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(54) **REFRIGERATOR**

KÜHLSCHRANK

RÉFRIGÉRATEUR

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Description

[0001] The present invention relates to a refrigerator that can be used safely and wherein homogeneous air distribution is provided inside the body. Refrigerators comprise an opening provided inside the body and through which the cold air around the evaporator is transferred into the body. A fan that transmits the air around the evaporator to the opening is provided behind the said opening. A lid is disposed on the opening to prevent the user from directly reaching the fan. Lids with holes thereon are available in the state of the art. However, these holes provided on the said lids cannot completely prevent access to the fan and cannot provide sufficient safety against the risk of an object or a limb sized as the hole getting caught on or going in the said holes. Moreover, the lid is also required to provide a homogenous air distribution inside the body.

In the state of the art Japanese Patent Application No. JP4082925, a lid is explained, that is disposed inside the refrigerator and that at least partially covers the opening on the body.

[0002] International Patent Application WO 2006/120099 A1 discloses a refrigerator comprising grooves in a wall of the inner container forming an air duct which is delimited by a covering plate. The covering plate may be elevated and comprise openings in its sidewall for the outlet of air.

[0003] The aim of the present invention is the realization of a refrigerator wherein homogeneous air distribution is provided inside the body. Another aim of the present invention is the realization of a refrigerator that can be used safely.

[0004] The refrigerator realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a rear wall facing the door provided on the body, a fan that remains behind the rear wall and an opening arranged on the rear wall. The refrigerator comprises an imperforate lid that faces the opening when placed on the body, that prevents access to the opening from the front side and that has a width at least as much as the opening. The lid is mounted to the rear wall so as to allow air passage between the rear wall and the lid. In an embodiment of the present invention, at least one extension is disposed on the lid seated on the rear wall. The lid is fixed to the rear wall by connecting the said extension to the rear wall. The length of the extension determines the distance between the lid and the rear wall.

[0005] In present invention, the gap between the lid and the rear wall does not have a fixed width around the lid, but has a variable width.

[0006] In the present invention, the lid comprises quadrilateral edges one of which is closer to the rear wall with respect to the other when the lid is placed on the rear wall. Edges with different widths are provided on the lid. Thus, the gaps between the lid and the rear wall vary for each edge.

[0007] In an embodiment of the present invention, the lid comprises an inclined inner surface that extends towards the edge and that faces the opening when the lid is placed on the rear wall. Thus, the air blown from the opening is directed towards the edges of the lid by the curved surface.

[0008] By means of the present invention, a refrigerator is realized wherein the risk of getting caught on the fan or the risk of an object getting caught on the fan is eliminated and furthermore the heat distribution inside the body is kept homogeneous.

[0009] A refrigerator realized in order to attain the aim of the present invention is illustrated in the attached figures, where:

Figure 1 - is the partial schematic view of a refrigerator.

Figure 2 - is the partial schematic view of the refrigerator when the lid is closed in an embodiment of the present invention.

Figure 3 - is the perspective view of the lid.

[0010] The elements illustrated in the figures are numbered as follows:

1. Refrigerator
2. Body
3. Evaporator
4. Fan
5. Rear wall
6. Opening
7. Lid
8. Surface
9. Extension

[0011] The refrigerator (1) comprises a body (2) wherein items to be cooled are placed, an evaporator (3), a fan (4) that blows the air around the evaporator (3) into the body (2), a rear wall (5) that separates the evaporator (3) and the inner volume of the body (2) from each other, a fan (4) that is disposed behind the rear wall (5), and an opening (6) that is arranged on the rear wall (5) and that enables the air blown by the fan (4) to reach the inside of the body (2).

[0012] The refrigerator (1) of the present invention comprises a lid (7) that is mounted around the opening (6) so as to close the front of the opening (6) and that directs the air blown from the fan (4) and impacting thereon towards the gaps between the rear wall (5) and the lid (7) (Figure 1, Figure 2, Figure 3).

[0013] The fan (4) remaining behind the opening (6) cannot be seen thanks to the lid (7) placed on the opening (6). Moreover, the user is prevented from reaching the fan (4) from the front of the opening (6). The cold air blown into the body (2) by the fan (4) flows towards the sides of the lid (7) by hitting the lid (7) and reaches the inside of the body (2) from between the lid (7) and the rear wall (5). Thus, the air blown from the opening (6)

does not directly contact the foodstuffs to be cooled inside the body (2) and contacts the foodstuffs inside the body (2) after being distributed to the sides by the lid (7).

