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(54) **OVEN FOR COOKING FOOD**

OFEN ZUM GAREN VON NAHRUNGSMITTELN

FOUR DE CUISSON POUR ALIMENTS

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This patent application claims priority from Italian patent application no. 102018000003098 filed on 27/02/2018.

TECHNICAL FIELD

[0002] This invention refers to an oven for cooking food.

BACKGROUND ART

[0003] The baking process of certain foods comprises humidification of the cooking chamber by producing water vapour. To this end, various technical solutions have been developed both to feed water into the cooking chamber and to control the vapour production in the cooking chamber itself.

[0004] However, the technical solutions available are sometimes too complicated or not entirely satisfactory as regards the efficiency of water vapour production or because they can damage the muffle of the oven. For example, EP 0 517 681 A2 discloses a steam generator shaped as a receptacle and is provided with integral heating elements. This configuration renders the insertion and the removal of the steam in the oven cavity rather complicated. Document EP 1 995 525 A1 discloses a further relevant cooking oven.

DISCLOSURE OF INVENTION

[0005] It is a purpose of the present invention to provide a humidified oven for cooking food that is simple, practical and functional and mitigates the drawbacks of the known art.

[0006] In accordance with the present invention an oven for cooking food is provided, the oven comprising a supporting structure; a muffle, which is housed inside the supporting structure, delimits a cooking chamber and comprises a wall, which has an opening; a receptacle, which is configured to contain water and to be removably arranged in the muffle and through the opening in the wall; a first resistor, which is configured to heat the cooking chamber and is housed below said wall; and a second resistor, which is housed below the wall at the opening to support and directly heat the receptacle and to vaporize the water contained in the receptacle.

[0007] Thus, the oven structure is particularly simple and the direct contact between the second resistor and the receptacle allows the water to be heated and vaporized quickly. Furthermore, the fact that the receptacle is not integral with the resistor allows the easy removal of the receptacle for its cleaning.

[0008] In particular, the second resistor is supported by a supporting member at the opening.

[0009] This prevents the water and receptacle load from deforming or shifting the second resistor.

[0010] In particular, the receptacle has a bottom wall configured to be arranged in contact with said second resistor.

[0011] In this way, the second resistor advantageously extends in a plane.

Advantageously, the receptacle comprises a flared lateral wall for centring the receptacle with respect to the opening and the second resistor.

[0012] In particular, the receptacle comprises an upper annular wall that covers, at least partially, the portion of the wall adjacent to the opening.

[0013] This prevents unwanted material from entering below the wall.

[0014] In particular, said wall has a main plane and a shaped rim around said opening, the shaped rim being arranged at a lower level with respect to the main plane.

[0015] This configuration allows the receptacle to be placed completely under the main plane of the lower wall. As a result, the receptacle does not limit the space inside the muffle.

[0016] In particular, the shaped rim comprises an annular groove to allow the receptacle to be gripped.

[0017] In particular, the distance of the second resistor from the wall is such that the receptacle is spaced from the wall.

[0018] In practice, this configuration allows to prevent direct contact between the receptacle and the muffle wall in order to avoid any damage to the muffle.

[0019] In particular, the oven comprises a lid to close the receptacle. The lid is provided with holes and is substantially at the same level as the main plane of the muffle.

[0020] The holes are designed to allow the vapour generated in the receptacle to flow and the fingers to be inserted for an easy grip of the lid.

[0021] In particular, the first and second resistors are independently controlled from each other to independently regulate the temperature in the muffle and the production of water vapour.

[0022] In particular, the wall is selectively removable from the oven so as to allow the underlying part of the muffle to be cleaned.

[0023] In addition, the first and second resistors are connected to the back wall of the muffle in a tilting manner and rest on the lower wall of the muffle in order to define a stable position for the first and second electrical resistors and, at the same time, allow the muffle to be cleaned.

[0024] In particular, the muffle is made of enamelled steel. This technical solution is particularly cost-effective and can be implemented since the heating or hot bodies are not arranged in direct contact with the muffle.

