

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

(51) 。 Int. Cl.⁷
C25D 17/00

(11)
(43)

10-2004-0005866
2004 01 16

(21) 10-2003-7008507

(22) 2003 06 21

2003 06 21

(86) PCT/US2001/047445

(87)

WO 2002/63072

(86) 2001 12 11

(87)

2002 08 15

(30) 60/256,924

2000 12 21

(US)

09/855,059

2001 05 15

(US)

(71)

95035

1645

(72)

90266

3001

83616

1846

(74)

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(54)

(108)

(100)가

(106)

(102),

(112),
(115)

(114)

(123)

(117)

2000 12 21 60/256,974 2001 5 15 09/8
 55,059 , .

(W), (Ta), (Ti),
 PVD CVD
 (Andricos) 1996 5 4 . (Koon) 5,516,412
 1999 11 16 5,985,123

(Cu) (CMP)
 (electromigration)

가 가

1 - 2 1 (12) (10)
 (14) (16) (12)
 (10) (14)
 (16) 5- 15

1B- 1C 1B / (18)
 (20) (10) 1C (20)
 (12) (22)()
 (20) (18) ()
 (22) 가

1C 가 가 (22) (14) (16) (16) t1 (12)
 t2 (16) 가 (16) 가
 1D 가 (12) (16) (12) (12) t3
 1C (12) (18) (22) (22) (s1)가
 (14 16) (22) CMP

1E s2 s1 (12) t5 1D 1E
 . CMP

가 6,176,992 ,
 ECMD(electrochemical mechanical deposition)

'Pad Designs and Structures for a Versatile Materials Processing Apparatus'

2000 2 23

09/511,278

가

'Plating Method and Apparatus That Creates a Differential Between Additive Disposed on a Surface and a Cavity Surface of a Work Piece Using an External Influence'

2000 12 18

09/740,701

가

가

Method and Apparatus for Making Electrical Contact to Wafer Surface For Full-Face Electroplating or Electropolishing'

2000 12 14

09/735,546

가

'Method and Apparatus for Electrodeposition of Uniform Film with Minimal Edge Exclusion on Substrate'

2001 1 17

09/7

60,757

가

가

가

2A (30) (32) 가 (3) (34) (32) (38) (42) (44) 가 (44) (38) (32)

1A-1E

1D

(t3)

1E

(t5)

CMP

가

가

(10%

2B (46) adbent 6,027,631, Reid 2A (32) (46)가 6,074,544, Woo 6,103,085 Bro 6,620,581rhk 5,744,019, Uzoh 6,071,388, Hanson 6,004,440 , Ang 6,139,703

가

가

가

1A

1B, 1C 1A

1D 1C 가

1E 1D 가

2A

2B 2A

3

4

3

5 3, 4

6A

6B 6A (6B) ;

6C 6B 6C-6C ;

7

8A 5

8B

8A

9A ;
 9B 8B 9A 가 ;
 9C 9B 9C-9C ;
 10 가 ;
 11 가 ;
 12 11 ;
 13 12 ;
 14 13 , ;
 15 .

ECMD,

가

가

ECMD,

가

00) (102) (104) 3 (100) (1) (100) (102) (108) (106) (3), (110) (116) (104) (112)(가), (114) (115) (114) (115) (114) (115) (114a) (114b) 2 (114b) (114) (115) (114) (117) (115) (118) (114) (115) (108) (108a) 가 (114a,114b) (108a) (117) (114a)

(152) (152a) (152b) (150c) (152) (150) (156)
 (150b) (154) 3-4 (150a) 2
 a) (158) 1 (Va) 1 (Va) (S2) (150) 1 (150a) (158) (150a)
 2 (150b) 2 (Vb) (150) 1 (150a) 2 (150b) (158)
 (S1) 2 (Vb)
 (S1) D A (150) (S1)
 D 가 B (150) (150a) 가 (158a) (AA)
 C (AA) (150) (150a) 가 (S1)가 D
 (BB) 가
 (S2)가 H E (158a) (S2)가 H
 A) G (150) (150a) S2가 H F (158a) (158a) (BB) (A)
 가 (S1,S2) 2 (AA,BB)
 11-14 (S1,S2,S3...Sn) (M1,M2,M3..Mn)
 가
 M1) (S1)가 V_A 가 (M2)가 V_A (11-14)
 14 (S1)가 V_c (M1)가 가 (S1)가
 (N.C) V_A V_c
 15 (R1) 가 가 가
 가

(57)

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2.

