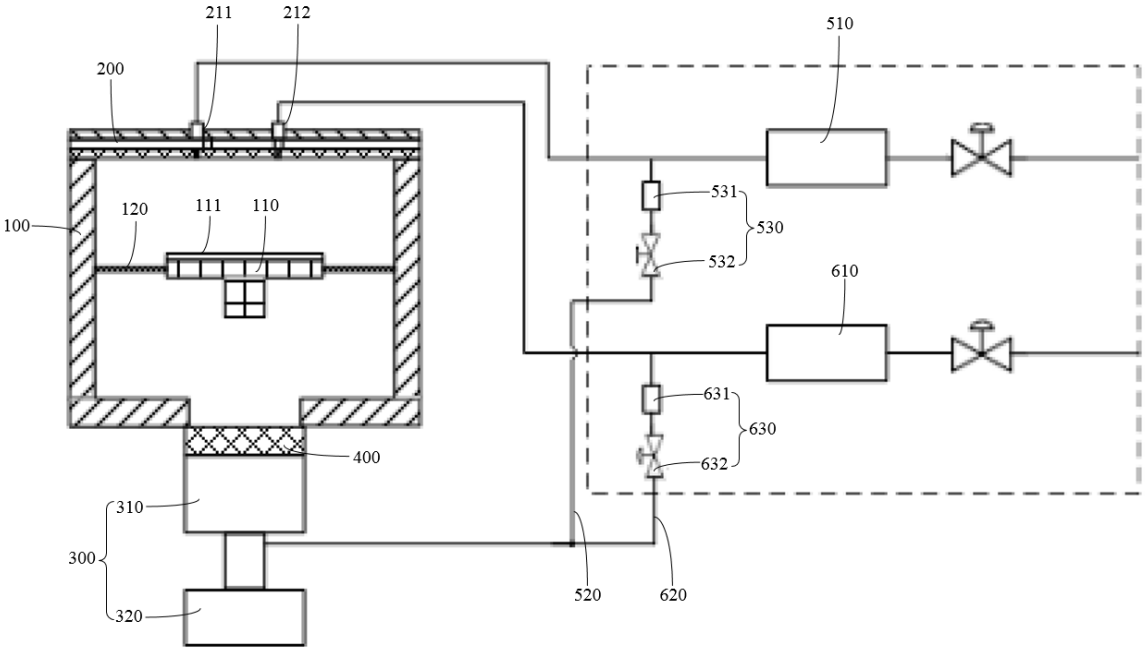

211
212
510
200
100
120
111
110
531
530
532
610
631
630
632
400
310
300
320
520
620

