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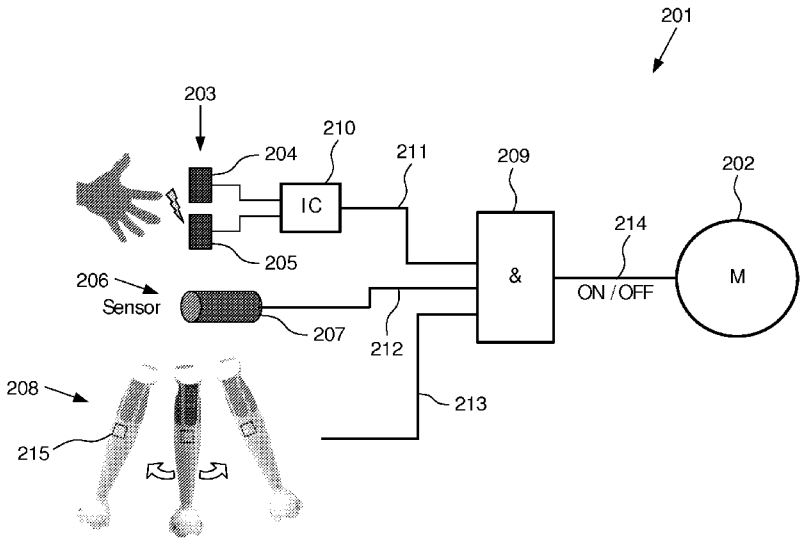

FIG. 6

(57) Abstract: A kitchen device which is user friendly to operate has a casing comprising a driving unit (202) and an electric control unit (209) for controlling the driving unit (202). The device further comprises a utensil being drivable by the driving unit (202). A detector arrangement having at least two different detectors (203, 206 and 208) is provided with the kitchen device. The detector arrangement detects least one position-related parameter and transmits a detection signal (211, 212, 213) based on this at least one parameter to the electronic control unit (209).

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Kitchen device and blending device

FIELD OF THE INVENTION

The invention relates to a kitchen device having a casing comprising a driving unit suitable for driving a utensil, and an electric control unit for controlling the driving unit. The invention further relates to a blending device having a casing comprising a driving unit suitable for driving a utensil, and an electric control unit for controlling the driving unit. The invention further relates to a utensil for usage with such devices.

BACKGROUND OF THE INVENTION

Kitchen devices are known from the art. AU 20081000519 A4 describes a switching arrangement having an activation switch and an operating switch for a hand blender. This switching arrangement is intended to prevent undesired operation of a hand blending device by requiring the user to operate the activation switch prior to activate the operating switch. After operation of the activation switch the blender can be started by depressing the operating switch. The activation switch and the operating switch are located apart to require two actions by the user before the blender can be started. AU 20081000519 A4 discloses manually operated switches in a switching arrangement.

SUMMARY OF THE INVENTION

It is an object of the invention to provide a kitchen device of the kind defined in the introductory paragraph, which is more user friendly to operate.

The object of the invention is realized by the kitchen device having a casing comprising a driving unit arranged to drive a utensil, and an electric control unit for controlling the driving unit, wherein a detector arrangement is provided having at least two different detectors for detecting position-related parameters and transmitting detection signals based on these parameters to the electronic control unit.

Preferably, the kitchen device only operates when it is in such a condition that it cannot harm the user, damage goods or otherwise cause mischief. Usually, these required operating conditions are well defined. Required operating conditions include both conditions internal and external to the kitchen device. Internal kitchen device conditions relate for

example to the temperature of stationary or moving parts, the mains voltage level, or the battery condition. External kitchen device conditions relate to the way the user operates the kitchen device, e.g. whether the kitchen device utensil is inside a bowl, container or the like, the proper holding of a hand held device, whether the kitchen device is held in its preferred operating position, the presence of a bowl on a table top device, or user actions intended to start the device. Many of these external conditions relate to the position of the kitchen device with respect to for example the user, bowls, or the gravitational field. This position of the kitchen device can be evaluated using a proper detector arrangement. The detector arrangement monitors at least one position-related parameter matching the required operating condition of the kitchen device and transmits a detection signal to the electronic control unit controlling the drive unit driving the kitchen device utensil. The electronic control unit only powers the drive unit when the received detection signals indicate that the kitchen device is in the required operating condition.

Position-related parameters can be related to any circumstance, object or condition proximate to the kitchen device. It is known per se that parameters relating to other conditions then the position of the kitchen device are also relevant to a safe and user friendly operation of a kitchen device, as mentioned above. However it is explicitly stated that the term "position-related parameters" does not include parameters relating to such other conditions like e.g. the internal kitchen device conditions.

Having at least two different detectors prevents the kitchen device from being started inadvertently when the user handles the kitchen device without the intention to start the kitchen device. It is unlikely that two or more different position-related operation conditions are met while the user is handling the kitchen device without the intention to have the kitchen device started.

The detector arrangement does not require an explicit starting action, such as pushing a button or sliding a switch, by a user to start an operation of the kitchen device. Buttons and/or switches for starting the device can be absent. Therefore the kitchen device according to the invention is more user friendly than known devices.

The kitchen device according to the invention can be applied for household use as well as for professional use. In professional environments the device can be used on a small scale as well as for large scale industrial applications.

In a preferred embodiment of the kitchen device according to the invention the detector arrangement includes an enclosure detector for detecting the position of the utensil with respect to a container-like body. Such an enclosure detector can for example be based on

an inductive sensor, a capacity sensor, an ultrasonic sensor, a read sensor, radio frequency identification (RFID-) or laser-technology. Many types of kitchen devices, for example mixers, blenders, choppers and the like, operate on materials held in a bowl, kettle, container or the like. When the utensils of such kitchen devices are not inside a bowl, kettle, container or the like the operation of the utensil is undesirable from a safety perspective as a running utensil can injure the user or damage goods. The enclosure detector therefore improves the safety of the kitchen device. Furthermore, operation of the utensil outside a bowl can cause materials sticking to the utensil following previous use of the kitchen device to come off and spread through the area in which the kitchen device is operated. This causes the need for cleaning the area which is generally experienced as inconvenient. The enclosure detector prevents this spoilage and thereby improves the user friendliness of the kitchen device.

