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Blender

Abstract

The present invention relates to a blender. The blender includes: a body provided with a motor assembly; a container which is detachably mounted to the body and in which food is accommodated; a blade module provided inside the container and connected to the motor assembly to rotate when the container is mounted; a detection member provided in the container; and a detection device provided on one side of the body corresponding to the detection member and detecting the detection member when the container is mounted.

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References Cited

U.S. PATENT DOCUMENTS

Patent No.	Issued Date	Patentee Name	U.S. Cl.	CPC
2002/0176320	12/2001	Wulf et al.	N/A	N/A
2008/0221739	12/2007	Pryor et al.	N/A	N/A
2008/0264270	12/2007	Peng	N/A	N/A
2015/0265983	12/2014	Fleming	N/A	N/A
2016/0309960	12/2015	Kolar	N/A	A47J 43/0761
2017/0086623	12/2016	Lee	N/A	B01F 35/3204
2018/0206677	12/2017	Ivarsson et al.	N/A	N/A
2019/0000273	12/2018	Sapire	N/A	N/A

FOREIGN PATENT DOCUMENTS

Patent No.	Application Date	Country	CPC
3067616	12/2018	CA	N/A
106510495	12/2016	CN	N/A
2937027	12/2016	EP	N/A
10-1448681	12/2013	KR	N/A
10-2017-0033818	12/2016	KR	N/A
2017/063962	12/2016	WO	N/A

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Background/Summary

(1) This application is a National Stage Application of International Application No. PCT/KR2020/010328, filed on Aug. 5, 2020, which claims the benefit of and priority to Korean Patent Application No. 10-2019-0106700, filed on Aug. 29, 2019, which are hereby incorporated

by reference in their entirety for all purposes as if fully set forth herein.

TECHNICAL FIELD

(2) The present disclosure relates to a blender.

BACKGROUND

(3) In general, a blender is a home appliance that cuts food contained in a container by a blade rotated by an electric motor, crushes food into powder, or makes food into a liquid-like state, and is also commonly referred to as a blender.

(4) In a general blender, a container is seated on a top surface of a body in which a motor is embedded, and when the container is seated, a blade inside the container is connected to a rotation shaft of the motor to be in a rotatable state. In addition, the user may drive the motor by manipulating the body after putting the food in the container, and the blade may rotate by the driving of the motor to crush the food.

(5) Such a blender has recently been developed as a large-capacity blender with a large container, and also, a blender using a motor rotating at a high speed to more effectively crush various foods is being developed.

(6) In addition, the blender may have various manipulation structures to facilitate the crushing operation of various foods.

(7) International Patent Publication No. PCT/EP2016074116 discloses a control button for rotation operation on a front surface of a base part on which a container is seated. Disclosed is a blender in which a user manipulates a control button to operate the blender according to a preset cooking program, and the operation of the blender can be inputted by a user's simple manipulation.

(8) However, in the blender having such a structure, there is a somewhat an inconvenient problem in use, such as having to directly set and input a desired operation and select a manipulation.

(9) In addition, even in a state in which the container is not seated on the base part, a motor inside the base part may be operated by a user's manipulation, which may cause a safety problem.

DISCLOSURE

Technical Problem

(10) An embodiment of the present disclosure aims to provide a blender that enables a motor assembly to operate in a state in which seating of a container is sensed.

(11) An embodiment of the present disclosure aims to provide a blender capable of recognizing a container regardless of the mounting direction and a state of a container.

(12) An embodiment of the present disclosure aims to provide a blender capable of automatically setting an operation suitable for a detected container by detecting the type of the container installed therein.

Technical Solution

(13) A blender according to an embodiment of the present disclosure includes: a body provided with a motor assembly; a container which is detachably mounted to the body and in which food is accommodated; a blade module provided inside the container and connected to the motor assembly to rotate when the container is mounted; a detection member provided in the container; and a detection device provided on one side of the body corresponding to the detection member and detecting the detection member when the container is mounted.

(14) A container coupling portion protruding downward and provided with the detection member may be defined on a bottom surface of the container, and a container seating portion may be defined on a top surface of the body, the container seating portion being recessed so that the container coupling portion is inserted when the container is mounted and the detection device is mounted thereon.

(15) The container coupling portion may extend downward at a position away from a center of the container by a set radius, the detection member may be disposed along a circumference of the container coupling portion, an inner surface of the container seating portion may be in contact with an outer surface of the container coupling portion, and the detection device may be provided in the

container seating portion facing the detection member.

(16) A plurality of coupling guides protruding outward at equal intervals may be defined around the container coupling portion, and a plurality of coupling support portions supporting an outer surface of the container coupling portion and spaced apart from each other at equal intervals, and a guide coupling groove into which the coupling guide is inserted between the coupling support portions spaced apart from each other may be defined on an inner surface of the container seating portion.

(17) At least one detection member may be disposed between the adjacent coupling guides.

(18) The detection device may be provided in the coupling support portion.

(19) The detection device may be disposed to be symmetrical at positions facing each other among the plurality of coupling support portions.

(20) An inner surface and an outer surface of the container seating portion may be spaced apart from each other, and a detection device accommodation portion which is opened downward and into which the detection device is inserted and mounted may be defined between the outer surfaces of the container seating portion.

(21) The detection device may include: a detection portion which is inserted into the detection device accommodation portion and at least a portion of which is located at a position facing the detection member to detect the detection member; and a bracket portion on which the detection portion is mounted and which is coupled to an inner surface of the body from an outside of the detection device accommodation portion.

(22) A plurality of the detection members may be arranged radially with respect to a center of the container, and the detection device may be disposed radially with respect to the center of the body, and may be disposed at a position corresponding to a portion of the detection member.

(23) One of a plurality of containers may be selectively mounted on the container seating portion, and the plurality of containers may be configured to have a different arrangement position of the detection member, and may determine a type of the mounted container according to the arrangement of the detection member recognized by the detection device.

(24) One of a plurality of the containers may be selectively mounted on the container seating portion, and the plurality of containers may be configured to have a different arrangement number of the detection member, and may determine a type of the mounted container according to the arrangement of the detection member recognized by the detection device.

(25) The blender may be set to an operation mode suitable for the container recognized when the type of the container is determined.

(26) The detection member may be a magnet, and the detection device may be a Hall sensor that detects the magnet.

(27) The detection member may be an RFID tag, and the detection device may be an RFID reader recognizing the RFID tag.

Advantageous Effects

(28) The blender according to the embodiment of the present disclosure may have the following effects.

(29) The detection member may be provided in the container, and the detection device configured to detect the detection member may be provided in the body so that the motor assembly is driven after detecting the mounting of the container. Therefore, the blender does not operate when the container is not mounted, and operates only when the container is recognized, thereby preventing a safety accident due to a user's erroneous operation or carelessness and ensuring operation reliability.

(30) In addition, the detection member is provided on the circumferential surface of the container coupling portion coupled to the body, and the detection device is provided on the inner surface of the container seating portion in which the container coupling portion is accommodated. Thus, when the container is mounted, the detection member and the detection device may be arranged to face each other, so that it is possible to ensure the detection of the detection member.

- (31) In addition, the detection member and the detection device may be circularly arranged at a set interval so that the detection member may always be recognized by the detection device regardless of the different mounting directions of the container on the body.
- (32) In addition, due to the coupling guide and the guide coupling groove for guiding the seating of the container, the container may be mounted in an aligned state at all times, and it is possible to ensure that the detection member is detected by the detection device when the container is mounted.
- (33) In addition, the detection device may identify the type of the container according to the information or arrangement and number of detection members provided in the container. Therefore, when the user mounts the container, the blender may automatically set the appropriate operation for the container, and the user's convenience may be greatly improved by allowing the user to perform an optimized operation by a simple manipulation.
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Description

BRIEF DESCRIPTION OF THE DRAWINGS

- (1) FIG. 1 is a front view of a blender according to an embodiment of the present invention.
- (2) FIG. 2 is a perspective view of the blender.
- (3) FIG. 3 is a longitudinal cross-sectional view of the blender.
- (4) FIG. 4 is a perspective view of the container that is one component of the blender.
- (5) FIG. 5 is an exploded perspective view of the container.
- (6) FIG. 6 is a cross-sectional view taken along line 6-6' of FIG. 4.
- (7) FIG. 7 is a perspective view of the container when viewed from below.
- (8) FIG. 8 is a perspective view of another container according to an embodiment of the present invention when viewed from below.
- (9) FIG. 9 is a perspective view of a body that is one component of the blender.
- (10) FIG. 10 is an exploded perspective view of the body when viewed from above.
- (11) FIG. 11 is an exploded perspective view of the body when viewed from below.
- (12) FIG. 12 is an exploded perspective view illustrating a coupling structure of components defining an outer appearance of the body.
- (13) FIG. 13 is an exploded perspective view illustrating an arrangement relationship between an inner case, which is one component of the body, and PCB modules.
- (14) FIG. 14 is a perspective view illustrating the inside of the inner case when viewed in one direction.
- (15) FIG. 15 is a bottom view illustrating a state in which a detection device is mounted inside the inner case.
- (16) FIG. 16 is an exploded perspective view illustrating a coupling relationship of the detection device.
- (17) FIG. 17 is a cross-sectional view taken along line 17-17' of FIG. 9.
- (18) FIG. 18 is a view illustrating a state in which different types of containers are selectively mounted on the body.
- (19) FIG. 19 is a partial cross-sectional view illustrating a state when the detection device detects a detection member.
- (20) FIG. 20 is a view schematically illustrating a recognized state of the container.
- (21) FIG. 21 is a view schematically illustrating a recognized state of the other container.

