



US 20060074322A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2006/0074322 A1****Nitzan**(43) **Pub. Date: Apr. 6, 2006**(54) **MEASURING SYSTOLIC BLOOD PRESSURE  
BY PHOTOPLETHYSMOGRAPHY****Publication Classification**(75) Inventor: **Meir Nitzan, Bet El (IL)**(51) **Int. Cl.****A61B 5/02** (2006.01)(52) **U.S. Cl.** ..... **600/485; 600/490**

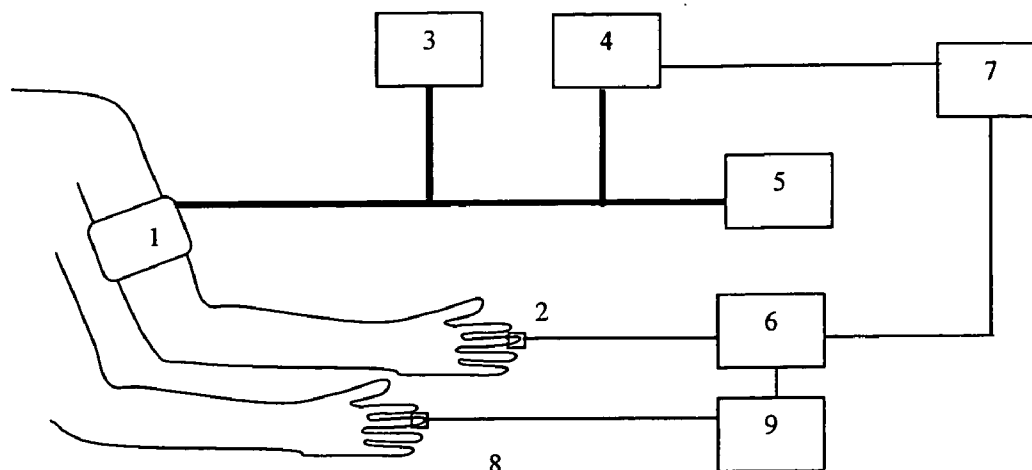
Correspondence Address:

**Dr. MARK FRIEDMAN LTD.****C/O BILL POLKINGHORN****DISCOVERY DISPATCH****9003 FLORIN WAY****UPPER MARLBORO, MD 20772 (US)**

(57)

**ABSTRACT**(73) Assignee: **Jerusalem College of Technology**(21) Appl. No.: **10/952,815**(22) Filed: **Sep. 30, 2004**

The present invention relates to cuff-based method for the measurement of systolic blood pressure (SBP) by measuring photoplethysmographic (PPG) signals in peripheral blood vessels distal to the cuff and to a method for cuffless measurement of SBP by analyzing PPG signals in peripheral blood vessels, after suitable calibration by the cuff-based PPG method for the measurement of SBP.



Schematic drawing of the cuff-based calibration in the cuffless blood pressure measurement system: 1. Pressure cuff. 2. PPG probe in a finger distal to the pressure cuff. 3. Mercury manometer (optional). 4. Piezoelectric transducer. 5. Pressure pump and its electronic control. 6. Electronic control of the distal PPG probe. 7. Digital analysis of the PPG and piezoelectric transducer signals. 8. PPG probe in the finger in a free hand. 9. Electronic control of the free-hand PPG probe.