In a preferred embodiment of the kitchen device according to the invention the enclosure detector is provided in or on a distal area of the utensil. The distal area of the utensil is in many cases the area where the potentially dangerous part of the utensil is located. For safe operation of the kitchen device it is therefore required that at least this part of the utensil is enclosed by a container-like body before starting the device. As the remainder part of the utensil can be outside of the container-like body, different sizes of container-like bodies can be used to the convenience of the user. This location of the enclosure detector allows the user to use a container-like body with a height of the user's choice thereby improving the user friendliness of the kitchen device.

In a preferred embodiment of the kitchen device according to the invention the detector arrangement includes at least one touch-sensitive detector provided in or on the casing for detection of a user's hand positioned on the casing. This touch-sensitive detector can include e.g. a touch-sensitive control to register a user's touch or can be based on a capacity sensor. In many cases the user is required to position at least one hand in a required way on or around the kitchen device in order to operate it safely. Usually start buttons or switches are located such that a user can start the kitchen device easily when holding it in the required position. The at least one touch-sensitive detector registers this required placing of the user's hand and starts the kitchen device without the user having to push or slide physical buttons, thereby improving the ease of use.

In a preferred embodiment of the kitchen device according to the invention the detector arrangement includes an orientation detector for detecting a pre-determined operating orientation position of the device. The orientation detector can for example contain a tilt-switch or gravity switch. Detecting the orientation of the kitchen device prevents the

utensil from operating when the kitchen device is oriented inadequately in order to allow safe operation. For example, a hand blender is to be operated only when held substantially vertically, and a mixer with a tiltable head portion is only to be operated when the head portion is in the desired orientation. An operation of the kitchen device when it is not in its pre-determined operation position exposes the user to moving parts of the utensil. The orientation detector therefore improves the safety of the kitchen device and relieves the user from the task of ensuring that the kitchen device is in a pre-determined operating position thereby improving the user friendliness of the kitchen device.

In a preferred embodiment of the kitchen device according to the invention the electronic control unit is configured to generate a control signal for transmitting to the driving unit, based on at least the detection signals of the at least two detectors. When the electronic control unit combines the detection signals of the at least two detectors, the kitchen device will only be started when a required number of detection signals indicate the predefined operating condition. This reduces the risk of starting the kitchen device when this is not intended by the user, thereby improving the safety and therefore the user friendliness of the kitchen device.

In a preferred embodiment of the kitchen device according to the invention the driving means is powered by a cordless power unit, preferably a rechargeable battery. A cordless kitchen device allows the user to operate the kitchen device without having to be near a mains socket or having to keep the cord clear from the operating area. A cordless kitchen device improves the user friendliness of the kitchen device.

In a preferred embodiment of the kitchen device according to the invention the device is a hand-held device. A hand-held device offers the user the possibility to apply the device on a location of the user's choice. For example, a hand held blender being used in a pan on a furnace to blend a soup. A hand-held kitchen device improves the user friendliness of the kitchen device.

It is a further object of the invention to provide a blending device of the kind defined in the introductory paragraph, which is more user friendly to operate.

This object of the invention is realized by the blending device having a casing comprising a driving unit arranged to drive a utensil, and an electric control unit for controlling the driving unit, wherein a detector arrangement is provided having at least two different detectors for detecting position-related parameters and transmitting a detection signal based on this at least one parameter to the electronic control unit. Blending devices can for example be used to blend mortar, plaster, epoxies, gypsum, granulates and the like in

construction environments, foodstuff in a kitchen environment, or ingredients for a manufacturing process.

Preferably, the blending device only operates when it is in such a condition that it cannot harm the user, damage goods or otherwise cause mischief. Usually, these required operating conditions are well defined. Required operating conditions include both conditions internal and external to the blending device. Internal blending device conditions relate for example to the temperature of stationary or moving parts, the mains voltage level supplied, or the battery condition. External blending device conditions relate to the way the user operates the blending device, e.g. whether the blending device utensil is inside a bowl, container or the like, the proper holding of a hand held device, whether the blending device is held in its preferred operating position, the presence of a bowl on a table top device, or user actions intended to start the device. Many of these external conditions relate to the position of the blending device with respect to for example the user, bowls, or the gravitational field. This position of the blending device can be evaluated using a proper detector arrangement. The detector arrangement monitors at least one position-related parameter matching the required operating condition of the blending device and transmits a detection signal to the electronic control unit controlling the drive unit driving the blending device utensil. The electronic control unit only powers the drive unit when the received detection signals indicate that the blending device is in the required operating condition.

Position-related parameters can be related to any circumstance, object or condition proximate to the blending device. It is known per se that parameters relating to other conditions of the blending device are also relevant to a safe and user friendly operation of a blending device, as mentioned above. However it is explicitly stated that the term "position-related parameters" does not include parameters relating to such other conditions.

Having at least two different detectors prevents the blending device from being started inadvertently when the user handles the blending device without the intention to start the blending device. It is unlikely that two or more different position-related operation conditions are met while the user is handling the blending device without the intention to have the blending device started.

The detector arrangement can be configured that no active user behavior like pushing a button or sliding a switch is required in order to operate the blending device. Therefore the blending device according to the invention is more user friendly than known devices.

The blending device according to the invention can be applied for household use as well as for professional use. In professional environments the device can be used on a small scale as well as for large scale industrial applications.

In a preferred embodiment of the blending device according to the invention the detector arrangement includes an enclosure detector for detecting the position of the utensil with respect to a container-like body. Such an enclosure detector can for example be based on an inductive sensor, a capacity senor, an ultrasonic senor, a read sensor, radio frequency identification (RFID) or laser-technology. Many types of blending devices, for example mixers, blenders, choppers and the like, operate on materials held in a bowl, kettle, container or the like. When the utensils of such blending devices are not inside a bowl, kettle, container or the like the operation of the utensil is undesirable from a safety perspective as a running utensil can injure the user or damage goods. The enclosure detector therefore improves the safety of the blending device. Furthermore, operation of the utensil outside a bowl can cause materials sticking to the utensil following previous use of the blending device to come off and spread through the area in which the blending device is operated. This causes the need for cleaning the area which is generally experienced as inconvenient. The enclosure detector prevents this spoilage and thereby improves the user friendliness of the blending device.

