(54)  

**Tea maker with luminous brewing progress indicator**

(57)  A tea maker (100), comprising a power base (300) including an upper portion that provides for a user interface (360) and for a vessel reception location (361), which location is adapted to receive a vessel (200) that is detachable from the power base, wherein the user interface (360) includes an illuminable brewing progress indicator (368) that extends at least partially around said vessel reception location, such that at least a portion of the brewing progress indicator is visible from any position around the power base when the vessel is received at said vessel reception location; and a controller (332) that is configured to control the brewing progress indicator (368) during a tea brewing process, such that a user is notified of progress in said process by a change in illumination of the brewing progress indicator.

![Fig. 3](image-url)
**Description**

**FIELD OF THE INVENTION**

[0001] The invention relates to the field of brewing tea. More specifically, the invention relates to automatically brewing tea, wherein the tea brewing process is controlled by an electrical tea maker.

**BACKGROUND**

[0002] It is commonly known to brew tea by means of immersing loose tea leaves in hot water, either directly or in an infuser, and subsequently allowing the tea to steep. In order to provide tea with a desired strength and quality of the tea, the temperature of the water before and during steeping of the tea and the duration of the steeping have to be closely watched. Usually, a user will boil water, leave the boiled water to cool down a bit, insert the tea leaves in the cooled water and leave the tea leaves in the water for a predetermined time. The user will then take the tea leaves out of the water and the tea is ready for consumption. In practice, the time for cooling down and for steeping the tea is hard to estimate by the user. Consequently, the water may be too hot or too cold to start brewing the tea and the steeping time may be not perfect to create a high quality tea drink. To overcome such problems, a tea maker can be used.

[0003] Such a tea maker is known from and described in WO 2009/109011. The known tea maker is a semi-automatic electric tea maker having a vessel detachably connected to a power base. The vessel is adapted to receive water to be heated and tea leaves that are used to brew the tea. The tea leaves can be provided in a tea brewing chamber that can be received in an inner space of the vessel. Therefore, the lid of the vessel is provided with a central opening. The power base comprises a user interface for operation of the tea maker. Said user interface allows a user to select the desired brewing temperature of the water in the vessel by pressing one of a variety of discrete temperature selection or indicating buttons and to select the desired brewing duration by pushing the timer button. The user interface further comprises two alerts or indicator lights. The first light is illuminated by the electronic controller when the water in the vessel reaches the user set brewing temperature. The second light is illuminated by the electronic controller when the brew duration is reached. An illuminated countdown indicator is provided to show the user the amount of minutes of brew time that was selected. For each selected minute, a separate light element will start emitting light. During brewing, the indicator counts down by turning off one light element for every minute of brewing time passed. To brew tea with the known tea maker, a user selects the desired brewing temperature and the desired brewing time. The processor controls the heating element in order to heat the water inside the vessel to the selected temperature. If the required temperature is reached, the first indicator light alerts the user. The user can then lower the tea brewing chamber fully in the vessel. After detecting the presence of the tea brewing chamber inside the vessel, the controller will start the countdown indicator to count down the brew duration that was set. At the end of the brewing time, the second indicator light alerts the user that the brewing time is completed and that the brewing process should be terminated. Then the user has to lower a plunger provided in the tea brewing chamber such that the tea within the chamber is isolated from the remainder of the vessel and further infusion of the water outside the isolated tea is prevented.

[0004] A drawback of the known tea maker is that it sometimes may be difficult to determine the moment that the water has reached the brewing temperature or that the tea brewing process is finished. For instance, due to the amount of buttons and indicators, a user may be confused about the present state of the brewing process. Furthermore, if the user is sitting at a distance of the tea maker, the indicator lights may be hard to observe.

[0005] It is therefore an object of the present invention to provide for a tea maker that enables easy detection of the progress of the brewing process and of the completion of the brewing process.

**SUMMARY OF THE INVENTION**

[0006] An aspect of the present invention is directed to a tea maker. The tea maker may comprise a power base including an upper portion that provides for a user interface and for a vessel reception location. The vessel reception location may be adapted to receive a vessel that is detachable from the power base. The user interface may include an illuminable brewing progress indicator that extends at least partially around the vessel reception location, such that at least a portion of the brewing progress indicator is visible from any position around the power base when the vessel is received at said vessel reception location. The tea maker may further comprise a controller that is configured to control the brewing progress indicator during a tea brewing process, such that a user is notified of progress in said process by a change in illumination of the brewing progress indicator.

[0007] By providing the power base with such a illuminable progress indicator, a user is able to monitor the progress of the tea brewing process easily, even when sitting at a distance from the tea maker. Moreover, since the illuminable progress indicator extends around the vessel reception location, the progress indicator can be observed at least partially from different view angles along the perimeter of the user interface. That is, the view on the progress indicator is not
obstructed by the vessel provided on the power base during the tea brewing process. The controller may be configured
such that it can control the illuminable progress indicator, more specifically such that it can control the illumination of said
indicator. For instance, the illuminable progress indicator may be gradually filled with light along its entire length as the
tea making process progresses. Alternatively, the controller may be configured to gradually extinguish the light emitted
by the progress indicator as the tea making process progresses. Furthermore, the progress indicator may be used to
notify the user of the tea maker of different stages in the tea making process, for instance the progress indicator may
change the kind (e.g. steady or blinking) or color of the illumination at the moment that the user has to insert the tea
leaves in the vessel or at the moment that the user has to remove the tea leaves from the vessel. Furthermore, the
controller may be configured such that it controls the progress indicator in case of malfunctioning or in case of certain
operations that should have been performed by the tea maker. Also other important information may be communicated
to a user of the tea maker by means of the illuminable progress indicator.

In order to maximize the visibility of the illuminable progress indicator, the progress indicator may, according
to a further aspect of the invention, be substantially ring-shaped. Due to the ring-shaped construction of the progress
indicator, said indicator is always directly visible. By providing the ring-shaped progress indicator at a distance of the
perimeter edge of the user interface, the progress indicator may also be visible during operation of the buttons and knobs
that may additionally be provided on the user interface of the tea maker. The term ‘substantially ring-shaped’ as used
in this text with regard to the progress indicator intends to include both a continuously and a discontinuously ring-shaped
indicator; hence, a progress indicator comprising multiple illuminable segments that are intermittently disposed or spaced
apart on/along a ring-shaped path is intended to be covered by said phrase.

