



(11) **EP 1 508 001 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
17.09.2008 Bulletin 2008/38

(51) Int Cl.:
F23D 14/06^(2006.01) F24C 3/08^(2006.01)
F24C 15/10^(2006.01)

(21) Application number: **03725469.5**

(86) International application number:
PCT/IB2003/001920

(22) Date of filing: **19.05.2003**

(87) International publication number:
WO 2003/098107 (27.11.2003 Gazette 2003/48)

(54) **GAS BURNER AND POT-HOLDER ASSEMBLY FOR DOMESTIC COOKING HOBS**

GASBRENNER- UND TOPFTRÄGERANORDNUNG FÜR HAUSHALTSKOCHSTELLEN

ASSEMBLAGE POUR GAZINIÈRES COMPRENANT UN BRÛLEUR À GAZ ET UN SUPPORT POUR RÉCIPIENT

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

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(30) Priority: **20.05.2002 IT TO20020101 U**

(43) Date of publication of application:
23.02.2005 Bulletin 2005/08

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Description

[0001] The present invention relates to an assembly comprising a gas burner and an overlying pot-holder for a domestic for a domestic cooking hob of the type comprising a plurality of gas burners for heating food contained in cooking vessels.

[0002] The cooking hobs of the cited type are known and practically available in various forms and sizes in every household kitchen.

[0003] In some cases these hobs occur as independent elements in the form of simple burners; in other cases these hobs are sectional elements being apt to be built in on standard size openings obtained on the working top of a sectional kitchen; in further options the above hobs also form the top of a household electric appliance comprising an oven for food baking.

[0004] These cooking hobs typically have circular shaped burners of varying sizes and with relevant pot-holder; this pot-holder can be obtained as a single piece, thus serving all the burners available on the cooking hob, or obtained as many elements as the number of burners.

[0005] The burners can comprise grooves for the flames outlets, said grooves being interrupted in correspondence with those portions of an overlying pot-holder that would constitute an obstacle to a flame from reaching a vessel (see for example GB-1 421 723 A).

[0006] In order to avoid a displacement of the pot-holder in its use, i.e. when supporting a vessel during a cooking stage, the cooking hobs have reference points for their positioning and centring on the burner; these references usually consist of embeddings made on the cooking hob into which small pot-holder teeth are to be engaged.

[0007] Due to merely aesthetic reasons, some cooking hobs are fitted with pot-holders, which instead of being in the usual form of a grid, i.e. their central member overlying the burner being open, have a substantially square flat central area being closed, which partially hides from sight the burner underneath; from such a flat area a horizontal extension, departing from each corner, ends with an upright resting section on the cooking hob.

[0008] Generally, these pot-holders are all exactly the same, except for their flat closed central part, which can be more or less large depending on the burner size on which they are to be overlapped.

[0009] However, these pot-holders have some drawbacks concerning the burner functionality during the heating stage of a cooking vessel.

[0010] In fact, the substantially square flat surface of the pot-holder is such, that the corners of its surface cover at least partially the circular burner, so that the burner flame will partially lick said pot-holder surface causing a partial hindrance to a direct heating of the pan. As a result, a minor heating power is available with the same nominal burner power, with longer cooking times and higher gas consumption.

[0011] Moreover, a correct positioning of such pot-

holders is exclusively determined by proper embeddings on the cooking hob into which the resting upright elements are to be inserted; this fact could lead to a possible wrong joining between the pot-holder and the corresponding burner.

[0012] The object of the present invention is to provide for a pot-holder, whose correct positioning is possible apart from the embeddings on the cooking hob.

[0013] Another object of the present invention is to solve the above mentioned problems and in particular to provide for a type of a burner for a cooking hob, in which the flames can directly reach the cooking vessel also in the case of an overlying pot-holder.

[0014] A further object of the present invention is to solve the above problems also in the event of a pot-holder having a central flat closed area, in particular being substantially square shaped.

[0015] Such objects are achieved by the present invention providing for an assembly comprising a gas burner and an overlying pot-holder according to the following description and the annexed drawings and claims, which form an integral part of the description herein.

[0016] Further objects, features and advantages of the present invention will become apparent from the following detailed description and annexed drawings, which are supplied by the way of a non limiting example, wherein:

- Fig. 1 shows schematically a plan view of a cooking hob according to the present invention;
- Fig. 2 shows schematically a perspective view of a burner which is a part of the assembly according to the present invention;
- Fig. 3 shows schematically an exploded perspective view of the burner of Fig. 2;
- Fig. 4 shows schematically an exploded perspective view of the burner of Fig. 3, with its relevant pot-holder according to the present invention;
- Fig. 5 shows schematically a plan view of a cooking hob according to a variant of the present invention.

