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(54) **REFRIGERATOR WITH WIRELESS COMMUNICATION FUNCTION**

KÜHLSCHRANK MIT DRAHTLOSER KOMMUNIKATIONSFUNKTION

RÉFRIGÉRATEUR DOTÉ D'UNE FONCTION DE COMMUNICATION SANS FIL

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Description

Technical Field

[0001] The present invention relates to a refrigerator with a wireless communication junction which can receive data and information by a wireless signal.

Background Art

[0002] In general, a refrigerator is an apparatus for keeping the food fresh for an extended period of time. The refrigerator includes a freezing chamber for freezing the food, a refrigerating chamber for refrigerating the food, and a freezing cycle for cooling the freezing chamber and the refrigerating chamber. The operation of the refrigerator is controlled by a built-in control unit.

[0003] The refrigerator is the most basic widely-used core element of a kitchen space. The refrigerator has been gradually enlarged in size due to increase of consumption and influence of the western life style.

[0004] Nowadays, the kitchen space is not simply a space for eating, but a living space for eating and conversation of family members. It is thus necessary to change the refrigerator which is the core element of the kitchen space in quality and quantity with the size enlargement, so that the family members can easily use the refrigerator.

[0005] The multimedia tendency of electronic products has been accelerated with the rapid development of information and communication technologies. It is expected that the electric home appliances will perform not one or two functions but associated functions.

[0006] For example, if a computer is coupled to the refrigerator and a liquid crystal display (LCD) is adhered to a refrigerator door, the user can watch TV and enjoy the internet by accessing a web site.

[0007] The LCD installed on the refrigerator door can display not only the current temperature and operation state of the refrigerator but also the keeping state of the food, nutrition information and cooking information.

[0008] Accordingly, in order to satisfy various demands of the user, the refrigerator is required to receive various multimedia data through a wireless communication network and provide the data to the user.

[0009] US 2001/0010516 discloses an internet refrigerator and method of operating the same. The internet refrigerator includes a refrigerator control section, a touch panel, a remote controller, a display section, a main control section, a communication control section and a modem. WO 98/44477 discloses a wireless annunciator with advertising display. The annunciator includes visual display, wireless receiving circuitry, and hardware and/or software for maintaining the selected information in the display. Both documents disclose a refrigerator according to the preamble of claim 1, wherein the selection is not directly connected to the TV reception device.

Disclosure of Invention

[0010] The present invention is achieved to solve the above problems. An object of the present invention is to provide a refrigerator with a wireless communication function which can select and receive multimedia data through a wireless communication network.

[0011] Another object of the present invention is to provide a refrigerator with a wireless communication function which can select and receive a TV signal and multimedia data, so that the user can watch TV or multimedia.

[0012] Yet another object of the present invention is to provide a refrigerator with a wireless communication function which can wirelessly receive a playback signal from an external multimedia apparatus, and output the playback signal.

[0013] In order to achieve the above-described objects of the invention, there is provided a refrigerator as set out in claim 1.

Brief Description of the Drawings

[0014] 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 front view illustrating a refrigerator with a wireless communication function in accordance with a first example outside the scope of the present invention;

Fig. 2 is a block diagram illustrating the refrigerator of Fig. 1 ;

Fig. 3 is a flowchart showing the operation of the refrigerator of Fig. 1 ;

Fig. 4 is a front view illustrating a refrigerator with a wireless communication function in accordance with an embodiment of the present invention;

Fig. 5 is a block diagram illustrating the refrigerator of Fig. 4;

Fig. 6 is a flowchart showing the operation of the refrigerator of Fig. 4;

Fig. 7 is a front view illustrating a refrigerator with a wireless communication function in accordance with a second example outside the scope of the present invention; and Fig. 8 is a block diagram illustrating the refrigerator of Fig. 7.

Mode for the Invention

[0015] A refrigerator with a wireless communication function in accordance with the preferred embodiments of the present invention as well as illustrative examples outside the scope of the present invention as claimed will now be described in detail with reference to the accompanying drawings.

[0016] Fig. 1 is a front view illustrating a refrigerator with a wireless communication function in accordance

with a first example outside the scope of the present invention, and Fig. 2 is a block diagram illustrating the refrigerator of Fig. 1.

[0017] Referring to Figs. 1 and 2, in the refrigerator with the wireless communication function, a freezing chamber door 2 and a refrigerating chamber door 4 are hinge-coupled to a refrigerator main body (not shown) having a freezing chamber and a refrigerating chamber at both sides, an ice supply device 6 for supplying ice or cold water is installed on the freezing chamber door 2, and a home bar 8 for easily supplying beverages is installed on the refrigerating chamber door 4.

[0018] A freezing cycle (not shown) consisting of a compressor, a condenser, a capillary tube or an electronic expansion valve, and an evaporator is built in one side of the refrigerator main body. A cool air circulation fan (not shown) is provided to supply the cool air heat-exchanged in the evaporator side to the freezing chamber or the refrigerating chamber. The whole components are operated by a control unit 18 for controlling the operation of the refrigerator.

[0019] A display 10 for controlling the operation of the refrigerator and displaying the operation state of the refrigerator is installed at the upper portion of the ice supply device 6. A reception module 20 for wirelessly receiving multimedia data, namely, a wireless signal through a communication network A is installed on the top surface of the refrigerator main body. The reception module 20 stores the received multimedia data in the control unit 18, or plays back the data through the display 10.

[0020] The multimedia data are formed by combining the associated data such as characters, images, graphics, audio and video. At least two kinds of multimedia data can be selected, edited and outputted as the wanted information of the user.

[0021] In detail, the display 10 includes a selection means 12 for deciding reception of the multimedia data using the reception module 20, and a display means 14 for displaying the multimedia data related information.

