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(54) REFRIGERATOR

(57) Disclosed is a refrigerator (1), comprising: a refrigerator body (100), wherein a refrigeration compartment and a microwave oven compartment (120) are provided in the refrigerator body (100), and an air inlet (121) and an air outlet (122) which communicate the microwave oven compartment (120) with the outside are provided on the refrigerator body (100); doors (210, 220), the doors (210, 220) being provided on the refrigerator body (100) so as to open and close the refrigeration compartment; and a microwave oven (300), the microwave oven (300) being provided in the microwave oven compartment (120)

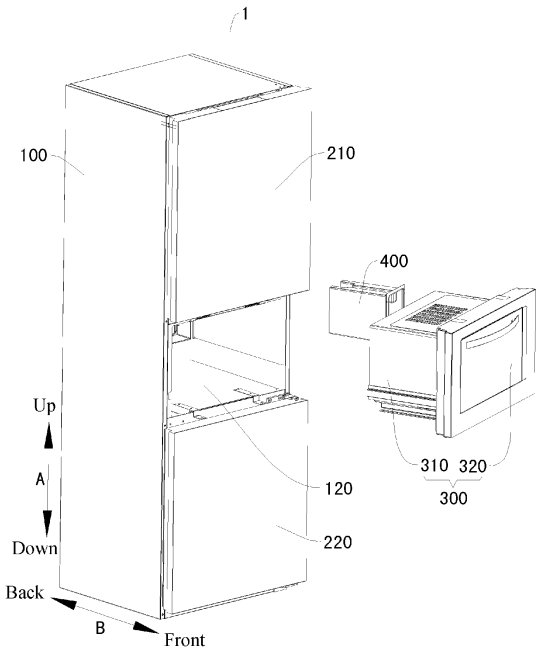

Fig. 1

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Description

FIELD

[0001] The present disclosure relates to a field of household appliances, and more particularly to a refrigerator.

BACKGROUND

[0002] With the improvement of people's living standards and the progress of the society, the refrigerator is not only used in the family kitchen, but also gradually appeared in the office and single dormitory. User not only requires the refrigerator with functions of cold storage, adjusting temperature and freezing, but also hopes the frozen fish and meat taken from the refrigerator can be thawed out immediately, however the refrigerator in the related art does not have this function, thus unable to meet the needs of users.

SUMMARY

[0003] The present disclosure seeks to solve at least one of the problems existing in the related art to at least some extent. For this, an object of the present disclosure is to provide a refrigerator with functional diversification, convenient to use, reliable performance, strong practicability, and meeting the needs of the users.

[0004] In order to achieve the above purpose, the present disclosure provides a refrigerator, including: a refrigerator body defining a refrigeration compartment and a microwave oven compartment therein, and provided with an air inlet and an air outlet communicating the microwave oven compartment with outside; doors provided to the refrigerator body so as to open and close the refrigeration compartment; and a microwave oven arranged in the microwave oven compartment.

[0005] The refrigerator according to the present disclosure has a plurality of advantages, such as functional diversification, convenient to use, reliable performance, strong practicability, and meeting the needs of the users.

[0006] In addition, the refrigerator according to the present disclosure further has the following additional technical features.

[0007] In some embodiments of the present disclosure, the refrigerator further includes an air inlet guiding member provided in the microwave oven compartment; an air inlet through hole provided in the microwave oven to communicate the inside of the microwave oven with the outside, wherein the air inlet guiding member communicates the air inlet with the air inlet through hole so as to communicate the inside of the microwave oven with the outside. Thus the heat dissipation effect of the microwave oven can be further improved, thereby enabling the performance of the microwave oven to be more reliable.

[0008] In some embodiments of the present disclosure, the air inlet and the air outlet are provided in a back surface of the refrigerator body. Thus enabling the structure of the refrigerator to be more reasonable, and making the appearance of the refrigerator to be more neat and beautiful without affecting the heat dissipation effect of the microwave oven.

[0009] In some embodiments of the present disclosure, the air inlet guiding member is installed at a back plate of the refrigerator body. Thus the stability of the air inlet guiding member in the microwave oven compartment can be improved, thereby improving the heat dissipation reliability of the microwave oven.

