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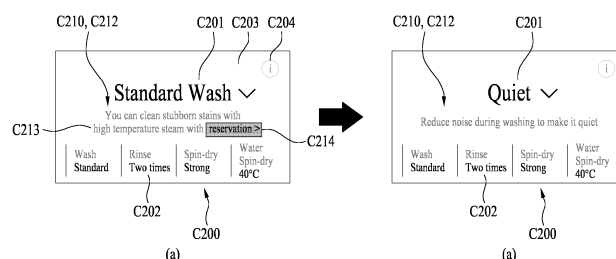
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(54) **LAUNDRY TREATING APPARATUS AND CONTROL METHOD FOR SAME**

(57) **Abstract:** Disclosed are a laundry treating apparatus and a control method for same. A laundry treating apparatus according to an embodiment of the present disclosure comprises: a cabinet; a drum provided inside the cabinet and accommodating laundry; and a screen output part provided in the cabinet and outputting a screen, wherein the screen output part outputs a screen

comprising a cycle name region in which the name of a cycle for treating laundry is displayed and a proposal region is presented in which a suggested cycle different from the cycle currently displayed in the cycle name region, and when the proposal region is selected, the name of the suggested cycle is displayed in the cycle name region.

FIG. 15



## Description

### [Technical Field]

**[0001]** The present disclosure relates to a laundry treating apparatus and a method for controlling the same, and more particularly, to a laundry treating apparatus including a screen outputter that outputs a screen and a method for controlling the same.

### [Background]

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

**[0003]** The laundry treating apparatus may include a housing that forms an outer appearance, a tub accommodated in the housing, the drum rotatably mounted in the tub and into which the laundry is inserted, and a detergent supply apparatus 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 in the drum, dirt on the laundry may be removed by friction between the drum and washing water.

**[0005]** The detergent supply apparatus has 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 a fabric detergent, a fabric softener, and a fabric bleach. As the detergent, a powder type detergent or a liquid type detergent may be used.

**[0006]** In one example, the laundry treating apparatus may perform a course setting process capable of 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 one of the plurality of courses to perform the treatment of 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 any 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]** Further, 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 thereof is 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 that generates 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 in the course setting process and/or whether various options are applied to the course or setting states thereof.

**[0011]** However, the plurality of courses for treating the laundry may be sequentially displayed one by one on a course setting screen, and thus it may be difficult for the user to determine an optimal course in a current state.

**[0012]** Furthermore, it may be inconvenient for the user to identify all of advantages and the like of the multiple courses, and it may be difficult to select a course by specifically identifying environmental conditions such as a temperature and laundry characteristics such as a material of the laundry.

**[0013]** Furthermore, even when the user determines any one course among the plurality of courses in consideration of various conditions, when the course displayed on the course setting screen is changed in the order based on the plurality of courses, repeated manipulation of the user may be required to change the course from the currently displayed course to the course determined by the user, which may be cumbersome.

**[0014]** Accordingly, providing the various courses to increase convenience of use and satisfaction of the laundry treatment, but conveniently providing a reasonable course to the user in consideration of a condition for the laundry treatment and further providing a simple and convenient course change process to the user are important tasks in the present technical field.

### [Summary]

### [Technical Problem]

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

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

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

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

**[0019]** In addition, embodiments of the present disclo-

sure are to provide a laundry treating apparatus and a method for controlling the same that may effectively suggest one of a plurality of courses and conveniently change the course.

#### [Technical Solutions]

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

**[0021]** A plurality of areas may be defined in the course setting screen, a course to be set may be displayed in one of the plurality of areas, and another may be a suggestion area that suggests a setting for treating the laundry to the user.

**[0022]** In the suggestion area, a suggested course different from a course that is displayed on the course setting screen and scheduled to be executed may be displayed. The suggestion area may be displayed to be selectable by a user, and when the suggestion area is selected, the course displayed on the course setting screen may be changed to the suggested course.

**[0023]** An embodiment of the present disclosure may improve convenience of use via diversity of courses by providing a plurality of courses to the user, and furthermore, may further improve the convenience of use by suggesting a course that may be better selected to the user via the suggestion area.

**[0024]** A laundry treating apparatus according to an embodiment of the present disclosure as described above includes a cabinet, a drum, and a screen outputter. The drum is disposed inside the cabinet and constructed to accommodate laundry therein. The screen outputter is disposed on the cabinet and outputs a screen thereon.

**[0025]** The screen outputter outputs a screen including a course name area where a name of a course for treating the laundry is displayed and a suggestion area where a suggested course different from the course currently displayed in the course name area is presented, wherein a name of the suggested course is displayed in the course name area when the suggestion area is selected.

**[0026]** The name of the suggested course may disappear from the suggestion area when the suggested course is displayed in the course name area. A description of the suggested course may be displayed in the suggestion area when the name of the suggested course is displayed in the course name area.

**[0027]** The suggested course may be displayed in the suggestion area when a suggestion condition for the suggested course is satisfied. The suggested course may be displayed in the suggestion area as the suggested condition is satisfied in a specific time range.

**[0028]** The drum may be constructed to be rotatable, and the suggested course may have a lower maximum

rotation RPM of the drum than the course displayed in the course name area before the suggestion area is selected.

**[0029]** The screen outputter may display suggestion content including the name of the suggested course or a phrase suggesting the suggested course in the suggestion area. The suggestion content may include a plurality of suggestion content, and the plurality of suggestion content may respectively have suggestion conditions different from each other.

**[0030]** When there are a plurality of suggestion content satisfying respective suggestion conditions thereof among the plurality of suggestion content, one having a higher priority may be displayed in the suggestion area.

**[0031]** A suggestion indicator indicating the suggestion course and a suggestion phrase for suggesting the suggestion course may be displayed in the suggestion area. The suggestion indicator may be defined to include at least a portion of the suggestion phrase in the suggestion area.

**[0032]** The suggestion indicator may include a border for distinguishing the at least a portion from a rest of the suggestion phrase.

**[0033]** The screen outputter may sense a touch signal of a user for the screen, and when the touch signal is generated in at least a portion of the suggestion area, the suggested course may be displayed in the course name area.

**[0034]** The course may include a plurality of courses, an order for the plurality of courses to be displayed in the course name area may be determined, and the screen outputter may display the plurality of courses in the course name area based on the order when the touch signal is generated in a sliding manner on the screen.

**[0035]** When the touch signal is generated in the sliding manner while the suggested course is displayed in the course name area as the suggestion area is selected, the screen outputter may display a course ranked first in the order among the plurality of courses in the course name area.

**[0036]** An embodiment of the present disclosure 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 via the input signal.

**[0037]** An embodiment of the present disclosure may further include a button assembly disposed on the cabinet and manipulated by a user to generate an input signal, and the suggestion area may be selected based on the input signal of the button assembly.

**[0038]** The screen outputter may output a course setting screen including the course name area and the suggestion area, wherein the course displayed in the course name area is settable on the course setting screen.

**[0039]** 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 displayed in the course name area are displayed.

**[0040]** In one example, in an embodiment of the present disclosure, the screen outputter may output a screen where a name of one of a plurality of courses for treating the laundry and a suggested course different from the one are displayed, and when the suggested course is selected, the name of the one may be changed to a name of the suggested course and the name of the suggested course may be displayed.

**[0041]** 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 a suggestion application operation.

**[0042]** In the course setting operation, a course setting screen where a name of one of a plurality of courses for treating the laundry is displayed in a course name area may be output via the screen outputter.

**[0043]** In the suggestion operation, a suggested course different from the one displayed on the course setting screen may be displayed in a suggestion area of the course setting screen.

**[0044]** In the suggestion application operation, a name of the suggested course instead of the name of the one may be displayed in the course name area when the suggestion area is selected.

**[0045]** In the suggestion operation, the screen outputter may display suggestion content including the name of the suggested course or a phrase suggesting the suggested course in the suggestion area.

**[0046]** An embodiment of the present disclosure may further include a suggestion condition determination operation of determining, by a controller, whether the suggestion content satisfies a suggestion condition to be displayed in the suggestion area.

**[0047]** The suggestion content may include a plurality of suggestion content with respective suggestion conditions set, and the plurality of suggestion content may be stored in the controller, and in the suggestion condition determination operation, the controller may determine whether the respective suggestion conditions of the plurality of suggestion content are satisfied.

**[0048]** In the suggestion application operation, the name of the suggested course may disappear from the suggestion area when the suggested course is displayed in the course name area.

**[0049]** In the suggestion application operation, when the suggested course is displayed in the course name area, a description of the suggested course may be displayed instead of the name of the suggested course in the suggestion area.

#### [Advantageous Effects]

**[0050]** The embodiments of the present disclosure may provide the laundry treating apparatus and the method for controlling the same that may effectively improve the convenience of use in setting the course.

**[0051]** In addition, the embodiments of the present

disclosure may provide the laundry treating apparatus and the method for controlling the same that may effectively shorten the setting process of the course.

**[0052]** In addition, the embodiments of the present disclosure may provide the laundry treating apparatus and the method for controlling the same that may provide the user with the convenient and efficient course setting state.

**[0053]** In addition, the embodiments of the present disclosure may provide the laundry treating apparatus and the method for controlling the same that may suggest the setting of the course advantageous to the user such that the user may conveniently identify the same.

**[0054]** In addition, the embodiments of the present disclosure may provide the laundry treating apparatus and the method for controlling the same that may effectively suggest one of the plurality of courses and conveniently change the course.

#### [Brief Description of the Drawings]

#### [0055]

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 illustrating a course setting screen on which an option is suggested via a suggestion area in an embodiment of the present disclosure.

FIG. 15 is a diagram illustrating a process in which a suggested course suggested via a suggestion area is applied in an embodiment of the present disclosure.

FIG. 16 is a diagram illustrating a process of changing a course displayed on a course setting screen from a suggested course to another course in an embodiment of the present disclosure.

FIG. 17 is a flowchart illustrating a method for controlling a laundry treating apparatus according to an embodiment of the present disclosure.

[Best Mode]

**[0056]** 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.

**[0057]** 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.

**[0058]** In the present document, redundant descriptions of the same components are omitted.

**[0059]** 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.

**[0060]** Further, terms used herein are only used to describe a specific embodiment, and are not used as a limitation of the present disclosure.

**[0061]** Further, in the present document, a singular representation may include a plural representation unless it represents a definitely different meaning from the context.

**[0062]** Further, the terms such as "include" or "have" used herein are intended to indicate that features, num-

bers, 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.

**[0063]** 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'.

**[0064]** 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.

**[0065]** 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.

**[0066]** 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.

**[0067]** 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.

**[0068]** 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.

**[0069]** 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.

**[0070]** In one example, inside of the laundry treating apparatus 1 is illustrated in FIG. 2. A tub 30 and a drum 20 may be disposed inside the laundry treating apparatus 1 defined by the cabinet 10.

**[0071]** The tub 30 may be disposed inside the laundry treating apparatus 1 to accommodate water therein. The tub 30 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 30.

**[0072]** The drum 20 may be rotatably disposed inside the tub 30. 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.

**[0073]** 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.

**[0074]** 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.

**[0075]** 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 30 when the detergent is required in performing a course for treating the laundry.

**[0076]** 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 30 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 30.

