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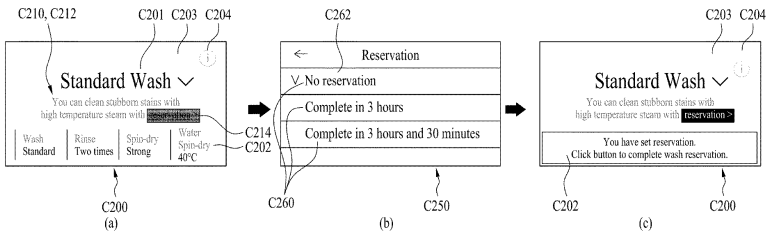
(54) LAUNDRY TREATING APPARATUS AND CONTROL METHOD FOR SAME

(57) Disclosed are a laundry treating apparatus and a control method for same. A laundry treating apparatus according to one embodiment of the present invention comprises: a drum which is provided inside a cabinet and accommodates laundry; and a screen output unit which is provided in the cabinet and outputs a screen, wherein the screen output unit outputs a course setting screen including a suggestion area in which an option that can be additionally applied to a course for laundry treatment is presented, and when the suggestion area is selected, the course setting screen is converted to an option setting screen on which a plurality of option values for the option are displayed.

FIG. 15



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Description

[Technical Field]

[0001] The present disclosure relates to a laundry treating apparatus, and more particularly, to a laundry treating apparatus including a screen outputter on which a screen is output, and a method for controlling the same.

[Background]

[0002] A laundry treating apparatus is an apparatus that removes contamination from laundry by putting clothes, bedding, and the like (hereinafter, referred to as the laundry) into a drum. The laundry treating apparatus may perform processes such as washing, rinsing, dehydration, drying, and the like, and the laundry treating apparatus may be categorized into a top loading scheme and a front loading scheme based on a scheme of putting the laundry into the drum.

[0003] The laundry treating apparatus may include a housing forming an outer appearance thereof, a tub accommodated in the housing, the drum rotatably mounted inside the tub and into which the laundry is put, and a detergent supply that supplies detergent into the drum.

[0004] When the drum is rotated by a motor in a state in which washing water is supplied to the laundry accommodated therein, dirt on the laundry may be removed by friction between the drum and washing water.

[0005] The detergent supply is equipped with a detergent supply function to improve a washing effect. In this regard, the detergent refers to a material that enhances the washing effect, such as fiber detergent, a fiber softener, and a fiber bleach. As the detergent, detergent in a form of powder or detergent in a form of liquid may be used.

[0006] In one example, the laundry treating apparatus may perform a course setting process for setting a course for treating the laundry. A plurality of courses may be set in advance via a controller, and in the course setting process, a user may select any of the plurality of courses to treat the laundry.

[0007] In the course setting process, various options for the course may be set. For example, the various options include an adjustable option in which one option value is necessarily determined in the course and the option value is adjustable by the user, such as a washing strength option, a rinsing number option, and the like.

[0008] In addition, the various options include a simple additional option in which application or non-application of the course may be determined by the user, such as a steam option. In addition, the various options include an adjustable additional option in which not only the application or the non-application of the course is determined by the user, but also the option value is also selected by the user, such as a reservation option.

[0009] In one example, Korean Patent Application Publication No. 10-2014-0023986 discloses a laundry treating apparatus including an outputter for providing information to the user and an inputter for generating an input signal based on manipulation of the user.

[0010] The outputter may include a screen outputter that outputs a screen, and the screen may display a course to be performed and/or whether to apply various options for the course or setting states thereof in the course setting process.

[0011] The user may identify the course to be performed and the option setting state of the corresponding course via information provided on the screen, and may change the course or change the option setting state of the corresponding course via the inputter.

[0012] However, a process of selecting one of the plurality of courses, a process of setting whether to apply the option, or a process of changing a setting value of the option may require various or multiple manipulations on the inputter. As the manipulation process for completing the setting of the course desired by the user is more complicated, ease of use for the user may be reduced.

[0013] In addition, current environments and conditions for treating the laundry may be various. Furthermore, there may be a setting state that is more advantageous than the setting state of the course recognized by the user, but nevertheless, the user may not specifically recognize or pay attention to various environments or advantageous settings.

[0014] Accordingly, it is an important task in the art to effectively provide more efficient and convenient course setting for the laundry treatment process and to simply and conveniently provide a complex process for the course setting to the user.

[Summary]

[Technical Problem]

[0015] Embodiments of the present disclosure are to provide a laundry treating apparatus that may effectively improve convenience of use in setting a course, and a method for controlling the same.

[0016] In addition, embodiments of the present disclosure are to provide a laundry treating apparatus that may effectively shorten a course setting process, and a method for controlling the same.

[0017] In addition, embodiments of the present disclosure are to provide a laundry treating apparatus that may provide a convenient and efficient course setting state to a user, and a method for controlling the same.

[0018] In addition, embodiments of the present disclosure are to provide a laundry treating apparatus that may suggest course setting advantageous for a user so as to be conveniently identified by the user, and a method for controlling the same.

[0019] In addition, embodiments of the present disclosure are to provide a laundry treating apparatus that provides a screen for conveniently checking a setting

state of a course, and a method for controlling the same.

[Technical Solutions]

[0020] An embodiment of the present disclosure includes a screen outputter disposed on a cabinet. The screen outputter may include a display that is equipped as an LCD or the like to output a screen. The screen outputter may output a course setting screen that provides setting information of a course in a course setting process for treating laundry.

[0021] A plurality of areas may be defined in the course setting screen, and one of the plurality of areas may be a suggestion area for helping course setting of a user. In the suggestion area, an option that may be additionally applied to the course currently displayed on the course setting screen may be displayed.

[0022] The suggestion area may be selected based on an input signal generated by the user manipulating an inputter, and when the suggestion area is selected by the user, an option setting screen for selecting one of option values of the option displayed in the suggestion area may be output.

[0023] Accordingly, an embodiment of the present disclosure may allow the user to conveniently recognize the option applicable to the current course via the suggestion area, and may effectively shorten an application process of the option and improve convenience via selection of the suggestion area.

[0024] An embodiment of the present disclosure as such includes a cabinet, a drum, and a screen outputter. The drum is disposed inside the cabinet to accommodate laundry therein. The screen outputter is disposed on the cabinet and outputs a screen.

[0025] The screen outputter outputs a course setting screen including a suggestion area where an option additionally applicable to a course for treating the laundry is presented, and switches the screen from the course setting screen to an option setting screen where a plurality of option values for the option are displayed when the suggestion area is selected.

[0026] Accordingly, an embodiment of the present disclosure may improve convenience in the course setting and conveniently shorten the process for setting the option.

[0027] The screen outputter may switch the screen from the option setting screen to the course setting screen when one of the plurality of option values is selected on the option setting screen.

[0028] The screen outputter may output an application notification indication informing a user of additional application of the option when one of the plurality of option values is selected on the option setting screen.

[0029] The application notification indication may be displayed on the course setting screen. The application notification indication may be displayed to overlap a portion of the course setting screen for a predetermined time. The application notification indication may be displayed in a pop-up form in the course setting screen.

[0030] The course setting screen may further include an option information area where setting values of at least some of a plurality of options adjustable in the course are displayed, and the option displayed in the suggestion area may not be displayed in the option information area.

[0031] The course setting screen may further include an indicator area indicating whether the option is applied, and an indicator indicating the option may be displayed in the indicator area when the option is applied.

[0032] The option displayed in the suggestion area may correspond to a reservation option for setting an execution time point of the course. The screen outputter may display suggestion content including a name of the option or a phrase suggesting the option in the suggestion area.

[0033] The suggestion content may be displayed on the course setting screen via the suggestion area when a suggestion condition for displaying the suggestion content on the suggestion area is satisfied.

[0034] The option may correspond to a reservation option for setting an execution time point of the course, and the suggestion content may be displayed in the suggestion area as the suggestion condition is satisfied within a specific time range.

[0035] A suggestion indicator indicating the option and a suggestion phrase for suggesting the option may be displayed in the suggestion area. The suggestion indicator may be defined by including at least a portion of the suggestion phrase.

[0036] The suggestion indicator may include a border for distinguishing the at least a portion and the remainder of the suggestion phrase from each other. An image of the suggestion indicator may change based on whether the option is applied.

[0037] At least a portion of the suggestion indicator may be displayed in a first color in a non-applied state of the option, and the at least a portion of the suggestion indicator may be displayed in a second color different from the first color in a reflected state of the option.

[0038] The suggestion indicator may be displayed as a flickering motion alternately having the first color and the second color after the suggestion area is selected.

[0039] The screen outputter may sense a touch signal of a user for the screen, and output the option setting screen when the touch signal is generated in at least a portion of the suggestion area.

[0040] The laundry treating apparatus may further include an inputter that is disposed on the cabinet and generates an input signal by a user, and the suggestion area may be selected based on the input signal. The laundry treating apparatus may further include a button assembly that is disposed on the cabinet and is manipulated by a user to generate an input signal, and the suggestion area may be selected based on the input signal.

[0041] The screen outputter may switch the screen from the course setting screen to the option setting

screen when the suggestion area is selected in an applied state of the option.

[0042] One of the plurality of option values may correspond to non-application of the option, and the screen outputter may output the course setting screen with the option not applied when the one of the plurality of option values is selected on the option setting screen.

[0043] The screen outputter may not suggest the option via the suggestion area when the suggestion area where the option is displayed is not selected while the course is performed a predetermined number of times.

[0044] In one example, in a laundry treating apparatus according to an embodiment of the present disclosure, a screen outputter outputs a course setting screen including a suggestion area where an option applied in a releasable manner to a course for treating laundry is displayed, and switches a screen from the course setting screen to an option setting screen where a plurality of option values including the release of the option are displayed when the suggestion area is selected.

[0045] In one example, a method for controlling a laundry treating apparatus according to an embodiment of the present disclosure includes a course setting operation, a suggestion operation, and an option setting operation. The course setting operation includes outputting a course setting screen for setting a course for treating laundry via a screen outputter.

[0046] The suggestion operation includes displaying an option additionally applicable to the course in a suggestion area of the course setting screen. The option setting operation includes outputting an option setting screen displayed to enable a selection of a plurality of option values for the option on the screen outputter when the suggestion area is selected.

[0047] The method may further include a suggestion application operation of outputting a course setting screen displaying the course with the option additionally applied on the screen outputter when one of the plurality of option values is selected in the option setting operation.

[0048] In the suggestion application operation, the screen outputter may output an application notification indication for notifying a user of the applied state of the option in a pop-up form on the course setting screen.

[0049] In the suggestion application operation, the screen outputter may output an image of at least a portion of the suggestion area differently from an image thereof in the course setting operation.

[0050] In the suggestion application operation, the screen outputter may display a suggestion indicator indicating the option in the suggestion area in a color different from a color thereof in the course setting operation.

[Advantageous Effects]

[0051] The embodiments of the present disclosure may provide the laundry treating apparatus that may effectively improve the convenience of use in setting the course, and the method for controlling the same.

[0052] In addition, the embodiments of the present disclosure may provide the laundry treating apparatus that may effectively shorten the course setting process, and the method for controlling the same.

[0053] In addition, the embodiments of the present disclosure may provide the laundry treating apparatus that may provide the convenient and efficient course setting state to the user, and the method for controlling the same.

[0054] In addition, the embodiments of the present disclosure may provide the laundry treating apparatus that may suggest the course setting advantageous for the user so as to be conveniently identified by the user, and the method for controlling the same.

[0055] In addition, the embodiments of the present disclosure may provide the laundry treating apparatus that provides the screen for conveniently checking the setting state of the course, and the method for controlling the same.

[Brief Description of the Drawings]

[0056]

FIG. 1 is a perspective view illustrating an outer appearance of a laundry treating apparatus according to an embodiment of the present disclosure.

FIG. 2 is a cross-sectional view showing interior of a laundry treating apparatus according to an embodiment of the present disclosure.

FIG. 3 is a diagram schematically illustrating an information exchange scheme of a laundry treating apparatus in an embodiment of the present disclosure.

FIG. 4 is a perspective view showing an outer appearance of a laundry treating apparatus in which a first treating apparatus and a second treating apparatus are stacked in an embodiment of the present disclosure.

FIG. 5 is a side view of a laundry treating apparatus in FIG. 4.

FIG. 6 is a conceptual diagram illustrating control connection relationships of a first treating apparatus, a second treating apparatus, and a screen outputter in a laundry treating apparatus in FIG. 4.

FIG. 7 is a diagram illustrating a control panel of a laundry treating apparatus according to an embodiment of the present disclosure.

FIG. 8 is an operational conceptual diagram illustrating processes from power application to course execution of a laundry treating apparatus in an embodiment of the present disclosure.

FIG. 9 is a diagram illustrating a start screen among screens output via a screen outputter in an embodiment of the present disclosure.

FIG. 10 is a diagram illustrating a course setting

screen among screens output via a screen outputter in an embodiment of the present disclosure.

FIG. 11 is a diagram showing a course progress screen among screens output via a screen outputter in an embodiment of the present disclosure.

FIG. 12 is a conceptual diagram illustrating relationships between a plurality of courses and various options in an embodiment of the present disclosure.

FIG. 13 is a diagram illustrating a course setting screen on which suggestion content is displayed via a suggestion area in an embodiment of the present disclosure.

FIG. 14 is a diagram showing a course setting screen in which an additional adjustable option is suggested via a suggestion area in an embodiment of the present disclosure.

FIG. 15 is a diagram illustrating a process of setting an additional adjustable option via a suggestion area in an embodiment of the present disclosure.

FIG. 16 is a diagram illustrating a change in an application notification indication of a course setting screen in an embodiment of the present disclosure.

FIG. 17 is a diagram illustrating a process of releasing an additional adjustable option via a suggestion area in an embodiment of the present disclosure.

FIG. 18 is a diagram illustrating a control panel in a state in which an additional function screen is output via a screen outputter in an embodiment of the present disclosure.

FIG. 19 is a diagram illustrating a process of setting an additional adjustable option via an additional function screen in an embodiment of the present disclosure.

FIG. 20 is a flowchart illustrating a method for controlling a laundry treating apparatus according to an embodiment of the present disclosure.

[Best Mode]

[0057] Hereinafter, with reference to the attached drawings, an embodiment of the present disclosure will be described in detail so as to be easily practiced by a person with ordinary skill in the art to which the present disclosure belongs.

[0058] However, the present disclosure may be implemented in various different forms and may not be limited to the embodiment described herein. In addition, to clearly illustrate the present disclosure in the drawings, parts that are not related to the description are omitted, and similar parts are given similar reference numerals throughout the present document.

