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(54) **AIR CONDITIONER**

KLIMAANLAGE

CONDITIONNEUR D'AIR

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(56) References cited:
EP-A1- 2 083 227 EP-A2- 1 533 576
JP-A- H0 835 717 JP-A- 2003 244 338
JP-A- 2006 162 091 JP-A- 2007 278 600
JP-A- 2008 180 432 JP-A- 2010 065 887
JP-A- 2013 183 177 US-A1- 2012 158 189

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Description

[Technical Field]

[0001] The present invention relates to an air conditioner in which operation setting is changeable based on an operation change instruction supplied from a terminal which is different from a remote controller which is an accessory of the air conditioner.

[Background Art]

[0002] There is a known air conditioner which is arranged such that the operation setting of the air conditioner is changeable from a visiting destination or the like by using a terminal such as a mobile phone, which is different from a remote controller which is an accessory of the air conditioner, see PTL 1. Further, see PTL 2, there known an air conditioner having an enhanced user perception. A predetermined character and/or its applied character image are/is display on a display window of the air conditioner. The character and/or the character image are/is changed depending on the operational states of the air conditioner so that the user perceives the operational state of the air conditioner more conveniently. The user can perceive the operational state of the air conditioner in a convenient manner and the user can be stimulated to purchase the product, and a use term of the air conditioner can be extended.

[Citation List]

[Patent Literatures]

[0003]

[PTL 1] Japanese Unexamined Patent Publication No. 2002-243249

[PTL 2] EP 1 533 576 A2

[Summary of Invention]

[Technical Problem]

[0004] With the air conditioner above, when a user changes the operation setting of the air conditioner from a visiting destination or the like by using a terminal, another user in an air-conditioned space in which the air conditioner is provided may misunderstand the change as a malfunction of the air conditioner.

[0005] An object of the present invention is to provide an air conditioner with which, when the operation setting of the air conditioner is changed by using a terminal which is different from a remote controller which is an accessory of the air conditioner, the change is not misunderstood as a malfunction of the air conditioner.

[Solution to Problem]

[0006] According to the first aspect of the invention, an air conditioner, in which operation setting is changeable based on an operation change instruction is an air conditioner having the features of claim 1.

[0007] In this air conditioner, because the supply of the operation change instruction from the terminal is notified by the sound message, a user in the air-conditioned space is able to recognize that the operation setting of the air conditioner is changed by the terminal. On this account, when the operation setting of the air conditioner is changed by the terminal which is different from the remote controller, the change is not misunderstood as a malfunction of the air conditioner.

[0008] According to the second aspect of the invention, the air conditioner of the first aspect is arranged such that the sound message includes a content of the operation change instruction supplied from the terminal.

[0009] In this air conditioner, because the sound message includes the content of the operation change instruction, the user in the air-conditioned space is able to recognize the content of the operation change instruction.

[0010] According to the third aspect of the invention, the air conditioner of the first or second aspect is arranged such that the sound notification unit outputs the sound message after outputting first receiving sound.

[0011] In this air conditioner, because the sound message is output after the receiving sound is output, sudden output of the sound message from the air conditioner is prevented.

[0012] According to the fourth aspect of the invention, the air conditioner of the third aspect is arranged such that the sound notification unit is capable of outputting second receiving sound in response to the operation change instruction supplied from the remote controller, and the second receiving sound is different from the first receiving sound.

[0013] In this air conditioner, because the receiving sound output when the operation setting is changed by the remote controller is different from the receiving sound output when the operation setting is changed by the terminal, it is possible to understand, based on the receiving sound, that the operation setting of the air conditioner is changed by the terminal. This further makes it easy to recognize that the operation setting of the air conditioner is changed by the terminal.

[0014] According to the fifth aspect of the invention, the air conditioner of any one of the first to fourth aspects is arranged such that the sound notification unit outputs the sound message when the operation change instruction supplied from the terminal is at least one of an operation start instruction and an operation stop instruction.

[0015] In this air conditioner, because the sound message is output when at least one of the operation start instruction and the operation stop instruction is supplied from the terminal, it is possible to recognize that the op-

eration start or the operation stop, which are often misunderstood as a malfunction by another user in the air-conditioned space, is instructed by the terminal.

[0016] According to the sixth aspect of the invention, the air conditioner of any one of the first to fifth aspects further includes further comprising a human body detection unit configured to detect a person in an air-conditioned space, the sound notification unit outputting the sound message when a person is detected by the human body detection unit.

[0017] In this air conditioner, because the output of a sound message is not carried out when no user is in the air-conditioned space, power saving is achieved.

[Advantageous Effects of Invention]

[0018] As described above, the following effects are achieved by the present invention.

[0019] According to the first aspect of the invention, because the supply of the operation change instruction from the terminal is notified by the message, a user in the air-conditioned space is able to recognize that the operation setting of the air conditioner is changed by the terminal. On this account, when the operation setting of the air conditioner is changed by the terminal which is different from the remote controller, the change is not misunderstood as a malfunction of the air conditioner.

[0020] According to the second aspect of the invention, because the message includes the content of the operation change instruction, the user in the air-conditioned space is able to recognize the content of the operation change instruction.

[0021] According to the third aspect of the invention, because the message is output after the receiving sound is output, sudden output of the message from the air conditioner is prevented.

