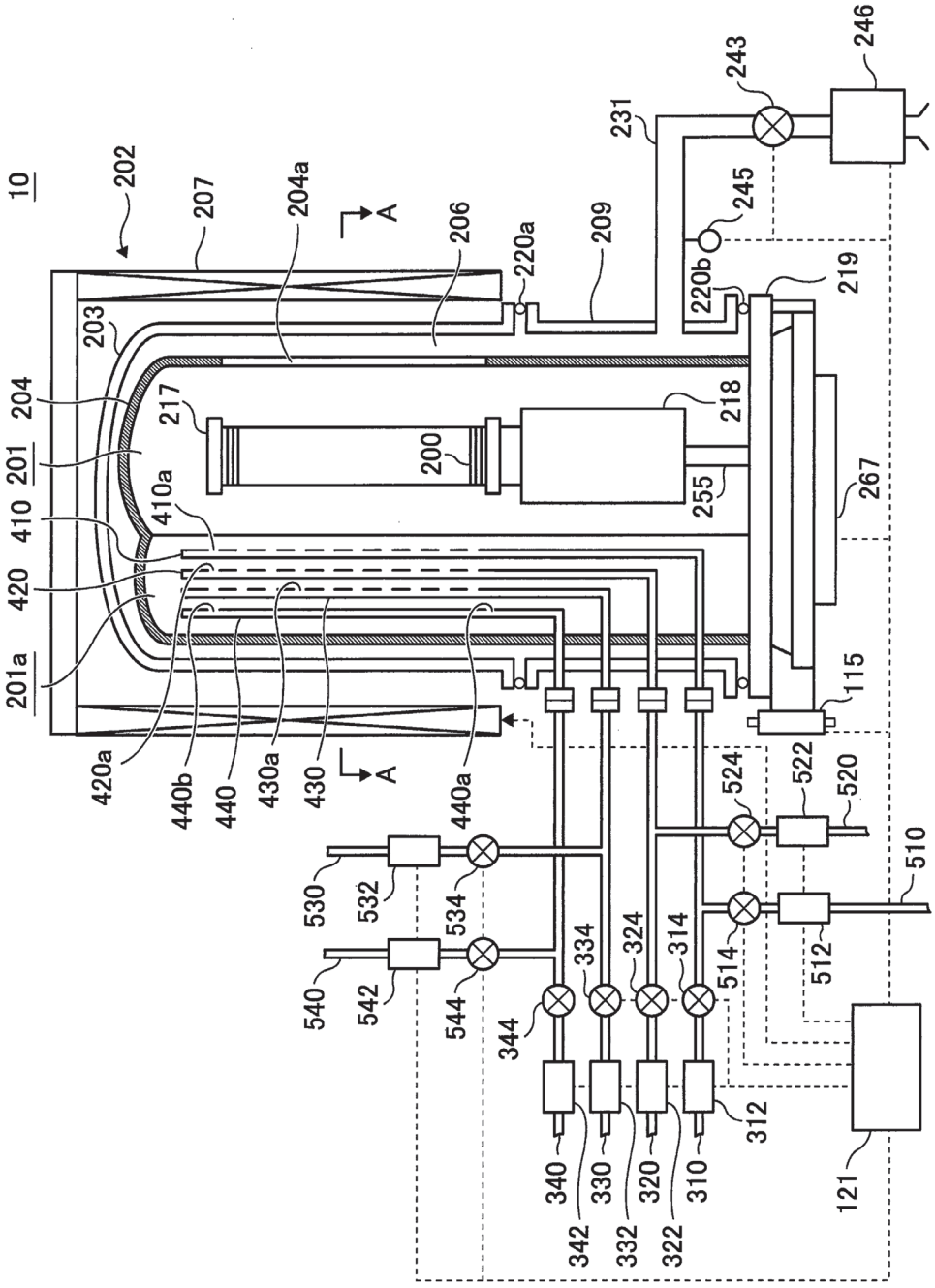
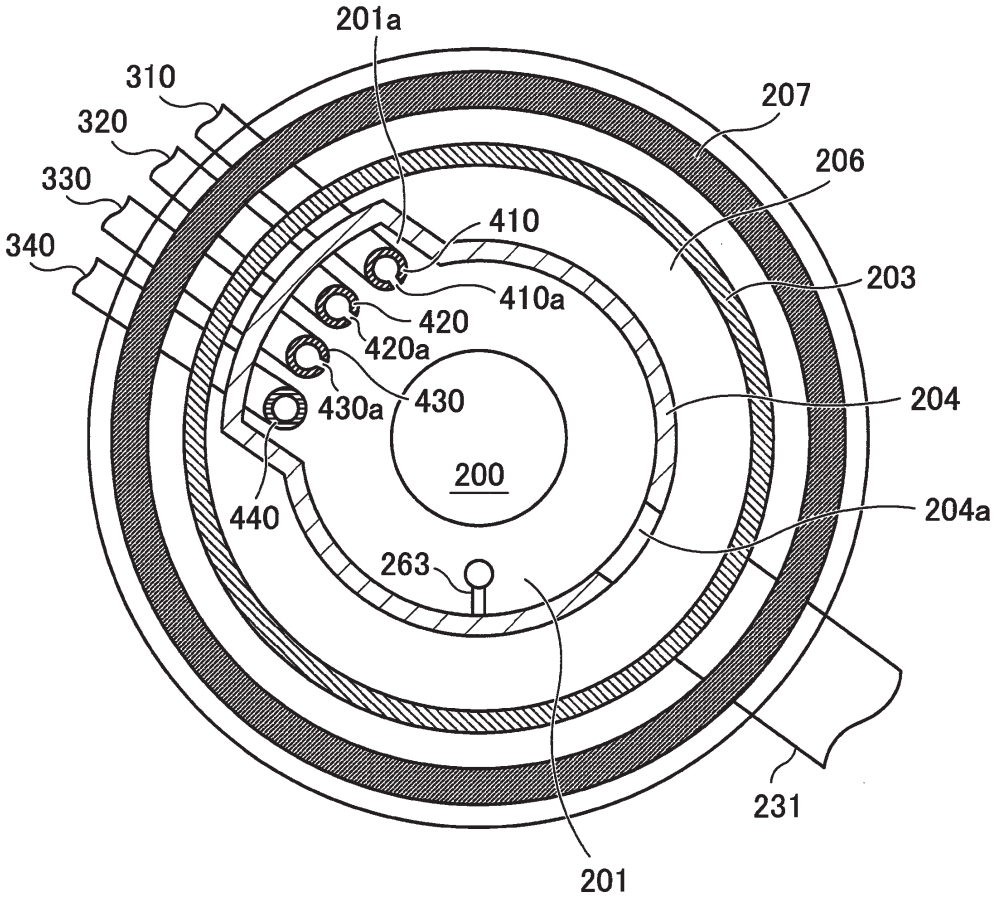
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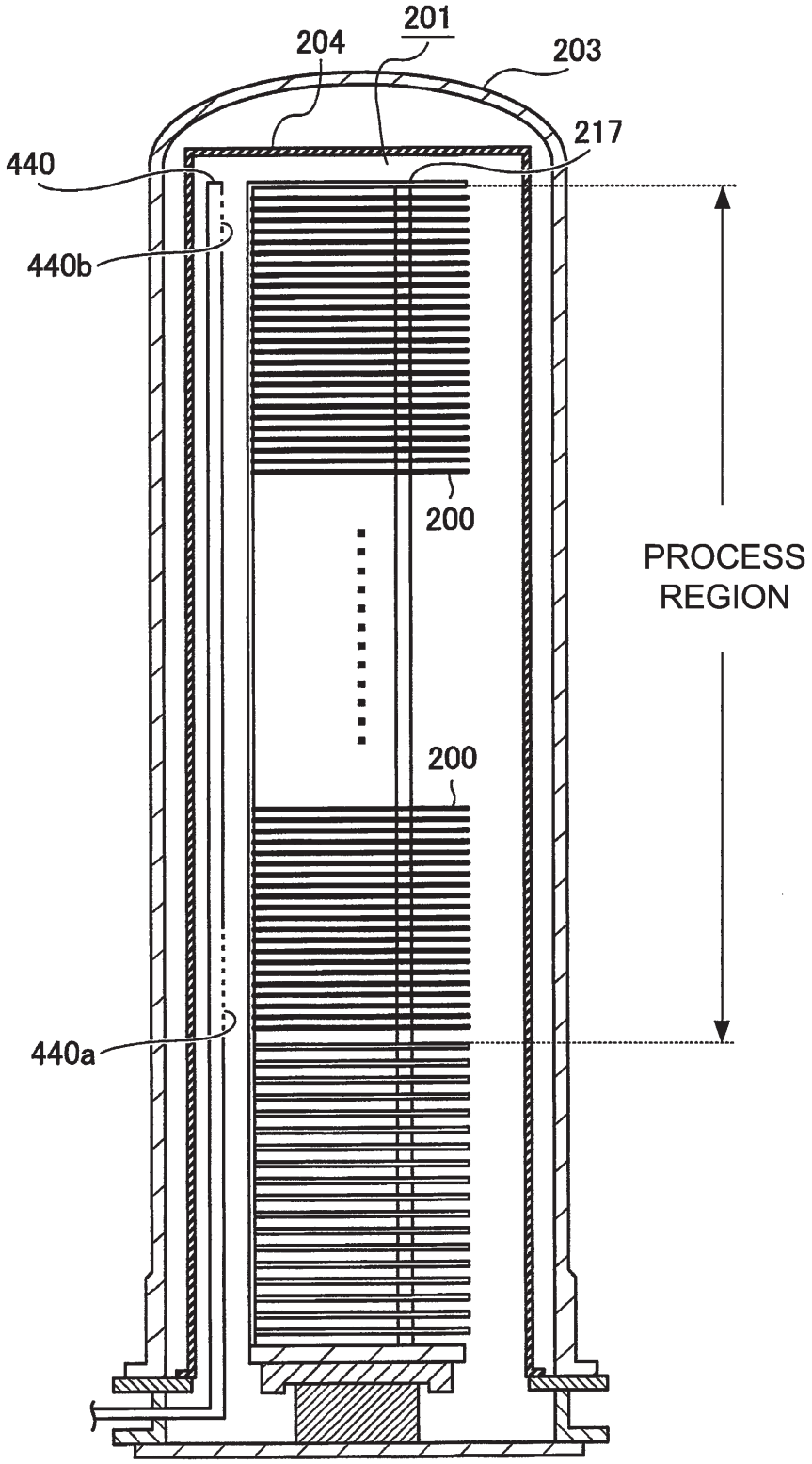
