

(19) (KR)
(12) (B1)

(21)	10-2001-7008296	(65)	10-2002-0006020
(22)	2001 06 29	(43)	2002 01 18
	2001 06 29		
(86)	PCT/US1999/030147	(87)	WO 2000/40772
(86)	1999 12 16	(87)	2000 07 13

AP ARIPO : , , , , , , , , 가 , , , , ,

EA : , , , , , , , ,

(30) 09/225,081 1999 01 04 (US)

(73) 94089, , 1139

(72) , , 95138, , 5939

, 95004, , 170

가 , .
 , 95051, , #2363840

, 94087, , #933965

(74)

(54)

11d

(CVD) , (Atomic Layer Deposition, ALD).

Process	Gas Flow (sccm)	Pressure (mbar)	Temperature (°C)	Reaction Time (min)	Product
Normal CVD, RTCVD	Ar, N ₂ , He, H ₂ , O ₂ , NH ₃	10-100	300-400	10-100	CVD film
ALD	Ar, N ₂ , He, H ₂ , O ₂ , NH ₃	10-100	300-400	10-100	ALD film
CVD	Ar, N ₂ , He, H ₂ , O ₂ , NH ₃	10-100	300-400	10-100	CVD film
RTCVD	Ar, N ₂ , He, H ₂ , O ₂ , NH ₃	10-100	300-400	10-100	RTCVD film
(step coverage)					
(precursor, flux)					
75 °C					
Limited Reaction Processing (LRP)					

1a ALD
1b ALD 가
2
3a (flap-type) 1
3b 1
4 (load lock) VESCAR 27
5 ALD
6 LP-CAR
7 19
8 1
9 가
10A

10B		CVD
11A		
11B	11A	
11C	11A	
11D	11A	
11E		11A
12	11E	
13A	12	
13B	13C	13B - 13B
13C	13A	13A
14A	12	
14B	14A	
15A		
15B	15A	
15C	15A	
16A		
16B	16A	
16C	16A	16B

12

RF

가 가

, (1301) RF (1226)
 (11C,D E). (1215) (1215)

, (1226) 가 ,
 가 ,

가 , (1307)
 가 (1226)

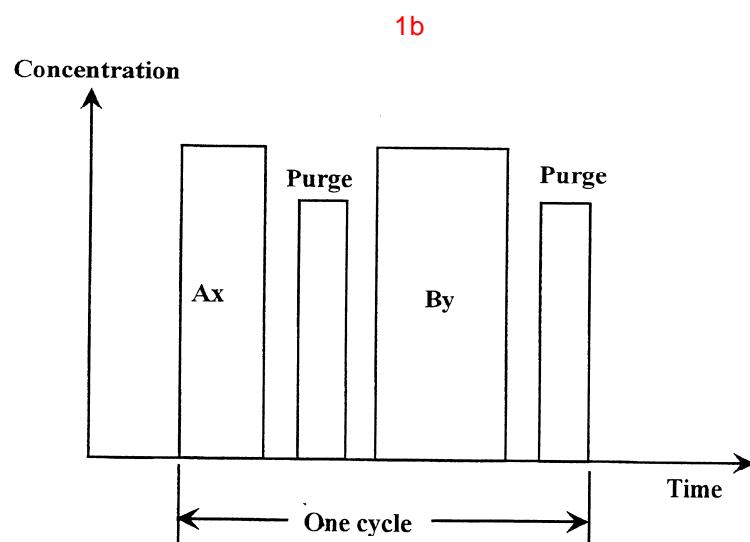
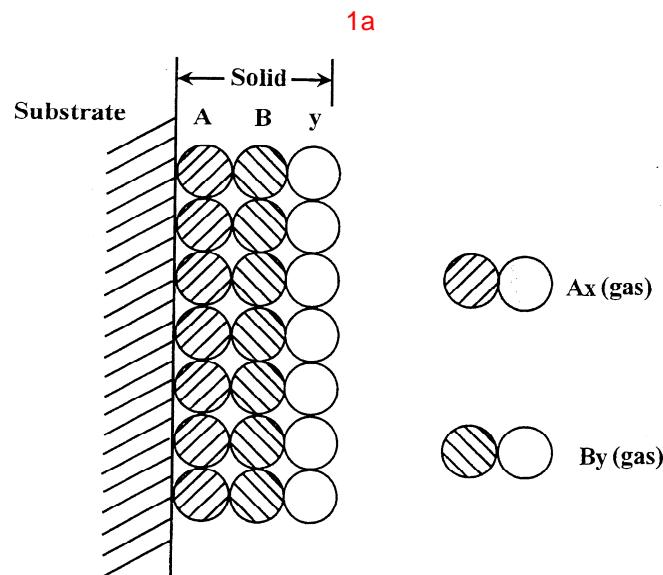
1/2 , 가 ,
 (1215)가 11E , , (1307)
 03) , t , , (10A, 11

