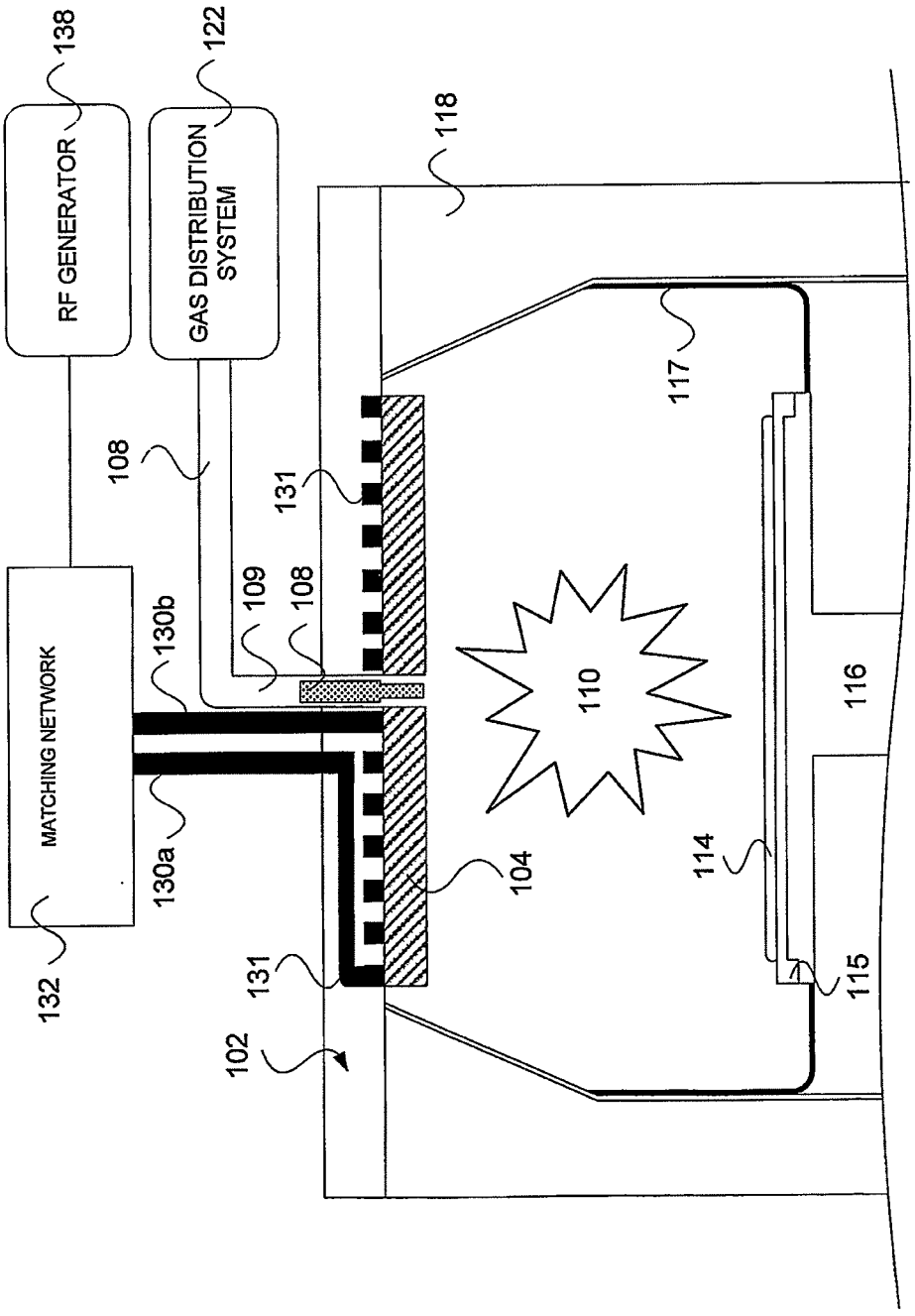

138
RF GENERATOR
122
GAS DISTRIBUTION SYSTEM
118
108
131
109
108
130b
MATCHING NETWORK
110
117
116
130a
104
114
132
131
115
102

