

(19)



(11)

EP 2 250 443 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

24.02.2016 Bulletin 2016/08

(51) Int Cl.:

F24C 15/10 ^(2006.01) **F24C 1/00** ^(2006.01)
F24C 3/02 ^(2006.01) **F24C 3/08** ^(2006.01)
F24C 15/00 ^(2006.01)

(21) Application number: **09714639.3**

(86) International application number:

PCT/IB2009/050807

(22) Date of filing: **27.02.2009**

(87) International publication number:

WO 2009/107103 (03.09.2009 Gazette 2009/36)

(54) **DEVICE FOR COOKING FOODSTUFFS**

VORRICHTUNG ZUM KOCHEN VON GÜTERN

APPAREIL POUR CUIRE DES ALIMENTS

(84) Designated Contracting States:

**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 SE SI SK TR**

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(30) Priority: **28.02.2008 FR 0801107**

(43) Date of publication of application:

17.11.2010 Bulletin 2010/46

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Description

[0001] This invention relates to a device for cooking foodstuffs.

[0002] A kitchen and, more particularly, a professional kitchen, such as in a restaurant, for example, comprises numerous foodstuff cooking devices, arranged for heating containers containing the foodstuffs. Containers include for example saucepans, cooking pots and frying pans.

[0003] A particular frying pan type used for some dishes is the so-called "wok". This term, of Cantonese origin, refers to a basic kitchenware of the Asian cooking. A wok has a substantially hemispherical shape, at least its wall has the shape of a sphere portion. It also comprises one handle or two diametrically opposed handles. Very high and very concentrated heat is applied onto its lower part. Such a heat concentration, combined with the shape of the wok, provides for a cooking requiring only very little fat.

[0004] Such a kitchenware allows more specifically for a "marking" to be obtained for some vegetables, that is to cook them significantly and rapidly so as to impart them a particular surface appearance; consequently, crusty vegetables are obtained with a cooked appearance. A wok could also be used for frying or sautéing foodstuffs, the same way as a frying pan, but more rapidly, the wok further allowing, because of its size and its shape, for all the foodstuffs to be cooked simultaneously. A wok could also be used for warming up or steam cooking foodstuffs, adding a removable grid half height of the wok.

[0005] For the wok to be operated appropriately, the heat being applied to it should be applied centrally and in a very concentrated form. To this end, the conventionally used heating devices for woks comprise a wok supporting inverted conical support, allowing for the bottom surface thereof to be extended into the cone volume, in the vicinity of a heat source centred in the cone and for the wok to be heated in a very localized way.

[0006] Such a device is specially adapted for a wok. This raises a problem in a kitchen, as the fact that a device should be "specially adapted" means that it is only used for the type of container for which it is intended. Thus, in a kitchen, such a device permanently takes up one place, even when it is not being used.

[0007] Now, in gastronomic cooking, more particularly, a wok is only used very punctually, and in particular, as explained hereinabove, for "marking" foodstuffs just before serving them. In a restaurant, kitchenware and thus, their heating devices are indeed used during service, but also before and after the latter, more particularly in order to prepare dishes; during those periods of time, the place for the device for heating the wok is taken up, but unused, creating a problem.

[0008] Furthermore, and this is a second problem combined with the first one, woks are often heated, in a professional kitchen, through induction. Now, in restaurants more particularly, conventional gas heating means are

generally preferred, typically gas burners, as they are easier to set. Thus, wok induction heating means are not used when the wok is not in use, as these are not heating means appreciated by cooks for other types of containers. In any event, wok heating means, whether gas or induction ones, do not have the efficiency or combustion features adapted for other types of containers, and do not meet either security standards or energy standardized use specifications of other types of containers.

[0009] Furthermore, gas burners adapted for other kitchenware are not adapted for woks, which can only be used on heating devices of other kitchenware; indeed, the heat to be applied to a wok should be more concentrated than the one being applied to a flat bottom kitchenware, as security standards are not identical. Moreover, supporting grids are different and do not allow to support a wok.

[0010] Consequently, we are in a deadlock situation: the wok heating device takes up some place, but it is impossible either to make use of such a place for other kitchenware, or to use heating devices of other kitchenware for the wok.

