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(54) Title: EDDY CURRENT INDUCED HYPERTHERMIA USING CONDUCTIVE PARTICLES

FIG. 2

**(57) Abstract:** Technologies are generally described for hyperthermia based treatment of diseased tissues using conductive particles. Conductive particles of known composition and size distribution may be implanted in diseased tissue and exposed to an alternating magnetic field, which may be tuned to the size of the metal particles to induce eddy currents producing heat in the implanted particles. As the temperature of the metal particles increases, their resistance also increases due to their positive temperature coefficient of resistivity. An antenna placed externally to the body near metal particles may be part of a tuned RF circuit and scanned for resonance. The change either in resonance frequency or circuit impedance may provide tuned feedback, which may be used to control the hyperthermia treatment.

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International application No.

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**A. CLASSIFICATION OF SUBJECT MATTER**

**IPC(8)** - A61N 2/00, A61B 18/18 (2016.01)

**CPC** - A61N 1/406, G01K 7/38, A61B 18/18, A61N 1/08

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

CPC - A61N 1/406, G01K 7/38, A61B 18/18, A61N 1/08

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CPC - A61N 1/406, G01K 7/38, A61B 18/18, A61N 1/08

IPC(8) - A61N 2/00, A61B 18/18 (2016.01); USPC - 606/41, 600/10 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Patbase; Google Web, Google Patent

Search terms used: hyperthermia heating thermotherapy inductive magnetic field eddy current alternating field reverse orientation particles nanoparticles ferromagnetic resonance frequency circuit temperature measuring determining

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2008/0281318 A1 (HERBETTE et al.) 13 November 2008 (13.1.2008), para [0002], [0003], [0007], [0020]-[0022], [0032]-[0034]; Fig 1	1-26
Y	US 2005/0021088 A1 (SCHULER et al.) 27 January 2005 (27.01.2005), para [0032], [0037], [0043H0047], [0070], [0080], [0081]	1-26
Y	US 2003/0139739 A1 (DOSCHER et al.) 24 July 2003 (24.07.2003), para [0076]-[0079]; abstract	2, 14, 15
Y	US 2006/0142748 A1 (FOREMAN) 29 June 2006 (29.06.2006), para [0088]; abstract	23
A	US 2006/0009826 A1 (GLEICH) 12 January 2006 (12.01.2006), entire document	1-26
A	US 2003/0028071 A1 (HANDY et al.) 06 February 2003 (06.02.2003), entire document	1-26
A	US 2003/0139787 A1 (EGGERS et al.) 24 July 2003 (24.07.2003), entire document	1-26
A	US 2008/0213382 A1 (IVKOV et al.) 04 September 2008 (04.09.2008), entire document	1-26

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