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(19) **United States**(12) **Patent Application Publication**
KIM et al.(10) **Pub. No.: US 2009/0113638 A1**(43) **Pub. Date: May 7, 2009**(54) **LAUNDRY STORAGE DEVICE, CLOTHES
TREATING SYSTEM HAVING THE SAME,
AND CLOTHING TREATING METHOD
THEREOF**(76) Inventors: **Joo Yeon KIM**, Changwon-Si
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KED & ASSOCIATES, LLP**P.O. Box 221200****Chantilly, VA 20153-1200 (US)**(21) Appl. No.: **12/137,203**(22) Filed: **Jun. 11, 2008**(30) **Foreign Application Priority Data**

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Publication Classification(51) **Int. Cl.****D06F 33/02** (2006.01)**D06F 29/00** (2006.01)(52) **U.S. Cl.** **8/158**; 68/12.02; 340/666(57) **ABSTRACT**

A clothes treating system having a laundry storage device and a clothes treating method are disclosed. The clothes treating system includes a laundry storage device having a plurality of storage boxes to sort and store laundry according to a laundry type, and a clothes treating apparatus to perform a washing course upon receiving washing information, related to laundry sorted and stored in each storage box, from the laundry storage device. The clothes treating method includes sorting and introducing clothing into a plurality of storage boxes according to a clothing type, transmitting washing information of the laundry sorted and stored in the respective storage boxes to a clothes treating apparatus, and performing a washing course according to the transmitted washing information.

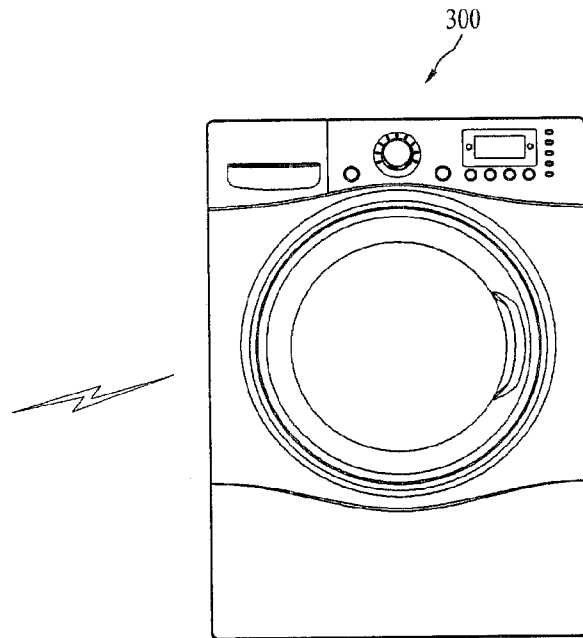
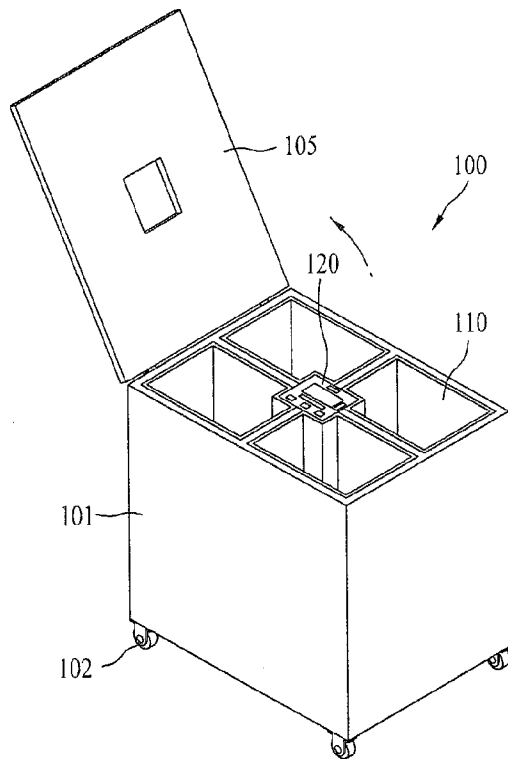


