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21703-6815 (US). CRUICKSHANK, David, B. [GB/US]; 11411 Crownwood Lane, Rockville, MD 20850-3573 (US). FIROR, David, M. [US/US]; 11421 Hessong Bridge Road, Thurmont, MD 21788-2518 (US).

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[Continued on next page]

(54) Title: CO-FIRING OF MAGNETIC AND DIELECTRIC MATERIALS FOR FABRICATING COMPOSITE ASSEMBLIES FOR CIRCULATORS AND ISOLATORS

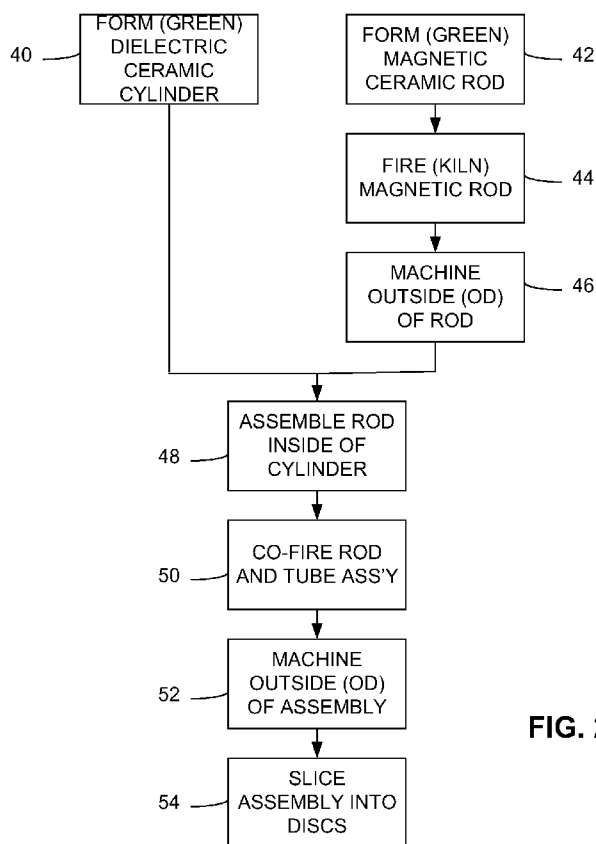


FIG. 2

(57) Abstract: A method for making a composite magnetic-dielectric disc assembly includes forming a dielectric ceramic cylinder, forming a magnetic ceramic rod, assembling the magnetic ceramic rod coaxially inside the dielectric ceramic cylinder to form a rod-and-cylinder assembly, kilning (firing) the rod-and-cylinder assembly, slicing the rod-and-cylinder assembly to form a plurality of composite magnetic-dielectric disc-shaped assemblies. The magnetic-dielectric disc assemblies can be used in manufacturing, for example, circulators, isolators or similar electronic components. Accordingly, the method for making the disc assemblies can be included as part of a method for making such electronic components.



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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)

IPC : H01P, H01G

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

Korean Utility models and applications for Utility models since 1975  
Japanese Utility models and applications for Utility models since 1975

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

eKOMPASS (KIPO internal) &amp; keywords : composite, magnetic, dielectric, cylinder\*, isolator\*, circulator\*, assembl\*.

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 08078284 A (MURATA MFG CO LTD ) 1996.03.22 See the abstract; claims 1, 6; figures 1 - 3.	1-7
A	US 6,504,444 B1 (Furuya; Mitsuru, Myohga; Osamu, Okada; Yoshitsugu ) 2003.01.07 See the abstract; claim 1; figure 1.	1-7
A	US 6,844,789 B2 (Lombardi Robert B., Pleva Joseph S., Rowland Landon, Setzco Paul ) 2005.01.18 See the abstract; figure 1.	1-7
A	V T Zaspalis et al. Materials for inductive and microwave function integration in LTCC- technology multichip modules. Journal of Physics: Conference Series 10(2005) 357-360. See whole document.	1-7

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

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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