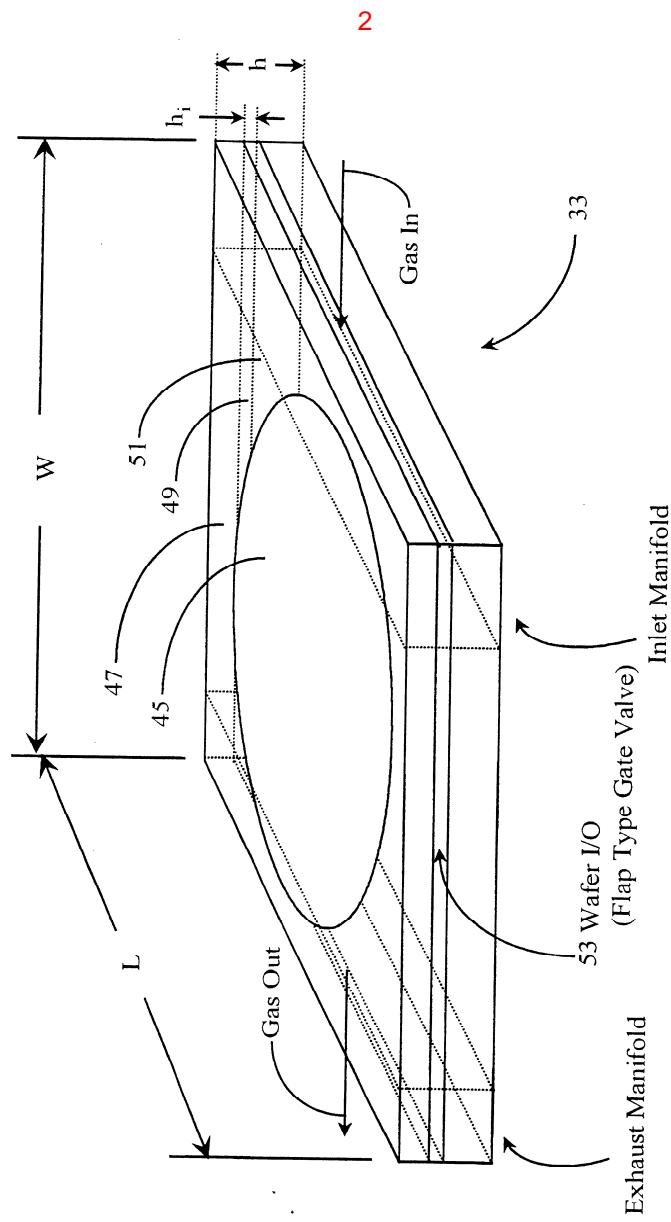
12 (1301) 13A 가 (1403) (1403)
 , (1403) , , (1409) , (1409)
 , (1301) , (1303, 12) , (1409) , (1409)
 1413) (1413) 가 , (1413) 가 , (1415) (1415)
). , (1413) 가 , (1409) , (1409)
 가 13C 13A (1301) , 13B 13C 13B-13B (1301)
 (declavity, 1419) (1303) , 13A (1403) (1417) 90 13B
 (1303) , (1417) , (1311) (1419)
 14A 14B (1309) (barrier, 1309) (1309) , (1413)
 303) 90 (1309) (1309) (1511,1513) 가 , (1311) (1) (1
 15A 12 (1303) 15B , 15C
 (1303) (1603) (1603) (channel, 1607,1609)
 가 , (1605) , (1603)
 (1303) 가 , (1611) , (1603)
 (1605) , , ,
 , 가 , 가 ,
 , , ,

