



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
29.01.2014 Bulletin 2014/05

(51) Int Cl.:
F25D 25/02 (2006.01)

(21) Application number: **13178167.6**

(22) Date of filing: **26.07.2013**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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(30) Priority: **26.07.2012 KR 20120081928**
26.07.2012 KR 20120081931

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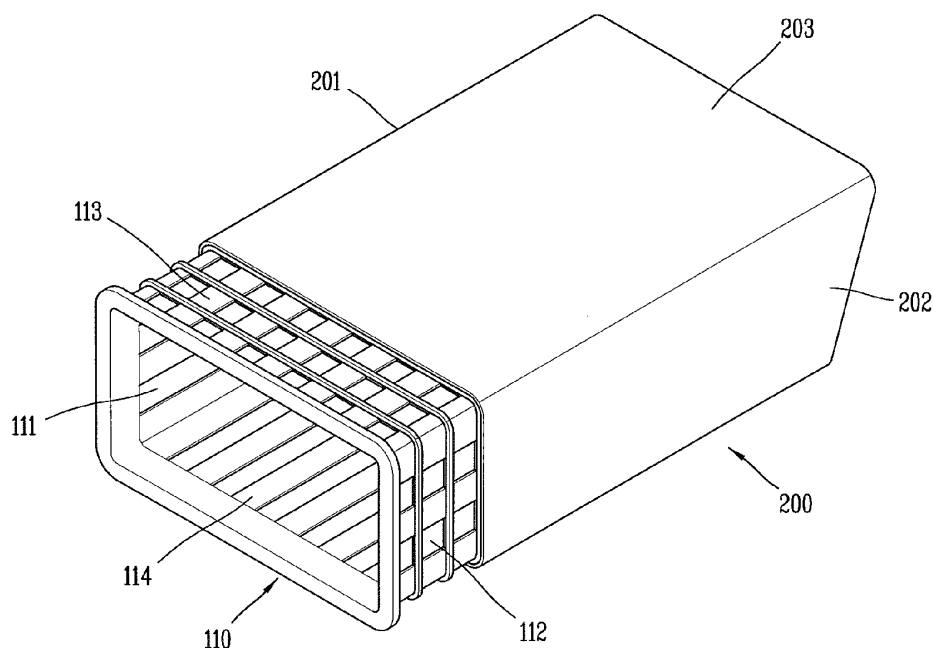
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(54) **Refrigerator vegetable room and a refrigerator with the same**

(57) The present disclosure relates to a refrigerator vegetable room (100) and a refrigerator (1) with the same for storing fresh foods such as fruits or vegetables in a distinguished manner from the other foods and drinks, and according to an aspect of the present disclosure, there is provided a refrigerator vegetable room (100) in-

cluding a case (110) on which a front side thereof is open; a drawer (130) inserted into a front side opening portion of the case (110) in a drawable manner to store fruits and vegetable therein; and a metal plate (200) provided to be brought into contact with at least two surfaces of the case (110) to cause heat transfer from one surface of the case (110) to the other surface thereof.

FIG. 3



Description

BACKGROUND OF THE INVENTION

1. Field of the invention

[0001] The present disclosure relates to a refrigerator vegetable room and a refrigerator with the same for storing fresh foods such as fruits or vegetables in a distinguished manner from the other foods and drinks.

2. Description of the related art

[0002] In general, refrigerator is an apparatus for generating cool air by the driving of a freezing cycle provided therein, and storing foods and the like for a long period of time in a low temperature state by supplying the cool air to an inner portion of a refrigerating chamber and a freezing chamber.

[0003] It has been known that factors affecting the quality of fresh vegetables include temperature, humidity, environmental gases, microbes, light, and the like. Vegetables continuously perform respiration and transpiration, and thus the suppression of such respiration and transpiration is required to maintain the quality of fresh vegetables. Most vegetables, except some vegetables such as those susceptible to lower temperature damage, respiration can be suppressed at low temperature, and transpiration can be prevented at high humidity.

[0004] For this reason, the refrigerator is provided with a vegetable room for storing vegetables as an independent space from the refrigerating chamber to store vegetables in a fresh state for a long period of time. The vegetable room maintains a suitable low temperature state as well as maintain an attainable high humidity state. In other words, the vegetable room may maintain a suitable low temperature and high humidity state, thereby allowing vegetables stored in the vegetable room to maintain freshness.

[0005] Typically, a refrigerator 1 may include a freezing chamber 20 and a refrigerating chamber 10 as illustrated in FIG. 1, and also include a freezing chamber door 21 and a refrigerating chamber door 11 for opening or closing the freezing chamber and refrigerating chamber, respectively. Furthermore, a vegetable room 100 for storing vegetables and fruits (collectively, referred to as "vegetables") in a more fresh state is additionally provided at a predetermined location of the refrigerating chamber 10.

[0006] The vegetable room 100, as illustrated in FIG. 2, may be provided with a drawer type, and may include a case 110 and a drawer 130 inserted into the case 110 in a drawable manner.

[0007] The case 110 is formed in a front side open state to open or close the vegetable room while the drawer 130 is reciprocally inserted into a front side opening portion thereof that is open in a drawable manner.

[0008] The case 110 is formed with a freezing chamber side plate 111, an outside plate 112, an upper plate 113

and a lower plate 114, and the rear surface thereof has a closed structure and the front side thereof has an open structure.

[0009] Accordingly, when the vegetable room 100 is closed, the inner portion may preferably sealed from the outer portion to maintain a pressure lower than external atmospheric pressure, which activates a separate vacuum pump to allow the inner portion of the vegetable room to become a semi-vacuum state, thereby maintaining a pressure lower than atmospheric pressure.

[0010] In the refrigerator 1, the refrigerating chamber 10 and freezing chamber 20 are sealed and divided by a partition wall 30, and the partition wall 30 may be preferably formed not to transfer temperature from the freezing chamber 20 to the refrigerating chamber 10, thereby independently performing the function of each storage chamber.

[0011] However, as illustrated in FIG. 1, the left space of the refrigerating chamber 10 located with the partition wall 30 forms a temperature lower than that of the right side thereof due to the cool air (F) of the freezing chamber 20. Accordingly, the left wall portion of the vegetable room 100 (freezing chamber side plate 111) mounted at an inner portion of the refrigerating chamber 10 has a lower temperature distribution, and the right wall portion (outside plate 112) has a higher temperature distribution compared to that of the left wall portion.

[0012] The temperature distribution of the case 110 member consequently exerts an effect on a temperature distribution within the vegetable room 100, and such an uneven temperature distribution within the vegetable room may cause dew due to their temperature difference.

[0013] The dew falls on foods such as vegetables or the like stored in the vegetable room 100 to be brought into contact with them, thereby causing the decay of vegetables and exerting a great influence on the freshness.

SUMMARY OF THE INVENTION

[0014] The present disclosure is to solve the foregoing problems in the related art, and a technical task of the present disclosure is to provide a refrigerator vegetable room capable of maintaining a uniform temperature within the vegetable room.

[0015] Furthermore, another technical task of the present disclosure is to provide a refrigerator including a vegetable room having a uniform temperature distribution.

[0016] In order to accomplish the foregoing technical tasks, according to an aspect of the present disclosure, there is provided a refrigerator vegetable room including a case on which a front side thereof is open; a drawer inserted into a front side opening portion of the case in a drawable manner to store fruits and vegetable therein; and a metal plate provided to be brought into contact with at least two surfaces of the case to cause heat transfer from one surface of the case to the other surface thereof.

[0017] Here, the metal plate may include an external

metal plate attached to the outside of the case. Furthermore, the external metal plate may be formed to be brought into contact with at least three surfaces on an external surface of the case.

[0018] On the other hand, the metal plate may include an internal metal plate attached to the inside of the case. Here, the internal metal plate may be formed to be brought into contact with at least three or more surfaces on an internal surface of the case.

[0019] In addition, the internal metal plate may include an upper metal plate attached to a lower surface of the inner upper plate of the case, and a lower surface of the upper metal plate may include a plurality of protruding portions and groove portions. Here, the protruding portion may be formed with a plurality of protruding ribs in a lattice shape, and the groove portion may be formed to be depressed in a rectangular shape between the protruding ribs.

[0020] On the other hand, the refrigerator vegetable room may further include an insulating material attached to an outer side of the freezing chamber side plate of the case. Here, a plurality of ribs may be formed to be protruded from an external surface of the case, and the surface and insulating material of the case may be disposed to be separated from one another by the ribs. Furthermore, the insulating material may include a sealing portion formed to be brought into contact with the surface of the case, and a hermetically sealed air cell may be formed between the case surface and the insulating material surface by the sealing portion.

