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Mueth et al.

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(54) **MULTIPLE LAMINAR FLOW-BASED PARTICLE AND CELLULAR IDENTIFICATION**

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(51) **Int. Cl.**
B01D 21/26 (2006.01)
G02B 21/32 (2006.01)
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(52) **U.S. Cl.**
CPC **G01N 33/487** (2013.01); **G03H 1/2294** (2013.01); **G03H 2001/0077** (2013.01);
(Continued)

(58) **Field of Classification Search**
USPC 250/251; 356/244, 246; 494/36, 45; 435/173.1; 210/732, 800, 802
See application file for complete search history.

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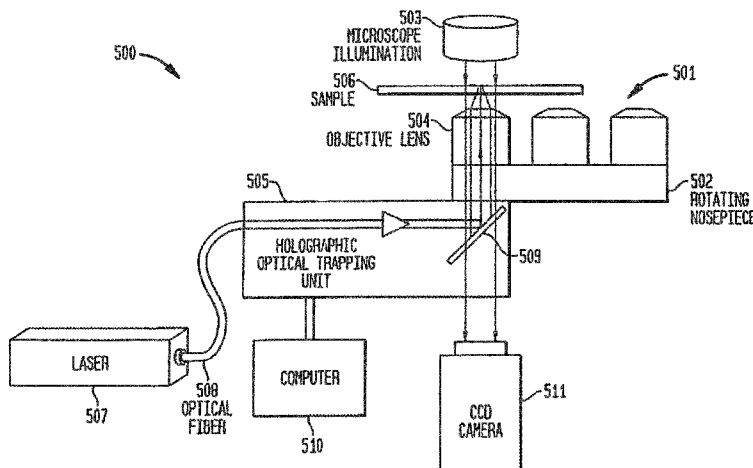
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(57) **ABSTRACT**

The present invention provides a method and apparatus to identify at least one component from a plurality of components in a fluid mixture, the apparatus including a first input channel into which a first flow containing a plurality of components is introduced; a plurality of buffer input channels, into which additional flows of buffer solution are introduced, disposed on either side of the first input channel; wherein the first flow and the additional flows have a flow direction along a length of the apparatus; a detector apparatus which detects and identifies selected components of the plurality of components; a laser which emits a laser beam which damages or kills selected components of the plurality of components; and at least one channel disposed at the another end of the apparatus which is adapted to receive the first flow and the additional flows after operation of the laser on the selected components.

14 Claims, 22 Drawing Sheets



Related U.S. Application Data

continuation of application No. 12/659,277, filed on Mar. 2, 2010, now Pat. No. 8,158,927, which is a division of application No. 12/213,109, filed on Jun. 13, 2008, now Pat. No. 7,699,767, which is a division of application No. 11/543,773, filed on Oct. 6, 2006, now Pat. No. 7,402,131, which is a division of application No. 10/934,597, filed on Sep. 3, 2004, now Pat. No. 7,118,676, which is a continuation-in-part of application No. 10/867,328, filed on Jun. 13, 2004, now Pat. No. 7,150,834, which is a continuation-in-part of application No. 10/630,904, filed on Jul. 31, 2003, now Pat. No. 7,241,988.

- (60) Provisional application No. 60/399,386, filed on Jul. 31, 2002, provisional application No. 60/435,541, filed on Dec. 20, 2002, provisional application No. 60/571,141, filed on May 14, 2004, provisional application No. 60/499,957, filed on Sep. 4, 2003, provisional application No. 60/511,458, filed on Oct. 15, 2003.

