

Title (en)

METHODS AND SYSTEMS FOR TREATING HEART FAILURE WITH VIBRATIONAL ENERGY

Title (de)

VERFAHREN UND SYSTEME ZUR BEHANDLUNG VON HERZINSUFFIZIENZ MIT VIBRATIONSENERGIE

Title (fr)

PROCEDES ET SYSTEMES POUR LE TRAITEMENT DE L'INSUFFISANCE CARDIAQUE AVEC L'ENERGIE VIBRATOIRE

Publication

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Application

**EP 04755327 A 20040615**

Priority

- US 2004019084 W 20040615
- US 47934703 P 20030617
- US 49618403 P 20030818
- US 49617903 P 20030818
- US 50771903 P 20030930
- US 51813803 P 20031106
- US 52894003 P 20031210
- US 52893903 P 20031210

Abstract (en)

[origin: WO2004112895A1] Methods and systems for pacing the heart include a vibrational transducer (14), which directs vibrational energy at the heart, usually including at least one ventricle, to pace the heart to promote synchronized contraction of the ventricles. Optionally, additional vibrational and/or electrical stimulation (12) may be provided.

IPC 8 full level

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IPC 8 main group level

**A61N** (2006.01)

CPC (source: EP US)

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Citation (search report)

- [XY] US 6110098 A 20000829 - RENIRIE ALEXIS [NL], et al
- [X] EP 0617981 A1 19941005 - SIEMENS ELEMA AB [SE]
- [X] US 5935158 A 19990810 - HOLMSTROEM NILS [SE], et al
- [X] EP 0112082 A2 19840627 - CANADIAN PATENTS DEV [CA]
- [Y] WO 9639079 A1 19961212 - IMARX PHARMACEUTICAL CORP [US]
- [Y] WO 0215768 A2 20020228 - TIMI 3 SYSTEMS INC [US]
- [Y] US 6575956 B1 20030610 - BRISKEN AXEL F [US], et al
- See references of WO 2004112887A2

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**WO 2004112895 A1 20041229**; AT E462471 T1 20100415; DE 602004026308 D1 20100512; EP 1641519 A2 20060405; EP 1641519 A4 20081001; EP 1641526 A2 20060405; EP 1641526 A4 20080910; EP 1641528 A1 20060405; EP 1641528 A4 20080903; EP 1641528 B1 20100331; EP 1644078 A2 20060412; EP 1644078 A4 20081001; JP 2007523670 A 20070823; WO 2004112885 A2 20041229; WO 2004112885 A3 20050506; WO 2004112886 A2 20041229; WO 2004112886 A3 20050929; WO 2004112887 A2 20041229; WO 2004112887 A3 20050127

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