FIG. 1

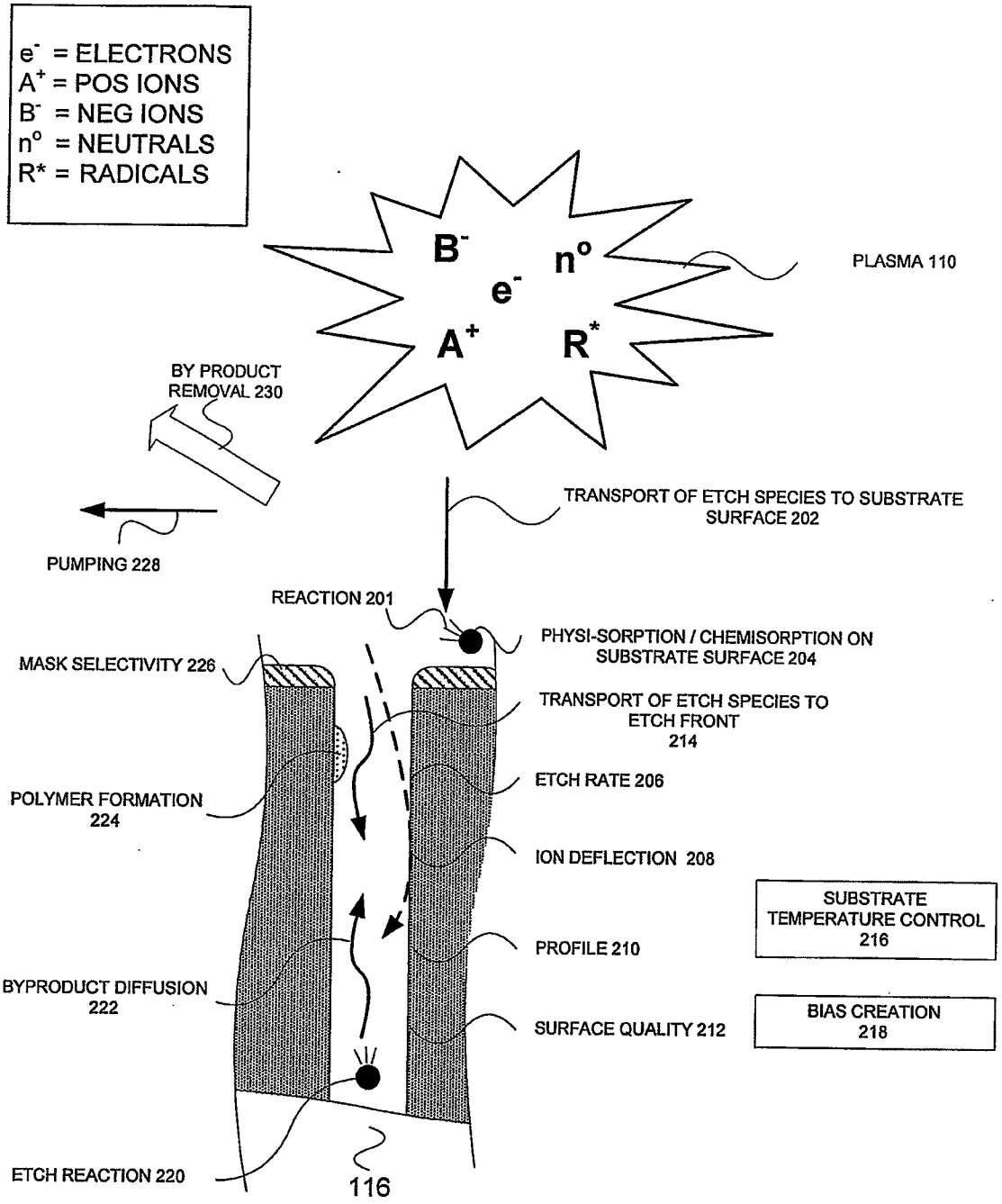

e⁻ = ELECTRONS
A⁺ = POS IONS
B⁻ = NEG IONS
n° = NEUTRALS
R* = RADICALS
B⁻
n°
e⁻
A⁺
R*
PLASMA 110
BY PRODUCT REMOVAL 230
PUMPING 228
TRANSPORT OF ETCH SPECIES TO SUBSTRATE SURFACE 202
REACTION 201
PHYSI-SORPTION / CHEMISORPTION ON SUBSTRATE SURFACE 204
MASK SELECTIVITY 226
TRANSPORT OF ETCH SPECIES TO ETCH FRONT 214
POLYMER FORMATION 224
ETCH RATE 206
ION DEFLECTION 208
SUBSTRATE TEMPERATURE CONTROL 216
PROFILE 210
BYPRODUCT DIFFUSION 222
BIAS CREATION 218
SURFACE QUALITY 212
ETCH REACTION 220
116