FIG. 1

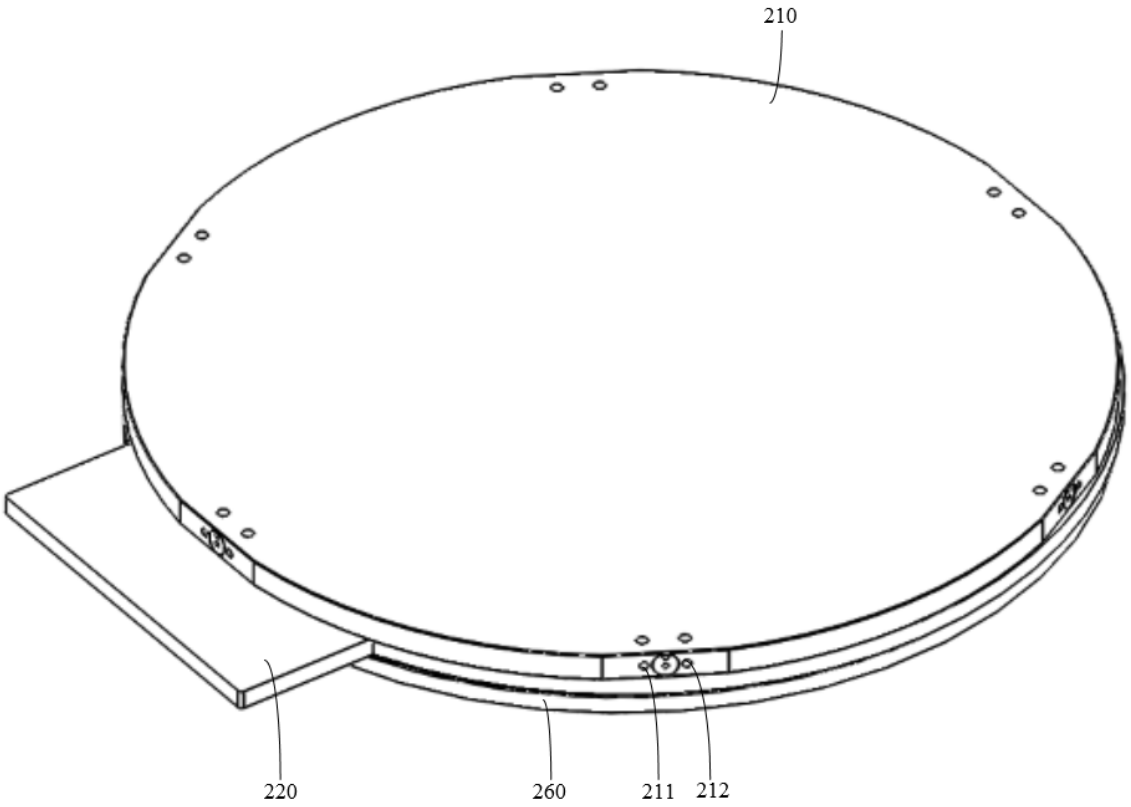

210
220
260
211
212

FIG. 2

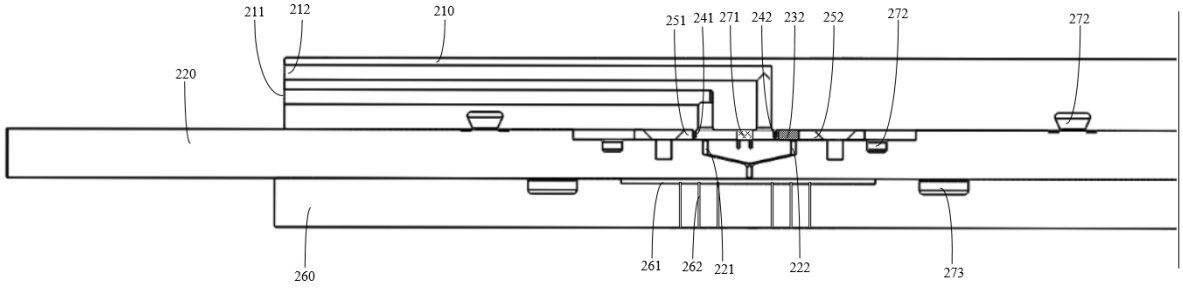


FIG. 3

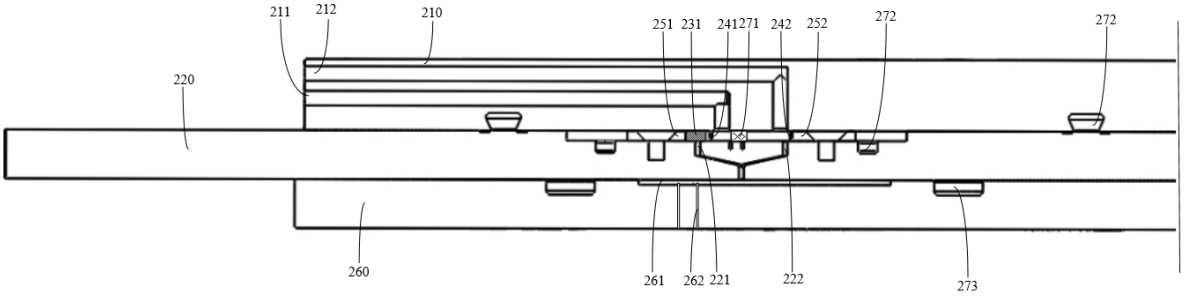


FIG. 4

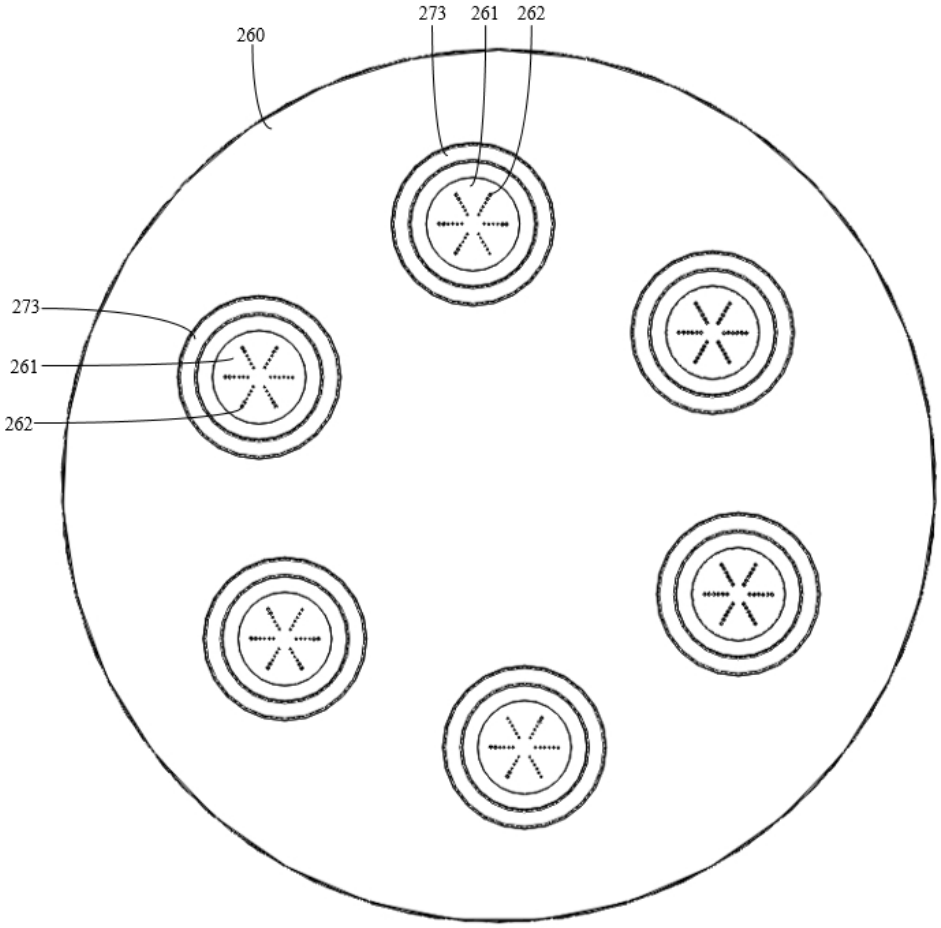


FIG. 5

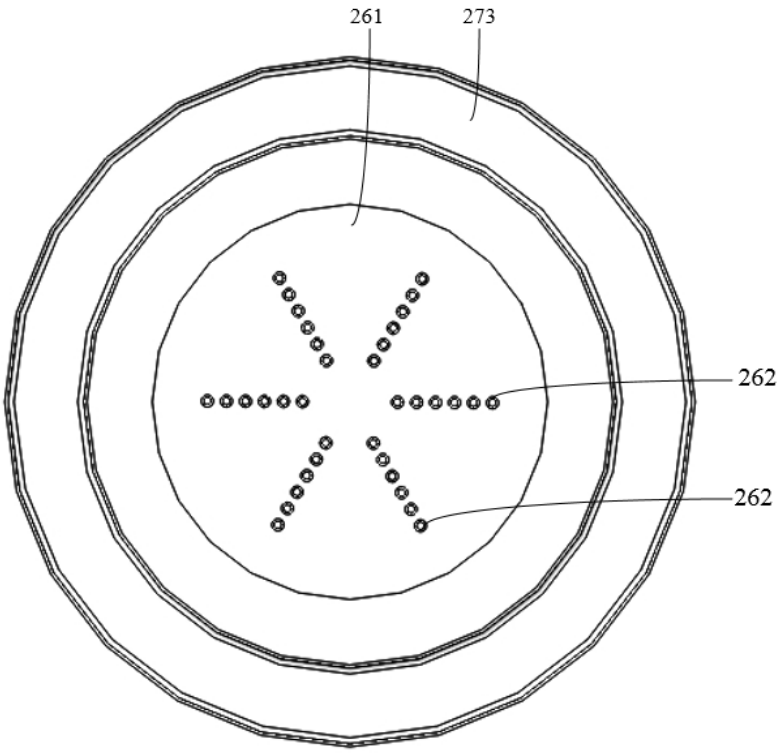


FIG. 6

