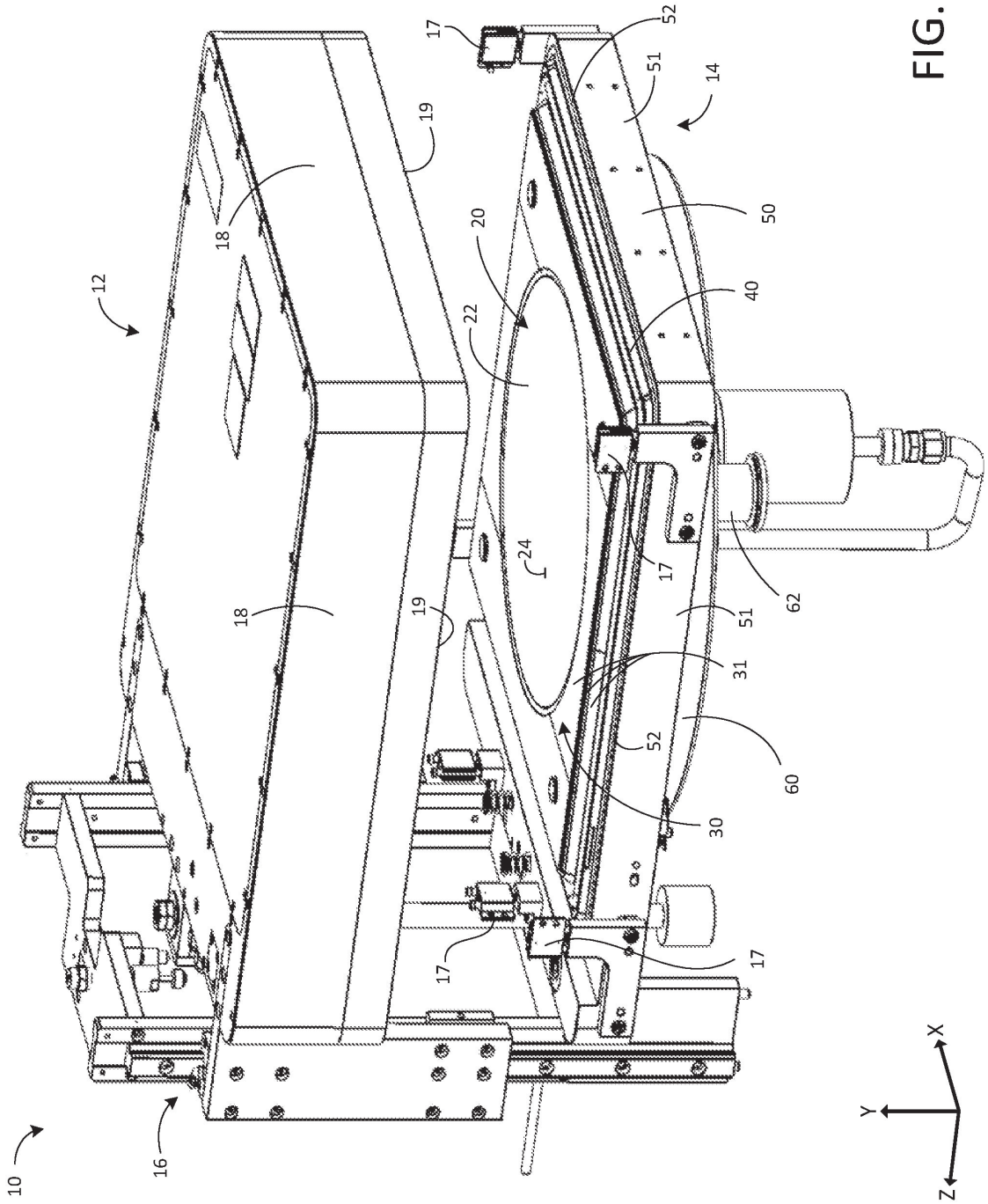

FIG. 1

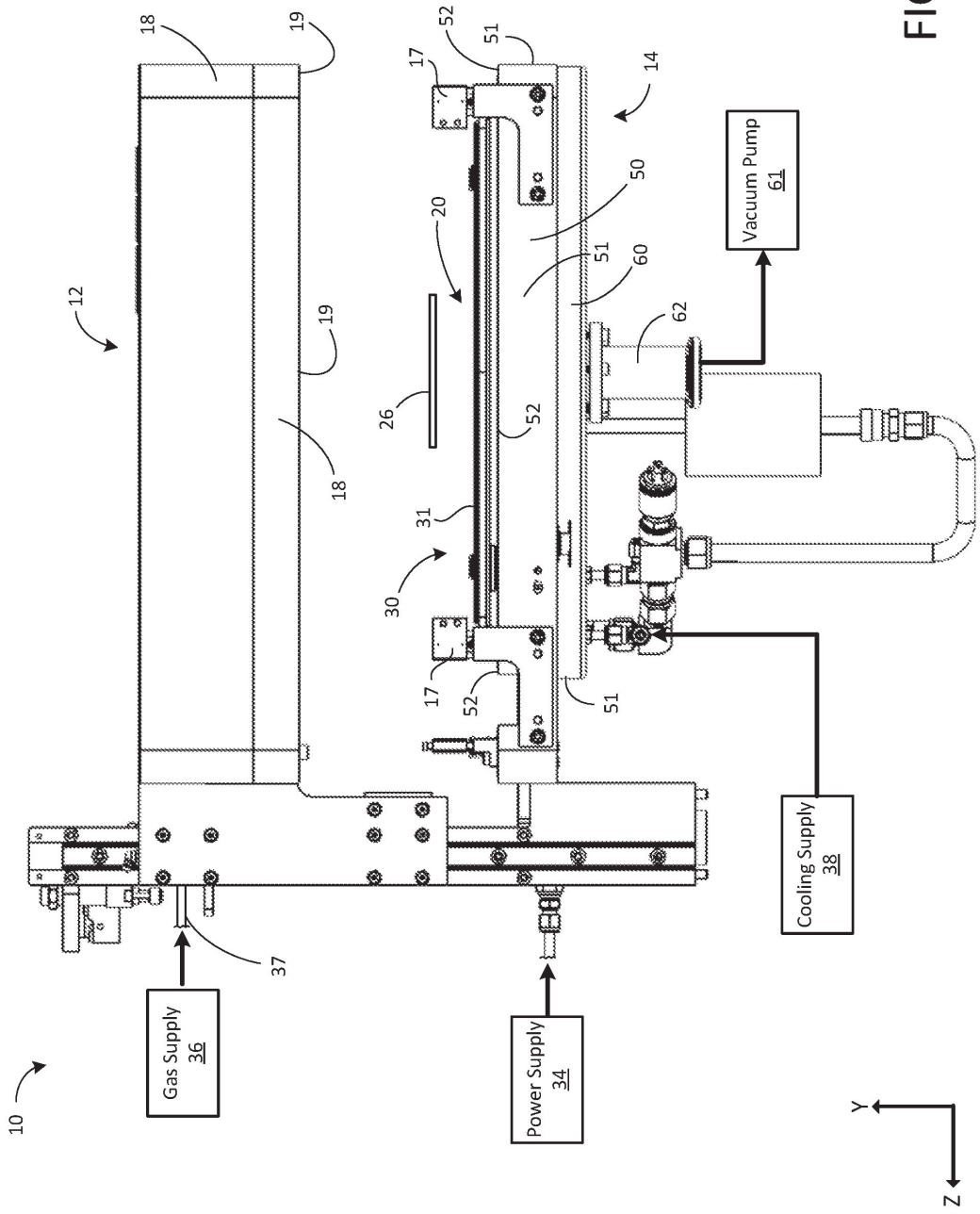
10
12
14
17
18
19
20
26
30
31
37
50
51
52
60
62
Gas Supply 36
Power Supply 34
Cooling Supply 38
Vacuum Pump 61
Y
Z

