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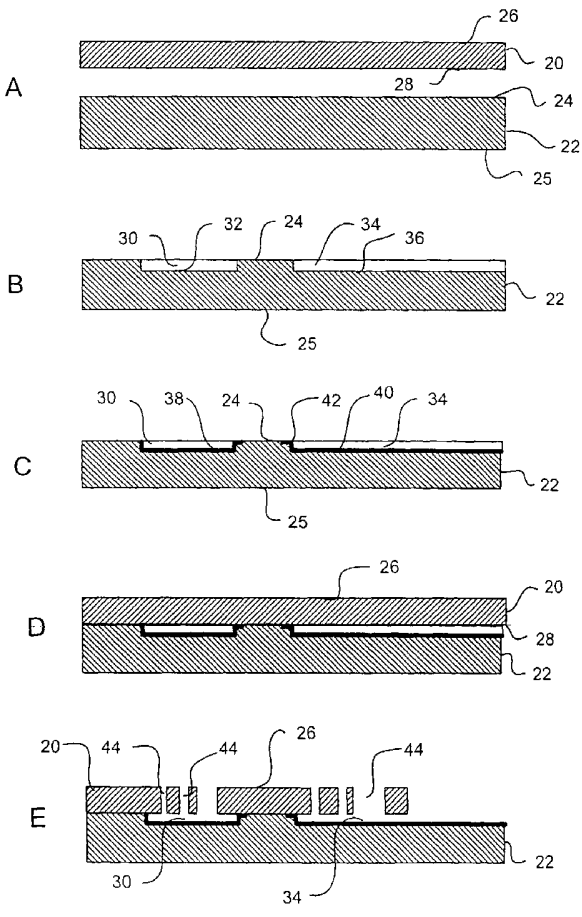
(54) Title: THIN SILICON MICROMACHINED STRUCTURES



(57) Abstract: Methods for making thin silicon layers (20) suspended over recesses (30) in glass wafers or substrates (22) are disclosed. One embodiment of the present invention includes providing a thin silicon wafer (20), and a glass wafer or substrate (22). Recesses (30) are formed in one surface (24) of the glass wafer (22), and electrodes (38) are formed in the recesses (30). The silicon wafer (20) is then bonded to the glass wafer (22) over the recesses (30). The silicon wafer (20) is then etched to impart the desired suspended or silicon wafer structure. In another embodiment of the present invention, the silicon wafer (120) has a patterned metal layer (129). The silicon wafer (120) is bonded to the glass wafer (22), with the patterned metal layer (129) positioned adjacent the recesses (30) in the glass wafer (22). The silicon wafer (120) positioned adjacent the recesses (30) in the glass wafer (22). The silicon wafer (120) is selectively etched down to the metal layer (129). The metalized layer (129) may serve to seal gasses within the recessed cavities (30) of the glass wafer (22) during the silicon etching process. The metal layer (129) can then be subsequently removed.

WO 02/051743 A3

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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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 B81B B81C

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 practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 199 29 776 A (MITSUBISHI ELECTRIC CORP) 9 November 2000 (2000-11-09) figures 2-9 column 6, line 12 -column 7, line 13 ---	1-7
X	MOCHIDA Y ET AL: "A micromachined vibrating rate gyroscope with independent beams for the drive and detection modes" SENSORS AND ACTUATORS A, ELSEVIER SEQUOIA S.A., LAUSANNE, CH, vol. 80, no. 2, March 2000 (2000-03), pages 170-178, XP004192104 ISSN: 0924-4247 paragraphs '0001!-'0003!; figure 7 --- -/--	1-3

[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA	Authorized officer
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
A	XIAO Z ET AL: "Silicon micro-accelerometer with mg resolution, high linearity and large frequency bandwidth fabricated with two mask bulk process" SENSORS AND ACTUATORS A, ELSEVIER SEQUOIA S.A., LAUSANNE, CH, vol. 77, no. 2, 12 October 1999 (1999-10-12), pages 113-119, XP004244553 ISSN: 0924-4247 figure 1 ---	1-5
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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