FIG. 1

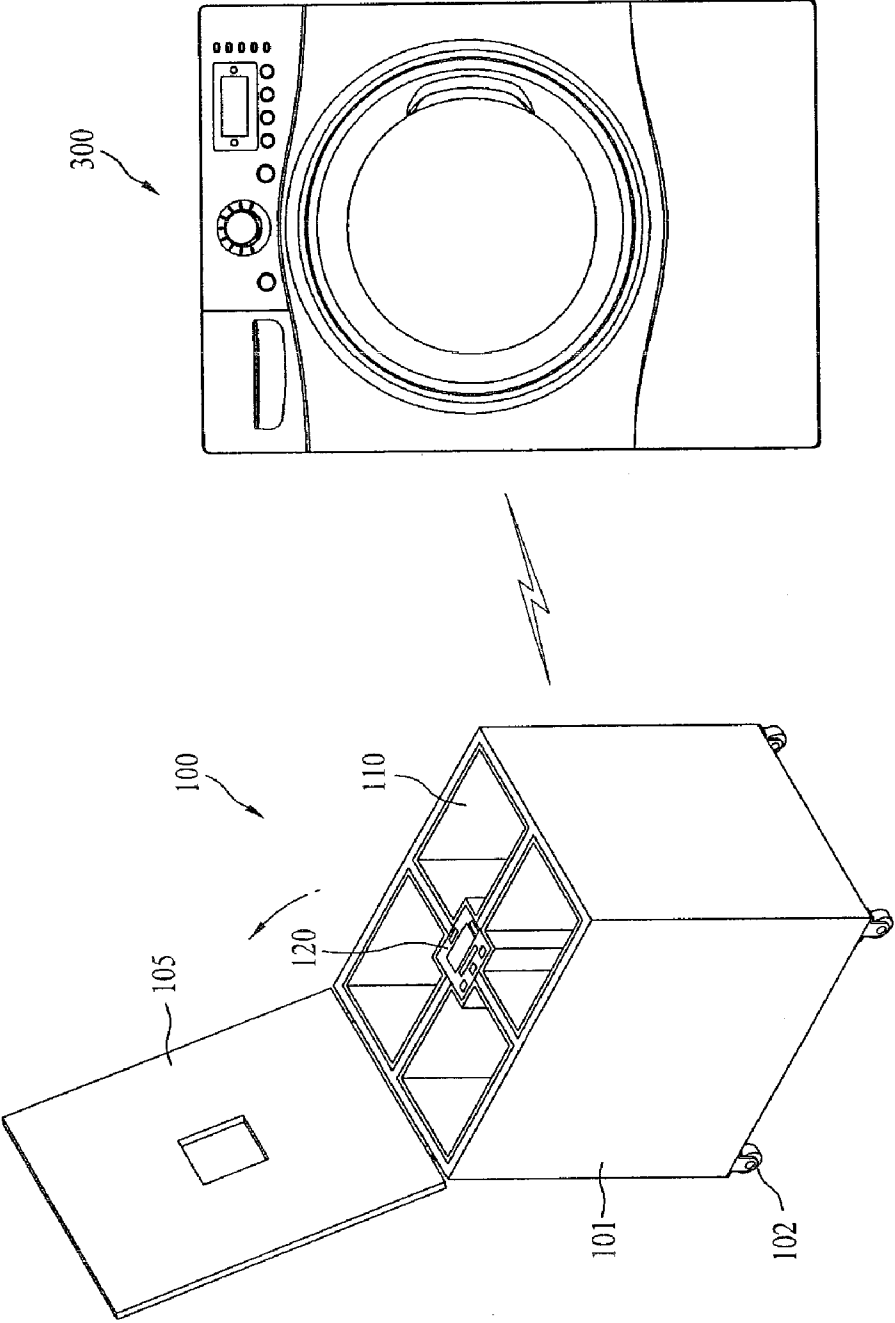


FIG. 2

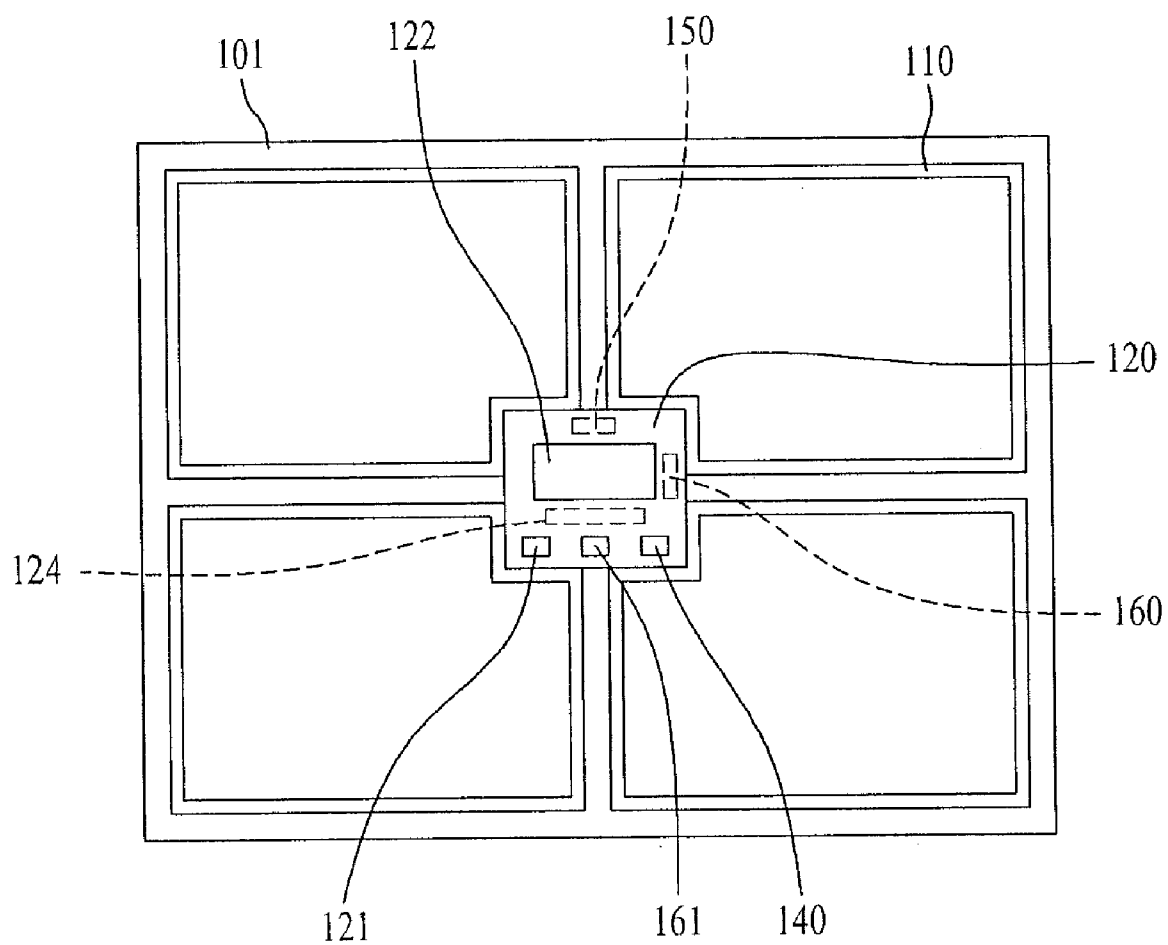


