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(54) **Laundry washing and drying machine**

(57) The present invention relates to a laundry washing and drying machine (1) comprising: a logic unit (25) adapted to control the electric/electronic components of the machine (1), a plurality of operating programs of the laundry washing and drying machine (1), each one designed specifically for a prefixed kind of laundry, being stored in the logic unit (25), for any prefixed kind of laundry being so stored a corresponding washing program and a corresponding drying program; a display device (27) adapted for presenting user information; a user input device (28) where control elements (29) are provided for selecting one operating program among the plurality of

operating programs stored in the logic unit (25). The input device (28) comprises: a first input device (29I) operable by the user for setting, among said plurality of prefixed operating programs stored in the logic unit (25), an operating program associated to a prefixed kind of laundry; a second input device (29II), different from the first input device, operable by the user to set that one operating program associated to a prefixed kind of laundry and set via the first input device (29I) is one between the washing program and the drying program associated to the prefixed kind of laundry.

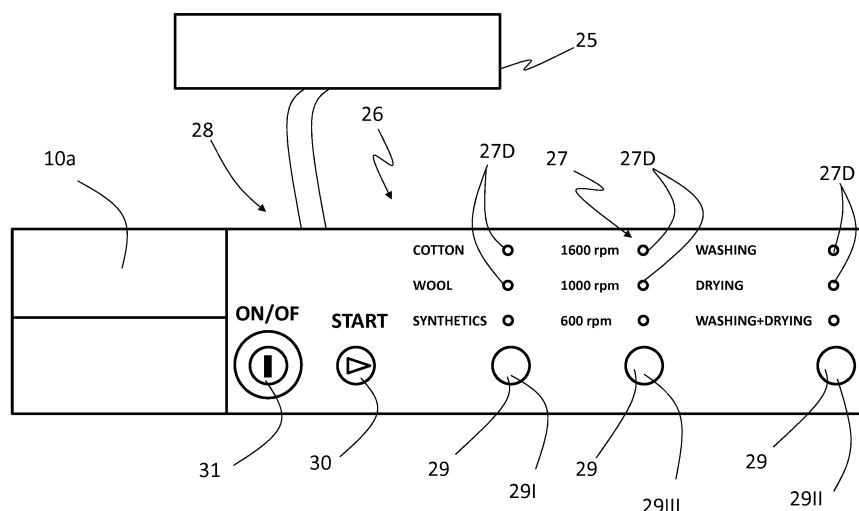


FIG. 2

Description

[0001] The present invention relates to a laundry washing and drying machine, called also washer-drier.

[0002] As it is known, today's laundry washing and drying machines generally comprise an outer casing containing a washing tub in which a revolving drum is housed in axially rotating manner; the drum is structured for housing the laundry to be washed and/or dried. Known washing and drying machines also comprise an hydraulic circuit and an air circuit, adapted respectively to circulate washing liquid or air into the drum, so as to wash or dry the laundry contained therein, according to the selected washing program, drying program, or "combined washing +drying" program (i.e. a program in which a washing phase is followed directly and automatically by a drying phase, without the need of removing the laundry from the drum between the two phases).

[0003] As it is known, in fact, washer-driers are provided with a logic unit adapted to control the electric/electronic components of the machine, so as to make the washer-drier to perform a number of different programs (washing programs, drying programs, combined washing+drying programs), each comprising one or more phases.

[0004] These phases may comprise pre-washing operations, soaking operations, washing operations, rinsing operations, spinning operations, drying operations etc.

[0005] It is underlined that in the present application when mention is made to "dry" or "drying" (e.g. "drying program", "drying phase") this has to be understood as drying the laundry by using the air circuit of the washer-drier, and not, for example, drying the laundry by squeezing it by rotating the drum at high speed in a spinning phase.

[0006] The selection of the program is normally performed by a user interface where control elements are manually operated by the user to select the programs. For instance the control elements may comprise a number of switches, a keyboard, a set of keys or knobs, one or more touch-sensitive input devices, etc.

[0007] In particular, washer-driers are known in which the control element is a knob which protrudes from a control panel, and which can be rotated in such a way that an indicator (e.g. a print made on the knob in a prefixed angular position) can be positioned in a plurality of angular positions each of which corresponds to a specific washing program, drying program or combined washing+drying program. On the control panel, in correspondence of each angular position of the indicator, there is a writing and/or a symbol which indicates a single washing program or drying program or combined washing+drying program. In order to set a washing, drying or combined washing+drying program, user has to rotate the knob until the indicator on the knob corresponds to the writing and/or symbol related to the selected program.

