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**Bruwer**

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(54) **INTELLIGENT ELECTRICAL SWITCHING DEVICE INCLUDING A TOUCH SENSOR USER INTERFACE SWITCH**

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This patent is subject to a terminal disclaimer.

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(52) **U.S. Cl.** ..... **315/200 A; 315/200 R; 315/291**

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,338,078 A 12/1943 Wood ..... 240/10.66

(Continued)

FOREIGN PATENT DOCUMENTS

DE 3225557 1/1984

(Continued)

OTHER PUBLICATIONS

Operations and Maintenance Manual for ETERNALIGHT Marketed by Technology Associates Inc., including email message from representative of Technology Associates Inc., © 1998, 1999, 2000. Modern Dictionary of Electronics, Newnes, 7th Ed., p. 431, 1999. International Search Report from PCT/ZA99/00107. Kochan Consulting Group, Inc., PAL Survival Light product related materials, www.pocketgifts.com/pal.asp, p. 1, © 2002.

(Continued)

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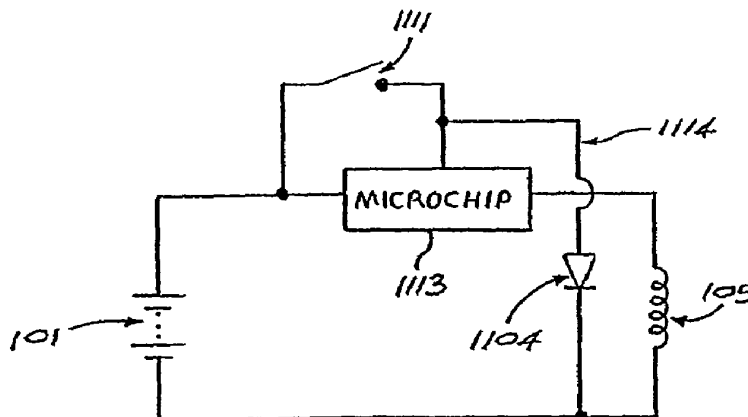
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(57) **ABSTRACT**

The present invention, according to a preferred embodiment, is directed to portable electronic devices which operate on exhaustible power sources, for example, batteries. The electronic devices of the present invention comprise at least one signal switch and a microchip in communication with the switch wherein the switch is only capable of transmitting a signal to the microchip that the switch has been activated or deactivated. The microchip is in communication with the exhaustible power source of the electronic device and controls (i) the power on/off function of the device, (ii) at least one other function of the device in response to activation and deactivation signals from the switch, and (iii) an automatic shut off function in response to the receipt of an activation signal from the switch.

