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(54) A GAS HOB WITH A PAN SUPPORT

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PLAQUE DE CUISSON AU GAZ DOTÉE D'UN SUPPORT DE PANNEAU

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Description

TECHNICAL FIELD

[0001] The present invention relates to gas hobs in which a pan support surrounding the burners are disposed on hob plate to support the cooking pans.

PRIOR ART

[0002] In gas hobs, gas burners are disposed on a hob plate at a distance from each other. Each burner is fed with combustible gas by means of an underlying gas injector and mixes the ambient air with the combustible gas and a flame crown extends radially outwardly manner to heat the cooking pans above. The pan support is used to align and elevate the cooking pans above each burner. The pan support generally comprises a metal frame and support arms extending from the frame to each burner. The pan support can be one-piece or multi-pieced. If the support arms of the pan support intersect with the flame crowns, they decrease the combustion efficiency and increase the emission values. In the types of pan support that are used in high-power gas burners the asymmetric hobs, the arms of the grates placed on the horizontal burners are aligned to each other. Due to the high power, the resulting flame in such burners hit the arm of the side grate leading an increase in emission. In current products, grate arms are arranged in the same plane and therefore emission problem can be solved.

[0003] EP1447624 discloses a grate system for a gas cooking appliance wherein the gas cooking appliance has a top panel having at least one burner extending up through the top panel. The grate system includes a grate element and a removable support ring supported on the grate element. The support ring includes a plurality of support posts extending outwardly from one side of the support ring. Another grate system for a gas hob is known from a Boretti user manual wherein the gas hob has the type number BKW601.

BRIEF DESCRIPTION OF THE INVENTION

[0004] The object of the invention is to reduce the negative influence of the pan support on cooking performance in gas hobs with a wok burner.

[0005] To achieve the aforementioned objective a gas hob is comprising a top plate; a first grate supported by the top plate such that surrounding vertically aligned a first burner and a wok burner having a first distance between the centers, respectively and a second grate provided on the top plate side-by-side to the first grate surrounding a second burner horizontally aligned with the first burner and a third burner having a second distance between the centers which is smaller than the first distance aligned vertically therewith. A lower support arm extending from the second grate to the radial center of the third burner and intermediate arm distance between a first support arm extending from first grate to the wok burner on the same horizontal axis with the lower support arm and a second support arm disposed below and parallel to the first support arm at a predetermined intermediate arm distance which is given by the formula:

$$x = 2\,(a - b)$$

[0006] At least double, particularly double the value of the difference between the distance of the first support arm and the second support arm facing towards the wok burner provides both sufficient distance to balance a pol between the first and the second support arm and minimize the contact of the first grate on the wok burner with first and second support arm against the flame to reduce influence on burning and improve emission values. As the first distance is shorter than the second distance, the burner pairs are located asymmetrically in the first grate and the second grate. So the wok burner is set below comparing to the third burner. This allows more space for the cooking pan to be reserved around the wok burner in the hob plate.

[0007] A preferred embodiment of the invention, the upper support arm extends transversely at the same axis towards the radial center of the first burner and the second burner in the first grate and the second grate. Thus, the first and the second grate have a cooking pan carrier support arms for all burners (wok, first, second and third) together. There is no need for an additional grate. In a possible embodiment, the first and second grates can be united and integral along adjacent edges, or in the preferred embodiment, they are in two-piece structure, which can be lifted off the hob plate separately.

[0008] A preferred embodiment of the invention, the second grate is arranged shorter than the first grate in transverse direction such that confining a control zone to provide at least one adjustment knob in a row from above and the first grate is having a chamfer facing the control zone in a lower extension adjacent to the lower edge. In this case, the control area is positioned in the area below the second grate, where the wok burner is not located and is therefore shorter. This

provides an ergonomic use that the user can access all the gas adjustment buttons in the hob plate area under the second grate. In a possible embodiment, the first grate and the second grate are top-aligned to the top sheet, that is, the hob plate, thereby ensuring that the maximum possible area under the second grate is reserved for the gas control knobs.

