

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
14 April 2005 (14.04.2005)

PCT

(10) International Publication Number
WO 2005/033660 A3

(51) International Patent Classification⁷: **H01L 41/08**

(21) International Application Number:
PCT/US2004/032061

(22) International Filing Date:
30 September 2004 (30.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10/675,398 30 September 2003 (30.09.2003) US

(71) Applicant (for all designated States except US): **THE CHARLES STARK DRAPER LABORATORY, INC.** [US/US]; 555 Technology Square, Cambridge, MA 02139 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WEINBERG, Marc, S.** [US/US]; 119 Broad Meadow Road, Needham, MA 02492 (US). **CUNNINGHAM, Brian** [US/US]; 23 Bedford Street, Lexington, MA 02420 (US). **HILDEBRANT, Eric** [US/US]; 73 Springfield Street, Watertown, MA 02472 (US).

(74) Agents: **COLEMAN, Roy, J.** et al.; Iandiorio & Teska, 260 Bear Hill Road, Waltham, MA 02451 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

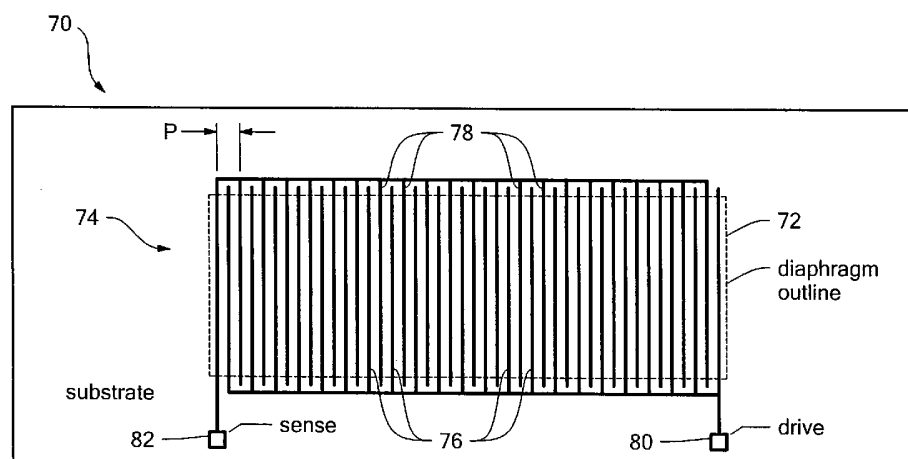
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
16 February 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FLEXURAL PLATE WAVE SENSOR



(57) Abstract: A flexural plate wave sensor including a flexural plate (74) having a length and a width and a comb pattern (76, 78) over the flexural plate with drive teeth disposed across the entire length of the flexural plate to reduce the number of eigenmodes excited in the plate and thereby simplifying the operation and design of the flexure plate wave sensor.

WO 2005/033660 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/32061

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : HO1L 41/08

US CL : 310/313R

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)

U.S. : 310/313R, 313B, 313C, 313D, 323.03

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 practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6091182 A (TAKEUCHI et al) 18 uly 2000 (18-07-2000), see figures 4, 5, 9c, 22 and 23	1, 4- 7, 9, 15, 17, 35, 36, 38, 40, 42 and 55-60 ----- 2, 8, 16, 18, 37, 39, 41 and 43
X --- Y	US 6323580 B (BERNSTEIN) 27 November 2001 (27-11-2001), see figures 3-7.	1, 4-7, 9, 15, 17, 35, 36, 38, 40, 42, and 55- 60 ----- 2, 8, 16, 18, 37, 39, 41 and 43

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:	
"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	

Date of the actual completion of the international search

09 November 2005 (09.11.2005)

Date of mailing of the international search report

12 DEC 2005

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

Authorized officer

Mark Budd

Telephone No. 703-308-1782