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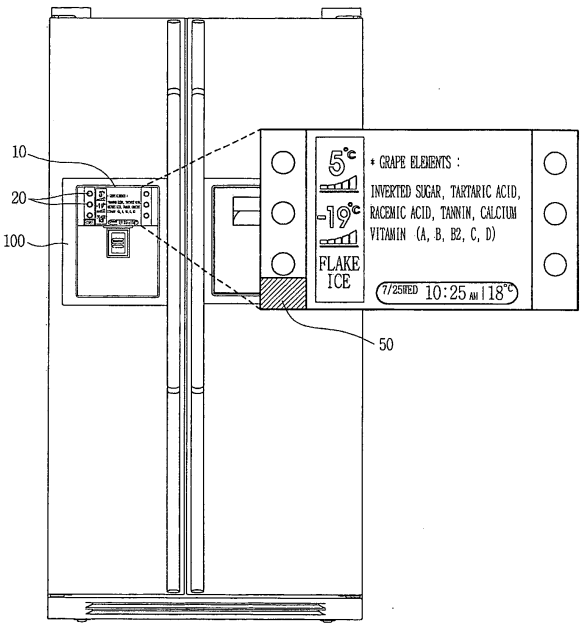
(54) Refrigerator with up to date information supply apparatus

(57) The present invention discloses a live information supply apparatus of a refrigerator (100) which can supply live information relating to food taken out by a user to the user. The live information supply apparatus of the refrigerator includes a reading means (50) for reading food information from RFID on food stored in the refrigerator and/or a packing sheet and/or a container, a storing means (40) for storing various food information and living information corresponding to the food information, a display means (10) for displaying living information, and a microcomputer (60) for reading the living information corresponding to the food information of the reading means from the storing means, and displaying the living information on the display means.

FIG.3



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Description

TECHNICAL FIELD

[0001] The present invention relates to a living information supply apparatus of a refrigerator, and more particularly, to a living information supply apparatus of a refrigerator which can supply living information relating to food taken out by a user to the user.

BACKGROUND ART

[0002] A conventional refrigerator includes a display unit for supplying information on the refrigerator and controlling the refrigerator, such as an LCD panel. A user interface is displayed through the display unit. The user interface displays a temperature inside a refrigerating chamber, a temperature inside a freezing chamber and a service type of a dispenser (water, flake ice, etc.) in the form of numbers, characters or icons. The display unit includes an input unit (for example, buttons) for controlling the temperature inside the refrigerator and the service of the dispenser.

[0003] Fig. 1 is a structure diagram illustrating the display unit of the conventional refrigerator. Referring to Fig. 1, the display unit displays the service type of the dispenser (cubic ice, water, flake ice), a set temperature of the freezing chamber and a set temperature of the refrigerating chamber, and includes an input means at its lower portion.

[0004] The conventional refrigerator does not supply living information relating to foods to the user.

DISCLOSURE OF THE INVENTION

[0005] The present invention is achieved to solve the above problems. An object of the present invention is to provide a living information supply apparatus of a refrigerator which can supply living information corresponding to food to a user.

[0006] Another object of the present invention is to provide a living information supply apparatus of a refrigerator which checks food taken out by a user through RFID and offers convenience to the user.

[0007] Yet another object of the present invention is to provide a living information supply apparatus of a refrigerator which can rapidly supply living information to a user by performing data communication with an external server.

[0008] In order to achieve the above-described objects of the invention, there is provided a living information supply apparatus of a refrigerator, including: a reading means for reading food information from RFID on food stored in the refrigerator and/or a packing sheet and/or a container; a storing means for storing various food information and living information corresponding to the food information; a display means for displaying living information; and a microcomputer for reading the living information corresponding to the food information of the reading means from the storing means, and displaying the living information on the display means.

[0009] Preferably, the reading means is installed in the refrigerator.

[0010] Preferably, the microcomputer receives the food information from the reading means, and displays the living information on the display means after reception of the food information.

[0011] Preferably, the reading means reads the RFID at predetermined intervals.

[0012] Preferably, the reading means is installed on the front surface of the refrigerator, for reading the RFID taken out from the refrigerator.

[0013] Preferably, the living information supply apparatus of the refrigerator further includes a communication means for performing data communication with an external information server through an external network.

