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(54) Title: A HOUSEHOLD APPLIANCE FOR WASHING AND DRYING ARTICLES

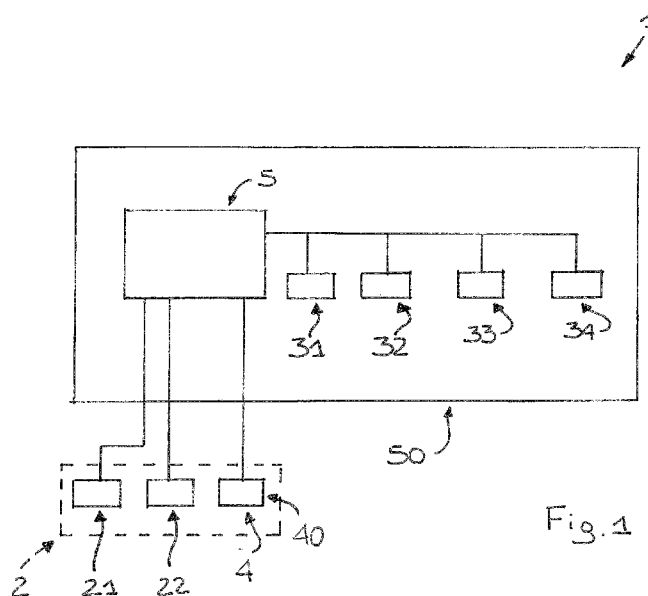


Fig. 1

(57) Abstract: A household appliance (1) for washing and drying articles, comprising a user interface (2) comprising at least first se-
lection means (21), a first set (31) of memory areas, in which washing programs of the household appliance (1) are stored, a second
set (32) of memory areas, in which drying programs of the household appliance (1) are stored, means (4) for commutating the house-
hold appliance (1) between a first and a second configuration, whereby in the first configuration, said first selection means (21) is a
means for selecting the washing programs stored in said first set (31) of memory areas and, in the second configuration, said first se-
lection means (21) is a means for selecting the drying programs stored in said second set (32) of memory areas.

DESCRIPTION

HOUSEHOLD APPLIANCE FOR WASHING AND DRYING ARTICLES

Technical field

The object of the present invention is a household appliance for washing and drying articles, typically textile articles, clothing, etc. This household appliance is also known by the name washer-dryer.

5 State of the art

There are known washer-dryers comprising:

- a compartment for washing and drying articles, inside of which a rotating drum is located;

- a user interface that enables selection from a plurality of washing and drying programs. For example this interface comprises a knob that can take on 16 positions for selecting a corresponding program. Thirteen positions are for washing programs (some of these also comprise a drying cycle) and three positions are specifically for drying programs.

One drawback of this construction solution is related to the fact that to increase the number of available programs, the number of selectors (new push-buttons or knobs) would have to be increased, thereby bringing about an increase in costs, occupying more space and making the user interface more complicated, which would become less intuitive for a user.

Aim of the invention

20 In this context, the technical aim underlying the present invention is to offer a household appliance equipped with more functions, minimising the increased cost and degree of overcrowding the user interface.

The defined technical task and the specified aims are substantially achieved by a household appliance for washing and drying, comprising the technical characteristics stated in one or more of the attached claims.

Brief description of the drawings

25 Further characteristics and advantages of the present invention will become more apparent from the approximate, and thus non-limiting, description of preferred, but not exclusive embodiment of a household

appliance, as illustrated in the accompanying drawings, in which:

-Figure 1 is a schematic view of some parts of the household appliance according to the present invention;

5 -Figure 2 is a schematic view of a portion of the household appliance according to the present invention.

Detailed description of preferred embodiments of the invention

A household appliance for washing and drying articles (including garments, sheets, textile articles, etc.) is indicated by the reference number 1 in the accompanying drawings. Based on the settings, this
10 household appliance 1 can execute an action consisting solely of washing, an action consisting solely of drying or a combined action consisting of washing and drying. This household appliance 1 is also known as a washer-dryer. The household appliance 1 comprises a user interface 2 comprising at least first selection means 21. The first selection means 21
15 can be activated directly by a user.

The first selection means 21 comprises a knob 210. In an alternative solution, the first selection means 21 could comprise a plurality of push-buttons. The first selection means 1 is conveniently of a mechanical type.

The household appliance 1 comprises:

20 -a first set 31 of memory areas, in which washing programs of the household appliance 1 are stored; washing programs are intended as programs that enable the execution of a washing cycle; possibly, at least some of them also comprise the execution of a drying program;
-a second set 32 of memory areas, in which drying programs of the
25 household appliance 1 are stored; the drying programs stored in the second set 32 of memory areas do not usually comprise (although they may comprise) the implementation of a washing program.

