(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 4 261 459 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.10.2023 Bulletin 2023/42

(21) Application number: **22168261.0**

(22) Date of filing: **13.04.2022**

(51) International Patent Classification (IPC):
F24C 3/08 *(2006.01)*

(52) Cooperative Patent Classification (CPC):
F24C 3/085

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

(71) Applicant: **ELECTROLUX APPLIANCES AKTIEBOLAG**
105 45 Stockholm (SE)

(72) Inventors:
- **RASI, Fabio**
  47122 Forli (IT)
- **TURCHI, Marco**
  47122 Forli (IT)
- **ZANCHINI, Ivan**
  47122 Forli (IT)
- **MANZARI, Roberto**
  105 45 Stockholm (SE)
- **IANNONE, Sara**
  47122 Forli (IT)

(74) Representative: **Electrolux Group Patents**
AB Electrolux
Group Patents
S:t Göransgatan 143
105 45 Stockholm (SE)

(54) BURNER MODULE FOR A COOKING HOB

(57) The invention relates to a burner module (1) for a cooking hob (2), comprising at least the following components:
- a support frame (3) for a cooking vessel;
- a burner crown (4) with a burner cap (5) for the shape and position of a flame of the burner module (1); and
- an overflow bowl (6) with a transition rim (7) for forming a transition to an upper surface (8) of a cover plate (9) of a cooking hob (2),

wherein an air duct (10) is formed between the burner crown (4) and the overflow bowl (6) for admitting primary air (11) for a flame of the burner module (1). The burner module (1) is in particular characterised in that the cross-section (12) of the air duct (10) for the primary air (11) is arranged at least partially below the upper surface (8) of the cover plate (9).

With the burner module proposed here, a very low overall height can be achieved.

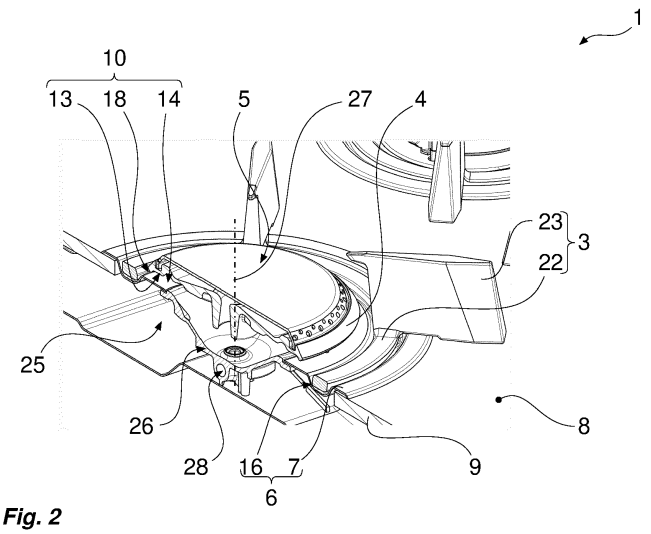

Fig. 2

EP 4 261 459 A1

Description

[0001] The invention relates to a burner module for a cooking hob, and to a cooking hob with such a burner module for a gas cooking hob.

[0002] A gas cooking hob is already known in many embodiments for generally heating food in a kitchen. Such a cooking hob comprises at least one burner module from which the flame exits in a controlled manner during operation and comprises a support frame for a cooking utensil, for example a pot or a pan. The burner modules are generally distinguished between a top breather and a bottom breather. With a bottom breather, the primary air for the flame is drawn from below the cooking hob and with a top breather, the primary air is drawn from above the cooking hob. A top breather is often desired or required by law. Such a top breather is significantly higher than a bottom breather due to the need for an air duct above the hob and is therefore perceived as less aesthetically pleasing.

[0003] The present invention is based on the task of at least partially overcoming the disadvantages known from the prior art. The features according to the invention result from the independent claims, for which advantageous embodiments are shown in the dependent claims. The features of the claims can be combined in any technically sensible manner, wherein the explanations from the following description as well as features from the figures, which comprise supplementary embodiments of the invention, can also be consulted for this purpose.

[0004] The invention relates to a burner module for a cooking hob, comprising at least the following components:

- a support frame for a cooking vessel;
- a burner crown with a burner cap for the shape and position of a flame of the burner module; and
- an overflow bowl having a transition rim for forming a transition to an upper surface of a cover plate of a cooking hob, wherein an air duct for admitting primary air for a flame of the burner module is established between the burner crown and the overflow bowl.

[0005] The burner module is characterised in particular by the fact that the cross-section of the air duct for the primary air is located at least partially below the upper surface of the cover plate.

[0006] Unless explicitly stated to the contrary, ordinal numbers used in the preceding and following descriptions are merely for the purpose of unambiguous distinguishability and do not reflect any order or ranking of the designated components. An ordinal number greater than one does not imply that another such component must necessarily be present.

[0007] The burner module proposed here is designed for heating a cooking vessel within a cooking hob, whereby an output of up to three to four kilowatts can be achieved, for example. A support frame is configured to hold a cooking vessel in a stable manner, for example with three or four support ribs, whereby the support frame is preferably formed in one piece. Furthermore, a burner crown is provided which is covered by means of a burner cap, wherein the air-gas mixture spreads out flowing through under the burner cap by means of passages in the burner crown and/or in the burner cap and the desired flame develops after passing through the corresponding openings in the burner crown and/or the burner cap. Often a ring of smaller flames is formed, the size of which is adjustable by the volume flow of fuel gas. In a preferred embodiment, the burner crown and the burner cap are designed as separate components, but are especially preferably each formed as a single piece.

