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(54) **COOKER**

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APPAREIL DE CUISSON

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Description

TECHNICAL FIELD

[0001] The present invention relates to a transparent cooker enabling visibility of the food products during cooking.

PRIOR ART

[0002] The ovens cooking food products by transferring the heat generated in a separate section in the oven to the cooking section by means of a fan are referred to as convectional ovens. In convectional ovens, elements such as tray level, preheating temperature, and the temperature of the product to be cooked (the product being freshly prepared or taken from a refrigerator) are important for ideal cooking.

[0003] However, a limited window area is left in convectional ovens to see the cooking compartment. It is a major problem to view all sides of particularly the larger food products from this window area. The capability to view the cooking food products consists a significant criterion in buying decisions of customers. However, the producers intend to keep this area limited due to technical limitations.

[0004] Since a major portion of an oven is enclosed, illumination is required in its interior. Problems arise in examining the properties of cooking food products such as its roasting state, as this illumination cannot be performed homogeneously on all sides. In the present invention, a cooker is designed which is transparent on all sides.

[0005] Another problem in ovens is having delimited heater orientations. In static cooking, cooking is performed from the upper and the lower surfaces, and a heater causing roasting marks on food products due to radiance, is experienced quite often. Therefore, Turbo and Surf cooking methods are developed. These methods have high sound power levels due to the utilized fans and their air flow speeds.

[0006] State of the art Chinese utility model no. CN2307511 mentions a fully transparent steam cooker. In said appliance, a steam container is disposed in a compartment provided on the lower portion of a steam chamber.

[0007] US 2005/115954 A1 discloses an electrically conductive heated glass panel, for example an oven door panel.

[0008] US 6 037 572 A discloses heating and warming assemblies including an electrically resistive thin film and particularly well suited for use in heating devices and appliances such as ranges and griddles. The assemblies are also incorporated into heating panels for ovens.

[0009] GB 2 254 915 A discloses a heat-convection stove comprising an electric heat-convection control unit having four alloy posts connected at the four corners for mounting three glass side boards, a front panel and a base.

[0010] US 2008/083722 A1 discloses a heated food display for warm food product.

[0011] None of the state of the art documents include a solution such as the one in the present invention.

BRIEF DESCRIPTION OF THE INVENTION

[0012] The aim of the present invention is to provide a cooker design visible from all directions.

[0013] Another aim of the present invention is to enable obtaining homogeneous cooking results by applying equal heating from all surfaces.

[0014] A further aim of the present invention is to coat an easily cleanable coating on inner and outer glasses.

[0015] Another aim of the present invention is to resolve the problem of non-visibility of an oven's interior due to illumination.

[0016] Yet another aim of the present invention is to provide a cooker design having a low sound power level thanks to having no movable parts.

DETAILED DESCRIPTION OF THE INVENTION

[0017] In its most basic form, the transparent cooker of the invention enabling visibility of the food products during cooking is defined by claim 1.

[0018] The transparent cooker of the invention comprises outer glasses positioned in the frame so as to face the exterior, for enclosing the main body of the cooker formed by the frames. Also provided are inner glasses positioned also in the frame, parallel to the outer glasses so as to have the empty space in between. The inner glasses and the outer glasses are fixed into the frame by means of the fastening piece provided in the empty space. Fixing is enabled by placing the inner glasses and the outer glasses into preferably two fitting slots formed by means of the protrusion disposed on the fastening piece. In this arrangement, the outer glasses and the inner glasses rest parallel to each other.

[0019] The outer glasses are coated with ITO (Indium tin oxide) material. ITO is an electrically conductive and optically permeable fine film coating used as heat barriers. Heating in the transparent cooker of the invention is performed by ITO coating. This coating enables heating the outer glass, transmitting the heat to the inner glass and to the interior of the cooker therefrom, and thereby cooking the food product. In addition, it is also possible to design the outer glass and the inner glass as heaters in a desired power level while maintaining their transparency. ITO coating can be applied in different preferred thicknesses to obtain distinct power levels in order to provide discrete cooking characteristics.

[0020] Each surface of said cooker consists of an outer glass and an inner glass positioned parallel to each other with an empty space in between. The inner glass is coated with easily cleanable ETC coating on the surface facing the internal volume of the cooker, and with ITO having

heating properties on the surface facing the empty space.

[0021] A cable channel is provided in the frame, in which the cables are disposed enabling electric transmission. At least one door capable of opening and closing is provided on at least one preferred surface of the cooker. The user may open and close the door when he/she wishes to place food products in the cooking volume, or when he/she wishes to remove the food products from within the cooker. The door structure is formed by parallel positioning of the ITO coated outer glass and the inner glass, and by their placement into the fitting slots in the frame. The frame forms a solid structure by surrounding the inner glass and the outer glass from their edges. In a preferred embodiment of the invention, the surface preferred as the door is connected to the other surfaces by a hinged mechanism.

