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(54) Stepping-free electric dehydration barrel

(57) A stepping-free electric dehydration barrel includes a barrel unit (10), a dehydration unit (20), a motor (30), a control unit (40), a rechargeable battery (50) and a recharging connection port (60). The dehydration unit (20) includes a dehydration basket (21) and a spindle (22) which supports the dehydration basket (21). The spindle (22) is installed on an elastic lifting unit (23) below which is a starting switch (70) being electrically connected to the control unit (40), after a user has put a mop into the dehydration basket (21), he or she only needs to exert a little force to descend the dehydration basket (21) to turn on the starting switch (70), and then the control unit (40) can drive the motor (30) spinning in a predefined time, thereby achieving an object of easily and rapidly dehydrating.

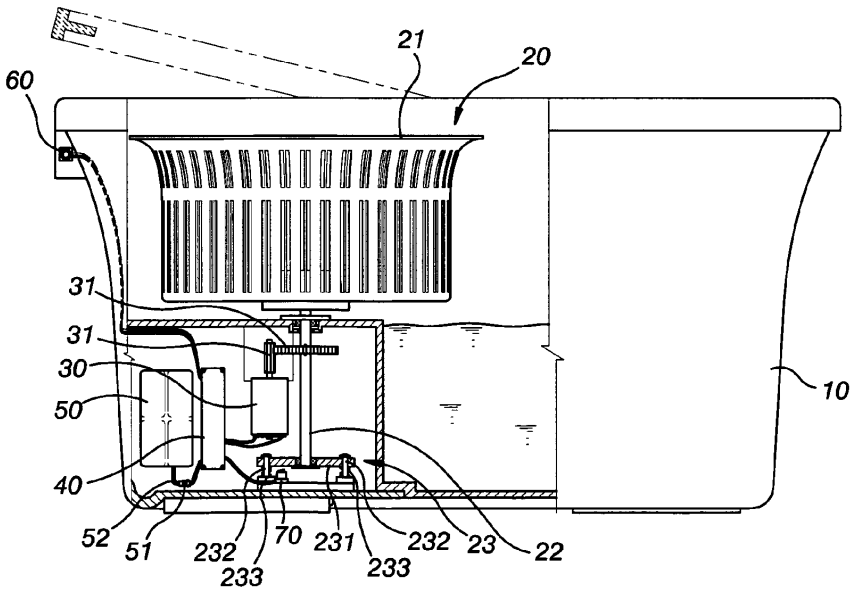

FIG. 2

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Description

BACKGROUND OF THE INVENTION

(a) Field of the Invention

[0001] The present invention relates to a dehydration device, and more particularly to a stepping-free electric dehydration barrel which can be operated without using a foot-stepping method.

(b) Description of the Prior Art

[0002] An existing dehydration barrel, a dehydration basket of which is driven by a motor, still requires a user to step on a switch paddle to activate the dehydration basket for spinning, wherein as the user needs to step by one foot when using the dehydration barrel, a configuration of standing by one foot will be formed such that the dehydration barrel will be rather inconvenient in usage. In addition, the provision of the paddle will easily arouse curiosity of children to play with.

[0003] Accordingly, studies have been undergone by the present inventor for the dehydration barrel with the motor, thereby creating a stepping-free electric dehydration barrel which is completely different from the ordinary dehydration barrel.

SUMMARY OF THE INVENTION

[0004] The primary object of the present invention is to provide a stepping-free electric dehydration barrel which includes at least a barrel unit, a dehydration unit provided in the barrel unit to dehydrate a mop, a motor to drive the dehydration unit spinning, a control unit to activate and deactivate the motor, a rechargeable battery to supply electricity to the control unit and a recharging connection port being electrically connected to the control unit, wherein the dehydration unit includes a dehydration basket and a spindle to support the dehydration basket, with the spindle being installed on an elastic lifting unit and an interior of the barrel unit being provided with a starting switch which is located at a periphery of the elastic lifting unit and is electrically connected to the control unit to activate the motor to operate when the elastic lifting unit is descended.

[0005] A user only needs to put a mop into the dehydration basket and then exert a downward force to the dehydration basket through the mop that the elastic lifting unit can be descended to turn on the starting switch, so as to drive the dehydration basket spinning in a high speed to fling off water, thereby achieving an object of easily and rapidly dehydrating.

[0006] To prevent the dehydration basket from being touched accidentally by a mistake to spin in a high speed, the present invention is further provided with a safety switch which is electrically connected with the control unit, such that under a condition that the safety switch is not activated, even when the elastic lifting unit is descended to trigger the starting switch, the control unit will still not activate the motor, thereby preventing the dehydration basket from being touched by a mistake to spin in a high speed.

[0007] In comparison with the prior art, the present invention is at least provided with following advantages that:

1. A condition of forcing the user to stand by one foot can be avoided.
2. The provision of the safety switch can prevent the dehydration basket from being touched by a mistake to spin in a high speed.
3. A lead wire assembly having a connector can facilitate replacing the rechargeable battery.