[0014] Preferably, the microcomputer transmits the food information to the external information server through the communication means, receives living information corresponding to the food information from the external information server, and displays the living information on the display means.

[0015] Preferably, the living information includes information on the food itself and/or information relating to other foods.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The present invention will become better understood with reference to the accompanying drawings which are given only by way of illustration and thus are not limitative of the present invention, wherein:

Fig. 1 is a structure diagram illustrating a display unit of a conventional refrigerator;

Fig. 2 is a block diagram illustrating a living information supply apparatus of a refrigerator in accordance with the present invention; and

Figs. 3 and 4 are structure diagrams illustrating installation examples of an RFID reading means of Fig. 2.

BEST MODE FOR CARRYING OUT THE INVENTION

[0017] The present invention will now be described in detail on the basis of preferred embodiments and accompanying drawings. However, it is recognized that the scope of the present invention should not be limited to these embodiments and drawings but to the claims as hereinafter recited.

[0018] Fig. 2 is a block diagram illustrating a living information supply apparatus of a refrigerator in accordance with the present invention. As illustrated in Fig. 2, the refrigerator 100 includes the living information supply apparatus comprised of a display means 10 for displaying living information relating to food, an input means 20 for

receiving a command from a user, a communication means 30 for performing data communication through an internet 200, a storing means 40 for storing food information and living information corresponding to the food information, a reading means 50 for reading the food information from external RFID, and a microcomputer 60 for reading the food information, and searching and displaying the living information corresponding to the food information by controlling the aforementioned elements. The refrigerator 100 can further include a main microcomputer (not shown) for performing freezing and refrigerating control. The main microcomputer and the microcomputer 60 are connected through a communication line for data communication. Otherwise, the refrigerator 100 performs freezing and refrigerating control by the microcomputer 60. In addition, the refrigerator 100 includes a power supply means (not shown) for supplying power to each element.

[0019] Preferably, the display means 10 is a color TFT LCD for displaying the user interface, the food information and the living information corresponding to the food information. The user interface can further display information on the state of the refrigerator (refer to Fig. 3).

[0020] The input means 20 receives commands from the user (for example, reading of RFID, selection of living information supply service, etc.). The input means 10 is related to the user interface displayed on the display means 10, and formed in a button or touch pad type.

[0021] The communication means 30 means a communication interface such as a wire/wireless modem for performing data communication between the microcomputer 60 of the refrigerator 100 and the internet 200. The communication means 30 can be installed inside or outside the refrigerator 100.

[0022] The storing means 40 stores the user interface displayed on the display means 10, the food information, and the living information corresponding to the food information. Here, the user interface includes at least frames for reading the RFID or selecting the living information supply service. Also, the food information includes at least a name (or kind) of food and can further include a production (or harvest) date, a producer, an original place and a price. The living information includes information on the food itself of the food information and/or information relating to other foods. In the case that the food is grape, the information on the food itself includes nutrient elements of the grape, a method for removing grape stains, an aromatherapy bathing method using grape peels, etc., and the information relating to other foods includes foods matching with the grape. For example, if pork matches with the grape, the information relating to other foods can include a recommended dinner menu containing pork.

[0023] The reading means 50 reads the food information stored in the RFID on the food and/or a packing sheet and/or a container. As identical to general reading of the RFID, the reading means 50 always maintains a reading ready state according to the control command from the microcomputer 60, reads the RFID at predetermined intervals, or receives the control command (corresponding to the reading command from the input means 20) from the microcomputer 60 and reads the RFID for a predetermined time. Supply of the living information by the reading operation of the reading means 50 according to the installation position thereof will later be explained in detail.

[0024] The microcomputer 60 displays the user interface through the display means 10, obtains input for selection of the living information supply service from the input means 20, and supplies the living information. Accordingly, the reading means 50 reads the food information stored in the RFID by the reading process, and transmits the food information to the microcomputer 60. The microcomputer 60 searches the living information corresponding to the food information from the storing means 40, and displays the living information through the display means 10.

[0025] In case the microcomputer 60 fails to search the living information from the storing means 40 or intends to update the previously-stored living information in the storing means 40, the microcomputer 60 transmits the food information to an external information server 300 through the internet 200. The microcomputer 60 receives the living information or the updated living information from the external information server 300 through the communication means 30, stores the living information in the storing means 40, and displays the living information through the display means 10.