[0011] In an effort to overcome such a deadlock, it is possible to change the burner and the grid of the heating device depending on the container to be heated, for forming a heating device specially adapted for the container, using the gas supplying means and the place of the heating device. If such a solution does indeed make it possible to use the same device for different types of containers including the wok, it has the inconvenient that the implementation thereof is tedious, the cooking device having to be dismantled each time a container type is changed. Even supposing that such a solution be implemented, there is still a problem: because of the wide range of grids to be mounted on a single burner, there is the risk that the user positions a kitchenware on a grid being not adapted to, which is to be avoided for efficiency and safety reasons, as the combustion does not then meet safety standards. Such a deadlock circumventing is thus not satisfactory.

[0012] The aim of the present invention is to provide a device for cooking foodstuffs, allowing for a common heating source to be used for various types of containers.

[0013] The specification relates to a method for cooking foodstuffs placed in a container being heated by a heating source, wherein the heating of the source is all the more concentrated on the container as the distance from the container to the source is lower. This method is not part of the invention.

[0014] Using the method, the same heating source can be used for various containers (a wok and a cooking pot, for example), the heating being adapted depending on the type of container. For example, if a wok is heated, heat is concentrated on the bottom of the wok bringing the latter closer to the source, while if a cooking pot is being heated, heat is distributed on the bottom of the cooking pot moving the latter away from the source.

[0015] According to an embodiment, the container is

heated in an all more distributed way since it is moved away from the source.

[0016] According to a embodiment, the bottom of a container with a bulged bottom, for example a wok, is brought closer to the heating source than the bottom of a flat-bottomed container, for example a saucepan.

[0017] According to an embodiment, the heating source comprising at least a central heating portion and a peripheral heating portion, the heating power of the central portion is all the more enhanced, to the disadvantage of that of the peripheral portion, as the distance from the container to the source is smaller.

[0018] Thus, heating is concentrated by increasing the influence of the central portion with respect to that of the peripheral portion. If, for example, a wok is to be used, the heating of the central portion could be concentrated on the bottom of the wok and, if a cooking pot is used, the heating of the peripheral portion could be distributed on the bottom of the cooking pot.

[0019] According to an embodiment, the ratio of the heating power of the central portion and the heating power of the peripheral portion is all the more increased as the distance from the container to the source is smaller.

[0020] The heating is all the more concentrated as the container is closer to the heating source.

[0021] The prior art includes EP-A2-1 447 624, which shows a device according to the preamble of claim 1.

[0022] The invention relates to a device for cooking foodstuffs placed in a container, comprising a heating source for heating a container and a container supporting means, arranged for heating a container in an all the more concentrated manner as the distance from the container to the source is smaller.

[0023] Such a device could be used for cooking foodstuffs contained in different containers, heating being adapted whatever the container without the heating source (for example, a burner) nor the container supporting means (for example, a grid) being modified. For example, if a wok is being heated, heat is concentrated on the bottom of the wok supporting the latter in the vicinity of the source, while if a cooking pot is being heated, heat is distributed on the bottom of the cooking pot supporting the latter further to the source, this by means of the implementation of the heating source and the supporting means. This is consequently a unique device (with a unique heating source and a unique supporting means) able to be used for a plurality of different container types, in particular containers requiring antinomic heating modes, either concentrated, or distributed.

[0024] The device is intended for cooking foodstuffs in at least one first type and one second type of container with a bottom, the heating source and the supporting means being arranged so that the bottoms of containers of the first and second types extend at different distances from the heating source.

[0025] Thus, the bottoms of containers of different shapes extend at different distances from the heating source and thus receive a heating with different concen-

tration. In particular, a wok could thus receive a more concentrated heating than a cooking pot.

[0026] According to one embodiment, the heating source comprises a gas burner arranged for generating at least one central flame, preferably substantially vertical, and a peripheral crown of flames, preferably being tilted.

[0027] The device is arranged such that the bottom of a container with a bulged bottom, for example a wok, extends closer to the source than the bottom of a container with a flat bottom, for example a saucepan.

