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[Continued on next page]

(54) Title: IRON-SULFIDE REDOX FLOW BATTERIES

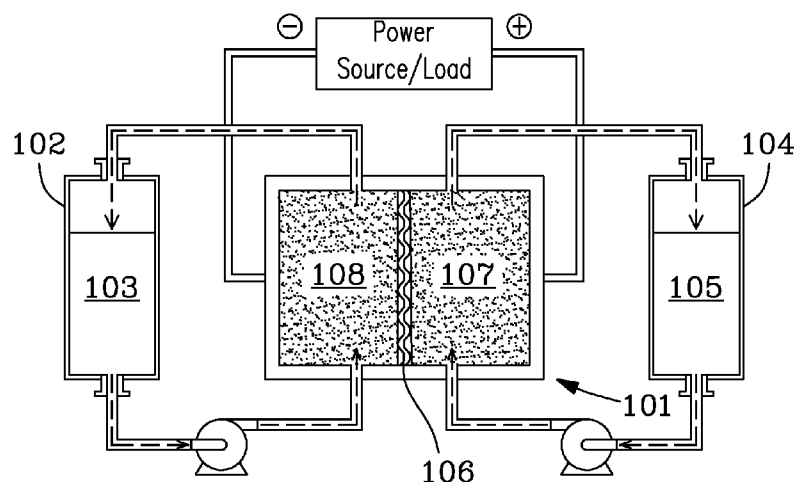


Fig. 1

(57) Abstract: Iron-sulfide redox flow battery (RFB) systems can be advantageous for energy storage, particularly when the electrolytes have pH values greater than 6. Such systems can exhibit excellent energy conversion efficiency and stability and can utilize low-cost materials that are relatively safer and more environmentally friendly. One example of an iron-sulfide RFB is characterized by a positive electrolyte that comprises Fe(III) and/or Fe(II) in a positive electrolyte supporting solution, a negative electrolyte that comprises S^{2-} and/or S in a negative electrolyte supporting solution, and a membrane, or a separator, that separates the positive electrolyte and electrode from the negative electrolyte and electrode.



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A. CLASSIFICATION OF SUBJECT MATTER***H01M 8/18(2006.01)i, H01M 8/02(2006.01)i***

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)

H01M 8/18; H01M 4/66; H01M 27/04; H01M 2/38; H01M 27/30; H01M 6/24

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

Japanese utility models and applications for utility models

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

eKOMPASS(KIPO internal) & Keywords: redox-flow,battery,electrolyte,Fe,S,membrane,ferricyanide

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 03920474A (ZITO, JR. RALPH et al.) 18 November 1975	1-4,7,10,11,16
Y	See abstract, column 2, line 3 - column 10, line 68, claims 1-9, figure 1-4	5,6,8,9,12-15,17
Y	US 04180623A (ADAMS; GEORGE B.) 25 December 1979 See abstract, column 4, line 58 - column 7, line 5, column 8, line 57 - column 10, line 13, claims 1-11, figure 1-2	5,6,8,9,12-15,17
A	US 05422197A (ZITO; RALPH) 06 June 1995 See abstract, column 5, line 9 - column 10, line 59, claims 1-12	1-17
A	US 2010-0227204 A1 (ZITO RALPH) 09 September 2010 See abstract, paragraphs [59]-[107],[120]-[121], claims 1-9	1-17



Further documents are listed in the continuation of Box C.



See patent family annex.

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"P" document published prior to the international filing date but later than the priority date claimed

"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

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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US 03920474A

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None

US 04180623A

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None