[0022] In a preferred embodiment of the invention, the outer glass and the inner glass placed in the frame, are separated from each other and are fixed by means of teflon pieces used as the fastening piece. The teflon pieces provide electrical insulation as well as form the fitting slots to fit the outer glasses and the inner glasses.

[0023] Copper plates are provided as busbars all along the preferred edges of each outer glass of the transparent cooker. These copper plates may be mechanically compressed between the conductive fastening piece and the outer glasses, or being fixed by a clamp-like structure. By means of the cable channel, the electric cables connected to said busbars, are collected on a single corner and are extended to the exterior of the cooker.

[0024] Since all of the outer glasses can be operated simultaneously or in varying sequences, the cooker is configured to enable varying cooking applications or cooking in separate sections within the same cooking compartment.

[0025] According to the invention, the external appearance of the cooker is enabled to be dimmed by means of electrochromic coating of the outer glass.

[0026] In another preferred embodiment of the invention, the empty space between the outer glass and the inner glass is vacuumed to provide thermal insulation.

[0027] In another embodiment of the invention, the frame is made of metal material.

[0028] In the design of the invention, food products are cooked equally on all sides because of performing a heating distributed equally on all surfaces. In addition, noise and motion based problems are not encountered as movable parts are not present.

Claims

1. A cooker enabling visibility of the food products during cooking, comprising

- at least one frame forming the main body,
- at least one fastening piece provided in gaps in the frame, forming fitting slots by protrusions provided on the fastening piece,
- at least one inner glass suitable to be placed in the fitting slots on the side of the internal volume of the cooker where cooking is performed,
- at least one outer glass suitable to be placed in the fitting slots on the side of the external volume of the cooker,
- at least one empty space interposed between the outer glasses and the inner glasses with the outer glasses and the inner glasses placed in the fitting slots so as to be parallel to each other,
- at least one cable channel enabling electric cables provided in the frame and connected to busbars provided in the frame, to be collected in a single corner and to be extended to the exterior,
- at least one door capable of opening and closing, formed by joining at least a frame, an outer glass and an inner glass **characterized by**
- each surface of said cooker consisting of an outer glass and an inner glass so that the internal volume is visible from all directions and
- the outer glass coated with electrochromic material.

2. A cooker according to claim 1, **wherein** a vacuumed empty space is disposed between the outer glass and the inner glass.

3. A cooker according to claim 1, **comprising** a frame made of metal material.

4. A cooker according to claim 1, **comprising** the outer glass coated with indium tin oxide.

5. A cooker according to claim 1, **comprising** the inner glass coated with an easy cleanable coating on the surface facing the internal volume, and with ITO coating on the surface facing the empty space.

6. A cooker according to claim 1, **wherein** heating is performed by the busbars provided in the frame and the ITO coating on the outer glass.

7. A cooker according to claim 1, **comprising** the fastening piece made of Teflon material.

8. A cooker according to claim 1, **wherein** copper plates as busbar are provided on at least two edges of each outer glass.

9. A cooker according to claim 8, **comprising** a copper plate mechanically compressed between the fastening piece and the outer glass.

Patentansprüche

1. Ein Kocher, der eine Sichtbarkeit der Lebensmittelprodukte während des Kochens ermöglicht, umfasst

   - mindestens einen Rahmen, der den Hauptkörper bildet,
   - mindestens ein in den Lücken des Rahmens vorgesehenes Befestigungsteil, das durch die am Befestigungsteil vorgesehenen Vorsprünge Passschlitze bildet,
   - ein Innenglas, das geeignet ist, in die dafür vorgesehenen Schlitze auf der Seite des Innenraums eingesetzt zu werden, auf der gekocht wird,
   - ein Außenglas, das geeignet ist, in die passenden Schlitze an der Seite des Außenvolumens eingesetzt zu werden,
   - mindestens einen leeren Raum, der zwischen den Außengläsern und den Innengläsern angeordnet ist, wobei die Außengläser und die Innengläser parallel zueinander in den Befestigungsschlitzen angeordnet sind,
   - mindestens einen Kabelkanal, der es ermöglicht, die im Rahmen vorgesehenen und mit den Sammelschienen verbundenen elektrischen Kabel in einer einzigen Ecke zu sammeln und nach außen zu führen,
   - mindestens eine Tür, die geöffnet und geschlossen werden kann, gebildet durch Verbinden mindestens eines Rahmens, einer Außenglas und einer Innenglas, **gekennzeichnet ist es durch**
   - das Innenglas und das Außenglas, die auf jeder Oberfläche des Herdes vorgesehen sind, um das von allen Richtungen sichtbare Innenvolumen zu erhalten und
   - das mit elektro-chromen Material beschichtete Außenglas.