[0014] In the present invention, the lid (7) is mounted to the rear wall (5) such that a distance remains between the rear wall (5) and the lid (7). The air blown by the fan (4) reaches the inside of the body (2) through the gaps formed by the distance between the lid (7) and the rear wall (5).

[0015] In the present invention, a variable distance is provided between the lid (7) and the rear wall (5). Thus, the said distances predetermined by the producer enable the air blown by the fan (4) to be homogeneously distributed inside the body (2) and to be distributed almost equally in every direction from around the lid (7). By means of the air blown by the fan (4) passing through gaps with different cross-sections, cold air with the same flow rate is delivered to every direction around the lid (7).

[0016] In the present invention, the lid (7) comprises quadrilateral edges one of which is closer to the rear wall (5) with respect to the other when the lid (7) is placed on the rear wall (5). Edges with different widths are provided on the lid (7). Thus, the gaps between the lid (7) and the rear wall (5) vary for each edge.

[0017] In an embodiment of the present invention, the lid (7) comprises a curved inner surface (8) that extends towards the edge and that faces the opening (6) when the lid (7) is placed on the rear wall (5). Thus, the air blown from the opening (6) is directed towards the edges of the lid (7) by the curved surface (8). The said surface (8) has an inclination that increases from the center of the lid (7) towards the edge thereof.

[0018] In an embodiment of the present invention, the refrigerator (1) comprises at least one extension (9) that is disposed on the lid (7) and that enables the lid (7) to be connected to the rear wall (5). The lid (7) is fixed to the rear wall (5) by connecting the said extension (9) to the rear wall (5). The length of the extension (9) determines the distance between the lid (7) and the rear wall (5).

[0019] In the present invention, the lid (7) has edges with different thicknesses from one another. Different edge thicknesses enable the formation of different gaps between the edges of the lid (7) and the rear wall (5). Thus, air can be delivered to the location in the body (2) desired by the producer with the desired flow rate.

[0020] In the present invention, the lid (7) is mounted to the rear wall (5) so as to be parallel to the rear wall (5). The surface (8) of the lid (7) is parallel to the rear wall (5).

[0021] By means of the present invention, a refrigerator (1) is realized, that comprises a lid (7) that prevents direct access to the fan (4), that enables the air to be homogeneously distributed inside the body (2) and that almost entirely closes the front of the opening (6).

Claims

1. A refrigerator (1) comprising

- a body (2) wherein items to be cooled are placed,
- an evaporator (3),
- a fan (4) that blows the air around the evaporator (3) into the body (2),
- a rear wall (5) that separates the evaporator (3) and the inner volume of the body (2) from each other, wherein the fan (4) is disposed behind the rear wall (5),
- an opening (6) that is arranged on the rear wall (5) and that enables the air blown by the fan (4) to reach the inside of the body (2),
- a lid (7) that is mounted around the opening (6) so as to close the front of the opening (6) and that directs the air blown from the fan (4) and impacting thereon towards the gaps between the rear wall (5) and the lid (7),
- the lid (7) is mounted to the rear wall (5) such that a distance remains between the rear wall (5) and the lid (7),
- the lid (7) is mounted to the rear wall (5) so as to be parallel to the rear wall (5), **characterized in that**
- the lid (7) has quadrilateral edges, one of which is closer to the rear wall (5) with respect to the other when the lid is placed on the rear wall (5),
- said edges have different thicknesses from one another.

2. A refrigerator (1) as in Claim 1, **characterized by the lid (7) having** a curved inner surface (8) that extends towards the edge of the lid and that faces the opening (6) when the lid (7) is placed on the rear wall (5).

3. A refrigerator (1) as Claim 1, **characterized by** at least one extension (9) that is disposed on the lid (7) and that enables the lid (7) to be connected to the rear wall (5).

Patentansprüche

1. Eine Kühlgerät (1) bestehend aus

- einem Körper (2) wo Gegenstände für Kühlung gelagert werden,
- einem Verdampfer (3),
- einem Fan (4), der die Luft um den Verdampfer (3) in den Körper (2) bläst,
- einer Rückwand (5), die den Verdampfer (3) und das innere Volumen des Körpers (2) voneinander trennt, wo der Fan (4) angeordnet ist hinter der Rückwand (5),