FIG. 3

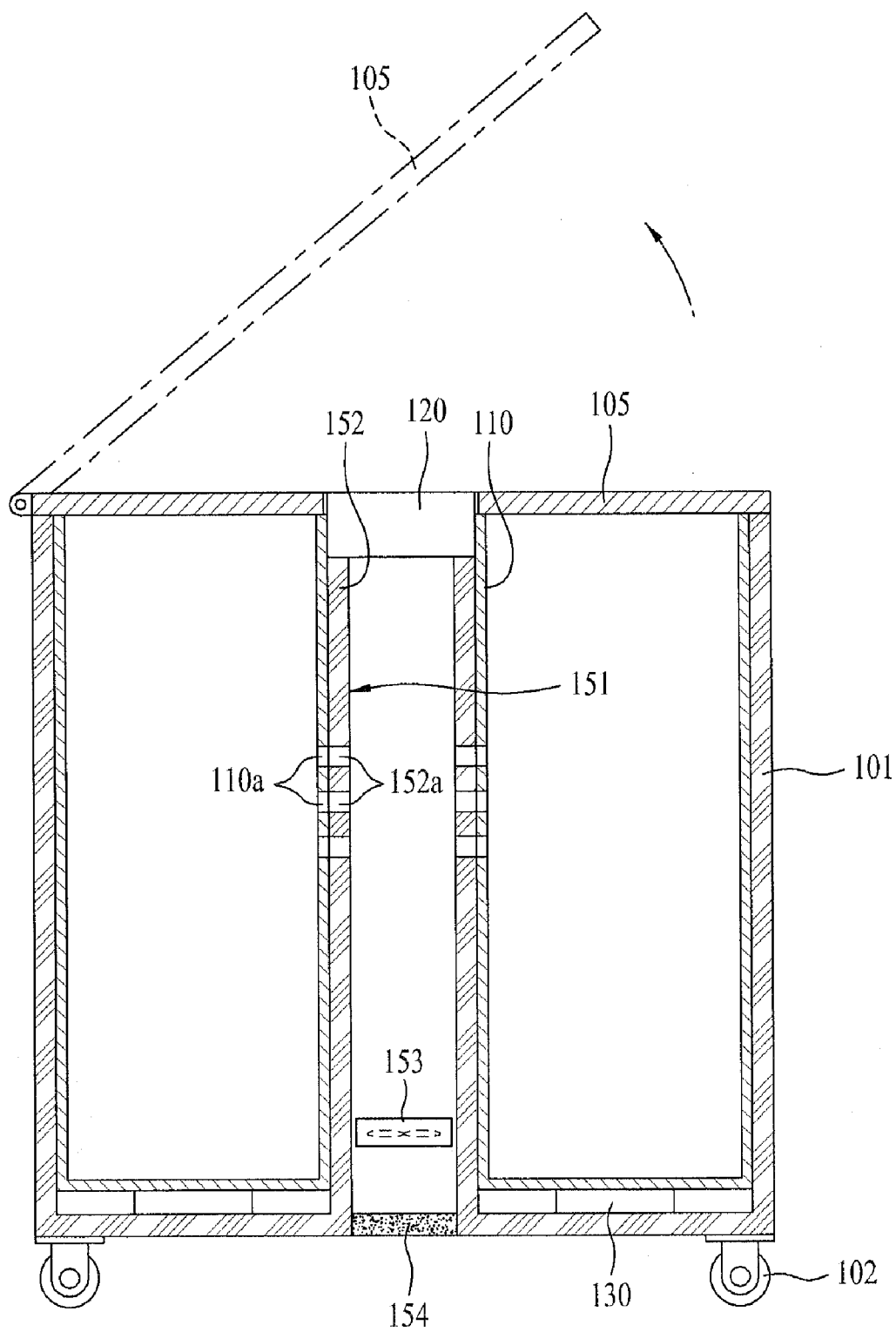


FIG. 4

