned Siegla patent. In cooperating relation with each of the heating units **22***e* and **22***f* there is provided a thermostatic device generally indicated at **22***g* and **22***h* respectively, which devices are shown and described in detail in U.S. Pat. No. 3,624,352 to H. W. Deaton and assigned to the same assignee as the present application. The splash panel **16** includes an air exhaust grille **23** providing an exit for exhaust air via duct means to be described.

The range oven includes a box-like oven liner, partially shown at **24** in FIG. **3**, having a front access opening **25** closed by an oven door **26**. The oven liner **24** is surrounded by an inner oven cabinet or insulation retainer, generally indicated at **27**, and spaced therefrom by suitable insulation material such as fiberglas insulation **28**. The outer range casing **13** surrounds the inner oven cabinet **27** and the burner box bottom wall **22***b* is spaced from the oven cabinet top wall **29** to form a longitudinally extending top cooling air passageway **30** while the oven cabinet side walls, indicated in FIGS. **1** and **2** by right hand wall **31**, are spaced from the range casing **13** to form vertically extending side air passages **32** which communicate with the top air passageway **30**.

The cooktop air passageway **30** communicates with a vertically extending entrance passage **31** defined in part by the box front end flange **22***c* and the oven cabinet top wall upstanding front flange **32** spaced inwardly from the oven top breaker angle **33**. A fiberglas gasket **34** is wrapped over the peripheral edge flange of the oven liner **24** to sealingly bear against the rectangular door plug panel **35**. The range outer casing has a generally vertical wall section front **36** integral with a double-L sectioned outer frame forming flange **37** directed inwardly defining, with the door top edge an outer ambient top air inlet passage or gap **38** including a horizontally disposed inner recess **39** of appreciable depth. The gap **38** and recess **39** communicate with the vertically disposed entrance air passage **31** by means of an oven valve or damper top frame member in the form of an inner double-leaf hinge valve assembly **50** shown in detail in FIGS. **4**, **5** and **6**. The lower-leaf **40** of the hinge is L-shaped in section and has a plurality of inlet air ports or slots **41** in its horizontal valve plate portion **42**.

The hinge lower-leaf includes a vertical leg **43** secured to an offset face flange **44** of the oven top breaker angle **33** and oven top wall front flange **32** by suitable means such as metal screws **46** located in holes **47**. The lower-leaf **40** is coextensive with the oven door top edge and has inwardly curled spaced hinge ears **54** with the intermediate sections between the ears being inwardly notched forming the plurality of air ports **41**. The double-leaf hinge assembly **50**, includes hinge upper-leaf valve member **56** having a plurality of complementary spaced hinge ears **58** located interjacent the hinge ears **54** for reception of a hinge pivot pin or pintle **60**.

From the drawings it will be seen that upward counterclockwise pivotal movement of the hinge valve member **56** is resisted by means of a suitable resilient biasing means. In the form disclosed the biasing means are tension return springs **63** fabricated from a length of spring wire bent intermediate its ends to provide a number of helical coils **63** embracing or coiled around the pivot pin **60** between selected laterally spaced pairs of hinge ears **54**. Each return spring **62** has an upper hook end **64** seated against the upper surface of valve **56** while the opposite lower hook end **66** of the spring is extended downwardly engageable with the lower surface of horizontal leg **42**. In the position of the structure shown in FIG. **6**, each of the return springs **62** urge the valve **56** in a clockwise direction about the pivot pin **60** to bias the valve **56** in sealed or seated engagement with the horizontal valve plate **42** such that the inlet ports **41** are closed when the door is opened.

