



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.04.2025 Bulletin 2025/14

(51) International Patent Classification (IPC):
F24C 7/08 ^(2006.01) **F24C 15/20** ^(2006.01)
H05B 6/06 ^(2006.01)

(21) Application number: **24200225.1**

(52) Cooperative Patent Classification (CPC):
F24C 7/082; F24C 15/2042; H05B 6/062

(22) Date of filing: **13.09.2024**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA
Designated Validation States:
GE KH MA MD TN

(71) Applicant: **ELICA S.p.A.**
60044 Fabriano (AN) (IT)

(72) Inventors:
• **Magrini, Francesco**
60044 Fabriano AN (IT)
• **Garufi, Carmelo**
60044 Fabriano AN (IT)

(30) Priority: **29.09.2023 IT 202300020079**

(74) Representative: **Perani & Partners S.p.A.**
Piazza Armando Diaz, 7
20123 Milano (IT)

(54) **MULTI-FUNCTION HOUSEHOLD APPLIANCE**

(57) Multi-function household appliance (1), comprising an electrical connector (2) connectable to an electrical network, a first and a second power supply device (3, 4) connected to the electrical connector (2), a first and a second electrical load (5, 6), respectively connected to the first and to the second power supply device (3, 4) and configured to perform respective household appliance functions. A main switch (7) is operable manually but not electronically remotely and is configured to switch between a switched-on state and a switched-off state, in which the supply of the first load

(5) is respectively enabled and disabled. An electronic controller (8) is configured to command the activation and deactivation of the first load (5) and to control the electrical supply thereof by the first power supply device (3), only when the main switch (7) is in the switched-on state, and the activation and deactivation and electrical supply of the second load (6) by the second power supply device (4) in response to remote activation and deactivation signals received from a remote device (10), at least when the main switch (7) is in the switched-off state.

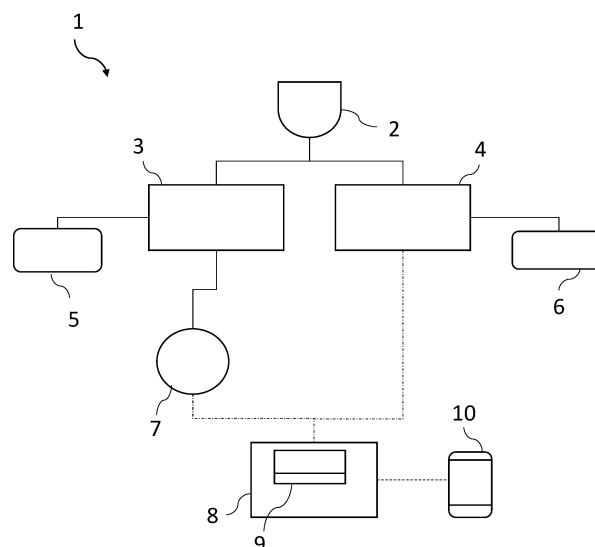


Fig. 1

Description

Technical field

[0001] The present invention is developed in the technical field of household appliances, in particular multi-function household appliances, including cooking hobs, in accordance with the preamble of claim 1.

State of the art

[0002] Household appliances that perform functions traditionally attributed to two or more distinct household appliances are known in the art. They are generally appreciated for convenience of use and compactness, compared to the use of separate household appliances.

[0003] Examples include washer dryers, hob ovens, and hob rangehoods.

[0004] In particular, referring to the latter type of multi-function household appliance, it is noted that the hob integrates, for example, a downdraft hood, that is, a hood capable of sucking the cooking fumes downwards through an opening obtained in the hob.

[0005] There are also known household appliances capable of combining more than two functions, such as a household appliance including a hob, an oven and a downdraft hood.

[0006] Generally, each function of the household appliance involves the activation of an electrical load suitably designed for the function of interest. An example of an electrical load can be an electrical motor, usually connected to a pump or a fan, for the circulation of a liquid or air, or to a mechanical tool, to move bodies in the household appliance. For example, motors can be provided for pumps that supply liquids to a washing machine, for fans that circulate hot air in an oven, for fans that suck air into a hood, for the drum of a washing machine in which clothes to be washed are placed, or for a turntable of an oven to expose a dish to heat more evenly.

[0007] Another example of an electrical load is a heating element, such as a resistor or an inductor. Resistors can be used to heat liquid supplied to a washing machine, to dry cloths in a dryer, to heat an oven compartment, or to heat a region of a hob. Inductors can be used in a hob, for the inductive transmission of current to a suitable receiver inductor incorporated in a piece of cookware, in order to heat it.

[0008] An example of a household appliance having multiple electrical loads is shown in document EP 4008966 A1, in which a suction hood and heating elements of a hob are independently operable by an electronic controller.

[0009] Further examples of household appliances with multiple electrical loads are shown in document US 8872077 B2, which describes a hob with a ventilation device and an electronic control system, and in document CN 112797447 B, which shows a ventilation unit for a hob.