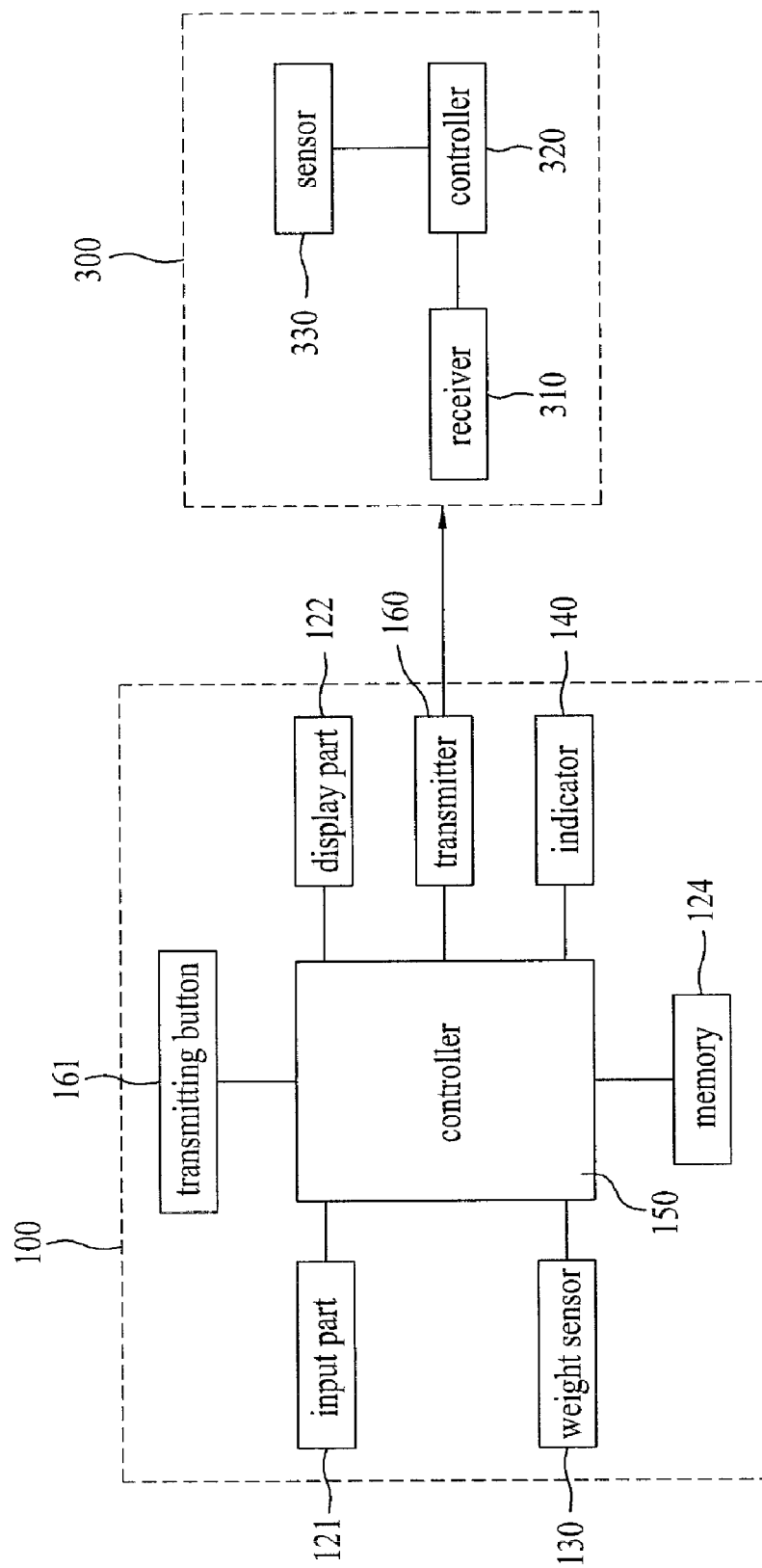
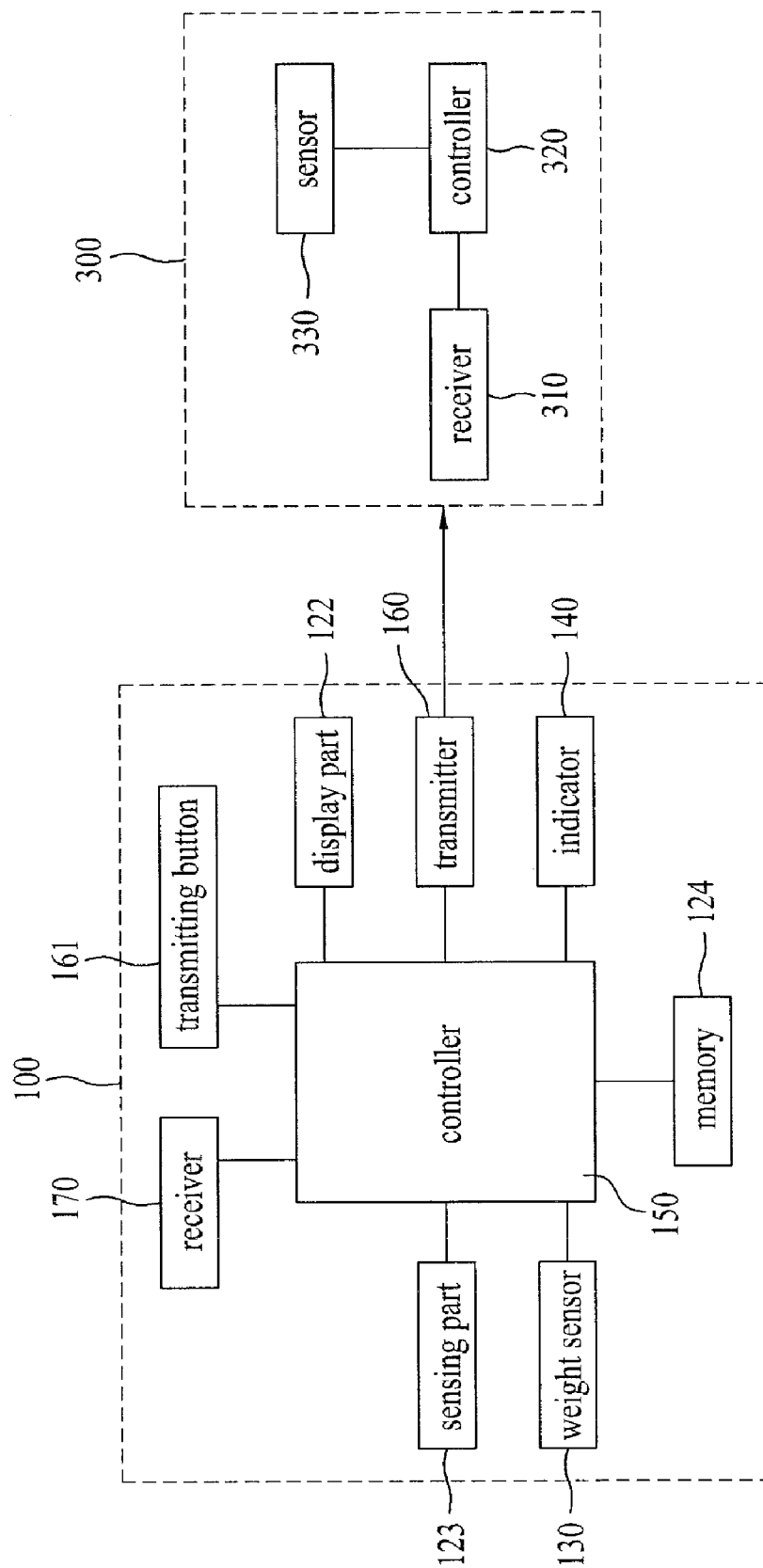


