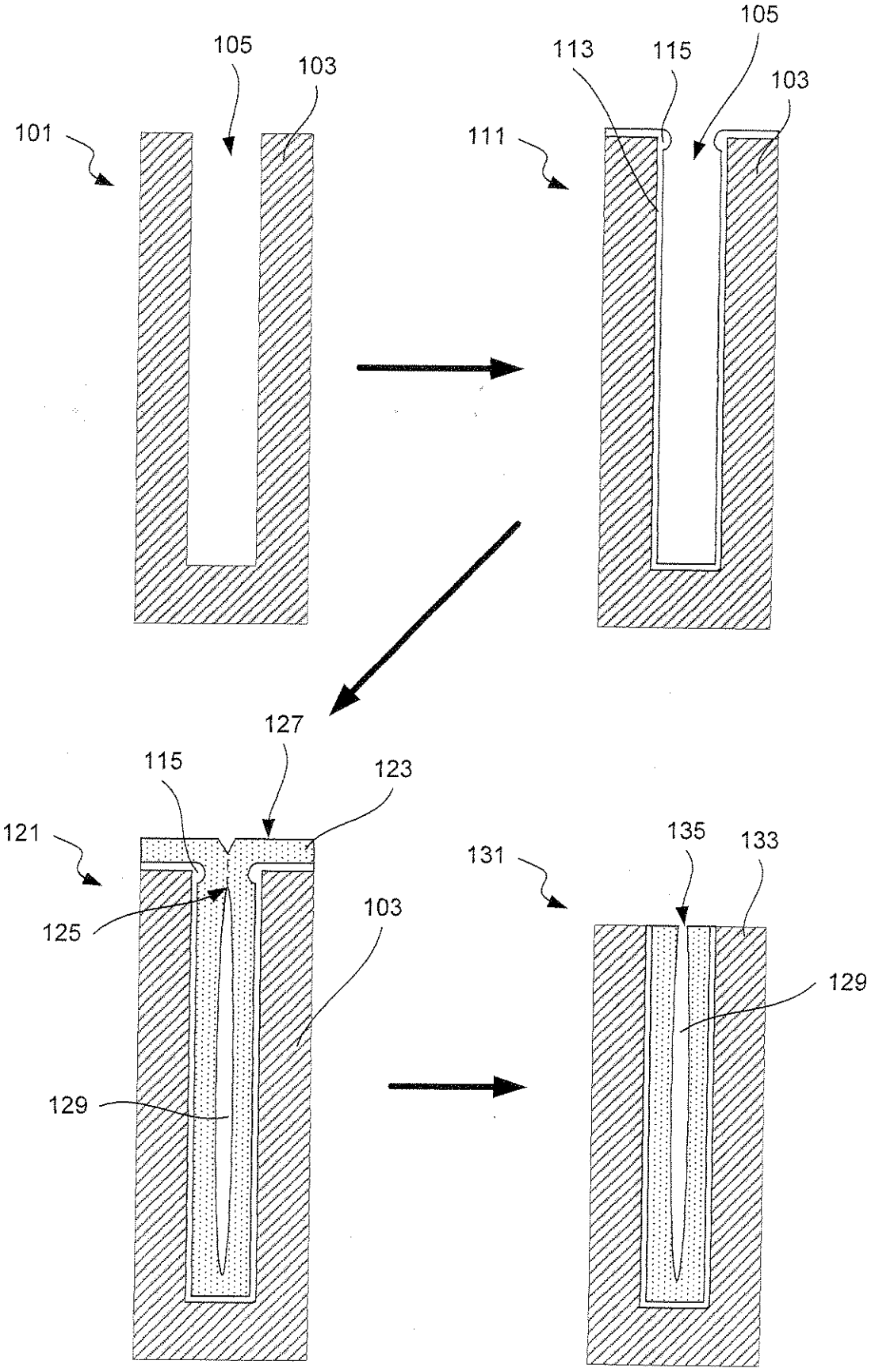

101
105
103
111
113
115
105
103
121
127
115
123
125
103
129
131
135
133
129

FIG. 1

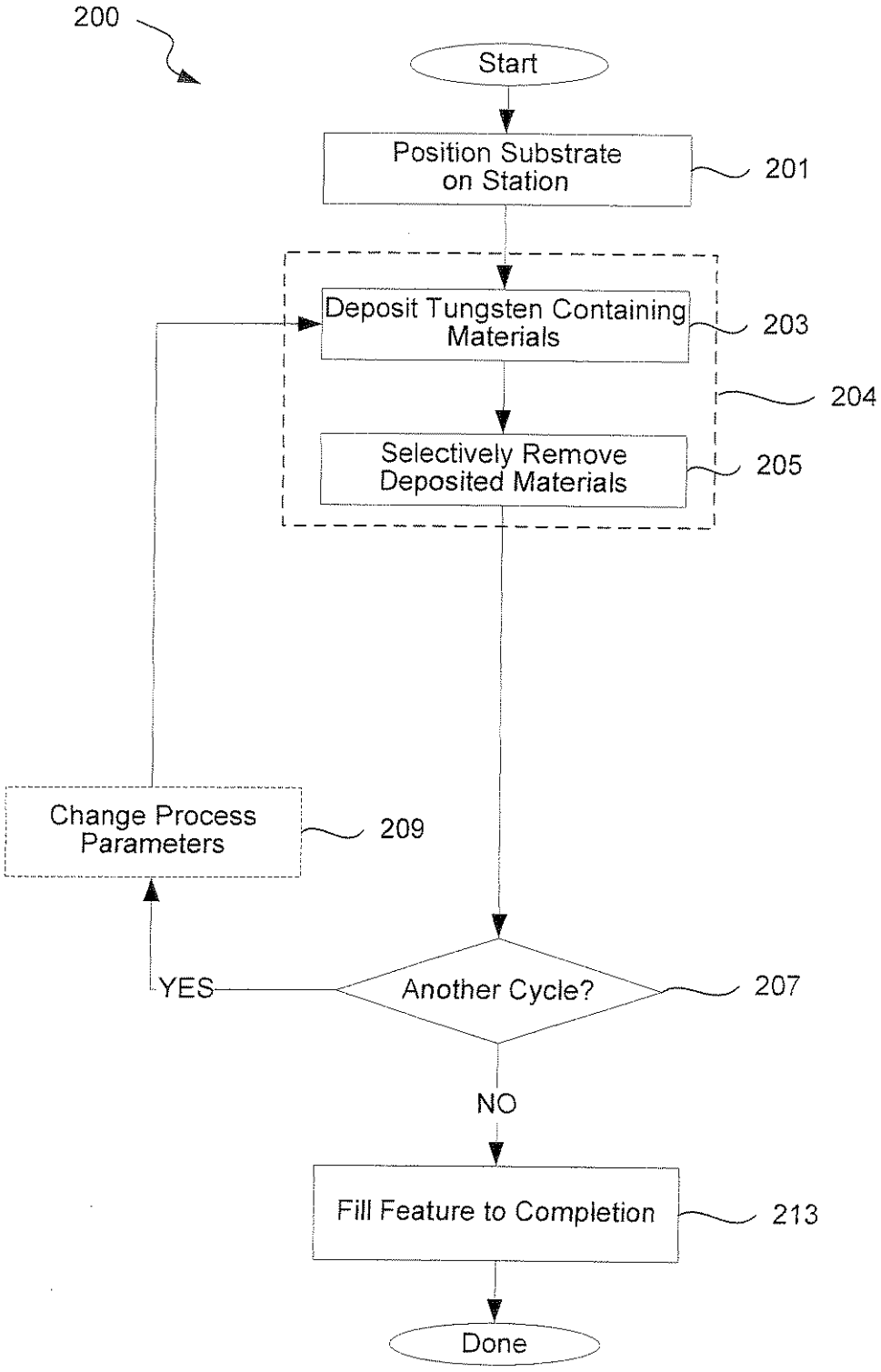

200
Start
Position Substrate on Station
201
Deposit Tungsten Containing Materials
203
204
Selectively Remove Deposited Materials
205
Change Process Parameters
209
YES
Another Cycle?
207
NO
Fill Feature to Completion
213
Done