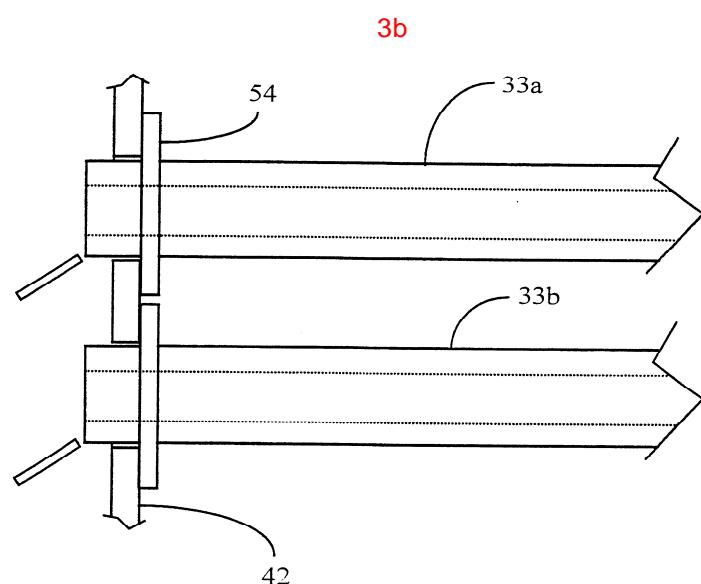
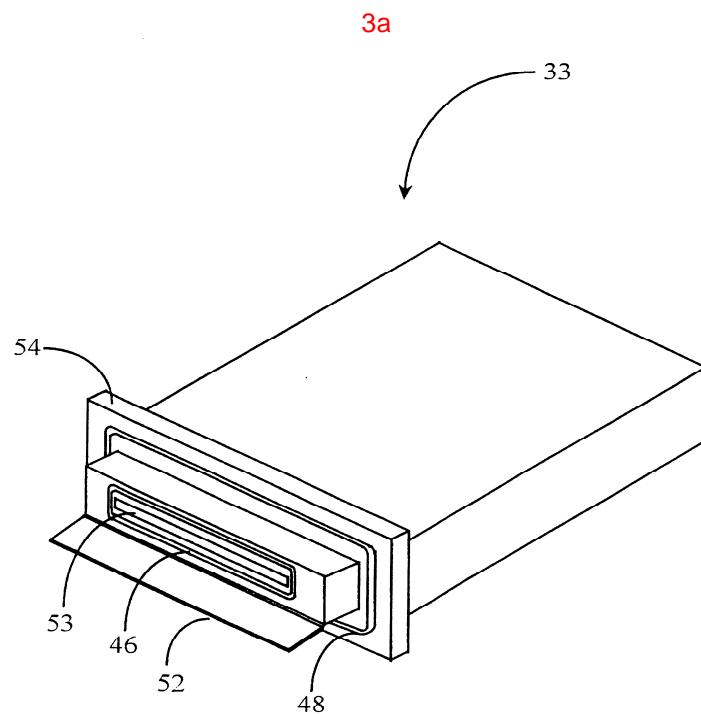
16A, B C 13A, B C (1701)
 16C 16B 16C-16C 16A (1701) , 16B
 (1701) (1703), (1705) , (1707) 가
 1/2 , , , ,
 , , , ,

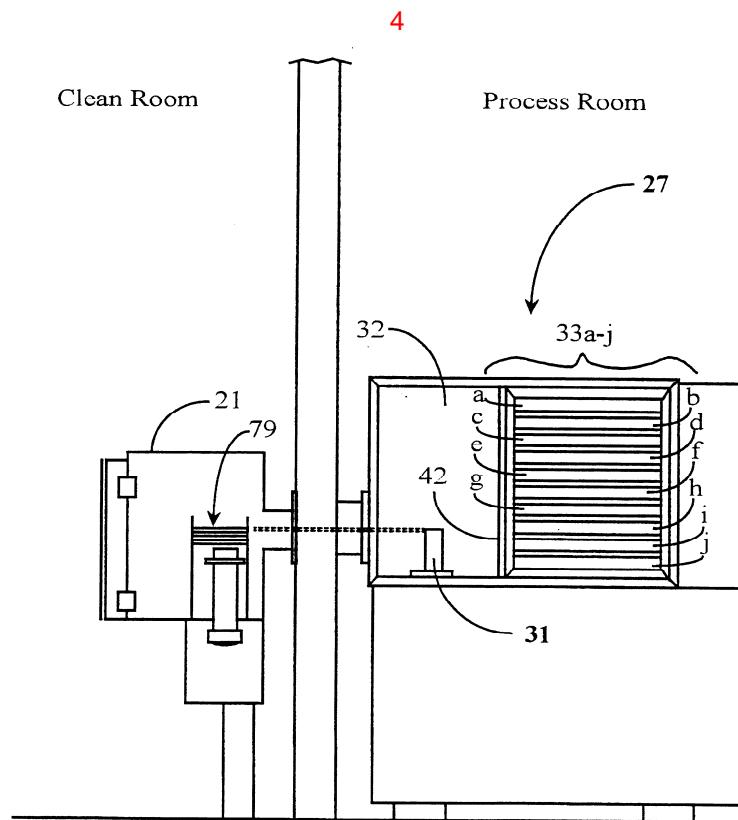
(57)

