



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : H01M 12/06, 10/52, 6/50, G01R 31/36	A1	(11) International Publication Number: WO 99/52170 (43) International Publication Date: 14 October 1999 (14.10.99)						
(21) International Application Number: PCT/US99/07170 (22) International Filing Date: 1 April 1999 (01.04.99) (30) Priority Data: <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">09/054,087</td> <td style="width: 40%;">2 April 1998 (02.04.98)</td> <td style="width: 30%;">US</td> </tr> <tr> <td>09/054,012</td> <td>2 April 1998 (02.04.98)</td> <td>US</td> </tr> </table> (71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US). (72) Inventors: GARTSTEIN, Vladimir, 11187 Huntwick Place, Cincinnati, OH 45241 (US). NEBRIGIC, Dragan, Danilo; 4115 Mill Crest Drive, Indian Springs, OH 45011 (US). (74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217-1087 (US).			09/054,087	2 April 1998 (02.04.98)	US	09/054,012	2 April 1998 (02.04.98)	US
09/054,087	2 April 1998 (02.04.98)	US						
09/054,012	2 April 1998 (02.04.98)	US						
(81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).								
Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>								
(54) Title: BATTERY HAVING A BUILT-IN CONTROLLER								
(57) Abstract A battery having a built-in controller that controls one or more functions of the battery is disclosed. The battery may, for example, control a charge or a discharge cycle of a battery, disconnect an electrochemical cell from the terminals of the battery in an emergency condition, provide electronic identification of cell characteristics or conditions, or provide a low remaining charge warning. The battery may be a single-cell battery, a universal single-cell battery, a multiple-cell battery or a multiple-cell hybrid battery. Each individual cell preferably has a built-in controller.								