FIG. 2

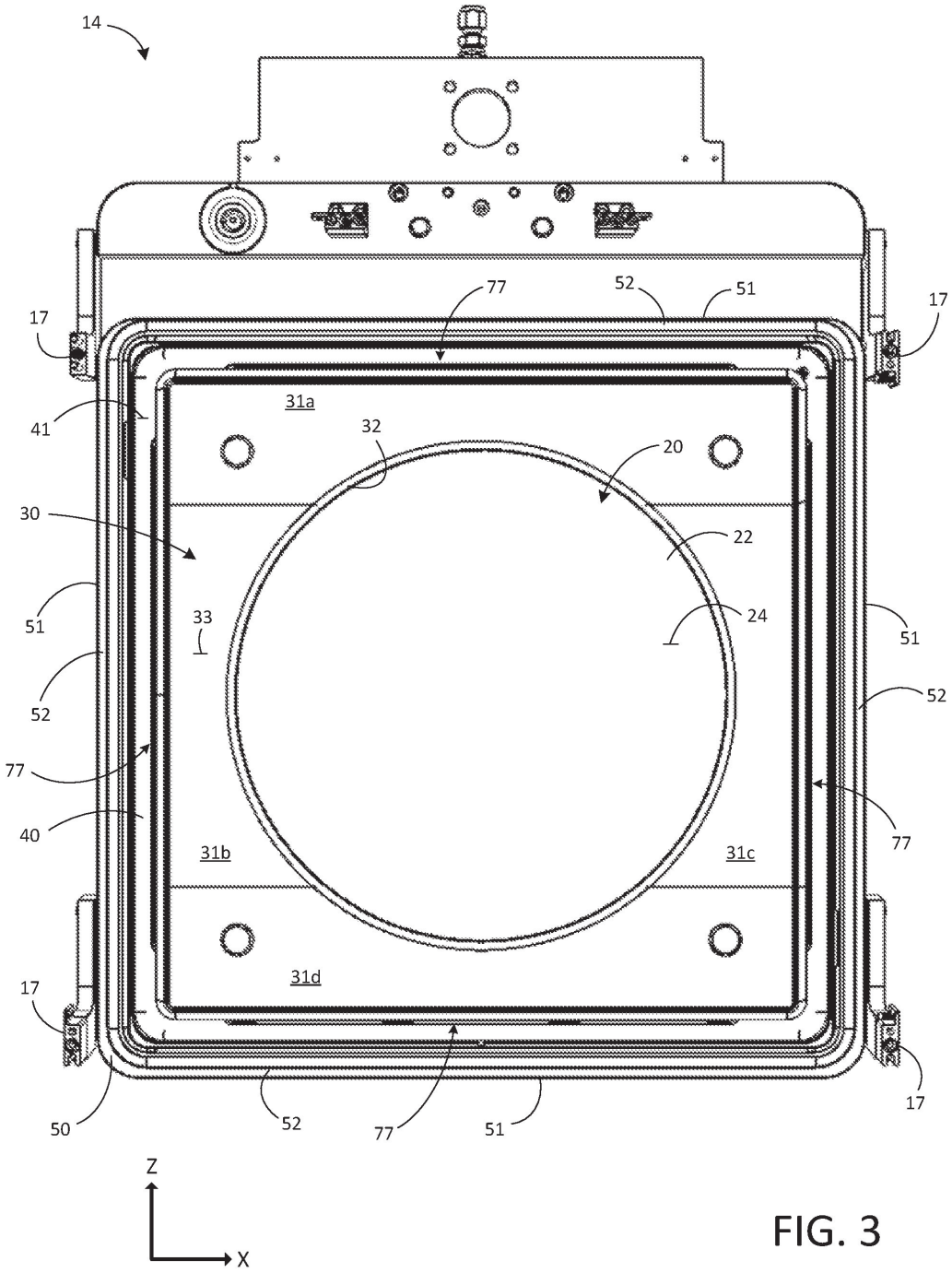
14
17
77
52
51
17
41
31a
32
20
30
22
51
33
24
51
52
52
77
77
40
31b
31c
31d
17
17
50
52
77
51
Z
X

