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(71) Applicant: **LG Electronics Inc.**
Yeongdeungpo-gu
Seoul 07336 (KR)

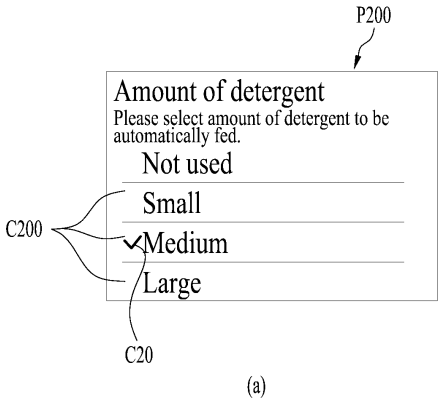
(72) Inventors:
- **LEE, Mira**
  Seoul 08592 (KR)
- **LEE, Younghun**
  Seoul 08592 (KR)

(74) Representative: **Ter Meer Steinmeister & Partner**
Patentanwälte mbB
Nymphenburger Straße 4
80335 München (DE)

(54) LAUNDRY TREATING APPARATUS, LAUNDRY TREATING SYSTEM, AND CONTROL METHOD FOR LAUNDRY TREATING APPARATUS

(57) Disclosed are a laundry treating apparatus, a laundry treating system, and a control method for the laundry treating apparatus. The laundry treating apparatus according to one embodiment of the present disclosure comprises: a cabinet; a tub; a drum; an operation part, which provides information to a user and is operated by the user; and a control part for performing laundry washing courses, wherein the control part stores a plurality of options having setting values adjusted on the basis of an operation signal, a plurality of upgrade functions for changing or adding the options are provided to the user through the operation part or a terminal, an upgrade function selected by the user from among the plurality of upgrade functions is set to the control part, and the plurality of upgrade functions include a washing option upgrade function, which changes washing options for adjusting the washing courses from among the plurality of options.

FIG. 12



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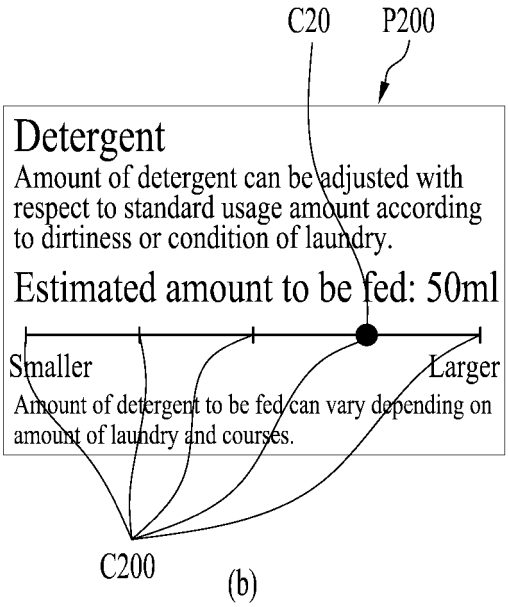
(Cont. next page)

FIG. 12


C20
P200
Detergent
Amount of detergent can be adjusted with respect to standard usage amount according to dirtiness or condition of laundry.
Estimated amount to be fed: 50ml
Smaller
Larger
Amount of detergent to be fed can vary depending on amount of laundry and courses.
C200
(b)

Description

TECHNICAL FIELD

[0001] The present disclosure relates to a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, and more particularly, to a laundry treating apparatus capable of performing treatment courses for treating laundry, a laundry treating system, and a method of controlling the laundry treating apparatus.

BACKGROUND ART

[0002] A laundry treating apparatus is an apparatus capable of performing various treatment courses for treating laundry, such as a washing course for removing contamination from clothes, bedding, etc. (hereinafter referred to as laundry) introduced into a drum and a drying course for removing moisture from laundry.

[0003] A laundry treating apparatus may include a cabinet defining an external appearance thereof and a drum provided in the cabinet to accommodate laundry. In addition, in a case in which water is used in laundry treatment courses, a tub may be provided in the cabinet, and the drum may be mounted in the tub.

[0004] The laundry treating apparatus may be classified into a top loading type and a front loading type according to a method of introducing laundry into the drum. The top loading type allows laundry to be introduced through an upper surface of the cabinet, and the front loading type allows laundry to be introduced through a front surface of the cabinet.

[0005] Meanwhile, a laundry treating apparatus including a display part and a search part in order to provide a plurality of treatment courses to a user is disclosed in Korean Patent Laid-Open Publication No. 10-2014-0023986.

[0006] The laundry treating apparatus may provide various types of information to the user so that the user operates the laundry treating apparatus to perform a laundry treatment course using the display part and the search part.

[0007] However, in the laundry treating apparatus, various setting functions considering treatment courses for treating laundry or use convenience are preset in a controller or the like, and it is difficult to change the functions or information preset in the laundry treating apparatus after release of the product, which may be unfavorable to reflection of the user's intention or improvement of convenience.

[0008] Further, although firmware upgrade may be performed in order to change programs including the functions and information, which are installed in the controller or the like of the laundry treating apparatus, the firmware also includes prescribed changes or additions, which may be unfavorable to flexible reflection of the user's requirements.

[0009] Therefore, it is an important task to provide a laundry treating apparatus capable of meeting the user's needs and use environment by reflecting the user's intention in various functions and settings preset in the laundry treating apparatus.

[0010] Meanwhile, a detergent supply device included in a laundry treating apparatus is disclosed in Korean Patent Laid-Open Publication No. 10-2018-0090003. The laundry treating apparatus may wash laundry as detergent stored in the detergent supply device is supplied to the inside of a tub.

[0011] The laundry treating apparatus may supply detergent pre-stored in the detergent supply device to the inside of the tub in order to wash laundry, and it is important in terms of efficient use of detergent to supply an appropriate amount of detergent to the inside of the tub when performing a laundry treatment process.

[0012] However, when adjusting the amount of detergent to be supplied for a washing course, the user has no choice but to depend on a specific value preset in the laundry treating apparatus, and accordingly, if the user's desired detergent supply amount is not preset in the laundry treating apparatus, the user's needs may not be properly reflected, and use convenience may also deteriorate.

[0013] Therefore, it is an important task to improve the efficiency and convenience of use of a washing course by allowing the user to conveniently change various course options for the washing course, e.g., the detergent supply amount, according to the user's intention if the user wishes to do that.

DISCLOSURE

TECHNICAL TASK

[0014] Embodiments of the present disclosure provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which a user's intention and needs are conveniently reflected.

[0015] In addition, embodiments of the present disclosure provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which a user is capable of conveniently adding or changing various functions programmed in a controller or the like.

[0016] In addition, embodiments of the present disclosure provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which various upgrade functions for improvement of functions and increase in use convenience are provided and a user is capable of directly selecting and applying his/her desired upgrade function.

[0017] In addition, embodiments of the present disclosure provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which washing options for control of a laundry washing course are upgraded according to se-

lection by a user, so that the user's intention is effectively reflected.

[0018] In addition, embodiments of the present disclosure provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which option values that are selectable by a user in washing options are variously changed, leading to increase in convenience of control of a washing course.

TECHNICAL SOLUTIONS

[0019] A laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus according to an embodiment of the present disclosure may provide an upgrade function for upgrading various options preset in a controller or the like and provided to a user.

[0020] In addition, a plurality of different upgrade functions may be provided, and the user may select his/her desired upgrade function and apply the same to the controller or the like, thereby establishing a function and environment suitable for the user and treating laundry based thereon.

[0021] Meanwhile, at least one of the plurality of upgrade functions may correspond to a washing option upgrade function related to a washing option capable of adjusting a washing course for washing laundry.

[0022] Since the user directly selects the washing option upgrade function and reflects the same in the controller, the washing option may be changed or added and provided to the user, whereby a range or form in which the user is capable of adjusting the washing course may be increased, and thus use convenience may be improved.

[0023] A laundry treating apparatus according to an embodiment of the present disclosure includes a cabinet, a tub, a drum, an operation part, and a controller. The tub is provided in the cabinet and accommodates water.

[0024] The drum is rotatably provided in the tub and accommodates laundry. The operation part is provided in the cabinet, and provides information to the user and is operated by the user. The controller performs a laundry washing course based on an operation signal transmitted from the operation part or a terminal of the user.

[0025] A plurality of options including set values adjustable based on the operation signal is stored in the controller. A plurality of upgrade functions for change or addition of the options is provided to the user through the operation part or the terminal, and an upgrade function selected by the user from among the plurality of upgrade functions is set in the controller.

[0026] The plurality of upgrade functions includes a washing option upgrade function to change a washing option for adjustment of the washing course among the plurality of options.

[0027] A plurality of option values of the washing option may be stored in the controller, one of the plurality of option values may be determined to be a set value of the washing option based on the operation signal and may be reflected in the washing course, and if the washing option upgrade function is set, the option values may be changed or added and stored in the controller.

[0028] The laundry treating apparatus may include a detergent supply part connected to the drum to supply detergent to the inside of the drum.

[0029] The controller may control the detergent supply part so that the amount of detergent supplied by the detergent supply part is adjusted during the washing course according to a set value of the washing option.

[0030] The detergent supply part may separately store first detergent and second detergent, the washing option may include a first washing option for adjustment of the amount of first detergent supplied and a second washing option for adjustment of the amount of second detergent supplied, and if the washing option upgrade function is set, the controller may change the first washing option and the second washing option.

[0031] A plurality of option values of the washing option corresponding to different amounts of detergent supplied may be stored in the controller and may be provided to the user so as to be selectable, and if the washing option upgrade function is set, the amounts of detergent supplied corresponding to at least some of the plurality of option values may be changed and stored in the controller.

[0032] A plurality of option values of the washing option corresponding to different amounts of detergent supplied may be stored in the controller and may be provided to the user so as to be selectable, and if the washing option upgrade function is set, the number of option values may be changed and stored in the controller.

[0033] The operation part or the terminal may output an upgrade screen on which the plurality of upgrade functions is selectably displayed. An upgrade function selected by the user on the upgrade screen may be set in the controller, and the remaining upgrade function may not be set in the controller.

[0034] The upgrade screen may display, among the plurality of upgrade functions, a remaining upgrade function except for the upgrade function set in the controller.

[0035] A plurality of option values of the washing option may be stored in the controller, one of the plurality of option values may be determined to be a set value and may be reflected in the washing course, and the operation part or the terminal may output a washing option setting screen on which the plurality of option values is selectably displayed.

[0036] If the washing option upgrade function is set in the controller, the number or display form of the plurality of option values on the washing option setting screen may be changed.

[0037] If the washing option upgrade function is set in the controller, a form in which one of the plurality of option values displayed on the washing option setting screen output from the operation part or the terminal is selected

may be changed.

[0038] If the washing option upgrade function is set in the controller, the washing option setting screen may be output by the operation part or the terminal such that the position of a selection mark displayed at all times is movable to one of the plurality of option values to determine a set value.

[0039] Meanwhile, a laundry treating system according to an embodiment of the present disclosure includes a laundry treating apparatus including a tub configured to accommodate water, a drum rotatably provided in the tub to accommodate laundry, an operation part configured to provide information to a user or to be operated by the user, and a controller configured to perform a laundry washing course based on an operation signal from the operation part.

[0040] In addition, the laundry treating system includes a terminal located outside the laundry treating apparatus and configured to be allowed to exchange information with the laundry treating apparatus and to provide information to the user or to be operated by the user.

[0041] A plurality of options including set values adjustable based on the operation signal is stored in the controller, a plurality of upgrade functions for change or addition of the options is provided to the user through the operation part or the terminal, and an upgrade function selected by the user from among the plurality of upgrade functions is set in the controller.

[0042] The plurality of upgrade functions includes a washing option upgrade function to change and set, among the plurality of options, a washing option for adjustment of the amount of detergent supplied by a detergent supply part during the washing course in the controller.

[0043] A plurality of option values of the washing option may be pre-stored in the controller. If the washing option upgrade function is set, an additional option value other than the plurality of option values may be stored in the controller, and each of the operation part and the terminal may output a washing option setting screen on which the plurality of option values and the additional option value are displayed so as to be selectable by the user.

[0044] Meanwhile, a method of controlling a laundry treating apparatus according to an embodiment of the present disclosure includes an upgrade provision step, an upgrade selection step, an upgrade setting step, and an option setting step.

[0045] In the upgrade provision step, information is provided to the user, and a plurality of upgrade functions is provided to the user so as to be selectable by the user through an operation part, which is operated by the user, or a terminal of the user.

[0046] In the upgrade selection step, an upgrade function to be set in the controller is selected from among the plurality of upgrade functions based on an operation signal generated by the user through the operation part or the terminal.

[0047] In the upgrade setting step, the controller may change or add an option corresponding to the upgrade function selected in the upgrade selection step.

[0048] In the option setting step, the option changed or added by the controller in the upgrade setting step may be provided to the user so as to be set by the user through the operation part or the terminal.

[0049] The plurality of upgrade functions may include a washing option upgrade function for changing a washing option for adjustment of the washing course, and if the washing option upgrade function is selected in the upgrade selection step, the controller may change and store the washing option according to the washing option upgrade function in the upgrade setting step.

[0050] The upgrade setting step may include a washing option upgrade determination step and a washing option upgrade step.

[0051] In the washing option upgrade determination step, the controller may determine whether the washing option upgrade function is selected based on the operation signal in the upgrade selection step.

[0052] Upon determining in the washing option upgrade determination step that the washing option upgrade function is selected, the controller may perform the washing option upgrade step to change and store the washing option according to the washing option upgrade function.

[0053] A plurality of option values that the user may select as a set value of the washing option may be stored in the controller, and in the washing option upgrade step, the controller may change or add and store the plurality of option values of the washing option according to the washing option upgrade function.

ADVANTAGEOUS EFFECTS

[0054] Embodiments of the present disclosure may provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which a user's intention and needs are conveniently reflected.

[0055] In addition, embodiments of the present disclosure may provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which a user is capable of conveniently adding or changing various functions programmed in a controller or the like.

[0056] In addition, embodiments of the present disclosure may provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which various upgrade functions for improvement of functions and increase in use convenience are provided and a user is capable of directly selecting and applying his/her desired upgrade function.

[0057] In addition, embodiments of the present disclosure may provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which washing options for control of a laundry washing course are upgraded according to

selection by a user, so that the user's intention is effectively reflected.

[0058] In addition, embodiments of the present disclosure may provide a laundry treating apparatus, a laundry treating system, and a method of controlling the laundry treating apparatus, in which option values that are selectable by a user in washing options are variously changed, leading to increase in convenience of control of a washing course.

DESCRIPTION OF DRAWINGS

[0059]

FIG. 1 is a view showing the external appearance of a laundry treating apparatus according to an embodiment of the present disclosure.

FIG. 2 is a view showing an operation part provided in a laundry treating apparatus according to an embodiment of the present disclosure.

FIG. 3 is a view showing the inside of a laundry treating apparatus capable of performing a laundry washing course according to an embodiment of the present disclosure.

FIG. 4 is a view showing the inside of a laundry treating apparatus capable of performing a laundry drying course according to an embodiment of the present disclosure.

FIG. 5 is a view showing the inside of a laundry treating apparatus capable of performing both a laundry washing course and a laundry drying course according to an embodiment of the present disclosure.

FIG. 6 is a view showing a laundry treating system including a laundry treating apparatus to treat laundry according to an embodiment of the present disclosure.

FIG. 7 is a view showing an upgrade list provided to a user so as to be selectable according to an embodiment of the present disclosure.

