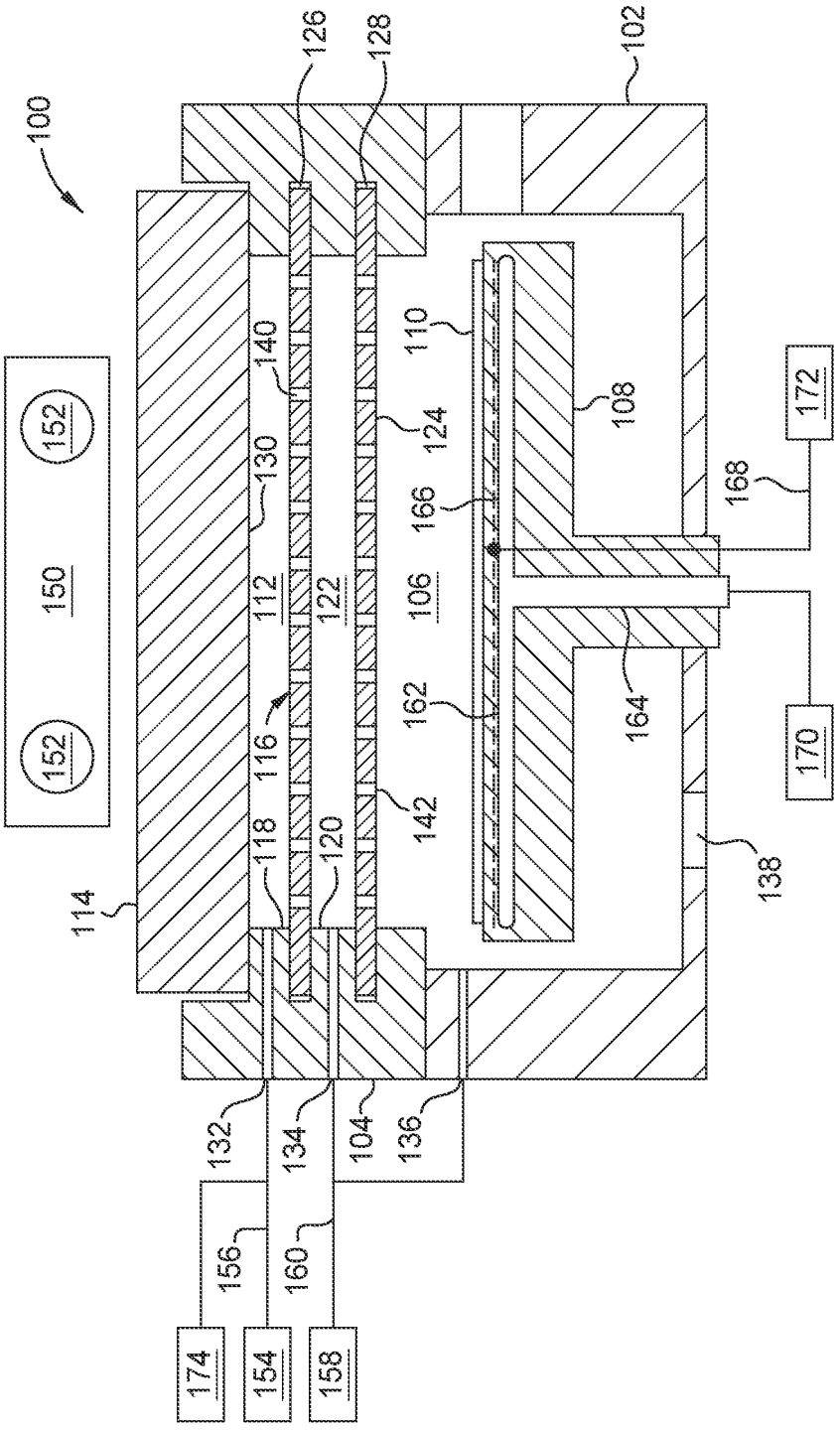

100
102
104
106
108
110
112
114
116
118
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122
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128
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142
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168
170
172
174