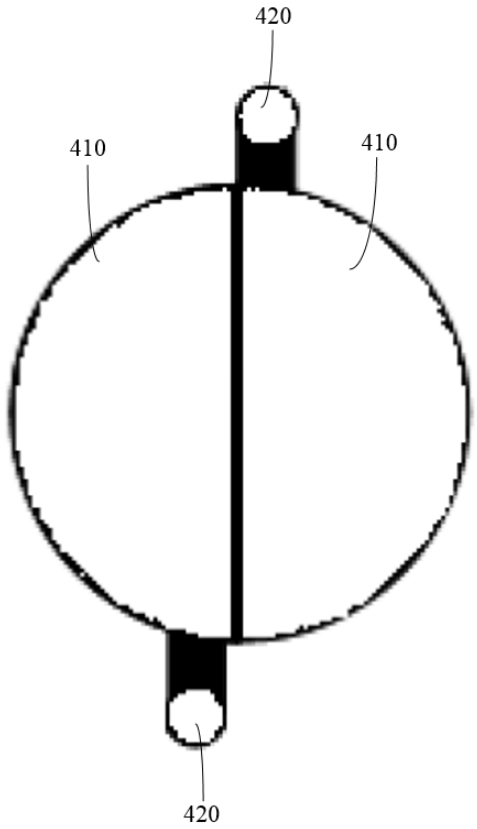


FIG. 7

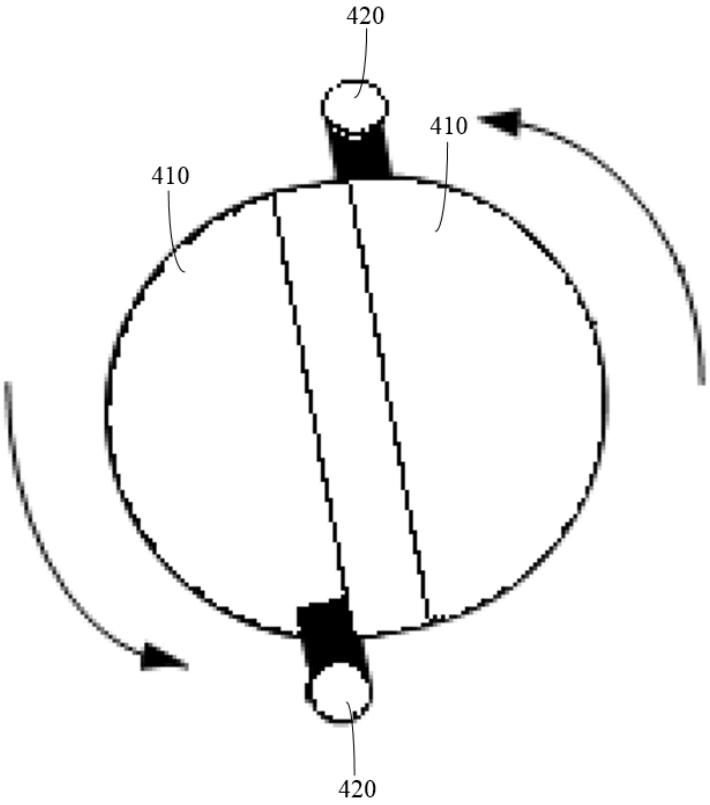


FIG. 8

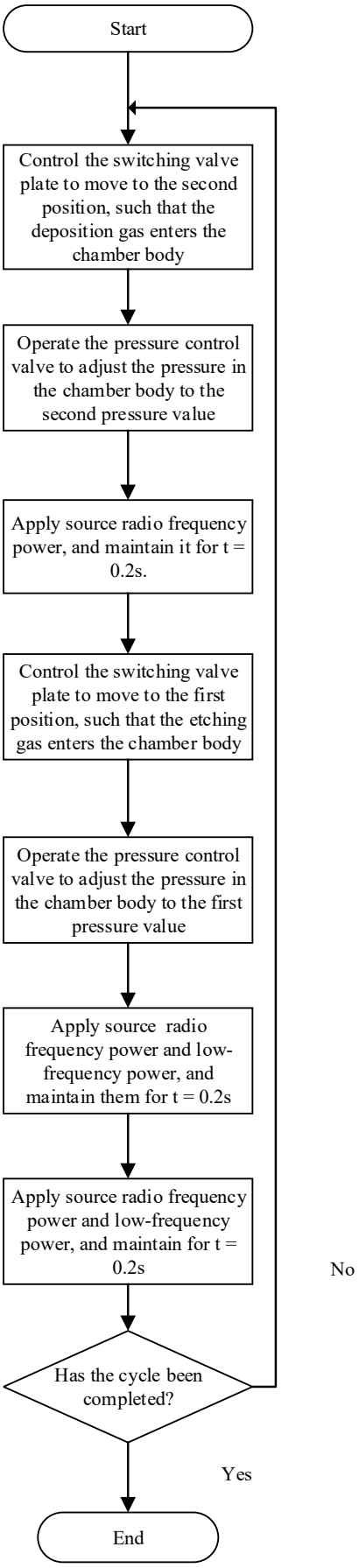

Start
Control the switching valve plate to move to the second position, such that the deposition gas enters the chamber body
Operate the pressure control valve to adjust the pressure in the chamber body to the second pressure value
Apply source radio frequency power, and maintain it for t = 0.2s.
Control the switching valve plate to move to the first position, such that the etching gas enters the chamber body
Operate the pressure control valve to adjust the pressure in the chamber body to the first pressure value
Apply source radio frequency power and low-frequency power, and maintain them for t = 0.2s
Apply source radio frequency power and low-frequency power, and maintain for t = 0.2s
Has the cycle been completed?
No
Yes
End