[0008] This procedure is quite cumbersome, since the

user must select among a great number of programs, each one related to one specific way in which the machine has to operate.

[0009] In addition, the high number of selectable programs requires providing lots of writings and/or symbols on the control panel, which require lots of space in the control panel, and which reading is often complex, and can confuse the user. The scope of the present invention is therefore to provide a laundry washing and drying machine in which the user can select the programs in an easy and logical way.

[0010] Applicant has identified that by providing a laundry washing and drying machine with a first input device allowing the setting of an operating program related to a prefixed kind of laundry, and a different second input device for setting if this operating program is actually a washing program or a drying program, the selection procedure of the washing or drying program is highly simplified and it is more logical and ergonomic. In addition this solution allows reducing the number of writings/symbols to be provided in the control panel (which improves both the aesthetics and the readability of the control panel), since it is no more necessary to provide a single dedicated writing/symbol for each washing program and drying program (e.g. washing cotton, washing wool, washing synthetics, drying cotton, drying wool, drying synthetics, etc..).

[0011] It is underlined that in present application the expression "prefixed kind", referred to "laundry" has not to be interpreted necessarily as a "type of fabric" (e.g. wool, cotton, etc.), but it can also be read as a specific characteristic or behaviour of a piece of laundry; for example one prefixed kind of laundry is "DELICATE" laundry, i.e. laundry which requires a delicate treatment, e.g. with low rotating speed, low temperature, etc.

[0012] The precedent scope is obtained in particular by a laundry washing and drying machine comprising:

- a logic unit adapted to control the electric/electronic components of the machine, a plurality of operating programs of said laundry washing and drying machine, each one designed specifically for a prefixed kind of laundry, being stored in said logic unit, for any prefixed kind of laundry being so stored a corresponding washing program and a corresponding drying program;
- a display device adapted for presenting user information,
- a user input device where control elements are provided for selecting one operating program among said plurality of operating programs stored in said logic unit, wherein said input device comprises:
 - a first input device operable by the user for setting, among said plurality of prefixed operating programs stored in said logic unit, an operating program associated to a prefixed kind of laundry;
 - a second input device, different from said first input device, operable by the user to set that one operating

program associated to a prefixed kind of laundry and set via said first input device is one between the washing program and the drying program associated to said prefixed kind of laundry.

[0013] In an advantageous embodiment of the invention the logic unit stores combined washing+drying programs, each one designed specifically for a prefixed kind of laundry and comprising a washing program and a drying program to be executed automatically immediately after the washing program, one combined washing+drying program being stored for each one of said prefixed kind of laundry, said laundry washing and drying machine comprising an input device, different from said first input device, operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device is the combined washing+drying program associated to said prefixed kind of laundry.

[0014] In a preferred embodiment the input device operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device is the combined washing+drying program associated to said prefixed kind of laundry, coincides with said second input device, so that said second input device is operable by user to set that one operating program associated to a prefixed kind of laundry and set via said first input device is the washing program or drying program or combined washing+drying program associated to said prefixed kind of laundry.

[0015] In a different advantageous embodiment said input device operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device is the combined washing+drying program associated to said prefixed kind of laundry, is distinct from said second input device.

[0016] In an advantageous embodiment, said first input device is configured in such a way that if user has not previously operated said second input device, an operating program selected by said first input device is, as a default, a washing program.

[0017] In a different advantageous embodiment, said first input device is configured in such a way that if user has not previously operated said second input device, an operating program selected by said first input device is, as a default, a drying program.

[0018] In a further advantageous embodiment, said first input device is configured in such a way that if user has not previously operated said second input device, an operating program selected by said first input device is, as a default, a combined washing+drying program.

[0019] In a preferred embodiment the laundry washing and drying machine comprises one or more further input devices operable by a user to set one or more parameters of the chosen operating program.

[0020] In an advantageous embodiment, the first input device is a touch sensitive switch operable for setting, among said plurality of prefixed operating program stored in said logic unit, an operating program associated to a

prefixed kind of laundry.

[0021] Preferably, said second input device is a touch sensitive switch.

[0022] A non-limiting embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:

- Figure 1A is a perspective view, with parts removed for clarity, of a front-loading laundry washing and drying machine in accordance with the teachings of the present invention;
- Figure 1B is a schematic front view, with parts removed for clarity, of a front-loading laundry washing and drying machine in accordance with the teachings of the present invention;
- Figure 2 is schematic view of the user interface of a laundry washing and drying machine according to the invention.

[0023] With reference to Figure 1, reference number 1 indicates as a whole a laundry washing and drying machine 1 that may perform both laundry and drying operations.

