

(19) (KR)  
 (12) (A)

(51) . Int. Cl.<sup>7</sup>  
 H01M 4/90

(11)  
 (43)

2003-0080244  
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(21)	10-2003-7011400		
(22)	2003 08 29		
	2003 08 29		
(86)	PCT/US2002/06106	(87)	WO 2002/71517
(86)	2002 02 28	(87)	2002 09 12

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(30)	09/797,332	2001 03 01	(US)
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(71)	, 48309	, , ,	2956
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(72)	, 48304	, , ,	2700
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, 48037	, , ,	1415
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, 48076	, , ,	30115
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, 48302	, , ,	1978
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(74)

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(54)

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가	(1c)	(1c)	(7)	(1c)	(7)
			,		.
	(1c),			가	

1b

2000 3 13

09/524,116

(Ovonic instant startup alkaline fuel cells)

(surge) (burst) (regenerative)

(hydrogen-side)

(order)

가 가 가

가 ; 가

가 (power generation)

가 (cell)

가

Ramp;D P.E.M(

: Proton Exchange Membrane)

가

P.E.M

, P.E.M  
가 ,

, 가 , (CO)

가

, 80

, PEM

, 120

, P.E.M

, P.E.M  
가 ,

PEM

가 , 가 P.E.M  
, CO<sub>2</sub>

,  
(Carnot cycle)

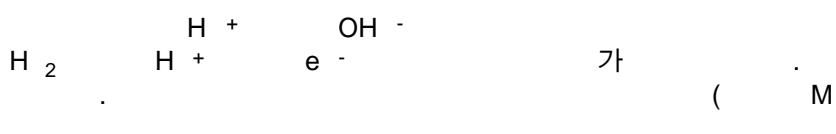
(hydroxyl ion: O<sup>-</sup>)



가  $(OH^-)$



(load)



ansitional) , , , , (tr





( $\text{Zr}, 0$ )<sub>a</sub>Co<sub>b</sub>Mn<sub>c</sub>Fe<sub>d</sub>Sn<sub>e</sub>V, 0.1  
 7.5 ; c 13 17 ; d 0 3.5 ; e 0 1.5 ; a+b+c+d+e=100 .  
 Ti, 0.1 Cr 40 ; b 0

1a

1 b

2

3a (mA/cm<sup>2</sup>) ( ) .

3b (mA/cm<sup>2</sup>) , ( )

4

116( )

, P.E.M. ) .

, , , , ,  
/ . /

, (wet) 가 , (dry)  
(PTFE)

, (mesh), . (foam) (expanded metal)

116 , 가

가 가

/ :





):

(H<sub>2</sub>)가

(MH)

(M...H)

e<sup>-</sup>

H

)

가

(

가

가

가

가

가

가

가

가

가

( 'a' , 'c' )

2a( ) 2c( )

1a 1b 가

(3a)

(graded)

(1a, 1c)

(1a, 1c)

(2a, 2c)

(3a, 3c)

(1a, 1c)

1a 1b  
(1a)

1a 1c

(PTFE)

(3c)

(4a;

4c; )

(1a, 1c)

2 (5a;

5c;

6a;

6c;

)

(5a, 5c)

( , (6a, 6c) )

(

(3a, 3c)

).

(PTFE) (2a, 2c)

(PTFE)

(3a, 3c)

(6a, 6c)

(

(6a, 6c)(

(

5a, 5c

(

( )

(

( )

( )

( )

가

가

1 %

0.

(5a)

(6a)

가  
가

(5a,5c)

(6a,6c)

( )

( )

( )  
가1)  
), 3)  
(6)

(6)

2-300

50-100

50-70

Ni

Ni

'591

Ni

가

( )

Zr, 0

a Co b Mn c Fe d Sn e  
60 13 17 57  
V, 0.1

0.1 Ni, 0

60  
56

Ti, 0.1 Cr 40

, b

7.5

, c  
, a+b+c+d+e=100

0

3.5

, e 0

1.5

(4a,4c)

(3a,3c)

가

5,856,047( )

(matte), (foam),

(plate),

가

가

가 (malleable)

가

가

가

/

(OH<sup>-</sup>)

가



$$60 \quad 100 \quad \text{가} \quad \text{가} \quad , \quad B_1 \quad . \quad 3 \quad B / \text{cm}^2 \quad ( \quad / \quad 0.03 \quad ) \quad 0.04$$

