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(54) **AN OVEN COMPRISING A THERMOSTAT**

OFEN MIT EINEM THERMOSTAT

FOUR QUI COMPREND UN THERMOSTAT

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Description

[0001] The present invention relates to an oven wherein the cooking process is controlled by means of a thermostat.

[0002] In domestic type ovens, especially in ovens wherein electric heaters are used, the operation of the heater is controlled by means of a thermostat. In embodiments wherein the said thermostat is placed on the body, it is important to provide sufficient air flow around the thermostat and to maintain a homogeneous heat distribution. Otherwise, the thermostat can terminate the cooking sooner or later than required. In this case, the desired cooking quality cannot be provided.

[0003] In the state of the art European Patent Application No. EP0081420, an oven is described comprising a bimetal thermostat placed to the ceiling thereof. Documents EP1845311 and US 3619564 disclose further state of the art relevant to the invention.

[0004] The aim of the present invention is the realization of an oven wherein the cooking process is provided to be completed in accordance with the desire of the user.

[0005] The oven realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a protector that surrounds the thermostat in order to prevent contact between the thermostat disposed on the body and the insulator such as glass wool, sponge etc. that is wound around the body and that prevents heat transmission. Thus, the insulator is prevented from cutting off the air flow around the thermostat by covering the thermostat and hence from causing the thermostat to heat sooner in the case it slips or is not correctly placed. In this situation, the cooking process is provided to be improved since the unwanted cut-offs in the operation of the oven are prevented.

[0006] The thermostat used in an embodiment of the present invention is a bimetal thermostat. The said thermostat, which is positioned so as to contact the body, cuts off the circuit by changing shape by means of the heat it receives from the body in due course. Connection ends, which provide the electrical connection of the bimetal thermostat, are preferably disposed on the bimetal thermostat. In this embodiment, the protector is configured so as to prevent the insulator from contacting especially the connection ends. Thus, the contacts that may occur depending on the assembly or the section of the insulator are prevented.

[0007] In an embodiment of the present invention, the protector comprises a base and at least one side wall disposed around the base. The protector is positioned on the body such that the base is seated on the body and in this case, the side walls extend outwards so as to be perpendicular to the body. An opening is located on the base. The opening is wider than the projection of the thermostat on the body. The protector is placed on the thermostat such that the opening is aligned with the thermostat. In this situation, when the thermostat and the

protector are mounted on the body, the base extends parallel to the body around the thermostat and the side walls are disposed around the thermostat so as to be perpendicular to the body and so as to form a shield between the insulator and the thermostat.

[0008] In a derivative of this embodiment, skirts, which extend outwards from the end of the side wall, are disposed. The protector is placed such that the insulator remains under the skirt.

[0009] The thermostat is fixed to the body by means of a fixing means which is passed through a hole disposed on the thermostat.

[0010] In a derivative of this embodiment, a housing, which is aligned with the hole during assembly, is disposed on the protector. The fixing means is fixed to the body by being passed through both the hole and the housing and thus the protector and the thermostat are provided to be fixed by using a single fixing means.

[0011] In a derivative of this embodiment, an embossment, which is aligned with the hole during assembly, is provided on the protector. The embossment is positioned so as to be aligned with the fixing means when the protector is placed on the thermostat fixed to the body by means of the fixing means. Thus, during the placement of the protector, the fixing means is provided to remain in the embossment and thus prevented from forming an obstruction.

[0012] In an embodiment of the present invention, the side walls are separated from each other by means of the slits. Thus, the cables, which provide the electrical connection of the thermostat, can be inserted into the protector by being passed from the slits.

[0013] In an embodiment of the present invention, the thermostat is mounted to the ceiling of the oven. Thus, the thermostat assembly/disassembly operations can be made easily. In the preferred derivative of the present embodiment, the thermostat is mounted to the rear edge of the ceiling. In this embodiment, the walls of the protector that face the edge are shorter than the walls of the protector that face the insulator. Because, since no insulator is present at the edge, protection is not required.

[0014] The oven realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the schematic view of an oven.

Figure 2 - is the rear perspective view of the oven of the present invention.

Figure 3 - is the view of detail A in Figure 2.

Figure 4 - is the perspective view of the body, the thermostat, the protector and the fixing means.

Figure 5 - is the view of detail B in Figure 4.

Figure 6 - is the top view of the protector.

Figure 7 - is the perspective view of the protector.