[0028] The device comprises a container-supporting grid comprising a mean for supporting a container, arranged so that a container with a bulged bottom, for example a wok, comes in abutment along a contact surface located between its lower end portion (for example the bottom surface thereof) and its upper end portion (for example the upper edge thereof forming its upper aperture), and so that a container with a flat bottom, for example a saucepan, comes in abutment, via its bottom, on the mean, which is a plurality of tilted bars corresponding to the edges of a pyramid.

[0029] Certain features of the invention will be better understood by means of the following description of the preferred embodiment of a method and a device which aren't part of the invention, referring to the accompanying drawings, in which:

- Fig. 1 illustrates a front view of a wok placed on a device according to the preferred embodiment of a device which isn't part of the invention;
- Fig. 2 illustrates a profile sectional view of the wok and of the device of Fig. 1;
- Fig. 3 illustrates a perspective view of the wok and of the device of Fig. 1;
- Fig. 4 illustrates a front view of a saucepan placed on the device of Fig. 1;
- Fig. 5 illustrates a sectional profile view of the saucepan and of the device of Fig. 4;
- Fig. 6 illustrates a perspective view of the saucepan and of the device of Fig. 4;
- Fig. 7 illustrates a partially sectional view of the burner of the device of Fig. 1; and
- Fig. 8 is a picture of the device of Fig. 1 in operation but without any container placed on the grid thereof.

[0030] Referring to Fig. 1 to 8, a device 1 for cooking foodstuffs is illustrated. Such a device 1 is, in the present case, a cooking module arranged for being housed in an appropriate place in a kitchen. Thereby, a kitchen, and more particularly a restaurant kitchen, comprises a succession of modules, each having a function. The module 1 is a module for cooking foodstuffs, arranged for allowing for containers of different types to be heated, for example, saucepans, cooking pots and woks.

[0031] The cooking module 1 comprises a parallelepiped shape frame 2, for example made in metal, comprising a lower wall 2a and four side walls 2b, defining a

hollow inner volume 3 opened on the upper face thereof 2c.

[0032] In the inner volume 3 of the frame 2 there is mounted a heating source, being here a heat source, in the present case, a gas burner 4; such gas devices are generally referred to as "high heat" type gas burners. The burner 4 is here a double burner. As used herein, a double burner encompasses a burner which, from a unique gas supply, generates two flame patterns, in the present case, a central flame crown 7 and a peripheral flame crown 8; such flame crowns 7, 8 are illustrated on the picture in Fig. 8. Other patterns could be contemplated, for example a single central flame and a peripheral flame crown 8. The burner 4 is connected with a gas supply line 4', being in turn connected with a gas source, not shown, supplying the latter with combustion gas, as well known to those skilled in the art. The gas could be, for example, a methane-based natural gas or a liquefied petroleum gas type (LPG).

[0033] The burner 4 comprises an inner sleeve 5 concentric with an external sleeve 6 for forming the central flame crown 7 and the peripheral flame crown 8.

[0034] The sleeves 5, 6 each have the shape of a substantially cylindrical part of a common vertical axis 9. Both sleeves 5, 6 are integral with each other through their bases, connected to each other by a connecting lower annular portion 10; so, both sleeves 5, 6 are actually formed by a monobloc part.

[0035] A disc 12, bored in its centre, is mounted on the upper ends of the sleeves 5, 6. The inner sleeve 5 is opened at its upper end, forming a central circular aperture 11 corresponding to the central aperture of the disc 12.

[0036] The inner wall portion 13 of the disc 12 forms an inner flame-catcher ring 13. Such a ring 13 is bored in its thickness with a plurality of bores 14. Such bores 14 are evenly distributed angularly to the periphery of the inner ring 13. Each bore 14 extends substantially vertically, slightly sideways from inside to outside, going down and up. Bores 14 open, on the one hand - at the level of their upper aperture - into the central aperture 11 of the disc 12, and on the other hand - at the level of their lower aperture - in the space 5 provided between the inner sleeve 5 and the external sleeve 6, such a space 15 being supplied with gas through the line 4', being connected to a hole of the external sleeve 6 opening into such a space 15.

[0037] For commodity reasons and in order to make the description easier, the space provided between the inner sleeve 5 and the external sleeve 6 will be referred to as "inter-sleeve space 15".