[0008] To enable a further understanding of the said objectives and the technological methods of the invention herein, the brief description of the drawings below is followed by the detailed description of the preferred embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

FIG. 1 shows a local cutaway view of a first embodiment of the present invention.
FIG. 2 shows a top view of the first embodiment of the present invention.
FIG. 3 shows a schematic view prior to activation of the first embodiment of the present invention.
FIG. 4 shows a schematic view of the activation of the first embodiment of the present invention.
FIG. 5 shows a schematic view of electric connection of structures of a second embodiment of the present invention.
FIG. 6 shows a three-dimensional view of the second embodiment of the present invention.
FIG. 7 shows a three-dimensional view of a third embodiment of the present invention.
FIG. 8 shows a local cutaway view of a fourth embodiment of the present invention.
FIG. 9 shows a local cutaway view of a fifth embodiment of the present invention.
FIG. 10 shows a local cutaway view of a sixth embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] Referring to FIG. 1 and FIG. 2, it shows a local cutaway view and a top view of a first embodiment of the present invention. As shown in the drawings, a stepping-free electric dehydration barrel comprises primarily a barrel unit 10, a dehydration unit 20, a motor 30, a control unit 40, a rechargeable battery 50 and a recharging con-

nection port 60.

[0011] The dehydration unit 20 is provided in the barrel unit 10 and includes a dehydration basket 21 and a spindle 22 which supports the dehydration basket 21. The spindle 22 is installed on an elastic lifting unit 23 which includes a lifting table 231 for installation of a bottom end of the spindle 22, plural guiding pillars 232 provided on the barrel unit 10 for transfixing the lifting table 231 and at least one elastic element 233 provided between the lifting table 231 and the barrel unit 10. The said elastic element 233 can be a spring or other equivalent element sheathed on the guiding pillar 232 and a lower side of the elastic lifting unit 23 is provided with a starting switch 70 which is electrically connected to the control unit 40 to activate the motor 30 when being triggered. The starting switch 70 disclosed by the present embodiment is a push button and is provided below the lifting table 231.

[0012] Through transmission of plural gears 31, the motor 30 is used to drive the dehydration unit 20 spinning and an on/off state of the motor 30 is controlled by the control unit 40. The rechargeable battery 50 is connected with the control unit 40 through a lead wire assembly 52 having a connector 51, whereas the recharging connection port 60 is electrically connected to the control unit 40 to access electricity and recharge the rechargeable battery 50.

[0013] Referring to FIG. 3 and FIG. 4, it shows a schematic view prior to activation and a schematic view of the activation of the first embodiment of the present invention. Under a normal condition, the lifting table 231 is abutted upward by the elastic elements 233, allowing a proper gap to be maintained between the lifting table 231 and the starting switch 70. When the dehydration basket 21 is subjected to a downward force in a certain extent to descend the lifting table 231 through the spindle 22, until the lifting table 231 touches the starting switch 70, the motor 30 can operate in a predefined time following control of the control unit 40 to drive the dehydration basket 21 spinning in a high speed to fling off water; for example, the motor 30 can operate for 4-6 seconds and then stop. Therefore, an object of easily and rapidly dehydrating is achieved.

[0014] Referring to FIG. 5 and FIG. 6, it shows a schematic view of electric connection of structures and a three-dimensional view of a second embodiment of the present invention. Comparing to the first embodiment, the present embodiment is further provided with at least a safety switch 80 which is electrically connected with the control unit 40. This safety switch 80 is an ordinary push switch and can be provided on a top surface or other more invisible location of the barrel unit 10. Under a condition that the safety switch 80 is not activated, even when the starting switch 70 is triggered, the control unit 40 will still not activate the motor 30, thus preventing a user, a child or a pet from touching by a mistake the dehydration basket 21 to spin in a high speed. In implementation, at least one indicator light 90 can be further provided to display a message of an operation state of the motor 30 or a power state of the rechargeable battery 50.

[0015] Referring to FIG. 7, it shows a three-dimensional view of a third embodiment of the present invention. In the present embodiment, the safety switch 80 is provided in the recharging connection port 60, for example, in an edge inside the recharging connection port 60 as a spring leaf. In addition, a periphery of the recharging connection port 60 is provided with a plug cap 81 which turns on the safety switch 80 when the plug cap 81 is inserted into the recharging connection port 60. This plug cap 81 is also provided with an effect of preventing the recharging connection port 60 from being splashed by water and when the recharging connection port 60 is inserted with a recharging power, the safety switch 80 is also turned on. Besides, the dehydration unit 20 of the present embodiment is further provided with a dehydration plate 24 which can be latched on a top of the dehydration basket 21. When the dehydration plate 24 is latched on the top of the dehydration basket 21, a rag or other wetted small object can be put into the dehydration basket 21 for dehydration and the small objects can be prevented from escaping from the dehydration basket 21.

[0016] Referring to FIG. 8, it shows a local cutaway view of a fourth embodiment of the present invention. In the present embodiment, the spindle 22 is made by a magnetic metal and a top end of the spindle 22 is exposed in the dehydration basket 21. The safety switch 80 is a magnetic induction switch and is provided at a periphery of a bottom end of the spindle 22. A bottom end of a mop 100 is provided with a magnet 82 which is attached to the top end of the spindle 22 and enables a bottom end of the spindle 22 to produce a magnetic attraction force, after the mop 100 has been put into the dehydration basket 21; whereas, the safety switch 80 is turned on upon inducing the magnetic attraction force. The safety switch 80 in the drawing is turned on and the starting switch 70 is touched. On the contrary, if the safety switch 80 does not induce the magnetic attraction force, even when the dehydration basket 21 is subjected to a downward force in a certain extent to touch the starting switch 70, the control unit 40 will still not activate the motor 30, thereby being equipped with a function of preventing from touch by a mistake.

