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(54) **MEMBRANE-TYPE VENTED FOOD BOX**

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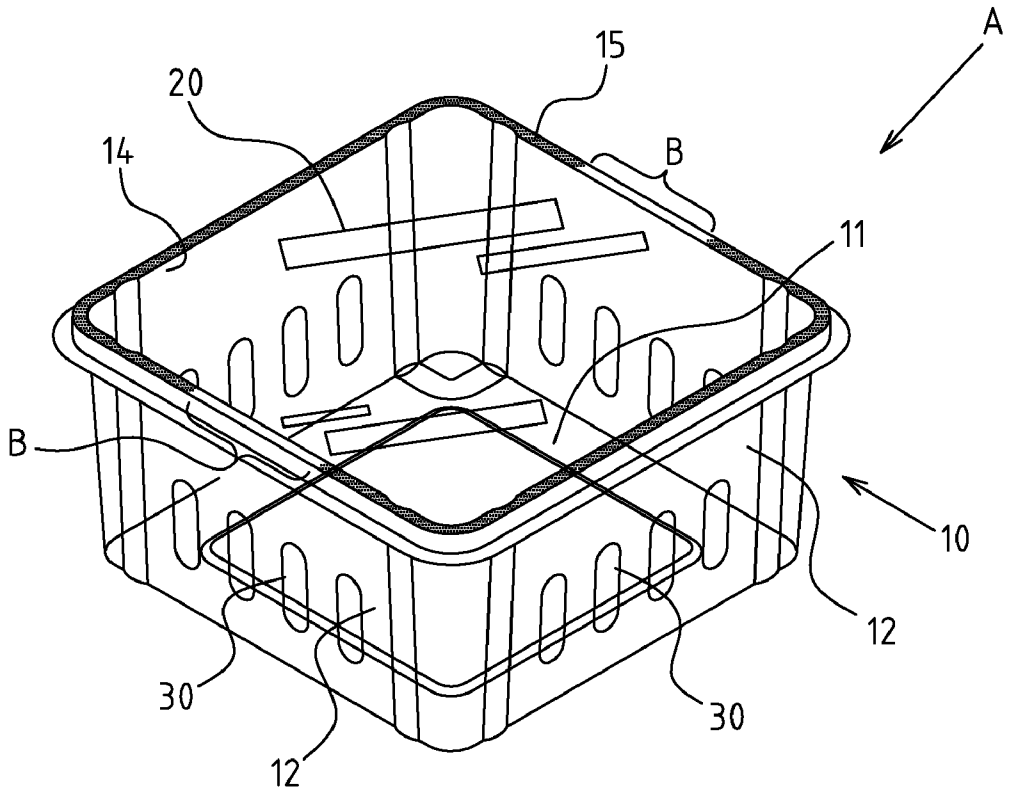
(57) **ABSTRACT**

The present invention provides a membrane-type vented food box, including a bottom wall, side walls, an accommodating space and opening on top of the side wall. A membrane is adhered onto the joint surface of the opening, and air vents are opened on at least two opposite sides of the side wall of the box. The spacing between the bottom of air vents and the bottom wall must be bigger than 1 cm, and air flows transversely across the food box, so the superimposed food box may not affect air ventilation, thus providing an optimum air ventilation effect. Thanks to a spacing bigger than 1 cm between the bottom of air vent and the bottom wall, the steam generated by food in the accommodating space can be easily discharged, thus providing a better preservative effect with improved applicability.