[0022] The selection means 12 can be formed in a button or touch screen type. The selection means 12 includes an input unit which is a kind of button for receiving the reception decision of the multimedia data, and can further include a search keyboard for searching for the multimedia data.

[0023] The display means 14 includes an LCD monitor for displaying information of the multimedia data, and playing back an image signal of the multimedia data, and a speaker for playing back an audio signal of the multimedia data. The operation of the display means 14 is controlled by the control unit 18, for displaying a menu for displaying the information of the multimedia data and controlling playback of the multimedia data.

[0024] In addition, the selection means 12 includes buttons for controlling the operation of the refrigerator, and the display means 14 displays the operation state of the refrigerator by the control unit 18.

[0025] The reception module 20 receives a wireless

signal from a multimedia data supply server through the wireless communication network A. Here, the reception module 20 receives the wireless signal of the air, extracts the multimedia data from the wireless signal, and transfers the multimedia data to the control unit 18.

[0026] Preferably, in addition to an antenna for receiving the wireless signal, the reception module 20 includes a decoder for converting the wireless signal into the multimedia data recognizable by the control unit 18, and a storing means 16 for storing the multimedia data, or a communication unit for communicating with the control unit 18.

[0027] That is, the reception module 20 can be formed as a relatively small printed circuit board (not shown) on which the antenna (not shown), a plurality of chipsets and electronic components have been installed. Although the printed circuit board is built in, the antenna is exposed to the top surface of the refrigerator main body, for easily receiving the wireless signal of the air.

[0028] The control unit 18 receives the user input from the selection means 12, transmits the multimedia data through the reception module 20, and stores the multimedia data in the storing means 16. The storing means 16 can be formed in the control unit 18.

[0029] The control unit 18 displays the information of the multimedia data such as a name, capacity, etc. in each list through the display means 14, or plays back the image information and sound information of the multimedia data through the display means 14.

[0030] The control unit 13 can be formed as part of a main control unit (not shown) for controlling the operation of the refrigerator, or comprised of a driving circuit (not shown) for receiving power from the main control unit, a communication unit (not shown) for receiving the multimedia data by wire/wireless communication with the reception module 20, a memory (not shown) which is the storing means 16 for storing the multimedia data from the communication unit, and an output conversion unit (not shown) for converting the multimedia data into information data or playback data.

[0031] The control unit 18 is built in one side of the refrigerator main body to be wire or wireless-connected to the reception module 20 and wire-connected to the display means 14.

[0032] Fig. 3 is a flowchart showing the operation of the refrigerator of Fig. 1.

[0033] When reception of the multimedia data is selected, the multimedia data are received by the wireless communication, and stored (refer to S 1 and S2).

[0034] Here, reception of the multimedia data can be selected by the request of the user using the selection means 12. In addition, the reservation can be periodically set in the control unit 18 to automatically select reception of new multimedia data.

[0035] Accordingly, when reception of the multimedia data is selected, the control unit 18 receives the wireless signal of the air from the wireless communication network A by using the reception module 20, converts the wireless

signal into the multimedia data through a Codec, and stores the multimedia data in the storing means 16.

[0036] The multimedia data are formed by combining the associated data such as characters, images, graphics, audio and video. The representative example of the multimedia data is MP3 data containing at least character data and audio data.

[0037] The newly-received or previously-stored multimedia data are displayed in each list (refer to S3).

[0038] In the same manner, the multimedia data can be displayed in each list by the request of the user using the selection means 12. In addition, the reservation can be set in the control unit 18 to automatically display new multimedia data in each list.

[0039] The information of the multimedia data such as a name and a capacity is displayed in each list by characters on the LCD monitor of the display means 14.

[0040] When the user selects playback of the wanted multimedia data, the multimedia data are converted into playback data and outputted (refer to S4 and S5).

[0041] In detail, the user selects the multimedia related menu among the menus displayed on the display means 14, the user selects the specific multimedia data through the selection means 12, and plays back the multimedia data.

[0042] The user can search for the specific multimedia data through the selection means 12, and select and play back the multimedia data.

[0043] In order to play back the multimedia data, the control unit 18 converts the multimedia data into the playback data such as image data and sound data by using the Codec, and outputs the playback data through the display means 14. The user can listen to or watch the wanted multimedia data.

[0044] Fig. 4 is a front view illustrating a refrigerator with a wireless communication function in accordance with an embodiment of the present invention, and Fig. 5 is a block diagram illustrating the refrigerator of Fig. 4.

[0045] As illustrated in Figs. 4 and 5, in the refrigerator with the wire communication function, a freezing chamber door 22 and a refrigerating chamber door 24 are hinge-coupled to a refrigerator main body (not shown) having a freezing chamber and a refrigerating chamber at both sides, an ice supply device 26 for supplying ice or cold water is installed on the freezing chamber door 22, an operation panel 28 for controlling the operation of the refrigerator is installed at the upper portion of the ice supply device 26, and a TV-shaped output means 50 for enabling TV watching or playback of another multimedia is installed on the refrigerating chamber door 24.

[0046] A freezing cycle (not shown) consisting of a compressor, a condenser, a capillary tube or an electronic expansion valve, and an evaporator is built in one side of the refrigerator main body. A cool air circulation fan (not shown) is provided to supply the cool air heat-exchanged in the evaporator side to the freezing chamber or the refrigerating chamber. The whole components are operated by a control unit (not shown) for controlling the

operation of the refrigerator.

[0047] A TV reception device 40 is provided to selectively enable TV watching or multimedia playback through the output means 50. An external apparatus is connected to the TV reception device 40 through a signal transfer means 35, and a selection means 45 for selecting one of TV watching and multimedia playback is also connected to the TV reception device 40.