FIG. 5



**LAUNDRY STORAGE DEVICE, CLOTHES
TREATING SYSTEM HAVING THE SAME,
AND CLOTHING TREATING METHOD
THEREOF**

[0001] This application claims the benefit of the Korean Patent Application No. 10-2007-57875, filed on Jun. 13, 2007, which is hereby incorporated by reference as if fully set forth herein.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a clothes treating system having a laundry storage device in which laundry is stored, and a clothes treating method of the clothes treating system.

[0004] 2. Discussion of the Related Art

[0005] In general, a clothes treating apparatus refers to an apparatus capable of washing and/or drying laundry, etc. Specifically, a single clothes treating apparatus may perform only a washing function or a drying function, or may perform both washing and drying functions.

[0006] Recently, a novel clothes treating apparatus, which includes a steam generator and can function to remove wrinkles, bad odors, and static electricity of clothing, etc. while achieving a freshening function, has been propagated. This kind of clothes treating apparatus is increasing in size in response to customer demand.

[0007] During normal usage, a user waits until a predetermined amount of laundry is collected, prior to treating the laundry using a clothes treating apparatus. This serves to save water and electric power required to operate the clothes treating apparatus. In this case, when it is necessary to store the laundry that will be processed using the clothes treating apparatus, the user commonly stores the laundry in a single basket, etc. without sorting the laundry according to the type. This is because it is troublesome for the user to separate the laundry and furthermore, it is difficult to sort the laundry into specific groups capable of being processed with the same washing course.

[0008] In the case where several types of laundry are stored together without being sorted, however, it is difficult to sort and process the laundry according to type whenever the laundry is processed. Accordingly, since various types of laundry must be introduced into the clothes treating apparatus, there exists a problem in that the user cannot select an optimum washing course according to the laundry type upon treating of the laundry.

[0009] Moreover, when colored laundry is washed together with white laundry, there is a probability of the white laundry being dyed some colors.

[0010] In addition, when wet laundry is stored, the laundry may mildew or generate bad odors.

SUMMARY OF THE INVENTION

[0011] Accordingly, the present invention is directed to a laundry storage device, a clothes treating system using the same, and a clothes treating method thereof that substantially obviate one or more problems due to limitations and disadvantages of the related art.

[0012] An object of the present invention is to provide a laundry storage device which can allow a user to easily sort and store laundry according to type, and a clothes treating system having the same.

[0013] Another object of the present invention is to provide a laundry storage device which can allow implementation of an optimum washing cycle according to sorted laundry, and a clothes treating system having the same.

[0014] A further object of the present invention is to provide a laundry storage device which can store laundry in an optimum state, and a clothes treating system having the same.

[0015] Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention may be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0016] To achieve these objects and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, a laundry storage device comprises: a body having a plurality of storage boxes to sort and store laundry according to a laundry type; and a memory in which washing information related to the laundry stored in each storage box is stored.

[0017] In accordance with another aspect of the present invention, there is provided a clothes treating system comprising: a laundry storage device having a plurality of storage boxes to sort and store laundry according to a laundry type; and a clothes treating apparatus to perform a washing cycle upon receiving washing information, related to the sorted laundry stored in each storage box, from the laundry storage device.

[0018] In accordance with a further aspect of the present invention, there is provided a clothes treating method comprising: sorting and introducing clothing into a plurality of storage boxes according to a clothing type; transmitting washing information of the laundry sorted and stored in the respective storage boxes to a clothes treating apparatus; and performing a washing course according to the transmitted washing information.

[0019] It is to be understood that both the foregoing general description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

[0021] FIG. 1 is a perspective view illustrating a clothes treating system according to an embodiment of the present invention;

[0022] FIG. 2 is a plan view of a laundry storage device shown in FIG. 1;

[0023] FIG. 3 is a sectional view of the laundry storage device shown in FIG. 1;

[0024] FIG. 4 is a block diagram illustrating a configuration of the clothes treating system shown in FIG. 1; and

[0025] FIG. 5 is a block diagram illustrating a configuration of a clothes treating system according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0026] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings to refer to the same or like parts.

[0027] Hereinafter, a clothes treating system and a clothes treating method thereof according to a preferred embodiment of the present invention will be described in detail.

[0028] As shown in FIG. 1, the clothes treating system according to the embodiment of the present invention includes a laundry storage device 100 in which laundry is stored, and a clothes treating apparatus 300 into which the laundry, stored in the laundry storage device 100, is introduced to thereby be processed within the clothes treating apparatus 300.

[0029] Although FIG. 1 illustrates an example that the clothes treating apparatus 300 is a drum type washing machine, the clothes treating apparatus 300 is not limited to the drum type washing machine, and can be selected from any other devices capable of treating laundry, such as a drying machine and a freshener.

[0030] The laundry storage device 100 includes a body 101 which defines an external appearance of the laundry storage device 100 and has an open top side, and movers 102 mounted at the bottom of the body 101 to facilitate movement of the laundry storage device 100. Preferably, a cover 105 is mounted at the top side of the body 101, to open or close the open top side of the body 101.