[0010] In some embodiments of the present disclosure, the air inlet guiding member is provided with a line groove, and a power line of the microwave oven is provided in the line groove. Thus not only enabling the microwave oven to connect to a power supply more convenient, but also avoiding the power line of the microwave oven is too messy and damaged.

[0011] In some embodiments of the present disclosure, the refrigerator further includes an air inlet cover provided at the air inlet. In this way, the air inlet cover can not only play a protective role, but also can prevent debris from getting into the microwave oven compartment from the air inlet.

[0012] In some embodiments of the present disclosure, the refrigerator further includes an air outlet cover provided at the air outlet. In this way, the air outlet cover can not only play a protective role, but also can prevent debris from getting into the microwave oven compartment from the air outlet.

[0013] In some embodiments of the present disclosure, the refrigerator further includes a fan provided in the microwave oven compartment and adjacent to the air outlet. In this way, the heat dissipation effect of the microwave oven can be further improved, so as to further improve the performance reliability of the microwave oven.

[0014] In some embodiments of the present disclosure, the microwave oven includes an oven body and an oven door, and the oven door is installed to the oven body via a slide track so as to open and close the oven body. Thus it is convenient for users to put the food into the microwave oven or take the food out of the microwave oven.

[0015] In some embodiments of the present disclosure, the refrigeration compartment includes a cold storage compartment located above the microwave oven compartment and a freezing compartment located blow the microwave oven compartment. Thus the functional diversification of the refrigerator can be further improved so as to further improve the convenience of the refrigerator.

[0016] Additional aspects and advantages of embodiments of present disclosure will be given in part in the following descriptions, become apparent in part from the following descriptions, or be learned from the practice of the embodiments of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] These and other aspects and advantages of embodiments of the present disclosure will become apparent and more readily appreciated from the following descriptions made with reference to the drawings, in which:

Fig. 1 is an exploded view of a refrigerator according to an embodiment of the present disclosure;
Fig. 2 is a schematic diagram of a refrigerator according to an embodiment of the present disclosure;
Fig. 3 is a schematic diagram of a refrigerator body of a refrigerator according to an embodiment of the present disclosure;
Fig. 4 is a schematic diagram of a microwave oven compartment of a refrigerator according to an embodiment of the present disclosure;
Fig. 5 is a schematic diagram of a microwave oven and air inlet guiding member of a refrigerator according to an embodiment of the present disclosure;

Reference numerals:

[0018] refrigerator 1, refrigerator body 100, cold storage compartment 110, microwave oven compartment 120, air inlet 121, air outlet 122, back plate 130, freezing compartment 130, cold storage compartment door body 210, freezing compartment door body 220, microwave oven 300, oven body 310, oven door 320, air inlet guiding member 400, line groove 410, air inlet cover 500, air outlet cover 600.

DETAILED DESCRIPTION

[0019] Reference will be made in detail to embodiments of the present disclosure. The embodiments described herein with reference to drawings are explanatory, illustrative, and used to generally understand the present disclosure. The embodiments shall not be construed to limit the present disclosure. The same or similar elements and the elements having same or similar functions are denoted by like reference numerals throughout the descriptions.

[0020] In the specification, it is to be understood that terms such as "central," "longitudinal," "lateral," "length," "width," "thickness," "upper," "lower," "front," "rear," "left," "right," "vertical," "horizontal," "top," "bottom," "inner," "outer," "clockwise," and "counterclockwise" should be construed to refer to the orientation as then described or as shown in the drawings under discussion. These relative terms are for convenience of description and do not require that the present invention be constructed or operated in a particular orientation. In addition, terms such as "first" and "second" are used herein for purposes of description and are not intended to indicate or imply relative importance or significance or to imply the number of indicated technical features. Thus, the feature defined with "first" and "second" may comprise one or more of this feature. In the description of the present invention, "a plurality of" means two or more than two, unless specified otherwise.

[0021] In the present invention, unless specified or limited otherwise, the terms "mounted," "connected," "coupled," "fixed" and the like are used broadly, and may be, for example, fixed connections, detachable connections, or integral connections; may also be mechanical or electrical connections; may also be direct connections or indirect connections via intervening structures; may also be inner communications of two elements, which can be understood by those skilled in the art according to specific situations.

