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## Multi-Color Cavity Ringdown Based Detection Method and Apparatus

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(54) **MULTI-COLOR CAVITY RINGDOWN BASED  
DETECTION METHOD AND APPARATUS**

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**G01N 21/00** (2006.01)

(52) **U.S. Cl.** ..... **356/437**; 356/435

(58) **Field of Classification Search** ..... 356/432-440;  
73/23.3, 23.2, 23.31; 250/227.18, 343, 559.4,  
250/345, 339.12-339.13

See application file for complete search history.

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(57) **ABSTRACT**

A multi-color cavity ringdown based spectrometer is housed in a light tight enclosure to detect the presence of trace quantities of gas phase molecules emanating from explosives, drugs, or hazardous materials being transported through the enclosure or compounds contained in a patient's breath. A method is also disclosed for detecting gas phase molecules emanating from explosives, drugs, hazardous materials, or a patient's breath.

**20 Claims, 8 Drawing Sheets**