The elements illustrated in the figures are numbered as follows:

1. Oven

- 2. Body
- 3. Heater
- 4. Insulator
- 5. Thermostat
- 6. Protector
- 7. Connection end
- 8. Base
- 9. Opening
- 10. 110. Side wall
- 11. Skirt
- 12. Hole
- 13. Fixing means
- 14. Housing
- 15. Embossment
- 16. Slit

[0015] The oven (1) comprises

- a body (2) which surrounds an oven cavity wherein the cooking process is performed,
- a heater (3) which provides the cooking of the food-stuffs placed in the body (2),
- an insulator (4) which reduces heat loss from the body (2) by being covered around the body (2) and
- at least one thermostat (5) which is disposed on the body (2) and which provides the operation of the heater (3) to be stopped when its temperature exceeds an upper limit temperature (T_{lim}) determined by the producer.

[0016] The oven (1) of the present invention furthermore comprises a protector (6) placed between the thermostat (5) and the insulator (4) and which prevents the insulator (4) from contacting the thermostat (5).

[0017] Thus, it is prevented that the thermostat (5) provides the heater (3) to be stopped by heating up quickly and as a result of this, the cooking process remaining unfinished even if the temperature of the body (2) does not reach the high limit temperature determined by the producer due to the contact of the insulator (4) with the thermostat (5). In an embodiment of the present invention, the thermostat (5) is of bimetal type.

[0018] In a derivative of this embodiment, the thermostat (5) comprises at least one connection end (7) which provides the electrical connection of the thermostat (5). In this embodiment, the protector (6) is configured so as to prevent the insulator (4) from contacting the connection ends (7). Thus, the oven (1) is provided to be operated safely by preventing the connection ends (7), which are electrically active, from contacting the insulator (4).

[0019] In an embodiment of the present invention, the protector (6) comprises

- a base (8) seated on the body (2),
- an opening (9) disposed on the base (8), large enough for the thermostat (5) to pass therethrough and which enables the protector (6) to be placed on the thermostat (5) and

- at least one side wall (10) which surrounds the base (8) and forms a barrier between the thermostat (5) and the insulator (4).

[0020] Thus, the protector (6) can be easily placed on the thermostat (5) and the insulator (4) is provided not to contact the thermostat (5). On the other hand, since the surface of the protector (6) across the base (8) is open, the electrical connection to the connection ends (7) is provided to be performed easily from above.

[0021] In a derivative of this embodiment, the protector (6) furthermore comprises at least one skirt (11) disposed at the free end of the side wall (10) and which extends outwards perpendicularly to the side wall (10). The skirt (11) presses the insulator (4) from outside and thus the insulator (4) is prevented from contacting the thermostat (5) from the open side of the protector (6).

[0022] In an embodiment of the present invention, the thermostat (5) comprises at least one hole (12) which provides the thermostat (5) to be fixed to the body (2). In this embodiment, the oven (1) comprises at least one fixing means (13) which is mounted to the body (2) by being passed through the hole (12) and which provides the thermostat (5) to be fixed to the body (2). Thus, the thermostat (5) is provided to be easily fixed to the body (2).

[0023] In a derivative of this embodiment, the protector (6) furthermore comprises at least one housing (14) disposed on the base (8). The housing (14) is positioned so as to be aligned with the hole (12) when the protector (6) and the thermostat (5) are placed on the body (2). Thus, the thermostat (5) and the protector (6) are provided to be fixed in one go by passing the same fixing means (13) through both the housing (14) and the hole (12).

[0024] In a derivative of this embodiment, the protector (6) furthermore comprises at least one embossment (15) disposed on the base (8). The embossment (15) is positioned so as to be aligned with the fixing means (13) when the protector (6) is placed on the thermostat (5) fixed to the body (2) by means of the fixing means (13). Thus, the fixing means (13) is provided to remain in the embossment (15) during the placement of the protector (6) and thus prevented from forming an obstruction.

[0025] In an embodiment of the present invention, the protector (6) comprises at least two side walls (10) and at least one slit (16) which at least partially separates the side walls (10) from each other. Thus, the cables to be connected to the connection ends (7) are taken into the protector (6) by being passed through the slit (16) and the cables do not need to be kept longer than required for leaping over the side wall (10).

[0026] In an embodiment of the present invention, the thermostat (5) and hence the protector (6) are mounted to the ceiling of the body (2). Thus, the assembly of the thermostat (5) and the protector (6) is provided to be easily realized.

[0027] In a derivative of this embodiment, the thermostat (5) is mounted to a position close to the edge of the

body (2) facing the rear wall of the ceiling of the body (2). Thus, the cables to be connected can be delivered to the connection ends (7) more easily. In this embodiment, the side walls (110) of the protector, (6) which are close to the edge of the body (2) facing the rear wall of the body (2), are shorter than other side walls (10). Since the side walls (110) of the protector (6), which are on the side where the insulator (4) is not situated, are shorter, both the insulator (4) is prevented from contacting the thermostat (5) and also the material costs are minimized.