FIG. 3

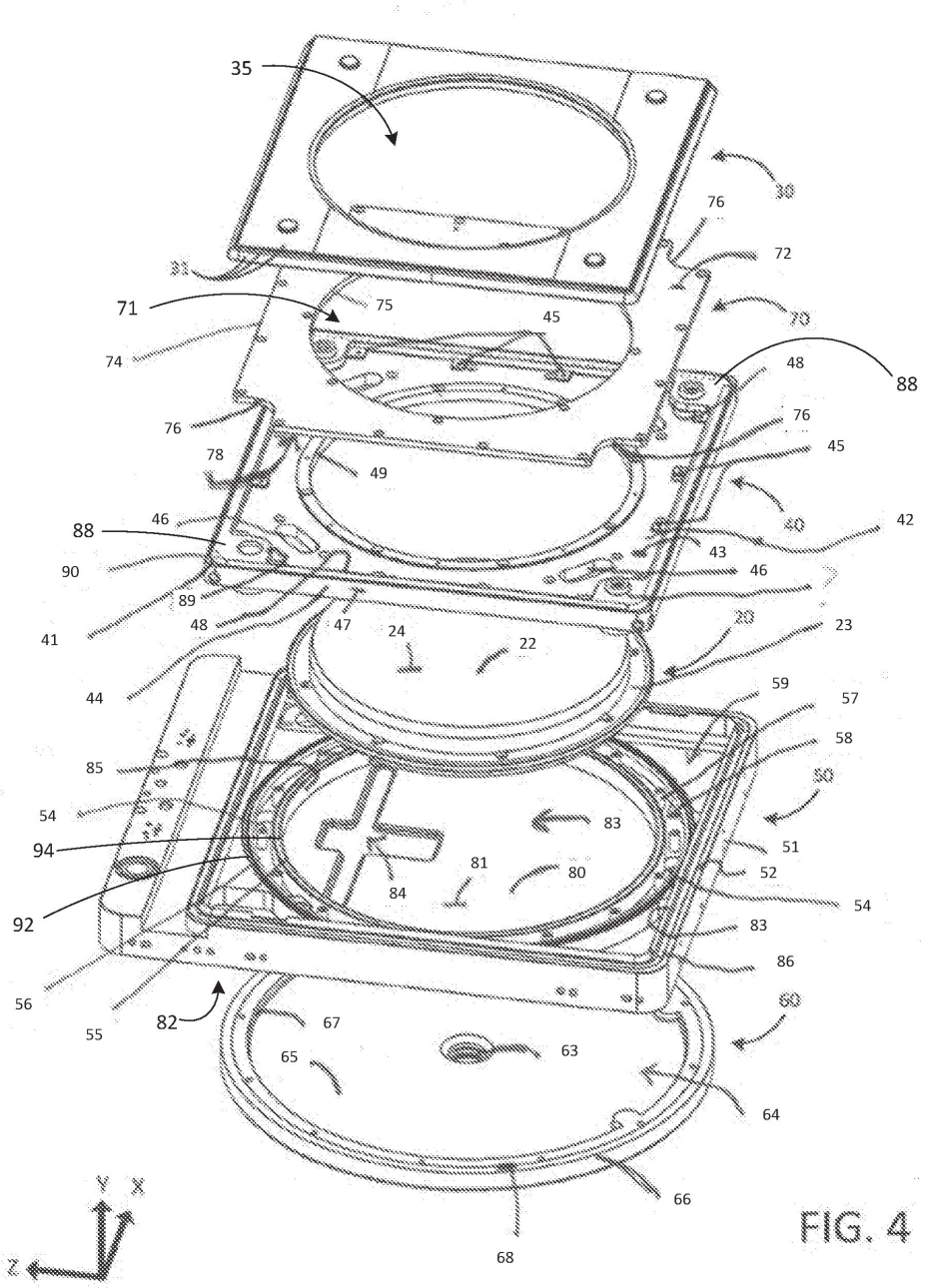
35
30
76
72
31
71
75
45
70
74
48
88
76
76
78
49
45
46
40
42
88
43
90
46
89
48
47
24
22
20
23
41
44
59
57
58
85
80
54
83
94
51
81
80
52
92
84
54
83
86
56
55
82
67
60
65
63
64
66
68
Y
X
Z

FIG. 4

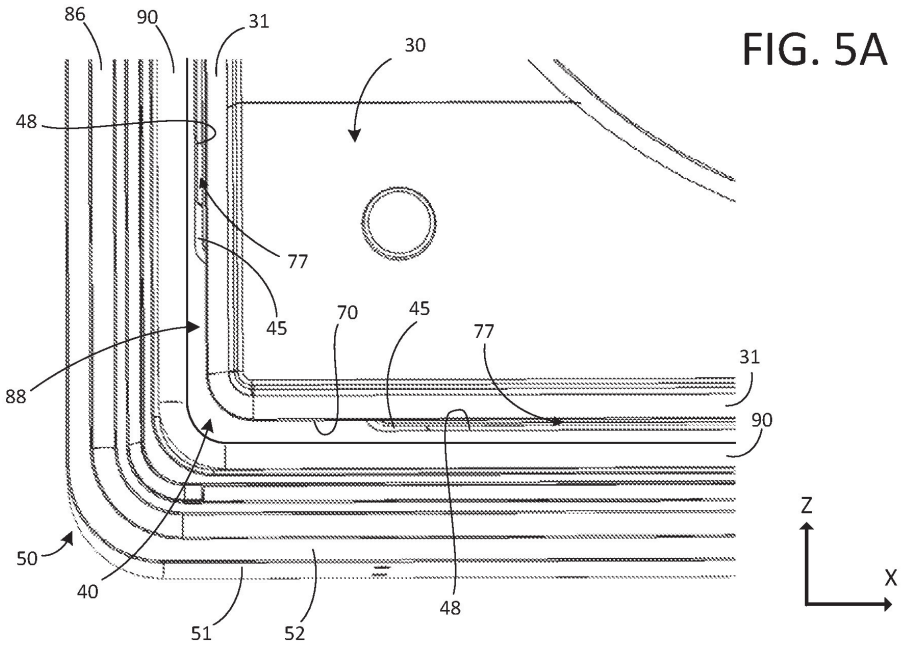
86
90
31
30
48
77
45
70
45
77
31
88
90
50
40
51
52
48
Z
X