[0031] The body 101 receives a plurality of storage boxes 110, to sort and store laundry according to type. FIG. 1 illustrates the laundry storage device 100 in which four storage boxes 110 are provided to sort and store four types of laundry, but the number of the storage boxes 110 is not limited to four and can be changed into various numbers according to the types of laundry to be sorted.

[0032] With provision of the plurality of storage boxes 110 separated from one another, a user can sort laundry according to type, so as to implement an appropriate washing course on the basis of information of the laundry, such as material and color of the laundry, etc. For example, when using the four storage boxes, the user can sort and store the laundry into underwear, colored underwear, wet towels, outer wear, etc.

[0033] The respective storage boxes 110 are separable from the body 101. Accordingly, once a predetermined amount of laundry is collected in each storage box 110, the storage box 110 is separated from the body 101, to introduce the collected laundry into the clothes treating apparatus 300 for clothes treating.

[0034] FIG. 2 is a plan view illustrating the laundry storage device 100 shown in FIG. 1 except for the cover 105, and FIG. 3 is a longitudinal sectional view of the laundry storage device 100 shown in FIG. 1.

[0035] As shown in FIG. 2, a control panel 120 is installed at the top center of the body 101. A variety of devices to operate the laundry storage device 100 are provided at the control panel 120.

[0036] The control panel 120 includes an input part 121 through which the user inputs the laundry type, and a display panel 122 to display a selected one of the plurality of storage boxes 110, into which the laundry will be introduced, according to the laundry type input via the input part 121.

[0037] Once the user inputs the laundry type via the input part 121, the display part 122 indicates one of the four storage boxes 110 into which the user must introduce laundry. Accordingly, the user can sort and introduce laundry into the appropriate storage box 110 according to the laundry type. Preferably, the laundry storage device 100 is initially set to default values on the basis of the above-described four sorting standards. Of course, the user can change the previously set default values on the basis of the four sorting standards.

[0038] As shown in FIG. 3, weight sensors 130 are provided in the body 101 of the laundry storage device 100, more particularly, underneath the respective storage boxes 110, to measure the weight of laundry stored in each storage box 110. Accordingly, the weight of laundry stored in each storage box 110 is measured by the weight sensor 130, and the measured weight of laundry is displayed on the display part 122.

[0039] By displaying the weight of laundry stored in each storage box 110 on the display part 122, the user can determine an appropriate washing time, and can compare the amount of laundry stored in each storage box 110 with a laundry treating capacity of the clothes treating apparatus 300.

[0040] The control panel 120 is preferably provided with an indicator 140 to inform the user of the excess weight state when the weight sensor 130 senses a predetermined or more amount of laundry received in each storage box 110. Accordingly, the user can recognize that an excessive amount of laundry is accumulated in each storage box 110, thereby preventing the laundry from being left in the laundry storage device 100 for a long time.

[0041] A dehumidifier 151 is installed in the body 101, to remove moisture from the laundry stored in each storage box 110.

[0042] The dehumidifier 151 includes a housing 152 which is installed underneath the control panel 120 and communicates with one side surface of each storage box 110, and a blower 153 which is mounted in the housing 152 and is used to suction air from the interior of each storage box 110. Vent holes 110a and 152a are formed in a side surface of each storage box 110 and side surfaces of the housing 152, allowing the air within each storage box 110 to be suctioned into the housing 152.

[0043] As the blower 153 suctions the interior air of each storage box 110 to discharge the suctioned air to the outside of the storage box 110, wet laundry can be dried, preventing the laundry from mildewing.

[0044] The housing 152 is formed, at the bottom thereof, with a discharge hole to discharge the air to the outside. Preferably, a deodorizing filter 154 is installed at the discharge hole, to remove the odor of the air discharged from the storage box 110. Providing the housing 152 with the deodorizing filter 154 can remove bad odors generated from the wet laundry stored in the storage box 110.

[0045] As shown in FIG. 2, the control panel 120 further includes a memory 124 in which washing information related to laundry stored in each storage box or information related to washing courses based on the washing information are stored, and a transmitter 160 to transmit the washing information of

laundry or the washing course information stored in the memory 124 to the clothes treating apparatus 300.

[0046] The control panel 120 further includes a controller 150 which controls operation of the laundry storage device 100 on the basis of information input via the input part 121, the memory 124 and the weight sensors 130, and a transmitting button 161 through which the washing information of laundry or the washing course information stored in the memory 124 is transmitted to the clothes treating apparatus 300.

[0047] FIG. 4 is a block diagram illustrating the relationship between components installed in the laundry storage device 100 and components installed in the clothes treating apparatus 300.

[0048] Now, the components of the clothes treating apparatus 300 will be described with reference to FIG. 4. The clothes treating apparatus 300, to process clothing stored in the laundry storage device 100, includes a receiver 310 which receives the washing information or the washing course information transmitted from the transmitter 160, a sensor 330 which senses introduction of laundry into the clothes treating apparatus 300, and a controller 320 which controls operation of the clothes treating apparatus 300. Although not shown, a weight sensor may be installed in the clothes treating apparatus 300, to measure a weight of laundry introduced into the clothes treating apparatus 300.

[0049] Next, operation of the clothes treating system according to the present invention will be described with reference to FIG. 4.

[0050] If the user inputs information related to laundry using the input part 121, the display part 122 indicates which one of the storage boxes 110 the user must introduce laundry into. Accordingly, the user can easily sort and store the laundry in the respective storage boxes 110.

[0051] A weight of the laundry stored in each storage box 110 is measured by the weight sensor 130 and is displayed on the display part 122. When the weight of the laundry stored in each storage box 110 exceeds a predetermined level, the indicator 140 informs the user of the excess weight state.