According to a further elaboration of the invention, the brewing progress indicator may be formed by one or
more transparent sections of or in a preferably substantially flat (outer) surface of the upper portion of the power base.
The illuminable progress indicator may be embedded in a preferably substantially flat surface of the interface
panel, such that it does not stand out or protrude from its immediate surroundings. As such, the brewing progress
indicator may be used in a so-called ‘dead panel’ user interface whose visible surface area does not feature any permanent
marks, and wherein the brewing progress indicator is visible only when illuminated from inside the power base (causing
light to be emitted outward through the transparent sections).

In one embodiment, the tea maker may comprise first illumination means that are operably connected to the
controller, and that are associated with said transparent sections, such that the controller may light the first illumination
means to illuminate said brewing process indicator.

Each transparent section may be associated with one or more first illumination means. First illumination means
may for example be disposed immediately behind or adjacent the transparent sections. Alternatively, for instance when
space restrictions or other design considerations so demand, a light guide may be used to guide light from a suitable
location of the first illumination means to the transparent sections. To that end, the light guide may, at a first location,
be disposed adjacent said first illumination means, and, at a second location remote from the first illumination means,
be arranged adjacent said transparent section(s) of the brewing progress indicator.

In one embodiment, the first illumination means may include a plurality of mutually spaced apart light emitting
devices, each of which can be controlled independently of the others by the controller.

The spacing between the light emitting devices and their independent controllability may facilitate the separate
illumination of different transparent sections or different portions of a single transparent section of the brewing progress
indicator. A ring-shaped brewing progress indicator, for example, may include a single, annular transparent section that
may be associated with a series of light emitting devices that are mutually spaced apart along a length of the indicator.
In such a configuration, each light emitting device may be associated with a (circle) segment of the brewing progress
indicator, whose approximate length may be related to the distance between the associated light emitting device and its
nearest neighbors.

The light emitting devices of the first illumination means may preferably include one or more light emitting
diodes (LEDs). Each light emitting device may for example comprises a light emitting diode of a single color, e.g. a white
LED with a color temperature of 500k-5000k. Alternatively, each light emitting device may include multiple light emitting
diodes of different colors, e.g. a red, a green and a blue LED.

By using LEDs, both energy consumption and the space occupied by the first illumination means inside the
power base may be minimized. It will be clear that light emitting devices that are capable of emitting light of different
colors allow for more versatile illumination patterns for the brewing process indicator. The use of different colors may
be useful for indicating the progress of the tea making process, and/or for communicating other important information,
such as malfunctioning of the tea maker, or for notifying the user of certain cleaning operations that have to be performed
to maintain the tea maker in a good condition.

In a further aspect of the invention, the controller may be configured to control the first illumination means based
on an illumination notification pattern stored in the controller, wherein the notification pattern is coupled to a certain tea
and/or tea maker property. This property may be preprogrammed in the controller, for instance a certain maximum
temperature or a minimum water level in the vessel. The property may also be stored in the memory of the controller.
when the user sets certain tea and/or tea maker properties. The user may for instance choose the kind of tea to be brewed, the temperature at which the steeping phase of the tea brewing process may start and/or the duration of the steeping phase.

The controller may control each light emitting device individually in dependence of the notification pattern. The notification pattern may comprise different kinds of activities such as activating and/or deactivating of at least one of the light emitting devices. The controller may activate consecutive light emitting devices during the tea brewing process, so as to gradually fill the brewing progress indicator with light. In a different embodiment, the controller may continuously activate a subsequent light emitting device and deactivate a previous light emitting device. In such an embodiment it seems that the activated light emitting device ‘travels’ along the entire length of the illuminable progress indicator. Furthermore, the notification pattern may comprise increasing and/or decreasing the light intensity of at least one of the light emitting devices. During progress of the tea brewing process a light emitting device may be activated to a light intensity that is less than the maximum light intensity possible, for instance to a light intensity of 50%. Then, a subsequent light emitting device is activated and at the same time the light intensity of the previous light emitting device is increased to 100%. The control may also be configured to control the respective light emitting devices to emit light with other light intensities.

The notification pattern may also comprise blinking of at least one of the light emitting devices during a predetermined time period with a predetermined frequency. For instance when the tea steeping process has ended, all light emitting devices may be controlled to start blinking such that the user is notified that the tea is ready and that the tea leaves should be removed to maintain tea with a desired quality. It is also possible that a few of the light emitting devices of the illuminable progress indicator start blinking at the same time or that only the last light emitting device that is activated is blinking until the subsequent light emitting device is activated.

The notification pattern may also comprise setting a light emitting color of at least one of the light emitting devices in case said light emitting devices are adapted to emit multiple colors of light as described before. For instance, the progress indicator may indicate the progress of the tea making process by activating consecutive LEDs that emit white light. When the water is boiling the control may set the LEDs to emit red light to warn the user of the boiling water. When the water is cooled down and the water temperature reaches the predetermined value, the control may set the light emitting color of all LEDs such that for instance blue light is emitted to notify the user that the tea leaves have to be inserted in the water. If the tea leaves are inserted, the color of the emitted light may be set to white again, and the progress indicator may continue to show the progress of the tea making process. Of course, other colors may be set to indicate other stages of the tea making process or other properties of the tea maker, such as the need to clean certain parts of the tea maker.

These and other features and advantages of the invention will be more fully understood from the following detailed description of certain embodiments of the invention, taken together with the accompanying drawings, which are meant to illustrate and not to limit the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic cross-sectional side view of an exemplary tea maker according to the present invention, including a vessel and a power base;
Fig. 2 is a schematic exploded view of the power base of the tea maker shown in Fig. 1, illustrating its layered composition;
Fig. 3. is a schematic top view of the power base of the tea maker shown in Fig. 1, illustrating its user interface panel;
Fig. 4. is a schematic cross-sectional side view of a capacitive button of the interface panel (Fig. 4A), and a projection display of the interface panel (Fig. 4B);
Fig. 5 is a table, schematically illustrating in cross-sectional side views of the capacitive buttons and the projection display of the interface panel, different constructive embodiments in case a wood top layer is used; and
Fig. 6 is a graph illustrating a number of tea type specific temperature/time profiles that may be associated with the brewing process symbols on the user interface panel shown in Fig. 2.

DETAILED DESCRIPTION

Fig. 1 is a schematic cross-sectional side view of an exemplary tea maker 100 according to the present invention. The tea maker 100 may comprise two main, detachably connectable components: a vessel 200 and a power base 300. The vessel 200 may include a main body 202. In the embodiment of Fig. 1, the main body 202 is depicted as a single-walled structure. It is contemplated, however, that a different embodiment of the tea maker 100 may feature a vessel 200 having a double-walled main body 202, in particular to improve thermal insulation of the interior of the vessel.
The water compartment 210 may be accessible via a central opening 214 in the upper side of the vessel 200 that is coverable by a hinged or detachable lid 220. The vessel 200 may also provided with a spout 206 that allows water to be poured out from the water compartment 210.

