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(54) Title: SULFUR MANAGEMENT AND UTILIZATION IN MOLTEN METAL ANODE SOLID OXIDE FUEL CELLS

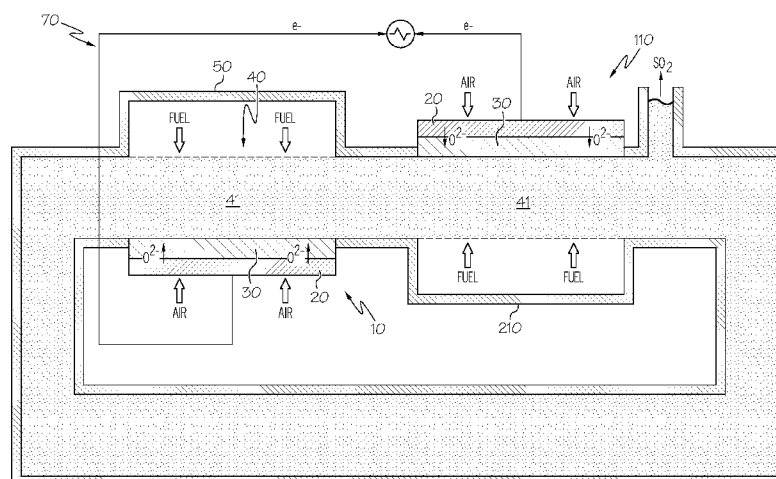


FIG. 3

(57) Abstract: Embodiments of a molten metal anode solid oxide fuel cell (MMA-SOFC) system comprise a first and second MMA-SOFC, a fuel contactor integral or in fluid communication with the first MMA-SOFC, a molten metal conduit that delivers molten metal from a first molten metal anode to a second molten metal anode, and one or more external electric circuits, wherein the first molten metal anode oxidizes molten metal to produce metal oxides and electrons. The fuel contactor reduces the metal oxides and produce metals and metal sulfides in the molten metal upon reaction with sulfur-containing fuel. The second molten metal anode oxidizes the metal sulfides in the metal sulfides-containing molten metal to produce metals and electrons, and the external electric circuits generate power from the electrons produced in the first and second MMA-SOFCs.



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B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) 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) EPO-Internal, WPI Data		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2011/014526 A1 (GUER TURGUT M [US]) 20 January 2011 (2011-01-20)	1-6, 8-32,37
Y	paragraphs [0014] - [0120]; figure 11 -----	7,19,20, 32-38
Y	US 2012/231366 A1 (WACHSMAN ERIC D [US] ET AL) 13 September 2012 (2012-09-13) paragraph [0015] -----	7
Y	WO 2007/112435 A2 (UNIV OHIO [US]; COOPER MATTHEW ELLIS [US]; BAYLESS DAVID J [US]; TREMB) 4 October 2007 (2007-10-04) paragraphs [0022] - [0053]; figure 7 -----	19,20, 32-38
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents :		
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "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

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US 2011014526	A1	20-01-2011	NONE
US 2012231366	A1	13-09-2012	NONE
WO 2007112435	A2	04-10-2007	US 2009252999 A1 08-10-2009 WO 2007112435 A2 04-10-2007