**[0077]** An embodiment of the present disclosure may include a drain 60. The drain 60 may be connected to the tub 30 to discharge water present in the tub 30 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.

**[0078]** 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 30 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 30 may be discharged to the outside of the cabinet 10 via the drain 60 as necessary.

**[0079]** However, the laundry treating apparatus 1 according to an embodiment of the present disclosure does not necessarily include the tub 30, and is able to be in a form in which the tub 30 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 30 is removed.

**[0080]** FIG. 3 conceptually illustrates an information exchange scheme of the laundry treating apparatus 1 according to an embodiment of the present disclosure.

**[0081]** In an embodiment of the present disclosure, the laundry treating apparatus 1 may be equipped to enable communication. A communication part may enable various types of communication such as Bluetooth and WIFI. However, when necessary, the communication part for the communication may be omitted.

**[0082]** In case of having the communication part, the laundry treating apparatus 1 may be in direct commu-

nication 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.

**[0083]** 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.

**[0084]** 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.

**[0085]** 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.

**[0086]** 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.

**[0087]** 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.

**[0088]** 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.

**[0089]** 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.

**[0090]** 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.

**[0091]** For example, the first treating apparatus 2 may include the cabinet 10, the drum 20, and the tub 30 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.

**[0092]** 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 apparatuses, 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.

**[0093]** 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.

**[0094]** 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.

**[0095]** 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.

**[0096]** 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.

**[0097]** 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, a communication part, and storage.

**[0098]** The processor may perform a processing process via calculation or the like of information, the communication part may enable communication in various communication schemes such as Bluetooth and WIFI, and the storage may store information.

**[0099]** 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.

**[0100]** 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.

**[0101]** For example, the first treating apparatus 2 may include a first sub-controller 90 involved in operation of the first treating apparatus 2, the second treating apparatus 3 may include a second sub-controller 90 involved in operation of the second treating apparatus 3, and the screen outputter 110 may include a screen controller 90 involved in operation of the screen outputter 110.

**[0102]** The above-described controller 90 may be connected to the first sub-controller 90, the second sub-controller 90, and the screen controller 90 to transmit a command of the user or receive information. In addition, one of the first sub-controller 90, the second sub-controller 90, and the screen controller 90 may correspond to the above-described controller 90.

**[0103]** 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.

**[0104]** 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.

**[0105]** 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.

**[0106]** 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.

**[0107]** 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.

**[0108]** 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.

**[0109]** 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 on which additional functions for settings throughout use of the laundry treating apparatus 1 or additional settings for the course are displayed.

**[0110]** 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.

**[0111]** 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.

**[0112]** 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.

**[0113]** 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.

**[0114]** 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.

**[0115]** 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.

**[0116]** 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.

**[0117]** 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.

**[0118]** 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.

**[0119]** 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.

**[0120]** 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.

**[0121]** 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.

**[0122]** 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.

**[0123]** 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.

**[0124]** 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.

**[0125]** 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.

**[0126]** FIG. 12 is a conceptual diagram showing a concept of a plurality of courses and various options in an embodiment of the present disclosure.

**[0127]** 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.

**[0128]** 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.

**[0129]** 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.

**[0130]** 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.

**[0131]** 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.

**[0132]** 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.

**[0133]** 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.

**[0134]** In one example, the option adjustable by the

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

**[0135]** That is, when the user selects the option value of 'two times' among the option values of the rinsing number option in the rinsing course, the option value of 'two times' may become a setting value of the rinsing number option and may be reflected in the corresponding course.

**[0136]** 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.

**[0137]** 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.

**[0138]** 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.

**[0139]** 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.

**[0140]** 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 for the corresponding option as a setting value when the option is applied.

**[0141]** 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 for the reservation option, for example, the plurality of option values such as after 30 minutes, after 1 hour, and after 1 hour and 30 minutes, as the setting value.

**[0142]** 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. According to an embodiment of the present disclosure, various option settings may be suggested to the user via the suggestion area C210 of the course setting screen C200.

**[0143]** 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.

**[0144]** In an embodiment of the present disclosure, when there is the suggestion content C212 to be suggested to the user, the controller 90 may control the screen outputter 110 to display the suggestion content C212 in the suggestion area C210.

**[0145]** A plurality of suggestion content C212 may be stored in advance in the controller 90, and the controller 90 may control the screen outputter 110 to output one of the plurality of suggestion content C212 in the suggestion area C210 as necessary.

**[0146]** The controller 90 may select the suggestion content C212 to be displayed in the suggestion area C210 based on a suggestion condition to be described later. For example, each of the plurality of suggestion content C212 may have a suggestion condition for being suggested to the user.

**[0147]** The controller 90 may control the screen outputter 110 to display the suggestion content C212 satisfying the suggestion condition in the suggestion area C210. When there is no suggestion content C212 satisfying the suggestion condition, the course description phrase C215 describing the course displayed in the course name area C201 may be displayed in the suggestion area C210 instead of the suggestion content C212.

**[0148]** The suggestion content C212 may include content for changing an option, additionally applying an option, or changing a course. For example, one of the plurality of suggestion content C212 may suggest to the user a change of a setting value of an option, another may suggest to the user of application of an option not applied to a course, and still another may suggest to the user a change of the course displayed in the course name area C201 to another course.

**[0149]** In (b) in FIG. 13, the steam option is displayed in the suggestion area C210. That is, in the suggestion area C210 in (b) in FIG. 13, the suggestion content C212 that suggests to the user application of the steam option to the current course is displayed.

**[0150]** The user may select the suggestion area C210 via manipulation of the inputter 120 such as the touch inputter 123. When it is determined that the suggestion area C210 is selected based on an input signal generated from the inputter 120, the controller 90 may perform the change and the addition of the option or the change of the course based on content of the suggestion content C212 displayed in the suggestion area C210.

**[0151]** For example, as shown in (b) in FIG. 13, when the user selects the suggestion area C210 while the

content suggesting the application of the steam option is displayed in the suggestion area C210, the controller 90 may set the steam option to be applied to the current course based on the content of the suggestion area C210.

**[0152]** When the steam option is applied, an indicator C204 indicating the steam option may be activated in the indicator area C203. In an embodiment of the present disclosure, one of the plurality of suggestion content C212 may suggest to the user the simple additional option for which the determination of the setting value is not required unlike the steam option and only the application thereof may be determined.

**[0153]** The suggestion content C212 is for suggesting setting of a course for treating the laundry to the user, and is able to be displayed to guide course setting more advantageous to the user based on various conditions and environments.

**[0154]** In an embodiment of the present disclosure, more effective and convenient setting for the treatment of the laundry may be suggested to the user via the suggestion area C210, and the user may set the course based on the suggestion via the suggestion area C210 even in a state in which the various courses and the various options are not completely reviewed, thereby greatly improving convenience of use.

**[0155]** FIG. 14 illustrates the suggestion area C210 in which content suggesting additional application of an option is displayed according to an embodiment of the present disclosure.

**[0156]** Referring to FIG. 14, in an embodiment of the present disclosure, the suggestion content C212 may suggest setting of the adjustable additional option to the user. The adjustable additional option is an option that requires determination of not only whether it is to be applied, but also a setting value therefor.

**[0157]** In the suggestion area C210 in FIG. 14, the suggestion content C212 in which the setting of the reservation option is suggested as one of the adjustable additional options is displayed. For the reservation option, not only whether the corresponding option is to be applied, but also a waiting time from the present to a time when the course is performed need to be selected.

**[0158]** The waiting time may be provided to the user as a plurality of option values. For example, the reservation option may have a plurality of option values such as '3 hours later' and '4 hours later', and the user may select one of the plurality of option values indicating the waiting time as the setting value.

**[0159]** When the suggestion area C210 in which the content suggesting the reservation option is displayed is selected by the user, the controller 90 may control the screen outputter 110 to output an option setting screen on which the plurality of option values for the reservation option are displayed.

**[0160]** That is, in an embodiment of the present disclosure, the screen outputter 110 may output the course setting screen C200 including the course name area

C201 and the suggestion area C210 and where a course displayed in the course name area C201 may be set.

**[0161]** The course setting screen C200 may further include the option information area C202 in which setting values of at least some of the plurality of options adjustable in the course displayed in the course name area C201 are displayed.

**[0162]** However, when the setting of the option is suggested in the suggestion area C210, the option may not necessarily be included in the option information area C202. The reservation option is basically an option in a non-applied state, and, unlike the adjustable option whose application to the course is not determined, may not be displayed in the option information area C202.

**[0163]** However, an indicator C204 indicating the reservation option may be activated in the indicator area C203, thereby notifying the user that the corresponding option has been normally applied.

**[0164]** Furthermore, a suggestion indicator C214 indicating an option or a course to be suggested may be displayed in the suggestion area C210, and the user may be notified that the setting of the option or the course based on the selection of the suggestion area C210 has been normally performed via an image change of the suggestion indicator C214.

**[0165]** FIG. 15 illustrates a process in which the suggestion area C210 suggesting the change of the course is selected and the course is changed according to an embodiment of the present disclosure.

**[0166]** (a) in FIG. 15 shows a state in which content suggesting one of the plurality of courses is displayed in the suggestion area C210, and (b) in FIG. 15 shows the course setting screen C200 on which the suggestion area C210 is selected and the course suggested in the suggestion area C210 is displayed.

**[0167]** A process in which the change of the course is suggested according to an embodiment of the present disclosure will be described in detail as follows with reference to FIG. 15.

**[0168]** First, the laundry treating apparatus 1 according to an embodiment of the present disclosure may include the cabinet 10, the drum 20, and the screen outputter 110 described above. The drum 20 may be disposed inside the cabinet 10, and may accommodate the laundry therein. The screen outputter 110 may be disposed on the cabinet 10 and may output the screen.

**[0169]** The screen outputter 110 may output the screen including the course name area C201 in which the name of the course for treating the laundry is displayed and the suggestion area C210 in which a suggested course different from the course currently displayed in the course name area C201 is presented.

**[0170]** For example, the screen outputter 110 may output the course setting screen C200 for the selection of the course and the setting of the option to be performed, and the course name area C201 and the suggestion area C210 may be defined in the course setting screen C200.

**[0171]** The plurality of courses for treating the laundry may be stored in advance in the controller 90. One of the plurality of courses may be displayed in the course name area C201 of the course setting screen C200, and the course displayed in the course name area C201 may be executed by manipulation of the execution button.

**[0172]** The suggested course may be displayed in the suggestion area C210. The suggested course may be displayed in the suggestion area C210 as an entire name thereof, a portion of the name, or various images or words capable of notifying the user of the suggested course instead of the name.

**[0173]** When the content suggesting the change of the course is displayed in the suggestion area C210, the suggested course displayed in the suggestion area C210 may be different from the course currently displayed in the course name area C201. That is, in an embodiment of the present disclosure, the controller 90 may display, in the suggestion area C210, the suggested course different from the course currently displayed in the course name area C201 of the course setting screen C200.

**[0174]** The suggested course may be one of the plurality of courses stored in advance in the controller 90. In addition, the suggested course may correspond to a customized course for which setting values of various options are preset by the user and stored in the controller 90.

**[0175]** In an embodiment of the present disclosure, when the suggestion area C210 is selected, the name of the suggested course may be displayed in the course name area C201. That is, when the suggestion area C210 is selected, a course displayed in the course setting screen C200 and scheduled to be executed may be changed to the suggested course.