[0022] The refrigerator 1 according to embodiments of the present disclosure will be described below in detail with reference to Fig. 1 to Fig. 5. As shown in Fig. 1 to Fig. 5, the refrigerator 1 according to embodiments of the present disclosure includes a refrigerator body 100, door body and a microwave oven 300.

[0023] The refrigerator body 100 defines a refrigeration compartment and a microwave oven compartment 120 therein, and is provided with an air inlet 121 and an air outlet 122 communicating the microwave oven compartment 120 with the outside. The door body is provided to the refrigerator body 100 so as to open and close the refrigeration compartment. The microwave oven 300 is arranged in the microwave oven compartment 120.

[0024] The refrigerator 1 according to the present disclosure enables the refrigerator 1 not only having functions of refrigeration, preservation and storage, but also having functions of heating, thawing, barbecue, cold storage and heat dissipation via providing a microwave oven compartment 120 in the refrigerator body 100, and the microwave oven compartment 120 being provided with a microwave oven 300 therein. Thus user can use the microwave oven 300 to thaw out the frozen fish and meat immediately, thereby making usage more convenient, and meeting the needs of the users. Moreover, the refrigerator body 100 is provided with the air inlet 121 and the air outlet 122 communicating the microwave oven compartment 120 with the outside, thus ensuring the microwave oven 300 to work normally in a harsh environment, making the performance of the refrigerator 1 reliable. Therefore, the refrigerator 1 according to the present disclosure has a plurality of advantages, such as functional diversification, convenient to use, reliable performance, strong practicability, and meeting the needs of the users.

[0025] Fig. 1 and Fig. 3 show a refrigerator 1 according to an embodiment of the present disclosure. As shown in Fig. 1 and Fig. 3, the refrigeration compartment includes a cold storage compartment 110 located above the microwave oven compartment 120 and a freezing compartment 130 located blow the microwave oven compartment 120 (the up-down direction is indicated by arrow A as shown in Fig. 1 to Fig. 5). Thus enabling the refrigerator 1 having functions of the cold storage and freezing,

thereby further improving the functional diversification of the refrigerator 1 so as to further improve the convenience of the refrigerator 1.

[0026] As shown in Fig. 1, the door body can include a cold storage compartment door body 210 and a freezing compartment door body 220, the cold storage compartment door body 210 can be provided to the refrigerator body 100 so as to open and close the cold storage compartment 110, and the freezing compartment door body 220 can be provided to the refrigerator body 100 so as to open and close the freezing compartment 130.

[0027] Optionally, as shown in Fig. 1, the microwave oven 300 can include an oven body 310 and an oven door 320, and the oven door 320 can be installed to the oven body 310 via a slide track so as to open and close the oven body 310. That is, the oven door 320 is a drawing-out door. Thus making users to open and close the oven body 310 more convenient, thereby enabling users to put the food into the microwave oven 300 or take the food out of the microwave oven 300 conveniently.

[0028] Figs. 1-5 show a refrigerator 1 according to a specific embodiment of the present disclosure. As shown in Figs. 1-5, the refrigerator 1 further includes an air inlet guiding member 400 provided in the microwave oven compartment 120, the microwave oven 300 can be provided with an air inlet through hole to communicate the inside of the microwave oven 300 with the outside, the air inlet guiding member 400 can communicate the air outlet 122 with the air inlet through hole so as to communicate the inside of the microwave oven 300 with the outside. In specific, the air inlet guiding member 400 can define a chamber whose front and back ends are opened. Thus the outside air with a lower temperature can be leaded into the microwave oven 300 to subject to heat exchange with the air inside the microwave oven 300 with a higher temperature by taking advantage of the air inlet guiding member 400, the hot air after subjecting to heat exchange is discharged outside the refrigerator 1 sequentially through the surface of the microwave oven 300 and the air outlet 122. Thus the heat dissipation effect of the microwave oven 300 can be further improved, thereby enabling the performance of the microwave oven 300 to be more reliable.

