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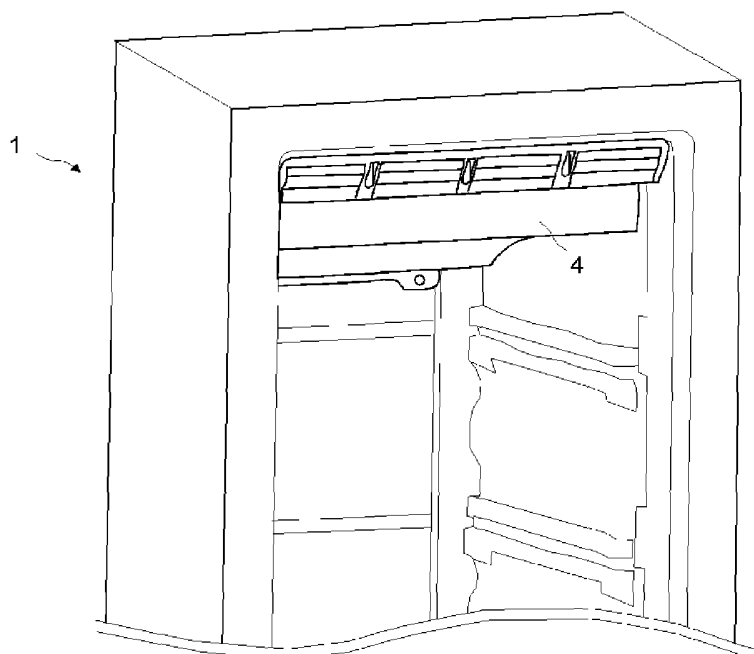
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(54) Title: A COOLING DEVICE



(57) Abstract: The present invention relates to a cooling device (1) comprising a housing (4) that separates the evaporator (3) from the compartment (2) where food and beverages to be cooled are stored, wherein the housing (4) is partially opened by means of a cover (6) providing easy access to the evaporator (3) for carrying out the necessary controls of the evaporator (3) ducts.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Description

A COOLING DEVICE

Technical Field

[0001] The present invention relates to a cooling device comprising an evaporator housing that enables easy access to the evaporator when desired.

Background Art

[0002] In cooling devices, the volume into which the evaporator is situated and the volume where food is stored is generally separated by an evaporator cover. When determining whether or not there is an interruption in the flow of the refrigerant fluid, the evaporator cover must be opened to reach the pipes for checking a possible leakage or such. Especially during the production phase of the cooling device, opening the evaporator cover to dismount it from the cooling device for carrying out these checks and then mounting it again results in the loss of time.

[0003] In the United States Patent no. US 6240739, a description is given of an evaporator cover made of plastic material by injection molding in one piece, easily mounted or dismounted to a cooling device having a glass door.

[0004] In the United States Patent no. US 5727859, an evaporator housing in a refrigerator is described, comprising a cover and a main body which are attached to each other by means of projections and openings receiving these projections.

Disclosure of Invention

[0005] The aim of the present invention is to design a cooling device comprising an evaporator housing that enables easy access to the evaporator when desired.

[0006] In the cooling device designed to fulfill the objectives of the present invention, the evaporator housing that separates the evaporator from the compartment where food and beverages to be cooled are stored, comprises a body and a cover hinged to the body, opening the cover provides easy access to the evaporator and thus the necessary controls can be made. When the cover is opened, it stays attached to the body from one edge, and it is not required to displace it from the cooling device and keep it somewhere else.

[0007] The body and the cover forming the evaporator housing can be produced in one piece, the cover can be folded along a folding line, being attached to the body. Aside from this, to facilitate the opening of the cover, it is possible to make the wall thickness of the housing along the folding line thinner or to provide grooves that extend along the folding line.

[0008] In embodiments where the evaporator is situated on the ceiling of the cooling device, the evaporator housing is produced in shape of a box that closes the base and

the sides of the evaporator, providing easy access to the evaporator by opening the cover positioned in the front.

[0009] The cooling device designed to fulfill the objectives of the present invention is illustrated in the attached figures, where :

[0010] Figure 1 – is the perspective view of a cooling device.

