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**Gruber et al.**

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(54) **SYSTEM AND METHOD OF SORTING MATERIALS USING HOLOGRAPHIC LASER STEERING**

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(51) **Int. Cl.**  
**G01N 21/63** (2006.01)

(52) **U.S. Cl.** ..... **250/251**; 435/7.1; 435/288.7

(58) **Field of Classification Search** ..... 250/251, 250/484.4; 252/301.4 S, 301.4 H; 382/141, 382/143; 422/100

See application file for complete search history.

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*Primary Examiner*—Nikita Wells

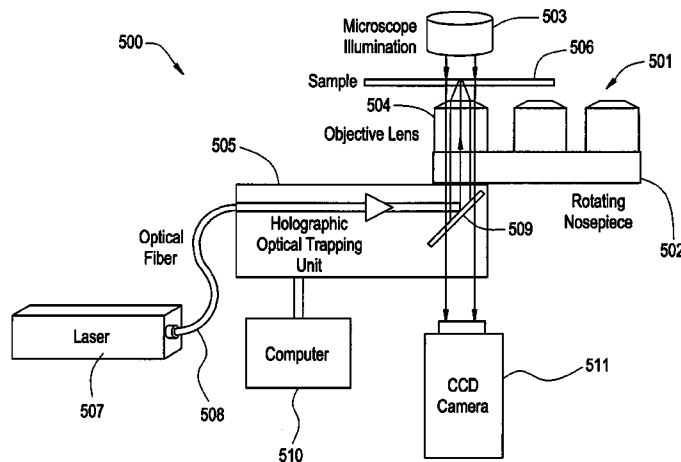
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(57) **ABSTRACT**

The present invention employs a beam steering apparatus to isolate valuable cells from other cells, tissues, and contaminants. In one embodiment, the system balances optical trapping against biasing flow to parallelize cell sorting under the flexible control of computer program-directed traps which differentially manipulate cells based on their composition or labels to direct separation.