[0029] Wherein, as shown in Fig. 2-Fig. 4, the air inlet 121 and the air outlet 122 can be provided in a back surface of the refrigerator body 100 (the front-back direction is indicated by arrow B as shown in Figs. 1-3 and Fig. 5). In specific, the air inlet 121 and the air outlet 122 can be provided in a back plate of the microwave oven compartment 120. Thus enabling the structure of the refrigerator 1 to be more reasonable, and making the appearance of the refrigerator 1 to be more neat and beautiful without affecting the heat dissipation effect of the microwave oven 300.

[0030] Optionally, the air inlet guiding member 400 can be installed to a back plate 130 of the refrigerator body 100. That is, the air inlet guiding member 400 can be installed to a back plate of the microwave oven compartment 120. Thus the stability of the air inlet guiding member 400 in the microwave oven compartment 120 can be improved, thereby improving the heat dissipation reliability of the microwave oven 300.

[0031] Fig. 2 and Fig. 5 show a refrigerator 1 according to a specific embodiment of the present disclosure. As shown in Fig. 2 and Fig. 5, the air inlet guiding member 400 can be provided with a line groove 410, and a power line of the microwave oven 300 is provided in the line groove 410. Thus not only enable the microwave oven 300 to connect to a power supply more convenient, but also limit the orientation of power line of the microwave oven 300 by taking advantage of the line groove 410, thereby avoid the power line of the microwave oven 300 being too messy and damaged.

[0032] Optionally, the refrigerator 1 can further include a fan (not shown in figures) provided in the microwave oven compartment 120 and adjacent to the air outlet 122. In this way, the hot air inside the microwave oven compartment 120 can be compulsory discharged, thereby further improving the heat dissipation effect of the microwave oven 300, so as to further improve the performance reliability of the microwave oven 300.

[0033] Advantageously, as shown in Fig. 2, the refrigerator 1 can further include an air inlet cover 500 which can be provided at the air inlet 121. That is, the air inlet cover 500 can be provided to the back plate 130 of the refrigerator body 100, and can be provided at the air inlet 121. In this way, not only the air inlet guiding member 400 and the microwave oven 300 can be protected, but also debris can be prevented from getting into the microwave oven compartment 120 from the air inlet 121 by taking advantage of the air inlet cover 500.

[0034] More advantageously, as shown in Fig. 2, the refrigerator 1 can further include an air outlet cover 600 which can be provided at the air outlet 122. In other words, the air outlet cover 600 can be provided to the refrigerator body 100 and can be provided at the air outlet 122. In this way, not only the air inlet guiding member 400 and the microwave oven 300 can be protected, but also debris can be prevented from getting into the microwave oven compartment 120 from the air outlet 122 by taking advantage of the air outlet cover 600.

[0035] Reference throughout this specification to "an embodiment," "some embodiments," "one embodiment", "another example," "an example," "a specific example," or "some examples," means that a particular feature, structure, material, or characteristic described in connection with the embodiment or example is included in at least one embodiment or example of the present disclosure. Thus, the appearances of the phrases such as "in some embodiments," "in one embodiment", "in an embodiment", "in another example," "in an example," "in a specific example," or "in some examples," in various places throughout this specification are not necessarily referring to the same embodiment or example of the present disclosure. Furthermore, the particular features, structures, materials, or characteristics may be com-

bined in any suitable manner in one or more embodiments or examples.

[0036] Although explanatory embodiments have been shown and described, it would be appreciated by those skilled in the art that the above embodiments cannot be construed to limit the present disclosure, and changes, alternatives, and modifications can be made in the embodiments without departing from spirit, principles and scope of the present disclosure.

Claims

1. A refrigerator, comprising:

a refrigerator body defining a refrigeration compartment and a microwave oven compartment therein, and provided with an air inlet and an air outlet communicating the microwave oven compartment with outside;
a door body provided to the refrigerator body so as to open and close the refrigeration compartment; and
a microwave oven arranged in the microwave oven compartment.

2. The refrigerator according to claim 1, further comprising:

an air inlet guiding member provided in the microwave oven compartment;
an air inlet through hole provided in the microwave oven to communicating the inside of the microwave oven with the outside,
wherein the air inlet guiding member communicates the air inlet with the air inlet through hole so as to communicate the inside of the microwave oven with the outside.

3. The refrigerator according to claim 2, wherein the air inlet and the air outlet are provided at a back surface of the refrigerator body.

4. The refrigerator according to claim 3, wherein the air inlet guiding member is installed on a back plate of the refrigerator body.

