

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

(51) 。 Int. Cl. <sup>7</sup> H01M 4/90		(11) (43)	2003-0080244 2003 10 11
(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

(30)	09/797,332	2001 03 01	(US)
(71)			
	, 48309	,	2956
(72)			
	, ,		
	,48304	,	2700
	,		
	,48037	,	1415
	,		
	,48076	,	30115
	,		
	, ,		
	,48302	,	1978
(74)			
	:		
(54)			

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

1b

, , ,

2000 3 13

09/524,116

(Ovonix instant startup alkaline fuel cells)

, / , , / ( :redox)

가 , 가

(surge)

(burst)

(regenerative)

- (hydrogen-side)

가

가

(order)

가

가

가

가

가

가

(power generation)

가 (cell)

가

Ramp;D P.E.M( , P.E.M

: Proton Exchange Membrane)

가

가

(CO)

, P.E.M

가

가

가

, 80

, PEM

P.E.M

, 120

, P.E.M

/

, P.E.M

가

PEM

.

, 가 P.E.M  
, 가  
, CO<sub>2</sub>  
/

.

가

,  
가 ,

, 가  
(Carnot cycle)

)

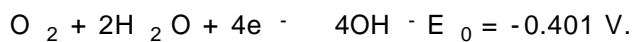
(

,  
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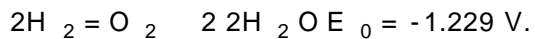
(hydroxyl ion: O

H<sup>-</sup>)

: 가 (OH<sup>-</sup>)

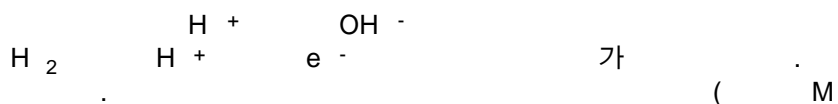


:



(load)

.



):



ansitional)

(tr

, 가

ability),

, 가 (avail

(stream)

(untreated)

(site)가 (poisoning)' (species) 가 가 (over-voltage) 가 (charge transfer resistance). 가 4,623,597 (disordered m

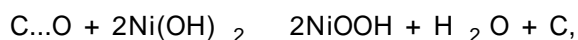
ulti-component) 가 (amorphous), 가 : atomically engineered 가 (intermediate range order), / (topological), (translational), (host matrix)

'597 가 가 가 '597 '597 가 '597 가 (multiorbital) , 가 가 (orbital overlap) / 가 '597 가 , '597 가 가 - '597 3- '597 '597 가

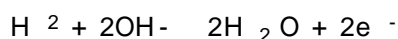
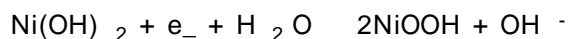
가  
(scale)  
가  
09/524,116('116)  
'116  
가  
/  
'116  
가  
가  
( )  
가  
가  
가  
가  
rative braking)  
가 ( ) , (-20 150 )  
가  
buffer)' 가  
가  
1  
1  
가  
/ (nickel oxyhydroxide) (nickel hy  
droxide)/  
가  
가  
가  
가  
ogenation)  
h-Nickel) (Rare-Earth)/ (Misch metal) (hydr  
(Alkaline Eart  
50-70 2-300 ( 50-100  
가 :