[0011] Figure 2 – is the perspective view of an evaporator housing with an open cover.

[0012] Figure 3 – is the schematic view of a cooling device comprising an evaporator housing with a closed cover.

[0013] Figure 4 – is the schematic view of a cooling device comprising an evaporator housing with an open cover.

[0014] Figure 5 – is the schematic view of a cooling device comprising an evaporator housing with a cover attached by a hinge.

[0015] Figure 6 – is the perspective view of an evaporator housing with a closed cover.

[0016] Figure 7 – is the schematic view of Detail A shown in Figure 6.

[0017] Elements shown in the figures are numbered as follows:

1. Cooling device
2. Compartment
3. Evaporator
4. Housing
5. Body
6. Cover
7. Side wall
8. Groove
9. Aperture / cut-out
10. Screw hole
11. Hinge

[0018] The cooling device (1) comprises one or more compartments (2) in which food and beverage items to be cooled and/or frozen are stored, an evaporator (3) that provides cooling by absorbing the ambient thermal energy, a housing (4) that separates the compartment (2) from the volume in which the evaporator (3) is situated, providing the cold air to be directed from the evaporator (3) to the compartment (2) and protecting the evaporator (3) and the insulation elements like styropor etc.

[0019] The housing (4) comprises a body (5) situated between the evaporator (3) and the compartment (2), fixed to the wall of the cooling device (1) forming the fixed part, and a cover (6) attached to the body (5) with a hinge (11) forming the movable part, which can be opened or closed by being folded, when opened provides access to the evaporator (3) and when closed provides the evaporator (3) to be enclosed.

[0020] To access the evaporator (3), the housing (4) separating the evaporator (3) from the

compartment (2) is partially opened or closed instead of being dislocated completely. The cover (6) attached to the body (5) provides the housing (4) to be partially opened or closed.

[0021] In one embodiment of the present invention, the cover (6) is produced in a single piece with the body (5). In this embodiment, after the housing (4) is mounted to the cooling device (1), the body (5) stays fixed and the cover (6) can move around a folding line (C) between the body (5) and the cover (6), preferably situated at the base of the housing (4), attaching the cover (6) to the body (5) and serving as a hinge (11). When the cover (6) is opened by folding, an opening is formed providing access to the evaporator (3), and when the cover (6) is closed, the evaporator (3) is completely enclosed.

[0022] In another embodiment of the present invention, the wall thickness of the housing (4) is made thinner near the folding line (C) for facilitating the folding of the cover (6) wherein the folding line (C) serves as a hinge (11) between the body (5) and the cover (6).

[0023] In another embodiment of the present invention, the housing (4) comprises one or more grooves (8) situated on the folding line (C) that serve as a hinge (11) between the body (5) and the cover (6) for facilitating the folding process.

[0024] In another embodiment of the present invention, the evaporator (3) is positioned under the ceiling of the cooling device (1) and the housing (4) separates the evaporator (3) from the compartment (2) by enclosing the base of the evaporator (3). In this embodiment, the body (5) is fixed from its rear side to the rear wall of the cooling device (1) from the inside and when the cover (6) is closed, it closes the front of the evaporator (3) and it is fixed to the ceiling of the cooling device (1). The cover (6) can be opened or closed by folding in order to provide access to the evaporator (3) from its front side and comprises one or more screw holes (10) to provide fixing it to the compartment (2) ceiling. The housing (4) is in shape of a box with the evaporator (3) and the insulation materials situated inside, comprising a side wall (7) surrounding to enclose the sides of the evaporator (3) and the insulation materials.

[0025] When carrying out controls such as controlling leaks of refrigerant fluid in the pipes is desired, the cover (6) is separated from the ceiling by unscrewing the screws attaching it to the ceiling of the cooling device (1) and is opened by folding it downwards. Since the cover (6) is not displaced from the body (5), it stays hanging on the cooling device (1) even though it is dismounted, and after reaching the evaporator (3) pipes to carry out the necessary procedures, it is folded upwards and mounted on the ceiling of the compartment (2).