Conveniently, but not necessarily, at least five washing programs, preferably ten or more washing programs, are stored in the first set 31 of
30 memory areas. Likewise, at least five drying programs (preferably ten or more drying programs) are stored in the second set 32 of memory areas.

The household appliance 1 comprises means 4 for commutating the household appliance 1 between a first and a second configuration. The commutation means 4 comprises a selector 40 that can be activated by the user (e.g. a push-button).

5 In the first configuration, said first selection means 21 is a means for selecting the washing programs stored in the first set 31 of memory areas; in the second configuration, said first selection means 21 is a means for selecting the drying programs stored in the second set 32 of memory areas. In other words, depending upon the type of configuration of the
10 household appliance 1, the first selection means 21 permits the selection of programs found in the first or the second set 31, 32 of memory areas. In the second configuration, the washing programs of the first set 31 of memory areas cannot be selected by means of the first selection means 21, given that they are intended for the selection of the drying programs of
15 the second set 32 of memory areas. In the first configuration, various washing programs stored in said first set 31 of memory areas are associated with various positions of the first selection means 21; in the second configuration, various washing programs stored in said second set 32 of memory areas are associated with various positions of the first
20 selection means 21.

The following are examples of washing programs stored in said first set 31: cotton cycle with prewash at 90°, cotton cycle at 60°, cotton cycle at 40°, cotton cycle at 20°, shirts at 40°, jeans at 40°, baby cycle (for washing baby items), synthetic fabrics cycle at 60°, 7-day laundry, duvet cycle at
25 30°, silk cycle at 30°, wool cycle at 40°, and mixed cycle at 30°.

The following are examples of drying programs stored in said second set 32 of memory areas: cotton, synthetics, wool, shirts, 45-minute wash & dry, steam, No-Iron, Heat&Enjoy, night-time drying, cuddly toys, lingerie, baby items, ultra delicate, and parkas/wind-resistant jackets.

30 In at least one position selected with the knob 210, the user interface 2 comprises a first icon 211 associated with one of the washing programs of

the first set 31 of memory areas and a second icon 212 associated with one of the drying programs of the second set 32 of memory areas. For example the first and the second icon 211, 212 could be screen-printed. They could also be associated with tactile references in relief for the blind.

- 5 Advantageously, one or more of the characteristics described hereinabove with reference to a position of the knob 210 can hold for a plurality of positions of the knob 210 (advantageously, all of them). In this case, in a plurality of positions selected with the knob 210, there is an icon associated with the washing programs of the first set 31 and an icon
10 associated with drying programs of the second set 32.

- A lighting means is advantageously associated with the first icon (211) and with the second icon 212; the switching on of said means indicates the washing or drying program selected. For example, there could be a LED located at the first icon 211 and a LED located in the proximity of the
15 second icon 212. In an alternative solution, there could be a single LED and the selection of the first or second icon could be associated with the colour of the LED. Hereinabove, the phrase "a LED located at the first icon 211" is intended to mean that the LED could be located near the first icon 211 or be behind the first icon 211. The same considerations hold for the
20 second icon 212.

- In addition to the normal programs for treatment (washing/drying) of articles, the household appliance 1 can comprise options, which, if selected, enable modification of one or more parameters of the corresponding treatment program. Possibly, one or more options that can
25 be selected by the user are associated with each washing or drying program.

- The household appliance 1 comprises a third set 33 of memory areas, in which first options related at least to the washing programs of the first set 31 of memory areas are stored. If selected, the first options modify the
30 preselected washing program.

The household appliance 1 comprises a fourth set 34 of memory areas, in

which second options related at least to the drying programs of the second set 32 of memory areas are stored. If selected, said second options modify the preselected drying program.

The user interface 2 comprises second selection means 22; in the first configuration, said second selection means 22 is a means for selecting the first options stored in the third set 33 of memory areas; in the second configuration, said second selection means 22 is a means for selecting the second options stored in the fourth set 34 of memory areas.

The following are the options associated with the washing programs of the first set 31 of memory areas: spin settings, washing temp settings, delay, anti-wrinkle, extra rinse, eco, quick wash.

The following are examples of options associated with the drying programs of the second set of memory areas: automatic drying level settings, dryness level settings, delay, anti-wrinkle, low/high heat, anti-allergy, quick dry.

Once selected, some of said options conveniently require input for the quantification thereof. For example, once the delay option for delaying the start of the preselected program is set, this delay can then be quantified by repeatedly pressing the same push-button used to select this option (or additional push-buttons may be used).

