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Rabu et al.

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(54) **APPARATUSES AND METHODS THAT FACILITATE THE TRANSFER OF POWER AND INFORMATION AMONG ELECTRICAL DEVICES**

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(58) **Field of Classification Search** **455/571-573; 544/571-573**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,959,775	A *	5/1976	Valassis et al.	710/113
4,850,006	A *	7/1989	Sasaki et al.	455/571
5,680,026	A	10/1997	Lueschen	
5,914,585	A *	6/1999	Grabon	320/125
6,888,338	B1	5/2005	Popescu-Stanesti et al.	

7,462,073	B2	12/2008	Bell et al.	
7,589,536	B2	9/2009	Terlizzi et al.	
7,813,715	B2	10/2010	McKillop et al.	
7,913,297	B2	3/2011	Wyl	
2003/0050102	A1	3/2003	Roh	
2003/0078071	A1	4/2003	Uchiyama	
2003/0125075	A1	7/2003	Klovborg	
2004/0066174	A1 *	4/2004	Choi	320/149
2004/0085694	A1	5/2004	Germagian et al.	
2004/0088465	A1	5/2004	Bianchi	
2004/0129522	A1	7/2004	Skowronski	
2004/0169072	A1	9/2004	Peng	
2004/0172527	A1	9/2004	Ono et al.	
2004/0246341	A1	12/2004	Lee et al.	
2005/0001590	A1	1/2005	Bayne et al.	
2005/0114552	A1	5/2005	Mak-Fan et al.	

(Continued)

FOREIGN PATENT DOCUMENTS

CN 1747256 3/2006

(Continued)

OTHER PUBLICATIONS

U.S. Appl. No. 60/879,177, (filed Jan. 6, 2007).

(Continued)

Primary Examiner — Jinsong Hu

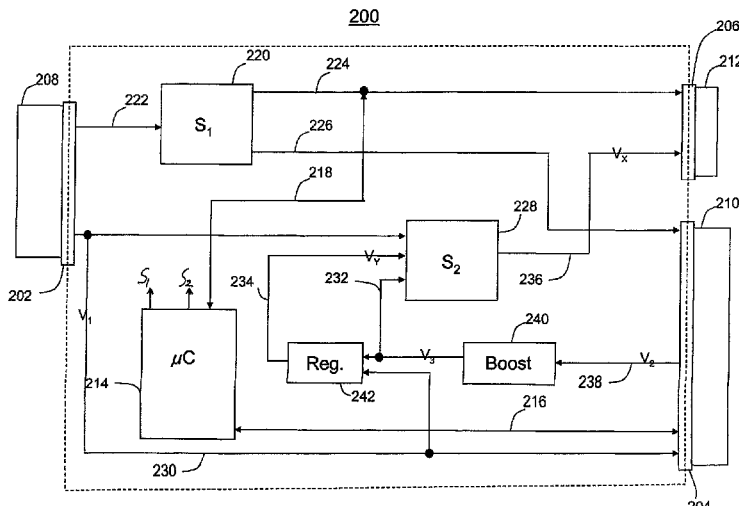
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(57) **ABSTRACT**

The present invention is directed to apparatuses, systems, methods, and computer readable media that can facilitate the transfer of power between at least two electrical devices. At least one of the electrical devices is preferably a battery operated device. The present invention may also be used to facilitate the transfer of information among electrical devices. For example, the present invention may be used to automatically pair two Bluetooth devices together.

17 Claims, 16 Drawing Sheets



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U.S. PATENT DOCUMENTS

2005/0189921	A1	9/2005	Bayne et al.	
2006/0164036	A1	7/2006	Ulla et al.	
2007/0054550	A1	3/2007	Cuthbert et al.	
2007/0067659	A1	3/2007	Tevanian, Jr.	
2007/0136614	A1*	6/2007	Heath et al.	713/300
2008/0028237	A1	1/2008	Knight	
2008/0034233	A1	2/2008	Chuang et al.	
2008/0166968	A1	7/2008	Tang et al.	
2008/0265836	A1	10/2008	Inoue et al.	
2009/0304217	A1	12/2009	Thalheimer et al.	
2010/0079106	A1	4/2010	Graham	

