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(54) **COOKTOP**

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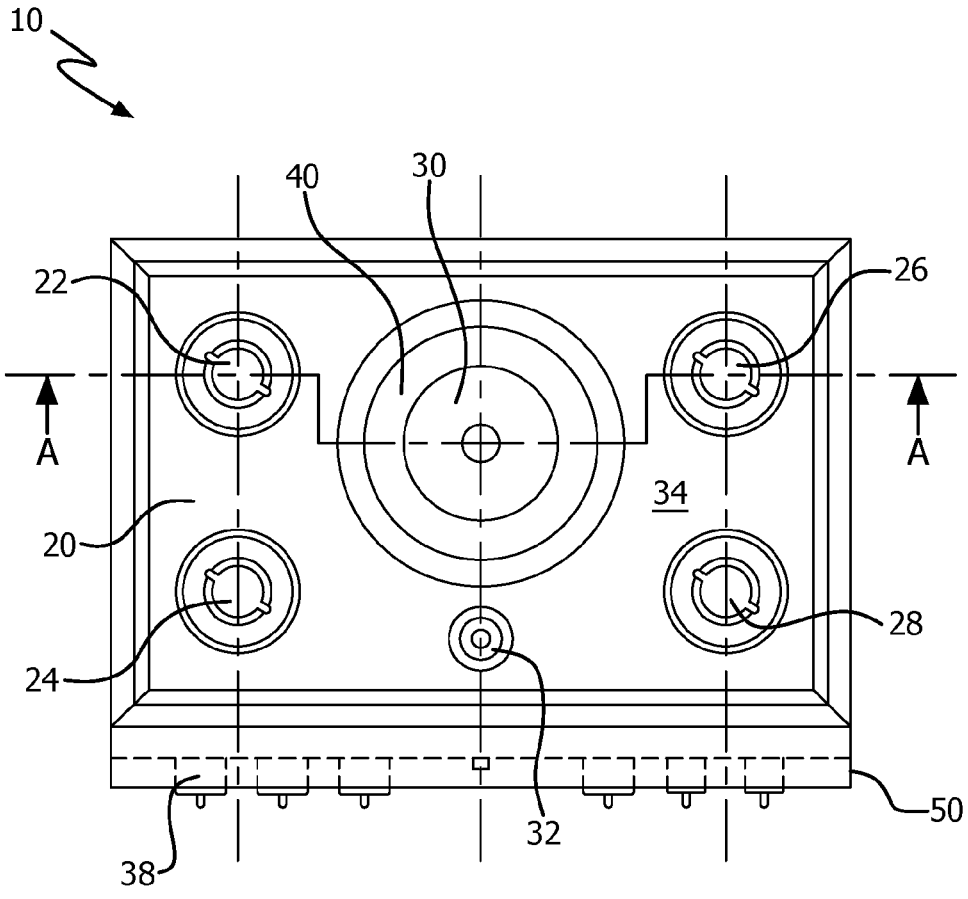
(57) **ABSTRACT**

A six-burner cooktop has front and rear heat sources on a left side, front and rear heat sources on a right side, and front and rear heat sources in a middle between the left side and the right side. A maximum power output of the rear middle heat source is greater than maximum power outputs of the left side and right side heat sources, and a maximum power output of the front middle heat source is less than the maximum power outputs of the left side and right side heat sources.