In a practical embodiment of the blending device according to the invention the enclosure detector is provided in or on a distal area of the utensil. The distal area of the utensil is in many cases the area where the potentially dangerous part of the utensil is located. For safe operation of the blending device it is therefore required that at least this part of the utensil is enclosed by a container-like body. As the remainder part of the utensil can be outside of the container-like body, different sizes of container-like bodies can be used to the convenience of the user. This location of the enclosure detector allows the user to use a container-like body with a height of the user's choice thereby improving the user friendliness of the blending device.

In a preferred embodiment of the blending device according to the invention the detector arrangement includes at least one touch-sensitive detector provided in or on the casing for detection of a user's hand positioned on the casing. This touch-sensitive detector can consist of e.g. a touch-sensitive control to register a user's touch or can be based on a capacity sensor. In many cases the user is required to position at least one hand in a required way on or around the blending device in order to operate it safely. Usually start buttons or switches are located such that a user can start the blending device easily when holding it in

the required position. The at least one touch-sensitive detector registers this required placing of the user's hand and starts the blending device without the user having to push or slide physical buttons, thereby improving the ease of use.

In a preferred embodiment of the blending device according to the invention the detector arrangement includes an orientation detector for detecting a pre-determined operating orientation position of the device. The orientation detector can for example contain a tilt-switch or gravity switch. Detecting the orientation of the blending device prevents the utensil from operating when the blending device is oriented inadequately in order to allow safe operation. For example, a hand blend is to be operated only when held substantially vertically, and a mixer with a tiltable head portion is only to be operated when the head portion is in the desired orientation. An operation of the blending device when it is not in its pre-determined operation position exposes the user to moving parts of the utensil. The orientation detector therefore improves the safety of the blending device and relieves the user from the task of ensuring that the blending device is in a pre-determined operating position thereby improving the user friendliness of the blending device.

In a preferred embodiment of the blending device according to the invention the electronic control unit is configured to generate a control signal for transmitting to the driving unit, based on at least the detection signals of the at least two detectors. When the electronic control unit combines the detection signals of the at least two detectors, the blending device will only be started when a required number of detection signals indicate the predefined operating condition. This reduces the risk of starting the blending device when this is not intended by the user, thereby improving the safety and therefore the user friendliness of the blending device.

In a practical embodiment of the blending device according to the invention the driving means is powered by a cordless power unit. A cordless blending device allows the user to operate the blending device without having to be near a mains socket or having to keep the cord clear from the operating area. A cordless blending device improves the user friendliness of the blending device.

In a preferred embodiment of the blending device according to the invention the device is a hand-held device. A hand-held device offers the user to apply the device on a location of the user's choice. For example, a hand held blender being used in a pan on a furnace to blend a soup. A hand-held blending device improves the user friendliness of the blending device.

The invention further relates to a utensil for use with a device according to the invention, having at least one detector for detecting at least one position related parameter and generating at least one detection signal based on the detection of the at least one position related parameter, and means for transmitting the at least one detection signal to the electronic control unit of the device the utensil is attached to. The detection signal can for example be transmitted by a wire connecting the detector through an interface contact to the electronic control unit of the device the utensil is attached to. In other embodiments the transmission signal can for example be transmitted using infrared, wifi, or any other form of wireless or optical communication.

It is to be noted that US patent 3,734,417 A discloses an electric pepper mill including a tilt switch for activating the electric pepper mill's grinding mechanism when the electric pepper mill is positioned in its operating orientation. The known pepper mill causes a spoil of pepper grind when the pepper mill is not accurately positioned above the area on which pepper has to be deposited, and may injure a user when the user position with regard to the electric pepper mill is wrong, e.g. parts of the hand may touch the grinding mechanism when it starts to operate. This electric pepper mill is not user friendly.

Furthermore, it is to be noted that US patent application 2006/0198241 A1 discloses a salad dressing mixing and dispensing apparatus including a tilt switch. The tilt switch closes an electric circuit when the mixing and dispensing apparatus is placed in its dispensing position. As a consequence of closing this circuit, the apparatus' motor is powered such that the apparatus' whisk rotates at a speed suitable for dispensing salad dressing.

BRIEF DESCRIPTION OF THE DRAWINGS

A detailed description of the invention is provided below. The description is provided by way of a non-limiting example to be read with reference to the drawings in which:

Figure 1 shows a schematic embodiment of a kitchen device according to the invention provided with detectors for detecting three different position-related parameters according to a front perspective;

Figure 2 shows a schematic view of a touch-sensitive detector provided in the embodiment as shown in Figure 1 in more detail;

Figure 3 shows a schematic view of enclosure detectors provided in the embodiment as shown in Figure 1 in more detail;

Figure 4 shows a schematic diagram of the location of the enclosure detectors as shown in Figure 3;

Figure 5 shows a schematic view of the embodiment as shown in Figure 1 placed in a cut open beaker; and

Figure 6 shows a schematic switching diagram of an embodiment of the kitchen device according to the invention.

Figure 7 shows a schematic embodiment of a blending device according to the invention provided with detectors for detecting two different position-related parameters according to a front perspective;

DETAILED DESCRIPTION OF THE EMBODIMENTS

In figures showing the same embodiment or parts thereof, the same numbers are used for the same parts.

