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(54) **A freezing chamber**

(57) The freezing chamber (A) of this invention, comprises a cooling member (3); a quick freezing compartment (2); at least one intake hole (9) which allows air to flow from cooling member (3) into interior of chamber (1); at least one intake hole (10) which allows cool air to flow from cooling member (3) into the compartment; at least one intake hole (11) which ensures the air flowing out of the compartment (2) to flow into the interior of the cham-

ber (1). The chamber also (A) is **characterized in that**; the compartment (2) is enlarged by moving downwards, with the weight of food stuff (14) stored in it and contraction of the compartment (2) by moving upwards and, it comprises one each cover (13) associated with the compartment (2) which closes each intake hole (9) by enlargement of the compartment (2) and opens by the contraction of compartment (2).

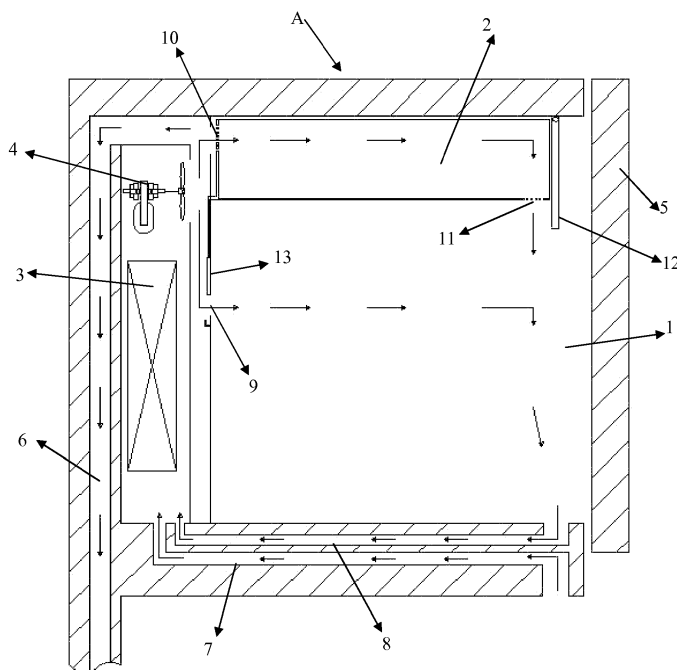


Figure - 1

Description

Technical Field

[0001] This invention relates to freezing chambers in which a quick freezing compartment is placed.

Background of the Invention

[0002] Freezing chambers are units which are placed in cooling devices (refrigerators, deep freezer etc) and, store the foods into which are stored in them, in very low temperatures and ensure the foods to keep fresh for a long time. Freezing chambers are used for quick freezing of foods stored in them in line with users' requirements, at the same time. In order for that, closed compartments named "quick freezing compartment" are formed in freezing chambers. In the state of art, cool air blown into those compartments is provided for quickly freezing the foods stored into those compartments, by selection button placed on control panel upon device. In other words, it is detected by the cooler that a food is stored in quick freezing compartment, depending on user's choice. In case the user forgets to use this button, quick freezing process is not performed. Either, more power is spent for freezing said compartment due to using of the button.

[0003] In the prior art, there are various studies relating to freezing chambers and their operation manner. Patent applications numbered JP2005083629 and EP1074802 can be given as examples. However, the freezer chambers mentioned in those examples have not the property of automatically starting the quick freezing process when the foods are stored in them.

Brief Description of Invention

[0004] The freezing chamber of this invention, comprises; a cooling member; a quick freezing compartment; at least one intake hole which provides cool air intake from cooling member into chamber; at least one intake hole which provides cool air intake from cooling member into compartment; at least one intake hole which ensures the entrance of air which is released from compartment, into chamber. The chamber is characterized in that it enlarges downwards by the weight of foods stored in it and it contract upwards when the foods are taken out of it and, ant that it includes one single cover which closes each intake hole by enlargement of compartment and opens that intake hole by contraction of compartment.

[0005] The cool air, which flows from cooling member when intake holes are closed, is transferred only into compartment (by passing through the other intake hole). And this ensures that the compartment is cooled primarily. Usage of air which flows from cooling member in compartment completely at first, causes the foods in compartment to be cooled much quicker (for example water in ice box freezes much quicker). The air which flows from compartment is directed into chamber through

the other intake hole placed there. Thus, process of cooling interior of chamber continues.