FIG. 2

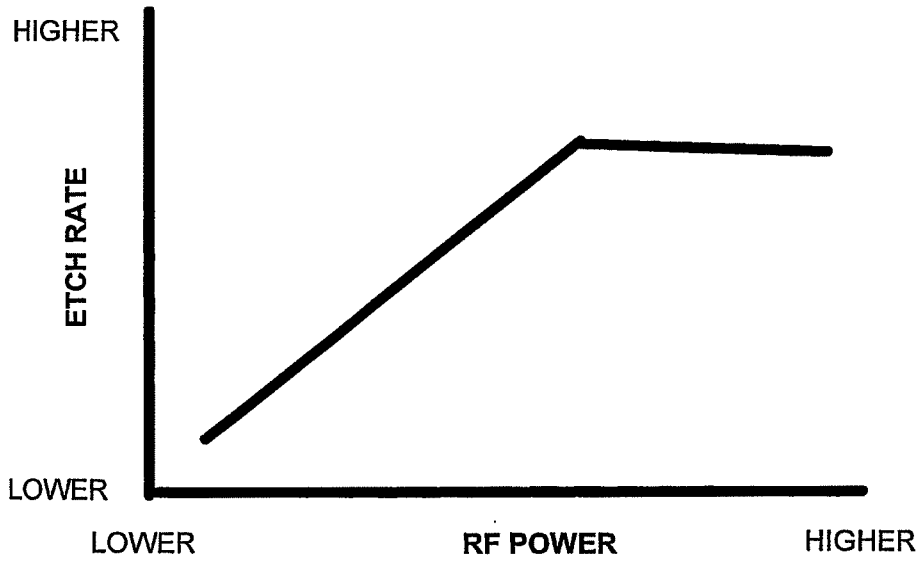

HIGHER
ETCH RATE
LOWER
LOWER
RF POWER
HIGHER

FIG. 3

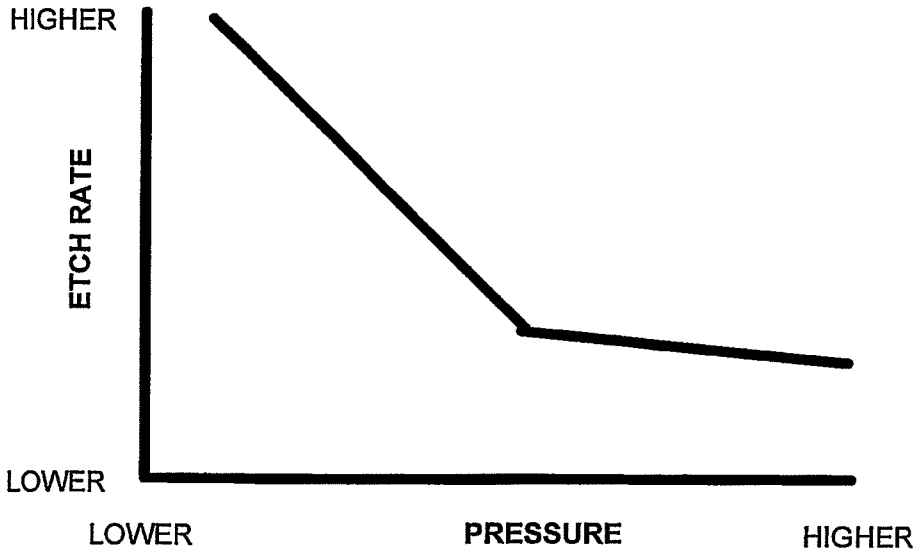

HIGHER
ETCH RATE
LOWER
LOWER
PRESSURE
HIGHER

FIG. 4

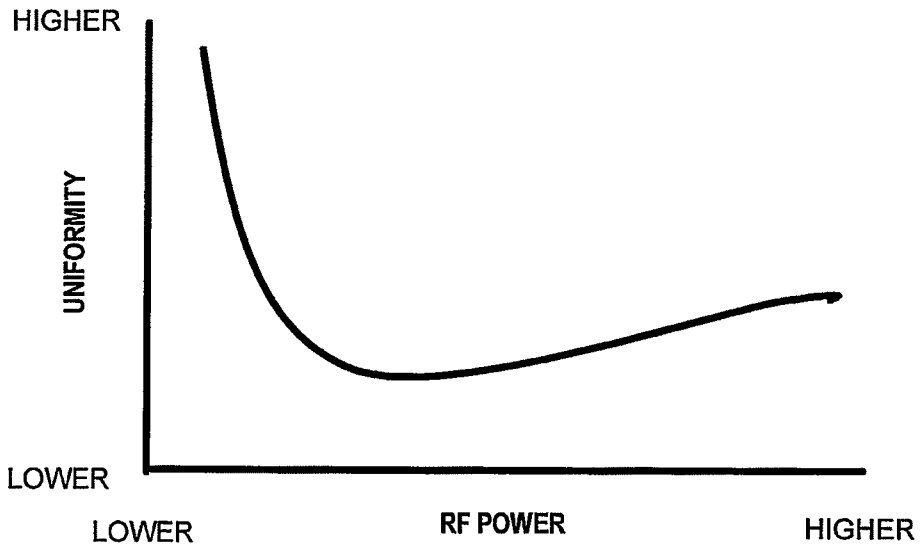

HIGHER
UNIFORMITY
LOWER
LOWER