Figure 1 shows a kitchen device 101 according to the invention. The kitchen device 101 has a casing 102 and a utensil area 103. A utensil 104 can either be fixed or removably attached to the casing 102. In this embodiment the casing houses a driving means, e.g. an electric motor, and a power means, e.g. an accumulator or battery. Both means can be means known per se and are not shown in Figure 1. Alternatively, the kitchen device according to the invention can be supplied with mains electricity or any other form of external electricity, e.g. by a power cord. In other embodiments of the invention the power means and / or the driving unit can be located in the utensil area. The casing 102 is provided with a handle 105 which is designed to be clasped by the user while using the kitchen device 101. The handle 105 is preferably ergonomically designed in order to guide the user to clasp the kitchen device 101 in a way to provide optimal control over the device when in use. The handle 105 accommodates two touch-sensitive sensors 106, 107 forming a touch-sensitive detector 118. The touch-sensitive detector 118 can have e.g. at least one touch-sensitive sensor as known in the art to register a user's touch. In alternative embodiments the touch-sensitive detector 118 might for example have at least one capacity sensor as known in the art. The touch-sensitive sensors 106, 107 are located such that they are covered by the user's fingers when the user has clasped the handle 105 in a way as guided by the ergonomic design of the handle 105. Both touch-sensitive sensors 106, 107 are independent of each other, such that the presence of a user's finger on either of the two touch-sensitive sensors 106, 107 can be detected. The area of the handle 105 accommodating the touch-sensitive sensors is shown in more detail in Figure 2.

The utensil 104 attached to the kitchen device 101 shown in Figure 1 is a blending utensil having a distal area 108 and a proximal area 121. The distal area 108 accommodates blending knives not visible in Figure 1. During operation the blending knives are driven by the driving unit. The distal area 108 accommodates three enclosure sensors 109, 110 and 111, together forming an enclosure detector 119. Two enclosure sensors 109 and 110 are visible in Figures 1 and 3. The third enclosure sensor 111 is only visible in Figure 3. In this embodiment, the enclosure sensors 109, 110 and 111 are inductive sensors as known in the art. In other embodiments other types of sensors as known in the to be suitable for this kind of application, such as capacity sensors, ultrasonic sensors, or read sensors can be applied. Also in other embodiments, other types of technology can be applied as known in the art to be suitable, e.g. radio frequency identification (RFID) or laser technology. The choice of sensor or technology to be used depends on the application for which the utensil is designed. For example, when the utensil is to be used inside electrically conducting metal beakers, containers, bowls or the like an inductive sensor can be used for the enclosure sensors. On the other hand, when non-electrically conducting beakers, containers, bowls or the like are to be used for example ultrasonic sensors can be applied. Further, when non-electrically conducting metal beakers, containers, bowls or the like are to be used in applications where processed materials are likely to stick to the utensil for example RFID technology might be used.

The three enclosure sensors 109, 110 and 111 of the kitchen device 101 are placed on a circumference 112 of the distal area 108 of the utensil 104. The enclosure sensors 109, 110 and 111 are substantially evenly spread in the same plane over the circumference 112 of the distal area 108. When considering this plane the three enclosure sensors 109, 110 and 111 are placed under angles of approximately 120° to each other seen from the utensil midpoint 113. This is illustrated in more detail in Figure 4. Figure 4 shows the circumference 112 having a midpoint 113. On the circumference 112 the three enclosure sensors 109, 110 and 111 are present. The lines connecting the enclosure sensors to the midpoint 113 make substantially equal angles α, β and γ to each other.

Applying three enclosure sensors 109, 110 and 111 substantially evenly spread over the circumference 112 of the distal area 108 of utensil 104 makes a good compromise between cost of applying numerous sensors and reliability of the enclosure detection.

Figure 5 shows the kitchen device 101 placed in a beaker 114 which is only cut open for illustration purposes. The beaker 114 has a top part 115 and a bottom part 116. The bottom part 116 is coated with a ferro metal to cooperate with the inductive sensors used

for the enclosure sensors 109, 110 and 111 of the kitchen device 101. As discussed above, other types of sensors or a different technology can used for the enclosure sensors. When, in other embodiments, using different enclosure sensors the requirements for beakers, containers, bowls or the like cooperating with the enclosure sensors can be different from those of the kitchen device 101.

Again referring to Figure 1, kitchen device 101 also contains an orientation sensor 117 forming an orientation detector 120. Orientation sensor 117 is accommodated in the casing 102 of kitchen device 101 and is not visible from the outside. The orientation sensor 117 is a tilt switch as known from the art. In other embodiments different types of orientation sensors can be used, e.g. gravity switches.

Figure 6 shows a schematic switching diagram 201 of the control of a driving unit 202 of an embodiment a kitchen device according to the invention. The diagram 201 shows three different types of detectors 203, 206 and 208: a touch-sensitive detector 203 having e.g. two touch sensors 204 and 205, an enclosure detector 206 having e.g. one enclosure sensor 207 and an orientation detector 208 having e.g. one tilt sensor 215. The output signals of the detectors 203, 206 and 208 are transmitted to an electric control unit 209. The output of the touch-sensitive detector 203 is a combination of the outputs of both touch-sensitive sensors 205 and 206. An integrated circuit 210 performs this combination. The detectors 203, 206 and 208 all relate to a required operating condition of the kitchen device. When the respective operating condition is met, detectors 203, 206 and 208 will transmit a detection signal to the electric control unit 209. That is, when the touch-sensors 204 and 205 of the touch-sensitive detector 203 detect the presence of a human holding the kitchen device, the touch-sensitive detector will transmit a detection signal 211 to the electric control unit 209. Accordingly, when the enclosure sensor 207 senses it being enclosed, the enclosure detector 206 will transmit a detection signal 212 to the electric control unit 209. Also, the orientation detector 208 will transmit a detection signal 213 to the electric control unit 209 when its sensor 215(not shown in this diagram) senses the correct orientation. Based upon detection signals 211, 212 and 213 the electronic control unit 209 generates a control signal 214 and supplies this control signal 214 to the driving unit 202. The control signal 214 will switch the driving unit 202 on.

The electric control unit 209 can have different rules for deriving the control signal 214 from the detection signals 211, 212 and 213. For example a minimum number of detection signals leads to a control signal 214. In this embodiment the electric control unit 209 applies a so-called logical AND rule to the detection signals 211, 212 and 213.

