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(71) Applicant: **CORNELL RESEARCH FOUNDATION, INC.** [US/US]; 20 Thornwood Drive, Suite 105, Ithaca, NY 14850 (US).

(71) Applicants and

(72) Inventors: **KORNEGAY, Kevin** [US/US]; 108 Lisa Place, Ithaca, NY 14850 (US). **ATWELL, Andrew, Ryan** [US/US]; 700 Stewart Avenue, Apartment 41, Ithaca, NY 14850 (US). **BALSEANU, Mihaela** [RO/US]; 316 Highland Road, Apartment B302, Ithaca, NY 14850 (US). **DUSTER, Jon** [US/US]; 24 Chase Lane, Ithaca, NY 14850 (US). **HAILU, Eskinder** [ET/US]; 437 North Aurora Street #1, Ithaca, NY 14850 (US). **LI, Ce** [CN/US]; 526 Stewart Avenue, Apartment 12, Ithaca, NY 14850 (US).

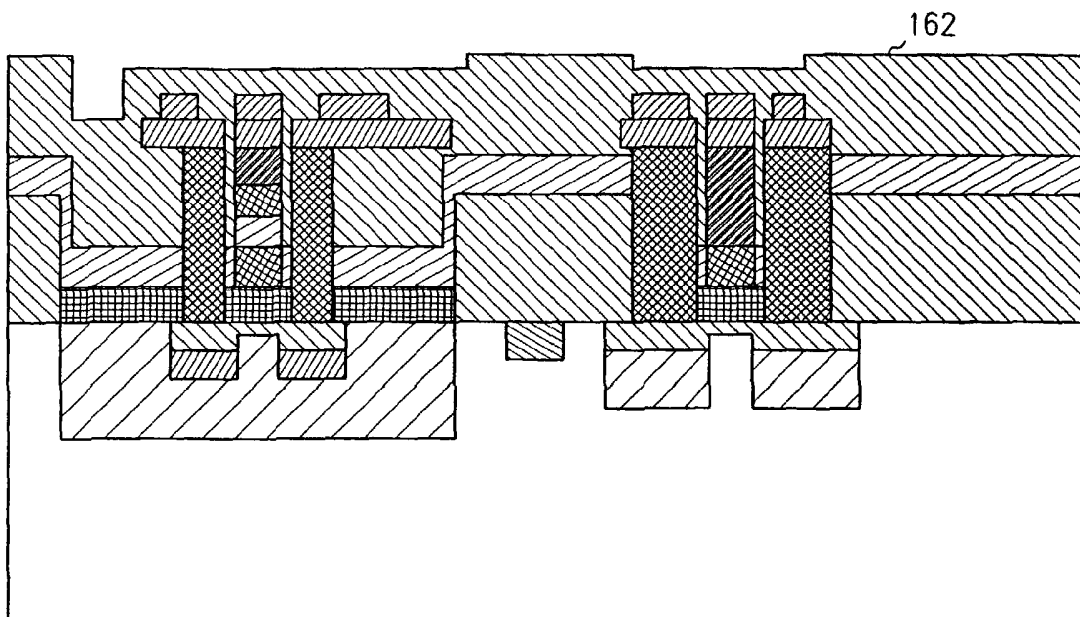
(74) Agents: **STEFFEY, Charles, E.** et al.; P.O. Box 2938, Minneapolis, MN 55402 (US).

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(54) Title: SILICON CARBIDE MICROELECTROMECHANICAL DEVICES WITH ELECTRONIC CIRCUITRY



(57) Abstract: A method of forming electronics and microelectromechanical on a silicon carbide substrate having a slow etch rate is performed by forming circuitry on the substrate. A protective layer is formed over the circuitry having a slower etch rate than the etch rate of the silicon carbide substrate. Microelectromechanical structures supported by the substrate are then formed. The circuitry comprises a field effect transistor in one embodiment, and the protective layer comprises a heavy metal layer.

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ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
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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)

WPI Data, PAJ, EPO-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 346 429 B1 (OPPERMANN KLAUS-GUENTER ET AL) 12 February 2002 (2002-02-12)	1,2, 7-10, 14-16
Y	column 1, line 64 -column 2, line 58 column 3, line 14 -column 4, line 18 figure 3	3-6, 11-13, 17-28
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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P document published prior to the international filing date but later than the priority date claimed

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G document member of the same patent family

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European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Meister, M

INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	MAN PIO LAM ET AL: "RECENT PROGRESS OF SUBMICRON CMOS USING 6H-SiC FOR SMART POWER APPLICATIONS" IEEE TRANSACTIONS ON ELECTRON DEVICES, IEEE INC. NEW YORK, US, vol. 46, no. 3, March 1999 (1999-03), pages 546-554, XP000926945 ISSN: 0018-9383 * paragraph II, "Device Fabrication" * figure 1	11-13, 17-28
Y	TANAKA S ; RAJANNA K ; ABE T ; ESASHI M: "Deep reactive ion etching of silicon carbide" JOURNAL OF VACUUM SCIENCE & TECHNOLOGY B, AMERICAN VACUUM SOCIETY, USA, vol. 19, no. 6, 1 November 2001 (2001-11-01), pages 2173-2176, XP002282737 * paragraph "I. Introduction" * * paragraph "B. Experimental process" *	3-6
A	figure 1	19-21
A	SARRO P M: "Silicon carbide as a new MEMS technology" SENSORS AND ACTUATORS A (PHYSICAL), ELSEVIER, SWITZERLAND, vol. 82, no. 1-3, 15 May 2000 (2000-05-15), pages 210-218, XP002282738 * paragraph "2.5 Bulk micromachining" * * 2.6 Surface micromachining * figures 3-5	1,2,8,9, 17,23, 24,28
A	NED A A ET AL: "6H-SiC pressure sensor operation at 600/spl deg/C" HIGH TEMPERATURE ELECTRONICS CONFERENCE, 1998. HITEC. 1998 FOURTH INTERNATIONAL ALBUQUERQUE, NM, USA 14-18 JUNE 1998, NEW YORK, NY, USA, IEEE, US, 14 June 1998 (1998-06-14), pages 257-260, XP010281921 ISBN: 0-7803-4540-1 * Abstract * * paragraph "III. Sensor Fabrication" *	1,8,9, 17,23, 24,28

INTERNATIONAL SEARCH REPORT

Information on patent family members

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			EP	1079435 A1	28-02-2001
