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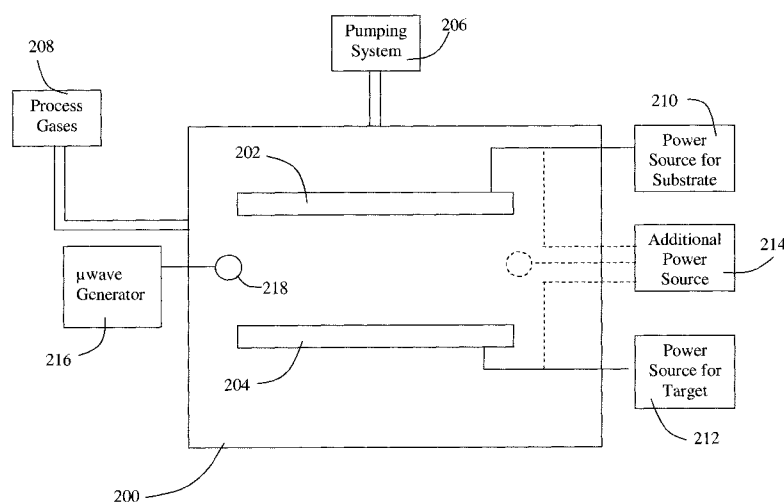


FIG. 2

(57) Abstract: A method of fabricating a layer of a thin film battery comprises providing a sputtering target and depositing the layer on a substrate using a physical vapor deposition process enhanced by a combination of plasma processes. The deposition process may include: (1) generation of a plasma between the target and the substrate; (2) sputtering the target; (3) supplying microwave energy to the plasma; and (4) applying radio frequency power to the substrate. A sputtering target for a thin film battery cathode layer has an average composition of $\text{LiM}_a\text{N}_b\text{Z}_c$, wherein $0.20 > (b/(a+b)) > 0$ and the ratio of a to c is approximately equal to the stoichiometric ratio of a desired crystalline structure of the cathode layer, N is an alkaline earth element, M is selected from the group consisting of Co, Mn, Al, Ni and V, and Z is selected from the group consisting of (PO_4) , O, F and N.

A. CLASSIFICATION OF SUBJECT MATTER***H01M 4/04(2006.01)i, H01M 4/48(2006.01)i, H01M 4/58(2006.01)i, C23C 14/00(2006.01)i***

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

H01M 4/04; B05D 5/12; C23C 14/34; H01M 4/48; H01M 4/52; H05H 1/00

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)

eKOMPASS(KIPO internal) & Keywords: physical vapor deposition, thin film, battery, plasma, microwave, and similar terms

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2006/0134522 A1 (ZHANG, H. et al.) 22 June 2006	1-8,11
Y	See abstract, figure 1A, paragraphs 0013, 0039, 0041, 0048, 0049, 0052, 0056	9,10
A	, 0058, 0059, 0061, 0067, 0068, 0072, 0090, 0114, table 1, claims 1, 2, 13, 36	12-15
Y	US 6376027 B1 (LEE, J. Y. et al.) 23 April 2002	9,10
A	See abstract, figures 1a-1b, col. 2, l. 50 - col. 3, l. 12, col. 3, ll. 33-4	1-8,11-15
A	3, col. 4, ll. 50-62, claims 1-2	
A	US 2004/0048157 A1 (NEUDECKER, B. J. et al.) 11 March 2004	1-15
	See abstract, paragraphs 0042, 0059, 0089, 0092, 0093, 0097, 0098, 0113, 0116, 0120, 0121, claims 1, 2, 13-15, 50, 106, 119	



Further documents are listed in the continuation of Box C.



See patent family annex.

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