[0022] According to the fourth aspect of the invention, because the receiving sound output when the operation setting is changed by the remote controller is different from the receiving sound output when the operation setting is changed by the terminal, it is possible to understand, based on the receiving sound, that the operation setting of the air conditioner is changed by the terminal. This further makes it easy to recognize that the operation setting of the air conditioner is changed by the terminal.

[0023] According to the fifth aspect of the invention, because the message is output when at least one of the operation start instruction and the operation stop instruction is supplied from the terminal, it is possible to recognize that the operation start or the operation stop, which are often misunderstood as a malfunction by another user in the air-conditioned space, is instructed by the terminal.

[0024] According to the sixth aspect of the invention, because the output of a message is not carried out when no user is in the air-conditioned space, power saving is achieved.

[Brief Description of Drawings]

[0025]

5 [FIG. 1] FIG. 1 is a circuit diagram of a refrigerant circuit of an air conditioner of an embodiment of the present invention.

[FIG. 2] FIG. 2 is a block diagram of the air conditioner shown in FIG. 1.

10 [FIG. 3] FIG. 3 is a flowchart of the operation of the air conditioner shown in FIG. 1.

[Description of Embodiments]

15 **[0026]** The following will describe an air conditioner 1 according to an embodiment of the present invention.

<Overall Structure of Air Conditioner>

20 **[0027]** As shown in FIG. 1, the air conditioner 1 of the present embodiment is provided with an indoor unit 2 provided inside a room and an outdoor unit 3 provided outside the room. The air conditioner 1 includes a refrigerant circuit which connects a compressor 10, a four-way valve 11, an outdoor heat exchanger 12, an expansion valve (decompression structure) 13, and an indoor heat exchanger 14 with one another. In the refrigerant circuit, the outdoor heat exchanger 12 is connected with a discharge port of the compressor 10 via the four-way valve 11, and the expansion valve 13 is connected with the outdoor heat exchanger 12. The expansion valve 13 is connected with one end of the indoor heat exchanger 14, whereas an inlet port of the compressor 10 is connected with the other end of the indoor heat exchanger 14 via the four-way valve 11.

30 **[0028]** The air conditioner 1 can be driven in one of an automatic operation, a cooling operation, a heating operation, a dehumidification operation, and a ventilation operation. In the air conditioner 1, operation start, operation switching, or operation stop is performed by selecting one of the operations by using a remote controller 4 which is an accessory of the air conditioner 1 or by using a terminal 5 held by a user. The terminal 5 held by the user is, for example, a liquid crystal terminal such as a smart phone, and is able to supply operation change instructions (operation start, operation stop, indoor temperature setting, etc.) to the air conditioner 1 over a network.

35 **[0029]** In the cooling operation and the dehumidification operation, as indicated by solid arrows in the figure, a cooling cycle or a dehumidification cycle is formed such that refrigerant discharged from the compressor 10 flows from the four-way valve 11 to the outdoor heat exchanger 12, the expansion valve 13, and the indoor heat exchanger 14 in this order, and the refrigerant having passed the indoor heat exchanger 14 returns to the compressor 10 via the four-way valve 11. In other words, the outdoor heat exchanger 12 functions as a condenser whereas

the indoor heat exchanger 14 functions as an evaporator.

[0030] In the meanwhile, in the heating operation, as the four-way valve 11 is switched, as indicated by broken line arrows in the figure, a heating cycle is formed such that refrigerant discharged from the compressor 10 flows from the four-way valve 11 to the indoor heat exchanger 14, the expansion valve 13, and the outdoor heat exchanger 12 in this order, and the refrigerant having passed the outdoor heat exchanger 12 returns to the compressor 10 via the four-way valve 11. In other words, the indoor heat exchanger 14 functions as a condenser whereas the outdoor heat exchanger 12 functions as an evaporator.

[0031] In the indoor unit 2, an indoor fan 16 is provided to oppose the indoor heat exchanger 14. At the outlet port of the indoor unit 2, an up-down flap is provided to change the blowing direction in up-down directions. As shown in FIG. 1, the indoor unit 2 includes a speaker 20 configured to, for example, notify predetermined information by sound, a display 21 (display device) including, for example, LED elements, and a human body sensor 25 (human body detection unit) configured to detect a person in the room (an air-conditioned space in which the air conditioner 1 is provided).

[0032] As shown in FIG. 2, a controller 30 of the air conditioner 1 is connected with the speaker 20, the display 21, the human body sensor 25, and a remote controller 4 which is an accessory of the air conditioner 1. The controller 30 of the air conditioner 1 changes the operation of the air conditioner 1 based on an operation change instruction supplied from the terminal 5 of the user. The terminal 5 of the user is, for example, a liquid crystal terminal such as a smart phone, and is able to supply operation change instructions (operation start, operation stop, indoor temperature setting, etc.) to the air conditioner 1 over a network. The controller 30 therefore controls the operation of the air conditioner 1 based on instructions (operation start, operation stop, indoor temperature setting, etc.) from the remote controller 4 or the terminal 5 of the user. A such, in the air conditioner 1 of the present embodiment, the operation state is changed not only based on the operation change instructions (operation start, operation stop, indoor temperature setting, etc.) supplied from the remote controller 4 but also based on the operation change instructions (operation start, operation stop, indoor temperature setting, etc.) supplied from the terminal 5 of the user.

[0033] The remote controller 4 is provided with an operation setting section 6 (setting unit) by which setting of each function of the air conditioner 1 is changed.

