United States Patent [19]

Erickson et al.

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[54] **APPARATUS FOR DISCRIMINATION OF STABLE AND UNSTABLE VENTRICULAR TACHYCARDIA AND FOR TREATMENT THEREOF**

[75] Inventors: **Mark K. Erickson**, Minneapolis; **Tom D. Bennett**, Shoreview, both of Minn.

[73] Assignee: **Medtronic, Inc.**, Minneapolis, Minn.

[21] Appl. No.: **663,985**

[22] Filed: **Mar. 1, 1991**

[51] Int. Cl.⁵ A61N 1/39
[52] U.S. Cl. .... 128/419 D
[58] Field of Search .... 128/419 D, 419 PG

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Primary Examiner—William E. Kamm
*Attorney, Agent, or Firm*—Reed A. Duthler; Harold R. Patton

[57] **ABSTRACT**

A method and apparatus for discriminating between stable and unstable ventricular tachycardias based on a measurement of oxygen saturation. Reference values for average oxygen saturation level and of the pulsatile characteristic of the oxygen saturation level are taken while a patient is in a resting condition. Measurements of oxygen saturation are also taken in response to the detection of a high heart rate, and are compared to the reference measurements to discriminate between stable and unstable ventricular tachyarrhythmias. An unstable tachyarrhythmia is diagnosed if a tachycardia is diagnosed and the current oxygen saturation level is similar to the reference average oxygen saturation level or if the oxygen saturation as presently measured displays a decreased pulsatile characteristic as compared to the reference measurements. The discriminator is intended for use in conjunction with or as part of an automated cardioverter of the type capable of delivering differing therapies for termination of stable and unstable ventricular tachyarrhythmias, such as antitachycardia pacing, cardioversion and defibrillation.

20 Claims, 7 Drawing Sheets

ECG

O_2 SAT

2

4

3

FIG. I
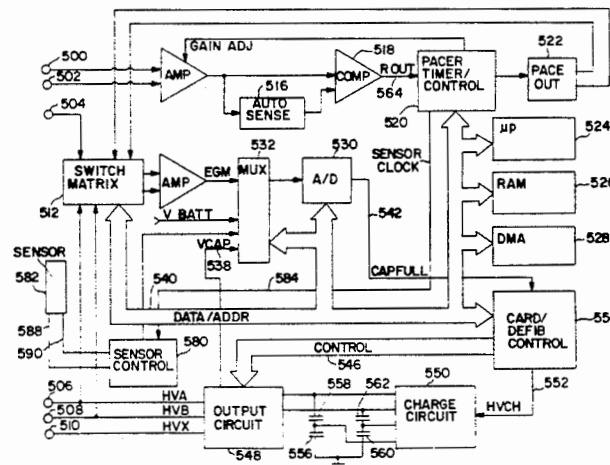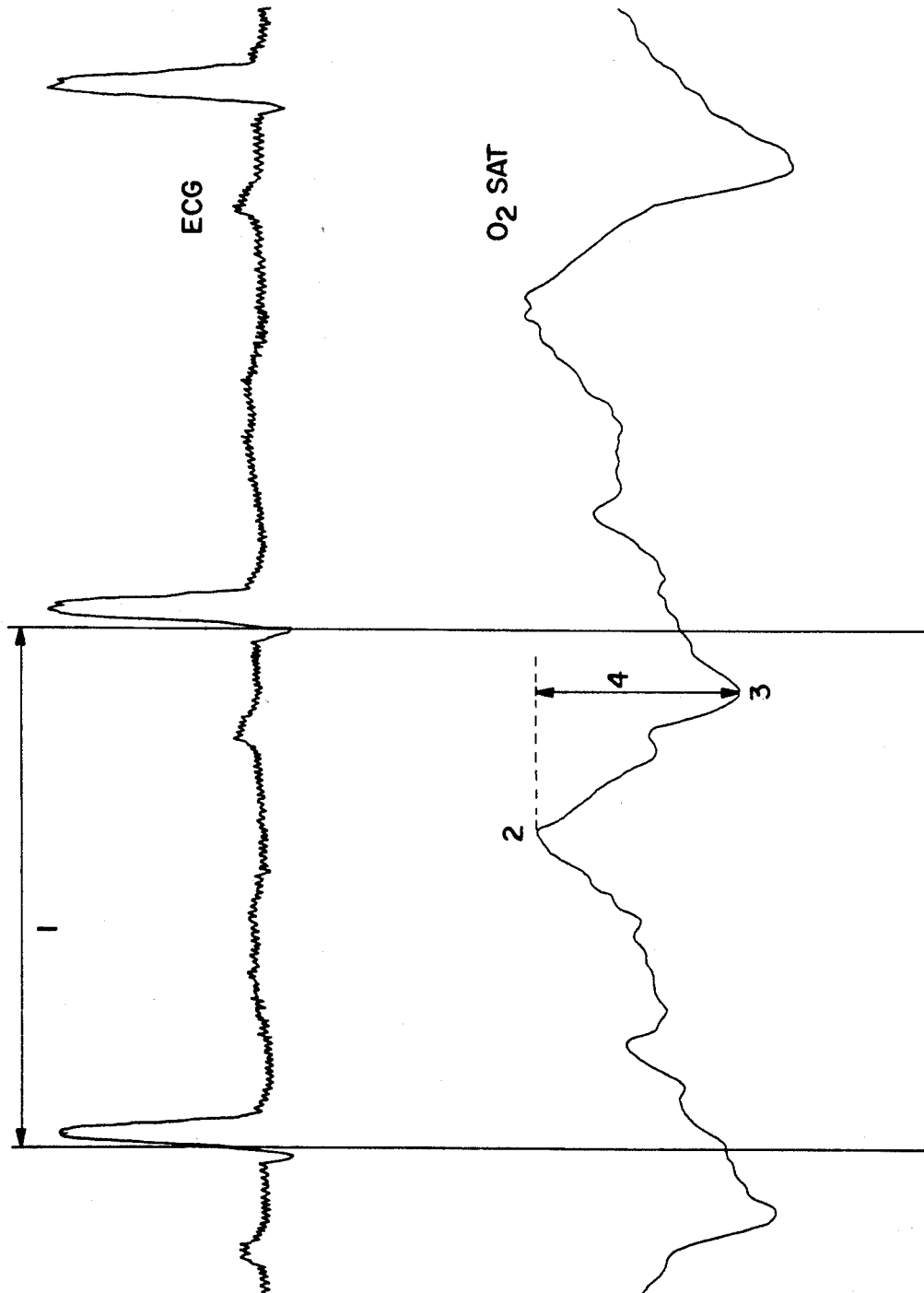
FIG.2