The opening 214 may be shaped to receive a removable tea filter 216, which may include an at least partly liquid permeable, for example meshed, basket 217 that can be lowered into the water compartment 210. The basket 217 may be made of any suitable material, but is preferably made of stainless steel. The mesh or alternative liquid permeable features of the basket 217 may be fine enough to contain tea leaves during steeping, and for example include openings having a diameter in the range of 0.1-0.5 mm. The filter 216 may also be fitted with a permanent magnet 218, which may be attached to or incorporated into bottom part of the basket 217. This may allow the magnet’s 218 presence, and hence tea filter’s 216 presence, in the water compartment 210 to be detected by a reed switch 226 provided in the lower compartment 212.

The partition 208 may include a central opening through which a temperature sensor 224, e.g. an NTC thermistor, extends from the lower compartment 212 into the water compartment 210. A seal, e.g. a silicone O-ring, may be provided to ensure the watertightness of the partition 208 at the temperature sensor’s position. Alternatively, a temperature sensor 224 may be located below/against an underside of the partition 208, so as to measure the temperature in the water compartment 210 through partition 208, which eliminates the need for water sealing.

The lower compartment 212 may further accommodate a reed switch 226 that is configured for cooperation with a permanent magnet 218 provided on or incorporated in the removable tea filter 216. The reed switch 226 and the magnet 218 may be disposed such that the reed switch is actuated by the magnetic field of the magnet when the tea filter 216 is placed in the vessel 200, giving it the function of a proximity sensor or, more specifically, a tea filter presence sensor. To promote the detectability of the tea filter 216 using only a single reed switch 226 and a single magnet 218, the former may be attached to a central portion of the watertight partition 208, and the latter may be disposed in a central bottom area of the basket 217. This may eliminate the sensitivity of the detection of the tea filter 216 to the angular position in which it is placed in the water compartment 210 (the angular position seen relative to a central, vertically extending axis A of the tea maker 100). In particular when the reed switch 226 is fixed to the partition 208, it may be enclosed in a thermally insulating casing, e.g. a silicone tube, that spaces it apart from both the partition and the heating element 222 sufficiently to prevent overheating.

Although a magnet 218 and a reed switch 226 may form a reliable and cost-effective tea filter presence sensor, it is contemplated that an alternative embodiment of the tea maker 100 may include a different (i.e. non-magnetic) type of sensor for detecting insertion or placement of the tea filter 216 in the water compartment 210 of the vessel 200, such as an optical sensor, e.g. a light source in combination with a photo detector, or a mechanically operated sensor, e.g. a pressure switch. In principle, any sensor suitable for the stated purpose may be used.

A central recess 228 in a bottom of the vessel 200 may grant access to a vessel portion 230a of an electric, for example 5-pole, connector 230. The vessel portion 230a of the connector 230 may be mounted to a bottom side of the partition 208, and be configured for functional engagement with a complementary power base portion 230b of the connector. When the vessel 200 rests on the power base 300, and the two connector portions 230a, 230b are in mutual engagement, power and data signals may be exchanged between the power base and the vessel through the connector 230. It is understood that all electrical components in the vessel 200 (including the electric heating element 222, the temperature sensor 224 and the reed switch 226) may be electrically connected to the vessel portion 230a of the electric connector, although wires to this end have been omitted from the drawings for reasons of clarity.

The construction of the power base 300 is best illustrated with reference to both Fig. 1 and Fig. 2, the latter showing a schematic exploded view of the power base that illustrates its generally layered composition. The power base 300 may include a main body 302. In the depicted embodiment, the main body 302 is a generally bowl-shaped, injection molded plastic shell. An underside of the main body 302 may be shaped to define an
annular recess 304 for storing a power cord 306. To prevent a wound and stored power cord 306 from dropping out of the recess 304, a radially inner portion of the annular recess 304 may be covered by a bottom cap 308 that may be screwingly fixed to the main body 302. The main body 302 of the power base 300 may further include a mounting plateau 310. The mounting plateau 310 may include a centrally disposed, upstanding annular ridge 312 on which the power base portion 230b of the electrical connector 230 may be installed. A more radially outward portion of the mounting plateau may support an annular printed circuit board (PCB) 320. The PCB 320 may mechanically support and electrically connect a number of components, including:

- a plurality of independently controllable first illumination means 322, in particular light emitting diodes (LEDs). The first illumination means 322 may preferably be equidistantly spaced along a circular or otherwise shaped path surrounding the central opening of the annular PCB 320. As will be elucidated below, the first illumination means 322 may cooperate with an annular light guide 340, to be disposed on top of the PCB 320, in order to form an illuminable ring-shaped brewing progress indicator 368 of an interface panel 360 of the tea maker 100; the interface panel 360 and progress indicator 368 are best shown in Fig. 3. The LEDs of the first illumination means 322 may be coupled and arranged to the PCB 320 such that their light 323, as illustrated in Fig. 1, is emitted in a substantially radially outward direction, which may be substantially parallel to the plane of the illuminable ring-shaped brewing progress indicator 368. The first illumination means 322 may comprise LEDs of a single color or LEDs of multiple colors, possibly in the form of multi-color LEDs. The exemplary embodiment of the tea maker 100 illustrated in Figs. 1-2 includes twenty-four first illumination means 322 in the form of LEDs; it is contemplated, however, that different embodiments of the tea maker 100 may include a different, smaller or larger, number of first illumination means 322.

- a plurality of capacitively sensors 326, one for each capacitive button 362 of the interface panel 360. In the depicted embodiment the capacitive sensors 326 are shown as capacitive coils, one for each of the eight capacitive buttons 362.

- a plurality of independently controllable second illumination means 324, in particular LEDs, disposed adjacent the capacitively sensors 326 and configured to illuminate the respective associated capacitive button 362. In the depicted embodiment, two LEDs 324 are disposed on opposite sides of each capacitive sensor 326.

- a plurality of independently controllable third illumination means 328, in particular LEDs, for illuminating a projection display 370 that, as such, is best shown in Fig. 3. In the depicted embodiment, the projection display 370 includes one two-segment and two seven-segment indicators, which together are capable of indicating numeric values from 0 to 199. Altogether, the third illumination means 328 may thus be comprised of sixteen LEDs. In case the projection display includes additional indications, e.g. a "°C"-indication or a "min."-indication for temperature and time, respectively, each of these extra indications may be provided with its own, dedicated third illumination means/LED(s).

- a loudspeaker 330 or other suitable electroacoustic transducer, capable of generating sound to notify a user.

