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(54) ALTERNATIVE TO THROUGH-HOLE-PLATING IN A PRINTED CIRCUIT BOARD

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174/262–264, 266; 29/842, 843, 844, 845; 361/792, 793, 794, 803

(56) References Cited

U.S. PATENT DOCUMENTS

2,752,580 A * 8/1956 Shewmaker 174/262

3,524,960	Α	*	8/1970	Lohff	174/262
/ /		*			
3,660,726		**	5/1972	Ammon et al	1/4/262
5,290,970	Α	*	3/1994	Currie	174/250
5,619,018	Α	*	4/1997	Rossi	174/261
5,656,798	Α	*	8/1997	Kubo et al	174/263
5,761,050	Α	*	6/1998	Archer	361/791
6,011,222	Α	*	1/2000	Sekiya et al	174/266
6,255,601	B1	*	7/2001	Burkhart	174/255
6,333,471	B 1	*	12/2001	Nojioka	174/261

^{*} cited by examiner

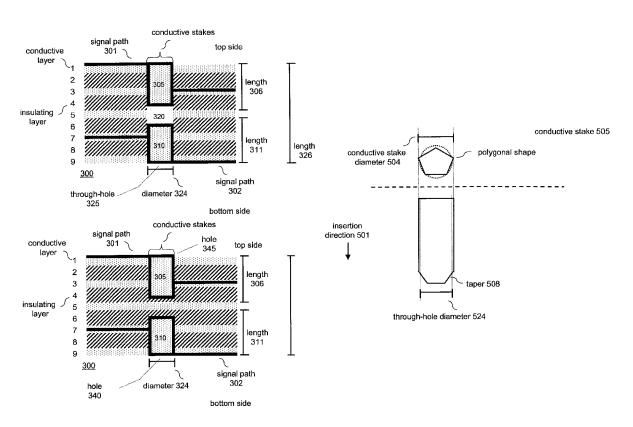
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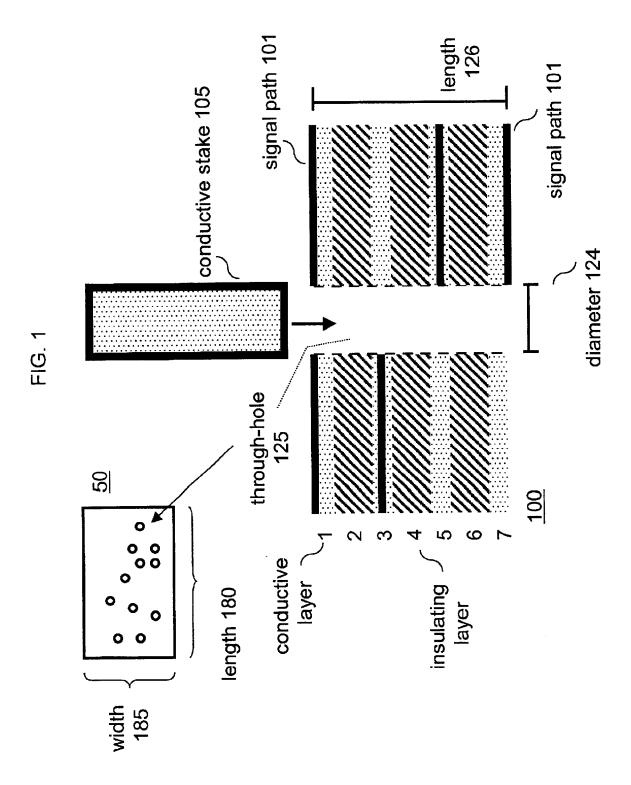
(57) ABSTRACT

A printed circuit board (PCB) comprises a number of electrically conductive layers. Instead of coating, or plating, a PCB through-hole with an electrically conductive material to form a via (for the purpose of connecting together signal paths across the electrically conductive layers)—the via is formed by placing a conductive stake, or conductive pin, in the through-hole.

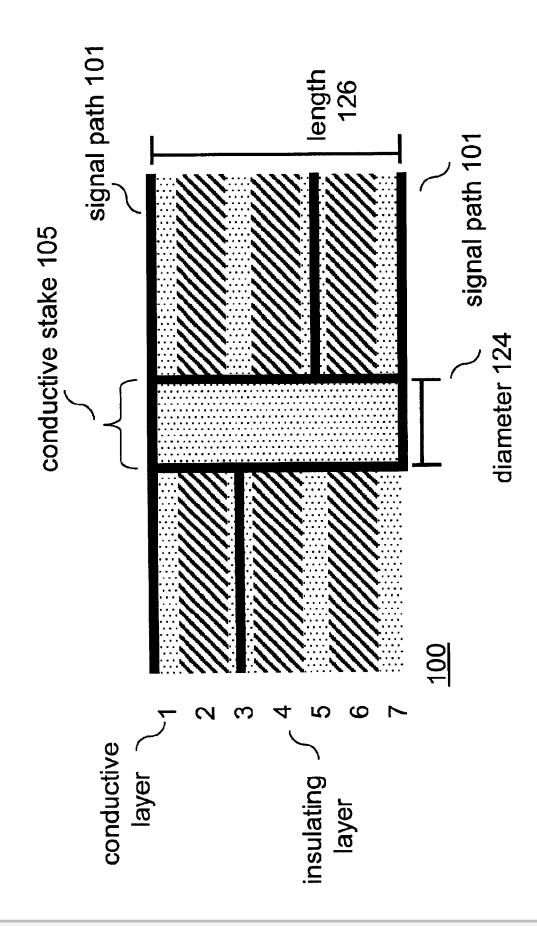
6 Claims, 10 Drawing Sheets













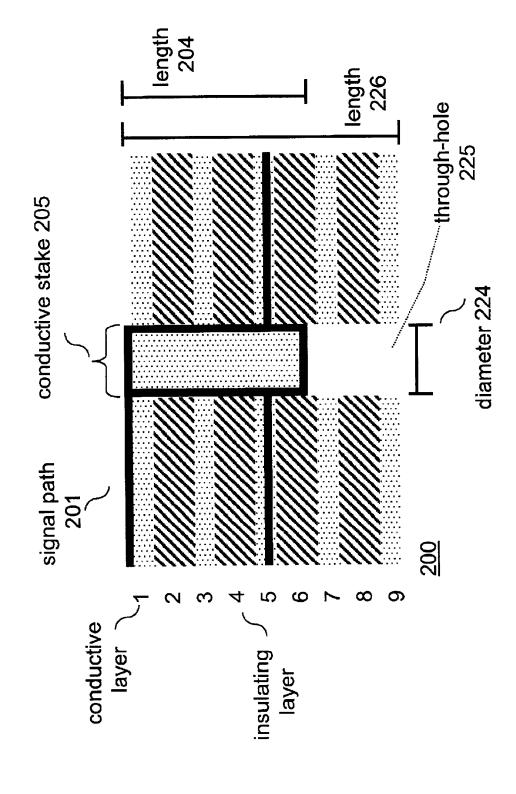




FIG. 3

length 204 hole 245 conductive stake 205 diameter 224 signal path 201 250 2 9 တ ∞ conductive insulating layer layer



FIG. 4

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