[0010] Nowadays, household appliances that allow for remote activation are widespread. Thus, a switch-on command, indicating a program to be performed by the household appliance, may be sent from a remote device, such as a remote control or a smartphone, by wireless signals, for example wi-fi.

Problems of the background art

[0011] For some household appliances, in particular electric, resistance or induction hobs, the regulations prohibit remote activation, due to the risks they may cause to people unaware of the activation of the heating elements.

[0012] Therefore, the hobs are equipped with general switches with only manual activation, which enable and disable the supply of the heating elements. For example, the main switch may disable the controller from which a user enters commands.

[0013] The hobs are therefore called household appliances with supervised activation, because they are impossible to activate without the physical presence of the user.

[0014] The Applicant has noted that in known multi-function household appliances, if a supervised activation household appliance, such as a hob, is included, the main switch, when switched off, disables the supply of the entire household appliance. While this complies with the regulations for the hob, this is an impediment to the other functions of the household appliance, such as a hood or an oven, which are not remotely controllable, although this would be permitted by the regulations and would not cause significant hazards to the user.

Summary of the invention

[0015] The object of the present invention is to overcome the drawbacks set forth with reference to the prior art, and in particular to provide a multifunction household appliance in which remote control is permitted, where possible, despite the presence of supervised activation household appliance functions.

[0016] These and other objects are achieved by a multi-function household appliance according to any one of the appended claims.

Advantages of the invention

[0017] The invention provides that the household appliance comprises two distinct supply devices, substantially independent of each other, although connected to the same connector for mains power supply. The first supply device is dedicated to a first electrical load, and a main switch allows enabling and disabling the supply of the first load by the first power supply device. The first electrical load, therefore, can meet the regulations for supervised activation.

[0018] The second supply device is dedicated to a

second electrical load and is also connected to a controller of the household appliance. The controller can remotely receive an activation signal, and in response can command the supply of the second electrical load, even in conditions wherein the main switch is off. Therefore, those functions of the household appliance that do not require supervised activation can be commanded remotely, without compromising the safety of the other supervised functions.

[0019] Further features and advantages of the invention will be recognisable by a person skilled in the art from the following detailed disclosure of exemplary embodiments of the invention.

Brief disclosure of the figures

[0020] For a better understanding of the following detailed disclosure, some embodiments of the invention are illustrated in the accompanying drawings, wherein:

- figure 1 shows a block diagram of the steps of a multi-function household appliance according to the present invention;
- figure 2 shows a perspective view of an embodiment of the multi-function household appliance according to the present invention;
- figure 3 shows a perspective view of a preferred embodiment of a household appliance according to the present invention.

DETAILED DESCRIPTION

[0021] The object of the present description is a multi-function household appliance, indicated by 1 in the attached figures.

[0022] The multi-function household appliance 1 comprises an electrical connector 2 connectable to an electrical network. As is known to the person skilled in the art, the electrical connector 2 is configured to be inserted into a respective electrical socket, not shown. Preferably, the electrical connector 2 is compatible with electrical outlets in accordance with current national/international regulations or standards.

[0023] Depending on the application and the country of installation, a person skilled in the art will recognize that the electrical connector 2 can be provided with a plurality of conductors with different functions, to be connected to corresponding conductors of the electrical network. For example, the connector 2 may be a single-phase connector, with a phase conductor and a neutral conductor. In addition, a protective conductor may be provided.

[0024] The household appliance 1 comprises a first power supply device 3 electrically connected to the electrical connector 2.

[0025] The household appliance 1 further comprises a second power supply device 4 electrically connected to the electrical connector 2.

[0026] The first and second power supply devices 3, 4,

being powered by the same conductors of the connector 2, are parallel to each other.

[0027] Preferably, the first power supply device 3 and the second power supply device 4 each comprise at least one electrical converter.

[0028] As is known to the person skilled in the art, the first power supply device 3 and the second power supply device 4 are configured to receive incoming electrical energy from the electrical network through the electrical connector 2 and to transmit it at a reduced voltage level, as well as optionally with adjustable frequency and/or waveform, to electrical loads of the household appliance 1.

[0029] For example, a converter of the first and/or second power supply device 3, 4 may be a rectifier, for supplying direct voltage to at least one load of the household appliance 1. In another example, the first and/or second power supply device 3, 4 may comprise several converters, including a rectifier and an inverter in series with each other, for supplying the at least one load of the household appliance 1 with voltage with adjustable amplitude, frequency and/or waveforms.

[0030] The household appliance 1 comprises a first electrical load 5, connected to the first power supply device 3 and configured to perform a first household appliance function.

[0031] For the purposes of the present description, "household appliance function" means an operation or a set of operations characteristic of the functionality of a traditional single-function household appliance, which can be carried out by the action of one or more respective electrical loads. By way of example, in the case where the first household appliance function is a hob function, an electrical load may be embodied in a heating element, such as an inductor for an induction hob, which performs the operation of inductively transmitting current to a suitable receiver inductor incorporated in a piece of cookware.