DETAILED DESCRIPTION

(22) Hereinafter, detailed embodiments will be described in detail with reference to the accompanying drawings. However, the scope of the present disclosure is not limited to proposed embodiments of the present invention, and other regressive inventions or other embodiments

included in the scope of the spirits of the present disclosure may be easily proposed through addition, change, deletion, and the like of other elements.

(23) FIG. 1 is a front view of a blender according to an embodiment of the present invention. FIG. 2 is a perspective view of the blender. FIG. 3 is a longitudinal cross-sectional view of the blender.

(24) For the convenience of explanation and understanding, directions are defined first. A position at which a knob **40** is disposed is referred to as a front surface or a front side, and a portion to which a power connector (reference numeral **35** in FIG. 10) is connected is defined as a rear surface or a rear side. In addition, a position of the bottom of the body **30** may be referred to as a bottom surface or a lower side, and a position of an upper end of a container **10** may be referred to as a top surface or an upper side. In addition, a left side with respect to the knob **40** may be referred to as a left surface or a left direction, and a right side with respect to the knob **40** may be defined as a right surface or a right direction.

(25) As illustrated in the drawings, a blender **1** according to an embodiment of the present invention may include a body **30** disposed on a bottom surface, and a container **10** seated on an upper portion of the body **30**.

(26) In the body **30**, electrical devices and components including a motor assembly **50** and a printed circuit board (PCB) module **60** for an operation of the blender **1** may be disposed. In addition, manipulation portions **40** and **310b** for manipulating the operation of the blender **1** and a display portion **310a** for displaying the operation may be provided.

(27) The body **30** may have a hexahedral shape as a whole, and a container seating portion **301** for seating the container **10** thereon may be provided on a top surface of the body **30**. The container seating portion **301** may be configured so that the container **10** is detachable in a vertical direction.

(28) An outer appearance of the body **30** may be defined by an outer case **31** made of a metal material or having a metal texture, and the outer case **31** may have a hexahedral shape with an opened bottom surface. In addition, an inner case **32** may be provided inside the outer case **31**, and a space in which the motor assembly **50** and the PCB module **60** are mounted may be provided inside the inner case **32**.

(29) The knob **40** for setting the operation of the blender **1** by a user may be provided on the front surface of the body **30**. The knob **40** may protrude from the front surface of the body **30** and may be manipulated to set the operation of the blender **1** by rotation thereof.

(30) A bottom cover **74** may be provided on the bottom surface of the body **30**. The bottom cover **74** may be coupled to the outer case **31** and the inner case **32** and may be disposed to be in contact with the bottom surface on which the blender **1** is installed. In addition, the bottom cover **74** may allow the outer case **31** and the inner case **32** to be spaced apart from the bottom surface, and a cover suction hole **744** and a cover discharge hole **746**, through which cooling air is suctioned into and discharged from the body **30**, may be defined in the bottom cover **74**.

(31) A display portion **310a** for visualizing an operation state of the blender **1** may be provided on the top surface of the body **30**. For example, the display portion **310a** may be provided in the form of at least one seven-segment display. In addition, a touch manipulation portion **310b** capable of manipulating start or stop of the operation of the blender **1** may be provided on the top surface of the body **30**. For manipulating the blender **1**, the manipulation portions **40** and **310b** may include at least one of the knob **40** or the touch module **65**.

(32) In addition, the container seating portion **301** may be provided on the top surface of the body **30**. The container seating portion **301** may protrude from the top surface of the body **30**, and a portion of the container seating portion **301** may be inserted into a bottom surface of the container **10** to stably support the container **10**. When the container **10** is seated on the container seating portion **301**, the motor assembly **50** and the blade module **14** inside the container **10** may be coupled to each other to transmit rotational force to the blade module **14**.

(33) The container seating portion **301** may be disposed at one side that is slightly biased from a center of the body **30**. A total horizontal length including a handle **13** of the container **10** and a

horizontal length of the body **30** correspond to each other. Thus, a center of a food accommodation space of the container **10** may be disposed to be eccentric from a center of the body **30**, and a center of the container seating portion **301** may also be disposed in the same extension line as the center of the container **10**. In addition, the knob **40** may be disposed at a position corresponding to the center line of the container seating portion **301** and the container **10** and may be disposed at an eccentric side of the front surface of the body **30**.

(34) The container seating portion **301** may also be made of the same material as the outer case **31**. The container seating portion **301** may be made of a metal material or a material having a metal texture to have a sense of unity with the outer appearance of the body as a whole.

(35) The motor assembly **50** may be mounted inside the body **30** below the container seating portion **301**. The motor assembly **50** may be provided for rotation of the blade module **14** inside the container **10** and may rotate at a high speed. In addition, the rotational speed of the motor assembly **50** may be adjusted according to the manipulation of the knob **40**.

(36) An upper end of the motor assembly **50** may be connected to the blade module **14** inside the container **10**. In addition, a cooling fan **55** may be provided at a lower end of the motor assembly **50**, and when the motor assembly **50** is driven, the cooling fan **55** may rotate at the same time with the blade module **14** to force a flow of cooling air inside the body **30**.

(37) A plurality of PCB modules **60** may be disposed on an inner wall surface of the inner case **32** defining an inner surface of the body **30**. The PCB module **60** may be provided in plurality and may be disposed around the inner surface of the body **30**, that is, on front and rear surfaces and both left and right surfaces, respectively.

(38) In addition, an opened bottom surface of the inner case **32** may be shielded by a base plate **71**. In addition, the base plate **71** may be provided with an air guide **72** for guiding the discharge of the cooling air suctioned by the cooling fan **55**.

(39) A predetermined space may be defined between the base plate **71** and the bottom cover **74**, and a wireless power module **73** may be provided between the base plate **71** and the bottom cover **74**. The wireless power module **73** may supply power to the motor assembly **50** in a wireless manner using induced electromotive force.

(40) The container **10** may be provided in a cylindrical shape corresponding to an outer diameter of the container seating portion **301**, and a top surface of the container **10** may be opened to access the food accommodation space therein. The container **10** may be made of glass or a material capable of allowing visual recognition inside the container.

(41) The container **10** may be provided with a blade module **14** at a center of the inner bottom surface. The blade module **14** includes a plurality of blades **141** and may be connected to the motor assembly **50**. Thus, when the motor assembly **50** is driven while the container **10** is seated on the body **30**, the blades **141** may rotate to crush or cut the food inside the container **10**.

(42) In addition, a plurality of inner guides **121** for guiding the rotating food may be provided inside the container **10**. Each of the inner guides **121** may extend upward by a predetermined length from a lower end of the inner surface of the container **10** and may extend to a bottom surface of a lid **20** when the lid **20** is mounted.

(43) A spout **111** for pouring the crushed food may protrude from an upper end of the container **10**, and a handle **13** may protrude from one side facing the spout **111**. The handle **13** may protrude outward from the upper end of the container **10** and extend downward so that the user may lift or move the container **10**. The protruding end of the handle **13** may be disposed in the same extension line as a side end of the body **30**.

(44) In addition, the lid **20** may be mounted on the opened top surface of the container **10**. The lid **20** may shield the opened top surface of the container **10**, and the user may hold the lid handle **13** and separate the lid **20** from the container **10** to open or close the opened top surface of the container **10**. The lid **20** may include a lid upper portion **22**, a lid lower portion **23**, and the lid handle **21**, and a lid gasket **24** may be provided along a circumference of the lid **20**.