[0028] By means of the present invention, the insulator (4) is prevented from causing the thermostat (5) to heat up quickly and hence the cooking process to be interrupted unnecessarily by preventing the air flow around the thermostat (5).

[0029] It is to be understood that the present invention is not limited to the embodiments disclosed above and a person skilled in the art can easily introduce different embodiments. These should be considered within the scope of the protection postulated by the claims of the present invention.

Claims

1. An oven (1) comprising

- a body (2) that surrounds an oven cavity where-in the cooking process is performed,
- a heater (3) that provides the cooking of the foodstuffs placed in the body (2),
- an insulator (4) which reduces heat loss from the body (2) by being covered around the body (2) and
- at least one thermostat (5) which is disposed on the body (2) and which provides the operation of the heater (3) to be stopped when its temperature exceeds an upper limit temperature (T_{lim}) determined by the producer, **characterized by** a protector (6) placed between the thermostat (5) and the insulator (4) and which prevents the insulator (4) from contacting the thermostat (5).

2. An oven (1) as in Claim 1, **characterized by** the thermostat (5) which is of bimetal type.

3. An oven (1) as in Claim 2, **characterized by** the thermostat (5) comprising at least one connection end (7) that provides the electrical connection of the thermostat (5) and the protector (6) configured to prevent the insulator (4) from contacting the connection ends (7).

4. An oven (1) as in any one of the above claims, **characterized by** the protector (6) comprising.

- a base (8) seated on the body (2),
- an opening (9) disposed on the base (8), large

enough for the thermostat (5) to pass there-through and which enables the protector (6) to be placed on the thermostat (5) and
- at least one side wall (10) which surrounds the base (8) and forms a barrier between the thermostat (5) and the insulator (4).

5. An oven (1) as in Claim 4, **characterized by** the protector (6) comprising at least one skirt (11) disposed at the free end of the side wall (10) and which extends outwards perpendicularly to the side wall (10).

6. An oven (1) as in any one of the above claims, **characterized by** the thermostat (5) having at least one hole (12) that provides the thermostat (5) to be fixed to the body (2) and at least one fixing means (13) which is mounted to the body (2) by being passed through the hole (12) and which provides the thermostat (5) to be fixed to the body (2).

7. An oven (1) as in Claim 6, **characterized by** the protector (6) comprising at least one housing (14) disposed on the base (8), positioned so as to be aligned with the hole (12) when the protector (6) and the thermostat (5) are placed on the body (2).

8. An oven (1) as in Claim 6, **characterized by** at least one embossment (15) disposed on the base (8), positioned so as to be aligned with the fixing means (13) when the protector (6) is placed on the thermostat (5) fixed to the body (2) by means of the fixing means (13).

9. An oven (1) as in any one of the above claims, **characterized by** the protector (6) comprising at least two side walls (10) and at least one slit (16) which at least partially separates the side walls (10) from each other.

10. An oven (1) as in any one of the above claims, **characterized by** the thermostat (5) and the protector (6) that are mounted to the ceiling of the body (2).

11. An oven (1) as in Claim 10, **characterized by** the thermostat (5) which is mounted to a position close to the edge of the body (2) facing the rear wall of the ceiling of the body (2) and the protector (6) the side walls (110) of which, that are close to the edge of the body (2) facing the rear wall of the body (2), are shorter than other side walls (10).

Patentansprüche

1. Ofen (1), umfassend

- einen Gehäusekörper (2), der einen Ofenhohl-

raum umgibt, in dem der Garungsprozess ausgeführt wird,

- eine Heizeinrichtung (3), die das Garen der in den Gehäusekörper (2) gegebenen Lebensmittel ermöglicht,

- einen Isolator (4), der Wärmeverlust vom Gehäusekörper (2) reduziert, indem er um den Gehäusekörper (2) gelegt ist, und

- wenigstens ein Thermostat (5), das am Gehäusekörper (2) angeordnet ist und dafür sorgt, dass der Betrieb der Heizeinrichtung (3) angehalten wird, wenn die Temperatur eine vom Hersteller festgelegte obere Temperaturgrenze (T_{lim}) überschreitet,

gekennzeichnet durch ein Schutzelement (6), das zwischen dem Thermostat (5) und dem Isolator (4) angeordnet ist und verhindert, dass der Isolator (4) das Thermostat (5) berührt.