[0025] On the contrary, the receptacle is made of unenamelled metal material that withstands high temperatures when contacting the resistor.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] Further features and advantages of the present invention will be apparent from the following description of a non-limiting embodiment thereof, with reference to the figures of the accompanying drawings, wherein:

- Figure 1 is a sectional view, with parts removed for clarity, of a humidified oven made in accordance with the present invention;
- Figure 2 is a sectional view of a detail of Figure 1, with parts removed for the sake of clarity and on an enlarged scale; and
- Figure 3 is a sectional view, with parts removed for clarity, of a detail of Figure 1 on a horizontal section plane.

BEST MODE FOR CARRYING OUT THE INVENTION

[0027] In Figure 1 reference numeral 1 indicates an oven for cooking food. The oven 1 comprises a supporting structure 2; a door 3 hinged to the supporting structure 2; and a muffle 4, which is housed in the supporting structure 2 and defines a cooking chamber 5, together with the door 3.

[0028] The oven 1 is substantially shaped like a solid body, the outer surface of which is defined by the supporting structure 2 and the door 3. The supporting structure 2 substantially comprises five walls defining five faces that are substantially orthogonal to each other. The muffle 4 has five walls and is spaced with respect to the supporting structure 2 in order to define a gap between the supporting structure 2 and the muffle 4.

[0029] In more detail, the muffle 4 comprises a back wall 6, two lateral walls 7, an upper wall 8, and a lower wall 9. The gap discontinuously extends along all the walls 6, 7, 8 and 9 of the muffle 4 and is designed to thermally insulate the muffle 4 from the supporting structure 2. The oven 1 comprises heating resistors 10, 11, 12, which are designed to heat the cooking chamber 5 and are variously located inside the muffle 4; a fan 13 arranged at the back wall 6; and a suction system 14 arranged at the upper wall 8 to evacuate excess vapour or fumes from the cooking chamber 5.

[0030] The oven 1 also comprises a receptacle 15 configured to contain water to be vaporized in the cooking chamber 5.

[0031] According to what is better illustrated in Figure 3, the muffle 4 comprises an additional wall 9B, which is substantially parallel to the lower wall 9, is arranged above the wall 9 so as to form a space between the walls 9 and 9B and has a circular opening 16 connecting the cooking chamber 5 with the underlying space. The receptacle 15 is configured to be arranged in a removable way in the muffle 4 and, partially, in said space through the opening 16 in the wall 9B.

[0032] The resistor 12 is designed to heat the receptacle 15 and to vaporize the water contained in the re-

ceptacle 15 and extends in the space between the lower wall 9 and the wall 9B and from the back wall 6 to the space below the opening 16. The receptacle 15 is arranged resting on the resistor 12 in order to achieve a fast heating and a rapid vaporization of the water.

[0033] With reference to Figure 2, the resistor 12 is mounted on the back wall 6 forming a set of coils, and is supported by a supporting member 17 at the opening 16. In particular, the supporting member 17 is anchored to the resistor 11, which extends around the resistor 12, is also mounted on the back wall 6, and is supported at the band opposite the back wall 6 by a supporting member 18 arranged resting on the lower wall 9 of the muffle 4. In practice, the supporting members 17 and 18 are bars provided with feet resting on the lower wall 9 of the muffle 4. The resistors 11 and 12 are independently controlled from each other to regulate in an independent manner the temperature in the cooking chamber 5 and the amount of vapour respectively.

[0034] In particular, the wall 9B is selectively removable so as to allow access to the underlying resistors 11 and 12, which are articulated to the back wall 6. The articulation of the resistors 11 and 12 can be made through a screw connection with the interposition of springs or other elastic elements which are not shown in the accompanying Figures.