[0008] Furthermore, an overflow bowl is provided which is configured to collect overflowing liquids and to cover a corresponding opening in a cover plate of a cooking hob. The overflow bowl is delimited radially on the outside (in relation to a central axis of the burner module) by a transition rim, which is preferably formed to elevate above the plane of the upper surface of the cover plate, so that an overflow of liquid from the cover plate into the area of the inlet opening of the air duct for primary air and possibly vice versa is prevented or reduced. In one embodiment, the overflow bowl is a separate component, whereby preferably the transition rim is formed integrally with the overflow bowl and/or is arranged as a support rim for resting on the upper surface of the cover plate. In an alternative embodiment, the overflow bowl is formed integrally with the cover plate, for example formed from a common sheet metal blank (preferably stainless steel) by means of (preferably cold) forming, or made from a ceramic casting component or a glass component.

[0009] An air duct is provided between the burner crown and the overflow bowl to supply the oxygen required for combustion of the supplied fuel gas that is at least as stoichiometric as possible. The overflow bowl and the burner module are not necessarily circular. In one embodiment, for example at least the burner crown and the burner cover, and possibly also the support frame and the overflow bowl, are rectangular or have another shape.The round, usually circular, shape of the burner crown and of the support frame is more common. In the following, without restriction to a round design, we therefore speak of a central axis perpendicular to the cover plate, i.e. in use mostly parallel to the alignment of the earth's gravitational field, and a radius or circumferential circle starting therefrom.

[0010] It is now proposed that the cross-section of the air duct, for example, the course of the air duct, dips below the surface of the cover plate, either completely or at least partially. This allows the burner crown to be positioned closer to the upper surface of the cover plate, thus enabling a flatter design of the burner module. Thus, the air enters the air duct as primary air from above the upper surface of the cover plate, is further directed downwards and then towards the fuel gas below the burner crown.

[0011] It is further proposed in an advantageous embodiment of the burner module that an upper duct wall of the air duct for the primary air is arranged in a plane with the transition rim of the overflow bowl.

[0012] For a particularly flat design of the burner module that is nevertheless not too deep on the underside of the cover plate, it is suggested that the upper duct wall of the air duct is arranged in one plane with the transition rim of the overflow bowl. Here, in the case of a non-planar shape of the transition rim, an uppermost elevation of the transition rim is meant and an imaginary plane which is spanned by the lowest elevation of the upper duct wall, if this is not flat, and the highest elevation of the transition rim. Preferably, this imaginary plane has a normal which is aligned along the earth's gravity field. With this embodiment, the same or similar height above the cover plate can be achieved as is possible with a bottom breather.

[0013] It is further proposed in an advantageous embodiment of the burner module that the upper duct wall of the air duct for the primary air is formed by the burner crown.

[0014] In a particularly compact embodiment, it is proposed here that the upper duct wall is formed by the burner crown itself and thus no further intermediate element is provided, which would contribute to an undesirably high overall height.

[0015] It is further proposed in an advantageous embodiment of the burner module that a lower duct wall of the air duct for the primary air is formed by the overflow bowl.

[0016] In this embodiment, the lower duct wall of the air duct is formed directly by the overflow bowl, so that here too no further structural element needs to be provided, which would have an undesirable effect on the overall height.

[0017] It is further proposed in an advantageous embodiment of the burner module that the overflow bowl has a gutter which is arranged between the transition rim and the lower duct wall, wherein the gutter is arranged lower relative to the upper surface of the cover plate than the transition rim and the lower duct wall.

[0018] Here it is proposed that the overflow bowl has a gutter, the function of the gutter is collecting liquid overflowing from a pot, for example, and preventing it from entering via the air duct for the primary air.

[0019] It is further proposed in an advantageous embodiment of the burner module that the air duct is formed circumferentially around the burner crown.

[0020] The air duct is preferably formed circumferentially and allows primary air to enter the burner crown from the outside inwards towards the gas inlet. In one embodiment, the air duct is formed continuously around the circumference and in another embodiment, at least one rib is provided so that the air duct is composed of a plurality of sections of a circumferential ring.

[0021] It is further proposed in an advantageous embodiment of the burner module that a surface normal of an inlet opening from the air duct for the primary air has an upwardly pointing vector portion.

[0022] It is proposed here that the surface normal of the inlet opening points upwards, for example does not point radially outwards as is usual with a top breather. In this embodiment, the surface normal points away from the burner crown to the (radial) outside, for example up to 45° or 60° as an included angle to the perpendicular on the upper surface of the cover plate, mostly to the alignment of the earth gravity field. The more perpendicular the surface normal of the inlet opening is, the smaller the total diameter in the plane of the upper surface of the cover plate can be executed.

[0023] It is further proposed in an advantageous embodiment of the burner module that the surface normal of the inlet opening is aligned perpendicular to the cover plate in use.

[0024] In one embodiment, the surface normal is oriented perpendicular to the cover plate, i.e. plumb (parallel to the orientation of the earth's gravity field).

