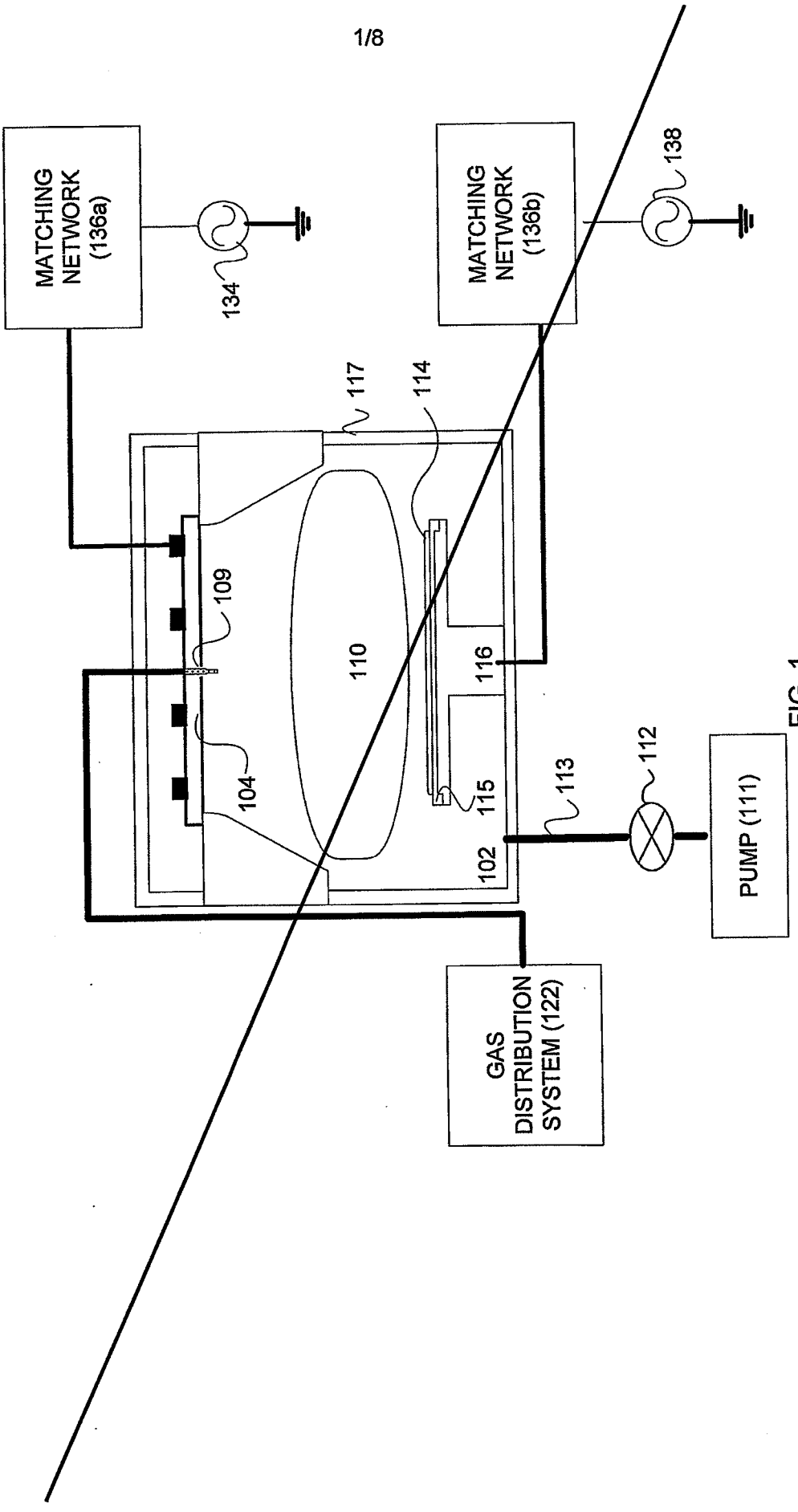

MATCHING NETWORK (136a)
134
MATCHING NETWORK (136b)
138
117
114
109
110
116
104
115
113
112
102
PUMP (111)
GAS DISTRIBUTION SYSTEM (122)