[0059] In the present document, redundant descriptions of the same components are omitted.

[0060] Further, in the present document, it will be understood that when an element is referred to as being "connected with" another element, the element may be directly connected with the other element or intervening elements may also be present. In contrast, in the present document, it will be understood that when an element is referred to as being "directly connected with" another element, there are no intervening elements present.

[0061] Further, terms used herein are only used to describe a specific embodiment, and are not used as a limitation of the present disclosure.

[0062] Further, in the present document, a singular representation may include a plural representation unless it represents a definitely different meaning from the context.

[0063] Further, the terms such as "include" or "have" used herein are intended to indicate that features, numbers, steps, operations, elements, components, or combinations thereof used in the following description exist and it should be thus understood that the possibility of existence or addition of one or more different features, numbers, steps, operations, elements, components, or combinations thereof is not excluded.

[0064] Further, in the present document, the term 'and/or' includes a combination of a plurality of listed items or any of the plurality of listed items. Herein, 'A or B' may include 'A', 'B', or 'both A and B'.

[0065] In FIG. 1, a laundry treating apparatus 1 according to an embodiment of the present disclosure is shown. The laundry treating apparatus 1 according to an embodiment of the present disclosure includes a cabinet 10. The cabinet 10 may have a space defined therein, and may form an outer appearance of the laundry treating apparatus 1.

[0066] The cabinet 10 may include a front panel, a rear panel, a side panel, and a top panel. The plurality of panels may be coupled to each other to form the cabinet 10. A laundry inlet 12 for allowing the outside and the inside of the cabinet 10 to be in communication with each other may be defined in one surface of the cabinet 10.

[0067] FIG. 1 illustrates a state in which the laundry inlet 12 is defined in the front panel according to an embodiment of the present disclosure, but the location of the laundry inlet 12 is not necessarily limited to the front panel.

[0068] A laundry door 15 may be coupled to the cabinet 10 to selectively shield the laundry inlet 12. For example, the laundry door 15 may be pivotably coupled to the front panel to shield the laundry inlet 12 based on a pivoting location.

[0069] An embodiment of the present disclosure may include a control panel 100. The control panel 100 may include an inputter 120 and an outputter. However, the inputter 120 and the outputter are not limited to being equipped only on the control panel 100.

[0070] A user may identify setting information of a course or progress information of the course from information output via the outputter, and may manipulate the inputter 120 to generate an input signal, thereby giving various commands to a controller 90, such as changing course setting. The control panel 100 and the controller 90 will be described in detail later.

[0071] In one example, inside of the laundry treating

apparatus 1 is illustrated in FIG. 2. A tub 35 and a drum 20 may be disposed inside the laundry treating apparatus 1 defined by the cabinet 10.

[0072] The tub 35 may be disposed inside the laundry treating apparatus 1 to accommodate water therein. The tub 35 may include a tub inlet 35 facing the laundry inlet 12. Accordingly, the laundry input via the laundry inlet 12 as the user opens the laundry door 15 may pass through the laundry inlet 12 and the tub inlet 35 and be accommodated in the tub 35.

[0073] The drum 20 may be rotatably disposed inside the tub 35. An embodiment of the present disclosure may further include a driver 70, and the drum 20 may be connected to the driver 70 to receive a rotational force.

[0074] The drum 20 may accommodate the laundry therein. The drum 20 may include a drum inlet 25 facing the tub inlet 35. Accordingly, the laundry input via the laundry inlet 12 by the user may be accommodated in the drum 20 via the tub inlet 35 and the drum inlet 25.

[0075] An embodiment of the present disclosure may include a water supply 40. The water supply 40 may be connected to an external water supply source and water may be supplied from the outside, and the water supply 40 may include a water supply hose that is a flow path of water, a water supply valve for regulating a flow of water, and the like.

[0076] An embodiment of the present disclosure may include a detergent supply 50. The detergent supply 50 may store detergent therein, and may supply the detergent into the tub 35 when the detergent is required in performing a course for treating the laundry.

[0077] FIG. 2 illustrates a structure in which the water supply 40 and the detergent supply 50 are connected to each other, and water flowing along the water supply 40 is supplied into the tub 35 together with the detergent via the detergent supply 50, but the present disclosure is not necessarily limited thereto. Further, the water supply 40 may be directly connected to the inside of the tub 35.

[0078] An embodiment of the present disclosure may include a drain 60. The drain 60 may be connected to the tub 35 to discharge water present in the tub 35 to the outside of the cabinet 10. The drain 60 may include a drain hose through which water flows, a drain pump that generates a flow force of water, and the like.

[0079] In an embodiment of the present disclosure, when a course for washing the laundry is performed, water and the detergent may be supplied into the tub 35 via the water supply 40 and the detergent supply 50, the washing of the laundry may be performed via rotation of the drum 20 by the driver 70, and water and the detergent of the tub 35 may be discharged to the outside of the cabinet 10 via the drain 60 as necessary.

[0080] However, the laundry treating apparatus 1 according to an embodiment of the present disclosure does not necessarily include the tub 35, and is able to be in a form in which the tub 35 is omitted as necessary. That is, an embodiment of the present disclosure may not be necessarily limited to a washing machine, and may be a dryer in the state in which the tub 35 is removed.

[0081] FIG. 3 conceptually illustrates an information exchange scheme of the laundry treating apparatus 1 according to an embodiment of the present disclosure.

[0082] In an embodiment of the present disclosure, the laundry treating apparatus 1 may be equipped to enable communication. A communication unit may enable various types of communication such as Bluetooth and WIFI. However, when necessary, the communication unit for the communication may be omitted.

[0083] In case of having the communication unit, the laundry treating apparatus 1 may be in direct communication with a terminal 5 of the user or communicate with a communication medium disposed outside the laundry treating apparatus 1, and in case of establishing communication with a communication medium, the laundry treating apparatus 1 may exchange information with a server 4 via the communication medium.

[0084] The terminal 5 of the user may be various devices having a communication function. For example, the terminal 5 may be various devices having the communication function, such as a mobile phone, a computer, a tablet PC, or the like.

[0085] The laundry treating apparatus 1 may exchange the information with the terminal 5 via the communication process with the terminal 5, or exchange the information with the server 4 via the communication process with the communication medium, when necessary. Furthermore, the terminal 5 may exchange the information with the server 4, and the laundry treating apparatus 1 may exchange the information with the server 4 via the communication medium, so that the information exchange may be indirectly performed with the terminal 5.

[0086] In one example, the laundry treating apparatus 1 according to an embodiment of the present disclosure may be composed of only the single drum 20, or may be composed of a first treating apparatus 2 including the drum 20 and a second treating apparatus 3 including a second drum 85 different from the drum 20 as shown in FIG. 3.

[0087] When the laundry treating apparatus 1 includes the first treating apparatus 2 and the second treating apparatus 3, the first treating apparatus 2 and the second treating apparatus 3 may be connected to each other in a wired manner to exchange information or may exchange the information in a wireless manner as shown in FIG. 3.

[0088] For example, the first treating apparatus 2 and the second treating apparatus 3 may be connected to each other in a direct wireless communication scheme such as a Bluetooth scheme to exchange the information, may be in communication with each other via a communication medium, or may be indirectly connected to each other via information exchange with the server 4 using the communication medium.

[0089] FIG. 4 shows the laundry treating apparatus 1 in which the first treating apparatus 2 and the second treating apparatus 3 are stacked. Referring to FIG. 4, an embodiment of the present disclosure may include the

second treating apparatus 3 installed on the first treating apparatus 2.

[0090] The first treating apparatus 2 may include the cabinet 10 and the drum 20 described above. The second treating apparatus 3 may include a second cabinet 80, the second drum 85, and the like independently of the first treating apparatus 2.

[0091] The first treating apparatus 2 and the second treating apparatus 3 may perform courses for treating the laundry independently or in conjunction with each other. For example, the first treating apparatus 2 may correspond to the washing machine capable of washing the laundry and perform the course for washing the laundry, and the second treating apparatus 3 may correspond to a drying machine capable of drying the laundry and perform a course for drying the laundry.

[0092] For example, the first treating apparatus 2 may include the cabinet 10, the drum 20, and the tub 35 described above and may perform the course for washing the laundry, and the second treating apparatus 3 may include the second cabinet 80 disposed on the cabinet 10 and the second drum 85 rotatably disposed inside the second cabinet 80 and may perform the course for drying the laundry. However, both the first treating apparatus 2 and the second treating apparatus 3 may correspond to the washing machine or the dryer.

[0093] In one example, referring to FIG. 4, the laundry treating apparatus 1 may include the control panel 100 connected to the first treating apparatus 2 and the second treating apparatus 3. That is, when the laundry treating apparatus 1 includes the plurality of treating appratuses, the control panel 100 may also be connected to each of the plurality of treating apparatuses to output information on the plurality of treating apparatuses or receive commands from the plurality of treating apparatuses.

[0094] When the first treating apparatus 2 and the second treating apparatus 3 are stacked, the control panel 100 may be disposed on at least one of the first treating apparatus 2 and the second treating apparatus 3. FIG. 4 illustrates a state in which the control panel 100 is positioned at a lower portion of the second treating apparatus 3 to facilitate access of the user to secure ease of use.

[0095] FIG. 5 illustrates a side view of the laundry treating apparatus 1 in which the first treating apparatus 2 and the second treating apparatus 3 are in the stacked form as shown in FIG. 4. In the laundry treating apparatus 1, the single drum 20 may be disposed inside the single cabinet 10, or the drum 20 and the second drum 85 described above may be disposed together therein.

[0096] In addition, as shown in FIG. 5, the second treating apparatus 3 may include the second cabinet 80 distinguished from the cabinet 10 of the first treating apparatus 2. In this case, the first treating apparatus 2 and the second treating apparatus 3 may be separately manufactured and assembled to each other in a use space of the laundry treating apparatus 1, or may be assembled to each other in advance in a production process.

[0097] However, the arrangement of the first treating apparatus 2 and the second treating apparatus 3 is not limited to stacking in a direction perpendicular to the ground. The first treating apparatus 2 and the second treating apparatus 3 may be arranged to be aligned with each other in a direction parallel to the ground or may be located to be spaced apart from each other.

[0098] FIG. 6 is a conceptual diagram schematically showing a connection relationship of the controller 90 in an embodiment of the present disclosure. The laundry treating apparatus 1 may include the controller 90, and the controller 90 may include at least one of a processor, an communication unit, and storage.

[0099] The processor may perform a processing process via calculation or the like of information, the communication unit may enable communication in various communication schemes such as Bluetooth and WIFI, and the storage may store information.

[0100] When the laundry treating apparatus 1 includes the first treating apparatus 2 and the second treating apparatus 3, the controller 90 may be connected to each of the first treating apparatus 2 and the second treating apparatus 3. In addition, the controller 90 may be connected to a screen outputter 110 to control the screen outputter 110.

[0101] The controller 90 may be equipped in at least one of the first treating apparatus 2, the second treating apparatus 3, and the screen outputter 110. The controller 90 may include a plurality of controllers equipped in the first treating apparatus 2, the second treating apparatus 3, and the screen outputter 110, respectively.

[0102] For example, the first treating apparatus 2 may include a first sub-controller involved in operation of the first treating apparatus 2, the second treating apparatus 3 may include a second sub-controller involved in operation of the second treating apparatus 3, and the screen outputter 110 may include a screen controller involved in operation of the screen outputter 110.

[0103] The above-described controller 90 may be connected to the first sub-controller, the second sub-controller, and the screen controller to transmit a command of the user or receive information. In addition, one of the first sub-controller, the second sub-controller, and the screen controller may correspond to the above-described controller 90.

[0104] FIG. 7 shows the control panel 100 according to an embodiment of the present disclosure. The control panel 100 will be described in detail as follows.

[0105] The control panel 100 may include the inputter 120 and the outputter described above. The outputter may output various information such as auditory information and visual information so as to be provided to the user.

[0106] For example, the outputter may include a speaker for outputting a sound for providing the information or the screen outputter 110 for outputting the screen, and the screen outputter 110 may include a display for

outputting the screen on which an image is expressed.

[0107] The inputter 120 may generate the input signal based on the manipulation of the user, and the input signal may be transmitted to the controller 90 and converted into various command signals. The inputter 120 may include a button assembly 125 having various buttons for generating the input signal by the manipulation of the user, and the buttons may be of various types such as a mechanical type or a touch type.

[0108] In an embodiment of the present disclosure, the inputter 120 may include a power button, and when the first treating apparatus 2 and the second treating apparatus 3 are disposed together, the power button may include a first power button for the first treating apparatus 2 and a second power button for the second treating apparatus 3.

[0109] In addition, when the laundry treating apparatus 1 includes the first treating apparatus 2 and the second treating apparatus 3, the inputter 120 may include a switch button 127. The switch button 127 may be used to switch an object on which the information is displayed via the screen outputter 110 from the first treating apparatus 2 to the second treating apparatus 3 and from the second treating apparatus 3 to the first treating apparatus 2.

[0110] In addition, the button assembly 125 may include an additional function button 126. The additional function button 126 may be used to output an additional function screen C270 in which additional functions for settings throughout use of the laundry treating apparatus 1 or additional settings for the course are displayed.

[0111] In addition, the button assembly 125 may include an execution button. When the execution button is manipulated in a course setting process P2, a currently set course may be performed. When the laundry treating apparatus 1 includes the first treating apparatus 2 and the second treating apparatus 3, the execution button may include a first execution button for starting a course of the first treating apparatus 2 and a second execution button for starting a course of the second treating apparatus 3.

[0112] In one example, the inputter 120 may include a touch inputter 123, and the touch inputter 123 may be equipped in the screen outputter 110. The touch inputter 123 may be formed in a shape of a panel for sensing a touch of the user and may be included in the display.

[0113] Accordingly, when the user touches an indicator such as an image or the like displayed on the screen outputter 110, a touch signal for a corresponding location may be transmitted to the controller 90 by the touch inputter 123, and the controller 90 may perform a control activity based on the touch signal.

[0114] FIG. 8 conceptually illustrates an operation process of the laundry treating apparatus 1 according to an embodiment of the present disclosure and a screen of the screen outputter 110 according thereto.

[0115] First, when power is applied via the power button, the laundry treating apparatus 1 may perform a start process P1 in which the controller 90 determines normal states or the like of various components and prepares for performing the course, and the screen outputter 110 may output a start screen C100 for notifying the user of the start process P1.

[0116] After the start process P1 is completed, the controller 90 may perform the course setting process P2. A plurality of courses for treating the laundry may be stored in advance in the controller 90, and in the course setting process P2, the user may select one of the plurality of courses.