[0025] It is further proposed in an advantageous embodiment of the burner module that an inlet opening from the air duct for the primary air has a first cross section area and a narrowest duct section of the air duct for the primary air below the burner crown has a second cross section area, wherein the first cross section area is larger than the second cross section area.

[0026] It should be noted that in an advantageous embodiment, the cross section of the air duct is constant and thus the narrowest duct section extends over the entire extension of the air duct. In one embodiment, the narrowest duct section is formed between the upper duct wall and the lower duct wall, for example in the area in which the air duct runs parallel to the upper surface of the cover plate, at least on average. By forming a large inlet opening, ambient air can be drawn in from a large surrounding area and then directed through the narrower remaining air duct to the fuel gas. In addition, the external suction force is reduced as a result of this widening, thus preventing droplets from being sucked in.

[0027] It is further proposed in an advantageous embodiment of the burner module that an inlet opening is formed by the air duct for the primary air between the burner crown and the support frame.

[0028] Here it is proposed that the inlet opening is formed between the support frame and the burner crown, so that here too no additional component with a possible effect on the size and above all the overall height is necessary. In addition, an intrinsically large inlet opening can be achieved because the heat from the flame requires the support frame to be at a certain distance from the burner crown.

[0029] It is further proposed in an advantageous embodiment of the burner module that the support frame comprises a circumferential ring to which a plurality of support ribs are attached, wherein the circumferential ring is arranged within the overflow bowl.

[0030] Here, the support frame is designed with a cir-

cumferential ring which is arranged in the overflow bowl and thus the support frame is supported in the overflow bowl. This compensates for any large space that may be required in the overflow bowl to allow for a corresponding air duct, as the support frame is partly arranged in the overflow bowl. A plurality of support ribs are attached to the circumferential rings, which are at least functionally designed as known and can be used to securely hold a cooking vessel, for example a pot or a pan, at a desired distance above the flame of the burner crown.

[0031] It is further proposed in an advantageous embodiment of the burner module that the circumferential ring is arranged below, up to maximally adjacent to, the plane of the transition rim of the overflow bowl, preferably the circumferential ring being arranged in use in the gutter according to an embodiment according to the above description.

[0032] With a circumferential ring, which is arranged below to maximally adjacent to the imaginary plane of the transition rim, preferably adjacent to the imaginary plane of the upper surface of the cover plate, a very large inlet opening can be designed, as already indicated above. In an advantageous embodiment, the circumferential ring is arranged in the gutter described above and thus an air duct can be designed with a very large cross section area despite the required overall height of the circumferential ring.

[0033] It is further proposed in an advantageous embodiment of the burner module that in the insert the support frame and the burner crown are removable and the overflow bowl is fixed to the cover plate.

[0034] In this embodiment, the support frame and the burner crown are arranged so that they can be separated from the overflow bowl in the insert. The overflow bowl has a transition rim . In an embodiment of the overflow bowl that is separate from the cover plate, the overflow bowl rests with the transition rim on the upper surface of the cover plate in the assembled state. In one embodiment, such an overflow bowl is fixed, for example glued, to the cover plate, for example by means of the transition rim. Preferably, the overflow bowl cannot be easily dismantled when mounted on a cover plate. In one embodiment, the overflow bowl and the cover plate are formed integrally with each other. In still another embodiment, the transition rim is bonded and/or integrally formed with the cover plate, the overflow bowl being formed at least in part (for example comprising a gutter as described above) separately therefrom, but preferably fixed in use to the transition rim (and thus with the cover plate).

[0035] According to a further aspect, a cooking hob for a gas cooking hob, comprising at least the following components:

- a cover plate with an upper surface;
- at least one burner module according to an embodiment according to the above description, of which a transition is formed by means of the transition rim of the overflow bowl to the upper surface of the cover plate; and
- a number of gas burners corresponding to the number of burner modules, which is assigned to the respective opening and can be supplied with primary air via the air duct of the respective burner module.

[0036] The cooking hob proposed here is designed at least purely functionally as known from the prior art. In the installed state, for example in a gas cooking hob unit together with a, preferably gas-operated, oven, or individually in a worktop of a kitchen unit, the cooking hob can be integrated into a gas cooking hob, whereby a gas connection is provided accordingly in order to supply the gas burners with fuel gas. The gas cooking hob can be supplied with fuel gas, for example, via a gas cylinder or via a wall connection. The cover plate of the cooking hob forms a plane which is preferably easy to clean and sufficiently heat resistant to allow safe and easy working with the cooking hob.

[0037] The upper surface of the cover plate is the surface visible to the user. In one embodiment, the cover plate comprises an operating interface, for example in the form of at least one button, a touch pad and/or a wireless connection for wireless operation, preferably together with a digital display, for operating functions of the cooking hob. The cover plate has one or a plurality of openings, each of which accommodates a burner module as described above. This corresponding opening is covered by the overflow bowl or formed in the center of the overflow bowl. With the burner crown and the burner cover (and the overflow bowl), a direct view of what lies under the cover plate is blocked.

[0038] As already described above, in an embodiment separate from the cover plate, the overflow bowl is fixed to the cover plate (preferably by means of its transition rim)., for example glued. Alternatively or additionally, a seal is provided between the transition rim and the cover plate, which largely prevents liquids from passing through into the space between the cover plate and the overflow bowl. In a one-piece design of the overflow bowl with the cover plate, fixation and sealing are provided as a result of the one-piece design without further measures.