[0048] Exemplary external apparatuses include a cassette player, a CD player, an MP3 player, a video player and a DVD player. In this embodiment, it is presumed that the external apparatus is the MP3 player 30.

[0049] In detail, the MP3 player 30 can be detachably connected to the TV reception device 40 through the signal transfer means 35, or built in the refrigerator.

[0050] The MP3 player 30 includes a storing unit 31 for storing MP3 data and a Codec, a communication unit 32 for receiving a control command from the TV reception device 40, and a sound output unit 33 for converting the specific MP3 data into playback sound data by the Codec and outputting the sound data according to the control command received by the communication unit 32.

[0051] The MP3 player 30 has a terminal connected to the signal transfer means 35. In addition, the MP3 player 30 can convert the MP3 data into the sound data by the Codec and output the sound data, regardless of the control command of the TV reception device 40, by adding a data transmission related button (not shown).

[0052] The signal transfer means 35 enables the MP3 player 30 and the TV reception device 40 to recognize the mutual contact and transfer the control command, information data, and playback data such as sound data or image data to each other.

[0053] The signal transfer means 35 is divided into a first connection line (not shown) for transferring the control command from the TV reception device 40 to the MP3 player 30, and receiving the information data and contact recognition, and a second connection line (not shown) for transferring the playback data from the MP3 player 30 to the TV reception device 40.

[0054] The signal transfer means 35 is formed as a kind of cable. Terminals connected respectively to the MP3 player 30 and the TV reception device 40 are formed at both ends of the signal transfer means 35.

[0055] The TV reception device 40 includes an antenna (not shown) for receiving a TV signal which is a predetermined frequency band wireless signal of the air through a broadcasting communication network, and a TV control unit 41 for receiving and reproducing the TV signal.

[0056] The TV reception device 40 also includes an MP3 control unit 42 for transferring the control command by communication with the communication unit 32 of the MP3 player 30, an image output unit 43 for outputting image data to the output means 50, and a sound amplification unit 44 for amplifying sound data and outputting the sound data to the output means 50.

[0057] The TV reception device 40 can be formed as

a relatively small printed circuit board (not shown) on which the antenna (not shown), a plurality of chipsets and electronic components have been installed.

[0058] The selection means 45 includes a switch 46 connected to the TV reception device 40, for switching a TV junction into an MP3 player function by selection of the user, and a selection unit 47 for adjusting a channel and a volume and displaying or selecting the playback list by the operation of the user during the execution of the TV function or the MP3 function.

[0059] The switch 46 is connected to the TV control unit 41 and the MP3 control unit 42. When the switch 46 is turned on, the TV control unit 41 is turned off to stop the TV function, and the MP3 control unit 42 is turned on to operate the MP3 player function. When the switch 46 is turned off, the TV control unit 41 and the MP3 control unit 42 are conversely operated.

[0060] The selection means 45 can be buttons exposed to the output means 50, or a remote controller for performing long distance control.

[0061] The output means 50 is installed on the refrigerating chamber door 24, and connected to the TV reception device 40. The output means 50 includes a display 52 such as an LCD monitor for displaying an image, and a speaker 54 for outputting a sound.

[0062] The display 52 is connected to the image output unit 43, for reproducing the TV signal as an image, or displaying the information data and/or image data of the MP3 data, and the speaker 54 is connected to the sound amplification unit 44, for reproducing the TV signal as a sound, or displaying the sound data of the MP3 data. Fig. 6 is a flowchart showing the operation of the refrigerator or Fig. 4. First, power is supplied to operate the TV (refer to S11).

[0063] In more detail, when power is inputted to the TV reception device 40, the TV control unit 41 is turned on, but the MP3 control unit 42 is turned off.

[0064] Therefore, when the TV control unit 41 receives the specific frequency band wireless TV signal from the broadcasting communication network, and reproduces the wireless TV signal through the image output unit 43 and the sound amplification unit 44, the TV image is displayed on the display 52 and the TV sound is outputted through the speaker 54.

[0065] The channel, volume, etc. can be adjusted through the selection unit 47. The user can watch TV through the display 52 and the speaker 54 installed on the refrigerating chamber door 24.

[0066] While the TV is operated, if the switch 46 is operated to convert the TV function into the MP3 function, the control command is transferred to the MP3 player 30, and the information data of the MP3 data are received and outputted (refer to S 12, S 13 and S14).

[0067] After the MP3 player 30 is connected to the TV reception device 40 through the signal transfer means 35, when the switch 46 is operated, the TV function is converted into the MP3 function. Here, the TV reception device 40 recognizes connection the MP3 player 30

through the signal transfer means 35, and changes its function according to the operation of the switch 46. If the TV reception device 40 does not recognize connection of the MP3 player 30, even if the switch 46 is operated, the TV reception device 40 does not change its function.

[0068] In detail, when the TV reception device 40 recognizes connection of the MP3 player 30 through the signal transfer means 35, the MP3 control unit 42 of the TV reception device 40 transfers the control command to the communication unit 32 of the MP3 player 30. The communication unit 32 of the MP3 player 30 transfers the information data of the MP3 data stored in the storing unit 31 of the MP3 player 30 to the MP3 control unit 42 of the TV reception device 40.

[0069] The information data of the MP3 data received by the MP3 control unit 42 of the TV reception device 40, such as a name, a playback time and a capacity, is displayed in each list on the display 52 through the image output unit 43 of the TV reception device 40.

[0070] As soon as the MP3 player 30 is connected to the TV reception device 40, the above operation can be automatically carried out. In addition, when the user makes an input request through the selection unit 47, the above operation can be performed to display the information data of the MP3 data on the display 52.

[0071] Besides the MP3 player 30, various external multimedia apparatuses can be connected to the TV reception device 40 through the signal transfer means 35. The information data of the multimedia data can be displayed in the same manner.

