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(12) **United States Patent**  
**Fischer et al.**

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(54) **MULTIFUNCTIONAL CHARGER SYSTEM AND METHOD**

(58) **Field of Classification Search** ..... 320/107,  
320/111, 114, 140  
See application file for complete search history.

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(56) **References Cited**

U.S. PATENT DOCUMENTS

3,775,659 A 11/1973 Carlsen, II

(Continued)

FOREIGN PATENT DOCUMENTS

EP 0684680 B1 7/1999

(Continued)

OTHER PUBLICATIONS

Electric Double-Layer Capacitors, vol. 2, Japan, Tokin Corporation, Cat. No. EC-200E, Oct. 25, 1996, 40 pgs.

(Continued)

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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**Related U.S. Application Data**

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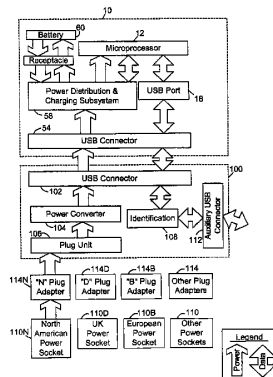
(51) **Int. Cl.**  
**H01M 10/46** (2006.01)

(52) **U.S. Cl.** ..... **320/107**

(57) **ABSTRACT**

An adapter for providing a source of power to a mobile device through an industry standard port is provided. In accordance with one aspect of the invention, the adapter comprises a plug unit, a power converter, a primary connector, and an identification subsystem. The plug unit is operative to couple the adapter to a power socket and operative to receive energy from the power socket. The power converter is electrically coupled to the plug unit and is operable to regulate the received energy from the power socket and to output a power requirement to the mobile device. The primary connector is electrically coupled to the power converter and is operative to couple to the mobile device and to deliver the outputted power requirement to the mobile device. The identification subsystem is electrically coupled to the primary connector and is operative to provide an identification signal.

**13 Claims, 4 Drawing Sheets**



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U.S. PATENT DOCUMENTS

4,433,251 A 2/1984 Banks et al.  
4,510,431 A 4/1985 Winkler  
5,173,855 A 12/1992 Nielsen et al.  
5,229,649 A 7/1993 Nielsen et al.  
5,272,475 A 12/1993 Eaton et al.  
5,444,378 A 8/1995 Rogers  
5,631,503 A 5/1997 Cioffi  
5,638,540 A 6/1997 Aldous  
5,651,057 A 7/1997 Blood et al.  
5,769,877 A 6/1998 Barreras, Sr.  
5,850,113 A 12/1998 Weimer et al.  
5,939,860 A 8/1999 William  
6,006,088 A 12/1999 Couse  
6,104,162 A 8/2000 Sainsbury et al.  
6,104,759 A 8/2000 Carkner et al.  
6,130,518 A 10/2000 Gabehart et al.  
6,138,242 A 10/2000 Massman et al.  
6,184,652 B1 2/2001 Yang  
6,211,649 B1 4/2001 Matsuda

6,252,375 B1 6/2001 Richter et al.  
6,255,800 B1 7/2001 Bork  
6,283,789 B1 9/2001 Tsai  
6,397,696 B2 6/2002 Ogami  
6,668,296 B1 12/2003 Dougherty et al.  
6,738,856 B1 5/2004 Milley et al.  
7,170,259 B2 1/2007 Veselic  
2006/0181241 A1\* 8/2006 Veselic ..... 320/107  
2007/0108938 A1\* 5/2007 Veselic ..... 320/111  
2009/0128091 A1\* 5/2009 Purdy et al. .... 320/106