(45) Hereinafter, a structure of the container **10** will be described in more detail with reference to the drawings.

(46) FIG. **4** is a perspective view of the container that is one component of the blender. FIG. **5** is an exploded perspective view of the container. FIG. **6** is a cross-sectional view taken along line **6-6'** of FIG. **4**. FIG. **7** is a perspective view of the container when viewed from below.

(47) As illustrated in the drawings, the container **10** is provided in a cylindrical shape with an opened top surface. In addition, the blade module **14** may be mounted on the bottom surface of the container **10**, and the lid **20** may be detachably mounted on the opened top surface of the container **10**.

(48) The container **10** may be made of a material such as glass, tritan, transparent plastic, etc. so that the state of the food therein can be checked during the operation of the blender **1**. In addition, the container **10** may include an outer container **11** defining an outer shape, and an inner container **12** defining an inner space in which food is accommodated.

(49) The inner container **10** and the outer container **11** may be coupled to each other to define the overall shape of the container **10**, and the container **10** may have a double-wall structure. In addition, the outer container **11** may be provided in a cylindrical shape having the same outer diameter at an upper end and a lower end thereof so that the outer appearance of the container **10** is seen to be neat. In addition, an outer diameter of the outer container **11** may be provided to be the same as an outer diameter of the container seating portion **301**, so that the body **30** and the container **10** have a sense of unity when the container **10** is mounted.

(50) In addition, a body accommodation portion **102** may be defined in the bottom surface of the outer container **11**. The body accommodation portion **102** defines a space that is recessed upward from the bottom surface of the outer container **11** and defines a space into which a second seating portion **325** to be described below is inserted. The body accommodation portion **102** and the second seating portion **325** may be coupled to each other so that the container **10** is maintained in a state of being mounted on the container seating portion **301**.

(51) A vent cutout portion may be provided at one side of a lower end of the outer container **11**. The air vent may provide a passage through which air is exhausted between the bottom surface of the container **10** and the top surface of the container seating portion **301** when the container **10** and the container seating portion **301** are coupled to or separated from each other. Thus, the container **10** may be easily mounted on and separated from the container seating portion **301**. The air vent may extend upward from the lower end of the outer container **11** and may communicate with an internal space of the body accommodation portion **102**.

(52) A container coupling portion **103** on which the blade module **14** is mounted may be provided at a center of the bottom surface of the outer container **11**. The container coupling portion **103** may be located at the inner surface of the outer container **11** and the inner center of the body accommodation portion **102**. The container coupling portion **103** may protrude downward in a rib shape that extends downward with the center of the bottom surface of the container **10** as a center. In addition, the container coupling portion **103** does not extend further downward than the lower end of the outer container **11**, and provides a space in which the blade module **14** is disposed in the center of the container **10**. In addition, the inside of the container coupling portion **103** may have a structure in which the container can mate with the inside of the container seating portion **301** when the container is seated on the container seating portion **301**.

(53) The inner container **12** may be spaced apart from the outer container **11** to define a space between the outer container **11** and the inner container **12**. The inner container **12** may have a diameter that gradually decreases downward. A lower portion of the inner container **12** may be inclined or rounded toward the blade module **14**, and may direct the food inside the container **10** toward the blade module **14**.

(54) An upper end of the inner container **12** may have an inclined surface **122** of which an inner diameter is narrowed downward. Therefore, in the process of inserting the lid **20** into the opened

top surface of the container **10**, the lid **20** may have a structure that seals while being gradually in close contact with the inner container **12**. The inclined surface of the upper end of the inner container **12** may be provided from the upper end of the container **10** to the upper end of the inner guide **121** and may be disposed along a circumference of the inner surface of the container **10**. In addition, the inner guide **121** may be disposed on the inner surface of the inner container **12**. The inner guide **121** may extend from the inclined surface **122** to the bottom surface of the inner container **12**.

(55) The lid **20** may include a lid upper portion **22** defining a top surface and a lid lower portion **23** coupled to the lid upper portion **22** to define a bottom surface of the lid **20**. The lid handle **21** may be inserted and mounted in an opened center of each of the lid upper portion **22** and the lid lower portion **23** and may be provided detachably. Thus, in a state in which the lid handle **21** is separated, food may be added or accessible to the inner space **101** of the container **10**.

(56) In addition, a lid gasket **24** that is in contact with the inner surface of the container **10** to seal the inside of the container **10** may be provided around the lid **20**. Thus, the lid **20** may be inserted through the opened top surface of the container **10**, and the lid gasket **24** may be in contact with the inclined surface **122** of the container while the lid **20** is mounted to maintain the sealing. In addition, the lid gasket **24** may be pressed and be in close contact with the inner surface of the container **10** to prevent the lid **20** from being unintentionally separated from the container **10**.

(57) A handle portion **221** may be further disposed on an outer end of the upper lid **22**. The handle portion **221** has a shape in which a portion of the upper lid **22** protrudes upward so that the user can hold the handle portion **221** by hand and may be spaced apart from the lower lid **23** to provide a space for a finger to be inserted. Thus, when the lid handle **21** is not used, or the lid handle **21** is separated, the user may easily separate the lid **20** by holding the handle portion **221**.

(58) The blade module **14** may be provided at the center of the bottom surface of the container **10**. The blade module **14** may be configured to crush the food accommodated in the inner space **101** of the container **10** and may include a plurality of blades **141**, a blade shaft **142**, and a shaft mounting member **143**.

(59) The plurality of blades **141** may extend in different directions. Here, the plurality of blades may be combined with each other, and also, the plurality of blades may be disposed radially with respect to the blade shaft **142** as an axis. The blades **141** may be disposed to be symmetrical about the blade shaft **142**, and extending directions, bent angles, and shapes of the plurality of blades **141** may be provided differently. That is, the blades **141** having various shapes may be combined and configured so as to be suitable for crushing and cutting various foods and making food into powder or liquid-like state.

(60) The blade shaft **142** may be mounted to pass through the shaft mounting member **143** and may be supported by a bearing **143a** constituting the shaft mounting member **143**. A plurality of the bearings **143a** may be disposed in the vertical direction and may support the blade shaft **142** to rotate stably. In addition, the shaft mounting member **143** may be firmly fixed through the bottom surface of the container **10**.

(61) A blade restriction member **142a** is coupled to an upper end of the blade shaft **142** to prevent separation of the blade **141** and to maintain the blade **141** in a state of being fixed to the blade shaft **142**.

(62) In addition, a blade-side connection portion **144** may be disposed at a lower end of the blade shaft **142**. The blade-side connection portion **144** may be exposed at the center of the bottom surface of the container **10** to protrude downward. Thus, when the container **10** is mounted on the container seating portion **301**, the blade-side connection portion **144** may be connected to a motor-side connection portion **54** to be described below so that the power of the motor assembly **50** is transmitted.

(63) The container coupling portion **103** may be defined on the bottom surface of the container **10**, and a mounting cover **15** may be provided inside the container coupling portion **103**. The mounting

cover **15** defines an accommodation space **151** in which the motor-side connection portion **54** may be accommodated when the container **10** is mounted on the container seating portion **301**.

(64) That is, the center of the mounting cover **15** may be opened to allow the shaft mounting member **143** to pass therethrough, and the blade-side connection portion **144** may be exposed through the center of the bottom surface of the mounting cover **15**. In addition, the central portion of the mounting cover **15** corresponding to the circumference of the blade-side connecting portion **144** is recessed so that the motor-side connecting portion **54** may be accommodated.

(65) Thus, in the process in which the container **10** is seated on the container seating portion **301**, the motor-side connection portion **54** and the blade-side connection portion **144** have a structure that can be naturally coupled to each other without interfering with each other.

(66) A mounting case **153** and an elastic member **152** may be further provided inside the container coupling portion **103**. The mounting case **153** is fixedly mounted inside the container coupling portion **103**, and is formed so that the ring-shaped elastic member **152** may be disposed inside the mounting case **153**. In addition, the elastic member **152** may be supported by the mounting cover **15**. Thus, the impact applied to the mounting cover **15** while the container is mounted on the container seating portion **301** may be buffered by the elastic member **152**.

(67) The container coupling portion **103** may be provided with a detection member **104**. The detection member **104** may be configured to transmit information on whether the container **10** is mounted and information on the container **10** to the detection device **39** of the body **30**.

(68) That is, when the container **10** is mounted on the container mounting portion **301**, a detection device **39** on the body **30** may detect the detection member **104** to detect the mounting of the container **10**, may also identify the type of the container **10**.