FIG. 1

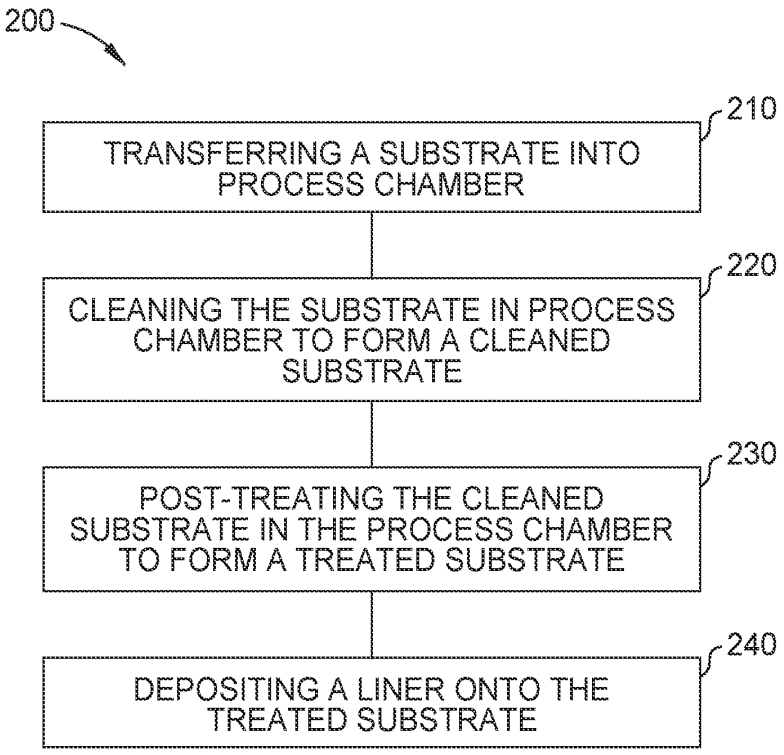

200
210
TRANSFERRING A SUBSTRATE INTO PROCESS CHAMBER
220
CLEANING THE SUBSTRATE IN PROCESS CHAMBER TO FORM A CLEANED SUBSTRATE
230
POST-TREATING THE CLEANED SUBSTRATE IN THE PROCESS CHAMBER TO FORM A TREATED SUBSTRATE
240
DEPOSITING A LINER ONTO THE TREATED SUBSTRATE