FIG. 1

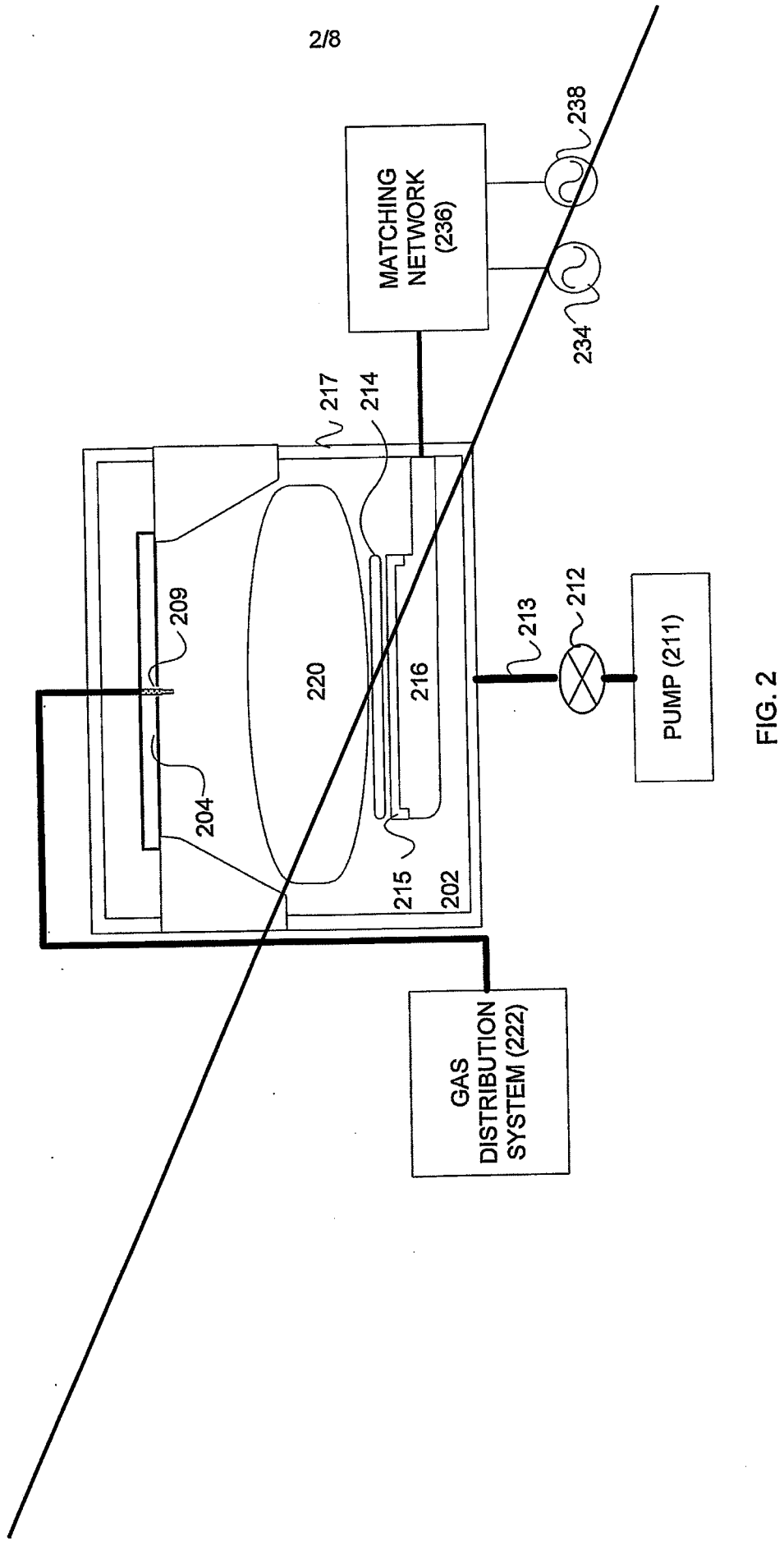

MATCHING NETWORK (236)
238
234
217
214
209
220
216
213
212
PUMP (211)
204
215
202
GAS DISTRIBUTION SYSTEM (222)

FIG. 2

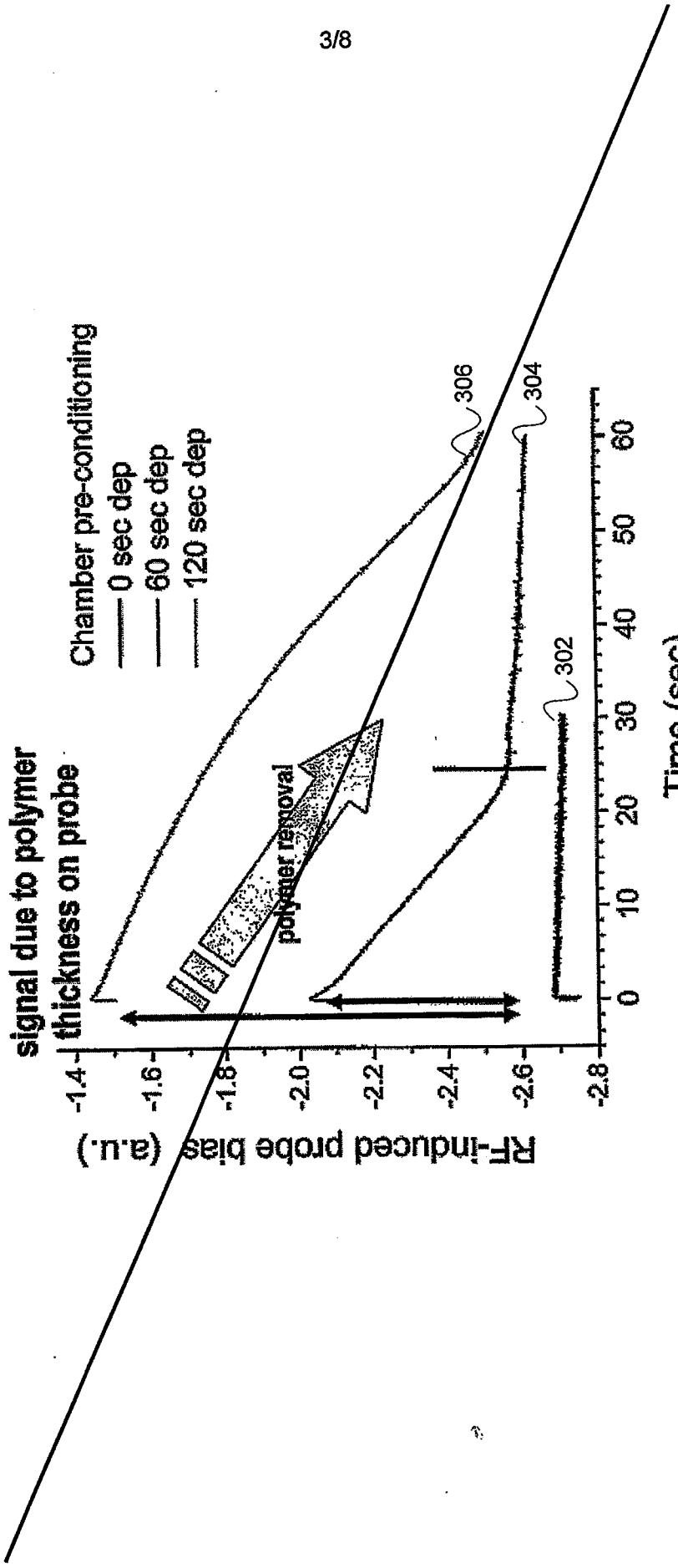

Chamber pre-conditioning
0 sec dep
60 sec dep
120 sec dep
signal due to polymer thickness on probe
polymer removal
306
304
302
RF-induced probe bias (a.u.)
-1.4
-1.6
-1.8
-2.0
-2.2
-2.4
-2.6
-2.8
0
10
20
30
40
50
60
Time (sec)