FIG. 2

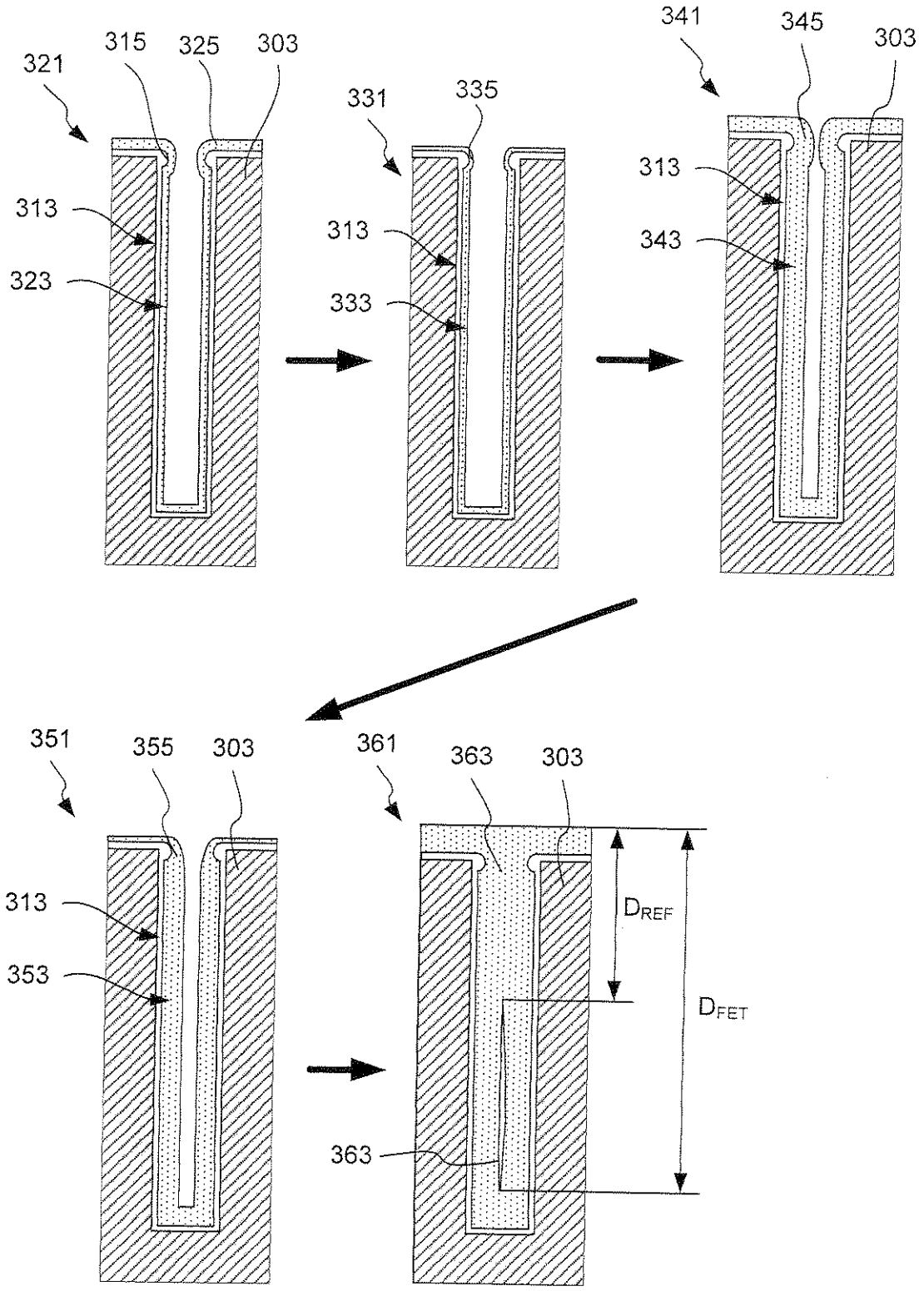

321
315
325
303
313
323
331
335
313
333
341
345
303
313
343
351
355
303
313
353
361
363
303
363
D_{REF}
D_{FET}

FIG. 3