[Figure 1]



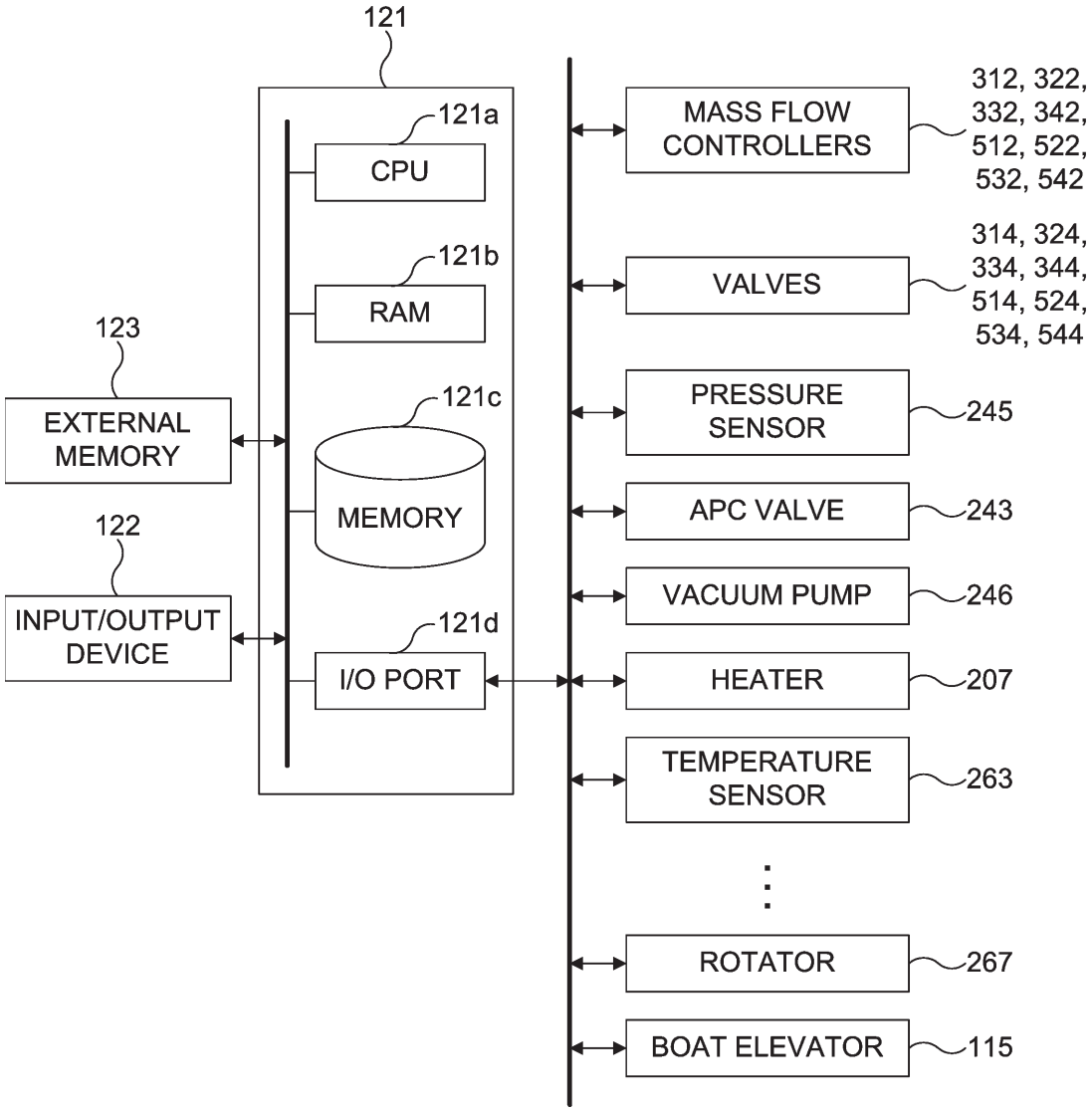
[Figure 2]


202
201a
310
320
330
340
207
206
410
410a
203
420
420a
430
430a
204
200
440
204a
263
231
201

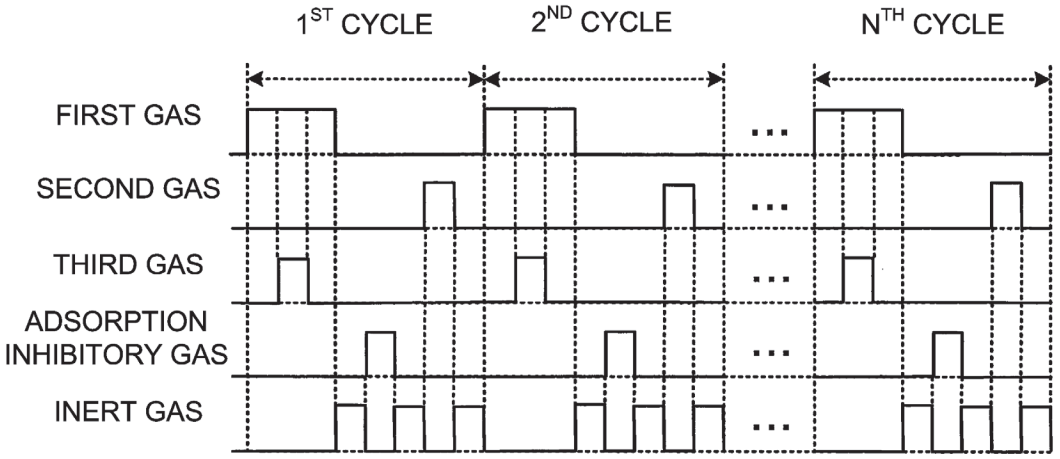