FIG. 3

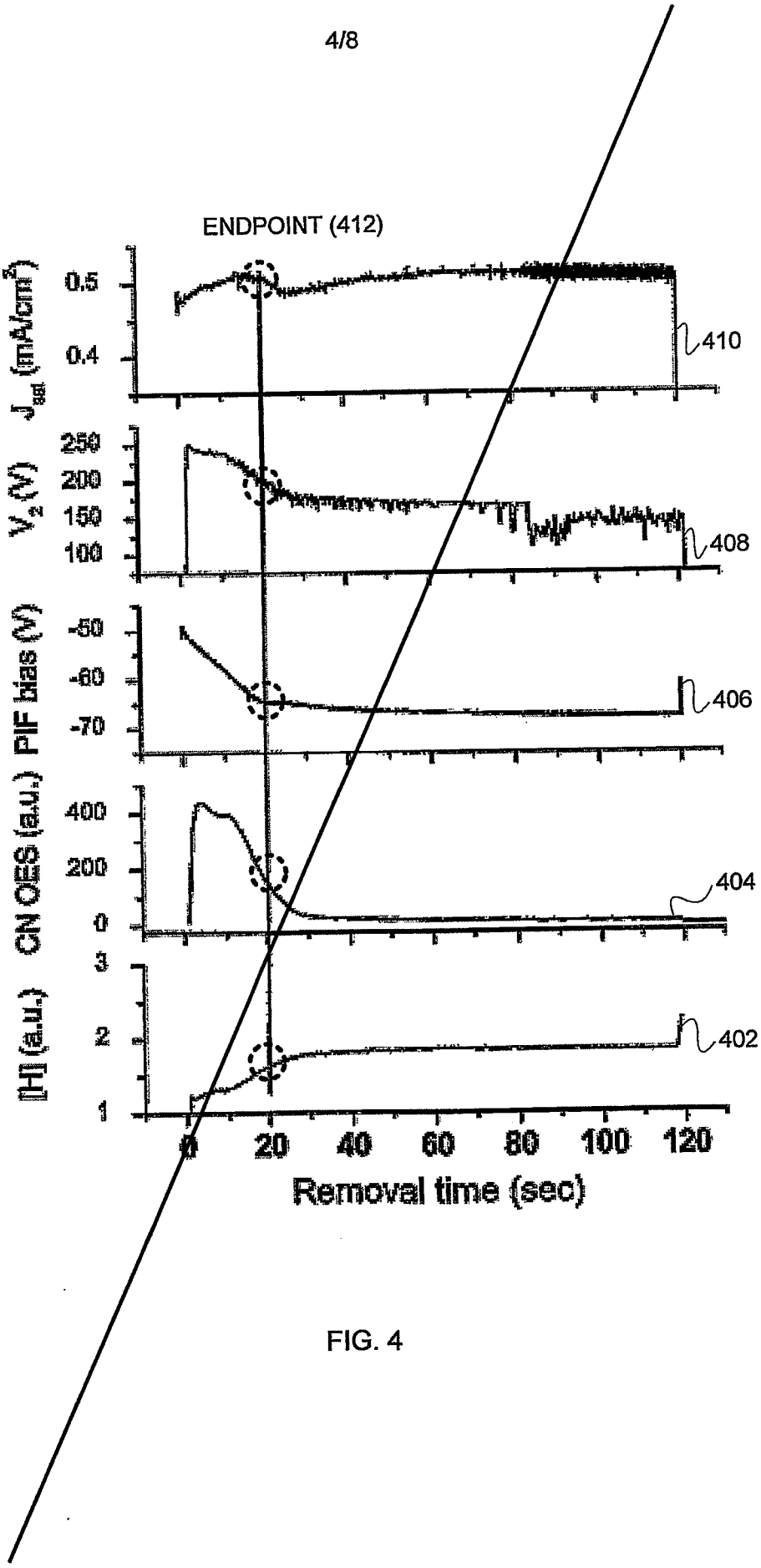

ENDPOINT (412)
J_{sat} (mA/cm^2)
0.5
0.4
410
V_2 (V)
250
200
150
100
408
PIF bias (V)
-50
-60
-70
406
CN OES (a.u.)
400
200
0
404
[H] (a.u.)
3
2
1
402
0
20
40
60
80
100
120
Removal time (sec)