RF POWER
HIGHER

FIG. 5

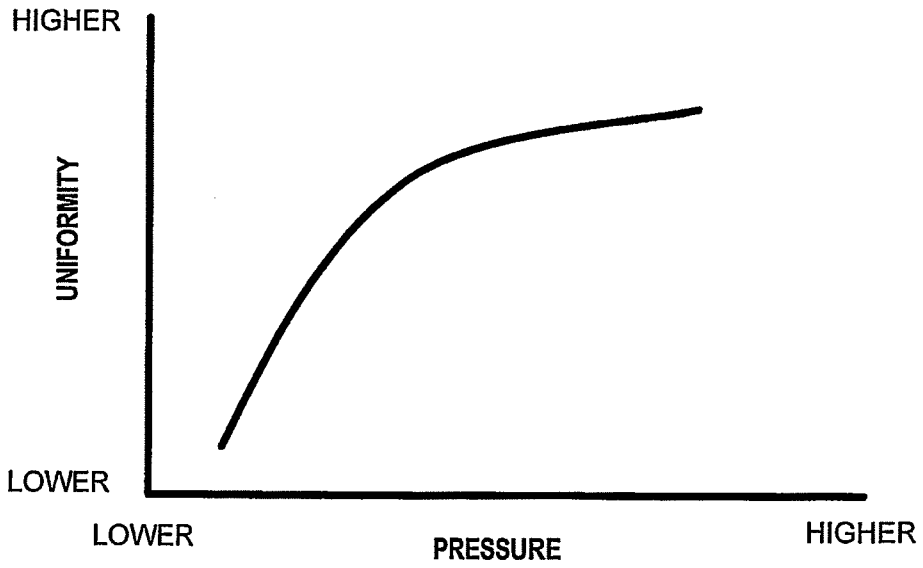

HIGHER
UNIFORMITY
LOWER
LOWER
PRESSURE
HIGHER

FIG. 6

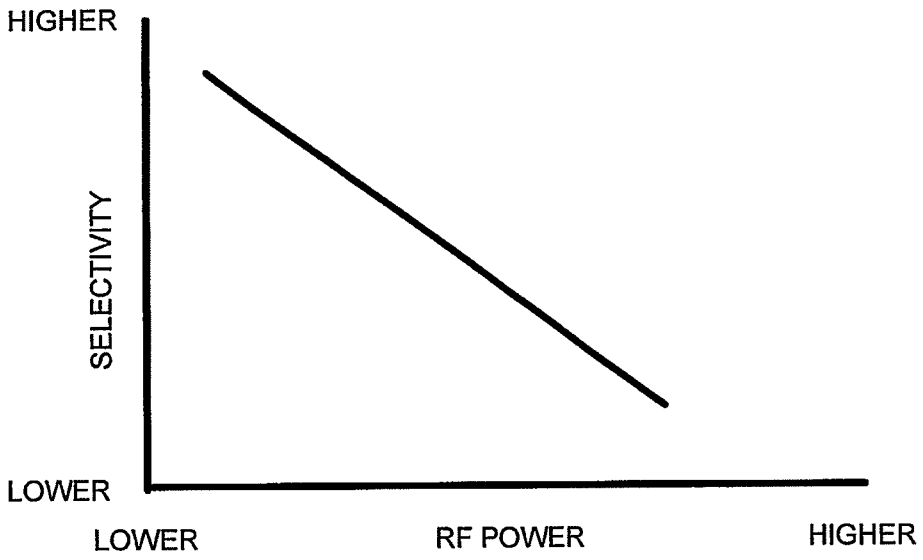

HIGHER
SELECTIVITY
LOWER
LOWER
RF POWER
HIGHER

FIG. 7

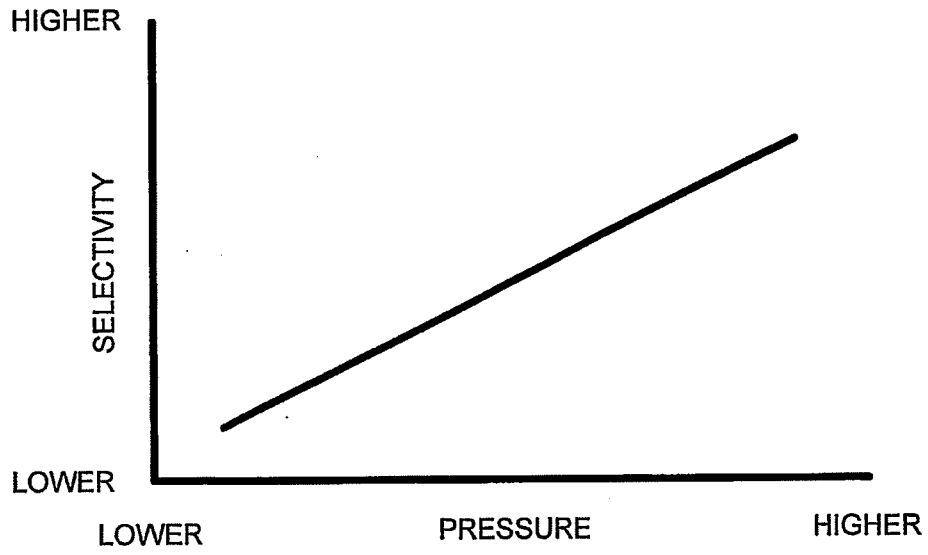

HIGHER
SELECTIVITY