[0039] Furthermore, a corresponding number of gas burners is provided, for example three gas burners if three burner modules are provided or five gas burners if five burner modules are provided. In one embodiment, a burner module comprises several gas burners, in which case this burner module is preferably referred to as a multiple module or double module. The gas burner is set up for a safe supply of fuel gas, whereby a sufficiently stoichiometric composition for combustion is only produced with the supply of primary air via the air duct and a flame can only be produced outside the burner crown and burner cover when the cooking hob is operated properly. Preferably, an igniter and/or a temperature sensor is also provided, which are located in the region of the burner crown, and preferably outside an enclosed gas space into which the fuel gas and the primary air are

supplied.

[0040] With the burner module proposed here, a particularly flat and aesthetically appealing design of the cooking hob is possible, whereby preferably all burner modules are designed on one level, preferably all are designed as described above.

[0041] It is further proposed in an advantageous embodiment of the cooking hob, that between the upper surface of the cover plate and the overflow bowl, an elevation is formed by means of the transition rim with the direction of extension out of the upper surface,wherein preferably the cover plate and the overflow bowl are formed in one piece.

[0042] Here it is proposed that the transition rim of a respective overflow bowl includes an elevation so that a barrier is formed to prevent liquid on the cover plate from spilling into the area of the overflow bowl (but also vice versa). Preferably, this threshold is further complemented by a more central gutter as described above, so that even in the event of liquid spilling over, it is not immediately sucked into the inlet opening of the air duct for the primary air.

[0043] This elevation is designed with an upward extension direction. Usually, such a transition rim also has a radial extension (in relation to the central axis of the respective burner module). For example, the radial extension (ring width) is (at least approximately) twice as large as the axial extension of the elevation.

[0044] Furthermore, it is proposed that the entire cover plate or at least a part of the cover plate is made of glass or glass-ceramic, so that easy cleaning and a sufficiently high temperature resistance as well as a desired dimensional stability can be achieved by simple means. Alternatively, the cover plate is formed from a sheet, preferably from a stainless steel, whereby particularly preferably the overflow bowl is thereby formed (preferably as a whole) in one piece from the sheet metal, for example by means of cold forming.

[0045] The invention described above is explained in detail below against the relevant technical background with reference to the accompanying drawings, which show preferred embodiments. The invention is in no way limited by the purely schematic drawings, it being noted that the drawings are not dimensionally accurate and are not suitable for defining dimensional relationships. It is illustrated in

Fig. 1: in a sectional view a cooking hob with a burner module in perspective view;
Fig. 2: a burner module according to Fig. 1 in a perspective sectional view;
Fig. 3: a burner module in a sectional view; and
Fig. 4: in a sectional perspective view of a cooking hob with two burner modules in an alternative embodiment.

[0046] Fig. 1 shows a cooking hob **2** with a burner module **1** is shown in a section in a perspective view, whereby further burner modules **1** can be seen in the foreground and in the background. The cooking hob **2** is, for example, a component of a gas cooking hob **24.** In the area which is primarily shown here, namely the upper surface **8** of a cover plat **9,** for example made of glass ceramic, a complete burner module **1** can be seen in an opening **25** in this cover plate **9,** whereby (here purely optional separately) the overflow bowl **6** rests on the upper surface **8** of the cover plate **9** with its transition rim **7.** Centrally around an imaginary central axis **27** a burner crown **4** can be seen, which is covered by a burner cap **5,** whereby in this embodiment the outlets for the burner gas are formed in the burner cap **5.** A support frame **3** is arranged around the burner crown **4,** which comprises a circumferential ring **22,** on which a plurality of support ribs **23,** of which only one is designated here pars pro toto, namely its four support ribs **23.** An upwardly open gap is formed between the circumferential ring **22** of the support frame **3** and the burner crown **4,** which gap forms the inlet opening **18** of the air duct **10** for the primary air **11** (compare Fig. 3).

[0047] Fig. 2 shows a burner module **1** according to Fig. 1 in a perspective sectional view. Reference is made to the explanation of the components there and only the further details and the gas burner **26** visible here are discussed here. The burner crown **4** has an easily recognisable suitable flow profile to receive the fuel gas from the gas burner **26,** which receives it via the gas burner connection **28,** which is shown here in section. Due to the suction effect, ambient air is drawn into the air duct **10** via the inlet opening **18,** which is bounded in the region below the burner crown **4** by the upper duct wall **13,** which is formed here by the burner crown **4** itself, and the lower duct wall **14,** which is formed here by the overflow bowl **6.** The inlet opening **18** is formed between the circumferential ring **22** of the support frame **3** and the radially outermost edge of the burner crown **4.**

[0048] In Fig. 3 a burner module **1,** for example according to Fig. 2, is shown in a sectional view, whereby reference is also made here to the previous description for the components without excluding the generality. Here it can be clearly seen that the upper duct wall **13,** which is formed by the burner crown **4,** and the transition rim **7** are arranged in a common imaginary plane **15.** The highest point of the circumferential ring **22** of the support frame **3** is also located adjacent to this imaginary plane **15** or slightly below it. The lower duct wall **14** is arranged clearly below the upper surface **8** of the cover plate **9** and thus the cross-section **12** of the air duct **10** is arranged at least partially below the upper surface **8** of the cover plate **9,** whereby the lower duct wall **14** is bounded radially outwards by a gutter **16** of the overflow bowl **6.**