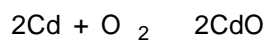
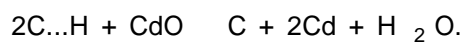
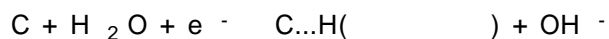
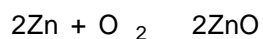
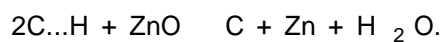
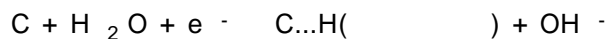
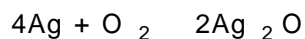
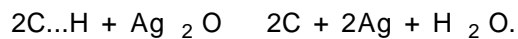
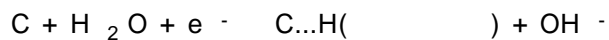
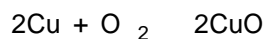
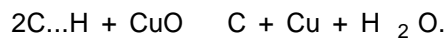
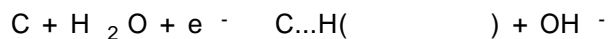
가 ; 1 가 ; 1 ;  
 ) , 2 . 2 .  
 1 2  
 / , , , /  
 ) , ( ,  
 (wet) 가 , (dry)  
 (PTFE)  
 , (mesh), , (foam) (expanded metal)  
 가  
 '116 ,  
 ( )  
 가  
 1  
 ; ; 1  
 ;  
 가  
 , , ,  
 가 가  
 / :



:



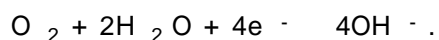
/ , - :



가 , , ;  
- , 가 , 가 , ;  
- , , .

(+2) 0.9V/ ; 0.8V/ 1V/ ; /

1. (NiFeO<sub>4</sub>) , (complex) 가 ,  
/ , ,  
가 , - .  
가 (OH<sup>-</sup>)



$$\text{H}_2 \rightarrow 2\text{H}^+ + 2\text{e}^-$$
 ,  $\text{H}^+ + \text{OH}^- \rightarrow \text{H}_2\text{O}$





(5a)

(6a)

( ) 가

가  
가

가

(5a,5c)

(6a,6c)

( )

( )

( ) 1) , 2) (6)  
 ( ) , 3) (6)  
 가 ( )  
 )

2-300

50-100

50-70

Ni

Ni

가

. '591

Ni

:

( ) a Co b Mn c Fe d Sn e  
 Zr, 0 60 V, 0.1 57 0.1 60 Ti, 0.1 40  
 7.5 , c 13 17 , d 0 3.5 56 , e 0 1.5 , b  
 , a+b+c+d+e=100

(4a,4c)

(3a,3c)

(matte), (foam), (plate),

가

5,856,047( )

가

가 (malleable)

가

가

가

가

가

(OH<sup>-</sup>)



60 100 가 가 , B 1 3 /cm<sup>2</sup> ( / 0.03 ) 0.04 .

, 10% Aldrich B 가

Ah 0.11 100mA/sq.cm 1A 40m

, 2.5 , ,

, 가

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

(carboxymethylcellulose)

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

( ) 5 ,

, 가 가( , ) , ( ) ,

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

) 30% 50% , 3a 3b

가 2.5 ( ) (gas phase)

( B ) 1 20 % 가

10% ( , 1% ) 가

10% ( , 20%) 가

, .05% ,

/

가

4 (7)

(20) ,

(reformer)

(20) (21) (7) 가 가 (22)

(22) 가 (32) (21) ,

(scrubber)(23) (33) (24) (7)

가 (25) 가

,

(26) (26) (7) 가 (28)

/ 가 , (27) (7)

, (7) (31) (29 30)

,

,

,

, 가

, 가

, 가

, 가

,

[illegible]

가

가 , 가 .

(57)

1.

•

가

2.

1,

**3.**

$$2 \quad , \quad /$$

4.

**5.**

**6.**

5, (PTFE).

7.

6 , PTFE :

a)

b) \_\_\_\_\_ ,

c)

**8.**

1

9.

8

10.

1

11.

$$\vdots$$

가

12.

11

13.

11

14.

11

15.

14

16.

14

17.

11

18.