As seen in FIG. **5**, valve actuating means are provided in the form of a pair of vertically depending cam pins **68** and **69** each secured to the valve **56** by integral upper rivets having deformed heads **70** and **71**, respectively. The cam pins extend through the forward end of longitudinal slots **72** and **73** in the valve plate **42** such that upon the oven door **26** being swung out to its partly open broil position, by means of suitable door hinge structure the arm of which is shown at **15**, the cam pins are biased by springs **62** to their vertical position with the valve **56** closing the inlet ports **41** as shown by the phantom-line position of the valve and pin **68** in FIG. **3**. Upon the oven door **26** being moved to its tightly closed baking position the upper edge of the door inner panel **76**, formed by its top inturned flange **77**, engages the cam pins **68** and **69**. The pins **68** and **69** are cammed rearwardly in their respective slots **72** and **73** causing the hinged valve **56** to be pivoted in a counterclockwise direction to its open solidline position of FIG. **3**. For details of one type of oven locking handle **74** reference may be had to U.S. Pat. No. 3,717,138, issued Feb. 10, 1973, to D. L. Upp, which discloses the mechanism for swinging the handle **74** from its left-hand unlocked to its right-hand locked position. As described in the above-referenced Schauer et al. patent, with the oven door closed and locked suitable actuating means, such as an interlock switch (not shown), is provided energizing blower means in the form of a motor driven fan **80**. The cam pins **68** and **69** thus pivot the valve **56** in a counterclockwise direction to its open position whereby room air may be drawn through the outer air gap **38** and inner recess **39** as shown by the arrows, for movement through inlet ports **41** into the vertical entrance passage **31** for rearward flow through air passageway **30**.

As seen in FIG. **3**, the room air is drawn rearwardly by fan or blower means in the form of a motor driven fan **80** positioned at the rearward end of passageway **30** by suitable support means such as a transverse partition **82**. The blower creates a negative pressure in passageway **30** and is operable to pull cooling room air through a plurality of apertures **84** in partition **82** from whence the cooling air is forced into the positive pressure chamber or plenum duct means in the form of a vertical duct **86** whose inner wall **87** has a cylindrical or bell mouth orifice **88** receiving axial impeller means in the form of a propeller **90**. The plenum duct **86** has a rectangular discharge duct **89** in communication with the exhaust grille **23**. It should be noted that other fan support means could be used such as an angle bracket, thus eliminating the apertured partition **82** and reducing the resistance to the air flow.

As seen in FIG. 1 in addition to the top inlet gap 38 at the front of the oven on each side of the oven door are elongated vertical side frame members 92 and 94 with the right-hand side frame member 92 being shown in section in FIG. 2. The side frame 92 has its inwardly slanted face panel 96 having a plurality of horizontal air inlet slots 97 creating an open grille to provide room air inlet means communicating with side wall cooling air space or flue 95 via openings (not shown) in oven side frame member 96. The right-hand side wall space 95, defined by oven cabinet side wall 91 and range casing 13, is duplicated on the left-hand side of the range with inlet slots 93. As seen in FIG. 2, angle clips 98 are provided for securing the range to adjacent kitchen cabinets 11 by wood screws 99 accessible through removable plug button 100 in the mullion 92.

Provision is also made for air inlet apertures (not shown) in the bottom edge of the oven door 26 and door air outlet holes 102 in the top flange 104 of the outer door panel 106 whereby room air may be drawn upwardly through a vertical door air flow passage 108, formed between intermediate insulation retainer panel 107 and outer panel 106, for exiting air into the inlet gap 38 to assist in cooling the outer door panel 106 during an oven heat-cleaning cycle.

It will be appreciated that by means of applicants' door operated vent damper arrangement cooking fumes produced during a broiling operation, when the oven door 26 is positioned in a partially open position, will be prevented from entering the cooktop air passageway 30. The oven cooking fumes will be prevented from flowing over the wiring the electrical control apparatus on the underside of the cooktop plate 12 and thus reducing the amount of grease or soil deposited on the wiring to insure against their becoming inoperative necessitating servicing and/or replacement.