- a central controller 332. The controller 332 may be operably connected to all the electric components in the power base 300, and when the vessel 200 is placed on the power base such that the two connector portions 230a, 230b are in mutual engagement, also to the electric components in the lower compartment 210 of the vessel 200. In addition, the controller 332 may typically include a processor or an integrated circuit capable of executing a certain program or series of instructions, so as to enable it to perform the actions described in this text. The construction and use of integrated circuits in is well known in the art, and will not be elaborated upon.

As is clearly visible in Fig. 2, the PCB 320 may be topped with a series of annular (i.e. having a central opening for encompassing the base portion 230b of the electric connector 230), more or less disc-shaped components. In upward order these components include: a light guide 340, a focusing mask 350, a transparent body 354, a masking layer 356 and a diffusion layer 358.

The light guide 340 may comprise a ring of an optically transmissive material, such as glass or a transparent plastic, e.g. polycarbonate or polymethyl methacrylate (better known as acrylic glass, or PMMA). The ring may have a wavy or sinuate inner circumferential edge 342, with a number of equidistantly spaced, radially inwardly extending protrusions 344, one for each of the first illumination means 322. In an assembled condition, the radially inwardmost edges or tips of the protrusions 344 may abut the light-emitting surfaces of the first illumination means 322, allowing them to couple light into the light guide 340. An upper, outwardmost edge of the light guide may form a light escape strip 346. To allow light, coupled into the light guide 340 by the first illumination means 322, to escape from the guide via the light escape strip 346, the exterior surface of the strip may be suitably treated, for example by abrasion, bending, or notching. Such treatment may frustrate the total internal reflection at the exterior surface boundary of the strip 346, and thus permit at least a fraction of the light incident on the boundary to be transmitted therethrough.

The focusing mask 350, which may have an inner opening sufficiently large to encompass the light guide 340, may include a ring with a number of opaque, for example black-colored light containers 352 attached thereto (see also Figs. 4A,B). A light container 352 may be associated with either a capacitive button 362, or with a segment indicator of
the projection display 370. Each of the light containers 352 associated with a capacitive button 362 may be generally
jacket shaped, so as to form a light chamber in which both the second illumination means 324 and the capacitive sensor
326 of the respective button can be enclosed (see Fig. 4A). The light containers 352 associated with the projection
display 370 may comprise a number of substantially vertically extending slots 353. Each of the slots 353 may define a
single segment 372 of the projection display, and be uniquely associated with one or more of the third illumination means
328 (see Fig. 4B). The upper edges of the walls of the light containers 352, in particular those associated with the projection
display 370, may extend a little inward (shown in Fig. 4B), so as to form a well-defined opening in the light-emitting
depth of the light container 352 that helps shape the cone of light that can escape therefrom. In fact, such inwardly
extending edges may fulfill the function of a mask, and locally replace the masking layer 356 to be discussed below.
The light containers 352 may be relatively high, e.g. about 10 mm, to ensure that light emitted by the second and first
illuminations means 324, 328 at the base of the light containers, in a direction that is not at least approximately perpen-
dicular to the plane of the PCB 320 on which they are mounted, is absorbed by the black-colored walls of the containers.

[0037] On top of the focusing mask 350 may come the transparent body 354, the masking layer 356 and the diffusion
layer 358. Although Fig. 2 shows these items as separable parts, they may preferably be integrated. That is, the trans-
parent body 354 may serve as a mechanical carrier, on an upper side of which the relatively thin masking layer 356 and
light diffusion layer 358 may be applied, in that order.

[0038] The transparent body 354 may include an annular disc made of a transparent and mechanically strong material,
such as glass or polycarbonate. The disc may have a thickness on the order of millimeters. Its upper side may be coated
with a thin, opaque masking layer 356. The masking layer 356 may have a thickness on the order of tens of micrometers,
and be applied to the transparent body using a conventional coating technique, such as screen printing. At the locations
associated with the ring-shaped brewing progress indicator 368, the capacitive buttons 362 and the projection display
370, the masking layer 356 may comprise transparencies 357 that, alone or in groups, define illuminable symbols 364,
366 or segments 372 of the interface panel 360. In the depicted embodiment, the entire area of the masking layer 356
associated with the projection display 370 is transparent (instead of multiple areas, each associated with single segment
372), which is possible because the masking function for the projection display 370 is performed by the inwardly extending
top edges of the walls of the light container 352 of the display (see Fig. 4B). The masking layer 356, in turn, may be
covered with a light diffusion layer 358. The primary function of the light diffusion layer 358 is that of a projection screen,
on which the patterns of the masking layer 350 can be imaged when backlit by the second and third illumination means
324, 328 provided on the PCB 320. The light diffusion layer 358 may further act as a wear resistant, preferably watertight
varnish. To serve both purposes, the light diffusion layer 358 may be composed of a conventional lacquer comprising
light scattering pigment particles of, for example, titanium dioxide or barium sulphate. In order to facilitate sharp projections
and prevent complete opacity, the light diffusion layer may generally have a thickness smaller than about 0.1 mm.

[0039] In one embodiment of the tea maker 100, the diffusion layer 358 may be made of wood; in such an embodiment
the wooden diffusion layer is referred to with reference numeral 359. Wood is a natural material with a calming aura that
fits with the naturalness and culture of tea, and may therefore be a material of choice. It is, however, also opaque. Figs.
35A and 5C schematically illustrate how symbols 364, 366 of capacitive buttons 362 may nevertheless be made visible
on the user interface panel 370. It is understood that, although Fig. 5 depicts the construction of capacitive buttons 362,
it is, mutatis mutandis, equally applicable to the segments 372 of the projection display 370 and other indicators, such as
a illuminable brewing progress indicator 368, on the user interface panel 360. The wooden diffusion layers 359 of
Figs. 5A and 5C may both be manufactured by providing a slab of wood or wood veneer, for example having a thickness
on the order of millimeters, and selectively milling or otherwise reducing it to a thickness on the order of several tenths
of millimeters, e.g. 0.1-0.4 mm, at the locations corresponding to illuminable portions of the symbols 364, 366, the
segments 372 and/or the brewing progress indicator 368. At thicknesses of tenths of millimeters, the wood becomes
translucent, such that light emanated by the first, second and/or third illumination means 322, 324, 326 may shine through
it, and the wood may act as a diffusion layer.

[0040] In Fig. 5A, the thickness of the wooden slab has been selectively reduced by removing material from the front
or outer side thereof, while in Fig. 5C, material has been removed from the back or inner side. Both embodiments offer
the advantage that the diffusion layer 359 remains a closed layer, having no perforations through which moisture may
easily access the power base 300. However, in case it is desired that the diffusion layer has a smooth or flat front surface
without notches or recesses, such as in the case of a 'dead panel' user interface, the embodiment of Fig. 5C may be
preferred.