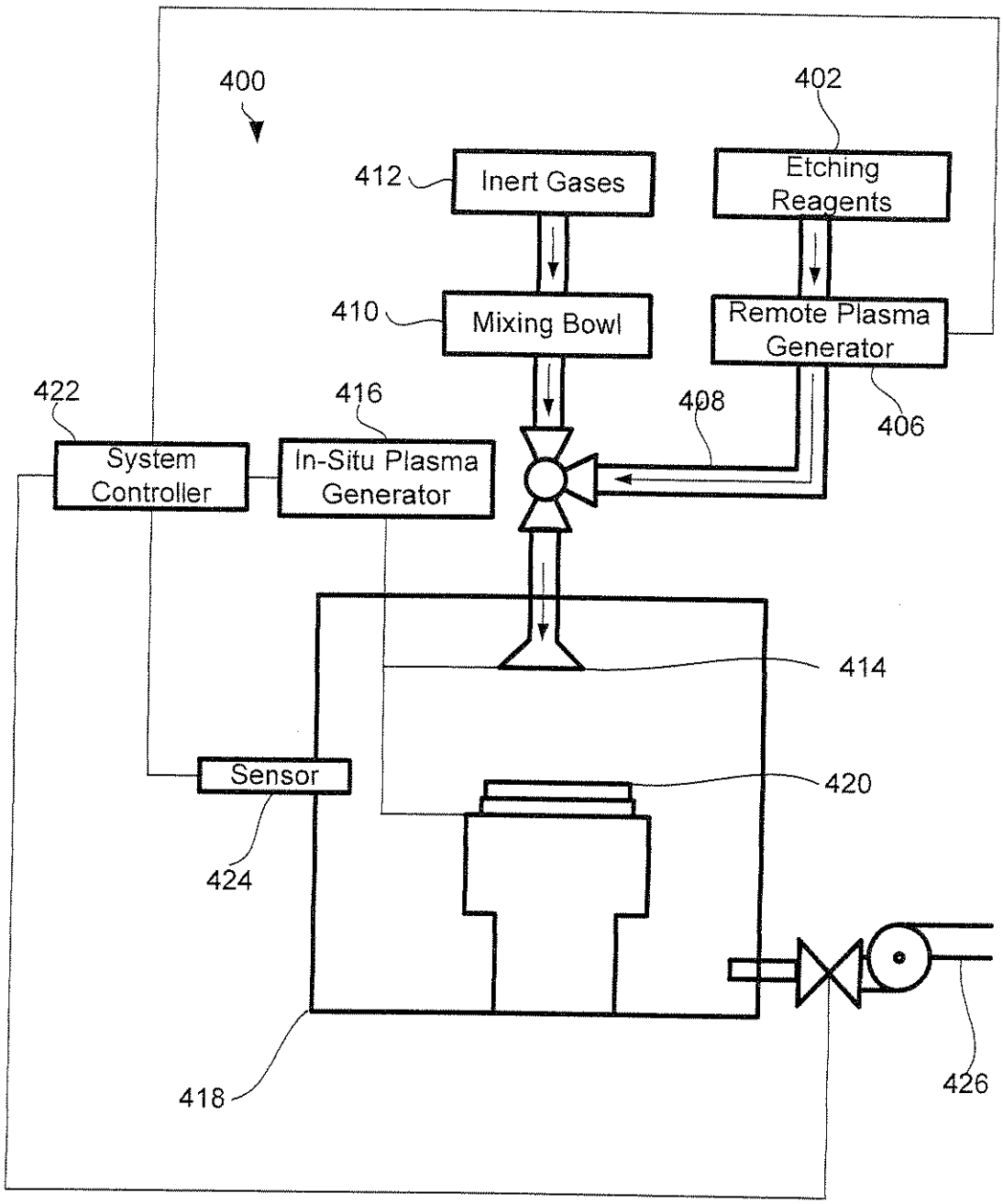

400
402
412
Inert Gases
Etching Reagents
410
Mixing Bowl
Remote Plasma Generator
422
416
408
406
System Controller
In-Situ Plasma Generator
414
Sensor
420
424
418
426