[0017] A cooking hob according to the present invention is schematically represented in a plan view in figure 1; in this figure, reference number 1 indicates a domestic cooking hob in its whole; reference numbers 2, 3, 4 and 5 indicate four gas burners of different sizes and calorific powers whose, if necessary, can be used with pots, pans and vessels of various sizes for cooking different types of food. Numbers 6, 7, 8 and 9 indicate four pot-holders, each one of them having size suitable for one burner; finally, the controls or cock of the single burners 2-5 are indicates with reference number 10.

[0018] Each burner can be equipped with a lighting spark plug and/or a thermocouple for verifying whether the burner is on.

[0019] Figures 2 and 3 illustrate schematically a perspective view of an assembled and exploded burner which is a part of the assembly according to the present

invention. In the following description reference will be made to only one of the four burners, since the others have the same form and features, but different sizes.

[0020] Reference 2 indicates the burner in its whole, which is obtained according to a substantially known technique, comprising a body 11 arranged under the cooking hob, which the gas supply ducts, a wall baffle element 12 associated to the body 11 and a cap 13 placed on the wall baffle element 12, are connected to.

[0021] The burner 2 can be of a type drawing primary air either above or underneath the top on which it is assembled.

[0022] The wall baffle element 12 and cap 13 are substantially square shaped, with slightly concave sides and rounded corners. The cap 13 has some references in its lower section for its positioning on the wall baffle element 12, not represented nor described as being of a known type.

[0023] The wall baffle element 12 has some grooves 14 on its upper edge for the gas outlet and lighting, to the aim of forming the flame for heating the cooking vessel placed on it.

[0024] Reference 15 indicates other smaller grooves with respect to the above grooves 14, each one located between two grooves 14, being apt to a flame propagation during the lighting stage of the burner; only one or more smaller grooves 15 occur in the rounded corners.

[0025] As previously mentioned, the figures 2 and 3 show how the wall baffle element 12 and the cap 13 are substantially square shaped, with slightly concave sides and rounded corners.

[0026] An exploded perspective view of the burner of figure 3 with its relevant pot-holder, according to the present invention, is schematically illustrated in figure 4. Reference 2 indicates the burner in its whole and reference 6 a pot-holder.

[0027] In the following description reference will be made to one only of the four pot-holders, since the others have the same form and features, but different sizes.

[0028] The pot-holder 6 has a box-type form obtained through a pressure die-casting process, having a substantially square shaped central member 16, with slightly concave sides, four extensions 17, each one horizontally departing from a corner of the central member 16 and four upright lengths 18, each one arranged at the end of an extension 17; both the extensions 17 and the upright lengths 18 have a substantially rectangular cross section, internally empty.

[0029] The central member 16 and the upper section of the extensions 17 form the resting plane for a cooking vessel, whereas the upright lengths 18 form the support for the pot-holder 6 on the cooking hob.

[0030] Both the size and form of the pot-holder 6 central member 16 is substantially equal to the size and form of the burner on which the pot-holder has to be placed.

[0031] A rib 16A orthogonally departs downwards on the sides of the central member 16 and extensions 17; each rib 16A has, centrally with respect to each side of

the central member 16, an undercut 19 having substantially the same width of the burner 2 cap 13, and a depth equal to about the thickness of the cap 13.

[0032] Since the undercuts 19 in the number of four each pot-holder, of which only two can be seen in Figure 4, are coupled to the cap 13, they ensure both the positioning and centring of the pot-holder 6 on the burner without requiring any references, such as embeddings of the cooking hob. Such embeddings, which are anti-aesthetic and soil collectors, can also be avoided.

[0033] In fact, any faulty positioning of the pot-holder on the corresponding burner are easily avoided by virtue of the steps 19A occurring between the bottom of the undercuts 19 and the outside of the ribs 16A.

[0034] Moreover, the size of the central member of the pot-holder, which is substantially similar to the size of the burner on which the pot-holder has to be placed, will cause the flame coming out from the burner to lick the sides of the central member of the pot-holder and directly involve the bottom alone of the cooking vessel rested without any hindrance between them.

[0035] In fact, as previously mentioned, the burner 2 has, in the corners covered by the pot-holder, only one gas passage being sufficient for a flame propagation during the lighting stage, and therefore of a reduced intensity.

