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Hajduk et al.

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(54) **HIGH THROUGHPUT MECHANICAL PROPERTY TESTING OF MATERIALS LIBRARIES USING A PIEZOELECTRIC**

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(75) Inventors: **Damian A. Hajduk**, San Jose, CA (US); **Eric D. Carlson**, Cupertino, CA (US); **J. Christopher Freitag**, Santa Clara, CA (US); **Oleg Kolosov**, San Jose, CA (US); **James R. Engstrom**, Ithaca, NY (US); **Adam Safir**, Berkeley, CA (US); **Ravi Srinivasan**, Mountain View, CA (US); **Leonid Matsiev**, San Jose, CA (US)

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(73) Assignee: **Symyx Technologies, Inc.**, Santa Clara, CA (US)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 108 days.

U.S. patent application Ser. No. 09/939,404 entitled "High Throughput Mechanical Property and Bulge Testing of Material Libraries," (D. Hajduk et al.) filed on Aug. 24, 2001.

U.S. patent application Ser. No. 09/939,252 entitled "High Throughput Mechanical Rapid Serial Property testing of Material Libraries," (P. Mansky) filed on Aug. 24, 2001.

(List continued on next page.)

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Primary Examiner—Anjan K. Deb

(74) *Attorney, Agent, or Firm*—Dubrusin & Thennisch PC

(51) **Int. Cl.**⁷ **G01N 27/00**; G01D 7/00; H01L 41/04

(57) **ABSTRACT**

(52) **U.S. Cl.** **324/76.49**; 324/71.1; 73/862.041; 310/317

The present invention provides instruments and methods for screening combinatorial libraries that addresses many of the problems encountered when using conventional instruments. For example, the disclosed instruments can measure mechanical properties of library members in rapid serial or parallel test format, and can perform tests on small amounts of material, which are easily prepared or dispensed using art-disclosed liquid or solid handling techniques. Compared to conventional instruments, the disclosed instruments afford faster sample loading and unloading, for example, through the use of disposable libraries of material samples.

(58) **Field of Search** 324/76.49, 754, 324/757, 109, 727, 71.1, 71.5; 73/811, 862.041, 24.06; 702/33, 42; 310/317, 316.01, 318; 204/192.13

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25 Claims, 7 Drawing Sheets