[0017] Referring to FIG. 9, it shows a local cutaway view of a fifth embodiment of the present invention. In the present embodiment, the safety switch 80 is an RFID (Radio Frequency Identification) reader which is embedded in the barrel unit 10 and is close to the dehydration basket 21. The bottom end of the said mop 100 is provided with an RFID tag 83 which enters into an effective induction range of the safety switch 80 when the mop 100 is put into the dehydration basket 21 and the safety switch 80 is turned on when the effective RFID tag 83 is induced. The safety switch 80 in the drawing is turned on and the starting switch 70 is touched. On the contrary, if the safety switch 80 does not induce the effective RFID tag 83, even when the dehydration basket 21 is subjected

to a downward force in a certain extent to touch the starting switch 70, the control unit 40 will still not activate the motor 30, thereby developing a function of preventing from touch by a mistake.

[0018] Referring to FIG. 10, it shows a local cutaway view of a sixth embodiment of the present invention. In the present embodiment, the starting switch 70 is an inductor which can produce non-contact induction when the elastic lifting unit 23 is descended; for example, if the elastic lifting unit 23 is magnetic, then the starting switch 70 can be an inductor which is turned on and off through induction of a magnetic force.

[0019] It is of course to be understood that the embodiments described herein is merely illustrative of the principles of the invention and that a wide variety of modifications thereto may be effected by persons skilled in the art without departing from the spirit and scope of the invention as set forth in the following claims.

Claims

1. A stepping-free electric dehydration barrel comprising at least a barrel unit 10, a dehydration unit 20 which is provided in the barrel unit 10 to dehydrate a mop, a motor 30 which drives the dehydration unit 20 spinning, a control unit 40 which activates and deactivates the motor 30, a rechargeable battery 50 which supplies electricity to the control unit 40 and a recharging connection port 60 which is electrically connected to the control unit 40, wherein the dehydration unit 20 includes a dehydration basket 21 and a spindle 22 which supports the dehydration basket 21, with the spindle 22 being installed on an elastic lifting unit 23 and an interior of the barrel unit 10 being provided with a starting switch 70 which is located at a periphery of the elastic lifting unit 23 and is electrically connected to the control unit 40 to activate the motor 30 when the elastic lifting unit 23 is descended.

2. The stepping-free electric dehydration barrel according to claim 1, further comprising at least one safety switch 80 which is electrically connected to the control unit 40.

3. The stepping-free electric dehydration barrel according to claim 2, wherein the safety switch 80 is provided in the recharging connection port 60 and a periphery of the recharging connection port 60 is provided with a plug cap 81, with the safety switch 80 being turned on when the plug cap 81 is inserted into the recharging connection port 60.

4. The stepping-free electric dehydration barrel according to claim 2, wherein the spindle 22 is made by a magnetic metal, a top end of the spindle 22 is exposed in the dehydration basket 21, the safety switch 80 is a magnetic induction switch and is provided at a periphery of a bottom end of the spindle 22 and a bottom end of the mop 100 is provided with a magnet which is attached to a top end of the spindle 22 and enables the bottom end of the spindle 22 to produce a magnetic attraction force, after the mop 100 has been put into the dehydration basket 21.

5. The stepping-free electric dehydration barrel according to claim 2, wherein the safety switch 80 is an RFID (Radio Frequency Identification) reader which is embedded in the barrel unit 10 and is close to the dehydration basket 21, whereas the bottom end of the mop 100 is provided with an RFID tag 83 which enters into an effective induction range of the safety switch 80, after the mop 100 has been put into the dehydration basket 21.

6. The stepping-free electric dehydration barrel according to claim 1, wherein a lead wire assembly having a connector is provided between the rechargeable battery 50 and the control unit 40.

7. The stepping-free electric dehydration barrel according to claim 1, wherein the dehydration unit 20 includes a dehydration plate 24 which is latched at a top of the dehydration basket 21.

8. The stepping-free electric dehydration barrel according to claim 1, wherein the starting switch 70 is a push button which produces a push reaction when the elastic lifting unit 23 is descended.

9. The stepping-free electric dehydration barrel according to claim 1, wherein the starting switch 70 is an inductor which produces non-contact induction when the elastic lifting unit 23 is descended.

