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(71) Applicant: **MAMUR TEKNOLOJI SISTEMLERI SAN. A.S.** [TR/TR]; Selimpasa OSB Merkez Mah. 705. Cad. 5008. Sok. No:11, 34590 Silivri/Istanbul (TR).

(72) Inventors: **GOCER, Mehmet**; Selimpasa OSB Merkez Mah. 705. Cad. 5008. Sok. No:11, 34590 Silivri/Istanbul (TR). **YANIK, Omer**; Selimpasa OSB Merkez Mah. 705. Cad. 5008. Sok. No:11, 34590 Silivri/Istanbul (TR). **KILIC, Turgay**; Selimpasa OSB Merkez Mah. 705. Cad. 5008. Sok. No:11, 34590 Silivri/Istanbul (TR).

(74) Agent: **SOYLU PATENT ANONIM SIRKETI**; Eski Buyukdere Cad. Iz Giz Plaza No:9/78 D:9, Maslak, 34396 Istanbul (TR).

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(54) Title: A GAS HOB WITH ASYMMETRIC BURNER LAYOUT

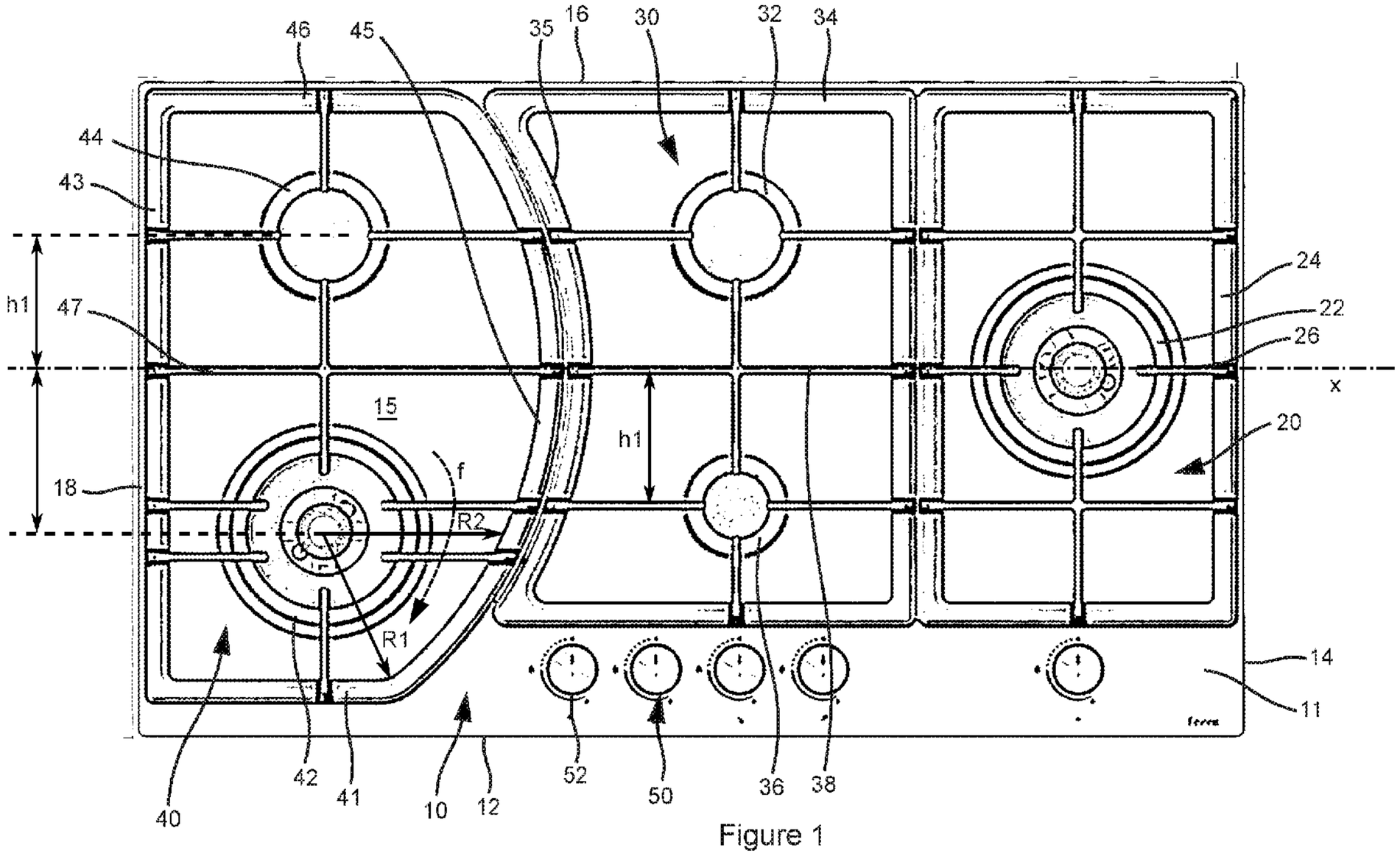


Figure 1

(57) Abstract: The invention relates to a gas hob, comprising a planar top plate (10), a first cooking zone (20) provided at the top plate (10) extend inwardly from one side edge (14) and is equipped with a single first wok burner (22) disposed per se in the center and a second cooking zone (40) extending inward along an opposite side edge (18 having a second burner (42) and a neighboring auxiliary burner (44) located mutually at a distance from each other towards the upper edge (16) and the lower edge (12). The distance between the center of the first wok burner (22) and the center of the second wok burner (42) is adjusted to be longer according to the distance between the center of the auxiliary burner (44) of the gas hob.

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A GAS HOB WITH ASYMMETRIC BURNER LAYOUT

TECHNICAL FIELD

The present invention relates to gas hobs, particularly gas hobs with multiple wok burners.

BACKGROUND OF THE INVENTION