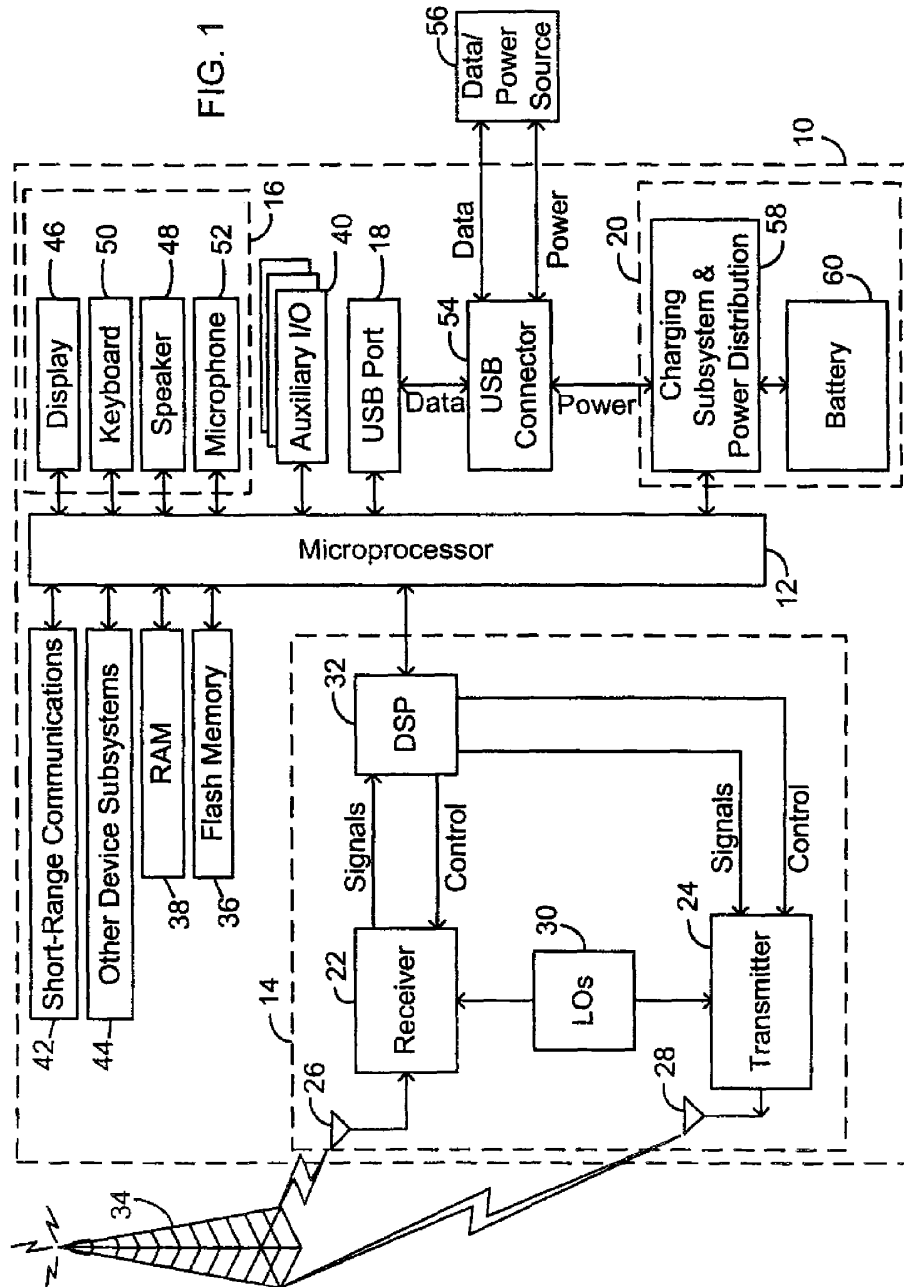
FOREIGN PATENT DOCUMENTS

EP 1198049 A1 4/2002  
WO 200101330 A1 1/2001

OTHER PUBLICATIONS

Supercapacitor: User's Manual, vol. 2, Japan, Tokin Corporation, Jan. 1997, 47 pgs.  
Charging Big Supercaps, Portable Design, Mar. 1997, p. 26.