FIG. 4

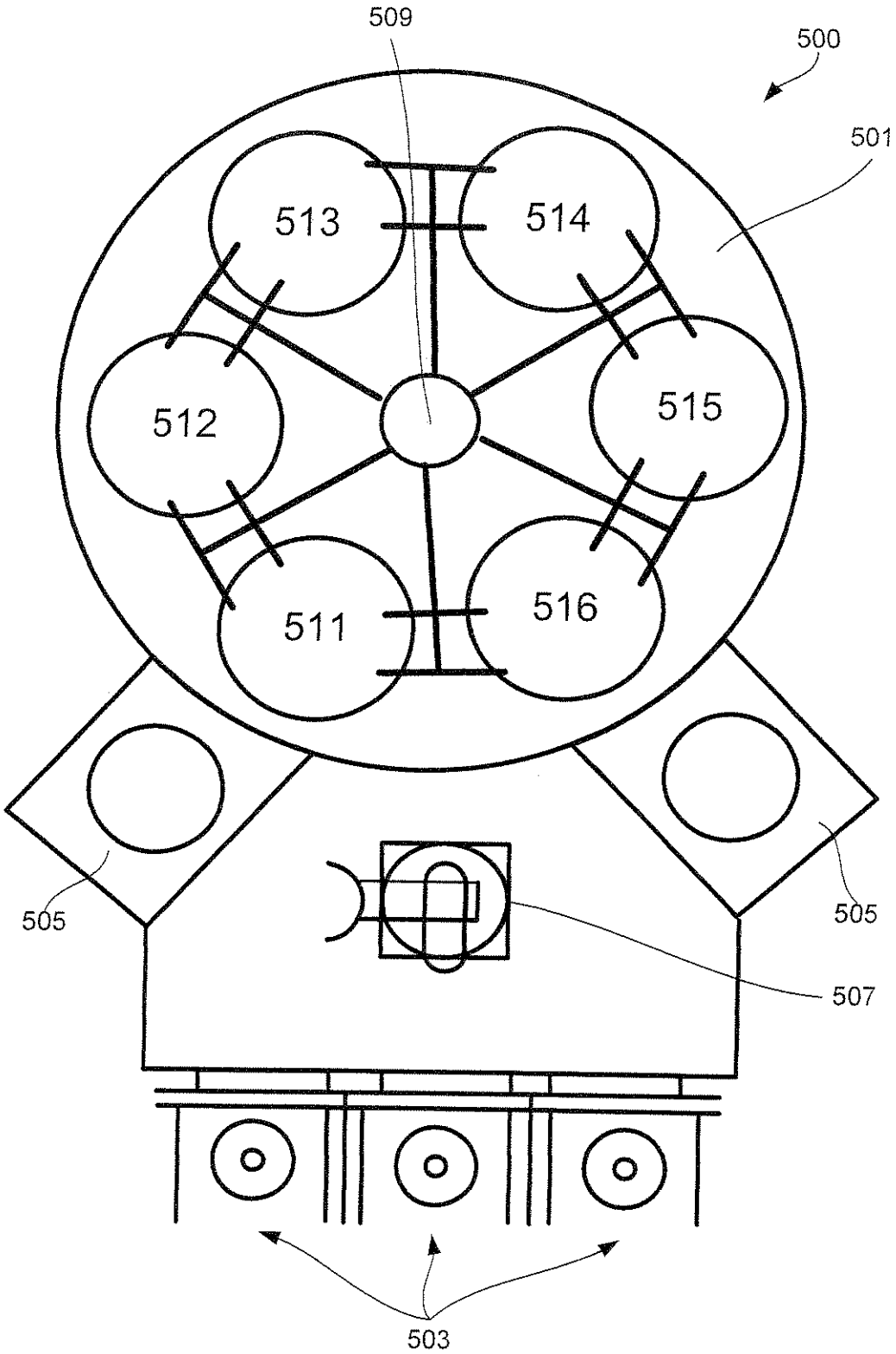


FIG. 5A

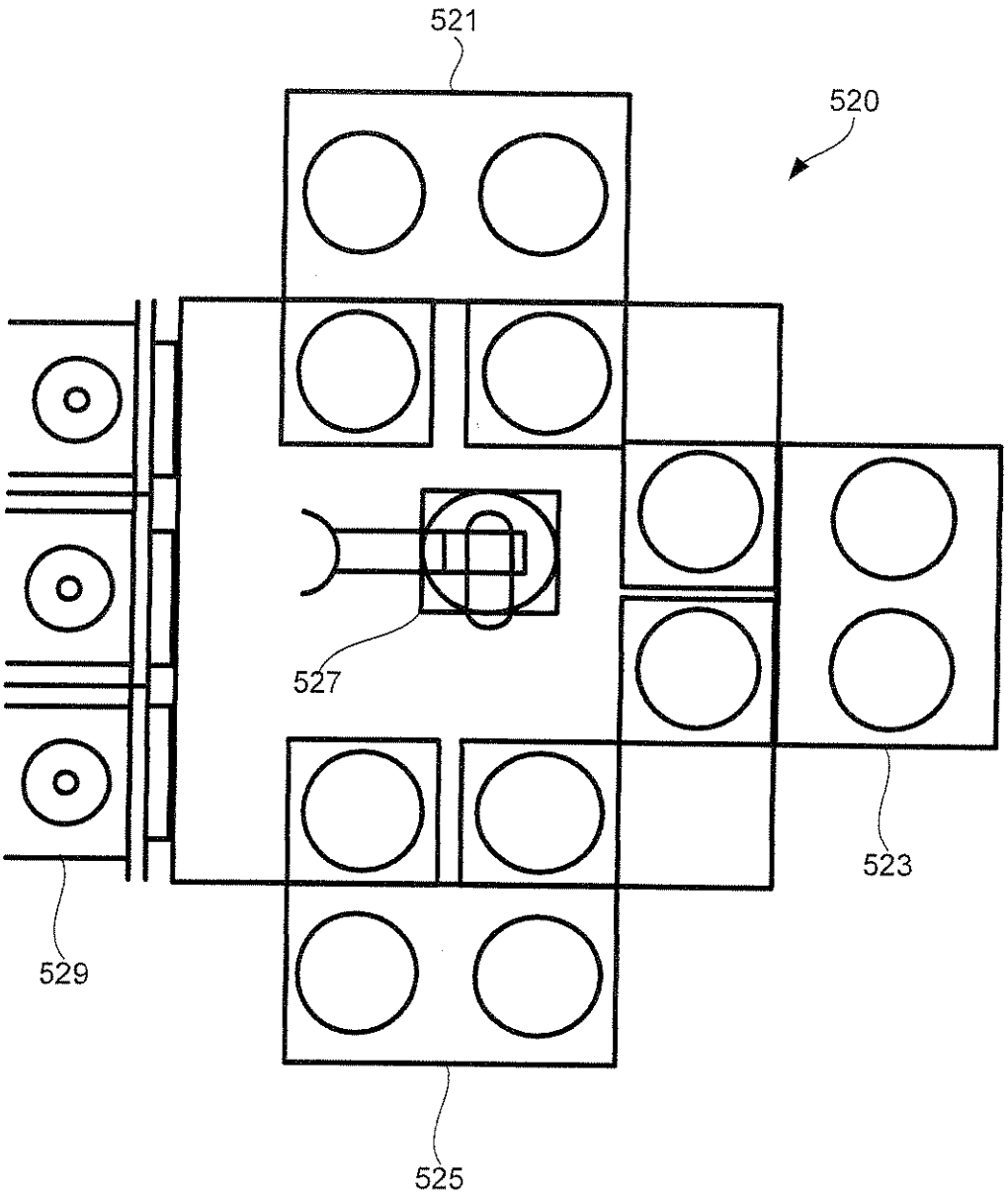


FIG. 5B

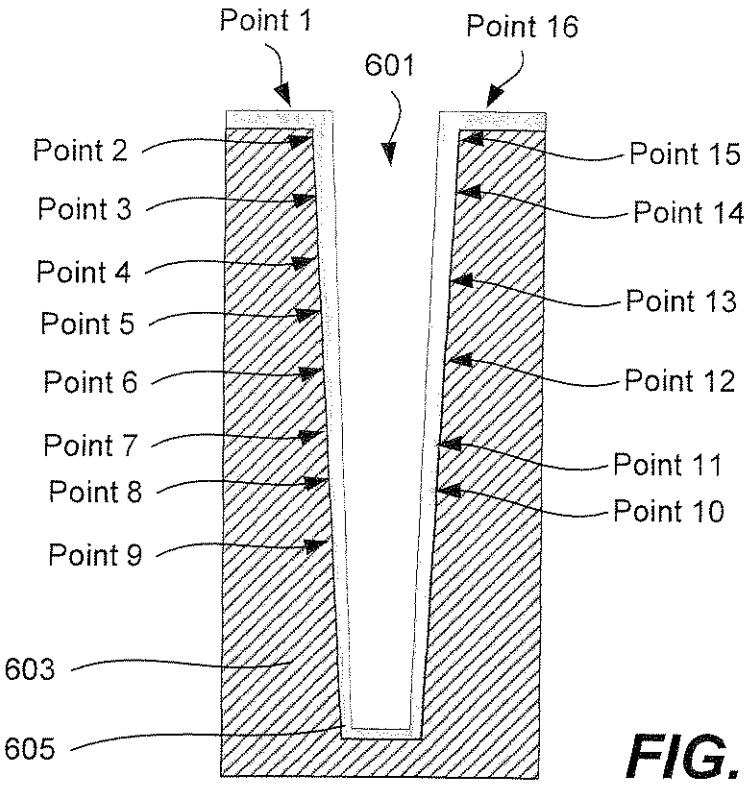

Point 1
Point 16
601
Point 2
Point 15
Point 3
Point 14
Point 4
Point 13
Point 5
Point 6
Point 12
Point 7
Point 11
Point 8
Point 10
Point 9
603
605