FIG. 4

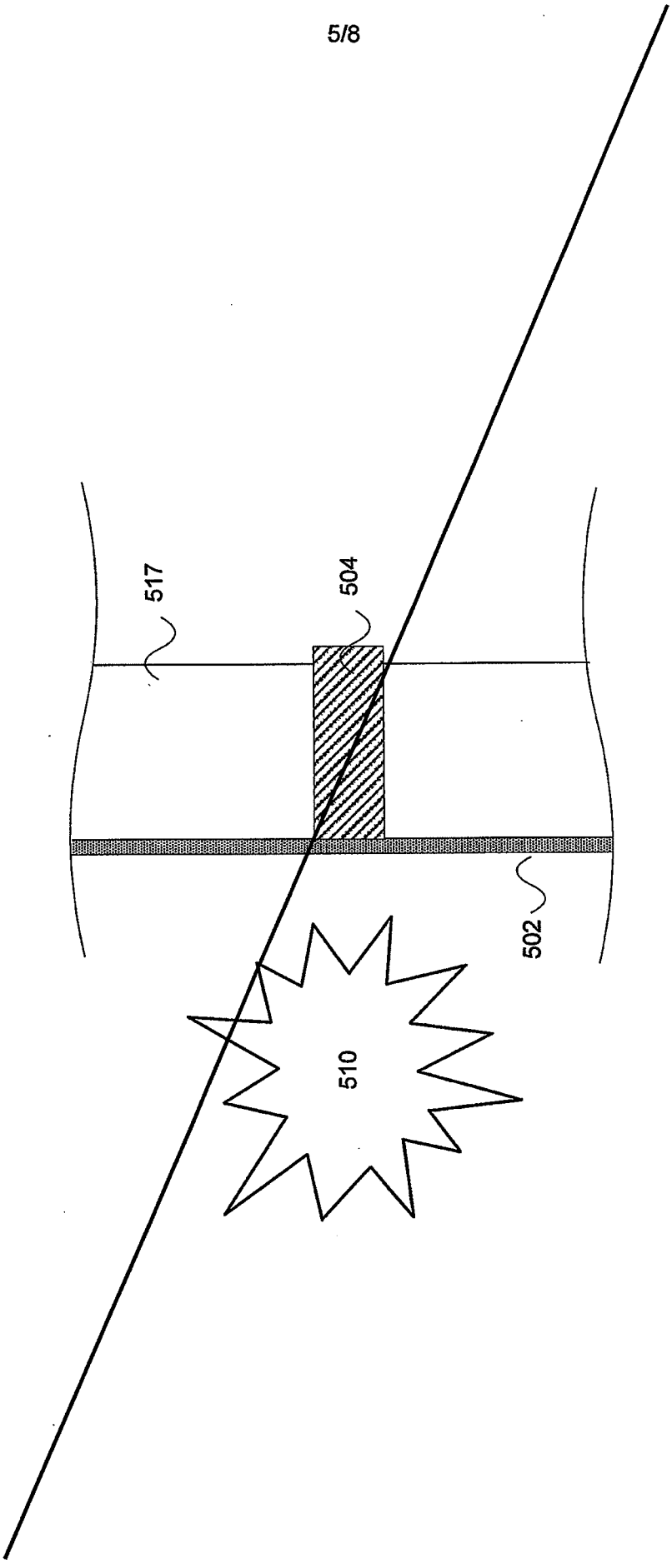


FIG. 5

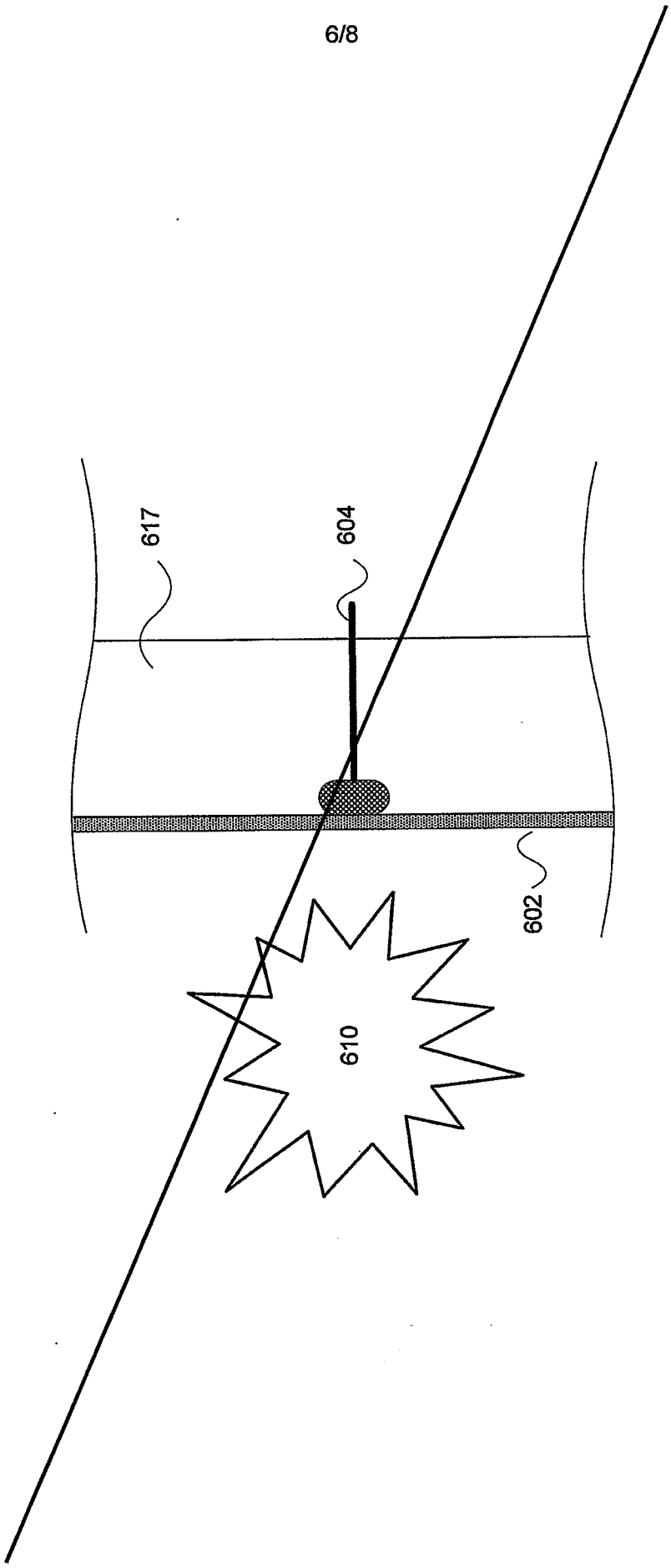


FIG. 6

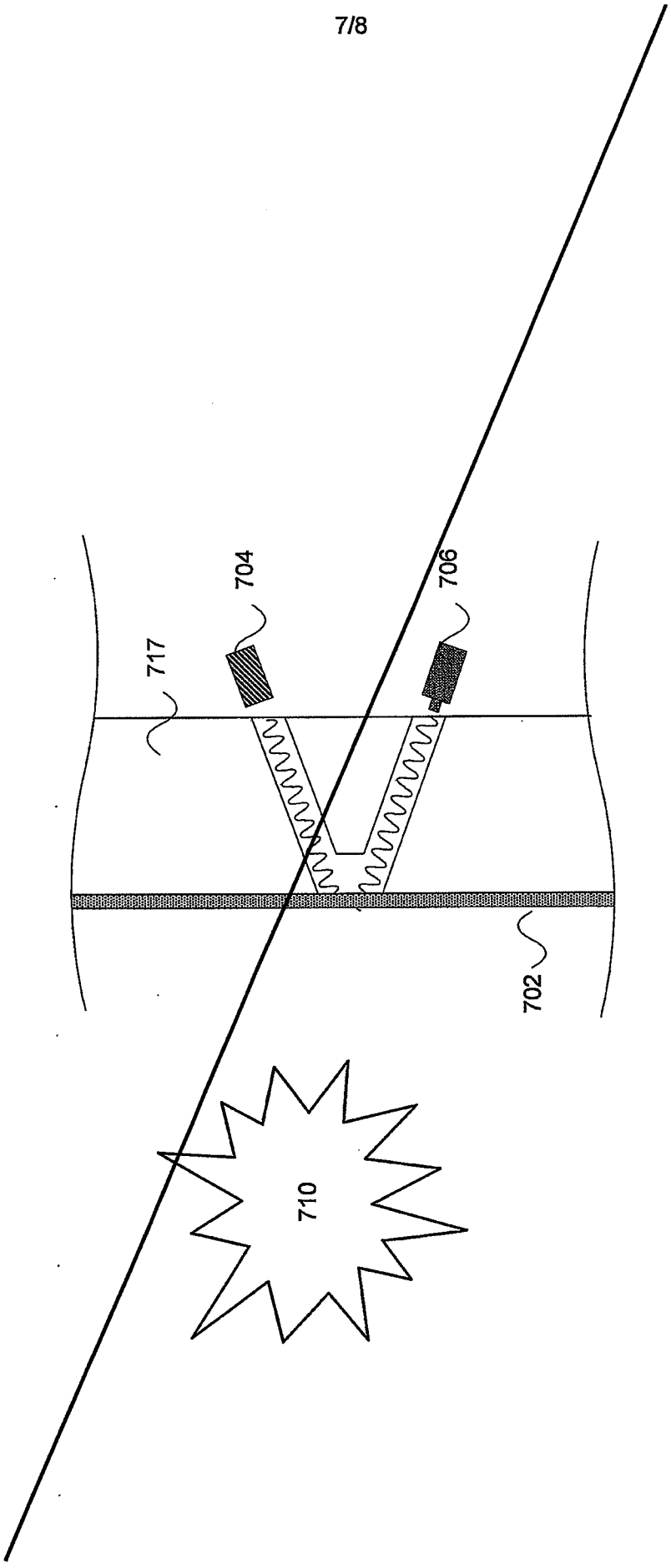


FIG. 7

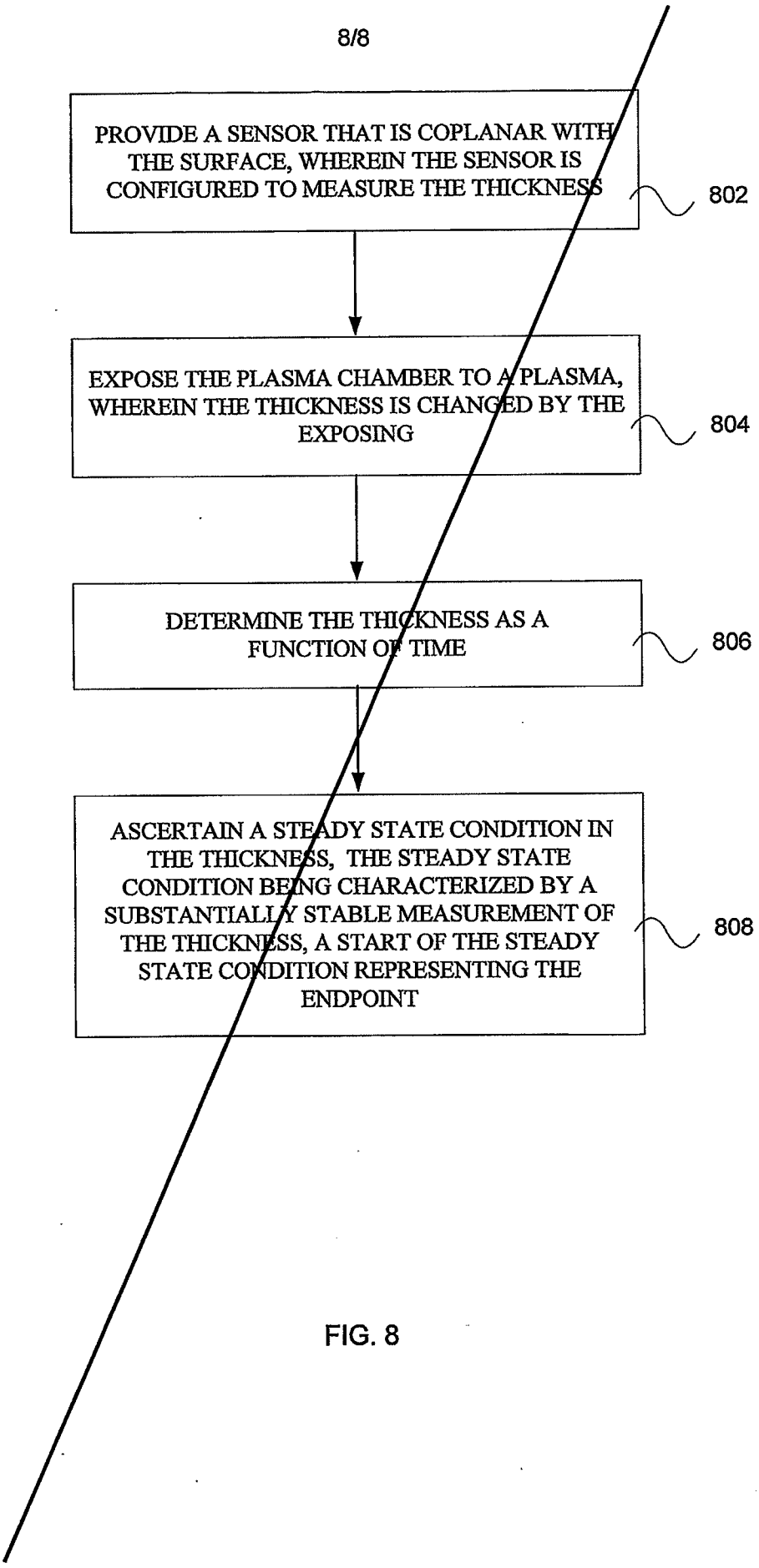

PROVIDE A SENSOR THAT IS COPLANAR WITH THE SURFACE, WHEREIN THE SENSOR IS CONFIGURED TO MEASURE THE THICKNESS
802
EXPOSE THE PLASMA CHAMBER TO A PLASMA, WHEREIN THE THICKNESS IS CHANGED BY THE EXPOSING
804
DETERMINE THE THICKNESS AS A FUNCTION OF TIME
806
ASCERTAIN A STEADY STATE CONDITION IN THE THICKNESS, THE STEADY STATE CONDITION BEING CHARACTERIZED BY A SUBSTANTIALLY STABLE MEASUREMENT OF THE THICKNESS, A START OF THE STEADY STATE CONDITION REPRESENTING THE ENDPOINT
808