1 가

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1 4. , 가 1 2

4 5. , 1 1

5 6. , 2 2

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7 8. , 가

7 9. , 가

9 10. , 가

9 11. , 가

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7 14. , 가

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15 17. ,

17 18. ,

9 19. ,

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20 21. , 가

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22 23. , 가

22 24. , 가

22 25. ,

20 26. , 가

20 27. , 가

22 28. ,

28 29. ,

28 30. ,

- 30 **31.** , .
- 22 **32.** , .
- 22 **33.** , .
- 33 **34.** , 가 가 .
- 33 **35.** , 가 .
- 22 **36.** , 가
- 36 **37.** , 가 가 .
- 36 **38.** , 가 .
- 36 **39.** , 가 가
- 20 **40.** , .
- 39 **41.** , 가 가 .
- 39 **42.** , 가 .
- 20 **43.** , .
- 43 **44.** , 가 가 .
- 43 **45.** , 가 .
- 46.** :
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46 47. , 가

46 48. , 가

46 49. ,

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50 51. , 가

50 52. , 가

50 53. , 가

50 54. , 가 가

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50 56. ,

57.

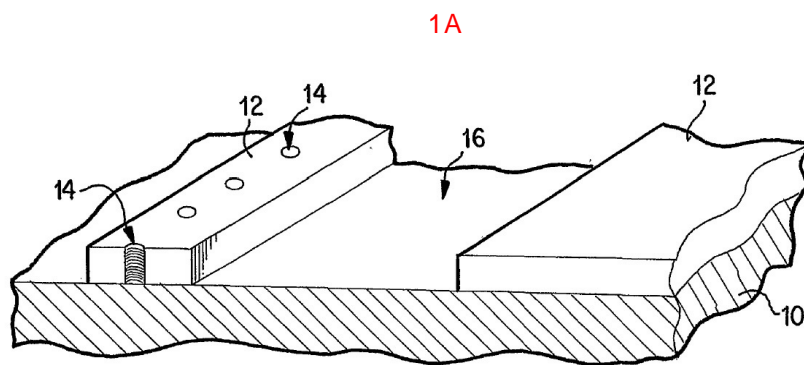
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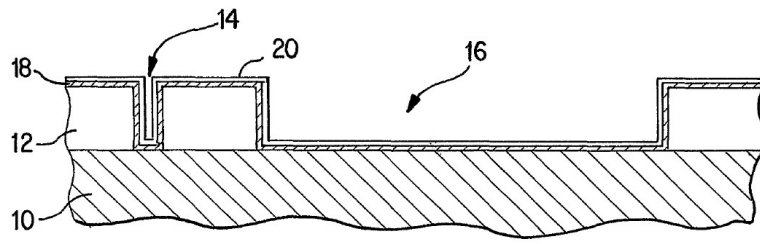
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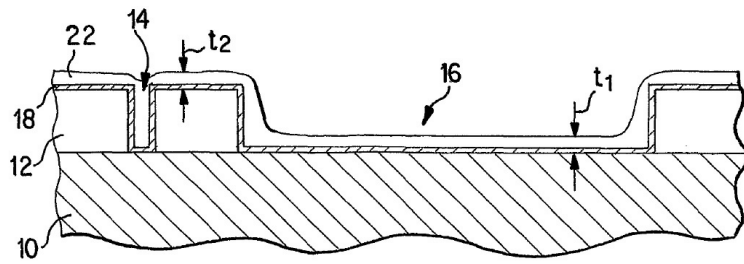
- 58. 가
- 59. 가
- 60. 가
- 61. 가
- 62.