(69) In detail, a plurality of the detection members **104** may be disposed along the circumference of the container coupling portion **103**. The detection members **104** may be arranged at equal intervals, and the container **10** may be disposed to be positioned at a position facing the detection device **39** in a state in which the container **10** is mounted on the container seating portion **301**. For example, six detection members **104** may be provided, and may be positioned at positions separated by an angle of 60° with respect to the center of the container **10**.

(70) Thus, the detection device **39** may recognize the detection member **104** at any position regardless of the mounting direction of the container **10**. The arrangement of the detection device **39** and the relationship with the detection member **104** will be described in detail below.

(71) The detection member **104** may have various configurations recognizable by the detection device **39**. For example, the detection member **104** may be a magnet, and the detection device **39** may be a Hall sensor that detects a magnet. Thus, when the detection member **104** and the detection device **39** are disposed to face each other, the Hall sensor may detect the magnet to recognize the mounting of the container **10**.

(72) In addition, the detection member **104** may be provided inside the circumference of the container coupling portion **103** and may be disposed so as not to be exposed to the outside. In addition, on the premise that the magnetic force of the detection member **104** can be detected by the detection device **39**, the detection member **104** is provided inside the mounting cover **15** or inside the mounting case **153**.

(73) A coupling guide **103a** protruding outward may be formed on the outer surface of the container coupling portion **103**. The coupling guide **103a** may extend from the top to the bottom of the container coupling portion **103** and may protrude outward. A plurality of coupling guides **103a** may be disposed at regular intervals, and for example, three coupling guides **103a** may be disposed at intervals of 120° respectively. The container coupling portion **103** is formed to be inserted into the guide coupling groove **325c** to be described below when the container **10** is mounted on the container seating portion **301**. Thus, when the container **10** is seated on the container seating portion **301**, the container coupling portion **103** may be aligned while being inserted into the guide coupling groove **325c**. In addition, due to the arrangement of the container **10**, the detection

member **104** and the detection device **39** are positioned to face each other, so that the mounting of the container **10** may be detected.

(74) In addition, a plurality of the detection members **104** are provided, and the number of the detection members **104** may be different according to the type of the container **10**. In this case, a plurality of the detection devices **39** may also be provided to determine the type of the container **10** based on the number of the detection members **104** to be detected.

(75) For example, the container **10** may be a container **10** of the blender **1** for crushing general food. Therefore, when the detection device **39** detects the mounting of the container **10**, the detection device **39** may recognize the type of the container **10**, and may set a basic value to an operation suitable for the container **10**. In such a state, the blender **1** may be operated by the suitable operation of use.

(76) In addition, another container **10'** for accommodating and crushing food having a different purpose from that of the container **10** or for processing in the another container **10'** may be used in a state of being seated on the container seating portion **301**. For example, another container **10'** may be a rice polishing machine capable of peeling or shaving grains such as rice.

(77) Hereinafter, another container according to an embodiment of the present invention will be described in more detail with reference to the drawings.

(78) FIG. **8** is a perspective view of another container according to an embodiment of the present invention when viewed from below.

(79) As illustrated, the whole structure and shape of the other container **10'** according to the present embodiment may be configured to be the same as the above-described container **10**, and the same configuration will be described using the same reference numerals. In addition, the other container **10'** may be referred to as a container or second container for rice polishing, and the container may be referred to as a container for a blender or a first container.

(80) The other container **10'** has a slightly lower height than the container **10**, and the overall external shape may be the same. Particularly, the other container **10'** must be able to be seated on the container seating portion **301** of the blender **1**, and the shape of the bottom surface of the container **10'** is formed to correspond to the inner shape of the container seating portion **301**.

(81) A container coupling portion **103** may be formed on a bottom surface of the other container **10'**. The container coupling portion **103** inserted into the inside of the container seating portion **301** may be formed. In addition, a mounting cover **15** may be provided inside the container coupling portion **103**. The mounting cover **15** defines an accommodation space **151** in which the motor-side connection portion **54** may be accommodated when the container **10** is mounted on the container seating portion

(82) A blade-side connection portion **144** may be exposed to the center of the mounting cover **15**. In addition, the central portion of the mounting cover **15** corresponding to the circumference of the blade-side connecting portion **144** is recessed so that the motor-side connecting portion **54** may be accommodated.

(83) In addition, the coupling guide **103a** protruding outward may be formed around the container coupling portion **103**. When the other container **10'** is seated on the container seating portion **301**, the coupling guide **103a** is inserted into the guide coupling groove **325c**, and the other container **10'** is inserted into the container seating portion **301** and installed in an aligned state.

(84) The detection member **104** may be provided along the circumference of the container coupling portion **103**. The detection member **104** may be, for example, a magnet. A plurality of the detection members **104** may be arranged at regular intervals along the circumference of the container coupling portion **103**. For example, three detection members **104** may be provided, and may be disposed at intervals of 120° with respect to the center of the other container **10'**.

(85) Particularly, the number and positions of the detection members **104** are arranged differently from the detection members **104** of the container **10** described above. Thus, the detection device **39** may detect the detection member **104** to determine whether the other container **10'** is mounted, and

may also identify the other mounted container **10'**.

(86) Thus, when the user places the other container **10'** on the container seating portion, the controller of the blender **1** recognizes the other container **10'** and sets an operation suitable for the other container **10'** as a basic operation. In such a state, the user may manipulate the manipulation portions **40** and **310b** to perform an operation suitable for the other container **10'**.

(87) Of course, as with the other container **10'**, various containers that require the blade module **14** to be rotated may be used in addition to the rice polishing machine. Each of these containers may be provided with the detection member **104** at a different location to distinguish them by the detection device **39**.

(88) Hereinafter, the structure of the body **30** will be described in detail with reference to the drawings.

(89) FIG. **9** is a perspective view of a body that is one component of the blender. FIG. **10** is an exploded perspective view of the body when viewed from above. FIG. **11** is an exploded perspective view of the body when viewed from below. FIG. **12** is an exploded perspective view illustrating a coupling structure of components defining an outer appearance of the body. FIG. **13** is an exploded perspective view illustrating an arrangement relationship between an inner case, which is one component of the body, and PCB modules.

(90) As illustrated in the drawings, the body **30** may be formed in a rectangular parallelepiped box shape. In addition, a container seating portion **301** for mounting the container **10** may be formed to protrude on the top surface of the body **30**, and a knob **40** for manipulating the operation of the blender **1** may be disposed on the front surface of the body **30**.

(91) The inner and overall structure of the body **30** may be defined by the inner case **32**, and the outer case **31** may be mounted on the outside of the inner case **32** to define the outer appearance of the body **30**. The inner case **32** may be an injected plastic material that provides a structure in which the internal and external components of the body **30** are mounted. In addition, the outer case **31** may be made of a metal material such as stainless steel, and a plate-shaped material may be bent and bonded to provide a very clean and solid appearance.

(92) Each of the outer case **31** and the inner case **32** may have an open bottom surface, and the motor assembly **50** and the plurality of PCB modules **60** may be disposed inside the outer case **31** and the inner case **32**. In addition, the opened bottom surface of the inner case **32** may be shielded by the base plate **71**, and the bottom surface of the body **30** may be defined by the bottom cover **74**.

(93) Referring to the structure of the body **30** in more detail, the outer case **31** may include a rectangular top surface, and front and rear surfaces and left and right surfaces, which extend downward along a circumference of the top surface.

(94) A top surface opening **311** may be defined in a top surface of the outer case **31**. The top surface opening **311** may have a diameter equal to or slightly greater than an outer diameter of the container seating portion **301**. Thus, when the inner case **32** and the outer case **31** are coupled to each other, the upper portion of the inner case **32** defining the container seating portion **301** may pass through the top surface opening **311** and then be exposed to the outer case **31**.

(95) A first seating portion decor **314**, a second seating portion decor **316**, a lower decor **315**, and a connection decor **317** may be mounted on an upper portion of the inner case **32** protruding to the outside of the outer case **31**. An overall outer appearance of the container seating portion **301** may be defined by the first seating portion decor **314**, the second seating portion decor **316**, the lower decor **315**, and the connection decor **317**. The first seating portion decor **314** and the second seating portion decor **316** may be made of the same material as the outer case **31** or a material having the same texture as the outer case **31**.

(96) Each of the first seating portion decor **314** and the second seating portion decor **316** may be provided in a ring shape having a predetermined height. The first seating portion decor **314** may have a diameter greater than that of the second seating portion decor **316**, and the connection decor **317** may be provided in a ring shape that connects an upper end of the first seating portion decor

314 to the second seating portion decor **316**.