[0072] When the selection unit 47 is operated to select the specific MP3 data, the playback data of the MP3 data are received and outputted (refer to S 15 and S16).

[0073] The user can select and play back the wanted MP3 data through the selection unit 47, by referring to the information data of the MP3 data on the display 52.

[0074] In more detail, when playback of the specific MP3 data is selected by the selection unit 47, the MP3 control unit 42 of the TV reception device 40 transfers a playback related control command for the specific MP3 data to the communication unit 32 of the MP3 player 30. The communication unit 32 of the MP3 player 30 transfers the playback data of the MP3 data stored in the storing unit 31 of the MP3 player 30 to the MP3 control unit 42 of the TV reception device 40.

[0075] Here, the playback data of the MP3 data are obtained by converting the MP3 data by the Codec to be directly played back into image data and sound data. The image data can be words of a song or a music video, and the sound data can be the song itself.

[0076] The playback data of the MP3 data received by the MP3 control unit 42 of the TV reception device 40 are outputted through the image output unit 43 and the sound amplification unit 44 of the TV reception device 40. The image data are displayed on the display 52, and the sound data are outputted through the speaker 54.

[0077] In the same manner, the screen, volume, etc.

can be adjusted through the selection unit 47. The user can enjoy the MP3 through the display 52 and the speaker 54 installed on the refrigerating chamber door 24.

[0078] Fig. 7 is a front view illustrating a refrigerator with a wireless communication function in accordance with an example outside the scope of the present invention as claimed. Fig. 8 is a block diagram illustrating the refrigerator of Fig. 7.

[0079] As depicted in Figs. 7 and 8, in the refrigerator with the wire communication function, a freezing chamber door 22 and a refrigerating chamber door 24 are hinge-coupled to a refrigerator main body (not shown) having a freezing chamber and a refrigerating chamber at both sides, an ice supply device 26 for supplying ice or cold water is installed on the freezing chamber door 22, an operation panel 28 for controlling the operation of the refrigerator is installed at the upper portion of the ice supply device 26, and an LCD monitor 8a and a speaker 8b, namely, a kind of multimedia player for enabling TV watching or playback of another multimedia is installed on the refrigerating chamber door 24.

[0080] A freezing cycle (not shown) consisting of a compressor, a condenser, a capillary tube or an electronic expansion valve, and an evaporator is built in one side of the refrigerator main body. A cool air circulation fan (not shown) is provided to supply the cool air heat-exchanged in the evaporator side to the freezing chamber or the refrigerating chamber. The whole components are operated by a control unit (not shown) for controlling the operation of the refrigerator.

[0081] A reception module 60 for receiving a playback signal from another multimedia apparatus 80, and outputting the playback signal through the LCD monitor 8a and the speaker 8b is installed at the upper portion of the refrigerator main body. The reception module 60 receives the playback signal by wireless communication with a transmission module 70 of the external multimedia apparatus 80.

[0082] The reception module 60 is connected to a control unit 64. The control unit 64 is connected to the LCD monitor 8a and the speaker 8b of the refrigerator. The transmission module 70 is detachably installed in the multimedia apparatus 80, such as a cassette player, a CD player, an MP3 player, a video player and a DVD player. The reception module 60 and the transmission module 70 are formed in a pair to perform wireless communication.

[0083] The reception module 60 can be formed as a printed circuit board (not shown) on which an antenna 62 for receiving the playback signal, a plurality of chipsets and electronic components have been installed. However, the antenna 62 can be individually formed from the printed circuit board.

[0084] Accordingly, preferably, the antenna 62 of the reception module 60 is installed outside the refrigerator to improve reception of the playback signal, and the printed circuit board of the reception module 60 is built in one side of the refrigerator.

[0085] In more detail, although not seen, the antenna 62 of the reception module 60 can be installed on the top surface of the refrigerator main body to improve reception of the playback signal.

[0086] For example, the antenna 62 of the reception module 60 can be exposed to or built in a hinge cover 22a or 24a for hinge-connecting the freezing chamber door 22 or the refrigerating chamber door 24 to the refrigerator main body, or a control box 29 for housing the control unit 64.

[0087] However, if the antenna 62 of the reception module 60 cannot be installed on the top surface of the refrigerator, namely, if the gap between the refrigerator and the ceiling is narrow, or if the refrigerator is a built-in type refrigerator, the antenna 62 of the reception module 60 can be installed on the front surface of the freezing chamber door 22 or the refrigerating chamber door 24.

[0088] For example, the antenna 62 of the reception module 60 can be installed on the freezing chamber door 22 or the refrigerating chamber door 24. As the antenna 62 of the reception module 60 comes into the vision field of the user, it is preferably built in the freezing chamber door 22 or the refrigerating chamber door 24.

[0089] On the other hand, as identical to the reception module 60, the transmission module 70 can be formed as a printed circuit board (not shown) on which an antenna 72 for transmitting the playback signal, a plurality of chipsets and electronic components have been installed, and detachably installed in an output terminal of the multimedia apparatus 80.

[0090] As soon as the transmission module 70 is installed in the multimedia apparatus 80, the transmission module 70 can automatically receive and transmit the playback signal. In addition, the transmission module 70 can transmit the playback signal by a special input request.

[0091] The multimedia apparatus 80 includes a decoder for converting the multimedia data into the playback signal. When the transmission module 70 receives the playback signal from the multimedia apparatus 80 and transmits the playback signal, the reception module 60 receives the playback signal and applies the playback signal to the control unit 64. The control unit 64 outputs the playback signal through the LCD monitor 8a and the speaker 8b. Therefore, special data or standard standardization is not required between the multimedia apparatus 80 and the LCD monitor 8a and the speaker 8b of the refrigerator.

