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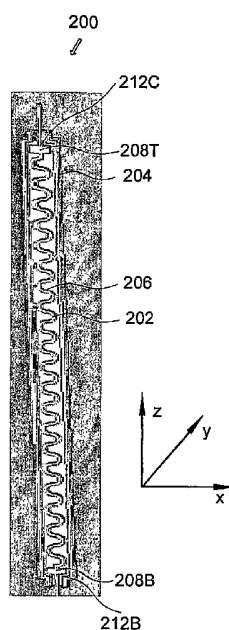
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(54) Title: PIN-TYPE PROBES FOR CONTACTING ELECTRONIC CIRCUITS AND METHODS FOR MAKING SUCH PROBES



(57) Abstract: Pin probes (102) and pin probe arrays (102) are provided the allow electric contact to be made with selected electronic circuit components. Some embodiments include one or more compliant pin elements (202) located within a sheath (204). Some embodiments include pin probes (402) that include locking or latching elements (414) that may be used to fix pin portions of probes (402) into sheaths (406). Some embodiments provide for fabrication of probes using multi-layer electrochemical fabrication methods.

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**INTERNATIONAL SEARCH REPORT**

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<p><b>A. CLASSIFICATION OF SUBJECT MATTER</b>                  IPC(7) : G01R 31/02                  US CL : 324/754, 756-758, 761-762; 439/66, 169, 174, 482, 912                  According to International Patent Classification (IPC) or to both national classification and IPC</p>																							
<p><b>B. FIELDS SEARCHED</b>                  Minimum documentation searched (classification system followed by classification symbols)                  U.S. : 324/754, 756-758, 761-762; 439/66, 169, 174, 482, 912</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p>																							
<p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X, P</td> <td>US 6,783,405 B1 (YEN) 31 August 2004 (31. 08. 2004), column 2, lines 35-60.</td> <td>1-2, 6-56</td> </tr> <tr> <td>X</td> <td>US 6,471,524 B1 (NAKANO et al.) 29 October 2002 (29. 10. 2002), column 4, lines 10-65</td> <td>1-56</td> </tr> <tr> <td>X</td> <td>US 5,366,380 (REYMOND) 22 November 1994 (22. 11. 1994), column 13, line 20 to column 14, line 16.</td> <td>1-2, 6-56</td> </tr> <tr> <td>X</td> <td>US 5,297,967 (BAUMBERGER et al.) 29 March 1994 (29. 03. 1994), column 8, lines 1-25.</td> <td>1, 6-1553, 56</td> </tr> <tr> <td>X</td> <td>US 5,017,738 (TSUJI et al.) 21 May 1991 (21. 05. 1991), column 3, line 50 to column 4, line 6.</td> <td>1-2, 6-56</td> </tr> <tr> <td>X</td> <td>US 4,773,877 (KRIIGER et al.) 27 September 1988 (27. 09. 1988), see entire document.</td> <td>1-2, 6-56</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X, P	US 6,783,405 B1 (YEN) 31 August 2004 (31. 08. 2004), column 2, lines 35-60.	1-2, 6-56	X	US 6,471,524 B1 (NAKANO et al.) 29 October 2002 (29. 10. 2002), column 4, lines 10-65	1-56	X	US 5,366,380 (REYMOND) 22 November 1994 (22. 11. 1994), column 13, line 20 to column 14, line 16.	1-2, 6-56	X	US 5,297,967 (BAUMBERGER et al.) 29 March 1994 (29. 03. 1994), column 8, lines 1-25.	1, 6-1553, 56	X	US 5,017,738 (TSUJI et al.) 21 May 1991 (21. 05. 1991), column 3, line 50 to column 4, line 6.	1-2, 6-56	X	US 4,773,877 (KRIIGER et al.) 27 September 1988 (27. 09. 1988), see entire document.	1-2, 6-56
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<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed			
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<p>Name and mailing address of the ISA/US                  Mail Stop PCT, Attn: ISA/US                  Commissioner for Patents                  P.O. Box 1450                  Alexandria, Virginia 22313-1450                  Facsimile No. (703) 305-3230</p>		<p>Authorized officer                  Minh N. Tang                  Telephone No. (571) 272-1971</p> <p><i>J. V. Uthoff</i>  <i>for</i></p>																					