FIG. 9

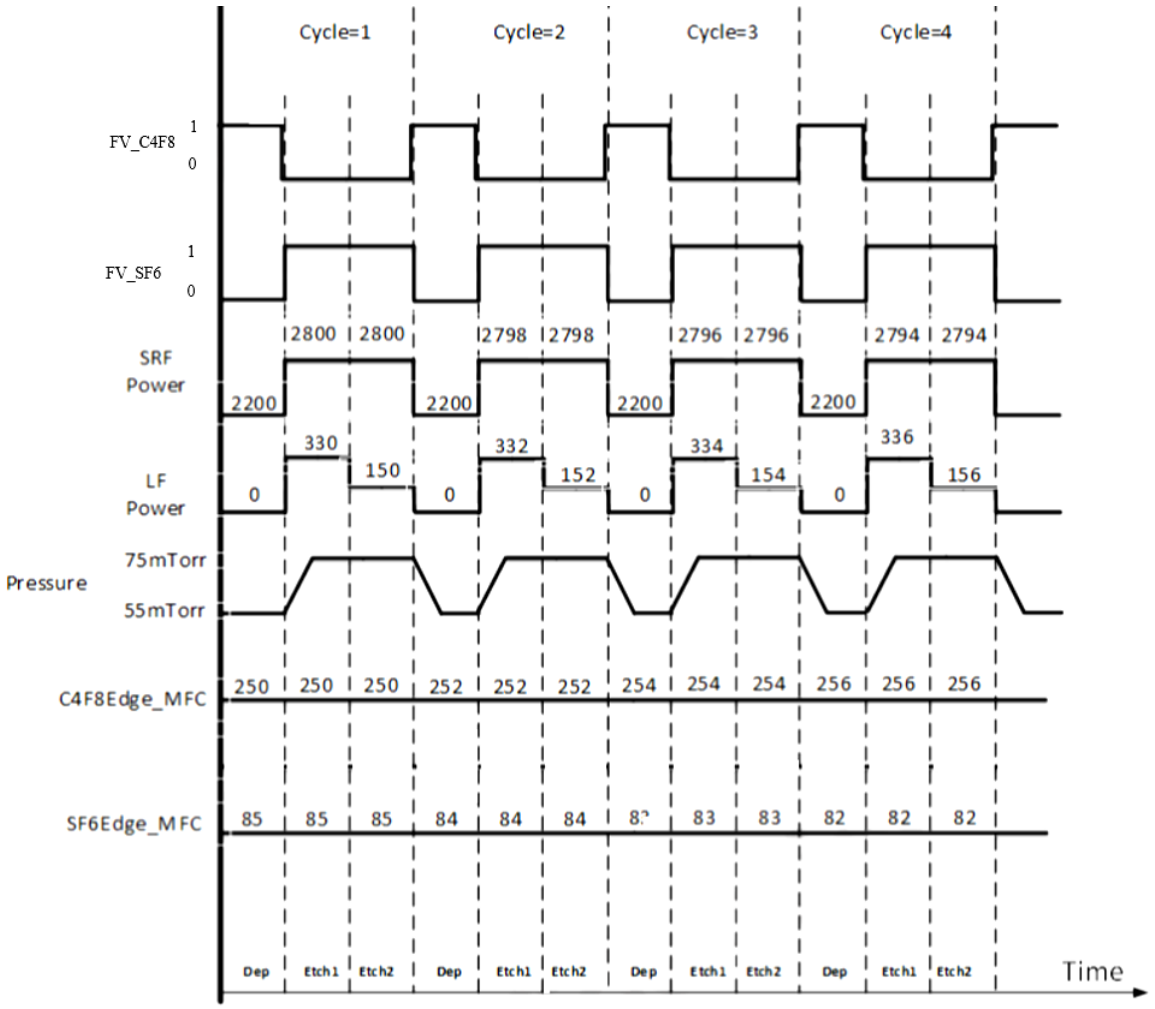

Cycle=1
Cycle=2
Cycle=3
Cycle=4
FV_C4F8
1
0
FV_SF6
1
0
SRF Power
2800 2800 2798 2798 2796 2796 2794 2794
2200 2200 2200 2200
LF Power
330 150 332 152 334 154 336 156
0 0 0 0
Pressure
75mTorr
55mTorr
C4F8Edge_MFC
250 250 250 252 252 252 254 254 254 256 256 256
SF6Edge_MFC
85 85 85 84 84 84 83 83 83 82 82 82
Dep Etch1 Etch2 Dep Etch1 Etch2 Dep Etch1 Etch2 Dep Etch1 Etch2
Time