[0032] In this description, for simplicity, reference is made mainly to a first electrical load 5 for performing a first household appliance function, and a second electrical load 6 for performing a second household appliance function. However, it should be noted that to perform a specific household appliance function, multiple electrical loads may be required, dedicated to the same operation or to different operations of the same household appliance function. Furthermore, the system may provide several first electrical loads 5, dedicated to different household appliance functions, and/or several second electrical loads 6, dedicated to still different household appliance functions.

[0033] For example, to perform an oven function, multiple electrical loads may be provided corresponding to distinct operations of the oven function, such as ventilation motors, resistance heating elements, lighting elements for interior lighting of the oven, and signal lights.

[0034] According to the preferred embodiment of the invention, illustrated in figure 2 or figure 3, the household

appliance 1 comprises at least one hob 20 comprising a plurality of heating elements 21, each of which represents a first electrical load 5.

[0035] Still preferably, the first household appliance function of the first electrical load 5 is therefore of a supervised activation type. In fact, it should be noted that, according to current regulations, the hob must be supervised to ensure the safety of users.

[0036] According to one aspect, the household appliance 1 may comprise a plurality of first electrical loads 5 of supervised activation type.

[0037] The household appliance 1 comprises at least one second electrical load 6, configured to perform a second household appliance function.

[0038] The second electrical load 6 is electrically connected to the second power supply device 4, and not to the first power supply device 3. Conversely, the first electrical load 5 is not connected to the second power supply device 4.

[0039] Preferably, the second household appliance function of the second electrical load 6 is of an unsupervised activation type. Accordingly, the second electrical load 6 is preferably remotely activatable through a remote device 10, preferably comprising one of a remote control or a smartphone, as detailed below.

[0040] As anticipated, the household appliance 1 can comprise a plurality of second electrical loads 6 of an unsupervised activation type, to perform operations that contribute to the same household appliance function or to different household appliance functions.

[0041] For example, in the preferred embodiment, the household appliance 1 comprises, as a second electrical load 6, one or more of a motor of a suction hood 30 and a heating element of an oven 40, illustrated in figures 2 and 3.

[0042] The preferred embodiment in particular shown in figure 3 concerns a household appliance 1 that performs the triple function of hob, oven and suction hood, where the sole function of the hob is of the supervised activation type.

[0043] The household appliance 1 further comprises a main switch 7, manually operable by a user and not operable, electrically controllable remotely.

[0044] The main switch 7 is configured to switch between a switched-on state, in which the supply of the first electrical load 5 is enabled, and a switched-off state, in which the supply of the first electrical load 5 is disabled. It follows that a first electrical load 5 with supervised action made according to the present description meets the regulations in force for supervised activation thanks to the presence of a switch adapted to allow its activation only in the switched-on state that can be operated manually by the user.

[0045] Note that a single main switch 7 can also enable and disable the supply of further first electrical loads 5 of the household appliance 1.

[0046] Alternatively, the household appliance 1 may comprise several switches 7 for respective first electrical

loads 5 with supervised activation. In the following of the present description, reference will be made to the preferred embodiment of a single main switch 7, without however any loss of generality.

[0047] Preferably, the main switch 7 is not configured to disable the supply of the second electrical load 6 or, possibly, of the plurality of second electrical loads 6.

[0048] Always preferably, the household appliance 1 does not have other switches, manually operable by a user and not electronically remotely operable, which are configured to enable and disable the supply of one or more second electrical loads. Advantageously, the second electrical load 6 is of an unsupervised activation type and, therefore, can be activated remotely.

[0049] The household appliance 1 also comprises an electronic controller 8 electrically connected or in signal communication to the first power supply device 3 and to the second power supply device 4. Preferably, the electronic controller 8 is electrically powered at least by the second power supply device 4.

[0050] The electronic controller 8 is configured to command activation and deactivation of the first electrical load 5. In addition, the electronic controller 8 is configured to control the electrical supply of the first electrical load 5 by the first power supply device 3. In more detail, to activate and deactivate the first electrical load 5 it is not enough that the main switch 7 is in the switched-on state, but it is necessary to provide an additional command from the electronic controller 8 to command its activation and deactivation. Therefore, it should be noted that there are operating conditions in which the main switch 7 is in the switched-on state but the first load 5 is deactivated, that is, not powered.

[0051] In other words, the main switch 7 in the switched-on state ensures the electrical continuity between the first power supply device 3 and the first electrical load 5, but the actual control of the power supplied to the first electrical load 5 by the first power supply device 3 is carried out by the electronic controller 8.

[0052] Therefore, the main switch 7 and the electronic controller 8 are configured to realize three distinct configurations of the first electrical load 5, and in particular:

- a configuration in which the main switch 7 disables the supply of the first load 5,
- a configuration in which the main switch 7 enables the supply of the first load 5 and the first load is active (as activated by the electronic controller 8), and
- a configuration in which the main switch 7 enables the supply of the first load 5 but the first load is deactivated (as deactivated by the electronic controller 8).

[0053] For example, where the first power supply device 3 comprises at least one converter including controllable switches, the control of the supply of the first electrical load 5 by the first power supply device 3 takes place by setting and transmitting control signals for the

switches according to predetermined times and alternations. It should be noted that in the absence of control signals the switches can remain in a non-conductive state, with the consequence that the first electrical load 5 is not powered.