[0117] In addition, in the course setting process P2, various options for the course may be adjusted by the user. A detailed description of the option will be made later. The screen outputter 110 may output the course setting screen C200 for providing information on course setting in the course setting process P2.

[0118] When the above-described execution button is manipulated in the course setting process P2, the controller 90 may perform a course progress process P3 in which the course for treating the laundry is performed. In the course progress process P3, the controller 90 may perform the course determined via the course setting process P2, and the screen outputter 110 may output a course progress screen C300 indicating a progress of the corresponding course.

[0119] FIG. 9 illustrates the start screen C100 output from the screen outputter 110 according to an embodiment of the present disclosure. The start screen C100 may include an image notifying the user of the power application or may include several information for performing the course.

[0120] The screen shown in FIG. 9 corresponds to a welcome screen C110 indicating the power application of the laundry treating apparatus 1 in the start screen C100. The welcome screen C110 may be a screen that is output on the screen outputter 110 at the beginning of the power application to the laundry treating apparatus 1 or initially. The welcome screen C110 may include various phrases and images for forming an intimacy with the user or notifying the power application.

[0121] In FIG. 10, the course setting screen C200 is illustrated. In the course setting screen C200, a name of a course that is currently selected among the plurality of courses or the like may be displayed, and option setting information for the corresponding course may be displayed.

[0122] Specifically, the course setting screen C200 may include a course name area C201 in which the name of the course that is selected is displayed, and may include a suggestion area C210 in which a course description phrase C215 for describing the course displayed in the course name area C201 or content related to a suggestion content C212 to be described later is displayed.

[0123] In addition, the course setting screen C200 may include an indicator area C203. Various indicators C204 indicating information on a currently set option, state information, or the like may be displayed in the indicator

area C203.

[0124] In addition, the course setting screen C200 may include an option information area C202 indicating current option information for the course displayed in the course name area C201. Setting values for one or more options may be displayed in the option information area C202.

[0125] However, the course setting screen C200 according to an embodiment of the present disclosure does not necessarily include all of the course name area C201, the suggestion area C210, the indicator area C203, and the option information area C202. Further, arrangement of the respective areas may also vary as needed.

[0126] In FIG. 11, the course progress screen C300 is illustrated. In the course progress screen C300, the course name area C201 in which the course in progress is displayed, a time guide area C310 indicating a remaining time until completion of the course, a state display area C320 indicating a current state of the course, a progress bar C330 indicating a current process among entire processes of the course in an image form, and the indicator area C203 and the option information area C202 described above may be defined.

[0127] FIG. 12 is a conceptual diagram showing a concept of a plurality of courses and various options in an embodiment of the present disclosure.

[0128] In an embodiment of the present disclosure, the course corresponds to a process stored in advance in the controller 90 to include at least one or more strokes for treating the laundry. The course may include the at least one strokes.

[0129] For example, a standard course for washing the laundry may be preset in the controller 90, including at least one of a water supply stroke, a washing stroke, a rinsing stroke, a drainage stroke, and a dehydration stroke.

[0130] A plurality of different courses may be stored in advance in the controller 90. FIG. 12 illustrates the standard course, a strong course, a quiet course, and the like, but the plurality of courses are not necessarily limited thereto.

[0131] In one example, the controller 90 may be equipped to adjust various options for a course. In an embodiment of the present disclosure, the options may be categorized into adjustable options, simple additional options, and adjustable additional options.

[0132] Whether to apply the adjustable option may not be determined by the user, and may be maintained in a state of being predetermined by the controller 90. In other words, the adjustable option for each course may be determined by the controller 90 in advance, and the user may change a setting value of the adjustable option activated in the corresponding course.

[0133] For example, the plurality of courses may include a rinsing course including a water supply stroke, a rinsing stroke, and a drainage stroke. The controller 90 may activate a rinsing number option, a water amount option, or the like as the adjustable option for the rinsing course, and a washing strength option or the like may be deactivated in advance.

[0134] Accordingly, when the rinsing course is displayed in the course setting screen C200, the user is able to only change a setting value of the rinsing number option or the like activated as the adjustable option, and is not able to change the state of the washing strength option or the like to the active state. Such adjustable option may be determined based on strokes included in the corresponding course.

[0135] In one example, the option adjustable by the user in an embodiment of the present disclosure may include a plurality of option values C260. For example, the above-described rinsing number option may include option values C260 such as one time, two times, and three times, and one option value C260 selected by the user may be reflected in the controller 90 as a setting value of the corresponding option.

[0136] That is, when the user selects the option value C260 of 'two times' among the option values C260 of the rinsing number option in the rinsing course, the option value C260 of 'two times' may become a setting value of the rinsing number option and may be reflected in the corresponding course.

[0137] In one example, an embodiment of the present disclosure may include the simple additional option. The simple additional option refers to an option that may only be determined by the user on whether it is to be applied to the corresponding course, and may not enable separate setting value adjustment.

[0138] For example, in the standard course for washing the laundry, a steam option of spraying steam is basically set to be in a non-applied state. However, the user may change the state of the steam option to an applied state as necessary and reflect the steam option in the corresponding course.

[0139] The simple additional option that may be changed by the user on whether it is to be applied to each of the plurality of courses may be preset in the controller 90. For example, in the above-described standard course, the steam option corresponds to the simple additional option that may be changed by the user on whether it is to be applied.

[0140] However, in case of a steam course in which the steam option is essentially set to be in the applied state, the steam option may be preset in the controller 90 so as not to be changed by the user on whether it is to be applied, and thus, the steam option for the steam course does not correspond to the simple additional option.

[0141] In one example, an embodiment of the present disclosure includes the adjustable additional option. The adjustable additional option refers to an option that may be determined by the user on whether it is to be applied to the corresponding course, and furthermore, and may have to select one of the plurality of option values C260 for the corresponding option as a setting value when the option is applied.

[0142] For example, an embodiment of the present

disclosure may include a reservation option as the adjustable additional option. The user may select whether to apply the reservation option to the standard course for the washing, and when the reservation option is applied, determine one of the plurality of option values C260 for the reservation option, for example, the plurality of option values C260 such as after 30 minutes, after 1 hour, and after 1 hour and 30 minutes, as the setting value.

[0143] FIG. 13 illustrates a state in which the suggestion content C212 is displayed in the suggestion area C210 of the course setting screen C200 according to an embodiment of the present disclosure. An embodiment of the present disclosure may suggest setting of various options to the user via the suggestion area C210 of the course setting screen C200.

[0144] Specifically, in (a) in FIG. 13, a description of the course displayed in the course name area C201 is displayed in the suggestion area C210, and in (b) in FIG. 13, the suggestion content C212 suggesting application of an option not currently applied to the course is displayed in the suggestion area C210.

[0145] The suggestion content C212, which is for suggesting a course setting for treating the laundry to the user, may be displayed to guide a more advantageous course setting to the user based on various conditions and environments.

[0146] An embodiment of the present disclosure may suggest the more effective and convenient setting in treating the laundry to the user via the suggestion area C210, and the user may perform the course setting based on the suggestion via the suggestion area C210 even in a state in which various courses and various options are not completely reviewed, thereby greatly improving convenience of use.

[0147] FIG. 14 shows a state in which the application of the option for the corresponding course is suggested via the suggestion area C210 as the course setting screen C200 output via the screen outputter 110 in the course setting process P2 according to an embodiment of the present disclosure.

[0148] As described above, the laundry treating apparatus 1 according to an embodiment of the present disclosure may include the cabinet 10, the drum 20 disposed inside the cabinet 10 to accommodate the laundry therein, and the screen outputter 110 disposed on the cabinet 10 to output the screen.

[0149] The screen outputter 110 may output the course setting screen C200 including the suggestion area C210 in which the option that may be additionally applied to the course for treating the laundry is presented. That is, in an embodiment of the present disclosure, the option that may be additionally applied to the course displayed in the course name area C201 may be displayed in the suggestion area C210.

[0150] In addition, the suggestion area C210 may be displayed to be selectable based on the manipulation of the inputter 120 by the user. That is, the controller 90 receiving the input signal generated from the inputter 120 by the user may determine whether the suggestion area C210 is selected based on the input signal.

[0151] When the suggestion area C210 is selected by the input signal, that is, by user, the screen outputter 110 may switch the course setting screen C200 to an option setting screen C250 in which the plurality of option values C260 for the option are displayed.

[0152] FIG. 15 illustrates a process of outputting the option setting screen C250 via the suggestion area C210. (a) in FIG. 15 illustrates a state in which an option applicable to the currently displayed course is displayed in the suggestion area C210 of the course setting screen C200.

[0153] (b) in FIG. 15 shows the option setting screen C250 in which whether to apply and a plurality of option values C260 for the corresponding option are displayed as the suggestion area C210 is selected, and (c) in FIG. 15 shows the course setting screen C200 after setting of the corresponding option is completed via the option setting screen C250.

[0154] Specifically, when the application of the option is suggested in the suggestion area C210 of the course setting screen C200, when it is determined that the user has selected the suggestion area C210 via the inputter 120, the controller 90 may control the screen outputter 110 to output the option setting screen C250 for the option.

[0155] The plurality of option values C260 for the option may be displayed on the option setting screen C250. The user may select one of the plurality of option values C260 on the option setting screen C250 that is output based on the selection of the suggestion area C210, thereby easily completing the setting of the option for the corresponding course.

[0156] In (b) in FIG. 15, the option setting screen C250 displays the plurality of option values C260 in a list format along one direction, but the option values C260 may be expressed in various manners, such as being displayed in a format of icons distinguished from each other.

[0157] The screen outputter 110 may be completely switched from the course setting screen C200 to the option setting screen C250, or the option setting screen C250 may be output in a pop-up form on the course setting screen C200.

[0158] An embodiment of the present disclosure may effectively guide the course setting for treating the laundry to the user via the suggestion area C210, and may improve the convenience of use by omitting a complicated process for setting the option and outputting the option setting screen C250 for setting the option only via the selection of the suggestion area C210.

[0159] As described above, when the option setting screen C250 is output via the selection of the suggestion area C210, the option suggested in the suggestion area C210 may be the adjustable additional option requiring the determination of the setting value as well as the simple determination on whether to apply.

[0160] In one example, when one of the plurality of option values C260 is selected on the option setting

screen C250, the screen outputter 110 may be switched from the option setting screen C250 to the course setting screen C200. (c) in FIG. 15 illustrates the course setting screen C200 that is output again on the screen outputter 110 as one option value C260 is selected on the option setting screen C250 according to an embodiment of the present disclosure.

[0161] An embodiment of the present disclosure may induce an optimal course setting for the user via the suggestion area C210, and at the same time, output the option setting screen C250 along with the selection of the suggestion area C210. Further, an embodiment of the present disclosure may output the course setting screen C200 again at the same time when the one option value C260 is selected on the option setting screen C250. Therefore, a setting process for the option may be effectively shortened.

[0162] In one example, when one of the plurality of option values C260 is selected on the option setting screen C250, the screen outputter 110 may output an application notification indication C220 informing the user of additional application of the option.

[0163] That is, in an embodiment of the present disclosure, the setting of the option may be terminated via the selection of the one option value C260 on the option setting screen C250, and the application notification indication C220 may be output on the screen outputter 110 to effectively inform the user that the setting of the option has been normally performed.

[0164] (c) in FIG. 15 illustrates a state in which the one option value C260 is selected on the option setting screen C250 and the application notification indication C220 is displayed on the screen output on the screen outputter 110.

[0165] The application notification indication C220 may have various shapes, and may include a phrase for notifying the user that the application of the corresponding option has been normally performed.

[0166] In one example, the application notification indication C220 may be displayed on the course setting screen C200. That is, when the one option value C260 is selected on the option setting screen C250, the screen output on the screen outputter 110 may be returned to the course setting screen C200 before the selection of the suggestion area C210, and the application notification indication C220 may be displayed on the course setting screen C200.

[0167] In one example, as described above, the suggestion content C212 suggesting the setting of the option may be displayed in the suggestion area C210, and the suggestion content C212 may include a name of the option or a phrase suggesting the option.

[0168] In (a) in FIG. 15, a word 'reservation' indicating a name of the reservation option and a phrase suggesting the setting of the reservation option are displayed. Via the suggestion content C212, the user may conveniently identify what is a currently suggested option and what is the reason for the suggestion.

[0169] When a suggestion condition to be displayed on the suggestion area C210 is satisfied, the suggestion content C212 may be displayed on the course setting screen C200 via the suggestion area C210.

[0170] That is, a plurality of suggestion content C212 may be stored in advance in the controller 90, each of the suggestion content C212 may have a suggestion condition to be displayed in the suggestion area C210, and the controller 90 may control the screen outputter 110 to display the suggestion content C212 satisfying the suggestion condition in the suggestion area C210.

[0171] For example, when there is no suggestion content C212 satisfying the suggestion condition, the phrase for describing the course displayed on the course setting screen C200 may be displayed in the suggestion area C210, and when there is the suggestion content C212 satisfying the suggestion condition, the corresponding suggestion content C212 may be output in the suggestion area C210.

[0172] For example, as illustrated in FIG. 15, the option displayed in the suggestion area C210 may correspond to the reservation option for setting a time point at which the course is performed, and the suggestion content C212 may be displayed in the suggestion area C210 as the suggestion condition is satisfied within a specific time range.

[0173] Specifically, the suggestion condition of the suggestion content C212 for the reservation option may be satisfied after midnight or at a dawn including 3 a.m. Accordingly, when the course setting process P2 is performed in a situation corresponding to a normal sleep time of a person, the controller 90 may provide the user with the suggestion content C212 suggesting the reservation option such that the course may be performed after a normal wake-up time of the person via the suggestion area C210.

[0174] In one example, a suggestion indicator C214 indicating the option and a suggestion phrase C213 for suggesting the option may be displayed in the suggestion area C210. The suggestion indicator C214 may be an object corresponding to the option on the screen, and the suggestion phrase C213 may be a phrase suggesting the option.

[0175] The user may clearly identify the currently suggested option via the suggestion indicator C214, and may clearly identify and select the reason why the option is suggested via the suggestion phrase C213.

[0176] The suggestion indicator C214 may be defined to include at least a portion of the suggestion phrase C213. For example, the suggestion indicator C214 may include a border for distinguishing the at least a portion and the remainder of the suggestion phrase C213 from each other.

[0177] Specifically, the suggestion indicator C214 is defined to include a portion of the suggestion phrase C213, so that the content output in the suggestion area C210 may form a cohesive and natural phrase as a whole.