Turning to FIG. 7 there is shown modified damper framing means in the form of an outer or open grill top frame in counter-distinction to the inner or closed top frame member shown in FIGS. 1–6. The same numerals will be used in the description of the modification of FIG. 7 for the same or identical members. The outer range casing has a generally vertical wall section 120, shown inwardly offset from the front panel 106 of the oven door 26, which extends upwardly from door framing means and includes a generally channel shaped top open grille frame member 122 which is secured to the inturned flange 124 of the wall section 120 by suitable means such as screws (not shown). It will be noted that the front wall or face 126 of the open grille top frame member 122 is coplanar with wall 120 and thus offset inwardly from the plane of the oven door front panel 106. The wall 126 includes an outwardly deformed flange and an inwardly deformed return flange providing at the lower edge of the frame member a horizontally extending baffle extension or foot member 128, which extends outwardly a defined distance to lie approximately in the plane of the door panel 106. The foot member 128 functions to divert high temperature cooking vapors emitted from the oven when the door is opened so that they are diverted upwardly past the air intake ports or slotted openings 129, provided in face 126 of the grille member 122, and the wall 120 to prevent the overheating thereof.

FIG. 7 shows a modified valve or damper top frame member in the form of an inlet air valve assembly located rearwardly of the outer frame grille member 122 comprising an elongated angle valve member 132, preferably formed at an obtuse angle of about 110°, hinged to L-shaped top inner frame member 134 by resilient means. The FIG. 7 embodiment of the invention discloses an acute angled leaf spring hinge 136 having its vertical spring leg 138 affixed to the vertically extending flange 140 of frame member 134 by suitable means such as by rivets 142. Spring leg 144 of the leaf spring 136, which in its unsprung biased or released position forms an acute angle of about 70° with spring leg 138, is affixed to base leg 146 of the angle valve member 132 by means of an integral stem rivet 148 formed on the upper end of a camming pin 150. An elongated longitudinal slot 151 is provided in horizontally extending valve plate 152 of frame member 134 for the reception of the free end of pin 150.

It will be seen that the leaf spring 136 is operative to bias the angle valve 132 in an upward clockwise direction to a closed position with valve leg 154 in its dashed line seated position contacting range wall 120 inturned flange 124 when the oven door 26 is in its partially opened position during a broiling operation. With the oven door open the camming action of the door inner panel 76 is removed from the pins 150 causing the leaf spring 136 to return to its acute angle dashed-line biased position shown in FIG. 7 with angle valve 132 closing inlet air passage 160 thus preventing cooking fumes from entering the cooktop passageway 30. With the door 26 closed ping 150 are cammed in a counter-clockwise direction to their solid-line vertical position by door panel 76 causing valve base leg 146 to seat in a horizontally disposed manner flush with valve plate 152. Thus, the valve leg 154 is positioned in spaced relation with flange 124 allowing room air to be drawn into the cooktop passageway 30 during a heat cleaning operation with the fan 80 energized whereby the cooling air is exhausted via grille 23 in the same manner as that described for the embodiment of FIGS. 1–6.

It should be noted that the range cover plate 12 is fixedly retained in place by being sealed to the underside return flanges 170 of peripheral collar 14 by suitable heat resistant cementing material. Also, burner box supporting clips 172, having pressure screws 173, are provided to engage the underside of the burner box outwardly directed front and rear flanges 174 and the hooked end of downwardly directed cooktop trim flanges 176.

While the embodiment of the present invention as herein disclosed constitutes a preferred form, it is to be understood that other forms might be adopted.

We claim:

1. A cooking range adapted for installation in a space provided therefor in a counter having a horizontal working surface, comprising an outer casing for said range adapted to be secured in said space, air sealed cooktop means forming the top cooking surface of the casing, an electrical heating element and support means for said heating element, said support means received below said cooktop means, a heat-cleaning oven cabinet supported in spaced relation in said casing beneath said cooktop, said oven including a liner having walls defining an oven cavity open at the front, an air flow passagedisposed generally between said heating element support means and said oven cabinet upper wall, said casing including top and side door frame members at the front of the oven cabinet, a door for closing said oven compartment, a splash panel extend-

ing across the rear of said cooktop having exhaust vent means therein, a vertically disposed plenum duct having a lower intake opening in communication with the rearward end of said air flow passage, said duct having an upper outlet opening in communication with said exhaust vent means, power driven exhaust fan means disposed within said duct lower intake opening, air inlet means in said door top frame member placing said air flow passage in communication with the atmosphere, said inlet means being provided with valve means resiliently biased closed when said door is opened, and means associated with said valve means engageable by said door upon shutting same to maintain said inlet means open, whereby upon ititiation of the oven heat-cleaning operation the fan means is energized to draw cooling ambient air through said inlet means into said flow passage for exhausting the air to the atmosphere through said duct and said splash panel exhaust vent means.

