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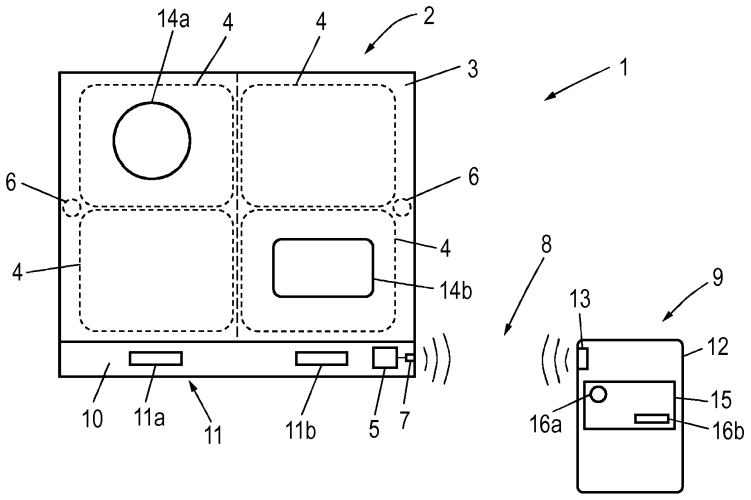
(54) INDUCTION HOB APPLIANCE

(57) Induction hob appliance comprising a hob plate (3), several induction coils (4) arranged below the hob plate (3) and controllable via a control device (5) to form one or more cooking zones at the hob plate (3), a user interface (10) comprising at least one control set (11a-d) with at least one touch key (18a-d, 19a-d) and, optionally at least one display (20a-d), sensor means (6) for detecting a cookware piece (14a-e) placed on the hob plate (3), and a communication device (7) for establishing a wireless bidirectional communication path (8) to a mobile control device (9), wherein the mobile control device (9) is adapted for user based selecting a cookware piece (14a-e) via a touch screen (12) of the mobile control device (9) based on a cookware detection information sent to the mobile control device (9), wherein the control device (5) is adapted to associate the control set (11a-d) to the selected cookware piece (14a-e) based on a selection information sent from the mobile control device (9) for setting a cookware piece related power parameter and for displaying a parameter information.

FIG. 1



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Description

[0001] The invention generally relates to the fields of induction hob appliances. More specifically, the present invention relates to an induction hob appliance comprising a hob plate, several induction coils arranged below the hob plate and controllable via a control device to form one or more cooking zones at the hob plate, a user interface comprising at least one control set with at least one touch key and, optionally at least one display, sensor means for detecting a piece of cookware placed on the hob plate, and a communication device for establishing a wireless bidirectional communication path to a mobile control device.

[0002] Induction hobs for preparing food are well known in the prior art. They typically comprise one heating zone which is associated with at least one induction coil. For heating a piece of cookware like a pot or a pan or the like which is placed on the heating zone, the induction coil or the induction coils are coupled with electronic driving means, usually referred to as a power unit, for driving an AC current through the induction coil.

[0003] Furthermore, induction hobs are known comprising several separate or multiple heating zones. Each heating zone is associated with at least one, preferably more induction coils. This allows for heating piece of cookware of a larger size by merging two or more heating zones for forming a larger heating zone corresponding to the actual size respectively the size of the base area of the piece of cookware placed on the hob plate. For detecting a piece of cookware on the hob plate, sensor means are used, which allow for detecting the position of the piece of cookware and the size of the base of the piece of cookware, with the control device being adapted to control the respective heating coils depending on the detection information. These sensor means may be separate, discrete sensors, or longitudinal sensor arrays or lines or sensors etc.

[0004] The use of respective sensor means also allows for placing a piece of cookware anywhere on the hob plate without any size or position limits, as the sensor means can detect the respective piece of cookware almost anywhere on the hob plate. The user can therefore use almost the entire size of the hob plate, as the respective induction coils can be merged respectively depending on the position detection information. Therefore, the user is able to use a piece of cookware of any size and can place them almost anywhere on the hob plate without limits.

[0005] Especially the possibility of placing the cookware anywhere on the hob plate and thus being able to cook anywhere on the plate allows for using almost the whole plate area. Thus, the user is free to place more pieces of cookware on the plate than he could with non-flexible cooking zones, which usually limit the use to a certain number of pieces of cookware. The user is now able to e.g. place six or seven pieces of cookware on the hob plate of a size comparable to a hob plate of prior art with only four fixed cooking zones or cooking areas. This flexibility necessitates to provide respective control means at the user interface allowing for the user to control all pieces of cookware he can place on the hob plate separately. This makes the setup of the induction hob complex, as the user interface needs to provide the respective control sets for separately controlling the respective piece of cookware.

[0006] It is an object of the invention to provide an induction hob appliance with a less complex setup while allowing for a simple control of the heating process of respective pieces of cookware.

[0007] For solving the problem, an induction hob appliance as mentioned above is characterized in that the mobile control device is adapted for user based selecting a piece of cookware via a touchscreen of the mobile control device based on a cookware detection information sent to the mobile control device, wherein the control device is adapted to associate the control set to the selected piece of cookware based on a selection information sent from the mobile control device for setting the cookware related power parameter and for displaying parameter information.