[0178] In addition, because the complete suggestion phrase C213 including the suggestion indicator C214 is displayed in the suggestion area C210, readability of the user may be improved, and thus a sense of difference in sentences by the suggestion indicator C214 may be removed.

[0179] The portion of the suggestion phrase C213 corresponding to the suggestion indicator C214 may be distinguished from the remainder, and a distinguishing method may be various. For example, the portion corresponding to the suggestion indicator C214 may be displayed in a different color, a different thickness, a different font, and the like from the remainder.

[0180] Furthermore, in an embodiment of the present disclosure, the portion of the suggestion phrase C213 corresponding to the suggestion indicator C214 includes the border defining a periphery, so that visibility for distinguishing from the remainder of the suggestion phrase C213 may be improved.

[0181] FIG. 15 shows a state in which the suggestion content C212 for suggesting the reservation option is displayed in the suggestion area C210, the suggestion indicator C214 indicating the name of the option suggested in the suggestion content C212 is defined to include the phrase "reservation" in the suggestion phrase C213, and the word "reservation" is clearly distinguished from the remainer by the border of the suggestion indicator C214.

[0182] In one example, an image of the suggestion indicator C214 may be changed based on whether the option is applied. That is, in an embodiment of the present disclosure, even when the option is set by the suggestion area C210, the suggestion content C212 suggesting the option may still be displayed on the course setting screen C200 returned from the option setting screen C250, and the suggestion indicator C214 before and after the setting of the option may have different images.

[0183] For example, in the non-applied state of the option, at least a portion of the suggestion indicator C214 may be displayed in a first color, and in a reflected state of the option, the at least a portion of the suggestion indicator C214 may be displayed in a second color different from the first color.

[0184] That is, an embodiment of the present disclosure may indicate whether the option suggested by the suggestion area C210 is applied as a color change of the suggestion indicator C214. (a) in FIG. 15 shows the suggestion indicator C214 having the first color as the option is not applied yet, and (c) in FIG. 15 shows the suggestion indicator C214 expressed in the second color based on the application of the option.

[0185] Furthermore, in an embodiment of the present disclosure, the suggestion indicator C214 may be displayed as a flickering motion having the first color and the second color alternately after the suggestion area C210 is selected.

[0186] The flickering motion means that the suggestion indicator C214 alternately renders the first color and the second color for a predetermined time.

[0187] That is, in an embodiment of the present disclosure, the suggestion indicator C214 of the course setting screen C200 returned from the option setting screen C250 may inform the user that the current course setting screen C200 is a course setting screen C200 after the setting, not before the option setting, and further indicate that the option is normally set, via the flickering motion.

[0188] FIG. 16 illustrates a state in which the application notification indication C220 is removed after being displayed for a predetermined time on the course setting screen C200. (a) in FIG. 16 illustrates a state in which the application notification indication C220 is displayed on the course setting screen C200 returned from the option setting screen C250, and (b) in FIG. 16 illustrates a course setting screen C200 on which the application notification indication C220 has disappeared as the predetermined time elapses after the application notification indication C220 is displayed.

[0189] Referring to FIG. 16, the application notification indication C220 may be displayed to overlap a portion of the course setting screen C200 for the predetermined time. That is, the application notification indication C220 may be displayed in a pop-up form on the course setting screen C200, and may be removed after being displayed for the time preset in the controller 90.

[0190] An embodiment of the present disclosure may effectively display whether the option is applied to the user via the application notification indication C220, and may effectively inform the user of the return to the course setting screen C200 by displaying the application notification indication C220 in the pop-up form for the predetermined time.

[0191] In one example, as described above, the course setting screen C200 may further include an option information area C202 in which setting values of at least some of the plurality of options adjustable in the course are displayed, and the option displayed in the suggestion region C210 may not be displayed in the option information area C202.

[0192] That is, the option displayed in the suggestion area C210 may be an option that is not displayed in the option information area C202 indicating the setting values of some of the various options in the course setting screen C200, and the application notification indication C220 may be output to indicate the normal application of the corresponding option.

[0193] In one example, the options displayed in the option information area C202 may correspond to the above-described adjustable options. That is, the options displayed in the option information area C202 may correspond to the options that are not changed by the user on whether to be applied, and the option information area C202 may be displayed on the course setting screen C200 to indicate setting states of the options whose setting values are changed in the applied state as described above.

[0194] However, the option suggested in the suggestion area C210 may correspond to an additional option not displayed in the option information area C202 as described above. Accordingly, the option suggested in the suggestion area C210 and set by the user may not be displayed in the option information area C202, and thus the application notification indication C220 may be important for improving the convenience of use.

[0195] In one example, in one embodiment of the present disclosure, the course setting screen C200 may further include an indicator C204 area indicating whether the option is applied. When the option is applied, the indicator C204 indicating the option may be displayed in the indicator area C203.

[0196] That is, when the option is normally set via the selection of the suggestion area C210, the indicator C204 indicating the application of the option may be displayed in the indicator area C203 of the course setting screen C200 returned from the option setting screen C250.

[0197] For example, the option displayed in the suggestion area C210 may correspond to the reservation option for setting the execution time point of the course. In the case of the reservation option, the determination of whether to apply the reservation option to the corresponding course may be made by the user. Further, the reservation option may correspond to the adjustable additional option whose setting is completed by selecting one of the plurality of option values C260 corresponding to reservation times.

[0198] When the reservation option included in the adjustable additional options is displayed in the suggestion area C210 and applied, various types of indicators C204 that may notify the applied state of the reservation option, such as a clock, may be displayed in the indicator area C203 of the course setting screen C200.

[0199] FIG. 17 illustrates a process of releasing the option via selection of the suggestion area C210. (a) in FIG. 17 illustrates the course setting screen C200 with the option applied, (b) in FIG. 17 illustrates the option setting screen C250 output as the suggestion area C210 in (a) in FIG. 17 is selected, and (c) in FIG. 17 illustrates the course setting screen C200 with the option released as a release option value C262 for releasing the option is selected in (b) in FIG. 17.

[0200] Specifically, in an embodiment of the present disclosure, the suggestion content C212 suggesting the option may be displayed in the suggestion area C210 even after the option is applied. When the suggestion area C210 is selected in the applied state of the option, the screen outputter 110 may switch the course setting screen C200 to the option setting screen C250.

[0201] One of the plurality of option values C260 displayed on the option setting screen C250 may be the release option value C262 corresponding to the non-applied state of the option. The release option value C262 may be indicated by various names. In (b) in FIG. 17, the release option value C262 for the reservation option is indicated by a name "no reservation".

[0202] When the one of the plurality of option values C260 is selected on the option setting screen, the screen outputter 110 may output the course setting screen C200 with the option not applied.

[0203] That is, when the release option value C262 for releasing the option is selected on the option setting screen C250, the screen outputter 110 may return to the course setting screen C200 again, and at this time, the course setting screen C200 may be output in the state in which the option is not applied.

[0204] For example, as shown in (c) in FIG. 17, on the course setting screen C200 with the option released, the color of the suggestion indicator C214 may be restored to the first color, and the indicator C204 indicating the option may disappear from the indicator area C203.

[0205] That is, in an embodiment of the present disclosure, the suggestion content C212 of the suggestion area C210 may be provided to the user as a means capable of effectively shortening the process not only when the corresponding option is applied but also when the option is released.

[0206] That is, in an embodiment of the present disclosure, the screen outputter 110 may output the course setting screen C200 including the suggestion area C210 in which the option applied in a manner capable of being released in the course for treating the laundry is displayed, and when the suggestion area C210 is selected, may switch the course setting screen C200 to the option setting screen C250 on which the plurality of option values C260 including the release of the option are displayed.

[0207] In one example, the screen outputter 110 may be equipped to sense a touch signal of the user for the screen. That is, the inputter 120 may include a touch inputter 123 disposed to at least partially overlap the display on which the screen of the screen outputter 110 is output, and the screen outputter 110 may include the touch inputter 123.

[0208] When the touch signal is generated in at least a portion of the suggestion area C210, the option setting screen C250 may be output. Furthermore, when a touch signal for the suggestion indicator C214 corresponding to the option is generated in the suggestion area C210, the option setting screen C250 may be output.

[0209] In one example, as described above, an embodiment of the present disclosure may further include the inputter 120 that is disposed on the cabinet 10 and generates the input signal by the user, and the suggestion area C210 may be selected based on the input signal.

[0210] That is, even when it is not the touch inputter 123 described above, the inputter 120 may further include a selector for selecting an object output to be selectable on the screen outputter 110, and the suggestion area C210 may be selected via the selector.

[0211] For example, the inputter 120 may further include the above-described button assembly 125, and the suggestion area C210 may be selected based on manipulation of the button assembly 125.

[0212] FIG. 18 illustrates the control panel 100 in a state in which the additional function screen C270 is output on the screen outputter 110. On the additional function screen C270, an item for setting the 'reservation option' as the option suggested via the above-described suggestion content C212 is displayed under the name of 'reservation'.

[0213] In an embodiment of the present disclosure, the option suggested via the suggestion content C212 may not necessarily be set only via the suggestion area C210, but may also be set via a setting process using an additional function button 126.

[0214] FIG. 19 illustrates a process of setting the option via the additional function screen C270. Referring to FIG. 19, the process of setting the option via the additional function screen C270 rather than the suggestion area C210 will be described as follows.

[0215] In an embodiment of the present disclosure, the course setting screen C200 for the course setting may be output on the screen outputter 110 after the power is applied to the laundry treating apparatus 1. Unless an option has an independent button, the application of the option not displayed in the option information area C202 may be set via the additional function screen C270.

[0216] Hereinafter, a description will be made by specifying the option as the 'reservation option', but this is only for convenience of description and the option is not necessarily limited to the reservation option.

[0217] To set the reservation option, the user may manipulate the additional function button 126 in the state in which the course setting screen C200 is output on the screen outputter 110, and accordingly, the screen output on the screen outputter 110 may be switched from the course setting screen C200 to the additional function screen C270.

[0218] Various options may be displayed on the additional function screen C270. (a) in FIG. 19 illustrates the additional function screen C270 in a form of a list in which a plurality of items including the reservation option are displayed.

[0219] When an item corresponding to the reservation option is selected by the user on the additional function screen C270, the option setting screen C250 for determining the setting value of the reservation option may be output as shown in (b) in FIG. 19.

[0220] When the user selects one option value C260 on the option setting screen C250, the additional function screen C270 in a state in which the reservation option has been set may be output as shown in (c)in FIG. 19. From the additional function screen C270, the user may return to the course setting screen C200 via the generation of the input signal, such as manipulating the additional function button 126 again.

[0221] Setting the option by manipulating the separate button as described above may undergo more processes than the scheme of using the suggestion content C212 provided on the course setting screen C200.

[0222] In addition, when a button using a method of sequentially moving through a plurality of objects, such as a dial method or a movement button, is used, inconvenience of the user may be further increased when compared with the selection of the suggestion area C210, in consideration of the number of operations of the button.

[0223] An embodiment of the present disclosure may perform the option setting process via the simple selection of the suggestion area C210 displayed on the course setting screen C200, and provide the user with the process of returning to the course setting screen C200 after the setting of the option, thereby effectively improving convenience in setting the option.

[0224] In one example, the screen outputter 110 may not suggest the option in the suggestion area C210 when the suggestion area C210 is not selected while the course is performed by a predetermined number of times.

[0225] For example, when the suggestion area C210 suggesting the option is not selected by the user during a plurality of course setting processes P2 based on different power application situations of the laundry treating apparatus 1, the controller 90 may determine that the user is desired to exclude the option.

[0226] Accordingly, when the suggestion content C212 is not selected on the course setting screen C200 for the predetermined number of times, the controller 90 may no longer display the suggestion content C212 on a course setting screen C200 output later when the power is applied.

[0227] FIG. 20 is a flowchart illustrating a method for controlling the laundry treating apparatus 1 according to an embodiment of the present disclosure. Referring to FIG. 20, the control method according to an embodiment of the present disclosure will be described as follows.

[0228] The laundry treating apparatus 1 may include the cabinet 10, the drum 20 disposed inside the cabinet 10 to accommodate the laundry therein, and the screen outputter 110 disposed on the cabinet 10 to output the screen. In this regard, a feature of the laundry treating apparatus 1 is equal to the feature of the laundry treating apparatus 1 described above unless otherwise specified, and thus a description of the already described feature is omitted as much as possible.

[0229] The control method according to an embodiment of the present disclosure may include a course setting step S100, a suggestion step S200, and an option setting step S300. In the course setting step S100, the course setting screen C200 for setting the course for treating the laundry may be output via the screen outputter 110.

[0230] That is, in the course setting step S100, the controller 90 may control the screen outputter 110 to output the course setting screen via the display.

[0231] In the suggestion step S200, the option additionally applicable to the course may be displayed in the suggestion area C210 of the course setting screen C200. That is, the controller 90 may control the screen outputter 110 such that the option applicable to the course dis-

played on the course setting screen C200 is displayed in the suggestion area C210.

[0232] In the option setting step S300, when the suggestion area C210 is selected in the suggestion step S200, the option setting screen C250 on which the plurality of option values C260 for the option are displayed so as to be selectable may be output on the screen outputter 110.

[0233] In one example, an embodiment of the present disclosure may further include a suggestion application step S400. In the suggestion application step S400, when one of the plurality of option values C260 is selected in the option setting step S300, the course setting screen C200 on which the course to which the option is additionally applied is displayed may be output on the screen outputter 110.

[0234] In the suggestion application step S400, the screen outputter 110 may output the application notification indication C220 for notifying the user of the applied state of the option in the pop-up form on the course setting screen C200.

[0235] In the suggestion application step S400, the screen outputter 110 may output an image of at least a portion of the suggestion area C210 differently from that in the course setting step. For example, in the suggestion application step S400, the screen outputter 110 may render a color of the suggestion indicator C214 indicating the option in the suggestion area C210 differently from that in the course setting step.

[0236] Although the present disclosure has been illustrated and described with respect to the specific embodiments, it will be apparent to those skilled in the art that the present disclosure may be variously improved and modified without departing from the technical spirit of the present disclosure provided by the following claims.

Claims

1. A laundry treating apparatus comprising:

a cabinet;
a drum disposed inside the cabinet and constructed to accommodate laundry therein; and
a screen outputter disposed on the cabinet and configured to output a screen,
wherein the screen outputter is configured to:

output a course setting screen including a suggestion area where an option additionally applicable to a course for treating the laundry is presented; and
switch the screen from the course setting screen to an option setting screen where a plurality of option values for the option are displayed when the suggestion area is selected.