[0036] As it can be known intuitively, the cooking hob according to the present invention has an improved burner performance during the heating stage of a cooking vessel.

[0037] Interrupting the flames in correspondence with the overlaying portions of the pot-holder is of general utility, also when the pot-holders consist of simple bars, as usual, or even if the pot-holders, provided of closed flat central member, present every kind of profile, if only the underlying burner has the same profile.

[0038] From the above description the features of the cooking hob object of the present invention are clear.

[0039] In the same way, also the advantages of the present invention are clear, in particular:

possibility of using the whole burners calorific power for heating the cooking vessels, without energy waste,

possibility of positioning the pot-holder without any need to refer to embeddings of the cooking hob.

[0040] A first alternative embodiment of the present invention is illustrated in Figure 5, where the previous reference numbers are used in part.

[0041] In Figure 5, the reference 20 indicates four pot-holders of equal size.

[0042] The pot-holders 20 are substantially obtained by four arms 21 joining each other to form a cross, with an extension 22 orthogonally departing downwards from their ends.

[0043] The arms 21 have the function of supporting the cooking vessel, whereas the extensions 22 have the

function of being as spacers and rests for the pot-holder 20 resting on the cooking hob.

[0044] The positioning of the pot-holder 20 with respect to the burner is such to have the arms 21 in correspondence with a corner of the burner, so as not interfering with the flame and being able to utilize the whole burner calorific power for heating the cooking vessel.

[0045] In this specific embodiment, the pot-holders are all able to be similar to each other; concerning their positioning and centring with respect to the burner, it is sufficient to refer to the embeddings of the cooking hob.

[0046] It is evident that the embodiment of the burners which are part of the assembly according to the present invention will not hinder them to be equipped with known lighting spark plugs and/or flame sensors and/or temperature sensors of the cooking vessel.

[0047] However, it is clear that many other alternative embodiments are possible to the cooking hob object of the present invention, as well as it is clear that in its practical actuation both the forms and arrangements of the various elements could be different from the ones described above and be replaced by elements technically equivalent to them.

Claims

1. Assembly comprising a gas burner (2-5) and an overlying pot-holder (6-9; 20) for domestic cooking hobs for the heating of cooking vessels, comprising first grooves (14) for the flame outlets for heating a cooking vessel, said first grooves (14) being interrupted in correspondence with those portions of said pot-holder (6-9;20) that would constitute an obstacle to a flame from reaching a vessel, **characterized in that** said pot-holder (6-9;20) has positioning means (19, 19A) which cooperate with a relevant holding part (13) provided on said burner (2-5) so as to center and position said pot-holder (6-9;20) in a predetermined angular position with respect to the burner (2-5).
2. An assembly according to the previous claim, **characterized in that** said positioning means (19, 19A) comprise an undercut (19) and a step (19A).
3. An assembly according to the previous claim, **characterized in that** said undercut (19) has a width substantially equal to the width of a cap (13) of said burner (2-5).
4. An assembly according to claim 3, **characterized in that** said undercut(19) has a depth equal to about the thickness of said cap (13) of said burner (2-5).
5. An assembly according to claim 1, **characterized in that** the burner has second grooves (15) for the flame propagation, said second grooves (15) being uniformly distributed also in the areas where said first grooves (14) are interrupted.
6. An assembly according to claim 1, **characterized in that** said pot-holder (6-9) comprises a closed flat central member (16) and that in its plan view said burner (2-5) has substantially the same profile as said closed flat central member (16), so that said flames coming out from said first grooves (14) are able to directly reach said cooking vessel after simply licking the sides of said pot-holder (6-9).
7. An assembly according to claim 6, **characterized in that** said closed flat central member (16) of said pot-holder (6-9) is substantially square shaped with slightly concave sides and has four extensions (17), which depart from the edges of said closed flat central member (16).
8. An assembly according to at least one or more of the previous claims, **characterized in that** said pot-holder (20) has four arms (21), four vertical extensions (22) arranged each one on an end of said arms (21), in particular said arms (21) being joined to form a cross.
9. A domestic cooking hob comprising an assembly according to at least one or more of the previous claims, **characterized in that** said pot-holders (6-9) have a closed flat central member (16) and said gas burners (2-5) have substantially the same profile of said closed flat central member (16) in their plan view.
10. A domestic cooking hob, according to the previous claim, **characterized in that** it comprises reference embeddings for positioning said pot-holders (6-9; 20).
11. A domestic cooking hob, according to claim 9 or 10, **characterized in that** at least one of said burners (2-5) comprises a temperature sensor device.
12. A domestic cooking hob, according to claim 9, 10 or 11, **characterized in that** it provides automatic lighting means of said burners (2-5).
13. A domestic cooking hob, according to at least one of the claims 9, 10, 11 or 12, **characterized in that** it is provided with flame sensors.
14. A domestic cooking hob, according to at least one of the claims 9, 10, 11, 12 or 13, **characterized in that** it is provided one or more pot-holders (6-9;20) being apt to support cooking vessels of different forms and sizes.
15. A domestic cooker and/or burner for cooking foods, comprising the assembly according to one or more