[0092] In another case, the transmission module 70 includes an encoder for converting a playback signal into a transmission signal. The reception module 60 making a pair with the transmission module 70 includes a decoder for converting the transmission signal into the playback signal. Here, special data or standard standardization is not required between the multimedia apparatus 80 and the LCD monitor 8a and the speaker 8b of the refrigerator which include the transmission module 70 and the reception module 60.

[0093] The control unit 64 is connected to an input unit 48, for performing control according to a playback signal selection command inputted by the user. When the user intends to receive the playback signal by the reception module 60 and apply the playback signal to the control unit 64, the input unit 48 acquires the corresponding selection command from the user. In addition, the input unit 48 acquires a cancel command for the selection command from the user. According to the selection of the user, the reception module 60 receives the playback signal, and the LCD monitor 8a and the speaker 8b display and output the playback signal.

[0094] The functions of the input unit 48 can be performed by the operation panel 28.

[0095] As discussed earlier, in accordance with the present invention, the refrigerator with the wireless communication function allows the user to rapidly easily receive and play back the multimedia data. The product value of the refrigerator can be improved by satisfying various demands of the user.

[0096] The refrigerator with the wireless communication function can cut down the production cost, by playing back the playback data without a special playback component for outputting the playback data. Moreover, the refrigerator allows the user to easily selectively enjoy the TV function and the multimedia function in the kitchen, thereby improving the convenience and satisfying various demands of the user.

[0097] The refrigerator with the wireless communication function can play back various multimedia data, thereby improving the convenience and satisfying various demands of the user.

[0098] The special stand standardization is not required between the refrigerator and the multimedia apparatus. Therefore, the present invention can be applied to various products regardless of the specifications of the products.

[0099] 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 scope of the present invention as hereinafter claimed.

Claims

1. A refrigerator with a wireless communication function, comprising:

a signal transfer means (35) connected between a multimedia apparatus (30) and a TV reception device (40), for transferring information of multimedia data and playback data to the TV reception device;

a selection means (45) for selecting one of reproduction of the TV signal and playback of the multimedia data;

the TV reception device (40) built in the refrigerator, for receiving and reproducing a TV signal, and receiving playback data from the signal transfer means (35); and

an output means (50) for outputting the reproduction of the TV signal or displaying playback data of the multimedia data from the TV reception device (40) according to selection of the selection means (45),

characterized in that the selection means (45) is connected to the TV reception device (40) and the refrigerator is arranged to display through the output means (50) playback data transferred by the signal transfer means (35) selected by the selection means (45), and received from the TV reception device (40).

2. The refrigerator with the wireless communication function of claim 1, wherein the signal transfer means makes the TV reception device recognize connection of the multimedia apparatus, and transfers a control command of the TV reception device to the multimedia apparatus.
3. The refrigerator with the wireless communication function of claim 1, wherein the signal transfer means transfers the playback data obtained by converting the multimedia data by a Codec from the multimedia apparatus to the TV reception device according to the control command of the TV reception device.
4. The refrigerator with the wireless communication function of any of claims 1-3, wherein the multimedia apparatus is detachably installed in the TV reception device through the signal transfer means.

Patentansprüche

1. Kühlschrank mit Funkübertragungsfunktion, der Folgendes aufweist:

eine Signalübertragungseinrichtung (35), die eine Multimediovorrichtung (30) mit einem TV-Empfangsgerät (40) verbindet, um Informationen wie Multimediadaten und Wiedergabedaten an das TV-Empfangsgerät zu übertragen;

eine Auswahleinrichtung (45) zum Auswählen einer Wiedergabe des TV-Signals oder einer Wiedergabe der Multimediadaten;

das in den Kühlschrank eingebaute TV-Empfangsgerät (40) zum Empfangen und Wiedergeben eines TV-Signals und zum Empfangen von Wiedergabedaten von der Signalübertragungseinrichtung (35); und

eine Ausgabereinrichtung (50) zum Ausgeben der Wiedergabe des TV-Signals oder zum Anzeigen von Wiedergabedaten der Multimedia-