[0008] The inventive induction hob appliance comprising the induction hob and the mobile control device, both adapted for a bidirectional communication, is simple in the setup while allowing for respective control of each and every piece of cookware placed on the hob. The mobile control device is used as an additional user interface based on the communication with the induction hob respectively the hob control device. After having detected one or several pieces of cookware placed on the hob plate, an information is sent from the control device of the hob via the communication device to the mobile control device, for example a smartphone or a tablet or the like. On the touch screen of this mobile control device a respective detection information is shown, preferably visually by means of a picture or diagram of the hob plate surface indicating the position of a detected piece of cookware. The user may now select one of the pieces of cookware he likes to control by simply selecting the piece of cookware by touching the touch screen of the mobile control device. The mobile control device now sends a selection information to the hob control device, which is adapted to associate the at least one control set to the selected piece of cookware based on the selection information for controlling the heating process of the selected piece. After this association, the control set is for the coming control process clearly associated to the respective piece of cookware respectively the respective induction coil or coils used for heating the selected piece of cookware. The user may now set a cookware related parameter via the control set of the hob by using the at least one touch key. This allows for raising or lowering the heating power as need be. Parallel to setting the respective power parameter, a respective parameter information is displayed on the display of the associated control set, so that the user clearly knows about the chosen set-

ting.

[0009] The induction hob respectively its user interface setup is less complex and quite simple, a low-end user interface may be used, and a respective control set is only selectively associated to a selected piece of cookware, but not permanently to a fixed heating zone or heating area. As explained in detail below, in the simplest embodiment only one control set may be used, which is selectively associated with a respective selected piece of cookware, thus its association is permanently changed when the user selects a new piece of cookware simply via the touch screen and the respective hob plate display displayed on the touch screen of his mobile control device. The advanced graphic display of the mobile control device is used for displaying the selection display, so that it is very simple and comfortable for the user to associate the display with the respective situation on the hob plate and to select a piece of cookware he likes to control. As the mobile control device is only used for selecting a respective piece of cookware, while the setting of the power parameter needs to be done by manual interaction of the user with the control set respectively the touch key at the hob, the use of the induction hob is only possible with a permanent attendance of the user as he always needs to be close to the hob for setting the respective power parameter for the respective piece of cookware. So, the safety relevant setting of the power always needs an interaction of the user at the hob, the invention is therefore especially, but not exclusively, relevant for hobs requiring attendance.

[0010] As already mentioned above, the hob user interface may be a very simple low-end interface. It may for example comprise only one or a few control sets, each comprising at least one simple touch key, preferably two touch keys (one for raising and one for lowering a power parameter) and a simple display, for example a 7-segment-display. The induction hob setup is therefore less complex than the mobile control device, on which a respective software application is provided adapted to realize the respective bidirectional communication and to allow for the respective display and selection, with the mobile control device being integrated in the induction hob appliance as a hob external user interface. This mobile controlling possibility is very comfortable and intuitive for the user, who is usually used to using a mobile control device like a smartphone or a tablet for working with it in any field of life. Now, he simply needs to use the cooking software and to communicate with the hob via a respective wireless communication path like a Bluetooth or Wifi connection or the like by using the mobile control device. Therefore, not only the induction hob setup is simplified, also the control of the hob itself is simplified and more user friendly.

[0011] The mobile control device may comprise a software application adapted to establish the communication path and for establishing the communication with the user as already mentioned. The software allows for establishing the communication connection to the control device of the hob on the one hand, on the other hand it allows for a communication with the user by displaying the respective cookware detection information on the high-resolution touch screen and to detect any touch control of the user on the touch screen. So, the user permanently receives respective information via the touch screen and gives control signals on the touch screen, which is provided in form of respective control signals and sent to the hob control device by the software and the respective communication path. The software application can for example be downloaded via the internet from a respective website or the like, so that the user can frequently update the software application if need be.

[0012] The detection information may be displayed in any kind of information form on the touch screen of the mobile control device. The information may also be displayed in written form, an advantageous embodiment of the invention is characterized in that an imagination of the hob plate with an indication of the detected pieces of cookware is displayable on the touch screen, with the pieces of cookware being selectable by touching the touch screen in the area of the displayed indication. This picture is a very simple way for the user to make an association of the displayed information to the real situation on the hob plate, as the picture is a 1:1 display of the cookware distribution on the hob plate. The indication may be displayed e.g. in form of a small dot, with the user simply touching his touch screen at the area of the displayed dot for selecting the respective piece of cookware symbolized by the dot.

[0013] In a further preferred embodiment of this displayed imagination the indication may correspond to the geometry and/or size of the detected piece of cookware. Therefore, not only the position is shown via the indication, but also the geometry of the respective piece of cookware is indicated. For a round pot for example a round dot is shown. If an elongated pot is used, a respective geometry corresponding elongated or elliptical indication is displayed. Also, the size of the respective indication may vary depending on the detected real size of the piece of cookware. For example, small, medium and large indications may be used, depending on respective sizes of the used piece of cookware. So, the indication may vary in geometry and/or size allowing for the user to even easier identify the respective piece of cookware, when several pieces of cookware are placed on the hob plate.