In gas hobs, burners having various power and configuration are arranged on the planar top plate. Each burner provides a gas-air mixture by drawing air from the ambient and generate a surrounding flame crown by igniting the gas-air mixture by means of an ignition unit. The number of burners vary depending on the width of the top plate. For example, a top plate with a width of 90 cm has 6 burners in groups of transverse pairs. Of these burners, those that provide 1-2 KW burning power are classified as low-power burners, and those with 3 KW and above are defined as high-power burners. The high-power burners herein will generally be referred to as wok burners. The wok burner may contain more than one flame crown to provide the desired high burning power. In order to provide a burning power of 3 KW and above during cooking, the wok burners must draw air at high flow rate from the ambient. For this reason, in gas hobs with 4 or more burner in which wok burner is used, the wok burner is used centrally in a cooking zone in order for the vacuum created by the wok burner to draw the necessary air from the ambient, not to affect the burners around it. The cooking zone is to be understood an area where the cookware can be disposed individually or adjacent to each other in each column on the top plate of the gas hob and surrounds it with a single or double burner group and where at least one cooking vessel fits. In a standard hob, this area is the area where a cooking vessel with a diameter of at least 20 cm fits.

WO2013097986A1 discloses a gas hob configuration in which the wok burner is located alone in a medium cooking zone and around which low power auxiliary burners are placed in groups of two. Since the wok burner is located in the middle, it is possible to bring the auxiliary burners closer to the edges and thus to provide an enlarged cooking zone in the middle.

SUMMARY OF THE INVENTION

The aim of the invention is to provide a compact burner layout in gas hobs with more than one wok burners.