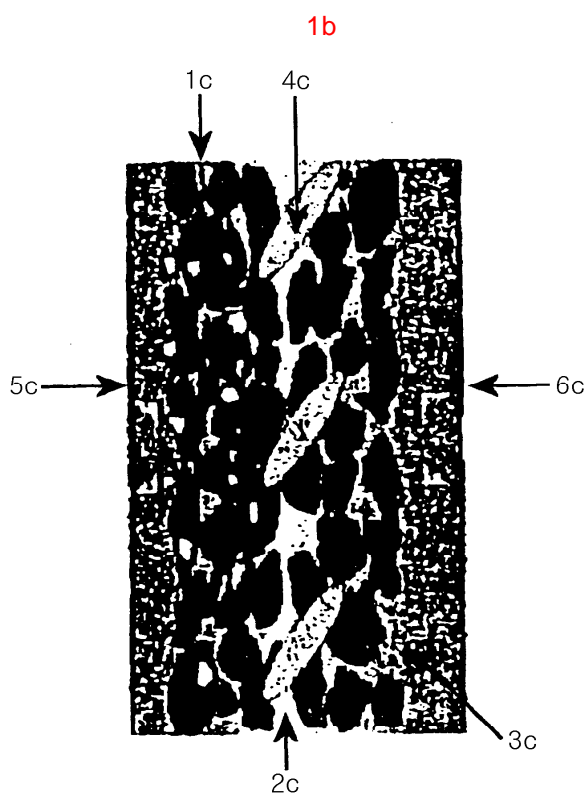
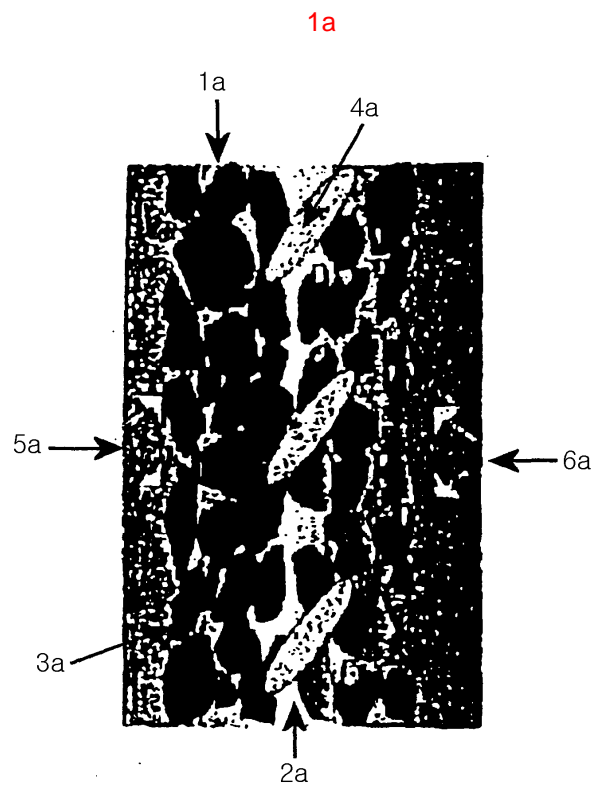
11

19.