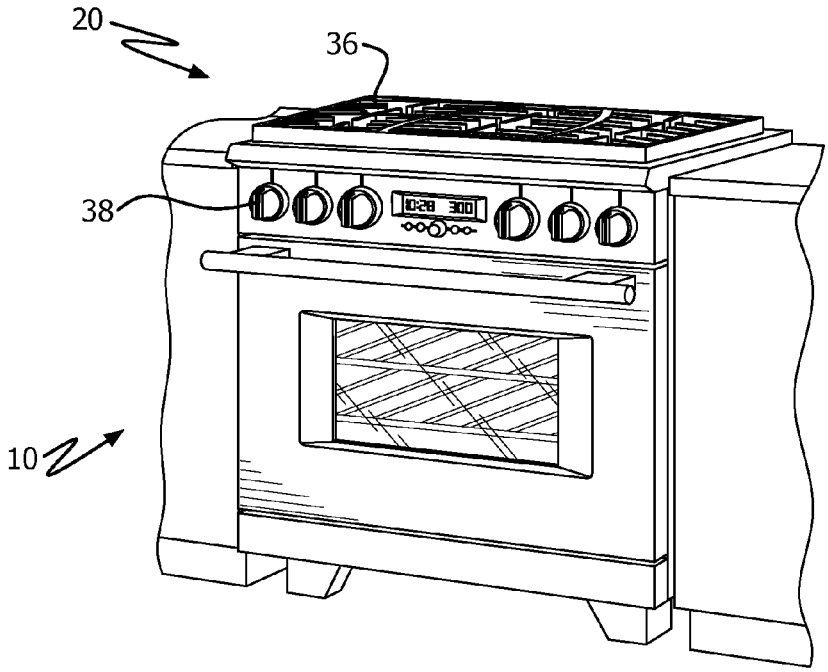


FIG. 1

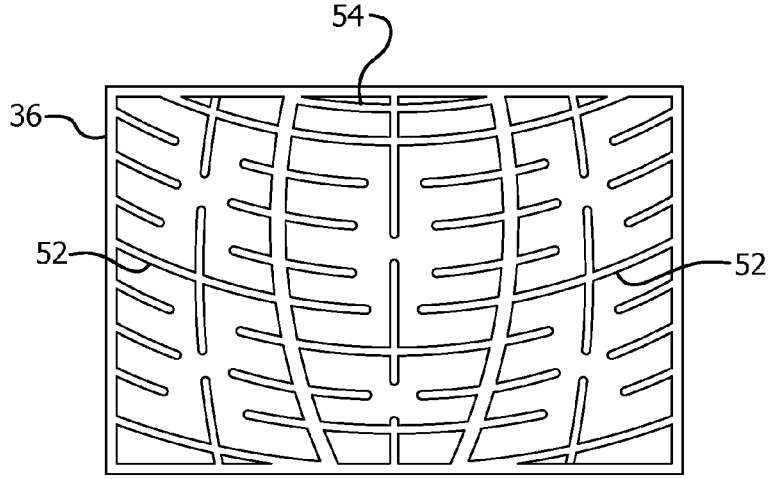


FIG. 4

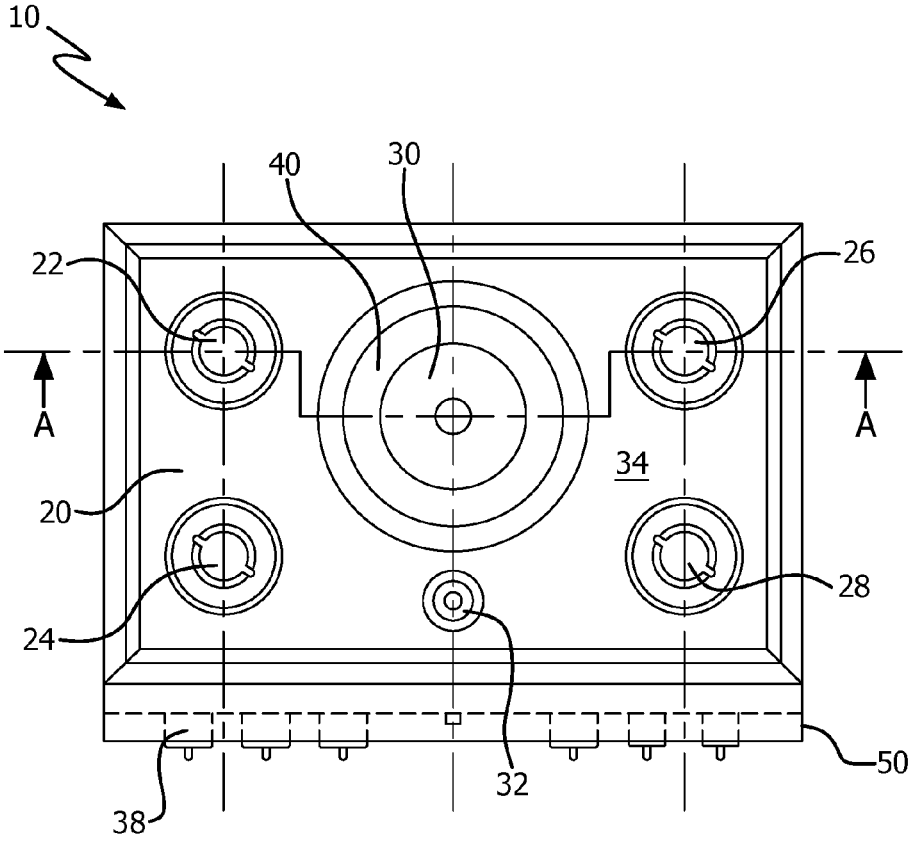


FIG. 2

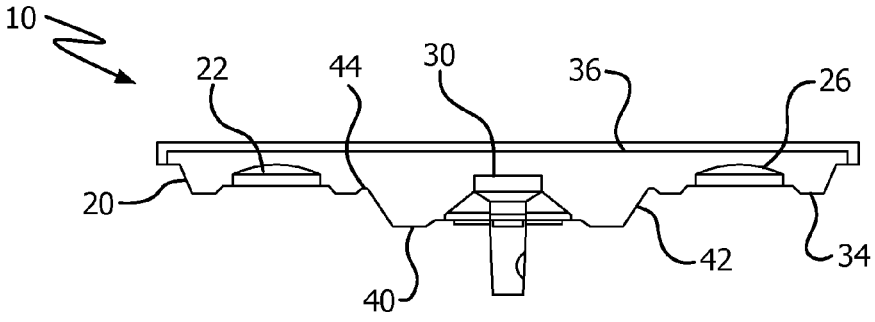


FIG. 3

COOKTOP

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims benefit of U.S. Provisional Patent Application No. 62/305,667, filed on Mar. 9, 2016, the disclosure of which is incorporated herein by reference in its entirety.

FIELD OF THE INVENTION

[0002] The invention relates to cooktops, especially for stoves, kitchen ranges, and the like.

BACKGROUND

[0003] A cooktop, either freestanding or as part of a stove or kitchen range, has one or more heat sources on which a cooking pot or other utensil can be placed to heat or cook food or other substances. The heat sources may be burners that generate heat by the combustion of flammable gas or vapor, or may generate heat in some other way, for example, by electrical resistance or induction heating. All such heat sources are commonly referred to as "burners" and, in the interests of conciseness, may be referred to as such throughout this document.

[0004] Cooktops have been proposed with more than one heat source of different sizes and/or maximum power outputs, to allow for efficient heating of pots of different sizes and shapes, and/or of foods requiring different temperatures. However, there is still room for improvement.

SUMMARY

[0005] According to one aspect, there is provided a six-heat-source cooktop with front and rear heat sources on a left side, front and rear heat sources on a right side, and front and rear heat sources in a middle between the left side and the right side, wherein a maximum power output of the rear middle heat source is greater than maximum power outputs of the left side and right side heat sources, and a maximum power output of the front middle heat source is less than the maximum power outputs of the left side and right side heat sources.

[0006] The cooktop may be provided with controls for some or all of the six heat sources at a front of the cooktop.