**71 Claims, 9 Drawing Sheets**



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FIG. 1

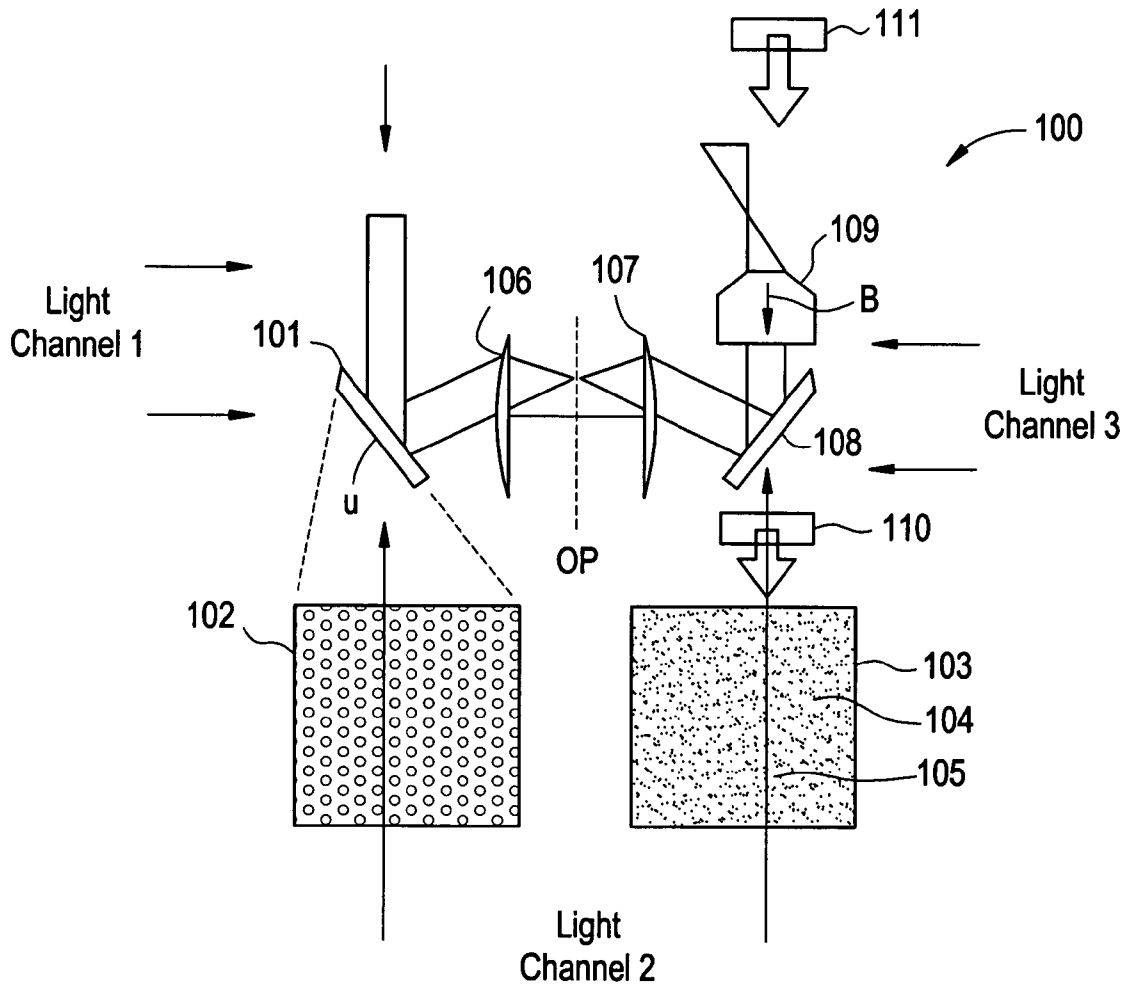


FIG. 2A

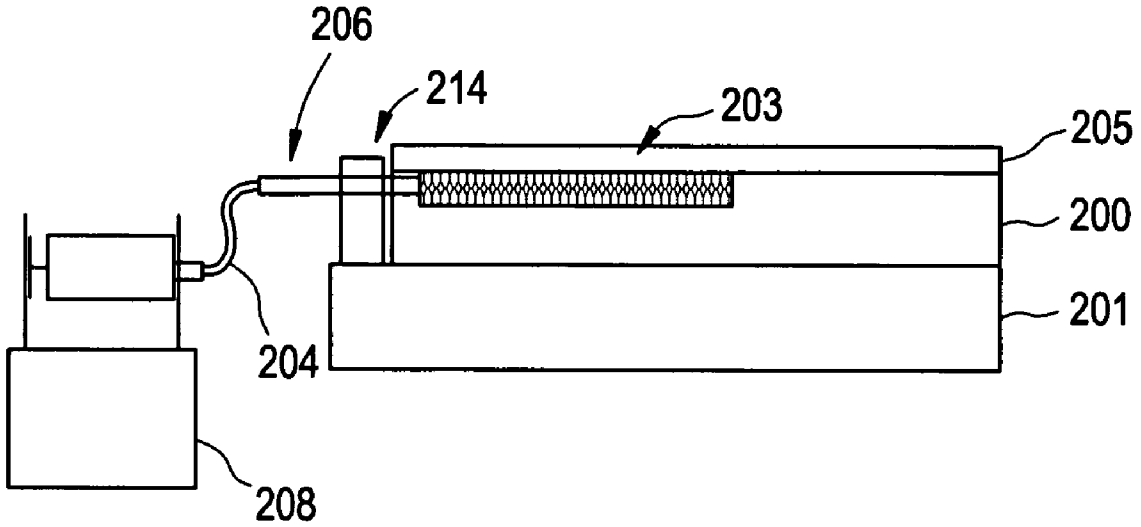