(a) in FIG. 15 illustrates a state in which a 'standard washing' course among the plurality of courses is displayed in the course name area C201 as the course scheduled to be executed as an example for description. In addition, illustrated is a state in which a 'quiet' course different from the standard washing course among the plurality of courses is displayed in the suggestion area C210 as the suggested course.

(b) in FIG. 15 illustrates a screen of the screen outputter 110 in a state in which the suggestion area C210 in (a) in FIG. 15 is selected by the user. (b) in FIG. 15 illustrates a state in which the suggested course is displayed in the course name area C201.

**[0176]** When the suggestion area C210 in which the suggested course is displayed is selected by the user, the suggested course may be displayed in the course name area C201 of the course setting screen C200. That is, when the suggestion area C210 is selected, the course scheduled to be executed displayed in the course name area C201 of the course setting screen C200 may be

changed to the suggested course of the suggestion area C210.

**[0177]** As described above, according to an embodiment of the present disclosure, the various courses for treating the laundry may be provided, and the course that may be advantageous to the user in the current environment may be conveniently suggested to the user as the suggested course via the suggestion area C210, and the course may be easily changed.

**[0178]** That is, according to an embodiment of the present disclosure, the plurality of courses may be provided, and the user may be effectively notified of the course necessary or advantageous to the user among the plurality of courses, thereby improving the convenience of use. Further, a process of sequentially moving between the plurality of courses and reaching a specific course may be omitted and the suggested course of the suggestion area C210 may be directly displayed on the course setting screen C200, thereby improving convenience of manipulation.

**[0179]** In one example, when the suggested course is displayed in the course name area C201, the name of the suggested course may disappear from the suggestion area C210. In addition, when the name of the suggested course is displayed in the course name area C201, a description of the suggested course may be displayed in the suggestion area C210.

**[0180]** (b) in FIG. 15 shows a state in which the display of the suggested course disappears from the suggestion area C210 as the suggestion area C210 is selected and the suggested course is displayed in the course name area C201.

**[0181]** In an embodiment of the present disclosure, when the suggestion of the course is reflected, there is no need for suggestion of the suggested course anymore, so that the suggested course may no longer be displayed in the suggestion area C210.

**[0182]** In addition, the course description phrase C215 for describing the course displayed in the course name area C201 may be displayed in the suggestion area C210 in which the suggested course has disappeared. That is, when the suggestion area C210 is selected and the suggested course is displayed in the course name area C201 of the course setting screen C200, the course description phrase C215 for the suggested course may be displayed in the suggestion area C210.

**[0183]** In one example, in an embodiment of the present disclosure, the screen outputter 110 may display the suggestion content C212 including the name of the suggested course or a phrase suggesting the suggested course in the suggestion area C210.

**[0184]** That is, the suggestion content C212 may refer to an object displayed in the suggestion area C210 to suggest the setting of the suggested course, and the suggestion content C212 may include the name of the suggested course or the phrase for suggesting the suggested course.

**[0185]** A suggestion indicator C214 indicating the sug-

gested course and a suggestion phrase C213 for suggesting the suggested course may be displayed in the suggestion area C210. That is, the suggestion content C212 may include the suggestion indicator C214 and the suggestion phrase C213.

**[0186]** The suggestion indicator C214 may be an entity indicating the suggested course. The suggestion indicator C214 may include at least a portion of the name of the suggested course. In addition, the suggestion indicator C214 may include an image for indicating the suggested course.

**[0187]** The suggestion phrase C213 may provide information for notifying the user of a reason or an advantage of the suggestion of the suggested course. The user may identify the advantage or necessity of the suggested course via the suggestion phrase C213 displayed in the suggestion area C210 and review the application thereof.

**[0188]** The suggestion indicator C214 may be defined to include at least a portion of the suggestion phrase C213 in the suggestion area C210. That is, words included in the suggestion indicator C214 may constitute one sentence together with the suggestion phrase C213.

**[0189]** As described above, the suggestion indicator C214 may include the word for indicating the suggestion course like the name of the suggestion course, and the suggestion phrase C213 may include the word of the suggestion indicator C214 to constitute one sentence.

**[0190]** A location of the suggestion indicator C214 may vary based on the suggestion phrase C213. That is, a location of the word included in the suggestion indicator C214 may vary in the suggestion phrase C213.

**[0191]** For example, (a) in FIG. 15 illustrates a state in which the suggestion indicator C214 including a word 'quiet' is displayed to indicate the 'quiet' course among the plurality of courses, and the suggestion phrase C213 has the word 'quiet' located in the middle of the sentence.

**[0192]** The suggestion indicator C214 may include a border that distinguishes the at least portion from the rest in the suggestion phrase C213. Accordingly, the user may easily identify the suggestion indicator C214 in the suggestion area C210, and may more conveniently identify the suggested course that is an object to be suggested.

**[0193]** A shape of the border may vary. (a) in FIG. 15 illustrates a rectangular border according to an embodiment of the present disclosure, but the present disclosure is not limited thereto. The border may have a circular shape, a triangular shape, or various shapes that may represent the suggested course.

**[0194]** In one example, the screen outputter 110 may display the suggested course in the suggestion area C210 when a suggestion condition for the suggested course is satisfied. That is, when the suggestion condition is satisfied, the controller 90 may control the screen outputter 110 such that the corresponding suggested course is displayed in the suggestion area C210.

**[0195]** There may be various suggestion conditions, and the suggestion condition may be set differently based

on the suggested course. The suggestion condition may correspond to a condition for determining whether a current environment corresponds to an environment in which the suggested course may have an advantage in performance.

**[0196]** For example, in an embodiment of the present disclosure, one of the plurality of courses stored in advance in the controller 90 may be a 'strong washing' course in which a washing strength is strongly set, and suggestion content C212 for suggesting the strong washing course may satisfy a suggestion condition when an amount of laundry accommodated in the drum 20 is equal to or greater than a reference amount.

**[0197]** In addition, the suggestion condition may be set based on time. That is, the suggestion content C212 that provides the suggested course to the user may be displayed in the suggestion area C210 of the screen outputter 110 as the suggestion condition is satisfied in a specific time range.

**[0198]** The specific time range may be variously set. For example, the suggestion condition corresponding to an output condition of the suggestion content C212 may be satisfied within a period including a specific day on the basis of one year, may be satisfied within a period including a specific day on the basis of one week, or may be satisfied within a period including a specific time on the basis of one day.

**[0199]** In (a) in FIG. 15, the quiet course is displayed in the suggestion area C210 as the suggested course according to an embodiment of the present disclosure. A maximum rotation RPM of the drum 20 may be lower than that in the 'standard washing' course displayed in the course name area C201 of the course setting screen C200.

**[0200]** That is, the suggested course suggested by the suggestion content C212 may be set to reduce noise or vibration occurring during the course execution by treating the laundry in an RPM range of the drum 20, which is lower than that in the course displayed in the course name area C201 of the course setting screen C200.

**[0201]** The suggestion condition for the suggested course may be satisfied in the specific time range repeated every 1 day. For example, when suggesting a suggested course that is advantageous in reducing the noise or the vibration, such as the quiet course, the suggestion condition may be satisfied in a time range in which the noise or the like may be particularly unpleasant as a time during which a person is usually sleeping or a time for organizing surroundings before sleep, such as 23 o'clock to 24 o'clock.

**[0202]** As described above, according to an embodiment of the present disclosure, the suggested course in which the laundry is treated with the low RPM of the drum 20 for the vibration and noise reduction may be provided to the user, and in particular, the suggested course may be displayed in the suggestion area C210 by satisfying the suggestion condition in the time range sensitive to the vibration and the noise, thereby effectively improving

utility of the plurality of courses.

**[0203]** In one example, in an embodiment of the present disclosure, a plurality of suggestion content C212 having different suggestion conditions may be included.

5 That is, the plurality of suggestion content C212 having different option settings or suggested courses may be stored in advance in the controller 90.

**[0204]** The plurality of suggestion content C212 may have the respective suggestion conditions. As described  
10 above, the suggestion condition may be preset in the controller 90 based on characteristics of each suggestion content C212.

**[0205]** When there are a plurality of suggestion content C212 satisfying the respective suggestion conditions  
15 among the plurality of suggestion content C212, one having a higher priority may be displayed in the suggestion area C210.

**[0206]** There may be various priority determination schemes. For example, among the plurality of suggestion content C212, the suggestion content C212 suggesting the change of the course may have a higher priority than the suggestion content C212 related to the change of the option.

**[0207]** Because the various options are set for the course, and thus a change of a plurality of options may  
25 be made when the course is changed, it may be advantageous to suggest the course change over the option change.

**[0208]** In addition, the suggestion content C212 for the course change may disappear from the suggestion area C210 by the selection of the suggestion area C210, and thus it may be advantageous to additionally suggest another suggestion content C212 after the suggestion content C212 for the course change.  
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**[0209]** In addition, for the suggestion content C212 having the respective suggestion conditions set as the periods, the shorter the time range of the suggestion condition, the higher the priority thereof may be. For example, a priority of the suggestion content C212 having the time range set on the basis of one day as the suggestion condition may be higher than a priority of the suggestion content having the time range set on the basis of one week as the suggestion condition.  
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**[0210]** However, the determination of the priority may not necessarily be limited to the above, and the priority may be determined via various criteria as necessary.  
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**[0211]** In one example, an embodiment of the present disclosure may include the touch inputter 123 as described above. That is, in an embodiment of the present disclosure, the screen outputter 110 may sense a user's touch signal for the screen.  
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**[0212]** In addition, according to an embodiment of the present disclosure, when the touch signal is generated in at least a portion of the suggestion area C210, the suggested course may be displayed in the course name area C201. When the touch signal is generated in the suggestion area C210, the controller 90 may determine that the user has selected the suggestion area C210.  
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**[0213]** A sensing area of the touch signal corresponding to the selection of the suggestion area C210 may be variously determined. For example, when a touch signal for an entirety of the suggestion area C210 or a touch signal for a portion of the suggestion area C210, for example, for the suggestion indicator C214 displayed in the suggestion area C210 is sensed, the controller 90 may determine that the suggestion area C210 is selected.

**[0214]** In one example, in an embodiment of the present disclosure, an order in which the plurality of courses are displayed on the course setting screen C200 may be predetermined. That is, the controller 90 may store a display order for the plurality of courses in advance.

**[0215]** One of the plurality of courses may be displayed on the course setting screen C200. In an embodiment of the present disclosure, only one course may be displayed on the course setting screen C200, so that a limited output area may be efficiently used.

**[0216]** The course displayed on the course setting screen C200 may correspond to the course scheduled to be executed for treating the laundry, and when the execution button is manipulated while the course setting screen C200 is output on the screen outputter 110, the course displayed in the course name area C201 of the course setting screen C200 may be executed.

**[0217]** In one example, when the touch signal is generated in a sliding manner on the screen, the screen outputter 110 may sequentially display the plurality of courses in the course name area C201.

**[0218]** The sliding manner refers to a manner in which the user moves a touched location while maintaining a state of touching the screen. For example, the user may generate the touch signal in the sliding manner by moving a finger in one direction while touching one point on the screen of the screen outputter 110 having the touch inputter 123 with the finger.