[0026] The internet 200 must be recognized as a collected conception including all constitutional elements for broadband and/or local area network communication such as a network using a TCP/IP protocol (for example, internet service provider servers, etc.).

[0027] The external information server 300 includes a database (not shown) for storing the living information corresponding to the food information. The living information is continuously updated by a manager. The external information server 300 receives the food information through the internet 200, searches the living information corresponding to the food information from the database, and transmits the searched living information to the refrigerator 100 through the internet 200.

[0028] Figs. 3 and 4 are structure diagrams illustrating installation examples of the RFID reading means of Fig. 2.

[0029] As shown in Fig. 3, the reading means 50 can be installed near the display means 10 (on the front surface of the refrigerator 100). When the user takes out the food from the refrigerator 100, if the user positions the food and/or the packing sheet and/or the container near the reading means 50, the reading means 50 reads the food information from the RFID and transmits the food information to the microcomputer 60. As described above, the microcomputer 60 searches the living information corresponding to the food information, and displays the living information on the display means 10.

[0030] Here, when the user inputs the reading command of the reading means 50 through the input means 20, the microcomputer 60 can directly display the living information corresponding to the food information read by the reading means 50. Without the input process, the microcomputer 60 checks input/output of the food and decides the display time of the living information. That is, the microcomputer 60 always sets the reading means 50 in the reading ready state. When the user puts the food into the refrigerator 100 or takes out the food from the refrigerator 100, the user makes the RFID read. In the first input of the food, the reading number of the food information becomes '1', and in the first output of the food, the reading number of the same food information becomes '2'. Therefore, when the reading number of the food information is an even number, the microcomputer 60 recognizes output of the food from inside of the refrigerator 100 and displays the living information on the display means 10.

[0031] As depicted in Fig. 4, the reading means 50 can be installed on one side surface 100a in the refrigerator 100. The microcomputer 60 controls the reading means 50 to read the RFID put into the refrigerator 100 at predetermined intervals. The microcomputer 60 compares the food information read in the first reading with the food information read in the second reading, decides output of the food having the non-read information (the food whose food information has been read by the reading means 50 and received by the microcomputer 60), searches the living information of the food corresponding to the food information, and displays the living information on the display means 10.

[0032] Here, one or plural reading means 50 can be installed on the side surfaces and/or the top surface and/or the bottom surface of the refrigerator 100.

[0033] As discussed earlier, in accordance with the present invention, the living information supply apparatus of the refrigerator supplies the living information corresponding to the food, so that the user can obtain the processing information of the food and the information relating to other foods.

[0034] In addition, the living information supply apparatus of the refrigerator checks the food taken out by the user through the RFID and supplies the living information to the user.

[0035] Furthermore, the living information supply apparatus of the refrigerator rapidly supplies new living information to the user by data communication with the external server.

[0036] Although the preferred embodiments of the present invention have been described, it is understood that the present invention should not be limited to these preferred embodiments but various changes and modifications can be made by one skilled in the art within the spirit and scope of the present invention as hereinafter claimed.

Claims

1. A living information supply apparatus of a refrigerator, comprising:

   a reading means for reading food information from RFID on food stored in the refrigerator and/or a packing sheet and/or a container;
   a storing means for storing various food information and living information corresponding to the food information;
   a display means for displaying a living information; and
   a microcomputer for reading the living information corresponding to the food information of the reading means from the storing means, and displaying the living information on the display means.

2. The living information supply apparatus of claim 1, wherein the reading means is installed in the refrigerator.

3. The living information supply apparatus of claim 2, wherein the microcomputer receives the food information from the reading means, and displays the living information on the display means after reception of the food information.

4. The living information supply apparatus of claim 3, wherein the reading means reads the RFID at predetermined intervals.