5. The refrigerator according to claim 2, wherein the air inlet guiding member is provided with a line groove and a power line of the microwave oven is provided in the line groove.

6. The refrigerator according to claim 1, further comprising: an air inlet cover provided at the air inlet.

7. The refrigerator according to claim 1, further comprising: an air outlet cover provided at the air outlet.

8. The refrigerator according to claim 1, further comprising: a fan provided in the microwave oven compartment and adjacent to the air outlet.

9. The refrigerator according to claim 1, wherein the microwave oven comprises an oven body and an oven door, and the oven door is installed to the oven body via a slide track to open and close the oven body.

10. The refrigerator according to claim 1, wherein the refrigeration compartment comprises a cold storage compartment located above the microwave oven compartment and a freezing compartment located blow the microwave oven compartment.

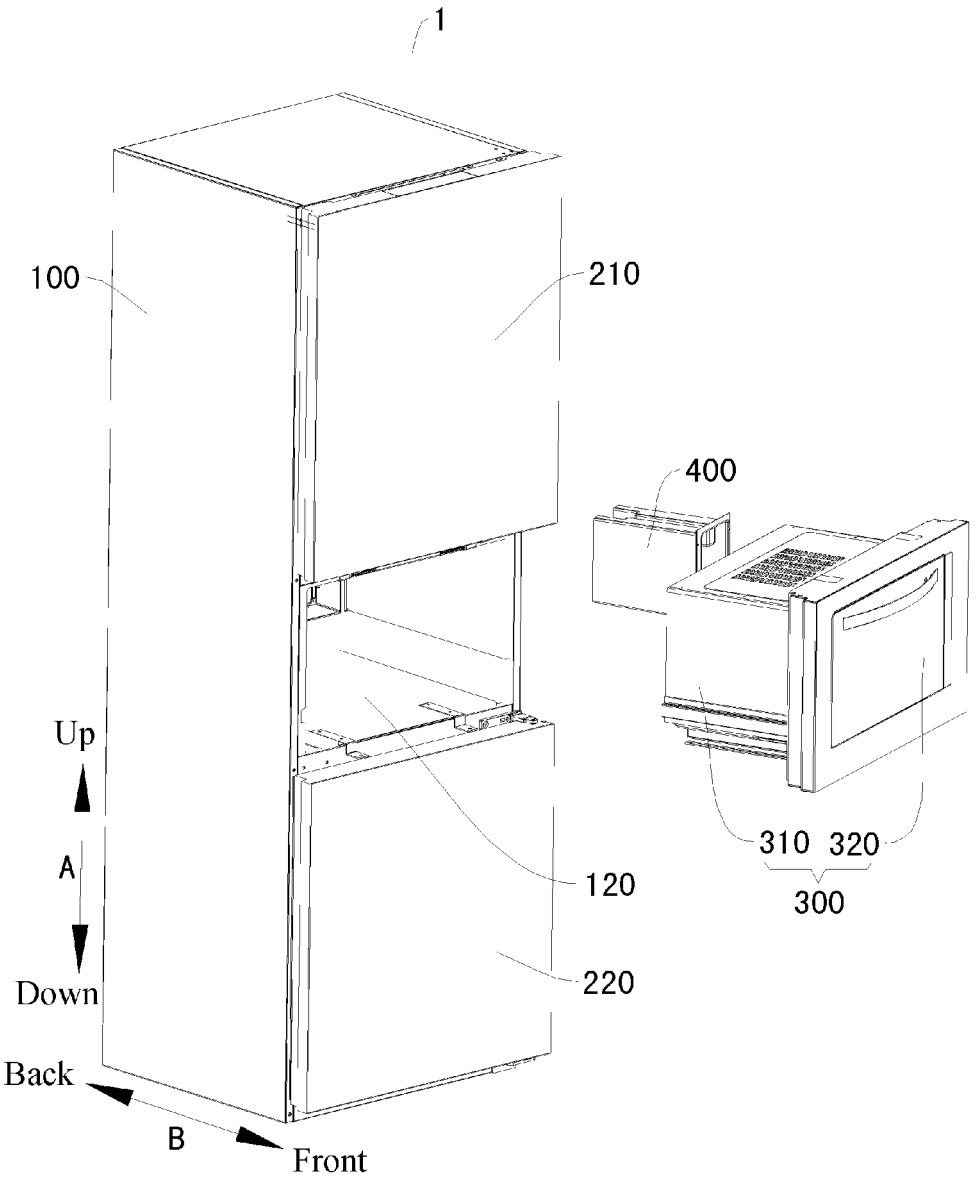

Fig. 1

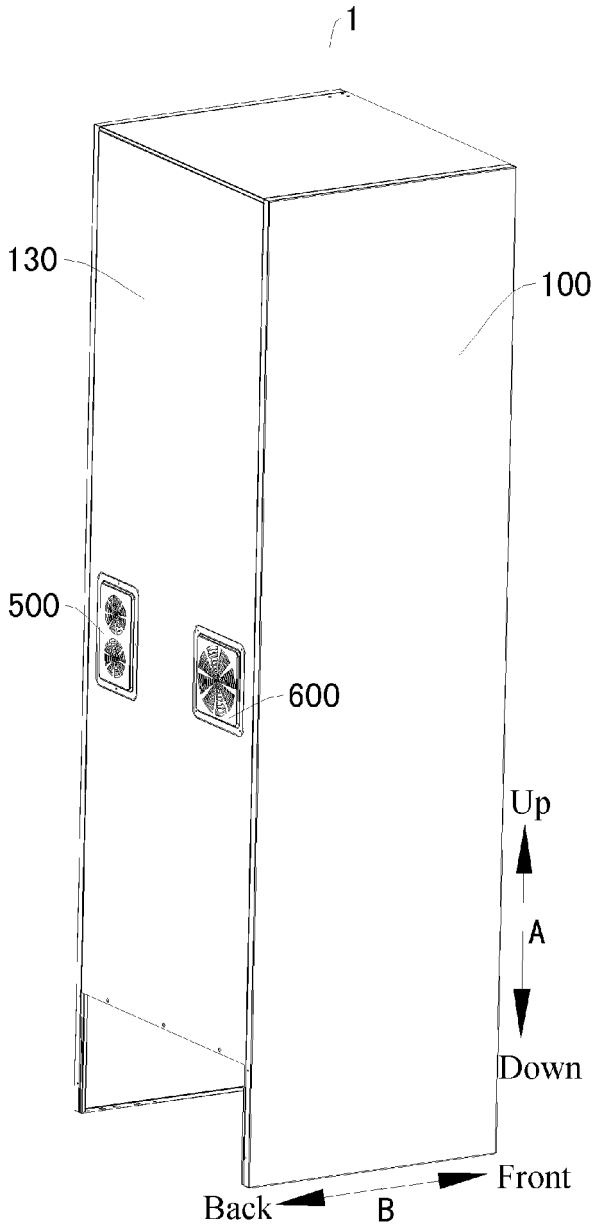

Fig. 2

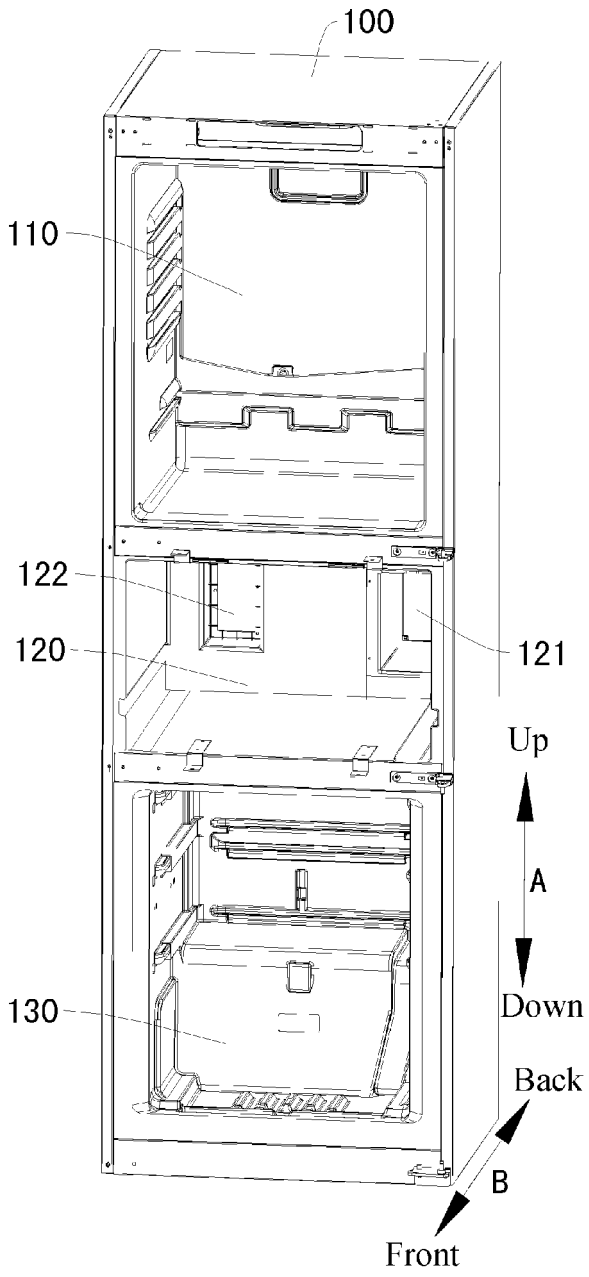

Fig. 3

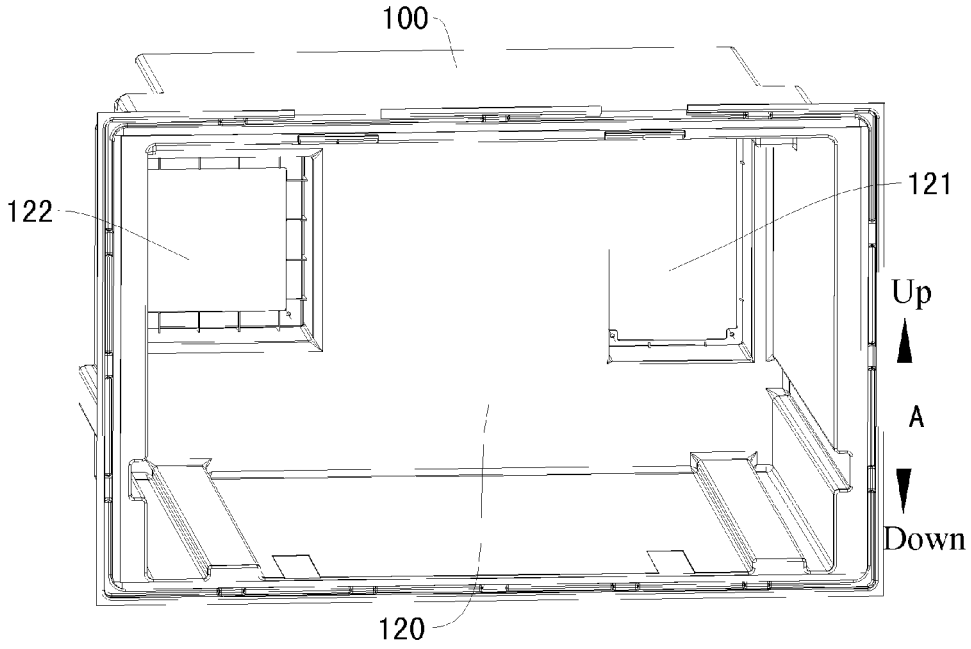

Fig. 4

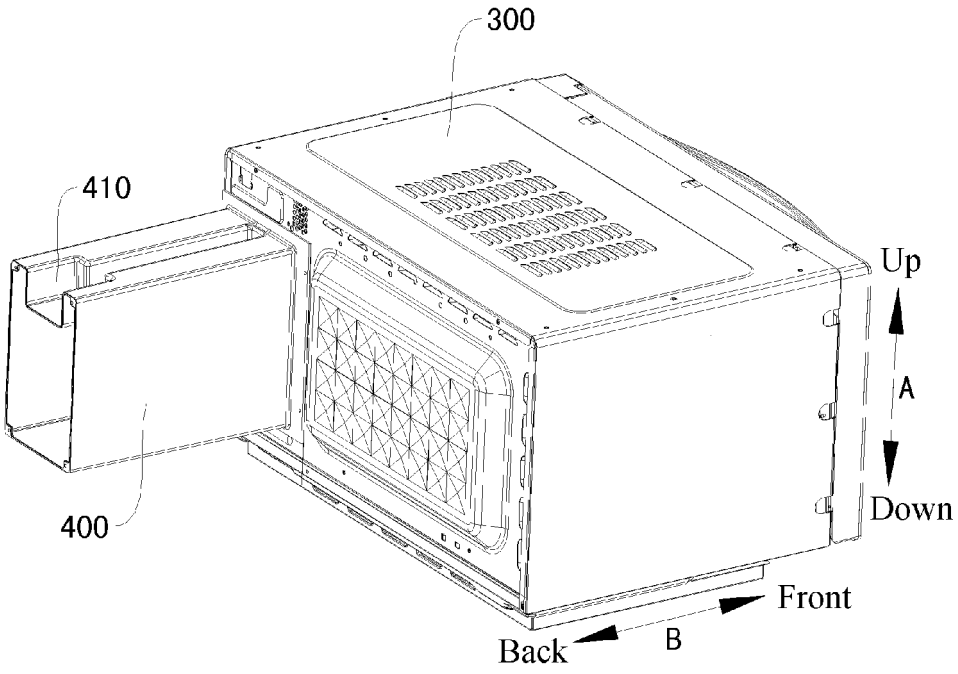

Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2014/071261

A. CLASSIFICATION OF SUBJECT MATTER

F25D 23/12 (2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F25D 23; F25D 11; F24C 7; FI: F25D 23/12&R; F25D 23/12&S; F25D 23/12&T

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CPRSABS, DWPI, SIPOABS, CNKI; refrigerat+, cool+, microwave, oven, air, intake, inlet, outlet, midea, heat, line groove

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 1316638 A (GELANSHI ELECTRIC APPLIANCE INDUSTRY CO LTD, SHUNDE CITY) 10 October 2001 (10.10.2001) description, pages 1 and 2 and figures 1 and 2	1, 6-10