[0007] Centers of the front and rear left side heat sources and the front and rear right side heat sources may be positioned at corners of a rectangle. Specifically, the rear left and right side heat sources preferably lie along the same horizontal axis (running from side to side) and the front left and right side heat sources preferably lie along the same horizontal axis (which is parallel to the rear horizontal axis). Also the left front and rear side heat sources preferably lie along the same horizontal axis (running from front to rear) and the right front and rear side heat sources preferably lie along the same horizontal axis (which is parallel to the left side horizontal axis). A center of the front middle heat source is preferably positioned forward of the centers of the front left and front right heat sources. A center of the rear middle heat source is preferably positioned forward of the centers of the rear left and rear right heat sources.

[0008] In an embodiment, the front and rear left side heat sources and the front and rear right side heat sources may each have a maximum power output of from about 15,500 to about 20,000 BTU/hr., preferably about 18,000 BTU/hr., which may include a simmer ring with a maximum power output of about 1,000 BTU/hr., the middle rear heat source may have a maximum power output of about 30,000 BTU to about 33,000 BTU/hr., and the middle front heat source may have a maximum power output from about 2,500 BTU/hr. to about 4,500 BTU/hr., preferably about 3,000 BTU/hr.

[0009] The middle rear heat source may be in a well recessed below a general surface of the cooktop on which other ones of the heat sources are placed. The well may then be surrounded by a raised ridge, to obstruct any tendency of liquid spilled onto the general surface to flow into the well.

[0010] Embodiments of the present burner pan design and burner layout provide sufficient fresh air intake for all the burners, including the large middle rear burner and extra small middle front burner to provide good combustion within limits needed to pass certifications for emissions and energy efficiency.