In order to achieve the abovementioned object, the invention includes a gas hob, comprising a planar top plate, a first cooking zone provided at the top plate, extend inwardly from one side edge and is equipped with a single first wok burner disposed per se in the center and a second cooking zone extending inward along an opposite side edge and a neighboring auxiliary burner located mutually at a distance from each other towards corresponding upper edge and the lower edge. In the gas hob, the distance between the center of the first wok burner and the center of the second wok burner is set longer according to the distance between the center of the auxiliary burner. The first wok burner, which is disposed alone in the first cooking zone, has an area of sufficient width for a cooking vessel to be placed around it since there is no burner above and below it. On the other hand, by keeping the distance between the first and second wok burner located opposite to each other on the same top plate, higher than the auxiliary burner distance adjacent to the second wok burner, the negative effect of the first and second wok burner drawing air at a higher flow rate from the ambient - compared to the auxiliary burner - is prevented. For example, when the first and second wok burner is disposed in two opposite cooking zones on a top plate between 60-75 cm width, it has been determined that the first wok burner in the first cooking zone and the second wok burner in the second cooking zone and adjacent auxiliary burner does not negatively influence the burning performance. However, due to this prejudice in the technical field, in 60-75 cm wide cooking plates having burner distribution with symmetrical layout, in configurations where the first wok burner is provided in the middle of the first cooking zone, an embodiment with an auxiliary burner and second wok burner is not found.

In a preferred embodiment of the invention, the second wok burner and auxiliary burner are aligned on the same vertical axis and the second cooking zone is arranged to extend along the opposite side edge. This allows the effective use of the second cooking zone and the ability to fit two cooking vessels into the second cooking zone on a standard-width cooking plate.

In a preferred embodiment of the invention, the second wok burner and the auxiliary burner are aligned asymmetrically with respect to an imaginary center axis extending the first, dividing the upper plate in two. The asymmetrical alignment makes it possible to fit two wok burners, namely the first and the second wok burner, to a single burner, and also prevents

the second wok burner and adjacent auxiliary burner from adversely affecting each other's air intake.

In a preferred embodiment of the invention, it comprises a middle cooking zone provided between the first cooking zone and the second cooking zone and comprising a first intermediate burner extending parallel with the auxiliary burner. The central cooking zone makes it possible to increase the number of burners fitted on the cooking plate and to accommodate different placements.

A preferred embodiment of the invention comprises a second intermediate burner placed symmetrically with respect to the central axis in parallel with the first intermediate burner. In this case, a gas hob containing a total of five combustibles is obtained. Although two of these five burners are flammable, the negative effect of each other on the combustion performance is prevented.

A preferred embodiment of the invention comprises a metal frame that fits on the top plate and a plurality of raised support rods extending inward on each frame, surrounding the first cooking zone and the second cooking zone respectively. The frame delimits the cooking zones and ensures the alignment of the cooking vessels. Support rods support the cooking vessels from below and allow them to be placed on the corresponding burner.

A preferred embodiment of the invention comprises an expansion part provided in the inward-facing part of the frame in the second region in a peripheral area where the second wok burner is located. The expansion part increases the air intake area towards the second wok burner in the upper table where the frame is disposed affecting the air flow.

In a preferred embodiment of the invention, the expansion part comprises an upward widening radial extension. The radial extension prevents the air fed towards the second wok burner in the top plate from creating inlet turbulence that will adversely affect the combustion performance of the second wok burner.

A preferred embodiment of the invention comprises a D-like form with a planar vertical part adjacent to the opposite side wall of the frame. The D form makes it easier to form the frame from metal rod or to produce it by casting and provides a monolithic frame with an expansion part.

A preferred embodiment of the invention comprises a planar front part extending under the first cooking zone and provided between the lower edge of the top plate and a control device provided in the front part. The controller, for example, the gas adjustment knobs are placed at the front of the top plate, making them ergonomically easily accessible.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a top view of a representative embodiment of a gas hob having two wok burners with asymmetrical burner configuration of the invention.

DETAILED DESCRIPTION OF THE INVENTION

In this detailed description, the development of the invention has been described without any limitation and only with reference to the examples for a better explanation of the subject.