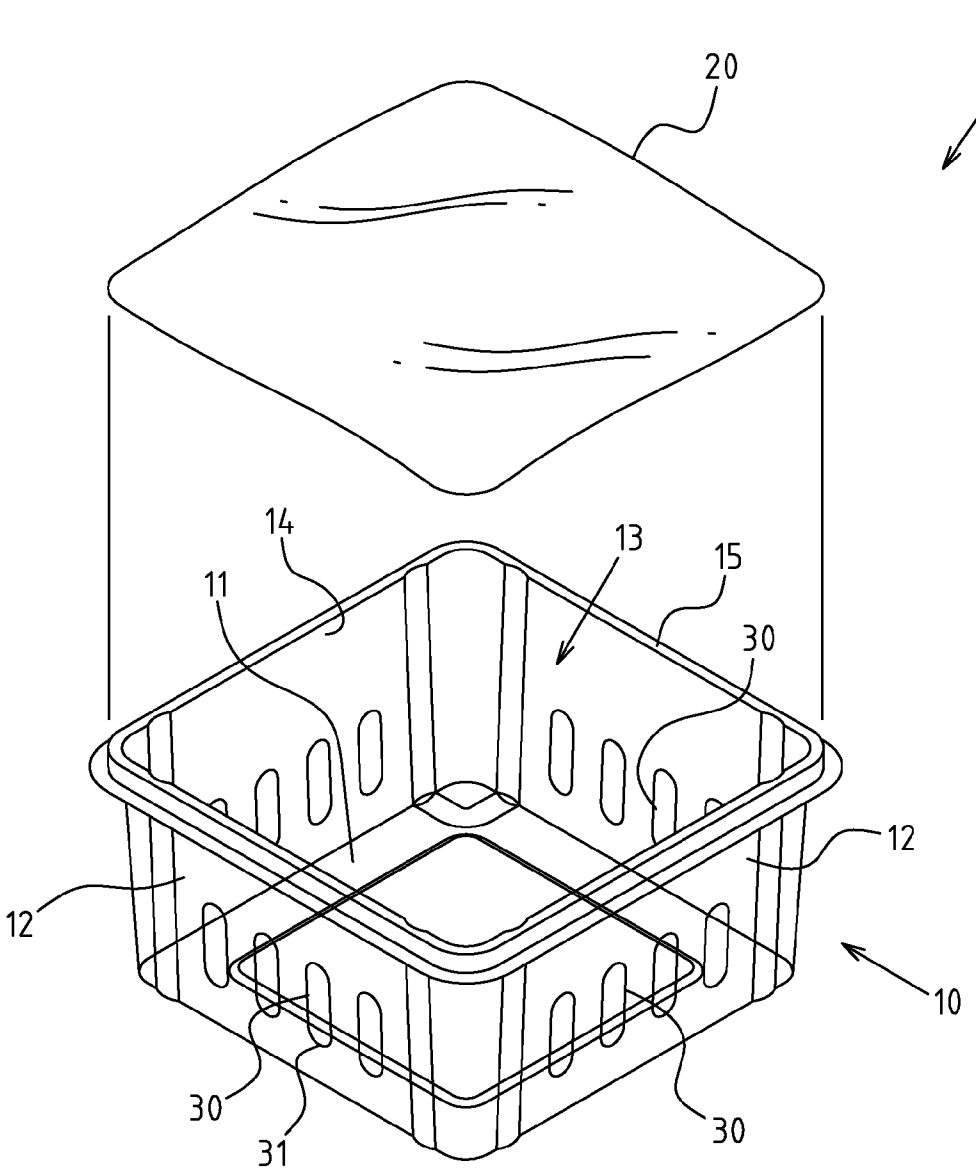


FIG.1

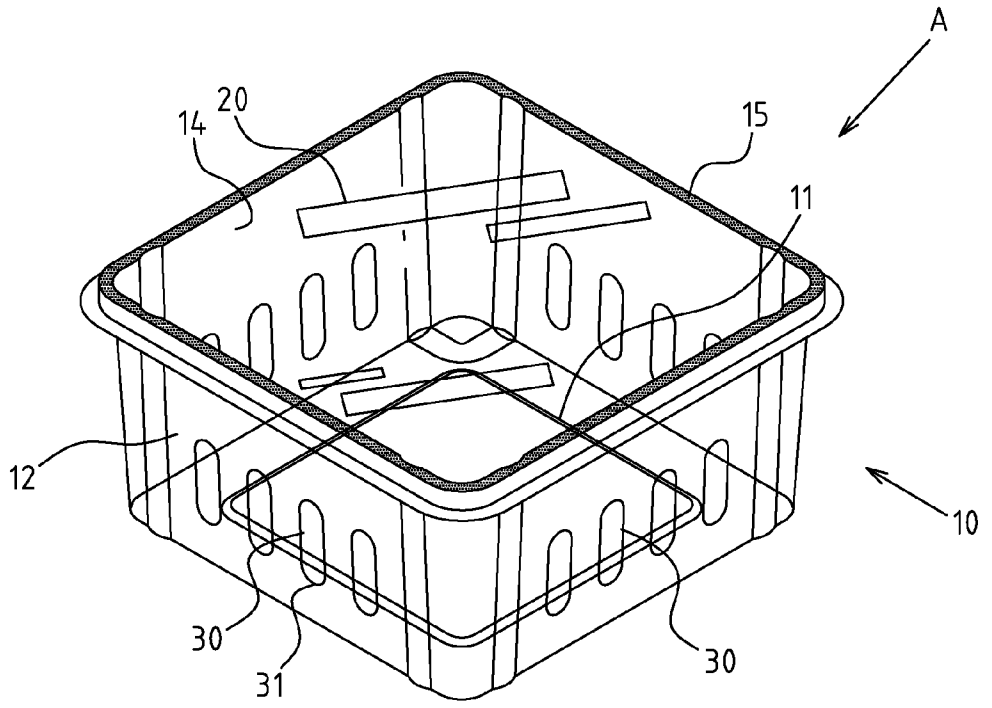


FIG.2

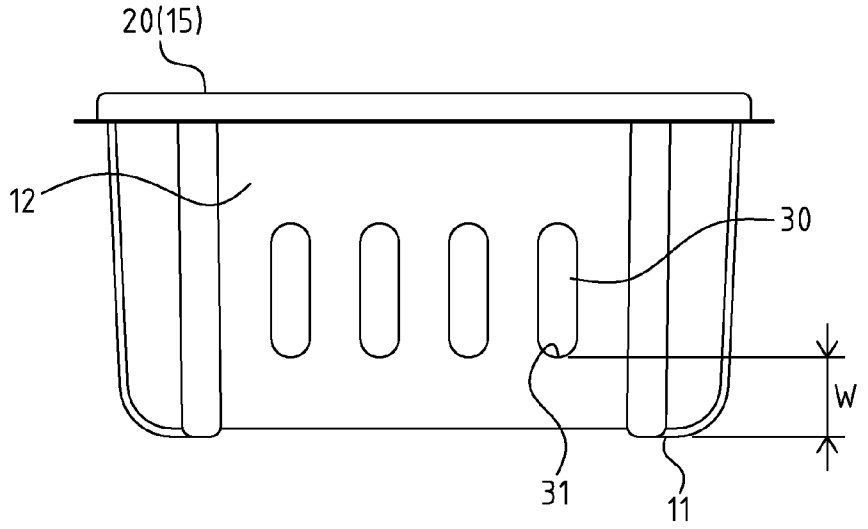


FIG.3

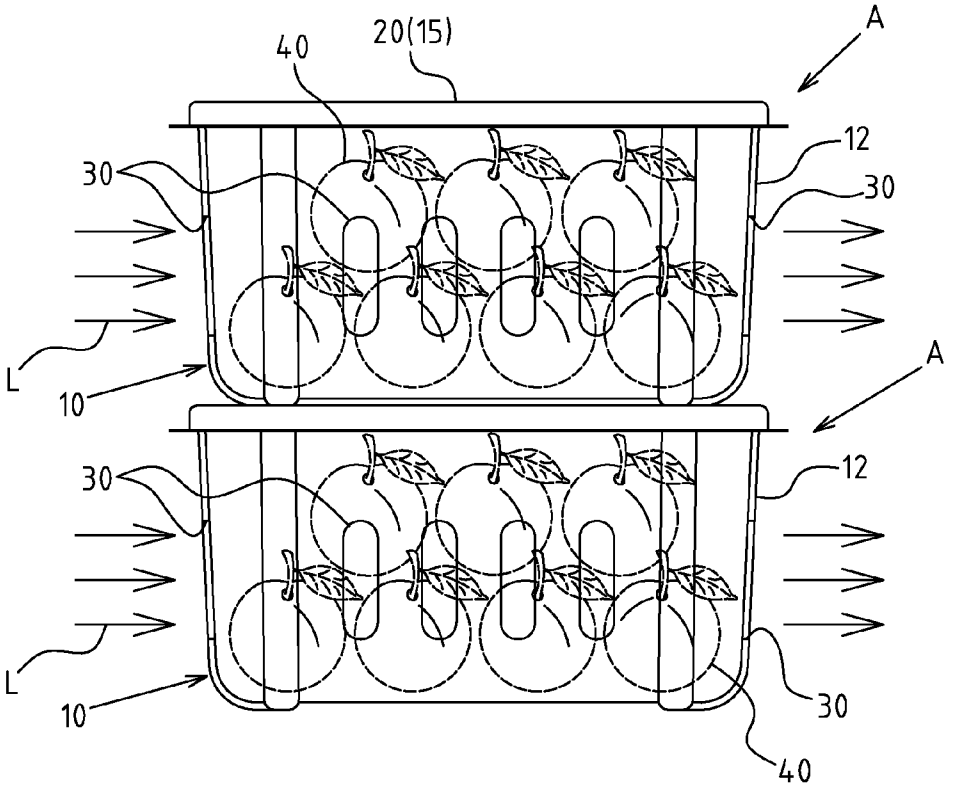


FIG.4

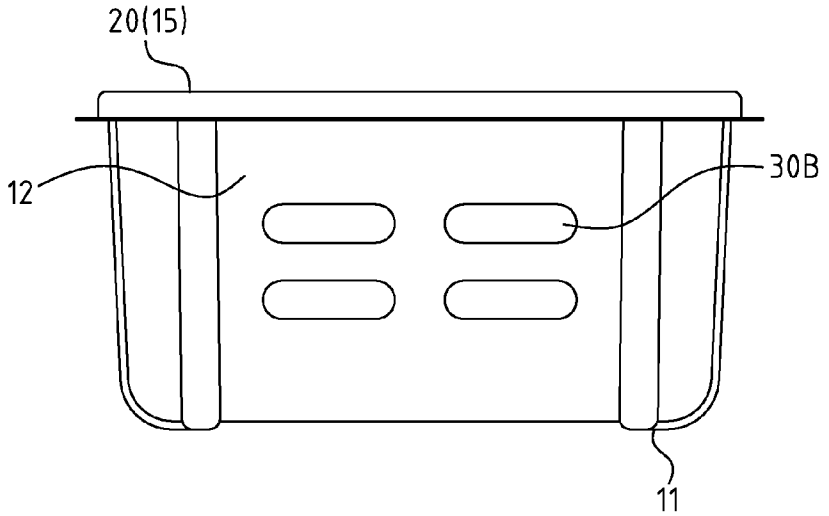


FIG.5

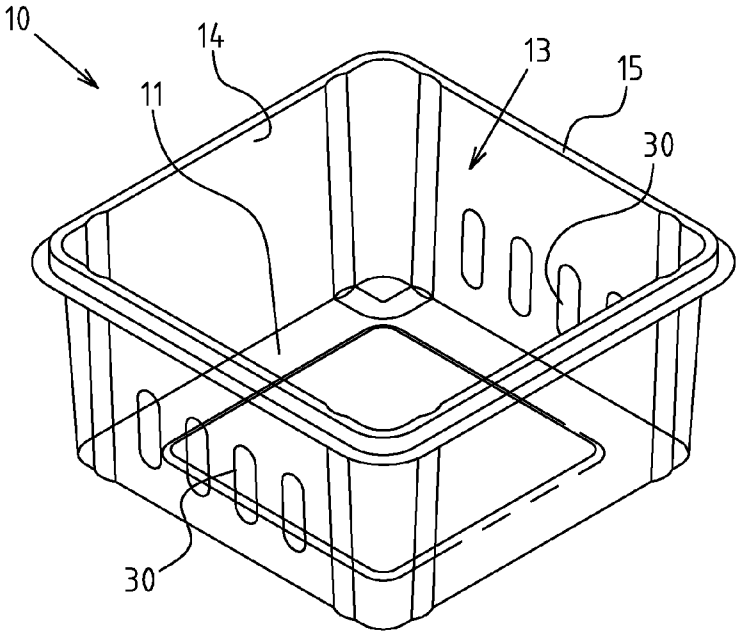


FIG.6

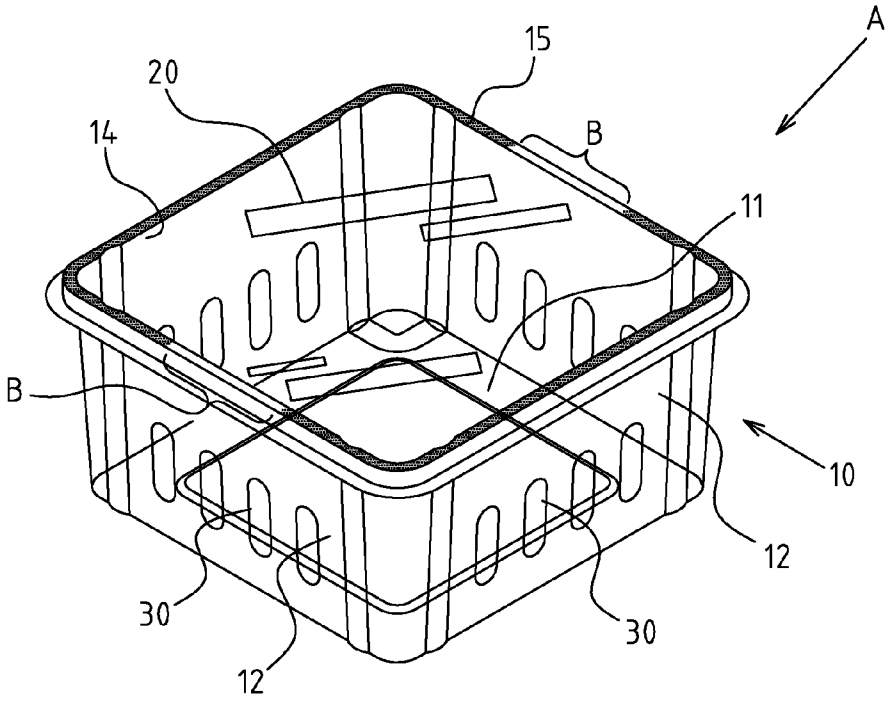


FIG.7

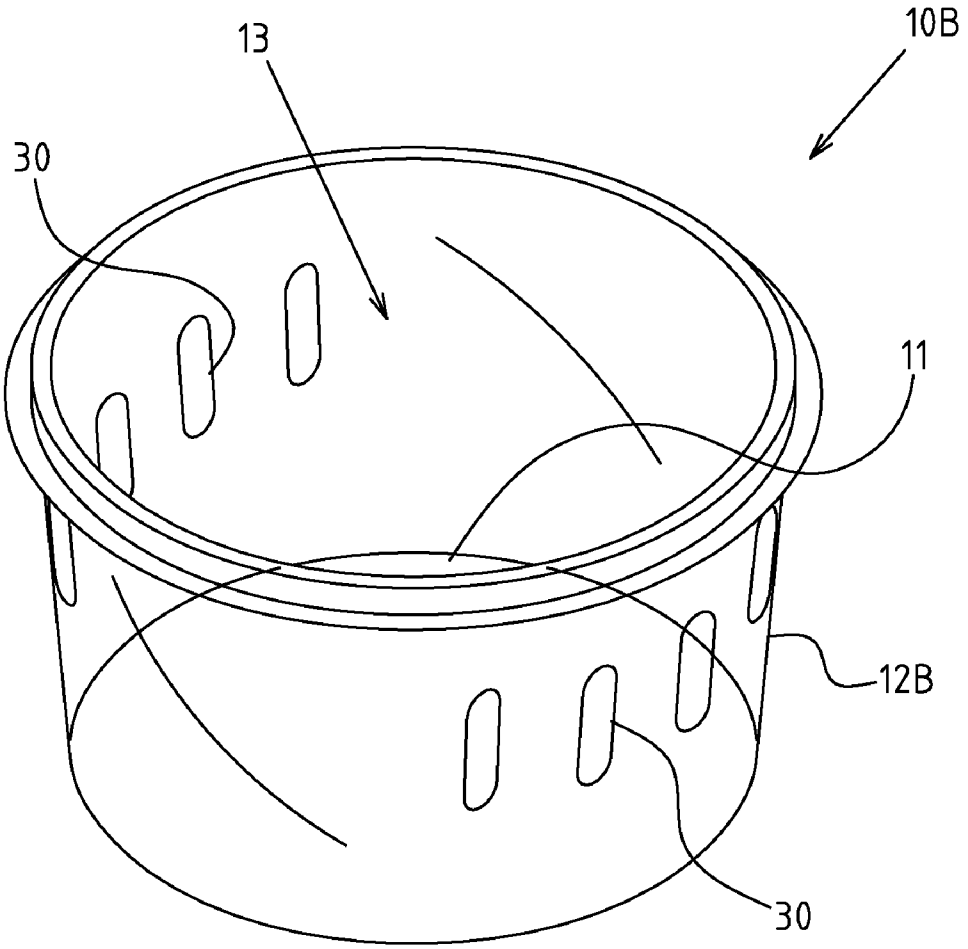


FIG.8

MEMBRANE-TYPE VENTED FOOD BOX

CROSS-REFERENCE TO RELATED U.S. APPLICATIONS

[0001] Not applicable.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable.

NAMES OF PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not applicable.

REFERENCE TO AN APPENDIX SUBMITTED ON COMPACT DISC

[0004] Not applicable.

BACKGROUND OF THE INVENTION