of the previous claims.

16. A domestic cooker for cooking foods, comprising the cooking hob according to one of the claims 9, 10, 11, 12, 13 or 14.

Patentansprüche

1. Anordnung mit einem Gasbrenner (2-5) und einem darüberliegenden Topfhalter (6-9; 20) für Haushaltskochstellen für die Erwärmung von Kochgefäßen mit ersten Ausnehmungen (14) für die Flammenaustritte zum Erwärmen eines Kochgefäßes, wobei die ersten Ausnehmungen (14) in Übereinstimmung mit denjenigen Abschnitten des Topfhalters (6-9; 20) unterbrochen sind, die für eine Flamme ein Hindernis beim Erreichen eines Gefäßes darstellen würden, **dadurch gekennzeichnet, dass** der Topfhalter (6-9; 20) Positionierungsmittel (19, 19A) aufweist, die mit einem passenden Halteteil (13), das auf dem Brenner (2-5) bereitgestellt ist, zusammenwirken, um den Topfhalter (6-9; 20) in einer vorgegebenen Winkelposition in Bezug auf den Brenner (2-5) zu zentrieren und zu positionieren.
2. Anordnung nach dem vorangegangenen Anspruch, **dadurch gekennzeichnet, dass** die Positionierungsmittel (19, 19A) eine untere Aussparung (19) und eine Stufe (19A) aufweisen.
3. Anordnung nach dem vorangegangenen Anspruch, **dadurch gekennzeichnet, dass** die Breite der unteren Aussparung (19) im Wesentlichen gleich der Breite einer Abdeckkappe (13) des Brenners (2-5) ist.
4. Vorrichtung nach Anspruch 3, **dadurch gekennzeichnet, dass** die Tiefe der unteren Aussparung (19) ungefähr gleich der Dicke der Abdeckkappe (13) des Brenners (2-5) ist.
5. Anordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Brenner zweite Ausnehmungen (15) für die Flammenausbreitung hat, wobei die zweiten Ausnehmungen (15) gleichförmig auch in den Bereichen verteilt sind, in denen die ersten Ausnehmungen (14) unterbrochen sind.
6. Anordnung nach Anspruch 1, **dadurch gekennzeichnet, dass** der Topfhalter (6-9) ein geschlossenes flaches Mittelelement (16) aufweist und dass der Brenner (2-5) in seiner Draufsicht im Wesentlichen dasselbe Profil hat wie das geschlossene flache Mittelelement (16), so dass die Flammen, die aus den ersten Ausnehmungen (14) herauskommen, in der Lage sind, das Kochgefäß direkt zu erreichen, nachdem sie einfach an den Sei-

ten des Topfhalters (6-9) züngeln.