2. A cooking range adapted for installation in a space provided therefor in a counter having a horizontal working surface, comprising an outer casing for said range adapted to be secured in said space, sealed cooktop plate means forming the top cooking surface of the casing, an electrical heating element and a support box for said heating element, said support box having side walls and a bottom wall received below said cooktop plate means, a heat-cleaning oven cabinet supported in spaced relation in said casing beneath said support box, said oven including a liner having walls defining an oven cavity open at the front, an air flow passage disposed generally between said support box bottom wall and said oven cabinet upper wall, said casing including door top and side frame means at the front of the oven cabinet, a door for closing said oven compartment, said top frame means including a generally vertical wall section having an inwardly deformed flange defining, with the top edge of said closed door, an outer gap; a splash panel extending across the rear of said cooking surface having exhaust vent means therein, a vertically disposed plenum duct having a lower duct intake opening in communication with the rearward end of said air flow passage, said duct having an upper outlet opening in communication with said exhaust vent means, a power driven exhaust fan disposed within said duct lower intake opening, said gap defining flange deformed upwardly to provide an inner recess of appreciable depth so as to receive a horizontally disposed inner ported valve plate in said recess, said valve plate ports being provided with a hinged valve which is spring biased closed when said door is opened, means associated with said valve engageable by said door upon shutting same to maintain said ports open, whereby upon initiation of the heat-cleaning operation of said oven said fan is energized to draw cooling ambient air through said outer gap, said inner recess, and said ports into said flow passage for exhausting the air to the atmosphere via said duct and said exhaust vent means in said splash panel; and said hinged valve automatically closing said ports in response to opening said door to prevent the movement of cooking vapors from the oven cavity through said ports and into said flow passage.

3. A cooking range adapted for installation in a space provided therefor in a counter having a horizontal working surface, comprising an outer casing for said range adapted to be secured in said space, a sealed continuous glass-ceramic plate forming the top cooking surface of the casing, an electrical heating element and a support box for said heating element, said support box having side walls and a bottom wall received below glass-ceramic plate, a heat-cleaning oven cabinet supported in spaced relation in said casing beneath said support box, said oven including a liner having walls defining an oven cavity open at the front, an air flow chamber disposed generally between said support box bottom wall and said oven cabinet upper wall, said casing including door top frame means and side frame members at the front of the oven cabinet, a door for closing said oven compartment, said top frame means including a generally vertical wall section having an inwardly deformed flange defining, with the top edge of said closed door, an outer gap; a splash panel extending across the rear of said cooking surface having exhaust vent means therein, a vertically disposed plenum duct having a lower duct intake opening in communication with the rearward end of said air flow chamber, said duct having an upper outlet opening in communication with said exhaust vent means, a power driven exhaust fan disposed within said duct lower intake opening, said gap defining flange deformed upwardly to provide an inner recess of appreciable depth having a horizontally disposed inner double-leaf hinge valve assembly in said recess, said valve assembly including an L-section lower leaf having a plurality of inlet air ports in its horizontal plate portion, said valve plate ports being provided with an upper leaf hinged valve which is spring biased closed when said door is opened, vertical pins depending from said valve through longitudinal slots in said lower leaf plate portion engageable by said door upon shutting same for movement in said slots to an inwardly canted position so as to maintain said ports open, whereby upon initiation of the heat-cleaning operation of said oven said fan is energized to draw cooling ambient air through said outer gap, said inner recess, and said ports into said flow chamber for exhausting the air to the atmosphere via said duct and said exhaust vent means in said splash panel; and said spring biased upper leaf hinged valve pivoting in a clockwise direction to seat on said lower hinge closing said ports and said pins returning to their vertical position upon opening said door to prevent the movement of cooking vapors from the oven cavity through said ports and into said flow passage.