LOWER
LOWER
PRESSURE
HIGHER

FIG. 8

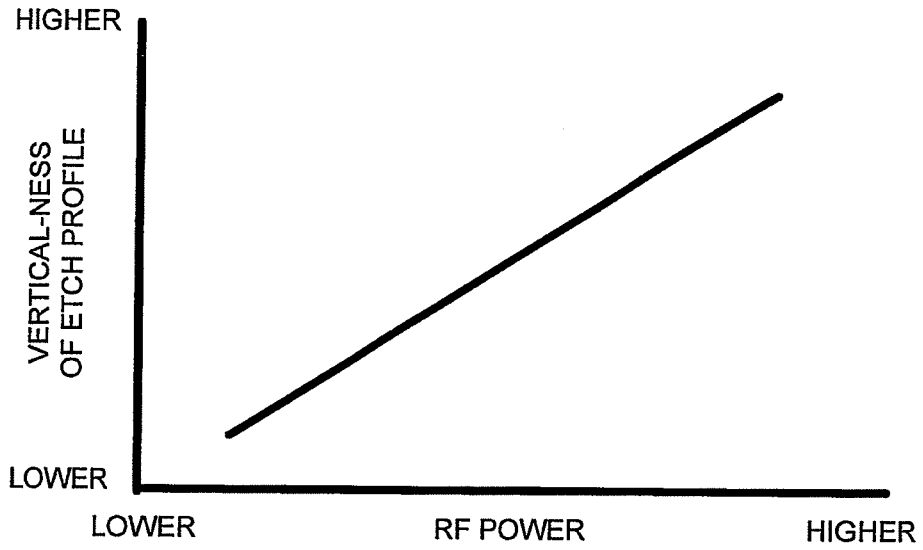

HIGHER
VERTICAL-NESS OF ETCH PROFILE
LOWER
LOWER
RF POWER
HIGHER

FIG. 9

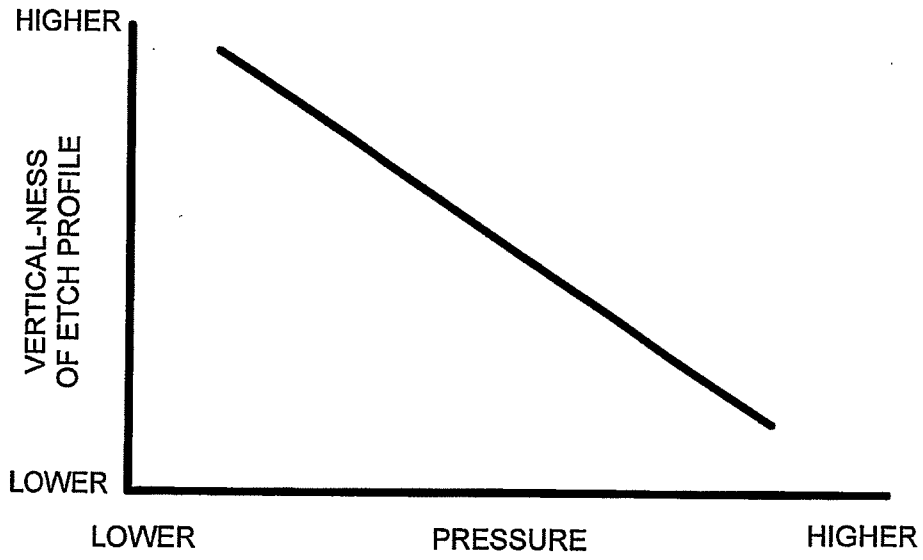

HIGHER
VERTICAL-NESS OF ETCH PROFILE
LOWER
LOWER
PRESSURE
HIGHER

FIG. 10