FIG. 8

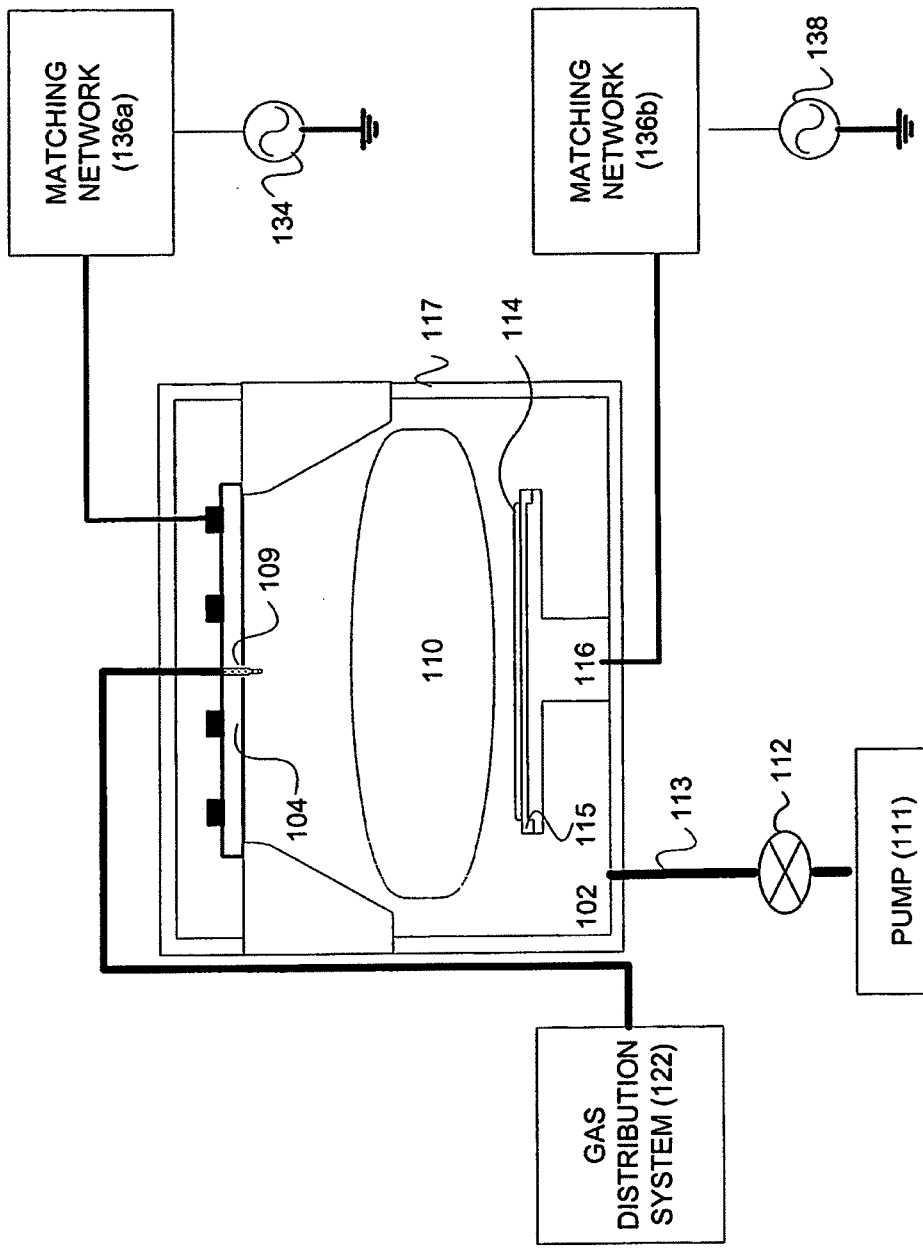

MATCHING NETWORK (136a)
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MATCHING NETWORK (136b)
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PUMP (111)
GAS DISTRIBUTION SYSTEM (122)