2. The laundry treating apparatus of claim 1, wherein the screen outputter is configured to switch the screen from the option setting screen to the course setting screen when one of the plurality of option values is selected as a setting value of the option on the option setting screen.

3. The laundry treating apparatus of claim 1, wherein one of the plurality of option values corresponds to non-application of the option,
wherein the screen outputter is configured to output an application notification indication informing a user of additional application of the option when one of the remainder of the plurality of option values except for the one corresponding to the non-application is selected on the option setting screen.

4. The laundry treating apparatus of claim 3, wherein the application notification indication is displayed on the course setting screen.

5. The laundry treating apparatus of claim 4, wherein the application notification indication is displayed to overlap a portion of the course setting screen for a predetermined time.

6. The laundry treating apparatus of claim 4, wherein the application notification indication is displayed in a pop-up form in the course setting screen.

7. The laundry treating apparatus of claim 1, wherein the course setting screen further includes an option information area where setting values of at least some of a plurality of options adjustable in the course are displayed,
wherein the option displayed in the suggestion area is not displayed in the option information area.

8. The laundry treating apparatus of claim 1, wherein the course setting screen further includes an indicator area indicating whether the option is applied,
wherein an indicator indicating the option is displayed in the indicator area when the option is applied.

9. The laundry treating apparatus of claim 1, wherein the option displayed in the suggestion area corresponds to a reservation option for setting an execution time point of the course.

10. The laundry treating apparatus of claim 1, wherein the screen outputter is configured to display suggestion content including a name of the option or a phrase suggesting the option in the suggestion area.

11. The laundry treating apparatus of claim 10, wherein the suggestion content is displayed on the course setting screen via the suggestion area when a sug-

gestion condition for displaying the suggestion content on the suggestion area is satisfied.

12. The laundry treating apparatus of claim 11, wherein the option corresponds to a reservation option for setting an execution time point of the course,
wherein the suggestion content is displayed in the suggestion area as the suggestion condition is satisfied within a specific time range.

13. The laundry treating apparatus of claim 1, wherein a suggestion indicator indicating the option and a suggestion phrase for suggesting the option are displayed in the suggestion area.

14. The laundry treating apparatus of claim 13, wherein the suggestion indicator is defined by including at least a portion of the suggestion phrase.

15. The laundry treating apparatus of claim 14, wherein the suggestion indicator includes a border for distinguishing the at least a portion and the remainder of the suggestion phrase from each other.

16. The laundry treating apparatus of claim 13, wherein an image of the suggestion indicator changes based on whether the option is applied.

17. The laundry treating apparatus of claim 16, wherein at least a portion of the suggestion indicator is displayed in a first color in a non-applied state of the option, and the at least a portion of the suggestion indicator is displayed in a second color different from the first color in a reflected state of the option.

18. The laundry treating apparatus of claim 17, wherein the suggestion indicator is displayed as a flickering motion alternately having the first color and the second color after the suggestion area is selected.

19. The laundry treating apparatus of claim 1, wherein the screen outputter is configured to sense a touch signal of a user for the screen, and is configured to output the option setting screen when the touch signal is generated in at least a portion of the suggestion area.

20. The laundry treating apparatus of claim 1, further comprising an inputter disposed on the cabinet and configured to generate an input signal by a user,
wherein the suggestion area is selected based on the input signal.

21. The laundry treating apparatus of claim 1, further comprising a button assembly disposed on the cabinet and configured to be manipulated by a user to generate an input signal,
wherein the suggestion area is selected based on the input signal.

22. The laundry treating apparatus of claim 19, wherein the screen outputter is configured to switch the screen from the course setting screen to the option setting screen when the suggestion area is selected in an applied state of the option.

23. The laundry treating apparatus of claim 22, wherein one of the plurality of option values corresponds to non-application of the option,
wherein the screen outputter is configured to output the course setting screen with the option not applied when the one of the plurality of option values is selected on the option setting screen.

24. The laundry treating apparatus of claim 1, wherein the screen outputter does not suggest the option via the suggestion area when the suggestion area where the option is displayed is not selected while the course is performed a predetermined number of times.

25. A laundry treating apparatus comprising:

a cabinet;
a drum disposed inside the cabinet and constructed to accommodate laundry therein; and
a screen outputter disposed on the cabinet and configured to output a screen,
wherein the screen outputter is configured to:

output a course setting screen including a suggestion area where an option applied in a releasable manner to a course for treating the laundry is displayed; and
switch the screen from the course setting screen to an option setting screen where a plurality of option values including the release of the option are displayed when the suggestion area is selected.

26. A method for controlling a laundry treating apparatus including a cabinet, a drum disposed inside the cabinet and constructed to accommodate laundry therein, and a screen outputter disposed on the cabinet and configured to output a screen, the method comprising

a course setting operation of outputting a course setting screen for setting a course for treating the laundry via the screen outputter;
a suggestion operation of displaying an option additionally applicable to the course in a suggestion area of the course setting screen; and
an option setting operation of outputting an option setting screen displayed to enable a selection of a plurality of option values for the option

on the screen outputter when the suggestion area is selected.

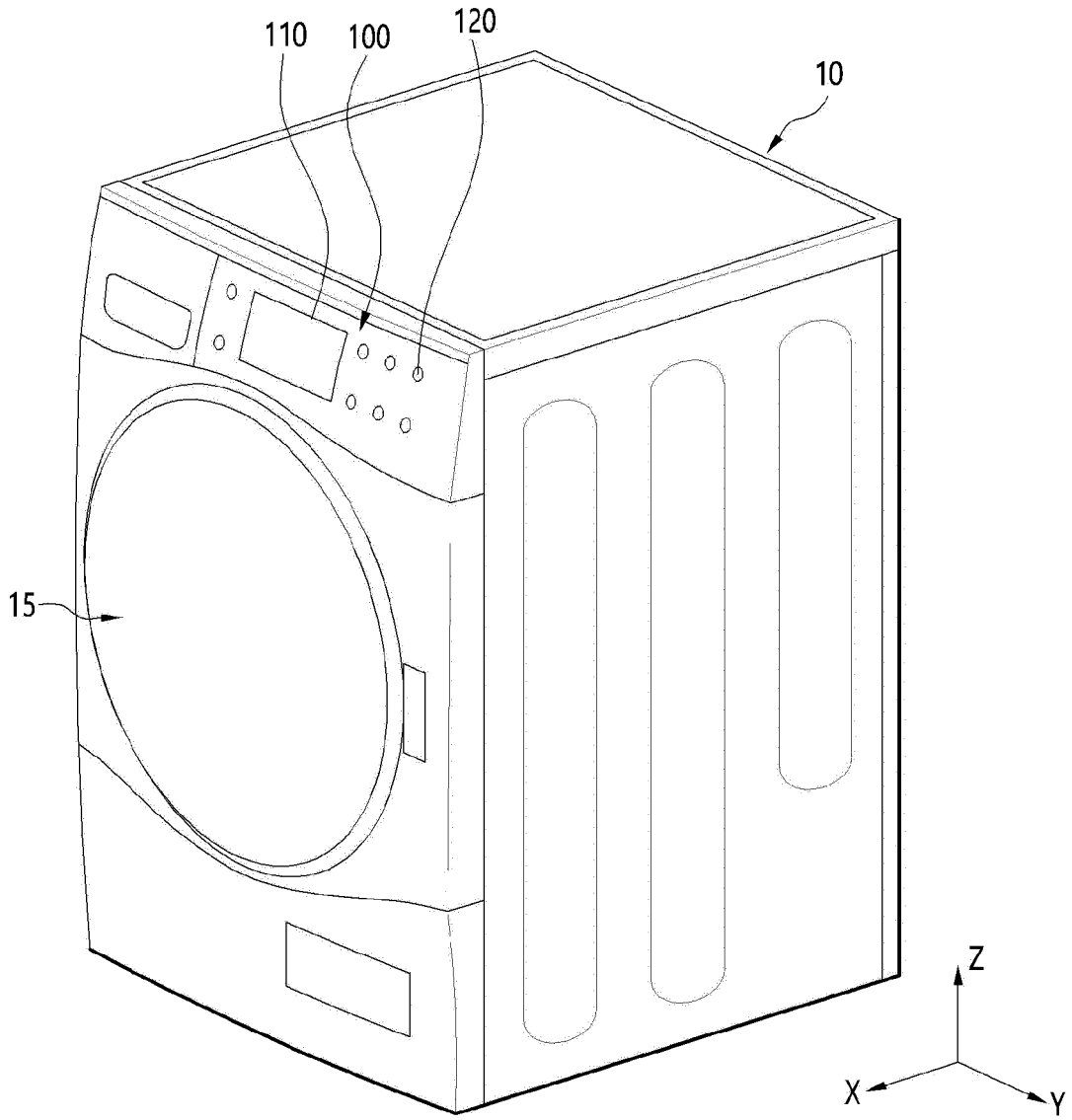
27. The method of claim 26, further comprising a suggestion application operation of outputting a course setting screen displaying the course with the option additionally applied on the screen outputter when one of the plurality of option values is selected in the option setting operation.

28. The method of claim 27, wherein in the suggestion application operation, the screen outputter is configured to output an application notification indication for notifying a user of the applied state of the option in a pop-up form on the course setting screen.

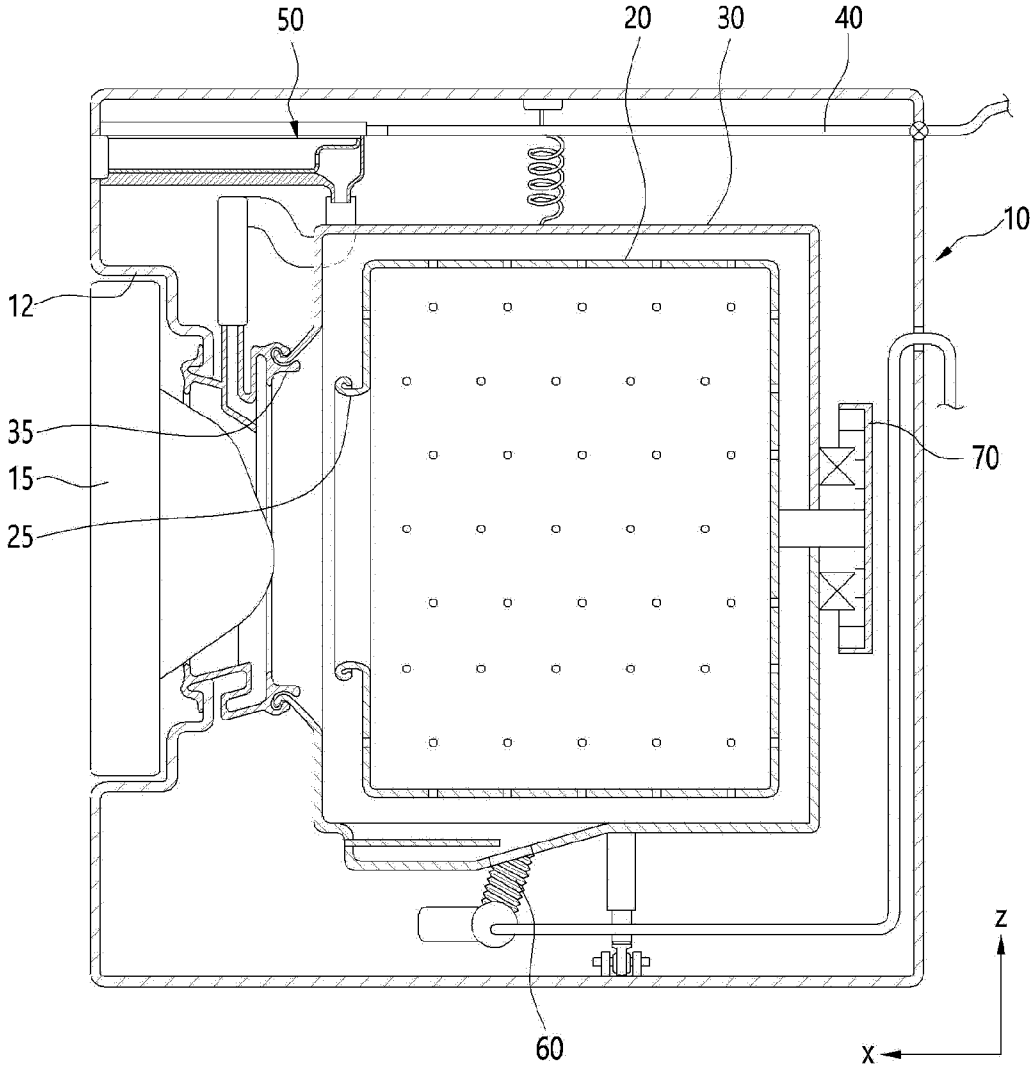
29. The method of claim 27, wherein in the suggestion application operation, the screen outputter is configured to output an image of at least a portion of the suggestion area differently from an image thereof in the course setting operation.

30. The method of claim 29, wherein in the suggestion application operation, the screen outputter is configured to display a suggestion indicator indicating the option in the suggestion area in a color different from a color thereof in the course setting operation.

