



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
05.04.2017 Bulletin 2017/14

(51) Int Cl.:
F25D 11/02^(2006.01)

(21) Application number: **14893550.5**

(86) International application number:
PCT/CN2014/092413

(22) Date of filing: **28.11.2014**

(87) International publication number:
WO 2015/180437 (03.12.2015 Gazette 2015/48)

(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

- **YU, Guoxin**
Qingdao
Shandong 266101 (CN)
- **ZHANG, Weiyang**
Qingdao
Shandong 266101 (CN)
- **WANG, Aimin**
Qingdao
Shandong 266101 (CN)

(30) Priority: **26.05.2014 CN 201410222513**

(71) Applicant: **Haier Group Technique R&D Center**
Qingdao, Shandong 266101 (CN)

(74) Representative: **dompatent von Kreisler Selting**
Werner -
Partnerschaft von Patent- und Rechtsanwälten
mbB
Deichmannhaus am Dom
Bahnhofsvorplatz 1
50667 Köln (DE)

(72) Inventors:
• **DING, Enwei**
Qingdao
Shandong 266101 (CN)

(54) **REFRIGERATOR**

(57) There is provided a fridge, comprising: a fridge body, a refrigerating and circulating system and an air passage, wherein the fridge body comprises a refrigerating compartment and a dry article compartment, the dry article compartment comprises a barrel and a drawer drawably received in the barrel, and the barrel is provided with a dry article compartment air passage communicating with the air passage and an air door baffle mounted inside the dry article compartment air passage; the refrigerating and circulating system comprises a compressor, a condenser, a throttling member and an evaporator; the fridge further comprises a blower arranged inside the air passage, the blower is configured to blow cooled and dehumidified air to the refrigerating compartment and/or the dry article compartment, a joint between the barrel and the drawer is sealed by a sealing member so as to be isolated from external air, and the dry article compartment is not provided with an air discharging door. The dry article compartment of the fridge of the present invention only employs a single air door to control the sealing, which achieves good ventilation performance while improving the sealing performance of the dry article compartment.

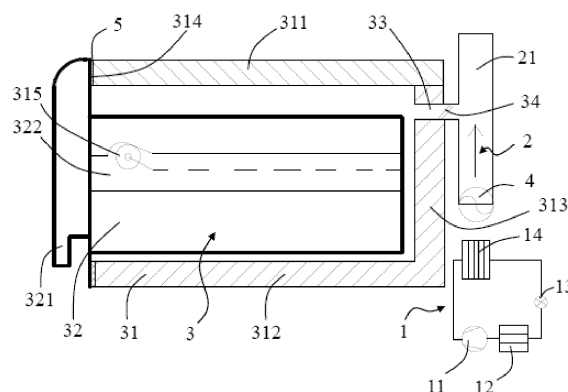


FIG. 1

Description

[0001] The present application claims the priority of the Chinese patent application No. 201410222513.7 filed on May 26, 2014 and with the title of "Fridge", which is incorporated herein in its entirety as reference.

TECHNICAL FIELD

[0002] The present invention is related to a fridge, which belongs to the field of electric home appliances.

BACKGROUND

[0003] To meet different temperature and humidity requirements, a refrigerating compartment of an existing fridge is provided with a separate dry article compartment whose temperature and humidity are usually different from those of the refrigerating compartment. Therefore, the dry article compartment should be independent and have good sealing performance.

[0004] Usually a sealed compartment structure needs air doors at the air inlet and the return air port to control air flow, so that good sealing and ventilation performance of the sealed compartment structure can be realized. However, the cost of a double air door structure is relatively high.

SUMMARY

[0005] The object of the present invention is to provide a dry article compartment having a single air door structure. When ventilation is not needed, the dry article compartment can have good sealing performance; and when ventilation is needed, the dry article compartment can have good ventilation performance.

[0006] To realize the above object, the present invention adopts the following technical solutions. There is provided a fridge, comprising: a fridge body, a refrigerating and circulating system and an air passage, wherein the fridge body comprises a refrigerating compartment and a dry article compartment, the dry article compartment comprises a barrel and a drawer drawably received in the barrel, and the barrel is provided with a dry article compartment air passage communicating with the air passage and an air door baffle mounted inside the dry article compartment air passage; the refrigerating and circulating system comprises a compressor, a condenser, a throttling member and an evaporator; the fridge further comprises a blower arranged inside the air passage, the blower is configured to blow cooled and dehumidified air to the refrigerating compartment and/or the dry article compartment, a joint between the barrel and the drawer is sealed by a sealing member so as to be isolated from external air, and the dry article compartment is not provided with an air discharging door.

[0007] As an improvement of the present invention, the drawer is provided with a handle, the joint is an end face

on the barrel close to the handle, and the sealing member is a sealing strip and is provided on the end face.