2. Ofen (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** das Thermostat (5) ein Thermostat des Bimetalltyps ist.

3. Ofen (1) nach Anspruch 2, **dadurch gekennzeichnet, dass** das Thermostat (5) wenigstens ein Verbindungsende (7) umfasst, das für die elektrische Verbindung des Thermostats (5) und des Schutzelements (6) sorgt und dazu konfiguriert ist, zu verhindern, dass der Isolator (4) die Verbindungsenden (7) berührt.

4. Ofen (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Schutzelement (6) Folgendes umfasst

- eine Basis (8), die auf dem Gehäusekörper (2) sitzt,

- eine Öffnung (9), die an der Basis (8) angeordnet ist und ausreichend groß ist, damit das Thermostat (5) hindurch gelangen kann, und die es ermöglicht, dass das Schutzelement (6) am Thermostat (5) angeordnet wird, und

- wenigstens eine Seitenwand (10), die die Basis (8) umgibt und eine Barriere zwischen dem Thermostat (5) und dem Isolator (4) bildet.

5. Ofen (1) nach Anspruch 4, **dadurch gekennzeichnet, dass** das Schutzelement (6) wenigstens eine Einfassung (11) umfasst, die am freien Ende der Seitenwand (10) angeordnet ist und sich senkrecht zur Seitenwand (10) nach außen erstreckt.

6. Ofen (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Thermostat (5) wenigstens eine Bohrung (12) aufweist, die es ermöglicht, dass das Thermostat (5) am Gehäusekörper (2) fixiert wird, und wenigstens ein Fixie-

rungsmittel (13), das am Gehäusekörper (2) angebracht wird, indem es durch die Bohrung (12) geführt wird, und es ermöglicht, dass das Thermostat (5) am Gehäusekörper (2) fixiert wird.

7. Ofen (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** das Schutzelement (6) wenigstens ein Gehäuse (14) umfasst, das derart an der Basis (8) angeordnet ist, dass es an der Bohrung (12) ausgerichtet ist, wenn das Schutzelement (6) und das Thermostat (5) am Gehäusekörper (2) angeordnet sind.

8. Ofen (1) nach Anspruch 6, **gekennzeichnet durch** wenigstens eine Prägung (15), die derart an der Basis (8) angeordnet ist, dass sie an dem Fixierungsmittel (13) ausgerichtet ist, wenn das Schutzelement (6) an dem Thermostat (5) angeordnet ist, das mithilfe des Fixierungsmittels (13) am Gehäusekörper (2) fixiert ist.

9. Ofen (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Schutzelement (6) wenigstens zwei Seitenwände (10) und wenigstens einen Schlitz (16) umfasst, der die Seitenwände (10) wenigstens teilweise voneinander trennt.

10. Ofen (1) nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, dass** das Thermostat (5) und das Schutzelement (6) an der Decke des Gehäusekörpers (2) angebracht sind.

11. Ofen (1) nach Anspruch 10, **dadurch gekennzeichnet, dass** das Thermostat (5) an einer Position nahe der Kante des Gehäusekörpers (2) angebracht ist, die der Rückwand der Decke des Gehäusekörpers (2) zugewandt ist, und dass die Seitenwände (110) des Schutzelements (6), die nahe der Kante des Gehäusekörpers (2) sind, die der Rückwand des Gehäusekörpers (2) zugewandt ist, kürzer als die anderen Seitenwände (10) sind.

Revendications

1. Un four (1) comprenant

- un corps (2) qui entoure une chambre de cuisson dans laquelle le processus de cuisson est effectué,

- un dispositif de chauffage (3) qui permet la cuisson des aliments placés dans le corps (2),

- un isolant (4) qui réduit la perte de chaleur à partir du corps (2) en étant recouvert autour du corps (2), et

- au moins un thermostat (5) qui est disposé sur le corps (2) et qui permet au fonctionnement du

dispositif de chauffage (3) d'être arrêté lorsque sa température dépasse une température supérieure limite (T_{lim}) déterminée par le fabricant,

caractérisé par un protecteur (6) qui est placé entre le thermostat (5) et l'isolant (4) et qui empêche l'isolant (4) de toucher le thermostat (5).