\* cited by examiner



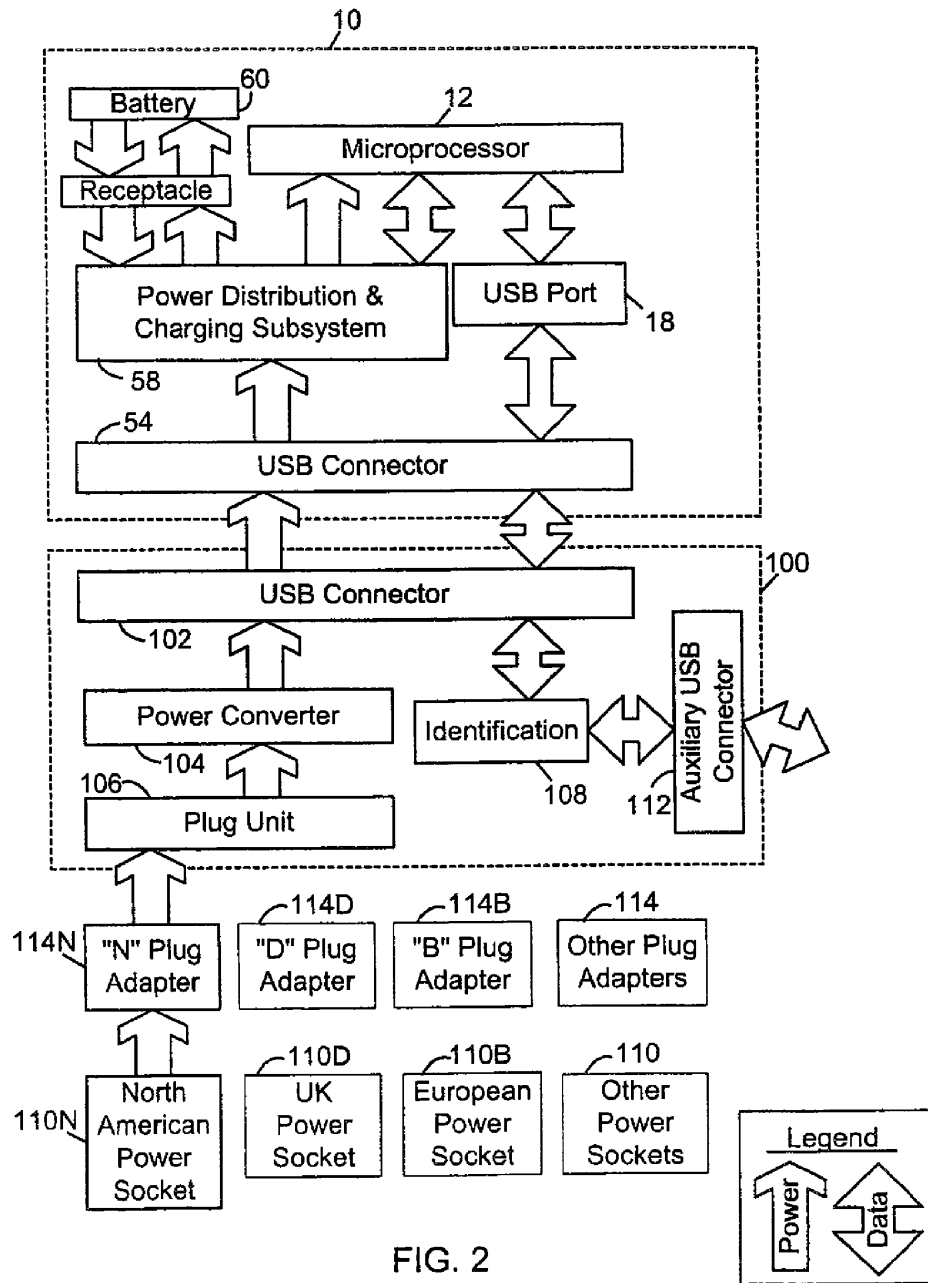


FIG. 2

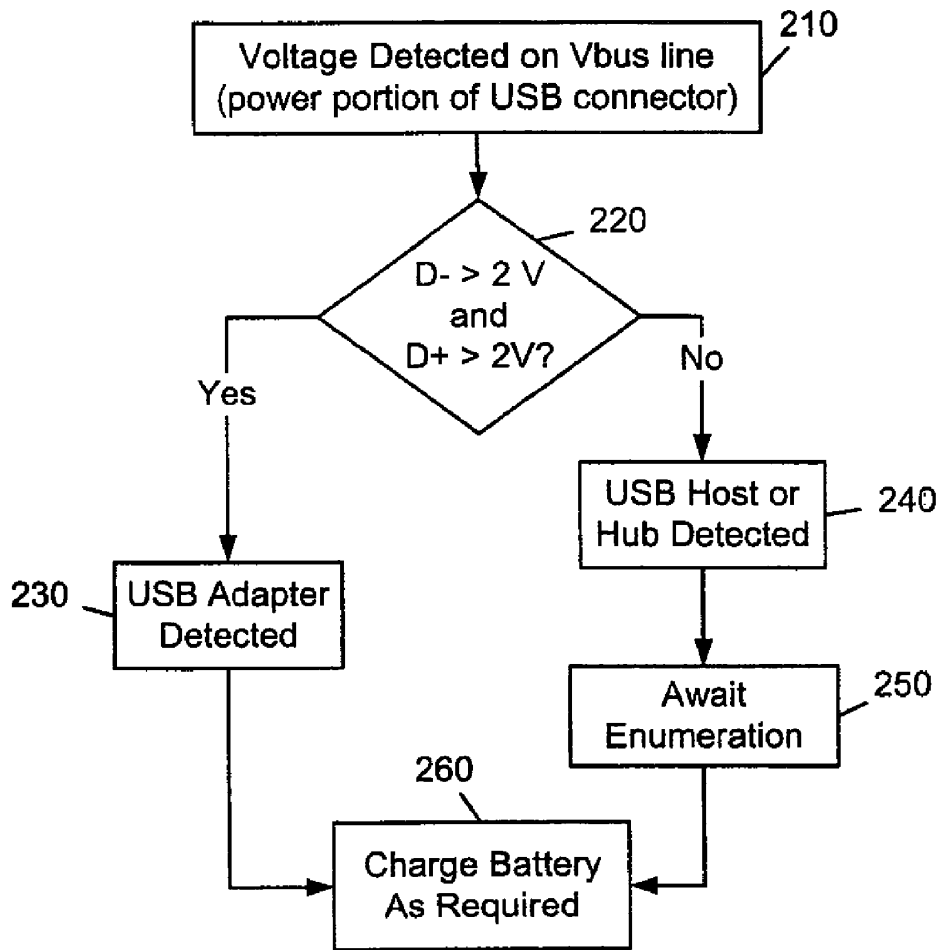


FIG. 3

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