Y	CN 1316638 A (GELANSHI ELECTRIC APPLIANCE INDUSTRY CO LTD, SHUNDE CITY) 10 October 2001 (10.10.2001) description, pages 1 and 2 and figures 1 and 2	2-5
Y	JPS 56103104 U (TOKYO SHIBAURA ELECTRIC CO LTD) 12 August 1981 (12.08.1981) description, page 3, paragraph [0002] to page 4, paragraph [0002] and figures 1-3	2-5
PX	CN 103162490 A (HEFEI MIDEA ROYALSTAR REFRIGERATOR CO., LTD) 19 June 2013 (19.06.2013) claims 1-10	1-10

☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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"&"document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 April 2014	06 May 2014
Name and mailing address of the ISA/CN State Intellectual Property Office of the P. R. China No. 6, Xitucheng Road, Jimenqiao Haidian District, Beijing 100088, China Facsimile No. (86-10) 62019451	Authorized officer ZHANG, Linying Telephone No. (86-10) 62084194

Form PCT/ISA /210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2014/071261

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 203216187 U (HEFEI MEDIA REFRIGERATOR CO., LTD) 25 September 2013 (25.09.2013) claims 1-10	1-10
PX	CN 103090634 A (HEFEI MIDEA ROYALSTAR REFRIGERATOR CO., LTD) 08 May 2013 (08.05.2013) description, paragraphs [0020] to [0030] and figures 1 and 2	1-10
A	JPH 03204519 A (TOSHIBA KK) 06 September 1991 (06.09.1991) the whole document	1-10
A	CN 102927767 A (HEFEI MIDEA ROYALSTAR REFRIGERATOR CO., LTD) 13 February 2013 (13.02.2013) the whole document	1-10

Form PCT/ISA /210 (continuation of second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2014/071261

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 1316638 A	10 October 2001	None	
JP S56103104 U	12 August 1981	None	
CN 103162490 A	19 June 2013	None	
CN 203216187 U	25 September 2013	None	
CN 103090634 A	08 May 2013	None	
JP H03204519 A	06 September 1991	None	
CN 102927767 A	13 February 2013	None	

Form PCT/ISA /210 (patent family annex) (July 2009)