[0021] According to another aspect of the present disclosure, there is provided a refrigerator including a refrigerating chamber and a freezing chamber; a refrigerating chamber door configured to open or close the refrigerating chamber and a freezing chamber door configured to open or close the freezing chamber; a vegetable room accommodated into a predetermined location of the refrigerating chamber, and comprising a case on which a front side thereof is open and a drawer inserted into the case in a drawable manner to store fruits or vegetables therein; and a metal plate provided to be brought into contact with at least two surfaces of the case to cause heat transfer from one surface of the case to the other surface thereof.

[0022] Here, the metal plate may include an external metal plate formed to be brought into contact with at least three or more surfaces on an external surface of the case.

[0023] Furthermore, the metal plate may include an internal metal plate formed to be brought into contact with at least three or more surfaces on an internal surface of the case.

[0024] In addition, the metal plate may be attached to an internal ceiling of the vegetable room, and may include an upper metal plate comprising a protruding portion and a plurality of groove portions

[0025] Furthermore, the refrigerator may further include an insulating material attached to an outer side of the freezing chamber side plate of the case. Here, a plu-

rality of ribs may be formed to be protruded from an external surface of the case, and the surface and insulating material of the case may be disposed to be separated from one another by the ribs. In addition, the insulating material may include a sealing portion formed to be brought into contact with the surface of the case, and a hermetically sealed air cell may be formed between the case surface and the insulating material surface by the sealing portion.

[0026] According to the aspects of the present disclosure having the foregoing configuration, a metal plate may be attached to an outer or inner circumferential surface of the case to uniformly distribute cool air transferred from the freezing chamber by the conductivity of the metal to the outer circumferential surface of the case, thereby enhancing temperature distribution.

[0027] Furthermore, an insulating material may be attached to a freezing chamber side outer wall of the refrigerator case to block cool air transferred from the refrigerating chamber side, thereby minimizing a non-uniform temperature distribution within the vegetable room by cool air at the freezing chamber side.

BRIEF DESCRIPTION OF THE DRAWINGS

[0028] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

[0029] In the drawings:

FIG. 1 is an internal perspective view illustrating a refrigerator;

FIG. 2 is a perspective view illustrating a drawer type vegetable room;

FIG. 3 is a perspective view illustrating a vegetable room to an outer portion of which a metal plate of the invention is attached;

FIGS. 4A through 4C are perspective views illustrating various embodiments of the metal plate in FIG. 3; FIG. 5 is a perspective view illustrating a vegetable room to an inner portion of which a metal plate is attached according to another embodiment of the present disclosure;

FIGS. 6A through 6C are perspective views illustrating various embodiments of the metal plate in FIG. 5; FIG. 7 is a graph in which the internal temperature distributions of a vegetable room according to the related art and a vegetable room to which a metal plate is attached according to the present disclosure are measured;

FIG. 8 is a perspective view illustrating the enhanced temperature distribution structure of a vegetable room using groove portions according to still another embodiment of the present disclosure;

FIGS. 9 and 10 are views illustrating an example of

groove portions in the embodiment of FIG. 8;
 FIG. 11 is a perspective view illustrating another embodiment of the present disclosure;
 FIG. 12 is a cross-sectional view illustrating an embodiment illustrated in FIG. 11;
 FIG. 13 is a graph illustrating a temperature distribution in the embodiment illustrated in FIG. 11;
 FIG. 14 is a perspective view illustrating still another embodiment of the present disclosure; and
 FIG. 15 is a graph illustrating a temperature distribution in the embodiment illustrated in FIG. 14.

DETAILED DESCRIPTION OF THE INVENTION

[0030] Hereinafter, a refrigerator vegetable room using a metal plate for enhancing temperature distribution according to a preferred embodiment of the present disclosure will be described in detail with reference to the accompanying drawings.

[0031] Prior to the description, it should be noted that terms and words used in the description and claims must not be limited and interpreted to be typical or literal, and should be construed as the meaning and concept conforming to the technical concept of the invention on the basis that the inventor can define the concept of the terms and words to describe the invention in a best way.

[0032] Accordingly, since the embodiments described in the present invention and configurations shown the drawings are the most preferred embodiments only and do not represent all of technical concept of the invention, it should be understood that there may be various equivalents and modification examples that may replace them at the time of application of present invention.

[0033] Hereinafter, a refrigerator vegetable room according to the present disclosure and a refrigerator mounted with the same will be described in detail with reference to FIGS. 2 through 10.

[0034] Referring to FIGS. 2, 3 and 5, according to the present disclosure, there is provided a refrigerator vegetable room 100 within a refrigerating chamber 10 having a case 110 on which a front side thereof is open and a drawer 130 inserted into the case in a drawable manner to store fruits or vegetables therein; and a metal plate 200, 400 provided by way of a surface contact at the case 110 to disperse the temperature distribution of the case 110 by conduction.

[0035] The vegetable room 100 may be typically implemented with a first box type and a second box type vegetable room, and when implemented with a second box type as illustrated in FIG. 2, the vegetable room 100 may be formed with a drawer type including a case 110 configured to implement the case of the vegetable room and a drawer 130 inserted into the case 110 in a drawable manner.

[0036] The case 110 is formed in a front side open state to open or close the vegetable room while the drawer 130 is reciprocally inserted into a front side opening portion thereof that is open in a drawable manner.

[0037] The case 110 is formed with a freezing chamber side plate 111, an outside plate 112, an upper plate 113 and a lower plate 114, and the rear surface thereof has a closed structure and the front side thereof has an open structure.

[0038] Accordingly, when the vegetable room 100 is closed, the inner portion may preferably be sealed from the outer portion to maintain a pressure lower than external atmospheric pressure, which activates a separate vacuum pump to allow the inner portion of the vegetable room to become a semi-vacuum state, thereby maintaining a pressure lower than atmospheric pressure.

[0039] Furthermore, as illustrated in FIG. 1, the refrigerating chamber 10 and freezing chamber 20 in the refrigerator 1 are sealed and divided by a partition wall 30, and the left space of the refrigerating chamber 10 located with the partition wall 30 forms a temperature lower than that of the right side thereof due to the cool air (F) of the freezing chamber 20.

[0040] Accordingly, the left wall portion of the vegetable room 100 (freezing chamber side plate 111) mounted at an inner portion of the refrigerating chamber 10 has a lower temperature distribution, and the right wall portion (outside plate 112) has a higher temperature distribution compared to that of the left wall portion.

[0041] The temperature distribution of the case 110 member consequently exerts an effect on a temperature distribution within the vegetable room 100, and such an uneven temperature distribution within the vegetable room may cause dew due to their temperature difference.

[0042] The temperature of the freezing chamber 20 side of the side-by-side refrigerator 1 is low to generate dew (D) better due to a non-uniform temperature distribution, and thus the dew (D) produced at the left side of the inner surface of the vegetable room 100 cannot be solved.

[0043] The dew falls on foods such as vegetables or the like stored in the vegetable room 100 to be brought into contact with them, thereby causing the decay of vegetables and exerting a great influence on the freshness.

[0044] Accordingly, according to the present disclosure, a metal plate 200, 400 is attached to the case 110 to solve the temperature distribution imbalance, thereby enhancing the temperature distribution.

[0045] Referring to FIGS. 3 through 4C, the metal plate 200 is attached to the outside of the case 110 to uniformly distribute the temperature using the conductivity of the metal.

[0046] In addition, the external metal plate 200 may be attached to a third, a fourth and/or a fifth surface of the case 110 as in various embodiments illustrated in FIGS. 4A through 4C.

[0047] In this manner, using the fast thermal conduction of a metal through the metal plate 200 attached to the outside of the case 110, a low temperature at the left side (freezing chamber side plate 111) of the vegetable room 100 can be dispersed to the upper portion (upper plate 113), right side (outside plate 112), bottom (lower

plate 114) and rear surface of the vegetable room 100.

[0048] Furthermore, the temperature may be dispersed to each plate of the case 110 due to the metal plate 200 in this manner, thereby decreasing a temperature difference between the left and right sides within the vegetable room 100, enhancing the distribution thereof, and consequently reducing dew generation within the vegetable room 100.

[0049] FIG. 4A illustrates an embodiment in which a freezing chamber side metal plate 201, an upper metal plate 203 and an external side metal plate 202 are connected as an integral body to form an external metal plate 200 according to the present disclosure.

[0050] In addition, FIG. 4B illustrates an embodiment in which a freezing chamber side metal plate 201, an upper metal plate 203, an external side metal plate 202 and a rear metal plate 205 are connected as an integral body to form an external metal plate 200 according to the present disclosure.

[0051] Furthermore, FIG. 4C illustrates an embodiment in which a freezing chamber side metal plate 201, an upper metal plate 203, an external side metal plate 202, a rear metal plate 205 and a lower metal plate 204 are connected as an integral body to form an external metal plate 200 according to the present disclosure.

[0052] In this manner, the external metal plate 200 is attached to the third, fourth or fifth surface of the case 110, thereby uniformly distributing cool air from the freezing chamber 20 transferred by the freezing chamber side metal plate 201 using the conductivity of the metal plate 200.