FIG. 5A

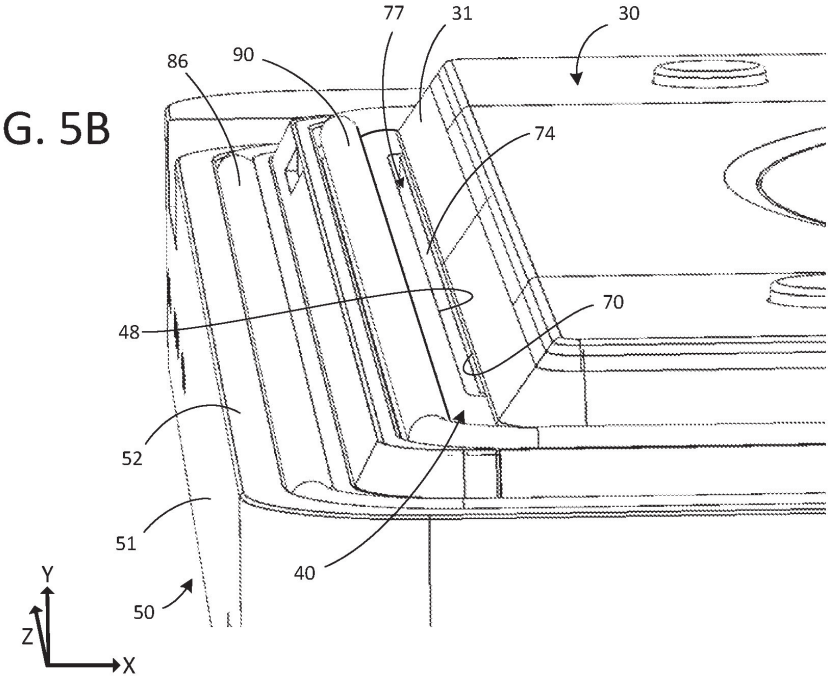
77
31
30
86
90
74
70
48
52
51
40
50
Y
Z
X

FIG. 5B

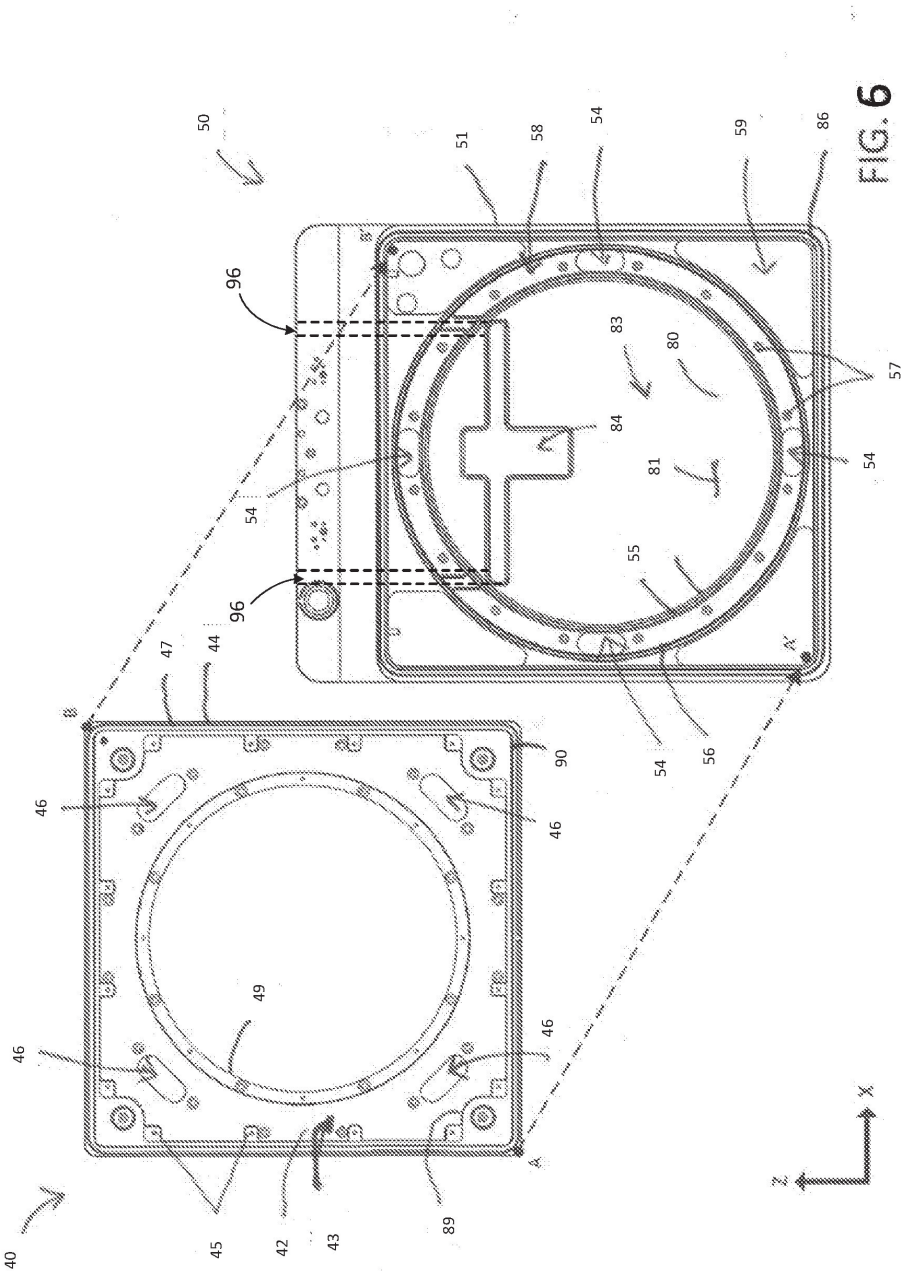
50
51
58
54
59
86
96
83
80
57
84
81
54
55
54
56
96
47
44
90
46
46
49
46
46
45
42
43
89
40
A
A'
B
B'
Z
X