FIG. 2

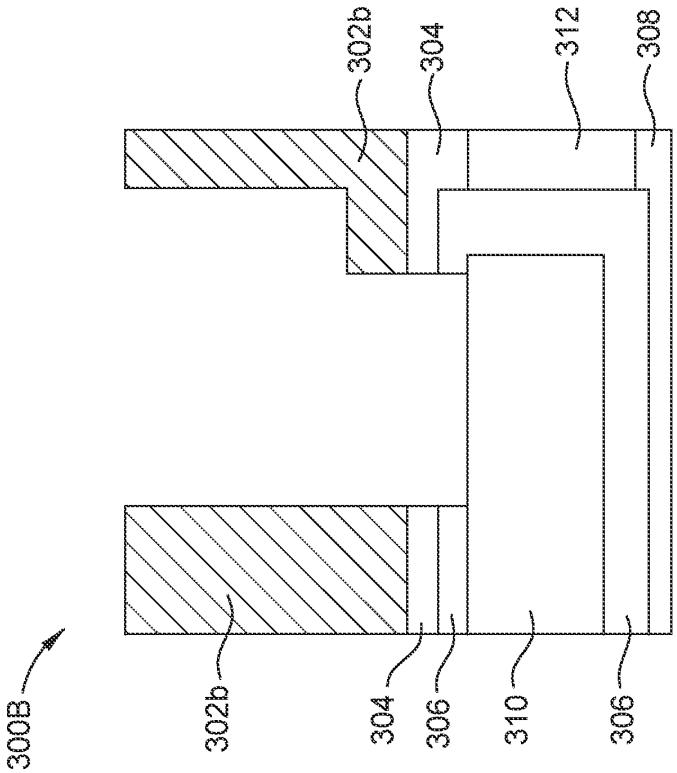

300B
302b
304
306
310
306
302b
304
312
308

FIG. 3B

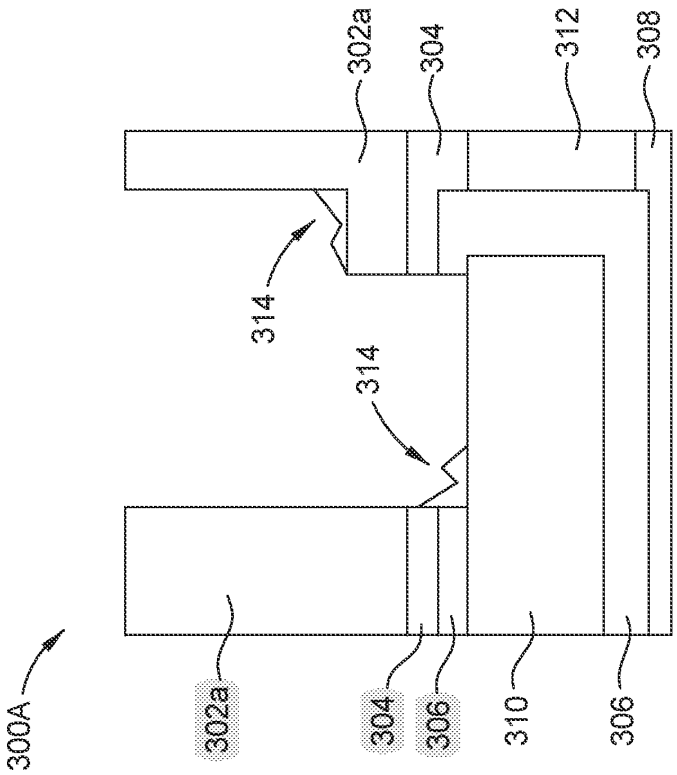

300A
302a
304
306
310
306
314
314
302a
304
312
308

FIG. 3A

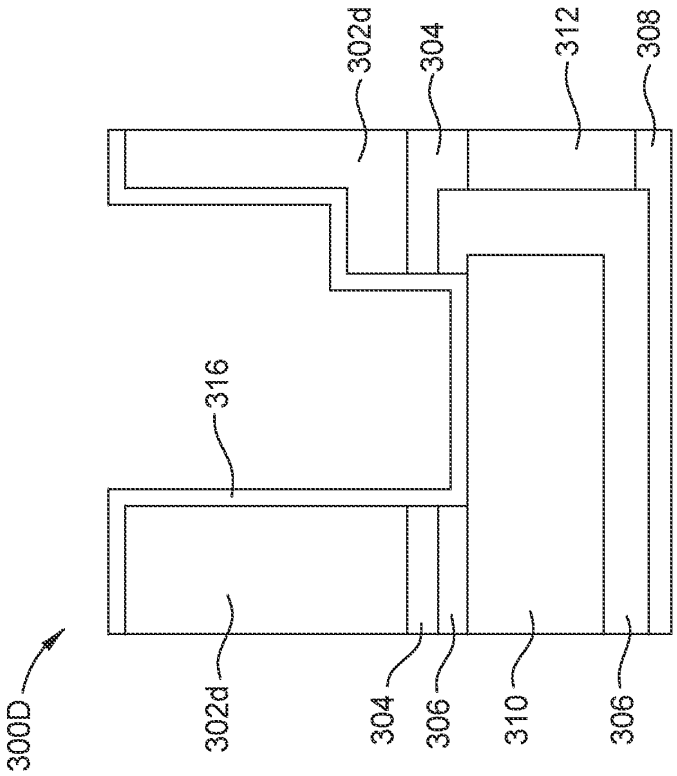

300D
302d
304
306
310
306
316
302d
304
312
308

FIG. 3D

