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Mountain View, CA 94040 (US). **ZHANG, Xiao-An**; 689
Grand Fir Avenue, #2, Sunnyvale, CA 94086 (US).

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(74) Agent: **SCHUYLER, P., Marc**; Hewlett-Packard Com-
pany, IPA, P.O. Box 272400, M/S 35, Fort Collins, CO
80527-2400 (US).

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(71) Applicant: **HEWLETT-PACKARD COMPANY**
[US/US]; Legal Department, 3000 Hanover Street, M/S
20BN, Palo Alto, CA 94304-1112 (US).

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(72) Inventors: **BRATOVSKI, M., Alexandre**; 127 Laurel
Way, Mountain View, CA 94040 (US). **KORNILOVICH,**
Pavel; 439 Del Medio Avenue, #10, Mountain View, CA
94040 (US). **WILLIAMS, R., Stanley**; 105 Laurel Way,

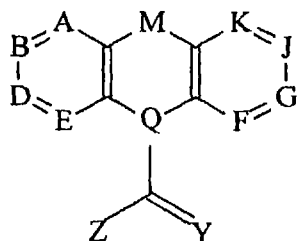
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(54) Title: BISTABLE TRICYCLIC MOLECULES WITH AN APPENDED ROTOR ACTIVATED BY AN ELECTRIC FIELD
FOR ELECTRONIC SWITCHING, GATING AND MEMORY APPLICATIONS

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(I)

(57) Abstract: In accordance with the present invention, nanometer-scale reversible electronic switches are provided that can be assembled to make cross-bar circuits that provide memory, logic, and communications functions. The electronic switches, or crossed-wire devices, comprise a pair of crossed wires that form a junction where one wire crosses another at an angle other than zero degrees and at least one connector species connecting the pair of crossed wires in the junction. The junction has a functional dimension in nanometers, wherein at least one connector species and the pair of crossed wires forms an electrochemical cell. The connector species comprises a bistable molecule having a general formula (I). The bistable molecules evidence high switching speed. Such molecules are essentially stable against

switching due to thermal fluctuations.