FIG. 8 is a view showing an upgrade screen output to a user through an operation part or a terminal according to an embodiment of the present disclosure.

FIG. 9 is a view showing a process in which one of a plurality of upgrade functions is selected and upgraded according to an embodiment of the present disclosure.

FIG. 10 is a view showing a process in which a washing option upgrade function is set and option values of a washing option are changed according to an embodiment of the present disclosure.

FIG. 11 is a view showing change in a washing option setting screen output through the operation part according to an embodiment of the present disclosure.

FIG. 12 is a view showing change in a washing option setting screen output through the terminal according to an embodiment of the present disclosure.

FIG. 13 is a flowchart showing a method of controlling a laundry treating apparatus according to an embodiment of the present disclosure.

BEST MODE FOR DISCLOSURE

[0060] Hereinafter, embodiments of the present disclosure will be described in detail with reference to the accompanying drawings so that those skilled in the art to which the present disclosure pertains may easily carry out the embodiments.

[0061] However, the present disclosure is not limited to aspects disclosed herein and may be implemented in various different forms. In the drawings, in order to clearly describe the present disclosure, descriptions of elements which are not related to the present disclosure are omitted, and the same or similar elements are denoted by the same reference numerals throughout the specification.

[0062] In the following description of the embodiments, redundant description of the same elements will be omitted.

[0063] When an element is referred to as being "connected to" or "coupled to" another element, it may be directly connected to or coupled to the other element, or intervening elements may be present. In contrast, when an element is referred to as being "directly connected to" or "directly coupled to" another element, there may be no intervening elements present.

[0064] Further, the terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting.

[0065] As used herein, singular forms may be intended to include plural forms as well, unless the context clearly indicates otherwise.

[0066] Further, in the following description of the embodiments, the terms "comprising," "including," or "having" are inclusive and therefore specify the presence of stated features, numbers, steps, operations, elements, components, or combinations thereof, but do not preclude the presence or addition of one or more other features, numbers, steps, operations, elements, components, or combinations thereof.

[0067] Further, as used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items. In the following description of the embodiments, "A or B" may include "A", "B", or "both A and B".

[0068] FIG. 1 shows a laundry treating apparatus 1 according to an embodiment of the present disclosure. Referring to FIG. 1, the embodiment of the present disclosure includes a cabinet 10. The cabinet 10 defines the external appearance of the laundry treating apparatus 1 and includes a space defined therein to accommodate a drum 30, which will be described later.

[0069] The cabinet 10 may have any of various shapes as needed, such as a polyprismatic shape or a cylindrical shape. As shown in FIG. 1, if the cabinet 10 is formed in a rectangular parallelepiped shape, a plurality of panels may be coupled to each other or may be integrally formed

with each other and bent to form the cabinet 10.

[0070] If the cabinet 10 includes a plurality of panels, the plurality of panels may include a front panel 11, a rear panel, a top panel 12, a bottom panel 13, and a pair of side panels.

[0071] The cabinet 10 may include a laundry opening 18 through which laundry is introduced thereinto. The laundry opening 18 may be an inlet formed in one surface of the cabinet 10 so as to allow a user to introduce laundry into the cabinet 10 therethrough.

[0072] The laundry opening 18 may be formed in the front panel 11 or the top panel 12 of the cabinet 10. That is, the embodiment of the present disclosure may take a front loading form in which the laundry opening 18 is formed in the front panel 11 or a top loading form in which the laundry opening 18 is formed in the top panel 12.

[0073] Although the laundry treating apparatus 1 shown in FIG. 1 is of a front loading type in which the laundry opening 18 is formed in the front panel 11 of the cabinet 10, a top-loading-type laundry treating apparatus may be used as needed.

[0074] In addition, the cabinet 10 may be provided with a laundry door 19 to open or close the laundry opening 18. The laundry door 19 may be mounted in various manners, so long as the laundry door 19 is capable of opening or closing the laundry opening 18. According to one embodiment of the present disclosure, as shown in FIG. 1, the laundry door 19 may be hinged to the cabinet 10 so that one side thereof is rotatable.

[0075] The laundry door 19 may be rotated about the hinge to determine opening or closing of the laundry opening 18. For example, the laundry door 19 may be rotated away from the cabinet 10 about the hinge to open the laundry opening 18, or may be rotated so as to come into close contact with the cabinet 10 about the hinge to close the laundry opening 18.

[0076] In addition, the cabinet 10 may be provided with a door locking part 17 to lock the laundry door 19. The door locking part may secure the laundry door 19 so that the laundry opening 18 is maintained in a closed state by the laundry door 19.

[0077] The embodiment of the present disclosure may include a controller 90, and the controller 90 may be communicatively connected to the door locking part 17 to control the operational state of the door locking part 17, thereby controlling the closed state of the laundry door 19.

[0078] For example, the door locking part 17 may be controlled by the controller 90 to lock the laundry door 19 in a closed state so that the laundry door 19 in a closed state is not opened. If the locking state of the door locking part 17 is released, the laundry door 19 may be automatically rotated to open the laundry opening 18 or may be freely manipulated by the user to be opened.

[0079] In addition, the cabinet 10 may be provided with an operation part 100, and the operation part 100 may include an input part 110 and an output part 130. The input part 110 may be operated by the user to generate an operation signal, and the user may transmit an input signal and a command to the controller 90 or the like through the input part 110.

[0080] The output part 130 may provide various types of information to the user. The output part 130 may provide the user with various types of information, such as visual information, audible information, and vibration information. The input part 110 and the output part 130 do not necessarily need to be visually distinct from each other, e.g., to be disposed so as to be spaced apart from each other, and may be provided in a combined form.

[0081] Although the operation part 100 is illustrated in FIG. 1 as being disposed on an upper portion of the front panel 11, the position and shape of the operation part 100 and the number of operation parts 100 may be variously changed as needed. The operation part 100 may be a means for exchange of signals or information between the user and the laundry treating apparatus 1, e.g., the controller 90, and a detailed description of the operation part 100 will be given later.

[0082] Meanwhile, FIG. 1 schematically shows a detergent supply part 40, a drum 30, and a tub 20, which are provided in the cabinet 10.

[0083] The tub 20 may be provided in the cabinet 10 and may accommodate water therein. The tub 20 may be provided to allow the laundry treating apparatus 1 to use a large amount of water in order to treat laundry through a laundry washing course, a rinsing course, etc.

[0084] That is, if the laundry treating apparatus 1 according to the embodiment of the present disclosure is configured to perform a laundry treatment course using wash water, such as the washing course, the tub 20 may be provided in the cabinet 10, and the drum 30 may be mounted in the tub 20.

[0085] However, if the laundry treating apparatus 1 is configured to perform only a treatment course that does not use wash water, such as a drying course for removing moisture from laundry, unlike the washing course, the tub 20 may be omitted. That is, the laundry treating apparatus 1 may include only the drum 30 without the tub 20.

[0086] Meanwhile, the drum 30 may be provided in the cabinet 10 and may accommodate laundry therein. That is, laundry introduced into the cabinet 10 through the laundry opening 18 may be accommodated in the drum 30, and various treatment courses may be performed thereon. The tub 20 and the drum 30 will be described in detail later.

[0087] In addition, the embodiment of the present disclosure may include a detergent supply part 40. The detergent supply part 40 may provide detergent for creating and enhancing a washing effect to the inside of the drum 30 in the washing course for removing contaminants from laundry.

[0088] The detergent supply part 40 may include a plurality of separate detergent storage parts in which detergent is stored. As shown in FIG. 1, the detergent supply part 40 may include a first detergent storage part 41 and a second detergent storage part 42 separated from each

other.

[0089] The number of detergent storage parts may be variously changed as needed, and the user may store different types of detergent in the respective detergent storage parts to use the same. For example, referring to FIG. 1, washing detergent may be stored in the first detergent storage part 41, softener may be stored in the second detergent storage part 42, and the washing detergent and the softener may be provided and used in different amounts.

[0090] The detergent supply part 40 may be provided with a detergent pump to move the detergent in the detergent storage part and supply the same to the inside of the tub 20. If the detergent storage part is provided in plural, the detergent pump may also be provided in plural corresponding to the detergent storage parts.

[0091] The controller 90 may control the detergent pump to adjust the amount of detergent supplied to the inside of the tub 20 or the drum 30 during the washing course.

[0092] The laundry treating apparatus 1 according to the embodiment of the present disclosure may be configured to communicate with a terminal 95 of the user. The terminal 95 of the user refers to a device that allows the user to input or receive information therethrough while being away from the laundry treating apparatus 1. For example, a mobile phone, a computer, etc. that the user may carry may correspond to the terminal 95.

[0093] The embodiment of the present disclosure may perform communication and information exchange with the terminal 95 through the controller 90. Communication with the terminal 95 will be described in detail later.

[0094] Meanwhile, FIG. 2 shows an operation part 100 according to an embodiment of the present disclosure. The operation part 100 may include an input part 110 that generates an input signal when operated by the user and an output part 130 that provides various types of information to the user in response to an output signal from the controller 90.

[0095] The operation part 100 may include the input part 110 and/or the output part 130, and the input part 110 and the output part 130 may be located together or separated from each other. Each of the input part 110 and the output part 130 may be provided in plural and may be disposed at various positions in the cabinet 10.

[0096] According to one embodiment of the present disclosure, as shown in FIG. 2, the operation part 100 is configured such that the input part 110 and the output part 130 are disposed together and implemented in the form of a single control panel. Referring to FIG. 2, the output part 130 may include a display 134 that outputs a screen to provide visual information to the user.

[0097] In detail, the output part 130 may include a screen frame 132 surrounding the display 134 and the display 134 located on the screen frame 132, and may be connected to the controller 90 to output a screen providing necessary information to the user through the display 134. In addition, the output part 130 may further include a speaker to provide audible signals, e.g., various alarm sounds, to the user.

[0098] The input part 110 may generate various input signals in response to operation by the user. For example, the input part 110 may include a button configured to be physically operated by the user, a touch panel configured to generate a signal in response to contact with the user's hand or the like, and a microphone configured to receive a voice signal or the like from the user.

[0099] In the present disclosure, the button includes a physical button configured to be physically changed by operation by the user and a touch button configured to generate an electrical signal in response to contact with the user's hand or the like. That is, in the present disclosure, various types of buttons may be provided in various shapes as needed.

[0100] Referring to FIG. 2, the input part 110 may include a power button 111. If the power button 111 is operated, power may be applied to various components of the laundry treating apparatus 1.

[0101] The laundry treating apparatus 1 according to the embodiment of the present disclosure may be connected to an external power source, and may be maintained in a standby state or a sleep state in which power is not applied to remaining components except for some components. In this state, if the power button 111 is operated, power may also be applied to the remaining components, and the laundry treating apparatus 1 may enter a power-on state or a wake-up state in which the laundry treating apparatus 1 is ready to perform a laundry treatment course.

[0102] The embodiment of the present disclosure may include a power standby part configured to receive power from the external power source at all times regardless of the standby state or the power-on state, and if the power button 111 is operated in the sleep state, the power standby part may allow the application of power to the other components, such as the controller 90.

[0103] In addition, the input part 110 may include a display button 113. The display button 113 may be provided on or disposed near the screen frame 132 of the output part 130. Alternatively, the display button 113 may be replaced with a touch sensing configuration of the display 134.

[0104] A command based on information displayed on the screen output by the display 134 may be input to the display button 113. For example, the user may operate the display button 113 to select a specific region of the screen or one of items displayed on the screen output by the display 134.

[0105] In addition, the input part 110 may include a movement button. The movement button may be disposed on or near the screen frame 132. The movement button may be replaced with a rotary dial disposed on the screen frame 132 or a touch sensing configuration of the display 134.

[0106] The user may operate the movement button to change an object to be selected from a plurality of lists

displayed on the screen output by the display 134.

[0107] The input part 110 may include an execution button 112. The execution button 112 may also function as a pause button. The embodiment of the present disclosure may perform various treatment courses for treating laundry accommodated in the drum 30 under the control of the controller 90. The user may operate the execution button 112 to command execution or pause of the treatment courses.

[0108] In addition, the input part 110 may include a pairing control button 114. In the laundry treating apparatus 1 according to the embodiment of the present disclosure, a pairing mode in which communication with other devices located outside, e.g., an external device 2, is allowed and thus information exchange therewith is possible may be implemented, and a pairing control mode for direct control of the external device 2 may be implemented during the pairing mode.

[0109] That is, when the pairing control mode is implemented, the user may control operation of the external device 2 paired with the laundry treating apparatus 1 according to the embodiment of the present disclosure using the input part 110 provided in the cabinet 10 according to the embodiment of the present disclosure.

[0110] In other words, in the embodiment of the present disclosure, the controller 90 may implement the pairing mode in which communication with the external device 2 located outside the cabinet 10 is allowed and thus information exchange therewith is achieved. The controller 90 may implement the pairing mode while communicating with another controller 90 of the external device 2.

[0111] If the user operates the pairing control button 114 of the input part 110 during the pairing mode, the controller 90 may implement the pairing control mode in which a command is directly transmitted to the other controller 90 of the external device 2 through the input part 110. Of course, the other controller 90 of the external device 2 may also perform pairing control on the controller 90.

[0112] In addition, the input part 110 may include an option setting part 115. In the embodiment of the present disclosure, the user may operate the option setting part 115 to adjust set values of a plurality of options.

[0113] In detail, in the embodiment of the present disclosure, various treatment courses for treating laundry may be preset in the controller 90.

[0114] For example, the plurality of treatment courses may include a washing course for removing contaminants from laundry, a rinsing course for rising laundry, a spin-drying course for removing moisture from laundry through a physical method using, for example, centrifugal force, and a drying course for removing moisture from laundry through phase change such as evaporation of water.

[0115] In addition, each of the plurality of treatment courses may include a plurality of adjustable options. Each of the plurality of options may have a plurality of option values C200 that are selectable by the user, and any one of the plurality of option values C200 may be adopted as a set value of the corresponding option.

[0116] The user may operate the option setting part 115 to change the set values of the options, the set values of which are allowed to be changed. That is, each of the options may be set to have an initial set value prior to change by the user, and the user may change a set value of a specific option through the option setting part 115 from an initial set value to another option value C200.

[0117] The option setting part 115 may include a plurality of buttons for changing the options, and may be controlled by the controller 90 such that operation thereof is allowed for options changeable by the user in the currently selected treatment course and generation of a signal thereby is prohibited for options unchangeable by the user.

[0118] For example, if a command for changing options changeable by the user in the currently selected treatment course is input, the controller 90 may reflect the corresponding command, but if a command for changing options unchangeable by the user is input, the controller 90 may ignore the corresponding command.

[0119] The input part 110 according to the embodiment of the present disclosure may include various buttons for user convenience in addition to the plurality of buttons mentioned above.

[0120] Meanwhile, FIG. 3 shows a laundry treating apparatus 1 including a tub 20 and a detergent supply part 40 in one embodiment of the present disclosure.

[0121] Referring to FIG. 3, if the laundry treating apparatus 1 according to the embodiment of the present disclosure is configured to perform a laundry washing course, the laundry treating apparatus 1 may include the tub 20 and the detergent supply part 40.

[0122] Referring to FIG. 3, the tub 20 may be provided in the cabinet 10, may include a space defined therein to accommodate water, and may be formed in any of various shapes. The tub 20 may include a tub opening 22 formed in one surface thereof so as to face the laundry opening 18 in the cabinet 10.