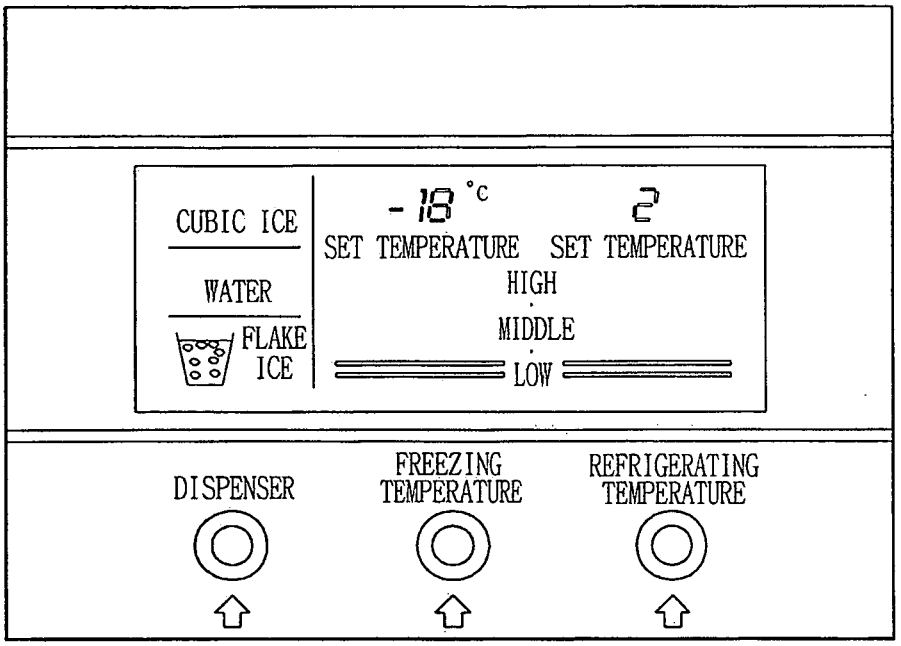
5. The living information supply apparatus of claim 1, wherein the reading means is installed on the front surface of the refrigerator, for reading the RFID taken out from the refrigerator.

6. The living information supply apparatus of claim 1, further comprising a communication means for performing data communication with an external information server through an external network.

7. The living information supply apparatus of claim 6, wherein the microcomputer transmits the food information to the external information server through the communication means, receives living information corresponding to the food information from the external information server, and displays the living information on the display means.

8. The living information supply apparatus of any one of claims 1 to 7, wherein the living information comprises information on the food itself and/or information relating to other foods.

FIG.1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FLAKE ICE
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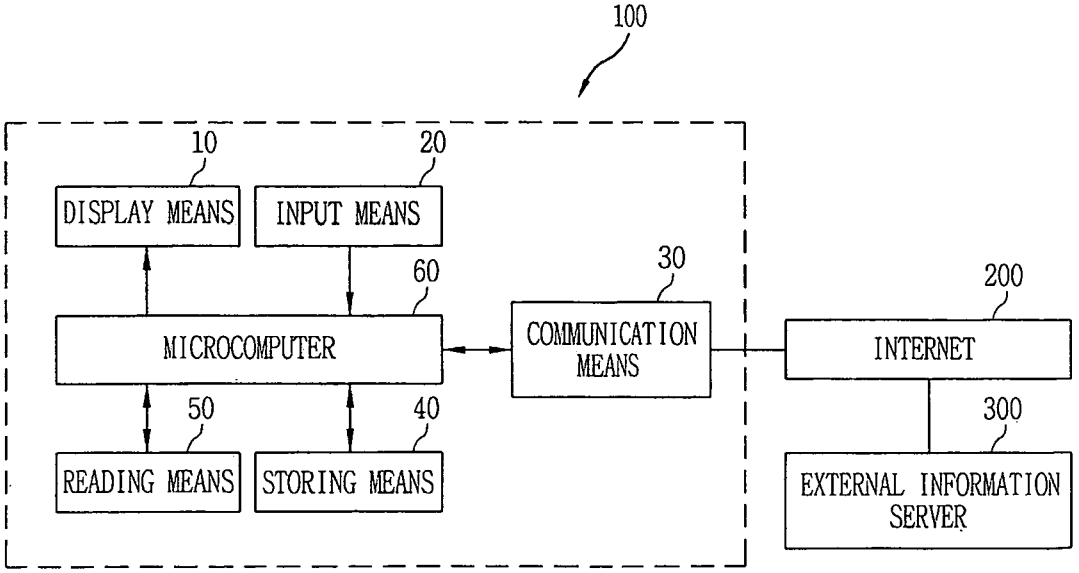
SET TEMPERATURE
HIGH
MIDDLE
LOW
DISPENSER
FREEZING TEMPERATURE
REFRIGERATING TEMPERATURE

