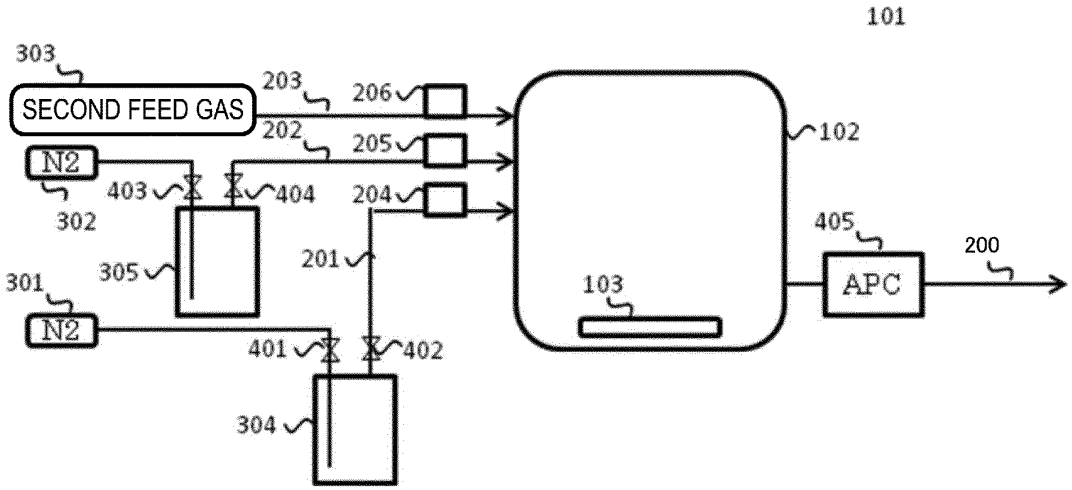
101
303
SECOND FEED GAS
203
206
202
205
N2
403
404
204
302
305
201
301
N2
401
402
304
102
103
405
APC
200

FIG.1

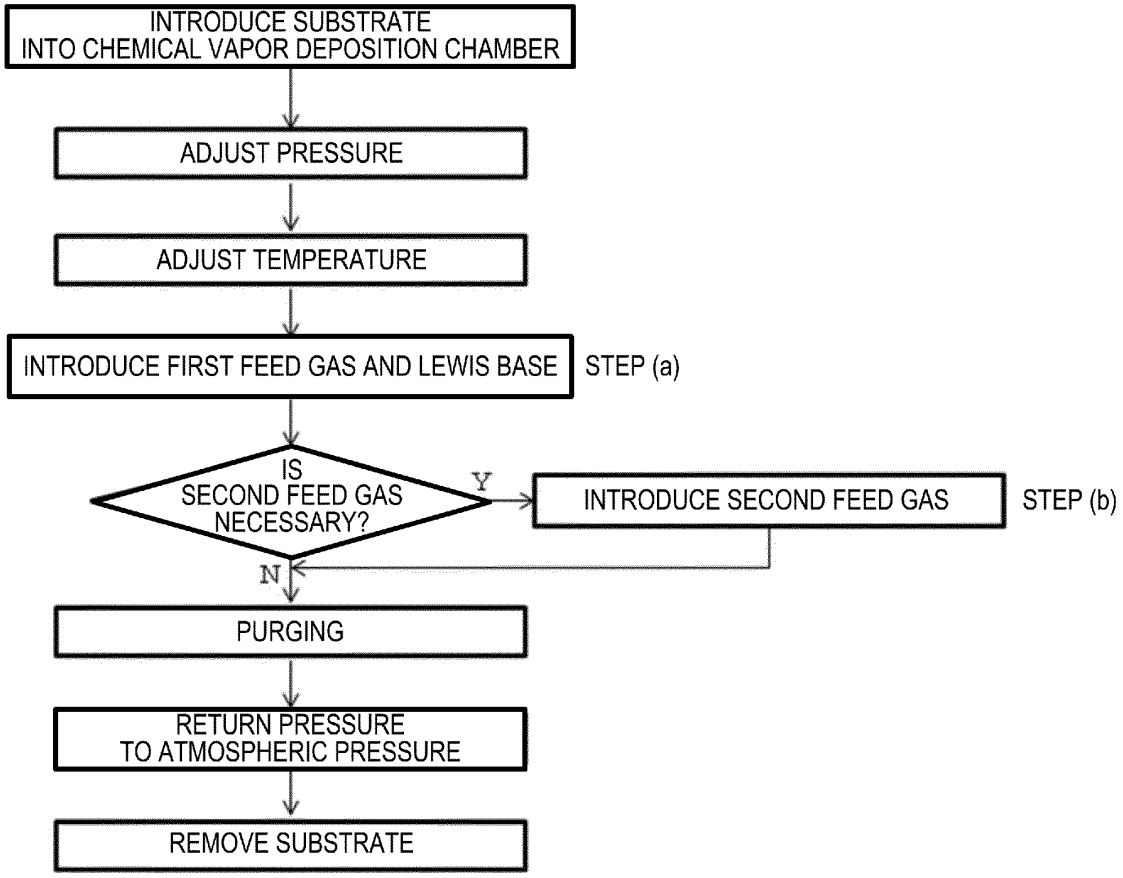
INTRODUCE SUBSTRATE
INTO CHEMICAL VAPOR DEPOSITION CHAMBER
ADJUST PRESSURE
ADJUST TEMPERATURE
INTRODUCE FIRST FEED GAS AND LEWIS BASE
STEP (a)
IS
SECOND FEED GAS
NECESSARY?
Y
INTRODUCE SECOND FEED GAS
STEP (b)
N
PURGING
RETURN PRESSURE
TO ATMOSPHERIC PRESSURE
REMOVE SUBSTRATE