[0034] By operating this operation setting section 6, the user is able to enable or disable a response notification in response to the operation change instructions (operation start, operation stop, indoor temperature setting, etc.) supplied from the remote controller 4. The response notification includes a sound response notification and a displayed response notification. The sound response notification includes, for example, a message notification

of notifying, as a message, the content of an operation change instruction supplied from the remote controller 4, and a receiving sound notification of outputting receiving sound such as "single beep" in response to an operation change instruction supplied from the remote controller 4. As to the message notification (sound response notification), when, for example, an operation start instruction is supplied from the remote controller 4, a message "Operation Starts." is output from the speaker 20 in response to the operation start instruction. As to the displayed response notification, the LED elements of the display 21 (display device) are turned on in response to the operation change instruction supplied from the remote controller 4. The user is allowed to select, by operating the operation setting section 6 of the remote controller 4, whether to enable each of the message notification, the receiving sound notification, and the displayed response notification. On this account, when the user feels that the message notification, the receiving sound notification, and/or the displayed response notification is a nuisance, the user is allowed to disable the message notification, the receiving sound notification, and/or the displayed response notification. In this air conditioner 1, when the message notification is enabled whereas the receiving sound notification is disabled, the receiving sound notification and the message notification are prohibited, and hence the receiving sound notification and the message notification are not performed even if the operation change instruction is supplied from the remote controller 4.

[0035] The controller 30 of the air conditioner 1 is formed of plural pieces of hardware such as a CPU, a ROM, and a RAM. The ROM stores a control program for controlling the controller 30 or the like. As shown in FIG. 2, the controller 30 includes a notification controller 31 (notification unit).

[0036] This notification controller 31 (notification unit) includes a sound notification controller 32 (sound notification unit) and a displayed notification controller 33. The sound notification controller 32 is able to perform a message notification of, for example, notifying the content of an operation change instruction supplied to the air conditioner 1 as a message and a receiving sound notification of outputting receiving sound such as "single beep" in response to an operation change instruction supplied to the air conditioner 1. Furthermore, by the displayed notification controller 33, a displayed response notification of turning on the LED elements of the display 21 can be performed in response to an operation change instruction supplied to the air conditioner 1. To begin with, the sound notification controller 32 will be detailed.

[0037] The sound notification controller 32 outputs receiving sound or a message by the speaker 20. When the receiving sound notification and the message notification are enabled, as an operation change instruction (operation start, operation stop, indoor temperature setting, etc.) is supplied from the remote controller 4, the sound notification controller 32 outputs, for example, re-

ceiving sound (second receiving sound) such as "single beep" or "two beeps" in response to the operation change instruction. After outputting the receiving sound (second receiving sound), the sound notification controller 32 notifies, as a message, the content of the operation change instruction supplied from the remote controller 4. For example, when an operation start instruction is supplied from the remote controller 4, the sound notification controller 32 outputs receiving sound (second receiving sound) "single beep", and then outputs a message "Operation Starts."

[0038] In the meanwhile, when the receiving sound notification is enabled whereas the message notification is disabled, no message is output and only the receiving sound (second receiving sound) is output when an operation change instruction is supplied from the remote controller 4. When the receiving sound notification is disabled, no matter whether the message notification is enabled or disabled, no receiving sound (second receiving sound) is output and no message is output even if an operation change instruction is supplied from the remote controller 4.

[0039] In the meanwhile, when an operation change instruction (operation start, operation stop, indoor temperature setting, etc.) is supplied from the terminal 5, the sound notification controller 32 outputs receiving sound (first receiving sound) such as "single beep" or "two beeps" in response to the operation change instruction. After outputting the receiving sound (first receiving sound), the sound notification controller 32 performs the message notification to notify by a message that the operation change instruction has been supplied from the terminal 5. An example of the message notifying that the operation change instruction has been supplied from the terminal 5 is a message "Operated from Smart Phone."

[0040] In particular, when the operation change instruction from the terminal 5 is an operation start instruction or an operation stop instruction, in response to the operation change instruction, the sound notification controller 32 outputs the receiving sound (first receiving sound) such as "single beep" or "two beeps", and then notifies, as the message notification, that the operation change instruction has been supplied from the terminal 5 and the content of that operation change instruction. For example, when the operation start instruction is supplied from the terminal 5, the sound notification controller 32 outputs the receiving sound (first receiving sound) "single beep" and then outputs a message "Operated from Smart Phone . Start Operation. ". In this message, the part "Operated from Smart Phone." is a message indicating that the operation change instruction has been supplied from the terminal 5, whereas the part "Start Operation. " is a message indicating the content of the operation change instruction. On this account, when the operation change instruction from the terminal 5 is either the operation start instruction or the operation stop instruction, the message includes the content of the operation change instruction supplied from the terminal 5.

When the operation change instruction from the terminal 5 is an instruction other than the operation start instruction and the operation stop instruction (e.g., indoor temperature setting, indoor moisture setting, wind direction setting, wind volume setting, or a change in the operation mode such as the cooling operation and the heating operation), the sound notification controller 32 outputs the receiving sound (first receiving sound) and then outputs a message to notify that the operation change instruction has been supplied from the terminal 5, but does not notify the content of that operation change instruction. For example, when an instruction to change the indoor temperature is supplied from the terminal 5, the sound notification controller 32 outputs the receiving sound (first receiving sound) "single beep" and then only outputs the message "Operated from Smart Phone."