2. Un four (1) selon la Revendication 1, **caractérisé par** le thermostat (5) qui est du type bimétallique. 10
3. Un four (1) selon la Revendication 2, **caractérisé par** le thermostat (5) comprenant au moins une borne de connexion (7) qui permet la connexion électrique du thermostat (5), et le protecteur (6) qui empêche l'isolant (4) de toucher les bornes de connexion (7). 15
4. Un four (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le protecteur (6) comprenant 20
 - une base (8) qui est placée sur le corps (2),
 - une ouverture (9) qui est arrangée sur la base (8), qui est suffisamment grande pour que le thermostat (5) la traverse et qui permet au protecteur (6) d'être placé sur le thermostat (5), et 25
 - au moins une paroi latérale (10) qui entoure la base (8) et qui forme une barrière entre le thermostat (5) et l'isolant (4). 30
5. Un four (1) selon la Revendication 4, **caractérisé par** le protecteur (6) comprenant au moins un rebord (11) qui est disposé sur l'extrémité libre de la paroi latérale (10) et qui s'étend vers l'extérieur perpendiculairement à la paroi latérale (10). 35
6. Un four (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le thermostat (5) présentant au moins un trou (12) qui permet la fixation du thermostat (5) au corps (2) et au moins un moyen de fixation (13) qui est monté au corps (2) en étant passé à travers le trou (12) et qui permet la fixation du thermostat (5) au corps (2). 40
7. Un four (1) selon la Revendication 6, **caractérisé par** le protecteur (6) comprenant au moins un logement (14) qui est arrangé sur la base (8) et qui est positionné de manière à être aligné avec le trou (12) lorsque le protecteur (6) et le thermostat (5) sont placés sur le corps (2). 45
8. Un four (1) selon la Revendication 6, **caractérisé par** au moins un gaufrage (15) qui est arrangé sur la base (8) et qui est positionné de manière à être aligné avec le moyen de fixation (13) lorsque le protecteur (6) est placé sur le thermostat (5) fixé au corps (2) par l'intermédiaire du moyen de fixation 50

(13).

9. Un four (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le protecteur (6) comprenant au moins deux parois latérales (10) et au moins une fente (16) qui sépare au moins partiellement les parois latérales (10) l'une de l'autre.
10. Un four (1) selon l'une quelconque des revendications précédentes, **caractérisé par** le thermostat (5) et le protecteur (6) qui sont montés au plafond du corps (2).
11. Un four (1) selon la Revendication 10, **caractérisé par** le thermostat (5) qui est monté dans une position proche du bord du corps (2) faisant face à la paroi arrière du plafond du corps (2) et le protecteur (6) dont les parois latérales (110), qui sont proches du bord du corps (2) faisant face à la paroi arrière du corps (2), sont plus courtes que les autres parois latérales (10). 55