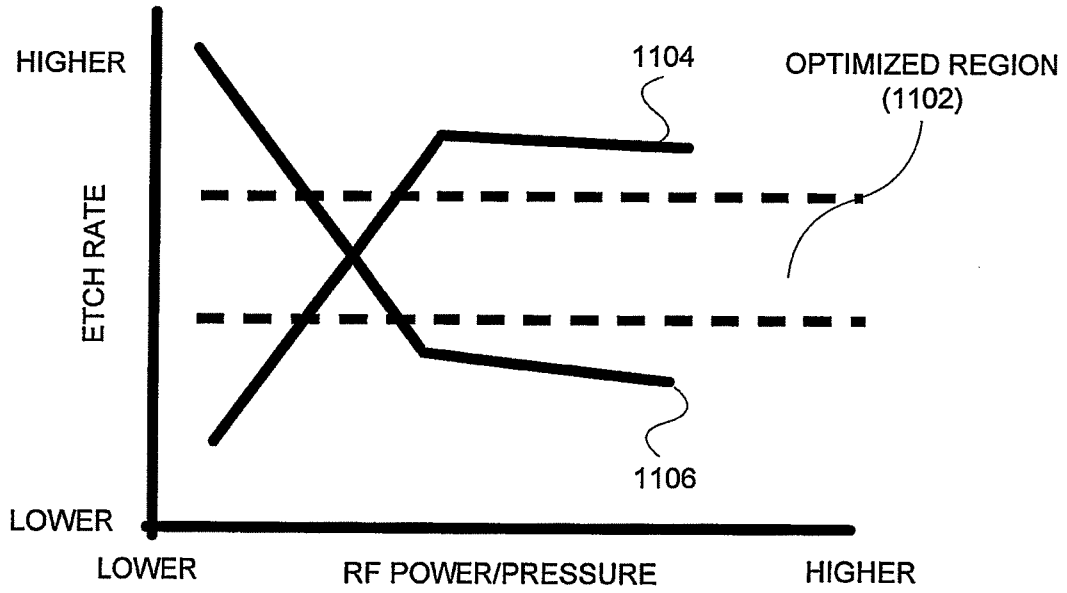

HIGHER
ETCH RATE
LOWER
LOWER
RF POWER/PRESSURE
HIGHER
1104
1106
OPTIMIZED REGION
(1102)

FIG. 11

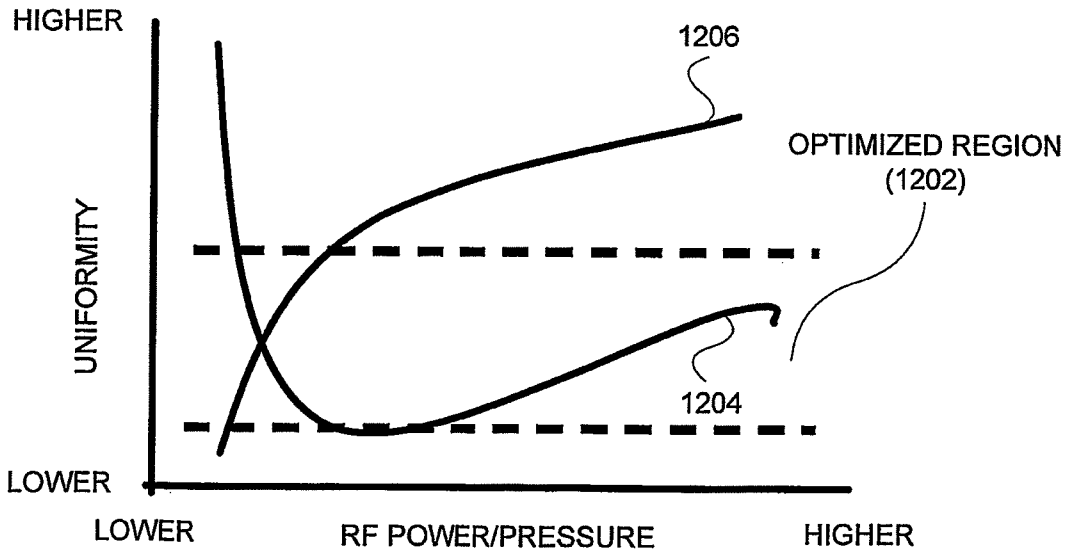

HIGHER
UNIFORMITY
LOWER
LOWER
RF POWER/PRESSURE
HIGHER
1206
1204
OPTIMIZED REGION
(1202)