[0123] For example, the tub 20 may have a cylindrical shape in which a space is defined, and the tub opening 22 may be formed in the front surface of the tub 20 so as to face the laundry opening 18. Laundry introduced through the laundry opening 18 may be introduced into the tub 20 through the tub opening 22.

[0124] The drum 30 may be provided in the tub 20. The drum 30 may be formed in any of various shapes, so long as the drum 30 includes a space defined therein. The drum 30 may be configured to be rotatable by a driving part 35.

[0125] The driving part 35 may be provided outside the tub 20, and the drum 30 may have a rotary shaft connected to a rear surface thereof. The driving part 35 may be directly connected to the rotary shaft or may be indirectly connected to the rotary shaft via a belt or the like.

[0126] The drum 30 may be rotatably provided in the tub 20 and may include a drum opening 32 formed in the

surface thereof facing the tub opening 22. That is, the inside of the drum 30 may communicate with the outside through the drum opening 32, the tub opening 22, and the laundry opening 18.

[0127] Accordingly, laundry introduced through the laundry opening 18 by the user may be accommodated in the drum 30 through the laundry opening 18, the tub opening 22, and the drum opening 32. The laundry opening 18, the tub opening 22, and the drum opening 32 may be aligned with each other in a direction parallel to the rotary shaft of the drum 30.

[0128] The drum 30 may have a circular section in order to easily rotate about the rotary shaft thereof. For example, the drum 30 may be formed in a cylindrical shape. In addition, the drum 30 may include a plurality of through-holes formed in the peripheral surface thereof.

[0129] Because the drum 30 is mounted in the tub 20 in which water is accommodated, the water in the tub 20 may enter the drum 30 through the through-holes in the drum 30, and thus may be provided to the laundry.

[0130] In addition, the embodiment of the present disclosure may include a water supply part 60. The water supply part 60 may be connected to an external water source provided outside the cabinet 10, such as a water supply of a city, to supply water to the inside of the cabinet 10.

[0131] The water supply part 60 may include a water supply valve to control flow of water. Water supplied from outside the cabinet 10 may flow along a water supply pipe 62 to be directly supplied to the inside of the tub 20 or to be supplied to the detergent supply part 40.

[0132] The detergent supply part 40 may store detergent and may supply the detergent to the inside of the tub 20 or the drum 30. If the water supply pipe 62 is connected to the detergent supply part 40, the detergent supply part 40 may supply the detergent to the inside of the tub 20 together with the water supplied through the water supply pipe 62.

[0133] In addition, the embodiment of the present disclosure may include a drain part 70. The controller 90 may control the drain part 70 to perform a drain process in order to discharge the water in the tub 20 to the outside during the washing course or the like.

[0134] The drain part 70 may include a drain pipe connected to the tub 20 to guide the water in the tub 20 to the outside, a drain valve mounted in the drain pipe to control flow of the water, and a drain pump mounted in the drain pipe to generate flow of the water.

[0135] In addition, the embodiment of the present disclosure may include the controller 90. The controller 90 may be communicatively connected to various components consuming power to control operation of the components. The controller 90 may be divided into a plurality of parts as needed or may include various detailed components.

[0136] For example, the controller 90 may functionally include a communicator for communication with external or other components, a storage part for storage of information, and a calculation part for processing of information. In addition, the controller 90 may include sub-controllers 90 provided for respective components and a main controller 90 communicatively connected to the sub-controllers 90 to control the sub-controllers 90.

[0137] At least some of the detailed components of the controller 90 divided according to the functions thereof or components controlled thereby may be spatially or functionally integrated with each other as needed. Alternatively, at least some of the detailed components may be disposed so as to be spatially separated from each other.

[0138] Meanwhile, FIG. 4 shows a configuration capable of implementing a laundry drying course, with the tub 20 and the detergent supply part 40 eliminated therefrom, according to an embodiment of the present disclosure.

[0139] Referring to FIG. 4, the tub 20 may be eliminated, and the drum 30 may be rotatably provided in the cabinet 10. The driving part 35 may be located on one side of the cabinet 10 and may be connected to the drum 30 itself or the rotary shaft of the drum 30 to provide rotational force to the drum 30.

[0140] In addition, the cabinet 10 may be provided therein with a heating part 50 to provide hot air to laundry in the drum 30. The heating part 50 may be mounted on a base part 14 located on the bottom panel 13 inside the cabinet 10.

[0141] FIG. 4 shows the heating part 50 provided outside the drum 30 and configured to provide dehumidified and heated air to the inside of the drum 30 and to receive the air having passed through the drum 30.

[0142] Referring to FIG. 4, the heating part 50 may include an air passage 51 communicating with the inside of the drum 30. Air containing water vapor generated by evaporation of moisture contained in laundry is present in the drum 30. The air in the drum 30 may be discharged from the drum 30 and may be introduced into the air passage 51. For example, the air discharged from the inside of the drum 30 to the outside of the drum 30 through the drum opening 32 may be introduced into the air passage 51 and then may flow along the air passage 51.

[0143] In addition, the heating part 50 may include a dehumidifying part 52. The dehumidifying part 52 may contact air flowing along the air passage 51, thereby condensing water vapor in the air and thus separating the water vapor from the air. Therefore, the air flowing along the air passage 51 may be dehumidified so that the amount of water vapor is greatly reduced while passing through the dehumidifying part 52.

[0144] The heating part 50 may include a temperature raising part 53. The temperature raising part 53 may heat the air flowing along the air passage 51 through direct contact or thermal contact with the air. The air flowing along the air passage 51 may become hot and dry while passing through the dehumidifying part 52 and the temperature raising part 53.

[0145] The heating part 50 may include a fluid system forming the dehumidifying part 52 and the temperature

raising part 53. The fluid system may include a compressor, a condenser, a diffusion valve, and an expander. The dehumidifying part 52 may correspond to the expander, and the temperature raising part 53 may correspond to the condenser.

[0146] However, the disclosure is not limited to a structure in which the heating part 50 includes the fluid system, and the dehumidifying part 52 and the temperature raising part 53 may be implemented in any of various forms.

[0147] The heating part 50 may include a blower 54. The blower 54 may be located in a space communicating with the air passage 51, e.g., in the air passage 51, to generate a flow of air. The air in the drum 30 may circulate while flowing through the air passage 51 due to operation of the blower 54.

[0148] That is, in the embodiment of the present disclosure, the heating part 50 dehumidifies and heats the air flowing along the air passage 51 communicating with the inside of the drum 30 and supplies the dehumidified and heated air to the inside of the drum 30. In this way, hot and dry air is supplied to the inside of the drum 30 to remove moisture contained in laundry.

[0149] However, the heating part 50 shown in FIG. 4 is merely illustrative of one example of the heating part 50 for implementing the drying course, and the disclosure is not necessarily limited to the above-described form or type of heating part 50 for providing hot air to laundry.

[0150] For example, the heating part 50 may be of an exhaust type that supplies air introduced from the outside of the cabinet 10 to the inside of the drum 30 and discharges the air in the drum 30 to the outside. Alternatively, the heating part 50 may be of a static type that heats and dehumidifies air in the drum 30 without creating flow of air.

[0151] Further, although the laundry treating apparatus 1 shown in FIG. 3 and the laundry treating apparatus 1 shown in FIG. 4 are separately illustrated for convenience of description, it should be understood that the configurations thereof are compatible with each other.

[0152] For example, the embodiment of the present disclosure may include not only the water supply part 60, the tub 20, and the detergent supply part 40 in order to perform the laundry washing course, but may also include any of various types of heating parts 50 in order to perform the laundry drying course.

[0153] FIG. 5 shows the internal structure of a laundry treating apparatus 1 including both a tub 20 and a heating part 50 and configured to be able to perform a washing course and a drying course. As shown in FIG. 5, the laundry treating apparatus 1 according to an embodiment of the present disclosure may be implemented in a form capable of respectively performing a washing course and a drying course.

[0154] Referring to FIG. 5, the embodiment of the present disclosure may include a detergent supply part 40 connected to a water supply part 60, and the detergent supply part 40 may supply detergent to the inside of the tub 20 during the washing course.

[0155] A drum 30 may be rotatably provided in the tub 20. A driving part 35 that provides rotational force to the drum 30 may be provided in the cabinet 10. Laundry that has passed through the laundry opening 18, the tub opening 22, and the drum opening 32 may be accommodated in the drum 30.

[0156] Water supplied to the inside of the tub 20 through the water supply part 60 may be discharged to the outside through a drain part 70. After the washing process and the rinsing process are completed, a drain pump of the drain part 70 may be operated to discharge the water in the tub 20 to the outside of the cabinet 10.

[0157] In addition, a heating part 50 may be provided in the cabinet 10. FIG. 5 shows a heating part 50 provided outside the tub 20 and configured to heat air in the tub 20. For example, the heating part 50 may generate an electromagnetic field in the tub 20, the drum 30 may be heated by an eddy current formed under the influence of the electromagnetic field, and air may increase in temperature due to the heated drum 30, thereby performing the laundry drying course.

[0158] In this way, the laundry treating apparatus 1 according to the embodiment of the present disclosure may be implemented in a form capable of performing both the laundry washing course and the laundry drying course.

[0159] Meanwhile, FIG. 6 shows a laundry treating system according to an embodiment of the present disclosure and schematically shows various communication environments that may be realized by the laundry treating apparatus 1.

[0160] Referring to FIG. 6, the laundry treating system according to the embodiment of the present disclosure may include the above-described laundry treating apparatus 1. Redundant descriptions of the laundry treating apparatus 1 will be omitted. In addition, the laundry treating system may include a terminal 95 portable by the user and may include a server 97 capable of exchanging information with a controller 90 of the laundry treating apparatus 1 and the terminal 95.

[0161] The laundry treating system according to the embodiment of the present disclosure may further include an external device 2, and the laundry treating apparatus 1 may perform a pairing mode with at least one external device 2. For example, the laundry treating apparatus 1 according to the embodiment of the present disclosure may perform a pairing mode through communication with an external device 2 disposed outside the cabinet 10.

[0162] That is, the controller 90 may perform a pairing mode through communication with another controller 90 of the external device 2. The controller 90 may perform a pairing mode while exchanging information with the other controller 90 or another communication part of the external device 2 through a communication part.

[0163] FIG. 6 shows a state in which the embodiment of the present disclosure is connected to two external devices 2. However, the number of external devices 2 connectable to the laundry treating apparatus 1 accord-

ing to the embodiment of the present disclosure may vary.

[0164] In the embodiment of the present disclosure, the external device 2 may perform an external treatment course for treating laundry. For example, the external device 2 may include a drum 30 to accommodate laundry. The external device 2 may be provided with another controller 90 to control various devices provided in the external device 2, separately from the controller 90 of the laundry treating apparatus 1 according to the embodiment of the present disclosure.

[0165] In addition, the external device 2 may include another output part 130 configured to output a screen to provide information related to the operational state thereof controlled by the other controller 90 or the treated state of laundry.

[0166] The laundry treating apparatus 1 according to the embodiment of the present disclosure may perform a laundry washing course, and the external device 2 may perform a laundry drying course. The reverse may also be possible. Both the laundry treating apparatus 1 according to the embodiment of the present disclosure and the external device 2 may perform a laundry washing course or a laundry drying course.

[0167] Meanwhile, in the embodiment of the present disclosure, a communication scheme through which the controller 90 and the external device 2 exchange information with each other may vary. For example, the controller 90 may directly communicate with the other communication part of the external device 2 in a Bluetooth manner or the like through the communication part.

[0168] In addition, the controller 90 or the communication part may exchange information through an external communication medium 96, which is provided separately from the laundry treating apparatus 1 according to the embodiment of the present disclosure and the external device 2 and provides a signal for communication.

[0169] For example, the external communication medium 96 may generate a Wi-Fi signal, the controller 90 may exchange information with the external communication medium 96 based on the Wi-Fi signal, and the other controller 90 provided in the external device 2, separately from the controller 90 of the laundry treating apparatus 1 according to the embodiment of the present disclosure, may receive a signal transmitted from the controller 90 through information exchange with the external communication medium 96.

[0170] As described above, in the case in which the controller 90 directly generates a signal and the case in which the external communication medium 96 is used as a signal generation means, the information transmitted to the outside from the controller 90 or the information received by the controller 90 may also be collected through various paths.

[0171] For example, even in the case in which the controller 90 directly transmits or receives a signal, the controller 90 may directly transmit a signal to the other controller 90 of the external device 2, or may transmit a signal to the external server 97 so that the other controller 90 receives the signal from the server 97.

[0172] Even in the case in which the controller 90 uses the external communication medium 96, information transmitted to the external communication medium 96 from the controller 90 may be directly transmitted to the external device 2, or information transmitted to the external communication medium 96 may be transmitted to the server 97, and then the other controller 90 of the external device 2 may receive the information from the server 97.

[0173] Of course, the relationship of a transmitter and a receiver between the controller 90 provided in the laundry treating apparatus 1 according to the embodiment of the present disclosure and the other controller 90 of the external device 2 may be reversed.

[0174] In addition, the laundry treating apparatus 1 according to the embodiment of the present disclosure may also be capable of communicating with the aforementioned terminal 95 of the user. For example, the controller 90 may implement a remote control mode in which the controller 90 provides information related to the current operational state to the user through the terminal 95 and is controlled in response to a command transmitted from the terminal 95 through information exchange with the terminal 95.

[0175] The communication or information exchange scheme between the controller 90 and the terminal 95 may be identical to the above-described communication or information exchange scheme between the controller 90 and the other controller 90. For example, the controller 90 may directly exchange information with the terminal 95, or may exchange information with the terminal 95 through the external communication medium 96 and/or the server 97.

[0176] Meanwhile, as shown in FIG. 7, in one embodiment of the present disclosure, a list of various upgrade functions C100 for changing or adding various options of the laundry treating apparatus 1 is displayed.

[0177] Here, the option refers to a function that is stored in the controller 90 or the like and allows the user to freely change option values C200 to improve convenience of use of the laundry treating apparatus 1.

[0178] The option may include a course option for changing various conditions for the above-described laundry treatment courses and a setting option for changing conditions for operation or a specific function of the laundry treating apparatus 1.

[0179] The course option may include a washing option for changing various conditions of the washing course and/or a drying option for changing various conditions of the drying course.

[0180] For example, the washing option may include a wash water amount option for adjustment of the amount of wash water, a wash water temperature option for adjustment of the temperature of wash water, and a detergent amount option for adjustment of the amount of detergent supplied.

[0181] The drying option may include a dryness option

for adjustment of the dryness of laundry, an air temperature option for adjustment of the temperature of air, and a drying time option for adjustment of an execution time of the drying course.

[0182] Meanwhile, the setting option may refer to a function that is not related to the treatment course but is set in the controller 90 in order to change various settable conditions for use of the laundry treating apparatus 1.

[0183] For example, the setting option may include a pairing option for allowance of information exchange between the above-described external device 2 and the laundry treating apparatus 1 according to the embodiment of the present disclosure, a brightness option for adjustment of the brightness of the display 134 of the output part 130, an alarm sound option for changing an alarm sound output from the output part 130, and an image option for changing an image on the screen output from the output part 130.

[0184] Meanwhile, the upgrade function C100 is a program element that changes the content of an option preset and pre-stored in the controller 90 or creates a new option not set in the controller 90 and sets and stores the new option in the controller 90.