[0014] As already mentioned above, the final setting of the power parameter needs to be done by a manual interaction of the user with the simple, low-end user interface of the induction hob, i.e. by touching the at least one touch key of the control set. This setting of the cookware related power parameter may be done by setting the parameter in its value. So, the user may raise or lower a respective power parameter value, which for example ranges from 1 to 9 with 9 being the maximum power by using for example a "+"- or "-"-touch key. Due to the association of the control set, only the respective induction

coils above which the respective selected piece of cookware is placed is now controlled. In an alternative to directly setting the value via the user interface touch key, it is possible that the value of the power parameter is settable by the mobile control device via the touch screen, and is confirmable by the touch key. In this embodiment, the user sets the respective power parameter respectively value via the touch screen, the respective set value is sent as a respective setting information signal via the wireless communication path to the user interface respectively the hob control device. Although the value is now set, a mandatory manual interaction of the user with the hob interface is still necessary, as the user needs to confirm the value selection by manually pressing a touch key of the associated control set of the user interface. Only then the respective power parameter or value is finally used as a control basis. The user interface may send a respective confirmation signal to the mobile control device informing the user that his setting is finally accepted.

[0015] In one embodiment of the invention, the user interface may comprise several control sets with at least one indication means for indicating a selection of association of a control set. For example, three or four control sets are provided at the user interface each comprising an indication means, preferably in form of an indication lamp, especially a LED, which is illuminated or starts to flash when a respective selection and association of this respective control set to the selected piece of cookware is set. Therefore, the user who has just selected a piece of cookware via his mobile control device can immediately see by the respective illuminated or flashing indication means which control set is associated to the selected piece of cookware, so that he can finally set the respective power parameter or confirm the pre-setting done at the mobile control device etc.

[0016] When for example three or four simplified control sets are provided at the user interface, and the number of pieces of cookware placed on the hob plate equals the control set number, a kind of fixed association may be realized. In this embodiment, a first control set is permanently associated to a first piece of cookware during the cooking process, a second control set is permanently associated to a second piece of cookware etc. This permanent association can no longer be maintained, when more pieces of cookware are placed on the hob plate than control sets are provided. In this case, according to another embodiment of the invention, each of the control sets is associable to various pieces of cookware. So, when more pieces of cookware than control sets are on the hob plate, the respective control sets are associated to the respective piece of cookware in a varying manner depending on the current selection via the mobile control device. When a new piece of cookware is selected and all control sets are already assigned, for example the control set which is assigned for the longest time is now on assigned to the new selected piece of cookware or the like.

[0017] As already mentioned above, the most reduced and simplified user interface setup comprises only one control set. In this case, the one control set is variable associable to various pieces of cookware detected. So, when several pieces of cookware are on the plate, the control set is always associated to a new selected piece of cookware for controlling it. The hob setup is very simple and less complex, while also the handling is very simple, as, due to the fact, that the user always needs to select a respective piece of cookware to be controlled, the one control set is always associated to the just selected piece of cookware. The user cannot erroneously confuse a control set, as only one control set directly associated is provided.

[0018] In a further embodiment, at least one further control parameter influencing the cooking process is selectable via the mobile control device and confirmable by the control set. Apart from setting the power parameter, also one or several other operating parameters may be selected via the mobile control device, but each and every selected operational parameter always needs to be confirmed by a manual interaction of the user with the hob user interface. The user interface is still, also in this advanced embodiment, very simple, as it is only needed for confirmation purposes by touching the control key of the control set after the user has made his selection via his mobile control device. Such a further control or operational parameter may for example refer to the start or stop signal for a pre-set cooking program or cooking function or for a detection program or function stored in a control device. A pre-set cooking program may for example be a semi or fully automatic cooking program especially for specific food like rice, fish, specific meat, vegetables etc. A detection program or detection function may for example refer to a temperature detection in respective cooking zones via a temperature sensor, for boiling detection or the like. This listing is not final, it just gives some prominent examples of cooking and detection programs or functions which may be selected via the mobile control device.

[0019] For selecting such a cooking or detection program, a selectable information of pre-set cooking programs or functions of pre-set detection programs or functions selectable via the touch screen is displayable on the touch screen. These programs or functions may be displayed in form of a list in a kind of sub-menu. The selection is simply done by touching the touch screen in the area of the displayed program, with again a selection of information signals being sent via the wireless communication path to the control device of the hob requesting a final confirmation touch of the user, i.e. a manual interaction at the hob user interface.

[0020] As already mentioned, the control setup preferably comprises at least two touch keys, one for raising and one for lowering a power value and a display in form of a 7-segment display. The touch keys may also be used for simply confirming a setting done at the mobile control device. The 7-segment display is sufficient to display re-

spective power values, e.g. from 1 to 9.

[0021] Apart from the induction hob appliance, the invention also refers to a method for controlling an induction hob of an induction hob appliance as mentioned above, comprising the following steps:

- Displaying an imagination of the hob plate with one or more indications of cookware detected on the plate on the touch screen of the mobile control device,
- selecting a piece of cookware by touching the touch screen in the area of the indication of the respective piece of cookware,
- sending a selection information to the control device of the hob,
- associating a control set to the selected piece of cookware based on the selection information,
- setting a cookware related power parameter via the touch key and displaying a parameter information via the display.

[0022] The display imagination is based on a cookware imagination information, which is generated by the detection or sensor means of the hob, and which is sent to the mobile control device via the wireless communication path. The step of setting a cookware related power via the touch key may comprise the setting of a respective power value directly at the hob user interface by using the one or the two touch keys, preferably used for raising or lowering a respective value displayed as a number at the control set display. But this step also comprises the possibility that a respective value is chosen by the user via his mobile control device touch screen, which chosen value is sent to the hob user interface via the wireless communication path. The final setting is then performed by manually touching the touch key of the hob control set as a confirmation.