[0026] In the embodiment of the present invention mentioned above, the housing (4) comprises one or more preferably U or V shaped apertures (9) situated on the side wall

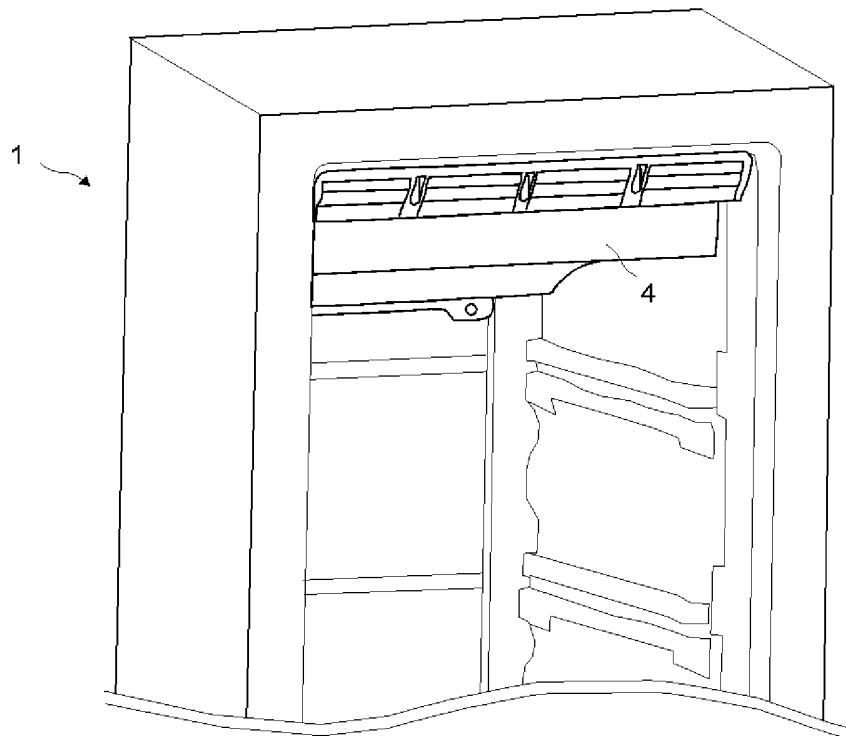
(7), providing the detachment of that portion of the side wall (7) that stays on the cover (6) from the portion that stays on the body (5) during folding. When the cover (6) is folded upwards and mounted on the ceiling of the cooling device (1), the apertures (9) are hidden, staying between the inner side walls of the cooling device (1) and the cover (6), so that an esthetic appearance is perceived when viewed from the front with the folding places out of sight.

[0027] With the single piece build of the cover (6) and the body (5) and the foldable opening feature, easy access to the evaporator (3) is provided when desired especially during the production phase, and less time is needed for remounting since the cover (6) is not completely displaced from the cooling device (1) when it is opened.