**25 Claims, 6 Drawing Sheets**



# US 7,498,749 B2

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## U.S. PATENT DOCUMENTS

2,630,517 A	3/1953	Hiscar	219/266	5,216,328 A	6/1993	Lu	315/88
2,748,290 A	5/1956	Reichertz	250/83.6	5,226,711 A	7/1993	Matsuno et al.	362/488
2,784,290 A	3/1957	Ashton	219/220	5,254,907 A	10/1993	Matsuno et al.	315/77
2,810,797 A	10/1957	Gulnick	200/33 R	5,304,896 A	4/1994	Asada et al.	315/84
3,259,713 A	7/1966	Herridge, Jr. et al.	200/83 T	5,309,145 A	5/1994	Branch et al.	340/540
3,535,282 A	10/1970	Mallory	200/60	5,317,362 A	5/1994	Takahashi	354/418
3,646,302 A	2/1972	Lehmann	200/299	5,321,309 A	6/1994	Kolomycki	307/10.8
3,721,933 A	3/1973	Peroy	337/66	5,349,540 A	9/1994	Birkle et al.	703/13
3,890,555 A	6/1975	Nelson et al.	320/2	5,357,169 A	10/1994	Toyozumai et al.	315/77
3,944,804 A	3/1976	Wisdom	362/280	5,357,408 A	10/1994	Lecznar et al.	362/490
4,001,803 A	1/1977	Lombardo	340/248 B	5,406,171 A	4/1995	Moody	315/77
4,071,805 A	1/1978	Brock	315/84	5,418,433 A	5/1995	Nilssen	315/175
4,074,252 A	2/1978	Keller	340/321	5,430,354 A	7/1995	Garbowicz et al.	315/88
4,122,371 A	10/1978	Talmage et al.	315/84	5,448,331 A	9/1995	Hamada et al.	354/403
4,123,668 A	10/1978	Pecota	315/84	5,450,299 A	9/1995	Lepre	62/146
4,228,484 A	10/1980	Johnston	362/184	5,453,644 A	9/1995	Yap et al.	307/116
4,237,421 A	12/1980	Waldron	328/5	5,461,321 A	10/1995	Sanders et al.	324/678
4,237,526 A	12/1980	Wood	362/158	5,469,346 A	11/1995	Haut et al.	362/205
4,282,681 A	8/1981	McCaslin	446/484	5,491,383 A	2/1996	Leiber et al.	315/77
4,293,894 A	10/1981	Blank	362/100	5,504,415 A	4/1996	Podrazhansky et al.	320/18
4,306,277 A	12/1981	Bodde	362/203	5,526,241 A	6/1996	Ferrell	362/490
4,357,648 A	11/1982	Nelson	362/183	5,583,382 A	12/1996	Wagner	307/10.1
4,360,737 A	11/1982	Leopold	307/116	5,604,407 A	2/1997	Andres et al.	315/77
4,380,718 A	4/1983	Miller	315/93	5,604,999 A	2/1997	Barker	36/137
4,385,258 A	5/1983	Voll	315/84	5,611,720 A	3/1997	Vandermaas	446/47
4,403,172 A	9/1983	Sasaki et al.	315/77	5,645,341 A	7/1997	Liao	362/183
4,408,182 A	10/1983	Hasmimoto	340/321	5,647,657 A	7/1997	Damasky et al.	362/555
4,409,645 A	10/1983	Sloan	362/700	5,661,393 A	8/1997	Sengupta	320/5
4,414,611 A	11/1983	Seltzer et al.	362/183	5,680,098 A	10/1997	Bejster et al.	340/458
4,442,478 A	4/1984	Stansbury	362/489	5,691,619 A	11/1997	Vingsbo	361/86
4,467,263 A	8/1984	Conforti et al.	320/2	5,730,165 A	3/1998	Philipp	137/1
4,473,871 A	9/1984	Fuchshuber	362/276	5,736,696 A	4/1998	Del Rosso	200/512
4,483,605 A	11/1984	Krumrein et al.	396/159	5,781,869 A	7/1998	Parlett, Jr. et al.	701/1
4,495,444 A	1/1985	Thomas	315/82	5,790,691 A	8/1998	Ingram et al.	382/133
4,497,881 A	2/1985	Bertolino	429/91	5,790,961 A	8/1998	Ingram et al.	455/574
4,499,528 A	2/1985	Hawlitzki	362/275	5,806,961 A	9/1998	Dalton et al.	362/183
4,611,264 A	9/1986	Bradley	362/95	5,808,294 A	9/1998	Neumann	250/214 AL
4,623,957 A	11/1986	Moore et al.	362/200	5,821,700 A	10/1998	Malvaso	315/291
4,638,174 A	1/1987	Bier	307/10.1	5,831,389 A	11/1998	Kawashima et al.	315/77
4,686,609 A	8/1987	Dykstra et al.	362/490	5,856,727 A	1/1999	Schroeder et al.	315/55
4,716,902 A	1/1988	Swartz	128/360	5,892,334 A	4/1999	Utzman	315/241 S
4,734,625 A	3/1988	Geanous et al.	315/313	5,942,770 A	8/1999	Ishinaga et al.	257/89
4,739,224 A	4/1988	Geerlings	315/84	5,969,437 A	10/1999	Foerster	315/86
4,743,837 A	5/1988	Herzog	324/60 CD	D417,019 S	11/1999	Rachwal et al.	D26/37
4,764,708 A	8/1988	Roudeski	315/51	5,994,844 A	11/1999	Crawford et al.	315/151
4,806,846 A	2/1989	Kerber	324/60 CD	6,000,807 A	12/1999	Moreland	362/95
4,807,096 A	2/1989	Skogler et al.	362/142	6,017,140 A	1/2000	Chou	362/475
4,851,738 A *	7/1989	Yang	315/159	6,027,234 A	2/2000	Austin	362/490
4,866,345 A	9/1989	Kataoka	315/84	6,030,105 A	2/2000	Thau et al.	362/488
4,870,326 A	9/1989	Andresen et al.	315/200	6,040,660 A	3/2000	Schmidt et al.	315/200 A
4,875,147 A	10/1989	Auer	362/205	6,051,931 A	4/2000	Takel	315/79
4,876,632 A	10/1989	Osterhout et al.	362/183	6,056,423 A	5/2000	Takano et al.	362/488
4,908,649 A	3/1990	Matsui et al.	354/403	6,079,847 A *	6/2000	Nelson	362/205
4,959,679 A	9/1990	Yamamoto et al.	354/419	6,095,661 A	8/2000	Lebens et al.	362/184
4,963,793 A	10/1990	DePauli	315/74	6,100,652 A	8/2000	Konopka	315/291
5,005,004 A	4/1991	Udofot	340/600	6,129,446 A	10/2000	Hornung	362/394
5,027,037 A *	6/1991	Wei	315/200 A	6,135,605 A	10/2000	Hsu et al.	362/102
5,047,688 A	9/1991	Alten	315/84	6,136,605 A	10/2000	Fahl et al.	435/440
5,055,268 A	10/1991	Martin	422/84	6,140,776 A *	10/2000	Rachwal	315/200 R
5,057,383 A	10/1991	Sokira	429/92	6,152,590 A	11/2000	Furst et al.	362/545
5,061,879 A	10/1991	Munoz et al.	315/65	6,158,872 A	12/2000	Rodgers	362/276
5,066,898 A	11/1991	Miller et al.	315/362	6,164,806 A	12/2000	Schmickl et al.	362/547
5,097,284 A	3/1992	Taniguchi et al.	354/415	6,179,453 B1	1/2001	McMahon	362/490
5,114,376 A	5/1992	Copley et al.	446/369	6,239,555 B1 *	5/2001	Rachwal	315/200 R
5,130,901 A	7/1992	Priesemuth	362/464	6,249,089 B1	6/2001	Bruwer	315/200 A
5,138,538 A	8/1992	Sperling	362/205	6,259,862 B1	7/2001	Marino et al.	396/106
5,174,643 A	12/1992	Priesemuth	362/464	6,288,707 B1	9/2001	Philipp	345/168
5,187,655 A	2/1993	Post et al.	700/17	6,307,539 B2 *	10/2001	Suzuki	345/167
5,206,097 A	4/1993	Burns et al.	429/90	6,377,009 B1	4/2002	Philipp	318/468
5,206,562 A	4/1993	Matsuno et al.	315/77	6,402,339 B1	6/2002	Mukogawa et al.	362/184
5,212,478 A *	5/1993	Moseley	340/825.72	6,566,819 B2	5/2003	Wolff	315/149
				6,608,451 B2	8/2003	Collins	315/276
				6,608,617 B2	8/2003	Hoffknecht et al.	345/173