FIG.2

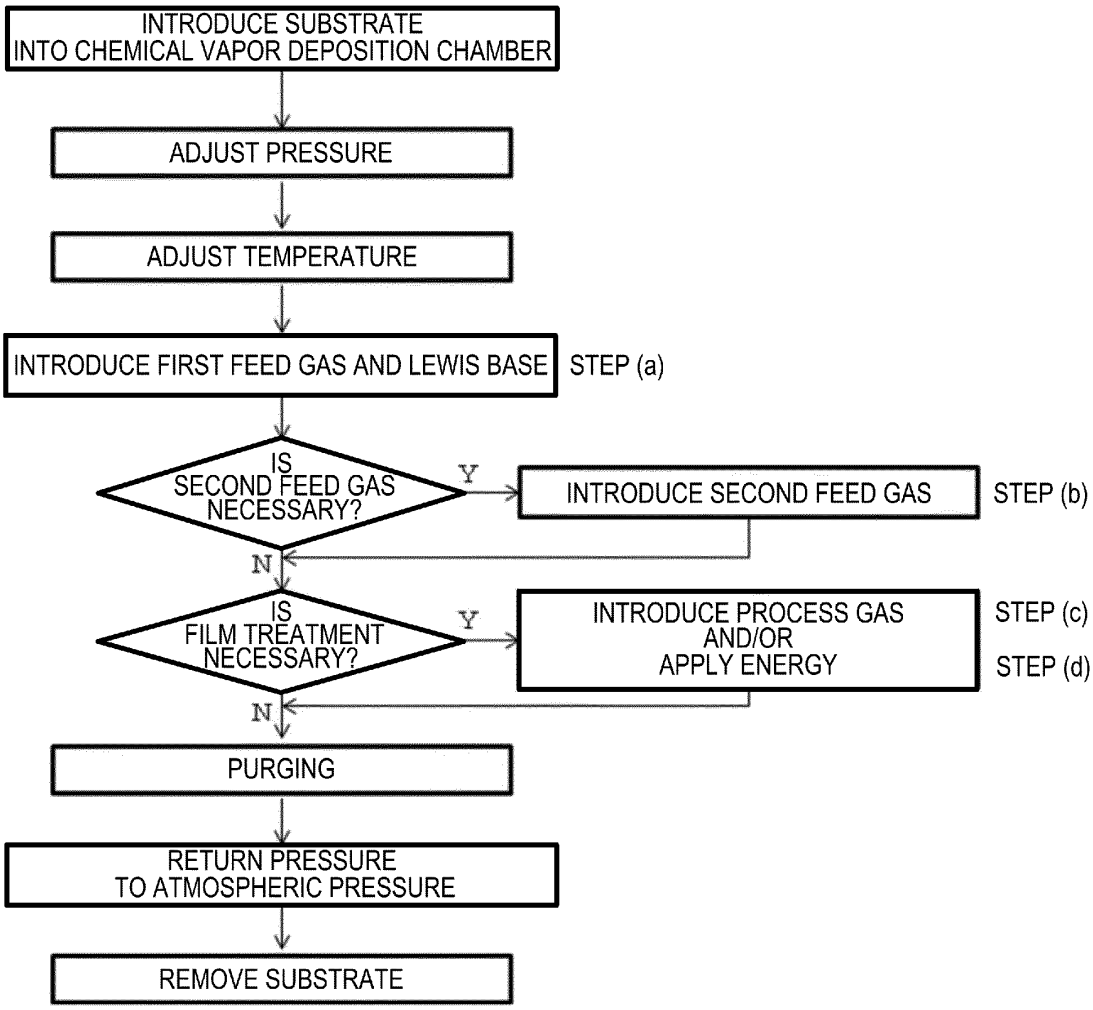
INTRODUCE SUBSTRATE INTO CHEMICAL VAPOR DEPOSITION CHAMBER
ADJUST PRESSURE
ADJUST TEMPERATURE
INTRODUCE FIRST FEED GAS AND LEWIS BASE
STEP (a)
IS SECOND FEED GAS NECESSARY?
Y
INTRODUCE SECOND FEED GAS
STEP (b)
N
IS FILM TREATMENT NECESSARY?
Y
INTRODUCE PROCESS GAS AND/OR APPLY ENERGY
STEP (c)
STEP (d)
N
PURGING
RETURN PRESSURE TO ATMOSPHERIC PRESSURE
REMOVE SUBSTRATE