[0049] In this case the air duct **10** is arranged adjacent and completely below the imaginary plane **15** as defined by the transition rim **7** of the overflow bowl **6.** It is easy to see that the overall construction, i.e. the depth relative to the cover plate **9** of the gas burner **26** and the height of the burner crown **4** with burner cover **5** as well as the

support height dependent thereon, as defined by the support ribs **23,** results in a low overall height. In this illustrated design, the inlet opening **18** is also made larger for the primary air **11** with a first transverse sectional area **20,** which is larger than the second transverse sectional area **21** of the narrowest duct section **19** of the air duct **10.** The course of the primary air **11** is indicated here purely schematically with an arrow. Depending on the definition, the surface normal **17** on the inlet opening **18** points vertically upwards or, as shown here, slightly inclined outwards, in relation to the central axis **27** of the burner module **1.**

[0050] Fig. 4 shows a section of a cooking hob **2** with two burner modules **1** in an alternative embodiment in a perspective view. The cooking hob **2** shown is largely identical to the embodiment shown in Fig. 1, and without excluding generality, but purely for the sake of clarity, reference is made to the description there. In contrast to the embodiment shown there, the overflow bowls **6** and the cover plate **9** are formed in one piece here, for example from a sheet metal blank by means of (preferably cold) forming, preferably of stainless steel. Alternatively, this cover plate **9** is made of ceramic or glass (preferably glass ceramic). In the detail shown, an operating interface **29** can also be seen (sectionally), which here comprises a number of rotary knobs corresponding to the number of burner modules **1.**

[0051] With the burner module proposed here, a very low overall height can be achieved.

List of reference numerals

[0052]

1 burner module
2 cooking hob
3 support frame
4 burner crown
5 burner cap
6 overflow bowl
7 transition rim
8 upper surface
9 cover plate
10 air duct
11 primary air
12 cross-section of air duct
13 upper duct wall
14 lower duct wall
15 imaginary plane
16 gutter
17 surface normal
18 inlet opening
19 narrowest duct section
20 first cross section area
21 second cross section area
22 circumferential ring
23 support rib
24 gas cooking hob
25 opening
26 gas burner
27 central axis
28 gas burner connection
29 operating interface

Claims

1. A burner module (1) for a cooking hob (2), comprising at least the following components:

- a support frame (3) for a cooking vessel;
- a burner crown (4) with a burner cap (5) for the shape and position of a flame of the burner module (1); and
- an overflow bowl (6) having a transition rim (7) for forming a transition to an upper surface (8) of a cover plate (9) of a cooking hob (2),

wherein an air duct (10) for admitting primary air (11) for a flame of the burner module (1) is established between the burner crown (4) and the overflow bowl (6),
characterized in that
the cross-section (12) of the air duct (10) for the primary air (11) is arranged at least partially below the upper surface (8) of the cover plate (9).

2. The burner module (1) according to claim 1, wherein an upper duct wall (13) of the air duct (10) for the primary air (11) is arranged in a plane (15) with the transition rim (7) of the overflow bowl (6).

3. The burner module (1) according to claim 2, wherein the upper duct wall (13) of the air duct (10) for the primary air (11) is formed by the burner crown (4).

4. The burner module (1) according to any one of the preceding claims, wherein
a lower duct wall (14) of the air duct (10) for the primary air (11) is formed by the overflow bowl (6).

5. The burner module (1) according to claim 4, wherein

the overflow bowl (6) has a gutter (16) which is arranged between the transition rim (7) and the lower duct wall (14),
wherein the gutter (16) is arranged lower relative to the upper surface (8) of the cover plate (9) than the transition rim (7) and the lower duct wall (14).

6. The burner module (1) according to one of the preceding claims, wherein
the air duct (10) is formed circumferentially around the burner crown (4).

7. The burner module (1) according to one of the preceding claims, wherein
a surface normal (17) of an inlet opening (18) from the air duct (10) for the primary air (11) has an upwardly pointing vector portion.

8. The burner module (1) according to claim 7, wherein the surface normal (17) of the inlet opening (18) is aligned perpendicular to the cover plate (9) in use.

9. The burner module (1) according to any one of the preceding claims, wherein

an inlet opening (18) from the air duct (10) for the primary air (11) has a first cross section area (20) and a narrowest duct section (19) of the air duct (10) for the primary air (11) below the burner crown (4) has a second cross section area (21), wherein the first cross section area (20) is larger than the second cross section area (21).

10. The burner module (1) according to any one of the preceding claims, wherein
an inlet opening (18) is formed by the air duct (10) for the primary air (11) between the burner crown (4) and the support frame (3).

11. The burner module (1) according to one of the preceding claims, wherein
the support frame (3) comprises a circumferential ring (22) to which a plurality of support ribs (23) are attached, wherein the circumferential ring (22) is arranged within the overflow bowl (6).

12. The burner module (1) according to claim 11, wherein

the circumferential ring (22) is arranged below the plane (15) of the transition rim (7) of the overflow bowl (6), up to a maximum adjacent thereto, wherein preferably the circumferential ring (22) is arranged in the gutter (16) according to claim 5.