(51) **Int. Cl.**

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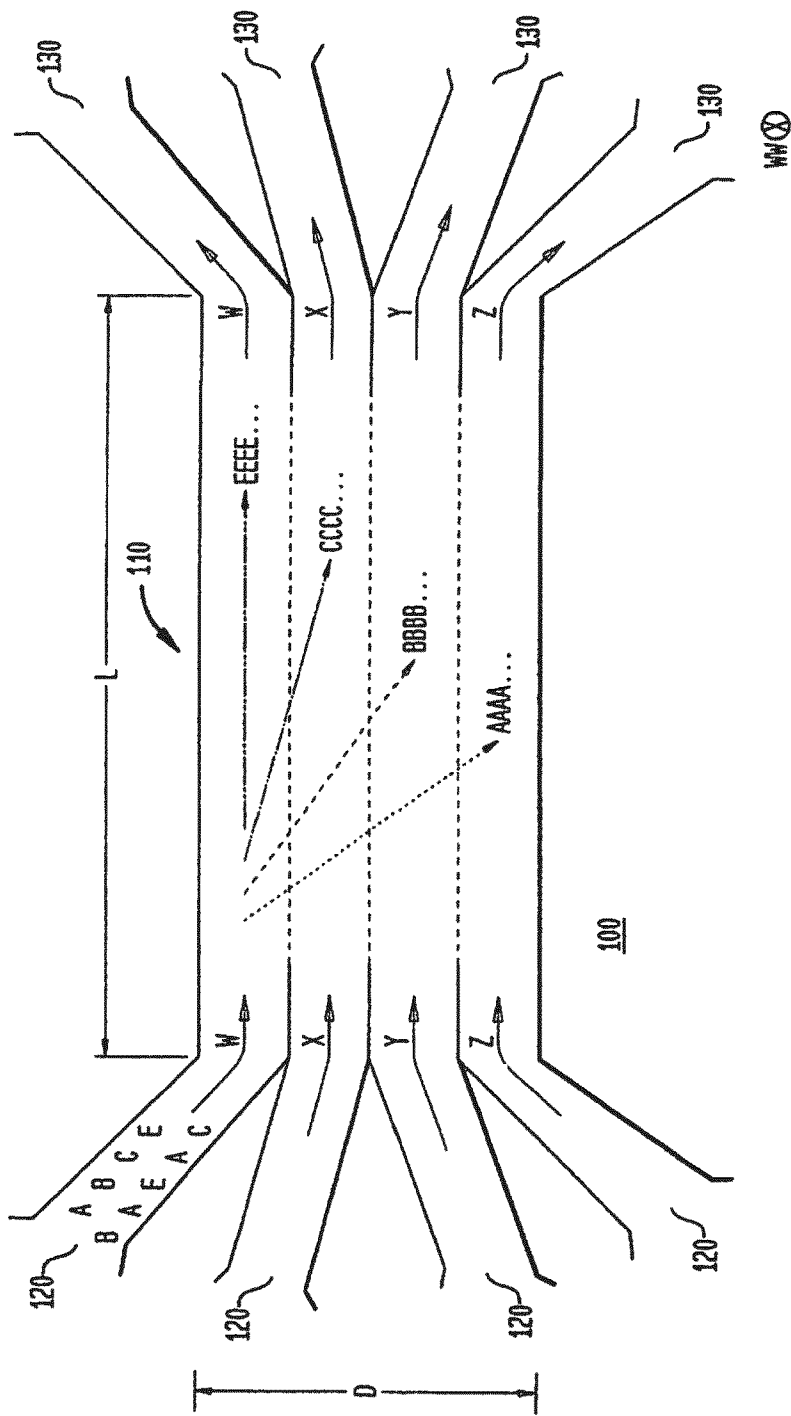
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FIG. 1