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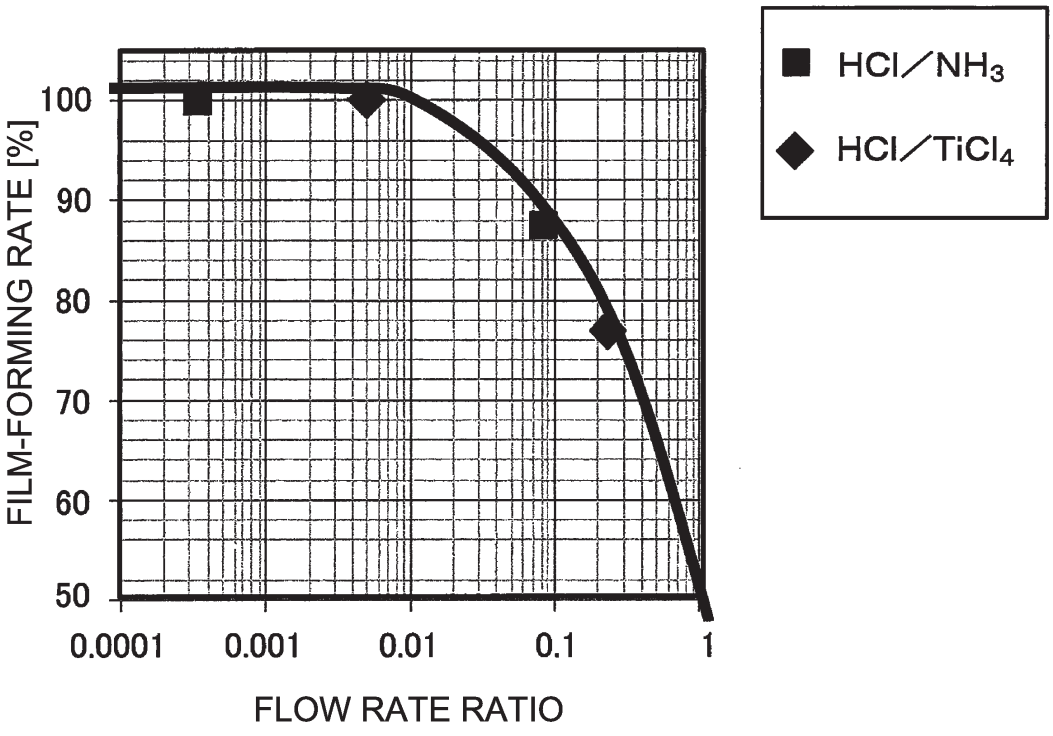
[Figure 4]


121
121a
CPU
121b
RAM
121c
MEMORY
121d
I/O PORT
123