FIG. 10

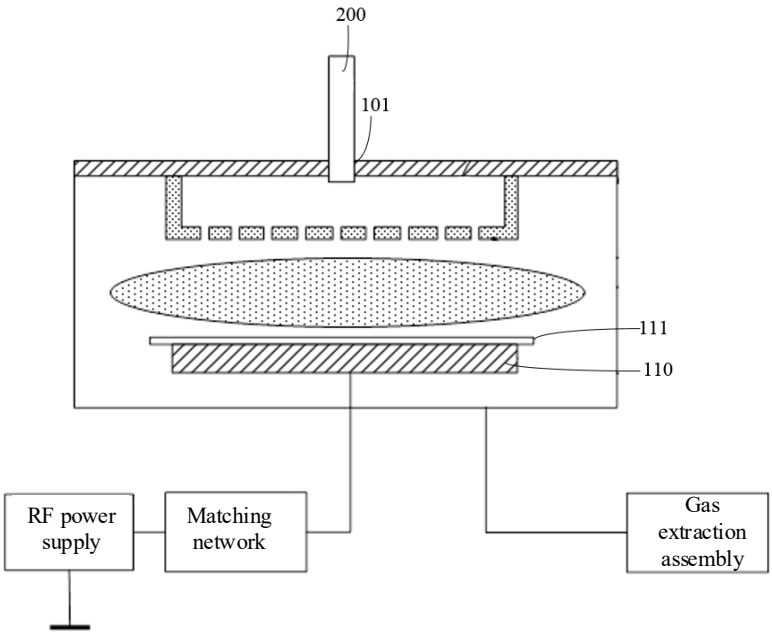

200
101
111
110
RF power supply
Matching network
Gas extraction assembly

FIG. 11

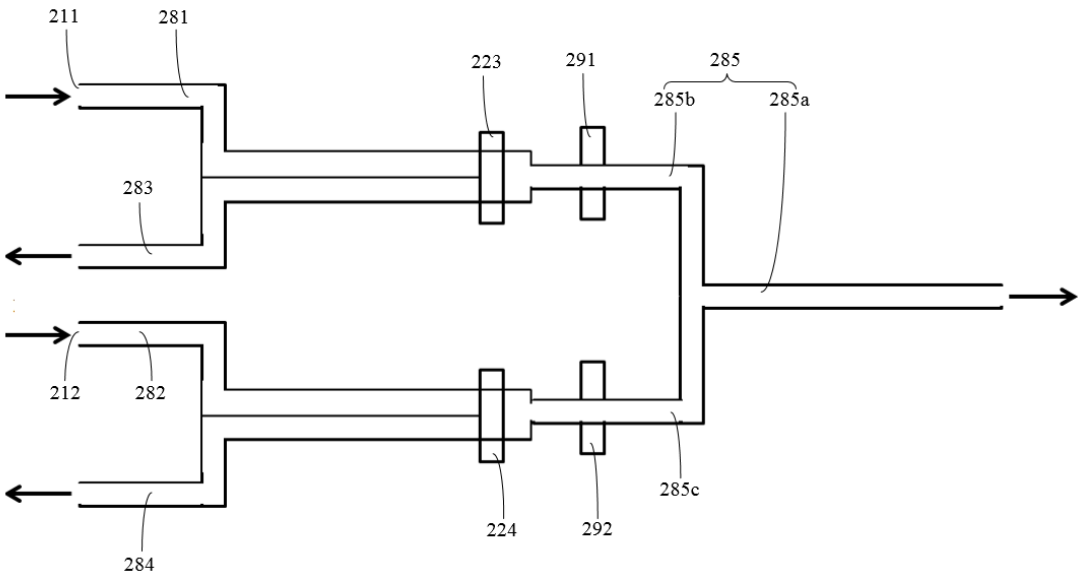

211
281
223
291
285
285b
285a
283
212
282
285c
224
292
284

FIG. 12

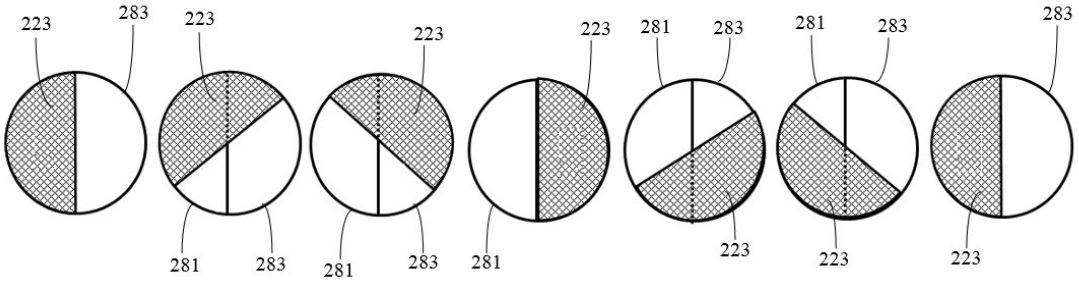

223
283
223
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223
281
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283
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223
223

FIG. 13