(97) In addition, the first seating portion decor **314**, the second seating portion decor **316**, and the connection decor **317** may be mounted on outer surfaces of a first seating portion **324** and a second seating portion **325**, which are disposed on the inner case **32**, and a top surface of the first seating portion **324**, respectively.

(98) A lower decor mounting portion **323** may be disposed on the top surface of the inner case **32** that is in contact with a lower end of the first seating portion **324**. The lower decor mounting portion **323** may be disposed along a circumference of the first seating portion **324** so that the lower decor **315** is mounted thereon.

(99) The lower decor **315** may be made of a plastic or rubber material and may be provided in a ring shape. In addition, when the first seating portion decor **314** is mounted, a space between the first seating portion decor **314** and the outer case **31** may be filled so that a gap is not visible. That is, the gap between a lower end of the second seating portion decor **316** made of a metal material and a circumference of the top surface opening **311** may be sealed to define a portion of the outer appearance.

(100) The second seating portion **325** may be disposed on a top surface of the first seating portion **324**. The second seating portion **325** may have an outer diameter less than that of the first seating portion **324**. In addition, a connection decor mounting portion may be disposed on the top surface of the first seating portion **324**. The connection decor mounting portion **324a** may be disposed along a circumference of a lower end of the second seating portion **325** and may be disposed on the top surface of the first seating portion **324**.

(101) The connection decor **317** may be mounted on the connection decor mounting portion **324a**. The connection decor **317** may connect an upper end of the first seating portion decor **314** to a lower end of the second seating portion decor **316** and may be provided in a ring shape having a predetermined width. That is, the connection decor **317** may define the top surface of the first seating portion **324** and also define an outer appearance between the first seating portion decor **314** and the second seating portion decor **316**.

(102) The connection decor **317** may be constituted by a horizontal portion **317a** and a vertical portion **317b**. The horizontal portion **317a** may have a width corresponding to that of the connection decor mounting portion **324a**. Also, a lower end of the horizontal portion **317a** may protrude downward to be inserted into a groove of the connection decor mounting portion **324a**. In addition, a top surface of the horizontal portion **317a** may define an outer appearance of the top surface of the first seating portion **324**.

(103) The vertical portion **317b** may extend vertically upward along an inner end of the horizontal portion **317a**. In addition, the vertical portion **317b** may cover the lower end of the second seating portion decor **316**. Thus, the first seating portion decor **314** and the second seating portion decor **316** may be connected to each other by the connection decor **317**.

(104) The second seating portion **325** may extend upward from the top surface of the first seating portion **324**, and an insertion space **325a** into which the container coupling portion **103** is accommodated may be defined in the second seating portion **325**. A coupling support portion **325b** and a container coupling groove **325c** may be formed on an inner surface of the insertion space **325a**.

(105) The coupling support portion **325b** may form at least a portion of an inner circumferential surface of the second seating portion **325**. In addition, when the container **10** is mounted, the coupling support portion **325b** is protruded to support the outer surface of the container coupling portion **103**. A plurality of the coupling support portions **325b** may be spaced apart from each other, and the guide coupling groove **325c** may be formed between the adjacent coupling support portions **325b**.

(106) In addition, the top surface of the coupling support portion **325b** may be formed to protrude from the center and be inclined or rounded in both directions from the protruding center. Therefore,

when the container **10** is mounted, the coupling guide **103a** is in contact with the top surface of the coupling support portion **325b** and the coupling guide **103a** may be guided toward the guide coupling groove **325c**.

(107) The guide coupling groove **325c** is recessed to the outside so that the coupling guide **103a** may be inserted, and may be formed by the coupling support portions **325b** disposed on both sides. The container coupling portion **103** may be formed to extend upward from the bottom surface of the insertion space **325a**.

(108) Thus, when the container **10** is mounted on the container mounting portion **301**, the container coupling portion **103** may be mounted in an aligned state by the guide coupling groove **325c**, and the detection member **104** and the detection device **39** may be guided to face each other. In this case, due to the arrangement of the coupling guide **103a** and the guide coupling groove **325c**, the position of the container **10** is aligned so that the detection device **39** may recognize the detection member **104**, no matter what direction the container is mounted.

(109) In addition, the coupling support portion **325b** may support the outer surface of the container coupling portion **103** so that the container **10** may maintain a tight mounting state in a state of being mounted on the container seating portion **301**. Thus, the container **10** does not fall in the mounted state and stable operation may be ensured.

(110) A knob hole **312** in which the knob **40** is disposed may be defined in the front surface of the outer case **31**. The knob **40** may protrude forward from the body **30** through the knob hole **312**.

(111) In addition, a plate groove **313** recessed to accommodate the rear plate **34** may be defined in the rear surface of the outer case **31**. In addition, a rear opening **313b** for more effective transmission of a communication signal of the communication module **36** may be defined in the plate groove **313**. In addition, a plate mounting hole **313c** in which the rear plate **34** is mounted may be further defined in the plate groove **313**. The communication module **36** may be mounted inside the inner case **32** corresponding to the rear opening **313b**. In addition, a connector hole **313a** in which the power connector **35** for supplying power to the body **30** is mounted may be defined in the plate groove **313**.

(112) In addition, a plate opening **341** may be defined in a position of the rear plate **34**, which corresponds to the connector hole **313a**, and the power connector **35** may be mounted in the plate opening **341**.

(113) The inner case **32** may be provided in a box shape with an opened bottom surface, and the seating portion **301** may be disposed on the top surface of the inner case **32**. The inner case **32** may be constituted by a top surface having a planar shape as a whole, front and rear surfaces, and left and right surfaces vertically extending downward along a circumference of the top surface. The inner case **32** may be made of a plastic material to be molded to a relatively complex shape and may provide a structure for mounting the motor assembly **50** and the PCB module **60** therein.

(114) A top surface mounting portion **322** may be disposed on the top surface of the inner case **32**. The top surface mounting portion **322** may be recessed so that the display module **66** and the touch module **65** are mounted. The top surface mounting portion **322** may be provided to be stepped and be shielded by the outer case **31** in a state in which the display module **66** and the touch module **65** are mounted.

(115) In addition, a display portion **310a** provided in a 7-segment shape by a plurality of fine holes may be disposed in the outer case **31** corresponding to the display module **66**, and light irradiated from the display module **66** may be transmitted to display operation information of the blender **1** in figures or letters.

(116) In addition, a touch manipulation portion **310b** may be disposed on the top surface of the outer case **31** corresponding to the touch module **65** through printing or surface processing. Thus, the user may touch the touch manipulation portions **40** and **310b** to input manipulation for the operation of the blender **1**.

(117) The motor assembly **50** may be provided in the inner space of the inner case **32**. The motor

assembly **50** may be configured for the rotation of the blade module **14** and may be disposed below a central portion of the container seating portion **301**.

(118) The motor assembly **50** may include a motor **51** including a motor shaft **53** extending in a vertical direction, a motor housing **52** in which the motor **51** is accommodated, a motor-side connection portion **54** provided on an upper end of the motor shaft **53**, and a cooling fan **55** provided on a lower end of the motor shaft **53**.

(119) A housing mounting portion **521** for fixing and mounting the motor assembly **50** in the inner case **32** may be disposed on the top surface of the motor housing **52**. In addition, a motor-side connection portion **54** may be provided at the upper end of the motor shaft **53** to couple to a blade-side connection portion **144** when the container **10** is mounted. The motor-side connection portion **54** may be coupled to the blade-side connection portion **144** to transmit the rotational force of the motor **51**. The motor-side connection portion **54** may be exposed through the top surface of the inner case **32** and may be disposed in a center of the insertion space **325a** inside the container seating portion **301**. Also, the motor-side connection portion **54** is provided in a shape corresponding to the blade-side connection portion **144** so as to be coupled to each other. Thus, the power of the motor **51** may be effectively transmitted to the blade module **14**.

(120) A cooling fan **55** for forcing a flow of the cooling air inside the body **30** may be provided on a lower end of the motor shaft **53**. Thus, when the motor **51** rotates, the cooling fan **55** may also rotate at the same time as the blade **141** rotates.

(121) The cooling fan **55** may be exposed to the outside of the motor housing **52** and be accommodated inside an air guide **72** to be described below. Thus, when the cooling fan **55** operates, the air passing through the motor housing **52** may be guided to the inside of the air guide **72**.

