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(54) Title: HOUSEHOLD APPLIANCE AND METHOD FOR SETTING AN OPERATING PROGRAM IN SUCH AN APPLIANCE

(57) Abstract: An electrical household appliance (1) for treating textile articles or garments or dishes or food products, comprising: - data storage means (2) in turn comprising a plurality of portions, including a first PORTION (21) and a second portion (22), said second portion (22) having prememorized in it a program for treating textile articles or garments or dishes or food products; acquisition means (3) of a program for treating textile articles or garments or food products; - a control unit (4) which causes the program captured by the acquisition means (3) to be memorized in the first portion (21); - a user interface (5) for selecting at least the program memorized in the first portion (21), the interface (5) being able to select the programs memorized in the plurality of portions (21, 22) of the storage means (2); said first portion (21) being re writable and memorizing information for an indefinite length of time until the information is overwritten or deleted.
before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))
HOUSEHOLD APPLIANCE AND METHOD FOR SETTING AN OPERATING PROGRAM IN SUCH AN APPLIANCE

"ELECTRICAL HOUSEHOLD APPLIANCE AND METHOD FOR SETTING AN OPERATING PROGRAM IN AN ELECTRICAL HOUSEHOLD APPLIANCE"

TECHNICAL FIELD AND BACKGROUND ART

The present invention relates to an electrical household appliance and a method for setting an operating program in an electrical household appliance.

Washing machines in which the washing programs are prememorized inside a control unit are well known. Using a user interface the user can thus select the washing programs from a predetermined list. In this regard, especially in high-end washing machines, a large number of washing programs are present in an attempt to meet the demands of a diverse clientele as much as possible. This has a drawback in that the control unit must be endowed with sufficient memory to accommodate all the washing programs. Moreover, this renders the user interface of the washing machine more complex and managing this interface might not be very straightforward, above all for some users (for example the elderly, visually impaired, etc.).

Added to this is the fact that each user usually tends to use a limited range of washing programs (depending on his/her specific needs).

DISCLOSURE OF THE INVENTION.
In this context, the technical task at the basis of the present invention is to propose an electrical household appliance which overcomes the above-mentioned drawbacks of the prior art.

An important object of the present invention is thus to provide an electrical household appliance which enables simplified management by the end user, making it particularly user friendly and capable of coming close to the specific needs of the individual user.

A further object of the present invention is to avoid overloading the electrical household appliance with data that will not be used by the end user.

The stated technical task and the specified objects are substantially achieved by an electrical household appliance comprising the technical features set forth in one or more of the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS.

Additional features and advantages of the present invention of the invention will be more apparent from the approximate, and hence non-restrictive description of a preferred but non-exclusive embodiment of an electrical household appliance, as illustrated in the appended drawings, in which:

- figure 1 shows a schematic view of a system comprising an electrical household appliance according to the
present invention;

- figure 2 shows a schematic view of a detail of the electrical household appliance of figure 1.

BEST MODE FOR CARRYING OUT THE INVENTIONS.

In figure 1 the reference number 1 indicates an electrical household appliance typically for treating textile articles or garments or dishes or food products. Conveniently, the electrical household appliance 1 comprises data storage means 2 comprising a plurality of portions, including a first and a second portion 21, 22. Typically, the first and second portion 21, 22 are intended to contain corresponding operating programs.

The electrical household appliance 1 could for example be a washing machine and in such a case the operating programs could regard washing cycles for textile articles or garments, e.g. cotton, wool and delicate cycles and custom washing cycles comprising a precise setting for each washing parameter.

This example is immediately extendable to the case in which the electrical household appliance is a dishwasher or a dryer.

Alternatively, the electrical household appliance 1 could comprise an oven or a cooktop and in such a case the treatment programs could regard a specific sequence of operations performed by cooking or baking means (e.g.
a program for baking pizza, a program for cooking roast beef, etc); in such a case an operating program could indicate a sequence of operations to be performed by the oven components, e.g. type of heat source to be used, activation parameters and modes of the various components (grill, fan, burner).

In the preferred embodiment, an operating program (typically comprising a program for treating textile articles or garments or dishes or food products) is prememorized in the second portion 22. Typically, a basic program of the electrical household appliance is memorized in the second portion 22. Basic program means a commonly used program. It is prememorized in the factory in said second portion 22. For this reason, the second portion 22 can usually not be modified by an end user. The second portion 22 is thus write protected. For example, in the case of a washing machine the second portion 22 could contain all of the information necessary for carrying out a cotton cycle at 30° (which is a standard program available on every washing machine) or a mandatory cycle (i.e. a cycle whose presence is imposed by specific regulations).