In an illustrative solution, the second selection means 22 comprises a plurality of push-buttons with which corresponding double icons 23 are associated; an icon relating to one of the first options and an icon relating to one of the second options are identifiable for each double icon.

One pair of LEDs is associated with at least one of said double icons 23.

The switching on of one of the LEDs in the pair of LEDs indicates the selection of the option associated with the third set 33 of memory areas; the switching on of the other LED indicates the selection of the option associated with the fourth set 34 of memory areas. A pair of LEDs is conveniently associated with all the double icons 23.

Preferably, the first selection means 21 is grouped in a first area of the

user interface 2, whereas the second selection means 22 is at least partly grouped in a second area of the user interface that is separate and distinct with respect to the first area.

The household appliance 1 comprises control means 5, which, based on
5 the input received from the commutation means 4, associates, alternatively, the following with the first selection means 21:

- the washing programs stored in said first set 31 of cells; or
- the drying programs stored in said second set 32 of cells.

The control means 5, the first set 31 of memory areas and the second set
10 32 of memory areas are integrated in a printed circuit board 50 of the household appliance 1.

The object of the present invention is also a method for selecting a drying program in a household appliance for washing and drying clothing. The method comprises the stages of:

15 - turning a knob (210), positioning it in a position in which it indicates a washing program and a drying program (which are stored in distinct memory areas);

-activating a commutation selector 40, which makes it possible to pass from a first configuration, in which the washing program selected with the
20 knob 210 is implemented, to a second configuration, in which the drying program selected with the knob 210 is implemented.

The stage of activating the commutation selector 40 follows the stage of turning the knob 210. When setting the household appliance 1, the user regulates the knob 210 first, and then selects the selector 40, if
25 implementation of only the drying cycle is desired.

The turning of the knob 210 with the commutation selector set in the second configuration, determines the passage from the second to the first configuration.

At least in a plurality of positions of the knob 210, the washing program
30 and the drying program indicated by the knob 210 are intended for treatment of the same type of clothing (for example, the washing and

drying of cotton articles is indicated in one position of the knob, and the washing and drying of delicate items is indicated in another position).

The invention thus conceived makes it possible to achieve multiple advantages.

- 5 First of all, it makes it possible to reduce the number of selectors needed to control the same number of functions. Therefore, there is a reduction of the number of components and the space required to arrange them. This is also combined with a reduction of costs. A further advantage is related to the fact that an organised presentation of the controls is facilitated:
- 10 washing programs will be available in the first configuration and the drying programs will be available in the second configuration. This is particularly advantageous in the case in which a user decides that in the summer, the household appliance should essentially operate as a washing machine, the drying function being secondary, given the higher environmental
- 15 temperatures.

The invention thus conceived is susceptible to numerous modifications and variants, all of which falling within the scope of the inventive concept characterising the invention. Moreover, all the details may be replaced with other, technically equivalent elements. All materials used, as well as the

20 dimensions, may in practice be of any type, according to requirements.

CLAIMS

1. A household appliance for washing and drying articles, comprising:
 - a user interface (2) comprising at least first selection means (21);
 - a first set (31) of memory areas, wherein washing programs of the
 - 5 household appliance are stored;
 - a second set (32) of memory areas, wherein drying programs of the household appliance are stored;characterised in that it comprises means (4) for commutating the household appliance between a first and a second configuration;
- 10 in the first configuration, said first selection means (21) being means for selecting the washing programs stored in the first set (31) of memory areas; in the second configuration said first selection means (21) being means for selecting the drying programs stored in the second set (32) of memory areas.
- 15 2. The household appliance according to claim 1, characterised in that the first selection means (21) comprises a knob (210); in a position selected with the knob (210), the user interface (2) comprising a first icon (211) associated with one of the washing programs of the first set (31) of memory areas and a second icon (212) associated with one of the drying
- 20 programs of the second set (32) of memory areas.
3. The household appliance according to claim 2, characterised in that a lighting means is associated with said first icon (211) and with said second icon (212), the switching on of said means indicates the washing or drying program selected.
- 25 4. The household appliance according to any one of the preceding claims, characterised in that the commutation means (4) comprises a selector (40) that can be activated by the user.
5. The household appliance according to any one of the preceding claims, characterised in that it comprises:
- 30 - a third set (33) of memory areas, wherein first options related to the washing programs of the first set (31) of memory areas are stored, said

first options, if selected, modifying the preselected washing program;

- a fourth set (34) of memory areas, wherein second options related to the drying programs of the second set (32) of memory areas are stored, said second options, if selected, modifying the preselected drying program;

5 said user interface (2) comprising second selection means (22); in the first configuration, said second selection means (22) being means for selecting the options stored in the third set (33) of memory areas; in the second configuration, said second selection means (22) being means for selecting the options stored in the fourth set (34) of memory areas.