[0011] Other aspects include cooking stoves and kitchen ranges including any of the above-mentioned cooktops.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The above and other aspects, features and advantages of the present invention will be apparent from the following more particular description thereof, presented in conjunction with the following drawings wherein:

[0013] FIG. **1** is a view of a kitchen stove.

[0014] FIG. **2** is a top plan view of a cooktop of the stove of FIG. **1**.

[0015] FIG. **3** is a cross section along the line A-A of FIG. **2**.

[0016] FIG. **4** is a plan view of a grate for the cooktop of FIG. **2**.

DETAILED DESCRIPTION

[0017] A better understanding of various features and advantages of the present invention will be obtained by reference to the following detailed description of embodiments the invention and accompanying drawings, which set forth illustrative embodiments that utilize particular principles of the invention.

[0018] Referring to the accompanying drawings, one form of kitchen stove, indicated generally by the reference numeral **10**, comprises a cooktop **20**. The cooktop **20** is provided with six burners, a left rear burner **22**, a left front burner **24**, a right rear burner **26**, a right front burner **28**, a middle rear burner **30**, and a middle front burner **32**. In the embodiment, the burners are gas burners, generating heat by the combustion of a mixture of flammable gas or vapor with air. The burners **22**, **24**, **26**, **28**, and **32** are mounted on a general surface **34** of the cooktop **20**, which is substantially flat and level, below a grate **36** on which pots, pans, and other utensils can be placed over the burners. The middle rear burner **30** is larger than the other burners and, as will be described in more detail below, is preferably mounted in a well **40**, below the level of the general surface **34**, so that its top is at the correct level relative to the grate **36**.

[0019] Controls **38** are provided, preferably at a front side of the cooktop **20**. In FIG. **2**, the controls **38** are in a front panel of the stove immediately below the front edge of the cooktop **20**. Alternatively, some or all of the controls may be positioned in or on the cooktop itself or elsewhere. The controls **38** typically include a rotary knob for each burner **22**, **24**, **26**, **28**, **30**, **32** to turn the respective burner on or off

and to adjust the amount of heat produced when the burner is on. The controls **38** may also include one or more controls for an oven or other parts of the stove **10**.

[0020] As best seen in FIG. **3**, the well **40** containing the middle rear burner **30** has a sloped outer surface **42** surrounded by a raised ridge **44** separating the well **40** from the general surface **34** of the cooktop **20**. The raised ridge **44** serves to obstruct any liquid that is spilt on the general surface **34** from flowing into the well **40**. Provided that function is adequately carried out, the exact shape of the sloped surface **42** and the ridge **44** are not very critical, and may be chosen largely for esthetic appearance and easy cleaning.

[0021] As best seen in FIG. **2**, the space occupied by the well **40** round the rear middle burner **30** is considerably larger than the space occupied by any of the other burners. For efficient use of the available area of the cooktop **20**, the center of the rear middle burner **30** is offset forwards relative to the centers of the left and right rear burners **22**, **26**, but not as far forward as the midpoint between the left and right rear burners **22**, **26** and the left and right front burners **24**, **28**.

[0022] The middle front burner **32** is smaller than the left and right burners **22**, **24**, **26**, **28** and is offset forwards relative to the left and right front burners **24**, **28**, to fit into the space remaining on the cooktop **20** in front of the well **40**.

[0023] In use, a large cookpot requiring a large amount of heat, or requiring heating over a large bottom area, may be placed on the middle rear burner **30**, pots or pans of moderate size may be placed on the left and right burners **22**, **24**, **26**, **28**, and an additional small pot, for example, for preparing a sauce or for warming, may be placed on the middle front burner **32**.

[0024] As an example of suitable dimensions, the cooktop **20** may be about 33 inches (850 mm) wide and about 22 inches (550 mm) from front to back. The top of the stove **10** may extend forwards a further 4 inches (100 mm) beyond the front edge of the cooktop, with about half of that forming a bullnose overhang **50**, protecting the controls **38**. The exact size may be determined by standard kitchen design modules, which may vary from country to country. The left and right burners **22**, **24**, **26**, **28** may be about 5 inches (125 mm) in diameter with their centers about 6 inches (150 mm) from the edges of the cooktop **20**. The middle rear burner **30** may be about 7 inches (175 mm) in diameter, with its center about 9.5 inches (240 mm) from the rear edge of the cooktop, and the well **40** may be about 13 inches (325 mm) in diameter across the ridge **44**. The small front middle burner **32** may be about 2 ¾ inches (70 mm) in diameter, with its center about 4 inches (100 mm) from the front edge of the cooktop **20**.