FIG. 2B

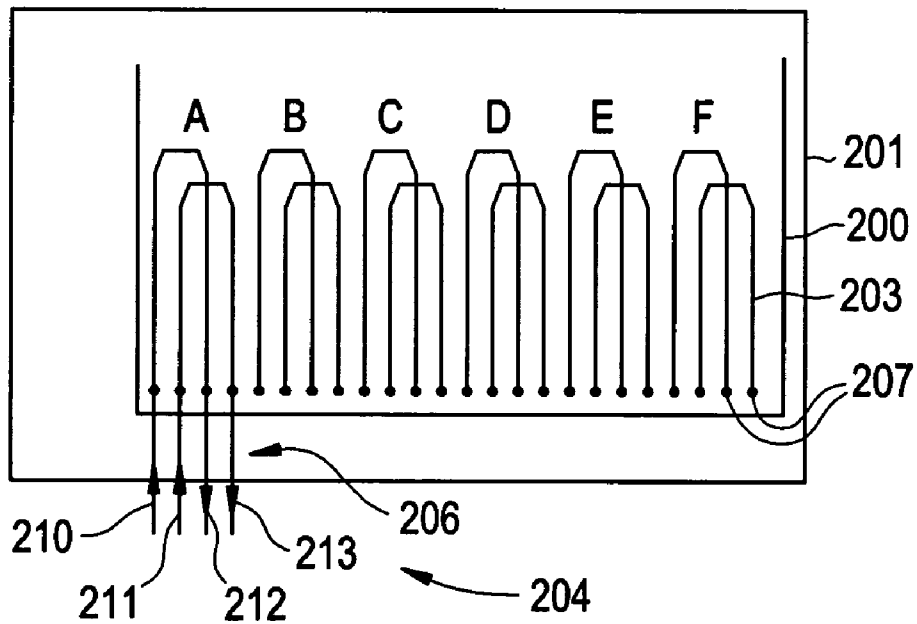
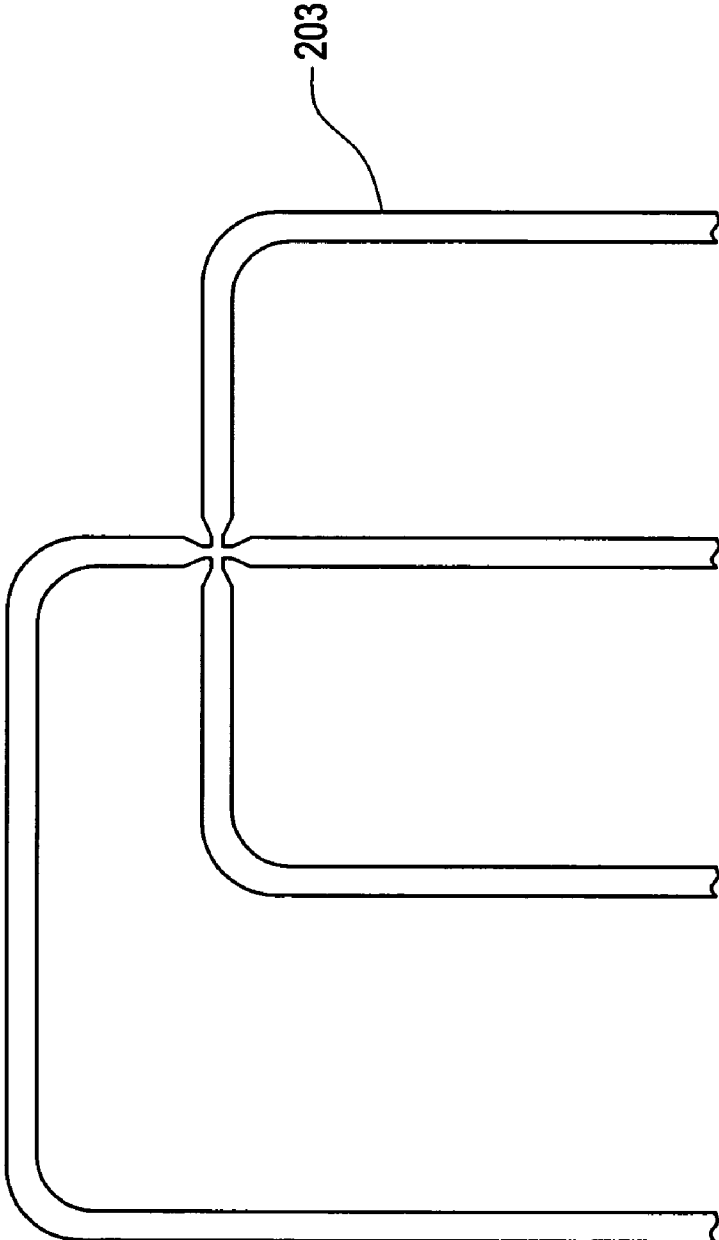


FIG. 3



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