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(54) A COOLING DEVICE

KÜHLGERÄT

DISPOSITIF DE REFROIDISSEMENT

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Description

[0001] This invention relates to a cooling device wherein means are provided to fix the evaporators placed in the body.

[0002] In cooling devices such as deep freezers, the evaporator is located in the body after it is folded as a serpentine in order to cool the goods filled, in a shorter period of time. Thereby, heat transfer between the goods to be cooled and the evaporator pipes where the cooling fluid circulates, is accelerated. In this kind of cooling devices, wire-pipe or roll-bond evaporators are employed. After placing the evaporators in the internal medium, they are fastened to the interior of the body of the cooling device by several methods in order to prevent them from loosening during operation.

[0003] In the current state of the art, in the German Patent no. DE 2638364, a description is given of an evaporator placed in the body of a cooling device wherein a profile mounted to the front of the evaporator and holder elements mounted to the both sides of the profile, are used to fix the evaporator to the internal medium. Holder elements fit to the sockets on the side walls and thereby fasten the profile and the evaporator, one side of which is mounted to a groove inside the profile. In this application, the number of the elements is increased since the profile and holder elements are separate members. Furthermore, it is not possible to place drawers containing food etc. directly onto the evaporator.

[0004] In the current state of the art, in the European Patent no. EP 534107, the evaporator is fastened by means of an evaporator holder mounted to the end of the shelf supports where the elements such as drawers, shelves etc. that are used to carry the food are placed on, and by means of a profile mounted to the front of the evaporator and fitted to the socket on the evaporator holder. In this application, the fact that the profile and holder elements are separate members increases the number of the elements.

[0005] US Patent US 3 865 448 discloses a deformable shelf retainer for retaining a shelf within a refrigerator cabinet. The retainer can be bent to allow for an insertion into recesses on opposite walls of the cabinet.

[0006] The aim of the present invention is the realization of a cooling device wherein means are provided to fix the evaporators placed inside its body.

[0007] The cooling device designed to fulfill the objectives of the present invention is defined in claim 1 and illustrated in the annexed drawings where:

Fig. 1 - is a perspective view of a cooling device.

Fig. 2 - is a perspective view of the interior of the body of a cooling device.

Fig. 3 - is a perspective view of the side wall of a cooling device body.

Fig. 4 - is a perspective view of the side wall of the body of a cooling device where an evaporator and an evaporator holder are placed.

Fig. 5 - is a top schematic representation of the side wall of the body of a cooling device where an evaporator and an evaporator holder are placed.

Fig. 6 - is a perspective view of an evaporator holder.

[0008] Elements shown on figures are numbered as follows:

1. Cooling device
2. Body
3. Door
4. Shelf
5. Side wall
6. Rear wall
7. Shelf support
8. Evaporator
9. Evaporator holder
10. Socket
11. Projection
12. Groove
13. Detent

[0009] The cooling device (1) according to the present invention, for example a refrigerator, comprises a body (2), a door (3) that enables access to the inside of the body (2), one or more shelves (4) placed inside the body (2) where several objects such as food containers are placed on, an evaporator (8) located in the body (2) wherein cooling is achieved by absorbing thermal energy in the body (2), and an evaporator holder (9) providing the fixation of the evaporator (8) to the body (2).

[0010] The body (2) comprises one or more side walls (5), a rear wall (6), one or more shelf supports (7) placed onto the side walls (5) or the rear wall (6) and which sustain the weight of the shelves (4), several sockets (10) located reciprocally at the side walls (5) and in which the evaporator holder (9) is mounted such that horizontal and vertical motion of the evaporator holder (9) is prevented, and a projection (11) immediately in front of the socket (10), into which the evaporator holder (9), mounted to the socket (10), is attached so that it is supported against the forces that may act upon the evaporator (8).

[0011] The evaporator holder (9) comprises a groove (12) where the front part of the evaporator (8) is mounted, and one or more detents (13) placed on both sides of the holder (9) so as to provide fixation by coupling to the socket (10).

[0012] When the evaporator (8) is to be placed inside the body (2), it is folded into a serpentine structure. After that, evaporator holders (9) are mounted to the front part of the evaporator (8). The evaporator (8) with the evaporator holders (9) attached, is located and fixed in the body (2) by inserting the detents (13) of the evaporator

holder (9) to the sockets (10).

[0013] The depth of the sockets (10) formed at the side wall of the body (2) can not exceed a certain value. If it does, the insulation thickness of the side wall (5) decreases at the region around the socket (10) thereby affecting the refrigeration performance negatively. Therefore, by just using the sockets (10) it is not possible to fix the evaporator holder (9) with desired reliability. For this reason, the projection (11) is used as a support to increase the strength particularly against unexpected, vertical loads applied in the downward direction.