In Figure 1, a gas hob with a 70 cm wide top plate (10) is schematically shown above. The upper plate (10) has a first cooking zone (20) and a second cooking zone (40), respectively, one on the side edge (14) and the other on the opposite side edge (18), and a middle cooking zone (30) provided between them. Each cooking zone (20, 30, 40) consists of sections that extend transversely in the direction of an upper edge (16) and a lower edge (12) of the top plate (10). A controller comprising gas adjustment knobs (52) aligned to each other in longitudinal direction on a front part (11) located below the first cooking zone (20) and the middle cooking zone (30) and each of which is arranged to control the gas flow of a corresponding burner (50) is provided.

The first cooking zone (20) is surrounded and delimited by a metal frame (24) in a transversely narrow rectangular form. A first wok burner (22) is disposed in the middle of the first cooking zone (20). The first wok burner (22) has a double flame ring structure and has an air inlet from the top plate (10). A plurality of support rods (26) rises from each side of the frame (24) and extend from one free end to the first wok burner (22).

The middle cooking zone (30) has an intermediate support frame (34) neighboring and adjacent to the frame (24) along one side edge. In the middle cooking zone (30), a first intermediate burner (32) with a power of 1.5 KW is at the top and a second intermediate burner (36) with a power of 1 KW is disposed at the bottom, so that the two burners (32, 36) are placed at a distance from each other in a vertical axis. The intermediate support rods (38) rise from the intermediate support frame (34) and extend from their free ends to the

corresponding intermediate first and second intermediate burner (32, 36). The upper and lower edges of the intermediate support frame (34) are adjacent and parallel to the corresponding upper edge (16) and the upper part of the front part (11), respectively. On the other hand, the edge facing the second cooking zone (40) forms a concave part (35).

The second cooking zone (40) comprises an auxiliary burner (44) at the top and a second wok burner (42) aligned with it on the vertical axis. The second cooking zone (40) is surrounded by a D-shaped frame (41). The diameter of the curved part of D form of the frame (41) is adjusted in accordance with the corresponding concave part (35). An upper part (46) of the frame (41) extends adjacent and parallel to the upper edge (16). The auxiliary burner (44) close to the upper part (46) has a power of 1.5 KW. A support extension (47) dividing the frame (41) from the middle then extends parallel to the upper edge (16) and the lower edge (12) on a central axis (x) together with the intermediate support frame (34) and support rod (26).

Its central axis (x) divides all the cooking zones (20, 30, 40) in half. Thereby, in the first cooking zone (20), the first wok burner (22) is centered intersecting the central axis (x). In the middle cooking zone (30), the first intermediate burner (32) and the second intermediate burner (36) are placed symmetrically at an axis burner distance (h1) in the center axis. On the other hand, in the second cooking zone (40), the second wok burner (42) and the auxiliary burner (44) are asymmetrical with respect to the central axis (x). Here, while the auxiliary burner (44) has a central axis (x) and axis burner distance (h1) in parallel with the first intermediate burner (32), the second wok burner (42) is more than this distance from the center axis (x) and defines an elongated axis burner distance (h2). Thus, the distance between the auxiliary burner (44) and the first wok burner (22) remains shorter than the distance between the second wok burner (42) and the first wok burner (22). In other words, the first wok burner (22) and the second wok burner (42) are farther apart. The second wok burner (42) is brought closer to the lower edge (12) and the circumferential area (15) is widened around it. This both increases the amount of air entering the second wok burner (42) with air inlet from the top plate (10) and allows a cooking vessel close to the lower edge (12) to load more easily onto the second wok burner (42), improving user ergonomics.

On the other hand, the second wok burner (42) passes from a narrow diameter (R1) to a large diameter (R2) as it moves away from the lower edge (12) in the expansion part (45) of the D-shaped frame (41). The second wok burner (42) extends radially towards the peripheral area (15). In this case, when the second wok burner (42) is operated, the inlet air vector (f) arrives in the form of a radial inward spiral from the peripheral area (15) and

negative effect of the narrowed part due to the frame (41) in terms of the burning performance of the second wok burner (42) is prevented.