FIG.2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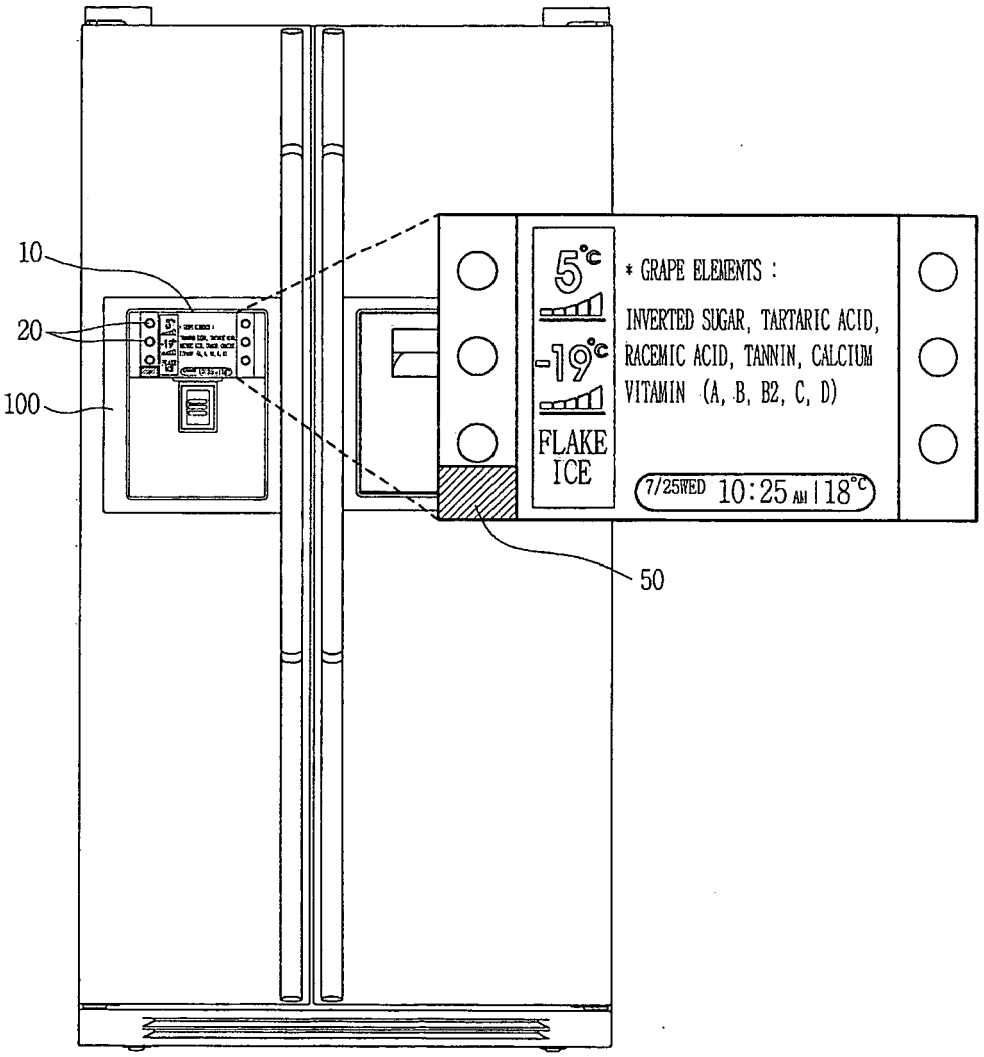
10
DISPLAY MEANS
20
INPUT MEANS
60
MICROCOMPUTER
30
COMMUNICATION MEANS
200
INTERNET
50
READING MEANS
40
STORING MEANS
300
EXTERNAL INFORMATION SERVER