[0053] Referring to FIGS. 5 through 6C, according to another embodiment of the present disclosure, the metal plate 400 is attached to the inside of the case 110 to uniformly distribute the temperature using the conductivity of the metal.

[0054] In addition, the internal metal plate 400 may be attached to a third, a fourth or a fifth surface of the case 110 as in various embodiments illustrated in FIGS. 6A through 6C.

[0055] In this manner, using the fast thermal conduction of a metal through the metal plate 400 attached to the inside of the case 110, a low temperature at the left side (freezing chamber side plate 111) of the vegetable room 100 can be dispersed to the upper portion (upper plate 113), right side (outside plate 112), bottom (lower plate 114) and rear surface of the vegetable room 100.

[0056] Furthermore, the temperature may be dispersed to each plate of the case 110 due to the metal plate 400 in this manner, thereby decreasing a temperature difference between the left and right sides within the vegetable room 100, enhancing the distribution thereof, and consequently reducing dew generation within the vegetable room 100.

[0057] FIG. 6A illustrates an embodiment in which a freezing chamber side metal plate 401, an upper metal plate 403 and an external side metal plate 402 are connected as an integral body to form an internal metal plate

400 according to the present disclosure.

[0058] Furthermore, FIG. 6B illustrates an embodiment in which a freezing chamber side metal plate 401, an upper metal plate 403, an external side metal plate 402 and a rear metal plate 405 are connected as an integral body to form an internal metal plate 400 according to the present disclosure.

[0059] Furthermore, FIG. 6C illustrates an embodiment in which a freezing chamber side metal plate 401, an upper metal plate 403, an external side metal plate 402, a rear metal plate 405 and a lower metal plate 404 are connected as an integral body to form an internal metal plate 400 according to the present disclosure.

[0060] In this manner, the internal metal plate 400 is attached to the third, fourth or fifth surface of the case 110, thereby uniformly distributing cool air from the freezing chamber 20 transferred by the freezing chamber side metal plate 401 using the conductivity of the metal plate 400.

[0061] FIG. 7 is a graph in which the internal temperature distributions of a vegetable room according to the related art and a vegetable room to which a metal plate is attached according to the present disclosure are measured, in particular, a graph in which the temperature distribution is measured in a state that a metal plate 200, 400 is attached to four surfaces (freezing chamber side, upper side, external side, rear surface) thereof.

[0062] As a result, the metal plate 200, 400 according to the present disclosure is attached to the outside or inside of the vegetable room, and then the inside of the vegetable room is made airtight, and then temperature distribution is measured in the condition of an internal temperature of 4 °C. In case of the internal temperature of the vegetable room in the related art, the lower space of the vegetable room at the freezing chamber side (left) exhibits a very low temperature of about 1.8 to 3 °C, and the middle space of the vegetable room at the external side (right) exhibits a high temperature of 4.8 to 5.8 °C. However, in case of measuring the internal temperature distribution of the vegetable room in a state that the metal plate 200, 400 according to the present disclosure is formed of a stainless steel material and attached to four surfaces (freezing chamber side, upper side, external side, rear surface) thereof, the side of the freezing chamber exhibits a low temperature but has a temperature distribution in a diffused broad area. In particular, it is seen that the external side (right) exhibits a temperature distribution of about 4 °C and has a much more uniform temperature distribution compared to the internal temperature distribution of the vegetable room in the related art.

[0063] In this manner, according to the present disclosure, the metal plate 200, 400 may be attached to the outside or inside of the case 110 to allow a low temperature at the side of the freezing chamber to be uniformly distributed using the conductivity of the metal, thereby reducing a dew condensation phenomenon within the vegetable room.

[0064] According to still another embodiment of the present disclosure with reference to FIGS. 8 through 10, the internal metal plate may include an upper metal plate 600 attached to a lower surface of the upper plate 113 of the case 110, and formed to include a protruding portion 610 and a plurality of groove portions 630. Here, the plurality of groove portions 630 may reduce the falling of dew (D) generated within the vegetable room.

[0065] In other words, the groove portion performs the role of collecting the generated dew, and thus performs the role of minimizing the falling of dew compared to a case where the groove portion is not formed. Here, the depressed shape of the groove portion 630 may not be necessarily limited to the illustrated shape, and may be also formed to have a circular or any polygonal cross-section.

[0066] On the other hand, according to the foregoing embodiment, temperature distribution is allowed to be uniform using a metal plate, but according to circumstances, the example of using an insulating material may be also taken into consideration. In other words, for the refrigerator 1, the refrigerating chamber 10 and freezing chamber 20 are disposed side by side, and thus the left space of the refrigerating chamber 10 located with the partition wall 30 forms a temperature lower than that of the right side thereof due to the cool air (F) of the freezing chamber 20.

[0067] Accordingly, the left wall portion of the vegetable room 100 (freezing chamber side plate 111) mounted at an inner portion of the refrigerating chamber 10 has a lower temperature distribution, and the right wall portion (outside plate 112) has a higher temperature distribution compared to that of the left wall portion. Due to this, a temperature at an inner portion of the vegetable room becomes non-uniform, and thus an insulating material may be provided at a portion adjacent to the freezing chamber, thereby preventing cool air from the freezing chamber from being transferred as well as maintaining a more uniform temperature within the vegetable room.

[0068] FIGS. 11 and 12 are a perspective view and a cross-sectional view illustrating an example in which an insulating material 900 is added to the embodiment illustrated in FIG. 3. Referring to FIGS. 11 and 12, the vegetable room includes a drawer 130 sealed and inserted into a front opening portion of the case in a drawable manner, and the case 110 includes ribs 111a, 111b externally protruded, and the insulating material 900 attached to the freezing chamber side plate of the case 110 to block cool air from the freezing chamber 20 is disposed between the metal plate 201 and the case 110.

[0069] The insulating material 900 uses an insulating member such as a compressed styropor plate-shaped member. As illustrated in the drawing, the insulating material 900 is provided at an external left side (freezing chamber side) of the case 110 to insulate a low temperature transferred from the partition wall 30 dividing the freezing chamber 20 and refrigerating chamber 10 of a side-by-side refrigerator, thereby preventing a tempera-

ture lower than the dew point from being generated from the left wall of the vegetable room 100.

[0070] The ribs 111a, 111b are provided to enhance the rigidity of the case 110, and formed to be extended along the vertical and horizontal direction on a circumferential surface of the case. Specifically, the ribs are configured with a vertical rib 111a and a horizontal rib 111b, and formed with a plurality of horizontal ribs and a plurality of vertical ribs crossed in a lattice form.

[0071] Referring to FIG. 12, the insulating material 900 is attached to the freezing chamber side plate 111 at the left wall of the case 110, in which the insulating material 900 is provided in an attached manner to be separated from the freezing chamber side plate 111 by a predetermined distance due to a lattice structure formed by the vertical rib 111a and horizontal rib 111b.

[0072] In other words, the insulating material 900 is provided to be separated from the freezing chamber side plate 111 by the ribs 111a, 111b, and a separation space between the freezing chamber side plate 111 and insulating material 900 forms an air cell (Ac). To this end, the insulating material 900 includes sealing portions 901, 902 for sealing the air insulating layer at an edge attached to the case 110. Due to this, the air cell (Ac) may more effectively block cool air at the side of freezing chamber, and maximize the insulation effect.

[0073] FIG. 13 is a graph in which the internal temperature distributions of a vegetable room according to the related art and a vegetable room according to the present disclosure are measured, in particular, a graph in which the temperature distribution is measured in a state that the external metal plate 200 is attached to four surfaces (freezing chamber side, upper side, external side, rear surface) thereof.

[0074] Specifically, temperature distribution is measured in the condition of an internal temperature of 4 °C in a state that an inner portion of the vegetable room is made airtight.

[0075] In case of the internal temperature of the vegetable room in the related art, the lower space of the vegetable room at the freezing chamber side (left) exhibits a very low temperature of about 1.8 °C, and the middle space of the vegetable room at the external side (right) exhibits a high temperature of 5.3 to 5.8 °C, thereby generating a severe temperature distribution imbalance.

[0076] However, according to an embodiment of the present disclosure, it is seen that the freezing chamber side exhibits a relatively low temperature, but has a uniform temperature distribution compared to related art. In particular, it is seen that the external side (right) exhibits a temperature distribution of about 3.8 °C, and has a much more uniform temperature distribution compared the internal temperature distribution of the vegetable room in the related art.

[0077] On the other hand, according to circumstances, the example including only an insulating material except the metal plate may be also taken into consideration. FIG. 14 is a perspective view illustrating an embodiment

of having only an insulating material, which is the same as the embodiment illustrated in FIG. 11 excluding that the metal plate is removed. FIG. 15 is a graph illustrating a temperature distribution in the embodiment illustrated in FIG. 14 in which temperature distribution is measured in the condition of an internal temperature of 4 °C after the inside of the vegetable room is made airtight.