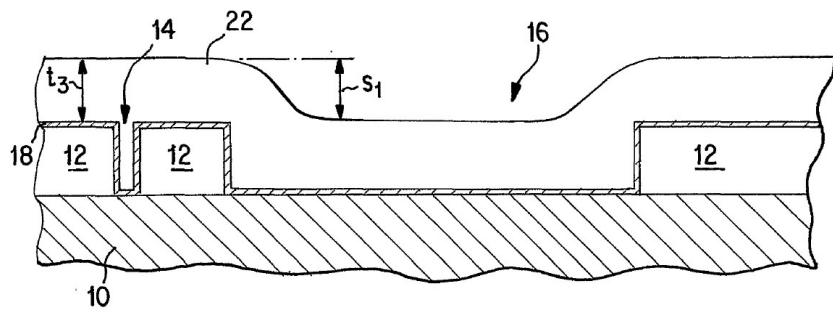
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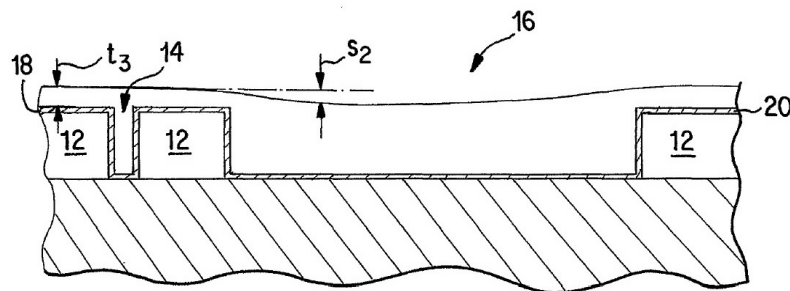
1C