[0024] It is underlined that in the following a laundry washing and drying machine of the front loading type has been described, but the invention can be applied as well, without substantial modification, to a top loading laundry washing and drying machine.

[0025] Laundry washing and drying machine 1 preferably comprises:

- a casing 2, preferably substantially parallelepiped-shaped, which is preferably structured for resting on the floor;
- a washing tub 3, preferably substantially cylindrical, bell-shaped, and hollow, which is preferably suspended in floating manner inside the metallic casing 2, preferably with its front opening (not shown) directly facing a laundry loading/unloading pass-through opening provided in a front wall of the casing 2; and
- a revolving drum 4 (shown schematically), preferably substantially cylindrical, which is structured for housing the laundry to be washed/dried, and is housed in axially rotating manner inside the washing tub 3 so as to be able to freely rotate about its longitudinal axis (L).

[0026] In the example shown, washing tub 3 is advantageously suspended in floating manner inside casing 2, preferably via a suspension system preferably comprising a number of coil springs (not shown) and vibration dampers (not shown); and the front opening/mouth of washing tub 3 is preferably connected in watertight manner to the laundry loading/unloading opening on front wall via a substantially cylindrical, elastically-deformable bellows (not shown).

[0027] The revolving drum 4 is preferably arranged in-

side washing tub 3 so that the drum front opening is faced/aligned to the laundry loading/unloading opening on front wall, and preferably so that the rotation axis of the drum is locally substantially coincident with the substantially horizontally-oriented, longitudinal reference axis L of washing tub 3.

[0028] The laundry washing and drying machine 1 furthermore advantageously comprises:

- a porthole door 4P (shown in figure 1A) which is preferably hinged to the front wall of casing 2 to rotate about a vertically-oriented reference axis to and from a closing position (shown in figure 1A) in which the peripheral border of the porthole door 4P rests completely on front wall for closing the laundry loading/unloading opening and watertight sealing the washing tub 3; and
- an electric motor assembly 5 (shown schematically in figure 1B) which is designed for driving into rotation the revolving drum 4 about its longitudinal reference axis L inside the washing tub 3.

[0029] The laundry washing and drying machine 1 advantageously comprises a water supply circuit 10, only partially illustrated in Figure 1B, adapted for feeding water and washing/rinsing products (i.e. detergents, softeners, etc.) into the washing tub 3; the water supply circuit 10 preferably comprises a removable drawer 10a, adapted to be filled with washing and/or rinsing products, an inlet duct 10b connectable to water delivery mains present outside the washing and drying machine 1 and adapted to deliver fresh water to the drawer 10a, and an outlet duct 10c, fluidly connecting the drawer 10a and the washing tub 3 and adapted to deliver water and washing/rinsing products into the washing tub 3. The laundry washing and drying machine 1 advantageously also comprises a draining circuit 11, only partially represented in Figure 1B, fluidly connected to the bottom of the washing tub 3 and adapted to drain the washing/rinsing liquid from the washing tub 3 under the action of an electric pump 18 to discharge the liquid outside of the casing 2 through a discharge duct 19.

[0030] The draining circuit 11 may be also advantageously provided with a recirculation circuit 21 (shown with dotted lines) preferably provided with an electrically operated valve 23 located downstream of the electric pump 18 and adapted to drain the washing/rinsing liquid from the bottom of the washing tub 3, and to re-admit such liquid into an upper region of the washing tub 3, for improving the wetting of the laundry.

[0031] The laundry washing and drying machine 1 is provided with a, preferably closed-circuit, air duct assembly 5 (see figure 1A) which is structured to circulate inside the washing tub 3 a stream of hot air having a low moisture content, and which flows through the revolving drum and over the laundry located inside the drum to dry the laundry.

[0032] The air duct assembly 5 is preferably structured

for gradually drawing air from washing tub 3; cooling down the air arriving from washing tub 3 so to extract and retain the surplus moisture in the air; heating the dehumidified air to a predetermined temperature preferably higher than that of the air arriving from washing tub 3; and finally feeding the heated, dehumidified air back into the washing tub 3, where it flows over the laundry stored inside the revolving drum to rapidly dry the laundry.

[0033] The air duct assembly 5 is advantageously housed inside the casing 2 and advantageously comprises:

- an air cooling device 6 which is preferably attached to the back of washing tub 3, is fluidly connected to washing tub 3, preferably on the bottom of the latter, and is structured to cool down the air arriving from washing tub 3 so to extract the surplus moisture in the air drawn from washing tub 3; and
- an air heating device 7 which is preferably rigidly attached to the washing tub 3, is fluidly connected to both the washing tub 3 and the air cooling device 6 to allow the dehumidified air to flow from the air cooling device 6 to the washing tub 3, and is structured to heat up the dehumidified air arriving from the air cooling device 6 before this air returns back into washing tub 3.