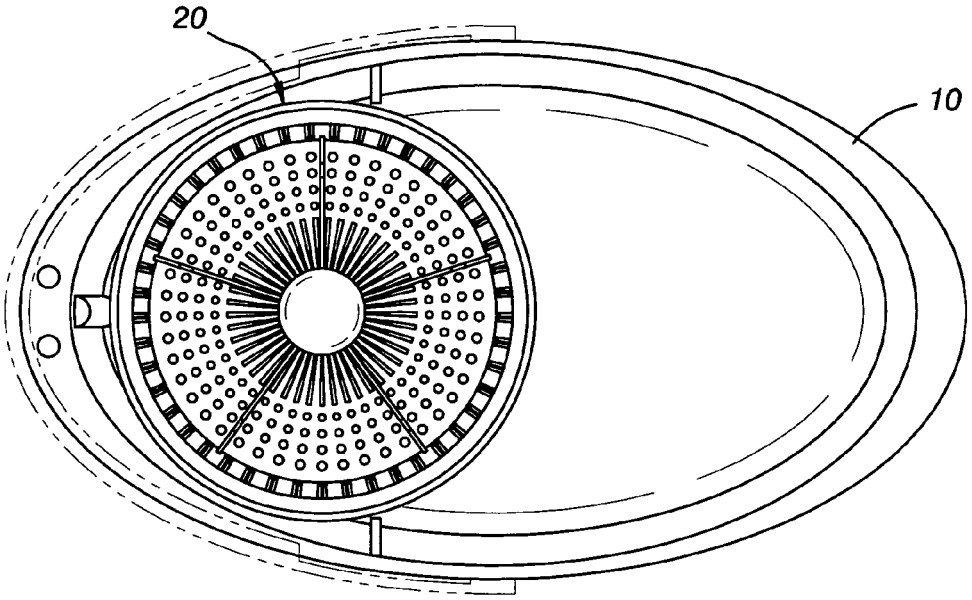

FIG. 1

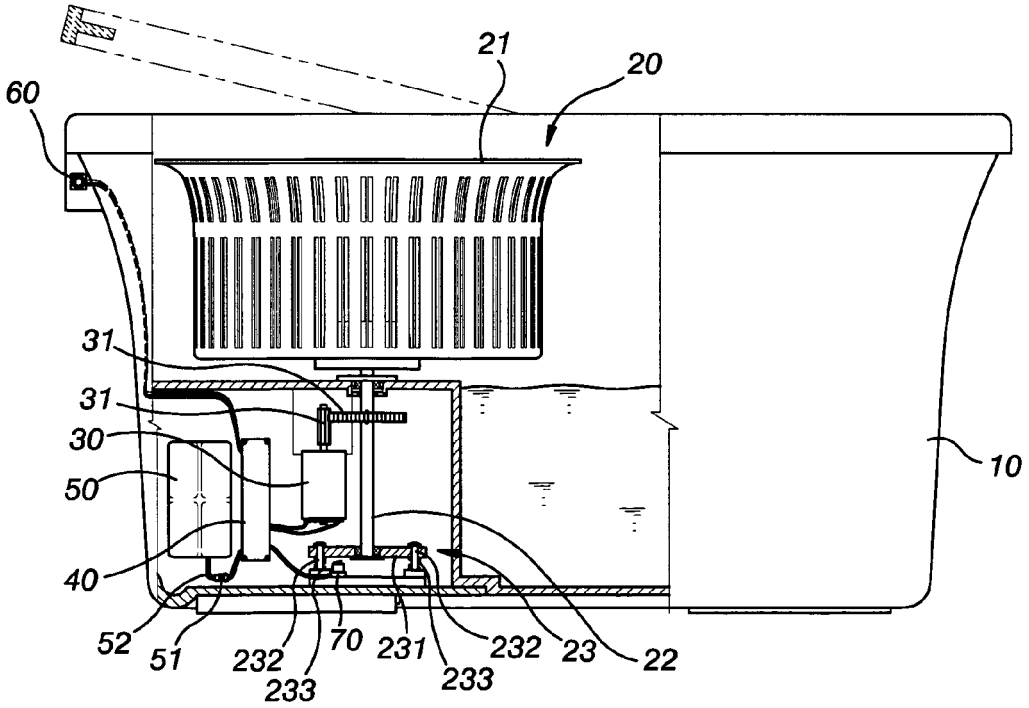

FIG. 2

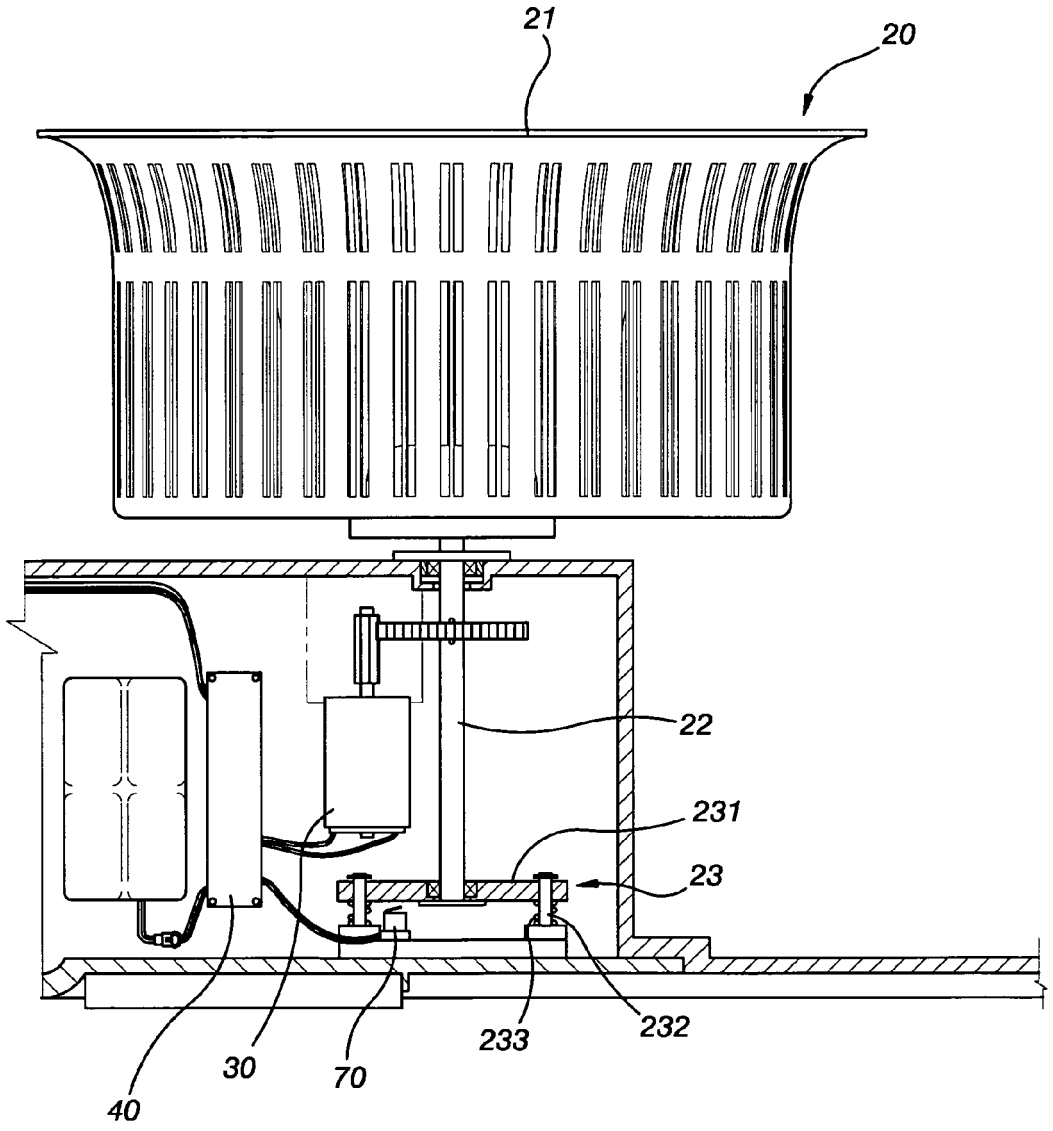

FIG. 3

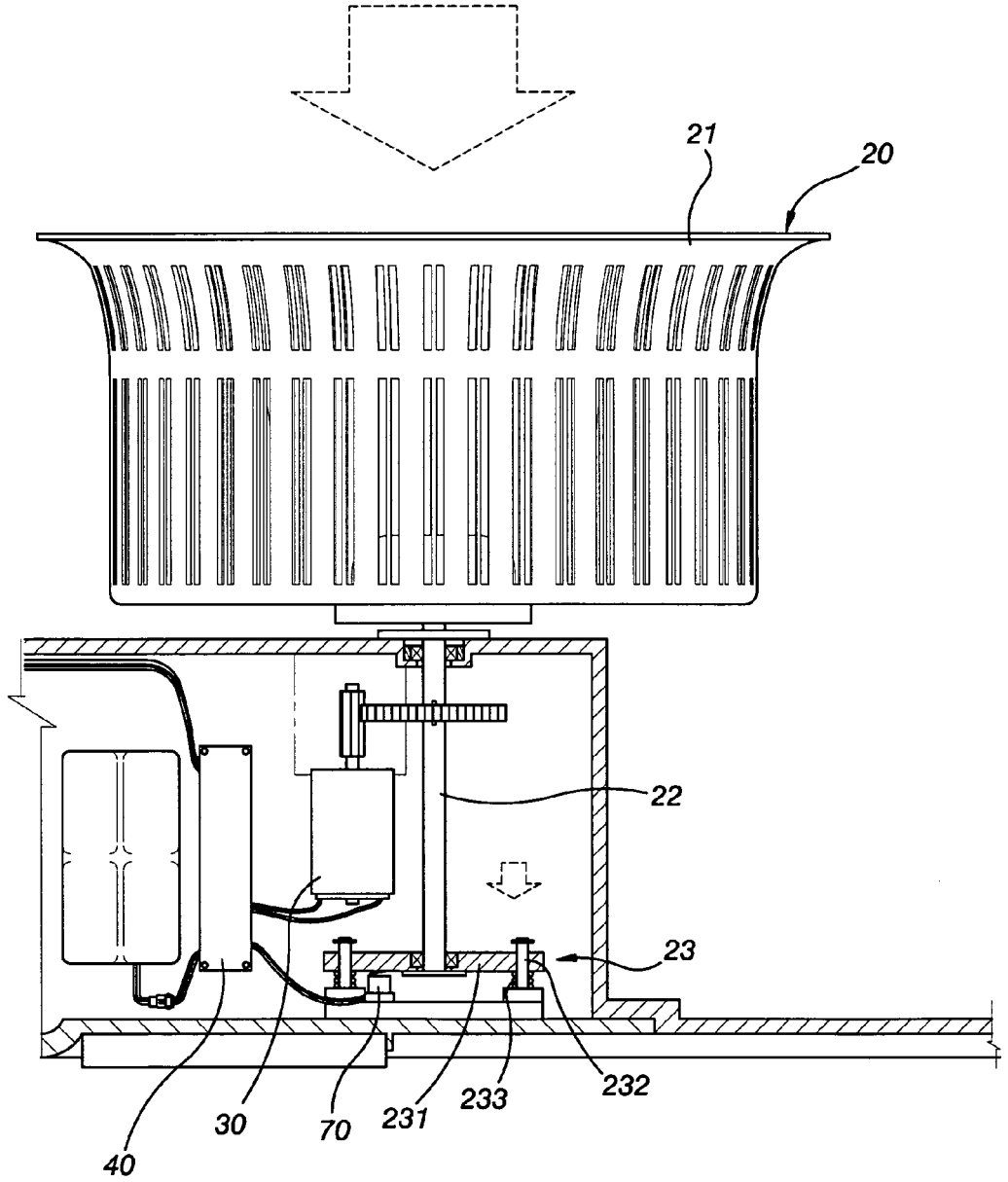