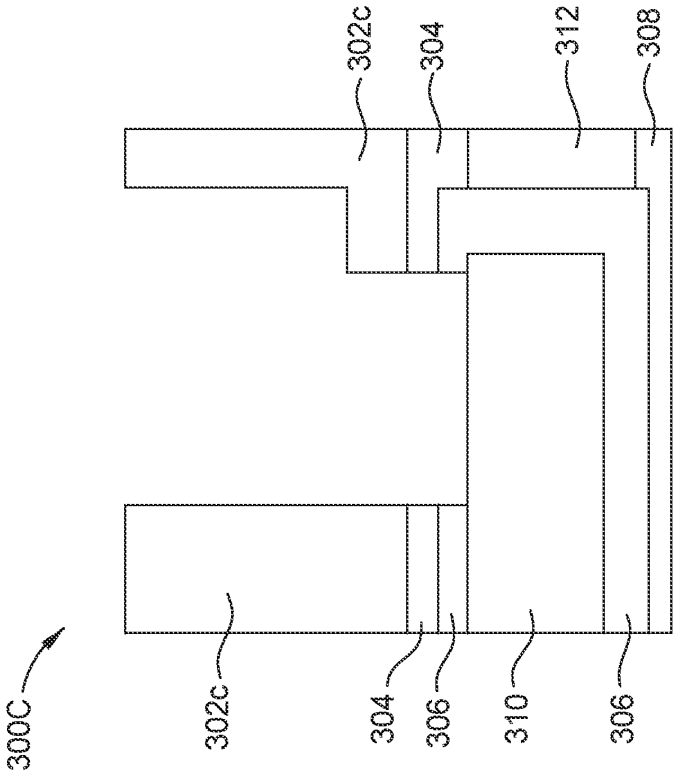

300C
302c
304
306
310
306
302c
304
312
308

FIG. 3C

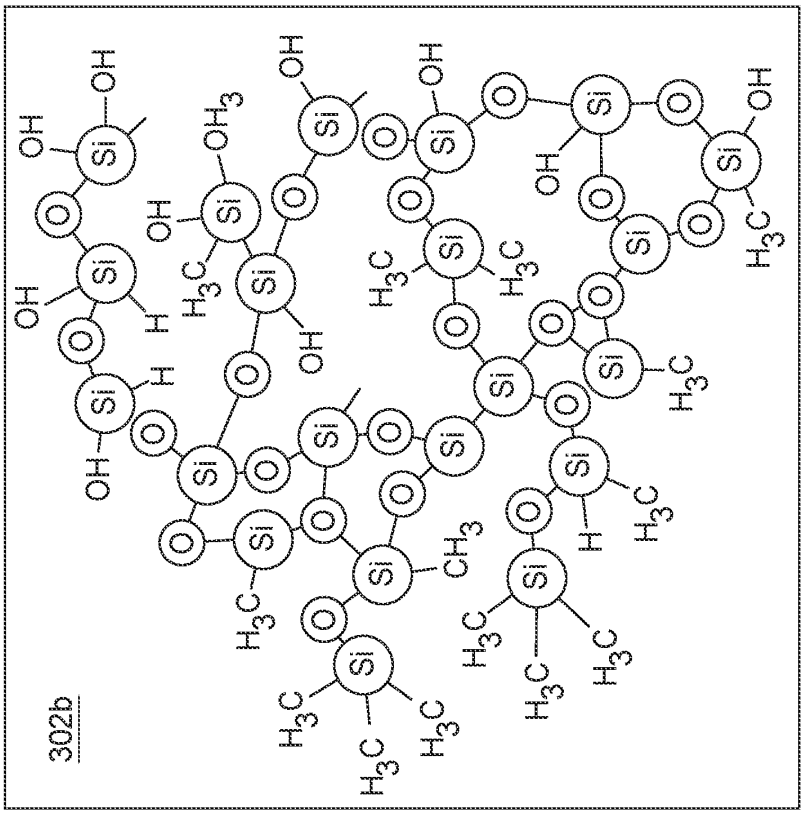


FIG. 4B

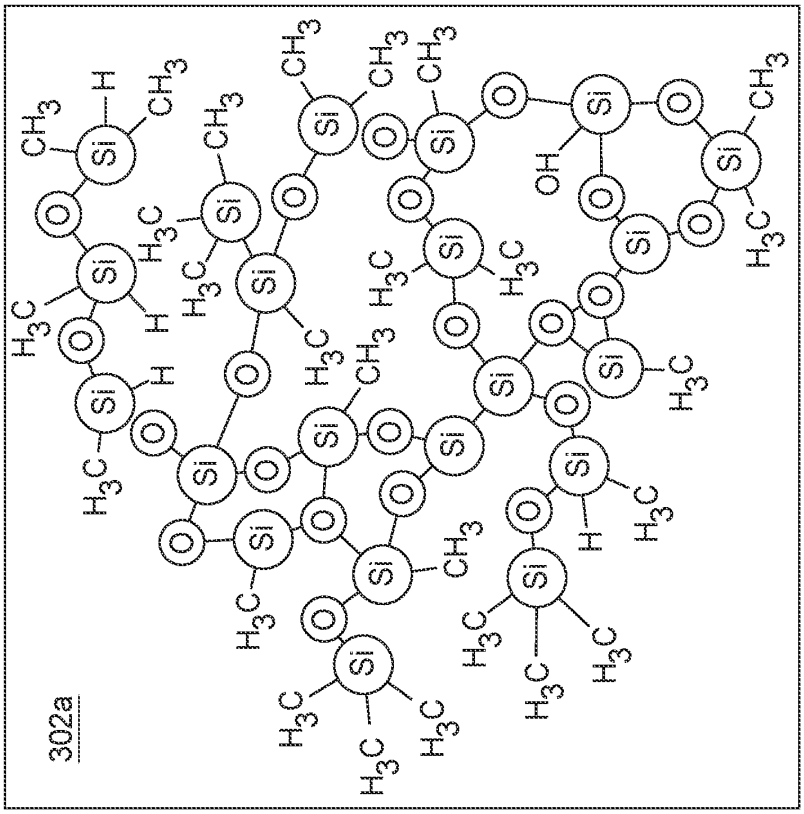


FIG. 4A

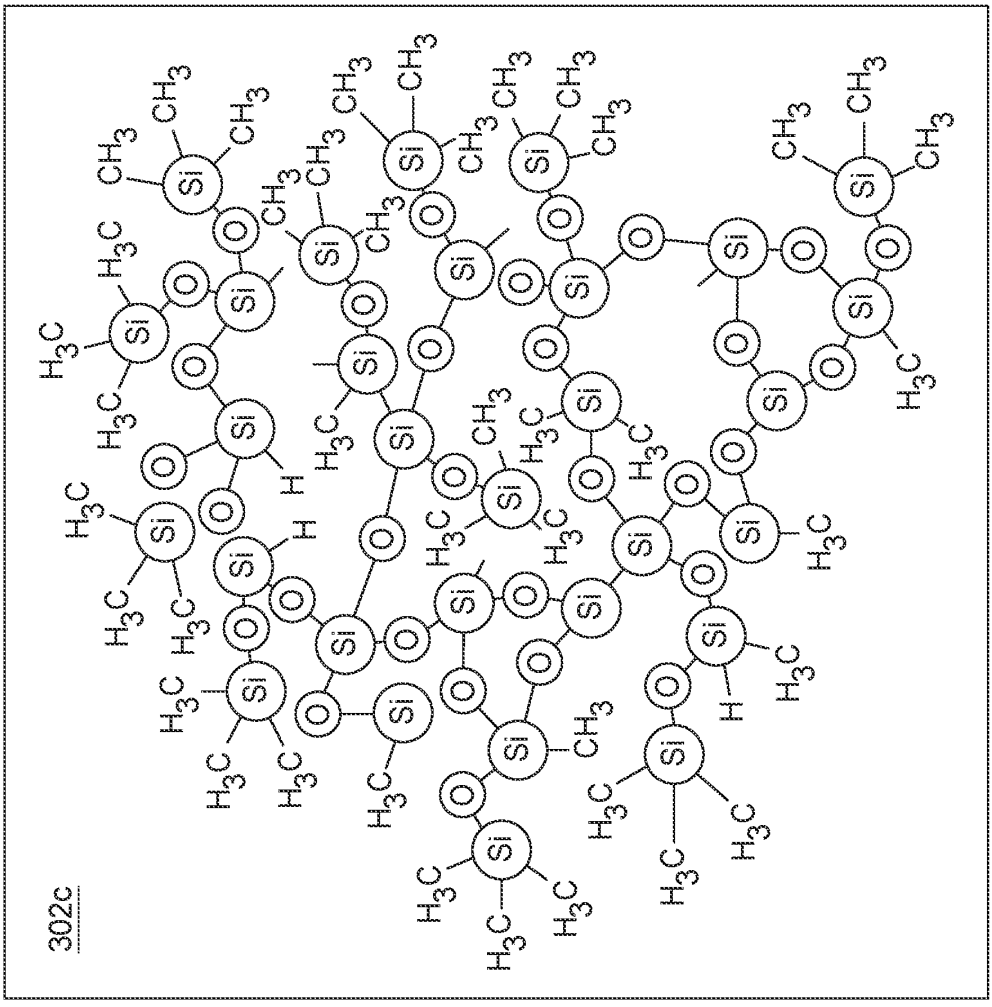


FIG. 4C

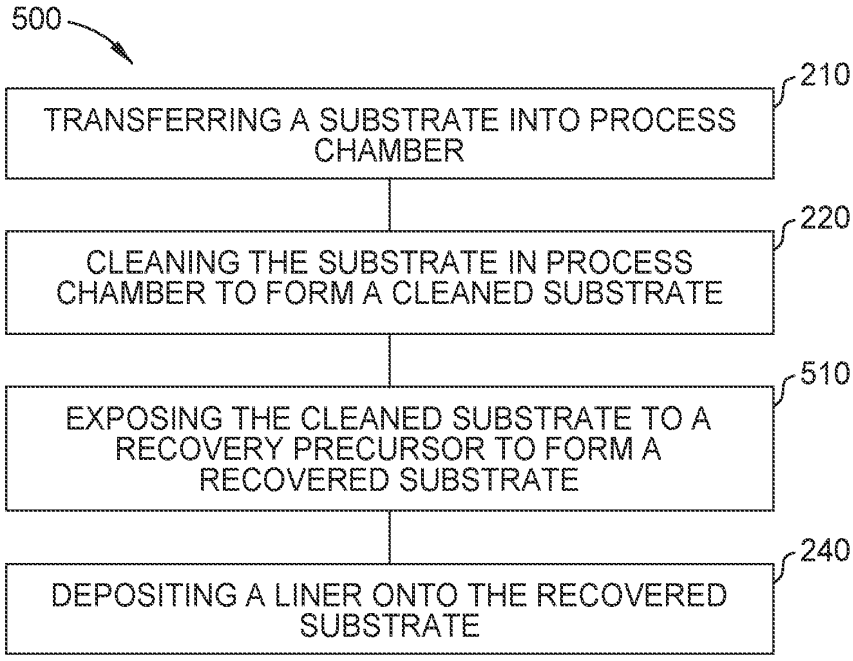

500