[0009] A preferred embodiment of the invention, the lower support arm is having an arm pair extending from opposite corresponding sides to the third burner in an outer frame of the second grate and is aligned in the same direction with the first support arm. The lower support arm extends in the form of a pair of arms, distributing the weight of the cooking pan to the outer grate. Since, the lower support arm and the first support arm are in the same plane, fall to a gap or changing the direction which causes vibration is prevented when the pot is slide from second grate to the first grate.

[0010] In a preferred embodiment of the invention, the first support arm and the second support arm (26) are comprising an arm pair arranged from opposite sides of the first grate to the wok burner from the outer frame. Thus, heavier cooking pans, for example wok pans or griddles, carried from opposite ends with double support arms extending from both directions, can be conveniently positioned on the wok burner.

[0011] In a preferred embodiment of the invention the pairs of the first and the second support arms are adjusted in parallel to each other. The parallel position of the arm pair makes the weight distribution in the first grate equal when centering on the wok burner.

[0012] A preferred embodiment of the invention, a bridge part splits the outer frame from its corresponding edges leaving the first burner on the one side and the wok burner on the other side. The bridge part provide outer frame to split each one of the burner from each other so that additional vertical or angled extensions through the burner to be supported and also allow a user to easly grip the first grate from its weight center and allow removal or installation.

[0013] In a preferred embodiment of the invention the bridge part is formed with a plus-like form extending to the corresponding first burner and wok burner. This form creates support extensions from above to the wok burner and from below to the first burner, increasing the structural strength of the grate.

[0014] In a preferred embodiment of the invention the first and second support arms are fixed by a weld seam to a side extension of the first grate. The weld seam allows to obtain a rigid grate that is both resistant to thermal stress caused by the strong flame from the wok burner and which causes minimal deformation.

[0015] In a preferred embodiment of the invention the first grate and the second grate are located adjacent to each other along a vertical line and can be removed separately to the hob plate. The user can disassemble the two pieces separately without having to carry the complete grate weight and access the hob plate, for example for cleaning.

BRIEF DESCRIPTIONS OF THE FIGURES

[0016]

Figure 1 is a top view of representative embodiment of the gas hob of the invention with a two-part grate.

Figure 2 is a top view of the gas hob in Figure 1 with the burner distance given.

DETAILED DESCRIPTION OF THE INVENTION

[0017] In this detailed description, the intentive subject matter has been described with reference for examples, such that there is no restriction and only to better describe the subject matter.

[0018] In Figure 1, a four-chamber gas hob (10) with a wok burner (40) is shown from the top. The rectangular gas burner (10) with a width of 60 cm has a planar hob plate (12). A first grate (20) and an adjacent second grate (30) to the first grate (20) are located on the hob plate (12) side by side. The first grate (20) has a rectangular outer frame (21) of metal profile. The outer frame's (21) width is equal to half of the hob plate's (12) width. On the other hand, the length of the first grate (20) is approximately close to the width of the hob plate (12). The area surrounded by the first grate (20) is divided into two by a bridge part (24) that has corresponding ends. One of the ends extends towards the side extension (23) and the other end towards the corresponding side extension. In the upper zone (11) which is limited by the bridge part (24), a first burner (50) and in the lower zone (13), the wok burner (40) is located. The wok burner (40) and the first burner (50) are located in the middle of the respective areas. Four upper support arms (22), one from each side surrounding the upper zone (11), are connected by a weld seam to a corresponding side extension (23) from each close end. Each upper support arm (22) is in a L-like form and extends above the hob plate (12). Each upper support arm (22) extends from its distal end to the radial center of the first burner (50). The upper support arm (22) forms a cross-like form with an opposite directional extension in the middle of the bridge part (24). In the lower zone (13), there is a first support arm (25) and a parallel second support arm (26) extending to the wok burner (40), spaced apart from each other by a predetermined arm intermediate distance (x). The first support arm (25) and the second support arm (26) are provided as both mutually symmetrical arm pairs in both the side extension (23) and the opposite side extension. A planar lower

extension (28) of the outer frame (21) extends starting from the corner of the hob plate (12) and joins with a chamfer (27) forming a chamfer in the opposite corner. Together with the chamfer (27), the first grate (20) receives an expanded upright trapezoid form.