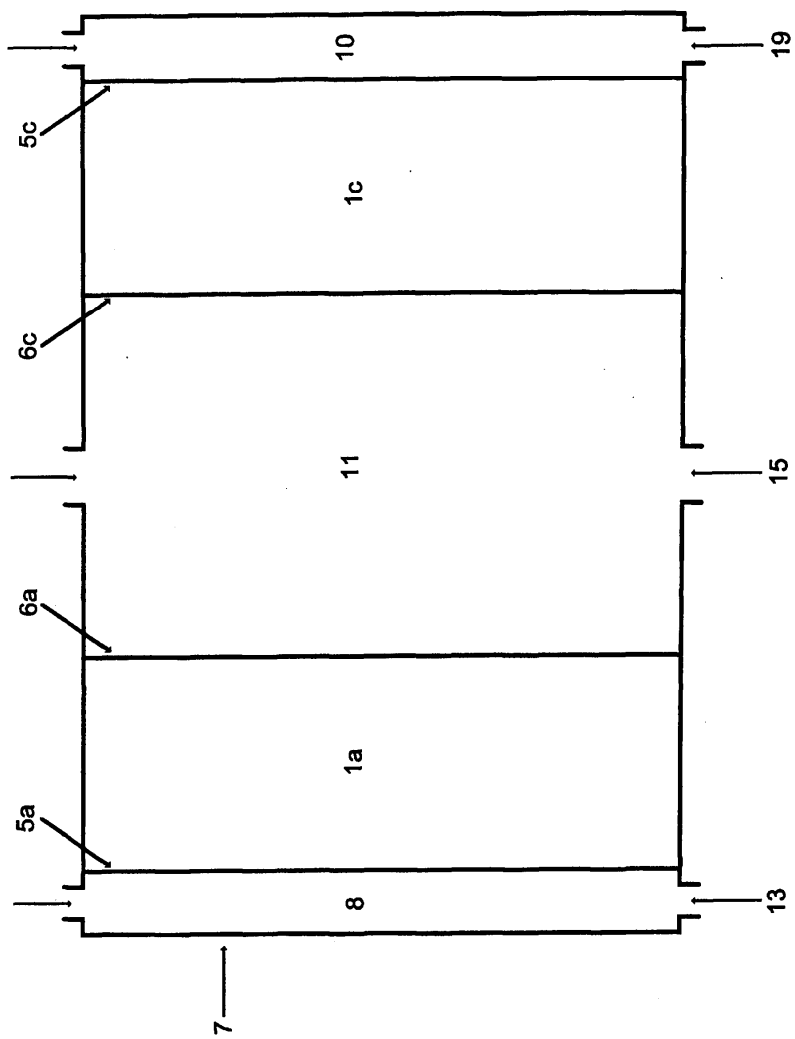
8

20.