[0035] With reference to Figure 3, the receptacle 15 has a flat bottom wall 19 configured to be arranged in direct contact with the resistor 12; a flared lateral wall 20 connected to the bottom wall 19; and an annular wall 21, which is connected to the lateral wall 20 and extends outwards. In practice, the receptacle 15 is shaped like a plate, the capacity of which depends on the height measured between the bottom wall 19 and the annular wall 21.

[0036] The wall 9B of the muffle 4 defines a main plane 22 and has a shaped rim 23, which delimits the opening 16 and is lowered compared to the main plane 22. The shaped rim 23 comprises an annular groove 24 to allow the receptacle 15 to be gripped. For this purpose, the annular wall 21 is partially extended above the groove 24 so that the fingers can be inserted into the groove 24 and below the annular wall 21 so as to easily remove the receptacle 15.

[0037] The rim 23 also comprises a flat annular portion 25. In practice, the lower wall 9 has, around the opening 16 and in sequence towards the opening 16, the groove 24 and the portion 25.

[0038] The distance in a vertical direction of the resistor 12 to the wall 9 is such that the receptacle 15 is spaced from the shaped rim 23 and there is no contact between the receptacle and the wall 9. In practice, the portion 25 and the annular wall 21 are not in mutual contact and the lateral wall 20 is spaced from the same portion 25.

[0039] The oven 1 comprises a lid 26 to partially close the receptacle 15 and, at least partially, the groove 24. The lid 26 has the shape of a disc, is shaped to be centred on the receptacle 15, and has an annular rim 27 configured to be arranged on the annular wall 21; and a central

body 28 provided with holes 29 that allow the fingers to pass for removing or positioning the lid 26, and the vapour to flow during the vapour generation.

[0040] The muffle 4 is preferably made of enamelled steel, while the receptacle 15 and the lid are made of unenamelled metal material, preferably steel.

Claims

1. An oven for cooking food, the oven (1) comprising a supporting structure (2); a muffle (4), which is housed inside the supporting structure (2), delimits a cooking chamber (5) and comprises a wall (9B), which has an opening (16); a receptacle (15), which is configured to contain water and to be removably arranged in the muffle (4) and through the opening (16) in the wall (9B); a first resistor (11), which is configured to heat the cooking chamber (5) and is housed below said wall (9B); and a second resistor (12), which is housed below the wall (9B) at the opening (16) to directly heat the receptacle (15) and vaporize the water contained in the receptacle (15), **characterised in that** the second resistor (12) supports the receptacle.
2. The oven as claimed in Claim 1, wherein the second resistor (12) is supported by a supporting member (17) at the opening (16).
3. The oven as claimed in any one of the foregoing Claims, wherein the receptacle (15) has a bottom wall (19) configured to be arranged in contact with said second resistor (12).
4. The oven as claimed in any one of the foregoing Claims, wherein the receptacle (15) comprises a flared lateral wall (20) for centring the receptacle (15) with respect to the opening (16) and the second resistor (12).
5. The oven as claimed in any one of the foregoing Claims, wherein the receptacle (15) comprises an upper annular wall (21) that covers, at least partially, a portion of the wall (9B) adjacent to the opening (16).
6. The oven as claimed in any one of the foregoing Claims, wherein the wall (9B) of the muffle (4) has a main plane (22) and a shaped rim (23), which extends around said opening (16) and is arranged at a lower level with respect to the main plane (22).
7. The oven as claimed in Claim 6, wherein the shaped rim (23) comprises an annular groove (24) to allow the receptacle (15) to be gripped.
8. The oven as claimed in any one of the foregoing Claims, wherein the distance of the second resistor

(12) from said wall (9B) is so selected to keep the receptacle (15) spaced from the wall (9B).