FIG. 6A

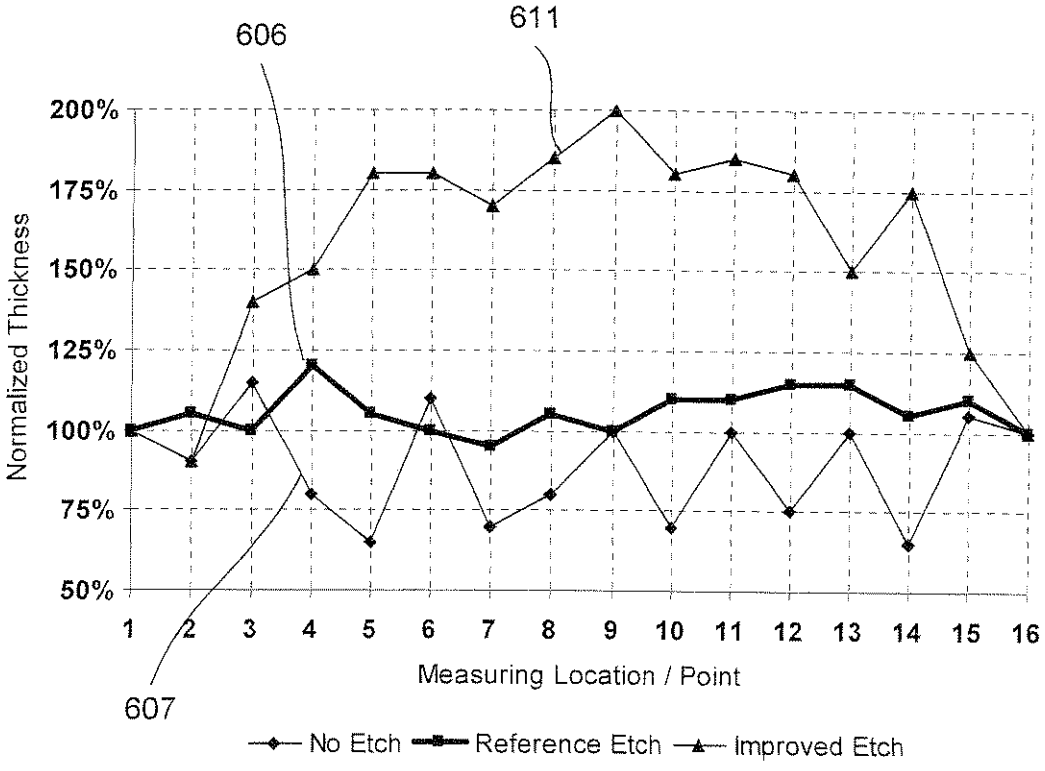

606
611
200%
175%
150%
125%
100%
75%
50%
Normalized Thickness
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Measuring Location / Point
607
No Etch
Reference Etch
Improved Etch