[0078] Referring to FIG. 15, in case of the internal temperature of a refrigerator vegetable room simply formed with only ribs without attaching an insulating material thereto, the inner space of the vegetable room at the freezing chamber side (left) exhibits a very low temperature of about 1.8 °C, and the inner space of the vegetable room at the external side (right) also exhibits a low temperature of about 3.6 to 4.8 °C.

[0079] However, in case of a temperature distribution in which the internal temperature of the vegetable room is measured in a state that an insulating material (gold-foam, compressed styropor material) is attached on the rib, it is seen that the region has a far less temperature distribution region compared to a region in a state that the insulating material is not attached thereto even though the temperature of the freezing chamber (left) is about 1.8 °C.

Claims

1. A refrigerator vegetable room (100), comprising:
 - a case (110) on which a front side thereof is open;
 - a drawer (130) inserted into a front side opening portion of the case (110) in a drawable manner to store fruits and vegetable therein; and
 - a metal plate (200; 400) provided to be brought into contact with at least two surfaces of the case (110) to cause heat transfer from one surface of the case (110) to the other surface thereof.
2. The refrigerator vegetable room of claim 1, wherein the metal plate comprises an external metal plate (200) attached to the outside of the case (110).
3. The refrigerator vegetable room of claim 2, wherein the external metal plate (200) is formed to be brought into contact with at least three surfaces on an external surface of the case (110).
4. The refrigerator vegetable room of claim 1, 2 or 3, wherein the metal plate comprises an internal metal plate (400) attached to the inside of the case (110).
5. The refrigerator vegetable room of claim 4, wherein the internal metal plate (400) is formed to be brought into contact with at least three surfaces on an internal surface of the case (110).
6. The refrigerator vegetable room of claim 4 or 5, wherein the internal metal plate (400) comprises an upper metal plate (403) attached to a lower inner surface of the upper plate (113) of the case (110), and a lower surface of the upper metal plate (403) comprises a plurality of protruding portions (610) and groove portions (630).
7. The refrigerator vegetable room of claim 6, wherein the protruding portion (610) is formed with a plurality of protruding ribs in a lattice shape, and the groove portion (630) is formed to be depressed in a rectangular shape between the protruding ribs.
8. The refrigerator vegetable room of any one of the claims 1 to 7, further comprising:
 - an insulating material (900) attached to an outer side of the freezing chamber side plate (111) of the case (110).
9. The refrigerator vegetable room of claim 8, wherein a plurality of ribs (111a, 111b) are formed to be protruded from an external surface of the case (110), and the external surface and insulating material (900) of the case (110) are disposed to be separated from one another by the ribs (111a, 111b).
10. The refrigerator vegetable room of claim 9, wherein the insulating material (900) comprises a sealing portion (901, 902) formed to be brought into contact with the external surface of the case (110), and a hermetically sealed air cell (Ac) is formed between the case surface and the insulating material surface by the sealing portion.