[0023] The inventive method may further comprise the steps:

- Displaying a selectable information of further selectable control parameters in form of pre-set cooking programs or functions or of pre-set detection programs or functions on the touch screen,
- selecting at least one further control parameter by touching the touch screen,
- sending a selection information to the control device,
- setting the selected control parameter by touching a touch key of the control device.

[0024] Also, in this embodiment, the selection of the respective program/function is manually done via the mobile control device touch screen. The final setting or confirmation of the chosen program/function needs to be done for safety reasons by a manual interaction of the user with the user interface of the hob.

[0025] Various aspects of the invention, including its particular advantages, will be readily understood from the following detailed description of embodiments of the invention and the drawings, in which:

Fig. 1 Shows a schematic view of an induction hob appliance comprising the induction hob and a mobile control device,

Fig. 2 is an enlarged view of a user interface of the hob of fig. 1,

Fig. 3 is a schematic view of the induction hob arrangement with five pieces of cookware placed on the hob plate, all controllable via the mobile control device, and

Fig. 4 is a schematic view of the induction hob arrangement showing another situation with three pieces of cookware placed on the hob plate and the possibility of choosing a cooking or detection program via the mobile control device.

[0026] In the following a detailed description of the invention is provided, with reference to the accompanying drawings. The description respectively the embodiments do not limit the invention, they are just used for illustration purposes to present the information in more detail. Similar reference numbers are used in the following description to denote similar elements and parts, if applicable.

[0027] Fig. 1 shows a schematic view of an inventive induction hob appliance 1, comprising an induction hob 2 with a hob plate 3. The induction hob 2 comprises several induction coils 4 arranged below the hob plate 3, which induction coils 4 are shown by the dotted lines in principle. A control device 5 is provided for controlling the respective induction coils 4 in order to create respective zones or areas in which a respective piece of cookware is placed for heating the piece of cookware, but only the piece of cookware, not the area around the piece of cookware.

[0028] The induction hob 2 furthermore comprises sensor means 6, which are only shown in principle by the dotted lines, which sensor means 6 are used for detecting a piece of cookware placed on the hob plate 3, so that based on this information the control device 5 can directly control the respective induction coils 4 to solely heat the respective piece of cookware, also by merging two or more induction coils 4.

[0029] Preferably the piece of cookware may be placed anywhere on the hob plate 3, as by the sensor means 6 the location and preferably also the size and geometry of the respective piece of cookware can be detected, so that the control device 5 can exactly control the respective needed induction coils 4.

[0030] The control device 5 also communicates with a communication device 7 used for establishing a bi-directional communication path 8 to a mobile control device 9 like a smartphone or tablet held respectively and used by a user for controlling the induction hob 2.

[0031] Finally the induction hob 2 comprises a user interface 10 comprising at least one, preferably several control sets 11, each comprising at least one touch key and one display, to which control sets 11 reference is made in the latter description. The control sets 11 are used for controlling the heating process of the respective piece of cookware placed on the hub plate 3 via the control device 5.

[0032] As already mentioned, the mobile control device 9 is used by the user for interacting with the user interface 10 respectively the control device 5. The user mobile control device 9 comprises a touch screen 12 on which respective information can be displayed and respective commands needed for controlling the induction hob 2 can be given. The mobile control device 9 also comprises a communication device 13 used for establishing the bi-directional communication path 8 to the communication device 7 of the hob 2.

[0033] In the embodiment shown in Fig. 1, two pieces of cookware 14a, 14b are placed on the hob plate 3. The sensor means 6 locate the positions and the geometries of the pieces of cookware 14a, 14b, the respective information is given to the control device 5. A detection informational signal is generated by the control device 5 and sent via the communication device 7 and the communication path 8 to the receiving communication device 13 of the mobile control device 9, on which touch screen 12 a respective imagination 15 of the hob plate 3 is displayed together with indications 16a, 16b symbolizing the respective piece of cookware 14a, 14b. The imagination 15 is a schematic picture of the real hob plate situation.

[0034] The user may now select one of the pieces of cookware 14a or 14b by touching the touch screen 15 in the area of the respective indication 16a or 16b. A respective selection signal generated by the respective processor or CPU of the mobile control device 9, on which a respective software application is stored adapted for providing the communication, displaying the imagination 15 and creating the respective control or command signals, selection signals or information via the wireless communication path 8 to the control device 5 of the hob 2. The control device 5 now associates one of the control sets 11a, 11b to the respective chosen piece of cookware 14a, 14b. Now the user simply needs to manually interact with the associated control set 11a, 11b for setting a power parameter for the following heating process, based on which power parameter setting now the control device 5 controls the respective induction coils 4 solely for heating the respective selected piece of cookware 14a or 14b.

[0035] As the mobile control device 9 with the high resolution touch screen 12 is integrated in the control process and acts as an additional user interface, the user interface 10 of the hob 2 can be very simple only providing the minimum features. An embodiment is shown in the principle view of Fig. 2. Fig. 2 shows the user interface 10 comprising an on-off touch key 17 and in this embodiment four control sets 11a, 11b, 11c and 11d. Each control set 11a-11d comprises two touch keys 18a, 19a, 18b, 19b, 18c, 19c, and 18d, 19d, each being symbolized by a "+" and "-" symbol. The respective touch key 18a-18d is used for raising a selected power parameter value, the touch keys 19a-19d are used for lowering the respective power parameter value.

