



(12) **United States Patent**
Bowden

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(54) **VENTILATION TRAINING ANALYZER MANIKIN**

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434/267, 268, 270, 272

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(57) **ABSTRACT**

A ventilation training analyzer manikin, for providing a quantitative measurement of the relative proportions of breathable gas volume delivered to a patient's lungs and patient's stomach during ventilation attempts by a user, thus demonstrating that the user is or is not using proper ventilation methods and equipment operating techniques. The manikin has a pressure actuated valve that opens at 15 cm H₂O gas pressure to mimic the opening of the human esophageal sphincter. The opening of the valve at high pressure shows users that delivery of excess volumes of high pressure gas results in aspiration of the stomach contents, potential lung damage and risk of death in some cases. The manikin provides (1) an anatomical simulation of a human respiratory tract including a pharynx model structure, a larynx model structure; and lung model structure for mimicking the physiological attributes of a human bronchia and lungs, and measuring the tidal volume of gas delivered to the lungs and (2) an anatomical simulation of an upper portion of a human alimentary canal including the pharynx model structure and an esophagus model structure with means for measuring the tidal volume of gas delivered to the stomach and lower esophageal sphincter pressure actuated valve for mimicking the physiological attributes of a human lower esophageal sphincter to open when gas pressure differential between an upstream and a downstream portion of the esophageal model structure exceeds a selected threshold pressure differential such as 15 cm H₂O. Gas volume detection means can include: a vane type respirometer; a flow transducer; and a pressure transducer.

9 Claims, 1 Drawing Sheet