FIG. 6

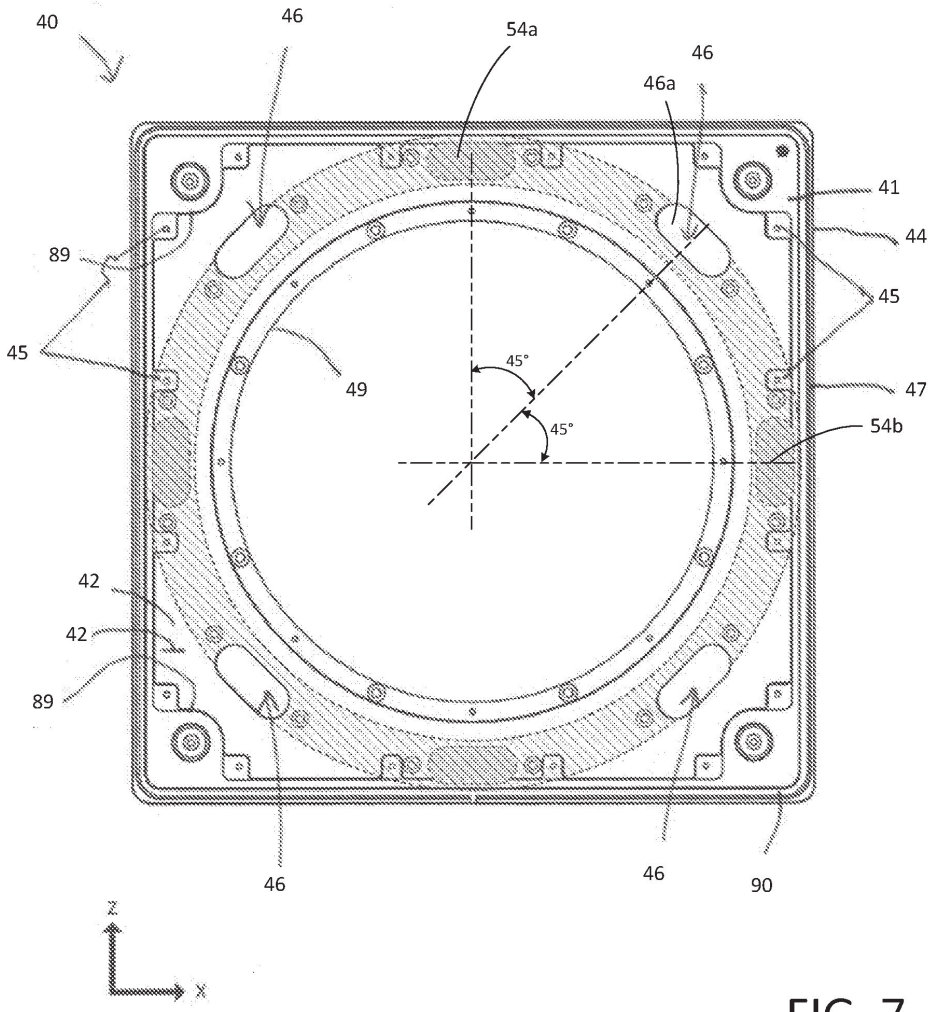

FIG. 7

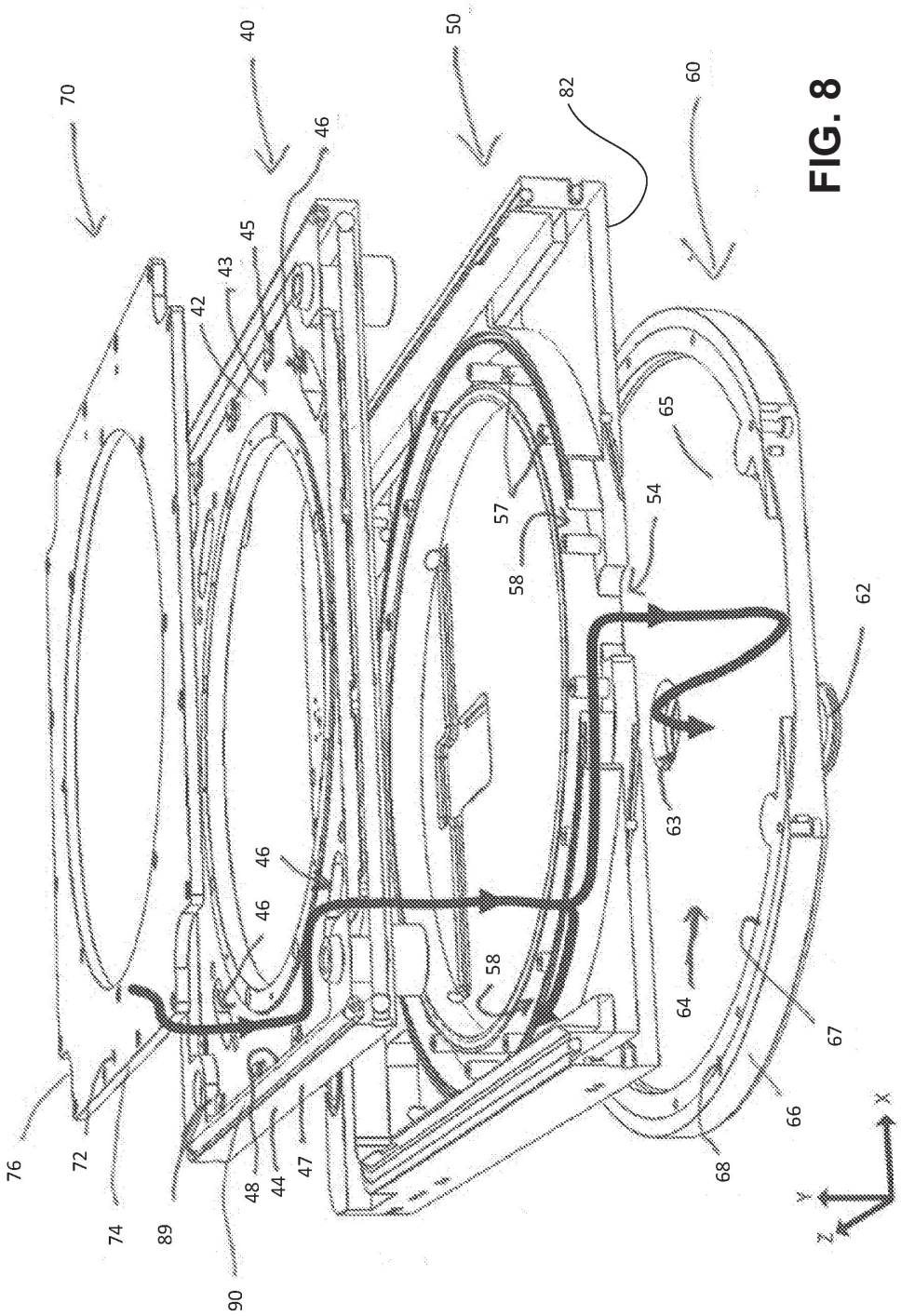
70
40
50
82
60
46
45
43
42
65
57
54
58
62
63
46
46
58
64
67
66
68
76
72
74
89
90
48
44
47
X
Y
Z