[0038] The external wall portion 16 of the disc 12 forms an external flame-catcher ring 16. Such a ring 16 is bored in its thickness with a plurality of bores 14. The bores 17 are evenly distributed angularly to the periphery of the external ring 16. Each bore 17 extend sideways from the inside to the outside, going from down to up. Bores 17 open, on the one hand - at the level of their upper aperture

- into the periphery of the disc 12, on the other hand - at the level of their lower aperture - into the inter-sleeve space 15.

[0039] The gases present in the inter-sleeve space 15, supplied by the supplying line 4', are ignited and the produced flames are "caught" by the inner flame-catcher ring 13 and the external flame-catcher ring 16, thus generating a central flame crown 7 and a peripheral flame crown 8, in the present case, respectively substantially vertical and tilted, such as are illustrated on the picture in Fig. 8.

[0040] The bores 17 of the external or the peripheral flame-catcher ring 16 are more tilted relative to the vertical than are the bores 14 of the inner or central flame-catcher ring 13. Thus, the central ring 13 generates an almost vertical flame crown 7 while the peripheral ring 16 generates a tilted flame crown 8.

[0041] In operation, flames being formed, it is only needed to supply the inter-sleeve space 15 for pursuing generating flames. For initiating the combustion, a flame (for example of a match) could be brought closer to the upper aperture of the bores 14, 17, while the gas is being supplied; alternatively, ignition means, not shown, are conventionally integrated to the burner 4 (for example, controlled means for forming a spark). Otherwise stated, and conventionally, flames are initiated by means of ignition means, and then maintained through the gas supply in the inter-sleeve space 15.

[0042] The cooking module 1 supports, along the upper edges of its side walls 2b defining the upper aperture 2c, a grid 18 for supporting a container for containing foodstuffs to be cooked by the module 1. The grid 18 is arranged such that containers of different types extend at different distances from the burner 4. In particular, it is arranged such that a container with a bulged bottom (and more particularly, a wok) extends closer to the burner 4 than a container with a flat bottom (and more particularly, a saucepan or a cooking pot). To this end, the grid 18 comprises here a central ring 19, fixed to the side walls 2b of the cooking module 1 through connecting bars 20.

[0043] Because of the pattern of the burner 4 with a central flame crown 7 and a peripheral flame crown 8, the heat of the heating source 4 is all the more concentrated on the container as the distance from the container to the source 4 is smaller.

[0044] Thus, the containers with a bulged bottom supported by the grid 18 extend closer to the burner 4 and thus receive a more concentrated heat than containers with a flat bottom which, when being supported by the grid 18, extend further from the burner 4 and therefore, receive a more distributed heat.

[0045] Fig. 1 to 3 illustrate the cooking module 1 supporting a wok 21 with a bulged bottom and Fig. 4 to 6, the cooking module 1 supporting a cooking pot 22 with a flat bottom.

[0046] The wok 21 has a bulged shape, more precisely a spherical one (it forms an opened hollow sphere por-

tion). More precisely, it comprises a wall 21b forming a bulged bottom 21b, shaped as a portion of sphere, extending from an upper edge 21a, forming the upper aperture of the wok 21, up to a lower end surface 21c or bottom surface 21c of the wok 21. The wok 21 furthermore comprises a sleeve 21d fixed to its wall 21 b at the level of its edge 21 a.

[0047] The cooking pot 22 has a hollow cylindrical shape opened on the upper side. It comprises a cylindrical-shaped side wall 22b, a bottom wall 22c and an upper edge 22a forming the upper aperture of the cooking pot 22. It furthermore comprises a sleeve 22d fixed to its side wall 22b.

[0048] The diameter of the ring 19 of the supporting grid 18 is lower than the diameter of the bottom wall of the cooking pot 22. It is furthermore lower than the diameter of the upper edge 21a of the wok 21.

[0049] Because of the relationship between the diameter of the ring 19 and that of its upper edge 21a, the wok 21 is in contact with the ring 19 along a surface located between its upper edge 21a and its bottom surface 21c; in the present case, the wok 21 is supported approximately half height of its bulged bottom wall 21b.