[0019] The second grate (30) has a rectangular outer frame (31) extending transversely in the hob plate (12). The outer frame (31) of the second grate (30) extends from the top adjacent to the hob plate (12). An intermediate extension (34) extending beyond the bridge part (24) divides the area bounded by the second grate (30) into two unequal parts. The upper zone (11) and the upper part where the second burner (60) is located are equal to each other. The lower part is narrower than the lower zone (12) and the upper part. The upper support arm (32) extends perpendicular to the corresponding edges of the outer frame (31) towards the radial center of the second burner (60). The second extension (35) extends from the corresponding lateral edges in the outer frame (31) towards the radial center of the third burner (70). The first grate (20) and the adjacent second grate (30) are asymmetrical. Since the second grate (30) is shorter in the transverse direction, it restricts a control zone (14) remaining in the lower part of the hob plate (12). The control zone (14) is also adjacent to the chamfer (27).

[0020] In Figure 2, the same gas hob (10) dimensions are shown. Since the diameter or the wok burner (40) is greater than the first burner (50), a first distance (a) between the first burner (50) and wok burner (40) at the first grate (20) is also greater than a second distance (b) between a second burner (60) on the same horizontal axis passing through the radial center of the first burner (50) and a third burner (70) having a radial center aligned in the vertical axis.

[0021] The first support arm (25) and the lower support arm (35) are fixed on the corresponding first grate (20) and the second grate (30) on the same horizontal axis. The arm intermediate distance (x) is calculated as twice the difference between the first distance (a) and the second distance (b). In this case, when the first support arm (25) and the second support arm (26) are located as a pair of arms extending from the corresponding outer frame (21), the flames of the wok burner (40) is prevented minimally. Therefore it has been surprisingly found to have lower emission values. In addition, a structural integrity between the first grate (20) and the second grate (30) is provided by locating the first support arm (25) and the lower support arm (35) on the same horizontal axis. For example, it is possible to transfer without falling into space or without shaking by means of carrying without lifting the cooking pan from third burner (70) to the wok burner (40).

[0022] Since the control zone (14) has an area separated from the first grate (20) with the chamfer (27), so that it expands the control zone (14) in addition to the area under the second grate (30). In the middle of the control zone (14), a large number of gas adjustment knobs (15) are arranged successively.

REFERENCE NUMBERS

[0023]

10	Gas hob	30	Second grate
11	Upper Zone	31	Outer frame
12	Hob plate	32	Upper support arm
13	Lower zone	34	Intermediate extension
14	Control zone	35	Lower support arm
15	Gas adjustment knob	40	Wok burner
20	First grate	50	First burner
21	Outer Frame	60	Second burner
22	Upper Support Arm	70	Third burner
23	Side extension	a	First distance
24	Bridge part	b	Second distance
25	First support arm	x	Arm Intermediate distance
26	Second support arm		
27	Chamfer		
28	Lower extension		

Claims

1. A gas hob comprising a top plate (12); a first grate (20) supported by the top plate (12) such that surrounding vertically aligned a first burner (50) and a wok burner (40) having a first distance (a) between the centers, respectively and a second grate (30) provided on the top plate (12) side-by-side to the first grate (20) surrounding a second burner

(60) horizontally aligned with the first burner (50) and a third burner (70) having a second distance (b) between the centers which is smaller than the first distance (a) aligned vertically therewith **characterized by** a lower support arm (35) extending from the second grate (20) to the radial center of the third burner (70) and intermediate arm distance (x) between a first support arm (25) extending from first grate (20) to the wok burner (40) on the same horizontal axis with the lower support arm (35) and a second support arm (26) disposed below and parallel to the first support arm (25) at a predetermined intermediate arm distance (x) which is given by the formula:

$$x = 2\,(a - b)$$

2. A gas hob according to claim 1, wherein an upper support arm (22, 32) extends transversely at the same axis towards the radial center of the first burner (50) and the second burner (60) in the first grate (20) and the second grate (30) respectively.