FIG. 1

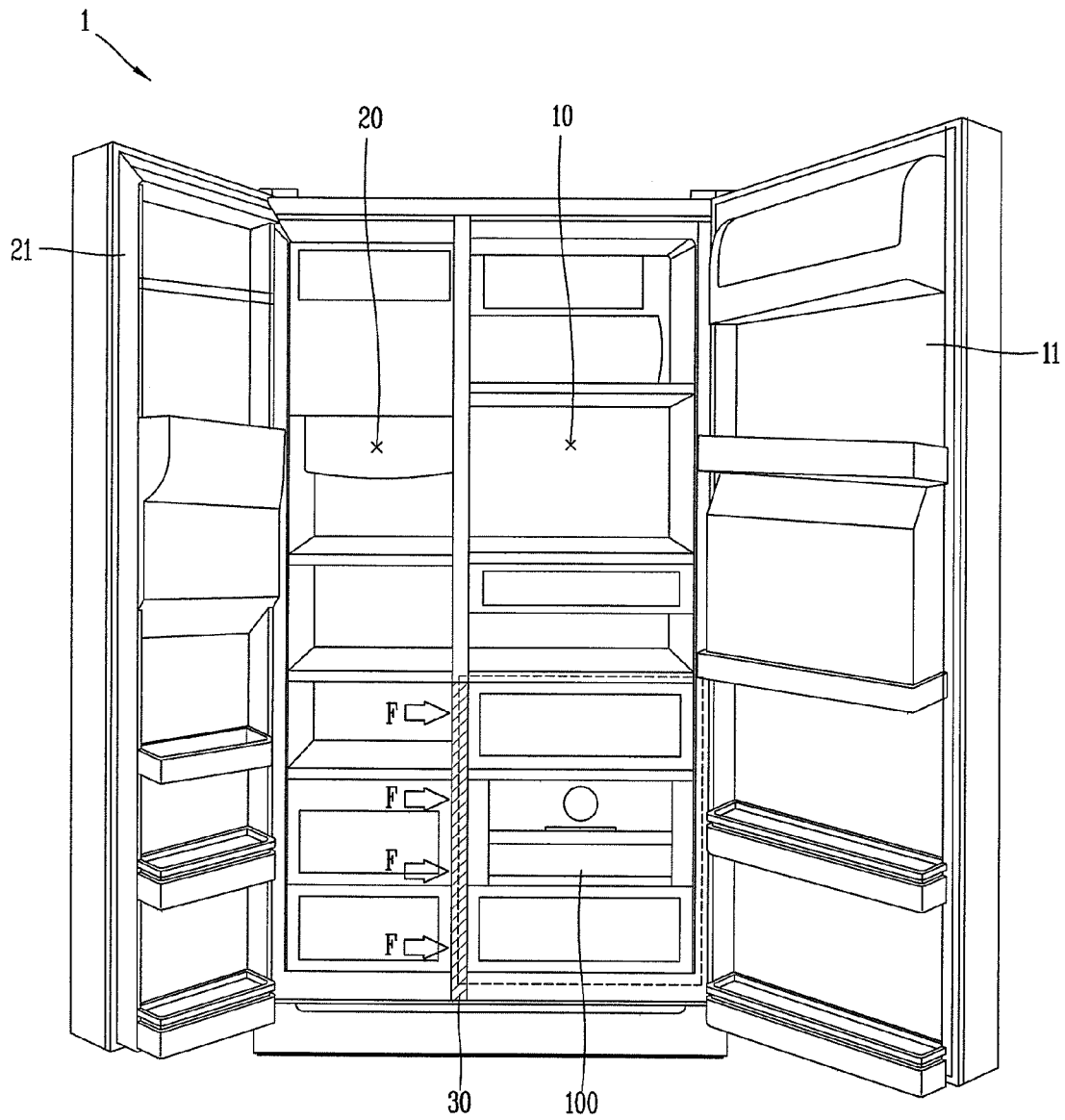


FIG. 2

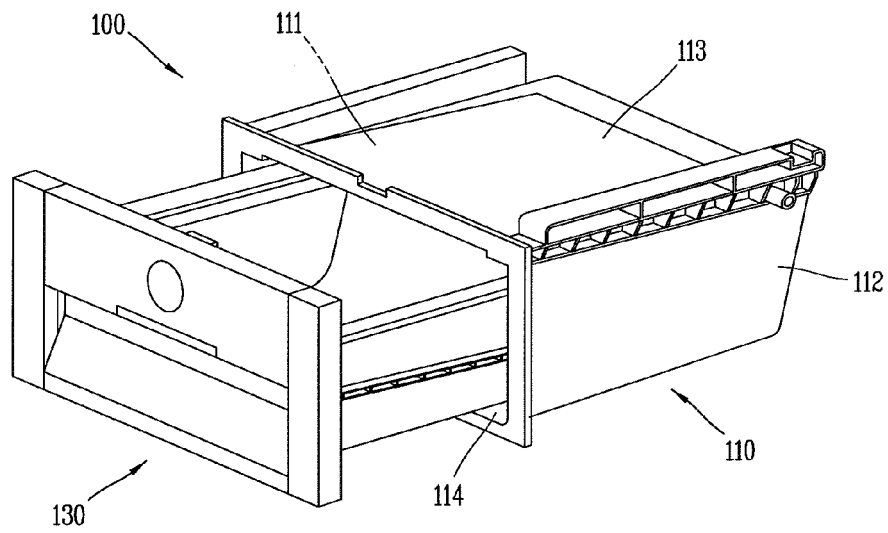


FIG. 3

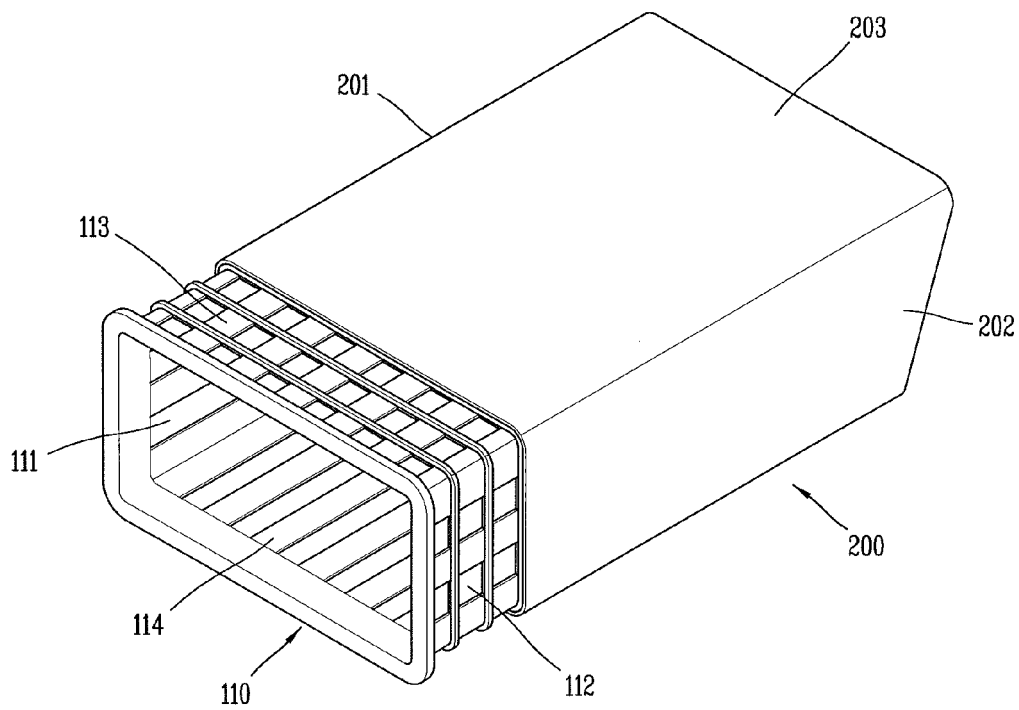


FIG. 4A

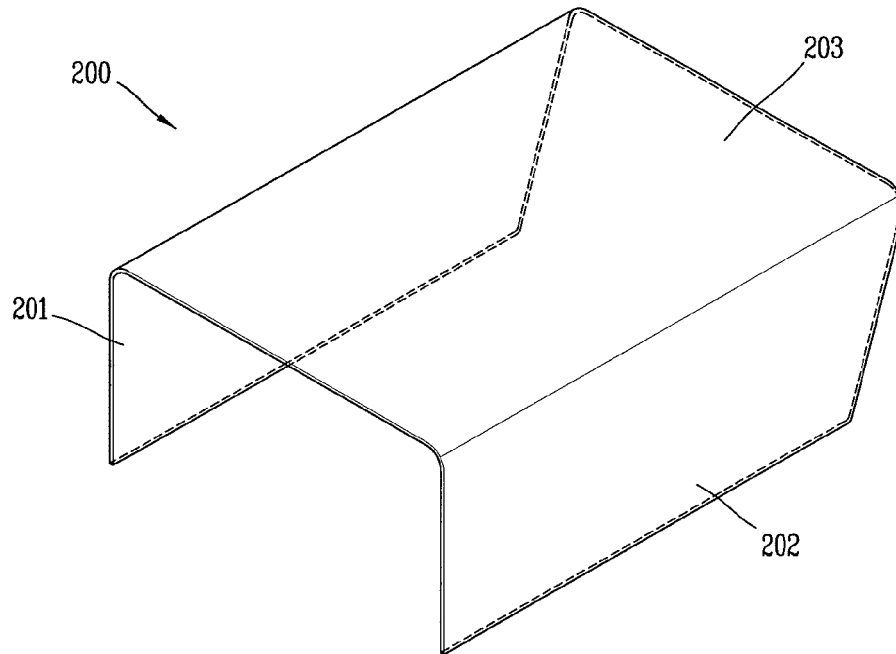


FIG. 4B