FIG. 8

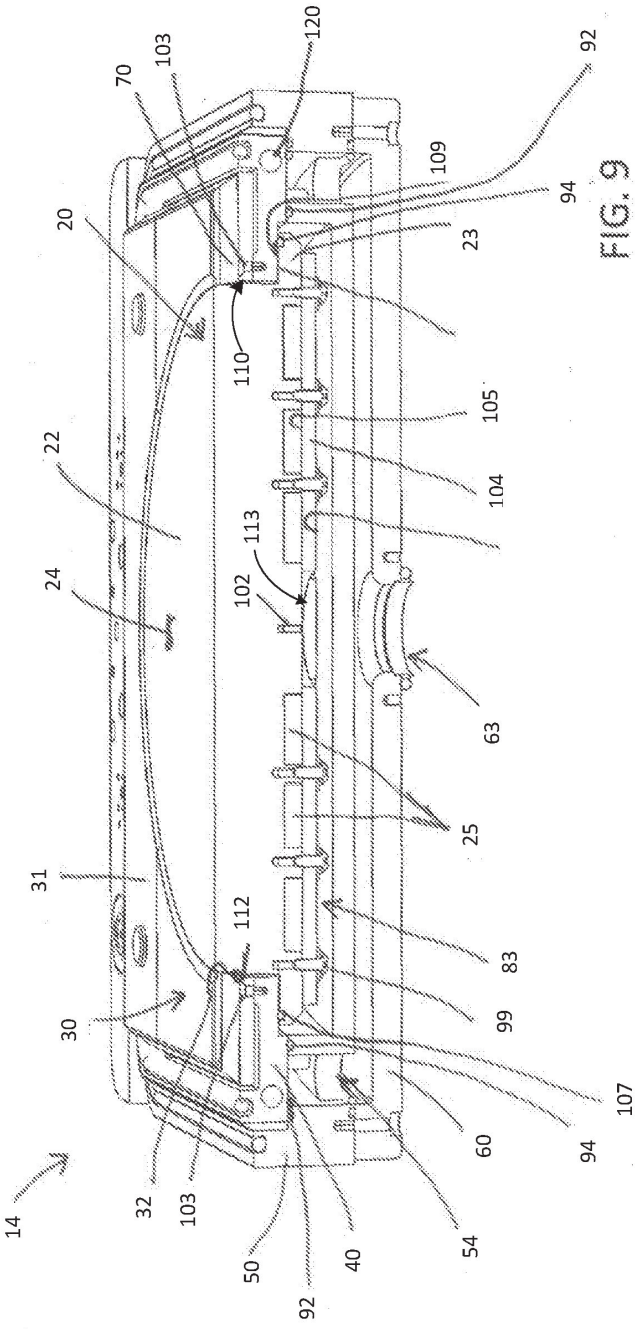
14
32
103
50
92
40
54
60
94
107
99
83
112
30
31
24
22
20
70
103
120
92
109
94
23
110
105
104
113
102
63
25