Objective of the Invention

[0006] The aim of this invention is to form a freezing chamber which ensures quick freezing without depending upon user's choice, when a food stored in quick freezing chamber.

[0007] Another aim of invention is to form a freezing chamber which has a quick freezing compartment, which enlarges by the weight of foods stored in it.

[0008] Another aim of invention is to create a freezing chamber which ensures that more cool air is blown into enlarging quick freezing compartment.

[0009] Another aim of invention is to ensure that cooler is air blown into quick freezing compartment in freezing chamber, without a need for any electrical device.

[0010] Another aim of invention is to create a freezing chamber with a quick freezing compartment, which does not cause high power consumption.

[0011] Another aim of invention is that; to create an easy-to-produce, reliable and cheap quick freezing chamber.

Description of the Drawings

[0012] Examples of the invention, the freezing chamber; is shown in attached figures wherein;

Figure 1 is a side sectional view of freezing chamber. Figure 2 is another side sectional view of freezing chamber.

Figure 3 is a simplified picture of railed machinery which allows freezing chamber to move.

[0013] Parts in figures are individually enumerated and their correspondences are given below.

- Freezing chamber (A)
- Interior of chamber (1)
- Quick freezing compartment (2)
- Cooling member (3)
- Fan unit (4)
- Chamber cover (5)
- Air channel (6)
- Air channel (7)
- Air channel (8)
- Intake hole (9)
- Intake hole (10)
- Intake hole (11)
- Compartment cover (12)
- Cover (13)
- Food stuff (14)
- Railed machinery (15)
- Rail (16)
- Spring (17)

Disclosure of Invention

[0014] A side sectional view of the freezing chamber (A) of this invention is shown in Figure 1. This chamber (A) comprises components such as; a cooling member (3) (for example evaporator), fan unit (4), quick freezing compartment (2), air channels (6, 7, 8), air intake holes (9, 10, 11, 12), and chamber cover (5) like the freezing chambers in the state of the art.

[0015] Interior (1) of chamber (A) is cooled by air temperature of which is decreased in cooling member (3). The air flow through the cooling member (3) is transferred both into the interior of the chamber (1) and quick freezing compartment (2) by force, by means of a fan unit (4). There is at least one intake hole (10) for intake of air which flows from fan unit (4) into the compartment (2) and at least one intake hole (9) for air intake into the interior of the chamber (1). The air leaving from compartment (2) reaches at the interior section of the chamber (1) by at least one intake hole (11). There are also three separate air channels (6, 7, and 8) in the chamber (A). First air channel (6) is used for conveyance of cool air flowing from fan unit (4) to other exterior compartments associated with the chamber (A). Second air channel (7) is used for conveyance of heated air flowing from said exterior compartments to cooling member (3). Third air channel (8) is used for providing air circulation in interior of chamber (1). Heated air flows from interior of chamber (1), enters in this channel (8) and is conveyed to cooling member (3) again to be cooled. (Air flow directions are represented by arrows in Figures 1 and 2)

[0016] Freezing chamber (A), of this invention, operates in conformity with the cooling principle which is mentioned above and known in the prior art. The novelty, ensured by the invention, is an undulating quick freezing compartment. Said quick freezing compartment (2) enlarges by moving downward, when food stuff (14) is stored in it (shown in figure 2). Because of the weight of food stuff (14) stored in compartment (2), it enlarges downwards (for example by the guidance of a railed mechanism). Compartment (2) contracts upwards by taking the food stuff (14) out of compartment (2). Contracted position of compartment (2) is provided by at least one spring mechanism and/or at least one counterweight mechanism which undulates the compartment (not shown in figures). At least one railed mechanism is installed in interior of chamber (1) as an example solution for enlargement and contraction of compartment (2) on a vertical line.

[0017] The compartment (2) placed in freezing chamber (A) of this invention is related to at least one cover (13), at the same time. Each cover (13) is in the shape of an extension of compartment (2) and each intake hole (9) which allows cool air intake from cooling member (3) into interior of chamber (1) is closed by a single cover (13) associated with those holes (9), when the compartment (2) moves downwards. When the compartment (2) moves upwards, each cover (13) associated with com-

partment (2) opens the front of intake holes (9).