13. The burner module (1) according to one of the preceding claims, wherein
in the insert the support frame (3) and the burner crown (4) are removable and the overflow bowl (6) is fixed to the cover plate (9).

14. A cooking hob (2) for a gas cooking hob (24), comprising at least the following components:

- a cover plate (9) with an upper surface (8);
- at least one burner module (1) according to one of the preceding claims, of which a transition is formed by means of the transition rim (7) of the overflow bowl (6) to the upper surface (8) of the cover plate (9); and
- a number of gas burners (26) corresponding to the number of burner modules (1), which is assigned to the respective opening (25) and can be supplied with primary air (11) via the air duct (10) of the respective burner module (1).

15. The cooking hob (2) according to claim 14, wherein between the upper surface (8) of the cover plate (9) and the overflow bowl (6), an elevation is formed by means of the transition rim (7) with the direction of extension out of the upper surface (8),
wherein preferably the cover plate (9) and the overflow bowl (6) are formed in one piece.

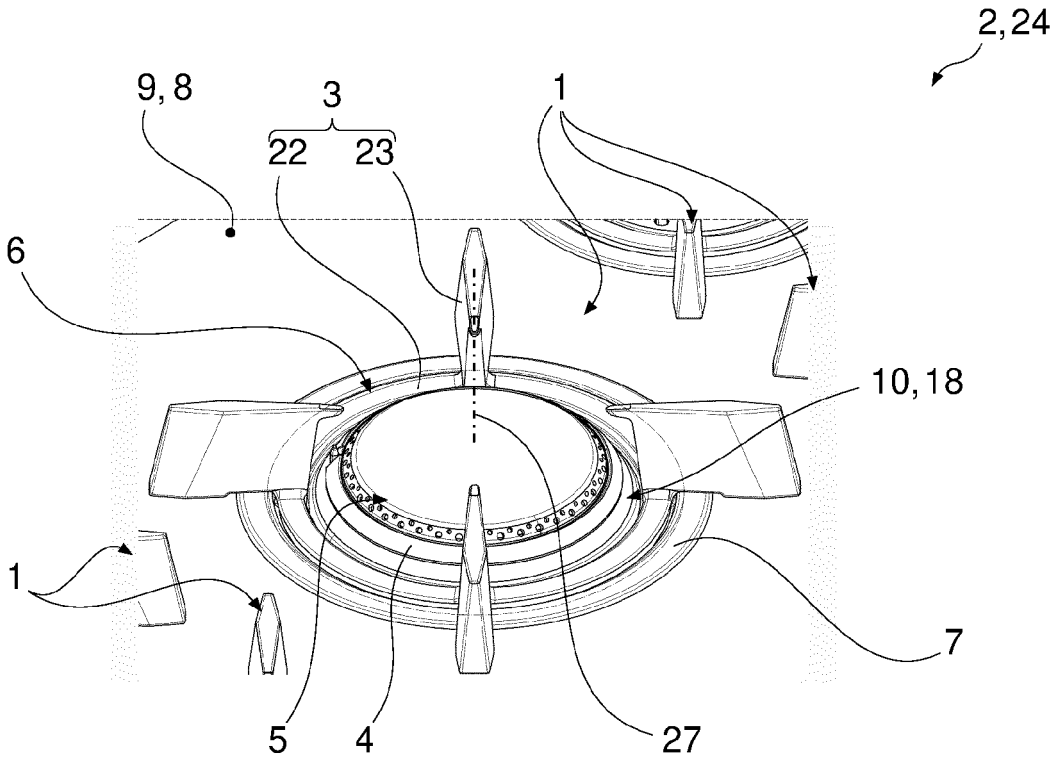
2,24
9,8
3
22
23
1
6
10,18
1
7
5
4
27

Fig. 1

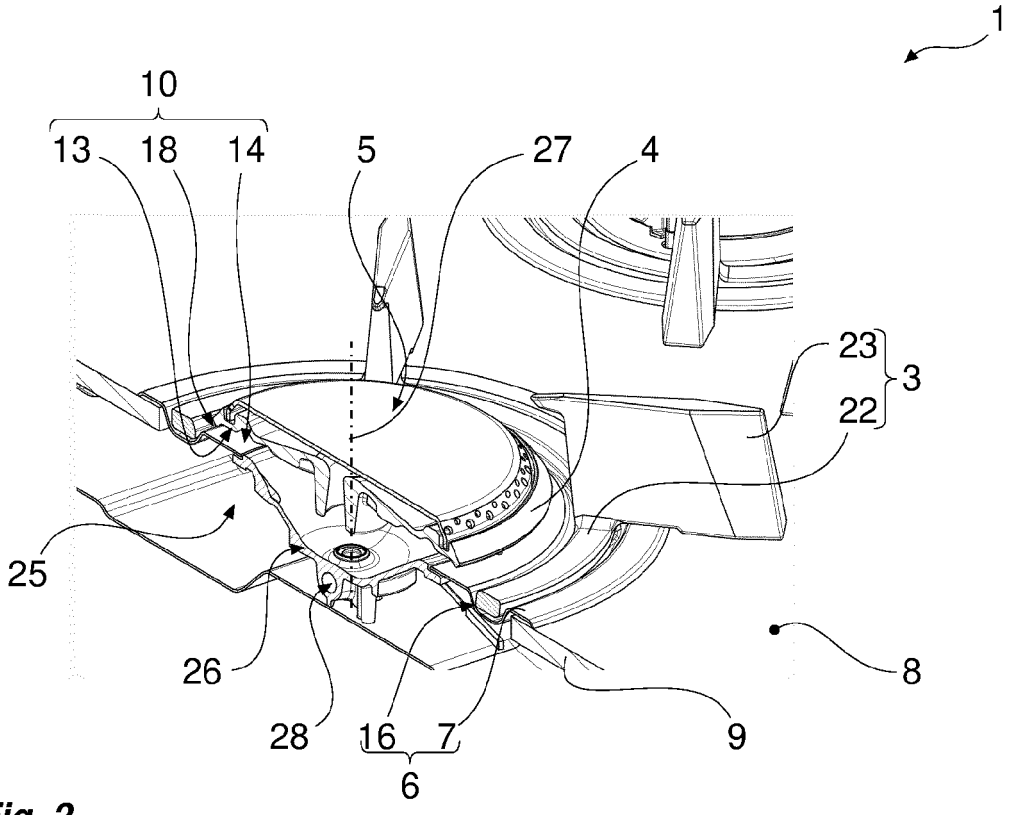
1
10
13
18
14
5
27
4
23
3
22
25
26
28
16
7
6
9
8

Fig. 2

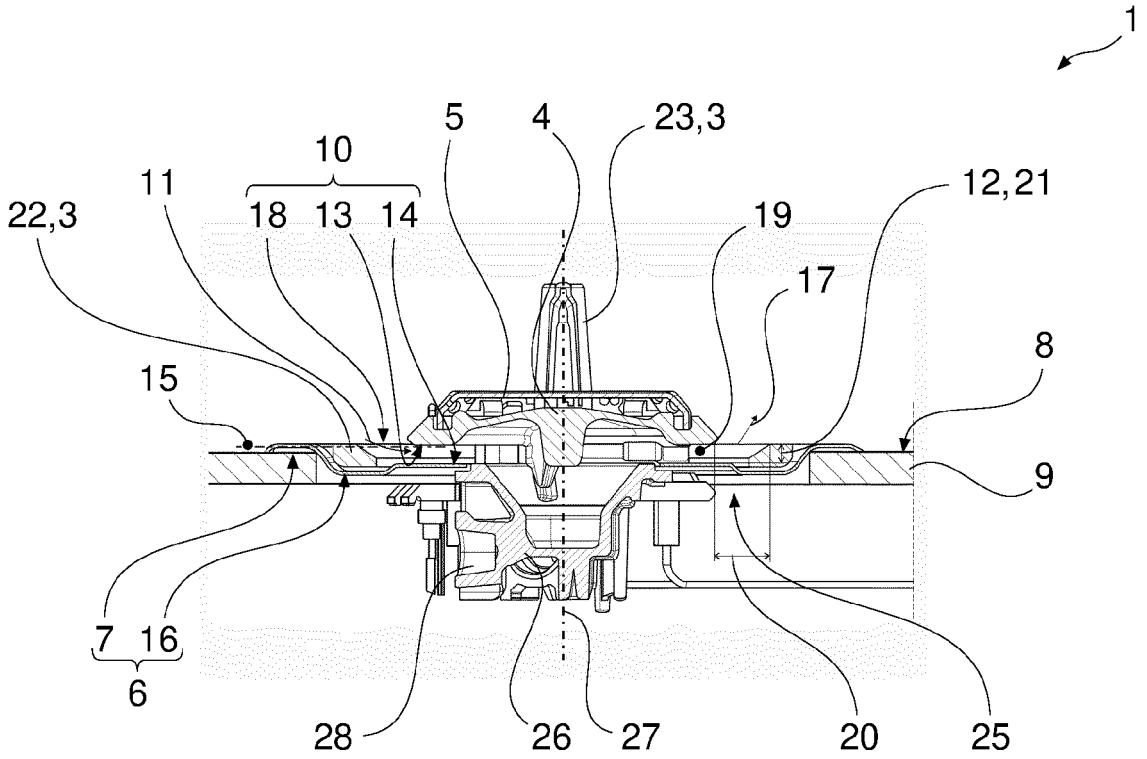
1
5
4
23,3
10
11
22,3
18
13
14
12,21
19
17
8
15
9
7
16
6
28
26
27
20
25