[0036] Each control set 11a-11d further comprises a display 20a, 20b, 20c, 20d, each display being a 7-segment display, i.e. a very simple low-end-display.

[0037] Finally each control set 11a-11d comprises an indication means 21a, 21b, 21c, 21d preferably in form of a small LED allowing for a simple optical indication of one control set 11a-11d being selected and associated by the control device 5 to a respective selected piece of cookware selected by the mobile control device 9.

[0038] Starting from the embodiment shown in Fig. 1, the user for example selects the indication 16b and thus the piece of cookware 14b. The selection information signal is sent via the wireless communication path 8, for example a Bluetooth or WiFi-connection or the like, to the control device 5. As the selection is in this example the first selection, the control device 5 may for example chose the control set 11a and associate this control set 11a to the piece of cookware 14b. The association is shown to the user by the illuminated indication means 21a, i.e. the LED. The user can now set the power parameter simply by touching for example the touch key 18a for raising the power parameter value from zero to one of the numerals 1-9, which respective power parameter value is indicated by the 7-segment display 20a.

[0039] After manually setting the power parameter by the manual interaction of the user and the user interface 10, the user may now select the indication 16a and thus the piece of cookware 14a. The respective selection information again is sent to the control device 5, which now chooses the control set 11b and associates this control set 11b to the piece of cookware 14a. Again, this association is visually shown by the indication means 21b, i. e. the LED, while the previous indication means 21a is no longer illuminated. The user may now adjust the power parameter value again by means of the touch keys 18b, 19b.

[0040] As the concrete position of the respective piece of cookware 14a, 14b on the hub plate 3 is known, the control device 7 may also choose the respective control set 11a-11d in view of the cookware position. So when the piece of cookware 11b is chosen, the control device 5 may chose the control set 11d, which is positioned on a similar position at the interface 10 as the piece of cookware 14b is positioned on the hob plate 3. When the piece of cookware 14a is chosen via the mobile control device 9, the control device 5 may chose the control set 11a being positioned at the user interface 10 in a position similar to the position of the piece of cookware 14a on the hob plate 3.

[0041] During the cooking process the user can always choose a new piece of cookware. He only needs to again chose one of the indications 16a, 16b and thus of the piece of cookware 14a, 14b. Again the control device 5

makes the respective association of one of the control sets 11a-d, so that the user again can raise or lower the power parameter.

[0042] As the user may freely move the pieces of cookware 14a, 14b on the hob plate 3 also during the cooking process, an association of a cook control set to the respective piece of cookware may also vary due to the varying position.

[0043] Fig. 3 shows an embodiment of an induction hob appliance 1 with the induction hob 2 and the mobile control device 9, where the user interface 10 again comprises four control sets 11a-d. In the shown situation five pieces of cookware 14a-14b are randomly placed on the hob plate 3. The sensor means 6 again detect the respective position and preferably the geometry, so that a respective imagination 15 of the hob plate 3 with the pieces of cookware 14a-e symbolized by the respective size and geometry corresponding indication 16a-e is displayed on the touch screen 12 of the mobile control device 9. As only four control sets 11a-d are realized at the user interface 10, but five pieces of cookware 14a-e are placed on the hob plate 3, the number of pieces of cookware exceeds the number of control sets. It is assumed, that the user has already selected the pieces of cookware 14a-d via his mobile control device 9 respectively the touch screen imagination 15, and that the control device 5 has associated the four control sets 11a-d to the respective pieces of cookware 14a-d. If the user now selects the indication 16e and thus the fifth piece of cookware 14e, the control device 5 now chooses one of the previously associated control sets 11a-d and associates it to the fifth piece of cookware 14e, so that the user may now set a respective power parameter for heating this fifth piece of cookware 14e. If assumably the control set 11a was the first control set chosen by the control device 5, the control device 5 may now again chose the control set 11a and associate it to the piece of cookware 14e for controlling it. From this it is obvious, that the association of a respective control set 11a-d to a respective piece of cookware 14a-e is always temporarily, but not permanently, so that it can always been changed during the longer lasting cooking process. This allows to place more pieces of cookware on the hob plate 3 than control sets are provided.

[0044] In the simplest embodiment, only one control set is provided, while for example six or seven or eight pieces of cookware pieces may be placed on the hob plate 3. As the user always has to select a respective piece of cookware via his mobile control device 9, only one of them can be controlled at a time. Thus the control device 5 simply associates the single control set to the chosen piece of cookware and the user can control it by manual interaction with the hob user interface 10.

[0045] Finally, Fig. 4 shows another schematic view of the induction hob appliance 1 with the induction hob 2 and the mobile control device 9. In this embodiment three pieces of cookware 14a, 14b and 14c are placed on the hob plate 3 comprising four control sets 11a, 11b, 11c and 11d. On the touch screen 12 again an imagination 15 with the selectable, touchable indications 16a, 16b and 16c is displayed. The user for example selects indication 16a and thus the piece of cookware 14a. The control device 5 for example associates the control set 11a to this piece of cookware 14a. After this piece of cookware selection the user may for example jump into a submenu on his mobile control device 9, which submenu comprises for example a list of selectable further control parameters for example in form of respective start or stop signals for a semi-automatic or automatic cooking program or of respective pre-set cooking programs or of detection programs or the like. In Fig. 4, following the arrow P, the mobile control device 9 with the submenu shown on the touch screen 12 is shown. The numeral "C1" for example denotes a first semi- or full-automatic cooking program for example for rice, the numeral "C2" denotes a semi- or full-automatic cooking program for fish, the numeral "C3" for example denotes a semi- or full-automatic cooking program for a specific meet or the like. Furthermore the numeral "D1" for example denotes a temperature detection program, while the numeral "D2" denotes a boiling detection program or the like. Also this list of possible cooking or detection programs is not limiting.

