


# Patent Asset Discovery and Recovery Service



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Segal et al.

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(54) **ELECTROMECHANICAL MEMORY ARRAY USING NANOTUBE RIBBONS AND METHOD FOR MAKING SAME**

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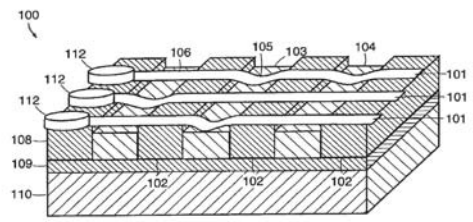
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(57) **ABSTRACT**

Electromechanical circuits, such as memory cells, and methods for making same are disclosed. The circuits include a structure having electrically conductive traces and supports extending from a surface of the substrate, and nanotube ribbons suspended by the supports that cross the electrically conductive traces, wherein each ribbon comprises one or more nanotubes. The electro-mechanical circuit elements are made by providing a structure having electrically conductive traces and supports, in which the supports extend from a surface of the substrate. A layer of nanotubes is provided over the supports, and portions of the layer of nanotubes are selectively removed to form ribbons of nanotubes that cross the electrically conductive traces. Each ribbon includes one or more nanotubes.

36 Claims, 16 Drawing Sheets



# PATENT ASSET DISCOVERY AND RECOVERY SERVICE

## *iValue* LLC

### **Background**

*iValue* is an independent multidisciplinary leader in methods for creating value from technology. As the name suggests, we care about the thoughtful use of technology. The Firm solves the most challenging problems encountered with the commercialization and management of technology.

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## Management

**Christopher Gardner** is the founder of *iValue* and an industry leader in technology strategy. He is the author of *The Valuation of Information Technology* (John Wiley & Sons, 2000) which was favorably reviewed by the Harvard Business School, and *Measuring Value in Healthcare* (2008) highlighted as among the best papers on the science website arXiv.org. Previously he was a Partner at PricewaterhouseCoopers, a VP at Bain & Co, a Principal at A.T. Kearney and a Specialist at McKinsey and Co. He holds an MBA in Finance and a BS/BA in Physics from the University of Chicago. **Pierre Jean Everaert** is a distinguished thought leader at *iValue* and a top executive who has led a series of major international acquisitions. He is a Senior Advisor for Clearwater Capital Partners, was Chairman of the Board of InBev NV/SA, and served as Chairman and/or CEO/President of Baan, Philips Electronics NV, Koninklijke Ahold NV, and General Biscuits. He has served on numerous boards including Euroasia, Paribas NV, Scott Paper, Burry Inc., Ezaki-Glico, and various government associations. **Khasha Mohammadi** is a practice leader at *iValue* and an expert on patent strategies. At Bell Laboratories he helped develop industry standards and technologies as well as system architectures. He has received three patents and is an adjunct professor at Stevens Institute of Technology. He holds Masters and Ph.D. degrees in Electrical Engineering from the University of Minnesota. **Thomas Morgan** is a practice leader at *iValue* who has served over 200 enterprises in the negotiation, design, construction, and operation of large complex systems. Previously he was a Partner at PricewaterhouseCoopers. He is a member of IEEE/ASM, Carnegie Mellon University Software Engineering Institute, and the Project Management Institute. Tom holds a BS in Mathematics and Information Science from the University of Pittsburgh and the United States Military Academy.

## Senior Advisors

**Emanuele Ostuni** is a scientific advisor for *iValue* specializing in nanotechnology. He is currently Vice President of Business Development at NanoTerra and has completed a number of licensing deals and technical collaborations to commercialize research. He completed his PhD in Physical Chemistry at Harvard under the supervision of George Whitesides, and has co-authored over 30 publications and is co-inventor on over 30 patents. **Derek Reisfield** is an investment advisor for *iValue* noted for innovative deals. He launched Marketwatch which was sold to Dow Jones for more than \$500M, and CBS.Sportsline. He is the founder of i-Hatch Ventures, was President of the CBS New Media division and VP of Business Development at The Westinghouse Electric Corporation. **Michele Sprietsma** is a project advisor for *iValue*. She was a business development director and a senior product manager at Lucent Technologies. She holds an MS and a BS in Industrial Engineering and Operations Research from the Virginia Polytechnic Institute and State University. **Rainer Famulla** is a strategy advisor for *iValue* who has served large international corporations. He was a Senior Partner at Accenture, a Director at Bain & Company and a Senior Engagement Manager at McKinsey & Co. He holds a PhD in Economics from University of Karlsruhe, held a postgraduate fellowship at the University of Beijing, and worked for the United Nations in Latin America.

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