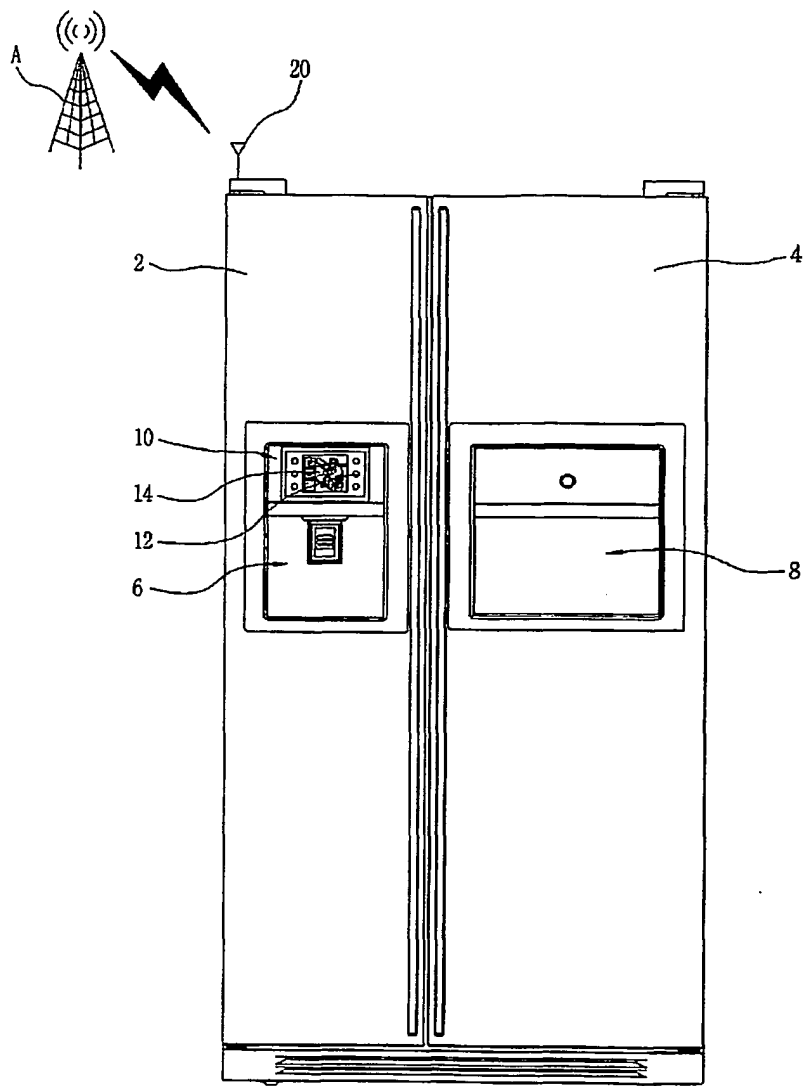
- daten von dem TV-Empfangsgerät (40) entsprechend einer Auswahl der Auswahleinrichtung (45),
dadurch gekennzeichnet, dass die Auswahleinrichtung (45) mit dem TV-Empfangsgerät (40) verbunden und der Kühlschrank dazu ausgebildet ist, mittels der Ausgabeeinrichtung (50) Wiedergabedaten anzuzeigen, die von der Signalübertragungseinrichtung (35) übertragen, von der Auswahleinrichtung (45) ausgewählt und von dem TV-Empfangsgerät (40) empfangen wurden.
2. Kühlschrank mit Funkübertragungsfunktion nach Anspruch 1, worin die Signalübertragungseinrichtung bewirkt, dass das TV-Übertragungsgerät eine Verbindung mit der Multimediavorrichtung erkennt und eine Steueranweisung des TV-Empfangsgeräts an die Multimediavorrichtung überträgt.
3. Kühlschrank mit Funkübertragungsfunktion nach Anspruch 1, worin die Signalübertragungseinrichtung die Wiedergabedaten überträgt, die in Übereinstimmung mit einer Steueranweisung des TV-Empfangsgeräts durch Konvertieren der Multimediadaten durch einen Codec von der Multimediavorrichtung am TV-Empfangsgerät erhalten werden.
4. Kühlschrank mit Funkübertragungsfunktion nach einem der Ansprüche 1 bis 3, worin die Multimediavorrichtung an dem TV-Empfangsgerät mittels der Signalübertragungseinrichtung lösbar installiert ist.
2. Réfrigérateur avec la fonction de communication sans fil de la revendication 1, dans lequel le moyen de transfert de signal amène le dispositif de réception TV à reconnaître la connexion de l'appareil multimédia, et transfère une commande de contrôle du dispositif de réception TV à l'appareil multimédia.
3. Réfrigérateur avec la fonction de communication sans fil de la revendication 1, dans lequel le moyen de transfert de signal transfère les données de lecture obtenues par conversion des données multimédia par un Codec provenant de l'appareil multimédia au dispositif de réception TV conformément à la commande de contrôle du dispositif de réception TV.
4. Réfrigérateur avec la fonction de communication sans fil de l'une quelconque des revendications 1 à 3, l'appareil multimédia étant installé de façon détachable dans le dispositif de réception TV par l'intermédiaire du moyen de transfert de signal.

Revendications

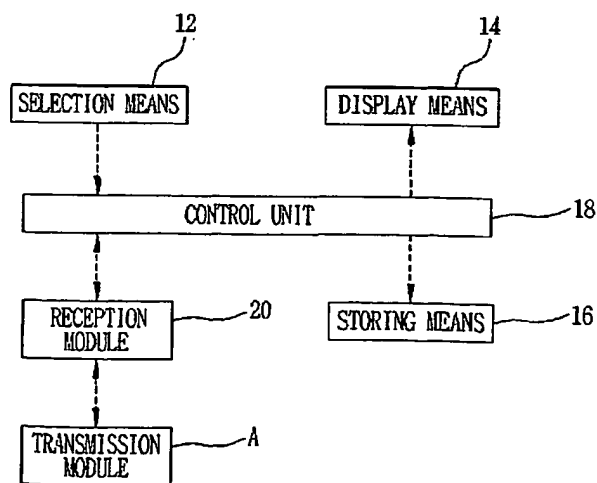
1. Réfrigérateur avec une fonction de communication sans fil, comprenant:

un moyen de transfert de signal (35) connecté entre un appareil multimédia (30) et un dispositif de réception TV (40), pour transférer des informations de données multimédia et lire des données vers le dispositif de réception TV;
 un moyen de sélection (45) pour sélectionner l'un de la reproduction du signal TV et la lecture des données multimédia;
 le dispositif de réception TV (40) intégré dans le réfrigérateur, pour recevoir et reproduire un signal TV, et recevoir des données de lecture depuis les moyens de transfert de signal (35); et
 un moyen de sortie (50) pour transmettre la reproduction du signal TV ou afficher des données de lecture des données multimédia depuis le dispositif de réception TV (40) conformément à la sélection des moyens de sélection (45),
caractérisé en ce que le moyen de sélection (45) est connecté au dispositif de réception TV

