



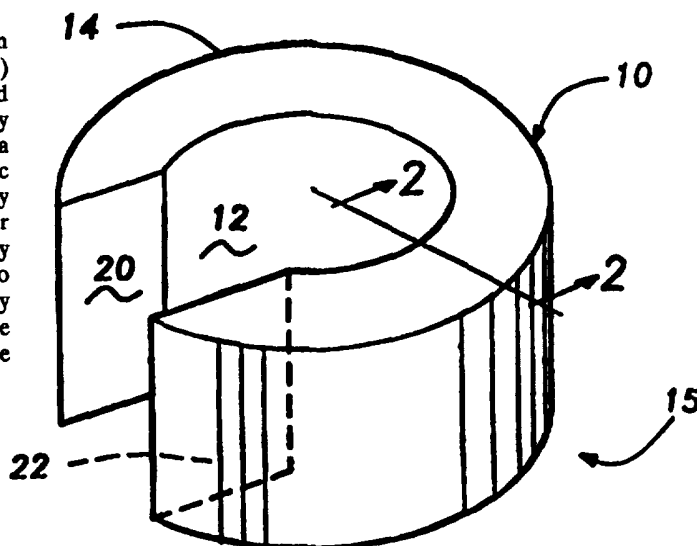
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/US96/14182 (22) International Filing Date: 14 August 1996 (14.08.96) (30) Priority Data: 08/515,268 15 August 1995 (15.08.95) US (71) Applicant: UAB RESEARCH FOUNDATION [US/US]; 1120G Administration Building, 701 20th Street South, Birmingham, AL 35294-0111 (US). (72) Inventor: VAUGHAN, John, Thomas; 6 Lovell Road, Lynn- field, MA 01940 (US). (74) Agents: COGEN, Ellen, S. et al.; Suite 400, 280 N. Woodward Avenue, Birmingham, MI 48009 (US).</p>		<p>(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 10 April 1997 (10.04.97)</p>

(54) Title: CAVITY RESONATOR FOR NMR SYSTEMS

(57) Abstract

A cavity resonator (15) is disclosed for use in nuclear magnetic resonance systems. The resonator (15) has a housing (10) defining a cavity having a selected length and cross-sectional shape. A layer of electrically conductive material is provided around at least a portion of the housing (10) enclosing a dielectric material (62) (air, gasses, Teflon™, etc.) and the cavity is energized at a Larmor radio frequency useful for NMR systems. The cavity, i.e. a volume enclosed by conductive walls, furthermore, is dimensioned to resonate at the selected radio frequency to thereby generate an alternating magnetic field through the cavity. An opening in the housing is adapted to be placed adjacent an object to be analyzed.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US96/14182

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(6) :G01R 33/28
 US CL :324/318
 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)
 U.S. : 324/300, 312, 314, 316, 318, 322; 333/219, 219.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 None

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US, A, 5,139, 024 (BRYANT ET AL) 18 August 1992, see figures 2-3, 5-9 and 15-17.	1-3, 8-10, 14-16, 18-20, 23
Y	US, A, 4,751,464 (BRIDGES) 14 June 1988, see figures 1-3 and column 4, lines 50-66.	1-23
Y	US, A, 5,017,872 (FOO ET AL) 21 May 1991, see figures 1 and 6.	1-23
Y	US, A, 5,311,160 (HIGUCHI ET AL) 10 May 1994, see figure 3.	22
A	US, A, 4,717,880 (ONO ET AL) 05 January 1988, see figure 1.	1-23

Further documents are listed in the continuation of Box C. See patent family annex.

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