7. Anordnung nach Anspruch 6, **dadurch gekennzeichnet, dass** das geschlossene flache Mittelelement (16) des Topfhalters (6-9) im Wesentlichen quadratisch geformt ist mit licht konvexen Seiten, und dass das geschlossene flache Mittelelement (16) vier Erstreckungen (17) hat, die sich von den Kanten des geschlossenen flachen Mittelelements (16) aus erstrecken.
8. Anordnung nach mindestens einem oder mehreren der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** der Topfhalter (20) vier Arme (21) hat, sowie vier vertikale Erstreckungen (22), von denen jede an einem Ende der Arme (21) angeordnet ist, wobei die Arme (21) insbesondere verbunden sind, um ein Kreuz zu formen.
9. Haushaltskochstelle mit einer Anordnung nach mindestens einem oder mehreren der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** die Topfhalter (6-9) ein geschlossenes flaches Mittelelement (16) haben, und dass die Gasbrenner (2-5) in ihrer Draufsicht im Wesentlichen dasselbe Profil haben wie das geschlossene flache Mittelelement (16).
10. Haushaltskochstelle nach dem vorangegangenen Anspruch, **dadurch gekennzeichnet, dass** die Haushaltskochstelle Referenzeinbettungen zum Positionieren der Topfhalter (6-9; 20) aufweist.
11. Haushaltskochstelle nach Anspruch 9 oder 10, **dadurch gekennzeichnet, dass** zumindest einer der Brenner (2-5) ein Temperaturmessgerät aufweist.
12. Haushaltskochstelle nach Anspruch 9, 10 oder 11, **dadurch gekennzeichnet, dass** die Haushaltskochstelle Mittel zum automatischen Anzünden der Brenner (2-5) bereitstellt.
13. Haushaltskochstelle nach zumindest einem der Ansprüche 9, 10, 11 oder 12, **dadurch gekennzeichnet, dass** an der Haushaltskochstelle Flammensensoren bereitgestellt sind.
14. Haushaltskochstelle nach zumindest einem der Ansprüche 9, 10, 11, 12 oder 13, **dadurch gekennzeichnet, dass** an der Haushaltskochstelle ein oder mehrere Topfhalter (6-9; 20) bereitgestellt sind, die geeignet sind, Kochgefäße verschiedener Formen und Größen zu stützen.
15. Haushaltskocher und/oder Brenner zum Kochen von Speisen mit der Anordnung nach einem oder mehreren der vorangegangenen Ansprüche.

16. Haushaltskocher zum Kochen von Speisen mit der Kochstelle nach einem der Ansprüche 9, 10, 11, 12, 13 oder 14.

Revendications

1. Ensemble, comprenant un brûleur à gaz (2 à 5) et un support de casserole superposé (6 à 9 ; 20) pour tables de cuisson domestiques, destiné à chauffer des récipients de cuisson, comprenant des premières rainures (14) pour les sorties de flamme permettant de chauffer un récipient de cuisson, lesdites premières rainures (14) étant interrompues en correspondance avec celles des parties dudit support de casserole (6 à 9 ; 20) qui empêcheraient une flamme d'atteindre un récipient, **caractérisé en ce que** ledit support de casserole (6 à 9 ; 20) comporte des moyens de positionnement (19, 19A) qui coopèrent avec une partie de support (13) pertinente, prévue sur ledit brûleur (2 à 5) de façon à centrer et positionner ledit support de casserole (6 à 9 ; 20) dans une position angulaire prédéterminée par rapport au brûleur à gaz (2 à 5). 5
2. Ensemble selon la revendication précédente, **caractérisé en ce que** lesdits moyens de positionnement (19, 19A) comprennent un dégagement (19) et un gradin (19A). 10
3. Ensemble selon la revendication précédente, **caractérisé en ce que** ledit dégagement (19) présente une largeur substantiellement égale à la largeur d'une coiffe (13) dudit brûleur (2 à 5). 15
4. Ensemble selon la revendication 3, **caractérisé en ce que** ledit dégagement (19) présente une profondeur égale à environ l'épaisseur de ladite coiffe (13) dudit brûleur (2 à 5). 20
5. Ensemble selon la revendication 1, **caractérisé en ce que** le brûleur présente des deuxièmes rainures (15) pour la propagation des flammes, lesdites deuxièmes rainures (15) étant réparties uniformément aussi dans les zones où lesdites premières rainures (14) sont interrompues. 25
6. Ensemble selon la revendication 1, **caractérisé en ce que** ledit support de casserole (6 à 9) comprend un élément central plat fermé (16) et **en ce que** dans sa vue en projection horizontale ledit brûleur (2 à 5) présente substantiellement le même profil que ledit élément central plat fermé (16), de sorte que lesdites flammes sortant desdites premières rainures (14) peuvent atteindre directement ledit récipient de cuisson après avoir simplement léché les côtés dudit support de casserole (6 à 9). 30
7. Ensemble selon la revendication 6, **caractérisé en ce que** ledit élément central plat fermé (16) dudit support de casserole (6 à 9) est substantiellement de forme carrée avec des côtés légèrement concaves et présente quatre extensions (17) qui s'éloignent des bords dudit élément central plat fermé (16). 35
8. Ensemble selon au moins une ou plusieurs des revendications précédentes, **caractérisé en ce que** le support de casserole (20) présente quatre bras (21), quatre extensions verticales (22) agencées chacune sur une extrémité desdits bras (21), en particulier lesdits bras (21) étant reliés pour former une croix. 40
9. Table de cuisson domestique comprenant un ensemble selon au moins une ou plusieurs des revendications précédentes, **caractérisé en ce que** lesdits supports de casserole (6 à 9) présentent un élément central plat fermé (16) et lesdits brûleurs à gaz (2 à 5) présentent substantiellement le même profil dudit élément central plat fermé (16) dans leur vue en projection horizontale. 45
10. Table de cuisson domestique selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'elle** comprend des incrustations de référence pour le positionnement desdits supports de casserole (6 à 9 ; 20). 50
11. Table de cuisson domestique selon la revendication 9 ou 10, **caractérisée en ce qu'au moins l'un** desdits brûleur à gaz (2 à 5) comprend un dispositif détecteur de température. 55
12. Table de cuisson domestique selon la revendication 9, 10 ou 11, **caractérisée en ce qu'elle** prévoit des moyens d'éclairage automatiques desdits brûleurs (2 à 5). 60
13. Table de cuisson domestique selon au moins l'une des revendication 9, 10, 11 ou 12, **caractérisée en ce qu'elle** est munie de détecteurs de flamme. 65
14. Table de cuisson domestique selon au moins l'une des revendications 9, 10, 11, 12 ou 13, **caractérisé en ce qu'elle** est munie d'un ou de plusieurs supports de casserole (6 à 9 ; 20) adaptés pour supporter des récipients de cuisson de différentes formes et tailles. 70
15. Cuiseur domestique et/ou brûleur pour cuire des aliments, comprenant l'ensemble selon l'une quelconque ou plusieurs des revendications précédentes. 75
16. Cuiseur domestique pour cuire des aliments, comprenant la table de cuisson selon l'une quelconque