[0014] By means of the single-piece evaporator holder (9) it is achieved to easily fix the evaporator (8) to the interior of the body (2) of the cooling device (1).

Claims

1. A cooling device (1) comprising,

- a body (2) with one or more side walls (5),
- an evaporator (8) located inside the body (2),
- an evaporator holder (9) providing the fixation of the evaporator (8) in the body (2),
- several sockets (10) located reciprocally at the side walls (5) and in which the evaporator holder (9) is mounted such that the horizontal and vertical motions of the evaporator holder (9) is prevented,

characterized in that

- the body (2) comprises a projection (11) immediately in front of each of the sockets (10) into which the evaporator holder (9), mounted to the socket (10), is attached so that it is supported against unexpected, vertical loads applied in the downward direction that may act upon the evaporator (8),
- the evaporator holder (9) comprises a groove (12) where the front part of the evaporator (8) is mounted and one or more detents (13) placed on both sides of the holder (9) so as to provide fixation by coupling to the socket (10).

Patentansprüche

1. Kühlvorrichtung (1), umfassend

- einen Gehäusekörper (2) mit einer oder mehreren Seitenwänden (5),
- einen Verdampfer (8), der im Gehäusekörper (2) angeordnet ist,
- einen Verdampferhalter (9), der das Befestigen des Verdampfers (8) im Gehäusekörper (2) ermöglicht,
- mehrere Buchsen (10), die wechselseitig an den Seitenwänden (5) angeordnet sind und in denen der Verdampferhalter (9) angebracht ist, derart, dass die horizontale und vertikale Bewegung des Verdampferhalters (9) verhindert wird,

dadurch gekennzeichnet, dass

- der Gehäusekörper (2) einen Vorsprung (11) unmittelbar vor jeder der Buchsen (10) umfasst, in denen der Verdampferhalter (9), der an der Buchse (10) angebracht ist, befestigt ist, derart, dass er gegen unerwartete vertikale Lasten abgestützt ist, die in Abwärtsrichtung angewandt wirken und auf den Verdampfer (8) einwirken können,
- der Verdampferhalter (9) eine Nut (12), in der der vordere Teil des Verdampfers (8) angebracht ist, und einen oder mehrere Rastnoppen (13) umfasst, die auf beiden Seiten des Halters (9) angeordnet sind, um durch Koppeln an die Buchse (10) eine Befestigung bereitzustellen.

Revendications

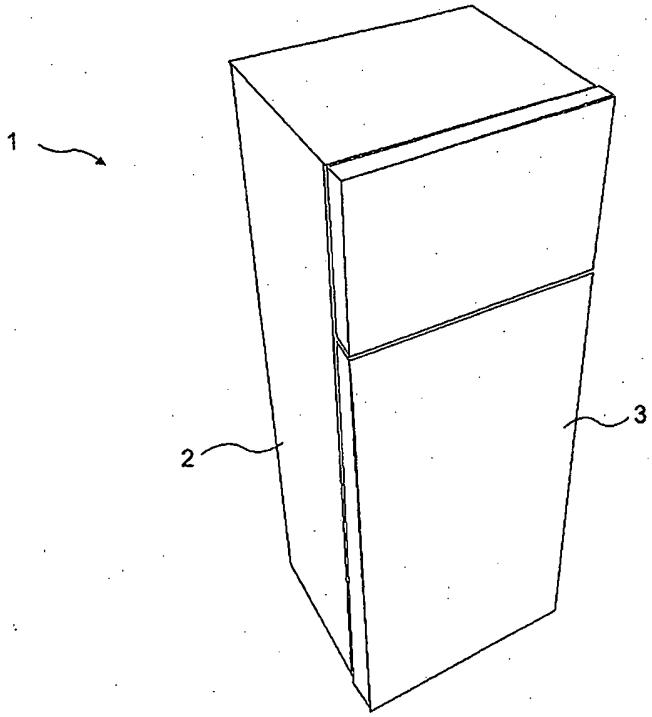
1. Un dispositif de refroidissement (1) comprenant

- un corps (2) présentant une ou plusieurs parois latérales (5),
- un évaporateur (8) qui est situé dans le corps (2),
- un porte-évaporateur (9) qui permet la fixation de l'évaporateur (8) dans corps (2),
- plusieurs douilles (10) qui sont situées réciproquement aux parois latérales (5) et dans lesquelles le porte-évaporateur (9) est monté de telle sorte que les mouvements horizontal et vertical du porte-évaporateur (9) sont empêchés,