[0034] In the example shown, the air cooling device 6 preferably comprises a cold-water condenser 6 which is attached/integrated to/on the back of washing tub 3, and which preferably uses a rain/shower of cold water arriving from the water mains to cool down the moist air that arrives from washing tub 3 and flows upwards on the back of washing tub 3 up to the top of the latter.

[0035] The air heating device 7 is preferably rigidly attached to the top of washing tub 3.

[0036] Advantageously the air heating device 7 comprises:

- a tubular body 12 which is preferably structured for being firmly fixed to washing tub 3, preferably on the top of the latter; the tubular body 12 preferably comprises a first opening or mouth fluidly connected to, i.e. in direct communication with, the air cooling device 6, and a second opening or mouth fluidly connected to, i.e. in direct communication with, the inside of a bellows (not shown, preferably provided for connecting the washing tub 3 to the laundry loading/unloading opening on front wall 2a of casing 2), or fluidly connected directly to the inside of washing tub 3, preferably close to the front opening of washing tub 3;
- a resistor (not illustrated) or other air-heating device, which is housed inside tubular body 12, and is structured to heat up, when electrically powered, the air that flows across tubular body 12;
- an electric centrifugal fan (not illustrated) or other air-pumping device which is preferably housed in-

side tubular body 12, preferably upstream of resistor, and is structured to circulate across tubular body 12 an airflow that subsequently flows across the washing tub 3 and the air cooling device 6 for finally returning back to tubular body 12.

[0037] The laundry washing and drying machine 1 comprises (see figures 1B and 2) a logic unit 25 (only schematically illustrated in attached figures), for example an electronic board, a microcontroller, a microprocessor, etc.. Logic unit 25 is advantageously adapted to control the electric and/or electronic components of the laundry washing and drying machine 1 (for instance the electric motor 5, the electric pump 18, the electrically operated valve 23, the resistor or other air-heating device, the electric centrifugal fan, etc.), so as to make the laundry washing and drying machine 1 to perform a number of washing/drying (i.e washing only, drying only, combined washing+drying) programs P1, P2, ..., Pi, ..., Pn each comprising one or more phased; for example one washing program may comprise a prewash phase, a soaking phase, a main wash phase (comprising, for example, the adduction into the washing tub 3 of water mixed with detergent and the rotation of the drum 4, so as to apply a mechanical action on the laundry), a steam supplying phase, a rinsing phase, a spinning phase, etc.

[0038] Each program is designed specifically for a prefixed kind of laundry (Cotton, Synthetic material, wool, delicate, etc..) and the program (i.e. the instruction making the program) is stored in a memory of the logic unit 25; advantageously, for any prefixed kind of laundry (for instance cotton) are stored at least a washing program (e.g. a cotton washing program), a drying program (e.g. a cotton drying program), and preferably also a combined washing+drying program (e.g. a cotton washing+drying program) comprising a washing program and a drying program to be executed automatically immediately after the washing program.

[0039] The laundry washing and drying machine 1 comprises a user interface 26, operatively connected to the logic unit 25, adapted for selecting and setting one or more different available washing/drying programs and adapted also for presenting user information; these information may be, for example, the name of a particular program, the status of the program, the duration of the program, the temperature of the washing/rinsing liquid, the rotating speed of the spinning, etc.; more in general the user interface 26 is adapted to present information related to the washing/drying program and/or phases of the program.

[0040] In the embodiments illustrated in the enclosed figures, the user interface 26 advantageously comprises a display device or part 27, preferably comprising a plurality of LED indicators 27D (figure 2), adapted for presenting user information.

[0041] Advantageously the user interface comprises a switch ON device 31 (for example an electromechanical switch), which operation causes the machine to be

switched ON; the switch OFF of the machine may be advantageously actuated automatically by the logic unit 25, for example after a certain time of inactivity of the machine, or a switch OFF device may be provided (optionally coinciding with the switching ON device, like in the example of Figure 2), operating on which the machine is switched OFF.

[0042] User interface 26 advantageously comprises an input device 28 comprising for example, a number of manually operated control elements 29 adapted for setting an operating program and or parameters of an operating program. The control elements 29 may comprise: a keyboard, one or more keys or knobs, one or more touch-sensitive input devices, etc.

[0043] The input device 28 advantageously comprises a first input device 29I (for example a touch switch, as shown in figure 2, or a knob, a switch, a plurality of switches, etc.) operable by the user for setting, among a plurality of prefixed operating programs stored in the logic unit 25, an operating program associated to a prefixed kind of laundry to be treated by the laundry washing and drying machine, for instance cotton, wool, synthetic clothes, etc.