**[0219]** When the touch signal in the sliding manner is sensed on the course setting screen C200, the controller 90 may change the course of the course setting screen C200 to a course of a next order. A sliding direction may vary. For example, the user may change the course in order by generating the touch signal in the sliding manner in a horizontal direction on the screen.

**[0220]** FIG. 16 illustrates a state of returning to the course setting screen C200 on which the course before the application of the suggested course is displayed from the course setting screen C200 in the state in which the suggested course displayed in the suggestion area C210 is displayed in the course name area C201.

**[0221]** In an embodiment of the present disclosure, in the state in which the suggestion area C210 is selected and the suggested course is displayed in the course name area C201, when the touch signal is generated in the sliding manner, the screen outputter 110 may display a course ranked first in order among the plurality of courses in the course name area C201.

**[0222]** Specifically, (a) in FIG. 16 illustrates the course

setting screen C200 on which the suggested course is displayed in the course name area C201 via the selection of the suggestion area C210. When an input signal of sequentially changing the courses is generated via the inputter 120 on the course setting screen C200 on which the suggested course is displayed as shown in (a) in FIG. 16, the course setting screen C200 on which the course ranked first in order among the plurality of courses is displayed may be output as shown in (b) in FIG. 16.

**[0223]** In (a) in FIG. 16, the touch signal in the sliding manner is indicated by a dotted arrow. The touch signal in the sliding manner may be input by the user to change the course of the course setting screen C200 to a course in a previous order or the next order.

**[0224]** It may be understood that a user's instruction to change the course in the state in which the suggested course is applied reflects an user's intention not to use the suggested course, and thus the controller 90 may provide the user with the course setting screen C200 with the course of the first-rank displayed that is displayed first on the course setting screen C200 in the state in which the course is not suggested.

**[0225]** (b) in FIG. 16 illustrates the course setting screen C200 on which the 'standard washing' course ranked first is displayed as an example of the present disclosure. The course ranked first in the display order may be in a state in which various option settings are made in a basic and standardized manner, and may be the easiest course to be generally selected by the user.

**[0226]** Accordingly, in an embodiment of the present disclosure, when the touch signal for changing the course is generated while the suggested course is displayed in the course name area C201, the controller 90 may display the course ranked first in the display order regardless of the display order of the suggested course, thereby securing user's convenience in selecting the course.

**[0227]** In one example, in an embodiment of the present disclosure, the inputter 120 may include a component other than the touch inputter 123 as described above. That is, the suggestion area C210 may be selected based on the input signal generated by the inputter 120 even when it is not generated by the touch inputter 123.

**[0228]** For example, the inputter 120 may include the button assembly 125, and the button assembly 125 may be disposed on the cabinet 10 and manipulated by the user to generate the input signal. The suggestion area C210 may be selected based on the input signal generated by the button assembly 125.

**[0229]** In an embodiment of the present disclosure, the screen outputter 110 may output the screen on which a name of one of the plurality of courses for treating the laundry and a suggested course different from the one are displayed, and when the suggested course is selected, the displayed name may be changed from the name of the one course to the name of the suggested course.

**[0230]** That is, according to an embodiment of the

present disclosure, the plurality of courses may be provided to provide the user with various laundry treatments, the suggested course may be suggested to and set by the user only with the simple selection on the course setting screen C200 on which the course selection, the option setting, and the like are performed, and the course may be changed without switching to a screen other than the course setting screen C200, thereby improving the convenience of manipulation.

**[0231]** FIG. 17 is a flowchart illustrating a method for controlling the laundry treating apparatus 1 according to an embodiment of the present disclosure. Hereinafter, the method for controlling the laundry treating apparatus 1 will be described with reference to FIG. 17, and the description already made with respect to the laundry treating apparatus 1 will be omitted as much as possible.

**[0232]** The method for controlling the laundry treating apparatus 1 according to an embodiment of the present disclosure may include a course setting step S100, a suggestion step S200, and a suggestion application step S400.

**[0233]** In the course setting step S100, the course setting screen C200 on which the name of the one of the plurality of courses for treating the laundry is displayed in the course name area C201 may be output via the screen outputter 110.

**[0234]** The plurality of courses may have the display order preset by the controller 90, and one course may be output on the course setting screen C200 based on the display order.

**[0235]** In the suggestion step S200, the suggested course different from the one displayed on the course setting screen C200 may be displayed in the suggestion area C210 of the course setting screen C200. The controller 90 may control the screen outputter 110 to display the suggested course in the suggestion area C210.

**[0236]** In the suggestion application step S400, when the suggestion area C210 is selected, the name of the suggested course may be displayed instead of the name of the one in the course name area C201. That is, in the suggestion application step S400, the course displayed in the course name area C201 may be changed to the suggested course.

**[0237]** In the suggestion step S200, the screen outputter 110 may display the suggestion content C212 including the name of the suggested course or the phrase suggesting the suggested course in the suggestion area C210.

**[0238]** In addition, an embodiment of the present disclosure may include a suggestion condition determination step S210 in which the controller 90 determines whether the suggestion content C212 satisfies the suggestion condition to be displayed in the suggestion area C210.

**[0239]** The controller 90 may store the plurality of suggestion content C212 in which the respective suggestion conditions are set, and in the suggestion condition determination step S210, the controller 90 may deter-

mine whether the respective suggestion conditions of the plurality of suggestion content C212 are satisfied.

**[0240]** The suggestion step S200 may further include a suggestion display step S220. In the suggestion display step S220, when it is determined in the suggestion condition determination step S210 that the suggestion content C212 satisfies the suggestion condition, the controller 90 may control the screen outputter 110 to display the suggestion content C212 in the suggestion area C210.

**[0241]** In the suggestion application step S400, when the suggested course is displayed in the course name area C201, the name of the suggested course may disappear from the suggestion area C210. When the suggested course is displayed in the course name area C201, the description of the suggested course may be displayed in the suggestion area C210 instead of the name of the suggested course.

**[0242]** Although the present disclosure has been illustrated and described in relation to the specific embodiment, it will be obvious to a person skilled in the art that the present disclosure may be variously improved and changed within the scope of 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 thereon,  
wherein the screen outputter is configured to output a screen including a course name area where a name of a course for treating the laundry is displayed and a suggestion area where a suggested course different from the course currently displayed in the course name area is presented, wherein a name of the suggested course is displayed in the course name area when the suggestion area is selected.

2. The laundry treating apparatus of claim 1, wherein the name of the suggested course disappears from the suggestion area when the suggested course is displayed in the course name area.

3. The laundry treating apparatus of claim 1, wherein a description of the suggested course is displayed in the suggestion area when the name of the suggested course is displayed in the course name area.

4. The laundry treating apparatus of claim 1, wherein the suggested course is displayed in the suggestion area when a suggestion condition for the suggested course is satisfied.

5. The laundry treating apparatus of claim 4, wherein the suggested course is displayed in the suggestion area as the suggested condition is satisfied in a specific time range. 5
6. The laundry treating apparatus of claim 5, wherein the drum is constructed to be rotatable, wherein the suggested course has a lower maximum rotation RPM of the drum than the course displayed in the course name area before the suggestion area is selected. 10
7. The laundry treating apparatus of claim 4, wherein the screen outputter is configured to display suggestion content including the name of the suggested course or a phrase suggesting the suggested course in the suggestion area. 15
8. The laundry treating apparatus of claim 7, wherein the suggestion content includes a plurality of suggestion content, wherein the plurality of suggestion content respectively have suggestion conditions different from each other. 20
9. The laundry treating apparatus of claim 8, wherein when there are a plurality of suggestion content satisfying respective suggestion conditions thereof among the plurality of suggestion content, one having a higher priority is displayed in the suggestion area. 25
10. The laundry treating apparatus of claim 1, wherein a suggestion indicator indicating the suggestion course and a suggestion phrase for suggesting the suggestion course are displayed in the suggestion area. 30
11. The laundry treating apparatus of claim 10, wherein the suggestion indicator is defined to include at least a portion of the suggestion phrase in the suggestion area. 35
12. The laundry treating apparatus of claim 11, wherein the suggestion indicator includes a border for distinguishing the at least a portion from a rest of the suggestion phrase. 40
13. The laundry treating apparatus of claim 1, wherein the screen outputter is configured to sense a touch signal of a user for the screen, wherein when the touch signal is generated in at least a portion of the suggestion area, the suggested course is displayed in the course name area. 45
14. The laundry treating apparatus of claim 13, wherein the course includes a plurality of courses, wherein an order for the plurality of courses to be displayed in the course name area is determined, wherein the screen outputter is configured to display the plurality of courses in the course name area based on the order when the touch signal is generated in a sliding manner on the screen. 50
15. The laundry treating apparatus of claim 14, wherein when the touch signal is generated in the sliding manner while the suggested course is displayed in the course name area as the suggestion area is selected, the screen outputter is configured to display a course ranked first in the order among the plurality of courses in the course name area. 55
16. 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 via the input signal.
17. The laundry treating apparatus of claim 1, further comprising a button assembly disposed on the cabinet and manipulated by a user to generate an input signal, wherein the suggestion area is selected based on the input signal of the button assembly.
18. The laundry treating apparatus of claim 1, wherein the screen outputter is configured to output a course setting screen including the course name area and the suggestion area, wherein the course displayed in the course name area is settable on the course setting screen.
19. The laundry treating apparatus of claim 18, 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 displayed in the course name area are displayed.
20. 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 thereon, wherein the screen outputter is configured to output a screen where a name of one of a plurality of courses for treating the laundry and a suggested course different from the one are displayed, wherein when the suggested course is selected, the name of the one is changed to a name of the suggested course and the name of the suggested course is displayed.