[0041] With reference to the layered construction of the power base 300, it is noted that in embodiments comprising
a wooden diffusion layer, the masking layer 356 shown in Fig. 2 may be omitted from the construction of the tea maker
100 or be disposed on the other side (i.e. the bottom side) of the transparent body 354. In some embodiments, in
particular those not featuring a masking layer 356 provided against the bottom or inner side of the wooden diffusion
layer 359, a translucent white layer may be attached to the back side of the wooden diffusion layer in order to enhance
the visibility of the illuminated symbols 364, 366, segments 372 or brewing progress indicator 368. Such a translucent
white layer may be padprinted, lacquered, screen printed or otherwise provided on the back side of the wooden diffusion
Now that the construction of the tea maker has been described in some detail, attention is invited to its operation.

One half) visible to a user at any position next to the tea maker at the vessel reception location such that, in a fully illuminated state, it is still at least partly (typically for about 200. In such an embodiment, the brewing progress indicator may surround a vessel placed on the power base along a perimeter of an inner edge of the user interface panel, at a distance therefrom. The inner diameter of the apparatus.

Besides the capacitive buttons and the filter placement indicator, the user interface panel may also feature a projection display and a ring-shaped brewing progress indicator. The area of the user interface panel bounded by the brewing progress indicator may define a vessel reception location for receiving the vessel, as shown in Fig. 1.

The brewing progress indicator may be illuminated by the first illumination means, whose light may be successively transmitted through the light guide, the transparent body, the respective transparencies as described above. The same applies to the two display input buttons, which in the embodiment depicted in Fig. 3 are provided with functional symbols in the form of solid left resp. right pointing triangles. Their purpose is to enable a user to manipulate the figures shown on the display. The brewing program selection buttons may each be provided with a functional symbol. The functional symbol of the power on/off button may preferably be conventional for ease of recognition by the user, and may, if desired be padprinted or laser engraved in or on the diffusion layer, or made like a burn mark by a laser process, instead of being provided in the structure of the masking layer as described above.

Fig. 3 is a schematic top view of the power base of the tea maker, illustrating its user interface panel. It will be clear from the foregoing that the user interface panel may be a so-called 'dead panel'. That is, its visible surface may not include any permanent marks, and the symbols, segments and brewing progress indicator shown in Fig. 3 may be visible only when actively illuminated by the internal first, second and third illumination means.

Accordingly, the user interface panel may appear blank in case the tea maker is unplugged from the mains.

The transparent body itself may be manufactured and attached to the wooden diffusion layer by means of insert molding. In the embodiment of Fig. 5C, the resin used for the insert molding process may at least partially fill up the recesses in the back side of the wooden diffusion layer, and thus provide mechanical back support for the thinned, translucent portions thereof.

For comparison, Fig. 5B illustrates an alternative embodiment that may be manufactured in a generally similar manner as the embodiments of Figs. 5A and 5C, except that (through)holes or perforations may be milled in the slab of wood. The construction of Fig. 5B may also be used for the symbols, segments and/or the brewing progress indicator, but may generally be less preferred because small perforations may prove difficult to fill with resin during insert molding of the transparent body as air may be entrapped in the cavities. In addition, it will be clear that, due to the perforations, the wooden top layer in the construction of Fig. 5B may not actually serve as a diffusion layer. This implies that it is less suitable for creating 'dead panel' user interfaces, since the perforations of the wood would be visible on the interface panel at all times.

The user interface panel may feature a number of juxtaposed capacitive buttons, each provided with its own symbol. From left to right the panel depicted in Fig. 3 includes: a power on/off button, four pre-programmed brewing program selection buttons (to the left of the projection display), two display input buttons (one on either side of the display), and one programmable brewing program selection button (to the right of the projection display). To the right of the latter brewing program selection button, the user interface panel includes a filter placement indicator, which is not a button but merely an illuminable icon.

The power on/off button, the two display input buttons and the filter placement indicator may each be provided with a functional symbol. The functional symbol of the power on/off button may preferably be conventional for ease of recognition by the user, and may, if desired be padprinted or laser engraved in or on the diffusion layer, or made like a burn mark by a laser process, instead of being provided in the structure of the masking layer as described above. The same applies to the two display input buttons, which in the embodiment depicted in Fig. 3 are provided with functional symbols in the form of solid left resp. right pointing triangles. Their purpose is to enable a user to manipulate the figures shown on the display. The brewing program selection buttons may each be provided with a brewing program symbol. As will be explained below, the controller of the tea maker may assign a tea type specific brewing program to each of these symbols. The brewing program symbols themselves may preferably be non-numeric and non-alphabetic, so as to reduce a user's perception that he is dealing with a complicated technological device. The use of pictorial symbols may also reduce the manufacturing costs involved in producing the tea maker for different localities. For example, in the case of alphabetic labels, a button might have to mention "Black tea" in England, "Schwarztee" in Germany, and "Thé noir" in France, while in the case of a pictorial symbol, the button might be the same for all these countries. Furthermore, the brewing program symbols may preferably be comprised of separate, approximately circular dots, setting them apart from the continuous-line symbols typically found on conventional apparatus.

Besides the capacitive buttons and the filter placement indicator, the user interface panel may also feature a projection display and a ring-shaped brewing progress indicator. The area of the user interface panel bounded by the brewing progress indicator may define a vessel reception location for receiving the vessel, as shown in Fig. 1.

The brewing progress indicator may be illuminated by the first illumination means, whose light may be successively transmitted through the light guide, the transparent body, the respective transparencies as described above. The same applies to the two display input buttons, which in the embodiment depicted in Fig. 3 are provided with functional symbols in the form of solid left resp. right pointing triangles. Their purpose is to enable a user to manipulate the figures shown on the display. The brewing program selection buttons may each be provided with a functional symbol. The functional symbol of the power on/off button may preferably be conventional for ease of recognition by the user, and may, if desired be padprinted or laser engraved in or on the diffusion layer, or made like a burn mark by a laser process, instead of being provided in the structure of the masking layer as described above. The same applies to the two display input buttons, which in the embodiment depicted in Fig. 3 are provided with functional symbols in the form of solid left resp. right pointing triangles. Their purpose is to enable a user to manipulate the figures shown on the display. The brewing program selection buttons may each be provided with a brewing program symbol. As will be explained below, the controller of the tea maker may assign a tea type specific brewing program to each of these symbols. The brewing program symbols themselves may preferably be non-numeric and non-alphabetic, so as to reduce a user's perception that he is dealing with a complicated technological device. The use of pictorial symbols may also reduce the manufacturing costs involved in producing the tea maker for different localities. For example, in the case of alphabetic labels, a button might have to mention "Black tea" in England, "Schwarztee" in Germany, and "Thé noir" in France, while in the case of a pictorial symbol, the button might be the same for all these countries. Furthermore, the brewing program symbols may preferably be comprised of separate, approximately circular dots, setting them apart from the continuous-line symbols typically found on conventional apparatus. The brewing program symbols may preferably be comprised of separate, approximately circular dots, setting them apart from the continuous-line symbols typically found on conventional apparatus.