FIG.3

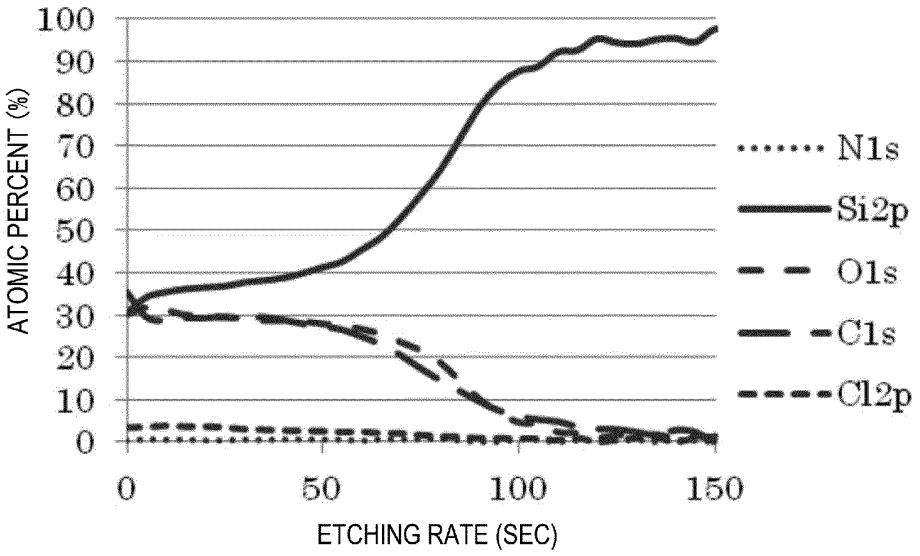
100
90
80
70
60
50
40
30
20
10
0
ATOMIC PERCENT (%)
0
50
100
150
ETCHING RATE (SEC)
N1s
Si2p
O1s
C1s
Cl2p