[0008] As a further improvement of the present invention, the sealing strip is a silica gel sealing strip.

5 [0009] As a yet further improvement of the present invention, two side walls of the dry article compartment are respectively provided with rollers, two sides of the drawer are respectively provided with inclined slide rails for receiving the rollers, and the drawer is closed when sliding along the inclined slide rails.

10 [0010] As a yet further improvement of the present invention, a tail end of the inclined slide rail is provided with a clearance so that the drawer tightly presses the dry article compartment by means of the self weight of the drawer and of an article placed in the drawer.

15 [0011] As a yet further improvement of the present invention, the air passage is sealed.

20 [0012] As a yet further improvement of the present invention, the dry article compartment and the air door baffle form an independent system which does not communicate with the refrigerating compartment.

25 [0013] As a yet further improvement of the present invention, ventilation of the dry article compartment is carried out by an assembling clearance between the barrel and the drawer.

30 [0014] Compared with the prior arts, the dry article compartment of the fridge of the present invention employs a single door structure, can achieve good sealing performance when it does not need ventilation, and can achieve good ventilation performance when it needs ventilation.

BRIEF DESCRIPTION OF THE DRAWINGS

35 [0015]

Fig. 1 is a schematic view of a fridge according to the present invention;

40 Fig. 2 is a schematic view of Fig. 1 seen from another view.

DETAILED DESCRIPTION

45 [0016] Referring to Figs. 1-2, the present invention discloses a fridge comprising a fridge body (not shown in the figures), a refrigerating and circulating system 1 and an air passage 2. The fridge body comprises a refrigerating compartment 6 and a dry article compartment 3, wherein the dry article compartment 3 comprises a barrel 31 and a drawer 32 drawably received in the barrel 31. The barrel 31 is provided with a dry article compartment air passage 33 communicating with the air passage 2 and an air door baffle 34 mounted inside the dry article compartment air passage 33. The refrigerating and circulating system 1 comprises a compressor 11, a condenser 12, a throttling member 13 and an evaporator 14. The fridge further comprises a blower 4 arranged inside

the air passage 2. The blower 4 is configured to blow the air cooled and dehumidified by the evaporator 14 to the refrigerating compartment 6 and/or the dry article compartment 3. The dry article compartment 3 is substantially sealed. A joint between the barrel 31 and the drawer 32 is sealed by a sealing member 5 so as to be isolated from external air. The dry article compartment 3 is not provided with an air discharging door.

[0017] The barrel 31 is substantially in the shape of a cuboid, and comprises a top wall 311, a bottom wall 312, two side walls and a rear wall 313. In the embodiment shown in the figures of the present invention, the dry article compartment air passage 33 passes through the rear wall 313, and the air door baffle 34 is mounted on the rear wall 313.

[0018] The drawer 32 is provided with a handle 321, the joint is an end face 314 on the barrel 31 close to the handle 321, and the sealing member 5 is a sealing strip and is provided on the end face 314. Preferably, the sealing strip is a silica gel sealing strip.

[0019] Two side walls of the dry article compartment 3 are respectively provided with rollers 315, two sides of the drawer 32 are respectively provided with inclined slide rails 322 for receiving the rollers 315, and the drawer 32 is closed when sliding along the inclined slide rails 322. When closed, the drawer 32 is sealed by the sealing member 5.

[0020] A tail end of the inclined slide rail 322 is provided with a clearance, so that the drawer 32 tightly presses the dry article compartment 3 by means of the self weight of the drawer 32 and of an article placed in the drawer 32, and air tightness between the dry article compartment 3 and external compartments is guaranteed by means of the sealing member 5.

[0021] As shown in Fig. 2, the air passage 2 is closed and is provided with a refrigerating compartment air passage 21 communicating with the refrigerating compartment 6 and connected in parallel with the dry article compartment 3. An air door baffle is not provided between a front end of the dry article compartment 3 and the blower 4. It should be noted that the "front end" mentioned in the previous content is defined by the air flow direction in the air passage 2. The closer the air is to the blower, the closer the air is to the front end.

[0022] The dry article compartment 3 and the air door baffle 34 form an independent system which does not communicate with the refrigerating compartment 6.

[0023] When in use, the ventilation manner of the fridge of the present invention is as below.

[0024] When the air door baffle 34 is opened, the cooled and dehumidified air passes through the blower 4 and is blown into the refrigerating compartment 3 and/or the dry article compartment 6. As dry air enters, the refrigerating compartment 3 maintains a positive pressure. The ventilation of the refrigerating compartment 3 is realized mainly through two ways. First, under a positive pressure, the ventilation is realized by means of the assembling clearance between the barrel 31 and the drawer

32. Second, as the drawer 32 is naturally closed and sealed under the action of the weight of the articles stored in the drawer, under a positive pressure, the ventilation is realized by means of the clearance between the drawer 32 and the refrigerating compartment 3.