[0054] In accordance with the preferred embodiment of the invention, the electronic controller 8 is configured to receive as input a first local activation signal and a first local deactivation signal manually set, i.e. actuated by the hand of a user. For this purpose, preferably the controller 8 includes a user interface 9 for inputting control signals and optionally outputting status messages. Optionally, the main switch 7 is integrated into the user interface 9 of the electronic controller 8.

[0055] Note that the electronic controller 8 is also configured to command the activation and deactivation of the first electrical load 5 in response to the first local activation signal and the first local deactivation signal respectively, at least in an operating condition in which the supply of the first electrical load 5 is enabled by the main switch 7. It is emphasised that the local deactivation signal does not bring the main switch 7 to the switched-off state. However, it is not excluded that, based on different contingent situations, there may be operating conditions in which, upon receipt of the first local activation signal, although the supply of the first electrical load 5 is enabled by the main switch 7, the electronic controller 8 prevents the activation of the first electrical load 5.

[0056] Note that, to ensure the safety of the user, the electronic controller 8 may command the activation and deactivation of the first electrical load 5 only if the supply of the first electrical load 5 is enabled by the main switch 7. In this manner, when the supply of the first electrical load 5 is disabled by the main switch 7, the electronic controller 8 is unable to command the activation of the first electrical load 5.

[0057] The electronic controller 8 is also configured to receive a remote activation signal and a remote deactivation signal from the remote device 10.

[0058] The electronic controller 8 is further configured to command activation and deactivation of the second electrical load 6. In addition, the electronic controller 8 is configured to control the supply of the second electrical load 6 by the second power supply device 4 in response to the remote activation and deactivation signals, at least in an operating condition in which the main switch 7 is in the switched-off state, and preferably also in at least one operating condition in which the main switch 7 is in the switched-on state.

[0059] It should therefore be noted that the electronic controller 8 is capable of activating and deactivating the second electrical load 6 regardless of the state of the main switch 7.

[0060] The control of the second power supply device 4 can be carried out similarly to that already described for the first power supply device 3, by sending control signals to the switches of a converter.

[0061] Preferably, the electronic controller 8 comprises

a communication module, not illustrated, configured to connect to an internet network with TCP/IP protocol or the like and/or to receive and transmit data by wireless radio frequency communication, for example Bluetooth, Wi-Fi, ZigBee, or the like.

[0062] It should be noted that the remote device 10 is also equipped with a transmitter receiver module to establish a signal communication with the electronic controller 8 by means of wireless signals, for example Wi-Fi, Bluetooth or ZigBee.

[0063] In accordance with the preferred embodiment of the invention, the electronic controller 8 is configured to receive in input, for example through the user interface 9, a second local activation signal and a second local deactivation signal by means of a manual user operation.

[0064] Preferably, the electronic controller 8 is configured to activate and deactivate the second electrical load 6 in response to the second local activation signal and the second local deactivation signal, respectively, in at least one operating condition. In different embodiments, this may be enabled when the main switch 7 is in the switched-on state, the switched-off state, or both states.

[0065] Note that the electronic controller 8 is configured to activate the second electrical load 6 independently of the first load 5. Thus, even in the case that the supply of the first electrical load 5 is disabled by the main switch 7 in the switched-off state, the controller can still activate the second electrical load 6 according to the second local activation signal or the remote activation signal.

[0066] In accordance with the preferred embodiment, the electronic controller 8 is configured to launch and terminate a remote-control mode and a local control mode, which can be mutually by-passed.

[0067] In detail, in the remote-control mode, the electronic controller 8 is configured to disable at least the second local activation signal. Preferably the electronic controller 8 is configured to disable both the first and second local activation signal. Such signals may, for example, be received but rejected, or the user interface 9 may prevent input of such signals.

[0068] In further detail, in the local control mode, the electronic controller 8 is configured to disable the remote activation signal, and to command and control the supply of the first 5 and/or second electrical load 6 in response to the first and second local activation signals, respectively.

[0069] It should be noted that the mutual by-passing of the remote-control mode and the local control mode makes it possible not to overlap two commands received from the manual mode and the remote mode, which could come from different users, one unaware of the other's commands.

[0070] According to one aspect of the invention, the electronic controller 8 is configured to generate status signals selectively indicative of the execution of the local activation mode and the remote activation mode, which can be displayed on the user interface 9 and/or on the remote device 10, so as to inform the user of the type of

commands enabled and disabled.

[0071] According to one embodiment of the invention, the electronic controller 8 is configured to also launch and terminate a basic control mode.

[0072] Preferably, the electronic controller 8 is configured, when it is in the basic control mode and receives the first and/or second local activation signal, to switch to the local control mode and execute a first and/or second household appliance program by means of the first 5 and/or second electrical load 6.

[0073] Always preferably, the electronic controller 8 is configured, when it is in the basic control mode and receives the remote activation signal, to switch to the remote-control mode and execute a second household appliance program by means of the second electrical load 6.