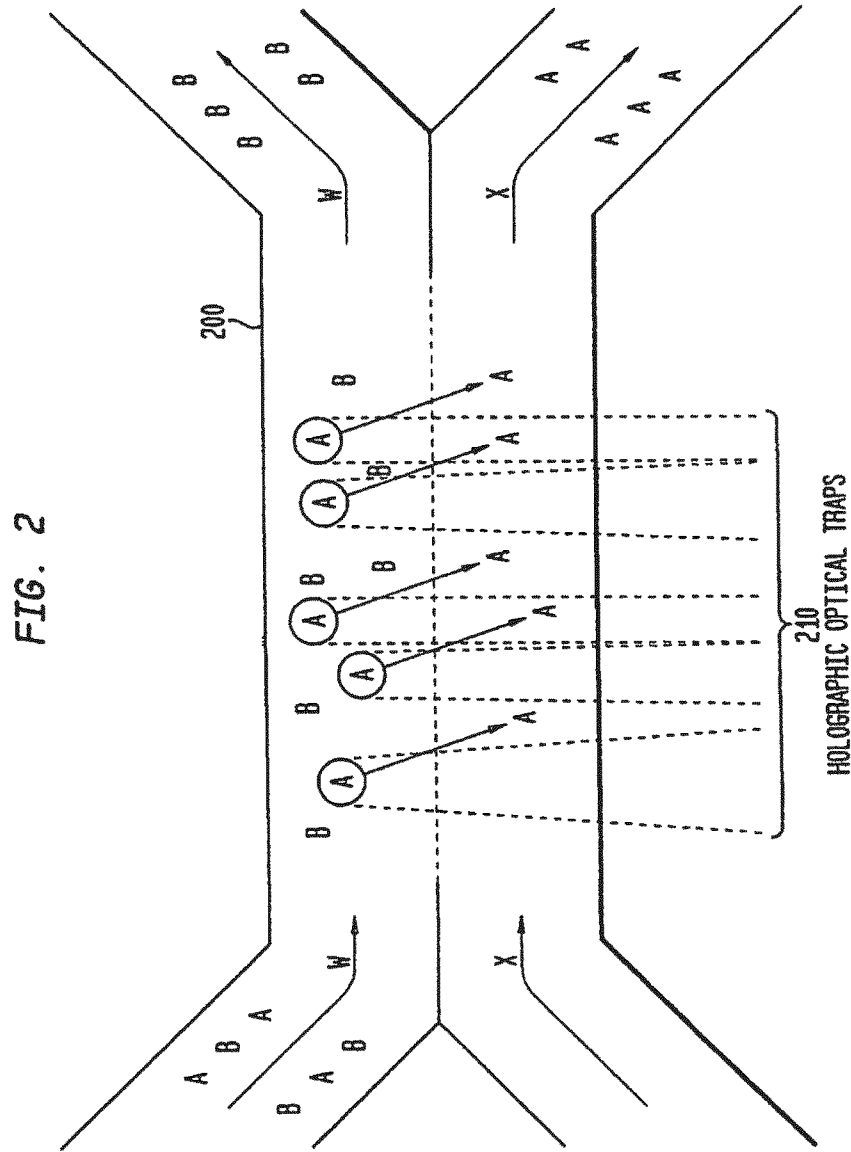
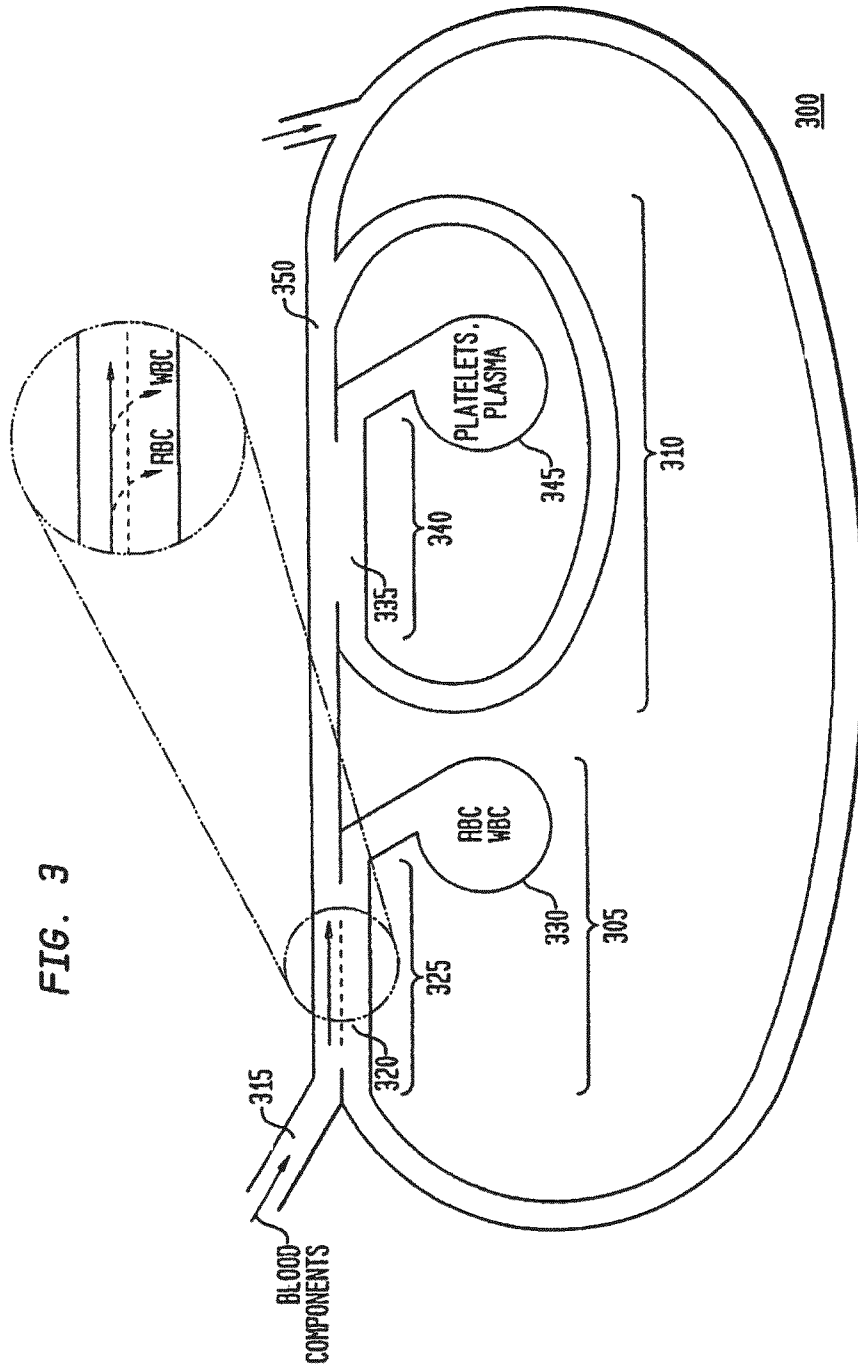


FIG. 2



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