Now that the construction of the tea maker has been described in some detail, attention is invited to its operation.
A brewing process to be executed by the tea maker 100 may typically comprise the following series of steps:

1. Brewing program selection
2. Heating water to selected initial steeping temperature
3. Tea filter placement
4. Steeping tea for selected steeping time
5. Notifying user that tea is ready

Brewing program selection involves the choice of a tea brewing program by the user, wherein 'brewing program' refers to a certain temperature/time profile to be followed by the water contained in the water compartment 210 of the vessel 200 during the tea brewing process. A temperature/time profile may typically involve at least two consecutive phases: a heating phase (step 2) and a steeping phase (step 4). During the heating phase, the water in the vessel 200 may be heated to an initial steeping temperature. Heating of the water may include boiling it, but this is not necessary. For example, in case the initial steeping temperature is set to be 80°C, water may be heated from room temperature up to 80°C directly, e.g. along an approximately straight temperature/time-path. Alternatively, the water may first be boiled and then be cooled or left to cool to 80°C. Once the water has attained the set initial steeping temperature, the steeping phase of the tea may be initiated by placement of the tea filter (step 3). The duration of the steeping phase is given by the steeping time. When the steeping time has elapsed, the tea is ready for consumption (step 5).

A temperature/time profile outlined above may include three defining parameters that may differ for different types of tea: the initial steeping temperature (a temperature value), a pre-steep boiling flag that controls whether or not the water is heated to its boiling point before steeping (a Boolean value, true of false), and the steeping time (a time value). The controller 332 of the tea maker 100 may assign a value for one or more of these parameters to a brewing program symbol 364 of the user interface panel 360, so as to define the brewing program associated therewith.

Fig. 6 illustrates four temperature/time profiles I, II, III, IV that may be associated with the four pre-programmed brewing program selection buttons of the user interface panel 360 shown in Fig. 3. The leftmost brewing program selection button, featuring a brewing program symbol in the form of a fully illuminated tea leaf, may for example be associated with a brewing program for black tea. The controller 332 may accordingly assign the values 100°C, true, and 2 minutes to the initial steeping temperature, the pre-steep boiling flag and the steeping time, respectively. The second brewing program selection button from the left, featuring a symbol in the form of a edge-lit tea leaf, may likewise be associated with a brewing program for green tea, and the controller 332 may successively assign the values 80°C, true, and 2 minutes to the aforementioned variables, in that order. The third and fourth symbols from the left, having the shape of a flower and a rooibos plant respectively, may in turn be associated with brewing programs for respectively herbal tea and rooibos tea. The controller 332 may assign the values 100°C, true, and 7 minutes to the former brewing program symbol, and the values 100°C, true and 5 minutes to the latter. Fig. 6 graphically illustrates these assignments. It is understood that the above-described assignments are exemplary only, and that, in principle, any combination of values may be assigned to any brewing process symbol.

To enable the selection of a brewing program by the user, the controller 332 may suitably illuminate the brewing program selection symbols 364 in the user interface panel 360 by powering the associated second illumination means 324. The controller 332 may, for example, first illuminate all symbols 364, in order to present the user with all available options, and then keep only a selected symbol illuminated to provide the user feedback of the selection. The controller 332 may, in addition or alternatively, provide feedback to the user by making symbols 364 blink, by changing their colors (if the second illumination means provide for light of different colors), or by generating sounds through the loudspeaker 330 to accompany a selection.

Once a user 'presses' a brewing program selection button to select the brewing program of his choice, the controller 332 may load the corresponding brewing parameters from its memory. In case the user pressed a pre-programmed brewing program button, the controller 323 may immediately proceed to step 2 of the brewing process. Alternatively it may wait for a confirmation before starting the heating phase (e.g. through pressing the selected button again). In case the user pressed the user-programmable brewing program selection button, the controller may present the selectable parameters of the brewing program to the user via the projection display 370 for optional review. When the user has entered his preferences, the controller 332 may proceed to step 2 of the brewing process.

To heat the water in the vessel 200 to the initial steeping temperature in accordance with the temperature/time profile associated with the selected brewing program, the controller 332 may selectively switch the electric heating element 222 on and off. Alternatively, the controller 332 may, for example, vary the power supplied to the heating element 222, or employ a more sophisticated PID-controller strategy. When the heating element 222 is switched on, it may generate heat that is transferred to the water, causing its temperature to rise. When the heating element 222 is switched off, heat may slowly leak from the vessel 222, causing the water temperature to drop. The water temperature itself may be measured by means of the temperature sensor 224. Accordingly, the controller 332 may control and monitor the progress of the heating phase, and once the selected initial steeping temperature is reached, it may notify the user that...
As described, some teas, such as black tea, may have a relatively high optimal steeping temperature, e.g. around 90-100°C. A consequence of such high steeping temperatures is that the freshly brewed tea, at the end of the steeping phase (step 4), may notify the user that the tea has been brewed and is ready for consumption (step 5).

At the time the tea maker 100 notifies the user that the tea filter 216 may be placed, it may switch off the heating element 222 to stop the heating of the water, and inform the user. In the case of an underfill protection, the controller 332 may similarly be configured to compare the determined volume of water to a minimum water volume-reference value; and in case the determined volume of water is smaller than the minimum water volume-reference value, to stop heating the water.