3. A gas hob according to any one of the preceding claims, wherein the second grate (30) is arranged shorter than the first grate (20) in transverse direction such that confining a control zone (14) to provide at least one adjustment knob (15) in a row from above and the first grate (20) is having a chamfer (27) facing the control zone (14) in a lower extension (28) adjacent to the lower edge.

4. A gas hob according to any one of the preceding claims, wherein the lower support arm (35) is having an arm pair extending from opposite corresponding sides to the third burner (70) in an outer frame (31) of the second grate (30) and is aligned in the same direction with the first support arm (25).

5. A gas hob according to claim 4, wherein the first support arm (25) and the second support arm (26) are comprising an arm pair arranged from opposite sides of the first grate (20) to the wok burner (40) from the outer frame (21).

6. A gas hob according to claim 5, wherein the arm pairs of the first and the second support arms (25, 26) are adjusted in parallel to each other.

7. A gas hob according to claims 4-6, wherein a bridge part (24) splits the outer frame (21) from its corresponding edges leaving the first burner (50) on the one side and the wok burner (40) on the other side.

8. A gas hob according to claim 7, wherein the bridge part (24) is formed with a plus-like form extending to the corresponding first burner (50) and wok burner (40).

9. A gas hob according to any one of the preceding claims, wherein the first and second support arms (25, 26) are fixed by a weld seam to a side extension of the first grate (20).

10. A gas hob according to any one of the preceding claims, wherein the first grate (20) and the second grate (30) are located adjacent to each other along a vertical line and can be removed separately to the hob plate (12).

Patentansprüche

1. Ein Gaskochfeld umfassend eine Oberplatte (12); ein erstes Gitter (20), das von der Oberplatte (12) so gestützt wird, dass es einen ersten Brenner (50) und einen Wokbrenner (40) vertikal ausgerichtet umgibt, wobei zwischen den Mittelpunkten ein erster Abstand (a) besteht, sowie ein zweites Gitter (30), das auf der Oberplatte (12) neben dem ersten Gitter (20) angeordnet ist und einen zweiten Brenner (60) umgibt, der horizontal mit dem ersten Brenner (50) ausgerichtet ist, und einen dritten Brenner (70), der einen zweiten Abstand (b) zwischen den Zentren aufweist, der kleiner als der erste Abstand (a) ist und vertikal damit ausgerichtet ist, **gekennzeichnet durch** einen unteren Stützarm (35), der sich vom zweiten Gitter (20) bis zum radialen Zentrum des dritten Brenners (70) erstreckt, und einen Zwischenarmabstand (x) zwischen einem ersten Stützarm (25), der sich vom ersten Gitter (20) zum Wokbrenner (40) auf derselben horizontalen Achse wie der untere Stützarm (35) erstreckt, und einem zweiten Stützarm (26), der unterhalb und parallel zum ersten Stützarm (25) angeordnet ist mit einem vorbestimmten Zwischenarmabstand (x), der durch die Formel gegeben ist:

$$x = 2\,(a-b)$$

2. Ein Gaskochfeld nach Anspruch 1, wobei ein oberer Stützarm (22, 32) sich quer zur selben Achse zum radialen Zentrum des ersten Brenners (50) und des zweiten Brenners (60) im ersten Gitter (20) und im zweiten Gitter (30) jeweils erstreckt.

3. Ein Gaskochfeld nach einem der vorhergehenden Ansprüche, wobei das zweite Gitter (30) in Querrichtung kürzer angeordnet ist als das erste Gitter (20), so dass eine Steuerzone (14) begrenzt wird, um mindestens einen Einstellknopf (15) in einer Reihe von oben zu ermöglichen, und das erste Gitter (20) weist eine Fase (27) auf, die der Steuerzone (14) in einer unteren Erweiterung (28) nahe dem unteren Rand zugewandt ist.