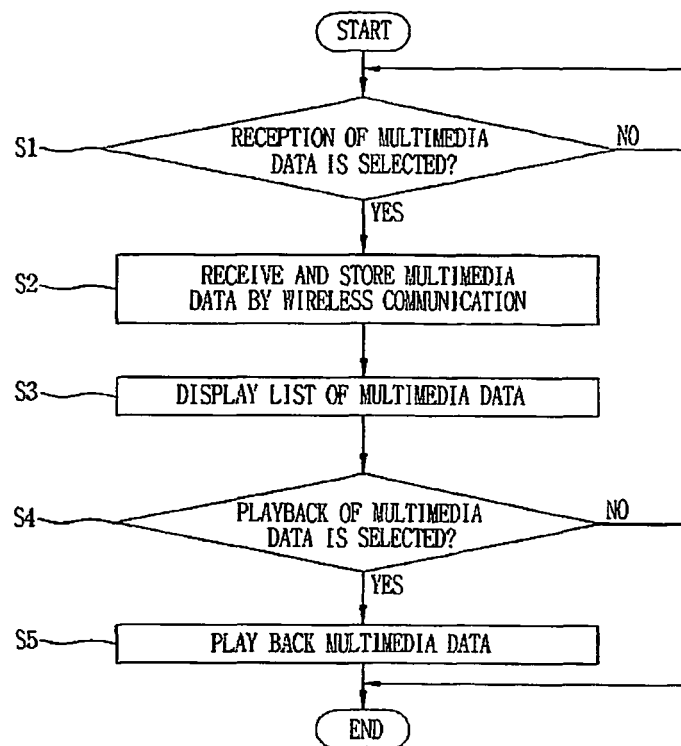
[Fig. 1]



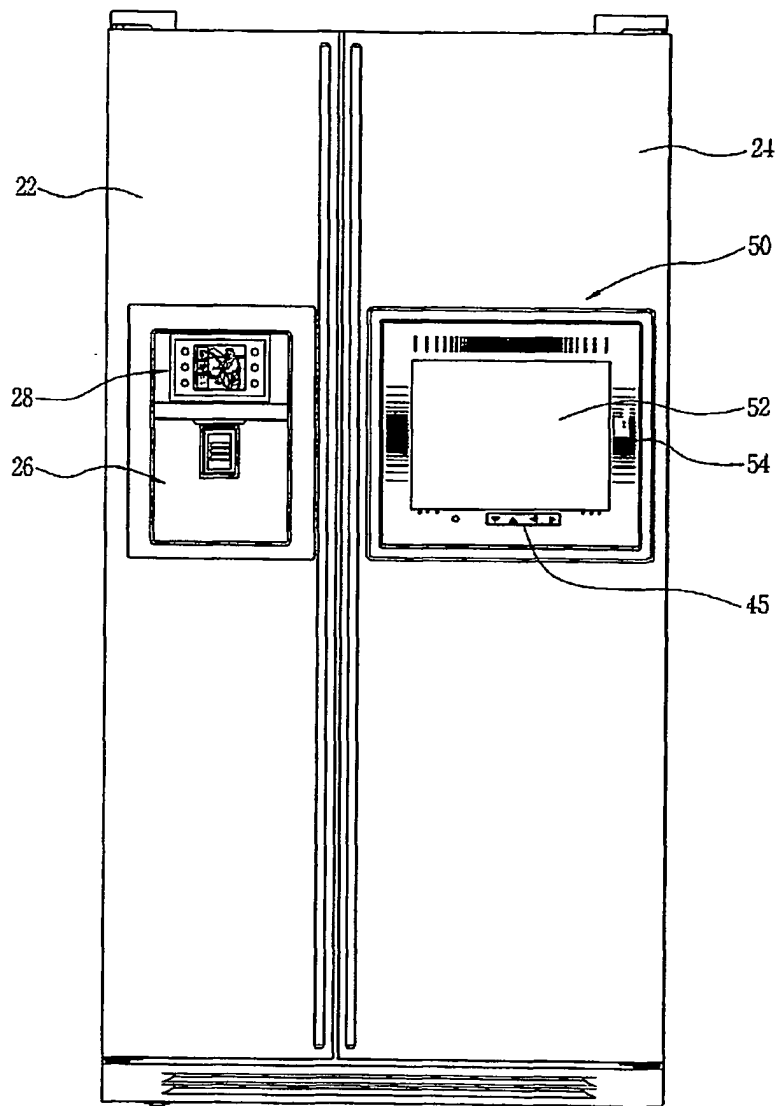
[Fig. 2]



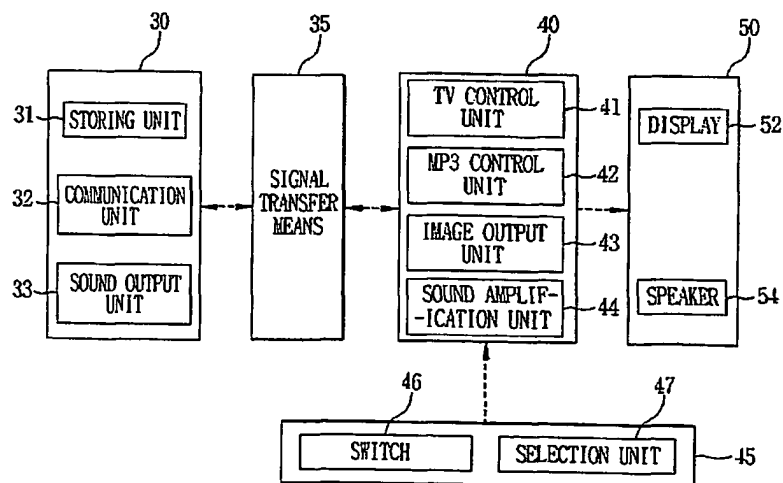
[Fig. 3]



