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(54) Title: A DISPLAY DEVICE COMPRISING A KEYPAD

(57) Abstract: The present invention relates to a display device comprising a keypad which has buttons enabling the user to make selections.



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Description**A DISPLAY DEVICE COMPRISING A KEYPAD**

- [0001] The present invention relates to a display device comprising a keypad which has buttons enabling the user to make selection in relation to a operational function.
- [0002] Nowadays, the keypads of the display devices are designed in an ordered manner, preferably in a touch-operated manner. The touch buttons provide ease of utilization thanks to their sensitivity. If said buttons are randomly pressed and/or inadvertently pushed during cleaning, the turned off devices can be inadvertently turned on or the turned on devices can be inadvertently turned off, causing the devices to operate in an unstable and uncontrolled manner. In this case, the software in the device or the device settings adjusted by the user may be corrupted, and making the same adjustments again causes loss of time and increases service costs. Moreover, the devices which are left turned on without noticing unnecessarily consumes energy. In the state of the art, key lock functions for locking the buttons, and the key lock function can be used by pressing a button or a combination of buttons. However, the key lock function only works if activated by the user before the random pressing of the buttons.
- [0003] In the state of the art Korean Patent Application No. KR101321941, a device comprising a physical button for locking the touch buttons is disclosed.
- [0004] In the state of the art Chinese Patent Application No. CN206004642, a device is disclosed, which detects the random pressing of the buttons by interpreting the characteristics of pressing the touch buttons.
- [0005] The aim of the present invention is the realization of a display device wherein problems which may arise if the buttons on the keypad are randomly pressed are eliminated.
- [0006] The display device realized in order to attain the aim of the present invention, explicated in the first claim and the respective claims thereof, comprises a control unit which decides that in case two buttons are successively pressed the buttons are randomly pressed if the period of time elapsing between the pressing of the first button and between the

pressing of the second button is lower than a period of time predetermined by the producer, and which locks the buttons. Thus, the user is not required to activate the key lock function beforehand, and when the buttons are randomly pressed, the display device automatically activates the key lock in a secure manner.

- [0007] In an embodiment of the present invention, the control unit provides that the buttons are locked for a period of time predetermined by the producer or the user. The buttons of the display device are randomly pressed for example for cleaning purposes, the buttons are automatically locked for a certain period of time, and after the determined time elapses, the key lock is automatically deactivated.
- [0008] In another embodiment of the present invention, the control unit keeps the buttons locked as the pressing of the buttons continues. Thus, when the children play with the display device, the children are prevented from damaging the display device.
- [0009] In different embodiments of the present invention, the control unit decides that a wiping process is carried out when the successive buttons are pressed in order, thus providing the locking of the buttons. When the buttons are pressured quickly and in order as described above, the control unit decides that the buttons are wiped for cleaning purposes. In another embodiment of the present invention, all the substantive combinations are recorded in the memory of the control unit, and the control unit locks the buttons when any button combination other than said recorded combinations is pressed.
- [0010] In different embodiments of the present invention, the control unit warns the user visually and/or audibly when the buttons are locked.
- [0011] Detailed Description of the Invention
- [0012] The display device comprises at least one keypad which enables the user to make selections. By using the buttons on the keypad, the user may select and use the functions of the display device.
- [0013] The display device of the present invention comprises a control unit which decides, when a period of time less than a predetermined period of time elapses between the two successive presses of a button on the keypad or

between the pressing of any two buttons, that the buttons are randomly pressed, and which locks the buttons. If a period of time less than a period of time determined by the producer passes between the press of any button and the press of a second button, the control unit decides that the buttons are randomly pressed. The period of time determined by the producer is preferably shorter than the response time of a user, and if the buttons are pressed faster, it is decided that it is an involuntary or unusual incidence. By determining the period of time shorter than the response time of the user, there is no delay in the performance of the relevant function of a button when said button is pressed in the normal use. The second button pressed can be the same as the first button, or it can be any two buttons in the keypad layout.

- [0014] In an embodiment of the present invention, the control unit locks the buttons for a period of time predetermined by the producer or the user, and in a version of this embodiment, keeps the buttons locked if the random pressing of the buttons continues. Thus, the buttons are locked when it is detected that the buttons are randomly pressed, and in case the buttons are not pressed anymore, the key lock is automatically deactivated, and otherwise, the key lock remains active as long as it is detected that the buttons are randomly pressed.
- [0015] In an embodiment of the present invention, the control unit decides that a wiping process is carried out when more than two successive buttons are pressed in order, thus providing the locking of the buttons. When the keypad is wiped by means of a cloth for cleaning purposes, the user presses all the buttons in a direction. In this case, the control unit detects that the buttons are pressed successively and more quickly than the determined period of time, and decides that the wiping process is carried out.
- [0016] In another embodiment of the present invention, all the processes which can be carried out with the buttons are recorded in the memory of the control unit, and if a button combination other than said processes is detected, the buttons are locked. The button combinations in the normal use are recorded in the memory of the control unit; for example, in order to

select the prewashing function via the settings menu in a laundry washing machine where the functions thereof can be controlled via a display, the button corresponding to the settings function and the button corresponding to the prewashing function must be pressed. All these substantive button combinations, in other words all these button combinations carrying out a function are recorded in the memory of the control unit, and if there is any combination other than said combinations, the control unit locks the keypad.