9. The oven as claimed in any one of the foregoing Claims, and comprising a lid (26) for closing the receptacle (15), the lid (26) being provided with holes (29) to allow the lid (26) to be gripped and the vapour to flow.
10. The oven as claimed in any one of the foregoing Claims, wherein the first and second resistors (11, 12) are independently controlled from each other.
11. The oven as claimed in any one of the foregoing Claims, wherein the wall (9B) is selectively removable from the oven (1).
12. The oven as claimed in any one of the foregoing Claims, wherein the first and the second resistors are connected to the back wall (6) of the muffle (4) in a tilting manner and rest on the lower wall (9) of the muffle (4).
13. The oven as claimed in any one of the foregoing Claims, wherein the muffle (4) is made of enamelled steel.
14. The oven as claimed in any one of the foregoing Claims, wherein the receptacle (15) and the lid (26) are made of unenamelled metal.

Patentansprüche

1. Ofen zum Garen von Lebensmitteln, wobei der Ofen (1) eine Tragstruktur (2); eine Schalldämpfungseinrichtung (4), die im Inneren der Tragstruktur (2) aufgenommen ist, eine Garkammer (5) begrenzt und eine Wand (9B) aufweist, die eine Öffnung (16) besitzt; eine Aufnahme (15), die eingerichtet ist, Wasser einzuschließen und lösbar in der Schalldämpfungseinrichtung (4) und durch die Öffnung (16) in der Wand (9B) angeordnet zu werden; einen ersten Widerstand (11), der eingerichtet ist, die Garkammer (5) zu erwärmen und unterhalb der Wand (9B) aufgenommen ist; und einen zweiten Widerstand (12) aufweist, der unterhalb der Wand (9B) an der Öffnung (16) aufgenommen ist, um die Aufnahme (15) direkt zu erwärmen und das in der Aufnahme (15) eingeschlossene Wasser zu verdampfen, **dadurch gekennzeichnet, dass** der zweite Widerstand (12) die Aufnahme stützt.
2. Ofen nach Anspruch 1, wobei der zweite Widerstand (12) von einem Stützelement (17) an der Öffnung (16) gestützt wird.
3. Ofen nach einem der vorstehenden Ansprüche, wo-

bei die Aufnahme (15) eine Bodenwand (19) aufweist, die eingerichtet ist, in Kontakt mit dem zweiten Widerstand (12) angeordnet zu werden.

4. Ofen nach einem der vorstehenden Ansprüche, wobei die Aufnahme (15) eine gebördelte Seitenwand (20) zum Zentrieren der Aufnahme (15) in Bezug auf die Öffnung (16) und den zweiten Widerstand (12) aufweist. 5
5. Ofen nach einem der vorstehenden Ansprüche, wobei die Aufnahme (15) eine obere ringförmige Wand (21) aufweist, die einen Abschnitt der Wand (9B) angrenzend an die Öffnung (16) zumindest teilweise bedeckt. 10
6. Ofen nach einem der vorstehenden Ansprüche, wobei die Wand (9B) der Schalldämpfungseinrichtung (4) eine Hauptebene (22) und einen geformten Rand (23) aufweist, der sich um die Öffnung (16) erstreckt und in Bezug auf die Hauptebene (22) in einer niedrigeren Höhe angeordnet ist. 15
7. Ofen nach Anspruch 6, wobei der geformte Rand (23) eine Ringnut (24) aufweist, um zu ermöglichen, dass die Aufnahme (15) gegriffen werden kann. 20
8. Ofen nach einem der vorstehenden Ansprüche, wobei der Abstand des zweiten Widerstands (12) von der Wand (9B) so gewählt wird, dass die Aufnahme (15) von der Wand (9B) beabstandet bleibt. 25
9. Ofen nach einem der vorstehenden Ansprüche, aufweisend einen Deckel (26) zum Schließen der Aufnahme (15), wobei der Deckel (26) mit Löchern (29) versehen ist, um zu ermöglichen, dass der Deckel (26) ergriffen werden kann und der Dampf strömen kann. 30
10. Ofen nach einem der vorstehenden Ansprüche, wobei der erste und zweite Widerstand (11, 12) unabhängig voneinander gesteuert werden. 35
11. Ofen nach einem der vorstehenden Ansprüche, wobei die Wand (9B) wahlweise aus dem Ofen (1) entnehmbar ist. 40
12. Ofen nach einem der vorstehenden Ansprüche, wobei der erste und der zweite Widerstand mit der Rückwand (6) der Schalldämpfungseinrichtung (4) in kippender Weise verbunden sind und auf der unteren Wand (9) der Schalldämpfungseinrichtung (4) aufliegen. 45
13. Ofen nach einem der vorstehenden Ansprüche, wobei die Schalldämpfungseinrichtung (4) aus einbrennlackiertem Stahl hergestellt ist. 50