EXTERNAL MEMORY
122
INPUT/OUTPUT DEVICE
MASS FLOW CONTROLLERS
312, 322, 332, 342, 512, 522, 532, 542
VALVES
314, 324, 334, 344, 514, 524, 534, 544
PRESSURE SENSOR
245
APC VALVE
243
VACUUM PUMP
246
HEATER
207
TEMPERATURE SENSOR
263
ROTATOR
267
BOAT ELEVATOR
115

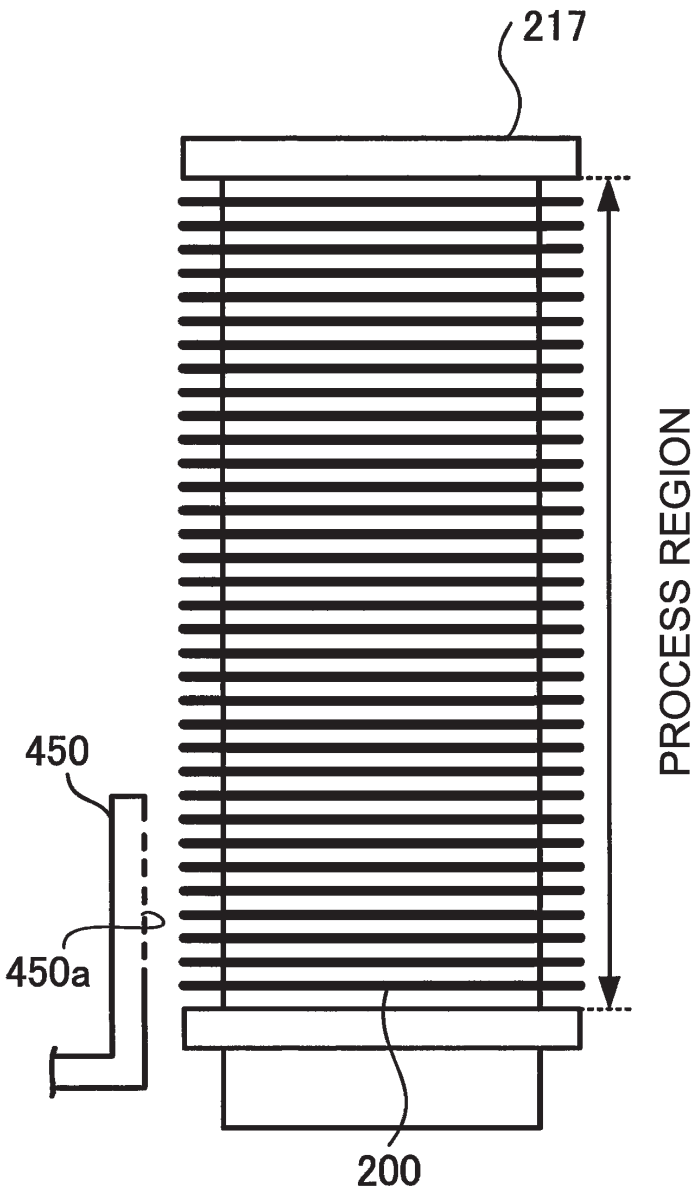
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