Consequently, a control signal 214 will be generated when all detection signals 211, 212 and 213 are present. This is particularly advantageous when a safe operation of the driving unit 202 is required as the driving unit 202 is switched on only when all operating conditions are met.

In some embodiments the electric control unit 209 may also receive signals from other sources, e.g. switches, or detectors related to other operational parameters not connected with the position of the device.

Figure 7 shows a blending device 301 according to the invention. Blending device 301 can for example be used to blend mortar, cement, epoxies, artex, gypsum, granulates and the like. The blending device 301 has a casing 302 and a utensil area 303. A utensil 304 can either be fixed or removably attached to the casing 302. In this embodiment the casing 302 houses a driving means, e.g. an electric motor, and a power means, e.g. an accumulator or battery. Both means can be means known per se and are not shown in Figure 7. Alternatively, the blending device according to the invention can be supplied with mains electricity or any other form of external electricity, e.g. by a power cord. In other embodiments of the invention the power means and / or the driving unit can be located in the utensil area. The casing 302 is provided with a handles 305 and 306 which are designed to be clasped by the user while using the blending device 301. The handles 305 and 306 are preferably ergonomically designed in order to guide the user to clasp the blending device 301 in a way to provide optimal control over the device when in use. The handles 305 and 306 accommodate touch-sensitive sensors 307 and 308 forming a touch-sensitive detector. In preferred embodiments the touch-sensitive detector has at least two touch-sensitive sensors as known in the art to register a user's touch on both the handles 305 and 306. This is preferred as the application of the blender 301 in the construction industry requires a user to hold the blender 301 in a way that he can apply sufficient force to keep the blender 301 under control. In alternative embodiments the touch-sensitive detector might for example have capacity sensor as known in the art. The touch-sensitive sensors 307 and 308 are located such that they are covered by the user's hands when the user has clasped the handles 305 and 306 in a way as guided by the ergonomic design of the handles 305 and 306. Both touch-sensitive sensors 307 and 308 are independent of each other, such that the presence of a user's hand on either of the two touch-sensitive sensors 307 and 308 can be detected.

Blending device 301 also contains an orientation sensor 309 forming an orientation detector. Orientation sensor 309 is accommodated in the casing 302 of blending device and is not visible from the outside. The orientation sensor 309 is a tilt switch as known

from the art. In other embodiments different types of orientation sensors can be used, e.g. gravity switches.

While the invention has been illustrated and described in detail in the drawings and in the foregoing description, the illustrations and the description are to be considered illustrative or exemplary and not restrictive. The invention is not limited to the disclosed embodiments. It is noted that the devices according to the invention and all their components can be made by applying processes and materials known per se. It is further noted that manually operatable starting switches and/or buttons are preferably omitted. In the set of claims and the description the word "comprising" does not exclude other elements and the indefinite article "a" or "an" does not exclude a plurality. Any reference signs in the claims should not be construed as limiting the scope. It is further noted that all possible combinations of features as defined in the set of claims are part of the invention.

LIST OF REFERENCE NUMERALS

101	kitchen device
102	casing
103	utensil area
104	utensil
105	handle
106	touch-sensitive sensor
107	touch-sensitive sensor
108	distal area of utensil
109	enclosure sensor
110	enclosure sensor
111	enclosure sensor
112	circumference of distal area
113	midpoint of circumference
114	beaker
115	top part of beaker
116	bottom part of beaker
117	orientation sensor
118	touch sensitive detector
119	enclosure detector
120	orientation detector

121	proximal area of utensil
201	switching diagram
202	driving unit
203	touch-sensitive detector
204	touch sensor
205	touch sensor
206	enclosure detector
207	enclosure sensor
208	orientation detector
209	electric control unit
210	integrated circuit
211	detection signal
212	detection signal
213	detection signal
214	control signal
215	tilt sensor
301	blending device
302	casing
303	utensil area
304	utensil
305	handle
306	handle
307	touch-sensitive sensor
308	touch-sensitive sensor
309	orientation sensor

CLAIMS:

1. A kitchen device (101) having

- a casing (102) comprising a driving unit (202) arranged to drive a utensil (104), and

- an electric control unit (209) for controlling the driving unit (202),

characterized by the provision of a detector arrangement having at least two different detectors (203, 206 and 208), for detecting position-related parameters and transmitting detection signals (211, 212, 213) based on these parameters to the electronic control unit (209).

2. A device according to claim 1, characterized in that the detector arrangement includes an enclosure detector (206) for detecting the position of the utensil (104) with respect to a container-like body (114).

3. A device according to claim 2, characterized in that the enclosure detector (206) is provided in or on a distal area (108) of the utensil (104).

4. A device according to claim 1 or 2, characterized in that the detector arrangement includes at least one touch-sensitive detector (203) provided in or on the casing (102) for detection of a user's hand positioned on the casing (102).

5. A device according to claim 1, 2 or 4, characterized in that the detector arrangement includes an orientation detector (208) for detecting a pre-determined operating position of the device (101).

6. A device according to claim 1, characterized in that the electronic control unit (209) is configured to generate a control signal (214) for transmitting to the driving unit (202), based on at least the detection signals (211, 212, 213) of the at least two detectors (203, 206 and 208).

7. A device according to claim 1, characterized in that the driving means (202) is powered by a cordless power unit.

8. A device according to claim 1, 6 or 7, characterized in that the device (101) is a hand-held device.

9. A blending device (301) having

- a casing (302) comprising a driving unit (202) arranged to drive a utensil(304), and

- an electric control unit (209) for controlling the driving unit (202), characterized by the provision of a detector arrangement having at least two different detectors (203, 206 and 208), for detecting position-related parameters and transmitting a detection signals (211, 212, 213) based on these parameters to the electronic control unit (209).

10. A device according to claim 9, characterized in that the detector arrangement includes an enclosure detector (206) for detecting the position of the utensil (304) with respect to a container-like body (114).