FIG. 4

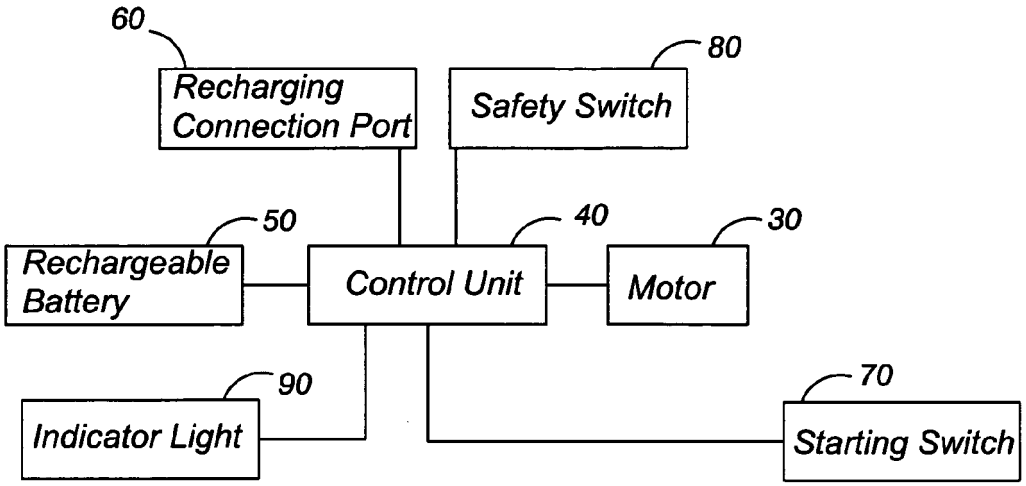
60
Recharging Connection Port
80
Safety Switch
50
Rechargeable Battery
40
Control Unit
30
Motor
90
Indicator Light
70
Starting Switch