des revendications 9, 10, 11, 12, 13 ou 14.

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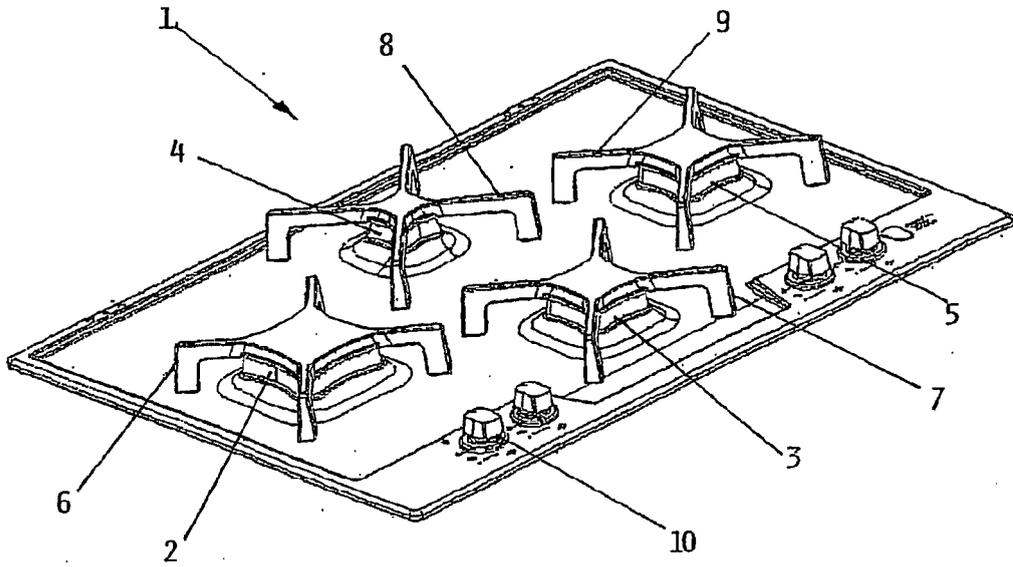


