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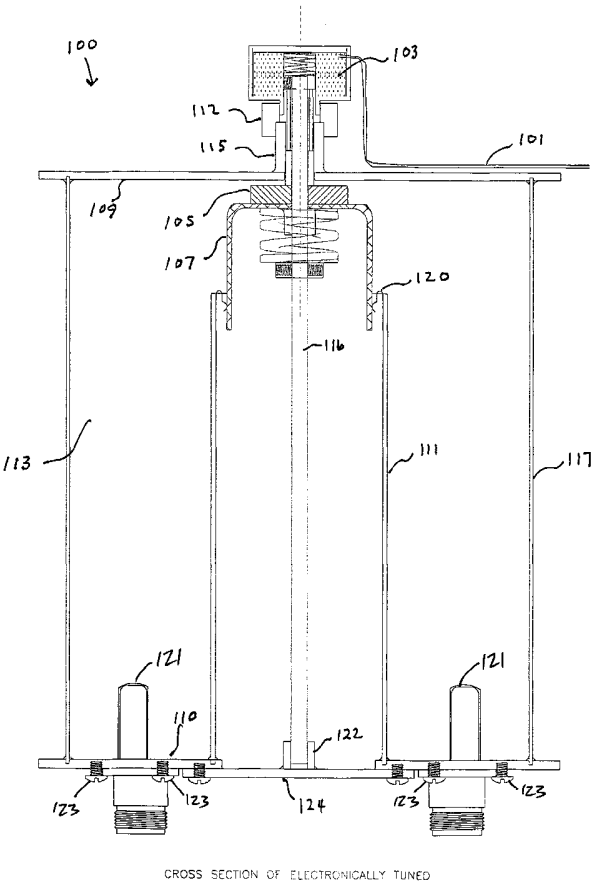
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[Continued on next page]

(54) Title: CERAMIC LOADED TEMPERATURE COMPENSATING TUNABLE CAVITY FILTER



CROSS SECTION OF ELECTRONICALLY TUNED

(57) Abstract: A high Q RF cavity resonator loaded with a ceramic disc, the resonator comprising an inner conductive post having a length less than a quarter wavelength. The resonance frequency of the resonator is tunable by changing a distance between a) an outer plate and b) a ceramic disc and an end cap where the ceramic disc is located between the outer plate and the end cap. The resonance frequency can be tuned when the outer plate, ceramic disc, and end cap are in contact with each other by varying a pressure between the contact surfaces of the ceramic disc, the end cap and the outer plate. Temperature compensation allows the resonator to hold a resonance frequency despite changes in temperature, and can be achieved by selecting thermal coefficients of expansion of components holding or placing the ceramic disc and end cap relative to the outer plate.

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FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US05/21491

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **H01P 7/04**(2006.01)

USPC: 333/223,234
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. : 333/223, 234, 222, 224, 226, 227, 229, 231

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,477,786 (TAMURA et al.) 16 October 1984 (16.10.1984), entire document.	1 and 10
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A		2-9 and 11-24
Y	US 4,389,624 (AIHARA et al.) 21 June 1983 (21.06.1983), entire document.	1 and 10
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A		2-9 and 11-24

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

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INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:
EAST: US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TD
Search terms: ceramic, loaded, temperature, cavity, load, load$4, resonator, plate disc, resonating, resonate, resonance, post dielectric, inner center, conductor, outer, inner center, post rod, conduct$4, metal$5, rod post, housing, conductive, metal$5, screw, capacitance, thermal, expansion, coefficient, thermal, expansion, pressure, frequency, internal, conductor cylinder, housing cavity, ceramic dielectric, shaft, collar, coil, spring, tem coaxial, capacitance inductance, distance spacing, distance space$4