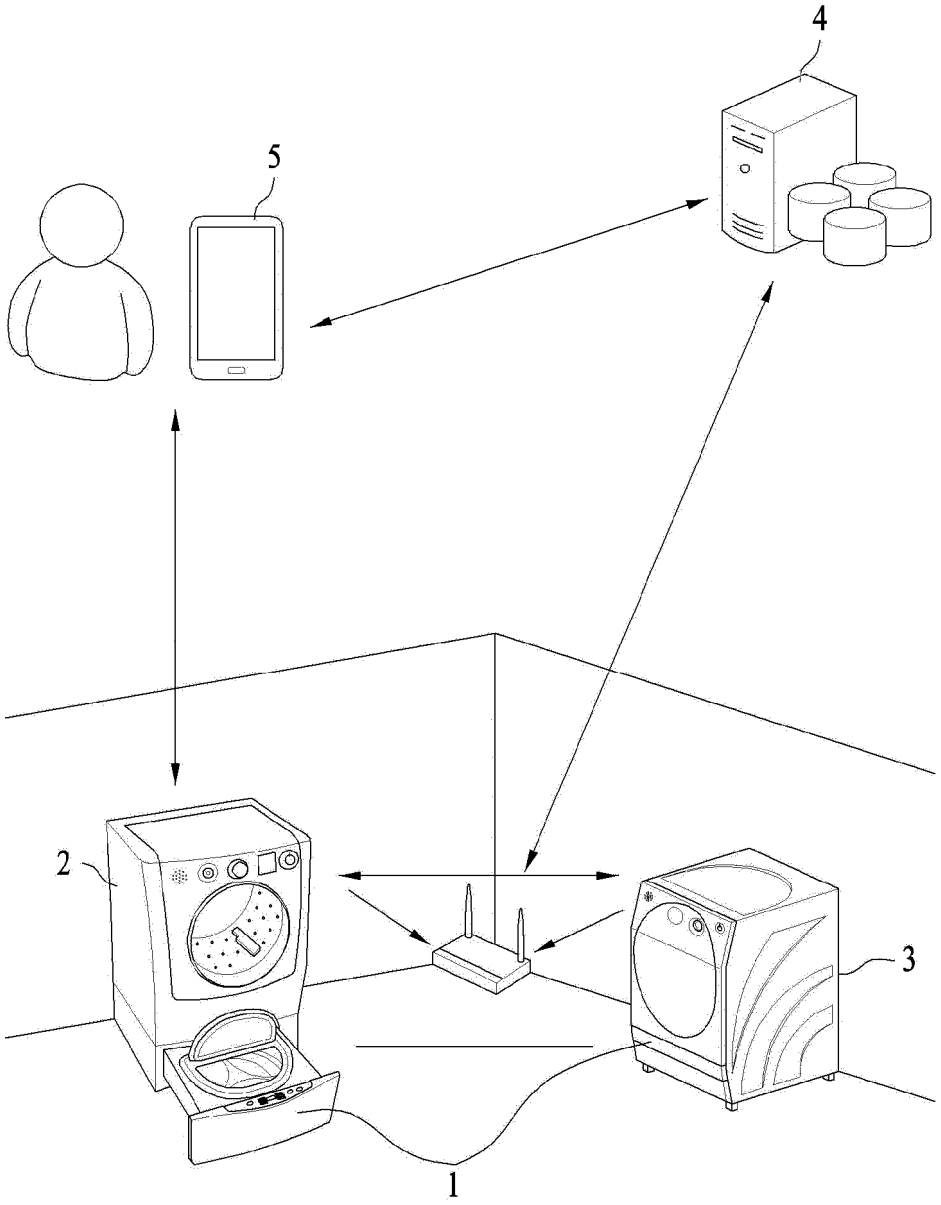
【FIG. 1】



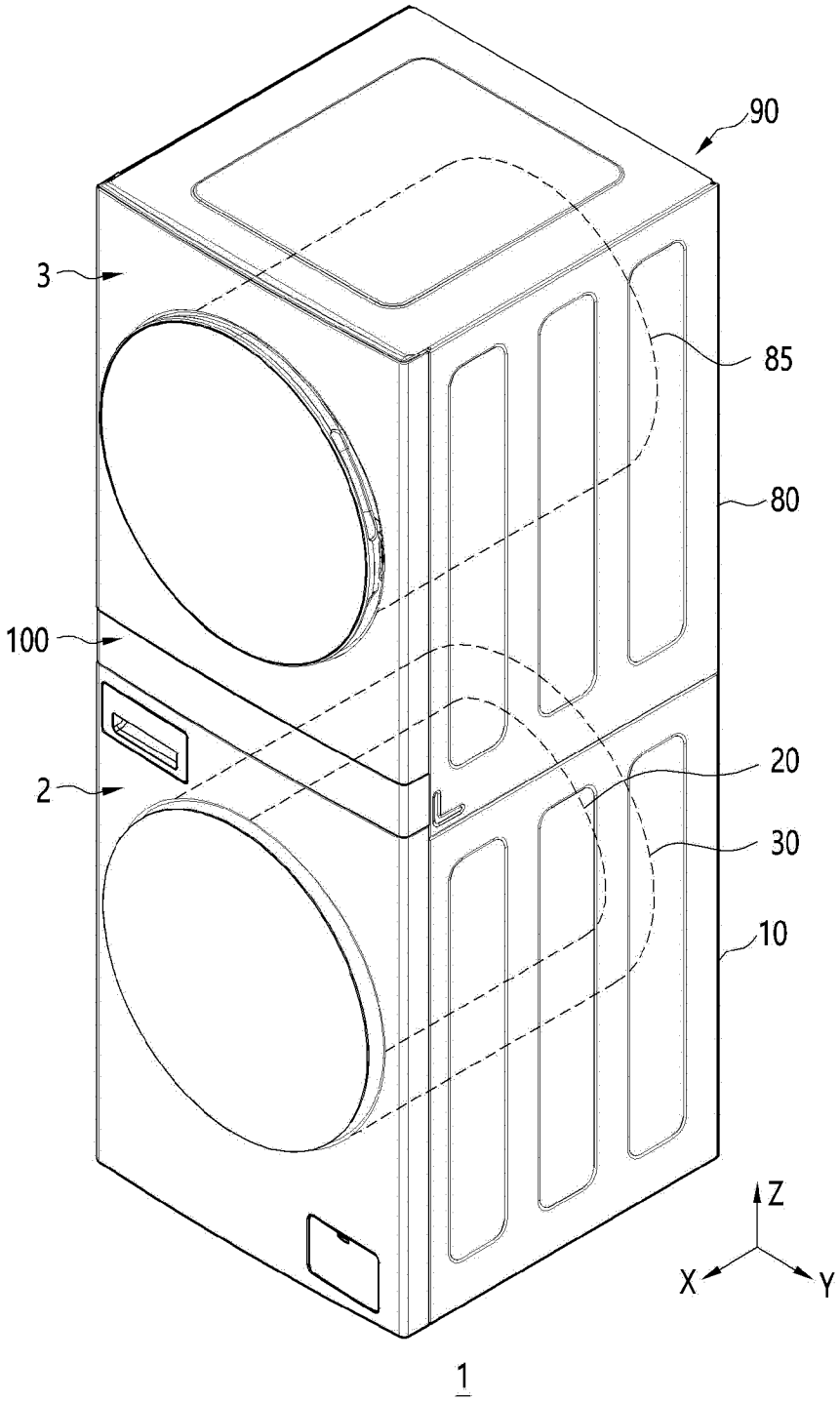
【FIG. 2】



【FIG. 3】



【FIG. 4】



【FIG. 5】

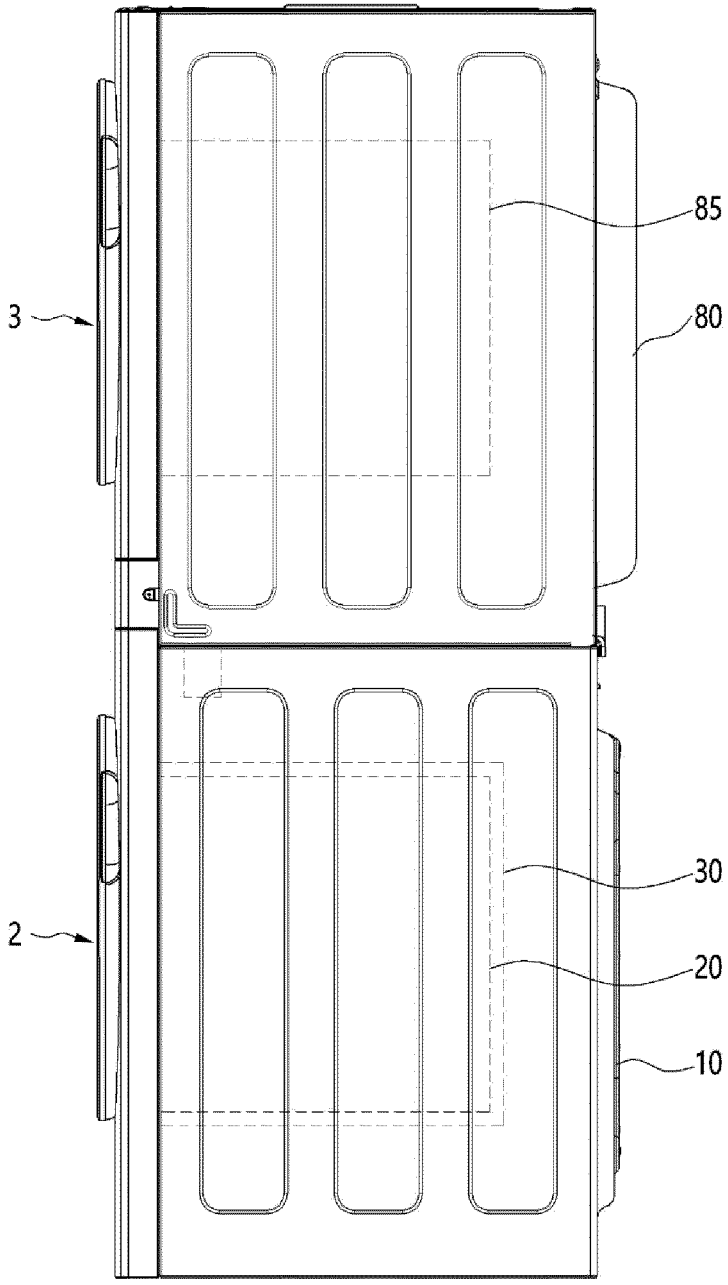


FIG. 6

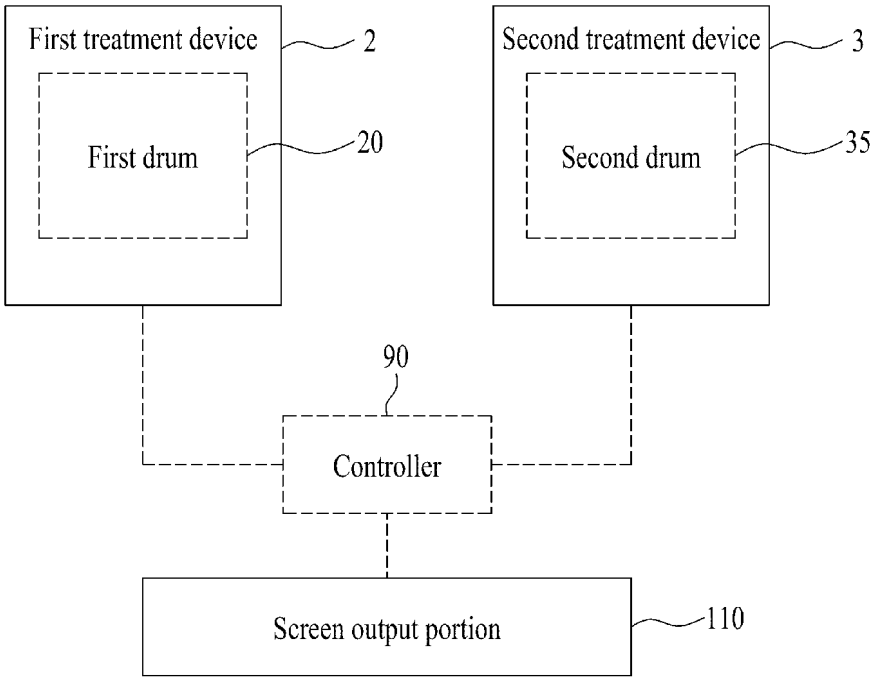

First treatment device
2
First drum
20
Second treatment device
3
Second drum
35
90
Controller
Screen output portion
110
1

FIG. 7

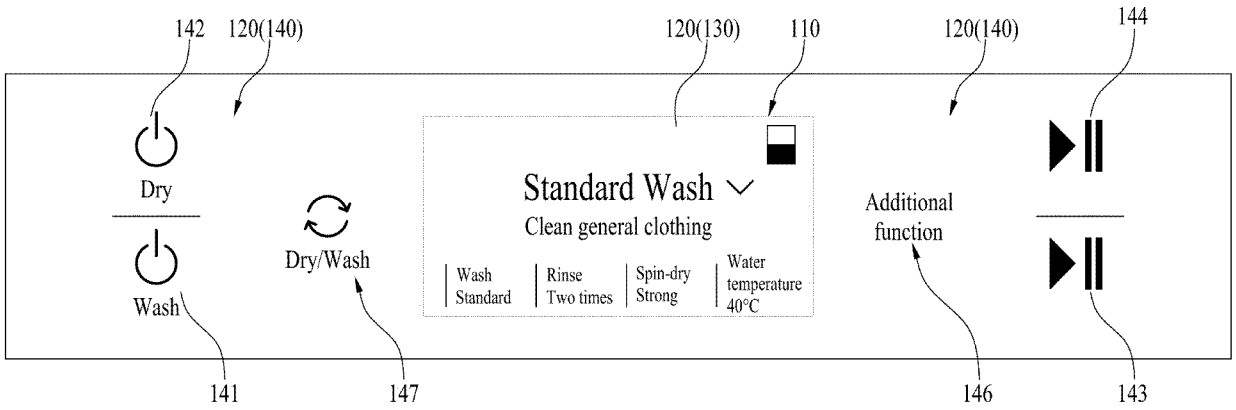

142
120(140)
120(130)
110
120(140)
144
Dry
Wash
Dry/Wash
Standard Wash
Clean general clothing
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water
temperature
40°C
Additional
function
141
147
146
143
100

FIG. 8

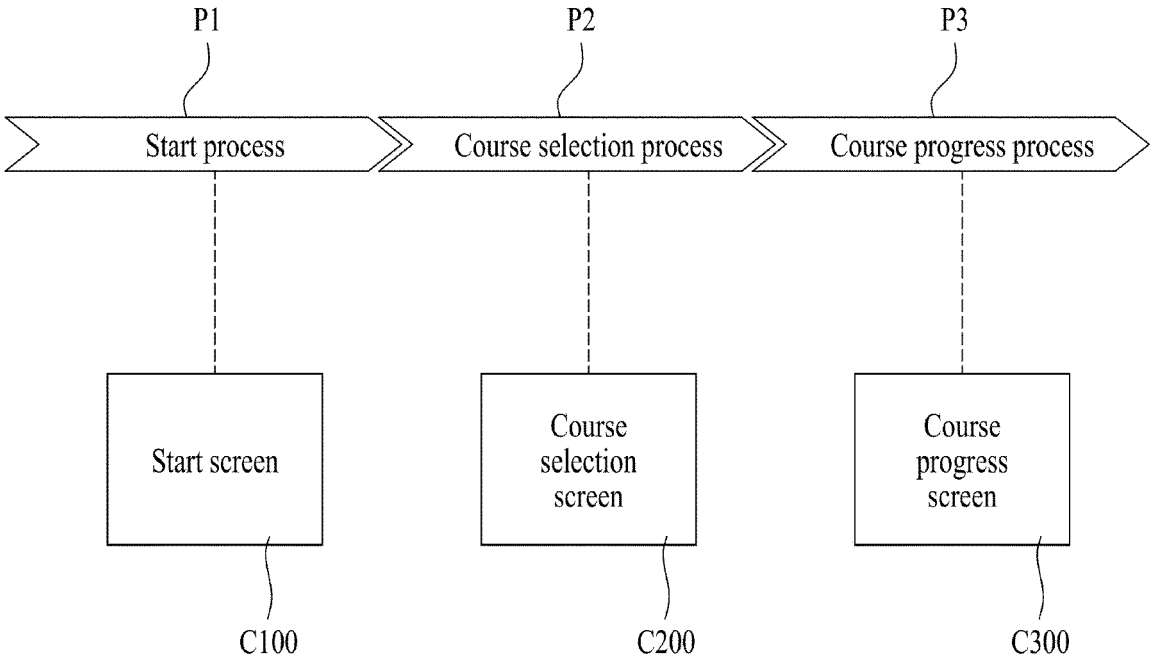

P1
P2
P3
Start process
Course selection process
Course progress process
Start screen
Course selection screen
Course progress screen
C100
C200
C300