14. Ofen nach einem der vorstehenden Ansprüche, wobei die Aufnahme (15) und der Deckel (26) aus nicht-einbrennlackiertem Metall hergestellt sind. 55

Revendications

1. Four de cuisson pour aliments, le four (1) comprenant une structure de support (2) ; un moufle (4), qui est logé à l'intérieur de la structure de support (2), qui délimite une chambre de cuisson (5) et qui comprend une paroi (9B) qui comporte une ouverture (16) ; un réceptacle (15), qui est configuré pour contenir de l'eau et pour être agencé amovible dans le moufle (4) et par l'ouverture (16) dans la paroi (9B) ; une première résistance (11), qui est configurée pour chauffer la chambre de cuisson (5) et qui est logée sous ladite paroi (9B) ; et une seconde résistance (12), qui est logée sous la paroi (9B) à l'emplacement de l'ouverture (16) pour chauffer directement le réceptacle (15) et vaporiser l'eau contenue dans le réceptacle (15), le four étant **caractérisé en ce que** la seconde résistance (12) supporte le réceptacle. 5
2. Four selon la revendication 1, dans lequel la seconde résistance (12) est supportée par un élément de support (17) à l'emplacement de l'ouverture (16). 10
3. Four selon l'une quelconque des revendications précédentes, dans lequel le réceptacle (15) comporte une paroi inférieure (19) configurée pour être agencée en contact avec ladite seconde résistance (12). 15
4. Four selon l'une quelconque des revendications précédentes, dans lequel le réceptacle (15) comprend une paroi latérale évasée (20) pour centrer le réceptacle (15) par rapport à l'ouverture (16) et à la seconde résistance (12). 20
5. Four selon l'une quelconque des revendications précédentes, dans lequel le réceptacle (15) comprend une paroi supérieure annulaire (21) qui couvre, au moins en partie, une partie de la paroi (9B) adjacente à l'ouverture (16). 25
6. Four selon l'une quelconque des revendications précédentes, dans lequel la paroi (9B) du moufle (4) comporte un plan principal (22) et un rebord façonné (23), qui s'étend autour de ladite ouverture (16) et qui est agencé à un niveau inférieur par rapport au plan principal (22). 30
7. Four selon la revendication 6, dans lequel le rebord façonné (23) comprend une rainure annulaire (24) pour permettre au réceptacle (15) d'être saisi. 35
8. Four selon l'une quelconque des revendications pré-

cédentes, dans lequel la distance de la seconde résistance (12) à ladite paroi (9B) est sélectionnée de façon à maintenir le réceptacle (15) espacé de la paroi (9B).

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9. Four selon l'une quelconque des revendications précédentes, et comprenant un couvercle (26) pour fermer le réceptacle (15), le couvercle (26) étant muni de trous (29) pour permettre au couvercle (26) d'être saisi et à la vapeur de s'écouler.

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10. Four selon l'une quelconque des revendications précédentes, dans lequel les première et seconde résistances (11, 12) sont commandées indépendamment l'une de l'autre.

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11. Four selon l'une quelconque des revendications précédentes, dans lequel la paroi (9B) peut être retirée de façon sélective du four (1).

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12. Four selon l'une quelconque des revendications précédentes, dans lequel les première et seconde résistances sont connectées à la paroi arrière (6) du moufle (4) de façon inclinée et reposent sur la paroi inférieure (9) du moufle (4).