4. A cooking range adapted for installation in a space provided therefor in a counter having a horizontal working surface, comprising an outer casing for said range adapted to be secured in said space, sealed glass-ceramic plate means forming the top cooking surface of the casing, an electrical heating element and a support box for said heating element, said support box having side walls and a bottom wall received below said glass-ceramic plate means, a heat-cleaning oven cabinet supported in spaced relation in said casing beneath said support box, said oven including a liner having walls defining an oven cavity open at the front, an air flow passage disposed generally between said support box bottom wall and said oven cabinet upper wall, said casing including door top and side frame means at the front of the oven cabinet, a door for closing said oven compartment, said top frame means including an outer channel member having a generally vertical wall with air inlet ports therein, said channel wall including an outwardly deformed flange and an inwardly deformed

return flange defining an air deflection foot portion; a splash panel extending across the rear of said cooking surface having exhaust vent means therein, a vertically disposed plenum duct having a lower duct intake opening in communication with the rearward end of said air flow passage, said duct having an upper outlet opening in communication with said exhaust vent means, a power driven exhaust fan disposed within said duct lower intake opening, said top frame means including an inner horizontally disposed valve plate frame member having an angle sectioned valve member pivoted by a leaf spring hinge thereto, said leaf spring biasing said angle sectioned valve member in an upper seated position when said door is opened blocking the flow of ambient air into said air flow passage, means associated with said valve member engageable by said door upon shutting same to maintain said valve member in its lower position permitting the flow of air through said ports into said airflow passage, whereby upon initiation of the heat-cleaning operation of said oven said fan is energized to draw cooling ambient air through said ports into said flow chamber for exhausting the air to the atmosphere via said duct and said exhaust vent means in said splash panel; and said hinged valve member automatically moving to its seated biased position in response to opening said door thereby preventing the flow of cooking vapors from the oven cavity into said flow passage.

5. A cooking range adapted for installation in a sapce provided therefor in a counter having a horizontal working surface, comprising an outer casing for said range adapted to be secured in said space, a sealed glass-ceramic continuous plate forming the top cooking surface of the casing, an electrical heating element and a support box for said heating element, said support box having side walls and a bottom wall received below said glass-ceramic plate means, a heat-cleaning oven cabinet supported in spaced relation in said casing beneath said support box, said oven including a liner having walls defining an oven cavity open at the front, an air flow passage disposed generally between said support box bottom wall and said oven cabinet upper wall, said casing including door top and side frame means at the front of the oven cabinet, a door for closing said oven compartment, said top frame means including an outer channel member having a generally vertical wall with air inlet ports therein, said channel wall including an outwardly deformed flange and an inwardly deformed return flange defining an air deflection foot portion; a splash panel extending across the rear of said cooking surface having exhaust vent means therein, a vertically disposed plenum duct having a lower duct intake opening in communication with the rearward end of said air flow passage, said duct having an upper outlet opening in communication with said exhaust vent means, a power driven exhaust fan disposed within said duct lower intake opening, said top frame means including an inner horizontally disposed valve plate frame member having an obtuse angle sectioned valve member having a base leg for flush contact with said valve plate frame member and an upwardly extending valve leg, said valve member pivoted by means of its base leg to a coextensive acute angled leaf spring hinge, said leaf spring biasing said angle sectioned valve member in an upper position with the free edge of its valve leg seated on said frame means when said door is opened blocking the flow of ambient air into said air flow passage, outwardly canted pins depending from said base leg through longitudinal slots in said valve plates engageable by said door upon shutting same for movement in said slots to a vertical position so as to maintain said valve base leg in flush contact with said valve plate permitting the flow of air through said ports into said airflow passage, whereby upon initiation of the heat-cleaning operation of said oven said fan is energized to draw cooling ambient air through said ports into said flow chamber for exhausting the air to the atmosphere via said duct and said exhaust vent means in said splash panel; and siad hinged valve member automatically moving to its seated resiliently biased position in response to opening said door thereby preventing the flow of cooking vapors from the oven cavity into said flow passage.

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