, 10% Aldrich B 가  
0.11 40m  
Ah . 100mA/sq.cm 1A  
. 2.5

, (Daivabo Corporation) 60g/m<sup>2</sup>, , 3%  
(carboxymethylcellose) KOH/LiOH

3a ( ) ( ) (mA/cm<sup>2</sup>)  
 , 가 가( , ) 5  
 , 3b (mA/cm<sup>2</sup>), ( ) )  
 ) 30% 50%, 3a 3b  
 가 2.5 ( ) , (gas phase)

( B ) 1 20% ( , 1% ) 가  
10% 10% ( , 20%) 가 가  
.05% , / ,  
가

4 (7)  
(20) (reformer)  
(20) (21) (7) , 가 가 (22)  
(22) 가 (32) (21) (33)  
, (scrubber)(23) (24) (7)  
) 가 (25) 가  
,  
(26) (7) (28)  
, 가 (26) (27) (7) 가  
,  
(29 30) (7) (31)

가 . , 가  
가 ,  
가 . ,

가 (backward)

가

, ,  
가 , , 가

(57)

1.

가

2.

1

3

2

4.

2

5.

1

6.

5

7.

6

a)

b)

c)

**8.**

1 ,

**9.**

8 , ,

**10.**

1 ,

**11.**

가

**12.**

11 ,

**13.**

11 , ,

**14.**

11 ,

**15.**

14 , /

**16.**

14 , , , , /

**17.**

11 ,

**18.**

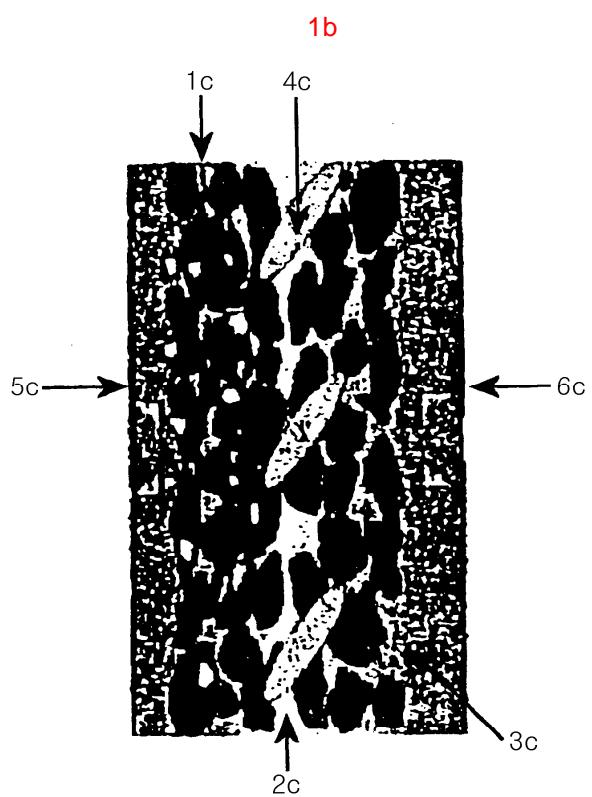
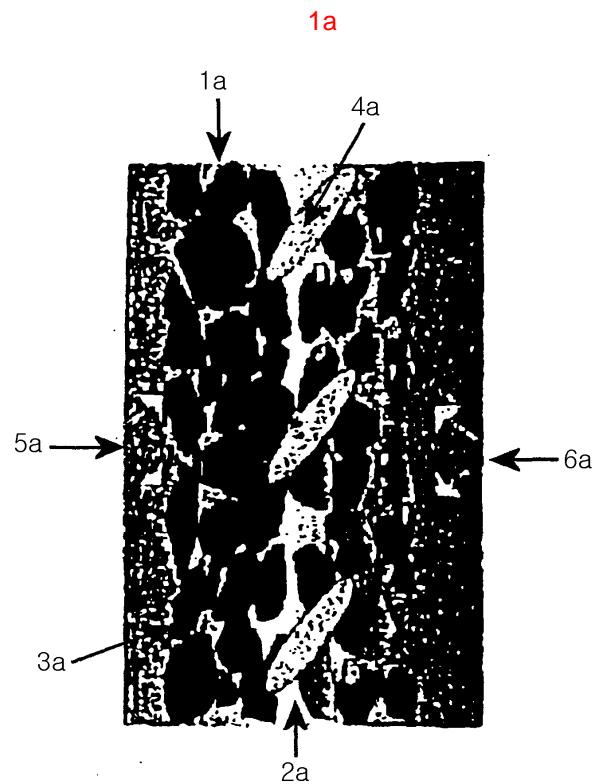
11 ,