(122) The plurality of PCB modules **60** for the operation of the blender **1** may be provided inside the inner case **32**. The PCB modules **60** may be disposed on the inner surfaces of the inner case **32**, respectively. The PCB module **60** may be provided in plurality, which are separated from each other according to their functions, and may be arranged in parallel with a wall surface of the inner case **32** at a position adjacent to the inner surface of the inner case **32**.

(123) In detail, the PCB module **60** may include a main PCB module **64** on which the knob **40** is mounted to control the overall operation of the blender **1**, an inverter PCB module **61** controlling the motor **51**, a power PCB module **62** controlling input power, and a filtering PCB module **63** removing noise. Of course, the PCB module **60** may further include an additional PCB module **60**, or some PCB modules **60** may be omitted according to functions of the blender **1**.

(124) A base plate **71** may be provided on a lower end of the inner case **32**. The base plate **71** may shield the opened bottom surface of the inner case **32** and may support some of the inner components of the inner case **32**.

(125) In addition, a plate suction hole **719a** and a plate discharge hole **719b** may be defined in both left and right sides of the base plate **71**, respectively. The plate suction hole **719a** is defined along one end of the base plate **71** and may provide a passage through which air for cooling is introduced into the inner case **32** when the motor assembly **50** is driven. The plate discharge hole **719b** may be defined along the other end of the base plate **71** and provide a passage through which the cooling air inside the inner case **32** is discharged to the outside of the inner case **32**.

(126) An air guide **72** may be disposed on the top surface of the base plate **71**. The air guide **72** supports the open lower end of the motor assembly **50** and is connected to the plate outlet **719b** to guide the discharge of the air cooled by the motor while passing through the motor assembly **50**.

(127) The wireless power module **73** may be provided on a bottom surface of the base plate **71**. The wireless power module **73** may be configured to supply wireless power to the blender **1** and may receive power using an induced electromotive force method.

(128) A bottom cover **74** may be provided below the base plate **71**. The bottom cover **74** may define the bottom surface of the body **30** and may shield the opened bottom surface of the outer

case **31**. In addition, when the wireless power module **73** is mounted on the base plate **71**, the wireless power module **73** may be shielded by the bottom cover **74**.

(129) The bottom cover **74** may be provided in a plate shape having a size corresponding to that of the opened bottom surface of the outer case **31**, and a circumference of the bottom cover **74** may extend upward to the outer case **31** and then be coupled to the lower end of the outer case **31**. In addition, a cover suction hole **744** and a cover discharge hole **746** may be defined in the bottom cover **74**, and an inflow of external air and discharge of air radiated from the inside of the body **30** may be performed through the cover suction hole **744** and the cover discharge hole **746**.

(130) Hereinafter, the inner case structure and the mounting structure of the detection device will be described in more detail with reference to the drawings.

(131) FIG. **14** is a perspective view illustrating the inside of the inner case when viewed in one direction. FIG. **15** is a bottom view illustrating a state in which a detection device is mounted inside the inner case. FIG. **16** is an exploded perspective view illustrating a coupling relationship of the detection device. FIG. **17** is a cross-sectional view taken along line **17-17'** of FIG. **9**.

(132) Referring to FIGS. **14** to **17**, looking inside the inner case **32**, a bottom surface of the inner case **32** may be opened in a rectangular shape.

(133) A plurality of bosses **371**, **375**, and **376** may be disposed inside the inner case **32** so as to be coupled to the base plate **71**. The plurality of bosses **371**, **375**, and **376** may extend from the top surface of the inside of the inner case **32** toward the opened bottom surface of the inner case **32**. In addition, a screw hole through which a screw passing through the base plate **71** is coupled may be defined in each of the bosses **371**, **375**, and **376**. Also, a PCB mounting portion may be disposed on some of the bosses **371**, **375**, and **376** so that a portion of the PCB module **60** is fixed and mounted.

(134) The base plate **71** may be fixed and coupled to the inner case **32** by the first coupling boss **375**, the second coupling boss **376**, the third coupling boss **371**, and the PCB fixing protrusion **381**, and the components inside the body **30** may be maintained in the mounted state.

(135) In addition, an inner top surface of the inner case **32** may be recessed in a shape corresponding to the container seating portion **301**. In addition, a seating portion hole **325d** passing through the inner case **32** may be defined at a center of the insertion space **325a** inside the container seating portion **301**. The motor-side connection portion **54** may be mounted in the container seating portion hole **325d**. In addition, a drain hole **325h** may be defined in a bottom surface of the insertion space **325a**. A drain pipe may be connected to the drain hole **325h**. Drain pipe guides in which the drain pipe **33** are accommodated may be further provided inside the inner case **32**, and thus, the drain pipe may be maintained at an exact mounting position by the drain pipe guides.

(136) A plurality of reinforcing ribs **327** extending radially with respect to the container seating portion hole **325d** may be disposed on the inner surface of the inner case **32** corresponding to the container seating portion **301**. The reinforcing ribs **327** may provide structural strength to the container seating portion **301**. Each of the reinforcing ribs **327** may have a length extending from the container seating portion hole to the first seating portion **324**. In addition, each of some of the reinforcing ribs **327** may have a length extending from the container seating portion hole **325d** to the second seating portion **325**.

(137) A motor mounting portion **326** may be disposed at a position corresponding to the first seating portion **324** inside the inner case **32**. The motor mounting portion **326** may be provided in plurality at positions that are symmetrical with respect to the container seating portion hole **325d**. The motor mounting portion **326** may be disposed on the reinforcing rib **327** or at an end of the reinforcing rib **327**.

(138) In addition, the motor mounting portion **326** may protrude downward from a position corresponding to a top surface of the first seating portion **324** and then be coupled to a housing mounting portion. The motor mounting portion **326** may be disposed at a position corresponding to the housing mounting portion and may include a motor mounting boss **326a** that further protrudes

downward. The motor mounting boss **326a** may pass through the housing mounting portion. In addition, a vibration-proof member made of rubber or silicon material to damp vibration may be further provided around the mounting boss **326a**. In addition, an upper end of the motor assembly **50** may be fixed to a bottom surface of the first seating portion **324** by a screw that passes through the housing mounting portion and is coupled to the motor mounting portion **326**.

(139) A detection device **39** for detecting the mounting of the container **10** may be provided inside the container seating portion **301**. The detection device **39** is provided inside the second seating portion **325**. When the container **10** is mounted on the container mounting portion **301**, the detection device **39** may detect whether the container **10** is mounted and the type of the container **10** through the detection of the detection member **104** provided in the container **10**.

(140) A detection device accommodation portion **329** may be disposed inside the second seating portion **325** for mounting the detection device **39**. The detection device accommodation portion **329** connects the outer surface of the second seating portion **325** to the inner surface of the insertion space **325a** to define an accommodating space **329a** in which the detection device **39** is accommodated.

(141) When the second seating portion **325** is molded, a space may be defined between the outer surface of the second seating portion **325** and the inner surface of the insertion space **325a**. In addition, the detection device accommodation part **329** may partition the inside of the space to provide a space in which the detection device **39** may be inserted and accommodated.

(142) For example, the detection device accommodation portion **329** may be defined at a position corresponding to the coupling support portion **325b**. The coupling support portion **325b** has a structure protruding to the inside of the insertion space **325a**, the outer surface of the coupling support portion **325b** is in contact with the container coupling portion **103**, and the inner surface of the coupling support portion **325b** may be spaced apart from the outer surface of the second seating portion **325**. Thus, a space in which the detection device accommodation portion **329** may be defined may be provided between the inner surface of the coupling support portion **325b** and the second seating portion **325**.

(143) The detection device accommodation portion **329** may be defined at each of the plurality of coupling support portions **325b**. As an example, the detection device accommodation portion **329** may be defined at four positions among the six coupling support portions **325b**, and two detection device accommodation portions **329** may be formed at positions facing each other and may be continuously arranged with each other. The detection device accommodation portion **329** is arranged to be symmetrical with respect to the center of the container seating portion **301** to ensure constant detection of the detection member **104** regardless of the mounting direction of the container **10**. Of course, if the detection device accommodation portion **329** may distinguish various containers by detecting the detection members **104** arranged in various shapes, the arrangement number and arrangement thereof may be variously changed.

(144) The detection device accommodation portion **329** may be formed in the shape of a pair of plates defining a space between the outer surface of the recessed second seating portion **325** and the inner surface of the insertion space **325a**. The detection device accommodation portion **329** may be opened downward, and the detection device **39** may be inserted from the bottom to the top so as to be positioned between the detection device accommodation portions **329**. In this case, the detection device guide **329b** supporting both sides of the detection device **39** may be provided on the inner surface of the detection device accommodation portion **329**. The detection device guide **329b** may be formed to extend upward from both lower ends of the detection device accommodation portion **329**. Thus, when the detection device **39** is inserted and mounted in the detection device accommodation portion **329**, the detection device **39** may be guided to the accurate position and the detection device **39** may not be moved and may be maintained in a fixedly mounted state.