Fig. 3

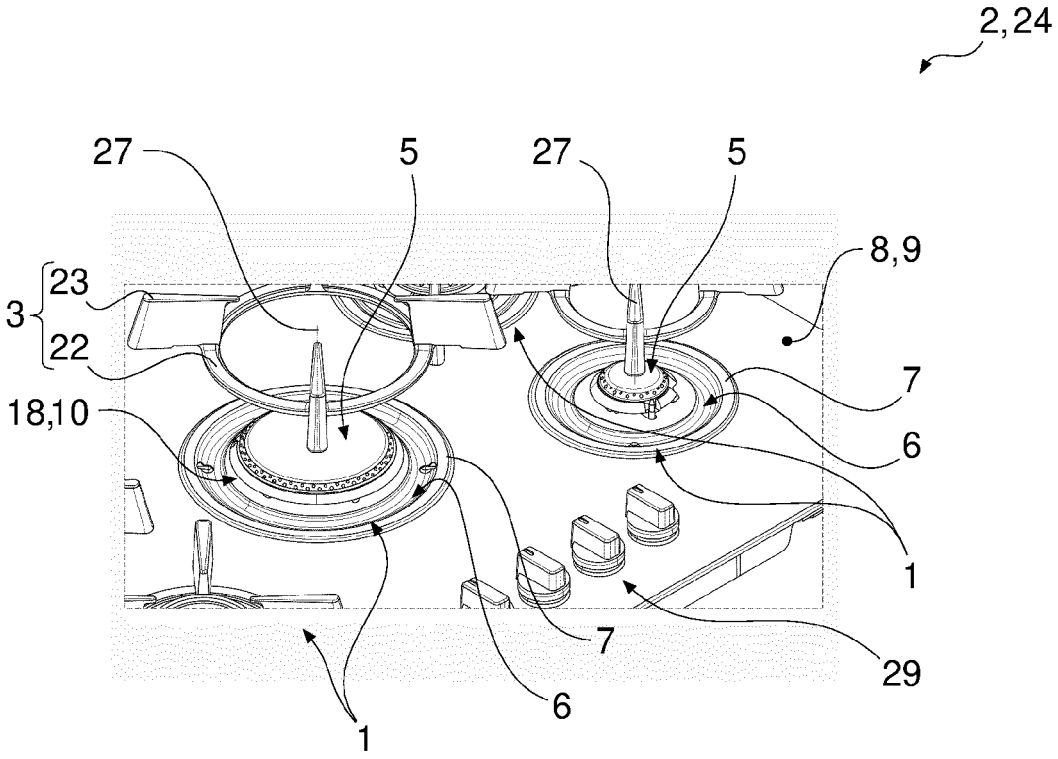
2,24
27
5
27
5
8,9
3
23
22
18,10
7
6
1
7
29
6
1

Fig. 4

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 22 16 8261

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	CN 201 187 812 Y (TAIWAN SAKURA COMPANY LTD [CN]) 28 January 2009 (2009-01-28) * figures 1, 5, 6, 8 * * the whole document *	1-15	INV. F24C3/08
Y	CN 113 028 396 A (QINGDAO HAIER INTELLIGENT TECHNOLOGY RES & DEV CO LTD ET AL.) 25 June 2021 (2021-06-25) * figure 6 *	7,8, 10-12	
Y	EP 0 551 235 A1 (EUROP EQUIP MENAGER [FR]) 14 July 1993 (1993-07-14) * page 2, line 28 - page 3, line 8 * * page 2, line 16 - page 2, line 18 * * figure 2c * * page 5, line 4 - page 5, line 8 *	1-15	
A	US 2006/121402 A1 (BETTINZOLI ANGELO [IT]) 8 June 2006 (2006-06-08) * figures 1a-6 *	1-15	
A	EP 3 329 183 A1 (SAMSUNG ELECTRONICS CO LTD [KR]) 6 June 2018 (2018-06-06) * figures 1-13 *	1-15	TECHNICAL FIELDS SEARCHED (IPC) F24C
A	JP S61 86521 A (MATSUSHITA ELECTRIC IND CO LTD) 2 May 1986 (1986-05-02) * figures 1-5 *	1-15	
A	FR 2 693 256 A1 (DIETRICH EUROP ELECTROMENAGER [FR]) 7 January 1994 (1994-01-07) * figures 1-4 *	1-15	

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	6 September 2022	Jalal, Rashwan

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 22 16 8261

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-09-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 201187812 Y	28-01-2009	NONE	
CN 113028396 A	25-06-2021	NONE	
EP 0551235 A1	14-07-1993	EP 0551235 A1	14-07-1993
		FR 2686145 A1	16-07-1993
US 2006121402 A1	08-06-2006	AT 459847 T	15-03-2010
		AU 2002358969 A1	03-06-2004
		BR 0215546 A	28-12-2004
		CA 2505822 A1	27-05-2004
		CN 2658584 Y	24-11-2004
		EP 1563225 A1	17-08-2005
		ES 2341707 T3	25-06-2010
		HK 1059185 A2	28-05-2004
		HR P20050524 A2	28-02-2006
		HU 227511 B1	28-07-2011
		IL 168366 A	30-11-2010
		JP 2006505761 A	16-02-2006
		KR 20050086521 A	30-08-2005
		MX PA05005058 A	22-02-2006
		MY 138616 A	31-07-2009
		NO 330386 B1	04-04-2011
		NZ 539906 A	29-09-2006
		PT 1563225 E	28-05-2010
		SI 1563225 T1	30-04-2010
		TW I231351 B	21-04-2005
		US 2006121402 A1	08-06-2006
		WO 2004044490 A1	27-05-2004
EP 3329183 A1	06-06-2018	CN 108351102 A	31-07-2018
		EP 3329183 A1	06-06-2018
		EP 4001756 A1	25-05-2022
		KR 20170043756 A	24-04-2017
		US 2017108226 A1	20-04-2017
		WO 2017065540 A1	20-04-2017
JP S6186521 A	02-05-1986	NONE	
FR 2693256 A1	07-01-1994	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82