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13. Four selon l'une quelconque des revendications précédentes, dans lequel le moufle (4) est en acier émaillé.

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14. Four selon l'une quelconque des revendications précédentes, dans lequel le réceptacle (15) et le couvercle (26) sont en métal non émaillé.

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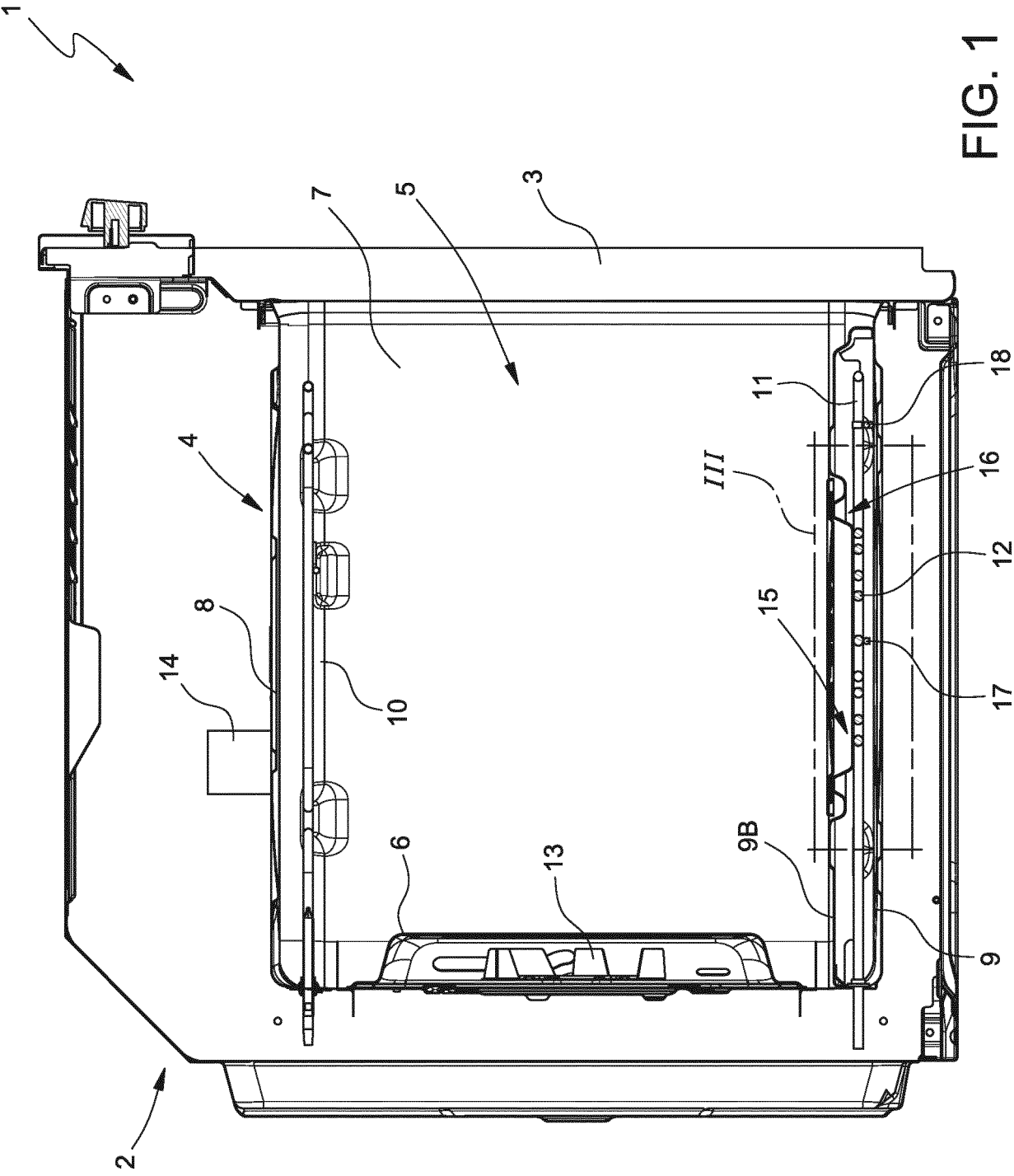