4. Ein Gaskochfeld nach einem der vorhergehenden Ansprüche, wobei der untere Stützarm (35) ein Armpaar aufweist, das von gegenüberliegenden entsprechenden Seiten zum dritten Brenner (70) in einem äußeren Rahmen (31) des zweiten Gitters (30) erstreckt und in dieselbe Richtung wie der erste Stützarm (25) ausgerichtet ist.

5. Ein Gaskochfeld nach Anspruch 4, wobei der erste Stützarm (25) und der zweite Stützarm (26) ein Armpaar umfassen, das von gegenüberliegenden Seiten des ersten Gitters (20) zum Wokbrenner (40) aus dem äußeren Rahmen (21) angeordnet ist.

6. Ein Gaskochfeld nach Anspruch 5, wobei die Armpaare der ersten und zweiten Stützarme (25, 26) parallel zueinander eingestellt sind.

7. Ein Gaskochfeld nach den Ansprüchen 4 bis 6, wobei ein Brückenteil (24) den äußeren Rahmen (21) von seinen entsprechenden Kanten teilt, wobei der erste Brenner (50) auf der einen Seite und der Wokbrenner (40) auf der anderen Seite verbleiben.

8. Ein Gaskochfeld nach Anspruch 7, wobei das Brückenteil (24) in einer plusartigen Form ausgebildet ist, die sich zum entsprechenden ersten Brenner (50) und Wokbrenner (40) erstreckt.

9. Ein Gaskochfeld nach einem der vorhergehenden Ansprüche, wobei die ersten und zweiten Stützarme (25, 26) durch eine Schweißnaht an einer Seitenerweiterung des ersten Gitters (20) befestigt sind.

10. Ein Gaskochfeld nach einem der vorhergehenden Ansprüche, wobei das erste Gitter (20) und das zweite Gitter (30) entlang einer vertikalen Linie nebeneinander angeordnet sind und separat von der Kochfeldplatte (12) entfernt werden können.

Revendications

1. Une table de cuisson à gaz comprenant une plaque supérieure (12) ; un premier support de grille (20) soutenu par la plaque supérieure (12) de manière à entourer verticalement un premier brûleur (50) et un brûleur wok (40) ayant une première distance (a) entre les centres, respectivement, et un second support de grille (30) disposé sur la plaque supérieure (12) côte à côte avec le premier support de grille (20) entourant un second brûleur (60) aligné horizontalement avec le premier brûleur (50) et un troisième brûleur (70) ayant une seconde distance (b) entre les centres qui est plus petite que la première distance (a) alignée verticalement avec celle-ci, **caractérisée par** un bras de support inférieur (35) s'étendant du second support de grille (20) jusqu'au centre radial du troisième brûleur (70) et une distance intermédiaire de bras (x) entre un premier bras de support (25) s'étendant du premier support de grille (20) au brûleur wok (40) sur le même axe horizontal que le bras de support inférieur (35) et un second bras de support (26) disposé en dessous et parallèle au premier bras de support (25) à une distance intermédiaire de bras prédéterminée (x) qui est donnée par la formule :

$$x = 2\,(a-b)$$

2. Une table de cuisson à gaz selon la revendication 1, dans laquelle un bras de support supérieur (22, 32) s'étend transversalement sur le même axe vers le centre radial du premier brûleur (50) et du deuxième brûleur (60) dans le premier support de grille (20) et le deuxième support de grille (30) respectivement.

3. Une table de cuisson à gaz selon l'une quelconque des revendications précédentes, où le second support de grille (30) est disposé plus court que le premier support de grille (20) dans la direction transversale, de manière à délimiter

une zone de commande (14) pour fournir au moins un bouton de réglage (15) en ligne depuis le haut, et le premier support de grille (20) possède une chamfrein (27) faisant face à la zone de commande (14) dans une extension inférieure (28) adjacente au bord inférieur.