(145) A detection device fixing portion **328** may be disposed outside the detection device accommodation portion **329**. The detection device fixing portion **328** may be configured to fix and

mount one side of the detection device **39** and may be disposed at a position corresponding to the top surface of the first seating portion **324**. The detection device fixing portion **328** may be coupled by a screw at one side and extending outward from the detection device accommodation portion **329** in the state in which the detection device **39** is inserted into the detection device accommodation portion **329** so that the detection device **39** is fixed. Thus, the detection device **39** may be maintained in the fixed state inside the detection device accommodation portion **329**.

(146) In addition, fixing protrusions **328a** may be provided on both sides of the detection device fixing portion **328**. The fixing protrusion **328a** may pass through both sides of the detection device **39** to prevent the detection device **39** from falling. Thus, the detection device **39** may maintain a state in close contact with the inner surface of the coupling support portion **325b** in a state of being mounted on the detection device accommodation portion **329**. Thus, the container **10** may be easily detected by the detection member **104** by maintaining a state close to the detection member **104** when the container **10** is mounted on the container seating portion **301**. In addition, the detection device **39** is fixed by the fixing protrusion **328a** so that the detection device **39** may be temporarily fixed before the screw is coupled to the detection device fixing portion **328**.

(147) The detection device **39** may include a bracket portion **391** and a detection portion **392**. The bracket portion **391** and the detection portion **392** may be coupled to each other in a separately molded state. The detection portion **392** may be mounted on the bent bracket portion **391**.

(148) The bracket portion **391** is formed so that the detection device **39** may be fixed and mounted to the inner case **32**. The bracket portion **391** may be formed in a plate shape parallel to the top surface of the first seating portion **324**. In addition, a bracket hole **391a** into which the detection device fixing portion **328** is inserted may be defined in the center of the bracket portion **391**. The bracket hole **391a** may be formed to pass through the center of the bracket portion **391**. The detection device fixing portion **328** may have an end exposed through the bracket hole **391a**, and the screw may be coupled to constrain the bracket portion **391**.

(149) In addition, fixing grooves **391b** into which the fixing protrusions **328a** are inserted may be defined on both sides of the bracket hole **391a**. The fixing protrusion **328a** may be inserted into the fixing groove **391b** when the detection device fixing portion **328** is inserted into the bracket hole **391a**. The fixing groove **391b** may be formed in a shape corresponding to the fixing protrusion **328a**. In addition, the fixing groove **391b** may be formed to be recessed from both ends of the bracket portion **391**. And, although not shown, a wire supplying power and transmitting a signal to the detection device **39** may be connected to the bracket portion **391**.

(150) The detection portion **392** may extend vertically from the bracket portion **391**. The detection portion **392** may be formed to be inserted into the accommodation space **329a**, and both sides thereof may be supported by the detection device guide **329b**. At least a portion of the detection portion **392** may extend along the inner side of the accommodation space **329a** and may extend to at least a position facing the detection member **104**.

(151) The detection portion **392** may be disposed to be in contact with the circumferential surface of the accommodation space **329a**, and may be located inside the coupling support portion **325b**. In addition, at least a portion of the detection portion **392** is disposed at a position facing the detection member **104** so as to be positioned adjacent to each other when the container **10** is mounted on the container seating portion **301**. For example, the detection member **104** may be a magnet, and the detection portion **392** may be a Hall sensor. In this case, the detection portion **392** may be located in a distance that the magnetic force of the detection member **104** may extend.

(152) The detection member **104** and the detection device **39** may be configured in various ways so as to detect proximity to each other. For example, the detection member **104** may be composed of a radio frequency identification (RFID) tag in addition to a magnet, and the detection portion may be configured with an RFID reader.

(153) Hereinafter, the recognition operation of the container **10** of the blender **1** having the above-described structure will be described in more detail with reference to the drawings.

(154) FIG. 18 is a view illustrating a state in which different types of containers are selectively mounted on the body. FIG. 19 is a partial cross-sectional view illustrating a state when the detection device detects a detection member. FIG. 20 is a view schematically illustrating a recognized state of the container.

(155) As shown in the drawings, the container 10 is mounted on the body 30 for use of the blender 1. In addition, when the container 10 is mounted, the body 30 may recognize the mounting of the container 10, and may recognize the type of the container 10 as necessary.

(156) For example, the container 10 includes a first container 10 used in the blender 1 for crushing processing of general food, and a second container 10' used for a specific purpose, such as a rice polishing machine for separating the husks of grains such as rice. Of course, the container 10 may further include other containers having a configuration suitable for other purposes.

(157) All of these containers 10 and 10' may have different internal structures, but the mounting structure with the body 30 may be the same. Thus, the user may use the container suitable for a necessary use by mounting the container on the body 30.

(158) A container coupling portion 103 may be formed in the lower portion of the container 10, and the container coupling portion 103 may be inserted into the insertion space 325a inside the container seating portion 301. In this case, the coupling guide 103a may be inserted into the guide coupling groove 325c so that the container 10 may be aligned and mounted in an accurate position.

(159) In a state in which the container coupling portion 103 is completely inserted into the insertion space 325a, the coupling support portion 325b may be disposed in contact with the outer surface of the container coupling portion 103. In addition, in such a state, the detection member 104 inside the container coupling portion 103 may be recognized by the detection device 39.

(160) That is, when the container 10 is aligned by the coupling of the coupling guide 103a and the container coupling portion 103, the container 10 may always be disposed such that the detection member 104 and the detection device 39 face each other.

(161) As illustrated in FIG. 20, in the case of the first container 10, all six detection members 104 may be provided at equal intervals. That is, the detection members 104 may be spaced apart from each other in a state of being separated at intervals of 60° with respect to the center of the first container 10.

(162) In addition, when the detection device 39 is disposed inside the container seating portion 301 corresponding to the detection member 104, the detection device 39 detects the mounting of the first container 10 by recognizing the detection member 104 when the first container 10 is mounted.

(163) Particularly, a plurality of the detection devices 39 may be provided, and a pair may be disposed to be symmetrical on the left and right sides. In this case, the arrangement position of the detection device 39 may correspond to at least a portion of the arrangement position of the detection member 104.

(164) For example, the detection device 39 may be provided in two on the left and right sides except for the upper end and the lower end of the central axis among the positions separated at intervals of 60° with respect to the center of the container seating portion 301 corresponding to the center of the first container 10,

(165) Therefore, no matter what direction the first container 10 is inserted, when the first container 10 is inserted into and seated in the container seating portion 301, four detection members 104 among the six detection members 104 may be recognized by the four detection devices 39, respectively.

(166) That is, when the detection member 104 is recognized by each of the four detection devices 39, the controller may recognize that the first container 10 is mounted. In addition, the controller may automatically set a preset operation mode suitable for the first container 10 as a basic operation mode, and may enable operation in a preset operation mode when the user manipulates. Thus, it is possible to perform an operation suitable for the first container 10 without a separate setting operation.

(167) The second container **10'** may be mounted on the body according to the user's selection.

(168) Hereinafter, a state in which the second container **10'** is mounted will be described with reference to the drawings.

(169) FIG. **21** is a view schematically illustrating a recognized state of the other container.

(170) As illustrated, when the user wants to use the second container **10'**, the second container **10'** is mounted on the container seating portion **301**. In this case, the mounting method of the second container **10'** may be the same as the above-described mounting method of the first container **10**.

(171) Thus, the second container **10'** may be mounted on the container seating portion **301** in a state of being aligned by the coupling guide **103a** and the guide coupling groove **325c**.

(172) In the case of the second container **10'**, all three detection members **104** may be provided at equal intervals. That is, the detection members **104** may be spaced apart from each other in a state of being separated at intervals of 120° with respect to the center of the second container **10'**.

(173) In addition, when the detection devices **39** are disposed inside the container seating portion **301** corresponding to the detection member **104**, the detection devices **39** detect the mounting of the second container **10'** by recognizing the detection members **104** when the second container **10'** is mounted.