FIG.4

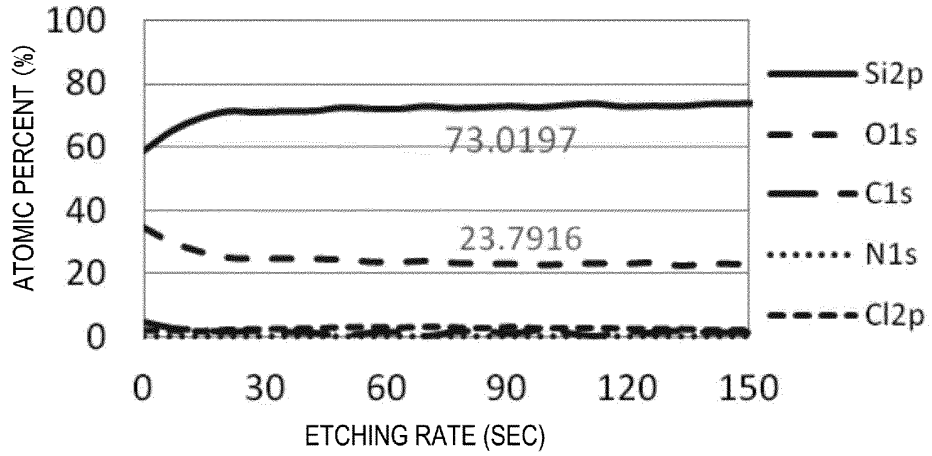
100
80
60
40
20
0
ATOMIC PERCENT (%)
73.0197
23.7916
0
30
60
90
120
150
ETCHING RATE (SEC)
Si2p
O1s
C1s
N1s
Cl2p