FIG. 1

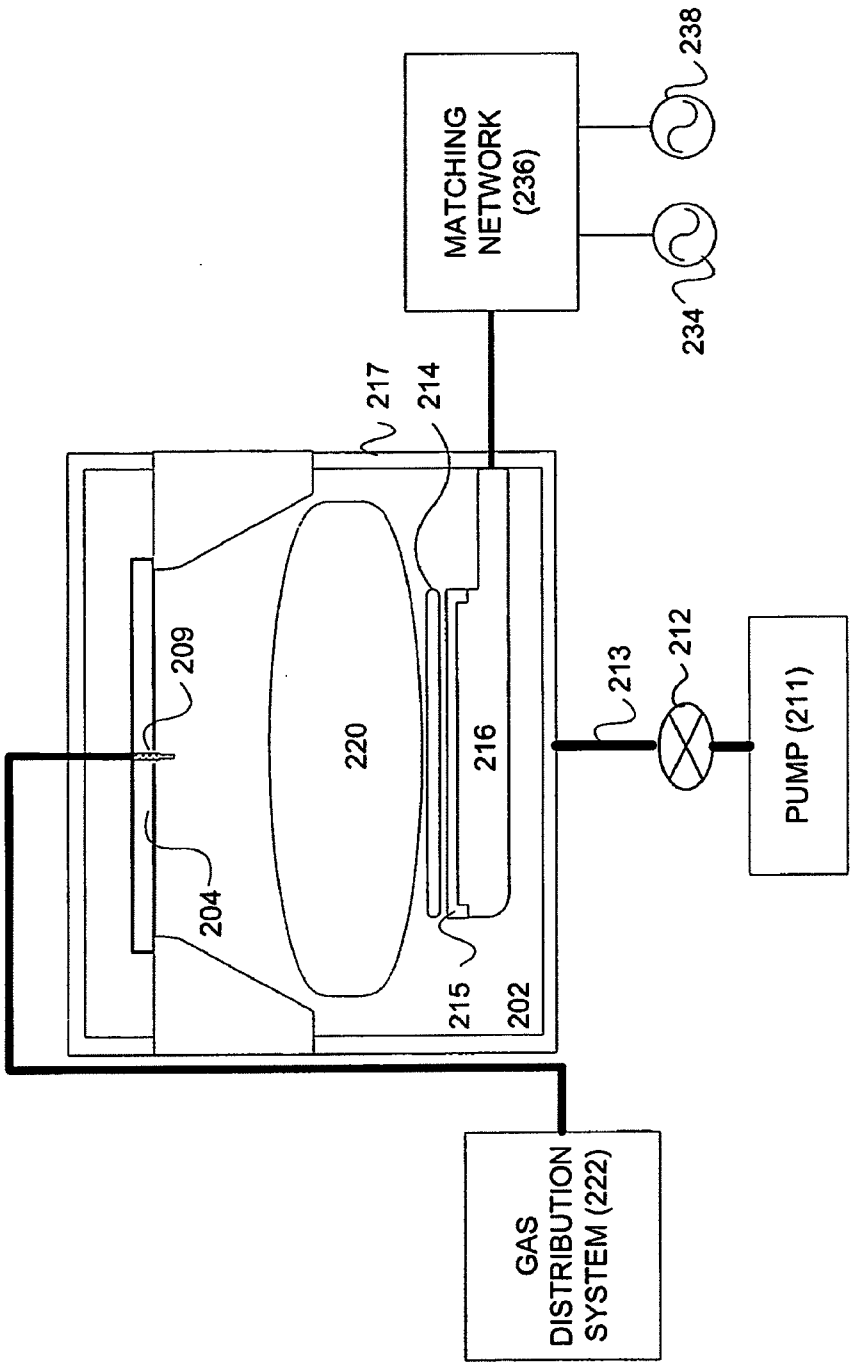

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FIG. 2

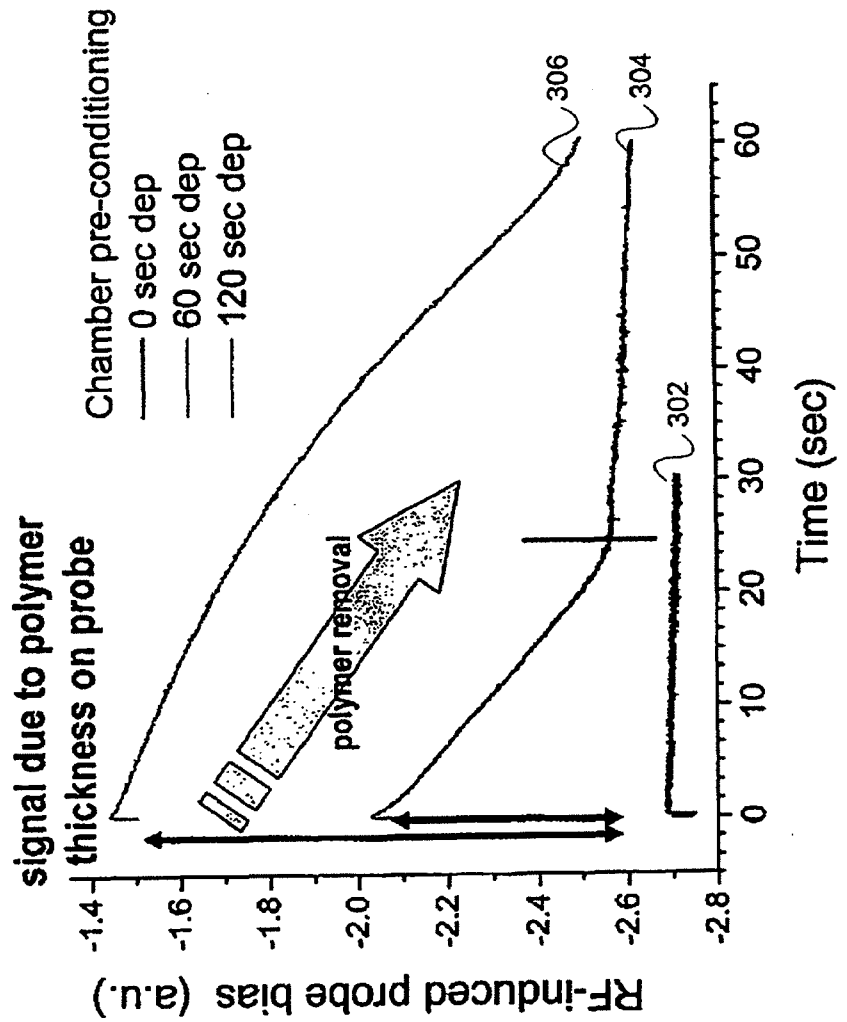

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polymer removal
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RF-induced probe bias (a.u.)
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-2.0
-2.2
-2.4
-2.6
-2.8
0
10
20
30
40
50
60
Time (sec)

FIG. 3

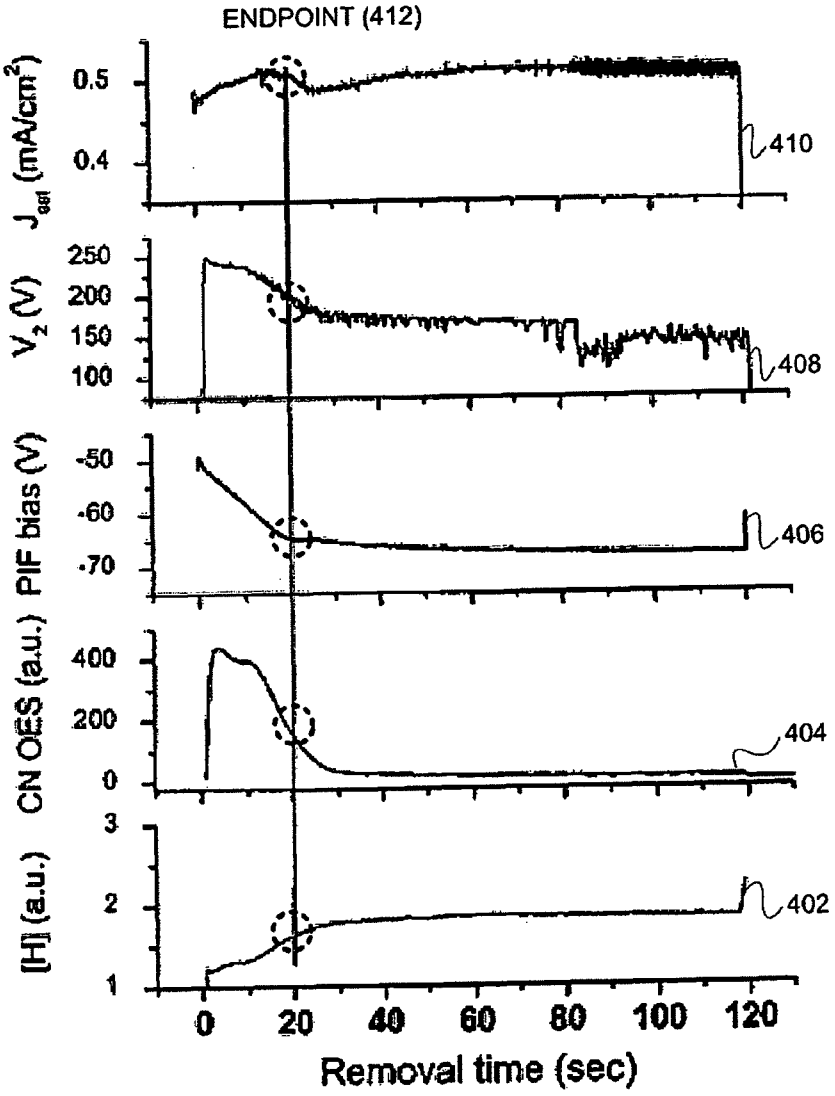

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V_2 (V)
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100
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PIF bias (V)
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-60
-70
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CN OES (a.u.)
400
200
0
404
[H] (a.u.)
3
2
1
402
0
20
40
60
80
100
120
Removal time (sec)

