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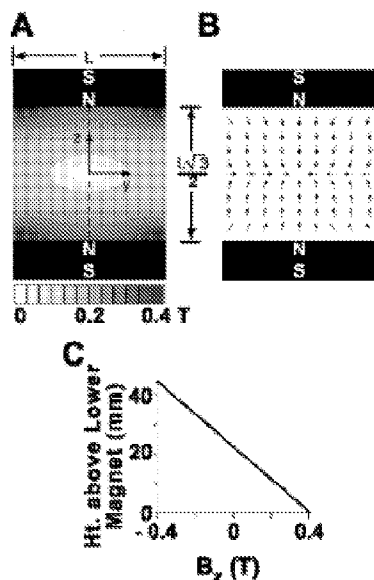
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(54) Title: DENSITY-BASED METHODS FOR SEPARATION OF MATERIALS, MONITORING OF SOLID SUPPORTED REACTIONS AND MEASURING DENSITIES OF SMALL LIQUID VOLUMES AND SOLIDS

FIG. 1



(57) Abstract: The ability to levitate, to separate, and to detect changes in density using diamagnetic particles suspended in solutions containing paramagnetic cations using an inhomogeneous magnetic field is described. The major advantages of this separation device are that: i) it is a simple apparatus that does not require electric power (a set of permanent magnets and gravity are sufficient for the diamagnetic separation and collection system to work); ii) it is compatible with simple optical detection (provided that transparent materials are used to fabricate the containers/channels where separation occurs); iii) it is simple to collect the separated particles for further processing; iv) it does not require magnetic labeling of the particles/materials; and v) it is small, portable. The method and kits provided provide for separation and collection of materials of different densities, diagnostics for detection of analytes of interest, monitoring of solid-supported chemical reactions and determination of densities of solid and liquid mixtures.

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B. FIELDS SEARCHED

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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 practicable, search terms used)

PatBase, Google Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/0072278 A1 (CHOU et al) 15 April 2004 (15.04.2004) entire document	1-18, 23-24, 27-35, 48-54, 57-59, 61-64, 66-80, 83
Y		19-22, 25, 26, 36-47, 55, 56, 60, 65, 81, 82
Y	WO 2005/105314 A1 (KING et al) 10 November 2005 (10.11.2005) entire document	19-20, 25, 26, 36-47
Y	US 2003/0219785 A1 (HALLAHAN et al) 27 November 2003 (27.11.2003) entire document	21-22, 55, 56, 60, 65, 81, 82
A	US 2002/0197622 A1 (MCDEVITT et al) 26 December 2002 (26.12.2002) entire document	1-83
A	US 2002/0022276 A1 (ZHOU et al) 21 February 2002 (21.02.2002) entire document	1-83
A	US 2004/0009614 A1 (AHN et al) 15 January 2004 (15.01.2004) entire document	1-83

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