TRANSFERRING A SUBSTRATE INTO PROCESS CHAMBER
210
CLEANING THE SUBSTRATE IN PROCESS CHAMBER TO FORM A CLEANED SUBSTRATE
220
EXPOSING THE CLEANED SUBSTRATE TO A RECOVERY PRECURSOR TO FORM A RECOVERED SUBSTRATE
510
DEPOSITING A LINER ONTO THE RECOVERED SUBSTRATE
240

FIG. 5

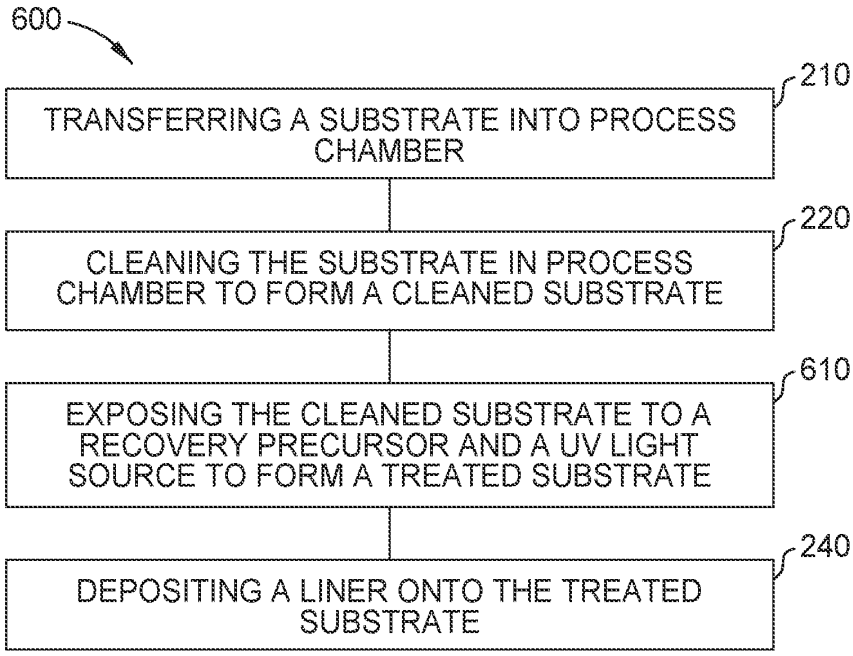

600
TRANSFERRING A SUBSTRATE INTO PROCESS CHAMBER
210
CLEANING THE SUBSTRATE IN PROCESS CHAMBER TO FORM A CLEANED SUBSTRATE
220
EXPOSING THE CLEANED SUBSTRATE TO A RECOVERY PRECURSOR AND A UV LIGHT SOURCE TO FORM A TREATED SUBSTRATE
610
DEPOSITING A LINER ONTO THE TREATED SUBSTRATE
240