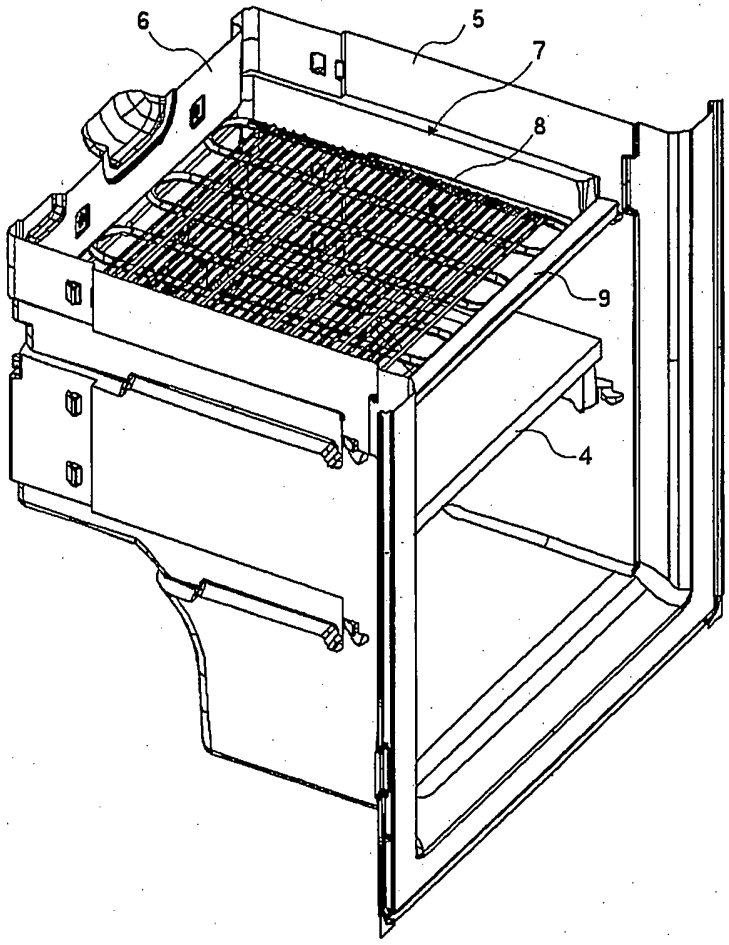
caractérisé en ce que

- le corps (2) comprend une protubérance (11) juste devant chacune des douilles (10), dans laquelle le porte-évaporateur (9), monté dans la douille (10), est fixé de manière à être supporté contre des charges verticales inattendues appliquées vers le bas qui peuvent agir sur l'évaporateur (8),
- le porte-évaporateur (9) comprend une rainure (12) dans laquelle la partie avant de l'évaporateur (8) est montée et une ou plusieurs détentes (13) qui sont placées sur les deux côtés du porte-évaporateur (9) de manière à permettre la fixation par couplage à la douille (10).

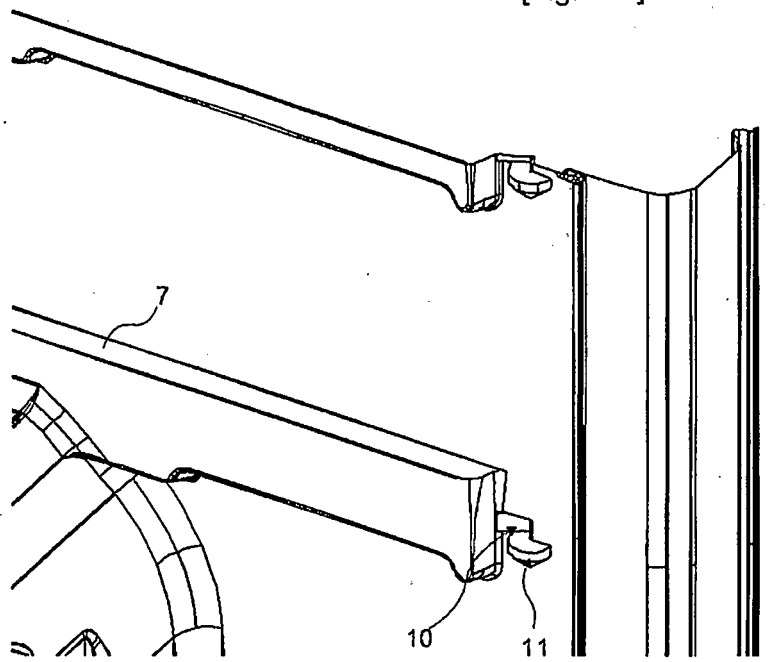
[Fig. 001]