[0185] The upgrade function C100 may be pre-prepared through the server 97 or the like and may be provided to the controller 90 using a predetermined communication scheme. For example, in a state of being completely programmed so as to be settable in the controller 90, the upgrade function C100 may be provided to the server 97, and the controller 90 and/or the terminal 95 may receive information on the upgrade function C100 from the server 97.

[0186] The user may identify the information on the upgrade function C100 through the operation part 100 or the terminal 95, and may select a corresponding upgrade function C100 as needed to command the controller 90 to set the same therein.

[0187] The command of setting of the upgrade function C100, generated through the operation part 100 or the terminal 95, may be transmitted to the server 97 or the controller 90. In the case in which the setting command is transmitted to the server 97, the server 97 may command the controller 90 to set and apply data on the upgrade function C100, and the controller 90 may install, based on the command signal transmitted from the server 97, the data on the corresponding upgrade function C100 in the aforementioned storage part or the like so that the data is usable.

[0188] In the case in which the setting command is transmitted to the controller 90, the controller 90 may request data on the upgrade function C100, which is a target of the setting command, from the server 97, the server 97 may provide data on the upgrade function C100 to the controller 90 in response to the corresponding request, and the controller 90 may set and store the upgrade function C100 through the corresponding data.

[0189] In the embodiment of the present disclosure, as shown in FIG. 7, the upgrade function C100 may be provided in plural, and the user may select only a necessary one from among the plurality of upgrade functions C100 to set the selected one in the controller 90 so that the same is reflected.

[0190] That is, the plurality of upgrade functions C100 may not be directly installed in the controller 90 of the laundry treating apparatus 1, and may be provided to the user so as to be selectable through the output part 130 of the operation part 100 or the terminal 95 of the user.

[0191] The user may receive and identify the upgrade functions C100 settable in the controller 90 through the display 134 of the operation part 100 or the terminal 95, and may select only his/her desired ones from among the plurality of upgrade functions C100 to set the selected ones in the controller 90 and utilize the same.

[0192] FIG. 7(a) shows a state in which a list of the plurality of upgrade functions C100 settable in the controller 90 is displayed, and FIG. 7(b) shows a state in which a list of upgrade functions C100 remaining after only a specific upgrade function C100 is selected and reflected in FIG. 7(a) is displayed.

[0193] Referring to FIG. 7, a plurality of upgrade functions C100 to be installed in or applied to the controller 90 may be pre-prepared through the server 97 or the like and may be provided to the user. The user may identify an upgrade list through the screen output from the operation part 100 or the terminal 95, and may select an upgrade function C100 that the user wishes to use from the corresponding list to set the selected upgrade function in the controller 90.

[0194] The operation part 100 or the terminal 95 may output the upgrade list in FIG. 7 on the screen as is, or may output a screen containing the same information but having a different image. The user may operate the operation part 100 or the terminal 95 to select his/her desired one from among the upgrade functions C100 provided through the server 97 or the like.

[0195] FIG. 7 shows a selection area C10 in which information on whether or not the corresponding upgrade function C100 is selected is displayed. If the user selects his/her desired upgrade function C100 from the upgrade list, a selection mark C20 indicating the selection of the corresponding upgrade function C100 may be provided on the screen, as shown in FIG. 7.

[0196] FIG. 7(a) shows an example in which a "second upgrade function C100" is selected by the user, and FIG. 7(b) shows an upgrade list in which a first upgrade function C100 and a third upgrade function C100, except for the second upgrade function C100, are displayed after the second upgrade function C100 is set in the controller 90.

[0197] As such, according to the embodiment of the present disclosure, even after a specific upgrade function C100 is selected from among the plurality of upgrade functions C100 by the user and is reflected in the controller 90, the remaining upgrade functions C100 may be provided to the user through the operation part 100 or the terminal 95 so as to be selected by the user.

[0198] That is, even after sale of the laundry treating apparatus 1, the embodiment of the present disclosure may provide various upgrade functions C100 for increasing user convenience or improving efficiency to the user from the server 97. Further, since the user is allowed to select his/her desired upgrade function C100 from among the plurality of upgrade functions C100 and utilize the same, the user may use a user-customized laundry treating apparatus 1 in which the user's intention is reflected.

[0199] Meanwhile, FIG. 8 shows an upgrade screen P100 on which the plurality of upgrade functions C100 is displayed so as to be selected and applied by the user. FIG. 8(a) shows an example of the upgrade screen P100 displayed through the display 134 of the operation part 100, and FIG. 8(b) shows an example of the upgrade screen displayed through the terminal 95 of the user, e.g., a mobile phone.

[0200] However, the upgrade screen P100 shown in FIG. 8 is merely an example for explaining the present disclosure, and the concrete configuration of the screen is not necessarily identical to that shown in FIG. 8. The configuration of the screen may be variously modified, so long as the plurality of upgrade functions C100 is selectably displayed thereon.

[0201] In addition, although the operation part 100 and the terminal 95 are illustrated in FIG. 8 as outputting upgrade screens P100 having substantially the same configuration, the upgrade screens P 100 output from the operation part 100 and the terminal 95 may have different configurations as needed.

[0202] For example, the display 134 of the operation part 100 may have a relatively limited screen output area compared to the terminal 95. Thus, the display 134 of the operation part 100 may output an upgrade screen P100 on which a relatively small number of upgrade functions C100 is displayed compared to the terminal 95, or may display a plurality of upgrade functions C100 in a form different from that of the terminal 95, for example, may display a plurality of upgrade functions C100 in a grid form.

[0203] Further, although FIG. 8 shows the upgrade screens P100 respectively provided by the operation part 100 and the terminal 95, only one of the operation part 100 and the terminal 95 may provide the upgrade screen P 100 as needed.

[0204] For example, the controller 90 may not provide the upgrade screen P100 in consideration of a storage capacity and a calculation capacity, and the user may access the upgrade screen P100 only through the terminal 95 and may perform setting of the upgrade function C100 through the terminal 95. The reverse may also be possible.

[0205] Meanwhile, FIG. 9 shows changes in the upgrade screen P100 during the process in which one of the plurality of upgrade functions C100 is selected and set in the controller 90. The upgrade screen P100 shown in FIG. 9 may be a screen output from the operation part 100 or the terminal 95.

[0206] In detail, FIG. 9(a) shows the upgrade screen P100 in which a list of a plurality of upgrade functions C100 is displayed, and the plurality of upgrade functions C100 includes a washing option upgrade function C110, a drying option upgrade function C120, an alarm sound option upgrade function C130, and an image option upgrade function C140.

[0207] However, the plurality of upgrade functions C100 may include only some of the aforementioned upgrade functions C100 or may include other upgrade functions C100.

[0208] Meanwhile, FIG. 9(a) shows a state in which the selection mark C20 is displayed in the selection area C10 of the washing option upgrade function C110. That is, the upgrade screen P100 shown in FIG. 9(a) corresponds to a state in which the user selects the washing option upgrade function C110 for change or addition of the washing option for adjustment of the washing course from among the plurality of upgrade functions C100.

[0209] FIG. 9(b) shows an example of a screen output while the upgrade function C100 selected by the user is set in the controller 90. During the process of installing the upgrade function C100, the operation part 100 or the terminal 95 may output a screen for notifying the user that the corresponding upgrade function C100 is being set.

[0210] FIG. 9(c) shows an upgrade screen output after the washing option upgrade function C110 is selected and set.

[0211] After the washing option upgrade function C110 is completely set, the remaining upgrade functions C100 except for the washing option upgrade function C110 may not disappear, and may be displayed through the upgrade screen P100 so as to be additionally selected and set by the user.

[0212] Although FIG. 9 shows a case in which the washing option upgrade function C110 is set for convenience of description, the upgrade function C100 that is selected by the user and set in the controller 90 may vary as needed, and the remaining upgrade functions C100 that are not set in the controller 90 and are displayed so as to be selectable by the user may also vary as needed.

[0213] According to the embodiment of the present disclosure, various upgrade functions C100 may be preprepared through the server 97 or the like for use convenience and provided to the user, and the user may select his/her desired function from among the plurality of upgrade functions C100 and set the selected function in the controller 90.

[0214] Accordingly, the user may customize the laundry treating apparatus 1 as he or she wishes, and may change necessary settings in the controller 90, thereby improving use convenience.

[0215] Meanwhile, in the embodiment of the present disclosure, a plurality of options, set values of which are adjusted based on the operation signal, may be stored in the controller 90. In the present disclosure, the option

refers to a control function in which a plurality of option values C200 of the corresponding option is pre-stored in the controller 90, and the user selects one of the plurality of option values C200 and determines the selected value to be a set value, so that a function related to the corresponding option is executed based on the determined set value.

[0216] As described above, the option of the present disclosure includes a course option related to the treatment courses and a setting option related to the overall operation of the laundry treating apparatus 1.

[0217] Meanwhile, a plurality of upgrade functions C100 for change or addition of the option may be provided to the user through the operation part 100 or the terminal 95, and an upgrade function C100 selected by the user from among the plurality of upgrade functions C100 may be set in the controller 90.

[0218] In the embodiment of the present disclosure, changing the option may mean that option values C200 selectable by the user in the corresponding option are changed. Addition of the option may mean that a plurality of option values C200 of specific data in the controller 90 that is unchangeable by the user is provided and set to become changeable by the user.

[0219] Hereinafter, the laundry treating apparatus 1 configured to provide the washing option upgrade function C110 according to an embodiment of the present disclosure will be described in detail.

[0220] First, as described above, the laundry treating apparatus 1 according to the embodiment of the present disclosure may include a cabinet 10, a tub 20, a drum 30, an operation part 100, and a controller 90. The tub 20 may be provided in the cabinet 10 and may accommodate water therein.

[0221] The drum 30 may be provided to be rotatable by a driving part 35 and may accommodate laundry therein. The operation part 100 may be provided on the cabinet 10 to provide information to the user, and may generate an operation signal in response to operation by the user.

[0222] The controller 90 may perform a laundry washing course based on an operation signal transmitted from the operation part 100 or the terminal 95 of the user. The washing course may be a course in which laundry is washed in a state in which water is accommodated in the tub 20.

[0223] Meanwhile, the plurality of upgrade functions C100 may include a washing option upgrade function C110 for changing a washing option for adjustment of the washing course among the plurality of options.

[0224] That is, in the embodiment of the present disclosure, the washing option may be an option preset in the controller 90. For example, the washing option having a plurality of option values C200 may be preset in the controller 90, and the user may select any one as a set value from among the plurality of option values C200 through the washing option, so that the corresponding washing option may be adjusted and the washing course may be performed.

[0225] Further, in this way, if the washing option upgrade function C110 is selected by the user and set in the controller 90, data on the washing option may be changed by the washing option upgrade function C 110 and stored in the controller 90, and the controller 90 may provide, based on the data changed by the washing option upgrade function C110, the washing option to the user so that the user changes the washing option.

[0226] The washing option may be provided in plural, and as described above, the plurality of washing options may be options for adjustment of the amount of wash water, the temperature of wash water, the amount of detergent supplied, the number of rising cycles, and/or the number of spin-drying cycles.

[0227] The embodiment of the present disclosure may provide the user with various upgrade functions C100 including the washing option upgrade function C110, and the user may select the washing option upgrade function C110 and reflect the same in the controller 90, whereby unnecessary change in settings in the controller 90 may be excluded, and the washing option changed through the washing option upgrade function C110 may be provided only to a user who needs to change the washing option.

[0228] Meanwhile, FIG. 10 shows the washing option that is changed through the washing option upgrade function C110. FIG. 10(a) shows option values C200 of the washing option before upgrade of the washing option, and FIG. 10(b) shows option values C200 of the washing option after upgrade of the washing option.

[0229] Referring to FIG. 10(a), in the embodiment of the present disclosure, a plurality of option values C200 of the washing option may be stored in the controller 90, and any one of the plurality of option values C200 may be determined to be a set value of the washing option based on the operation signal and reflected in the washing course.

[0230] For example, if the washing option is a wash water amount option for adjustment of the amount of wash water or a detergent amount option for adjustment of the amount of detergent supplied, a plurality of option values C200 in which the quantities of a target to be adjusted are determined differently, e.g., option values C200 corresponding to "large amount", "medium amount", and "small amount", may be pre-stored in the controller 90.

[0231] If one of the plurality of option values C200 is determined to be a set value of the washing option based on an operation signal created by the user, the controller 90 may control the water supply part 60 or the detergent supply part 40 to supply the wash water or the detergent in an amount corresponding to the determined set value.

[0232] Meanwhile, referring to FIG. 10(b), if the washing option upgrade function C110 is set, the option values C200 may be changed or added and then stored in the controller 90.

[0233] Although the user is capable of selecting any one of the plurality of option values C200, the controller

90 may be set such that the user is not capable of changing the plurality of option values C200. For example, the user is capable of determining the amount of detergent supplied by selecting any one of the option values C200 corresponding to the aforementioned large amount, medium amount, and small amount, but is not capable of changing the amount of detergent supplied corresponding to the large amount. Further, the user is not capable of selecting the amount of detergent supplied other than the preset option values C200 corresponding to the large amount, the medium amount, and the small amount.

[0234] However, according to the embodiment of the present disclosure, in the case in which the washing option upgrade function C110 is set in the controller 90, an additional option value C220 for the washing option may be stored in the controller 90 in addition to an existing option value C210 for the washing option pre-stored in the controller 90 and may be provided to the user.

[0235] The additional option value C220 may have a different value from the existing option value C210, and thus the user may set, using the additional option value C220, the washing option to a value that is not set through the existing option value C210.

[0236] In addition, the embodiment of the present disclosure may additionally store the additional option value C220 in the controller 90 through the washing option upgrade function C110 and may also change the existing option value C210.

[0237] For example, in the case in which the washing option corresponds to the detergent amount option for the amount of detergent supplied, when the washing option upgrade function C110 is set in the controller 90, the actual amount of detergent corresponding to each exiting option value C210 may be changed, so that a plurality of option values C200 divided more appropriately may be provided to the user.

[0238] According to the embodiment of the present disclosure, since the option values C200 of the washing option are changed through the washing option upgrade function C 110, the user may set the washing option more variously. Further, the user may set the washing option upgrade function C110 in the controller 90 only when he or she wishes to set the washing option more variously, and thus may directly customize the laundry treating apparatus 1 that provides his/her desired function.

[0239] Meanwhile, the embodiment of the present disclosure may include the detergent supply part 40 described above, and the detergent supply part 40 may be connected to the drum 30 to supply detergent to the inside of the drum 30.

[0240] The controller 90 may implement the washing course while controlling the detergent supply part 40, and may adjust the amount of detergent supplied from the detergent supply part 40 based on the set value of the washing option.

[0241] That is, in the embodiment of the present disclosure, the above-described washing option may correspond to the detergent amount option for adjustment of the amount of detergent supplied to the inside of the drum 30 from the detergent supply part 40 during the washing course.

[0242] In addition to the existing option value C210 of the detergent amount option preset in the controller 90 and provided to the user, the user may set an additional option value C220 added through the washing option upgrade function C110 to a set value of the detergent amount option, whereby the amount of detergent may be adjusted within a wider range.

[0243] Meanwhile, as described above, first detergent and second detergent may be separately stored in the detergent supply part 40. For example, the detergent supply part 40 may include the first detergent storage part 41 and the second detergent storage part 42 described above, the first detergent may be stored in the first detergent storage part 41, and the second detergent may be stored in the second detergent storage part 42.

[0244] The washing option may include a first washing option for adjustment of the amount of first detergent supplied and a second washing option for adjustment of the amount of second detergent supplied. When the washing option upgrade function C110 is set in the controller 90, each of the first washing option and the second washing option may be changed.