FIG. 5

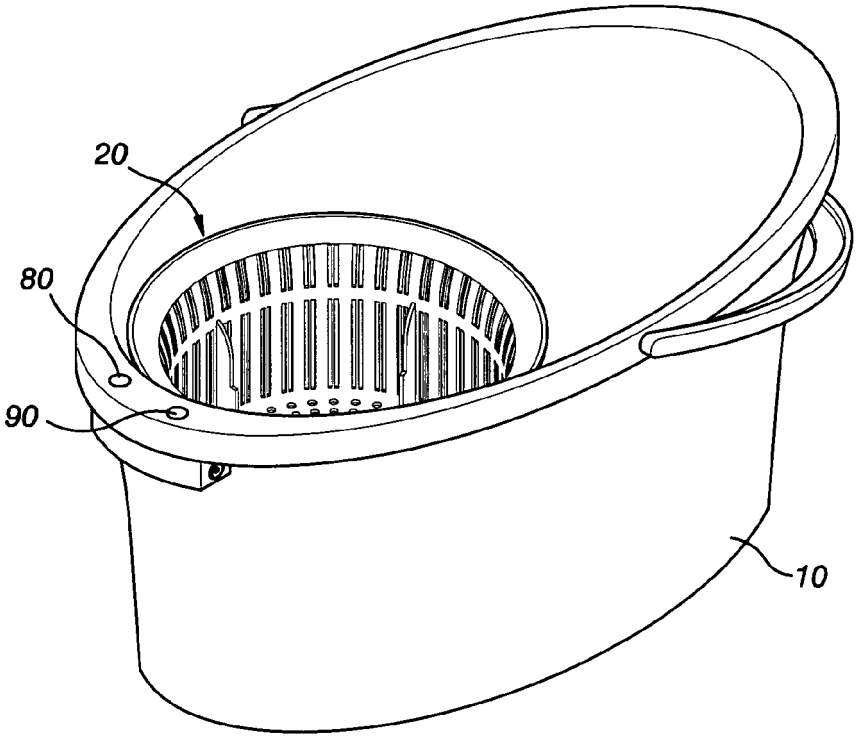
20
80
90
10

FIG. 6