**US 7,498,749 B2**

Page 3

6,621,225 B2	9/2003	Bruwer .....	315/86	EP	0 728 617	8/1996
6,642,467 B2	11/2003	Farrington .....	200/511	EP	0 770 519	5/1997
6,650,066 B2	11/2003	Bruwer .....	315/200	EP	0 846 594 A2	6/1998
6,700,508 B1	3/2004	Nomura et al. ....	341/27	EP	0 846 594 A3	6/1998
6,748,869 B1	6/2004	Boyer et al. ....	102/428	EP	1 025 387 A2	8/2000
6,828,739 B2 *	12/2004	Bruwer et al. ....	315/291	FR	2376587	7/1978
6,850,229 B2 *	2/2005	Casebolt et al. ....	345/173	FR	2634339	1/1990
6,984,900 B1	1/2006	Bruwer .....	307/87	GB	2243902 A	11/1991
7,084,526 B2 *	8/2006	Bruwer .....	307/87	GB	2276713 A	10/1994
7,084,531 B2	8/2006	Bruwer .....	307/140	JP	06202231	7/1994
7,119,459 B2 *	10/2006	Bruwer et al. ....	307/140	JP	8062681	3/1996
7,215,084 B1 *	5/2007	Sharrah et al. ....	315/87	JP	10338028	12/1998
7,265,494 B2 *	9/2007	Bruwer .....	315/129	JP	11123985	5/1999
7,291,940 B2	11/2007	Bruwer .....	307/140	JP	11255017	9/1999
2006/0250028 A1	11/2006	Bruwer .....	307/140	JP	11321455	11/1999
2007/0278962 A1	12/2007	Bruwer .....	315/129	WO	92/22099	12/1992