- einer Öffnung (6), die angeordnet ist auf der Rückwand (5) und ermöglicht, daß die Luft, die vom Fan (4) geblasen wird, das Innere des Körpers (2) erreicht,
- einem Deckel (7), der einmontiert ist um die Öffnung (6), so daß das Vorne der Öffnung (6) geschlossen wird und die die Luft, die vom Fan (4) geblasen wird und darauf einwirkt, zu den Lücken zwischen Rückwand (5) und Deckel (7) hingerichtet wird,
- der Deckel (7) ist zur Rückwand (5) einmontiert, so daß eine Entfernung zwischen Rückwand (5) und Deckel (7) zurückbleibt,
- der Deckel (7) ist zur Rückwand (5) einmontiert, so daß er parallel zur Rückwand (5) ist, **dadurch gekennzeichnet, daß**
- der Deckel (7) viereckige Seiten hat, wo eine von denen zur Rückwand (5) naher ist im Vergleich zum anderen, wenn der Deckel hingelegt ist auf die Rückwand (5),
- besagte Seiten verschiedene Dicken voneinander haben.

2. Ein Kühlgerät (1) nach Anspruch 1, **dadurch gekennzeichnet, daß** der Deckel (7) eine gekrümmte innere Oberfläche (8) besitzt, die sich zur Seite hin des Deckels erstreckt und der Öffnung (6) gegenübersteht, wenn der Deckel (7) hingelegt ist auf die Rückwand (5).

3. Ein Kühlgerät (1) nach Anspruch 1, **dadurch gekennzeichnet, daß** mindestens eine Verlängerung (9) angeordnet ist auf dem Deckel (7) und ermöglicht, daß der Deckel (7) zur Rückwand (5) verbunden ist.

Revendications

1. Réfrigérateur (1) comprenant

- un corps (2) dans lequel les articles à refroidir sont placés,
- un évaporateur (3),
- un ventilateur (4) qui souffle l'air autour de l'évaporateur (3) dans le corps (2),
- une paroi arrière (5) qui sépare l'évaporateur (3) et le volume intérieur du corps (2) l'un de l'autre, dans lequel le ventilateur (4) est disposé derrière la paroi arrière (5),
- une ouverture (6) agencée sur la paroi arrière (5) et qui permet à l'air soufflé par le ventilateur (4) d'atteindre l'intérieur du corps (2),
- un couvercle (7) qui est monté autour de l'ouverture (6) de manière à fermer l'avant de l'ouverture (6) et qui dirige l'air soufflé du ventilateur (4) et qui l'entraîne vers les interstices entre la paroi arrière (5) et le couvercle (7),
- le couvercle (7) est monté sur la paroi arrière (5) de sorte qu'une distance reste entre la paroi arrière (5) et le couvercle (7),
- le couvercle (7) est monté sur la paroi arrière (5) de manière à être parallèle à la paroi arrière (5), **caractérisé en ce que**
- le couvercle (7) a des bords de quadrilatère, dont l'un est plus proche de la paroi arrière (5) par rapport à l'autre lorsque le couvercle est placé sur la paroi arrière (5),
- lesdites bords ont différentes épaisseurs l'une de l'autre.

2. Réfrigérateur (1) selon la revendication 1, **caractérisé en ce que** le couvercle (7) présente une surface intérieure courbe (8) qui s'étend vers le bord du couvercle et qui fait face à l'ouverture (6) lorsque le couvercle (7) est placé sur la paroi arrière (5).

3. Réfrigérateur (1) selon la revendication 1, **caractérisé par** au moins une extension (9) disposée sur le couvercle (7) et qui permet de connecter le couvercle (7) à la paroi arrière (5).