[0245] That is, the washing option may be provided in plural, the plurality of washing options may include the first washing option for adjustment of the amount of first detergent supplied and the second washing option for adjustment of the amount of second detergent supplied, and the controller 90 may change the option values C200 of the first washing option and the option values C200 of the second washing option through the washing option upgrade function C 110 and may provide the changed option values to the user.

[0246] However, in the embodiment of the present disclosure, the washing option upgrade function C110 may also be divided into a first washing option upgrade function C110 and a second washing option upgrade function C110.

[0247] In the embodiment of the present disclosure, a plurality of option values C200 of the washing option corresponding to different amounts of detergent supplied may be stored in the controller 90 and provided to the user so as to be selectable by the user. When the washing option upgrade function C110 is set, the amounts of detergent supplied corresponding to at least some of the plurality of option values C200 may be changed and stored in the controller 90.

[0248] Alternatively, a plurality of option values C200 of the washing option corresponding to different amounts of detergent supplied may be stored in the controller 90 and provided to the user so as to be selectable by the user. When the washing option upgrade function C110 is set, the number of option values C200 may be changed and stored in the controller 90.

[0249] FIGs. 11 and 12 show washing option setting screens P200 on which option values C200 are added

and provided as the washing option upgrade function C110 is set in the controller 90 according to the embodiment of the present disclosure.

[0250] FIG. 11 shows an example of a washing option setting screen P200 output through the display 134 of the operation part 100, and FIG. 12 shows an example of a washing option setting screen P200 output through the terminal 95.

[0251] However, this is merely for convenience of description. The screen shown in FIG. 12 may be output from the operation part 100, and the screen shown in FIG. 11 may be output from the terminal 95.

[0252] The user may adjust various course options of the washing course before implementation of the washing course. That is, the user may access the washing option setting screen P200 for changing the set value of the detergent amount option through the option button in order to adjust the amount of detergent supplied before implementation of the washing course.

[0253] FIG. 11(a) shows a washing option setting screen P200 on which a plurality of optional values C200 corresponding to existing option values C210 is displayed, and FIGs. 11(b) and 11(c) show washing option setting screens P200 on which a plurality of option values C200 including additional option values C220 as well as the existing option values C210 is displayed.

[0254] In detail, referring to FIG. 11(a), before the washing option upgrade function C110 is set, option values C200 named "small", "medium", and "large", which indicate the amount of detergent supplied, may be set as the option values C200 of the washing option in the controller 90. The names of the option values C200 may vary as needed.

[0255] Accordingly, as shown in FIG. 11(a), the washing option setting screen P200 on which the option values C200 named "small", "medium", and "large" corresponding to the existing option values C210 are displayed may be output from the operation part 100 or the terminal 95.

[0256] Any one of the plurality of option values C200 may be displayed as the set value on the washing option setting screen P200. For example, as shown in FIG. 11(a), an option value C200 displayed at the center of the screen with increased brightness among the plurality of option values C200 is the set value of the washing option. The user may change an option value C200, which is to be determined to be the set value, using the aforementioned movement button or the like on the washing option setting screen P200.

[0257] FIGs. 11(b) and 11(c) show the washing option setting screens P200 on which additional option values C220 added through the washing option upgrade function C110 are displayed. FIG. 11(b) shows an additional option value C220 named "smaller" corresponding to the smaller amount of detergent than the aforementioned existing option value C210 named "small", and FIG. 11(c) shows an additional option value C220 named "larger" corresponding to the larger amount of detergent than the existing option value C210 named "large".

[0258] In the case in which the washing option setting screen P200 is output from the operation part 100, a plurality of option values C200 needs to be effectively output in the limited area of the display 134. Therefore, as shown in FIG. 11, the washing option setting screen P200 may be output such that the plurality of option values C200 is sequentially displayed on the screen through the movement button or the like.

[0259] In the embodiment of the present disclosure, the user may effectively select, through the above-described additional option value C220, the amount of detergent that the user is not capable of selecting through the existing option value C210.

[0260] Meanwhile, FIG. 12(a) shows a washing option setting screen P200 on which a plurality of optional values C200 corresponding to existing option values C210 is displayed, and FIG. 12(b) shows a washing option setting screen P200 on which a plurality of option values C200 including additional option values C220 as well as the existing option values C210 is displayed.

[0261] FIG. 12 shows an example of the washing option setting screen P200 that is partially different in image form and expression type of the option values C200 from the screen shown in FIG. 11. Because all of the plurality of option values C200 is displayed on one screen, it may be easier to output the same through the terminal 95. However, the washing option setting screen P200 shown in FIG. 12 may be output through the operation part 100.

[0262] As shown in FIG. 12, when the washing option upgrade function C110 is set in the controller 90, the types of option values C200 displayed on the washing option setting screen P200 so as to be selectable by the user may increase.

[0263] As indicated by the selection mark C20, the user may select one option value C200, which is to be determined to be the set value of the washing option, from among the plurality of option values C200 through the operation part 100 or the terminal 95. The option value C200 selected as indicated by the selection mark C20 may be reflected as the set value of the washing option and applied to the washing course.

[0264] Meanwhile, in the embodiment of the present disclosure, as described above, the operation part 100 or the terminal 95 may output the upgrade screen P100 on which the plurality of upgrade functions C100 is displayed so as to be selectable. The upgrade function C100 selected by the user on the upgrade screen P100 may be set in the controller 90, and the remaining upgrade functions may not be set in the controller 90.

[0265] That is, not all of the plurality of upgrade functions C100 is set in the controller 90, and only one selected by the user may be set in the controller 90 and utilized.

[0266] In addition, the upgrade screen P100 may display the remaining upgrade functions except for the upgrade function C100 set in the controller 90 among the plurality of upgrade functions C100. Accordingly, the user may also set the remaining upgrade functions, except for

the upgrade function C100 selected in the first stage, in the controller 90 in a subsequent selection stage if he or she wishes.

[0267] Meanwhile, when the washing option upgrade function C110 is set in the controller 90, the plurality of option values C200 may be changed in number or display type and output on the washing option setting screen P200.

[0268] FIGs. 11 and 12 show the washing option setting screens P200 on which the option values C200 are changed in number or display form and output according to the embodiment of the present disclosure.

[0269] Meanwhile, when the washing option upgrade function C110 is set in the controller 90, a form in which one of the plurality of option values C200 displayed on the washing option setting screen P200 output from the operation part 100 or the terminal 95 is selected may be changed.

[0270] For example, the plurality of option values C200 displayed on the washing option setting screen P200 may be aligned in one direction in a list form, and after the washing option upgrade function C110 is applied, the plurality of option values C200 displayed on the washing option setting screen P200 may be changed to a grid form.

[0271] In addition, as shown in FIGs. 11 and 12, when the washing option upgrade function C110 is set in the controller 90, the washing option setting screen P200 output from the operation part 100 or the terminal 95 may be changed from a form in which one of the plurality of option values C200 is moved to a fixed set value position to a form in which a set value mark is moved to one of the fixed plurality of option values C200.

[0272] In detail, as shown in FIG. 11, when the number of option values C200 is equal to or less than a predetermined number, the washing option setting screen P200 may be output in a form in which the user moves one of the plurality of option values C200 to a fixed set value position to determine the set value of the washing option.

[0273] Meanwhile, as shown in FIG. 12, when the number of option values C200 exceeds the predetermined number through the washing option upgrade function C110, the washing option setting screen P200 may be output in a form in which the user identifies the fixed positions of the plurality of option values C200 and places the selection mark C20 on the option value C200, which is to be determined to be the set value, to determine the set value.

[0274] Further, as shown in FIG. 12(a), the washing option setting screen P200 may be output in a form in which the plurality of option values C200 is listed in one direction and the selection mark C20 is created on one option value C200, and when the washing option upgrade function C110 is set in the controller 90, as shown in FIG. 12(b), the washing option setting screen P200 may be changed to a form in which the selection mark C20 is displayed at all times and is moved to one of the positions representing the plurality of option values C200 to determine the set value.

[0275] That is, in the embodiment of the present disclosure, when the washing option upgrade function C110 is set in the controller 90, the types of option values C200 may increase, and the set value determination type may be changed from the dial type shown in FIG. 11 to the check type shown in FIG. 12(a) and from the check type to the sliding type shown in FIG. 12(b).

[0276] As described above, according to the embodiment of the present disclosure, a form in which the option values C200 are selected on the washing option setting screen P200 may be changed through the washing option upgrade function C110, and accordingly, the user may effectively select the plurality of option values C200 and may intuitively recognize the correlation between the option values C200.

[0277] Meanwhile, as described above, the laundry treating system according to the embodiment of the present disclosure may include the laundry treating apparatus 1 and the terminal 95.

[0278] The laundry treating apparatus 1 may include a tub 20 accommodating water, a drum 30 rotatably provided in the tub 20 and accommodating laundry, an operation part 100 configured to provide information to the user or to be operated by the user, and a controller 90 configured to perform the laundry washing course in response to an operation signal from the operation part 100.

[0279] The terminal 95 may be located outside the laundry treating apparatus 1, may be allowed to exchange information with the laundry treating apparatus 1, and may provide information to the user or be operated by the user.

[0280] A plurality of options, the set values of which are adjusted based on the operation signal, may be stored in the controller 90, a plurality of upgrade functions C100 for change or addition of the options may be provided to the user through the operation part 100 or the terminal 95, and an upgrade function C100 selected by the user from among the plurality of upgrade functions C100 may be set in the controller 90.

[0281] The plurality of upgrade functions C100 may include a washing option upgrade function C110 for changing, among the plurality of options, a washing option for adjustment of the amount of detergent supplied from the detergent supply part 40 during the washing course and setting the washing option in the controller 90.

[0282] A plurality of option values C200 of the washing option may be pre-stored in the controller 90, and when the washing option upgrade function C110 is set, an additional option value C200 may be stored in the controller 90 in addition to the plurality of option values C200.

[0283] Each of the operation part 100 and the terminal 95 may output a washing option setting screen P200 on which the plurality of option values C200 and the additional option value C200 are displayed so as to be selectable by the user.

[0284] Meanwhile, FIG. 13 shows a method of control-

ling the laundry treating apparatus 1 according to an embodiment of the present disclosure. A duplicate description of the laundry treating apparatus 1 will be omitted, and the control method according to the embodiment of the present disclosure will be described below.

[0285] First, the laundry treating apparatus 1 according to the embodiment of the present disclosure may include a tub 20 provided in the cabinet 10 to accommodate water, a drum 30 rotatably provided in the tub 20 to accommodate laundry, and a controller 90 configured to perform a washing course on the laundry accommodated in the drum 30.

[0286] The method of controlling the laundry treating apparatus 1 may include an upgrade provision step (S100), an upgrade selection step (S200), an upgrade setting step (S300), and an option setting step (S400).

[0287] In the upgrade provision step (S100), information may be provided to the user, and a plurality of upgrade functions C100 may be provided to the user so as to be selectable by the user through an operation part 100, which is operated by the user, or a terminal 95 of the user.

[0288] The entity that prepares the plurality of upgrade functions C100 and provides the same to the user may correspond to the server 97. That is, the plurality of upgrade functions C100 may be prepared as data by the server 97 so as to be preset in the controller 90, and the operation part 100 and/or the terminal 95 may output, based on the information provided by the server 97, an upgrade screen P100 on which the plurality of upgrade functions C100 is displayed.

[0289] In the upgrade selection step (S200), an upgrade function C100 to be set in the controller 90 may be selected from among the plurality of upgrade functions C100 based on an operation signal generated by the user through the operation part 100 or the terminal 95.

[0290] The user may operate the operation part 100 and the terminal 95 to select an upgrade function C100 that he or she wishes to use from among the plurality of upgrade functions C100 and to command the controller 90 to set the selected upgrade function C100 therein.

[0291] In the upgrade setting step (S300), the controller 90 may change or add an option corresponding to the upgrade function C100 selected in the upgrade selection step (S200).

[0292] The upgrade function C100 may be set in the controller 90 by the server 97 receiving a user's command or in response to a user's command directly transmitted to the controller 90. The controller 90 may receive data corresponding to the upgrade function C100 selected by the user from the server 97, and may set and store the corresponding data in the storage part or the like.

[0293] In the option setting step (S400), the option changed or added by the controller 90 in the upgrade setting step (S300) may be provided to the user so as to be set by the user through the operation part 100 or the terminal 95.

[0294] The plurality of upgrade functions C100 may include a washing option upgrade function C110 for changing a washing option for adjustment of the washing course, and if the washing option upgrade function C110 is selected in the upgrade selection step (S200), the controller 90 may change and store the washing option according to the washing option upgrade function C110 in the upgrade setting step (S300).

[0295] Meanwhile, the upgrade setting step (S300) may include a washing option upgrade determination step (S310) and a washing option upgrade step (S315).

[0296] In the washing option upgrade determination step (S310), the controller 90 may determine whether the washing option upgrade function C110 is selected based on the operation signal in the upgrade selection step (S200).

[0297] Upon determining in the washing option upgrade determination step (S310) that the washing option upgrade function C110 is selected, the controller 90 may perform the washing option upgrade step (S315).

[0298] In the washing option upgrade step (S315), the controller 90 may change and store the washing option according to the washing option upgrade function C110.

[0299] Upon determining in the washing option upgrade determination step (S310) that the washing option upgrade function C110 is not selected, the controller 90 may omit the washing option upgrade step (S315).

[0300] A plurality of option values C200 that the user may select as a set value of the washing option may be stored in the controller 90, and in the washing option upgrade step (S315), the controller 90 may change or add and store the plurality of option values C200 of the washing option according to the washing option upgrade function C110.

[0301] The above description is merely illustrative of specific embodiments of the present disclosure, and it will be apparent to those skilled in the art that various modifications and variations can be made in the present disclosure without departing from the spirit or scope of the present disclosure as defined by the appended claims.

Claims

1. A laundry treating apparatus comprising:

a cabinet;
a tub provided in the cabinet to accommodate water;
a drum rotatably provided in the tub to accommodate laundry;
an operation part provided in the cabinet to provide information to a user and to be operated by the user; and
a controller configured to perform a laundry washing course based on an operation signal transmitted from the operation part or a terminal of the user,

wherein a plurality of options comprising set values adjustable based on the operation signal is stored in the controller,
wherein a plurality of upgrade functions for change or addition of the options is provided to the user through the operation part or the terminal,
wherein an upgrade function selected by the user from among the plurality of upgrade functions is set in the controller, and
wherein the plurality of upgrade functions comprises a washing option upgrade function to change a washing option for adjustment of the washing course among the plurality of options.

2. The laundry treating apparatus of claim 1, wherein a plurality of option values of the washing option is stored in the controller,

wherein one of the plurality of option values is determined to be a set value of the washing option based on the operation signal and is reflected in the washing course, and
wherein, if the washing option upgrade function is set, the controller changes at least one of the plurality of option values of the washing option or adds an option value.

3. The laundry treating apparatus of claim 1, comprising a detergent supply part connected to the drum to supply detergent to an inside of the drum,
wherein the controller controls the detergent supply part so that an amount of detergent supplied is adjusted during the washing course according to a set value of the washing option.

4. The laundry treating apparatus of claim 3, wherein the detergent supply part separately stores first detergent and second detergent,

wherein the washing option comprises a first washing option for adjustment of an amount of the first detergent supplied and a second washing option for adjustment of an amount of the second detergent supplied, and
wherein, if the washing option upgrade function is set, the controller changes or adds an option value of each of the first washing option and the second washing option.