FOREIGN PATENT DOCUMENTS

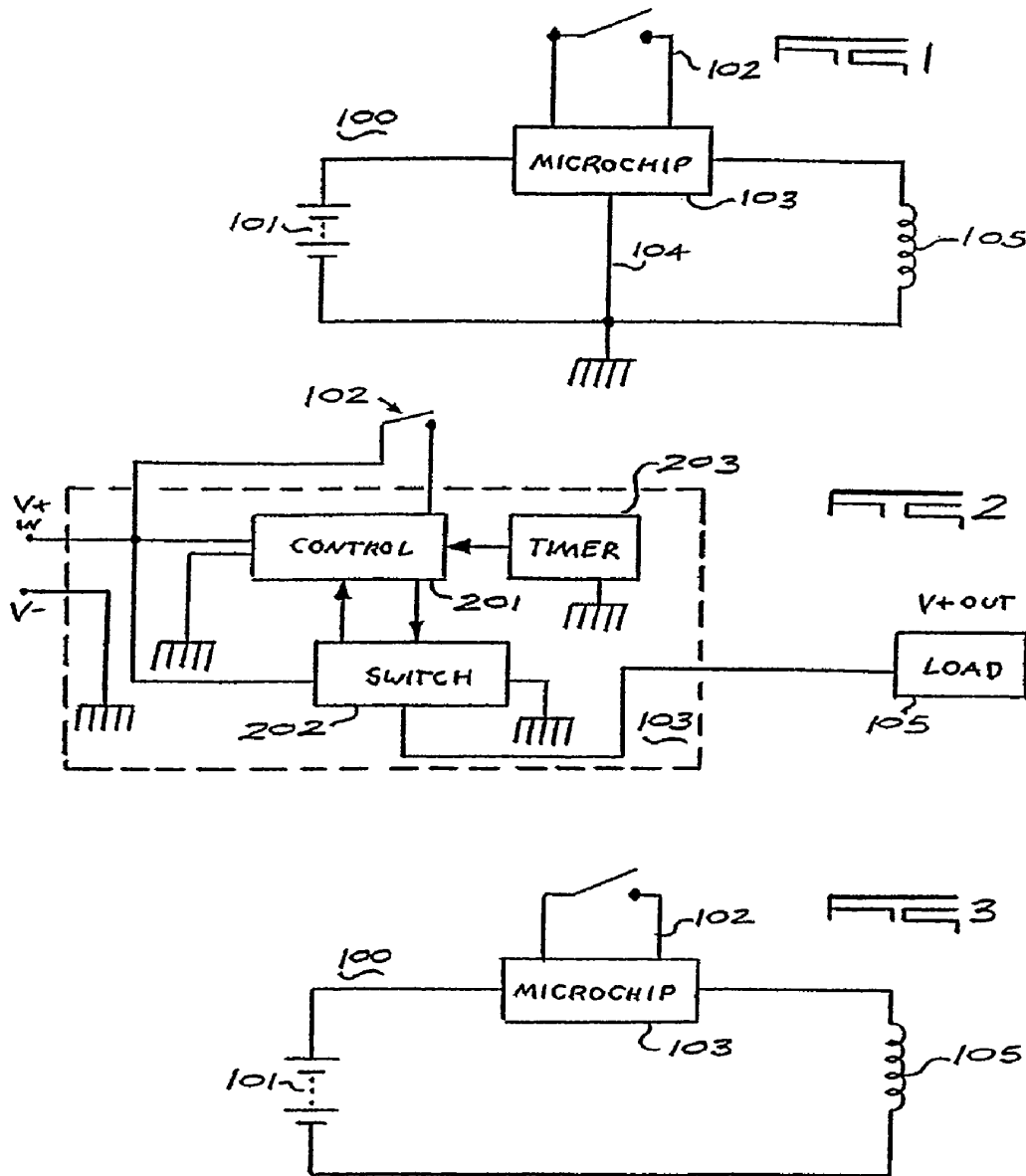
DE	3444178	6/1985
DE	4014737	11/1990
DE	9012641	11/1990
DE	4 127 765	2/1993
DE	29600938	4/1996
EP	0323193	12/1988
EP	0 440 897	8/1991
EP	0 467 158	1/1992
EP	0 515 921	12/1992
EP	0 642 952	3/1995
EP	0 676 311	10/1995
EP	0 683 069	11/1995
EP	0 719 673	7/1996
EP	0 719 674	7/1996