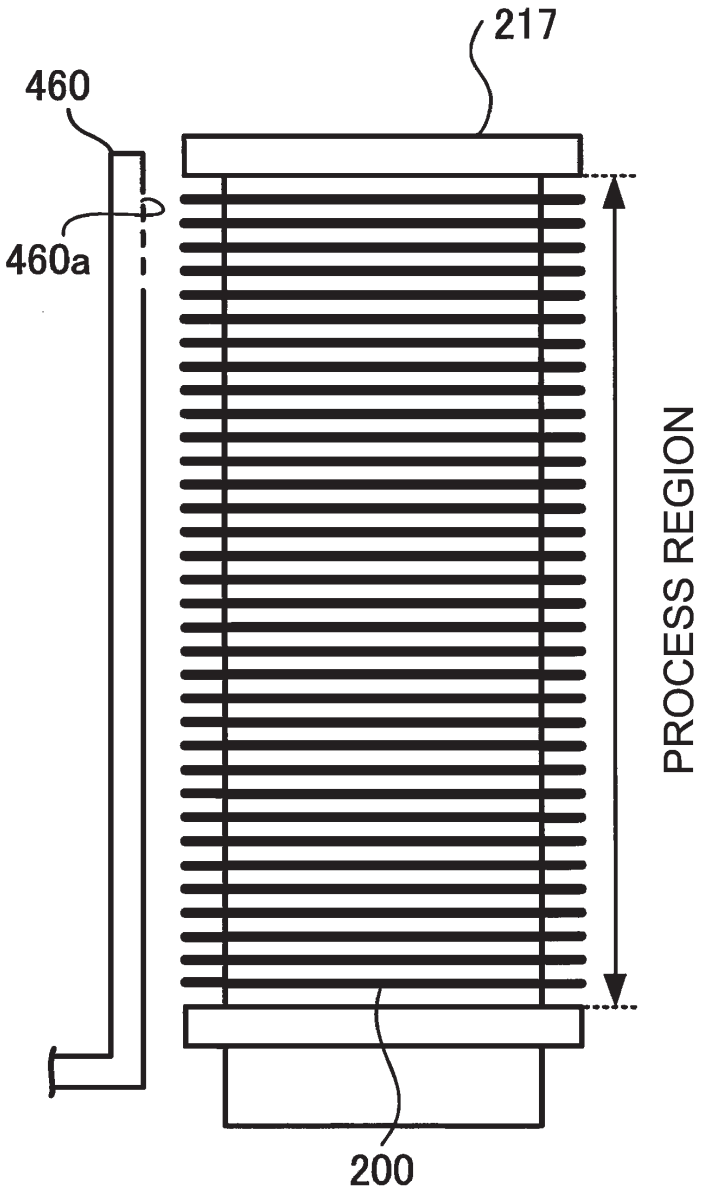
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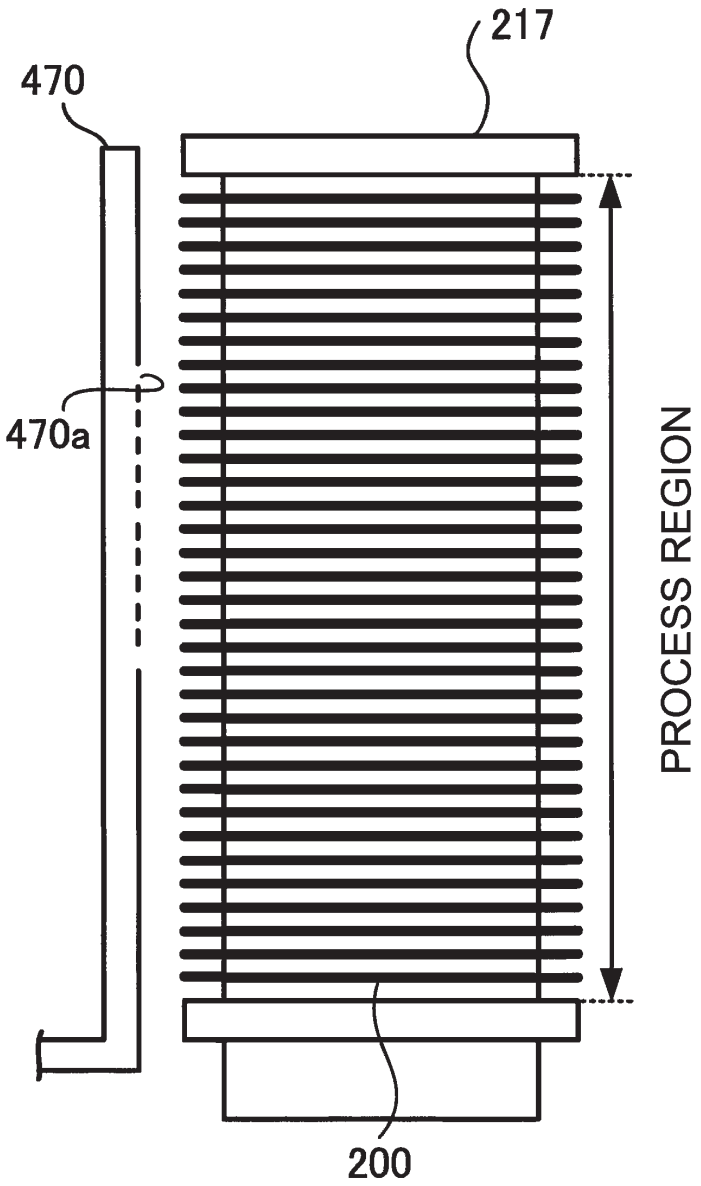
[Figure 7A]



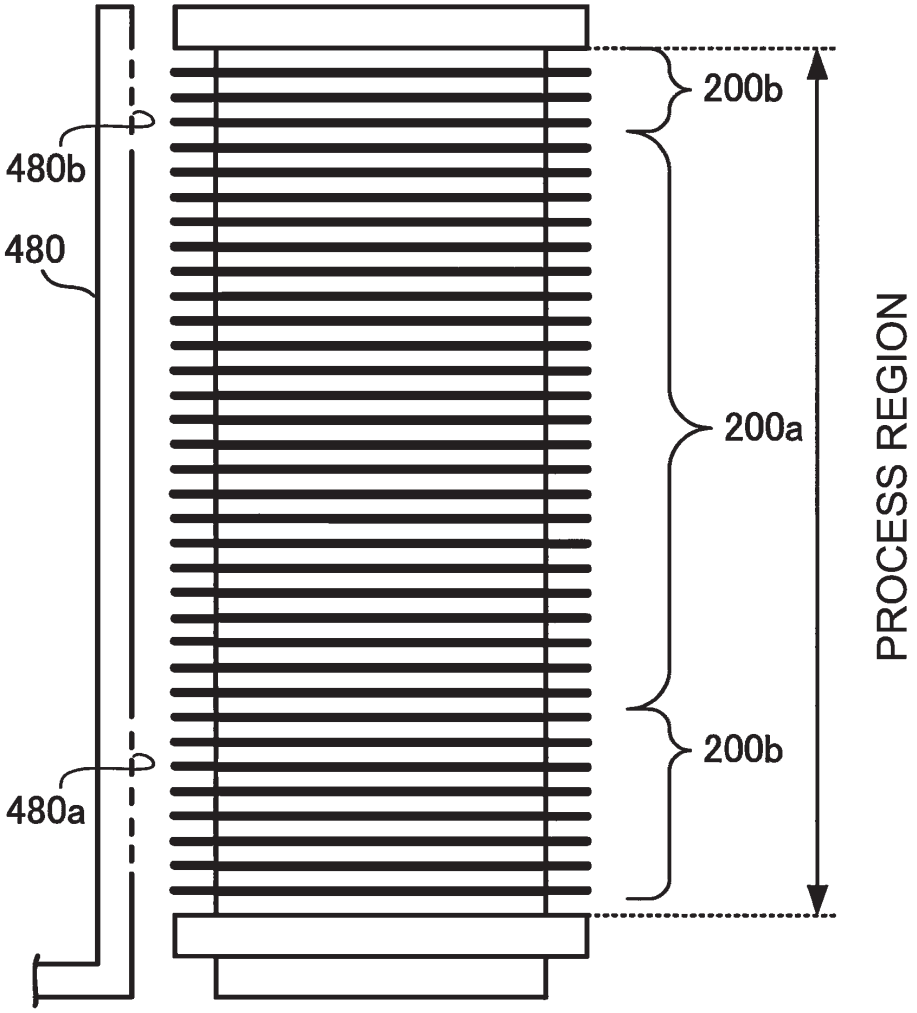