[0046] The user may choose one of the listed programs simply by touching his touch screen 12. A respective program selection information is sent to the control device 5, which either now or already have associated control set 11a to the selected piece of cookware 14a. The user may now confirm the selected program and thus the selected additional control parameter simply by touching one of the touch keys 18a, 19a of the control set 11a. After this a respective program is automatically run by the control device 5. The display of the mobile control device 9 returns again to showing the imagination 15 for again selecting a new piece of cookware if necessary.

List of reference numerals

[0047]

1	induction hob appliance
2	induction hob
3	hob plate
4	induction coil
5	control device
6	sensor means
7	communication device
8	communication path
9	mobile control device
10	user interface
11	control set
12	touch screen
13	communication device
14a-e	cookware
15	imagination
16a-e	indication
17	on-off touch key

18a-d touch key
19a-d touch key
20a-d display
21a-d indication means

Claims

1. Induction hob appliance comprising a hob plate (3), several induction coils (4) arranged below the hob plate (3) and controllable via a control device (5) to form one or more cooking zones at the hob plate (3), a user interface (10) comprising at least one control set (11a-d) with at least one touch key (18a-d, 19a-d) and, optionally at least one display (20a-d), sensor means (6) for detecting a piece of cookware (14a-e) placed on the hob plate (3), and a communication device (7) for establishing a wireless bidirectional communication path (8) to a mobile control device (9), **characterized in that** the mobile control device (9) is adapted for user based selecting a piece of cookware (14a-e) via a touch screen (12) of the mobile control device (9) based on a cookware detection information sent to the mobile control device (9), wherein the control device (5) is adapted to associate the control set (11a-d) to the selected piece of cookware (14a-e) based on a selection information sent from the mobile control device (9) for setting a cookware piece related power parameter and for displaying a parameter information.

2. Induction hob appliance according to claim 1, **characterized in that** the mobile control device (9) comprises a software application adapted to establish the communication path (8) and for establishing the communication with the user.

3. Induction hob appliance according to claim 1 or 2, **characterized in that** an imagination (15) of the hob plate (3) with an indication (16a-e) of the detected piece of cookware (14a-e) is displayable on the touch screen (12), with the piece of cookware (14a-e) being selectable by touching the touch screen (12) in the area of the displayed indication (16a-e).

4. Induction hob appliance according to claim 3, **characterized in that** the indication (16a-e) corresponds to the geometry and/or size of the detected piece of cookware (14a-e).

5. Induction hob appliance according to one of the preceding claims, **characterized in that** the cookware related power parameter is settable in its value by the touch key (18a-e, 19a-e), or that the value of the power parameter is settable by the mobile control device (9) via the touch screen (12) and is confirmable by the touch key (18a-e, 19a-e).

6. Induction hob appliance according to one of the preceding claims, **characterized in that** the user interface (10) comprises several control sets (11a-d) with at least one indication means (21a-d) for indicating a selection and association of a control set (11a-d).

7. Induction hob appliance according to claim 6, **characterized in that** the indication means (21a-d) is an indication lamp, especially a LED.

8. Induction hob appliance according to claim 6 or 7, **characterized in that** each of the control sets (11a-d) is associable to various pieces of cookware (14a-e).

9. Induction hob appliance according to one of the claims 1 to 5, **characterized in that** the user interface (10) comprises only one control set (11a-d) which is variable associable to various pieces of cookware (14a-e).

10. Induction hob appliance according to one of the preceding claims, **characterized in that** at least one further control parameter influencing the cooking process is selectable via the mobile control device (9) and confirmable by the control set (11a-d).

11. Induction hob appliance according to claim 10, **characterized in that** the control parameter refers to the start or stop signal for a pre-set cooking program (C1-3) or cooking function or for a detection program (D1, D2) or function stored in the control device (5).

12. Induction hob appliance according to claim 11, **characterized in that** a selectable information of pre-set cooking programs (C1-3) or functions or of detection programs (D1, D2) or functions selectable via the touch screen (12) is displayable on the touch screen (12).

13. Induction hob appliance according to one of the preceding claims, **characterized in that** each control set (11a-d) comprises at least two touch keys (18a-d, 19a-d) for raising and lowering a power value and a display (20a-d) in form of a 7-segment display.

14. Method for controlling an induction hob of an induction hob appliance according to one of the preceding claims, comprising the following steps:

    - Displaying an imagination (15) of the hob plate (3) with one or more indications (16a-e) of pieces of cookware (14a-e) detected on the hob plate (3) on the touch screen (12) of the mobile control device (9),
    - Selecting a piece of cookware (14a-e) by touching the touch screen (12) in the area of the indication (16a-e) of the respective cookware

piece (14a-e),
- Sending a selection information to the control device (5) of the hob (2),
- Associating a control set (11a-d) to the selected piece of cookware (14a-e) based on the selection information,
- Setting a cookware piece related power parameter via the touch key (18a-d, 19a-d) and displaying a parameter information via the display (20a-d).