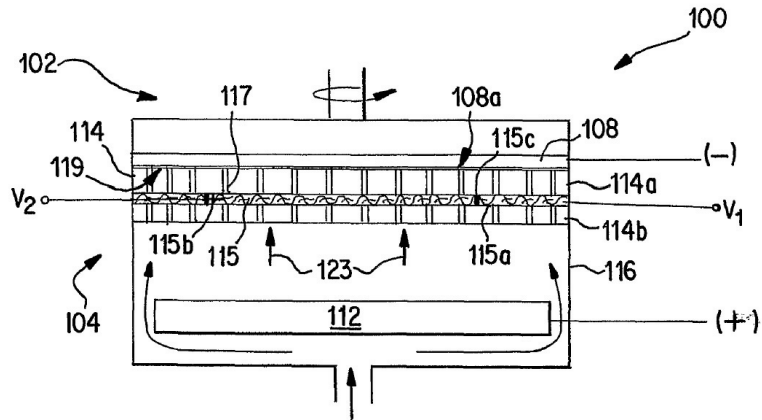
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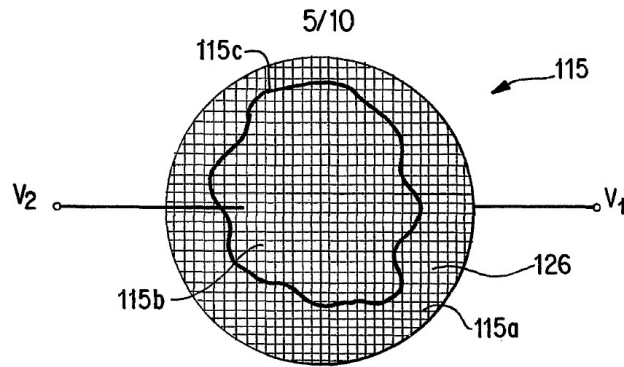
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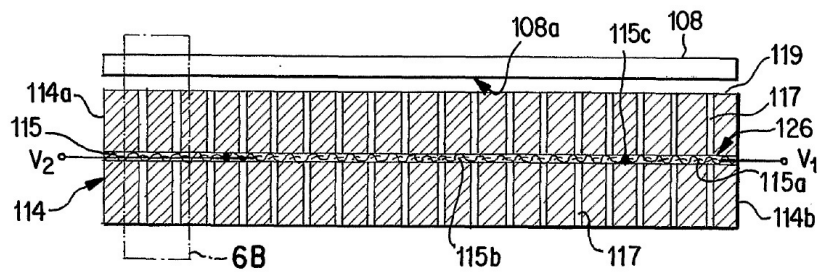
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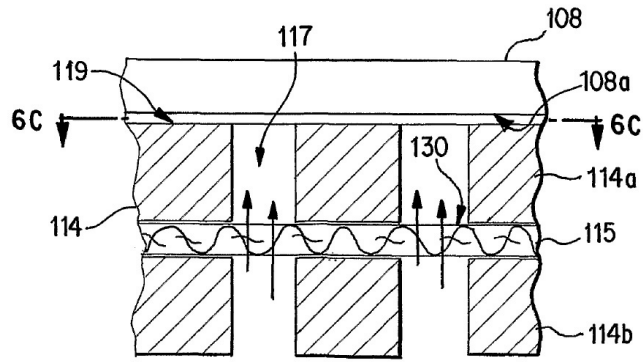
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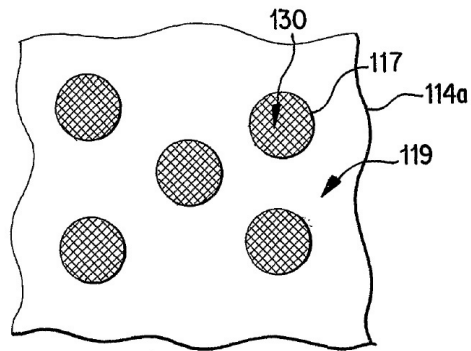
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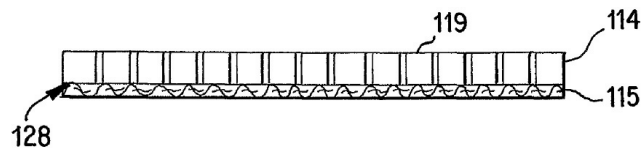
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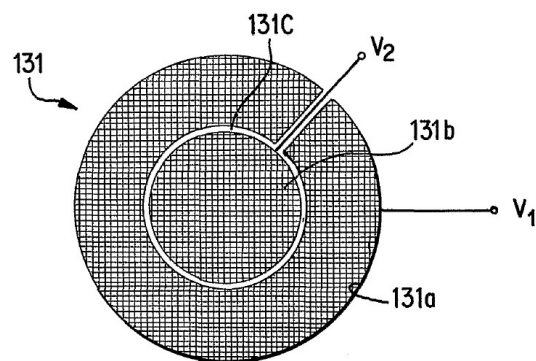
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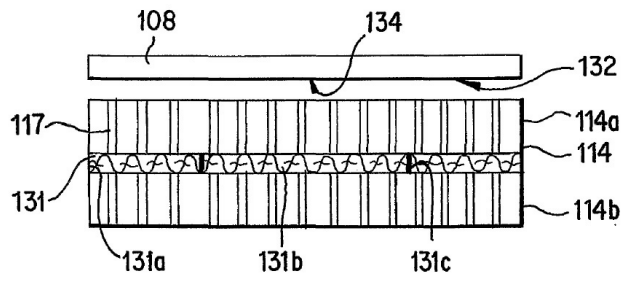
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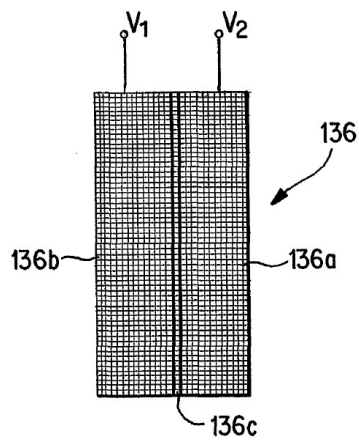