4. Une table de cuisson à gaz selon l'une quelconque des revendications précédentes, dans laquelle le bras de support inférieur (35) comprend une paire de bras s'étendant à partir des côtés correspondants opposés vers le troisième brûleur (70) dans un cadre extérieur (31) du second support de grille (30) et est aligné dans la même direction que le premier bras de support (25).

5. Une table de cuisson à gaz selon la revendication 4, où le premier bras de support (25) et le second bras de support (26) comprennent une paire de bras disposés depuis les côtés opposés du premier support de grille (20) vers le brûleur wok (40) à partir du cadre extérieur (21).

6. Une table de cuisson à gaz selon la revendication 5, dans laquelle les paires de bras des premier et second bras de support (25, 26) sont ajustées parallèlement l'une à l'autre.

7. Une table de cuisson à gaz selon les revendications 4 à 6, dans laquelle une partie pont (24) divise le cadre extérieur (21) à partir de ses bords correspondants, laissant le premier brûleur (50) d'un côté et le brûleur wok (40) de l'autre côté.

8. Une table de cuisson à gaz selon la revendication 7, où la partie pont (24) est formée avec une forme en croix s'étendant vers le premier brûleur correspondant (50) et le brûleur wok (40).

9. Une table de cuisson à gaz selon l'une quelconque des revendications précédentes, où les premiers et seconds bras de support (25, 26) sont fixés par un cordon de soudure à une extension latérale du premier support de grille (20).

10. Une table de cuisson à gaz selon l'une quelconque des revendications précédentes, où le premier support de grille (20) et le second support de grille (30) sont situés adjacents l'un à l'autre le long d'une ligne verticale et peuvent être retirés séparément de la plaque de cuisson (12).

