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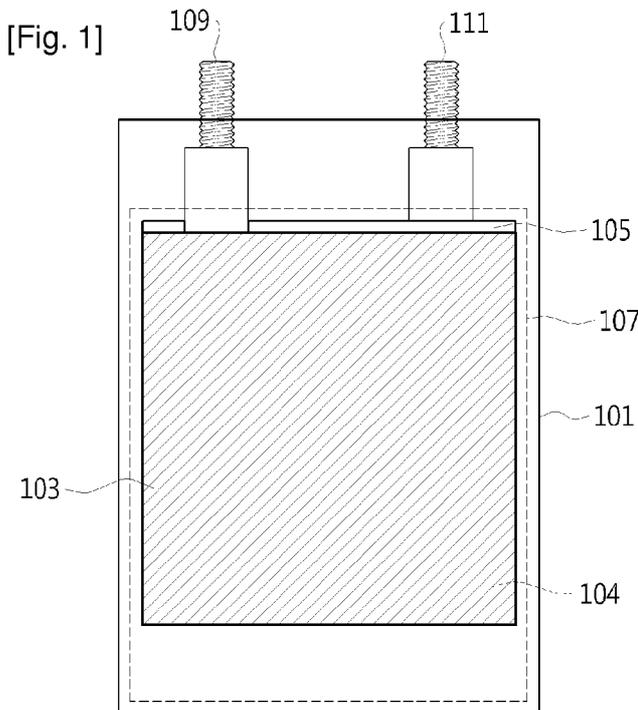
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[Continued on next page]

(54) Title: SECONDARY ZINC ALKALINE BATTERY INCLUDING SURFACE-MODIFIED NEGATIVE ELECTRODES AND SEPARATORS



(57) Abstract: The present disclosure relates to a secondary zinc alkaline battery including surface modified negative electrodes (103) and separators (107). The surface modified negative electrodes (103) and separators (107) may be coated with a dispersion solution or a gel electrolyte for coating. The dispersion solution is prepared by uniformly dispersing calcium zincate powder, calcium hydroxide powder or a mixture thereof in a binder or a thickening agent. The gel electrolyte contains 1 - 10 wt% of at least one gel polymer selected from the group consisting of PEO, PVA and PAAK, and 90-99wt% of 3-12M KOH solution. The secondary zinc alkaline battery relieves deformation of the zinc negative electrode and formation of dendrites caused by dissolution of the zinc negative electrode (303) in an alkaline solution.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC⁸: **H01M 10/26** (2006.01); **H01M 10/28** (2006.01); **H01M 10/0585** (2010.01);
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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)

IPC⁸: H01M

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)

EPODOC, WPI, X-FULL, IPDL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2004/185329 A1 (Kainthla et al.) 23 September 2004 (23.09.2004) <i>Abstract; Description, [0016] - [0020], [0025] - [0030], [0033]; Fig. 1; Claims 1 - 10, 13 - 16, 18 - 22</i>	1 - 14
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A	US 2003/113630 A1 (Kainthla et al.) 19 June 2003 (19.06.2003) <i>Abstract; Description, [0014], [0015], [0017] - [0019], [0028] - [0032], [0036]; Fig. 1; Claims 1, 2, 4, 6, 8 - 10, 12, 17, 19, 25</i>	1 - 14
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A	GB 2028569 A (Ministry of Commerce, Industry and Tourism, et al.) 5 March 1980 (05.03.1980) <i>Abstract; Description, p. 1, l. 82 - 129, p. 2, l. 1 - 57, 104 - 129, p. 3, p.4, l. 1 - 9; Claims 1, 5, 6, 11, 12</i>	1 - 14

Further documents are listed in the continuation of Box C.

See patent family annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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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
US A 2004185329		WO A2 2004084327	2004-09-30
		US A1 2004185329	2004-09-23
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