REFERENCE NUMBERS

10 Top plate
11 Front part
12 Lower edge
14 Side edge
15 Peripheral area
16 Upper edge
18 Opposite side edge
20 First cooking zone
22 First wok burner
24 Frame
26 Support rod
30 Middle cooking zone
32 First intermediate burner
34 Intermediate support frame
35 Concave part
36 Second intermediate burner
38 Intermediate support rod
40 Second cooking zone
41 Frame
42 Second wok burner
43 Vertical part
44 Auxiliary burner
45 Expansion part
46 Upper part
47 Support extension
50 Controller
52 Button
h1 Axial burner distance
h2 Elongated axial burner distance
R1 Narrow diameter
R2 Wide diameter
f Intake air flow vector
x Center axis

CLAIMS

1- A gas hob, comprising a planar top plate (10), a first cooking zone (20) provided at the top plate (10), extend inwardly from one side edge (14) and is equipped with a single first wok burner (22) disposed per se in the center and a second cooking zone (40) extending inward along an opposite side edge (18) having a second wok burner (42) and a neighboring auxiliary burner (44) located mutually at a distance from each other towards corresponding upper edge (16) and the lower edge (12) characterized in that the distance between the center of the first wok burner (22) and the center of the second wok burner (42) is set longer according to the distance between the center of the auxiliary burner (44).

2- A gas hob according to claim 1, wherein the second wok burner (42) and the auxiliary burner (44) are aligned on the same vertical axis and the second cooking zone (40) is arranged to extend along the opposite side edge (18).

3- A gas hob according to any of the preceding claims, wherein the second wok burner (42) and the auxiliary burner (44) are asymmetrically aligned with respect to an imaginary central axis (x) extending the first in such that dividing the top plate (10) into two parts.

4- A gas hob according to claim 3, wherein an intermediate cooking zone (30) is provided between the first cooking zone (20) and the second cooking zone (40) and comprising a first intermediate burner (32) extending parallel with the auxiliary burner (44).

5- A gas hob according to claim 4, a second intermediate burner (36) is located symmetrically with respect to the central axis in parallel with the first intermediate burner (32).

6- A gas hob according to any of the preceding claims, wherein a frame (24, 41) made of metal fits on the top plate (10) is surrounding the first cooking zone (20) and the second cooking zone (40) respectively, and a plurality of raised support bars (25) extending inward on each frame (24, 41).

7- A gas hob according to claim 6, wherein the frame (41) in the second zone (40) is having an expansion part (45) provided at the side facing inwards of a peripheral area (15) where the second wok burner (42) is located.

8- A gas hob according to claim 7, wherein the expansion part (45) comprises an upwardly expanding radial extension.

9- A gas hob according to claims 6-8, wherein the frame (41) comprises a D-like form with a planar vertical portion (43) adjacent to the opposite side wall (18).

10- A gas hob according to any of the preceding claims, wherein a planar front part (11) is extending below the first cooking zone (20) and provided between the lower edge (12) of the top plate (10) and a controller (50) is provided in the front part (11).