- 21.** A method for controlling 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 thereon, the method comprising: 5

a course setting operation of outputting a course setting screen where a name of one of a plurality of courses for treating the laundry is displayed in a course name area via the screen outputter; 10  
a suggestion operation of displaying a suggested course different from the one displayed on the course setting screen in a suggestion area of the course setting screen; and 15  
a suggestion application operation of displaying a name of the suggested course instead of the name of the one in the course name area when the suggestion area is selected. 20

- 22.** The method of claim 21, wherein in the suggestion operation, the screen outputter is configured to display suggestion content including the name of the suggested course or a phrase suggesting the suggested course in the suggestion area, 25

wherein the method includes a suggestion condition determination operation of determining, by a controller, whether the suggestion content satisfies a suggestion condition to be displayed in the suggestion area, 30  
wherein the suggestion content includes a plurality of suggestion content with respective suggestion conditions set, and the plurality of suggestion content are stored in the controller, 35  
wherein in the suggestion condition determination operation, the controller is configured to determine whether the respective suggestion conditions of the plurality of suggestion content are satisfied. 40

- 23.** The method of claim 21, wherein in the suggestion application operation, the name of the suggested course disappears from the suggestion area when the suggested course is displayed in the course name area. 45

- 24.** The method of claim 21, wherein in the suggestion application operation, when the suggested course is displayed in the course name area, a description of the suggested course is displayed instead of the name of the suggested course in the suggestion area. 50