[0050] Because of the relationship between the diameter of the ring 19 and that of its bottom wall 22c, the cooking pot 22, on its part, lies, by means of its bottom wall 22c, on the upper surface of the ring 19.

[0051] Thus, the bottom surface 21 c of the wok 21 extends at a smaller distance from the burner 4 than the bottom wall 22 of the cooking pot 22. The heating as received by the wok 21 is thus more concentrated than the heating as received by the cooking pot 22.

[0052] Such a difference in the heating concentration, due to the relationship between the dimensions of the ring 19 of the grid 18 and those of the wok 21 or the cooking pot 22, is improved by the pattern of the burner 4: as it has a double pattern with a central crown 7 of vertical flames and a peripheral crown 8 of tilted flames, the burner heats the wok 21 in a very concentrated way at the centre of the wok 21 (i.e. on its bottom surface extending in the vicinity of the central crown 7 of the burner 4) and heats the cooking pot 22 in a more distributed way (on its bottom surface extending at a substantially constant distance from the burner 4 and therefore receiving a more distributed heat from the central crown 7 and the peripheral crown 8).

[0053] Thus, the heating central portion of the heating source 4 is all the more enhanced, to the disadvantage of its heating peripheral portion, as the distance from the container 21, 22 to the source 4 is smaller. The heating central portion of the burner 4 corresponds to the inner flame-catcher ring 13, generating the central flame crown 7. The heating peripheral portion of the burner 4 corresponds to the external flame-catcher ring 16, generating the peripheral flame crown 8.

[0054] It should be incidentally noted that, preferably, peripheral flames are sufficiently spaced apart from the burner 4 central flames, or are short enough, so as to

avoid disturbing the flow of combustion products of the central flames.

[0055] Thus, it is possible to use the same cooking module for different types of containers, without requiring for dismantling either the burner or the grid. Furthermore, the module meets the regulatory safety standards in so as it forms an appropriate support for each container. In particular, the device is provided with a multi-purpose use without any hazard at the safety level and meeting the energy standardized use specifications: the association of a burner and of a grid allowing them, by means of their respective arrangements, for a hygienic combustion to be obtained with a satisfactory efficiency, for a use with a wok or with a saucepan, more generally in more or less concentrated heating operating modes.

[0056] The specification relates to a particular embodiment of the method and of the cooking device which aren't part of the invention. Obviously, alternative patterns could be contemplated, filling the same function.

[0057] In the invention, the grid is not formed by a ring; according to the invention, a plurality of tilted bars corresponding to the edges of a pyramid are adapted for filling the function of the ring as described in the present application.

[0058] Furthermore, the function aimed at favouring more or less the heating of the central portion with respect to that of the peripheral portion could be filled in various ways. For example, distinct gas supplies could be provided for each portion (central and peripheral), being adapted to set their powers independently one from the other; the ratio is thereby easily set between the power of the central portion and the power of the peripheral portion, allowing to increase all the more said ratio as the distance from the container to the source is smaller.

Claims

1. A device for cooking foodstuffs placed in a container (21, 22), comprising a heating source (4) for heating said container (21, 22) and a means (18) for supporting said container (21, 22), arranged for heating said container (21, 22) in an all the more concentrated manner as the distance from the container (21, 22) to the source (4) is smaller, said device being arranged such that the bottom (21c) of a container with a bulged bottom (21), for example a wok (21), extends closer to the source (4) than the bottom (22c) of a container with a flat bottom (22), for example a saucepan (22), said device comprising a grid (18) for supporting said container comprising a container-supporting mean (20), arranged such that said container with a bulged bottom (21), for example a wok (21), comes in abutment along a contact surface located between its lower (21c) and upper (21a) end portions, and such that said container with a flat bottom (22), for example a saucepan (22), comes in abutment, by means

of the bottom thereof (22c), on the mean (20),
characterized in that said mean (20) is a plurality
 of tilted bars corresponding to the edges of a pyra-
 mid.

2. A device according to one of claims 1, wherein the heating source comprises a gas burner (4) arranged for generating at least one central flame (7) and a peripheral flame crown (8).
3. A device according to claim 2, wherein said at least one central flame (7) is substantially vertical, and said peripheral flame crown (8) is tilted.