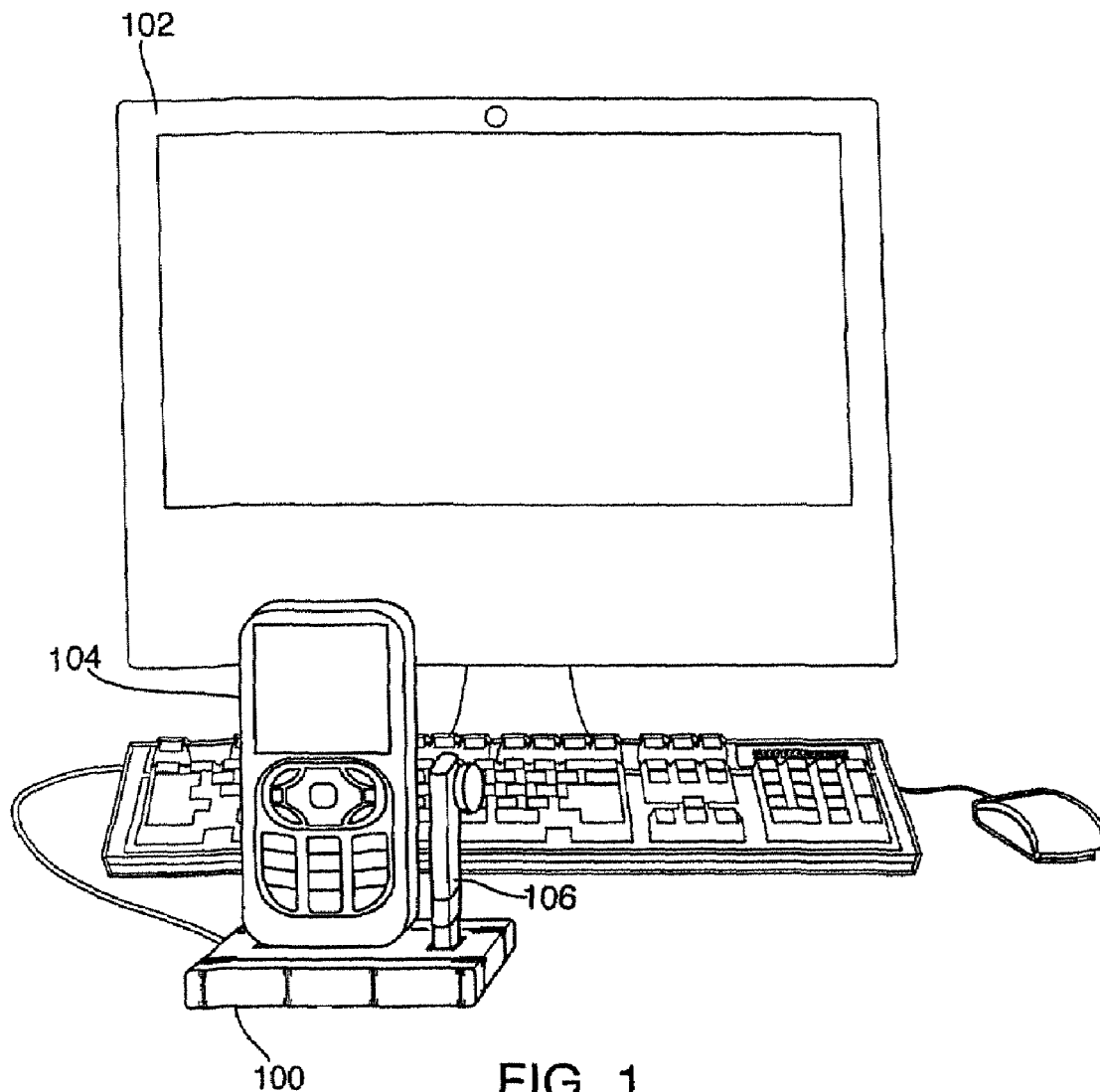
FOREIGN PATENT DOCUMENTS

CN	2821898	9/2006
EP	1 406 366 A2	4/2004
FR	2 841 699	1/2004
FR	2841699	1/2004
GB	2 418 546 A	3/2006
KR	2001-0026356	4/2001
WO	WO2006/136195	12/2006

OTHER PUBLICATIONS

U.S. Appl. No. 60/879,195, (filed Jan. 6, 2007).