[0074] In addition, the electronic controller 8 is configured to return to the basic control mode at the conclusion of the first and/or second household appliance program. Therefore, starting from the basic control mode, both remote and local controls are allowed, based on which is received first and the state of the main switch 7. Upon receipt of a local or remote command, the household appliance 1 becomes unavailable to the other control mode until the received commands are completely executed.

[0075] Some possible implementations of the main switch 7 for enabling and disabling the supply of the first electrical load 5 by the first power supply device 3 are now described.

[0076] In accordance with a first embodiment, illustrated in figure 1, the main switch 7 is configured to connect and disconnect the electronic controller 8 and the first power supply device 3 to each other. In this way, the first power supply device 3 is configured to substantially continuously receive electrical current from the electrical connector 2 but cannot be activated by the electronic controller 8 to supply the first electrical load 5 when the main switch 7 is in the switched-off state. In particular, the converter of the first power supply device 3 is not reachable by control signals for its switches, and therefore these remain in a non-conductive state, and do not power the first electrical load 5.

[0077] In accordance with a second embodiment, not shown, the main switch 7 is configured to connect and disconnect the first power supply device 3 and the electrical connector 2 to each other, so as to prevent the transfer of current from the electrical connector 2 to the first power supply device 3 and consequently prevent the activation of the first electrical load 5 when the main switch 7 is in the switched-off state.

[0078] According to a third embodiment, not shown, the main switch 7 is configured to connect and disconnect the first electrical load 5 and the first power supply device 3 to each other. In this way, the first power supply device 3 is configured to substantially continuously receive electrical current from the electrical connector 2 and is activatable by the electronic controller 8, but the first elec-

trical load 5 is not activatable by the first power supply device 3 when the main switch 7 is in the switched-off state.

[0079] In accordance with the preferred embodiment of the invention, the household appliance 1 comprises a hob 20, illustrated in figures 2 and 3, comprising the first electrical load 5 or the plurality of first electrical loads 5, and one or more of a suction hood 30, for example a downdraft hood, and an oven 40 comprising the second electrical load 6 or the plurality of second electrical loads 6.

[0080] Optionally, the household appliance 1 allows more than two household appliance functions to be combined, comprising in addition to the hob, both the exhaust hood and the oven, as illustrated in figure 3, each comprising a respective second electrical load 6.

[0081] According to no embodiment of the invention, illustrated in figure 3, the household appliance 1 comprises a functional unit 50, located below the hob, which comprises one or more of the suction hood 30 and the oven 40.

[0082] According to one aspect of the invention, the first power supply device 3 and the second power supply device 4 are mounted to the functional unit 50.

[0083] According to the same aspect of the invention, the electronic controller 8 is mounted to the functional unit.

[0084] It should be noted that the multi-function household appliance according to the present description allows the compactness of the household appliance itself to be guaranteed, without however detracting from the convenience of use for the user. In fact, while complying with the regulations in force for a supervised-action electrical load, thus ensuring the safety of the supervised functions when the main switch is in the switched-off state, the household appliance of the present invention still allows the unsupervised functions of the household appliance to be commanded, without losing functionality.

[0085] Advantageously, this allows, by way of example, the oven 40 and/or the suction hood 30 to be activated locally or remotely even when the supply to the hob 20 is disabled by means of the main switch 7.

[0086] Obviously, a person skilled in the art will be able to make numerous equivalent modifications to the variants set forth above, without thereby departing from the scope of protection as defined by the appended claims.

Claims

1. Multi-function household appliance (1), comprising:

- an electrical connector (2) connectable to an electrical network,
- a first power supply device (3) connected to the electrical connector (2),
- a first electrical load (5), connected to the first power supply device (3) and configured to per-

form a first household appliance function,
 - a main switch (7), manually operable by a user and not electronically operable remotely, the main switch (7) being configured to switch between a switched-on state, in which the supply of the first electrical load (5) is enabled, and a switched-off state, in which the supply of the first electrical load (5) is disabled,
 - an electronic controller (8), connected to the first power supply device (3) and configured to command the activation and deactivation of the first electrical load (5) and control the electrical supply thereof by the first power supply device (3), the electronic controller (8) being adapted to command the activation and deactivation of the first electrical load (5) only when the main switch (7) is in the switched-on state,
 - a second electrical load (6), configured to perform a second household appliance function,

characterised by comprising:

- a second power supply device (4) connected to the electrical connector (2), the second electrical load (6) and the electronic controller (8) being connected to the second power supply device (4),
 - said electronic controller (8) being configured to receive a remote activation signal and a remote deactivation signal from a remote device (10), and to command the activation and the deactivation of the second electrical load (6) and to control the electrical supply thereof by the second power supply device (4) in response to the remote activation and deactivation signals, at least in an operating condition in which the main switch (7) is in the switched-off state.