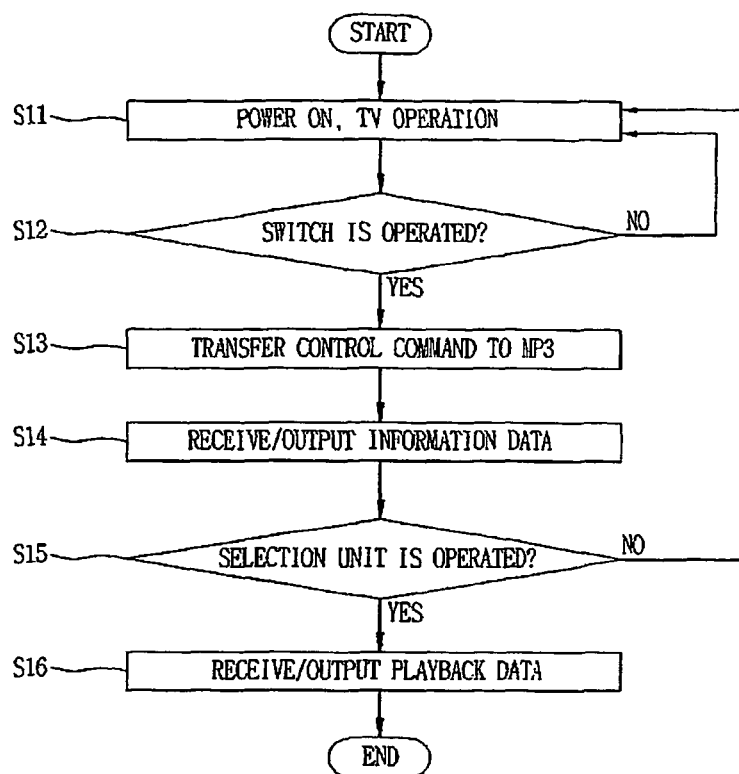
[Fig. 4]



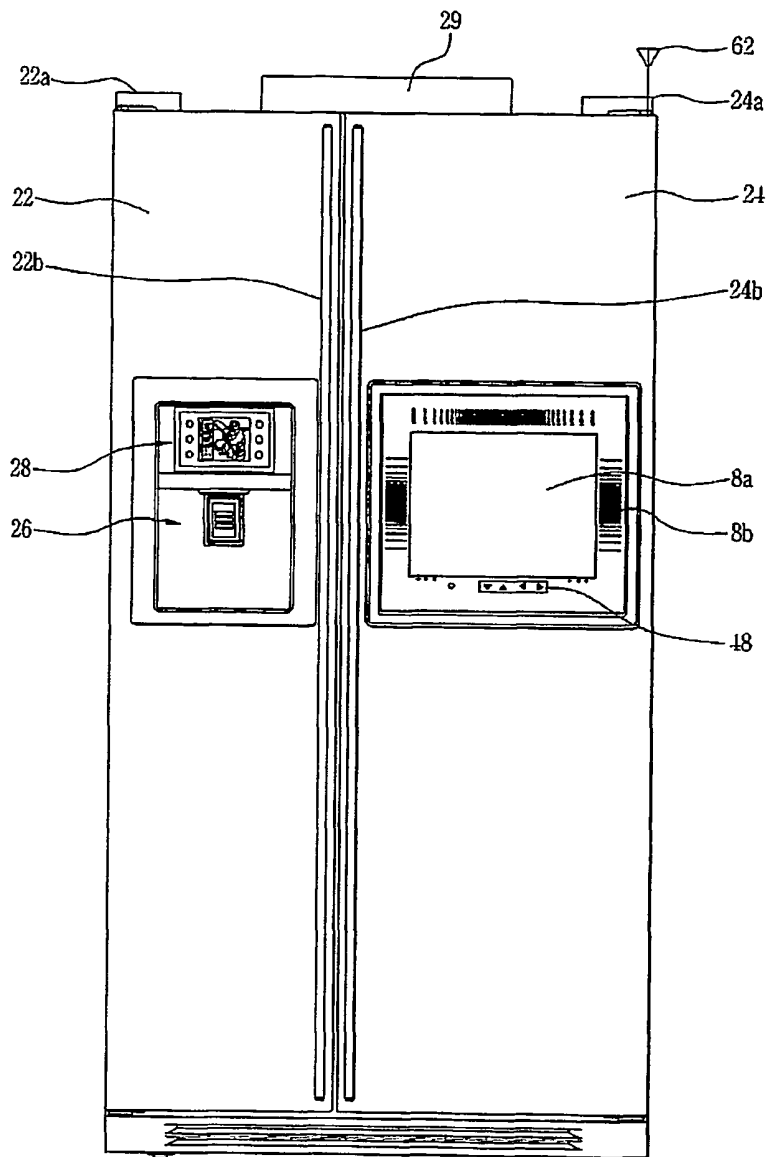
[Fig. 5]



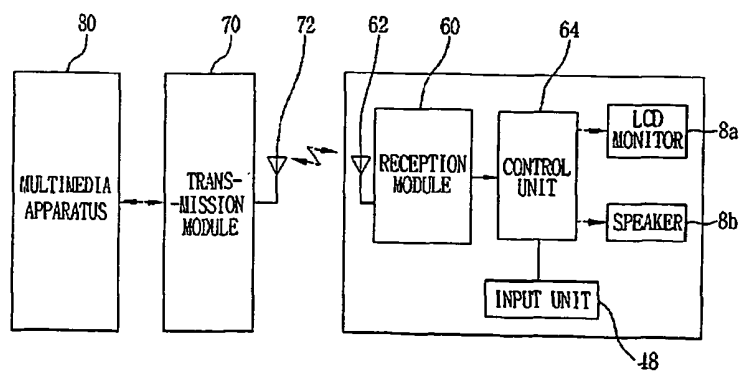
[Fig. 6]



[Fig. 7]



[Fig. 8]



REFERENCES CITED IN THE DESCRIPTION

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