FIG. 1

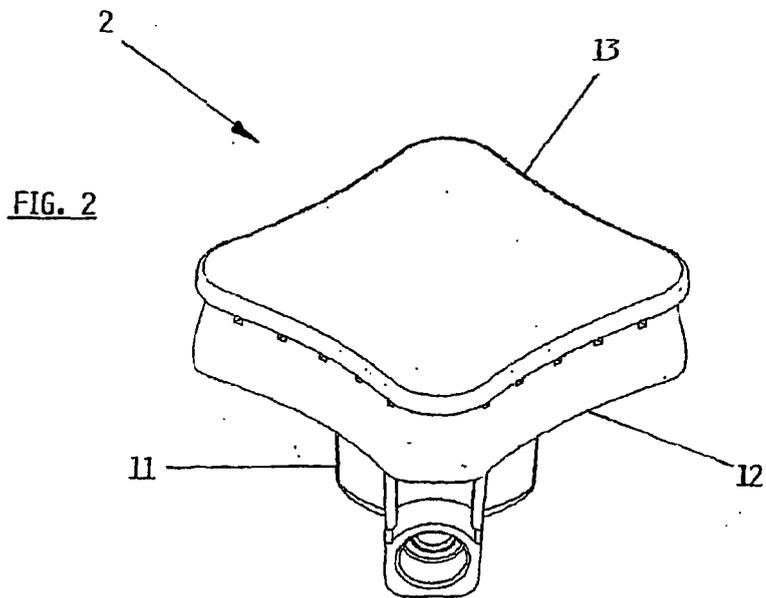
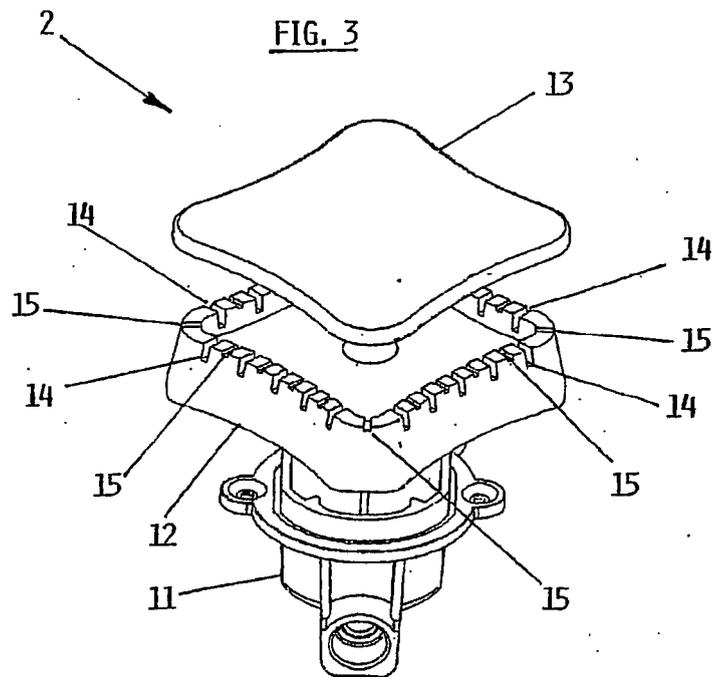
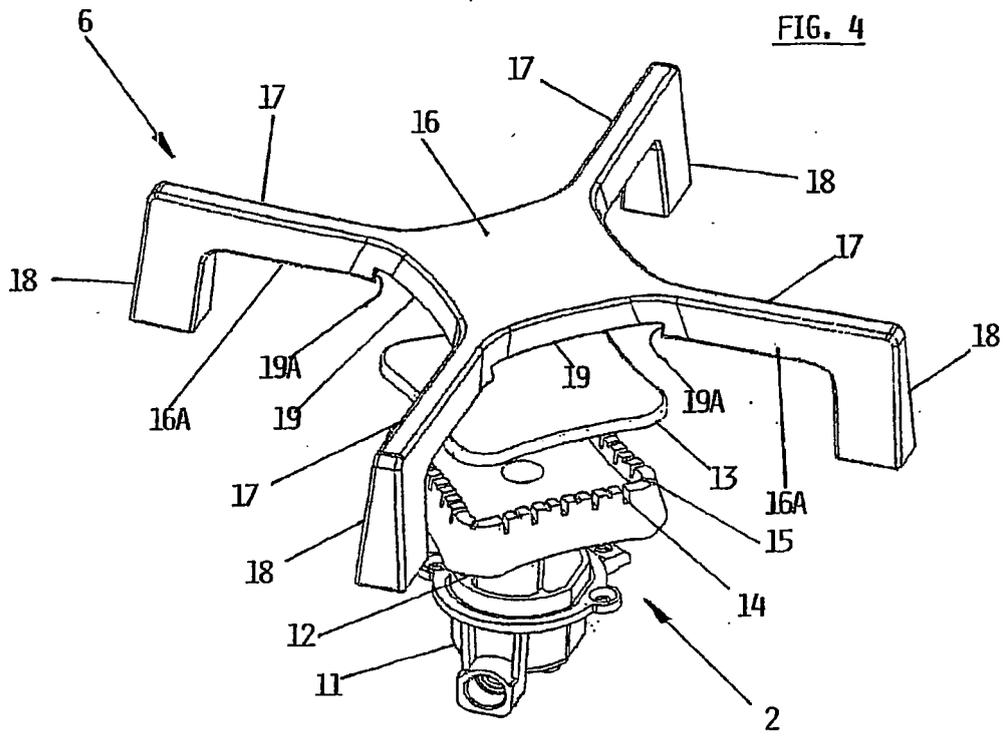