[Figure 7B]



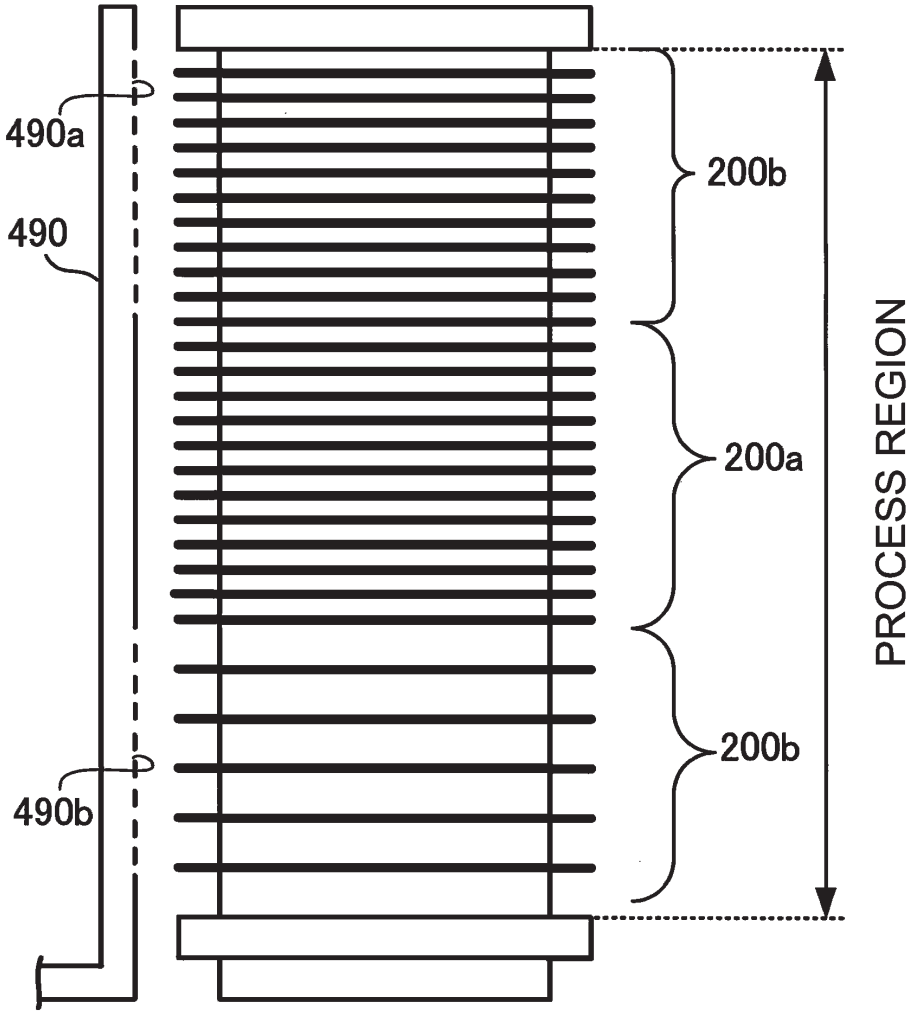
[Figure 7C]



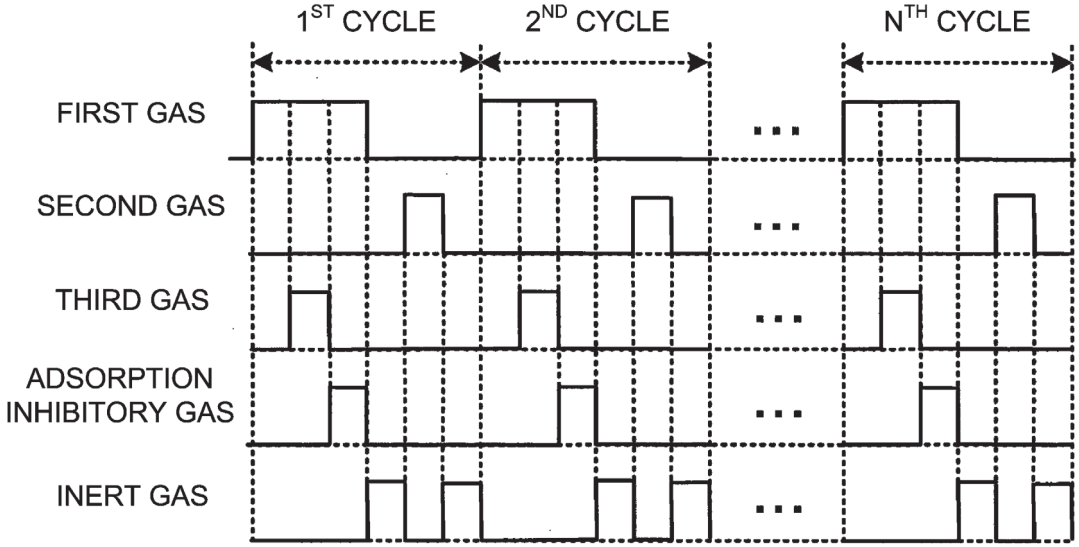
[Figure 8A]



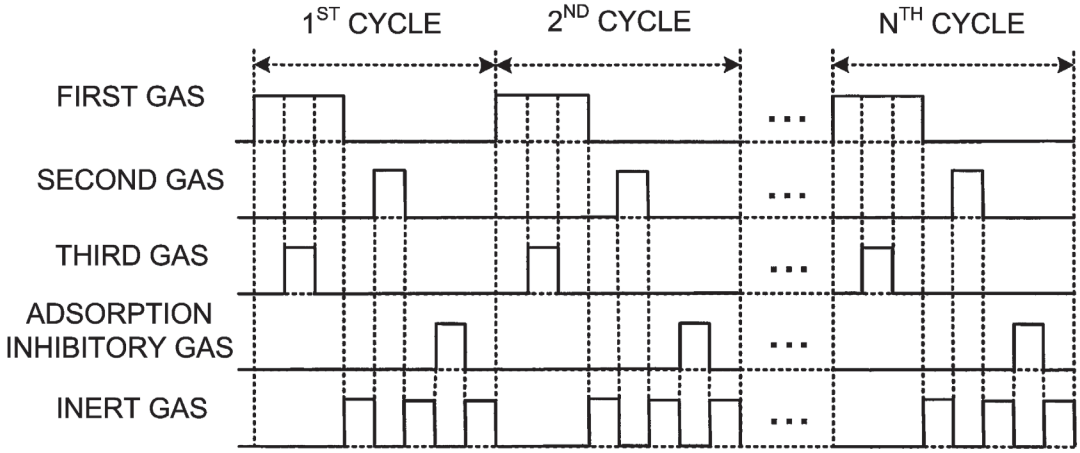
[Figure 8B]