The amount of heat \( Q \) required to raise the temperature of a mass of \( m \) kilograms of water by \( \Delta T \) degrees Celsius is dependent on the specific heat capacity \( c \) of water, which is about 4.18 Joule/gram°Celsius. The time \( \Delta t \) it takes to heat the mass of water by \( \Delta T \) degrees Celsius is furthermore dependent on the dissipative power \( P \) of the heating element used to supply the heat. Mathematically, the relation between these variables may be expressed as:

\[
Q = P \cdot \Delta t = c \cdot m \cdot \Delta T
\]  

The controller 332 of the tea maker 100 may be programmed with knowledge of the values of \( P \) and \( c \). Using an internal timer to monitor the lapse of a representative period of heating time \( \Delta t \), e.g. 10-50 seconds, and measuring the increment in water temperature \( \Delta T \) that occurs during this period of heating by means of the temperature sensor, it may calculate the amount of water contained in the water compartment, either in units of mass (e.g. kilograms), units of volume (e.g. liters; obtainable from \( m \) by dividing it by the density of water per liter), or any other suitable unit. In the case of an underfill protection, the controller 332 may subsequently compare the calculated amount of water with a pre-programmed reference value that represents the maximum water compartment 210-specific amount of water that can be heated and poured safely. In case it finds that the amount of water contained in the water compartment exceeds the safe maximum, it may stop the heating of the water, and notify the user. In the case of an underfill protection, the controller may subsequently compare the calculated amount of water with a pre-programmed reference value that represents a minimum water compartment 210-specific amount of water required to operate the device safely. In case it finds that the amount of water contained in the water compartment is smaller than the safe minimum, it may switch off the heating element 222 to stop the heating of the water, and notify the user.

At the time the tea maker 100 notifies the user that the tea filter 216 may be placed, a user may be temporarily occupied and unable to respond to the notification. To accommodate situations like these, the controller 332 may be configured to keep the water temperature close to the set initial steeping temperature during the time it awaits placement of the filter 216. That is, the controller 332 may be configured to monitor the temperature of the water in the water compartment 210, and in case it notices that the temperature drops below the set initial steeping temperature by more than a predetermined value, e.g. 3°C or 5°C, it may temporarily re-activate the heating element 222 to bring the temperature back to the initial steeping temperature. The controller 332 may preferably maintain the water temperature close to the initial steeping temperature for no more than a predetermined period of time, e.g. 5-10 minutes. If after this period no filter 216 has been placed the controller 332 may shut down the tea maker 100, so as to prevent it from heating water that appears to be forgotten.

Placement (and removal) of the tea filter 216 (step 3) may be detected by the controller 332 through the reed switch 226, which may be operated by the magnet 218 provided in on or on the filter. When the controller 332 has notified the user that the tea filter 216 may be placed, and placement of the filter is subsequently detected, the controller may initiate the steeping phase of the brewing process (step 4).

To this end the controller 332 may cancel any notification that the filter 216 may be placed, and switch off the heating element 222. Then it may count the steeping time associated with the selected brewing program. When the steeping time has elapsed, it may notify the user that the tea has been brewed and is ready for consumption (step 5).

As a safety feature, the heating step may include an under- and/or overfill protection. An underfill situation occurs when there is no or a too small amount of water in the water compartment 210 during the heating phase. In the event an underfill remains undetected, it may result in an overheated heating element 222 due to the fact that the element is insufficiently capable to give off its heat. An overfill, in contrast, occurs when there is too much water in the water compartment 210. The high water level that characterizes an overfill situation may be dangerous as rapidly heated water may spit from the spout 206 of the vessel 200, or splash against its lid 220. To detect an overfill situation, the controller 332 of the tea maker 100 may be configured to determine, during heating the water to the initial steeping temperature, an increment in the temperature of the water over a certain time interval of heating; to determine using said temperature increment, the duration of the observed time interval of heating and data regarding a specific heat capacity of water and a dissipative power of the heating element, an amount of water contained in the water compartment 210; to compare the determined amount of water to a maximum water amount-reference value; and in case the determined amount of water is greater than the maximum water amount-reference value, to stop heating the water. To detect an underfill situation, the controller 332 may similarly be configured to compare the determined amount of water to a minimum water volume-reference value; and in case the determined volume of water is smaller than the minimum water volume-reference value, to stop heating the water.
steeping phase, may be relatively hot, and often too warm to drink comfortably. To promote the ready drinkability of freshly brewed tea, the controller 332 of the tea maker 100 may preferably be configured not to heat the water during steeping. That is, from the point that the tea filter 216 is inserted into the water compartment 210, and steeping of the tea commences, the controller 332 may preferably refrain from heating the water, at least until the predetermined steeping time has lapsed. This allows the water to cool slightly during steeping, just like during traditional tea brewing, such that, at the end of the steeping phase, the brewed tea has a temperature that is at, or at least closer to, a safe and pleasant drinking temperature. Another benefit of refraining from heating during the steeping phase is that sugary content of the tea will not caramelise against heated parts of the tea maker 100, such as the partition 208. The controller 332 may, of course, be configured to maintain the water in the water compartment 210 at a suitable drinking temperature, for example in the range of 60-70°C, once the steeping phase has ended.

During the tea brewing process, the tea maker 100 may issue notifications to notify a user of a variety of events, as described. It is understood that these notifications may generally be given in any suitable way, including suitably lighting any of symbols 364,366 on the user interface panel 360, and/or generating sounds through the loudspeaker 330. In addition, notifications may be given by means of the brewing progress indicator 368. By way of example, possible uses of the brewing progress indicator 368 for issuing notifications will now be described in some more detail.

As its name implies, the brewing process indicator 368 may be used primarily to inform the user of any progress in the tea brewing process. In this respect, it may notify a user that certain steps or stages of the brewing process have been reached and/or completed. The operation of the brewing process indicator 368 may be controlled by the controller 332, which to this end may be configured to control the first illumination means 322 according to an illumination notification pattern stored in the controller 332. A notification pattern may comprise a sequence or arrangement of different activities, such as activating and/or deactivating one or more first illumination means 322, increasing and/or decreasing the light intensity of one or more first illumination means, blinking of one or more illumination means during a predetermined time period with a predetermined frequency and setting a light emitting color of one or more first illumination means. Although one notification pattern may be used for all brewing programs, some embodiments may allow a notification pattern to be uniquely associated with a certain brewing program or tea type. In general, each of the first illumination means 322 may be individually controlled by the controller 332 in accordance with the prescriptions of the notification pattern.

To inform the user of any progress in the tea brewing process, the notification pattern may prescribe that the brewing progress indicator 168 is gradually illuminated or filled with light, for example by successively turning on adjacent first illumination means 322 so as to form a gradually extending string of light. At the start of the brewing process, the progress indicator 368 may thus not be illuminated, whereas at the point of completion of the brewing process, the progress indicator 368 may be illuminated completely (forming an illuminated ring). The notification pattern may prescribe that the brewing progress indicator 368 is to be illuminated in one color or in multiple colors (if provided for by the first illumination means 322), for example to form a multi-colored arc starting in green and ending in red.

In addition to its basic function of indicating brewing progress by having an indicative or proportional portion of its length illuminated, the brewing progress indicator 368 may also be used to notify the user of certain events or to provide him with information about the status of the tea maker 100.

