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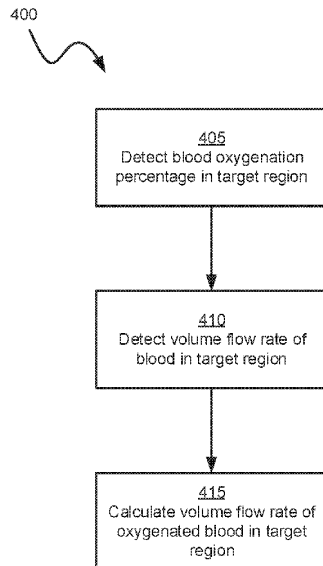


FIG. 4

(57) Abstract: An apparatus and method for calculating a volume flow rate of oxygenated blood is provided. The apparatus includes a support configured to be removable adhered at a target region; an optical sensor secured to the support to detect an absorption of light by blood flowing through the target region for determining a blood oxygenation percentage; a magnetic sensor secured to the support to detect changes in a magnetic field in the target region for determining a flow rate; and a processor coupled to at least one of the optical sensor and the magnetic sensor for determining the blood oxygenation percentage, the flow rate, and a volume flow rate of oxygenated blood flowing through the target region based on the blood oxygenation percentage and the flow rate.