[0041] The receiving sound (first receiving sound) output in response to an operation change instruction supplied from the terminal 5 is identical with the receiving sound (second receiving sound) output in response to an operation change instruction supplied from the remote controller 4. Furthermore, the sound notification controller 32 performs the receiving sound notification and the message notification in response to all operation change instructions supplied from the terminal 5.

[0042] When the displayed response notification is enabled, as an operation change instruction (operation start, operation stop, indoor temperature setting, etc.) is supplied from the remote controller 4, the displayed notification controller 33 performs, for example, the displayed response notification of turning on the LED elements of the display 21 for a predetermined time, in response to that operation change instruction. In the meanwhile, when the displayed response notification is disabled, the displayed notification controller 33 does not turn on the LED elements of the display 21 even if an operation change instruction is supplied from the remote controller 4. Turning on the LED elements of the display 21 encompasses flickering of the LED elements of the display 21.

[0043] When an operation change instruction (operation start, operation stop, indoor temperature setting, etc.) is supplied from the terminal 5, the displayed notification controller 33 performs, for example, the displayed response notification of turning on the LED elements of the display 21 for a predetermined time, in response to that operation change instruction. In this regard, between the displayed response notification performed in response to an operation change instruction supplied from the terminal 5 and the displayed response notification performed in response to an operation change instruction supplied from the remote controller 4, the turn-on time, flickering frequency, and the like are all identical. The displayed notification controller 33 performs the displayed response notification in response to all operation change instructions supplied from the terminal 5.

[0044] When the message notification based on an operation change instruction from the remote controller 4 is prohibited, the sound notification controller 32 performs

the message notification in response to an operation change instruction supplied from the terminal 5. In other words, even if the message notification based on an operation change instruction from the remote controller 4 is prohibited, when an operation change instruction from the terminal 5 is the operation start instruction or the operation stop instruction, a message is output to notify that the operation change instruction has been supplied from the terminal 5 and to notify the content of that operation change instruction. Furthermore, even if the message notification based on an operation change instruction from the remote controller 4 is prohibited, a message is output to notify that the operation change instruction has been supplied from the terminal 5, when the operation change instruction from the terminal 5 is an instruction other than the operation start instruction and the operation stop instruction. The cases where the message notification based on an operation change instruction from the remote controller 4 is prohibited correspond to cases where the receiving sound notification is disabled or the message notification is disabled.

[0045] When the receiving sound notification based on an operation change instruction from the remote controller 4 is prohibited (i.e., the receiving sound notification is disabled), the sound notification controller 32 performs the receiving sound notification of outputting the receiving sound (first receiving sound), when an operation change instruction is supplied from the terminal 5 different from the remote controller 4. When the displayed response notification based on an operation change instruction from the remote controller 4 is prohibited (i.e., the displayed response notification is disabled), the displayed notification controller 33 performs the displayed response notification of turning on the LED elements of the display 21 when an operation change instruction is supplied from the terminal 5 different from the remote controller 4.

[0046] Therefore, in this air conditioner, when, for example, the message notification based on an operation change instruction from the remote controller 4 is prohibited, if an operation change instruction is supplied from the terminal 5, the supply of the operation change instruction from the terminal 5 is notified as a message. On this account, when the user changes the operation setting of the air conditioner 1 by using the terminal 5 from, for example, a visiting destination, another user in the room can easily understand that the operation setting of the air conditioner 1 is changed by the terminal 5. Furthermore, in this air conditioner, when, for example, the displayed response notification based on an operation change instruction from the remote controller 4 is prohibited, if an operation change instruction is supplied from the terminal 5, the displayed response notification is carried out. On this account, when the user changes the operation setting of the air conditioner 1 by using the terminal 5 from, for example, a visiting destination, another user in the room can easily understand that the operation setting of the air conditioner 1 is changed by

the terminal 5. In the present invention, cases where the sound response notification based on an operation change instruction from the remote controller 4 is prohibited correspond to cases where the receiving sound notification and the message notification based on an operation change instruction from the remote controller 4 are prohibited.

<Flow>

[0047] Now, the operations (flow) of the air conditioner 1 will be described with reference to FIG. 3.

[0048] To begin with, whether an operation change instruction is supplied from the terminal 5 is determined, and this determination is repeated until an operation change instruction is supplied (S1). When the operation change instruction is supplied (S1: Yes), the display 21 is turned on and the receiving sound (first receiving sound) is output (S2). After the output of the receiving sound (first receiving sound), the supply of the operation change instruction from the terminal 5 is notified by a message (S3). Subsequently, whether a predetermined time elapses from the turning on of the display 21 is determined, and this determination is repeated until the predetermined time elapses (S4). When the predetermined time elapses (S5: Yes), the display 21 is turned off. Then the process returns to the step S1.

<Characteristics of Air Conditioner of Present Embodiment>

[0049] The air conditioner 1 of the present embodiment has the following characteristics.

[0050] In the air conditioner 1 of the present embodiment, because the supply of an operation change instruction from the terminal 5 (operation start, operation stop, indoor temperature setting, etc.) is notified by a message, a user in the room (i.e., the air-conditioned space in which the air conditioner 1 is provided) is able to recognize that the operation setting of the air conditioner 1 is changed by the terminal 5. On this account, when the operation setting of the air conditioner 1 is changed by the terminal 5 which is different from the remote controller 4, the change is not misunderstood as a malfunction of the air conditioner 1.

