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# United States Patent [19]

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[54] **CO<sub>2</sub> DIAGNOSTIC MONITOR WITH RUPTURABLE CONTAINER**

[75] Inventors: **Samsun Lampotang; Joachim S. Gravenstein; Nikolaus Gravenstein; Michael J. Banner; Dietrich Gravenstein**, all of Gainesville, Fla.

[73] Assignee: **University of Florida**, Gainesville, Fla.

[\*] Notice: The portion of the term of this patent subsequent to May 29, 2007 has been disclaimed.

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### Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 255,400, Oct. 11, 1988, Pat. No. 4,928,687.

[51] Int. Cl.<sup>5</sup> ..... **A61M 16/00**

[52] U.S. Cl. .... **128/719; 128/207.14**

[58] Field of Search ..... **128/716, 719, 630, 772, 128/204.22, 205.23, 207.14, 200.26; 412/61; 236/133**

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Primary Examiner—**Kyle L. Howell**  
Assistant Examiner—**Robert L. Nasser, Jr.**  
Attorney, Agent, or Firm—**Kerkam, Stowell Kondracki & Clarke**

### [57] ABSTRACT

A diagnostic monitor checks the carbon dioxide (CO<sub>2</sub>) content of a gas exiting a patient during endotracheal or esophageal intubation. A plurality of composition portions substantially change color in response to exposure to the carbon dioxide. The composition portions change color in response to different times of exposure to carbon dioxide. A magnifying or condensing lens may be positioned on the monitor to enhance viewing of the color change. The monitor may advantageously be made part of an intubation system through which the gases from a patient exit the patient. The differences in time of exposure needed to cause the color change may be accomplished by using semipermeable membranes having differing thicknesses, CO<sub>2</sub> permeabilities, and/or surface areas with each membrane corresponding to a particular one of the composition portions. An arrangement is provided whereby the monitor is automatically activated by the normal assembly steps of a patient breathing circuit.

25 Claims, 10 Drawing Sheets