Figure 1

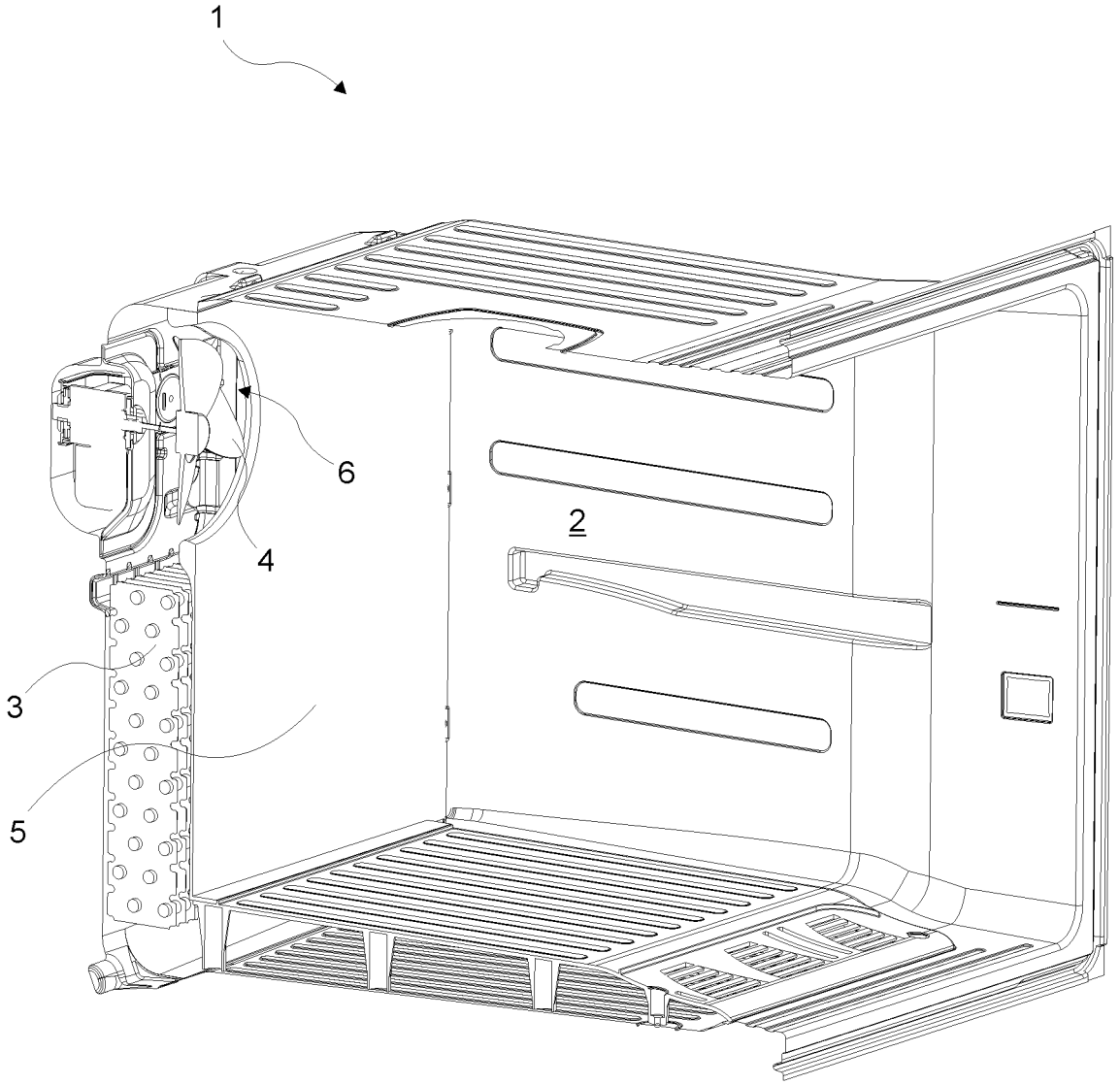


Figure 2

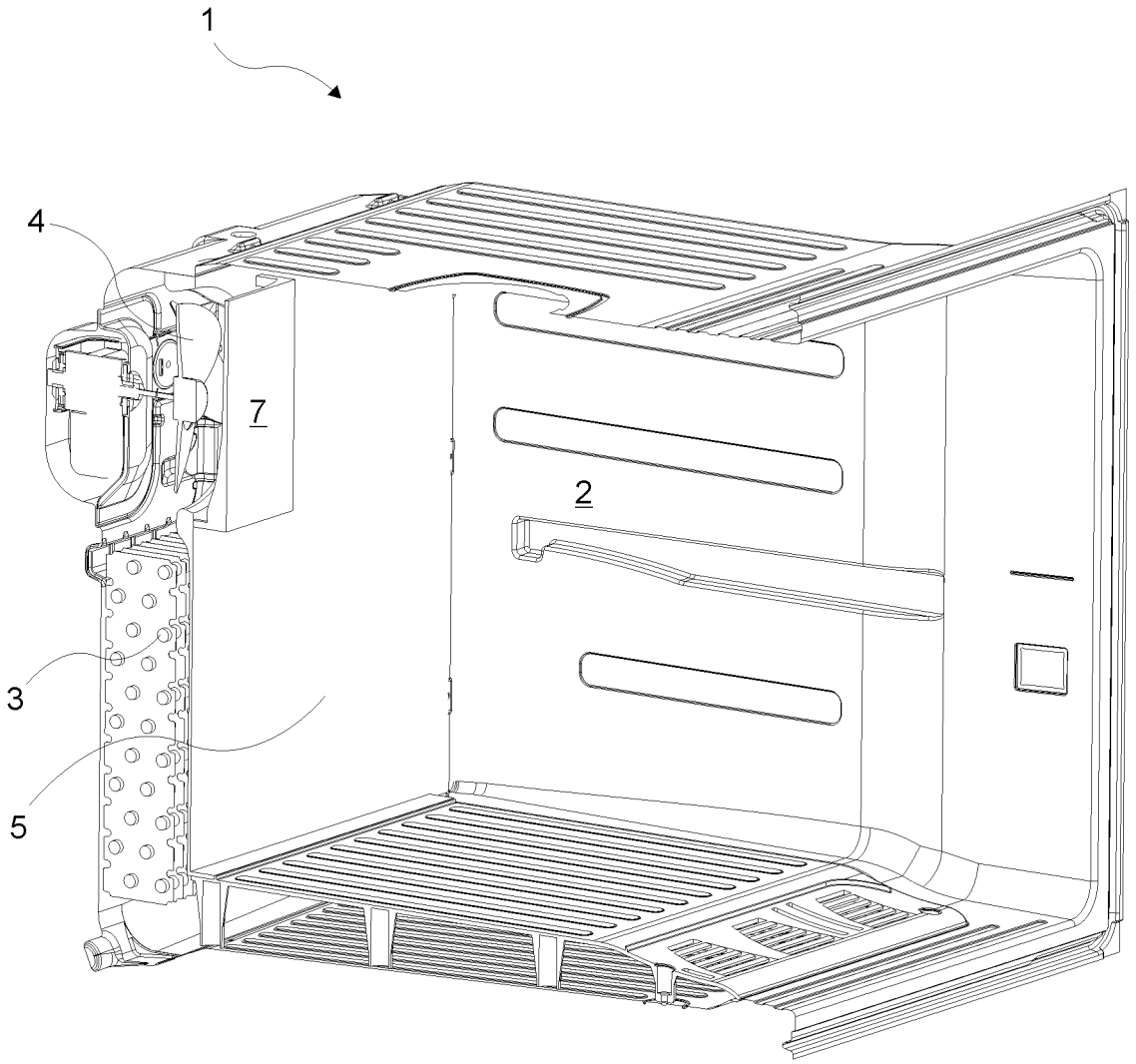
