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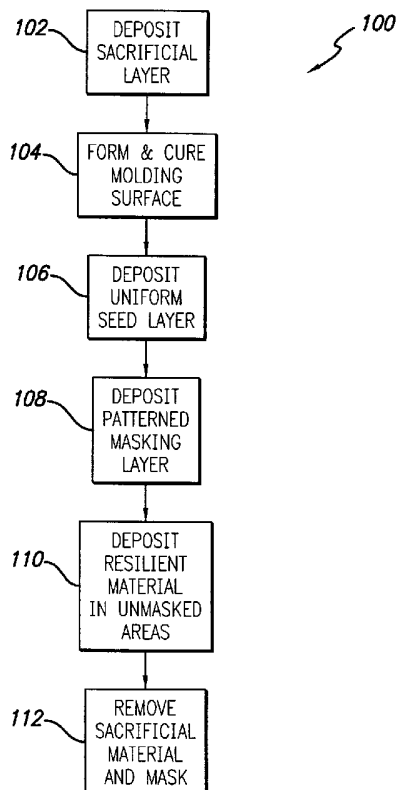
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[Continued on next page]

(54) Title: METHOD FOR FORMING MICROELECTRONIC SPRING STRUCTURES ON A SUBSTRATE



(57) Abstract: A layer of sacrificial material is formed over a substrate. Then, a contoured surface is developed in the sacrificial material, such as by molding the sacrificial material using a mold or stamp. The contoured surface provides a mold for at least one spring form, and preferably for an array of spring forms. If necessary, the sacrificial layer is then cured or hardened. A layer of spring material is deposited over the contoured surface of the sacrificial material, in a pattern to define at least one spring form, and preferably an array of spring forms. The sacrificial material is then at least partially removed from beneath the spring form to reveal at least one freestanding spring structure. A separate conducting tip is optionally attached to each resulting spring structure, and each structure is optionally plated or covered with an additional layer or layers of material, as desired. An alternative method for making a resilient contact structure using the properties of a fluid meniscus is additionally disclosed. In an initial step of the alternative method, a layer of material is provided over a substrate. Then, a recess is developed in the material, and fluid is provided in the recess to form a meniscus. The fluid is cured or hardened to stabilize the contoured shape of the meniscus. The stabilized meniscus is then used to define a spring form in the same manner as the molded surface in the sacrificial material.

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## A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

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Minimum documentation searched (classification system followed by classification symbols)

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

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## C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 5 688 699 A (PATEL BHARAT I ET AL) 18 November 1997 (1997-11-18)  figures 1,2A-2H column 3, line 18 -column 4, line 37 ----	1-14,25, 30-42, 44-52
A	US 6 184 053 B1 (ELDRIDGE BENJAMIN N ET AL) 6 February 2001 (2001-02-06) column 5, line 32 -column 7, line 16 ----	1-52
A	WO 00 33089 A (FORMFACTOR INC) 8 June 2000 (2000-06-08) figures 1-13B page 17, line 23 -page 25, line 29 -----	1-52

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