FIG. 9

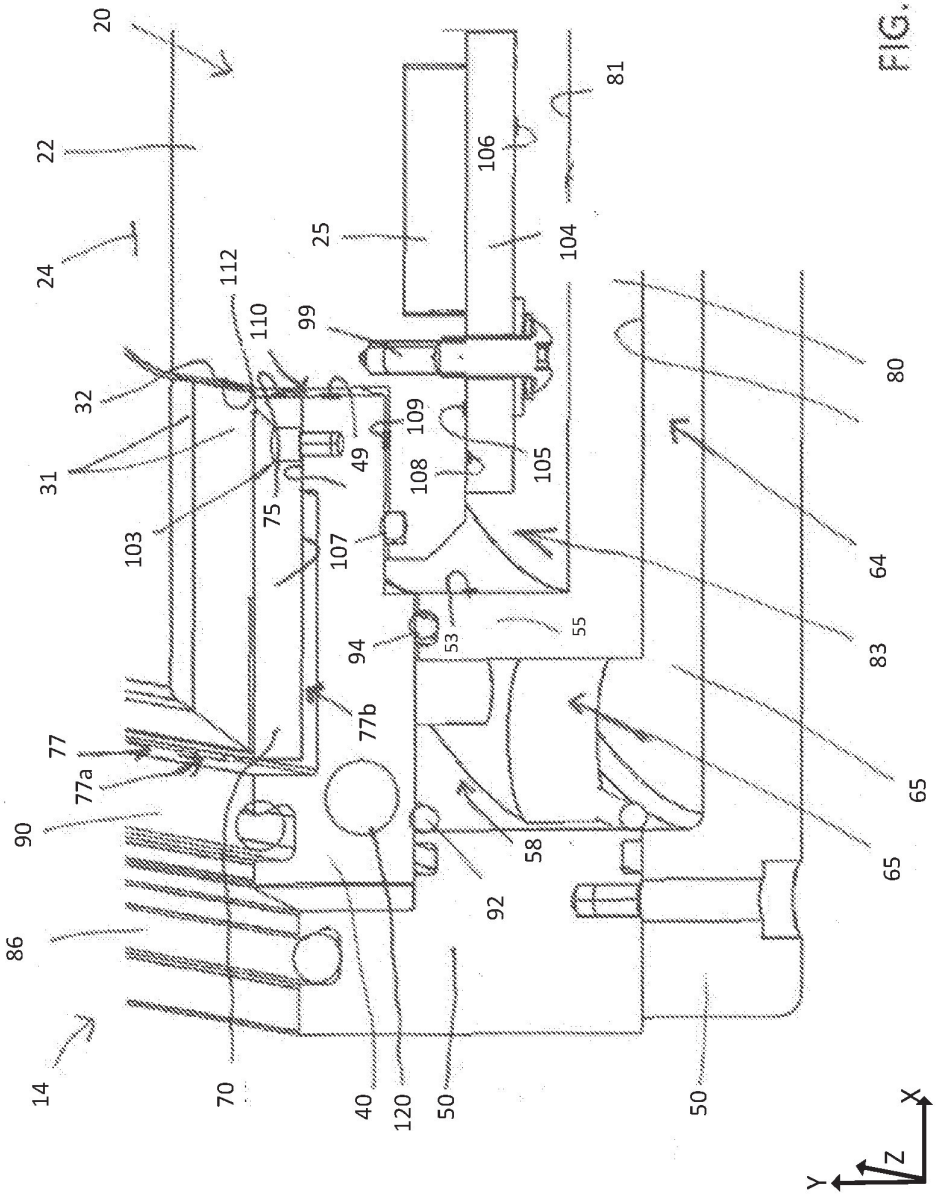
20
22
24
25
31
32
103
112
110
99
106
81
104
105
109
108
49
75
107
94
53
55
77b
77
77a
90
86
14
70
40
120
50
58
92
64
83
65
80
Y
Z
X

