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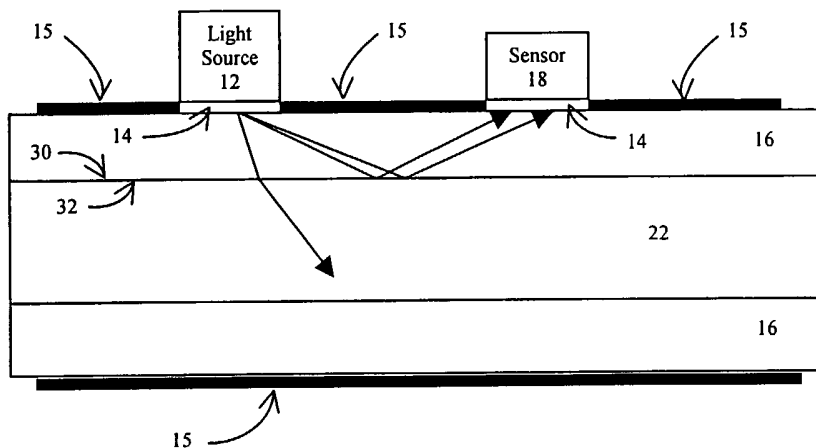
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(54) Title: REFRACTIVE INDEX SENSOR USING INTERNALLY REFLECTIVE LIGHT BEAMS



(57) Abstract: A sensor system comprised of a diffuse light source (12) and a sensor (18) mounted on a transparent layer of material (16) that is adjacent to a fluid (22). The refractive index of the transparent layer (16) is greater than the refractive index of the fluid (22), causing a portion of the diffuse light source to be reflected from the interface of the transparent layer (30) and the adjacent fluid (32). A sensor (18) is placed at a location to intercept the reflected light. The diffuse light source and the sensor are optically coupled to the transparent layer with a transparent material (14)

with a refractive index greater than that of the fluid. A light absorbing coating (15) is placed on the surface of the transparent layer in order to absorb extraneous light from internal scattering of light from the fluid and light external to the sensor system.

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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US05/24175

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC: **G01N 21/41( 2006.01),21/55( 2006.01)**  
  
 USPC: 356/133,445  
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**B. FIELDS SEARCHED**  
  
 Minimum documentation searched (classification system followed by classification symbols)  
 U.S. : 356/128,133,246,445-446,409-411

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)  
 Please See Continuation Sheet

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,694,210 B1 (NEWELL et al.) 02 December 1997 (02.12.1997), fig. 1, column 5 line 45 - column 6 line 67, and column 9, lines 40-53.	1-2, 5, 11-12, 15

Further documents are listed in the continuation of Box C.       See patent family annex.

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"P" document published prior to the international filing date but later than the priority date claimed	

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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer <i>Thomas for PCT</i> Gregory J Toatley, Jr. Telephone No. -
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Continuation of B. FIELDS SEARCHED Item 3:  
EAST  
search terms: diffuse light source, refract\$ index