[0051] In addition to the above, with the air conditioner 1 of the present embodiment, because a message includes the content of an operation change instruction, a user in the room is able to recognize the content of the operation change instruction.

[0052] In addition to the above, with the air conditioner 1 of the present embodiment, because a message is output after the receiving sound (first receiving sound) is output, the message is not suddenly output from the air conditioner 1.

[0053] While the embodiment of the present invention has been described, it should be noted that the scope of the invention is not limited to the above-described em-

bodiment. The scope of the present invention is defined by the appended claims rather than the foregoing description of the embodiment, and the present invention is intended to embrace all alternatives, modifications and variances which fall within the scope of the appended claims.

[First Variation]

[0054] Now, an air conditioner according to First Variation will be described. In the embodiment above, the receiving sound (first receiving sound) output in response to an operation change instruction supplied from the terminal 5 is identical with the receiving sound (second receiving sound) output in response to an operation change instruction supplied from the remote controller 4. In this regard, first receiving sound is different from second receiving sound in the air conditioner of First Variation. For example, when the first receiving sound is receiving sound of "two beeps", the second receiving sound is receiving sound of "single beep".

[0055] In the air conditioner of First Variation, because the receiving sound (second receiving sound) output when the operation setting is changed by the remote controller 4 is different from the receiving sound (first receiving sound) output when the operation setting is changed by the terminal 5, it is possible to understand, based on the receiving sound, that the operation setting of the air conditioner is changed by the terminal 5. This further makes it easy to understand that the operation setting of the air conditioner is changed by the terminal 5.

[Second Variation]

[0056] Now, an air conditioner of Second Variation will be described. In the embodiment above, the notification controller 31 outputs a message in response to all operation change instructions supplied from the terminal 5. In this regard, the air conditioner of Second Variation is arranged such that, a message is output when an operation change instruction supplied from the terminal 5 is the operation start instruction or the operation stop instruction, but no message is output when the operation change instruction is one of the other operation change instructions (e.g., indoor temperature setting, indoor moisture setting, wind direction setting, wind volume setting, or a change in the operation mode such as the cooling operation and the heating operation).

[0057] With the air conditioner of Second Variation, because a message is output when the operation start instruction or the operation stop instruction is supplied from the terminal 5, it is possible to recognize that the operation start or the operation stop, which are often misunderstood as a malfunction by another user in the room, is instructed by the terminal 5. Furthermore, it is possible to avoid annoying message notification when one of the other operation change instructions (e.g., indoor temperature setting, indoor moisture setting, wind direction set-

ting, wind quantity setting, or a change in the operation mode such as the cooling operation and the heating operation), which are less likely to be misunderstood as a malfunction by a user in the room, is supplied.

[Third Variation]

[0058] Now, an air conditioner of Third Variation will be described. In the embodiment above, no matter whether a person is in the room (the air-conditioned space in which the air conditioner 1 is provided), the notification controller 31 outputs a message in response to all operation change instructions supplied from the terminal 5. In this regard, in the air conditioner of Third Variation, a message is output in response to an operation change instruction supplied from the terminal 5 when a person is detected by the human body sensor 25, and no message is output in response to an operation change instruction supplied from the terminal 5 when no one is detected by the human body sensor 25.

[0059] Because in the air conditioner of Third Variation the output of a message is not carried out when no user is in the air-conditioned space, power saving is achieved.

[Other Variations]

[0060] In the embodiment above, when an instruction (e.g., indoor temperature setting, indoor moisture setting, wind direction setting, wind quantity setting, or a change in the operation mode such as the cooling operation and the heating operation) other than the operation start instruction and the operation stop instruction is supplied as an operation change instruction from the terminal 5, the content of that operation change instruction is not notified. Alternatively, the content of the operation change instruction may be notified as a message. For example, while in the embodiment above only a message "Operated from Smart Phone." is output when an instruction to change the set temperature of the indoor temperature is supplied from the terminal 5, a message "Operated from Smart Phone. Change Set Temperature." including the content of the operation change instruction may be output.

[0061] In addition to the above, while in the embodiment above the notification controller 31 outputs a message in response to all operation change instructions supplied from the terminal 5, a message may be output when an operation change instruction supplied from the terminal 5 is the operation start instruction or the operation stop instruction as in Second Variation, a message may be output only when the operation change instruction from the terminal 5 is the operation start instruction, or a message may be output only when the operation change instruction supplied from the terminal 5 is the operation stop instruction.

[0062] In addition to the above, while in the embodiment above a message may include the content of an operation change instruction supplied from the terminal

5, the content of an operation change instruction may not be included. As such, when an operation change instruction is supplied from the terminal 5, only the supply of the operation change instruction from the terminal 5 may be notified by a message (e.g., the message only notifies that "Operated from Smart Phone.").

[0063] In addition to the above, while in the embodiment above the receiving sound notification, the message notification, and the displayed response notification are carried out when an operation change instruction is supplied from the terminal 5, only the message notification may be carried out. As such, the receiving sound (first receiving sound) may not be output before the output of a message.

[0064] In addition to the above, while in the embodiment above the terminal 5 different from the remote controller 4 is able to supply an operation change instruction to the air conditioner 1 over a network, the terminal 5 may be able to supply an operation change instruction to the air conditioner 1 without the intermediary of a network.