2. Ein Kocher, wie in Anspruch 1 aufgeführt, **wobei** zwischen dem Außenglas und dem Innenglas ein vakuumfreier Raum angeordnet ist.

3. Ein Kocher, wie in Anspruch 1 aufgeführt, **umfasst** einen Rahmen aus Metallmaterial.

4. Ein Kocher, wie in Anspruch 1 aufgeführt, **umfasst** ein Außenglas, das mit Indiumzinnoxid beschichtet ist.

5. Ein Kocher, wie in Anspruch 1 aufgeführt, **umfasst** ein Innenglas, das auf der dem Innenvolumen zugewandten Oberfläche mit einer leicht zu reinigenden Beschichtung und auf der dem leeren Raum zugewandten Oberfläche mit einer ITO-Beschichtung beschichtet ist.

6. Ein Kocher, wie in Anspruch 1 aufgeführt, **wobei** das Erhitzen durch die im Rahmen vorgesehenen Stromschienen und die ITO-Beschichtung auf dem Außenglas erfolgt.

7. Ein Kocher, wie in Anspruch 1 aufgeführt, **umfasst** das Befestigungsstück aus Teflonmaterial.

8. Ein Kocher, wie in Anspruch 1 aufgeführt, **wobei** Kupferplatten als Stromschienen an mindestens zwei Rändern jedes Außenglases vorgesehen sind.

9. Ein Kocher, wie in Anspruch 8 aufgeführt, **umfasst** eine zwischen dem Befestigungsstück und dem Außenglas mechanisch komprimierte Kupferplatte.

Revendications

1. Un cuiseur permettant la visibilité des produits alimentaires pendant la cuisson, comprenant

   - au moins un cadre formant le corps principal,
   - au moins un dispositif de fixation prévu dans les interstices du cadre, formant des fentes d'adaptation grâce aux saillies prévues sur le dispositif de fixation,
   - un verre intérieur adapté pour être placé dans les fentes d'adaptation sur le côté du volume interne où la cuisson est effectuée,
   - un verre extérieur adapté pour être placé dans les fentes d'ajustement du côté du volume extérieur,
   - au moins un espace vide interposé entre les verres extérieurs et les verres intérieurs, les verres extérieurs et les verres intérieurs étant placés dans les fentes de montage de manière à être parallèles les uns aux autres,
   - au moins un chemin de câbles permettant aux câbles électriques prévus dans le cadre et reliés aux barres omnibus, d'être rassemblés dans un seul angle et d'être prolongés vers l'extérieur
   - au moins une porte capable de s'ouvrir et de se fermer, formée par la réunion d'au moins un cadre, d'un verre extérieur et d'un verre intérieur, **caractérisée par le fait que**
   - le verre intérieur et le verre extérieur qui sont prévus sur chaque surface de la cuisinière pour obtenir le volume intérieur visible de toutes les directions et
   - le verre extérieur est revêtu d'un matériau électrochrome.

2. Cuisinière selon la déclaration 1, **dans laquelle** un espace vide sous vide est disposé entre le verre extérieur et le verre intérieur.

3. Cuisinière selon la déclaration 1, **comprenant** un

cadre en matériau métallique.

4. Appareil de cuisson selon la déclaration 1, **comprenant** le verre extérieur revêtu d'oxyde d'indium et d'étain.

5. Cuisinière selon la déclaration 1, **comprenant** le verre interne revêtu d'un revêtement facile à nettoyer sur la surface faisant face au volume interne, et d'un revêtement ITO sur la surface faisant face à l'espace vide.

6. Cuisinière selon la déclaration 1, **dans laquelle** le chauffage est effectué par les barres omnibus prévues dans le cadre et le revêtement ITO sur le verre extérieur.

7. Cuisinière selon la déclaration 1, **comprenant** la pièce de fixation en matériau Téflon.

8. Cuisinière selon la déclaration 1, **dans laquelle** des plaques de cuivre servant de barre omnibus sont prévues sur au moins deux bords de chaque verre extérieur.

9. Cuisinière selon la déclaration 8, **comprenant** une plaque de cuivre comprimée mécaniquement entre la pièce de fixation et le verre extérieur.

REFERENCES CITED IN THE DESCRIPTION

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