[0044] In the example of Figure 2 first input device 29I is advantageously a touch switch, operating which causes the LEDs 27D associated respectively to COTTON, WOOL, and SYNTHETICS to be cyclically switched on one by one; in order to set, for example, an operating program associated to synthetics, user has to operate first input device 29I until the LED 27D corresponding to SYNTHETICS is switched ON.

[0045] According to the present invention, input device 28 comprises a second input device 29II, different from the first input device, operable by the user to set that one operating program associated to a prefixed kind of laundry and set via the first input device 29I is one between the washing program and the drying program associated to that prefixed kind of laundry.

[0046] Advantageously, input device 28 comprises also a starting device 30, for example a button, an electro-mechanical switch, a touch switch, operating on which the selected operating program is started (optionally after a prefixed delay set by a suitable input device, not illustrated).

[0047] In the advantageous embodiment of Figure 2, logic unit 25 stores also combined washing+drying programs, each one designed specifically for a prefixed kind of laundry and comprising a washing program and a drying program to be executed automatically immediately after the washing program; in this case one combined washing+drying program is stored for each prefixed kind of laundry; in this case laundry washing and drying machine 1 comprises an input device, different from the first input device 29I, operable by the user to set that one operating program associated to a prefixed kind of laundry and set via the first input device 29I is the combined washing+drying program associated to that prefixed kind of laundry.

[0048] In the advantageous embodiment of Figure 2

this input device operable by the user to set that one operating program associated to a prefixed kind of laundry and set via the first input device 29I is the combined washing+drying program associated to that prefixed kind of laundry, coincides (i.e. they are a same input device) with the second input device 29II, so that the second input device 29II is operable by user to set that one operating program associated to a prefixed kind of laundry and set via the first input device 29I is the washing program or drying program or combined washing+drying program associated to the prefixed kind of laundry.

[0049] In the advantageous example of Figure 2, therefore, by operating second input device 29II after having operated first input device 29I, user sets which kind of operating program (among washing, drying and combined washing+drying) has to be performed for the kind of laundry set by first input device 29I.

[0050] In the example of Figure 2 second input device 29II is advantageously a touch switch, operating which causes the LEDs 27D associated respectively to WASHING, DRYING, WASHING+DRYING to be cyclically switched on one by one; in order to set, for example, DRYING, user has to operate second input device 29II until the LED 27D corresponding to DRYING is switched ON.

[0051] In a further advantageous embodiment, not illustrated, the input device operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device 29I is the combined washing+drying program associated to that prefixed kind of laundry, is distinct also from the second input device 29II.

[0052] In a preferred embodiment the first input device 29I is advantageously configured in such a way that if user has not previously operated the second input device 29II, an operating program selected by the first input device 29I is, as a default, a washing program. In this case if, after switching on the machine, user (without operating the second input device 29II) operates first input device 29I for setting an operating program associated to a prefixed kind of laundry, for example "COTTON" (e.g. user touches touch switch 29I until the LED corresponding to "COTTON" is switched ON), and then operates on the starting device 30, the washing program corresponding to the set kind of laundry (COTTON in this example), is executed.

[0053] Before starting the washing program, parameter and options (for instance temperature: 30 C°, 40 C°, 60 C°, 90C° or running speed 600 rpm, 1000 rpm, 1600 rpm) of the program may be set by means of a third input device 29III, for instance a touch switch.

[0054] In a different advantageous embodiment, the first input device 29I is advantageously configured in such a way that if user has not previously operated the second input device 29II, an operating program selected by the first input device 29I is, as a default, a drying program.

[0055] In a different advantageous embodiment, the

first input device 29I is advantageously configured in such a way that if user has not previously operated the second input device 29II, an operating program selected by the first input device 29I is, as a default, a combined washing+drying program.

[0056] In a further different advantageous embodiment, the first input device 29I is configured in such a way that its operation is not associated to any default program, so that in order to decide if one operating program associated to a prefixed kind of laundry and set via the first input device 29I is a washing program or a drying program, it is necessary to operate the second input device 29II.

