

Title (en)

METHOD AND APPARATUS FOR THE NON-INVASIVE DETERMINATION OF CARDIAC OUTPUT

Title (de)

VERFAHREN UND VORRICHTUNG ZUR NICHT-INVASIVEN BESTIMMUNG DES HERZZEITVOLUMENS

Title (fr)

PROCEDE ET DISPOSITIF DE DETERMINATION NON INVASIVE D'UNE SORTIE CARDIAQUE

Publication

EP 1131000 A4 20030514 (EN)

Application

EP 99960446 A 19991117

Priority

- US 9927297 W 19991117
- US 10879098 P 19981117

Abstract (en)

[origin: WO0028881A2] A method and apparatus for the non-invasive determination of the cardiac output of a subject, by: (a) causing the subject to inhale and exhale air via a respiratory tube in a plurality of breathing cycles including normal breathing cycles in which the inhaled air does not receive any significant amount of exhaled air from the preceding cycle, and rebreathing cycles in which the inhaled air receives an end tidal portion of the exhaled air from the preceding cycle; (b) measuring the carbon dioxide content in the exhaled air during both the normal breathing cycles and the rebreathing cycles; and (c) utilizing the carbon dioxide content measurements to determine the cardiac output of the subject. The carbon dioxide content is preferably measured by: (1) measuring the carbon dioxide concentration in the exhaled air during both the normal breathing cycles and the rebreathing cycles; (2) propagating ultrasonic pulses obliquely through the air passing through the respiratory tube; (3) measuring the transit times of the pulses; (4) computing from the measured transit times the flow volume; and (5) multiplying the flow volume by the measured carbon dioxide concentration.

[origin: WO0028881A2] A method and apparatus for the non-invasive determination of cardiac output of a subject, by: (a) causing the subject to inhale and exhale air via a respiratory tube in a plurality of breathing cycles including normal breathing cycles in which the inhaled air does not receive any significant amount of exhaled air from the preceding cycle, and rebreathing cycles in which the inhaled air receives an end tidal portion of the exhaled air from the preceding cycle; (b) measuring the carbon dioxide content in the exhaled air during both the normal breathing cycles and the rebreathing cycles; and (c) utilizing the carbon dioxide content measurements to determine the cardiac output of the subject.

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Citation (search report)

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- [A] US 4581942 A 19860415 - OGURA ICHIRO [JP], et al
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- [YD] CAPEK J M ET AL: "NONINVASIVE MEASUREMENT OF CARDIAC OUTPUT USING PARTIAL CO2 REBREATHING", IEEE TRANSACTIONS ON BIOMEDICAL ENGINEERING, IEEE INC. NEW YORK, US, vol. 35, no. 9, 1 September 1988 (1988-09-01), pages 653 - 661, XP000209300, ISSN: 0018-9294
- See references of WO 0028881A2

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