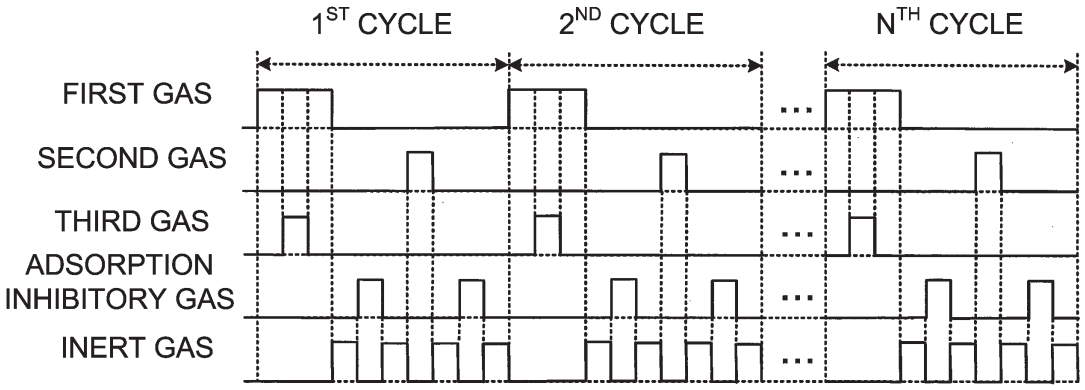
[Figure 9]



[Figure 10]



[Figure 11]


1ST CYCLE
2ND CYCLE
NTH CYCLE
FIRST GAS
SECOND GAS
THIRD GAS
ADSORPTION INHIBITORY GAS
INERT GAS