2. Household appliance (1) according to claim 1, wherein the main switch (7) and the electronic controller (8) are configured to realize a configuration in which the main switch (7) disables the supply of the first load (5), a configuration in which the main switch (7) enables the supply of the first load (5) and the first load (5) is active, and a configuration in which the main switch (7) enables the supply of the first load (5) but the first load (5) is deactivated.

3. Household appliance (1) according to claim 1 or 2, wherein:

- said first electrical load (5) represents a function of the household appliance of the supervised activation type, and
 - said second electrical load (6) represents a function of the household appliance of the unsupervised activation type.

4. Household appliance (1) according to any one of claims 1 to 3, wherein:

- the electronic controller (8) is configured to receive a first and a second local activation signal as input, said input being activated by a user,
 - the electronic controller (8) is configured to command the activation of the first electrical load (5) in response to the first local activation signal, at least in an operating condition in which the supply of the first electrical load (5) is enabled by the main switch (7),
 - the electronic controller (8) is configured to command the activation of the second electrical load (6) in response to the second local activation signal, in at least one operating condition.

5. Household appliance (1) according to claim 4, wherein:

- the electronic controller (8) is configured to launch and terminate a remote-control mode and a local control mode, which can be mutually by-passed,
 - in the remote-control mode, the electronic controller (8) is configured to disable at least the second local activation signal, and
 - in the local control mode, the electronic controller (8) is configured to disable the remote activation signal.

6. Household appliance (1) according to claim 5, wherein:

- the electronic controller (8) is configured to also launch and terminate a basic control mode,
 - the electronic controller (8) is configured, when it is in the basic control mode and receives the first and/or second local activation signal, to switch to the local control mode and execute a first and/or second household appliance program by means of the first (5) and/or second electrical load (6),
 - the electronic controller (8) is configured, when it is in the basic control mode and receives the remote activation signal, to switch to the remote-control mode and execute a second household appliance program by means of the second electrical load (6),
 - the electronic controller (8) is configured to return to the basic control mode at the conclusion of the first and/or second household appliance program.

7. Household appliance (1) according to any one of claims 1 to 6, wherein the main switch (7) is configured to connect and disconnect to each other:

- the first power supply device (3) and the electrical connector (2), and/or
 - the electronic controller (8) and the first power supply device (3), and/or
 - the first electrical load (5) and the first power supply device (3). 5
8. Household appliance (1) according to any one of claims 1 to 7, wherein the main switch (7) is not configured to disable the supply of the second electrical load (6), preferably the household appliance (1) being without other switches, manually operable by a user and not electronically operable remotely, which are configured to enable and disable the supply of the second electrical load (6). 10 15
9. Household appliance (1) according to any one of claims 1 to 8, wherein each of the first and second power supply device (3, 4) comprises a transformer and an electrical converter. 20
10. Household appliance (1) according to any one of claims 1 to 9, wherein:
- the first electrical load (5) comprises a heating element of a hob (20), and 25
 - preferably, the second electrical load (6) comprises one or more of a motor of a suction hood (30) and a heating element of an oven (40). 30
11. Household appliance (1) according to claim 10, comprising:
- a hob (20) with a plurality of heating elements,
 - a functional unit (50) below the hob (20), comprising one or more of a suction hood (30) and an oven (40), 35
- wherein the first (3) and second power supply devices (4) and the electronic controller (8) are mounted to the functional unit (50). 40