10 6. The household appliance according to claim 5, characterised in that said second selection means (22) comprises a plurality of push-buttons with which corresponding double icons (23) are associated; there being identifiable, for each double icon, an icon relating to one of the first options and an icon relating to one of the second options.

15 7. The household appliance according to claim 6, characterised in that a pair of LEDs is associated with at least one of said double icons (23), the switching on of one of the LEDs in the pair of LEDs indicating the selection of one of the first options, the switching on of the other LED in the pair of LEDs indicating the selection of one of the second options.

20 8. The household appliance according to any one of claims 5 to 7, characterised in that the first selection means (21) is grouped in a first area of the user interface (2), whereas at least a part of the second selection means (22) is grouped in a second area of the user interface (2); said second area being separate and distinct with respect to the first area.

25 9. The household appliance according to any one of the preceding claims, characterised in that it comprises control means (5), which, based on the input received from the commutation means (4), associates, alternatively, the following with the first selection means (21):

- the washing programs stored in said first set (31) of cells; or

30 - the drying programs stored in said second set (32) of cells;

the control means (5), the first set (31) of memory areas and the second

set (32) of memory areas being integrated in a printed circuit board (50) of the household appliance.

10. The household appliance according to any one of the preceding claims, characterised in that:

- 5 - at least five washing programs are stored in the first set (31) of memory areas;
- at least five drying programs are stored in the second set (32) of memory areas.

11. A method for selecting a drying program in a household appliance for washing and drying clothing, said method comprising the stages of:

- 10 - turning a knob (210), positioning it in a position, wherein it indicates a washing program and a drying program;
-activating a commutation selector (40), which makes it possible to pass from a first configuration, wherein the washing program selected with the knob (210) is implemented, to a second configuration, wherein the drying
15 program selected with the knob (210) is implemented;
said stage of activating the commutation selector (40) following the stage of turning the knob (210), positioning it in a position wherein it indicates said washing program and said drying program.

20 12. The method according to claim 11, characterised in that the turning of the knob (210) with the commutation selector set in the second configuration, determines the passage from the second to the first configuration.

25 13. The method according to claim 11 or 12, characterised in that at least in a plurality of positions of the knob (210), the washing program and the drying program indicated by the knob (210) are intended for treatment of the same type of clothing.