* cited by examiner



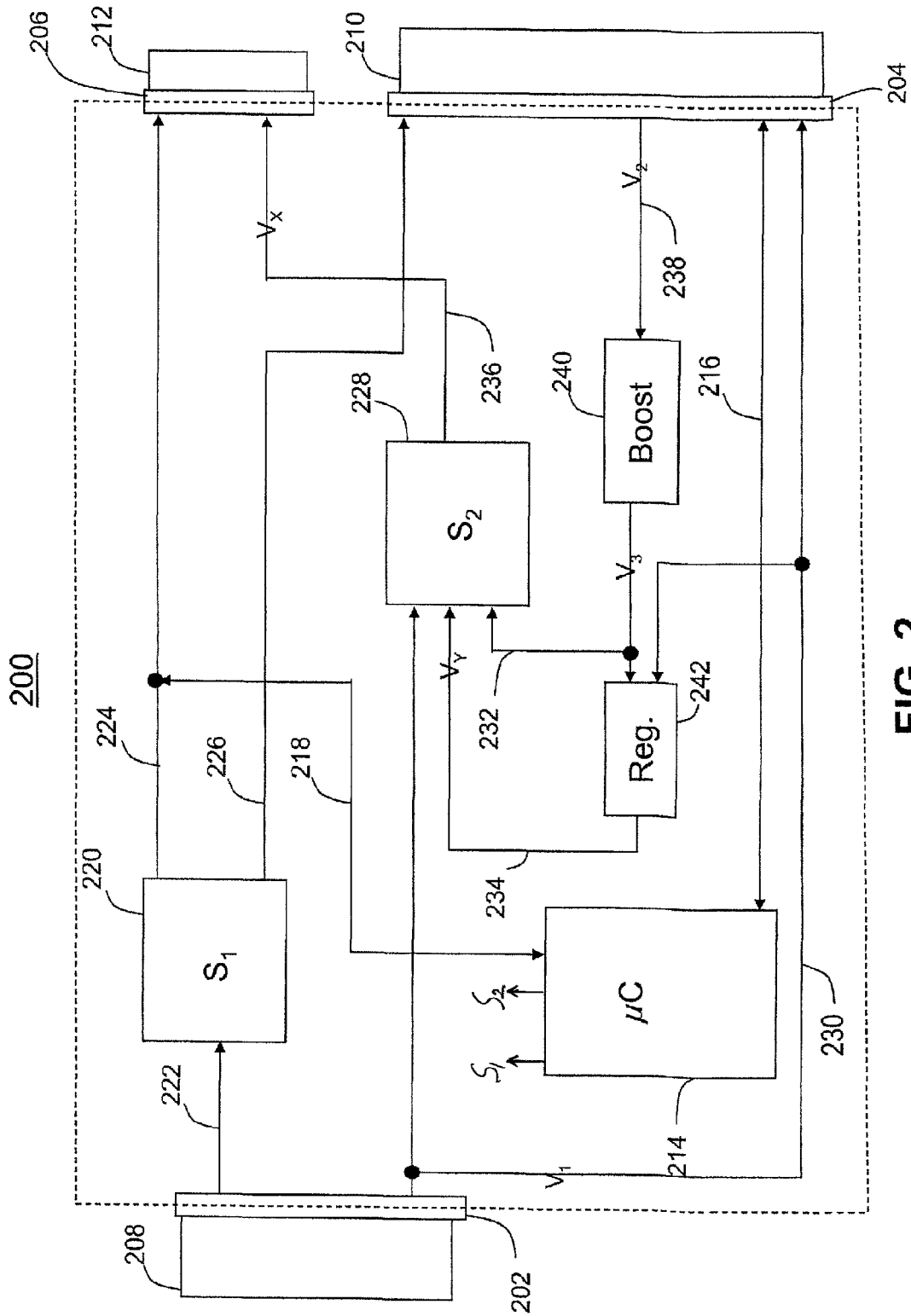


FIG. 2