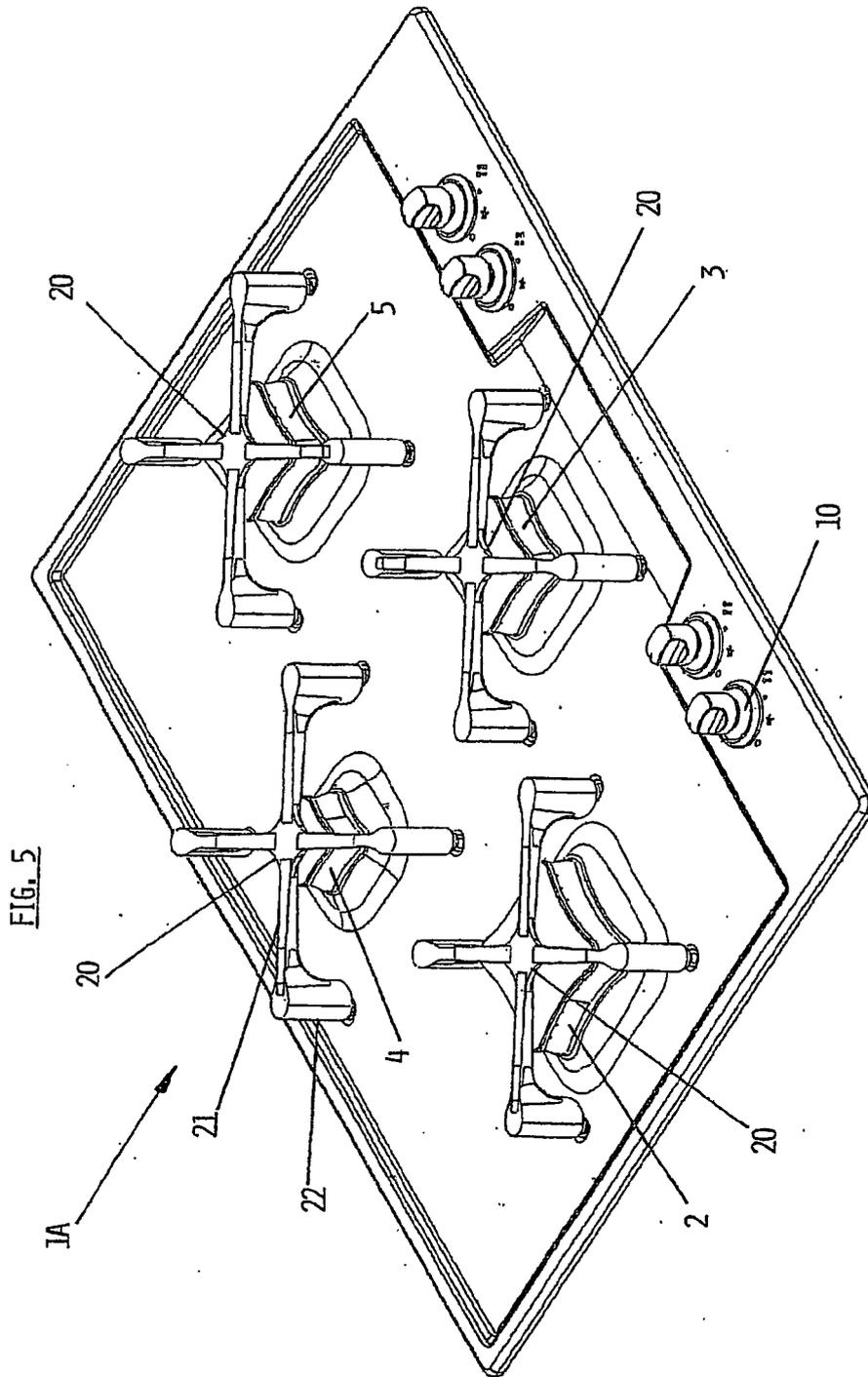


FIG. 2





REFERENCES CITED IN THE DESCRIPTION

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