FIG.5

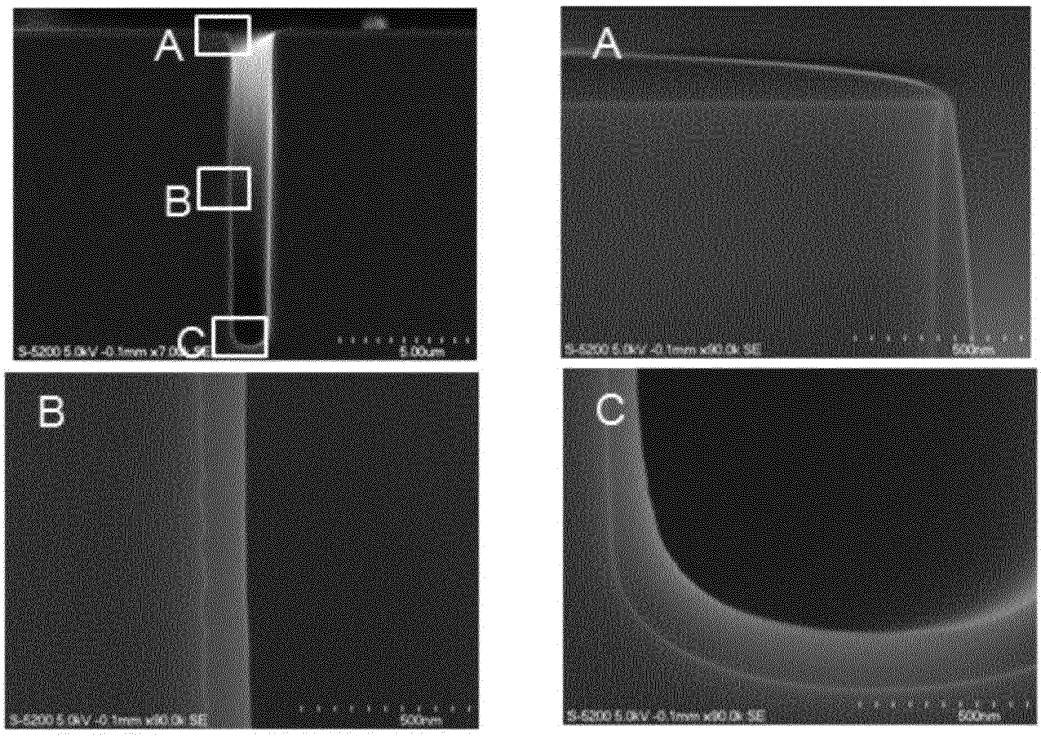
A
B
C
A
B
C

FIG.6

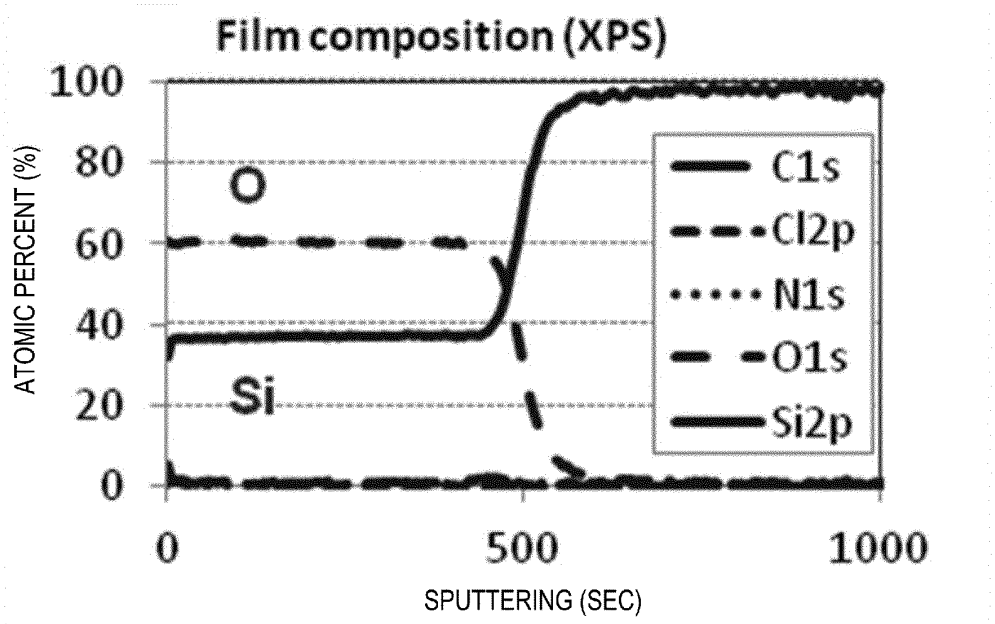
Film composition (XPS)
100
80
60
40
20
0
ATOMIC PERCENT (%)
O
Si
C1s
Cl2p
N1s
O1s
Si2p
0
500
1000
SPUTTERING (SEC)

FIG.7

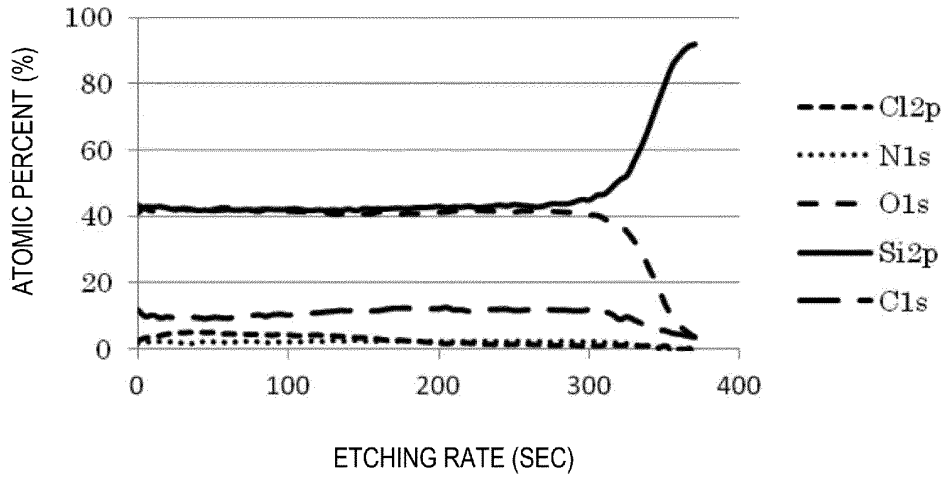
100
80
60
40
20
0
ATOMIC PERCENT (%)
0
100
200
300
400
ETCHING RATE (SEC)
Cl2p
N1s
O1s
Si2p
C1s

FIG.8