Figure 1

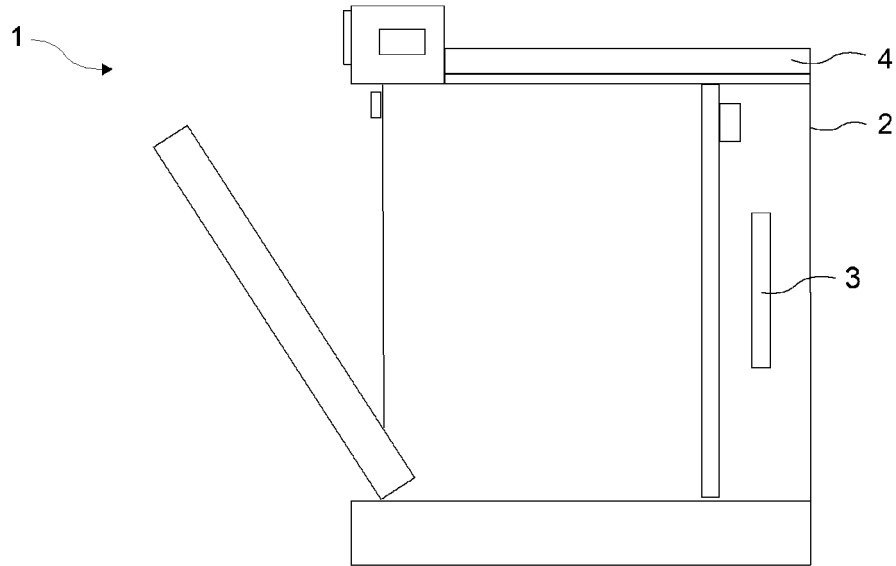


Figure 2

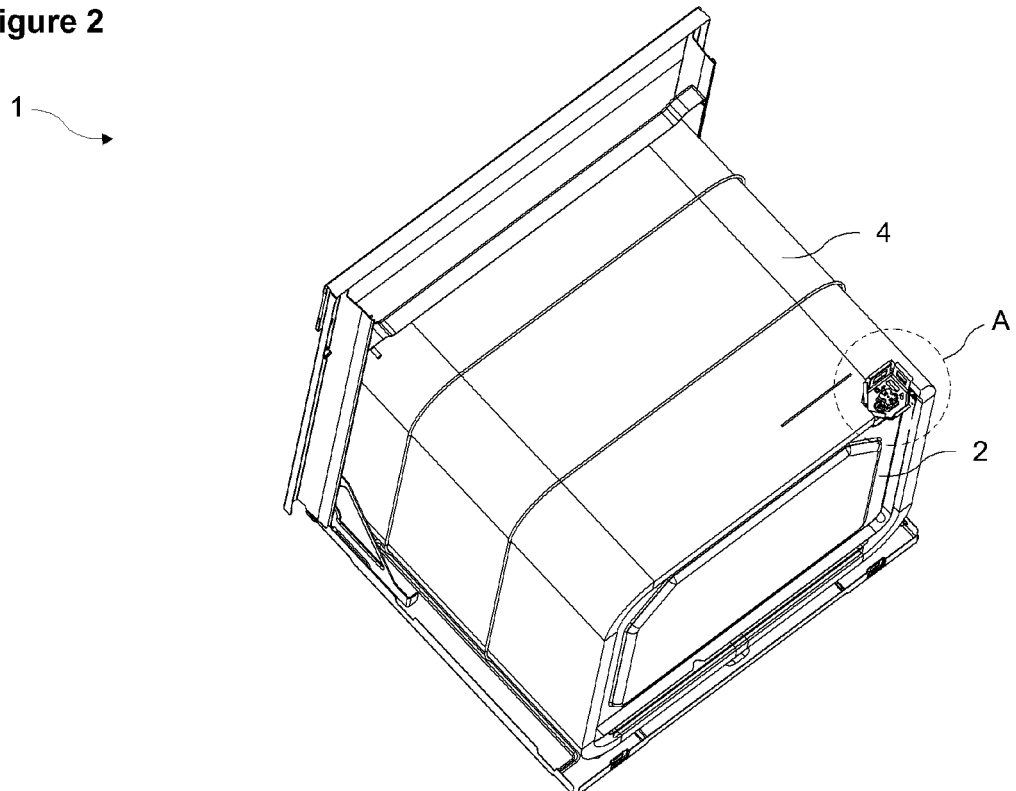


Figure 3

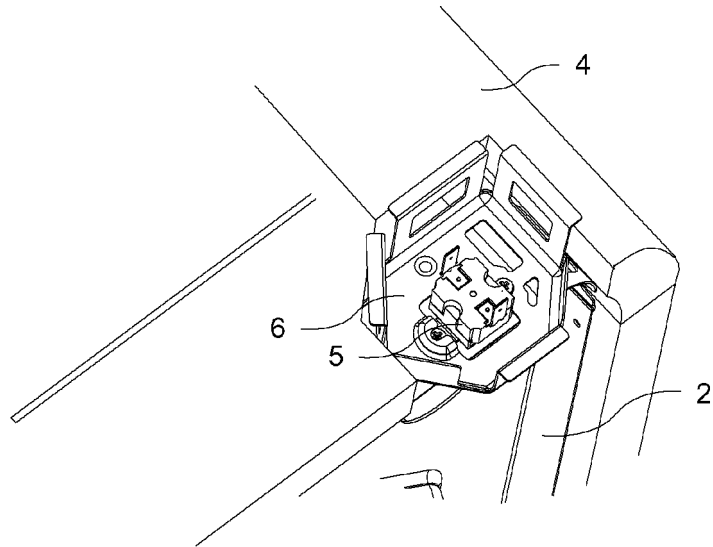