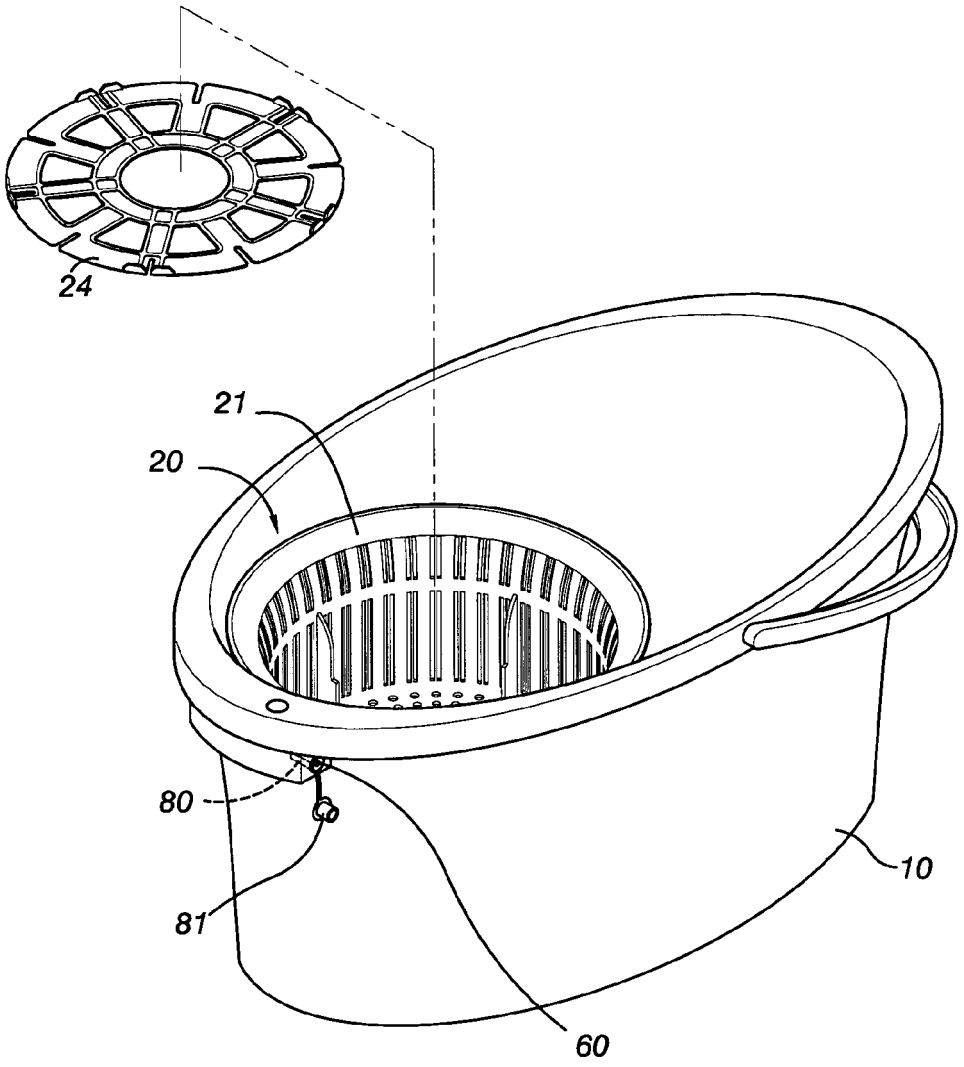

FIG. 7

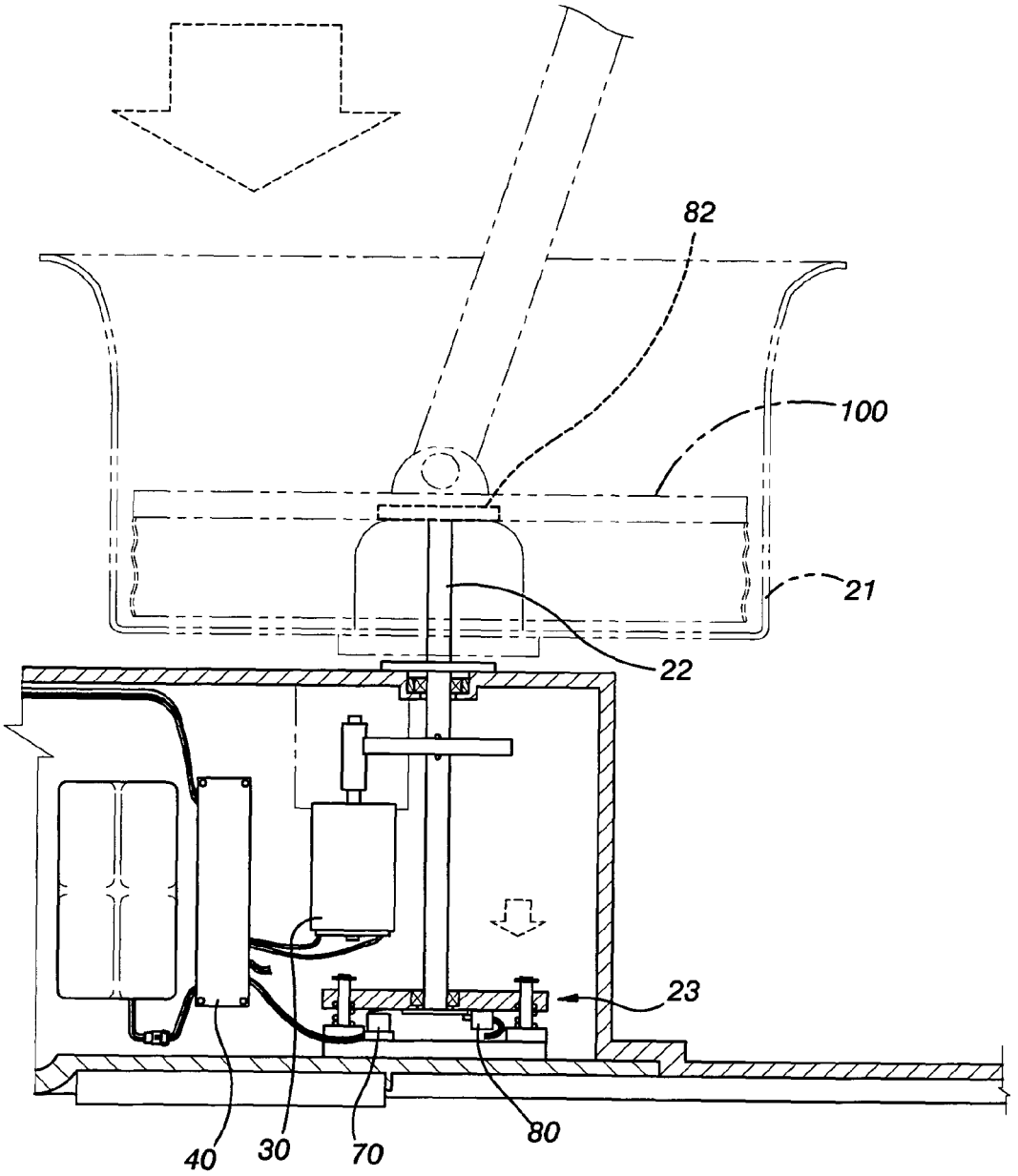

FIG. 8