FIG. 9

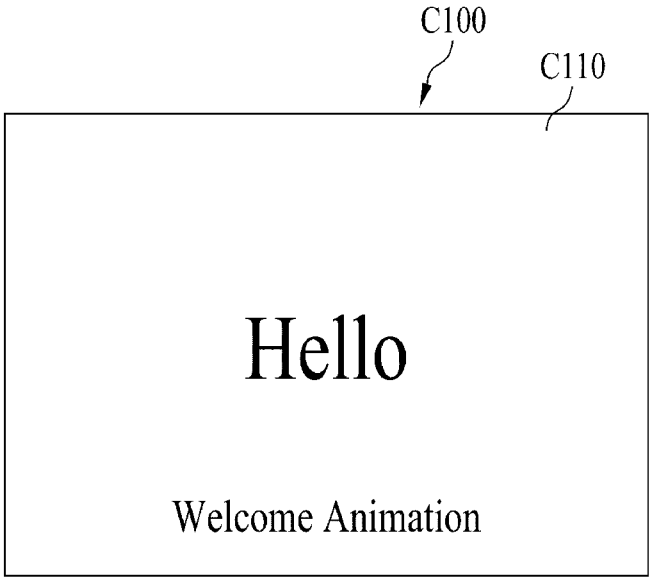


FIG. 10

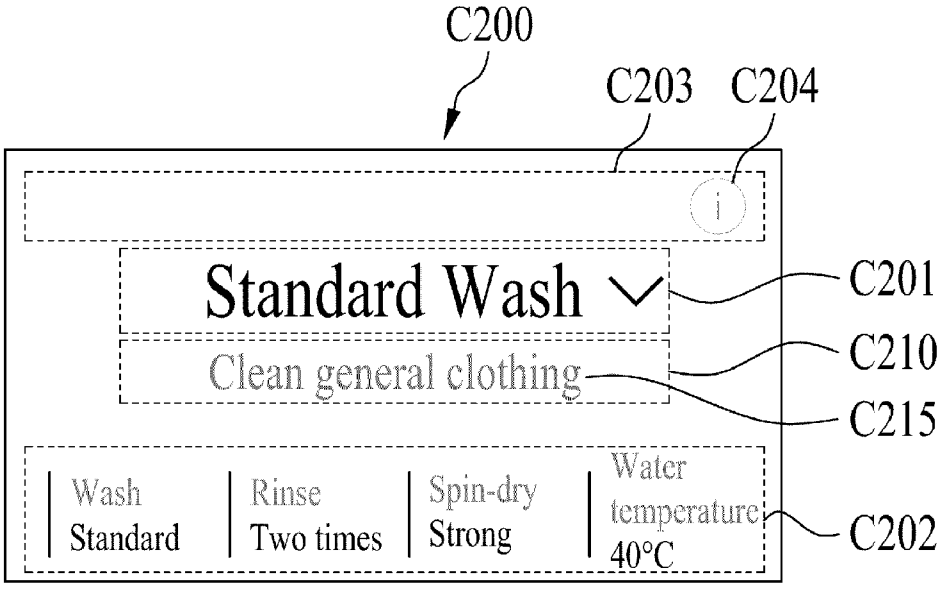

C200
C203
C204
Standard Wash
C201
Clean general clothing
C210
C215
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water temperature
40°C
C202

FIG. 11

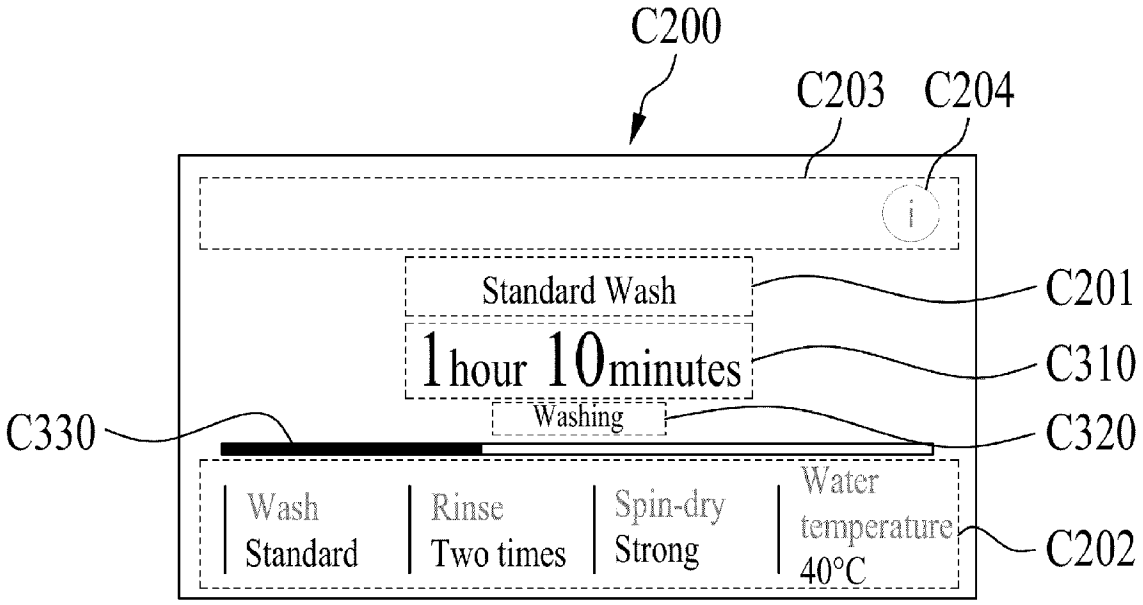

C200
C203
C204
Standard Wash
C201
1 hour 10 minutes
C310
Washing
C330
C320
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water
temperature
40°C
C202

FIG. 12

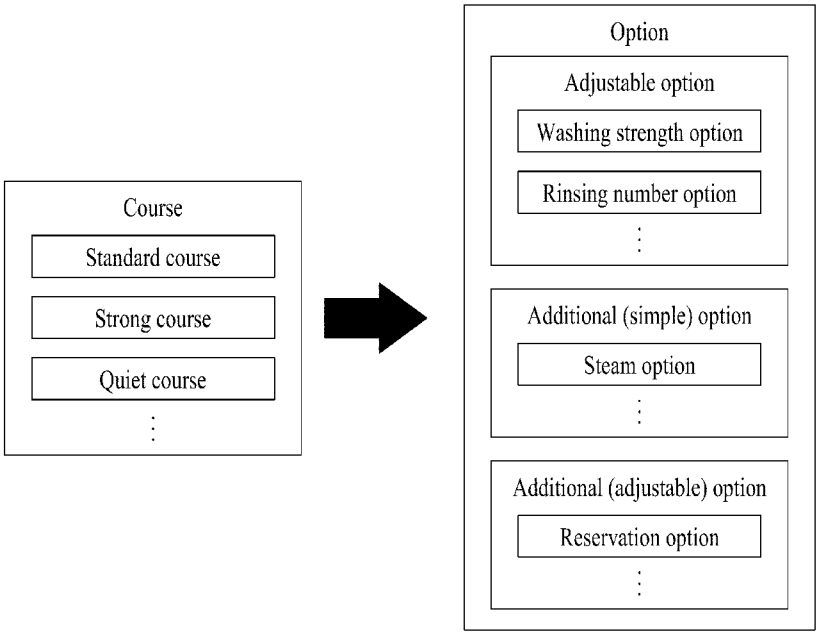

Course
Standard course
Strong course
Quiet course
Option
Adjustable option
Washing strength option
Rinsing number option
Additional (simple) option
Steam option
Additional (adjustable) option
Reservation option

FIG. 13

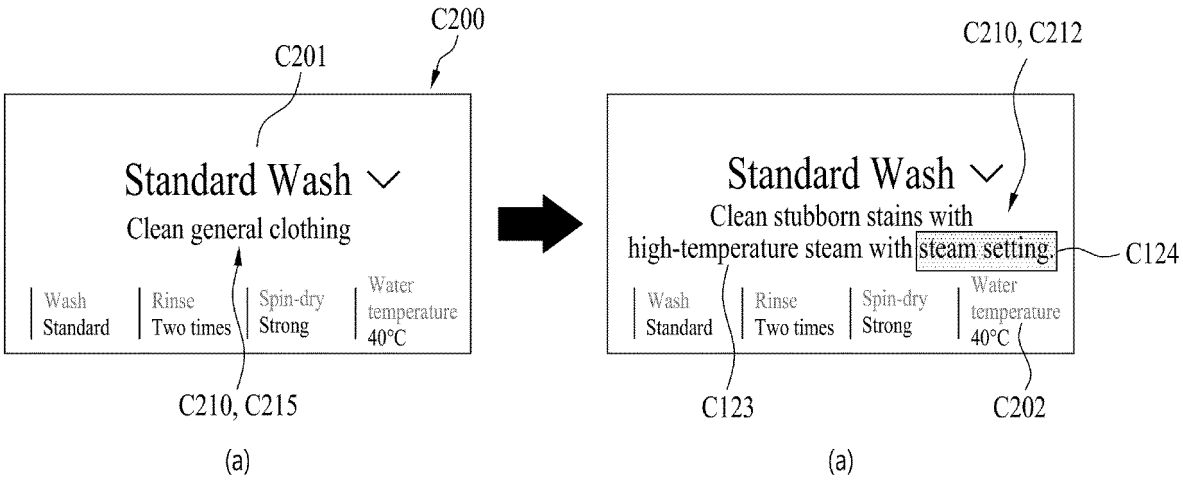

C200
C201
Standard Wash
Clean general clothing
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water
temperature
40°C
C210, C215
(a)
C210, C212
Standard Wash
Clean stubborn stains with
high-temperature steam with steam setting.
C124
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water
temperature
40°C
C123
C202
(a)

FIG. 14

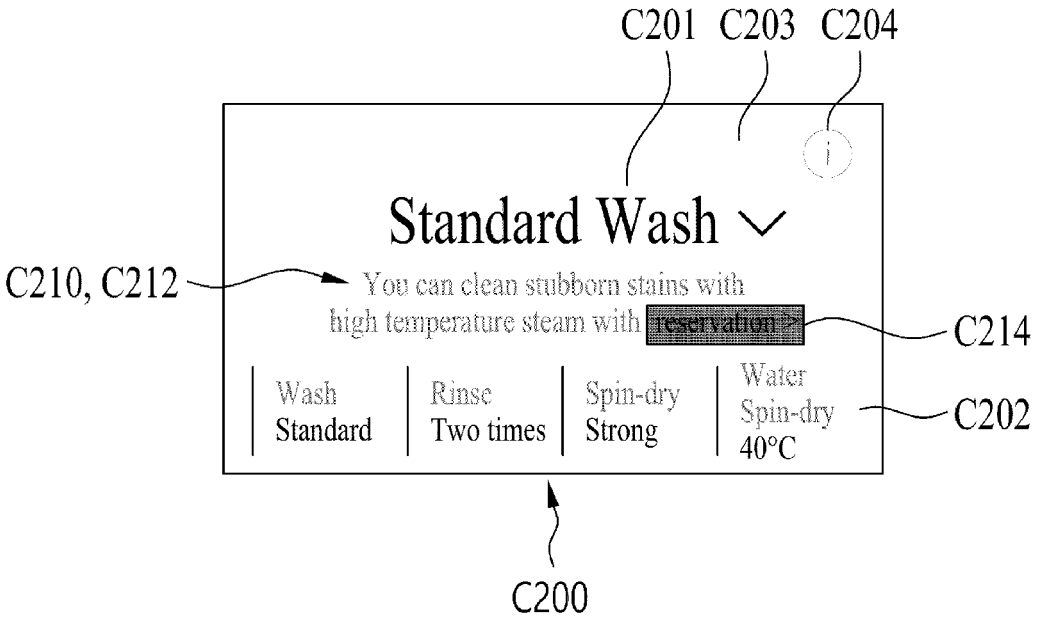

C201
C203
C204
Standard Wash
C210, C212
You can clean stubborn stains with
high temperature steam with reservation
C214
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water
Spin-dry
40°C
C202
C200

FIG. 15

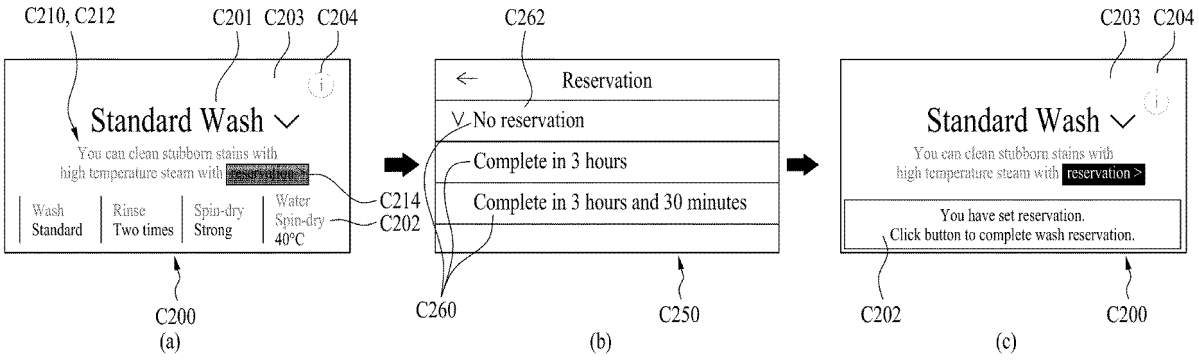

C210, C212
C201
C203
C204
Standard Wash
You can clean stubborn stains with high temperature steam with reservation >
Wash Standard
Rinse Two times
Spin-dry Strong
Water Spin-dry 40°C
C214
C202
C200
(a)
C262
Reservation
No reservation
Complete in 3 hours
Complete in 3 hours and 30 minutes
C260
C250
(b)
C203
C204
Standard Wash
You can clean stubborn stains with high temperature steam with reservation >
You have set reservation.
Click button to complete wash reservation.
C202
C200
(c)

