IMPROVED PERFORATED LID FOR CONTAINERS FOR COOKING FOOD

The present invention concerns an improved perforated lid for containers for cooking food.

More specifically, the invention concerns a lid of the above kind, studied and realised particularly to be able to recover the nutritional properties of foods containing saturated vapour deriving from the cooking.

As it is well known, at present foods cooked at home provide a cooking of the foods using gas, said cooking not always being uniform. Particularly, if foods would be cooked at an excessive temperature, most organoleptic properties would degrade and lost.

In order to solve this problem, lids exist since many years providing holes for venting saturated vapour. This operation principle privilege cooking of foods at low temperature, with a uniform distribution of the heat inside the pot, by natural convective motion. The above allows recovering the vapour phase transformed into liquid phase, thus avoiding that the food passes 100°C, and preventing the degradation of vitaminic, proteinic and lipidic components, thus reducing the energetic need (wood, town gas, methane, electricity).

However, in this kind of systems, vapour from cooking employing said lids exits under a certain pressure from the cooking container, thus dispersing in the environment nutritive properties of foods. In other words, said lids determine a high perishing of properties of foods.

In the last years, this kind of lids have been improved by positioning, above the holes for venting saturated vapour and at a certain distance therefrom, a cup for vapour collection and condensation that at the same time does not impair the passage of gases.

Recently, then, this kind of lids had a further notable improvement thatnks to the European patent N. EP-B-1753330, filed on April 19, 2005 and granted on May 21, 2008, in the name of the same applicant, wherein a lid is disclosed allowing at the same time for containing the heat dispersion, promoting the ordered and accelerated outlet of vapours from a cooking container through outlet paths having a suitable shape and housing, and conveying and controlling production of these vapours in such a way they fall down condensed inside the cooking pot. In particular, according to European patent N. EP-B-1753330 is disclosed an improved lid for covering containers for cooking foods, comprising means for cooling

vapour placed outside and above said lid, and support means for said vapour cooling means, having an extension in the thickness direction so as to be able realising a plurality of cylindrical or profiled channels through the lid, said channels realising a passage path for the vapour coming from the container for cooking said foods outward, causing an acceleration of the vapour, said accelerated vapour contacting through said channels a lower surface of said vapour cooling means, condensing and flowing again, at a liquid phase, inside said cooking container through said plurality of channels.

This kind of lid allows for obtaining particularly fine results in case of frying. In fact, while traditional frying in closed fryers reach a temperature that can be even higher than 200°C, with subsequent development of toxic products while cooking, thanks to the improved lid according to European patent N. EP-B-1753330 is possible to obtain frying at 97°C, much below the temperature of 180°C at which oil forms acroleine, acknowledged to be a cancerogeneous substance, but also below the temperature of 140°C at which oil reaches its smoke point developing the first toxic substances. Further, the recycling of condensated vapour, allows for transforming the cooking container on top of which thelid is placed in a ventilated and vapour cooled oven, with the consequent benefits. Further, by non reaching the degradation temperature while cooking, oil preserves its organoleptic properties and can be used for a number of further subsequent cooking, up to five times and more.

Nonetheless, it was discovered that this kind of improved lid also, even if it allows for obtaining excellent results, presents the problem of a progressive overheating of the cup for vapour collection and condensation, with the consequence that the amount of vapour that is condensed and goes back to the cooking container is reduced with respect to the amount needed to obtain the desired cooking characteristics.

In view of the above, it is well evident the need of having a lid allowing for obtaining a cooking of the foods without loosing quality of the same foods and allowing for a cooking at not too high temperatures, thus creating also a thermal insulation with respect to the surrounding environment, allowing for increasing the amount of condensed vapours going back into the cooking container and at the same time maintaining unchanged the amount of both vapours and gases going out of the same container.

~~In this situation it is included the solution suggested according to the present invention.~~

Embodiments~~The purpose~~ of the present invention seek to provide~~is therefore that of realising~~ an improved perforated lid for cooking food allowing for overcoming the limits of the solutions according to the prior art and obtaining the previously described technical results.

Embodiments~~A further aim~~ of the present invention also seek to provide a~~is that said~~ perforated lid that can be realised with substantially reduced costs, as far as both production and operating costs is concerned.

Embodiments~~Not last aim~~ of the present invention also seek to provide~~is that of realising~~ a perforated lid that is~~being~~ substantially simple, safe and reliable and that can be used with a suitably modified container for frying food.

~~It is therefore a first specific object of the present invention an improved perforated lid for containers for cooking food, comprising holes for the passage of vapour and gas going upwards and of condensed vapour going downwards and means for cooling and condensing vapour passing through said holes, and means for supporting said means for cooling vapour, wherein said means for cooling vapour are made of a sequence, starting from the container for cooking foods and going upwards, composed of a perforated lower plate, at least one perforated intermediate plate and an upper plate that is not perforated, and said means for supporting said vapour cooling means comprise a lower spacing element, positioned between said lower plate and said intermediate plate and an upper spacing element, positioned between said intermediate plate and said upper plate.~~

According to a first aspect of the present invention, there is provided an improved perforated lid for containers for cooking foods, comprising holes for the passage of vapour and gas going upwards and of condensed vapour going downwards and means for cooling and condensing vapour passing through said holes, and means for supporting said means for cooling vapour, characterised in that said means for cooling vapour are made of a sequence, starting from the container for cooking foods and going upwards, comprised of a perforated lower plate, at least one perforated intermediate plate and an upper plate that is not perforated, and said means for supporting said means for cooling vapour are made of a lower spacing element, positioned between said lower plate and said intermediate plate and of an upper spacing element, positioned between

said intermediate plate and said upper plate.