[0005] 1. Field of the Invention

[0006] The present invention relates generally to a food box, and more particularly to an innovative food box with a membrane-vented structure.

[0007] 2. Description of Related Art Including Information Disclosed Under 37 CFR 1.97 and 37 CFR 1.98.

[0008] Some vegetable boxes (e.g. cherry and tomato) currently available are generally formed with air vents to avoid deterioration of vegetables in the confined space. The air vents of a typical food box are often opened at the top and bottom of the box.

[0009] However, the following shortcomings are observed during actual applications. If a plurality of food boxes are superimposed, air vents on the top and bottom are aligned correspondingly, thus blocking off the ventilation path and affecting air permeability. If aforementioned air vents are opened on the top and bottom of a membrane-type food box, the strength of the box will be highly affected since the opening of the cover is sealed by the membrane. Hence, this structure isn't suitable for a membrane-type food box.

[0010] Thus, to overcome the aforementioned problems of the prior art, it would be an advancement in the art to provide an improved structure that can significantly improve efficacy.

[0011] Therefore, the inventor has provided the present invention of practicability after deliberate design and evaluation based on years of experience in the production, development and design of related products.

BRIEF SUMMARY OF THE INVENTION

[0012] Based upon the innovation of the present invention, air vents are opened on at least two opposite sides of the side wall of the box. Air flows transversely across the food box, so the superimposed food box may not affect air ventilation, enabling the membrane-type food box to yield an optimum air ventilation effect.

[0013] Since air vents are opened on the side wall of the box, and also located at a higher position on the side wall of an accommodating space due to a spacing bigger than 1 cm between the bottom of air vent and the bottom wall, the steam generated by food in the accommodating space can be easily discharged, thus providing a better preservative effect with improved applicability.

[0014] Although the invention has been explained in relation to its preferred embodiment, it is to be understood that many other possible modifications and variations can be made without departing from the spirit and scope of the invention as hereinafter claimed.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0015] FIG. **1** shows an exploded perspective view of the preferred embodiment of the present invention.

[0016] FIG. **2** shows an assembled perspective view of the preferred embodiment of the present invention.

[0017] FIG. **3** shows a side elevation view of the preferred embodiment of the present invention.

[0018] FIG. **4** shows another side elevation view of the operation of the present invention.