For instance, at the start of the tea brewing process, the water in the vessel 200 is heated to a predetermined initial steeping temperature. The notification pattern may prescribe that the first illumination means 322 are to reflect the changing temperature of the water during this heating phase. Accordingly, the first illumination means may for example be controlled such that their color changes, for instance from blue when the water is cold, to red when the water is hot. Alternatively or in addition, the first illumination means 322 may be controlled to blink during the heating period with a predetermined frequency that depends on the water temperature. The first illumination means may for example blink at a low frequency when the water is cold, and at a high frequency when the water is hot. According to yet another alternative, the light intensity of the light emitted by the first illumination means 322 may be varied, from a low intensity when the water is cold, to a high intensity when the water is hot.

In another embodiment, the brewing process indicator 368 may be used to notify the user of filter placement (step 3 of the brewing process). For instance by periodically or continuously changing the color of the light that fills the brewing progress indicator 368, the user may be made aware of the fact that the tea filter 216 may be inserted. Alternatively, the first illumination means 322 of the progress indicator 368 may be controlled such that they start blinking. To avoid confusion, the controller 332 may control the first illumination means 322 such that the blinking frequency differs from the blinking frequency that is coupled to another notification that may be issued. Once the tea filter 216 has been placed, the brewing progress indicator 368 may continue to show the progress of the tea brewing process in the regular fashion.

In yet another embodiment, the brewing progress indicator 368 may be used to notify the user of the fact that tea is ready for consumption. Such a notification may, of course, be provided by the fact that the progress indicator 368 is completely filled with light, but again, notification pattern may additionally prescribe that the first illumination means 322 are controlled such they start blinking, for example by gradually fade in and out, or execute any other lighting variation mentioned above.
Apart from notifying the user of progress in the brewing process, e.g. that certain steps or stages have been reached, the progress indicator 368 may also be used to inform the user of information regarding the status of the tea maker 100. The controller 332 may, for example, be preprogrammed such that certain situations that may occur when using the tea maker 100 may initiate a notification. In case of the underfill situation of the overfill situation as described above, the tea maker 100, or at least the heating element 222, may be automatically switched off to prevent damage of the tea maker 100 or to prevent the occurrence of unsafe situations. Then, the user may be informed accordingly, for instance by means of a sound generated by the loudspeaker 330 and/or by means of the brewing progress indicator 368. Therefore, the controller 332 may control the first illumination means 322 to execute any of the aforementioned lighting variations. The brewing progress indicator 368 may also be used to periodically notify the user that the tea maker 100 needs to be cleaned or descaled.

With regard to the terminology used in this text the following is noted. The word ‘tea’ is generally used loosely to describe beverages made with the leaves of a plant. Accordingly, the word ‘tea’ not only refers to beverages prepared from the plant Camellia sinensis, but also intends to cover tisanes, herbal infusions and the like.

Although illustrative embodiments of the present invention have been described above, in part with reference to the accompanying drawings, it is to be understood that the invention is not limited to these embodiments. Variations to the disclosed embodiments can be understood and effected by those skilled in the art in practicing the claimed invention, from a study of the drawings, the disclosure, and the appended claims. Reference throughout this specification to “one embodiment” or “an embodiment” means that a particular feature, structure or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearances of the phrases “in one embodiment” or “in an embodiment” in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, it is noted that particular features, structures, or characteristics of one or more embodiments may be combined in any suitable manner to form new, not explicitly described embodiments.

Claims

1. A tea maker (100), comprising:
   - a power base (300) including an upper portion that provides for a user interface (360) and for a vessel reception location (361), which location is adapted to receive a vessel (200) that is detachable from the power base, wherein the user interface (360) includes an illuminable brewing progress indicator (368) that extends at least partially around said vessel reception location, such that at least a portion of the brewing progress indicator is visible from any position around the power base when the vessel is received at said vessel reception location; and
   - a controller (332) that is configured to control the brewing progress indicator (368) during a tea brewing process, such that a user is notified of progress in said process by a change in illumination of the brewing progress indicator.

2. The tea maker according to claim 1, wherein the brewing progress indicator (368) is substantially ring-shaped.

3. The tea maker according to claim 1 or 2, wherein the brewing progress indicator (368) includes one or more transparent sections of a surface of the upper portion of the power base (300).

4. The tea maker according to claim 3, further comprising first illumination means (322) that are operably connected to the controller (332), and that are associated with said transparent sections, such that the controller may light the first illumination means to illuminate said brewing process indicator (368).

5. The tea maker according to claim 4, further comprising a light guide (340) that, at a first location (342), is disposed adjacent said first illumination means (322), and that, at a second location (346) remote from the first illumination means, is arranged adjacent said transparent section(s) of the brewing progress indicator (368).

6. The tea maker according to claim 4 or 5, wherein the first illumination (322) means include a plurality of mutually spaced apart light emitting devices, each of which can be controlled independently of the others by the controller (332).

7. The tea maker according to claim 6, wherein each light emitting device comprises a light emitting diode of a single color.

8. The tea maker according to claim 6, wherein each light emitting device comprises multiple light emitting diodes of different colors.
9. The tea maker according to any one of claims 4-8, wherein the controller (332) is configured to control the first illumination means (322) based on an illumination notification pattern stored in the controller, wherein said notification pattern is coupled to a certain tea and/or tea maker property.

10. The tea maker according to any one of the claims 4-9, wherein the controller (332) comprises a memory to store tea and/or tea maker properties that are input by the user.

11. The tea maker according to claim 9 or 10, wherein the controller (332) is configured to control each light emitting device individually in dependence of the notification pattern.

12. The tea maker according any one of claims 9-11, wherein the notification pattern comprises activating and/or de-activating at least one of the light emitting devices.

13. The tea maker according to any one of claims 9-12, wherein the notification pattern comprises increasing and/or decreasing a light intensity of at least one of the light emitting devices.

14. The tea maker according to any one of claims 9-13, wherein the notification pattern comprises blinking of at least one of the light emitting devices during a predetermined time period with a predetermined frequency.

15. The tea maker according to any one of claims 9-14, wherein the notification pattern comprises setting a light emitting color of at least one of the light emitting devices.
# European Search Report

## Documents Considered to be Relevant

<table>
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<th>Category</th>
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The present search report has been drawn up for all claims.

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### Classification of the Documents

- **X**: particularly relevant if taken alone
- **Y**: particularly relevant if combined with another document of the same category
- **A**: technological background
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- **P**: intermediate document
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- **L**: document cited in the application
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### DOCUMENTS CONSIDERED TO BE RELEVANT

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REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

• WO 2009109011 A [0003]