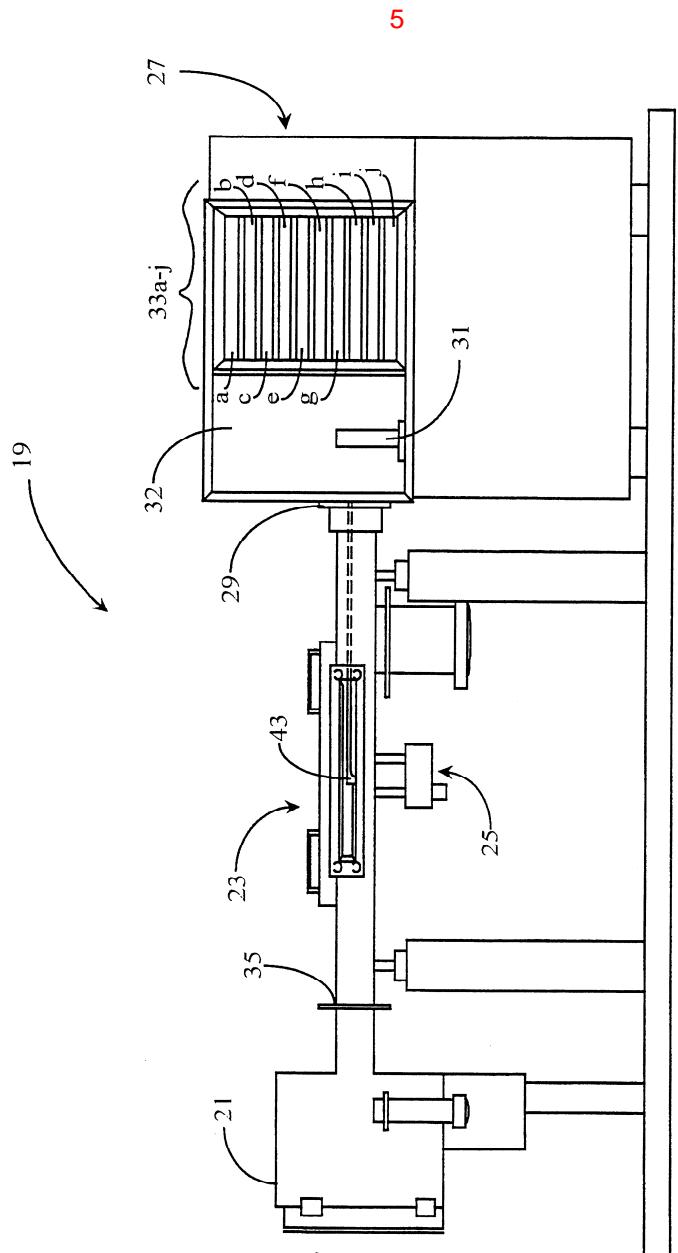
1. (1253) (1204), (1203), ,
(1217) 가 , (1215),
, (1213) (1205) 가 (1204), (1203),
(1217) , (1213) (1205)
(1235), (ALD) ALD (1215) ,
(1215) ,
(1255) , , ,
, , ,
2. 1 , 가 , 가 , 가 ,
3. 1 , , ,
, , ,
4. 1 , , ,
5. 4 , , ,
6. 1 , , ,
7. 6 , , ,
8. 7 , , ,
9. 7 , , ,
10. 1 , , ,
ALD ALD ALD ALD ALD ALD ALD ALD ALD ALD











Vertically Stacked Compact ALD Reactor (VESCAR) System