15. Method according to claim 14, comprising the further steps:

- Displaying a selectable information of further selectable control parameters in form of pre-set cooking programs (C1-3) or functions or of detection programs (D1, D2) or functions on the touch screen (12),
- Selecting at least one further control parameter by touching the touch screen (12),
- Sending a selection information to the control device (5),
- Setting the selected control parameter by touching a touch key (18a-d, 19a-d) of the control device (11a-d).

FIG. 1

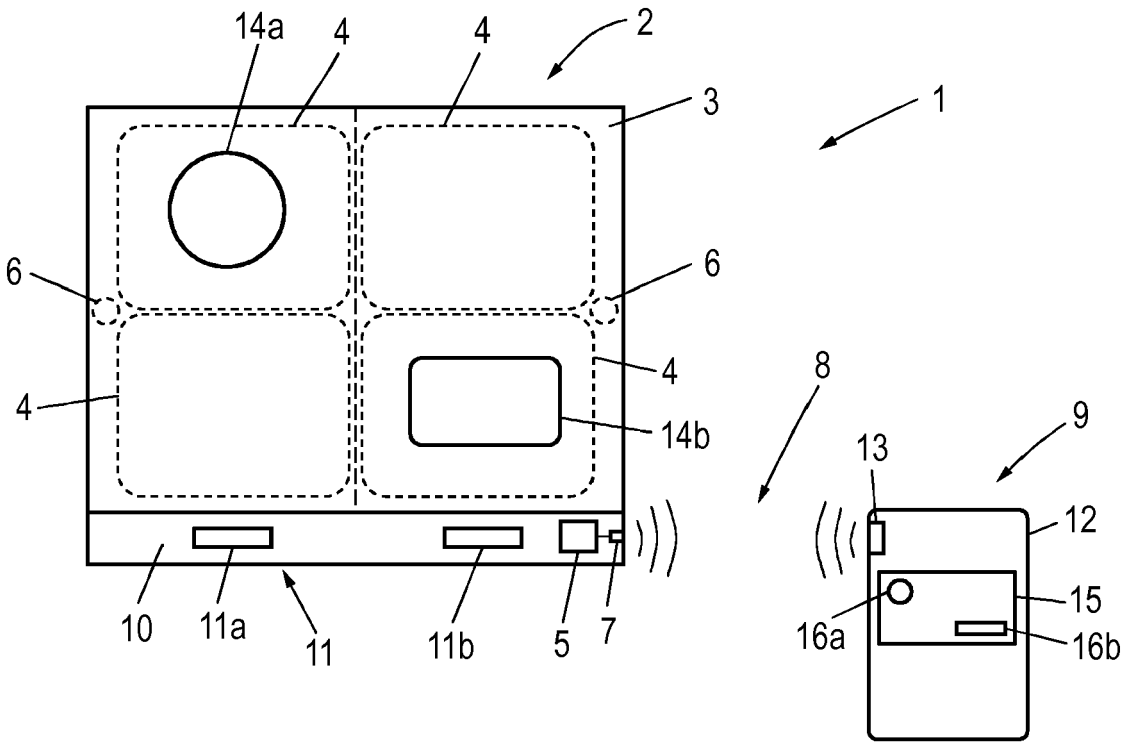

14a
4
4
2
3
1
6
6
4
4
14b
8
9
13
12
15
16a
16b
10
11a
11
11b
5
7

FIG. 2

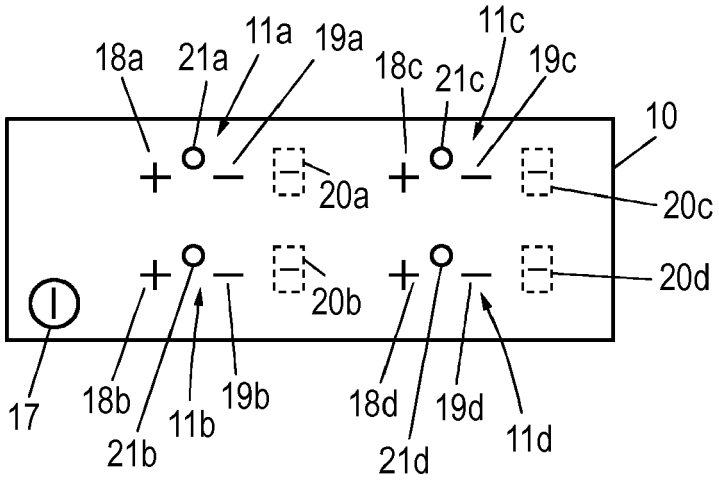

18a
21a
11a
19a
18c
21c
11c
19c
10
20a
20c
20b
20d
17
18b
21b
11b
19b
18d
21d
19d
11d