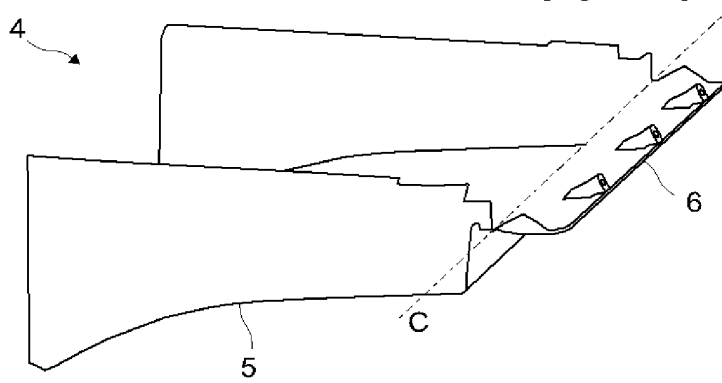
Claims

- [0001] A cooling device (1) comprising one or more compartments (2) in which food and beverage items to be cooled and/or frozen are stored, and an evaporator (3) that provides cooling by absorbing the ambient thermal energy, characterized by a housing (4) that separates the compartment (2) from the volume where the evaporator (3) is situated, having a body (5) forming the fixed part, and a cover (6) forming the movable part, attached to the body (5) by a hinge (11), and opened or closed by being folded.
- [0002] A cooling device (1) as in Claim 1, characterized by a housing (4) having a cover (6) produced in a single piece with the body (5), that can move around a folding line (C) situated between the body (5) and the cover (6) that serves as a hinge (11).
- [0003] A cooling device (1) as in Claim 2, characterized by a housing (4), the wall thickness of which is made thinner along the folding line (C).
- [0004] A cooling device (1) as in Claim 2 or 3, characterized by a housing (4) comprising one or more grooves (8) situated on the folding line (C).
- [0005] A cooling device (1) as in any one of the above claims, characterized by a housing (4) comprising a side wall (7) that surrounds and encloses the sides of the evaporator (3) and the insulation materials.
- [0006] A cooling device (1) as in Claim 5, characterized by a housing (4) comprising one or more cut-out (9) situated on the side wall (7), providing the detachment of that portion of the side wall (7) that stays on the cover (6) from the portion that stays on the body (5) during folding.
- [0007] A cooling device (1) as in Claim 6, characterized by a housing (4) comprising U or V shaped cut-out (9).

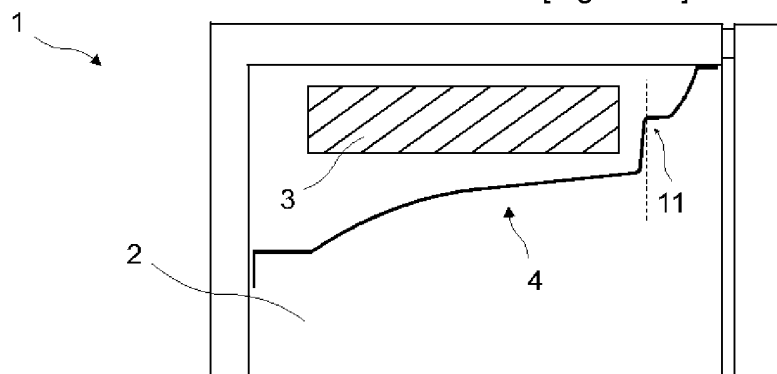
[Fig. 0001]



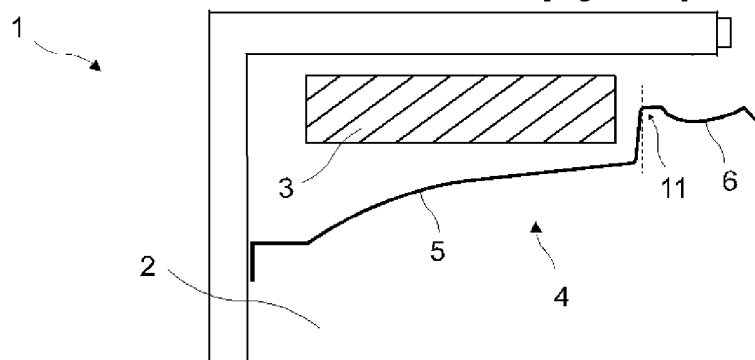
[Fig. 0002]



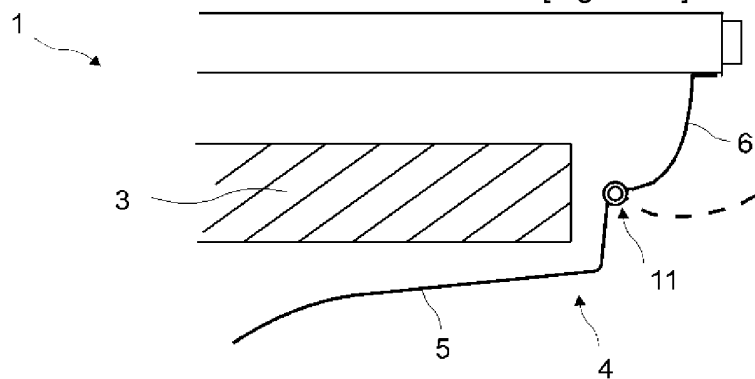
[Fig. 0003]



[Fig. 0004]



[Fig. 0005]



[Fig. 0006]