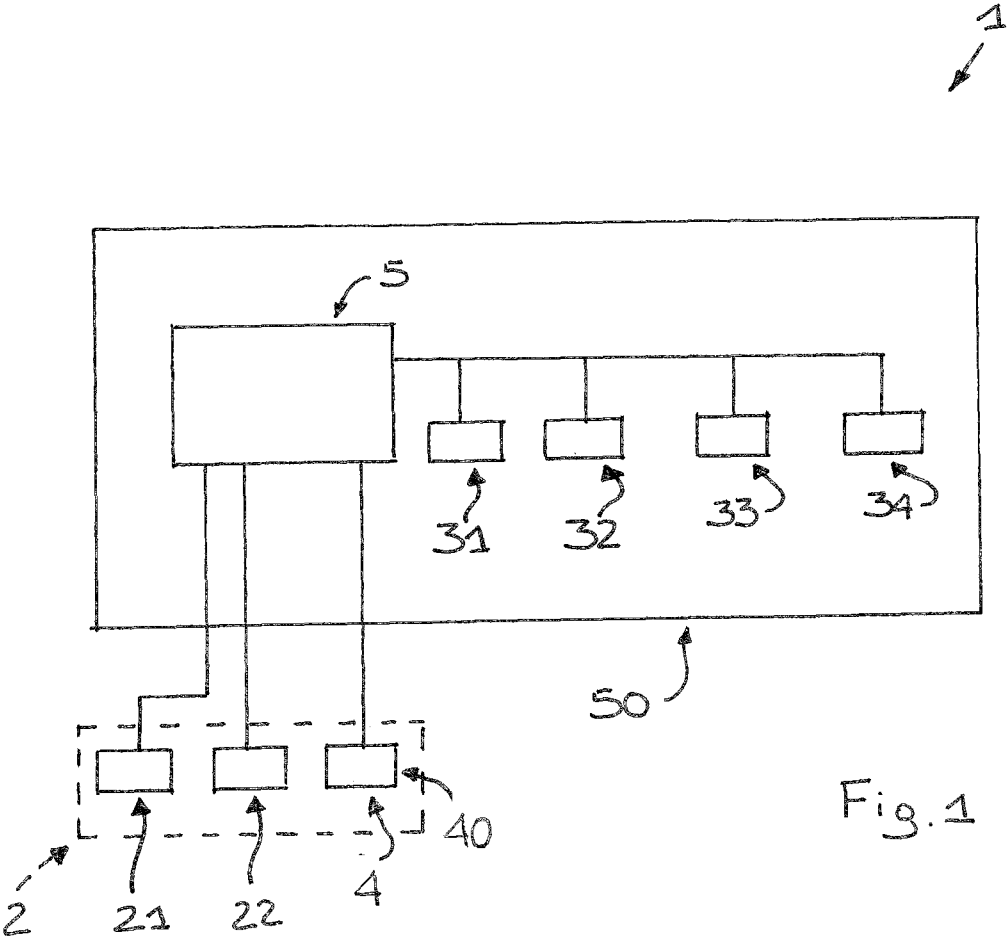
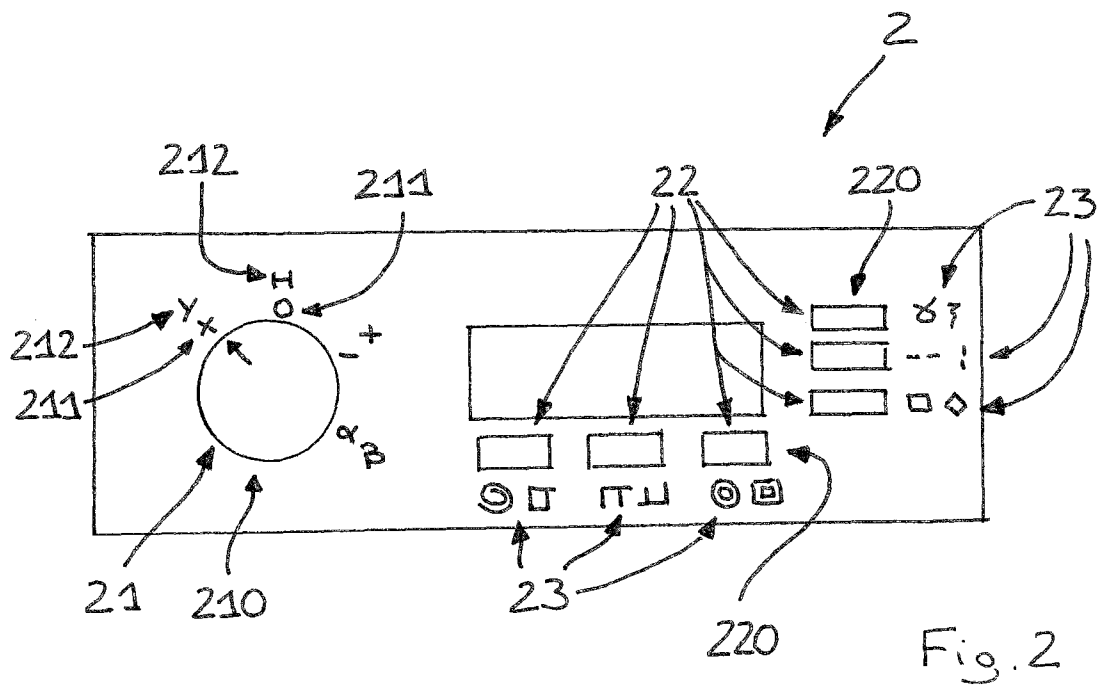


Fig. 1



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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According to International Patent Classification (IPC) or to both national classification and IPC

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Minimum documentation searched (classification system followed by classification symbols)
D06F

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

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 103 07 756 A1 (AUCOTEAM GMBH BERLIN [DE]) 23 September 2004 (2004-09-23) paragraphs [0001], [0018], [0019], [0025] - [0027], [0040] - [0052]; claims; figures -----	1-13
A	WO 2013/021330 A1 (INDESIT CO SPA [IT]; MERLONGHI GABRIELE [IT]; ERRICO LUCA [IT]) 14 February 2013 (2013-02-14) page 3, line 4 - page 8, line 7; claims; figures -----	1-13
A	EP 1 213 384 A2 (TOSHIBA KK [JP]) 12 June 2002 (2002-06-12) paragraphs [0001], [0009], [0010], [0023], [0025]; claims -----	1-13



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 10307756	A1	23-09-2004	NONE

WO 2013021330	A1	14-02-2013	NONE

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