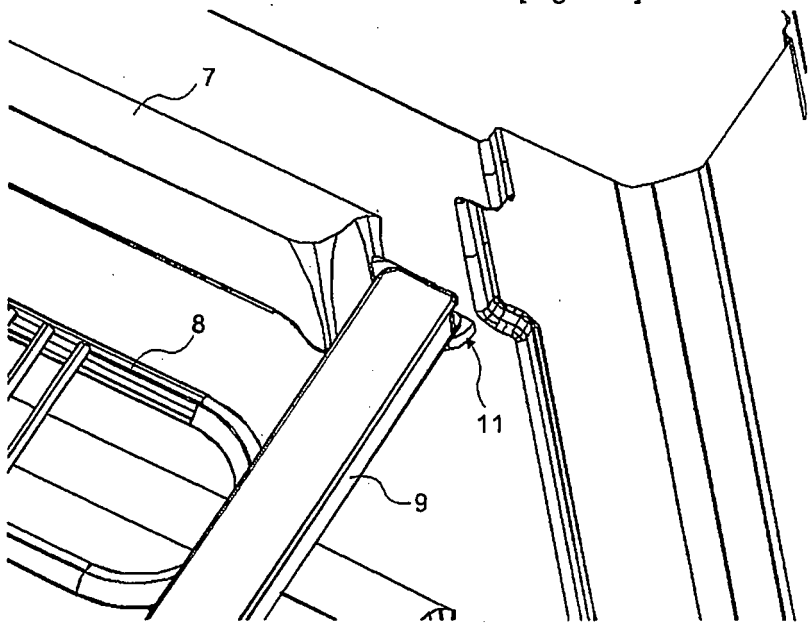
[Fig. 002]



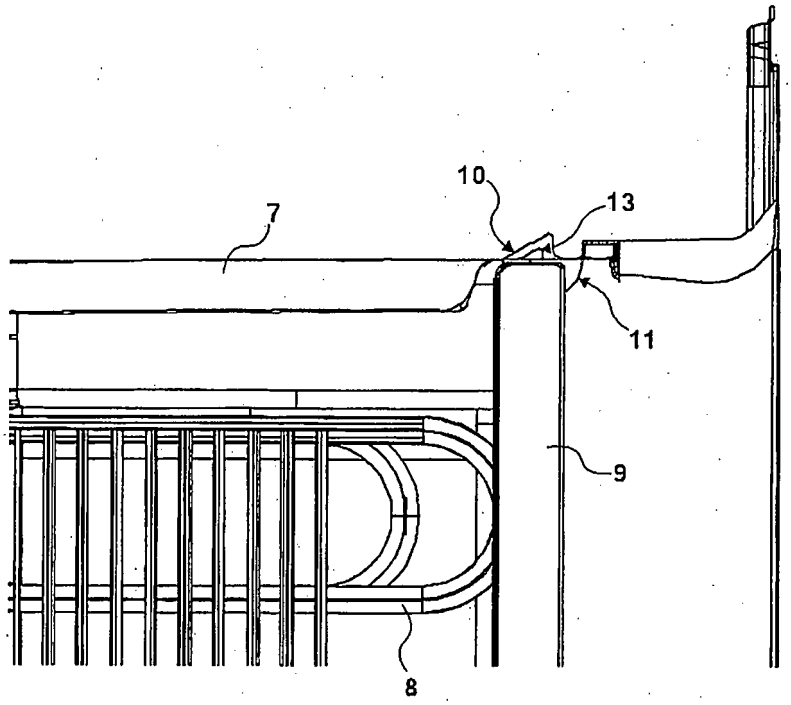
[Fig. 003]



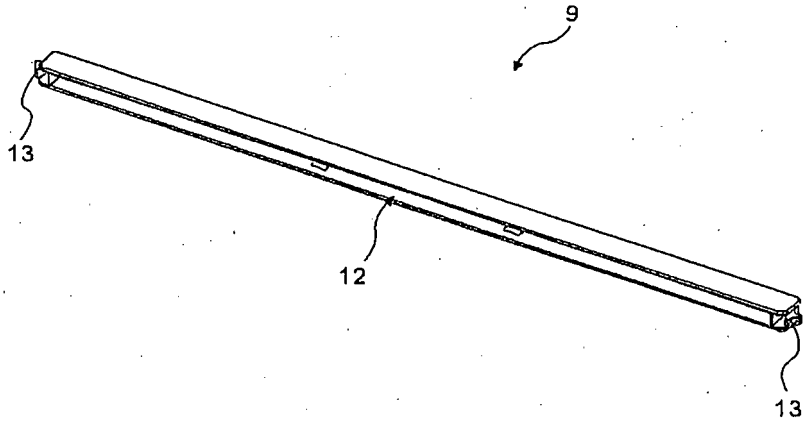
[Fig. 004]



[Fig. 005]



[Fig. 006]



REFERENCES CITED IN THE DESCRIPTION

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