[Industrial Applicability]

[0065] By the present invention, when the operation setting of an air conditioner is changed by using a terminal which is different from a remote controller which is an accessory of the air conditioner, the change is not misunderstood as a malfunction of the air conditioner.

[Reference Signs List]

[0066]

1 AIR CONDITIONER
4 REMOTE CONTROLLER
5 TERMINAL
25 HUMAN BODY SENSOR (HUMAN BODY DETECTION UNIT)
32 SOUND NOTIFICATION CONTROLLER (SOUND NOTIFICATION UNIT)

Claims

1. An air conditioner (1) in which operation setting is changeable based on an operation change instruction supplied from a remote controller (4) which is an accessory of the air conditioner, the operation setting is also changeable based on an operation change instruction supplied from a terminal (5) different from the remote controller (4), the terminal being not an accessory of the air conditioner (1), comprising a sound notification unit configured to notify predetermined information by sound,
characterized in that the sound notification unit (32) notifies, by a sound message, that the operation change instruction is supplied by the operation from the terminal (5), in response to the operation change

instruction supplied from the terminal (5).

2. The air conditioner (1) according to claim 1, wherein, the sound message includes a content of the operation change instruction supplied from the terminal (5).
3. The air conditioner (1) according to claim 1 or 2, wherein, the sound notification unit (32) outputs the sound message after outputting first receiving sound.
4. The air conditioner (1) according to claim 3, wherein, the sound notification unit (32) is capable of outputting second receiving sound in response to the operation change instruction supplied from the remote controller (4), and the second receiving sound is different from the first receiving sound.
5. The air conditioner (1) according to any one of claims 1 to 4, wherein, the sound notification unit (32) outputs the sound message when the operation change instruction supplied from the terminal (5) is at least one of an operation start instruction and an operation stop instruction.
6. The air conditioner (1) according to any one of claims 1 to 5, further comprising a human body detection unit (25) configured to detect a person in an air-conditioned space, the sound notification unit (32) outputting the sound message when a person is detected by the human body detection unit (25).

Patentansprüche

1. Klimaanlage (1), in welcher eine Betriebseinstellung basierend auf einer Betriebsänderungsanweisung veränderbar ist, welche von einer Fernsteuereinheit (4) geliefert wird, welche ein Zubehör der Klimaanlage ist, die Betriebseinstellung auch basierend auf einer Betriebsänderungsanweisung veränderbar ist, welche von einem Endgerät (5) geliefert wird, welches sich von der Fernsteuereinheit (4) unterscheidet, wobei das Endgerät kein Zubehör der Klimaanlage (1) ist, umfassend
eine Tonbenachrichtigungseinheit, welche konfiguriert ist, um vorbestimmte Informationen mittels Ton anzukündigen,
dadurch gekennzeichnet, dass die Tonbenachrichtigungseinheit (32) durch eine Tonmeldung ankündigt, dass die Betriebsänderungsanweisung durch den Betrieb durch das Endgerät (5) geliefert wird, als Reaktion auf die von dem Endgerät (5) gelieferte Betriebsänderungsanweisung.
2. Klimaanlage (1) nach Anspruch 1, wobei die Tonmeldung einen Inhalt der von dem Endgerät (5) ge-

- lieferten Betriebsänderungsanweisung beinhaltet.
3. Klimaanlage (1) nach Anspruch 1 oder 2, wobei die Tonbenachrichtigungseinheit (32) die Tonmeldung ausgibt, nachdem sie einen ersten Empfangston ausgegeben hat. 5
 4. Klimaanlage (1) nach Anspruch 3, wobei die Tonbenachrichtigungseinheit (32) in der Lage ist, einen zweiten Empfangston als Reaktion auf die von der Fernsteuereinheit (4) gelieferte Betriebsänderungsanweisung auszugeben, und der zweite Empfangston sich von dem ersten Empfangston unterscheidet. 10
 5. Klimaanlage (1) nach einem der Ansprüche 1 bis 4, wobei die Tonbenachrichtigungseinheit (32) die Tonmeldung ausgibt, wenn die von dem Endgerät (5) gelieferte Betriebsänderungsanweisung zumindest eine von einer Betriebsstartanweisung und einer Betriebsstoppanweisung ist. 15 20
 6. Klimaanlage (1) nach einem der Ansprüche 1 bis 5, weiter eine Menschenkörpererkennungseinheit (25) umfassend, welche konfiguriert ist, um eine Person in einem klimatisierten Raum zu erkennen, wobei die Tonbenachrichtigungseinheit (32) die Tonmeldung ausgibt, wenn eine Person von der Menschenkörpererkennungseinheit (25) erkannt wird. 25 30
3. Climatiseur (1) selon la revendication 1 ou 2, dans lequel l'unité de notification sonore (32) délivre le message sonore après avoir délivré un premier son de réception.
 4. Climatiseur (1) selon la revendication 3, dans lequel l'unité de notification sonore (32) est apte à délivrer un second son de réception en réponse à l'instruction de modification de fonctionnement fournie par le dispositif de commande distant (4), et le second son de réception est différent du premier son de réception.
 5. Climatiseur (1) selon l'une quelconque des revendications 1 à 4, dans lequel l'unité de notification sonore (32) délivre le message sonore quand l'instruction de modification de fonctionnement fournie par le terminal (5) est au moins l'une d'une instruction de début de fonctionnement et d'une instruction d'arrêt de fonctionnement.
 6. Climatiseur (1) selon l'une quelconque des revendications 1 à 5, comprenant en outre une unité de détection de corps humain (25) configurée pour détecter une personne dans l'espace climatisé, l'unité de notification sonore (32) délivrant le message sonore lorsqu'une personne est détectée par l'unité de détection de corps humain (25).