Patentansprüche

1. Vorrichtung zum Kochen von in einem Behälter (21, 22) platzierten Nahrungsmitteln, umfassend eine Heizquelle (4) zum Erhitzen des Behälters (21, 22) und ein Mittel (18) zum Tragen des Behälters (21, 22), die zum Erhitzen des Behälters (21, 22) in einer um so konzentrierteren Weise je kleiner der Abstand vom Behälter (21, 22) zur Quelle (4) ist, angeordnet sind,
 wobei die Vorrichtung so angeordnet ist, dass der Boden (21c) eines Behälters mit einem bauchigen Boden (21), zum Beispiel eines Woks (21), sich näher zur Quelle (4) erstreckt als der Boden (22c) eines Behälters mit einem ebenen Boden (22), zum Beispiel eines Kochtopfs (22),
 wobei die Vorrichtung einen Gitterrost (18) zum Tragen des Behälters umfasst, der ein Behälterträgermittel (20) umfasst, das so angeordnet ist, dass der Behälter mit einem bauchigen Boden (21), zum Beispiel ein Wok (21), entlang einer Kontaktfläche, die zwischen seinem unteren (21c) und oberen (21a) Endteil angeordnet ist, in Anlage kommt, und so, dass der Behälter mit einem ebenen Boden (22), zum Beispiel ein Kochtopf (22), mittels seines Bodens (22c) auf dem Mittel (20) in Anlage kommt,
dadurch gekennzeichnet, dass das Mittel (20) mehrere geneigte Stäbe sind, die den Rändern einer Pyramide entsprechen.
2. Vorrichtung nach Anspruch 1, wobei die Heizquelle einen Gasbrenner (4) umfasst, der zur Erzeugung mindestens einer zentralen Flamme (7) und einer Umfangsflammenkrone (8) angeordnet ist.
3. Vorrichtung nach Anspruch 2, wobei die mindestens eine zentrale Flamme (7) im Wesentlichen vertikal ist und die Umfangsflammenkrone (8) geneigt ist.

Revendications

1. Dispositif pour cuire des aliments placés dans un

réipient (21, 22), comprenant une source de chauffage (4) pour chauffer ledit réipient (21, 22) et un moyen (18) pour supporter ledit réipient (21, 22), prévu pour chauffer ledit réipient (21, 22) de manière d'autant plus concentrée que la distance du réipient (21, 22) à la source (4) est petite, ledit dispositif étant prévu de telle sorte que le fond (21c) d'un réipient ayant un fond bombé (21), par exemple un wok (21), s'étende plus près de la source (4) que le fond (22c) d'un réipient ayant un fond plat (22), par exemple une casserole (22), ledit dispositif comprenant une grille (18) pour supporter ledit réipient comprenant un moyen de support de réipient (20), agencé de telle sorte que ledit réipient ayant un fond bombé (21), par exemple un wok (21), vienne en butée le long d'une surface de contact située entre ses portions d'extrémité inférieure (21c) et supérieure (21a), et de telle sorte que ledit réipient ayant un fond plat (22), par exemple une casserole (22), vienne en butée, au moyen de son fond (22c), sur le moyen (20),
caractérisé en ce que ledit moyen (20) est constitué par une pluralité de barres inclinées correspondant aux bords d'une pyramide.

2. Dispositif selon la revendication 1, dans lequel la source de chauffage comprend un brûleur à gaz (4) agencé de manière à générer au moins une flamme centrale (7) et une couronne de flammes périphérique (8).
3. Dispositif selon la revendication 2, dans lequel ladite au moins une flamme centrale (7) est substantiellement verticale, et ladite couronne de flammes périphérique (8) est inclinée.