**19.**

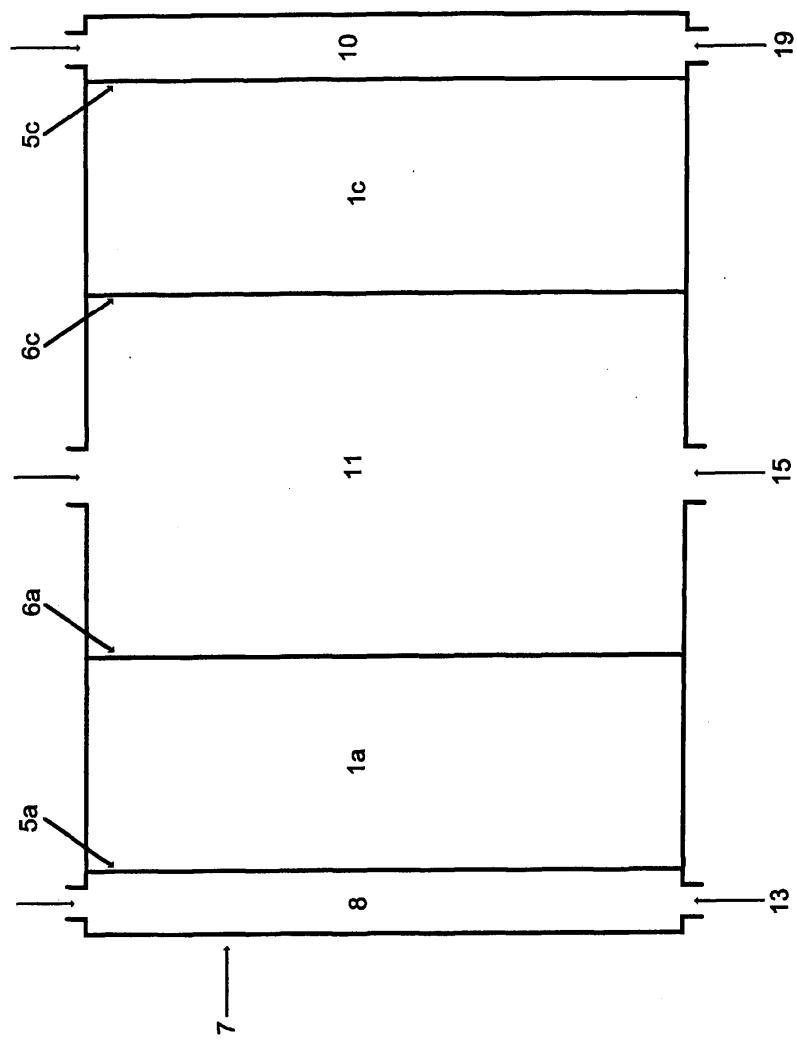
8 , , ,

**20.**

