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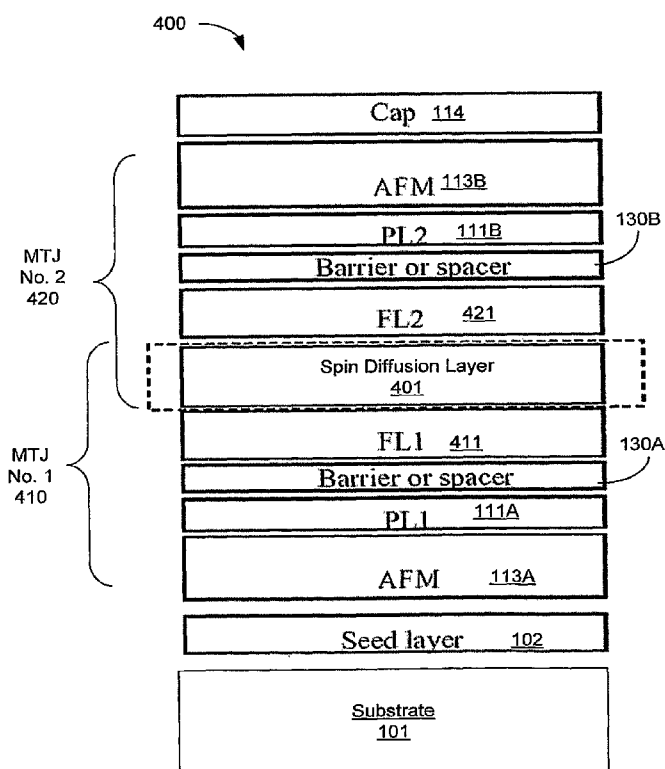
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(54) Title: CURRENT-SWITCHED SPIN-TRANSFER MAGNETIC DEVICES WITH REDUCED SPIN-TRANSFER SWITCHING CURRENT DENSITY

FIG. 4



(57) Abstract: Magnetic multilayer structures, such as magnetic or magnetoresistive tunnel junctions (MTJs) and spin valves, having one or more spin diffusion layers to diffuse the electron spins outside the MTJ or spin valve structure to reduce the spin transfer switching current for switching the free layer.

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A. CLASSIFICATION OF SUBJECT MATTER

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USPC - 365/145

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)
G11C 11/22 (2008.04); 365/145Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
365/129, 145

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

Google; Google Scholar; Google Patents; PubWest(PGPB,USPT,USOC,EPAB,JPAB);

Search Terms Used: magnetic materials, ferromagnetic layer, magnetization

direction, pinned ferromagnetic layer, spin diffusion layer, insulator barrier, short spin, non-magnetic metallic, magnetic tunnel junction

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0248888 A1 (DIENY et al.) 10 November 2005 (10.11.2005), para [0009]-[0016], para [0026]	1-23
X		24-25
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Y	US 2005/0041456 A1 (SAITO) 24 February 2005 (24.02.2005), para [0092]-[0100], para [0118]-[0155]	1-23

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