Claims

1. Laundry washing and drying machine (1) comprising:

- a logic unit (25) adapted to control the electric/electronic components of the machine (1), a plurality of operating programs of said laundry washing and drying machine (1), each one designed specifically for a prefixed kind of laundry, being stored in said logic unit (25), for any prefixed kind of laundry being so stored a corresponding washing program and a corresponding drying program,

- a display device (27) adapted for presenting user information,

- a user input device (28) where control elements (29) are provided for selecting one operating program among said plurality of operating programs stored in said logic unit (25),

characterized in that

said input device (28) comprises:

- a first input device (29I) operable by the user for setting, among said plurality of prefixed operating programs stored in said logic unit (25), an operating program associated to a prefixed kind of laundry;

- a second input device (29II), different from said first input device, operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device (29I) is one between the washing program and the drying program associated to said prefixed kind of laundry.

2. Laundry washing and drying machine as defined in claim 1, wherein said logic unit (25) stores combined washing+drying programs, each one designed specifically for a prefixed kind of laundry and comprising a washing program and a drying program to be executed automatically immediately after the washing program, one combined washing+drying program being stored for each one of said prefixed kind of

laundry, said laundry washing and drying machine (1) comprising an input device, different from said first input device (29I), operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device (29I) is the combined washing+drying program associated to said prefixed kind of laundry.

3. Laundry washing and drying machine as defined in claim 2, wherein said input device (29II) operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device (29I) is the combined washing+drying program associated to said prefixed kind of laundry, coincides with said second input device (29II), so that said second input device (29II) is operable by user to set that one operating program associated to a prefixed kind of laundry and set via said first input device (29I) is the washing program or drying program or combined washing+drying program associated to said prefixed kind of laundry.
4. Laundry washing and drying machine as defined in claim 2, wherein said input device operable by the user to set that one operating program associated to a prefixed kind of laundry and set via said first input device (29I) is the combined washing+drying program associated to said prefixed kind of laundry, is distinct from said second input device (29II).
5. Laundry washing and drying machine as defined one or more of the previous claims, wherein said first input device (29I) is configured in such a way that if user has not previously operated said second input device (29II), an operating program selected by said first input device (29I) is, as a default, a washing program.
6. Laundry washing and drying machine as defined one or more of claims 1 to 4, wherein said first input device (29I) is configured in such a way that if user has not previously operated said second input device (29II), an operating program selected by said first input device (29I) is, as a default, a drying program.
7. Laundry washing and drying machine as defined in one or more of claims 2 to 4, wherein said first input device (29I) is configured in such a way that if user has not previously operated said second input device (29II), an operating program selected by said first input device (29I) is, as a default, a combined washing+drying program.
8. Laundry washing and drying machine as defined one or more of the previous claims, comprising one or more further input devices (29III) operable by a user to set one or more parameters of the chosen operating program.

9. Laundry washing and drying machine as defined one or more of the previous claims, wherein said first input device (29I) is a touch sensitive switch operable for setting, among said plurality of prefixed operating programs stored in said logic unit (25), an operating program associated to a prefixed kind of laundry.
10. Laundry washing and drying machine as defined one or more of the previous claims, wherein said second input device (29II) is a touch sensitive switch.