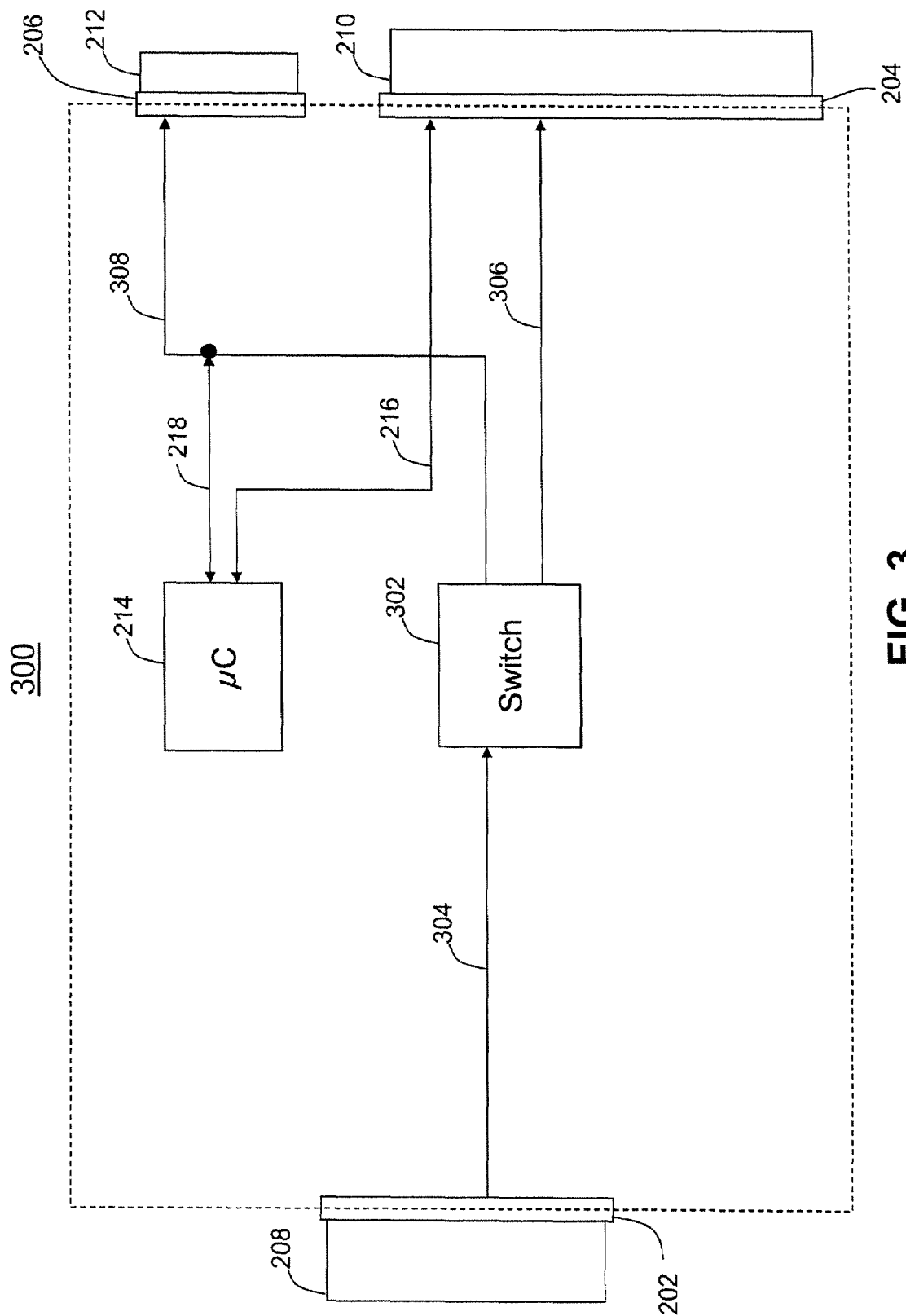


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