[0052] Meanwhile, the memory 124 stores the washing information related to the laundry stored in the respective storage boxes 110. If the clothes treating apparatus 300 is not provided with a weight sensor, the controller 150 first calculates a washing course on the basis of the laundry washing information stored in the memory 124 and information related to the weight of laundry measured by the weight sensor, and thereafter, can store the calculated washing course in the memory 124.

[0053] The washing information or the washing course information stored in the memory 124 is transmitted to the receiver 310 of the clothes treating apparatus 300. Then, the controller 320 of the clothes treating apparatus 300 performs a washing cycle on the basis of the washing information or the washing course information input to the receiver 310.

[0054] In this case, the controller 150 of the laundry storage device 100 senses a weight variation via the weight sensor 130 installed underneath each storage box 110, thereby being capable of transmitting the washing information of laundry stored in the storage box 110 that is separable from the body 101 or the washing course information to the clothes treating apparatus 300.

[0055] If the clothes treating apparatus 300 is provided with the weight sensor, the controller 320 of the clothes treating apparatus 300 receives the washing information related to the

laundry from the laundry storage device 100, and obtains the information related to the weight of the laundry from the weight sensor installed in the clothes treating apparatus 300. Thereby, the clothes treating apparatus 300 calculates a desired washing course, to perform a washing cycle.

[0056] Meanwhile, a time when the washing information of laundry or the washing course information is transmitted from the transmitter 160 to the receiver 310 can be set in various methods.

[0057] In a first method, when the user pushes the transmitting button 161 installed at the laundry storage device 100, the washing information or the washing course information stored in the laundry storage device 100 can be transmitted. Specifically, if the user pushes the transmitting button 161, the controller 150 commands the transmitter 160 to transmit the washing information or the washing course information stored in the memory 124 to the receiver 310 of the clothes treating apparatus 300.

[0058] In a second method, when the user separates the storage box 110 from the body 101 for washing the laundry, the washing information or the washing course information stored in the laundry storage device 100 can be transmitted. In this case, the controller 150 senses a weight variation via the weight sensor 130, thereby determining that the user separates the storage box 110 from the body 101.

[0059] In a third method, when the sensor 330 installed in the clothes treating apparatus 300 senses that laundry is introduced into the clothes treating apparatus 300, the controller 150 of the laundry storage device 100 can command the transmitter 160 to transmit the washing information or the washing course information to the receiver 310.

[0060] In a fourth method, when the user operates the clothes treating apparatus 300, the controller 150 of the laundry storage device 100 can command the transmitter 160 to transmit the washing information or the washing course information to the receiver 310.

[0061] Of course, when the washing information or the washing course information is transmitted to the clothes treating apparatus 300 using the third and fourth methods, the laundry storage device 100 and the clothes treating apparatus 300 must be designed to enable bidirectional communication for receiving and sending signals with each other.

[0062] As a washing cycle is performed according to a washing course calculated on the basis of information related to laundry sorted according to the type, the washing cycle can be implemented with enhanced efficiency.

[0063] Hereinafter, a clothes treating system according to another embodiment of the present invention will be described with reference to FIG. 5. The same configuration as the above-described embodiment is designated by the same reference numerals, and an overlapped description will be omitted.

[0064] The clothes treating system according to another embodiment of the present invention has differences in that the input part 121 provided at the control panel 120 of the laundry storage device 100 is replaced by a sensing part 123 capable of sensing information stored in an information medium attached to laundry and a receiver 170 to receive weather information transmitted in a wireless manner from an external station.

[0065] The information medium attached to laundry can be selected from various mediums, but a Radio Frequency (RF) card or bar code is preferable.

[0066] Next, operation of the clothes treating system according to another embodiment will be described.

[0067] If the user touches the information medium, which is attached to laundry and stores washing information such as material and color of laundry, to the sensing part 123, the sensing part 123 reads the laundry information stored in the information medium, and the controller 150 determines which one of the storage boxes 110 the user must introduce laundry into, and indicates the determined result on the display 122.

[0068] The memory 124 stores a database related to laundry sorting standards. When the sensing part 123 senses the laundry information stored in the information medium attached to laundry, the controller 150 compares the database stored in the memory 124 with the laundry information stored in the information medium, thereby determining the most appropriate one of the four storage boxes 110 for introduction of the laundry.

[0069] The memory 124 of the laundry storage device 100 also stores the weather information transmitted from the receiver 170.

[0070] The controller 150 calculates a washing course suitable for the laundry stored in each storage box 110, on the basis of the information of laundry sensed by the sensing part 123, the information related to the weight of laundry measured by the weight sensor 130, and the weather information received by the receiver 170.

[0071] For example, the controller 150 may calculate a washing course by combining the laundry information sensed by the sensing part 123 and the laundry weight information measured by the weight sensor 130, or may calculate a washing course suitable for laundry stored in each storage box 110 by combining the laundry information sensed by the sensing part 123 and the weather information received by the receiver 170. of course, an appropriate washing course can be calculated by combining all the above described kinds of information.

[0072] The washing course calculated by the controller 150 is transmitted from the transmitter 160 of the laundry storage device 100 to the receiver 310 of the clothes treating apparatus 300. The controller 320 of the clothes treating apparatus 300 performs a washing course of the clothes treating apparatus 300 according to the transmitted washing course.

[0073] With the above-described clothes treating system according to another embodiment of the present invention, an optimum washing course for the laundry stored in each storage box 110 can be calculated in consideration of the laundry information and the weather information, whereby a washing cycle can be implemented with enhanced washing efficiency.

[0074] As apparent from the above description, with a clothes treating system and a clothes treating method according to the present invention, the user can easily sort and store laundry according to the type with assistance of a laundry storage device.