FIG. 12

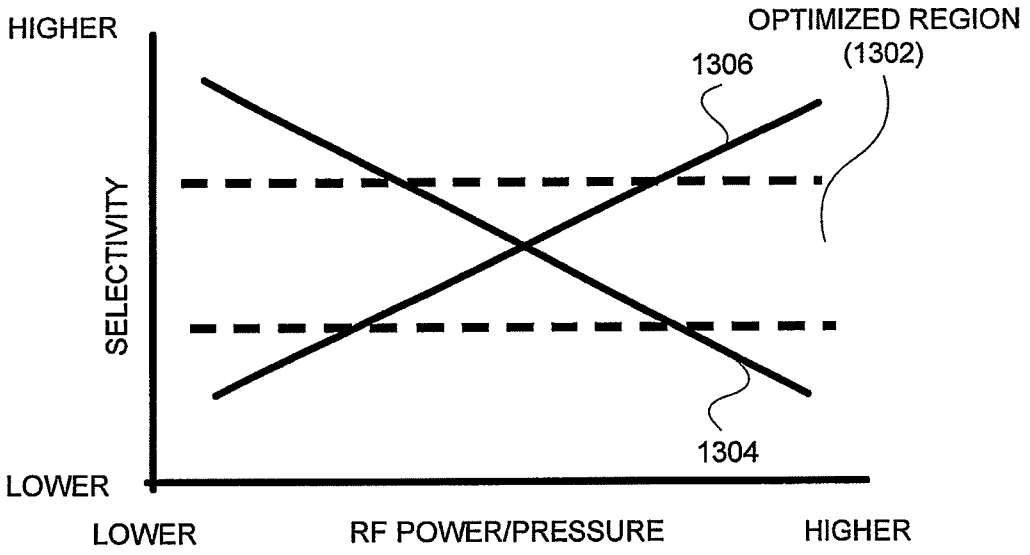

HIGHER
OPTIMIZED REGION
(1302)
1306
SELECTIVITY
1304
LOWER
LOWER
RF POWER/PRESSURE
HIGHER

FIG. 13

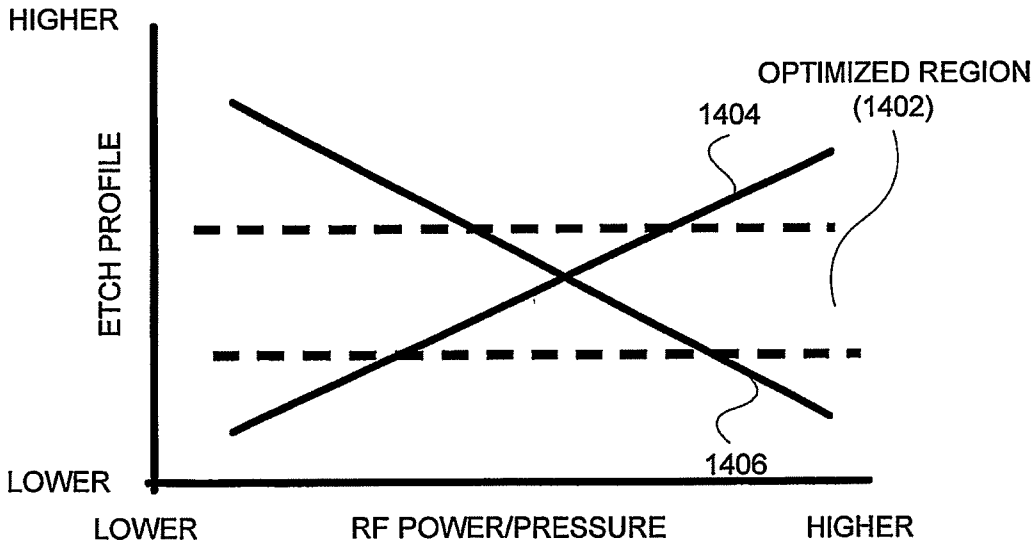

HIGHER
OPTIMIZED REGION
(1402)
1404
ETCH PROFILE
1406
LOWER
LOWER
RF POWER/PRESSURE
HIGHER

FIG. 14

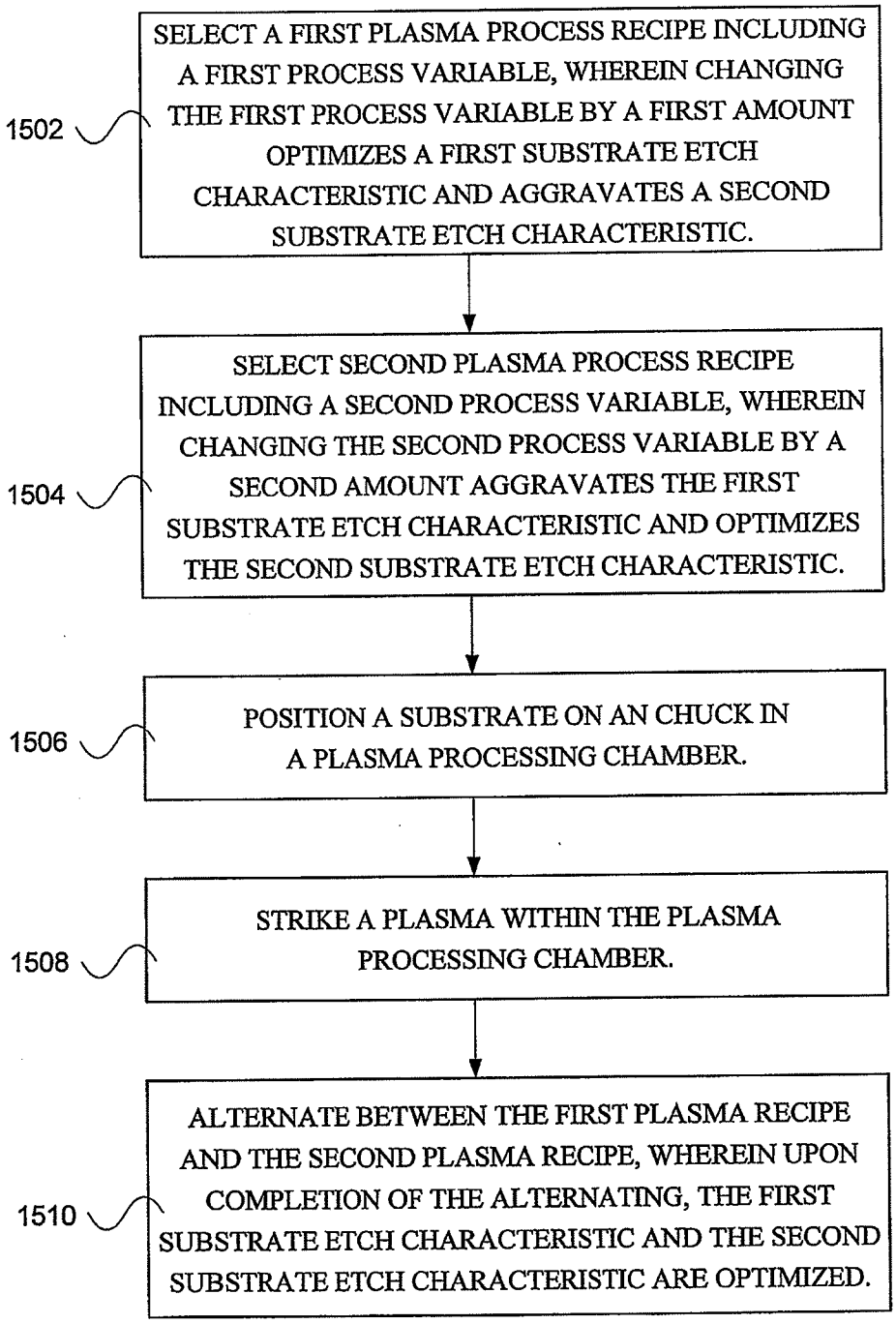

SELECT A FIRST PLASMA PROCESS RECIPE INCLUDING A FIRST PROCESS VARIABLE, WHEREIN CHANGING THE FIRST PROCESS VARIABLE BY A FIRST AMOUNT OPTIMIZES A FIRST SUBSTRATE ETCH CHARACTERISTIC AND AGGRAVATES A SECOND SUBSTRATE ETCH CHARACTERISTIC.
1502
SELECT SECOND PLASMA PROCESS RECIPE INCLUDING A SECOND PROCESS VARIABLE, WHEREIN CHANGING THE SECOND PROCESS VARIABLE BY A SECOND AMOUNT AGGRAVATES THE FIRST SUBSTRATE ETCH CHARACTERISTIC AND OPTIMIZES THE SECOND SUBSTRATE ETCH CHARACTERISTIC.
1504
POSITION A SUBSTRATE ON AN CHUCK IN A PLASMA PROCESSING CHAMBER.
1506
STRIKE A PLASMA WITHIN THE PLASMA PROCESSING CHAMBER.
1508
ALTERNATE BETWEEN THE FIRST PLASMA RECIPE AND THE SECOND PLASMA RECIPE, WHEREIN UPON COMPLETION OF THE ALTERNATING, THE FIRST SUBSTRATE ETCH CHARACTERISTIC AND THE SECOND SUBSTRATE ETCH CHARACTERISTIC ARE OPTIMIZED.
1510

FIG. 15