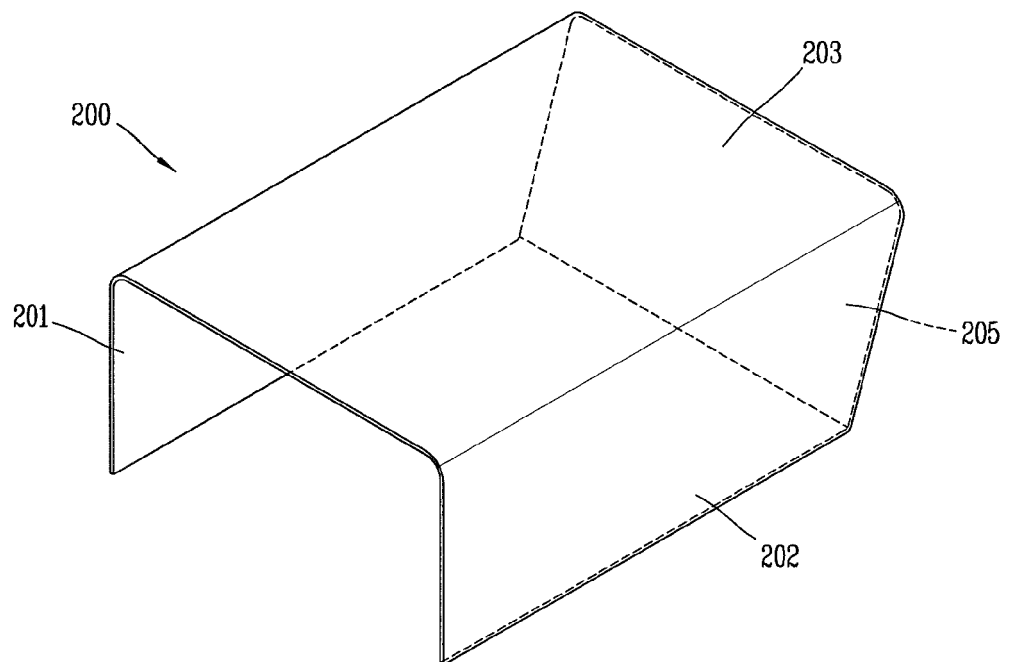


FIG. 4C

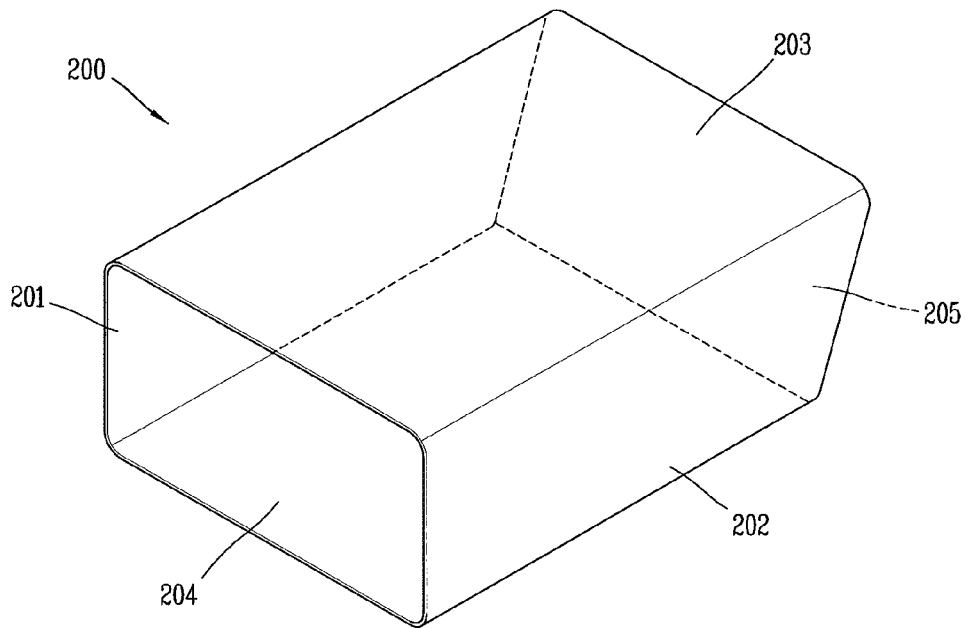


FIG. 5

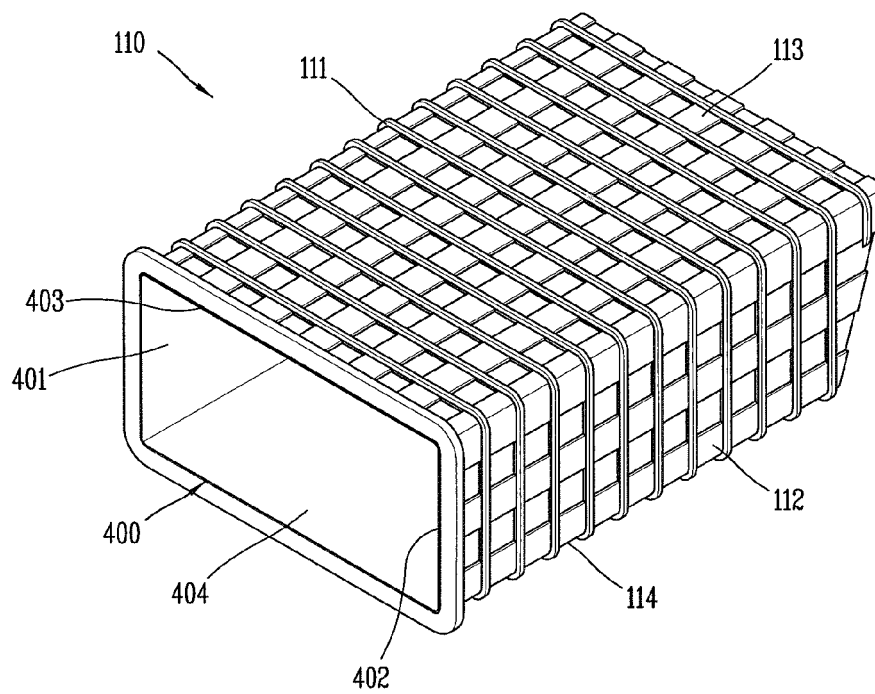


FIG. 6A

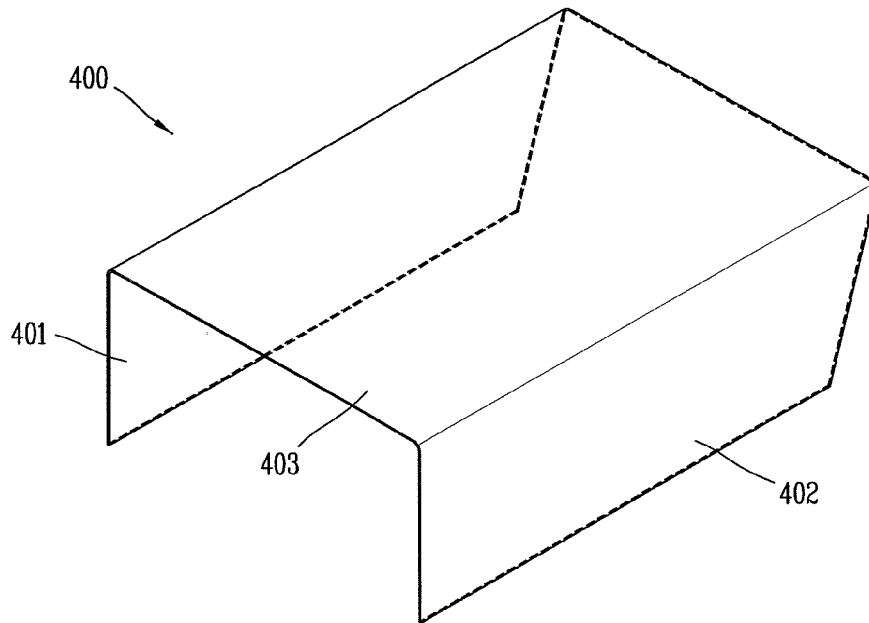


FIG. 6B

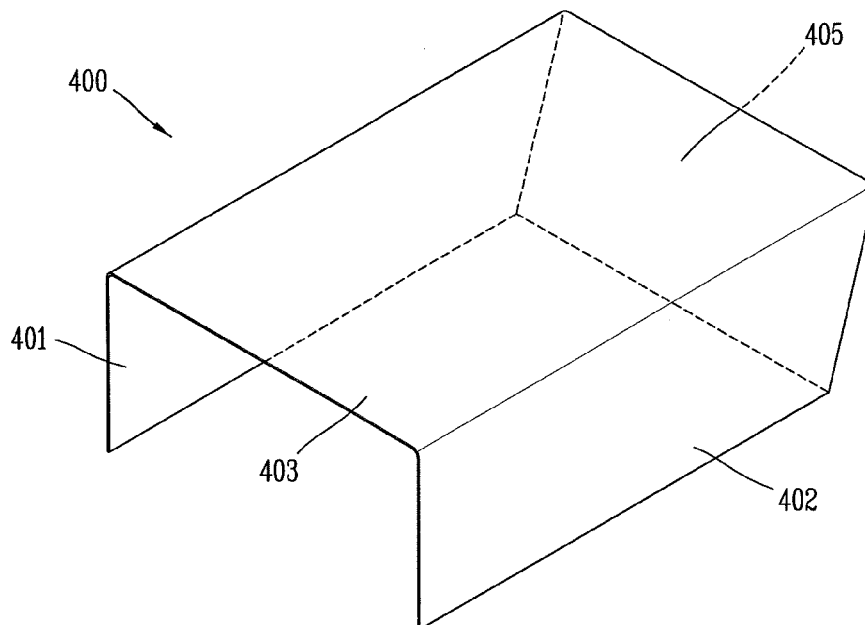


FIG. 6C