FIG. 1

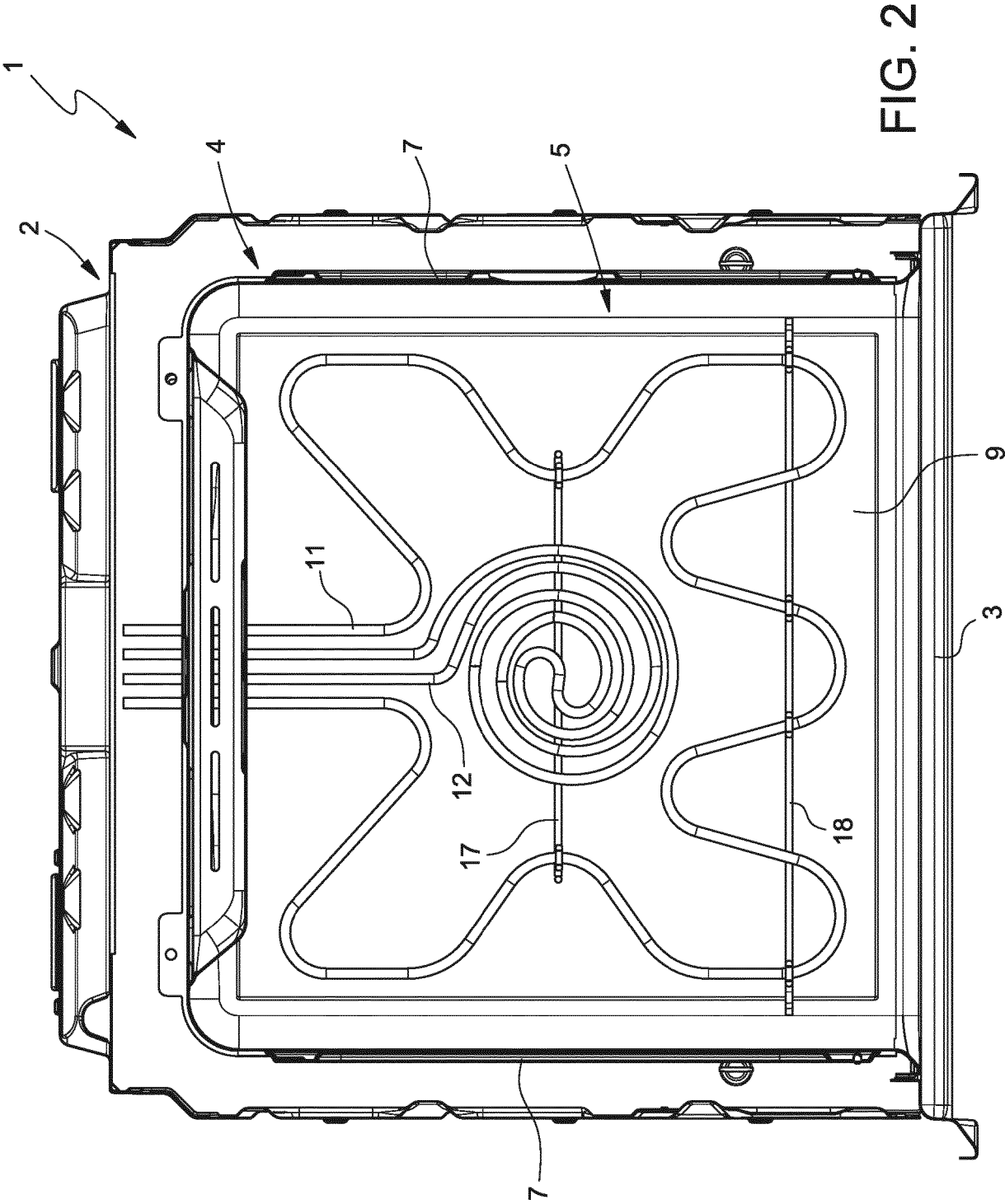


FIG. 2

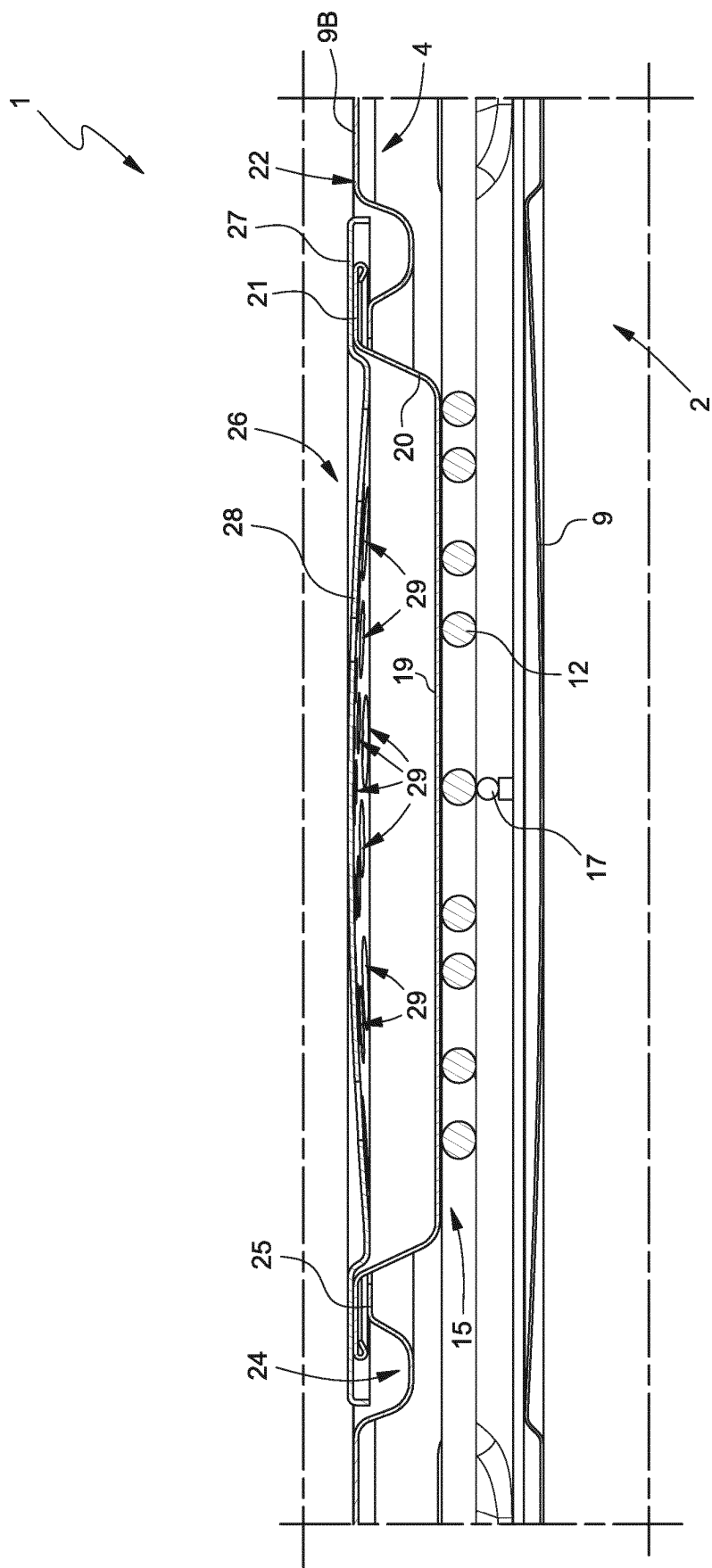


FIG. 3

REFERENCES CITED IN THE DESCRIPTION

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