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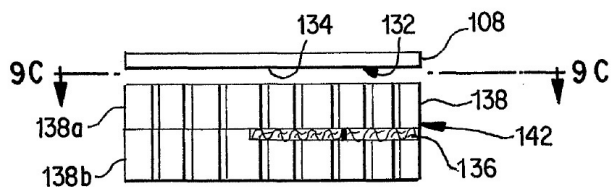
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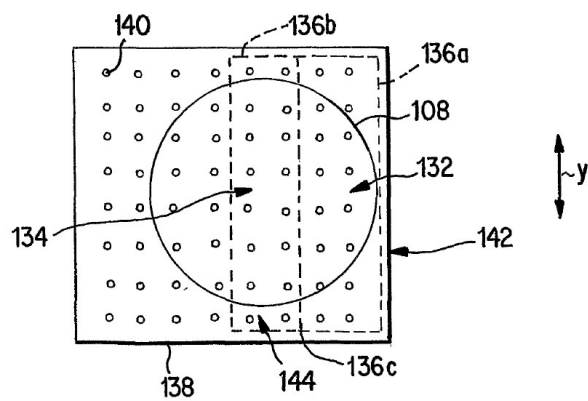
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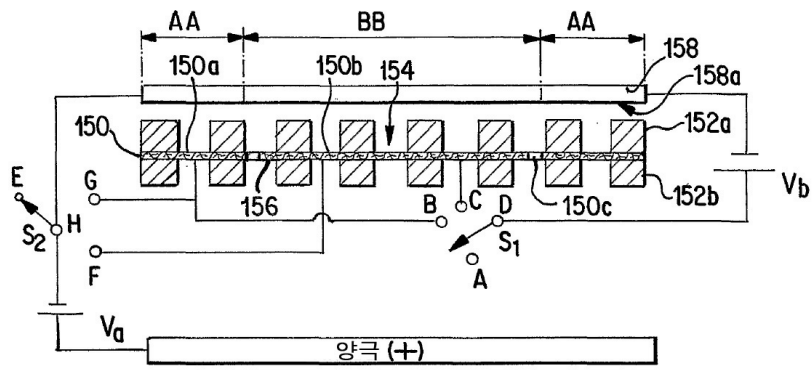
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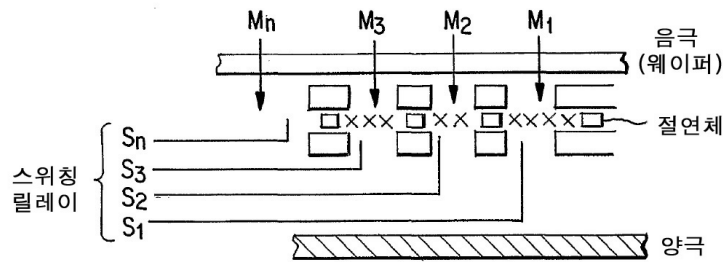
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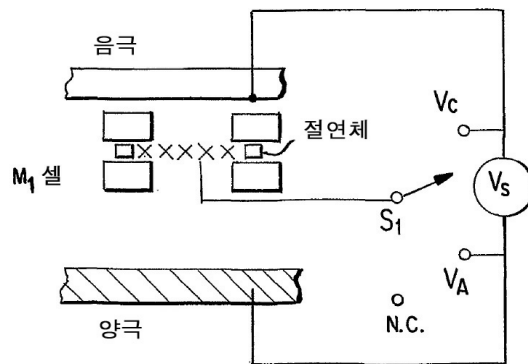
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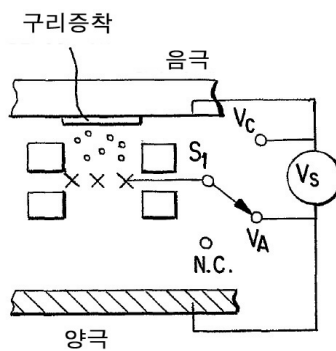
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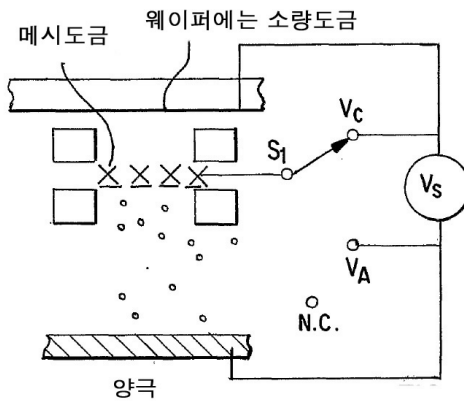
12



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