FIG. 16

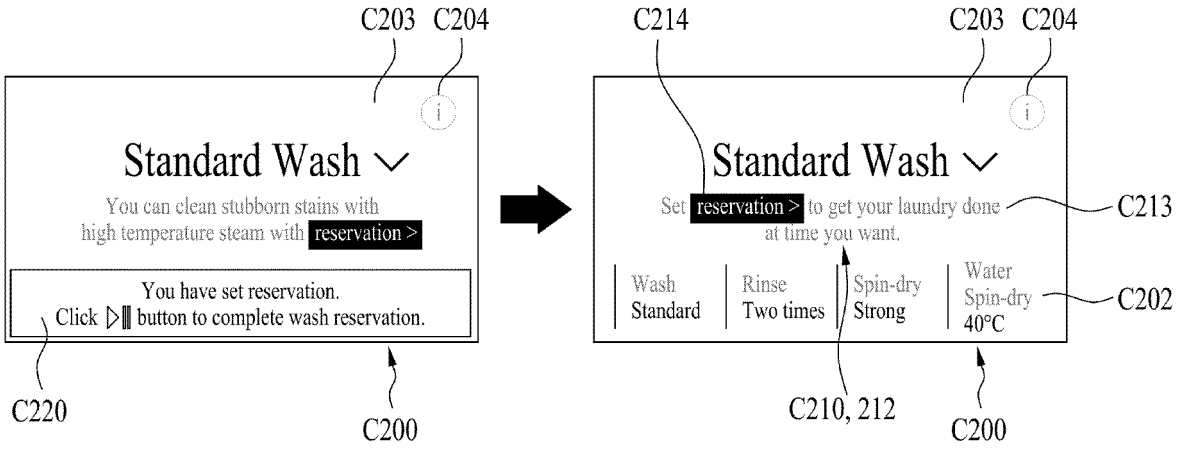

C203
C204
Standard Wash
You can clean stubborn stains with high temperature steam with reservation >
You have set reservation.
Click button to complete wash reservation.
C220
C200
(a)
C214
C203
C204
Standard Wash
Set reservation > to get your laundry done at time you want.
C213
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water
Spin-dry
40°C
C202
C210, 212
C200
(b)

FIG. 17

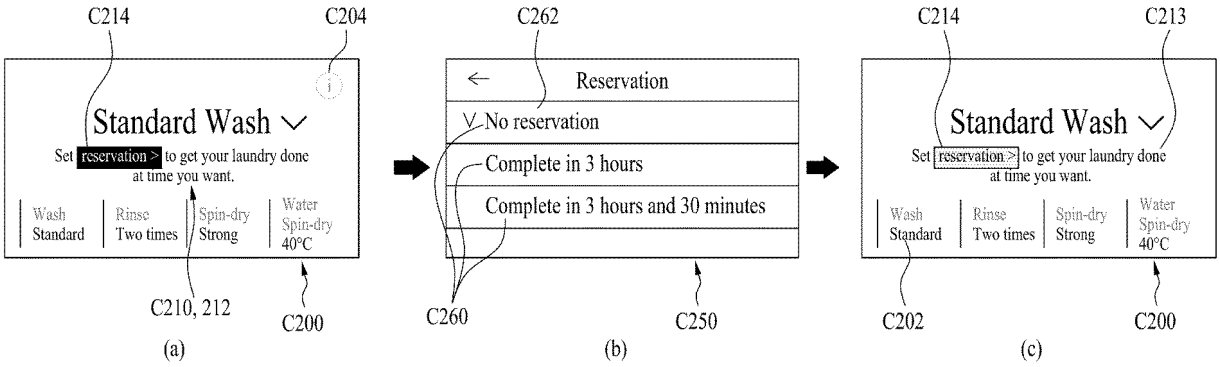

C214
C204
Standard Wash
Set reservation > to get your laundry done at time you want.
Wash Standard
Rinse Two times
Spin-dry Strong
Water Spin-dry 40°C
C210, 212
C200
(a)
C262
Reservation
No reservation
Complete in 3 hours
Complete in 3 hours and 30 minutes
C260
C250
(b)
C214
C213
Standard Wash
Set reservation > to get your laundry done at time you want.
Wash Standard
Rinse Two times
Spin-dry Strong
Water Spin-dry 40°C
C202
C200
(c)

FIG. 18

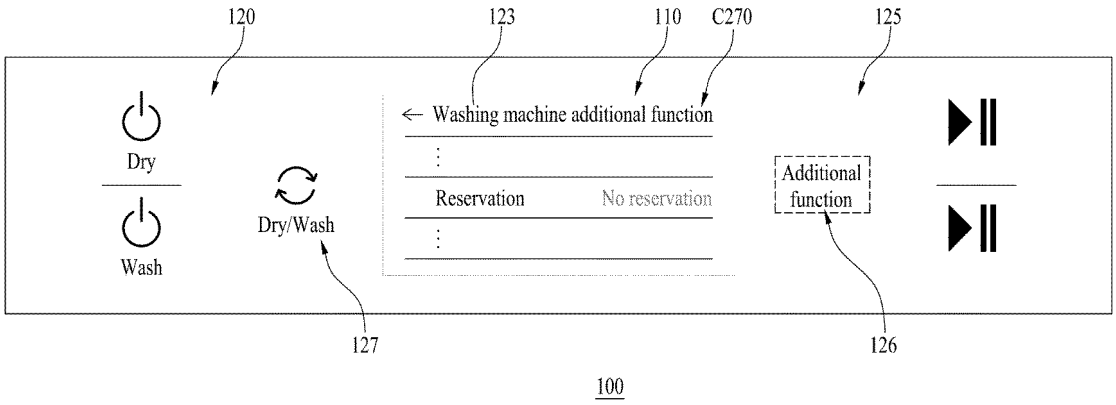

120
123
110
C270
125
Dry
Wash
Dry/Wash
← Washing machine additional function
Reservation
No reservation
Additional function
127
126
100

FIG. 19

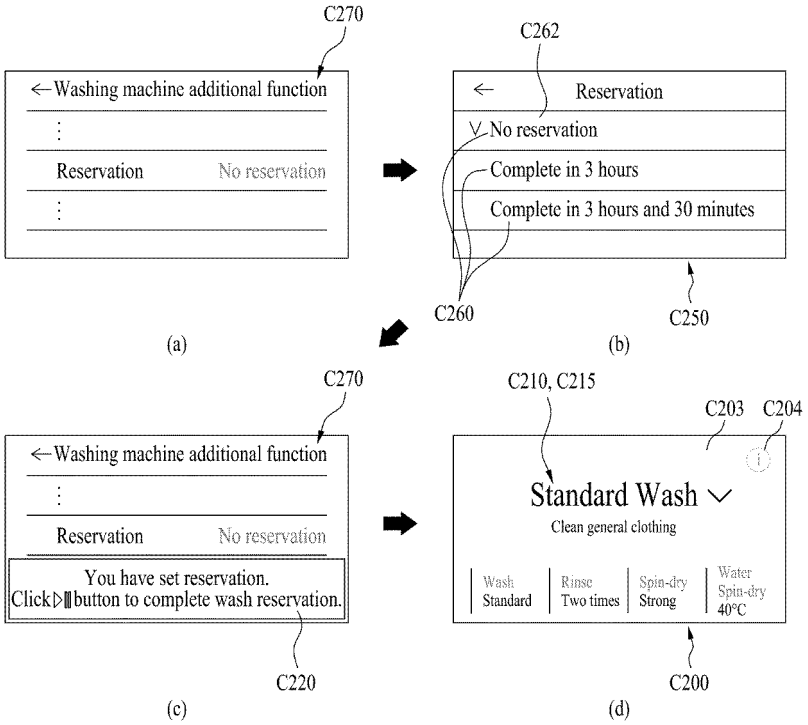
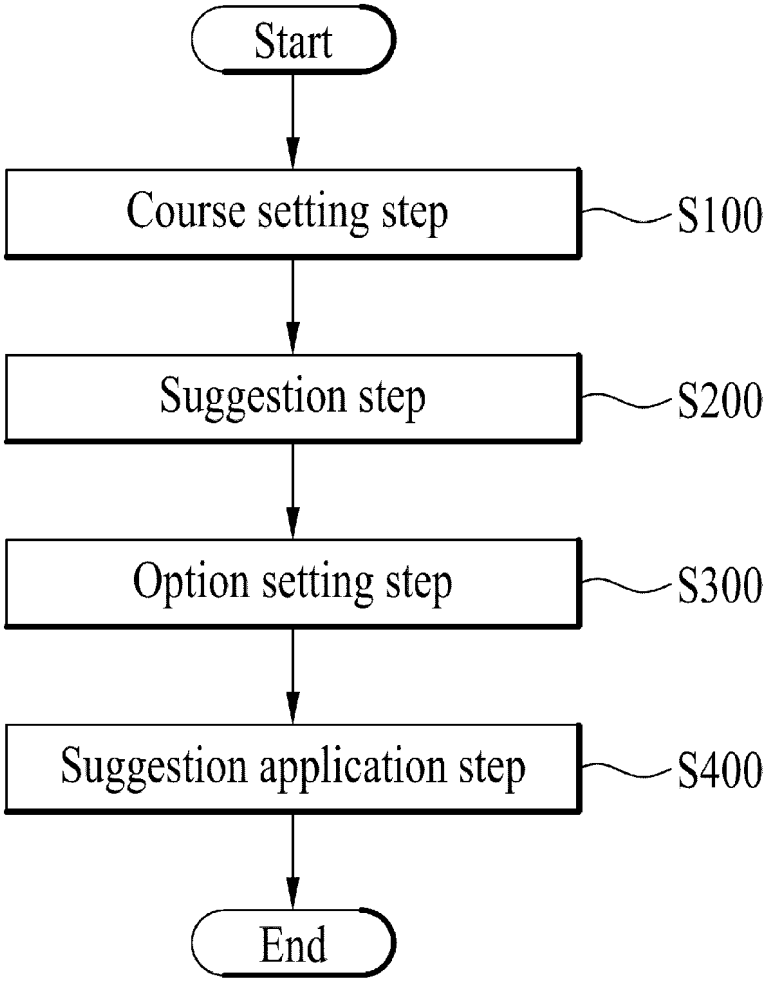

C270
←Washing machine additional function
Reservation
No reservation
(a)
C262
←
Reservation
No reservation
Complete in 3 hours
Complete in 3 hours and 30 minutes
C260
C250
(b)
C270
←Washing machine additional function
Reservation
No reservation
You have set reservation.
Click ▷‖ button to complete wash reservation.
C220
(c)
C210, C215
C203
C204
Standard Wash
Clean general clothing
Wash
Standard
Rinse
Two times
Spin-dry
Strong
Water
Spin-dry
40°C
C200
(d)

FIG. 20


Start
Course setting step
S100
Suggestion step
S200
Option setting step
S300
Suggestion application step
S400
End

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2023/013639

A. CLASSIFICATION OF SUBJECT MATTER

D06F 34/34(2020.01)i; **D06F 34/30**(2020.01)i; **D06F 34/32**(2020.01)i; **D06F 34/05**(2020.01)i; **D06F 33/32**(2020.01)i; **D06F 33/52**(2020.01)i; **D06F 101/00**(2020.01)i; **D06F 105/52**(2020.01)i; **D06F 105/58**(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 34/34(2020.01); D06F 33/00(2006.01); D06F 33/02(2006.01); D06F 33/30(2020.01); D06F 39/00(2006.01); G06F 3/041(2006.01); G06F 3/0484(2013.01); G06F 3/0485(2013.01); H04B 1/40(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(clothes treating apparatus), 캐비닛(cabinet), 드럼(drum), 화면(screen), 코스설정(course setting), 제안영역(propose area), 옵션설정(option setting), 추가(add), 해제(deselect)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2018-0119486 A (LG ELECTRONICS INC.) 02 November 2018 (2018-11-02) See paragraphs [0128], [0132], [0176]-[0183], [0236]-[0240], [0489]-[0495] and [0570]; and figures 1-2, 9 and 18-20.	1-30
Y	KR 10-2012-0023497 A (SAMSUNG ELECTRONICS CO., LTD.) 13 March 2012 (2012-03-13) See paragraphs [0090]-[0098]; and figures 8-11.	1-30
Y	US 2013-0290902 A1 (ELECTROLUX HOME PRODUCTS, INC.) 31 October 2013 (2013-10-31) See paragraphs [0046]-[0050]; and figures 6-8.	3-8,16-18,23,25,27-30
A	KR 10-2016-0062917 A (LG ELECTRONICS INC.) 03 June 2016 (2016-06-03) See paragraphs [0071]-[0075] and [0096]-[0103]; and figures 2 and 4.	1-30
A	KR 10-2010-0122030 A (LG ELECTRONICS INC.) 19 November 2010 (2010-11-19) See paragraphs [0059]-[0070]; and figures 4a-6d.	1-30

☐ 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
09 January 2024	**10 January 2024**
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.

Form PCT/ISA/210 (second sheet) (July 2022)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2023/013639

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
KR 10-2018-0119486 A	02 November 2018	AU 2018-257685 A1	12 December 2019
		AU 2018-257685 B2	22 July 2021
		AU 2021-254644 A1	18 November 2021
		CN 108729117 A	02 November 2018
		CN 108729117 B	18 June 2021
		EP 3396051 A1	31 October 2018
		EP 3396051 B1	01 June 2022
		KR 10-2070783 B1	29 January 2020
		US 2018-0305851 A1	25 October 2018
		WO 2018-199543 A1	01 November 2018
KR 10-2012-0023497 A	13 March 2012	CN 102409508 A	11 April 2012
		CN 102409508 B	10 June 2015
		EP 2426244 A2	07 March 2012
		EP 2426244 A3	30 December 2015
		EP 2426244 B1	17 February 2021
		US 2012-0056827 A1	08 March 2012
		US 8976126 B2	10 March 2015
US 2013-0290902 A1	31 October 2013	WO 2012-092445 A2	05 July 2012
		WO 2012-092445 A3	10 April 2014
KR 10-2016-0062917 A	03 June 2016	EP 3225730 A1	04 October 2017
		EP 3225730 B1	08 March 2023
		EP 3988699 A1	27 April 2022
		KR 10-2243658 B1	23 April 2021
		US 10920357 B2	16 February 2021
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