11. A device according to claim 9 or 10, characterized in that the detector arrangement includes at least one touch-sensitive detector (203) provided in or on the casing (302) for detection of a user's hand positioned on the casing (302).

12. A device according to claim 9, 10 or 11, characterized in that the detector arrangement includes an orientation detector (208) for detecting a pre-determined operating position of the device (101).

13. A device according to claim 9, characterized in that the electronic control unit (209) is configured to generate a control signal (214) for transmitting to the driving unit (202), based on at least the detection signals (211, 212, 213) of the at least two detectors (203, 206 and 208).

14. A device according to claim 9, 13, characterized in that the device (301) is a hand-held device.

15. A utensil (104, 304) for use with a device according any one of the claims 1 to 14, characterized in that the utensil (104, 304) has at least one detector (203, 206, 208) for detecting at least one position related parameter and generating at least one detection signal (211, 212, 213) based on the detection of the at least one position related parameter, and means for transmitting the at least one detection signal (211, 212, 213) to the electronic control unit (209) of the device (104, 304).

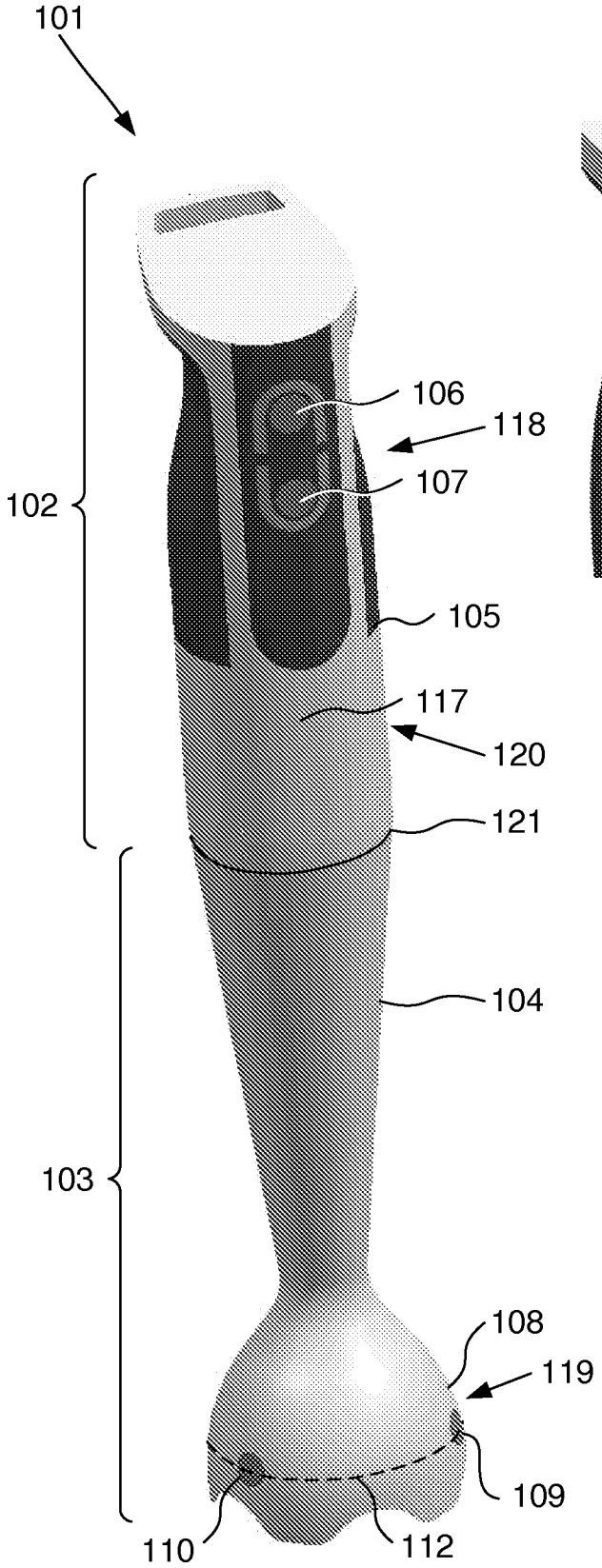

FIG. 1

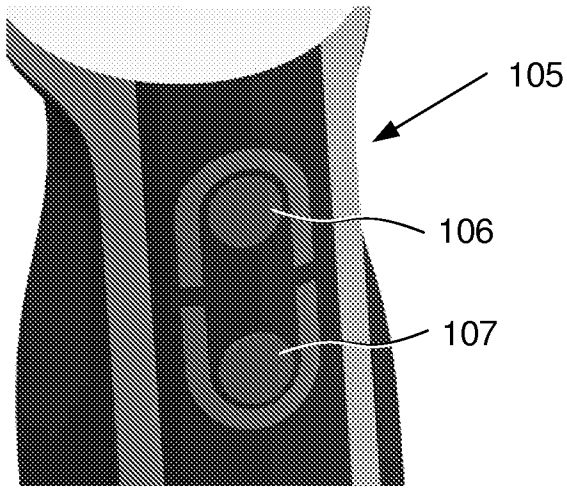

FIG. 2

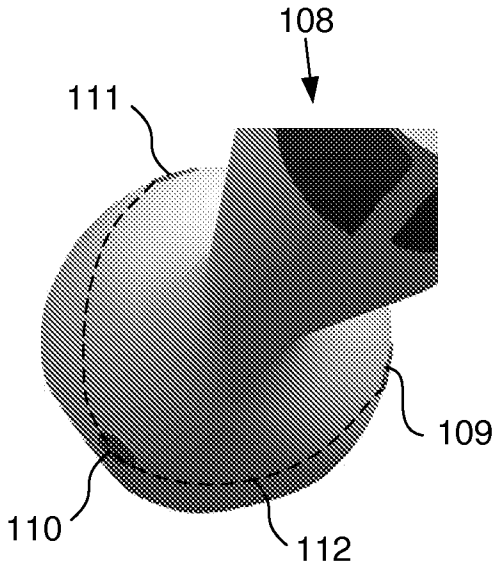

FIG. 3

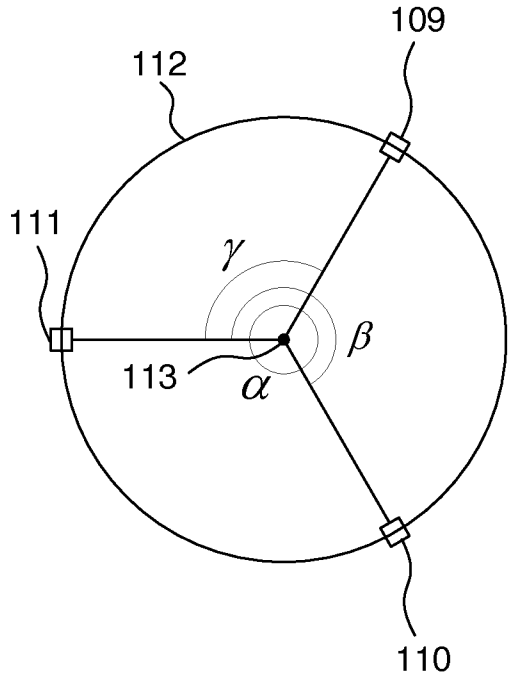

FIG. 4

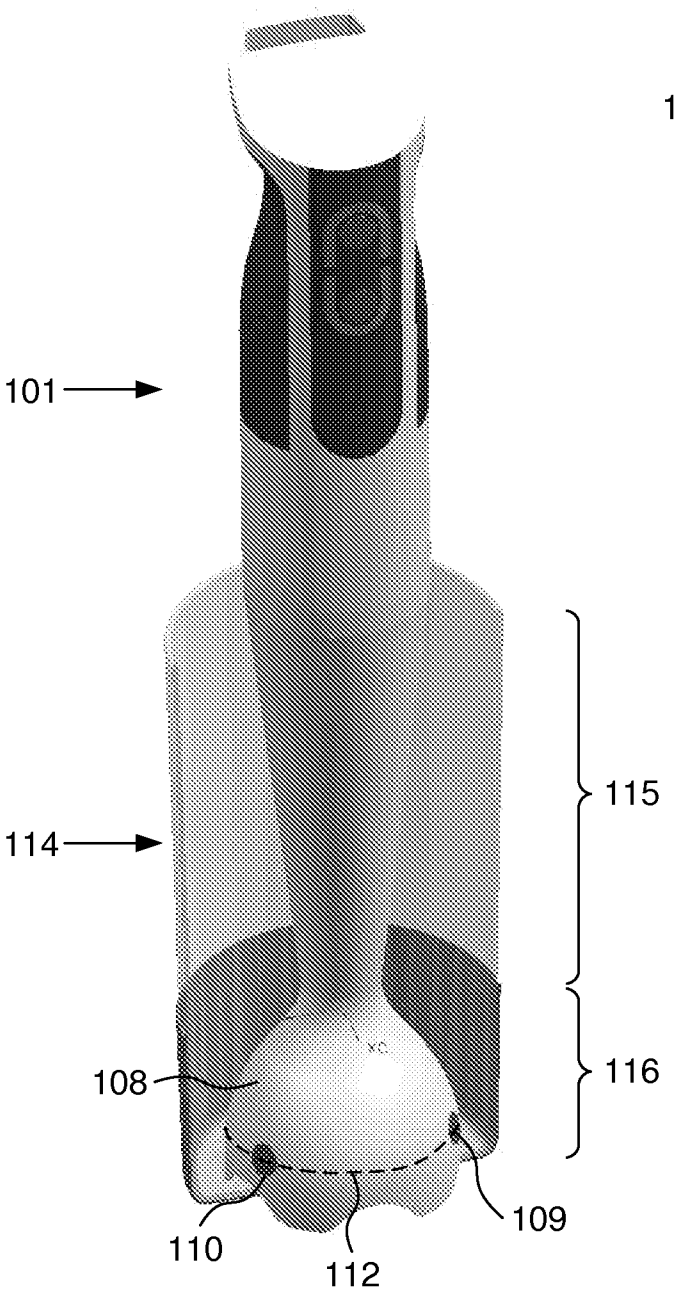

FIG. 5

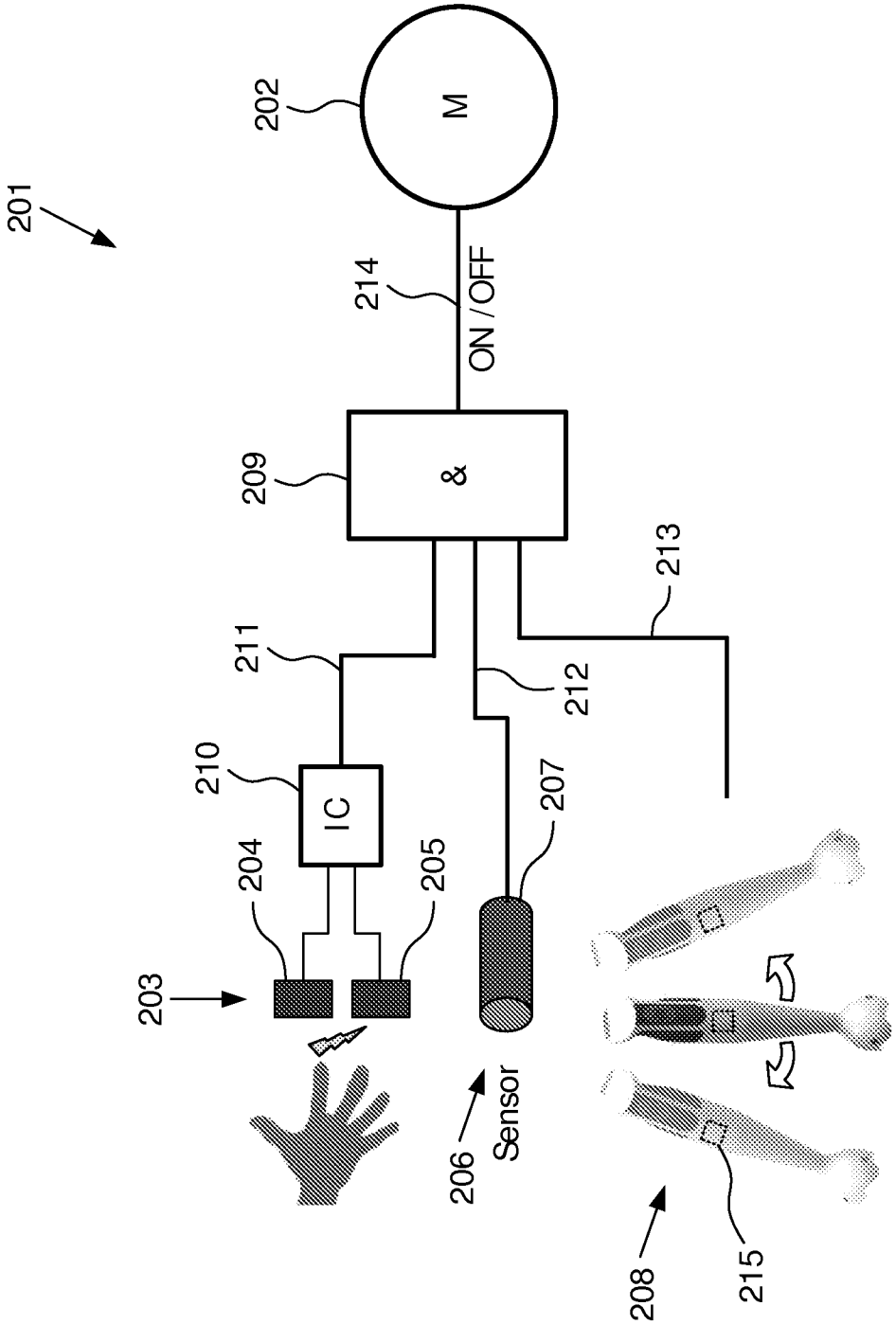
201
202
M
214
ON /OFF
209
&
213
211
212
210
IC
207
204
205
203
206
Sensor
208
215

FIG. 6

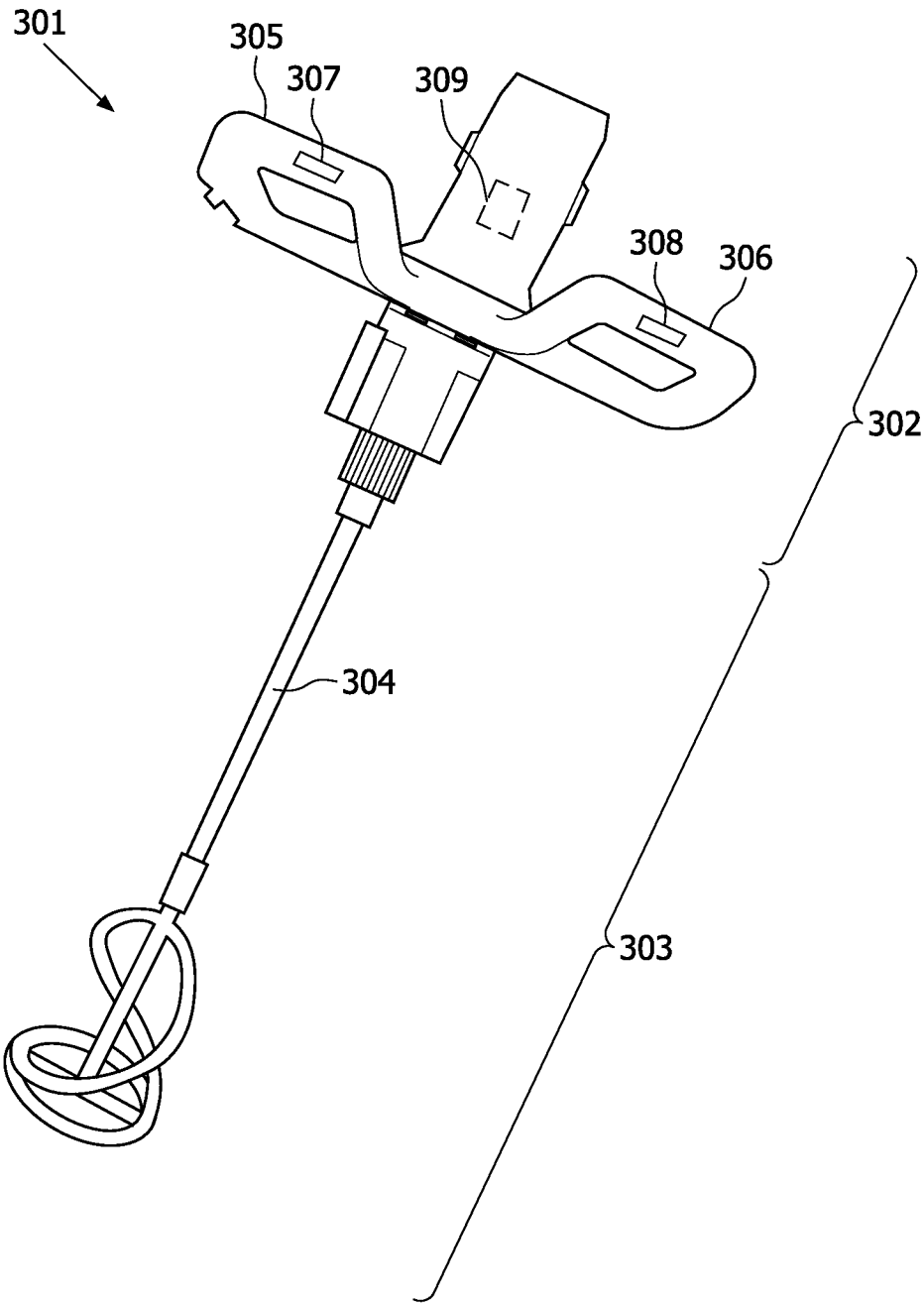

FIG. 7