- [0017] In another embodiment of the present invention, the display device comprises a display for informing the user of the functions of the display device, and the control unit provides the displaying of a warning sign on the display when the buttons are locked. The display device can be a television or an oven, a cooker, a laundry washing machine or a dishwasher which has a display or any device of which a function can be controlled by the buttons on the keypad.
- [0018] In another embodiment of the present invention, the control unit warns the user audibly when the buttons are locked.
- [0019] By means of the present invention, without requiring the user to take any measures beforehand, the control unit detects the random pressing of the buttons and thus the problems which may arise are eliminated, and the user is prevented from worrying about the display device before cleaning or in an environment with children.

Claims

1. A display device **comprising** at least one keypad which enables the user to make selections, **characterized by** a control unit which decides, when a period of time less than a predetermined period of time elapses between the two successive presses of a button on the keypad or between the pressing of any two buttons, that the buttons are randomly pressed, and which locks the buttons.
2. A display device as in Claim 1, **characterized by** the control unit which provides that the buttons are locked for a period of time predetermined by the producer or the user.
3. A display device as in Claim 1 or 2, **characterized by** the control unit which keeps the buttons locked if the random pressing of the buttons continues.
4. A display device as in any one of the above claims, **characterized by** the control unit which decides that a wiping process is carried out when more than two successive buttons are pressed in order, thus providing the locking of the buttons.
5. A display device as in any one of the above claims, **characterized by** the control unit in the memory of which all the processes which can be carried out with the buttons are recorded, and which, if a button combination other than said processes is detected, locks the buttons.
6. A display device as in any one of the above claims, **characterized by** a display for informing the user of the functions of the display device, and the control unit which provides the displaying of a warning sign on the display when the buttons are locked.
7. A display device as in any one of the above claims, **characterized by** the control unit which warns the user visually and/or audibly when the buttons are locked.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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ADD.

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 2 144 148 A2 (LG ELECTRONICS INC [KR]) 13 January 2010 (2010-01-13) paragraph [0044] - paragraph [0081] -----	1-7
X	EP 0 453 089 A2 (TECHNOPHONE LTD [GB]) 23 October 1991 (1991-10-23) column 2, line 2 - column 4, line 21 -----	1-7
X	US 2018/335936 A1 (MISSIG JULIAN K [US] ET AL) 22 November 2018 (2018-11-22) paragraph [0212] - paragraph [0220] -----	1-7
A	US 2005/253817 A1 (RYTIVAARA MARKKU [FI] ET AL) 17 November 2005 (2005-11-17) paragraph [0019] - paragraph [0037] -----	1-7



Further documents are listed in the continuation of Box C.



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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
EP 2144148	A2	13-01-2010	CN	101625620 A	13-01-2010
			CN	102981754 A	20-03-2013
			DE	202009019054 U1	18-02-2016
			EP	2144148 A2	13-01-2010
			KR	20100005438 A	15-01-2010
			US	2010001967 A1	07-01-2010
			US	2014066131 A1	06-03-2014
			US	2015020030 A1	15-01-2015

EP 0453089	A2	23-10-1991	AU	639984 B2	12-08-1993
			CA	2037465 A1	21-10-1991
			DE	69119821 D1	04-07-1996
			DE	69119821 T2	24-10-1996
			EP	0453089 A2	23-10-1991
			GB	2243117 A	23-10-1991
			JP	3017306 B2	06-03-2000
			JP	3510992 B2	29-03-2004
			JP	H04227360 A	17-08-1992
			JP	2000184057 A	30-06-2000
			JP	2003309624 A	31-10-2003
			US	5241583 A	31-08-1993

US 2018335936	A1	22-11-2018	CN	110622112 A	27-12-2019
			US	2018335936 A1	22-11-2018
			US	2019347001 A1	14-11-2019
			WO	2018212997 A1	22-11-2018

US 2005253817	A1	17-11-2005	AU	2003240920 A1	06-01-2004
			FI	20021655 A	20-12-2003
			US	2005253817 A1	17-11-2005
			WO	2004001560 A1	31-12-2003