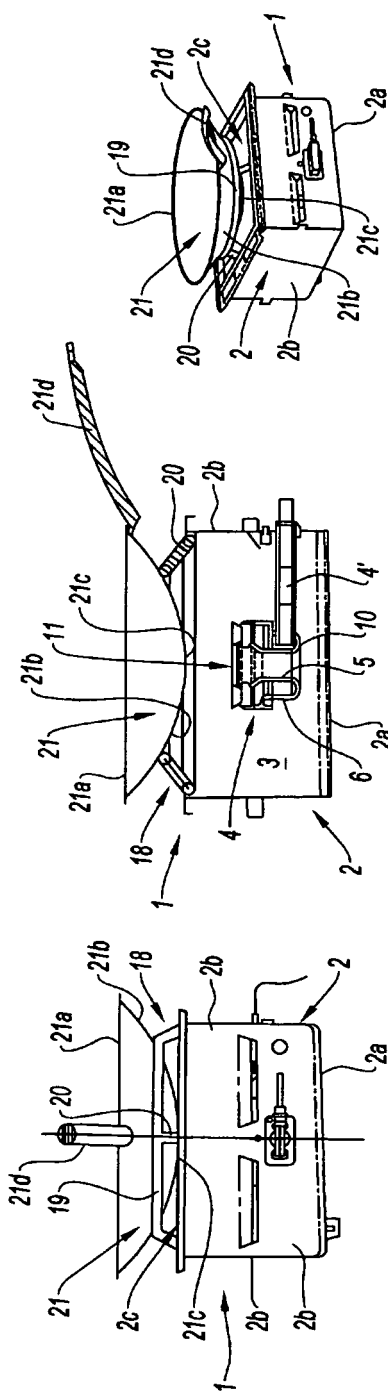


Fig. 1

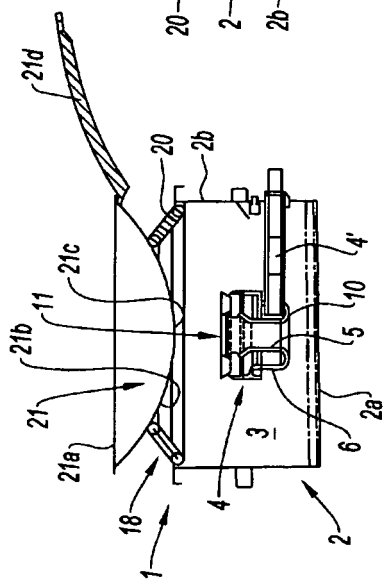


Fig. 2

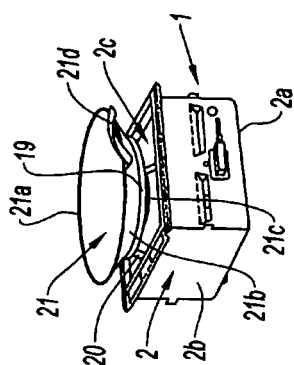


Fig. 3

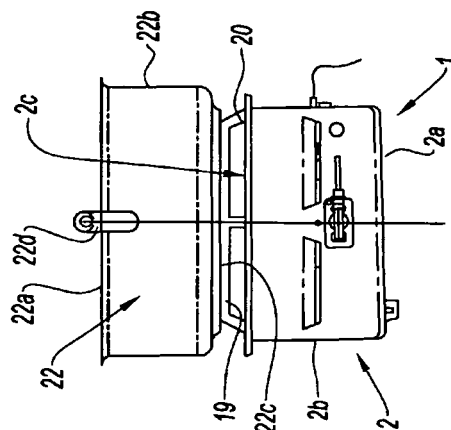


Fig. 4

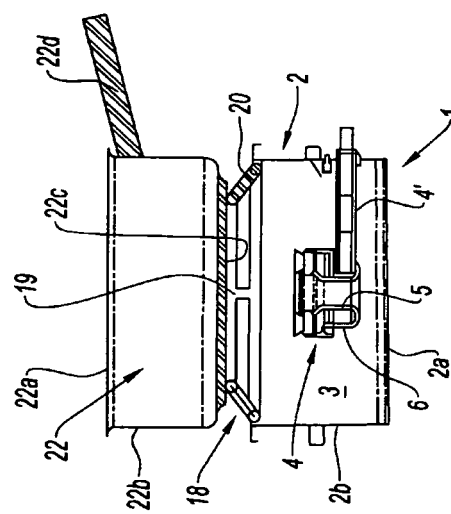


