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(54) **THREE DIMENSIONAL ASSEMBLY OF DIAMAGNETIC MATERIALS USING MAGNETIC LEVITATION**

(75) Inventors: **George M. Whitesides**, Cambridge, MA (US); **Filip Ilievski**, Santa Clara, CA (US); **Audrey Ellerbee**, Palo Alto, CA (US); **Sergey S. Shevkoplyas**, Friendwood, TX (US); **Katherine A. Mirica**, Waltham, MA (US)

(73) Assignee: **President and Fellows of Harvard College**, Cambridge, MA (US)

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See application file for complete search history.

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Primary Examiner — Robert M Kunemund

(74) *Attorney, Agent, or Firm* — Wilmer Cutler Pickering Hale and Dorr LLP

(57) **ABSTRACT**

The ability to assemble three-dimensional structures using diamagnetic particles suspended in solutions containing paramagnetic cations 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) the assembled structures can be removed from the paramagnetic solution for further processing after fixing the structure; iii) the assembly is fast; and iv) it is small, portable.

24 Claims, 19 Drawing Sheets