5. The laundry treating apparatus of claim 3, wherein a plurality of option values of the washing option corresponding to different amounts of detergent supplied is stored in the controller and is provided to the user so as to be selectable, and
wherein, if the washing option upgrade function is set, amounts of detergent supplied corresponding to at least some of the plurality of option values are changed.

6. The laundry treating apparatus of claim 3, wherein a plurality of option values of the washing option corresponding to different amounts of detergent supplied is stored in the controller and is provided to the user so as to be selectable, and
wherein, if the washing option upgrade function is set, a number of the option values is changed and stored in the controller.

7. The laundry treating apparatus of claim 1, wherein the operation part or the terminal outputs an upgrade screen on which the plurality of upgrade functions is selectably displayed, and
wherein, among the plurality of upgrade functions on the upgrade screen, an upgrade function selected by the user is set in the controller, and a remaining upgrade function is not set in the controller.

8. The laundry treating apparatus of claim 7, wherein the upgrade screen does not display an upgrade function preset in the controller.

9. The laundry treating apparatus of claim 1, wherein a plurality of option values of the washing option is stored in the controller,

wherein one of the plurality of option values is determined to be a set value and is reflected in the washing course,
wherein the operation part or the terminal outputs a washing option setting screen on which the plurality of option values is selectably displayed, and
wherein, if the washing option upgrade function is set in the controller, a number or display form of the plurality of option values on the washing option setting screen is changed.

10. The laundry treating apparatus of claim 9, wherein, if the washing option upgrade function is set in the controller, a form in which one of the plurality of option values displayed on the washing option setting screen output from the operation part or the terminal is selected is changed.

11. The laundry treating apparatus of claim 10, wherein, if the washing option upgrade function is set, the washing option setting screen is output such that a selection mark located corresponding to an option value to be selected as a set value from among the plurality of option values is displayed so as to be movable by the user.

12. A laundry treating system comprising:

a laundry treating apparatus comprising a tub

configured to accommodate water, a drum rotatably provided in the tub to accommodate laundry, an operation part configured to provide information to a user or to be operated by the user, and a controller configured to perform a laundry washing course based on an operation signal from the operation part; and
a terminal located outside the laundry treating apparatus and configured to be allowed to exchange information with the laundry treating apparatus and to provide information to the user or to be operated by the user,
wherein a plurality of options comprising set values adjustable based on the operation signal is stored in the controller,
wherein a plurality of upgrade functions for change or addition of the options is provided to the user through the operation part or the terminal,
wherein an upgrade function selected by the user from among the plurality of upgrade functions is set in the controller, and
wherein the plurality of upgrade functions comprises a washing option upgrade function to change and set, among the plurality of options, a washing option for adjustment of an amount of detergent supplied by a detergent supply part during the washing course in the controller.

13. The laundry treating system of claim 12, wherein a plurality of option values of the washing option is prestored in the controller,

wherein, if the washing option upgrade function is set, an additional option value other than the plurality of option values is stored in the controller, and
wherein each of the operation part and the terminal outputs a washing option setting screen on which the plurality of option values and the additional option value are displayed so as to be selectable by the user.

14. A method of controlling a laundry treating apparatus comprising a tub provided in a cabinet to accommodate water, a drum rotatably provided in the tub to accommodate laundry, and a controller configured to perform a washing course on the laundry accommodated in the drum, the method comprising:

an upgrade provision step of providing information to a user and providing a plurality of upgrade functions to the user so as to be selectable by the user through an operation part configured to be operated by the user or a terminal of the user;
an upgrade selection step of selecting an upgrade function to be set in the controller from among the plurality of upgrade functions based on an operation signal generated by the user through the operation part or the terminal;
an upgrade setting step of changing or adding, by the controller, an option corresponding to the upgrade function selected in the upgrade selection step; and
an option setting step of providing the option changed or added by the controller in the upgrade setting step to the user so as to be set by the user through the operation part or the terminal,
wherein the plurality of upgrade functions comprises a washing option upgrade function to change a washing option for adjustment of the washing course, and
wherein, if the washing option upgrade function is selected in the upgrade selection step, the controller changes and stores the washing option according to the washing option upgrade function in the upgrade setting step.

15. The method of claim 14, wherein the upgrade setting step comprises:

a washing option upgrade determination step of determining, by the controller, whether the washing option upgrade function is selected based on the operation signal in the upgrade selection step; and
a washing option upgrade step of changing and storing, by the controller, the washing option according to the washing option upgrade function upon determining in the washing option upgrade determination step that the washing option upgrade function is selected.

16. The method of claim 15, wherein a plurality of option values selectable as a set value of the washing option by the user is stored in the controller, and
wherein, in the washing option upgrade step, the controller changes or adds and stores the plurality of option values of the washing option according to the washing option upgrade function.

FIG. 1

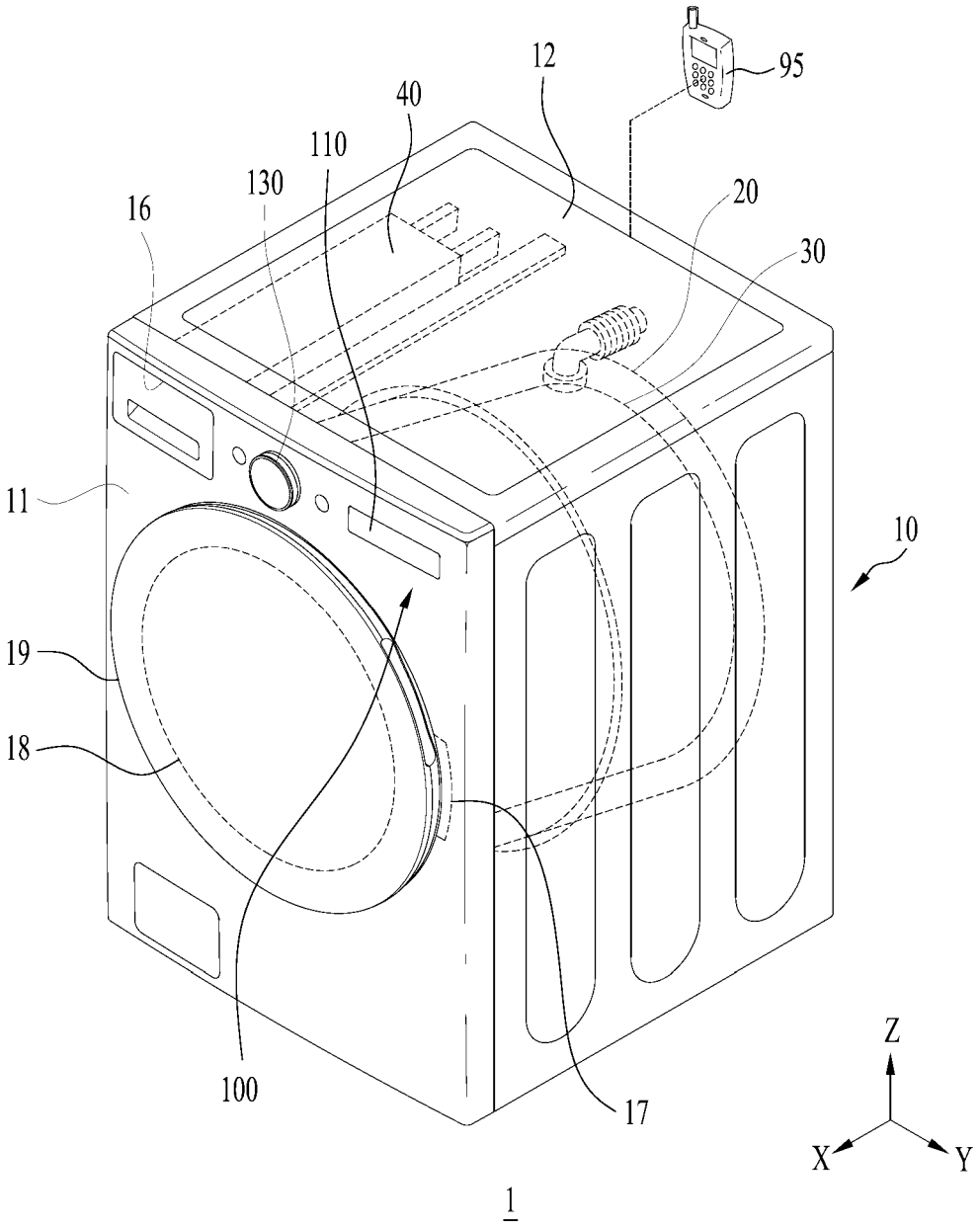
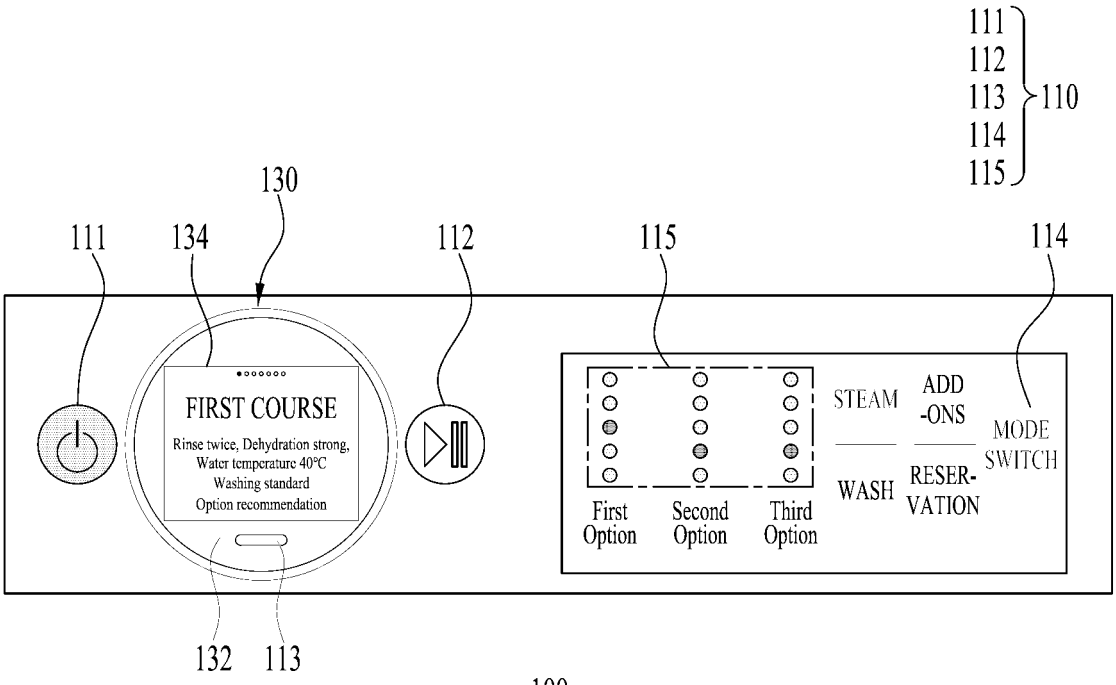


FIG. 2


111
112
113
114
115
110
130
111
134
112
115
114
FIRST COURSE
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Water temperature 40℃
Washing standard
Option recommendation
STEAM
ADD
-ONS
MODE
SWITCH
WASH
RESER-
VATION
First
Option
Second
Option
Third
Option
132
113
100