FIG. 4

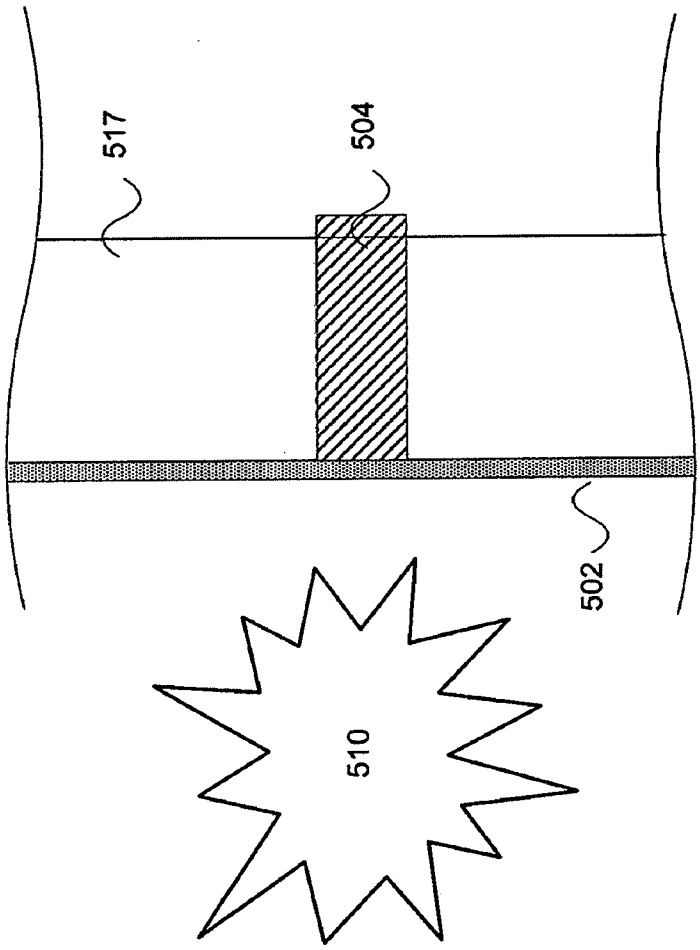


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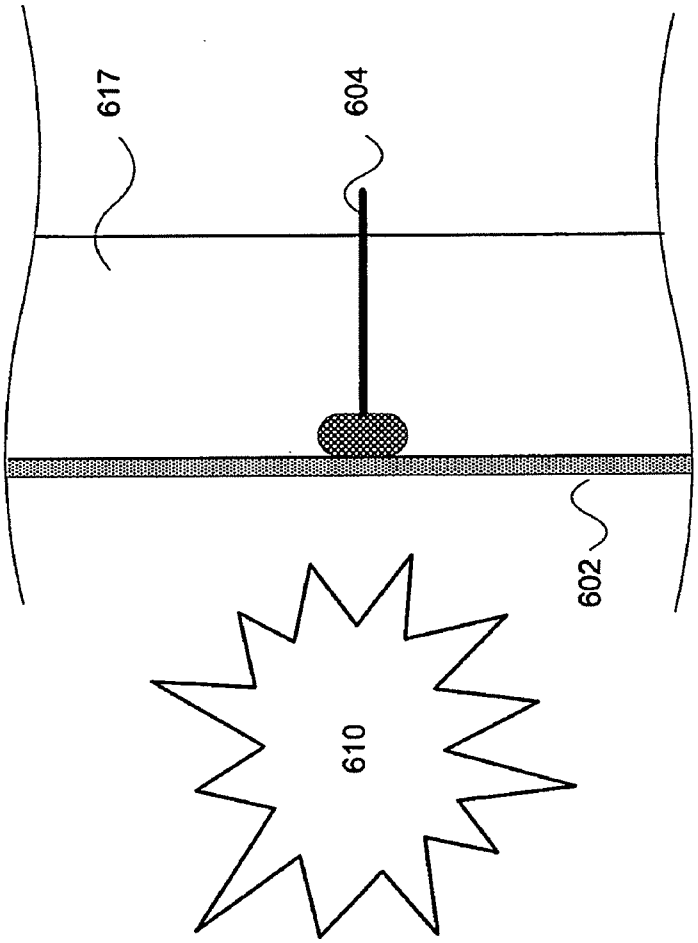


FIG. 6

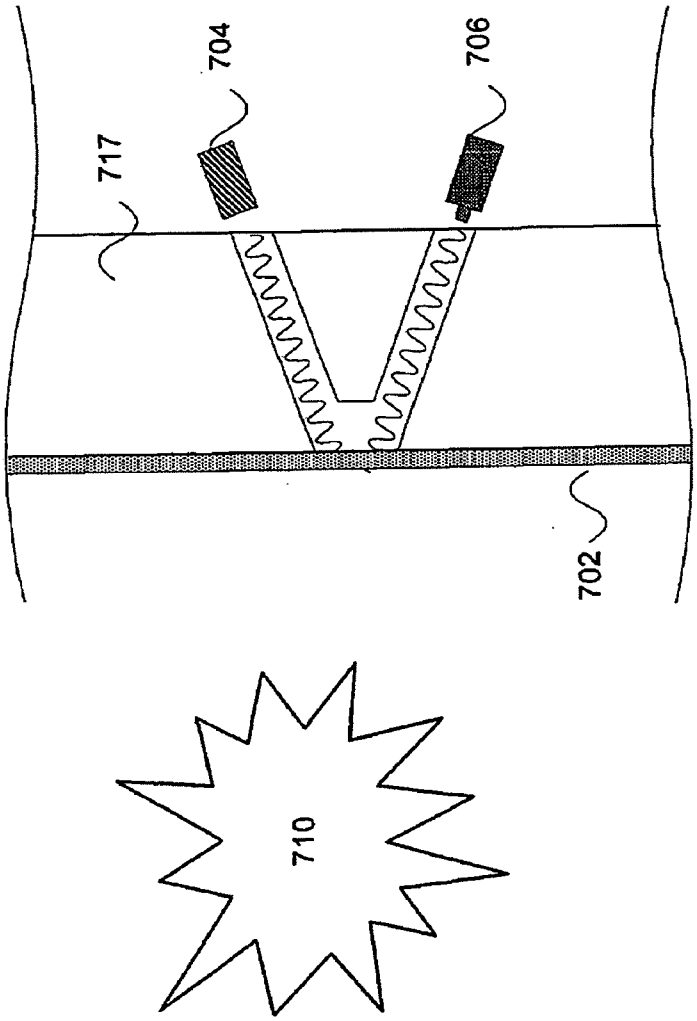


FIG. 7

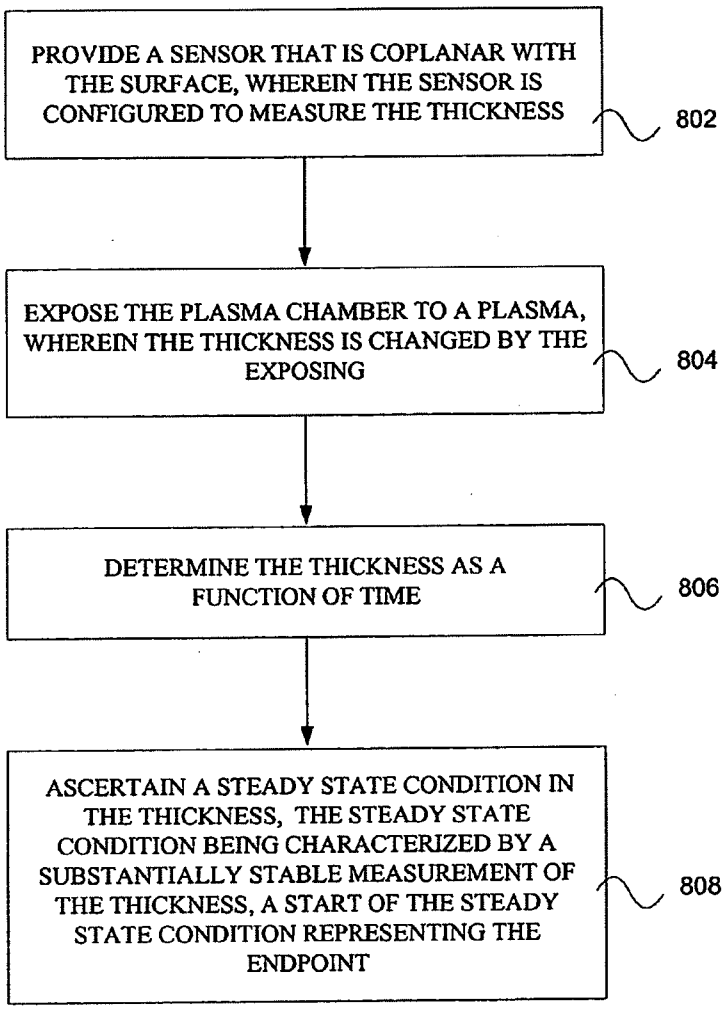

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FIG. 8