Revendications

1. Climatiseur (1) dans lequel un réglage de fonctionnement peut être modifié sur la base d'une instruction de modification de fonctionnement fournie par un dispositif de commande distant (4) qui est un accessoire du climatiseur, le réglage de fonctionnement peut également être modifié sur la base d'une instruction de modification de fonctionnement fournie par un terminal (5) différent du dispositif de commande distant (4), le terminal n'étant pas un accessoire du climatiseur (1), comprenant une unité de notification sonore configurée pour notifier des informations prédéterminées par un son, **caractérisé en ce que** l'unité de notification sonore (32) notifie, par un message sonore, que l'instruction de modification de fonctionnement est fournie par le fonctionnement du terminal (5), en réponse à l'instruction de modification de fonctionnement fournie par le terminal (5). 35 40 45 50
2. Climatiseur (1) selon la revendication 1, dans lequel le message sonore inclut un contenu de l'instruction de modification de fonctionnement fournie par le terminal (5). 55

FIG.1

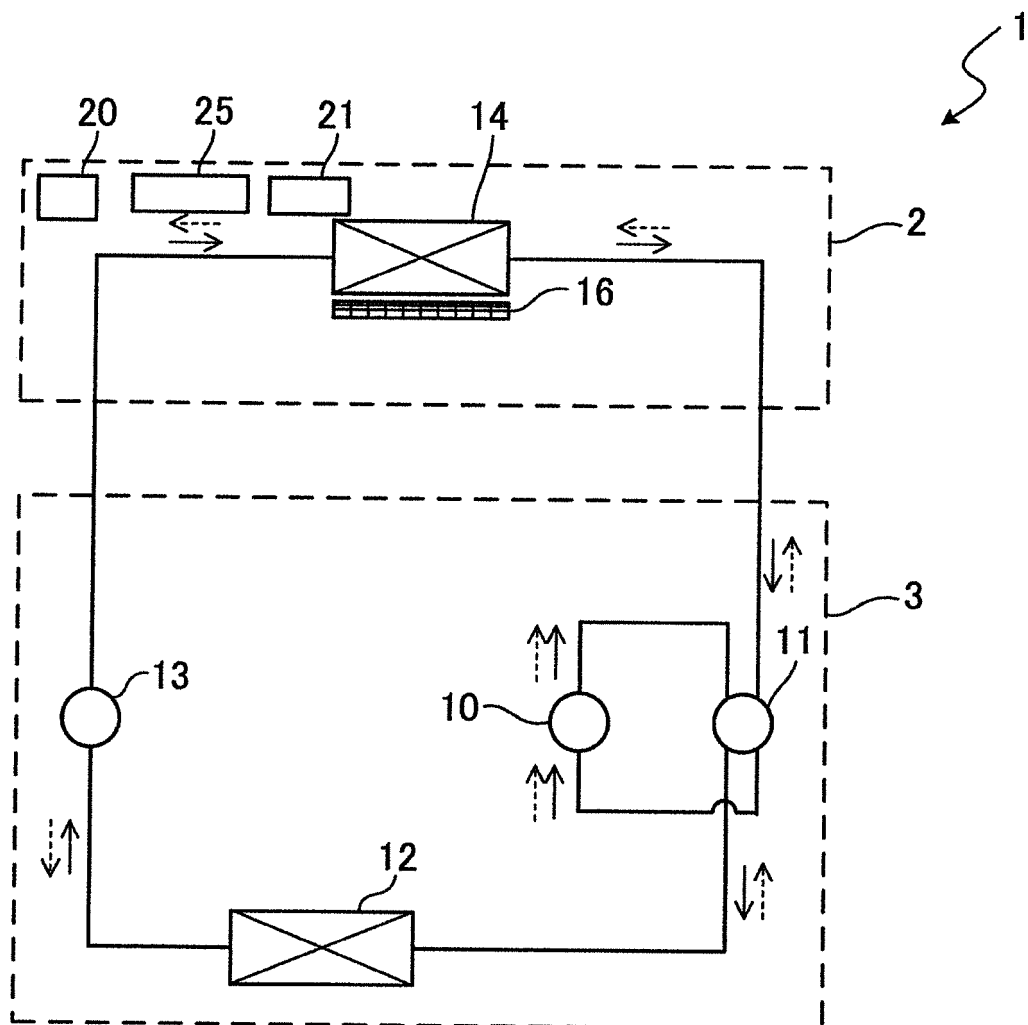


FIG.2

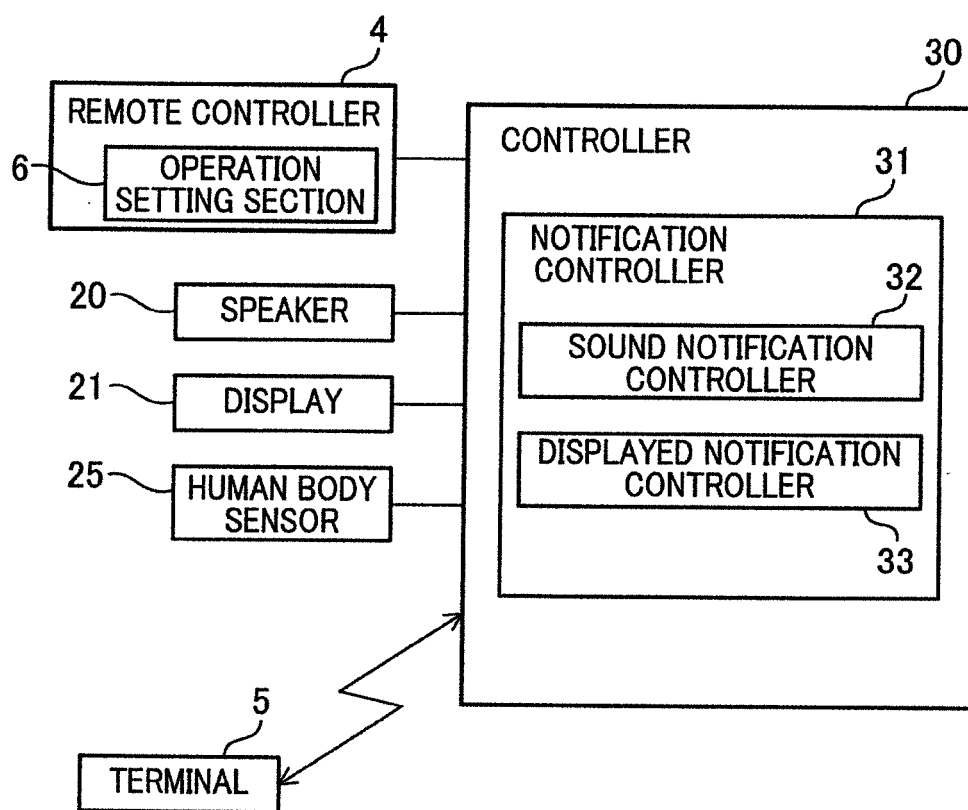
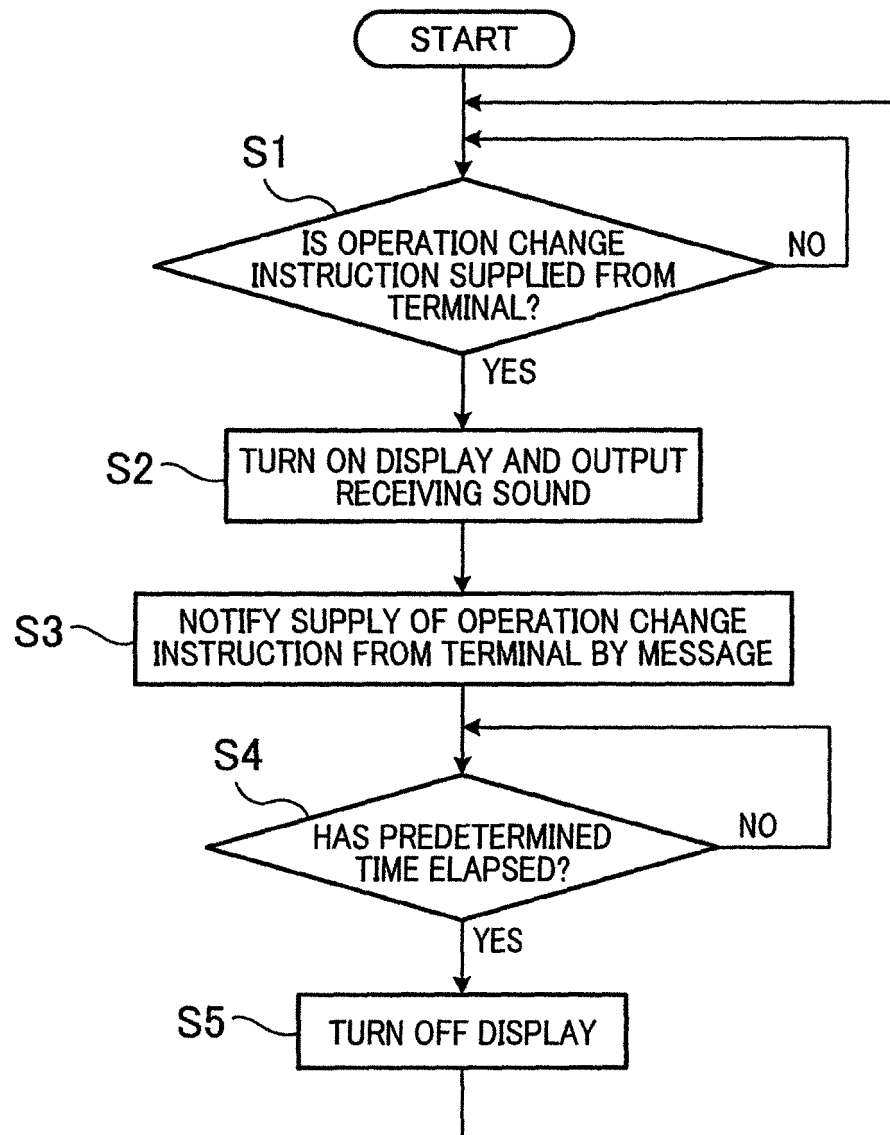


FIG.3



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 2002243249 A [0003]
- EP 1533576 A2 [0003]