Figure 4

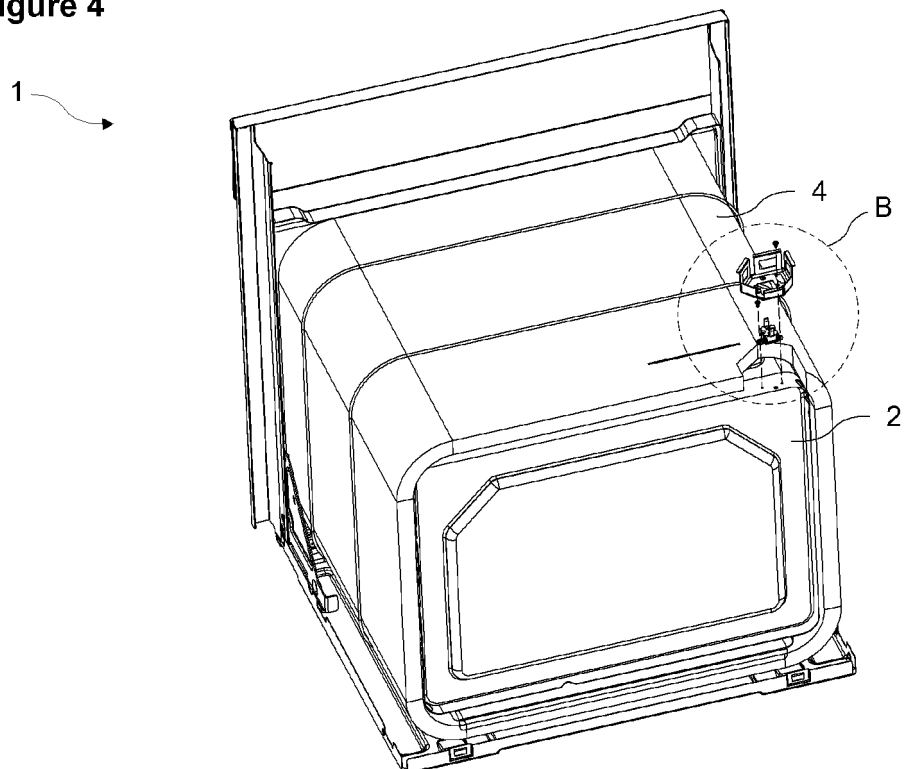


Figure 5

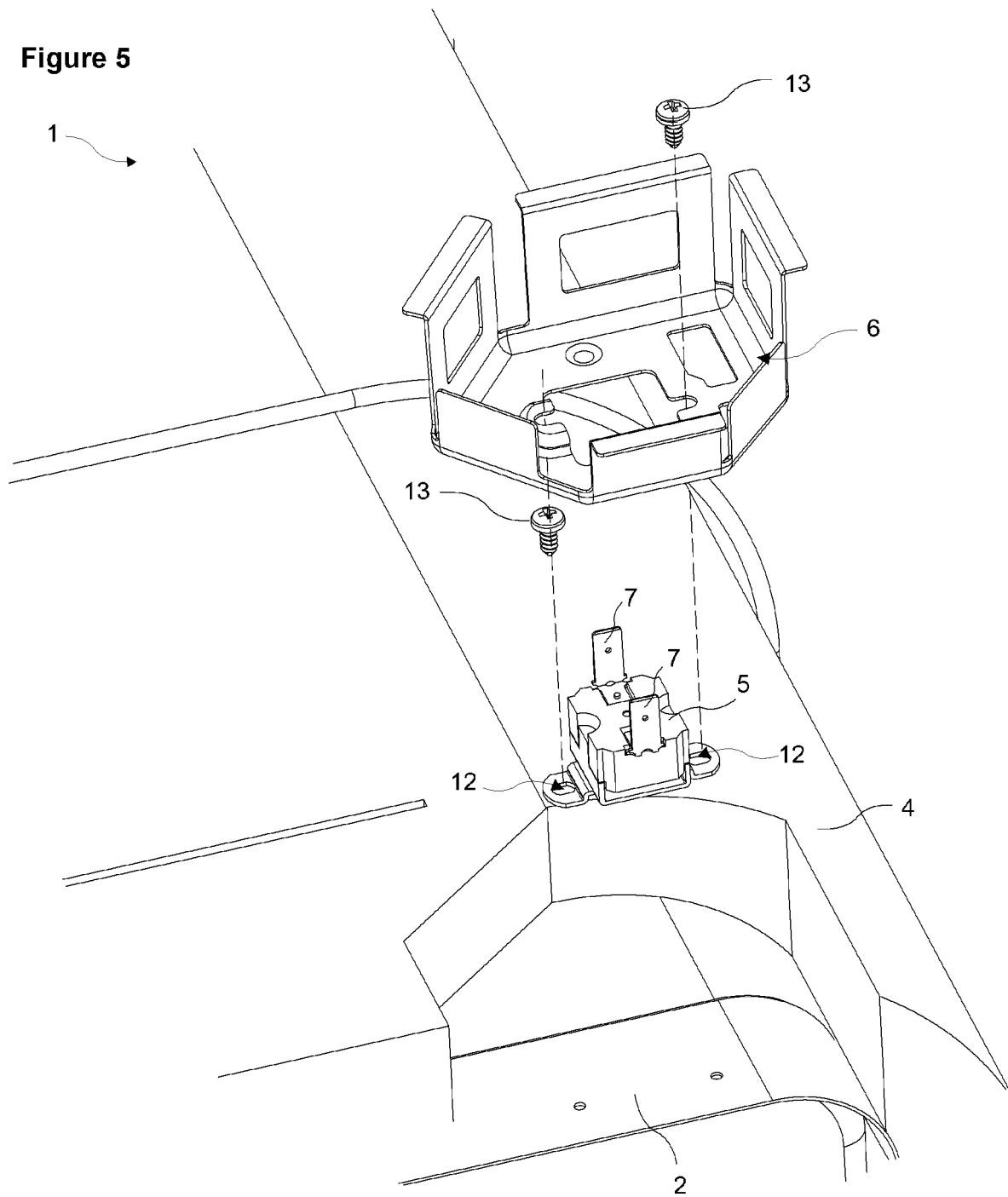


Figure 6

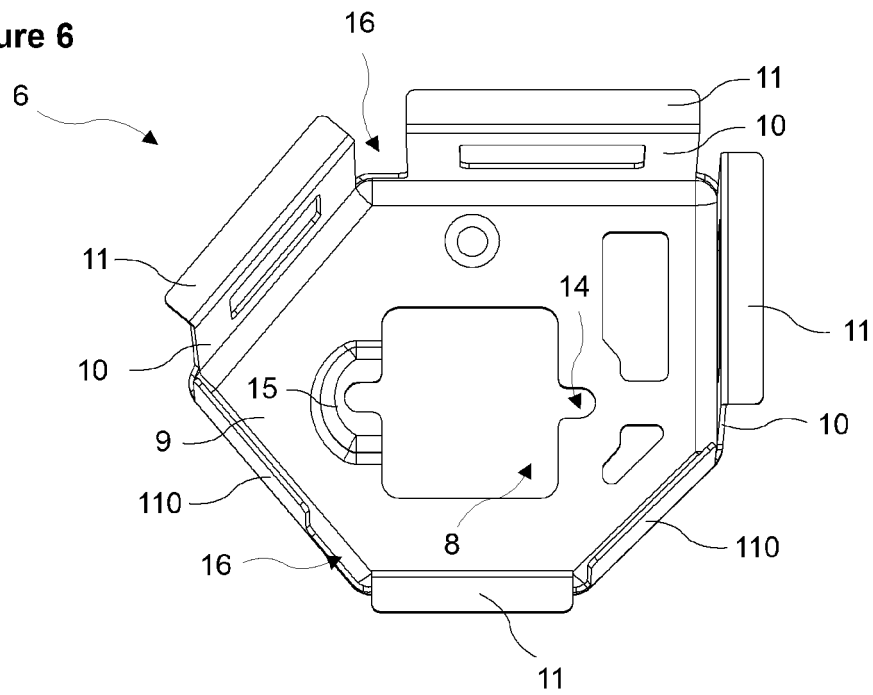