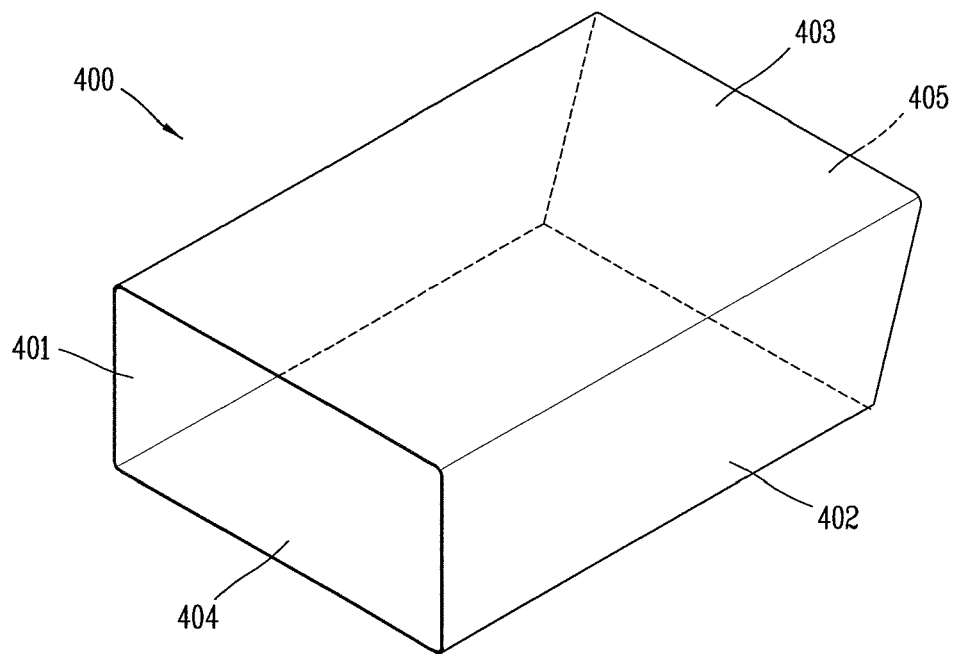


FIG. 7

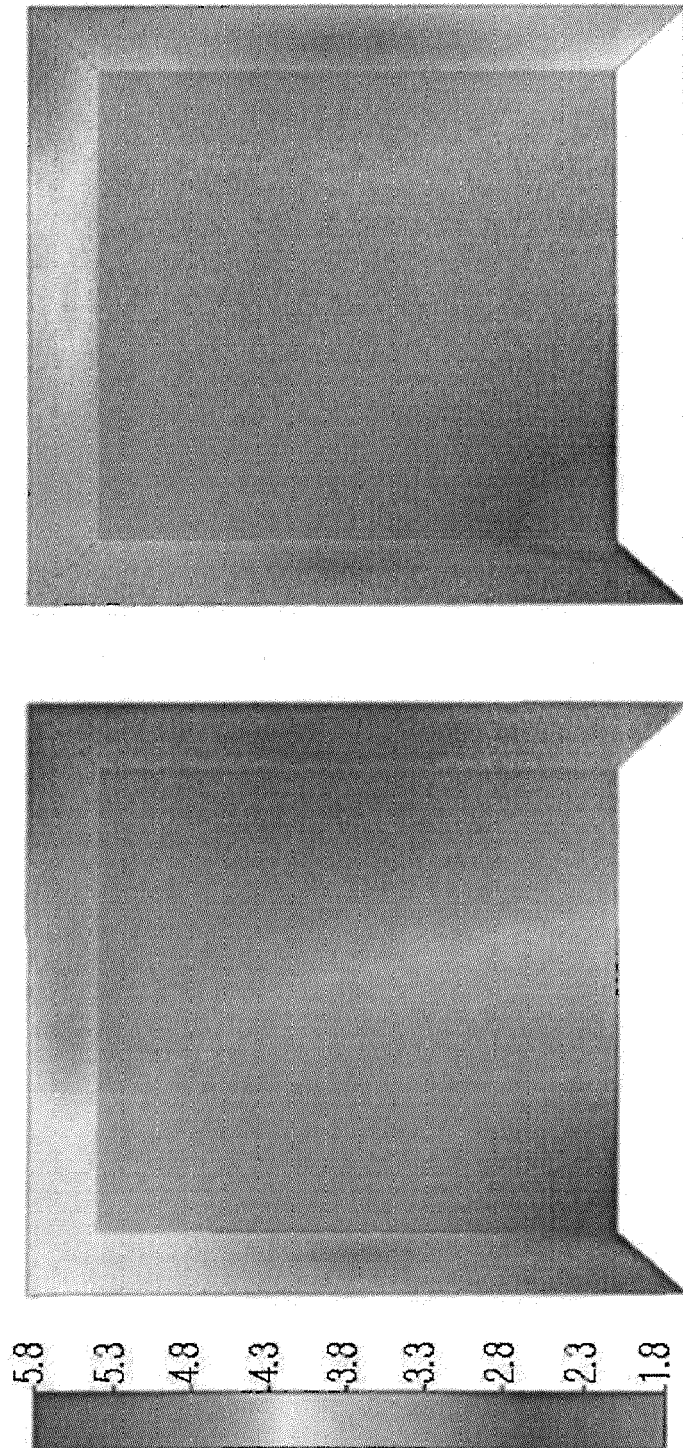


FIG. 8

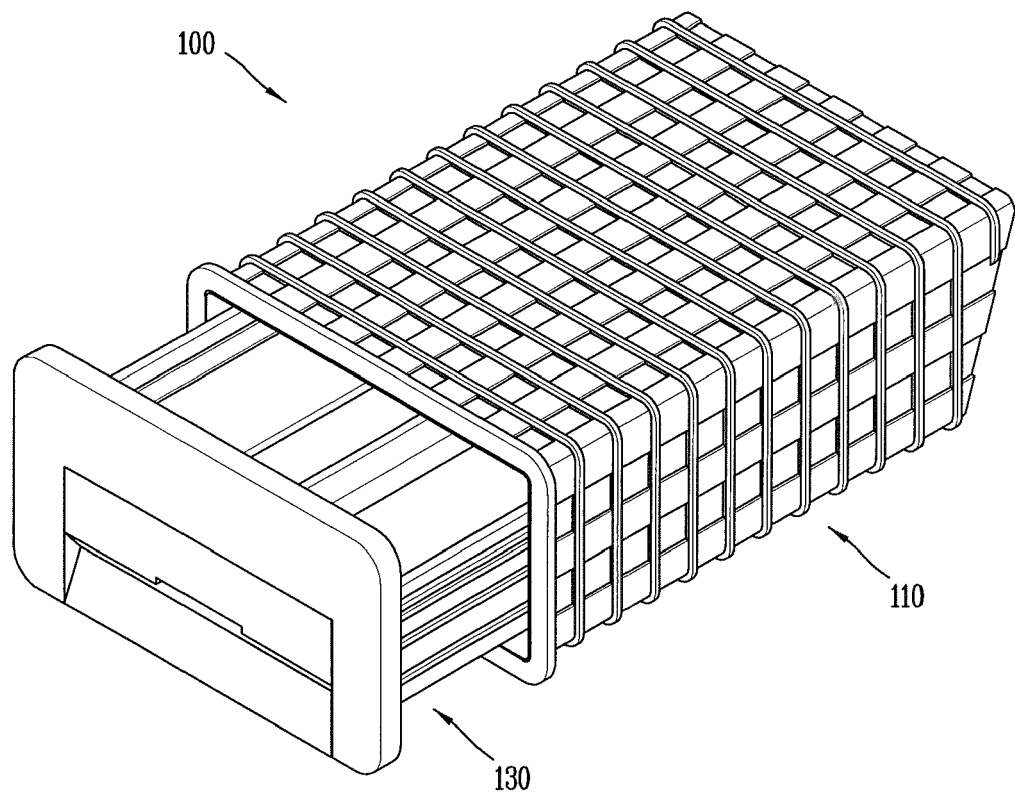


FIG. 9

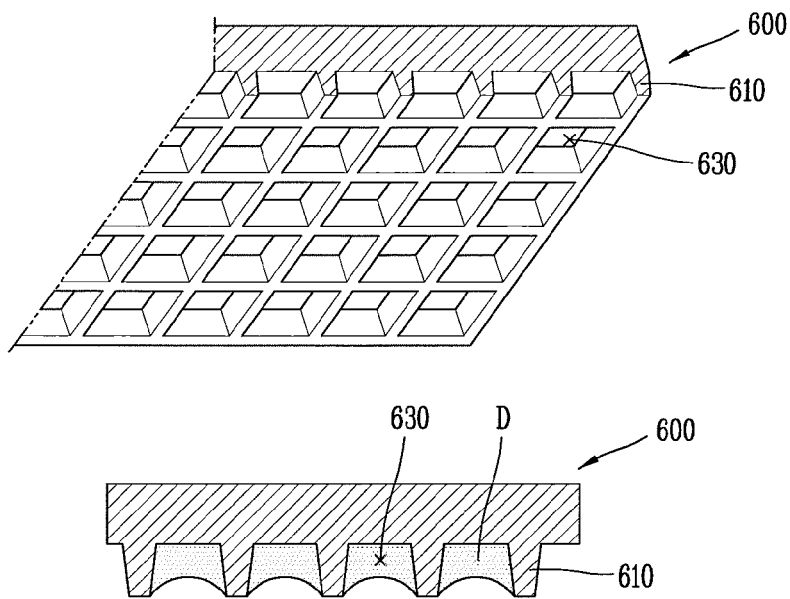


FIG. 10

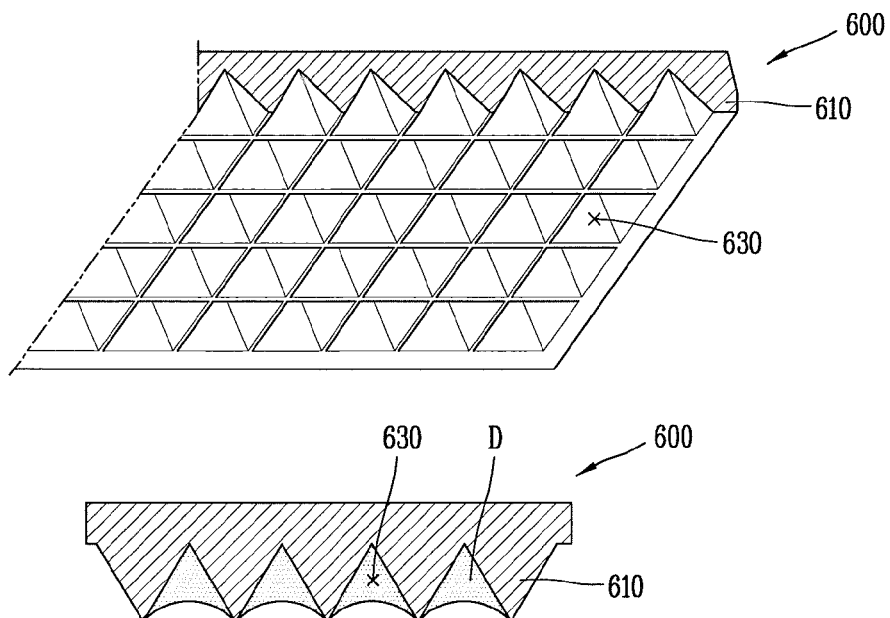