According to an embodiment of the invention, said perforated lid can comprise a plurality of intermediate plates, linked by a corresponding number of intermediate spacing elements.

Preferably, according to embodiments of the invention, the upper surface of said lower plate and the upper surface of said at least one intermediate plate have a concavity facing upwards, and the lower surface of said upper plate and the lower surface of said at least one intermediate plate have a concavity facing downwards.

Further, according to embodiments of the present invention, the lower surface of said upper plate and the lower surface of said at least one intermediate plate can be undulated or as an alternative lamellar.

Still according to embodiments of the invention, said means for supporting said

cooling means can be adjustable and can comprise a screw.

Finally, ~~always~~ according to embodiments of the invention, said perforated lid can comprise a handle positioned on the upper end of said means for supporting said cooling means.

~~It is further a second specific object of the present invention a fryer for the use with the perforated lid as previously defined, comprising a shell made of insulating material, inside which a pot and an extractable drum are placed, together with said lid and an electric cooking stove, wherein said electric cooking stove can be separated from the remaining elements of the fryer.~~

According to a second aspect of the present invention, there is provided a fryer for the use with the perforated lid as defined in the first aspect, characterised in that it comprises a shell made of insulating material, inside which a pot and an extractable drum, said lid and an electric cooking stove are arranged, characterised in that said electric cooking stove can be separated from the remaining elements of the fryer.

Preferably, according to embodiments of the invention, said fryer can comprise one or more air-tight elements of said lid on top of said pot.

The present invention will now be described, for illustrative, non limitative purposes, according to apreferred embodiment, with reference in particular to the figures of the enclosed drawings, wherein:

- figure 1 shows a perspective view of an improved perforated lid for containers for cooking food according to the present invention,
- figure 2 shows a lateral view of the perforated lid of figure 1,
- figure 3 shows a top plan view of the lower plate of the perforated lid of figure 1,
- figure 4 shows a top plan view of the intermediate plate of the perforated lid of figure 1,
- figure 5 shows a top plan view of the upper plate of the perforated lid of figure 1, and
- figure 6 shows an exploded view of a fryer comprising the improved perforated lid of the present invention.

With reference to the figures, the improved perforated lid for containers for cooking food according to the present invention, indicated as a whole with the numeric reference 10, is composed of a lower plate 11, constituting the element that is positioned on top of the cooking container, above which are placed in asequence an intermediate plate 12, an upper plate 13 and a handle 14.

The lower plate 11, according to this embodiment, is provided with a curved shape so to present a lower surface that is convex downwards, that is towards the interior of the cooking container. In proximity of the centre of the lower plate 11 holes 15 are realised, the profiled shape of which creates channels for the passage of vapour and gas going out of the

CLAIMS

1) Improved perforated lid ~~(10)~~ for containers for cooking foods, comprising holes ~~(15)~~ for the passage of vapour and gas going upwards and of condensed vapour going downwards and means for cooling and condensing vapour passing through said holes, and means for supporting said means for cooling vapour, characterised in that said means for cooling vapour are made of a sequence, starting from the container for cooking foods and going upwards, comprised of a perforated lower plate ~~(11)~~, at least one perforated intermediate plate ~~(12)~~ and an upper plate ~~(13)~~ that is not perforated, and said means for supporting said means for cooling vapour are made of a lower spacing element ~~(16)~~, positioned between said lower plate ~~(11)~~ and said intermediate plate ~~(12)~~ and of an upper spacing element ~~(18)~~, positioned between said intermediate plate ~~(12)~~ and said upper plate ~~(13)~~.

2) Perforated lid ~~(10)~~ according to claim 1, characterised in that it comprises a plurality of intermediate plates ~~(12)~~, linked by a corresponding number of intermediate spacing elements.

3) Perforated lid ~~(10)~~ according to claim 1 or 2, characterised in that the upper surface of said lower plate ~~(11)~~ and the upper surface of said at least one intermediate plate ~~(12)~~ have a concavity facing upwards.

4) Perforated lid ~~(10)~~ according to any of the previous claims, characterised in that the lower surface of said upper plate ~~(13)~~ and the lower surface of said at least one intermediate plate ~~(12)~~ have a concavity facing downwards.

5) Perforated lid ~~(10)~~ according to any of claims 1-4, characterised in that the lower surface of said upper plate ~~(13)~~ and the lower surface of said at least one intermediate plate ~~(12)~~ are undulated.

6) Perforated lid ~~(10)~~ according to any of claims 1-4, characterised in that the lower surface of said upper plate ~~(13)~~ and the lower surface of said at least one intermediate plate ~~(12)~~ are lamellar.

7) Perforated lid ~~(10)~~ according to any of the previous claims, characterised in that said means for supporting said cooling means are adjustable.

8) Perforated lid ~~(10)~~ according to any of the previous claims, characterised in that said means for supporting said cooling means comprise a screw.

9) Perforated lid ~~(10)~~ according to any of the previous claims,

characterised in that it comprises a handle ~~(14)~~ positioned on the upper end of said means for supporting said cooling means.

10) Fryer ~~(20)~~ for the use with the perforated lid ~~(10)~~ as defined according to claims 1-9, characterised in that it comprises a shell ~~(21)~~ made of insulating material, inside which a pot ~~(22)~~ and an extractable drum ~~(23)~~, said lid ~~(10)~~ and an electric cooking stove ~~(25)~~ are arranged, characterised in that said electric cooking stove ~~(25)~~ can be separated from the remaining elements of the fryer.

11) Fryer ~~(20)~~ according to claim 10, characterised in that it comprises one or more air-tight elements for said lid ~~(10)~~ on said pot ~~(22)~~.