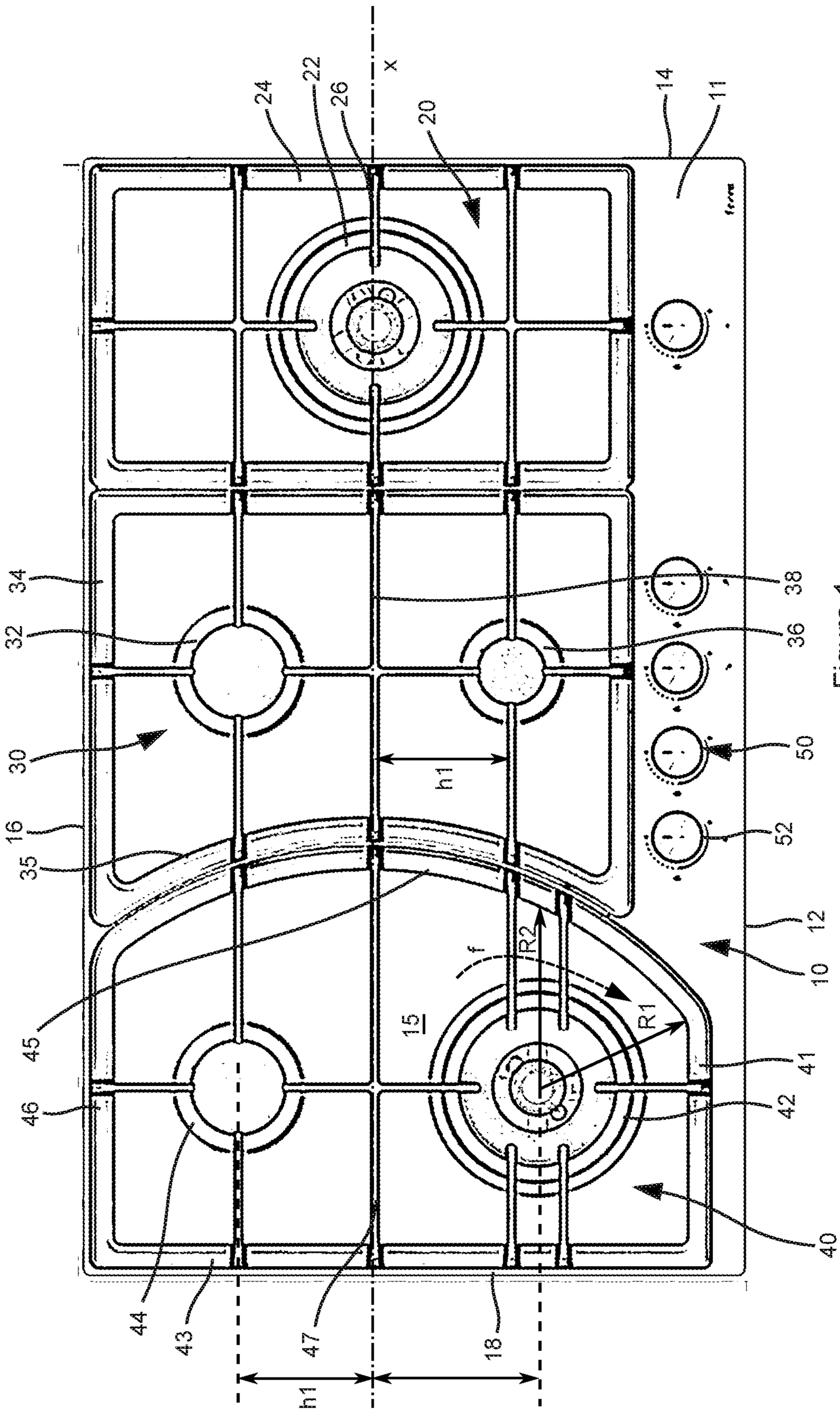

x
24
22
26
20
14
11
34
32
38
36
30
16
35
45
46
h1
50
52
12
10
R2
f
R1
15
41
42
40
44
43
47
18
h1

Figure 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/TR2020/050031

A. CLASSIFICATION OF SUBJECT MATTER

F24C 15/10 (2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F24C 15/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5046477 A (AMANA REFRIGERATION INC [US]) 10 September 1991 (1991-09-10) the whole document	1-10
A	EP 1447624 A2 (WHIRLPOOL CO [US]) 18 August 2004 (2004-08-18) paragraph [0007] - [0013], [0016] - [0022], figures	1-10
A	WO 2007107195 A1 (INZAGHI ENZO [IT]) 27 September 2007 (2007-09-27) figures	1-10

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

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Name and mailing address of the ISA/TR

Turkish Patent and Trademark Office (Turkpatent)
Hipodrom Caddesi No. 13
06560 Yenimahalle
Ankara
Turkey

Telephone No. **(90-312) 303 11 82**
Facsimile No. **+903123031220**

Authorized officer

MEHMET ÇAĞDAŞ ÜSTÜN

Telephone No. **+90 312 3031657**