1

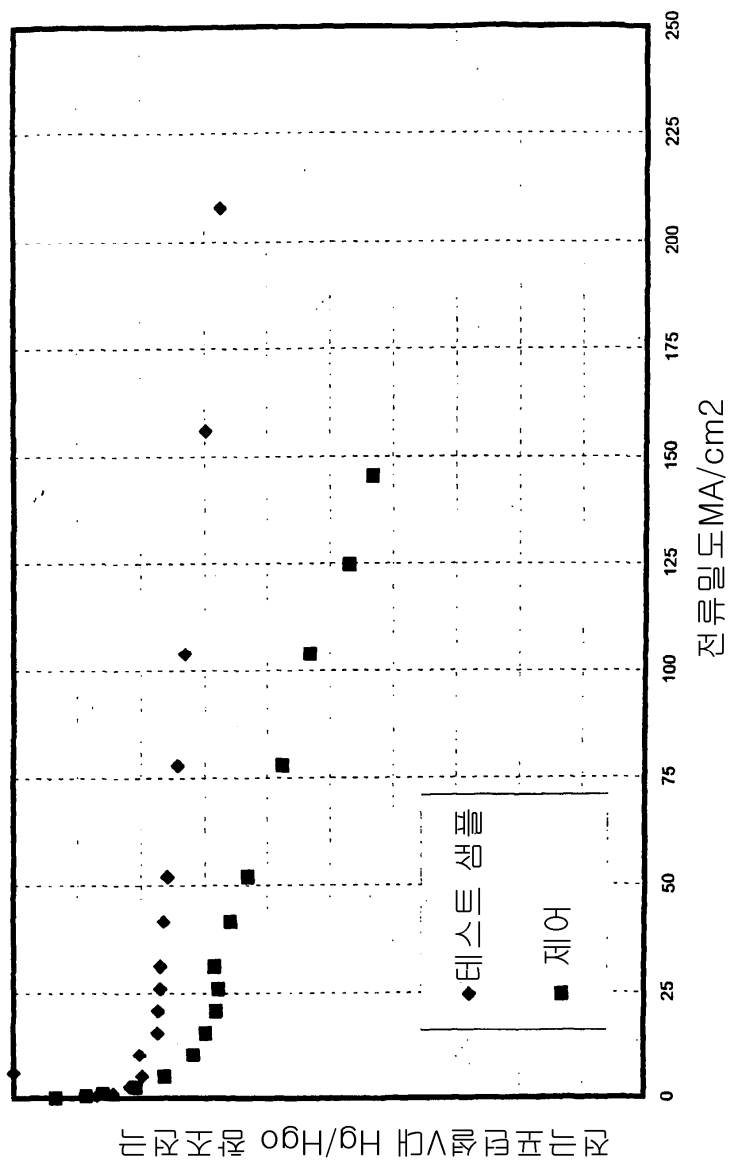


2

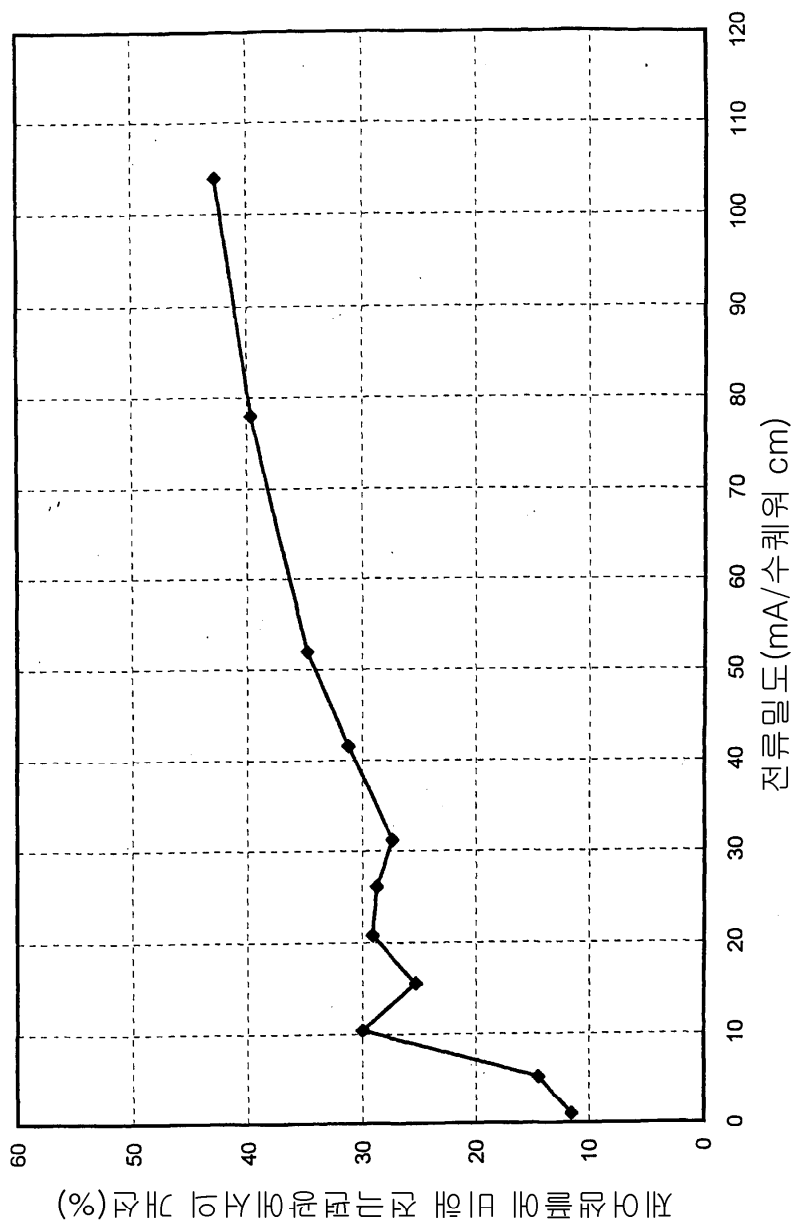




3a



3b



4