FIG.3

FIG.4

DOCKET ALARM
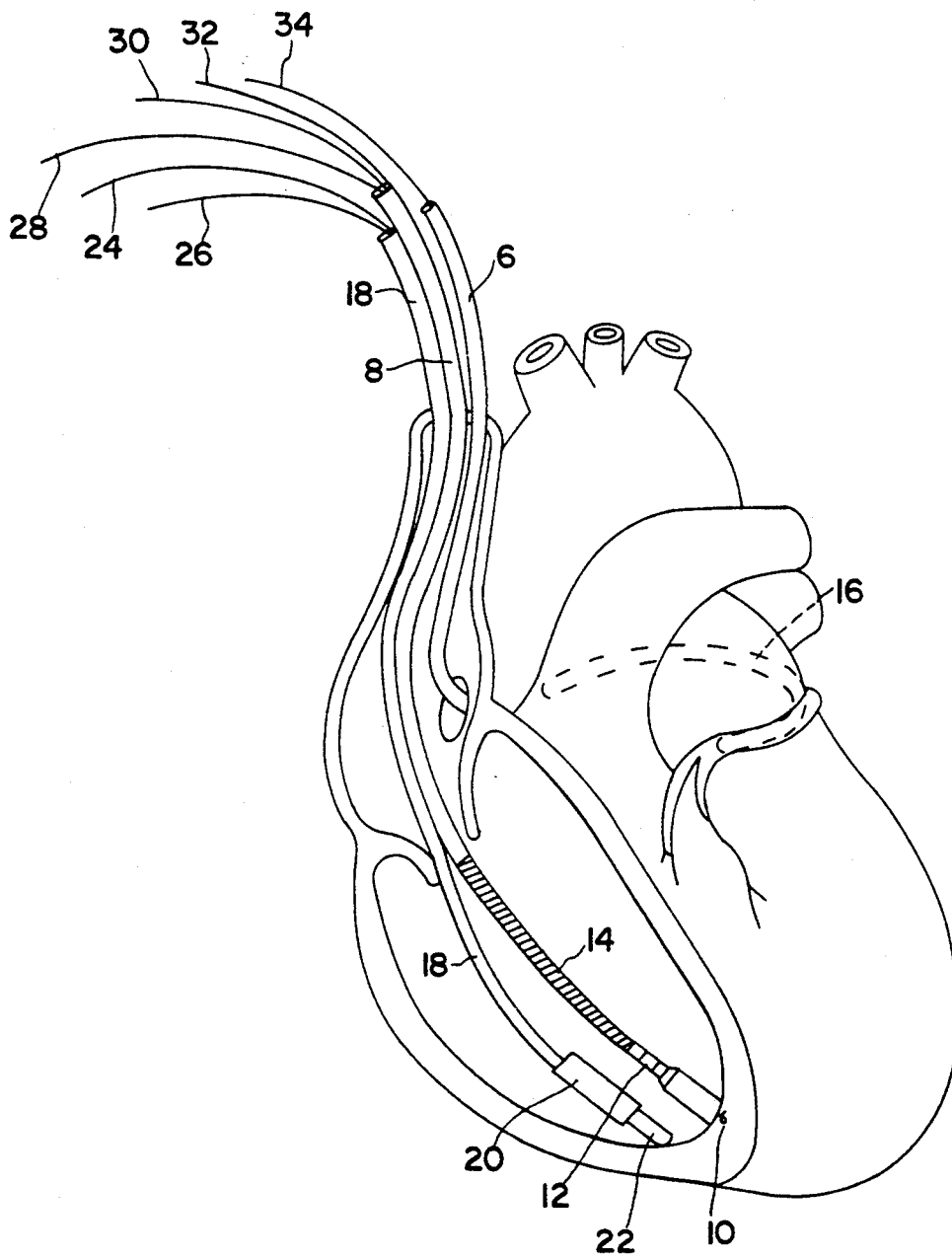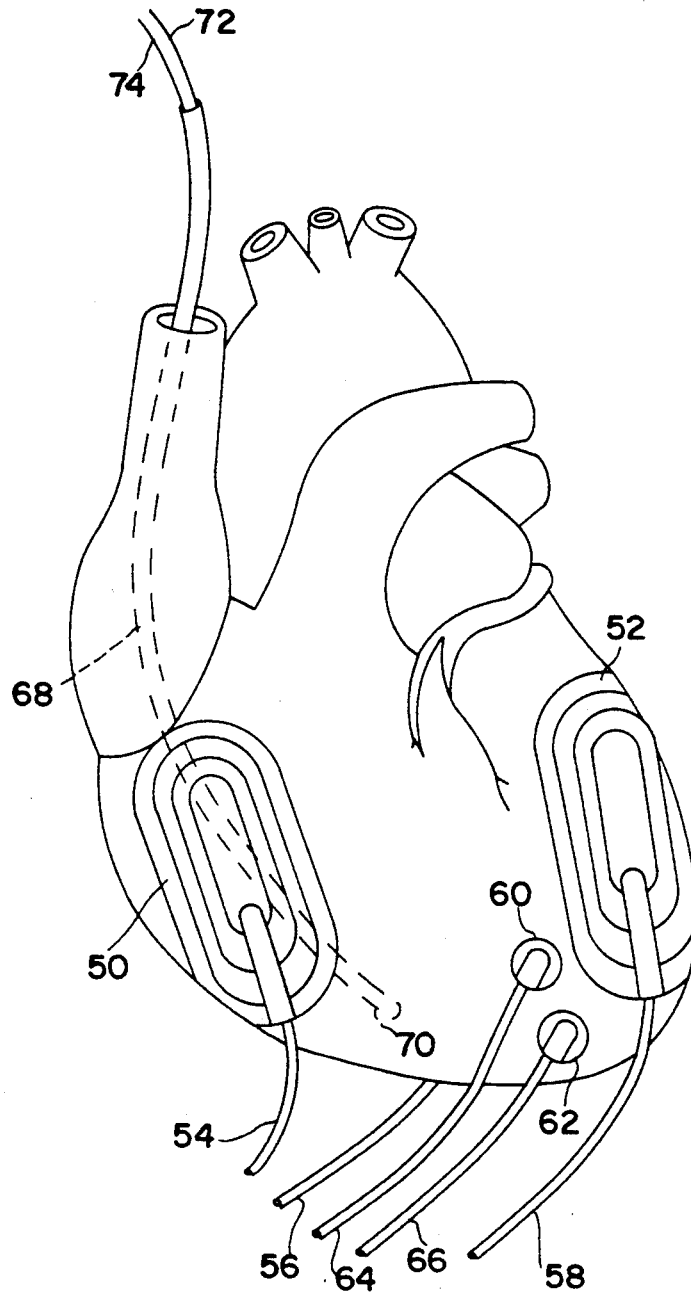