US009636518B2

(12) **United States Patent**
Schmidt

(10) **Patent No.: US 9,636,518 B2**
(45) **Date of Patent: May 2, 2017**

(54) **NESTED DOUBLE HELIX CONDUCTORS**

(71) Applicant: **Medical Energetics Ltd.**, Galway (IE)

(72) Inventor: **David G. Schmidt**, Poway, CA (US)

(73) Assignee: **Medical Energetics Ltd.**, Galway (IE)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 332 days.

(21) Appl. No.: **14/506,451**

(22) Filed: **Oct. 3, 2014**

(65) **Prior Publication Data**

US 2015/0119632 A1 Apr. 30, 2015

Related U.S. Application Data

(60) Provisional application No. 61/962,014, filed on Oct. 28, 2013.

(51) **Int. Cl.**

A61N 2/02	(2006.01)
H03G 3/00	(2006.01)
H01F 27/00	(2006.01)
H01F 5/00	(2006.01)
H01F 27/28	(2006.01)
A61N 1/40	(2006.01)

(52) **U.S. Cl.**

CPC ***A61N 2/02*** (2013.01); ***H01F 5/00*** (2013.01); *A61N 1/40* (2013.01); *Y10T 307/305* (2015.04)

(58) **Field of Classification Search**

CPC A61N 2/02; A61N 1/40; Y10T 307/305; H01F 5/00

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,898,661	A	2/1933	Hagen
2,035,274	A	3/1936	Mougey
2,297,454	A	9/1942	Berger
2,850,666	A	9/1958	Brewer
3,037,175	A	5/1962	Ruthroff
3,066,295	A	11/1962	Krause
3,519,964	A	7/1970	Chorney
3,588,689	A	6/1971	Crawford
3,683,393	A	8/1972	Self
3,760,812	A	9/1973	Timm et al.
3,774,452	A	11/1973	Tullos et al.
4,131,759	A	12/1978	Felkel
4,229,676	A	10/1980	Manoly
4,266,532	A	5/1981	Ryaby et al.
4,439,702	A	3/1984	Belikov et al.
4,489,276	A	12/1984	Yu
4,832,051	A	5/1989	Jarvik et al.
4,989,617	A	2/1991	Memberg
5,077,934	A	1/1992	Liboff et al.
5,079,458	A	1/1992	Schuster
5,173,669	A	12/1992	Manoly

(Continued)

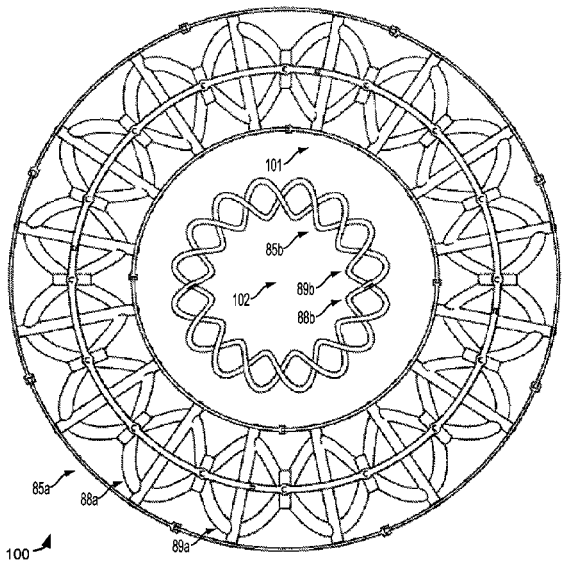
FOREIGN PATENT DOCUMENTS

GB	479841	A	2/1938
GB	2480610	A	11/2011

(Continued)

Primary Examiner — Christine H Matthews
Assistant Examiner — Joshua D Lannu
(74) *Attorney, Agent, or Firm* — Sheppard Mullin Richter & Hampton LLP

(57) **ABSTRACT**

An electrical system including multiple bodies having an underlying structure resembling a double helix may be used to produce useful electromagnetic fields for various applications.

34 Claims, 14 Drawing Sheets