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Monteiro

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(54) **SUBSURFACE ELECTRODES FOR ELECTRIC FIELD SHAPING WITH WRAPPING SUPPORTING STRUCTURES**

(71) Applicant: **Sergio Lara Pereira Monteiro**, Los Angeles, CA (US)

(72) Inventor: **Sergio Lara Pereira Monteiro**, Los Angeles, CA (US)

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This patent is subject to a terminal disclaimer.

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CPC **A61N 1/3686** (2013.01); **A61N 1/36185** (2013.01); **A61N 1/025** (2013.01); **A61N 1/375** (2013.01)

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See application file for complete search history.

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Primary Examiner — Lindsey G Wehrheim

(57) **ABSTRACT**
An electric stimulator for heart (as in heart pacemakers), brain (as in DBS), organs and general cells, with a supporting structure where there exists a plurality of electrically isolated electrodes called passive electrodes or field-shaping electrodes that are located under the surface of the supporting structure. The passive electrodes are controlled by an appropriate electronics control unit and powered by some electric energy storage, as a battery. Passive or field-shaping electrodes are electrically insulated, being unable to inject current in the surrounding medium, but they are capable of shaping the electric field in the space surrounding the electrodes, which has consequence on the path of the stimulating currents injected by other devices or by the organism itself. The invention also discloses locating the passive electrodes on surfaces that surround the desired target volume.

20 Claims, 21 Drawing Sheets