The first portion 21 can instead be managed by the user and is intended to memorize a treatment program specific to the needs of the user him/herself (solely by way of
example, a particularly intensive washing cycle designed for washing the playing uniforms of a football team). The data storage means 2 normally comprise a plurality of portions intended to contain prememorized programs that cannot be modified by the user. Analogously, in the preferred embodiment the data storage means 2 comprise a plurality of portions intended to contain treatment programs that can be customised by the user based on the user's specific needs.

For example, the storage means 2 comprise a structure featuring a first memory area (typically an EEPROM or FLASH unit) designed to receive the characteristic parameters of the additional treatment programs memorized by the user (the first area thus comprises the first portion 21, but could for example comprise additional rewritable portions, each associated with a corresponding operating program). The structure of the storage means 2 further comprises a second area designed to receive the characteristic parameters of the prememorized standard or mandatory programs (the second area thus comprises the second portion 22, but could comprise additional write-protected portions, each associated with a corresponding operating program). Conveniently, the storage means 2 comprise a third area containing information related to the general structure.
of the treatment programs and the logic that is at the basis of their execution. The third area could also be integrated into a microcontroller of the operation of the electrical household appliance 1. In such a case, the storage means 2 are at least in part integrated into the control unit 4.

Conveniently, the electrical household appliance 1 comprises means 3 for acquiring an operating program for the electrical household appliance from outside the electrical household appliance (typically a program for treating textile articles or garments or dishes or food products). Conveniently, the acquisition means 3 coincide with means that contribute to interfacing with outside the electrical household appliance 1.

The electrical household appliance 1 comprises a control unit 4 of the electrical household appliance 1. The control unit 4 advantageously comprises the microcontroller. The control unit 4 is operatively connected to the acquisition means 3 and to the data storage means 2. The control unit 4 causes the program captured by the acquisition means 3 to be memorized in the first portion 21. In this regard, the control unit 4 sends a command to memorize the program acquired by the acquisition means 3.

Conveniently, the control unit 4 can perform the
function of means serving to memorize the program captured by the acquisition means 3 in the first portion 21.

In this regard, the electrical household appliance 1 comprises a user interface 5 for selecting the program memorized in the first portion 21. More generally speaking, the interface 5 enables the user to select and start the programs memorized in the plurality of portions of the storage means 2 (thus it enables the user to select and start all of the operating programs located in the data storage means 2). On receiving input from the user interface 5, the control unit 4 can activate the treatment programs located in the data storage means 2. The first portion 21 is rewritable. In particular, it allows information to be memorized for an indefinite length of time until it is overwritten or deleted.

As illustrated in figure 2, the user interface 5 comprises a selector 50, particularly of a mechanical type, which adopts a plurality of configurations; a first configuration of the mechanical selector 50 corresponds to selection of the program memorized in the first portion 21 of the storage means 2; a second configuration of the mechanical selector 50 corresponds to selection of the program prememorized in the second
Further configurations of the selector can correspond to operating programs prememorized in corresponding portions of the first area (in which there are the portions of memory related to the custom programs) or of the second area (in which there are the portions of memory related to the standard or mandatory programs). Typically, but not necessarily, the selector 50 is a knob that can turn about a rotation axis. Advantageously, in the first configuration the knob will indicate a graphic marking such as an icon or wording that reminds the user that the treatment program associated with said first configuration is editable and not fixed.

As an alternative to the memory, for example, the selector 50 could comprise a touch screen (known in the art as "display touch screen").

In the preferred embodiment, the data acquisition means 3 comprise communication means 30 designed to interact with an external device outside the electrical household appliance. Typically, the communication means 30 are wireless, in particular they operate via radio frequencies; in the preferred embodiment they comprise an RFID reader or an NFC reader (in such a case, for example, the graphic marking indicated by the knob, if
present, in the first configuration could indicate the wording "TAG"). It is thus capable of exploiting the known RFID (acronym of Radio Frequency Identification) or NFC (Near Field Communication) technologies. In an alternative embodiment the acquisition means 3 could comprise a serial port of the standard type for a cable connection with the external electrical device or else an adaptor for connecting to a powerline bus. In such a case the external electrical device could comprise a computer in which the treatment program is memorized or which enables the treatment program to be generated via specific software (in the latter case the treatment program could be developed in such a way as to adapt to the needs or preferences of the individual user; there is thus maximum flexibility in the creation of treatment programs).

Conveniently, the communication means 30 establish peer-to-peer communication with the external electrical device (for example, a mobile phone device). In such a case the NFC reader of the communication means 30 can thus acquire the operating program for the electrical household appliance from the external electrical device. The NFC reader can moreover send the external electrical device confirmation of having received the program. Conveniently, the external electrical device senses the
presence of the NFC reader and automatically transfers the program to the NFC reader.

Advantageously, the electrical household appliance 1 could comprise an acoustic or visual warning device which tells the user when the data transfer from the external electrical device to the electrical household appliance 1 starts and/or ends.