FIG. 6

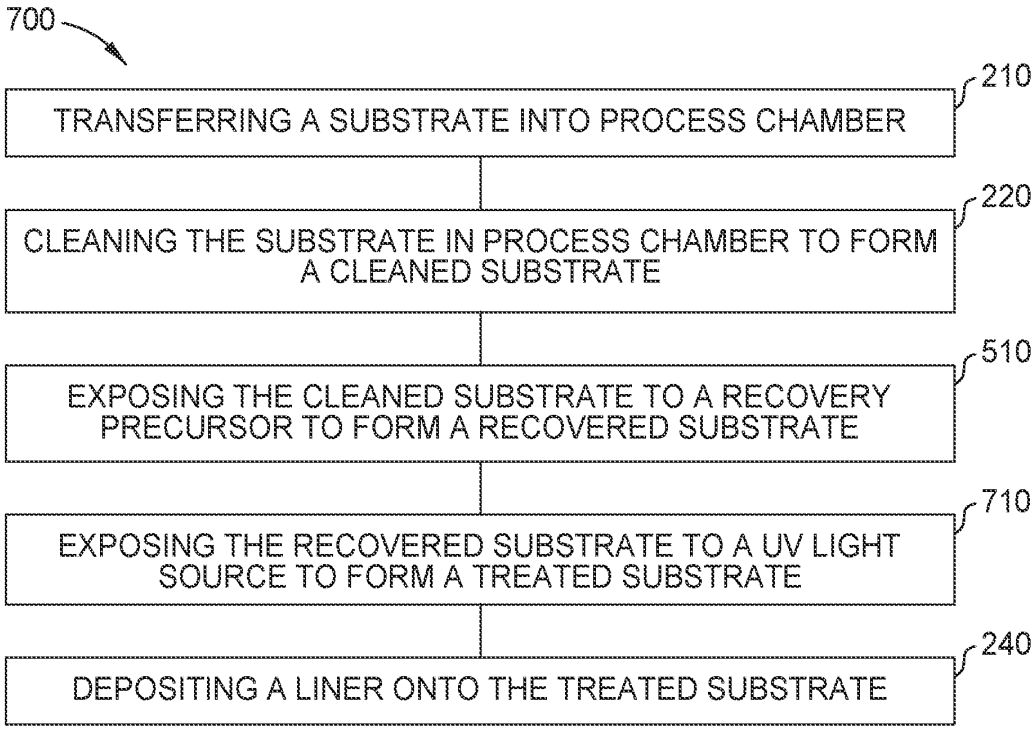

700
TRANSFERRING A SUBSTRATE INTO PROCESS CHAMBER
210
CLEANING THE SUBSTRATE IN PROCESS CHAMBER TO FORM A CLEANED SUBSTRATE
220
EXPOSING THE CLEANED SUBSTRATE TO A RECOVERY PRECURSOR TO FORM A RECOVERED SUBSTRATE
510
EXPOSING THE RECOVERED SUBSTRATE TO A UV LIGHT SOURCE TO FORM A TREATED SUBSTRATE
710
DEPOSITING A LINER ONTO THE TREATED SUBSTRATE
240

