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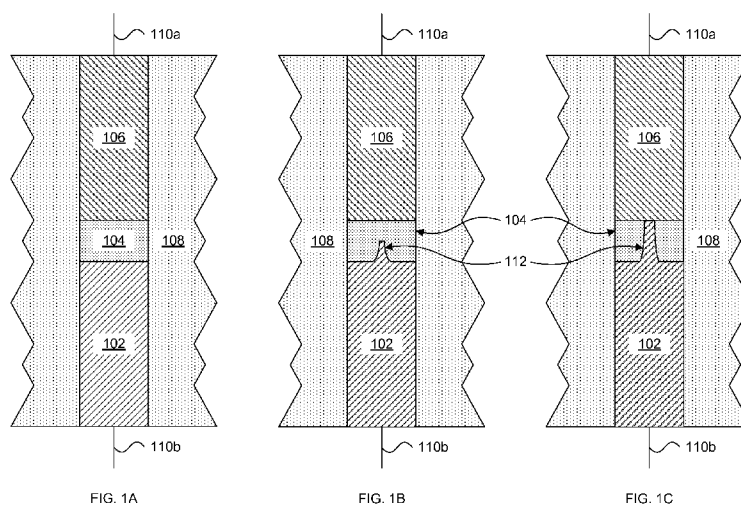
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(54) **Title:** MEMORY DEVICES, METHODS OF STORING AND READING DATA, SMM JUNCTIONS, AND METHODS OF PREPARING ALUMINA SUBSTRATES



(57) **Abstract:** Various aspects of the invention provide memory devices, methods of storing and reading data, and silver/molecular-layer/metal (SMM) junctions. One aspect of the invention provides a memory device including a plurality of SMM junctions and an electrical structure configured to permit application of electricity across one or more of the plurality of SMM junctions. Another aspect of the invention provides a method of storing data on a memory device including a plurality of SMM junctions. The method includes applying electrical energy across a subset of the SMM junctions to switch the junction to a more conductive state. Another aspect of the invention provides an SMM junction including a silver layer, a copper layer, and a molecular layer positioned between the silver layer and the copper layer.

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A. CLASSIFICATION OF SUBJECT MATTER***H01L 27/10(2006.01)i, G11B 9/00(2006.01)i***

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)

H01L 27/10; H01L 35/24; H01L 21/8232; H01L 51/00; H01L 21/4763

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: memory, smm , organosulfur

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004-0159835 A1 (JURI HEINRICH KRIEGER et al.) 19 August 2004 See a page9.	1,29
A	US 2004-0159835 A1 (JURI HEINRICH KRIEGER et al.) 19 August 2004 See the whole document.	2-28,30-39
A	US 2007-0194301 A1 (RECAI SEZI et al.) 23 August 2007 See the whole document.	1-39
A	US 6753247 B1 (OKOROANYANWU; UZODINMA et al.) 22 June 2004 See the whole document.	1-39

 Further documents are listed in the continuation of Box C. See patent family annex.

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