In a further constructive solution, the acquisition means 3 could be integrated into the user interface 5 of the electrical household appliance. Preferably, the user interface 5 comprises a display unit 51 which could be integrated into the display touch screen if present. Conveniently, the electrical household appliance 1 comprises transmission means 6 by which a reference identifying the program memorized in the first portion 21 is transmitted to the display unit 51. The transmission means 6 are in part integrated into the control unit 4 and in part in an electrical connection that places the storage means 2 in communication with the display unit 51. Conveniently, said display unit 51 could incorporate the visual signalling device which indicates to the user the start and/or end of the data transfer from the external electrical device outside the electrical household appliance 1.
Advantageously, the transmission means 6 are activated when the selector 50 is set to the first configuration. For example, if the user does not remember which treatment program is memorized in the first portion 21, by positioning the knob in the first configuration he/she can read on the display reference identifying the program (in the case of a washing machine, an example of such an identifying reference could be: "ultra delicate wash cycle"). This identifying reference could be set beforehand directly by the user.

The subject matter of the present invention further relates to a system comprising:
- a first external block 11 outside and distinct from the electrical household appliance and comprising a first memory 110 containing a program for treating textile articles or garments or dishes or food products which can be implemented by the electrical household appliance; the first external block 11 is therefore separate from the electrical household appliance 1;
- an electrical household appliance 1 having one or more of the previously specified features.

The communication means 30 of the electrical household appliance 1, at least in a first operating mode, acquire, in a wireless mode, the program contained in the first memory 110 of the first external block 11.
Typically, the wireless communication means 30 comprise an RFID reader or NFC reader. Conveniently, the first block 11 is shaped as a board. In particular, it has a flat conformation. Typically, the first block 11 is containable within a parallelepiped with a size of 4x4x1 centimetres. The first block 11 advantageously comprises an RFID or NFC tag suitable for interacting respectively with the RFID or NFC reader of the electrical household appliance 1. The first block 11 (in particular the RFID or NFC tag) thus comprises the first memory 110 and an antenna suitable for interacting with the RFID reader of the electrical household appliance 1. Typically, but not necessarily, the first block 11 does not comprise a battery supplying electricity to the antenna or first memory 110. The first block 11 is activated on receiving a signal emitted by the RFID reader. Typically, the RFID tag receives its power supply by drawing on the energy of the magnetic field generated by the RFID reader. The first block 11 could be purchased together with an article on which the electrical household appliance 1 must carry out the treatment; for example, a textile article could have the first block 11 associated with it as a tag, the first block 11 having preset the specific wash cycle for that article of clothing. An analogous
reasoning could be repeated, for example, for a packaged food product where the package includes the first block capable of transferring the correct baking program to the oven.

The subject matter of the present invention further relates to a method for setting a program for treating textile articles or garments or dishes or food products in an electrical household appliance. Said method comprises the steps of:
- moving closer to the electrical household appliance the first external block comprising a first memory containing a program for treating textile articles or garments or dishes or food products;
- transferring into the first portion of data storage means of the electrical household appliance the program contained in the first memory, this step being carried out by the acquisition means integrated in the electrical household appliance;
- selecting through the user interface the program memorized in the first portion of the storage means.

Conveniently, this method is implemented using an electrical household appliance comprising acquisition means at least in part of a wireless type, in particular operating on radio frequencies, preferably
comprising an RFID reader and interacting with the RFID tag located in the first block and incorporating the first memory (or in which the acquisition means at least use the NFC protocol).

In this regard, the step of moving the first external block closer to the electrical household appliance does not entail fixing the first external block to the electrical household appliance. In particular, the step of moving the first external block closer to the electrical household appliance does not entail placing the first block in electrical contact with the electrical household appliance. Typically, the step of moving the first external block closer to the electrical household appliance entails moving the first external block closer so as to position it within the range of action of the acquisition means. In a particular constructive solution, the first block could rest upon the outer casing of the electrical household appliance.

As previously indicated, the first portion could be rewritten by the user. In this regard, the method envisages the steps of:

- moving closer to the electrical household appliance a second external block with a second memory containing an operating program;
transferring into the first portion 21 of the data storage means 2, through the acquisition means 3, the program contained in the second memory, thereby overwriting the program transferred into the first portion 21 from the first memory 110 (which is thus automatically deleted).

The invention thus conceived enables numerous advantages to be obtained.

In particular, it enables costs to be contained at the time of purchasing an electrical household appliance. In fact, the user could purchase the basic version of the electrical household appliance and then integrate into it only the treatment programs that are of actual interest. Furthermore, one should not overlook the fact that the programs of actual interest could change over time (changes in of the number of family members, changes in lifestyle, etc.). A further important advantage is that of avoiding the use of an oversized memory serving to contain a large number of washing programs, the majority of which are not used by the user.

