

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
15 January 2004 (15.01.2004)

PCT

(10) International Publication Number  
**WO 2004/006302 A3**

(51) International Patent Classification<sup>7</sup>: **H01J 37/00**,  
3/14, G01B 5/28

(21) International Application Number:  
PCT/US2003/021223

(22) International Filing Date: 7 July 2003 (07.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/394,414 8 July 2002 (08.07.2002) US

(71) Applicant (for all designated States except US): **MULTI-  
PROBE, INC.** [US/—]; 10E. Islay Street, Santa Barbara,  
CA 93101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HARE, Casey,**

Patrick [—/US]; 1353 Santa Rosa Avenue, Santa Bar-  
bara, CA 93109 (US). **ERICKSON, Andrew, Norman**  
[—/US]; 121 Santa Rosa Place, Santa Barbara, CA 93109  
(US).

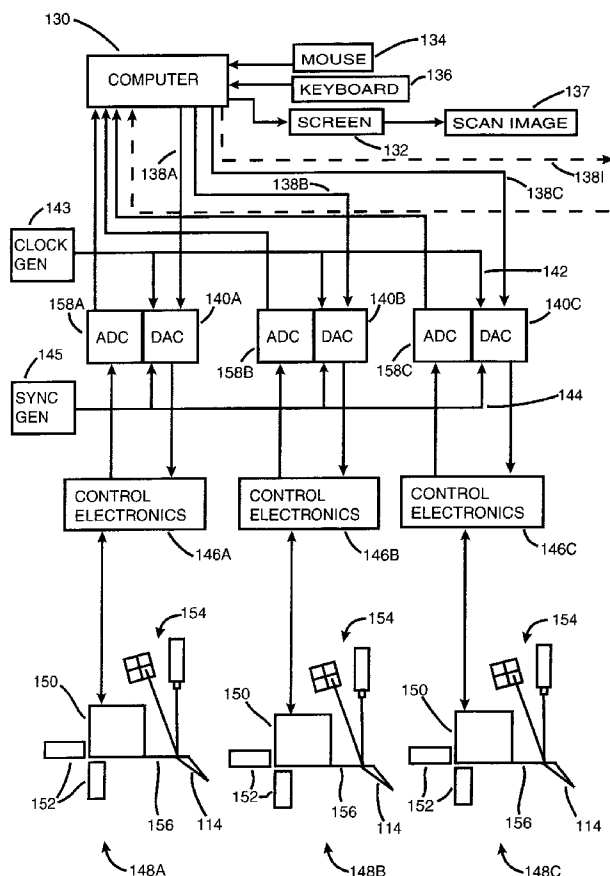
(74) Agent: **FISCHER, Felix, L.**; Felix L. Fischer, Attorney at  
Law, 1607 Mission Drive, Suite 204, Solvang, CA 93463  
(US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, 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, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: SOFTWARE SYNCHRONIZATION OF MULTIPLE SCANNING PROBES



(57) Abstract: A method and apparatus for scanning multi-  
ple scanning probe microscopes in close proximity, to scan  
overlapping scan areas at the same time while avoiding col-  
lision employs a control system (130) providing drive sig-  
nals to a first Atomec Force Microscope (AFM) (148a) and  
calculated drive signals to additional AFMs (148b and 148c)  
based on the first drive signals and the relative position of the  
additional AFMs to the first ASM for consistent spaced mo-  
tion. Scanning and Failure Analysis (FA) probing of mul-  
tiple feature of interest using multiple AFMs allows for re-  
duced time for locating FA features to set up measurements.



European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**(88) Date of publication of the international search report:**  
13 May 2004

**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*

*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.*