FIG. 11

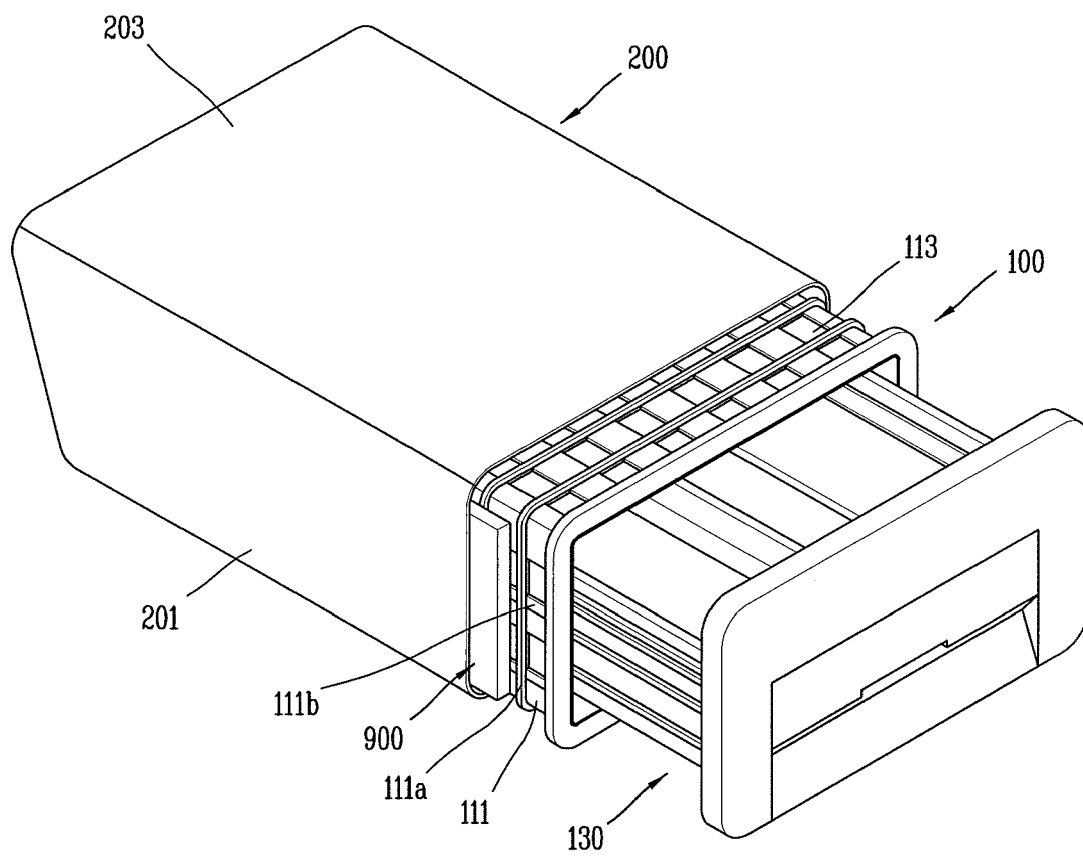


FIG. 12

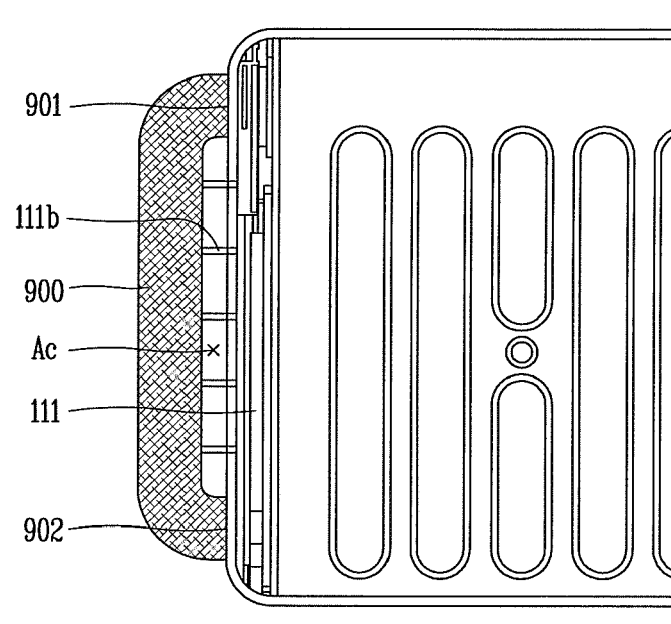


FIG. 13

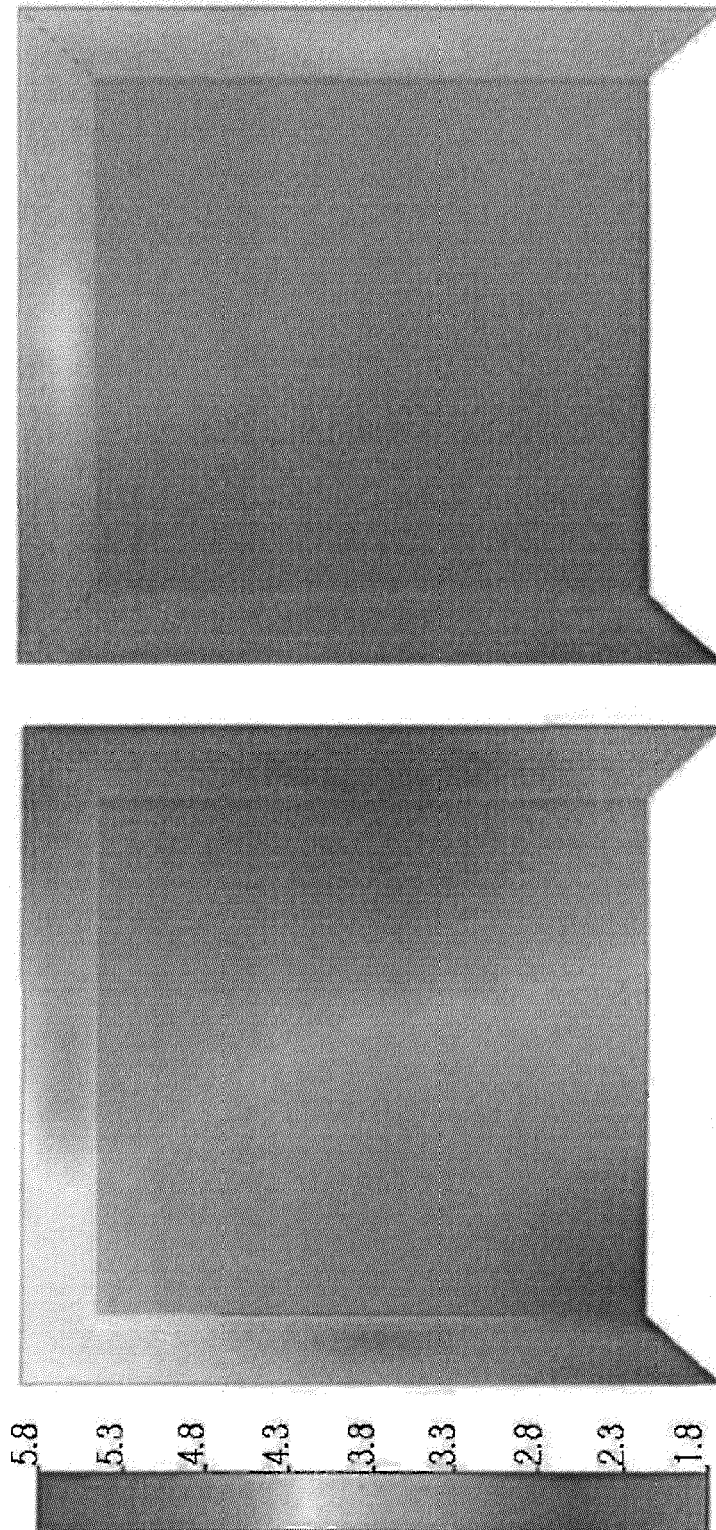


FIG. 14

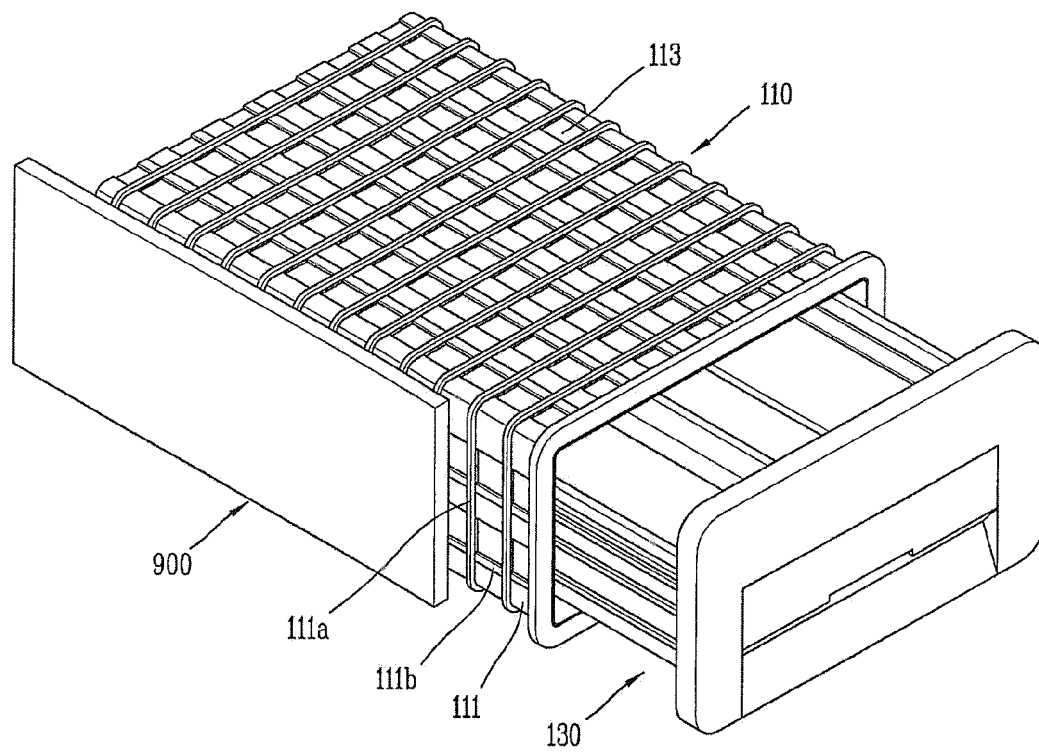


FIG. 15