The invention thus conceived is susceptible of numerous modifications and variants, all falling within the scope of the inventive concept which characterizes it. Moreover, all the details may be replaced with other
technically equivalent ones. In practice, all of the materials used, as well as the dimensions, can be any whatsoever according to need.
CLAIMS

1. An electrical household appliance comprising:
   - data storage means (2) in turn comprising a plurality of portions, including a first and a second portion (21, 22), the second portion (22) having prememorized in it a program for driving the electrical household appliance;
   - acquisition means (3) by which the program for driving the electrical household appliance can be acquired from outside the electrical household appliance;
   - a control unit (4) which causes the program captured by the acquisition means (3) to be memorized in the first portion (21);
   - a user interface (5) for selecting at least the program memorized in the first portion (21), the interface (5) being able to select the programs memorized in the plurality of portions of the storage means (2); the first portion (21) being rewritable and memorizing information for an indefinite length of time until the information is overwritten or deleted.

2. The electrical household appliance according to claim 1, characterized in that the first portion (21) is write-protected:

3. The electrical household appliance according to any of the preceding claims, characterized in that the data acquisition means (3) comprises wireless communication
means (30) designed to interact with an external device outside the electrical household appliance in order to acquire the program from the external device.

4. The electrical household appliance according to any of the preceding claims, characterized in that the user interface (5) comprises a mechanical selector (50) which adopts a plurality of configurations; a first configuration of the mechanical selector (50) corresponding to selection of the treatment program memorized in the first portion (21) of the storage means (2); a second configuration of the mechanical selector (50) corresponding to selection of the program which is prememorized in the second portion (22).

5. The electrical household appliance according to any of the preceding claims, characterized in that the user interface (5) comprises a display unit (51) and characterized in that it comprises transmission means (6) by which a reference identifying the program memorized in the first portion (21) is transmitted to the display unit (51).

6. The electrical household appliance according to claim 5 when dependent directly or indirectly on claim 4, characterized in that the transmission means (6) are activated when the selector (50) is set to the first configuration.
A system comprising:
-an electrical household appliance (1) according to claim 3;
-a first external block (11) outside the electrical household appliance and comprising a first memory (110) containing a program for driving the electrical household appliance;
-the wireless communication means (30) of the electrical household appliance (1), at least in a first operating mode, acquiring in wireless mode, the program contained in the first memory (110) of the first external block (11).

The system according to claim 7, characterized in that the electrical household appliance (1) comprises an acoustic or visual warning device which tells the user when transfer to the electrical household appliance (1) of the drive program contained in the first memory (110) starts and/or ends.

A method for setting a drive program in an electrical household appliance comprising the steps of:
-moving closer to the electrical household appliance (1) the first external block (11) comprising a first memory (110) containing a program for driving the electrical household appliance;
-transferring into a first portion (21) of data storage
means of the electrical household appliance the program contained in the first memory (110) at least using acquisition means (3) integrated in the electrical household appliance (1); the first portion (21) being rewritable and memorizing information for an indefinite length of time until the information is overwritten or deleted;

-selecting through a user interface (5) the program stored in the first portion (21) of the storage means (2).

10. The method according to claim 9, characterized in that the step of transferring into the first portion (21) of data storage means of the electrical household appliance the program contained in the first memory (110) is performed at least partly in wireless mode and without fixing the first external block (11) outside the electrical household appliance (1).

11. The method according to claim 9 or 10, characterized in that it comprises the steps of:

- moving closer to the electrical household appliance (1) a second external block with a second memory containing a program for driving the electrical household appliance;

- transferring into the first portion (21) of the data storage means (2), at least through the acquisition
means (3), the program contained in the second memory, thereby overwriting the program transferred into the first portion (21) from the first memory (110).
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

INV. A47L15/42 A47L15/46 D06F33/02 D06F39/00

ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06F A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal , WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<td>US 2009/006970 A1 (JEFFERY RANDELL L [US] ET AL) 1 January 2009 (2009-01-01) paragraphs [0002], [0003], [0035], [0036], [0047] - [0052], [0065] - [0069], [0083] - [0098], [0126]; figures 1-19</td>
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<td>A</td>
<td>WO 2006/087735 A1 (IPF IND LTD [IN]; NAG BIJON [IN]) 24 August 2006 (2006-08-24) page 1, lines 4-9; page 4, line 3 - page 6, line 8; page 7, lines 4-8; page 8, line 9 - page 9, line 21; page 11, line 3 - page 12, line 29; figures</td>
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Further documents are listed in the continuation of Box C.

See patent family annex.

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Date of the actual completion of the international search

13 December 2012

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Clivio, Eugenio
### DOCUMENTS CONSIDERED TO BE RELEVANT

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