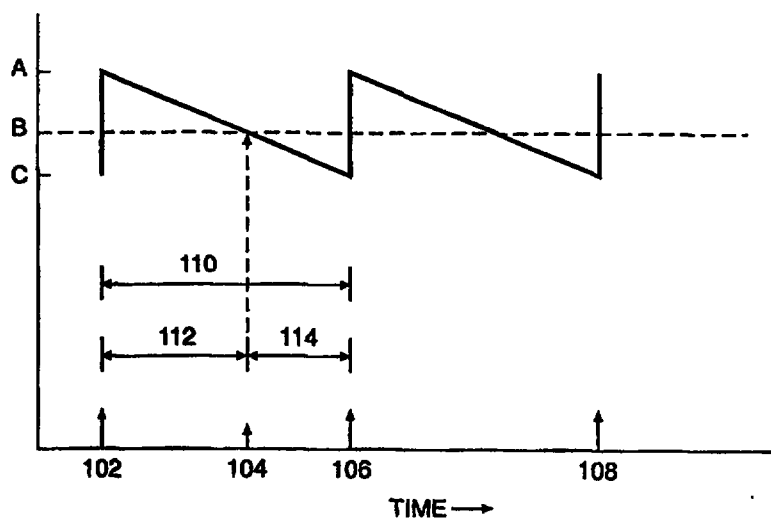




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61N 1/368	A1	(11) International Publication Number: WO 99/61101 (43) International Publication Date: 2 December 1999 (02.12.99)
(21) International Application Number: PCT/US99/11375 (22) International Filing Date: 21 May 1999 (21.05.99) (30) Priority Data: 09/084,571 26 May 1998 (26.05.98) US (71)(72) Applicant and Inventor: MOWER, Morton, M. [US/US]; 3908 N. Charles Street #1001, Baltimore, MD 21218 (US). (74) Agents: ROBERTS, Jon, L. et al.; Roberts & Abokhair, LLC, Suite 1000, 11800 Sunrise Valley Drive, Reston, VA 20191-5403 (US).	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report.	

(54) Title: METHOD ALLOWING CYCLIC PACING WITH AVERAGE RATE JUST ABOVE THE INTRINSIC RATE



(57) Abstract

Method and apparatus for cyclic ventricular pacing starting at a rate just above the intrinsic atrial firing rate (overdrive pacing), followed by relaxation to a rate just below the intrinsic atrial firing rate (ventricular escape). The method and apparatus can be applied to one or both ventricles, and can utilize one or more electrodes per ventricle. The electrode(s) can be applied to inner or outer ventricular surfaces. Relaxation protocols as a function of time can be linear, curvilinear to include exponential, or mixtures thereof. Furthermore, relaxation protocols can include one or more periods of time during which the pacing rate is held constant. Typically, the average ventricular pacing rate using this invention will be slightly greater than the intrinsic atrial firing rate, though alternate embodiments that encompass average ventricular pacing rates that are equal to or slightly less than the intrinsic atrial firing rate are also envisioned. Application of this method and apparatus to a heart in need thereof will produce a heart with an optimally minimized energy output requirement.