(174) Particularly, a plurality of the detection devices **39** may be provided, and a pair may be disposed at symmetrical positions on the left and right sides, respectively. For example, the detection device **39** may be provided in two, a total of four, on the left and right sides except for the upper end and the lower end of the central axis among the six positions separated at intervals of 60° with respect to the center of the container seating portion **301** corresponding to the center of the first container **10**,

(175) Therefore, no matter what direction the second container **10'** is inserted, when the container coupling portion **103** is inserted and seated in the container seating portion **301**, two detection members **104** among the three detection members **104** may be recognized by the detection device **39**, respectively.

(176) That is, when the detection member **104** is recognized only by two detection devices **39** among the four detection devices **39**, a controller (e.g., microprocessor) may recognize that the second container **10'** is mounted. In addition, the controller may automatically set the operation mode set to be suitable for the second container **10'** as a basic operation mode, and may enable operation in a preset operation mode when the user manipulates. Thus, it is possible to perform an operation suitable for the second container **10'** without a separate setting operation.

(177) The blender according to the embodiment of the present invention may include a body provided with a motor assembly, a container which is detachably mounted to the body and in which the food container is accommodated, a blade module provided inside the container and connected to the motor assembly to rotate when the container is mounted, a detection member provided in the container, and a detection device provided at a position corresponding to the detection member to detect the detection member when the container is mounted.

(178) A container coupling portion protruding downward and provided with the detection member is defined on the bottom surface of the container, the container coupling portion is inserted into the top surface of the body when the container is mounted, and a container seating portion to which the detection device is mounted may be formed.

(179) The lower end of the blade module is exposed at the center of the container coupling portion, and the upper end of the motor assembly coupled to the lower end of the blade module may be exposed at the center of the container seating portion.

(180) The detection member may be provided on the circumference of the container coupling portion, and the detection device may be provided on the inner surface of the container seating portion corresponding to the detection member.

(181) The container coupling portion protrudes in a circular shape to come into contact with the inner surface of the insertion space, and the detection members may be disposed at regular intervals

along the circumference of the container coupling portion.

(182) The detection member and the detection device may be disposed at positions facing each other, and at least a portion of the detection member and the detection device may be disposed at positions overlapping each other.

(183) The container coupling portion may protrude from the center of the container with a set radius, and the container seating portion may be recessed to support the outer surface of the container coupling portion.

(184) A plurality of coupling guides protruding outward at equal intervals are formed around the container coupling portion. In the container mounting portion, a plurality of coupling support portions spaced apart from each other at equal intervals to support the outer surface of the container coupling portion, and a guide coupling groove into which the coupling guide is inserted between the coupling support portions spaced apart from each other may be formed.

(185) At least one detection member may be disposed between the adjacent coupling guides.

(186) The detection device may be provided in the coupling support portion.

(187) The detection device may be disposed so as to be symmetrical at positions facing each other among a plurality of the coupling support portions.

(188) The container seating portion may protrude upward, and a detection device accommodation portion in which the detection device is inserted and mounted may be formed by opening downward between the inner and outer surfaces of the container seating portion spaced apart from each other.

(189) The detection device may include a detection portion which is inserted inside the detection device accommodation portion and at least a portion of which is located at a position facing the detection member to detect the detection member, and a bracket portion on which the detection portion is mounted and which is coupled to the inner surface of the body from the outside of the detection device accommodation portion.

(190) The detection device accommodation portion may be provided with detection device guides supporting the detection portion from both sides.

(191) A plurality of the detection members may be disposed radially with respect to the center of the container, and the detection device may be formed at a position corresponding to a portion of the detection member and disposed radially with respect to the center of the body.

(192) One of the plurality of containers may be selectively mounted on the container seating portion, and the plurality of containers may be configured to have a different arrangement position of the detection member.

(193) One of the plurality of containers may be selectively mounted on the container seating portion, and the plurality of containers may be configured so that the arrangement number of the detection members are different.

(194) The detection member may be a magnet, and the detection device may be a Hall sensor sensing a magnet.

(195) The detection member may be an RFID tag, and the detection device may be an RFID reader recognizing the RFID tag.

(196) The motor assembly may be configured to operate only when the detection member is recognized by the detection device.

INDUSTRIAL APPLICABILITY

(197) Since the blender according to the embodiment of the present invention can guarantee operation reliability and improve ease of use, industrial applicability is high.

Claims

1. A blender comprising: a body including a motor assembly; a container detachably seatable to the body and to accommodate food; a blade module provided inside the container and connected to the

motor assembly to rotate when the container is mounted; a detection member disposed in the container; and a detection device disposed on one side of the body corresponding to the detection member to detect the detection member when the container is mounted, and wherein the container includes a container coupling portion protruding downward and the detection member is disposed at a bottom surface of the container, and the container coupling portion includes a plurality of coupling guides protruding outward at equal intervals from the outer surface of the container coupling portion, and the body includes a container seating portion disposed at a top surface of the body, the container seating portion including the detection device and being recessed to receive the container coupling portion when the container is seated at the body, and the container seating portion includes a plurality of coupling support portions to support the outer surface of the container coupling portion and are spaced apart from each other at equal intervals at the inner surface of the container seating portion, and a guide coupling groove disposed between two coupling support portions among the plurality of coupling support portions into which a coupling guide among the plurality of coupling guides is received.

2. The blender of claim 1, wherein the container coupling portion extends downward from a position away from a center of the container by a set radius, and the detection member is disposed along a circumference of the container coupling portion, and an inner surface of the container seating portion is in contact with an outer surface of the container coupling portion when the container is seated at the body, and the detection device is disposed at the container seating portion to face the detection member.

3. The blender of claim 1, wherein the detection member is disposed between two coupling guides among the plurality of coupling guides.

4. The blender of claim 1, wherein the detection device is provided in a coupling support portion among the plurality of coupling support portion.

5. The blender of claim 1, comprising a plurality of detection devices disposed symmetrically among the plurality of coupling support portions.

6. The blender of claim 1, wherein a detection device accommodation portion is formed inside a coupling support portion among the plurality of coupling support portions into which the detection device is accommodated.

7. The blender of claim 6, wherein the detection device comprises: a detection portion which is accommodated in the detection device accommodation portion and at least a portion of which is located at a position to face the detection member to detect the detection member when the container is seated at the body; and a bracket portion on which the detection portion is mounted and fixes the detection portion to the detection device accommodation portion.

8. The blender of claim 1, wherein a plurality of detection members are arranged radially with respect to a center of the container, and the detection device is disposed radially with respect to the center of the body, and is disposed at a position at the container seating portion such that when the container is seated at the body, the detection device faces a detection member of the plurality of detection members.

9. The blender of claim 1, wherein the detection member is a magnet, and the detection device is a Hall sensor that detects the magnet.

10. The blender of claim 1, wherein the detection member is an RFID tag, and the detection device is an RFID reader recognizing the RFID tag.

11. A blender comprising: a body including a motor assembly; a container detachably seatable to the body and to accommodate food; a container coupling portion protruding downward and the detection member is disposed at a bottom surface of the container; a blade module provided inside the container and connected to the motor assembly to rotate when the container is mounted; a detection member disposed in the container; a container seating portion disposed at a top surface of the body, the container seating portion including the detection device and being recessed to receive the container coupling portion when the container is seated at the body; and a detection device

disposed on one side of the body corresponding to the detection member to detect the detection member when the container is mounted, and, wherein a plurality of containers have a different arrangement position based on a plurality of the detection members, and when one of a plurality of containers is seated at the container seating portion, the blender includes a controller; the container seating portion including a plurality of detection devices, wherein the controller is configured to determine a type of the seated container according to the arrangement of the plurality of detection members detected by the plurality of detection devices.

12. The blender of claim 11 wherein the controller is configured to set to an operation mode for the container based on the type of the seated container.

13. A blender comprising: a body including a motor assembly; a container detachably seatable to the body and to accommodate food; a container coupling portion protruding downward and the detection member is disposed at a bottom surface of the container a blade module provided inside the container and connected to the motor assembly to rotate when the container is mounted; a detection member disposed in the container; a container seating portion disposed at a top surface of the body, the container seating portion including the detection device and being recessed to receive the container coupling portion when the container is seated at the body; and a detection device disposed on one side of the body corresponding to the detection member to detect the detection member when the container is mounted, and wherein a plurality of containers have a different arrangement based on a number of detection members, and when one of a plurality of the containers is seated at the container seating portion, the blender includes a controller; the container seating portion including a plurality of detection devices, wherein the controller is configured to determine a type of the seated container according to the arrangement based on the number of the detection members detected by the plurality of detection devices.

14. The blender of claim 13 wherein the controller is configured to set to an operation mode for the container based on the type of the seated container.