[0025] Compared with the prior arts, the dry article compartment 3 of the fridge of the present invention only employs an air inlet door, without an air discharging door, reduces the cost, and achieves good ventilation performance while improving its sealing performance by means of a clearance.

[0026] It should be noted that the above embodiments are only intended to explain rather than limit the technical solutions of the present invention. Although the present invention has been described in detail with reference to the above embodiments of the present description, those skilled in the art shall understand that they may make modifications or equivalent substitutions to the present invention, and all the technical solutions and their improvements not departing from the spirit and scope of the present invention shall be included in the scope of the claims of the present invention.

Claims

1. A fridge, comprising a fridge body, a refrigerating and circulating system and an air passage, wherein the fridge body comprises a refrigerating compartment and a dry article compartment, the dry article compartment comprises a barrel and a drawer drawably received in the barrel, and the barrel is provided with a dry article compartment air passage communicating with the air passage and an air door baffle mounted inside the dry article compartment air passage; the refrigerating and circulating system comprises a compressor, a condenser, a throttling member and an evaporator; and the fridge further comprises a blower arranged inside the air passage, the blower is configured to blow cooled and dehumidified air to the refrigerating compartment and/or the dry article compartment, the fridge being **characterized in that**: a joint between the barrel and the drawer is sealed by a sealing member so as to be isolated from external air, and the dry article compartment is not provided with an air discharging door.
2. The fridge of claim 1, wherein the drawer is provided with a handle, the joint is an end face on the barrel close to the handle, and the sealing member is a sealing strip and is provided on the end face.
3. The fridge of claim 2, wherein the sealing strip is a silica gel sealing strip.
4. The fridge of claim 1, wherein two side walls of the dry article compartment are respectively provided with rollers, two sides of the drawer are respectively

provided with inclined slide rails for receiving the rollers, and the drawer is closed when sliding along the inclined slide rails.

5. The fridge of claim 4, wherein a tail end of the inclined slide rail is provided with a clearance so that the drawer tightly presses the dry article compartment by means of the self weight of the drawer and of an article placed in the drawer. 5
- 10
6. The fridge of claim 1, wherein the air passage is sealed.
- 15
7. The fridge of claim 1, wherein the dry article compartment and the air door baffle form an independent system which does not communicate with the refrigerating compartment.
- 20
8. The fridge of any of claims 1-7, wherein ventilation of the dry article compartment is carried out by an assembling clearance between the barrel and the drawer.