FIG. 3

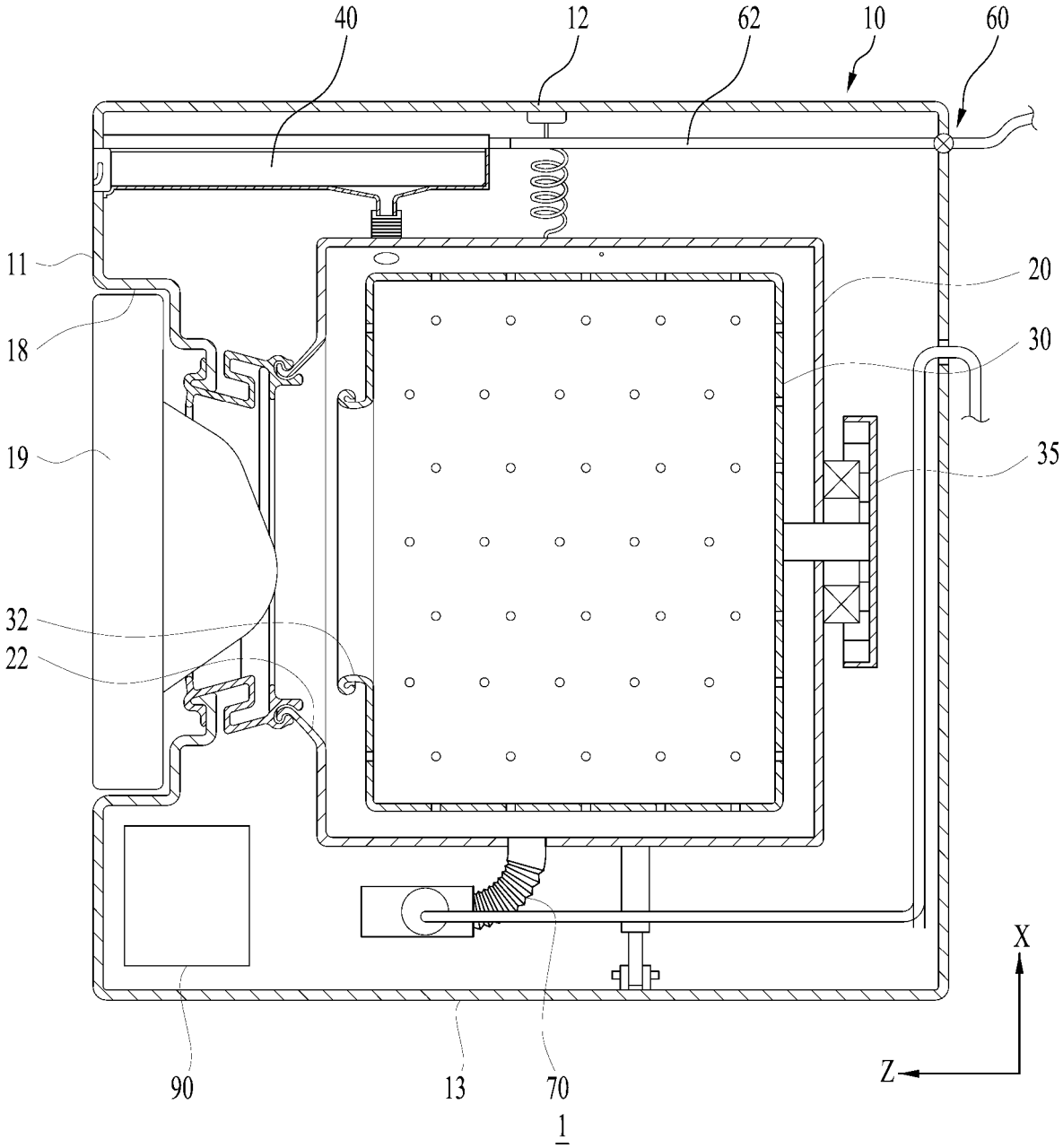


FIG. 4

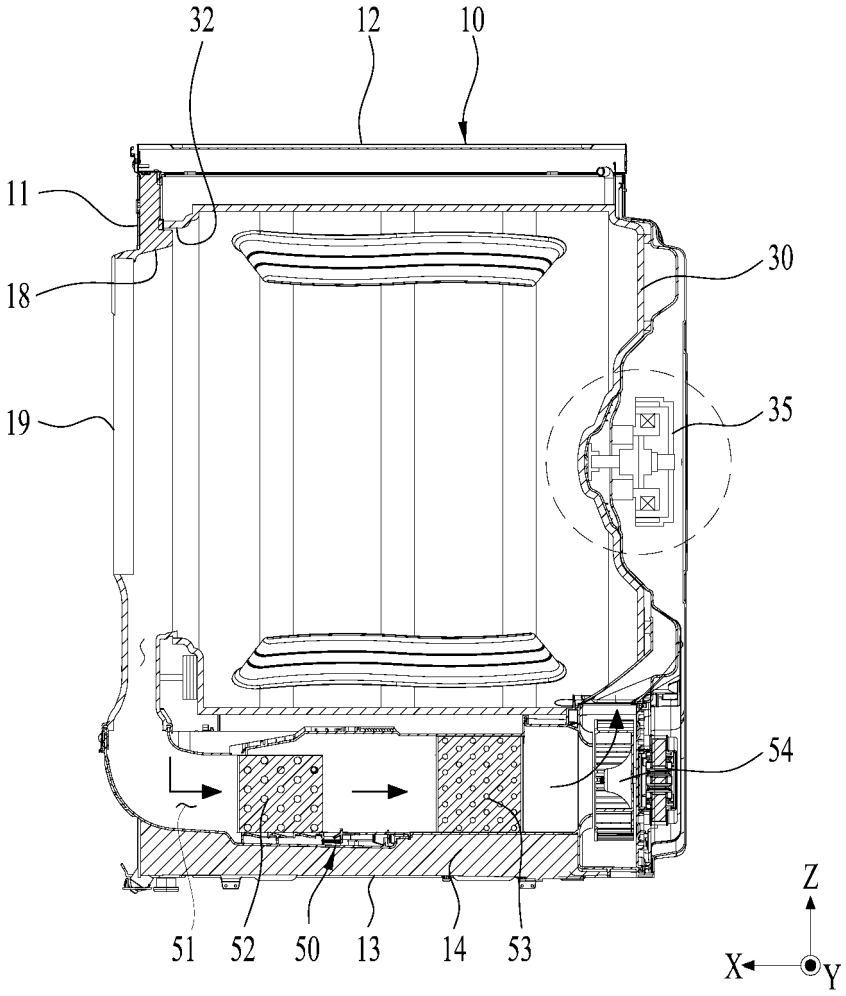


FIG. 5

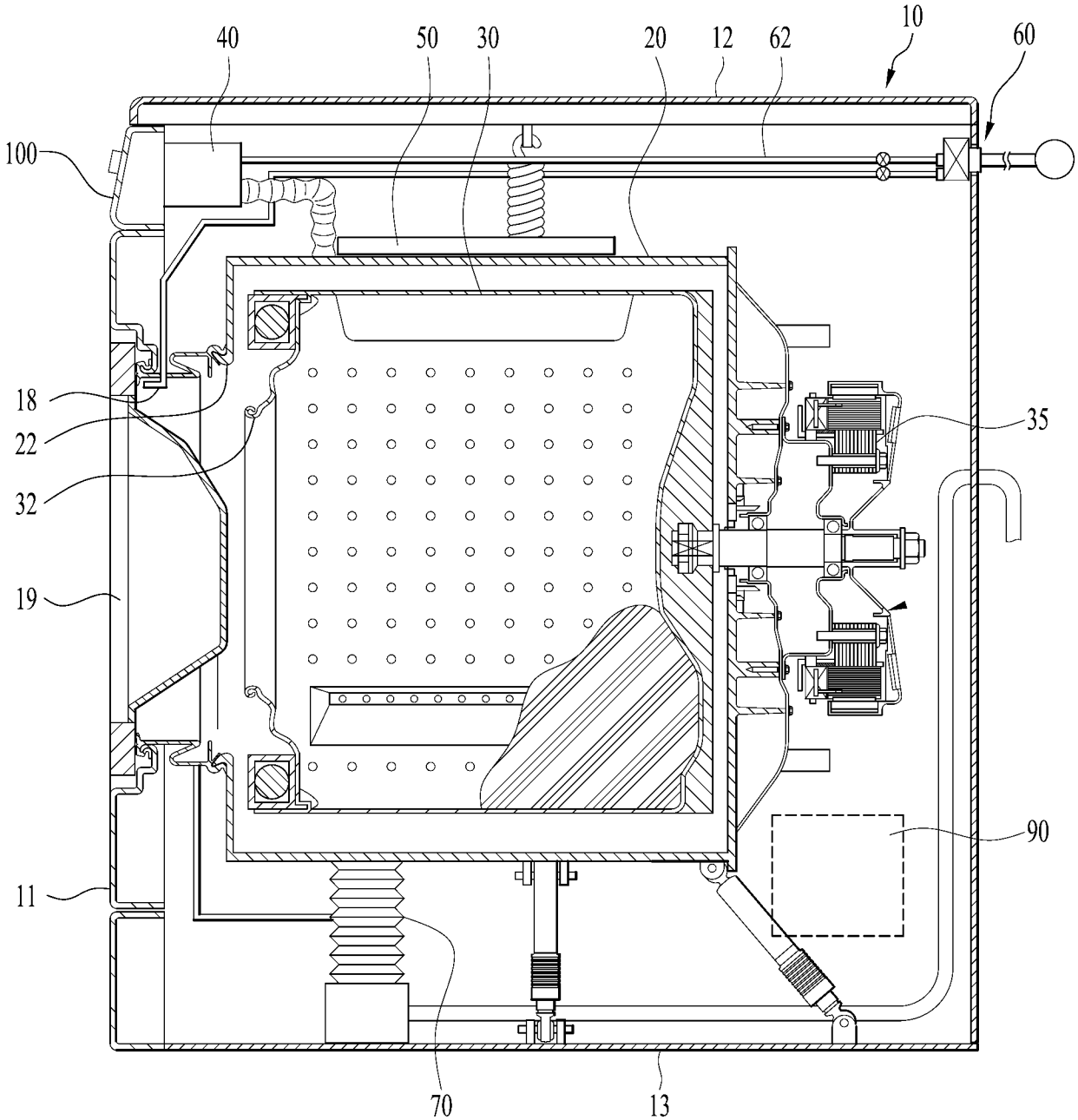


FIG. 6

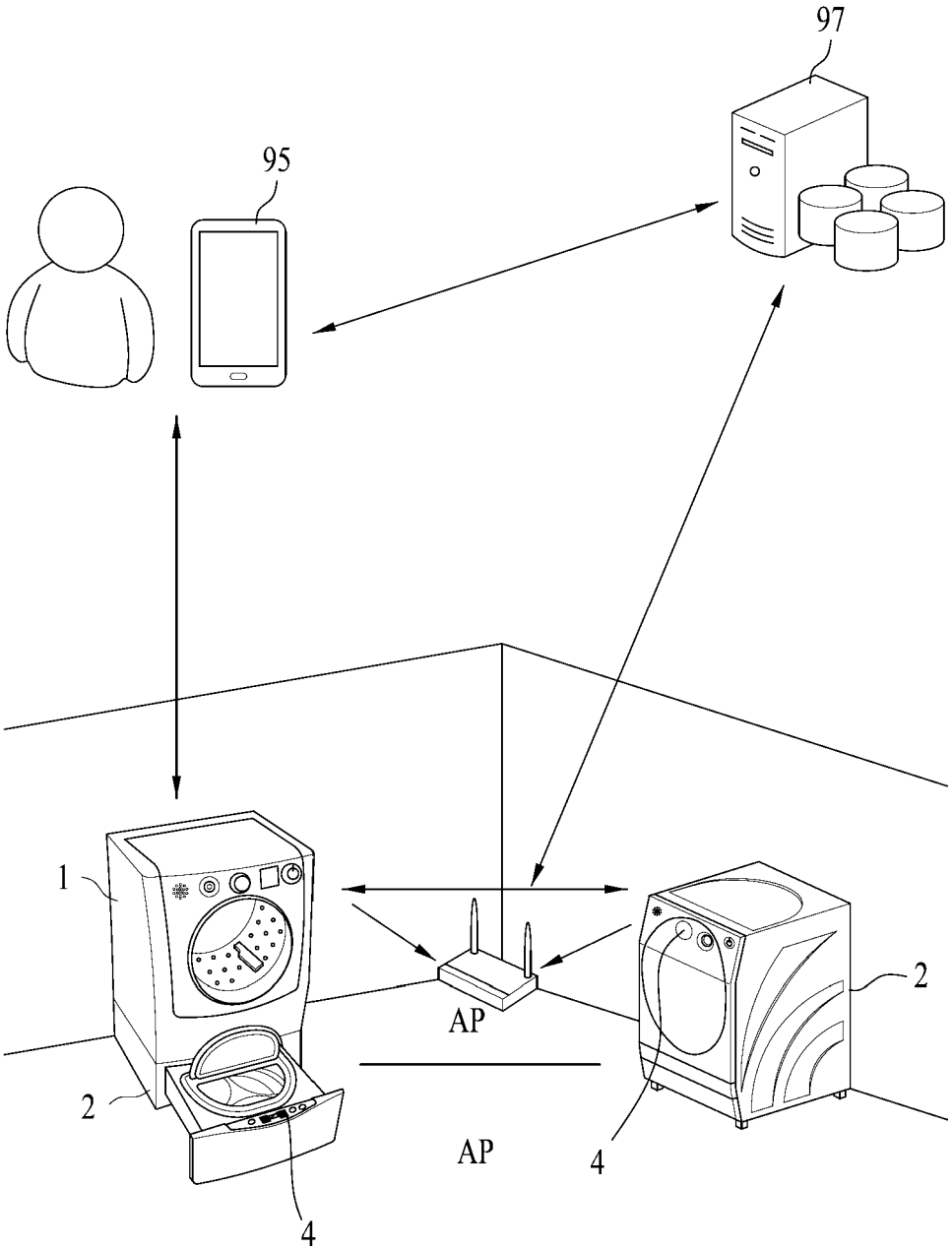


FIG. 7

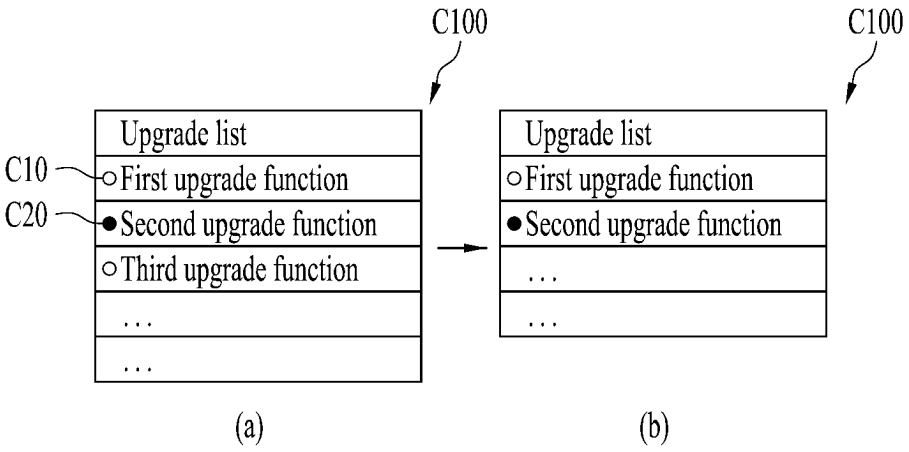

C100
C100
Upgrade list
C10
First upgrade function
C20
Second upgrade function
Third upgrade function
...
...
Upgrade list
First upgrade function
Second upgrade function
...
...
(a)
(b)

FIG. 8

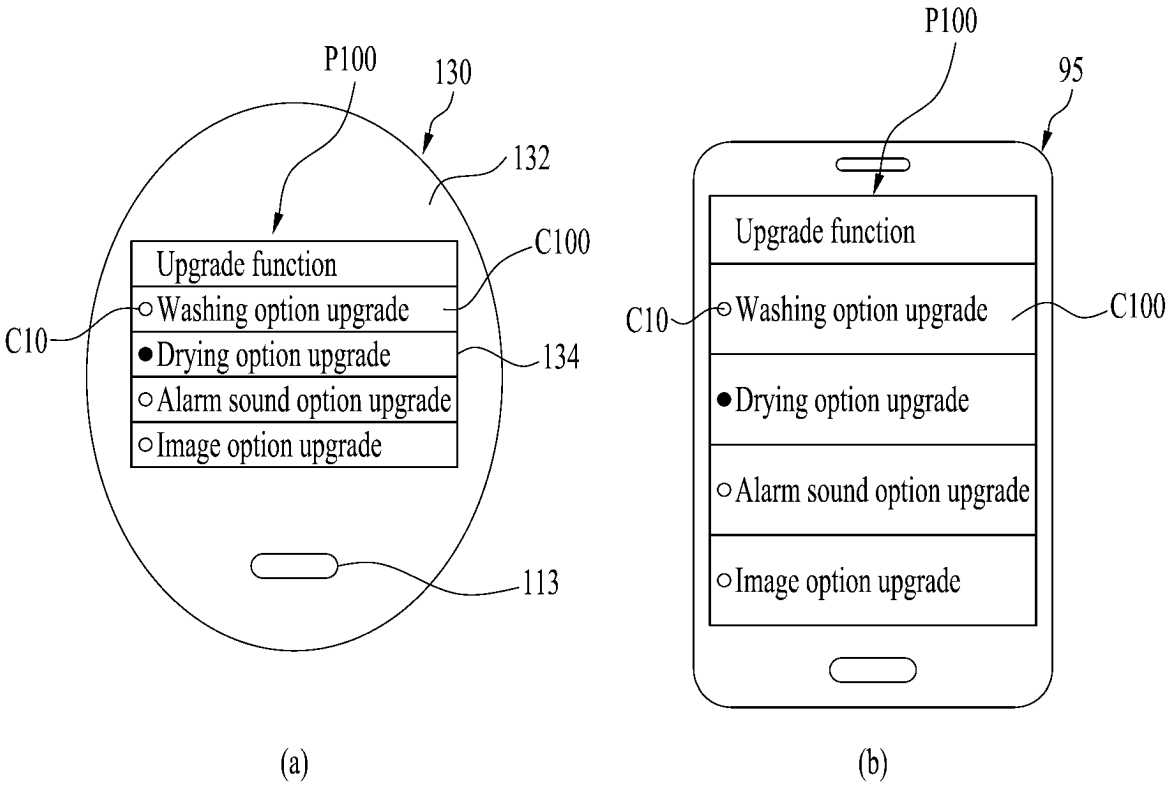

P100
130
132
C100
C10
134
113
Upgrade function
Washing option upgrade
Drying option upgrade
Alarm sound option upgrade
Image option upgrade
(a)
P100
95
C10
C100
Upgrade function
Washing option upgrade
Drying option upgrade
Alarm sound option upgrade
Image option upgrade
(b)