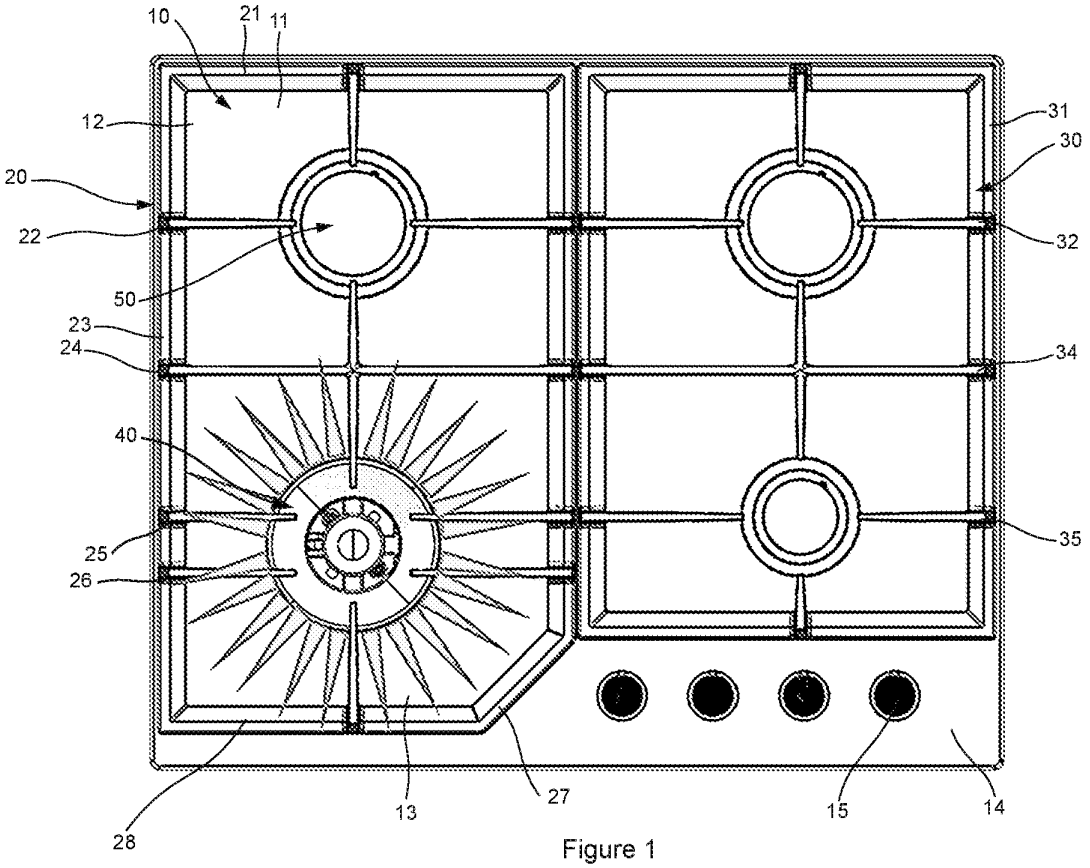

Figure 1

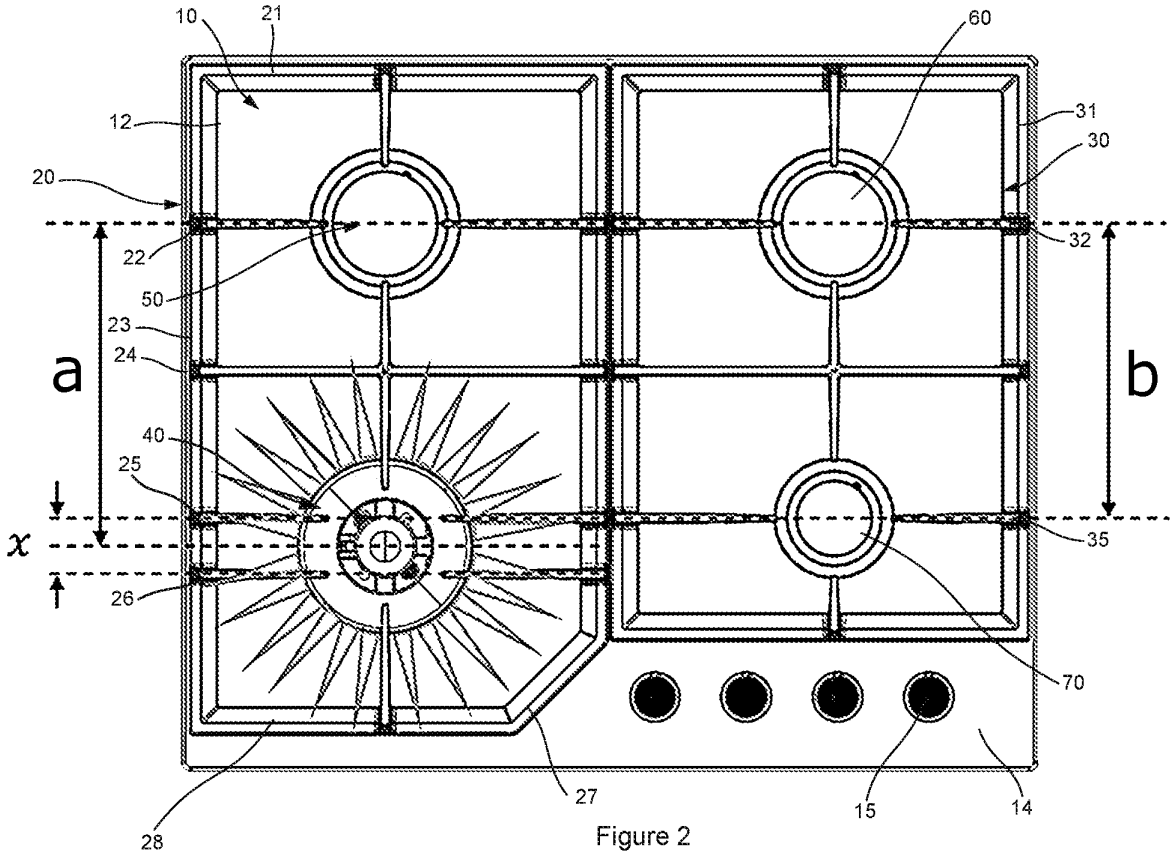

Figure 2

REFERENCES CITED IN THE DESCRIPTION

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