25

30

35

40

45

50

55

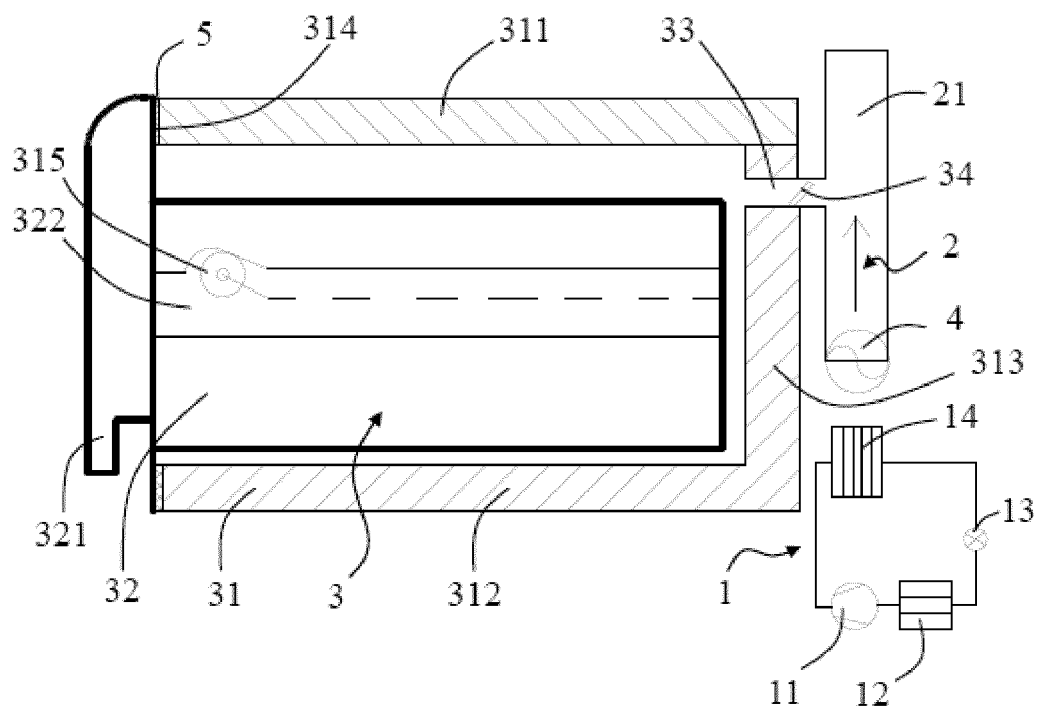


FIG. 1

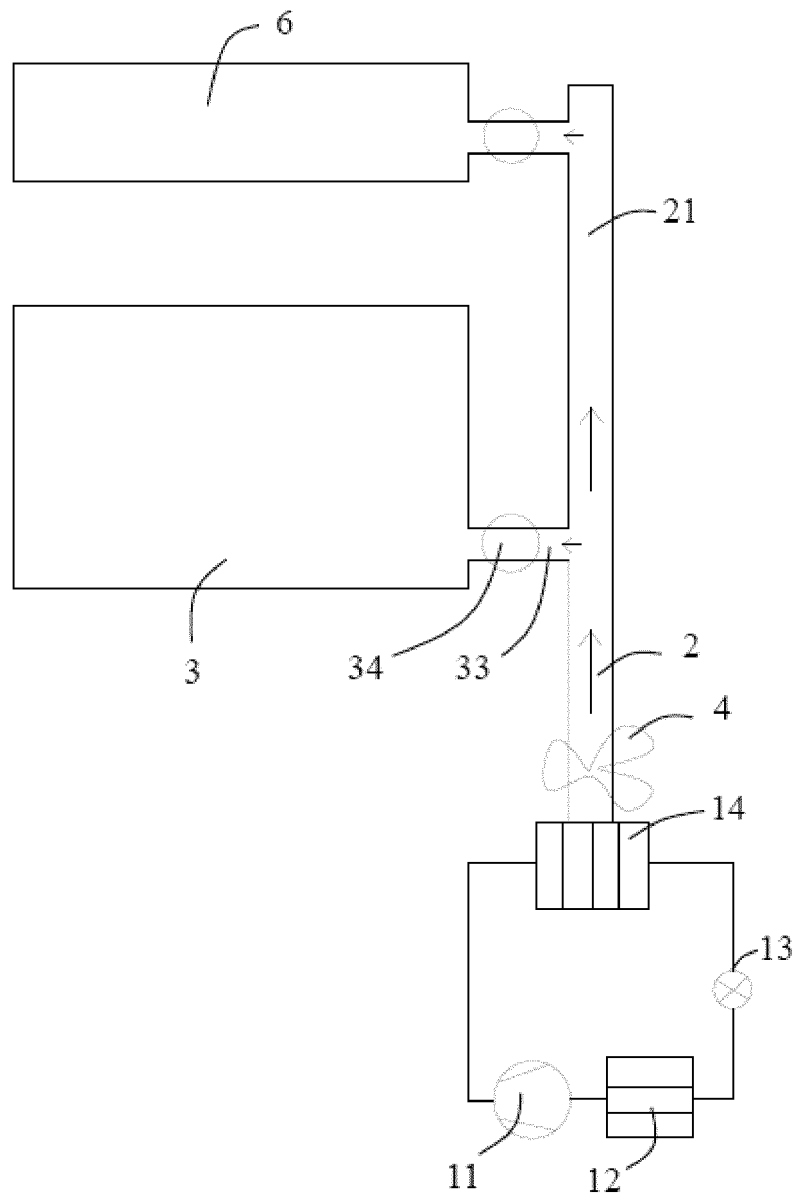


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2014/092413

A. CLASSIFICATION OF SUBJECT MATTER

F25D 11/02 (2006.01) i

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F25D

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)

CNTXT, CNKI, VEN: refrigerator, dry, dehumidifi+, compartment, flow, damper, drawer, seal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 203190740 U (MATSUSHITA ELECTRIC IND CO., LTD.) 11 September 2013 (11.09.2013) description, paragraphs [0038] to [0105], and figures 1-14	1-8
A	CN 202547233 U (SUZHOU SAMSUNG ELECTRONICS CO) 21 November 2012 (21.11.2012) the whole document	1-8
A	JP 2004150733 A (TOKYO ELECTRIC POWER CO) 27 May 2004 (27.05.2004) the whole document	1-8
A	JP 2009287817 A (HITACHI APPLIANCES INC.) 10 December 2009 (10.12.2009) the whole document	1-8

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

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
06 February 2015Date of mailing of the international search report
05 March 2015Name 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

YANG, Fei

Telephone No. (86-10) 62084199

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2014/092413

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN 203190740 U	11 September 2013	None	
CN 202547233 U	21 November 2012	None	
JP 2004150733 A	27 May 2004	None	
JP 2009287817 A	10 December 2009	None	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- CN 201410222513 [0001]