FIG. 6B

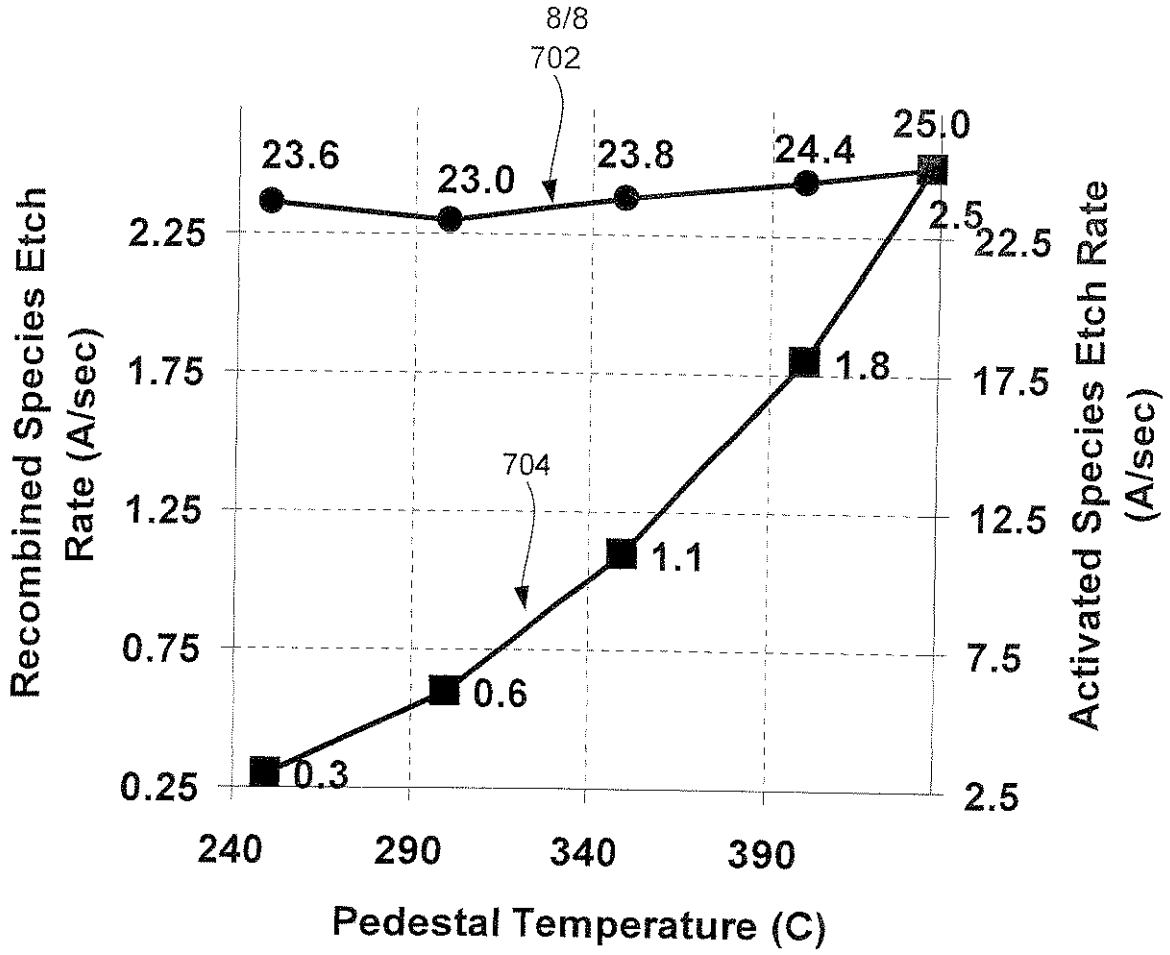

8/8
702
23.6
23.0
23.8
24.4
25.0
2.5
1.8
1.1
0.6
0.3
704
2.25
1.75
1.25
0.75
0.25
22.5
17.5
12.5
7.5
2.5
240
290
340
390
Recombined Species Etch Rate (A/sec)
Activated Species Etch Rate (A/sec)
Pedestal Temperature (C)

FIG. 7

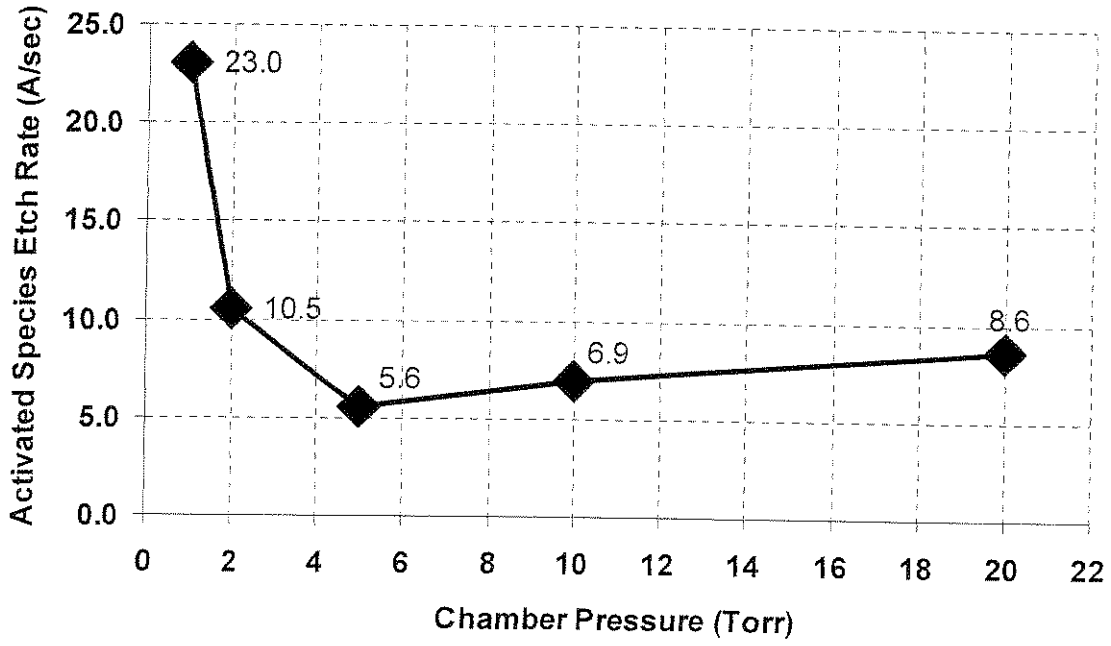

25.0
20.0
15.0
10.0
5.0
0.0
23.0
10.5
5.6
6.9
8.6
0
2
4
6
8
10
12
14
16
18
20
22
Activated Species Etch Rate (A/sec)
Chamber Pressure (Torr)

FIG. 8