FIG. 9

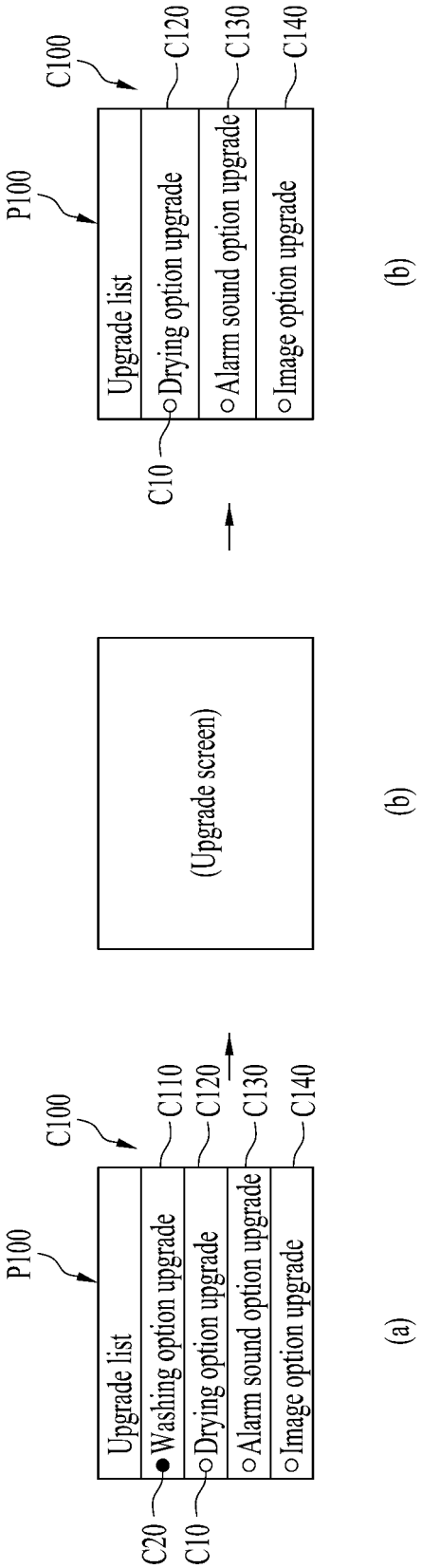

P100
C100
C110
C120
C130
C140
Upgrade list
Washing option upgrade
Drying option upgrade
Alarm sound option upgrade
Image option upgrade
C20
C10
(a)
(Upgrade screen)
(b)
P100
C100
C120
C130
C140
Upgrade list
Drying option upgrade
Alarm sound option upgrade
Image option upgrade
C10
(b)

FIG. 10

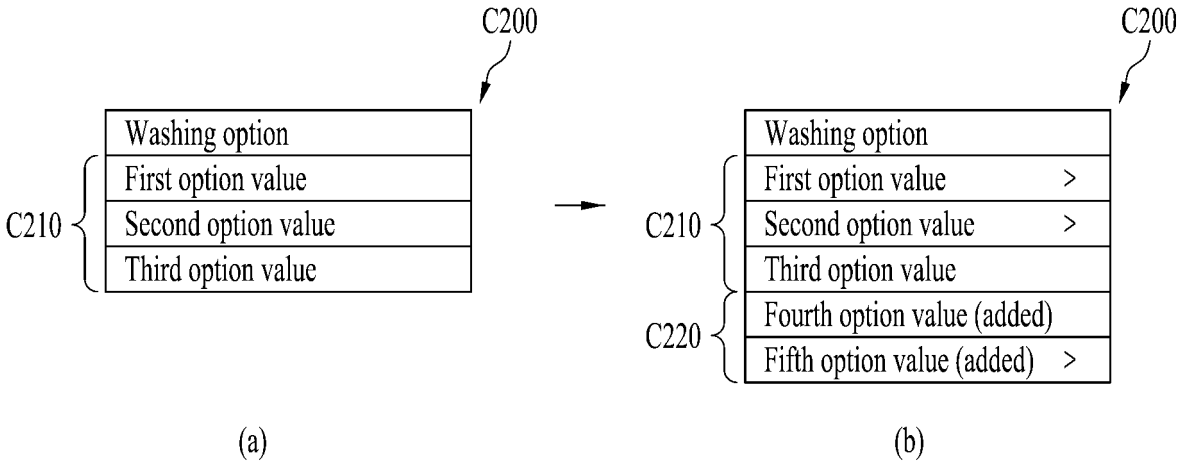

C200
Washing option
C210
First option value
Second option value
Third option value
(a)
C200
Washing option
C210
First option value >
Second option value >
Third option value
C220
Fourth option value (added)
Fifth option value (added) >
(b)

FIG. 11

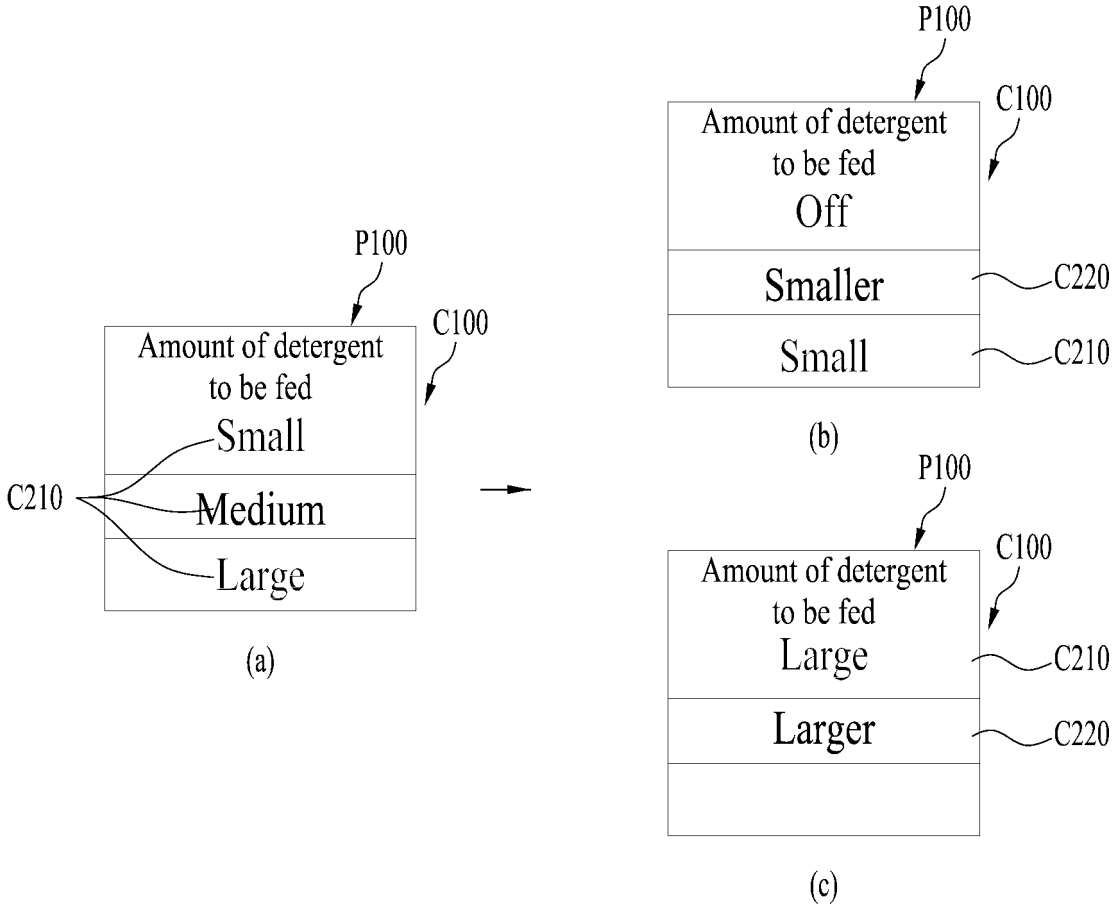

P100
C100
Amount of detergent to be fed
Small
Medium
Large
C210
(a)
P100
C100
Amount of detergent to be fed
Off
Smaller
C220
Small
C210
(b)
P100
C100
Amount of detergent to be fed
Large
C210
Larger
C220
(c)

FIG. 12

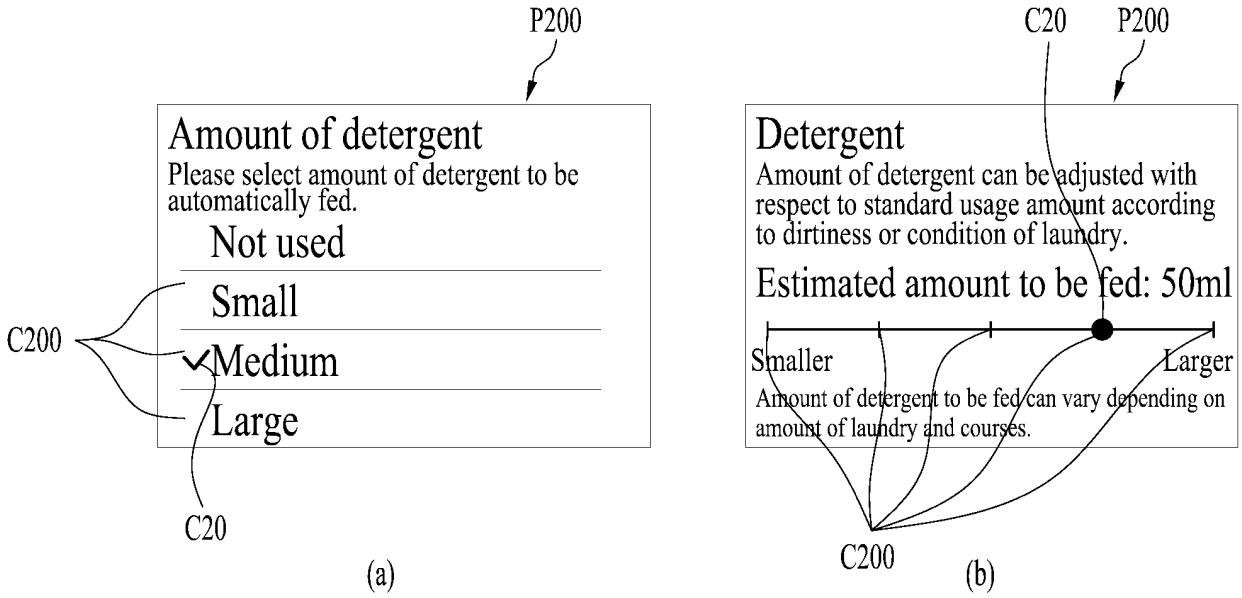
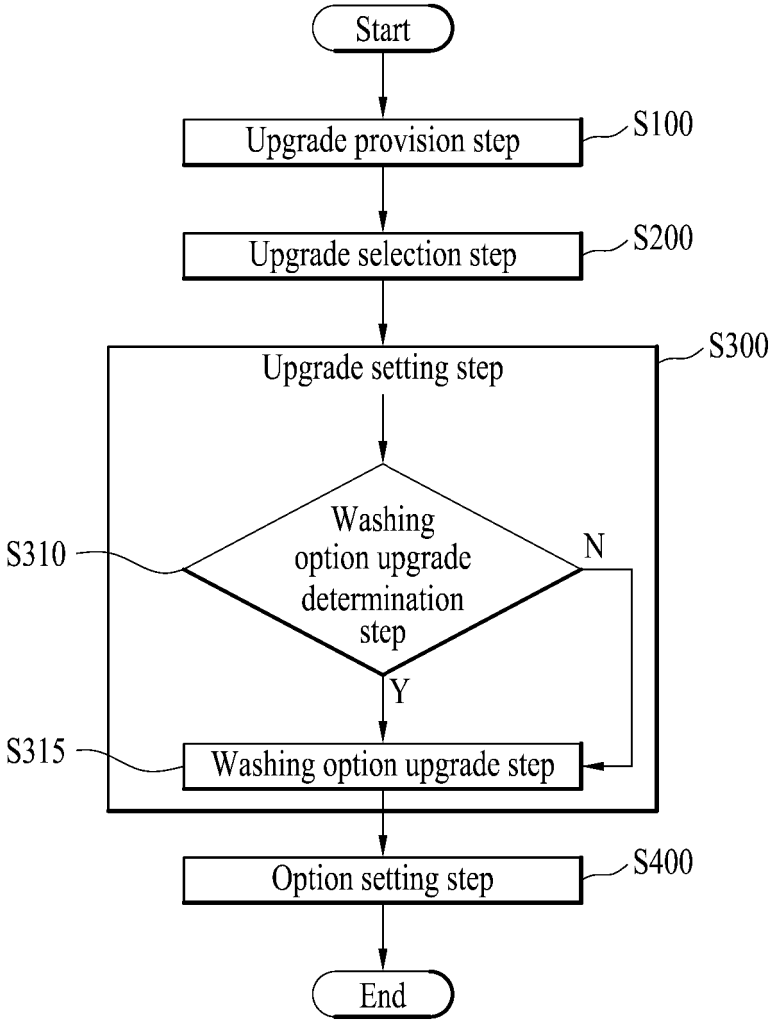

P200
Amount of detergent
Please select amount of detergent to be automatically fed.
Not used
Small
Medium
Large
C200
C20
(a)
C20
P200
Detergent
Amount of detergent can be adjusted with respect to standard usage amount according to dirtiness or condition of laundry.
Estimated amount to be fed: 50ml
Smaller
Larger
Amount of detergent to be fed can vary depending on amount of laundry and courses.
C200
(b)

FIG. 13


Start
Upgrade provision step
S100
Upgrade selection step
S200
Upgrade setting step
S300
Washing option upgrade determination step
S310
N
Y
Washing option upgrade step
S315
Option setting step
S400
End

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2022/020570

A. CLASSIFICATION OF SUBJECT MATTER

D06F 34/05(2020.01)i; **D06F 34/30**(2020.01)i; **D06F 34/32**(2020.01)i; **D06F 34/34**(2020.01)i; **D06F 39/02**(2006.01)i; **D06F 33/32**(2020.01)i; **D06F 33/37**(2020.01)i; **D06F 105/58**(2020.01)i; **D06F 105/60**(2020.01)i

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06F 34/05(2020.01); D06F 33/02(2006.01); D06F 33/30(2020.01); D06F 37/00(2006.01); D06F 39/00(2006.01); D06F 39/02(2006.01); D06L 1/20(2006.01); G06Q 20/12(2012.01); G06Q 50/10(2012.01); H04L 12/12(2006.01)

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

Korean utility models and applications for utility models: IPC as above
Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & keywords: 의류처리장치(laundry treating apparatus), 제어부(controller), 세탁코스(laundry course), 업그레이드(upgrade), 옵션(option)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2011-0128005 A (LG ELECTRONICS INC.) 28 November 2011 (2011-11-28) See paragraphs [0020]-[0061] and figures 1-10.	1-16
Y	KR 10-2019-0041334 A (LG ELECTRONICS INC.) 22 April 2019 (2019-04-22) See paragraphs [0041] and [0146]-[0147] and figures 1b-7d.	1-16
Y	US 2009-0293202 A1 (BOLDUAN, Edwin et al.) 03 December 2009 (2009-12-03) See paragraph [0014] and figures 1-3.	4-6
A	WO 2017-107943 A1 (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 29 June 2017 (2017-06-29) See claim 1 and figures 1-6.	1-16
A	KR 10-1679783 B1 (KIM, Tae Sung) 25 November 2016 (2016-11-25) See paragraph [0061] and figure 3.	1-16

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

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

Date of the actual completion of the international search	Date of mailing of the international search report
24 March 2023	**03 April 2023**
Name and mailing address of the ISA/KR **Korean Intellectual Property Office** **Government Complex-Daejeon Building 4, 189 Cheongsa-ro, Seo-gu, Daejeon 35208** Facsimile No. **+82-42-481-8578**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2022/020570

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2022/020570

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
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REFERENCES CITED IN THE DESCRIPTION

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