FIG. 7

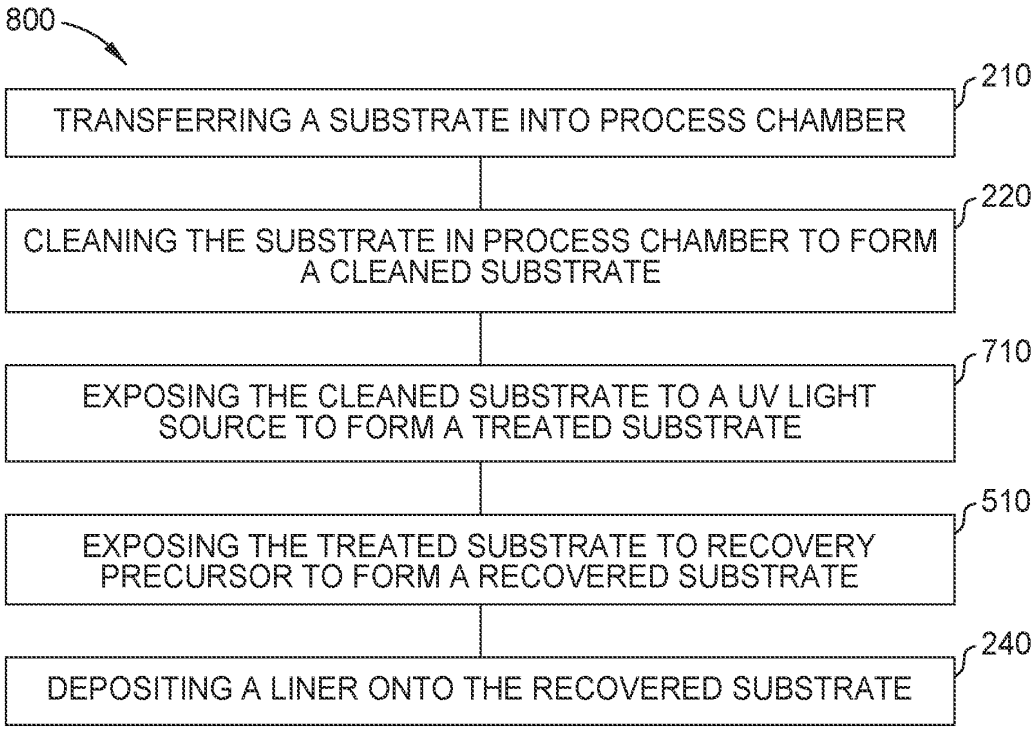

800
TRANSFERRING A SUBSTRATE INTO PROCESS CHAMBER
210
CLEANING THE SUBSTRATE IN PROCESS CHAMBER TO FORM A CLEANED SUBSTRATE
220
EXPOSING THE CLEANED SUBSTRATE TO A UV LIGHT SOURCE TO FORM A TREATED SUBSTRATE
710
EXPOSING THE TREATED SUBSTRATE TO RECOVERY PRECURSOR TO FORM A RECOVERED SUBSTRATE
510
DEPOSITING A LINER ONTO THE RECOVERED SUBSTRATE
240

FIG. 8

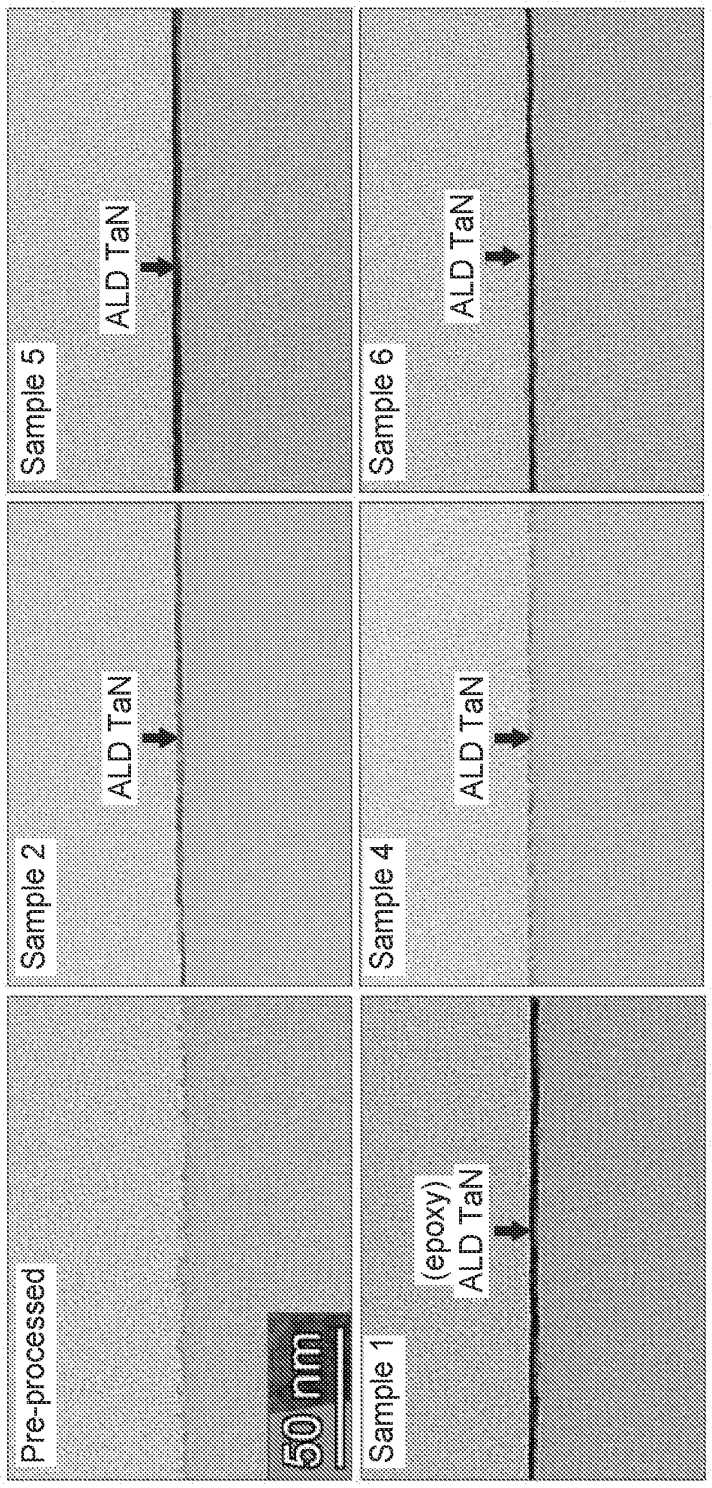

Pre-processed
50 nm
Sample 1
(epoxy)
ALD TaN
Sample 2
ALD TaN
Sample 4
ALD TaN
Sample 5
ALD TaN
Sample 6
ALD TaN

FIG. 9