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Steiert et al.

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(54) PLUG-IN POWER SUPPLY WITH MINIATURIZED PRIMARY CONTACT MEANS

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(52) **U.S. Cl.** 439/131; 439/171

(56) References Cited

U.S. PATENT DOCUMENTS

2,490,580 A	* 12/1949	Colla, Jr 439/131
2,538,296 A	* 1/1951	Crocker 439/131
4,080,029 A	* 3/1978	St. Fort 439/131
4,626,052 A	* 12/1986	Rumble 439/173
5,135,406 A	* 8/1992	Ishikawa 439/131
5,611,701 A	* 3/1997	Hahn 439/131
5,628,641 A	* 5/1997	Hahn 439/131
5,901,056 A	5/1999	Hung
6,126,460 A	* 10/2000	Wu 439/131

6,190,184	B 1	*	2/2001	Cimbal et al 439/131	
6,241,538	B 1	*	6/2001	Chen 439/131	
6.325.646	B 1	*	12/2001	Uemura et al 439/131	

FOREIGN PATENT DOCUMENTS

DE	297 08 589 U1	9/1997
DE	198 35 161 C1	10/1999
DE	198 45 962 C1	10/1999

^{*} cited by examiner

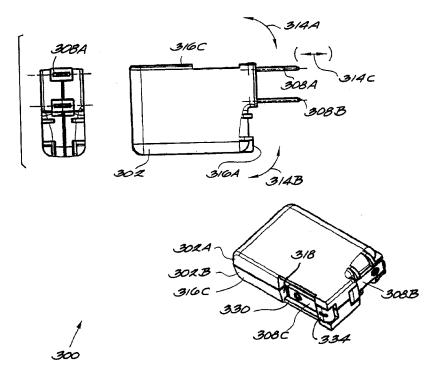
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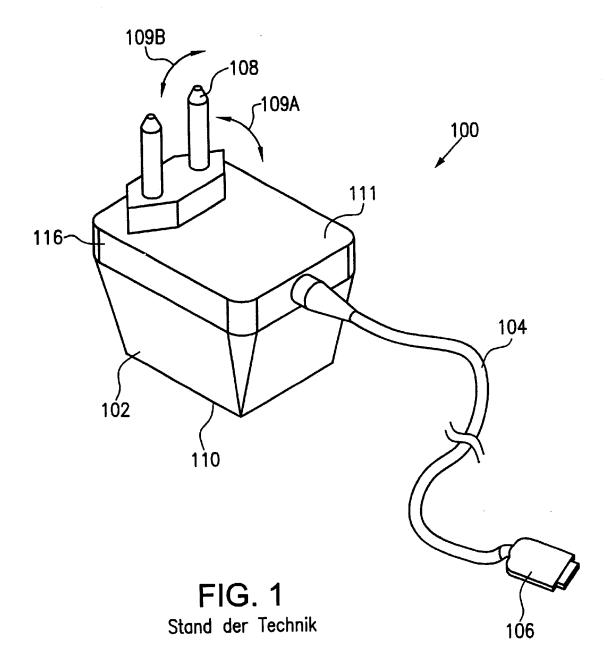
(57) ABSTRACT

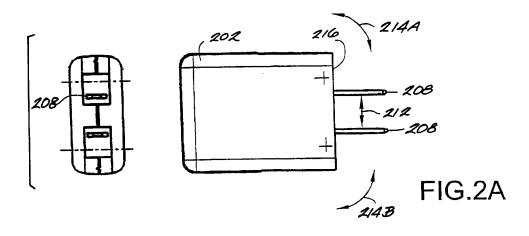
A plug-in power supply for converting a mains voltage into an operating voltage is provided, comprising a housing having arranged therein an electronic circuit for voltage conversion, and at least two primary contact pins which are movable between an operating position, in which they are adapted to be inserted into the mains socket and in which they extend substantially at right angles to one of the lateral surfaces of the housing, and a position of rest on at least one of said lateral surfaces, the primary contact pins being arranged substantially parallel to said at least one lateral surface in said position of rest. In order to achieve the largest possible reduction of size and in order to guarantee that the plug-in power supply can be handled easily and safely, a geometric arrangement of the primary contact pins with respect to each other in their position of rest differs from a geometric arrangement of the primary contact pins in their operating position.

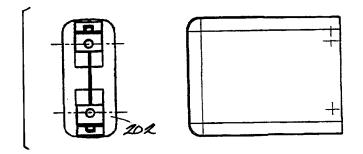
19 Claims, 5 Drawing Sheets





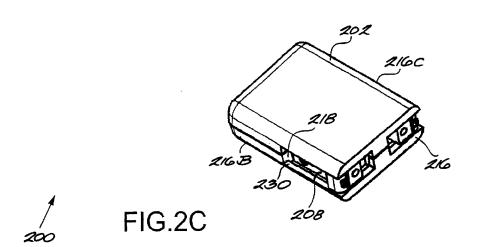


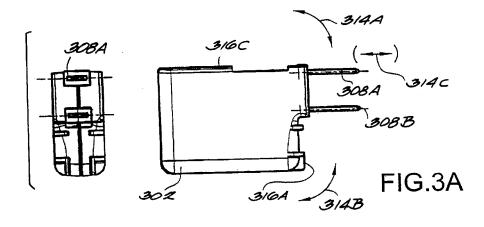




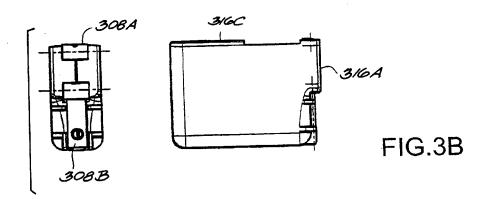
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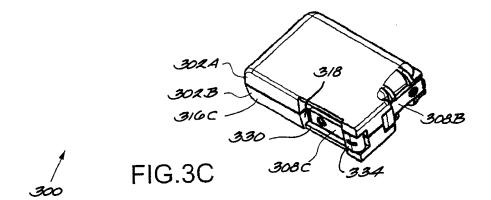
FIG.2B

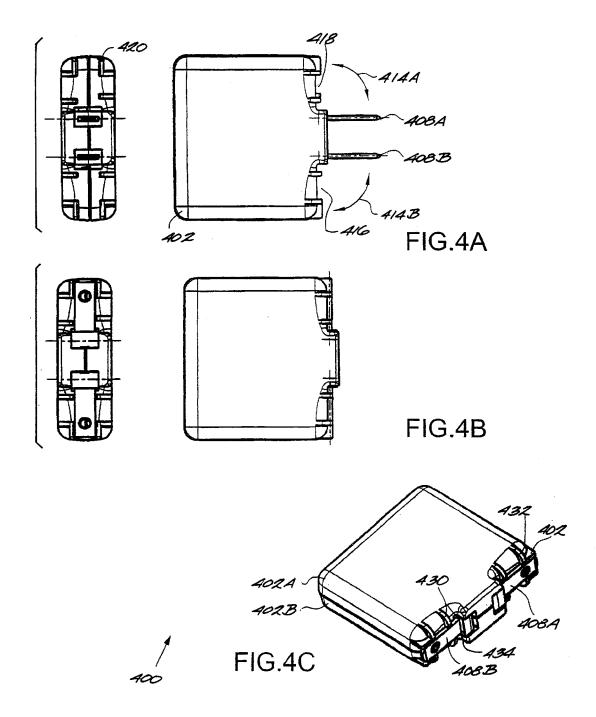




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