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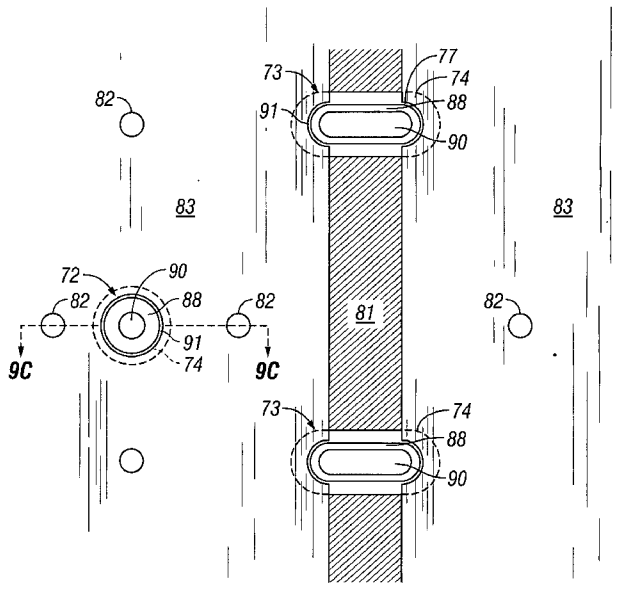
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(57) Abstract: A method of fabricating a MEMS device includes the formation of support posts having horizontal wing portions at the edges of the post. A mechanical layer is deposited over the support posts and portions of the mechanical layer overlying portions of the support post other than the horizontal wing portions are etched away. A resultant MEMS device includes a mechanical layer overlying at least a portion of the horizontal wing portions of the underlying support structures.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. G02B26/00 B81C1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, INSPEC, COMPENDEX, BIOSIS, EMBASE, FSTA, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2005/046948 A1 (LIN WEN-JIAN [TW]) 3 March 2005 (2005-03-03) figures 4a-4d paragraphs [0030] - [0035]	1,2,6,7, 9-22, 24-28, 39,40
Y		8,23,29, 31, 33-38,41
A		3-5,30, 32,42

Y	EP 1 640 319 A (IDC LLC [US]) 29 March 2006 (2006-03-29) figures 7,17a-17f,18a,18b paragraphs [0025] - [0038], [0084] - [0088]	8,23, 33-38

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[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 2003/036215 A1 (REID JASON S [US]) 20 February 2003 (2003-02-20) figures 1a-1j,2a-2g paragraphs [0030] - [0035], [0043]	1-4,6,7, 10-18,39
Y		29,31,41
A		5,19-28, 30, 32-38, 40,42

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005046948 A1	03-03-2005	JP 3987504 B2	10-10-2007
		JP 2005070743 A	17-03-2005
		KR 20050022262 A	07-03-2005
		TW 231865 B	01-05-2005
		US 2006006138 A1	12-01-2006
EP 1640319 A	29-03-2006	AU 2005205849 A1	13-04-2006
		BR PI0503941 A	09-05-2006
		CA 2520376 A1	27-03-2006
		JP 2006099104 A	13-04-2006
		KR 20060092926 A	23-08-2006
		MX PA05010240 A	29-03-2006
		SG 121135 A1	26-04-2006
		US 2006079048 A1	13-04-2006
US 2003036215 A1	20-02-2003	NONE	