FIG. 3

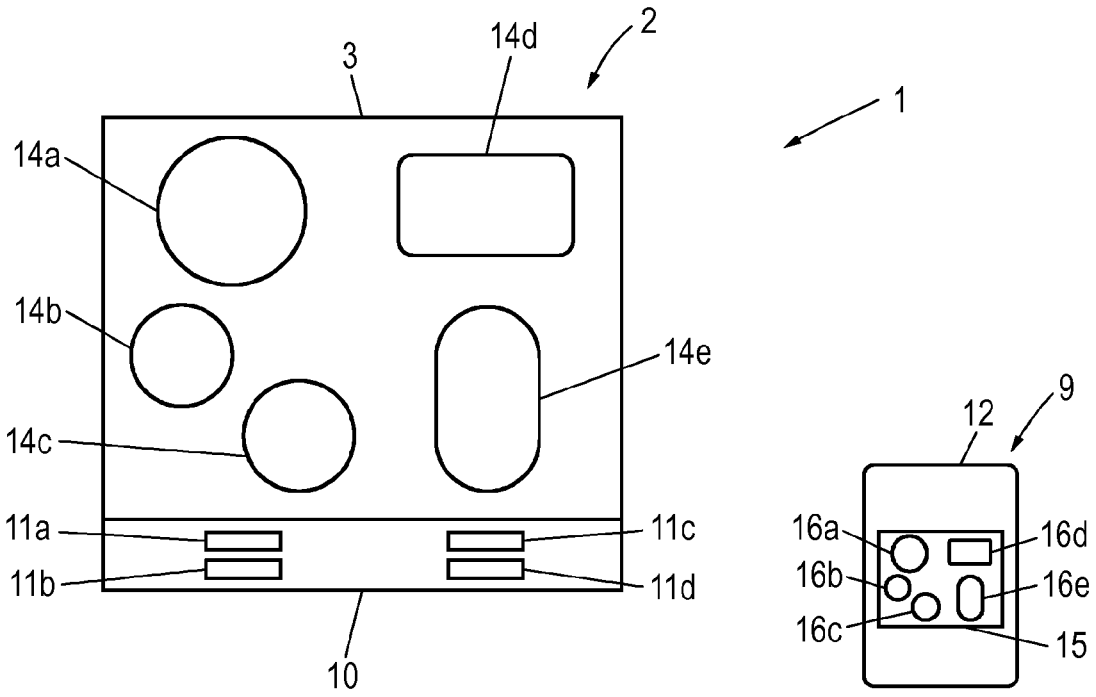
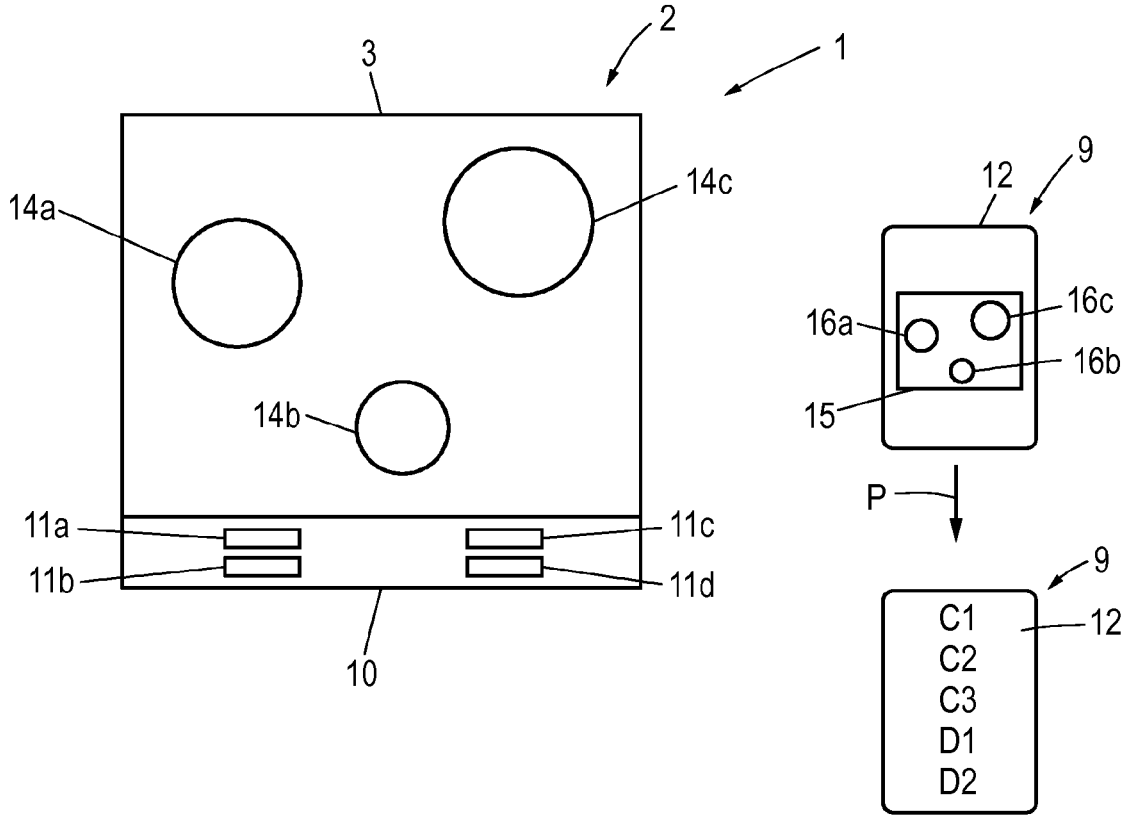

2
14d
3
1
14a
14b
14e
14c
11a
11c
11b
11d
10
12
9
16a
16d
16b
16e
16c
15

FIG. 4


2
1
3
14a
14c
14b
11a
11c
11b
11d
10
12
9
16a
16c
16b
15
P
9
C1
C2
C3
D1
D2
12

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EUROPEAN SEARCH REPORT

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	6 May 2020	Gea Haupt, Martin

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