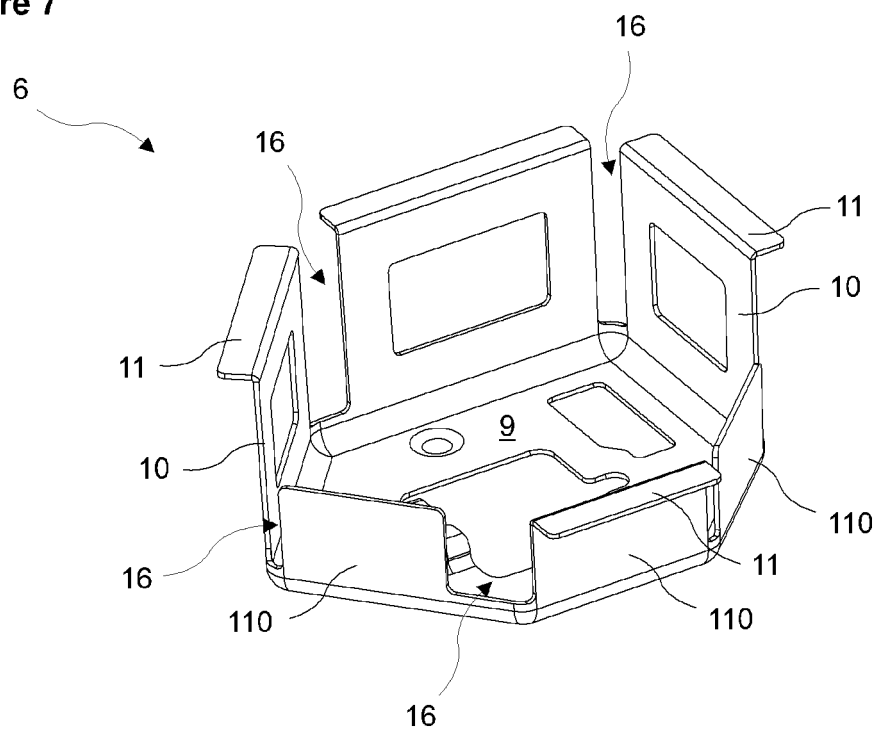


Figure 7



REFERENCES CITED IN THE DESCRIPTION

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