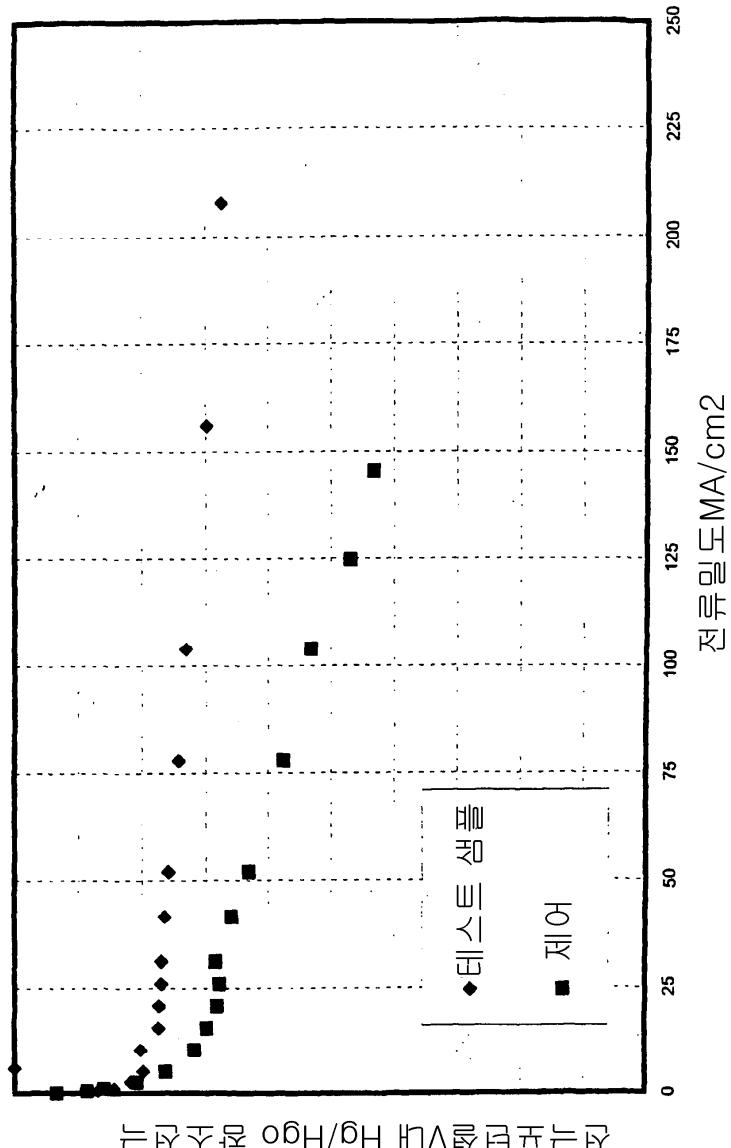
1 ,



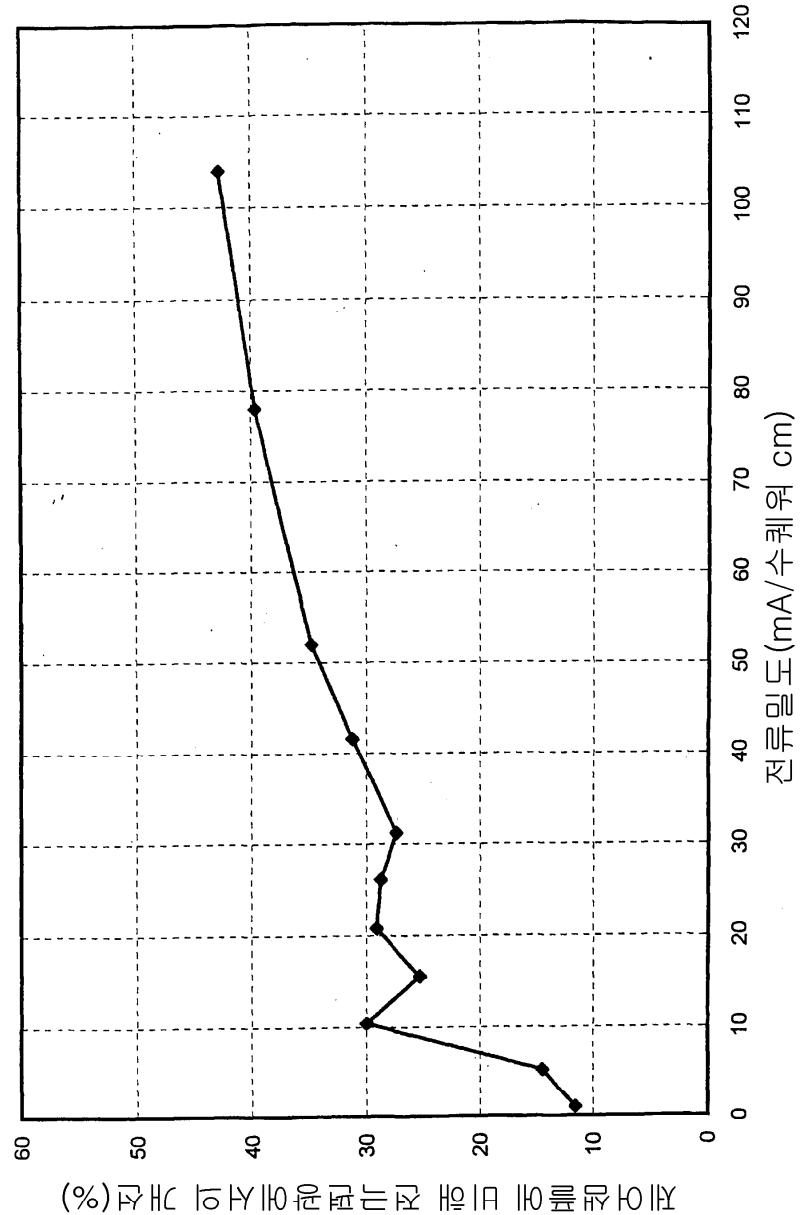
2



3a



3b



4