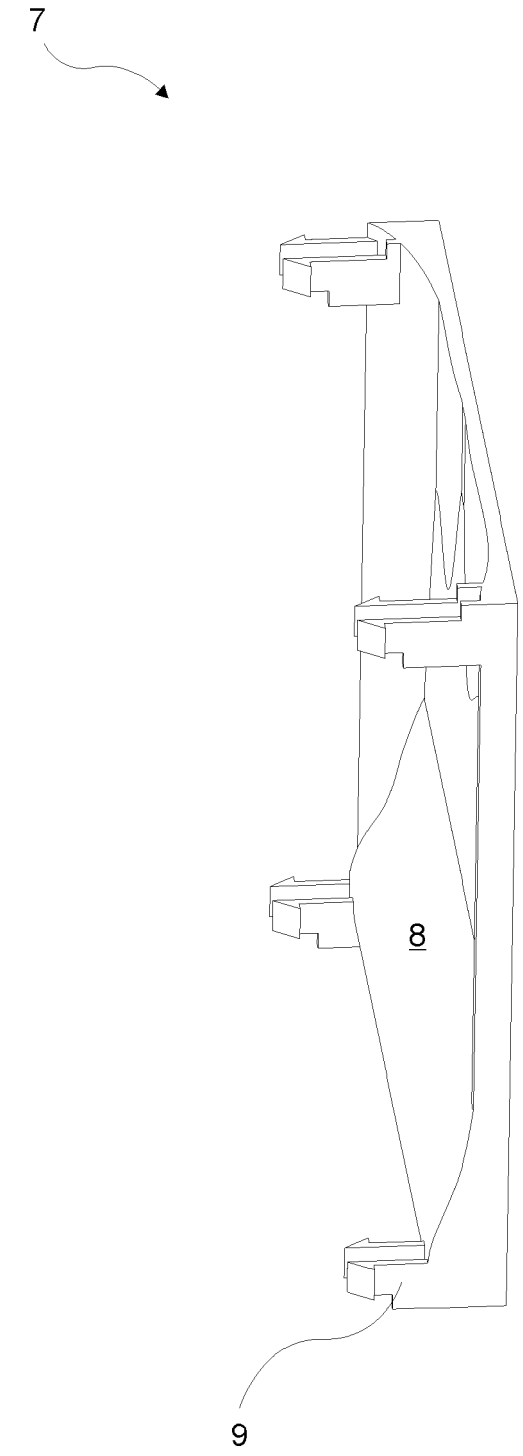


Figure 3



REFERENCES CITED IN THE DESCRIPTION

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