[0018] When the intake holes (9) are closed, the cool air flows from cooling member (3) is transferred only into compartment (2) (by passing through the other intake hole (10)). And this ensures that the compartment (2) is cooled primarily. The complete usage of air flowing from cooling member (3) causes the food stuff (14) in compartment to cool much quicker (for example water in ice box freezes much quicker). The air, flowing out of compartment (2), is directed from intake hole (11) to interior of chamber (1). Thus, the cooling of interior of chamber (1) continues.

[0019] When the chamber cover (5) placed at front edge of freezing chamber (A) is opened, hinged compartment cover (12) must be opened too, to store food stuff (14) in the compartment (2). Compartment cover (12) is made bigger than the load entrance section of the compartment (2), in conformity with enlargeable volume of the compartment (12). In other words, cover (12) is in such a size that it can close the compartment (2) even when the compartment (2) enlarges.

[0020] In an alternative embodiment of the invention, there is at least an electrical key (not shown in figure) associated with enlargeable compartment (2), in the interior of the chamber (1). The movement of the compartment (2) triggers the key. For example, the key, which is triggered during enlargement, makes other electrical equipments (for example cooler compressor, fan unit etc) operate more intensively. During contraction, the key which is triggered ensures the system to operate in previous level of intensity. In other words, by the key which is triggered as a result of the movement (2) of the compartment, the operation of other electrical equipments of the chamber (A) can be regulated.

[0021] At least one railed mechanism (15) which is shown as example in figure 3 can be used for enlargement and contraction of compartment (2). There is at least on spring (16) in the mechanism (15) for the compartment (2) to enlarge and contract on a vertical line. At least one spring (17) is utilized for upward movement of the compartment (15).

Claims

1. A freezing chamber (A), which comprises; a cooling member (3); a quick freezing compartment (2); at least one intake hole (9) which ensures cool air to flow from cooling member (3) into interior of chamber (1); at least one intake hole (10) which ensures cool air to flow from cooling member (3) into compartment (2), at least one intake hole (11) which ensures entrance of air flowing out of compartment (2) into interior of chamber (1) **characterized in that;** it has the space that enlarges by moving downwards with the weight of food stuff (14) store in it and contracts by moving upwards when the food stuff (14) are taken out of it;

it comprises one each cover (13) associated with compartment (2); which closes each intake hole (9) by enlargement of compartment (2) and opens them by contraction of compartment (2).

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2. A cooling chamber (A) according to Claim 1, **characterized in that** it comprises at least one spring mechanism and/or counter weight mechanism used for undulation of compartment (2).

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3. A cooling chamber (A) according to Claim 1 **characterized in that**; each cover (13) is a single extension of the compartment (2).

4. A cooling chamber (A) according to Claim 1, **characterized in that**; there is provided a hinged cover (12) in quick freezing compartment; which is made bigger than the load entrance section of compartment (2), in conformity with enlargeable structure of compartment.

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5. A cooling chamber (A) according to Claim 1 **characterized in that**; it comprises at least one electrical key, which is triggered by movement of compartment (2), and by means of which it has a property to regulate the operation of other electrical equipments of chamber (A).

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6. A cooling chamber (A) according to Claim 1, **characterized in that**; it comprises at least one railed mechanism (15) which is used for undulation of the compartment (2).

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7. A cooling chamber according to Claim 7, **characterized in that**; the railed mechanism (15) comprises at least one rail (16) and spring (17).