[0025] The left and right burners **22**, **24**, **26**, **28** may have a maximum power output of around 18,000 BTU/hr. (5.25 kW). Any or all of those burners may have an integrated simmer ring, with a maximum power output of around 1,000 BTU/hr. (300 W). The 18,000 BTU/hr. maximum output then typically includes both the main burner and the simmer ring. The large middle rear burner **30** may have a maximum power output of around 30,000 BTU/hr (8.8 kW). The small front middle burner **32** may have a maximum power output of around 3,000 BTU/hr (880 W).

[0026] Referring now also to FIG. **4**, the grate **36** may be of cast iron or another suitable material. As shown in FIG. **4**, the grate **36** comprises two outer panels **52** and a middle panel **54**. The outer panels **52** each span and support pots or pans over the left burners **22**, **24** or the right burners **26**, **28**, respectively. The middle panel **54** spans and supports pots or pans over the middle burners **30**, **32**. As may be seen by comparing FIGS. **2** and **4**, the middle grate panel **54** is wider at the back and narrower at the front, corresponding to the different sizes of the burners. The middle grate panel **54** is arranged to be lifted off, without disturbing the outer panels **52**. The middle grate panel **54** may then be replaced with another drop in section of the same dimensions, for example, a French Plate, Wok Ring, or Griddle Plate. Alternatively, a Wok Ring may be provided that seats over middle rear burner **30** on top of grate middle panel **54**.

[0027] In the grate **36** shown in FIG. **4**, the frame bars that separate the middle panel **54** from the outer panels **52** are curved, convex away from the middle panel **54**. The shape both serves the function of visually dividing the cooktop into areas corresponding generally to the unequal sizes of the six burners, and is esthetically pleasing. Each panel **52**, **54** has a bar extending from front to back, aligned with the centers of the two corresponding burners **22**, **24**, or **26**, **28**, or **30**, **32**. Those front-to-back bars have gaps over the middles of the burners, and are supported by crossbars. The front-to-back bars in the outer panels **52** are curved, so that they each follow a line roughly half way between the outer rim of the grate **36** and the frame bars between the middle panel **54** and the respective outer panel **52**. Crossbars, both those supporting the front-to-back bars and additional crossbars to provide further support for pots and pans, are provided, and in FIG. **4** are curved to lie on generally parallel arcs, convex to the front and symmetrical from side to side.

[0028] The preceding description of a presently contemplated best mode of practicing the invention is not to be taken in a limiting sense, but is made merely for the purpose of describing the general principles of the invention. Variations are possible from the specific embodiments described. For example, the patents and applications cross-referenced above describe systems and methods that may advantageously be combined with the teachings of the present application. Although specific embodiments have been described, the skilled person will understand how features of different embodiments may be combined. The full scope of the invention should be determined with reference to the Claims.

1. A six-heat-source cooktop, comprising:

front and rear heat sources on a left side;

front and rear heat sources on a right side; and

front and rear heat sources in a middle between the left side and the right side;

wherein a maximum power output of the rear middle heat source is greater than maximum power outputs of the left side and right side heat sources, and a maximum power output of the front middle heat source is less than the maximum power outputs of the left side and right side heat sources.

2. The cooktop according to claim **1**, further comprising controls for sonic or all of the six heat sources at a front of the cooktop.

3. The cooktop according to claim **1**, wherein centers of the front and rear left side heat sources and the front and rear right side heat sources are positioned at corners of a rectangle.

4. The cooktop according to claim **3**, wherein a center of the front middle heat source is positioned forward of the centers of the front left and front right heat sources.

5. The cooktop according to claim **3**, wherein a center of the rear middle heat source is positioned forward of the centers of the rear left and rear right heat sources.

6. The cooktop according to claim **1**, wherein the front and rear left side heat sources and the front and rear right side heat sources each have a maximum power output in the range of from about 15,500 to about 20,000 BTU/hr., the middle rear heat source has a maximum power output in the range of from about 30,000 to about 33,000 BTU/hr., and the middle front heat source has a maximum power output in the range of from about 2,500 to about 4,000 BTU/hr.

7. The cooktop according to claim **1**, wherein the middle rear heat source is in a well recessed below a general surface of the cooktop on which other ones of the heat sources are placed.

8. The cooktop according to claim **7**, wherein the well is surrounded by a raised ridge,

9. A stove comprising a cooktop according to claim **1**.

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