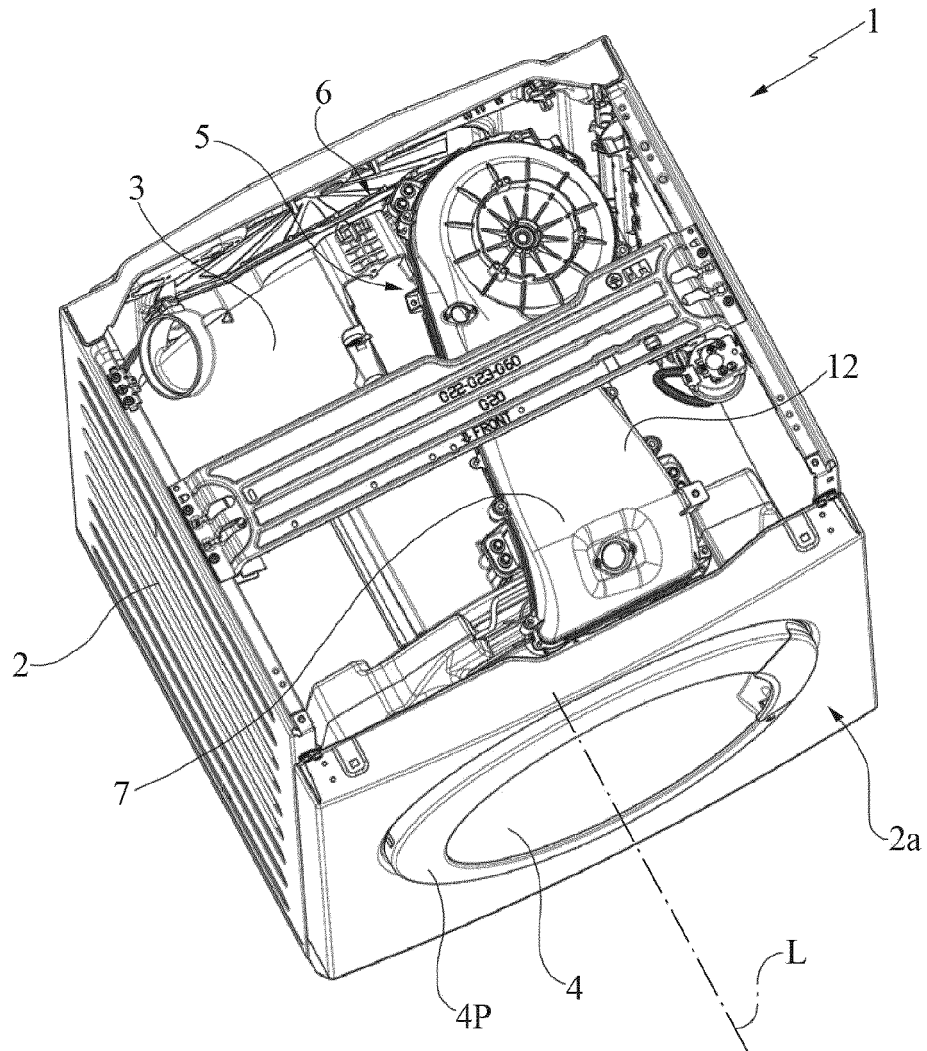


FIG. 1A

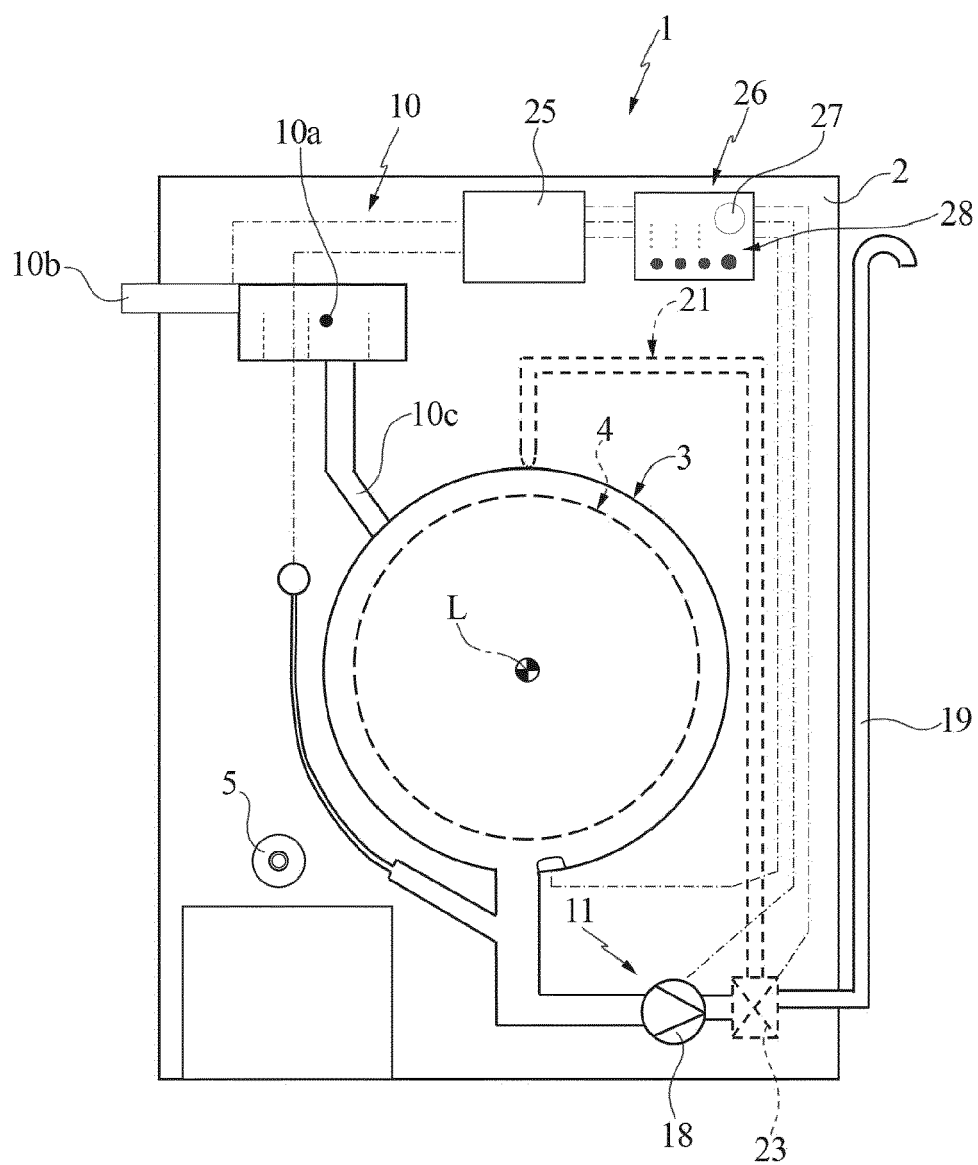


FIG. 1B

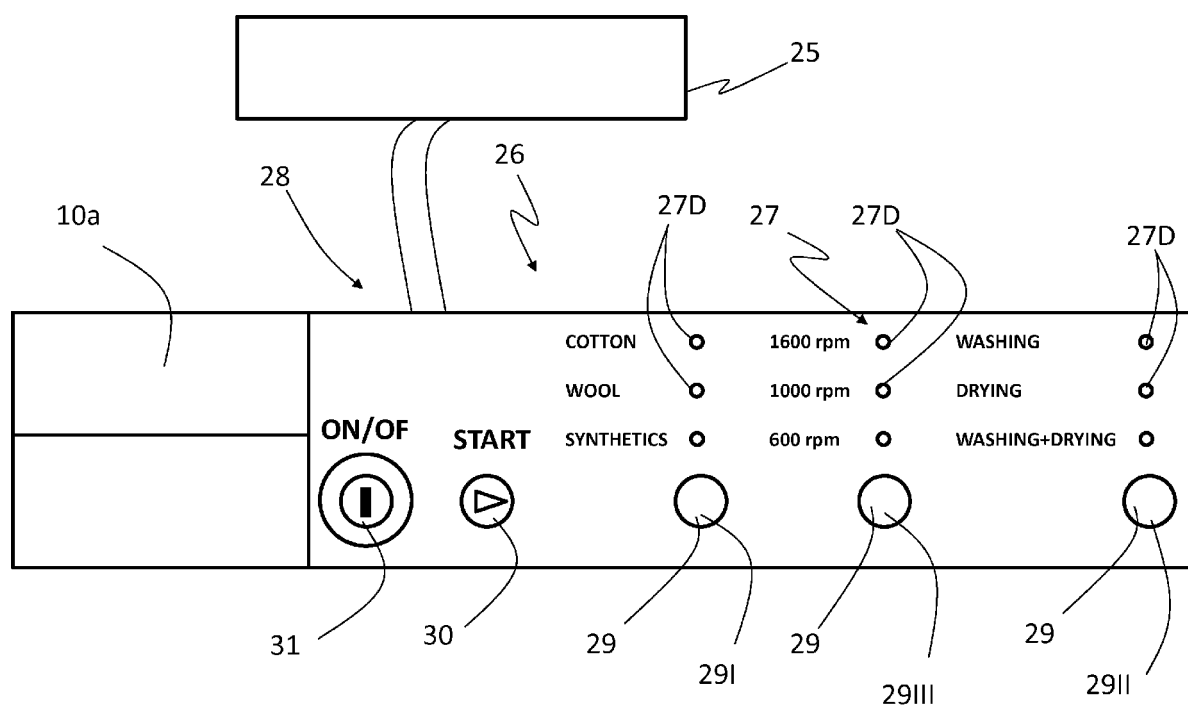


FIG. 2



EUROPEAN SEARCH REPORT

 Application Number
EP 13 18 0212

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 2012/118285 A2 (LG ELECTRONICS INC [KR]; LEE JUNGHWAN [KR]; SON NERRY [KR]; UM YEJI [K] 7 September 2012 (2012-09-07) * the whole document *	1-10	INV. D06F39/00 D06F25/00
X	EP 2 135 988 A1 (LG ELECTRONICS INC [KR]) 23 December 2009 (2009-12-23) * the whole document *	1-10	
Y	US 2004/134238 A1 (BUCKROYD JAMES DAVID [US] ET AL) 15 July 2004 (2004-07-15) * the whole document *	1-10	
Y	EP 1 980 660 A1 (SANYO ELECTRIC CO [JP] HAIER GROUP CORP [CN]; QINGDAO HAIER WASHING MA) 15 October 2008 (2008-10-15) * the whole document *	1-10	
A	DE 10 2009 027780 A1 (BSH BOSCH SIEMENS HAUSGERAETE [DE]) 20 January 2011 (2011-01-20) * the whole document *	1-10	TECHNICAL FIELDS SEARCHED (IPC) D06F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 3 January 2014	Examiner Spitzer, Bettina
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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