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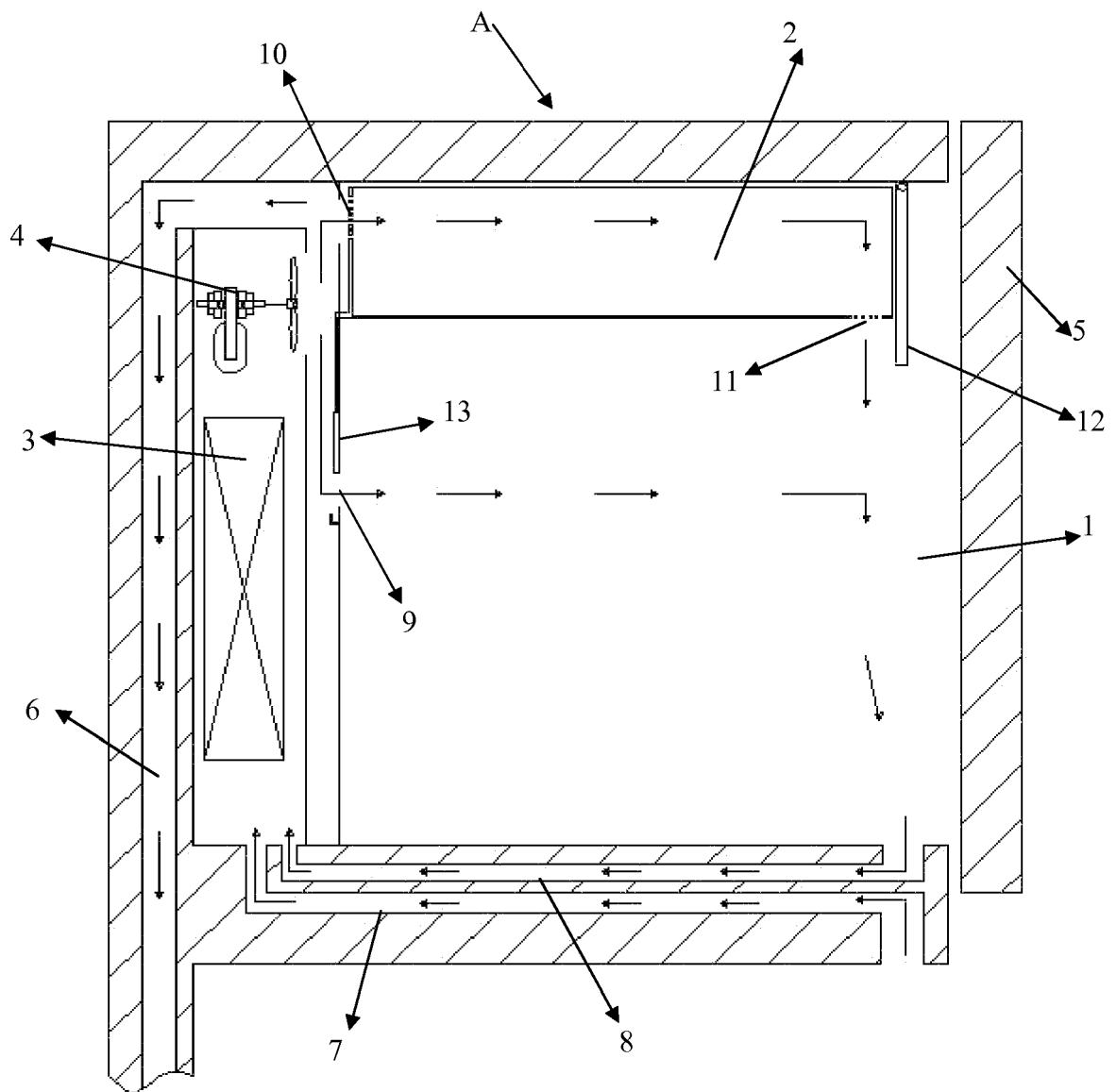