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FIG. 1

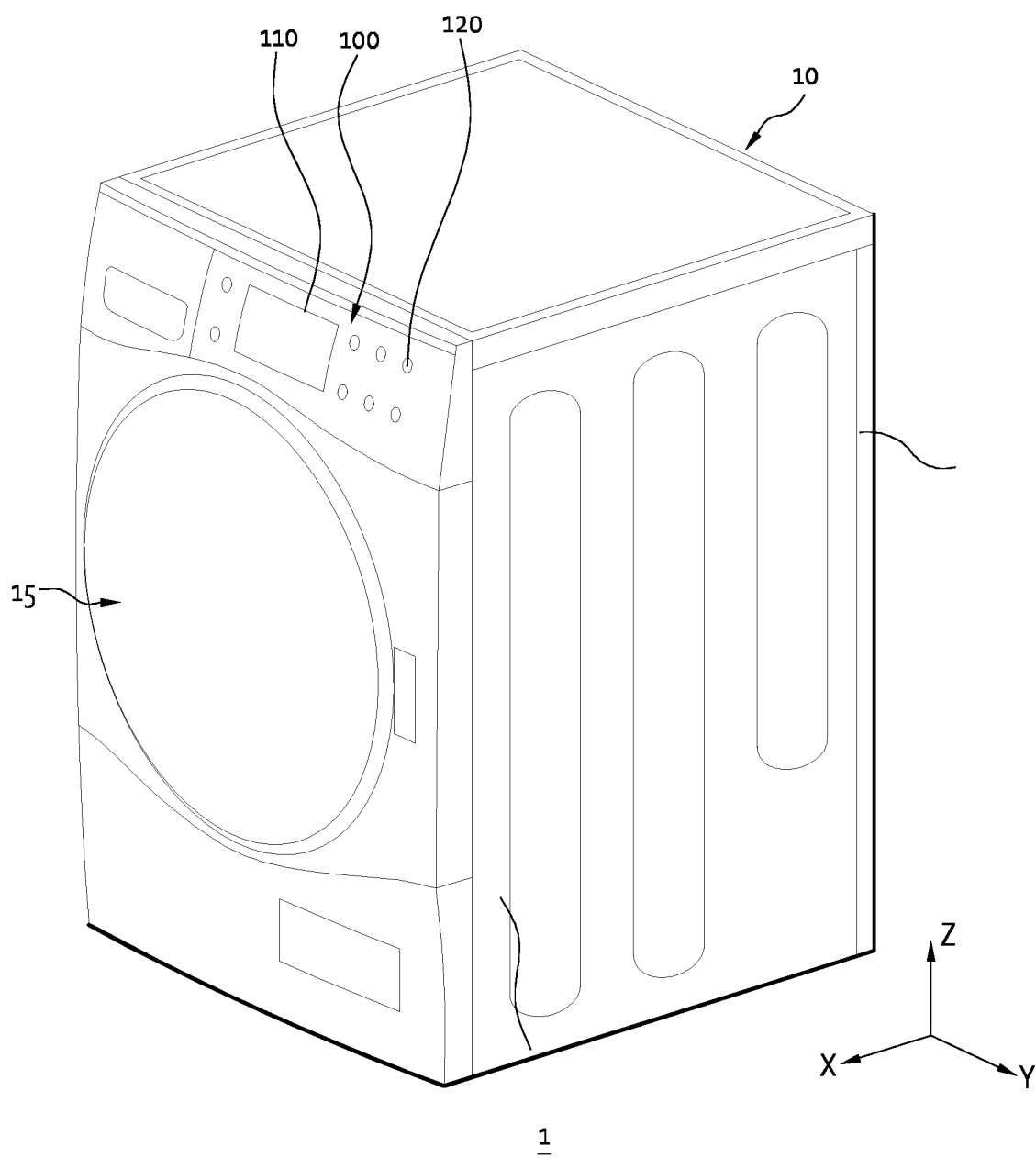


FIG. 2

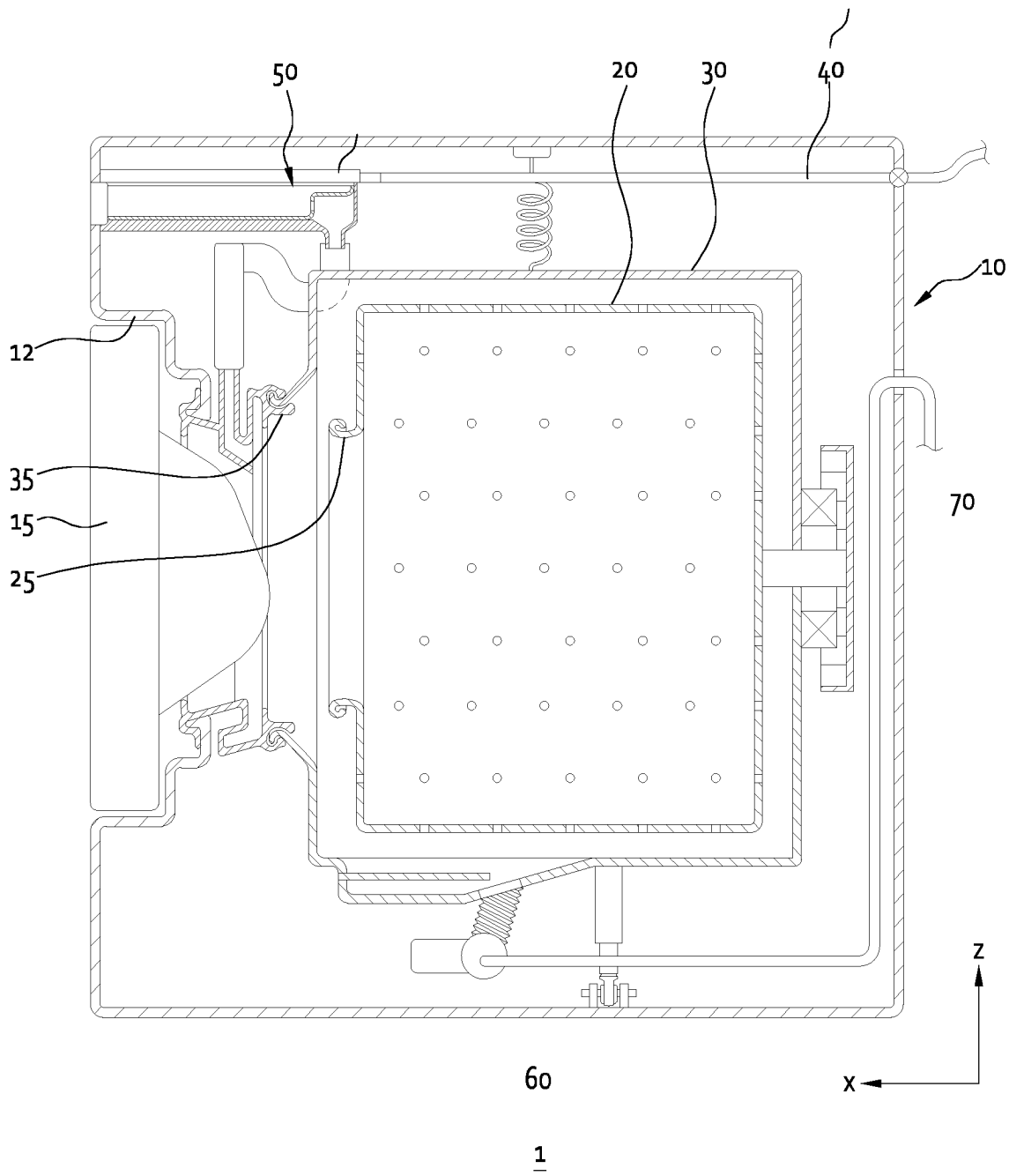


FIG. 3

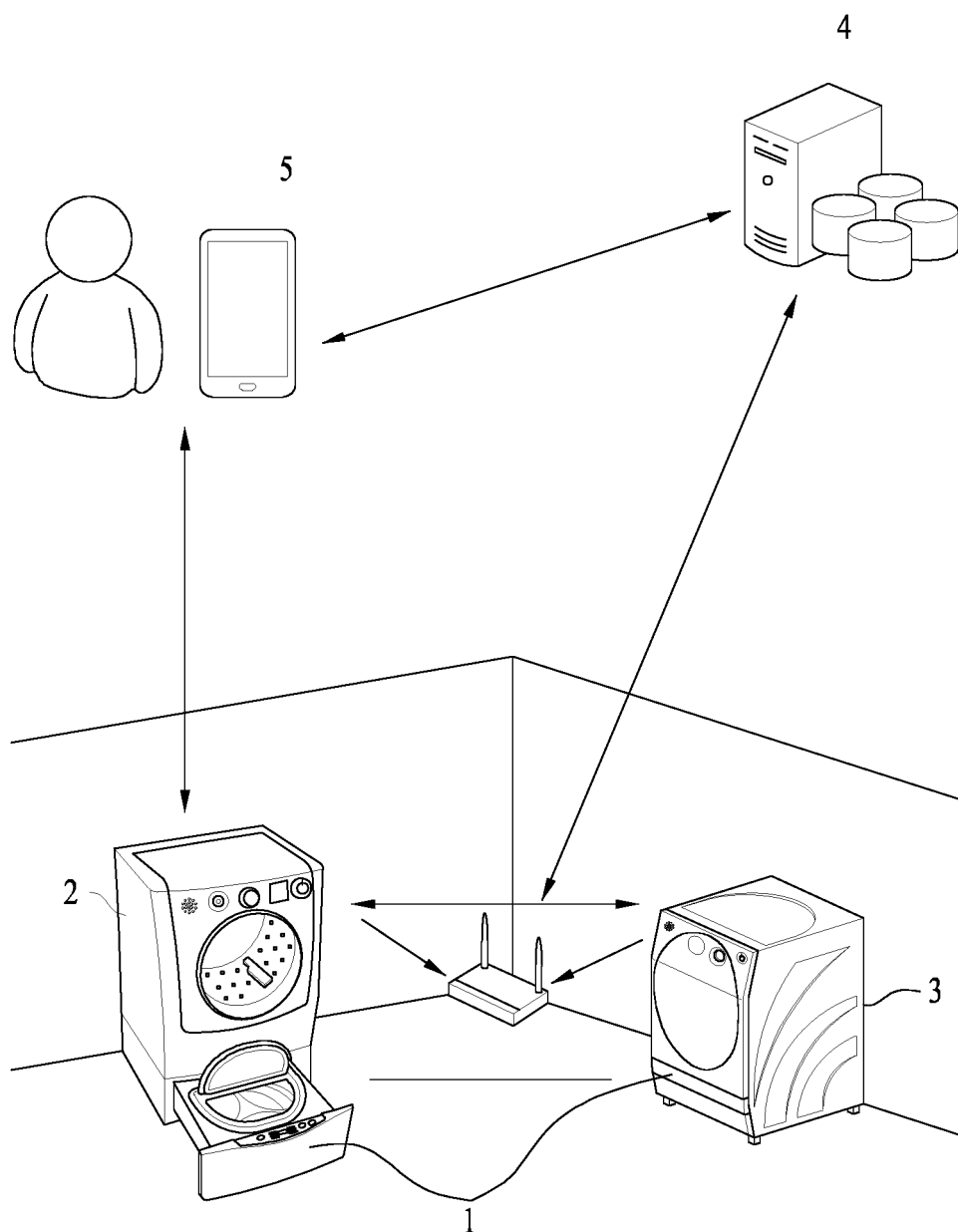


FIG. 4

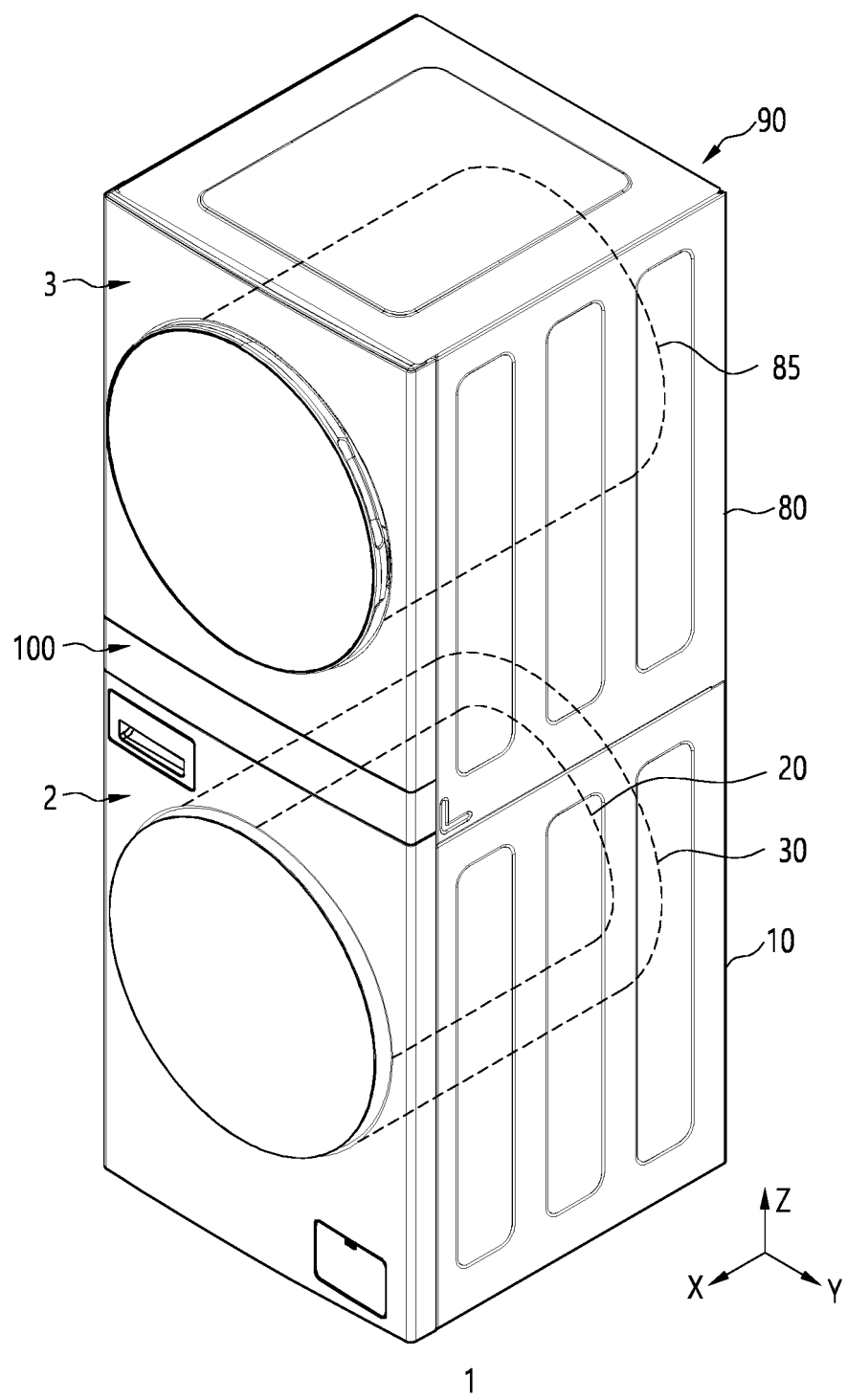


FIG. 5

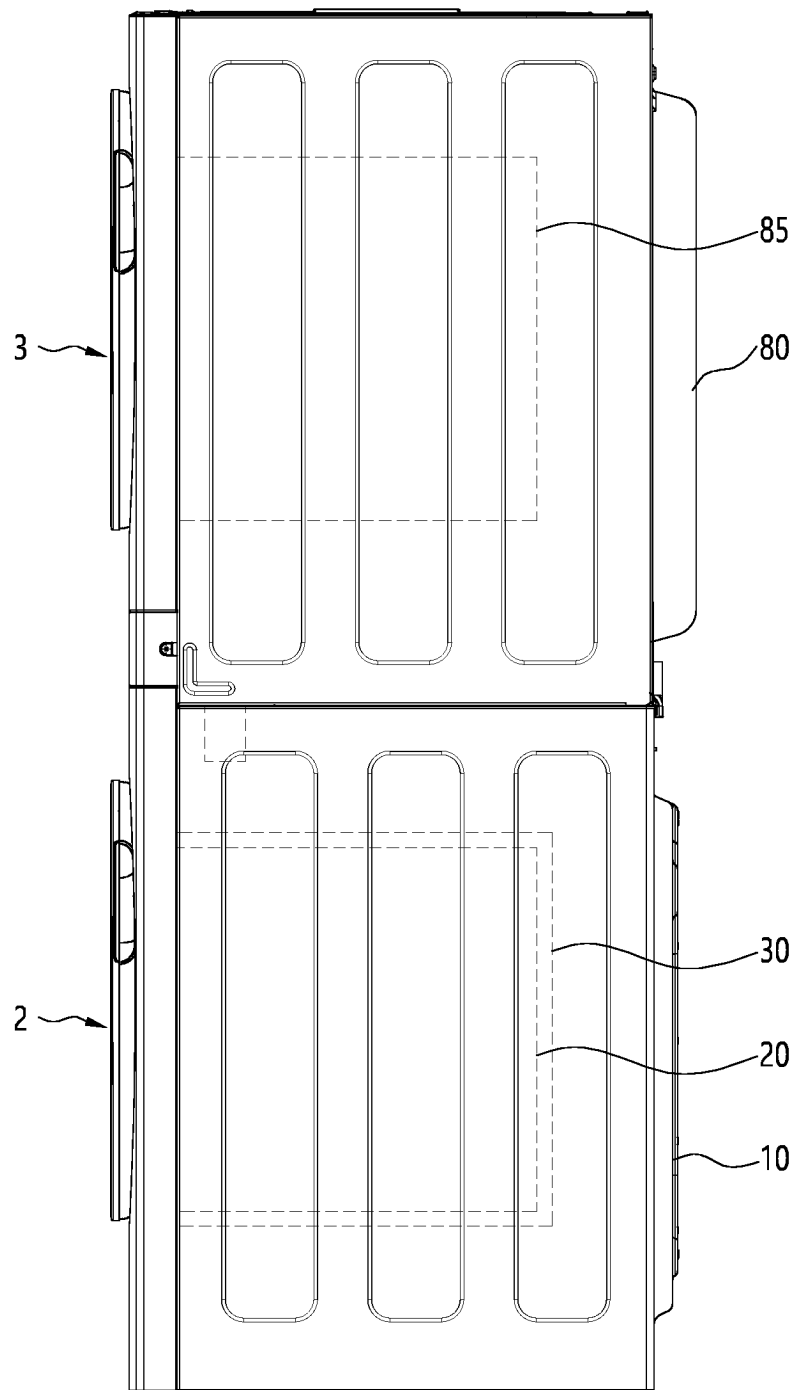
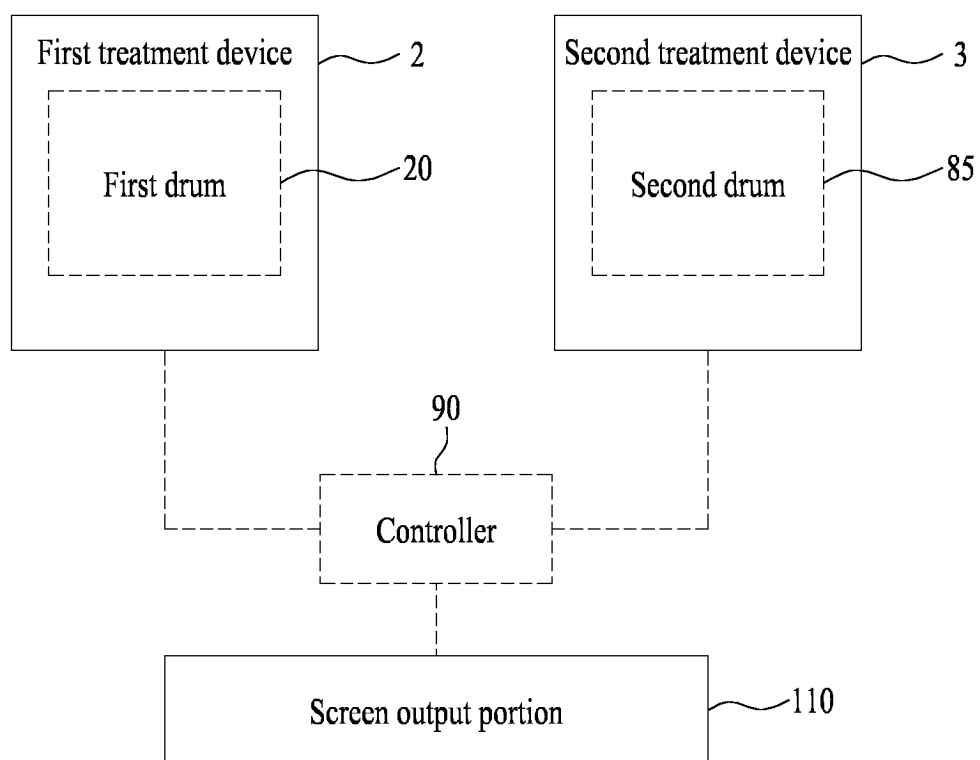