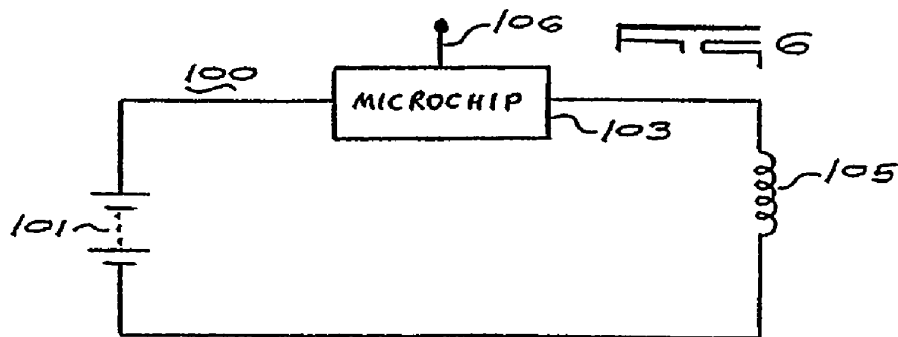
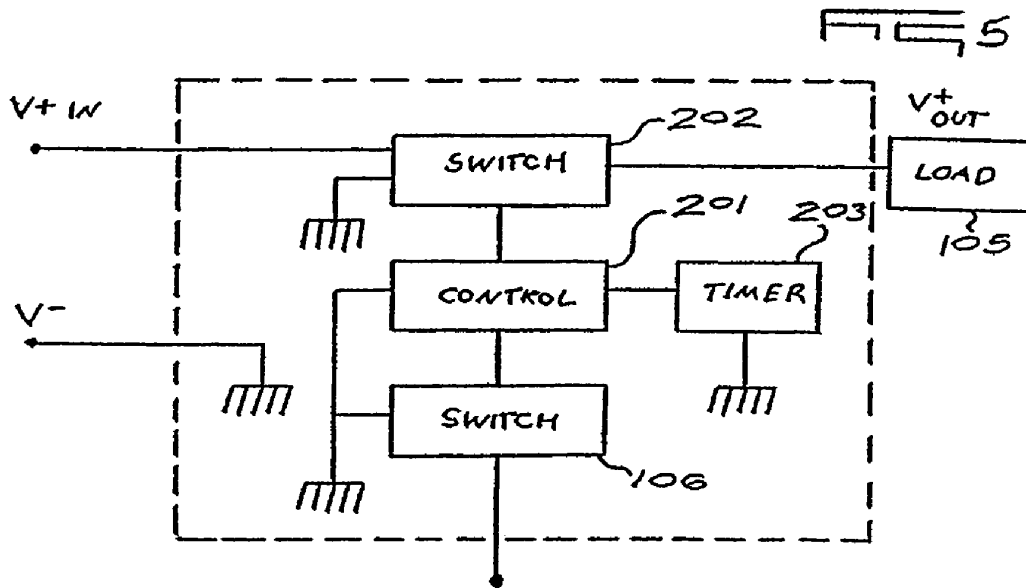
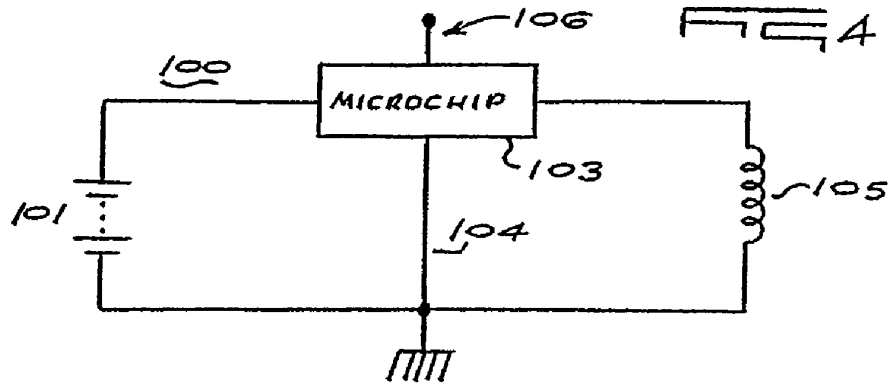
WO	97/00790 A1	1/1997
WO	99/12781 A1	3/1999
WO	99/20936 A2	4/1999
WO	99/20936 A3	4/1999
WO	9920085	4/1999

OTHER PUBLICATIONS

KYTV Springfield, MO, consumer information by Elizabeth Manresa dated Jul. 6, 2000, Light Lives up to Promise, at [www.kv3.com/contactdetailed.asp?id=143](http://www.kv3.com/contactdetailed.asp?id=143), p. 1, Printed Jul. 23, 2004.  
 Neon-Net Telecom, Neon-Star product related materials., [www.neon-net.com.tw/mu.htm](http://www.neon-net.com.tw/mu.htm), pp. 1-5 and Neon-Star Operation Manu, [www.neon-net.com.tw/data4.htm](http://www.neon-net.com.tw/data4.htm), one page, Printed Sep. 15, 2004.  
 Schneiker, Henry; "Can You Patent an LED Flashlight?", 2 pages, Jan. 2003.

\* cited by examiner





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