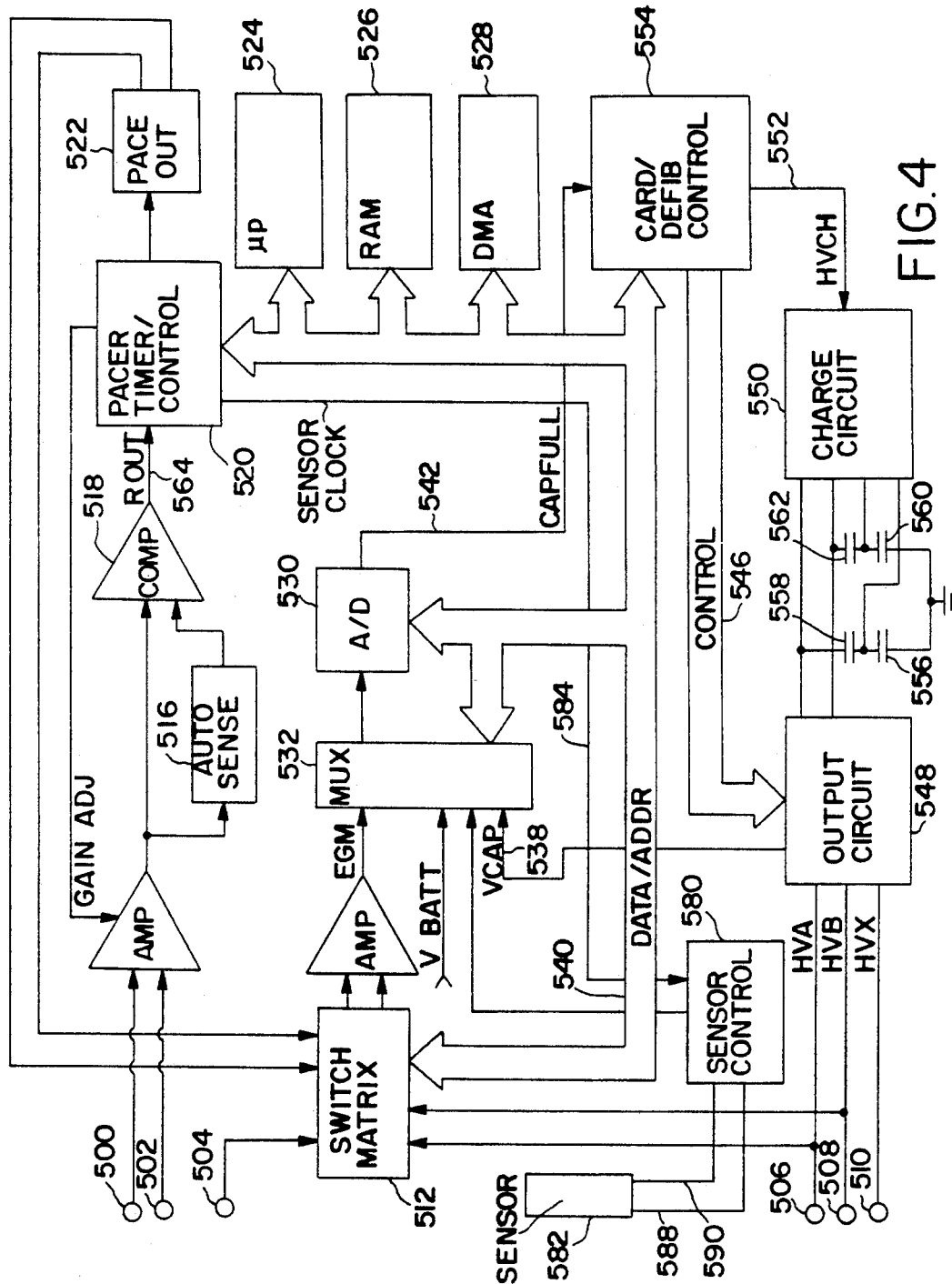
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