FIG. 6



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FIG. 7

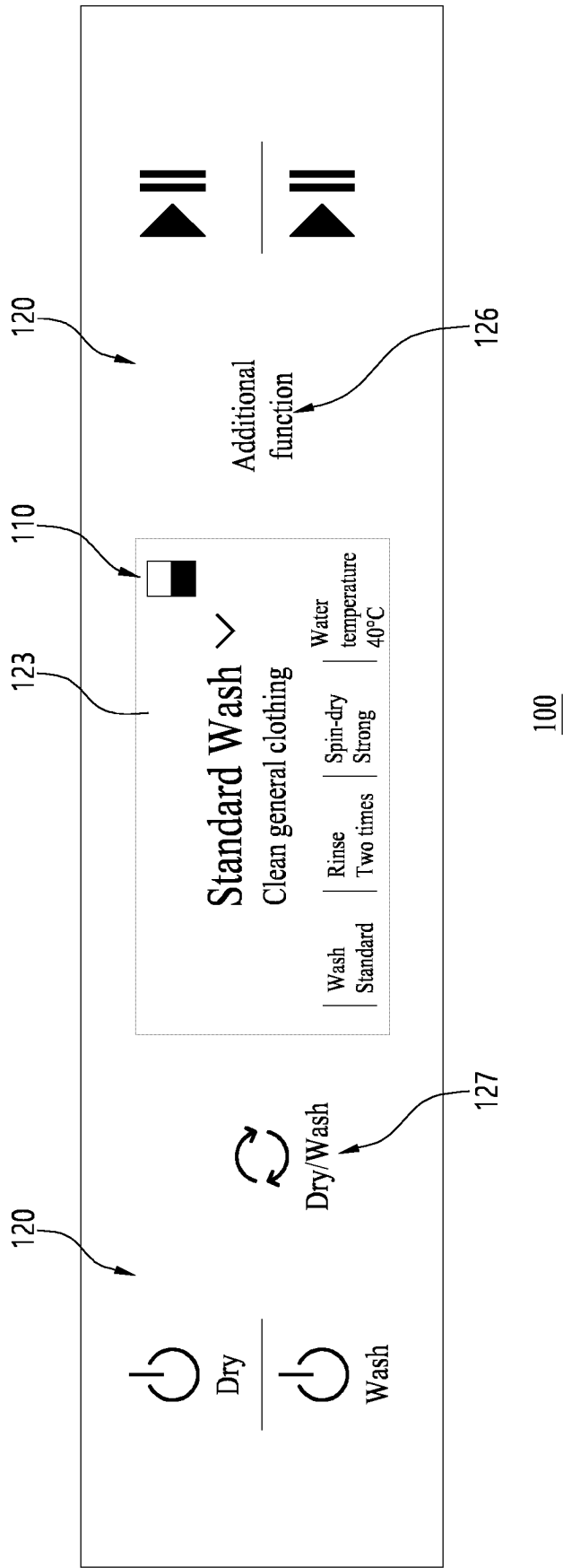




FIG. 8

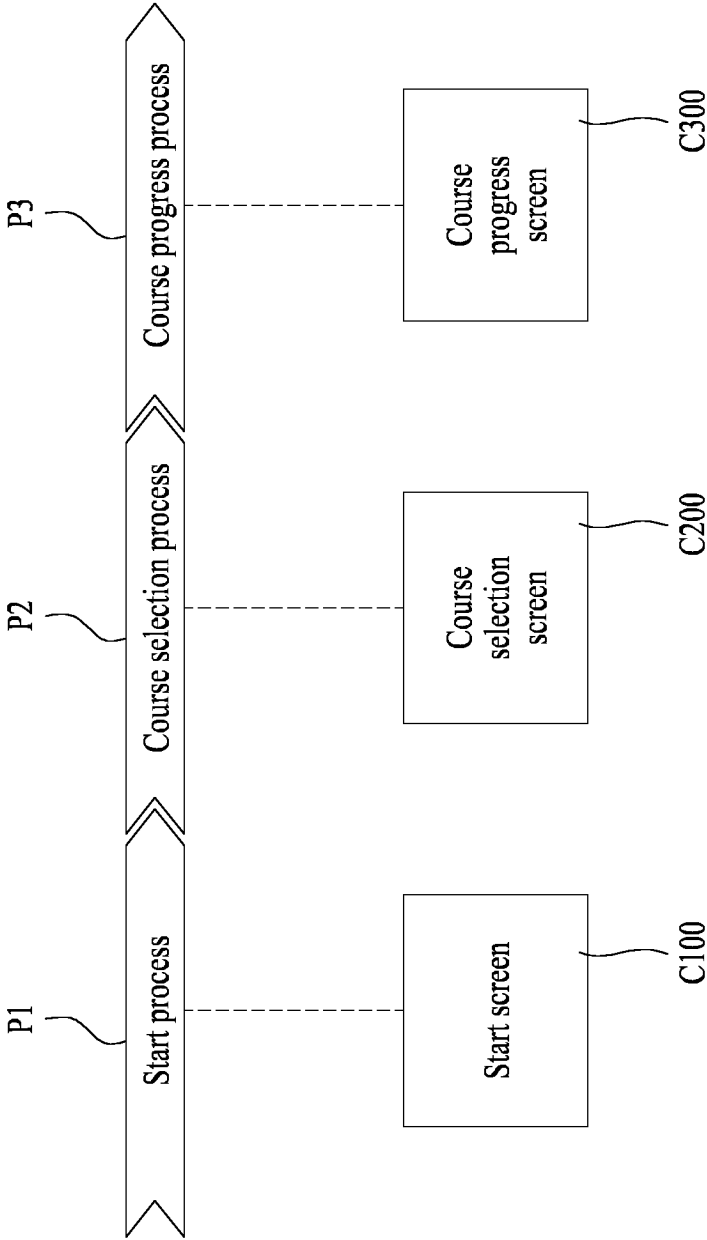


FIG. 9

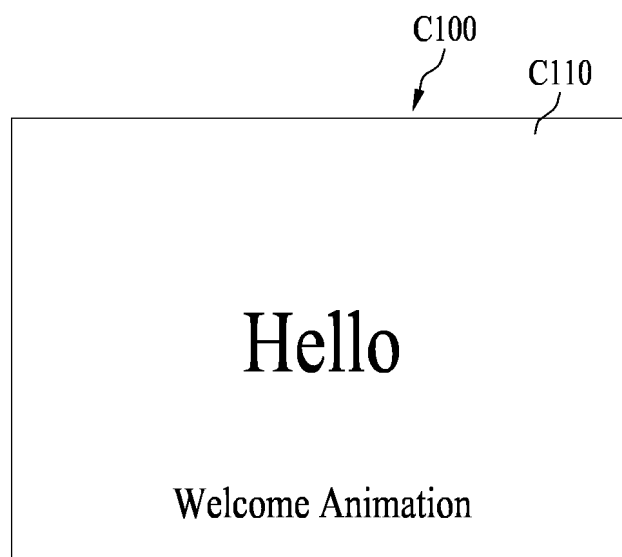


FIG. 10

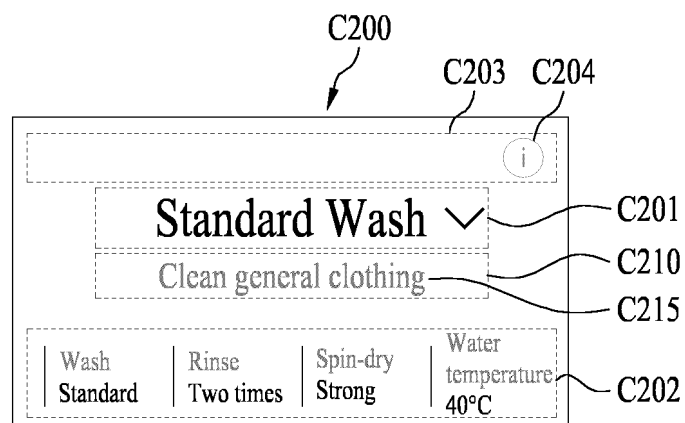


FIG. 11

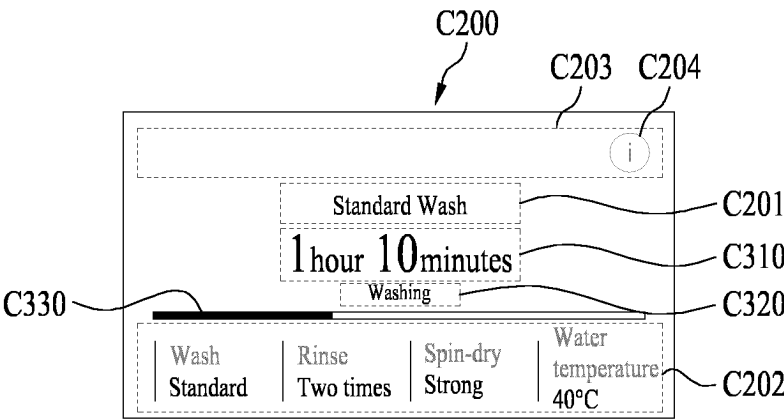


FIG. 12

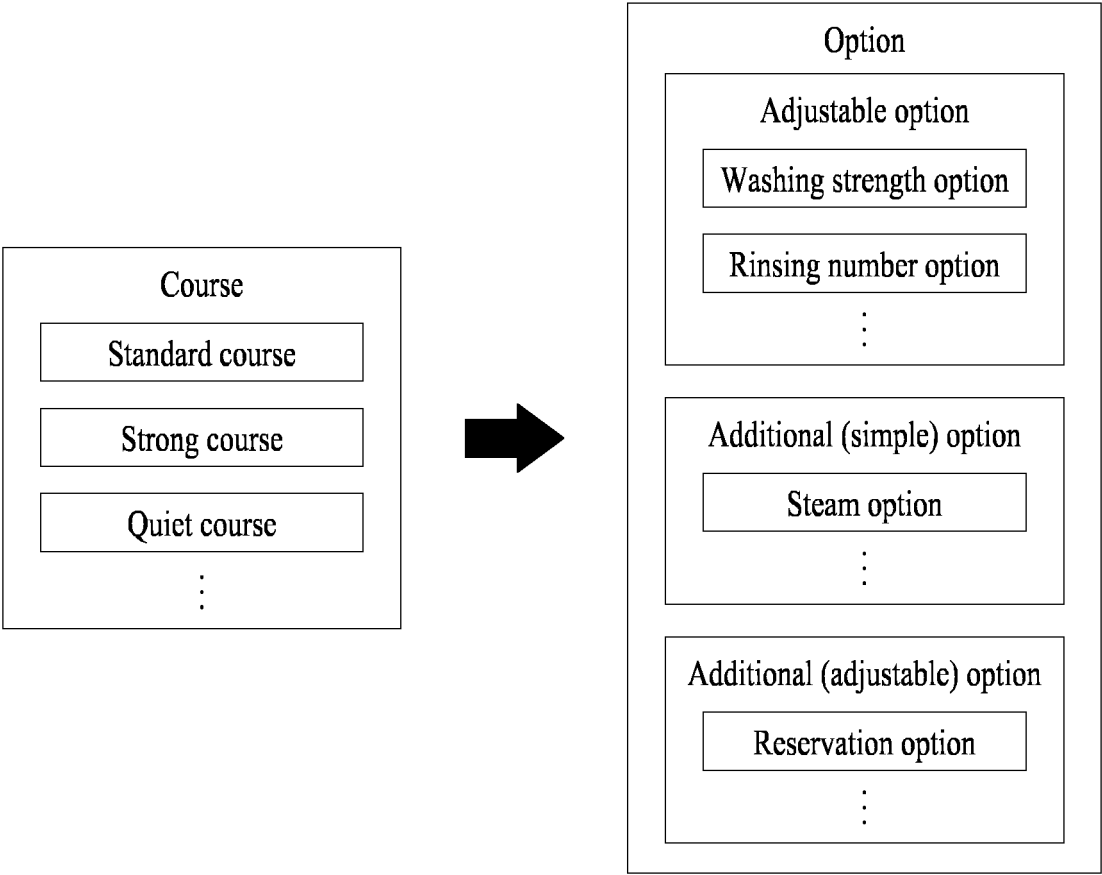


FIG. 13

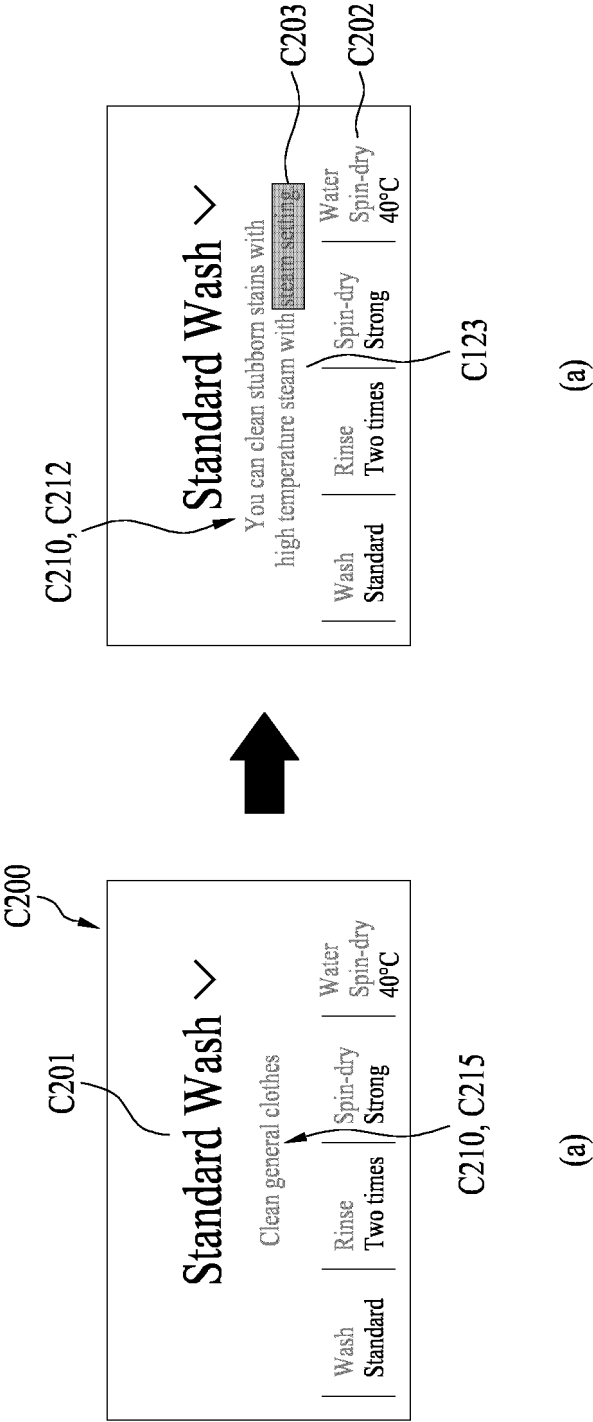


FIG. 14

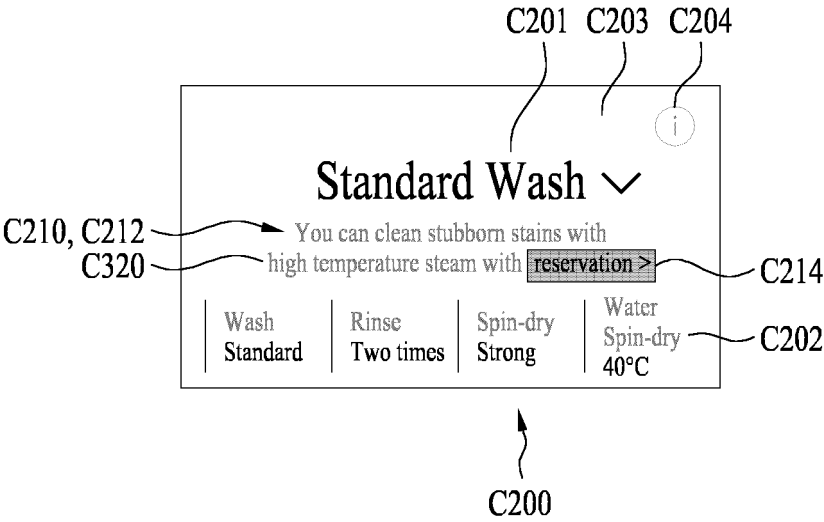


FIG. 15

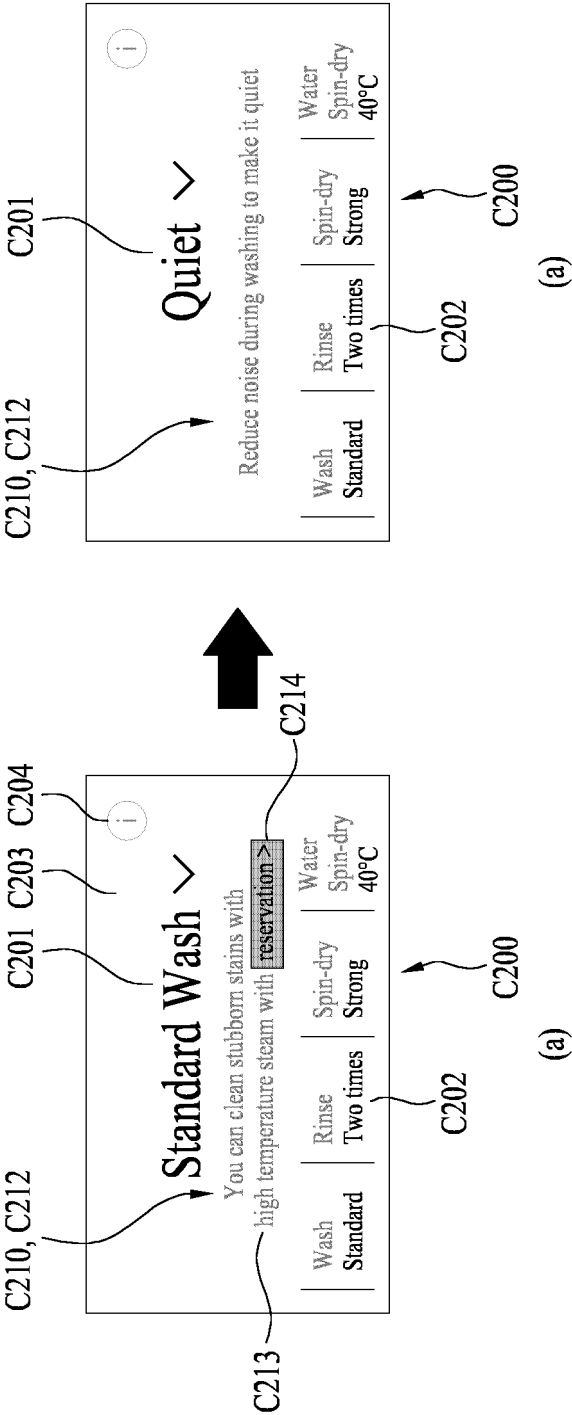




FIG. 16

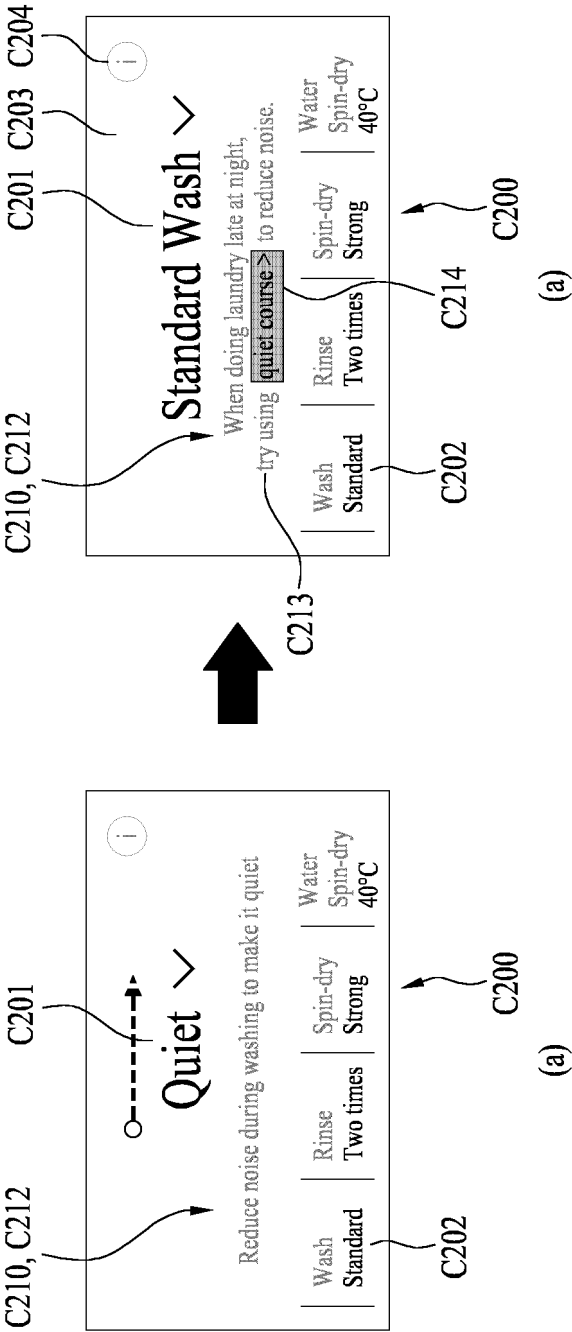
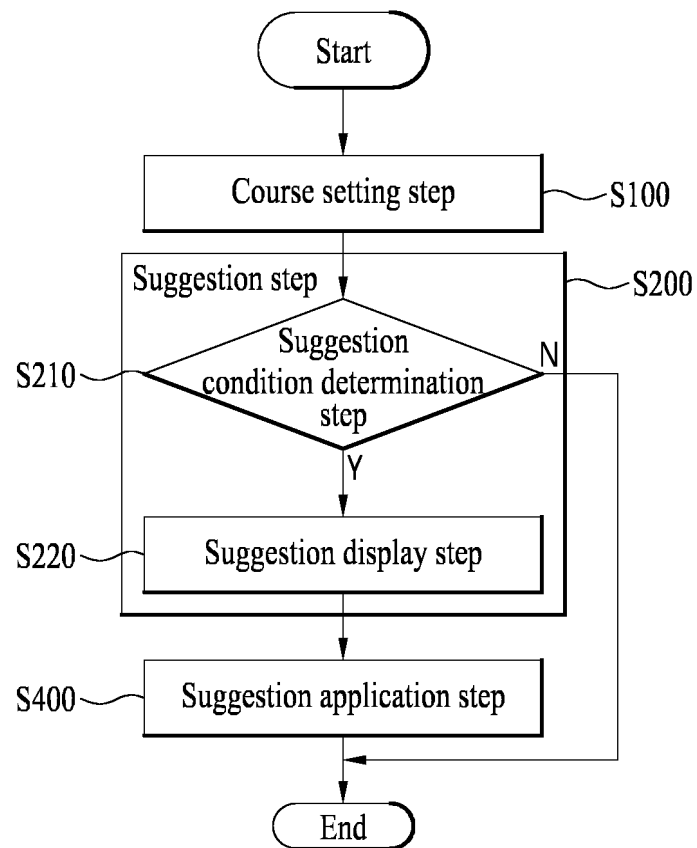


FIG. 17



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2023/013643

## 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)

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), 코스명칭(course title), 제안코스(proposed course)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

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

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“&” document member of the same patent family

Date of the actual completion of the international search

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Date of mailing of the international search report

29 December 2023

Name and mailing address of the ISA/KR

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**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

International application No.

**PCT/KR2023/013643**

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