[0075] Further, an optimum washing course for the laundry sorted by the laundry storage device can be implemented, resulting in an improvement in washing efficiency.

[0076] Furthermore, the laundry can be stored in an optimum condition, preventing the laundry from mildewing and generating bad odors.

[0077] It will be apparent to those skilled in the art that various modifications and variations, related to other clothes treating systems, can be made in the present invention without departing from the spirit or scope of the inventions. Thus, it is

intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A laundry storage device comprising:
 - a body having a plurality of storage boxes to sort and store laundry according to a laundry type; and
 - a memory in which washing information related to the laundry stored in each storage box is stored.
2. The laundry storage device according to claim 1, further comprising:
 - an input part through which a user inputs a laundry type; and
 - a display part to indicate which one of the storage boxes the user must introduce the laundry into according to the laundry type input via the input part.
3. The laundry storage device according to claim 1, further comprising:
 - a sensing part to automatically sense laundry information stored in an information medium that is attached to the laundry; and
 - a display part to indicate which one of the storage boxes the user must introduce the laundry into according to the information sensed by the sensing part.
4. The laundry storage device according to claim 3, wherein the information medium is a Radio Frequency (RF) card or a bar code.
5. The laundry storage device according to claim 3, wherein the memory stores a database related to laundry sorting standards.
6. The laundry storage device according to claim 3, wherein the plurality of storage boxes are separable from the body, respectively.
7. The laundry storage device according to claim 6, wherein a weight sensor is installed underneath each storage box, to measure a weight of the laundry stored in each storage box.
8. The laundry storage device according to claim 7, wherein the weight of the laundry stored in each storage box is displayed via the display part.
9. The laundry storage device according to claim 7, further comprising:
 - an indicator to inform the user of an excess weight of the laundry when the weight sensor senses that the laundry stored in each storage box exceeds a predetermined level.
10. The laundry storage device according to claim 7, further comprising:
 - a transmitter to transmit washing information related to laundry stored in the memory to a clothes treating apparatus,
 - wherein the clothes treating apparatus calculates a washing course by combining the transmitted washing information with information related to the measured weight of the laundry introduced into the clothes treating apparatus.
11. The laundry storage device according to claim 10, wherein the transmitter transmits the laundry washing information when each storage box is separated from the body.
12. The laundry storage device according to claim 7, further comprising:
 - a controller to calculate a washing course by combining the laundry washing information stored in the memory with

information related to the weight of the laundry measured by the weight sensor; and

a transmitter to transmit information related to the calculated washing course to the clothes treating apparatus.

13. The laundry storage device according to claim **12**, wherein the clothes treating apparatus includes a sensor to sense the laundry introduced into the clothes treating apparatus,

wherein, when the introduction of the laundry into the clothes treating apparatus is sensed, the transmitter transmits the information related to the washing course to the clothes treating apparatus.

14. The laundry storage device according to claim **12**, further comprising:

a transmitting button to cause the transmitter to transmit the washing course information.

15. The laundry storage device according to claim **1**, further comprising:

a mover provided at the bottom of the body, to move the laundry storage device to the clothes treating apparatus.

16. The laundry storage device according to claim **1**, wherein a dehumidifier is installed in the body, to remove moisture from the laundry stored in each storage box.

17. The laundry storage device according to claim **16**, wherein the dehumidifier includes a housing having one side communicating with each storage box, and a blower mounted in the housing to discharge the interior air of each storage box to the outside.

18. The laundry storage device according to claim **17**, wherein the housing is provided with a deodorizing filter to remove bad odors from the air discharged from each storage box.

19. The laundry storage device according to claim **3**, further comprising:

a receiver to receive weather information from an external station.

20. The laundry storage device according to claim **19**, wherein an appropriate washing course is calculated by combining the washing information related to the laundry and the weather information.

21. A clothes treating system comprising:

a laundry storage device having a plurality of storage boxes to sort and store laundry according to a laundry type; and a clothes treating apparatus to perform a washing cycle upon receiving washing information, related to the sorted laundry stored in each storage box, from the laundry storage device.

22. The clothes treating system according to claim **21**, wherein the laundry storage device includes a transmitter to transmit the washing information related to the laundry stored

in the storage boxes, and the clothes treating apparatus includes a receiver to receive the washing information transmitted from the transmitter.

23. The clothes treating system according to claim **22**, wherein the laundry storage device further includes a controller to command the transmitter to transmit the washing information to the receiver when the clothes treating apparatus is operated.

24. The clothes treating system according to claim **23**, wherein the laundry storage device further includes a memory in which weather information transmitted from an external station is stored.

25. A clothes treating method comprising:

sorting and introducing clothing into a plurality of storage boxes according to a clothing type;

transmitting washing information of the laundry sorted and stored in the respective storage boxes to a clothes treating apparatus; and

performing a washing course according to the transmitted washing information.

26. The clothes treating method according to claim **25**, further comprising:

calculating information related to the washing course of the laundry from a laundry storage device having the plurality of storage boxes.

27. The clothes treating method according to claim **26**, wherein the calculation step is performed on the basis of the washing information related to the laundry and a weight of the laundry.

28. The clothes treating method according to claim **27**, further comprising:

transmitting information related to the calculated washing course to the clothes treating apparatus.

29. The clothes treating method according to claim **28**, wherein the transmission step is performed when it is sensed that the user introduces the laundry into the clothes treating apparatus.

30. The clothes treating method according to claim **28**, further comprising: after the calculation step, displaying information related to the calculated washing course.

31. The clothes treating method according to claim **26**, further comprising:

sensing the washing information of the laundry and displaying the sensed washing information to the user.

32. The clothes treating method according to claim **26**, further comprising:

receiving weather information and calculating a washing course according to the weather information.

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