FIG. 10

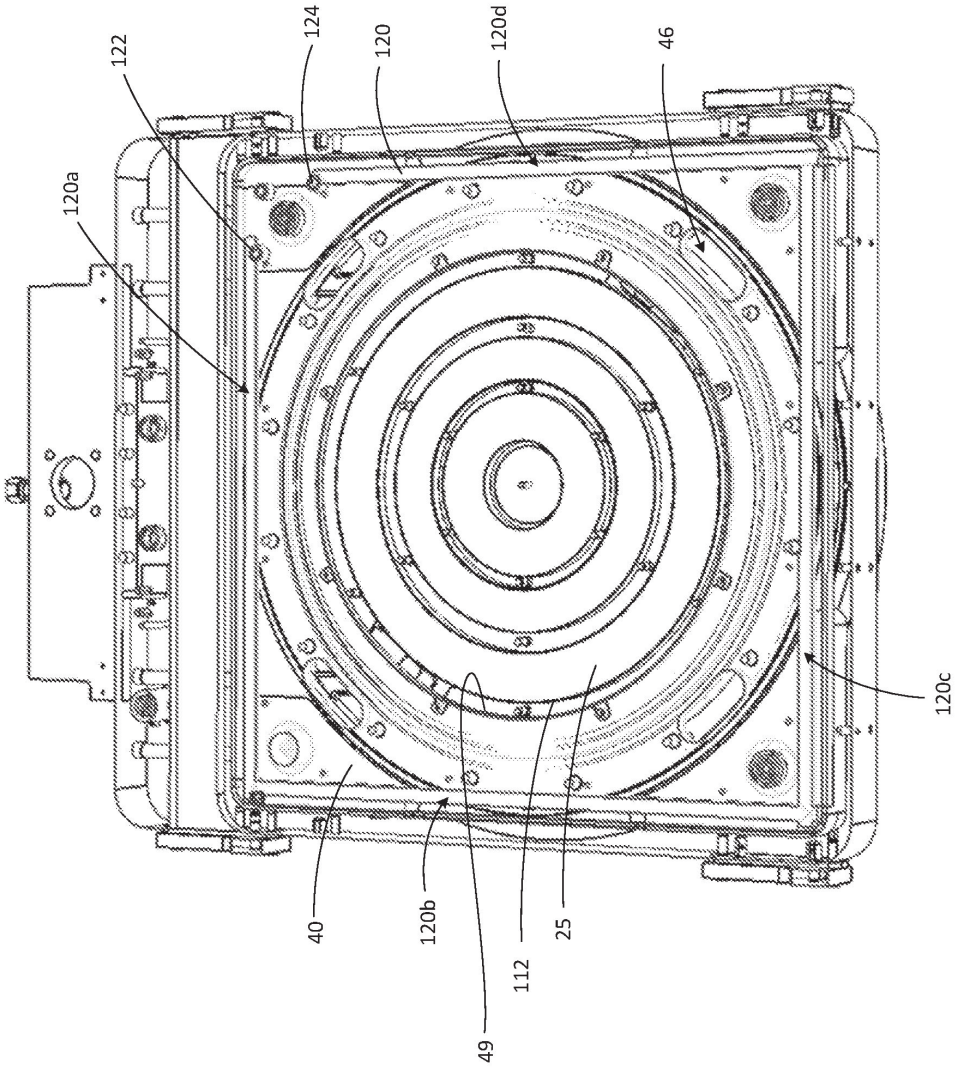

FIG. 11

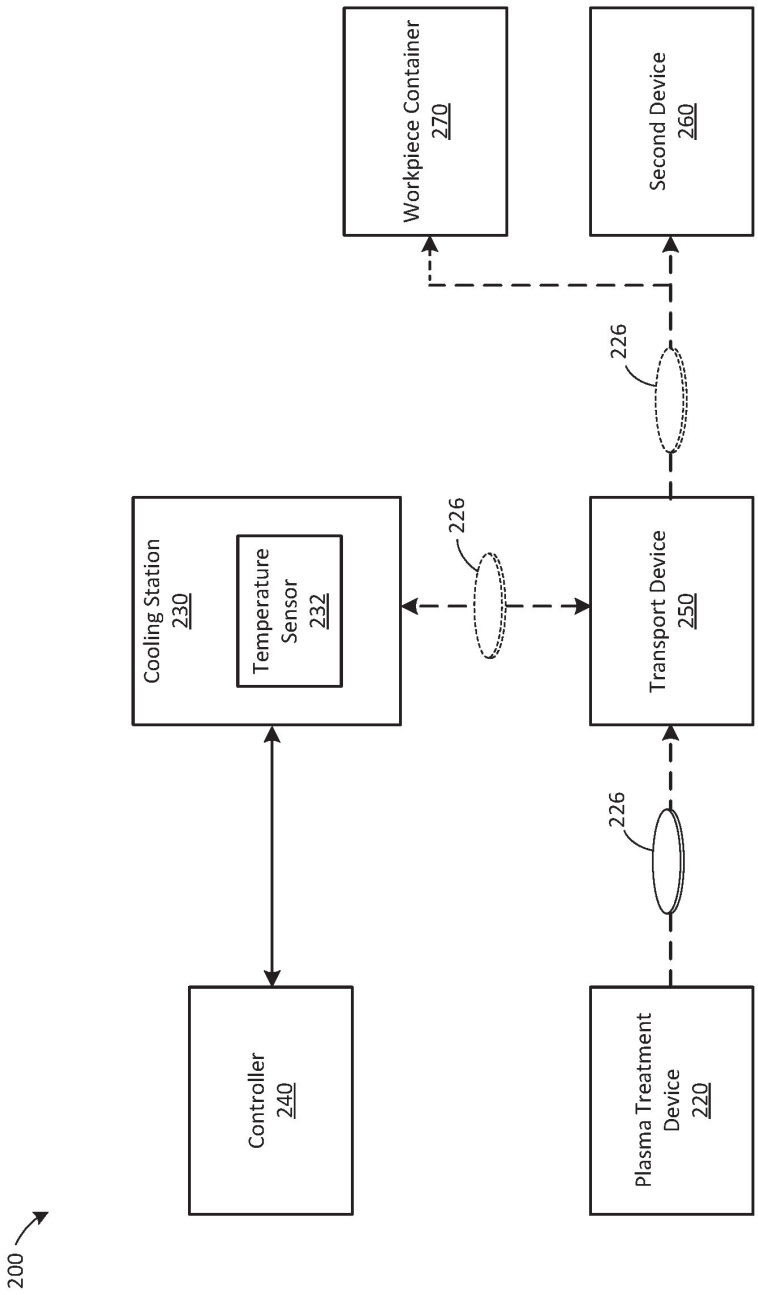
200
Controller
240
Cooling Station
230
Temperature
Sensor
232
Plasma Treatment
Device
220
Transport Device
250
Workpiece Container
270
Second Device
260
226
226
226

FIG. 12

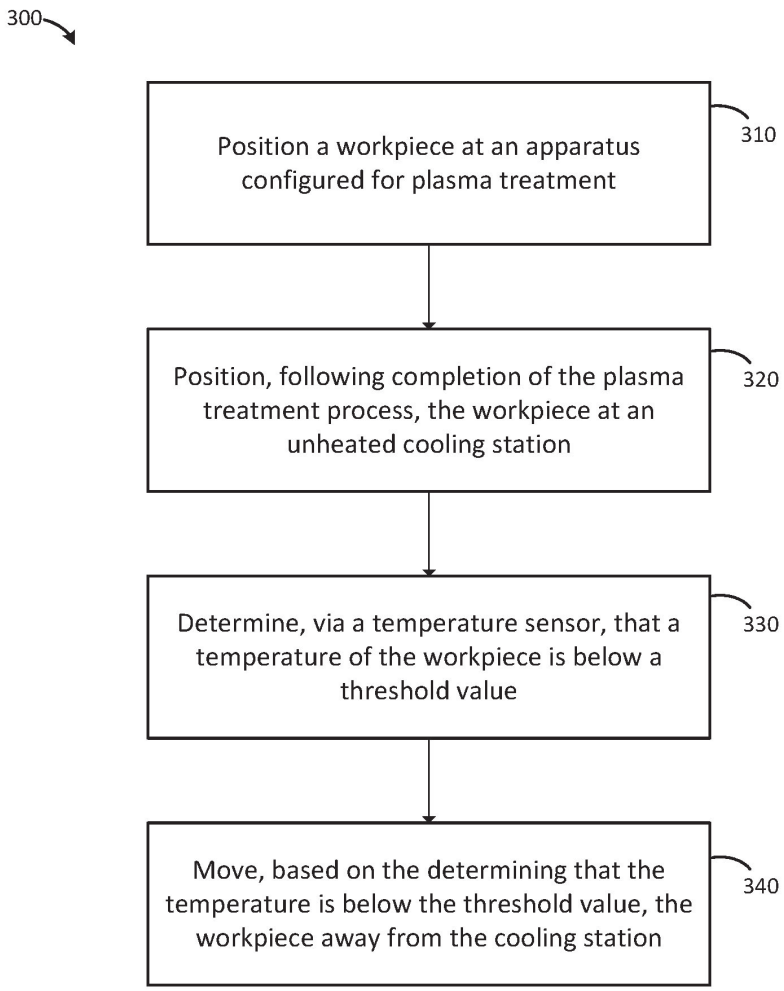
300
Position a workpiece at an apparatus configured for plasma treatment
310
Position, following completion of the plasma treatment process, the workpiece at an unheated cooling station
320
Determine, via a temperature sensor, that a temperature of the workpiece is below a threshold value
330
Move, based on the determining that the temperature is below the threshold value, the workpiece away from the cooling station
340

FIG. 13