FIG.3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20
100
50
5℃
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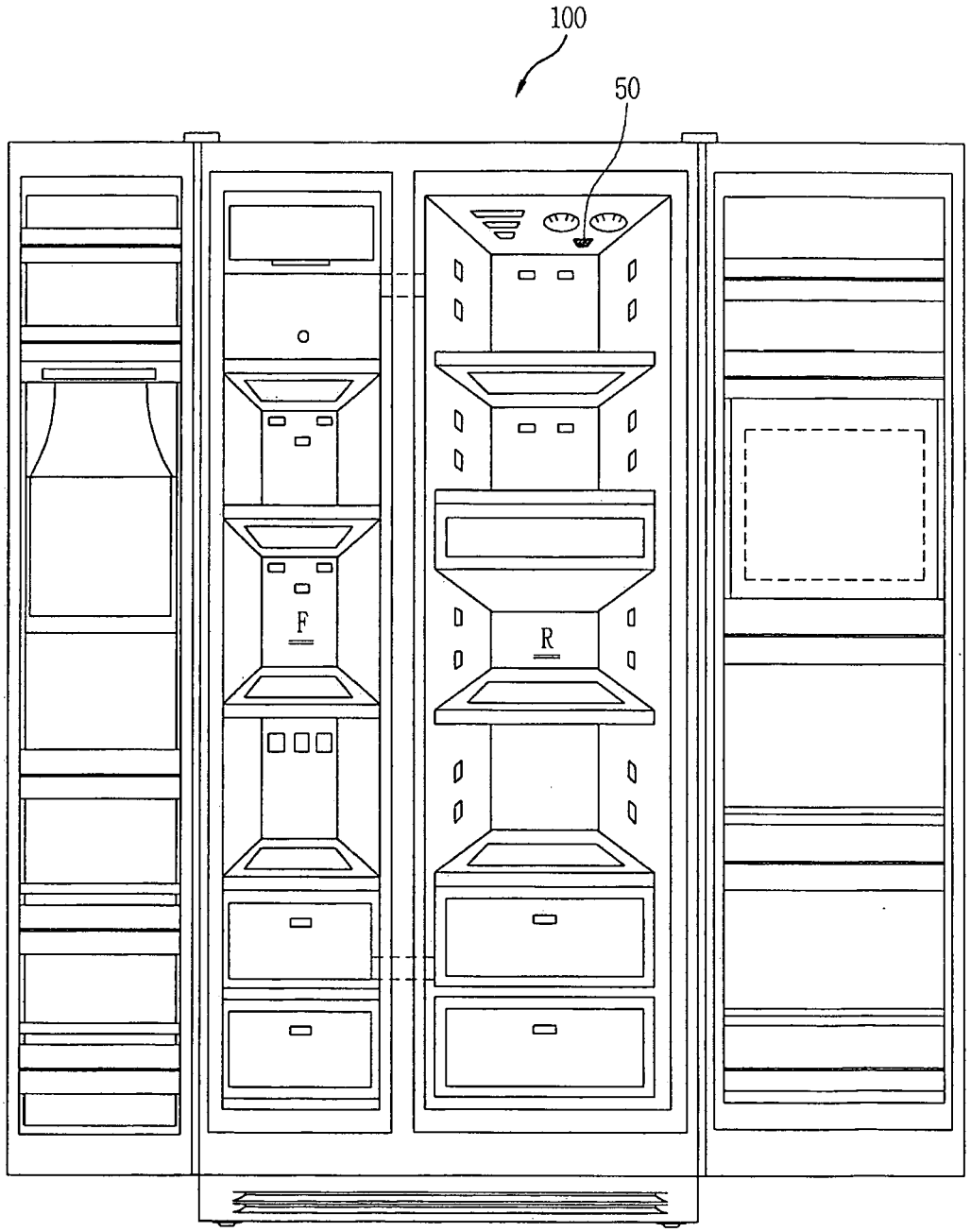
FLAKE ICE
* GRAPE ELEMENTS :
INVERTED SUGAR, TARTARIC ACID,
RACEMIC ACID, TANNIN, CALCIUM
VITAMIN (A, B, B2, C, D)
7/25WED 10:25 AM | 18℃

FIG.4



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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 0688

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	11 September 2006	de Graaf, Jan Douwe

CATEGORY OF CITED DOCUMENTS

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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 0688

DOCUMENTS CONSIDERED TO BE RELEVANT

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The present search report has been drawn up for all claims

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The Hague	11 September 2006	de Graaf, Jan Douwe

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 01 0688

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