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(54) **COMMUNICATION DEVICE INCLUDING ONE OR MORE ELECTRICAL CONTROL BUTTONS IN AN UPPER HOUSING PART**

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(58) **Field of Classification Search** 455/90.3, 455/575.3, 575.1, 575.4; 379/433.02, 433.13, 379/433.06

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,083,011 A 4/1978 Ferrell et al.
6,215,474 B1 4/2001 Shah
6,295,441 B1 * 9/2001 Bjorkengren 455/575.3
6,359,984 B1 * 3/2002 Kim 379/433.02
6,621,066 B2 * 9/2003 Kim 250/221
7,039,443 B2 * 5/2006 Opela et al. 455/565
2003/0199290 A1 10/2003 Viertola

FOREIGN PATENT DOCUMENTS

EP 0 720 339 A2 7/1996
EP 0 746 062 A2 12/1996
EP 0 963 090 A2 12/1999
EP 1 392 038 A1 2/2004
EP 1 408 673 A2 4/2004
WO WO 03/096558 A1 11/2003

* cited by examiner

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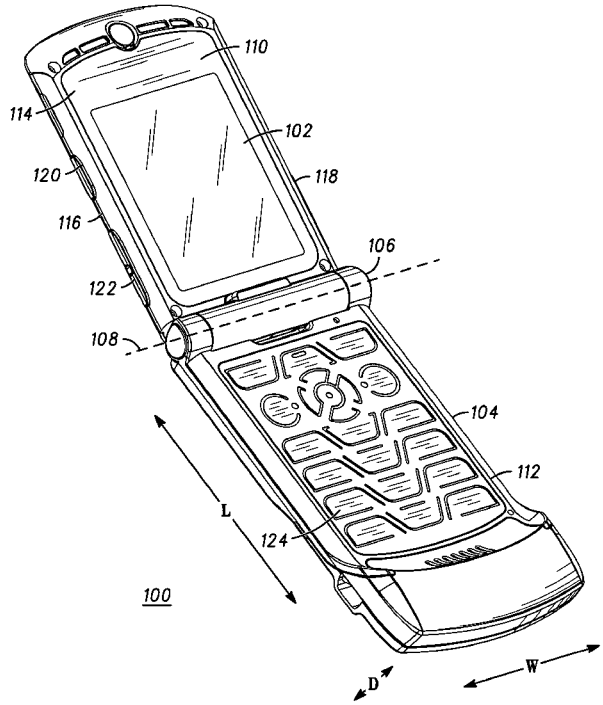
(57) **ABSTRACT**

Folding wireless communication devices (**100**, **700**) comprise first parts (**102**, **1002**) that are rotatably coupled to second parts (**104**, **1104**). The first parts (**102**, **1002**) can be moved from first positions in which the first parts (**102**, **1002**) overlie the second parts (**104**, **1104**) to second positions in which the first parts (**102**, **1002**) extend upward away from the second parts (**104**, **1104**). The first parts (**102**, **1002**) comprise one or more buttons (**302**, **304**, **306**, **308 1010**, **1012**), e.g., a pair of directional buttons, such as "UP" and "DOWN" control buttons (**302**, **304**, **1010**, **1012**). Hardware and/or software is used to change the function of the buttons (**302**, **304**, **306**, **308 1010**, **1012**) depending on the position of the first parts (**102**, **1002**).

6 Claims, 9 Drawing Sheets