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Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

[Continued on next page]

(54) Title: SOLID-OXIDE FUEL CELL HIGH-EFFICIENCY REFORM-AND-RECIRCULATE SYSTEM

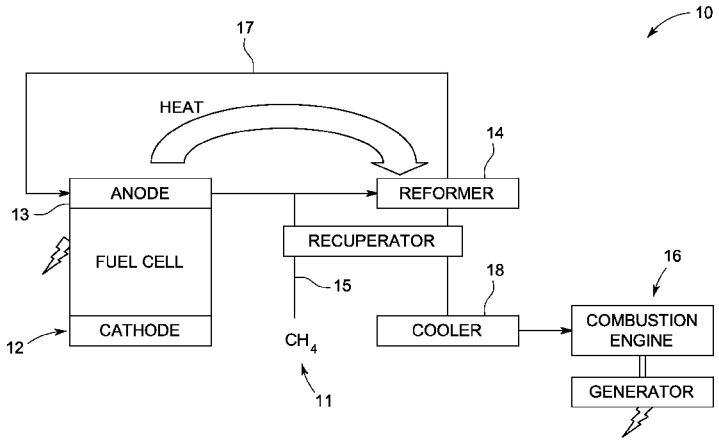


FIG. 1

(57) Abstract: A combined cycle fuel cell includes a fuel cell such as a solid-oxide fuel cell (SOFC) comprising an anode that generates a tail gas. A hydrocarbon fuel reforming system that mixes a hydrocarbon fuel with the fuel cell tail gas downstream of the fuel cell partly or fully converts the hydrocarbon fuel into hydrogen (¾) and carbon monoxide (CO). A fuel path diverts a first portion of the reformed fuel to the inlet of the fuel cell anode. A cooler such as an Organic Rankine cycle (ORC) is optionally configured to remove heat from a residual portion of the reformed fuel and to deliver the cooled residual portion of the reformed fuel to a bottoming cycle that may be an external or internal combustion engine such as a reciprocating gas engine or gas turbine that is driven in response to the cooled residual portion of the reformed fuel.

WO 2013/025256 A3

WO 2013/025256 A3

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Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	EP 1 947 723 A2 (EBERSPAECHER J GMBH & CO [DE]) 23 July 2008 (2008-07-23) paragraphs [0016] - [0048] figures 1-3	1,2,5,6, 22-26 3,4,7, 9-14
Y	US 2008/187789 A1 (GHEZEL-AYAGH HOSSEIN [US]) 7 August 2008 (2008-08-07) paragraphs [0029] - [0033], [0043] - [0045], [0056] figure 2	3,4,9-14
Y	US 2007/281192 A1 (SASAKI NORIO [JP]) 6 December 2007 (2007-12-06) paragraphs [0016] - [0027], [0038] - [0043] figure 1	7,14

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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Information on patent family members

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