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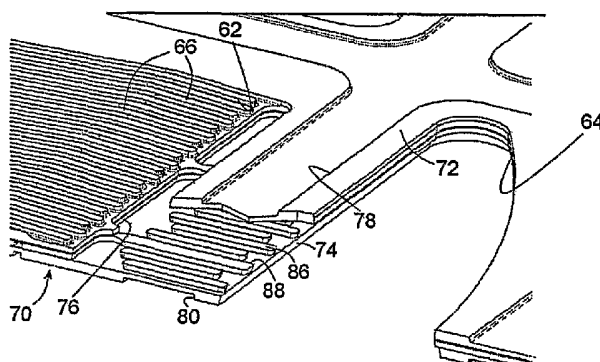
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(54) **Title:** BIPOLAR PLATE HAVING OFFSETS



(57) **Abstract:** A bipolar plate (70) for a PEM fuel cell is disclosed. The plate includes a plurality of channels (62), wherein the ends of the channels are staggered. The plate also includes a plurality of tunnels (88), wherein the ends of the tunnels are staggered. The plate further includes a cathode and an anode, wherein a portion of the cathode overhangs a portion of the anode. These staggered/offset features allow for an increase the capillary meniscus of water droplets passing therethrough, allowing for a reduction in the pressure required to move the water through the cell and out to the header volume of the stack.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/31358

A. CLASSIFICATION OF SUBJECT MATTER

IPC: **H01M 8/02** (2006.01)

USPC: 429/38,39

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)

U.S. : 429/34, 38, 39

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)

Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,750,281 A (WASHINGTON et al) 12 May 1998 (12.05.1998), column 7, line 14-column 8, line 9, figures 4 and 5.	1-24
X	US 6,410,179 B1 (BOYER et al) 25 June 2002 (25.06.2002), column 4, lines 47-52, column 6, lines 17-29, figures 3 and 7.	1-4, 5-8, 10-16
X	US 6,773,841 B2 (RAPAPORT et al) 10 August 2004 (10.08.2004), column 3, lines 21-49, figure 2.	1-4
X	US 6,699,614 B2 (ROCK) 02 March 2004 (02.03.2004), column 4, line 54-column 5, lines 40, figures 4-6.	1-4
X	US 6,406,809 B1 (FUJII et al) 18 June 2002 (18.06.2002), column 3, lines 39-64, figure 3.	1-4
X	US 6,348,280 B1 (MAEDA et al) 19 February 2002 (19.02.2002), column 5, line 52-column 6, line 4, figure 1.	1-4
X	US 4,758,481 A (FAUVEL) 19 July 1988 (19.07.1988), column 7, lines 30-42, figure 8.	1-4

Further documents are listed in the continuation of Box C. See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means		
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer Stephen J. Kalaiti <i>[Signature]</i> Telephone No. 571-272-1700 <i>[Signature]</i>

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X, P	US 2004/0209150 A1 (ROCK et al) 21 October 2004 (21.10.2004), sections 0026-0028, figures 3-4.	1-4

INTERNATIONAL SEARCH REPORT

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Continuation of B. FIELDS SEARCHED Item 3:
EAST: USPATS, USPGPUBS, USOCR, DERWENT, JPAB, EPAB
search terms: stagger, offset