45

50

55

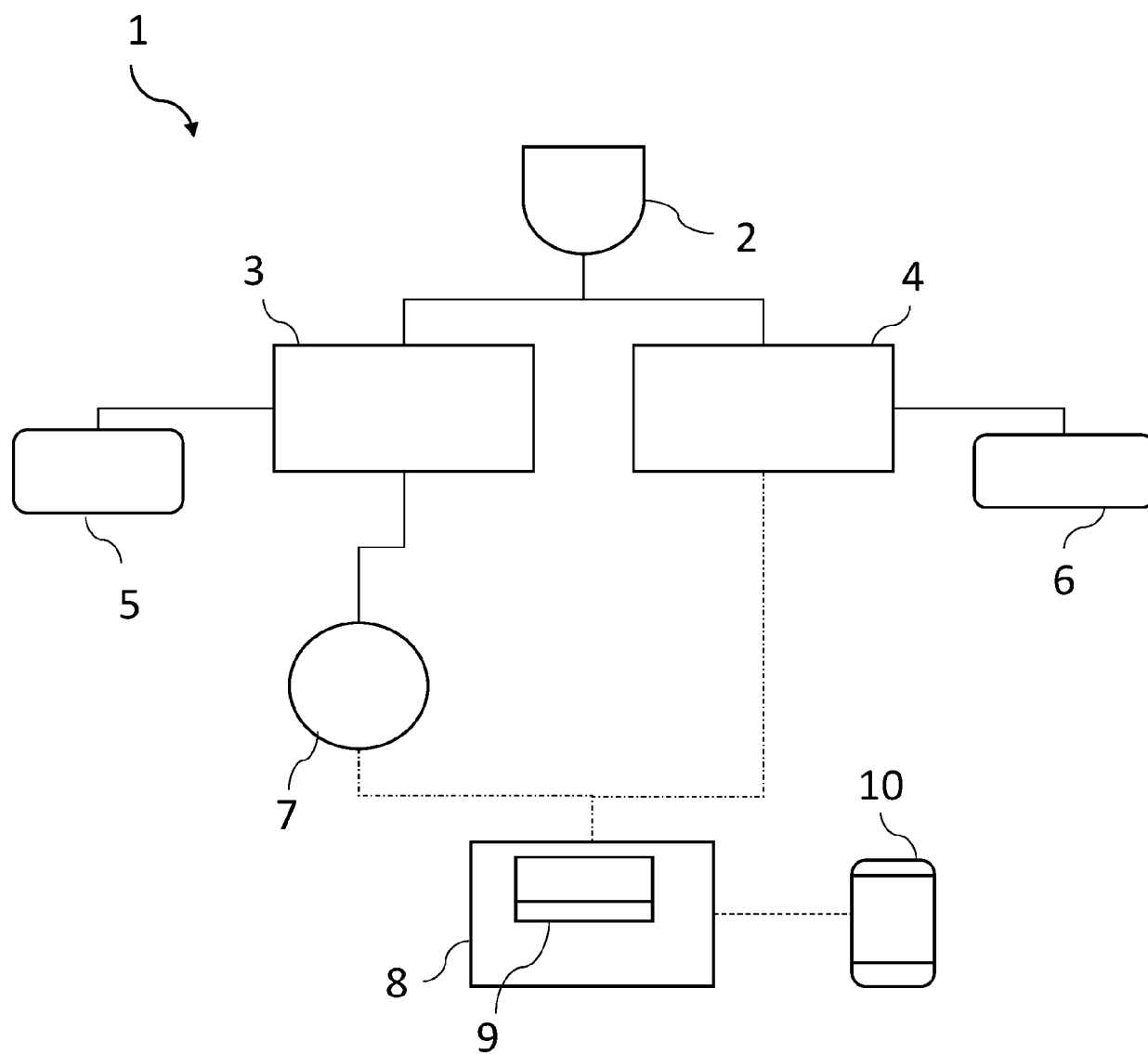


Fig. 1

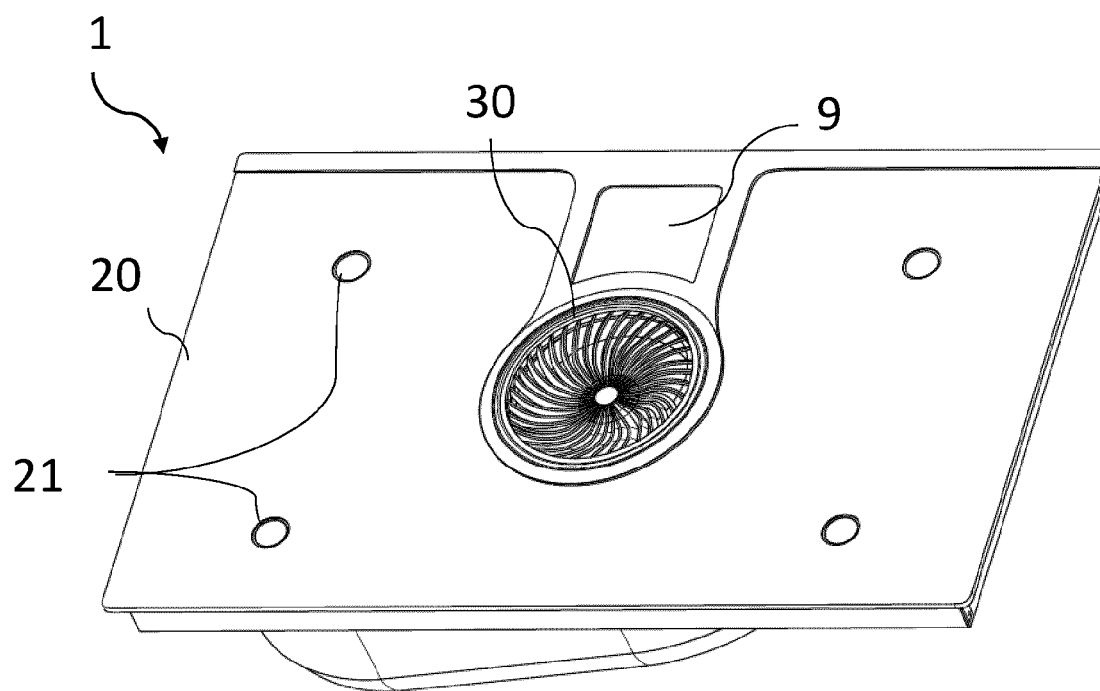


Fig. 2

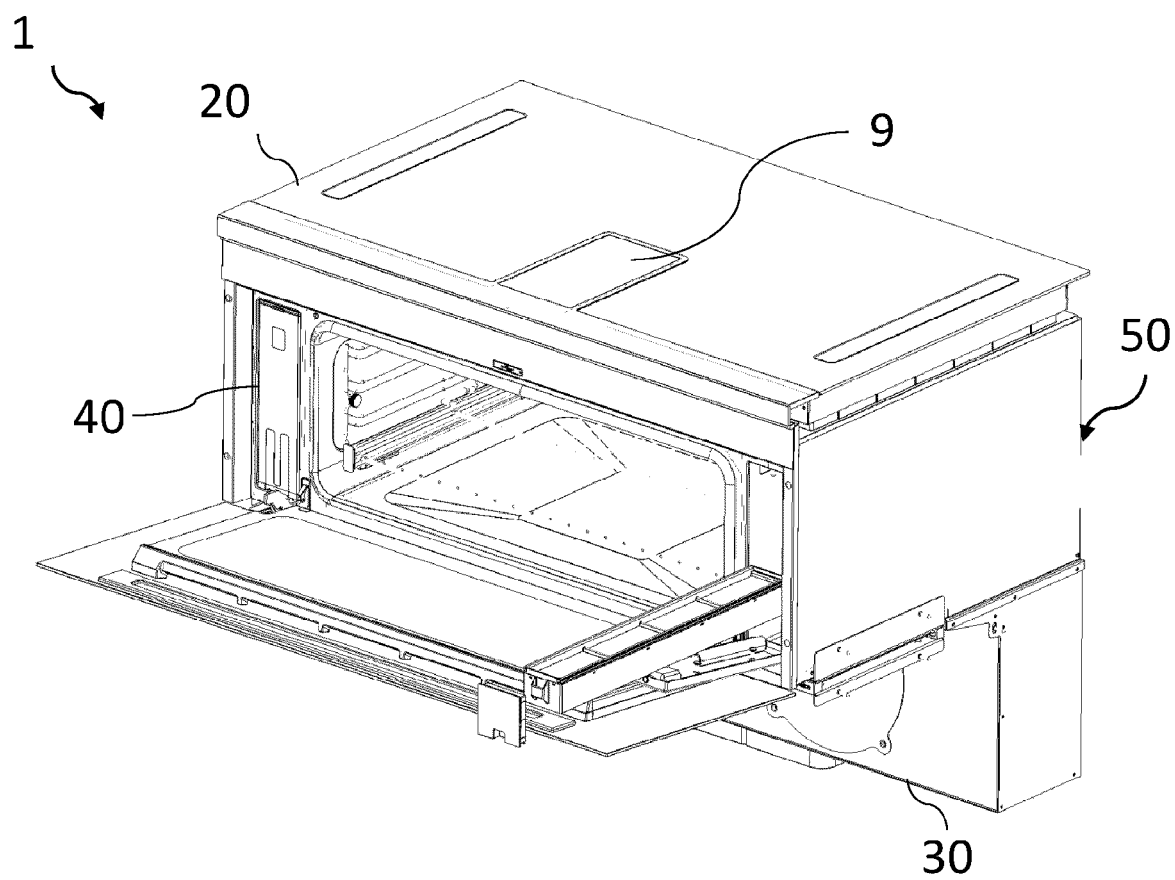


Fig. 3



EUROPEAN SEARCH REPORT

Application Number

EP 24 20 0225

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	EP 4 008 966 A1 (ELECTROLUX APPLIANCES AB [SE]) 8 June 2022 (2022-06-08) * paragraphs [0020], [0022], [0029]; claim 12; figure 5 * * page 5, lines 26-30 * * page 6, lines 7-9; claim 12 * -----	1-11	INV. F24C7/08 F24C15/20 H05B6/06
A	US 8 872 077 B2 (GAGAS JOHN M [US]; JONOVIC SCOTT A [US] ET AL.) 28 October 2014 (2014-10-28) * column 26, lines 1-3; figure 5 * -----	1-11	
A	CN 112 797 447 B (GUANGDONG MIDEA KITCHEN APPLIANCES MFG CO LTD; MIDEA GROUP CO LTD) 2 May 2023 (2023-05-02) * paragraph [0107] * -----	1-11	
A	WO 2022/128443 A1 (ELECTROLUX APPLIANCES AB [SE]) 23 June 2022 (2022-06-23) * figure 1 * -----	1-11	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			F24C H05B
Place of search		Date of completion of the search	Examiner
The Hague		9 February 2025	Adant, Vincent
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.

EP 24 20 0225

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09 - 02 - 2025

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 4008966 A1	08-06-2022	AU 2021393700 A1	08-06-2023
		CN 116529533 A	01-08-2023
		EP 4008966 A1	08-06-2022
		US 2024003549 A1	04-01-2024
		WO 2022117367 A1	09-06-2022

US 8872077 B2	28-10-2014	NONE	

CN 112797447 B	02-05-2023	NONE	

WO 2022128443 A1	23-06-2022	AU 2021404285 A1	08-06-2023
		CN 116569651 A	08-08-2023
		EP 4013190 A1	15-06-2022
		US 2023422357 A1	28-12-2023
		WO 2022128443 A1	23-06-2022

30

35

40

45

50

55

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 4008966 A1 [0008]
- US 8872077 B2 [0009]
- CN 112797447 B [0009]