[0019] FIG. **5** shows another side elevation view of an air vent of the present invention.

[0020] FIG. **6** shows a perspective view of the air vent of the present invention.

[0021] FIG. **7** shows another perspective view of the membrane joint surface of the present invention.

[0022] FIG. **8** shows still another perspective view of a side wall of the food box of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0023] The features and the advantages of the present invention will be more readily understood upon a thoughtful deliberation of the following detailed description of a preferred embodiment of the present invention with reference to the accompanying drawings.

[0024] FIGS. **1-3** depict preferred embodiments of a membrane-type vented food box of the present invention. These embodiments are only provided for explanatory purposes with respect to the patent claims.

[0025] The food box A comprises a box **10**, including a bottom wall **11**, a framed side wall **12**, an accommodating space **13** formed by the bottom wall **11** and side wall **12**, and an opening **14** on top of the side wall **12**. A membrane **20** is sealed onto the joint surface **15** of the opening **14** of the box **10** (shown in FIG. **2**). Air vents **30** are opened on at least two opposite sides of the side wall **12** of the box **10**. Referring to FIG. **1**, air vents **30** are opened on four side walls **12** of the box **10**. Moreover, referring to FIG. **3**, the spacing W between the bottom of air vents **30** and the bottom wall **11** must be bigger than 1 cm.

[0026] Based upon above-specified structures, the membrane-type vented food box A of the present invention is operated as shown in FIG. **4**, wherein the food box A contains food **40**, and two food boxes A are superimposed. It can be seen that, since air vents **30** are opened at two opposite sides of the side wall **12** of the box **10**, the path of air flow is shown by arrow L, indicating air flows transversely across the food box A. So, the superimposed food box A cannot affect air permeability. Furthermore, since air vents are **30** opened on the side wall **12** of the box **10**, and also located at higher position on the side wall of accommodating space **13** due to a spacing bigger than 1 cm between the bottom **31** of air vent **30** and the bottom wall **11**, the steam generated by food **40** in the accommodating space **13** can be easily discharged (evaporation direction of steam is from down to up).

[0027] Referring to FIGS. **1-3**, air vents **30** are arranged vertically into long holes, or referring also to FIG. **5**, air vents

30B are arranged transversely into long holes. In addition, said air vents are also arranged obliquely into long, circular, square and polygon holes or other holes of any optional shape, all of which are implemented by means of punching dies.

[0028] Referring to FIG. **6**, air vents **30** of the food box A are only opened at two opposite side walls **12** of the box **10**.

[0029] Referring to FIG. **2**, said membrane **20** could be adhered onto the entire joint surface **15** of the opening **14** of the box **10** (e.g. thermal laminating). Referring also to FIG. **7**, the membrane **20** could be adhered onto a portion of the joint surface **15** of the opening **14** of the box **10**, of which the section B not adhered can also yield air ventilation effect for tearing off the membrane **20**.

[0030] The side wall **12** of the box **10** can also be designed into a quadrilateral shape (shown in FIG. **1**); or the side wall **12**B of the box **10**B can be designed into a cylindrical shape (shown in FIG. **8**). Additionally, the side wall can be designed into other polygon shapes.

[0031] Additionally, the box **10** of said food box A can be made of several materials, such as: Polyproylene (PP), Polyethylene Terephthalate (PET) and poly lactic acid (PLA).

1. A membrane-type vented food box, comprising:
- a box, having a bottom wall, a framed side wall, an accommodating space formed by said bottom wall, and a side wall, said side wall having a top with an opening;
- a membrane, sealed onto a joint surface of said opening of the box; and
- air vents opened on at least two opposite sides of said side wall of said box; wherein spacing between the bottom of air vents and the bottom wall must be bigger than 1 cm.

2. The food box defined in claim **1**, wherein said air vents are arranged vertically or transversely or obliquely into holes.

3. The food box defined in claim **1**, wherein said membrane adheres onto the joint surface of said opening of box.

4. The food box defined in claim **1**, wherein said side wall of the box can be designed into a quadrilateral, cylindrical and polygonal shapes.

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