Fig. 5

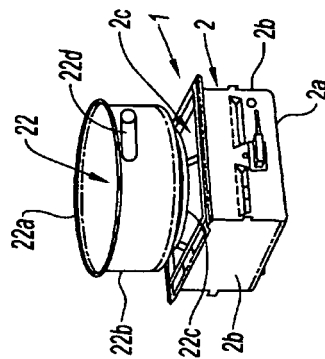


Fig. 6

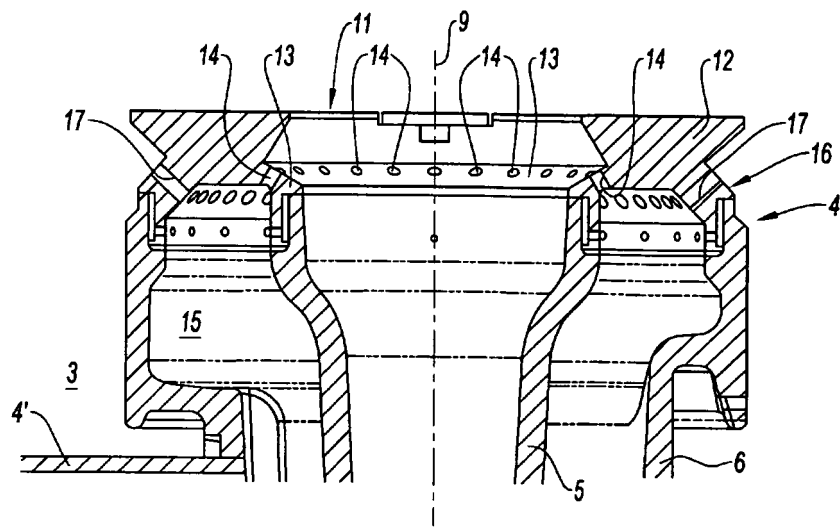


Fig. 7

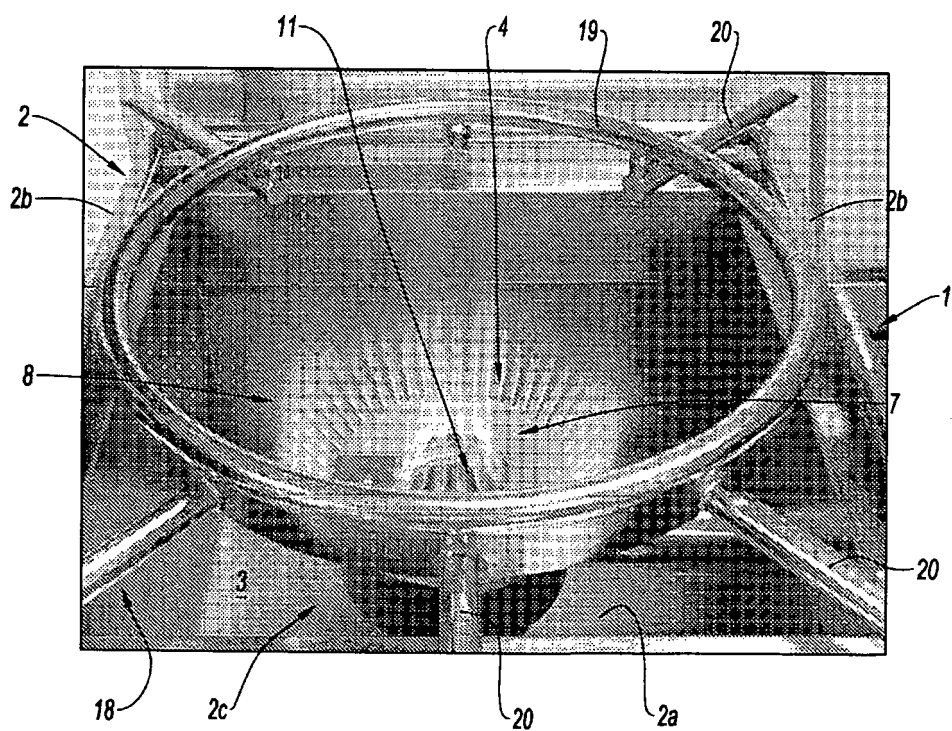


Fig. 8

REFERENCES CITED IN THE DESCRIPTION

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