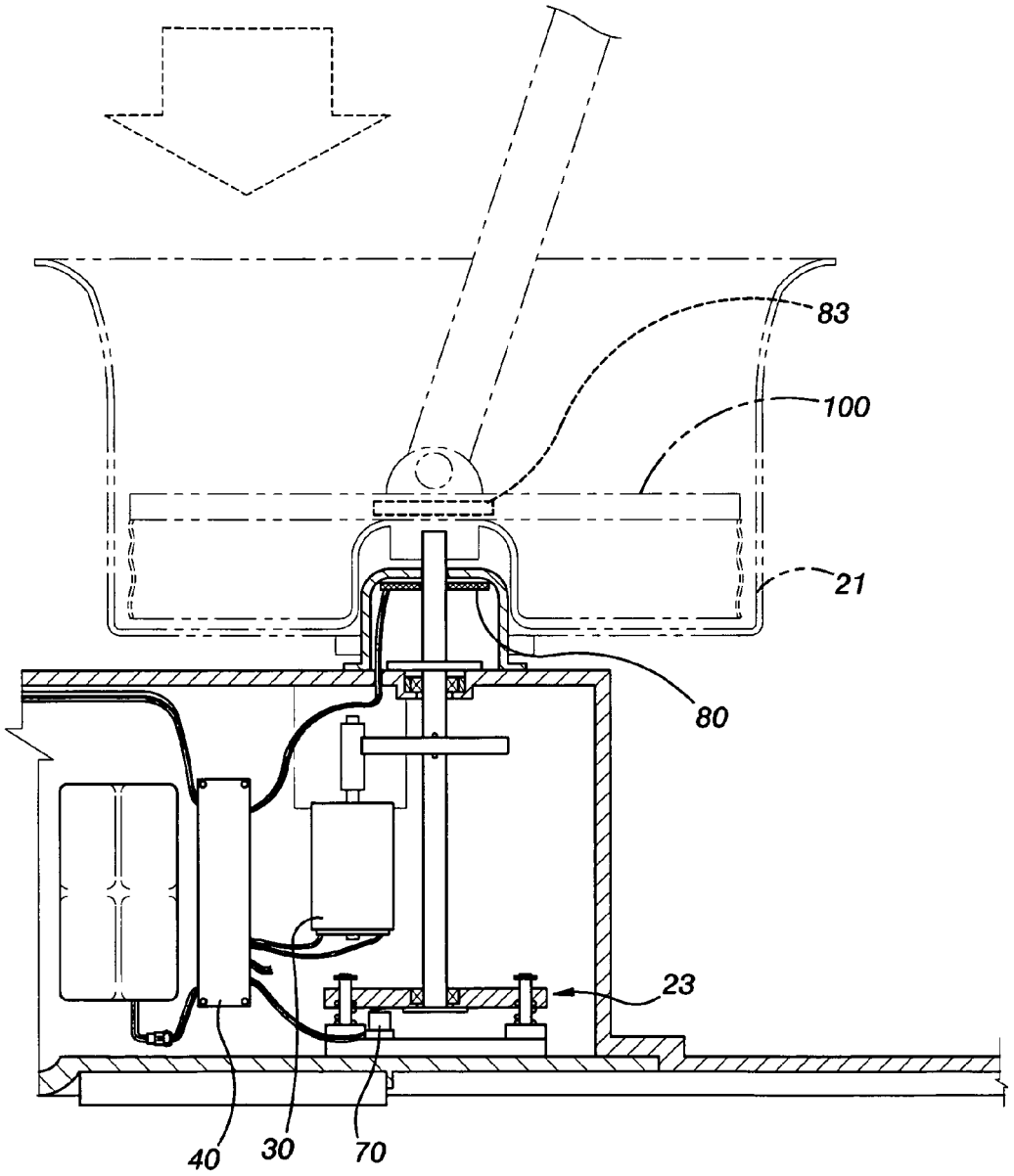

FIG. 9

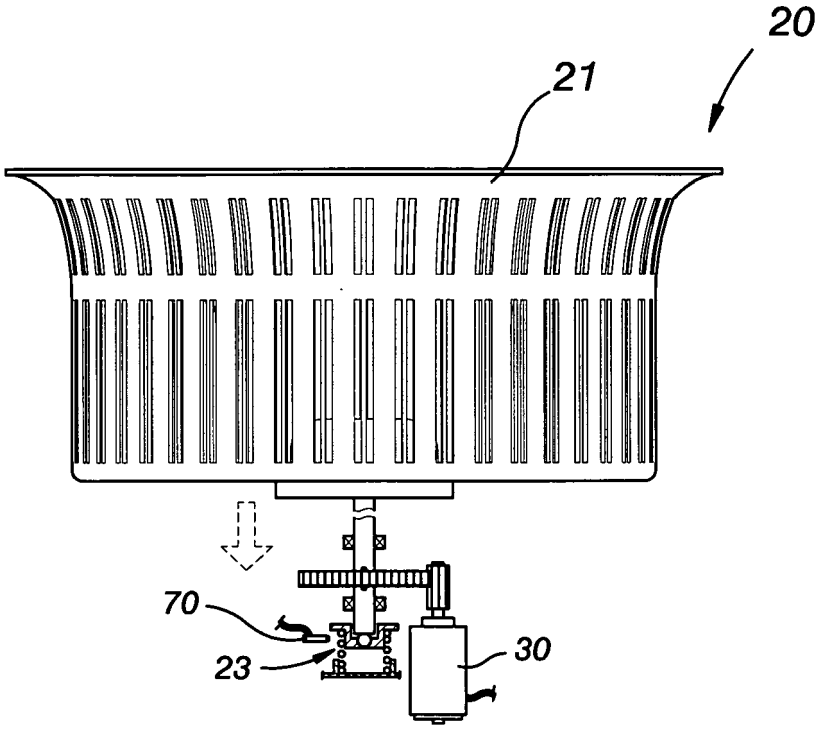

FIG. 10