Figure - 1

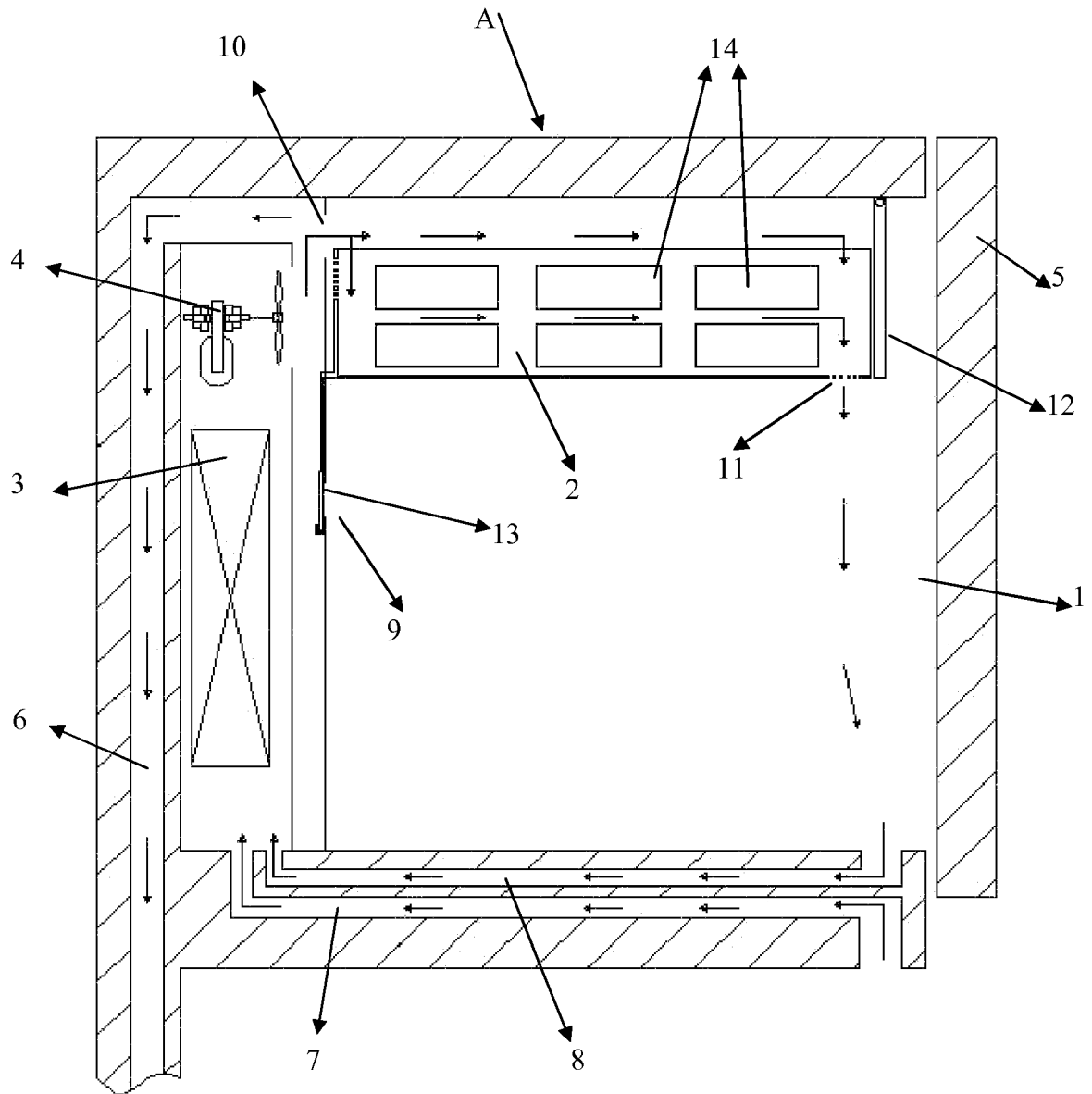


Figure - 2

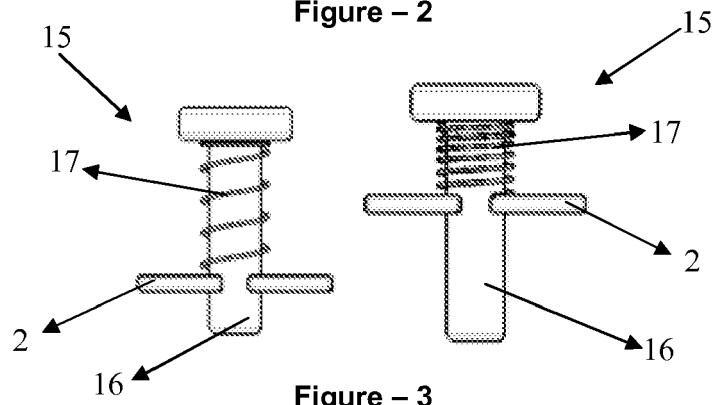


Figure - 3

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2005083629 B [0003]
- EP 1074802 A [0003]