FIG. 1

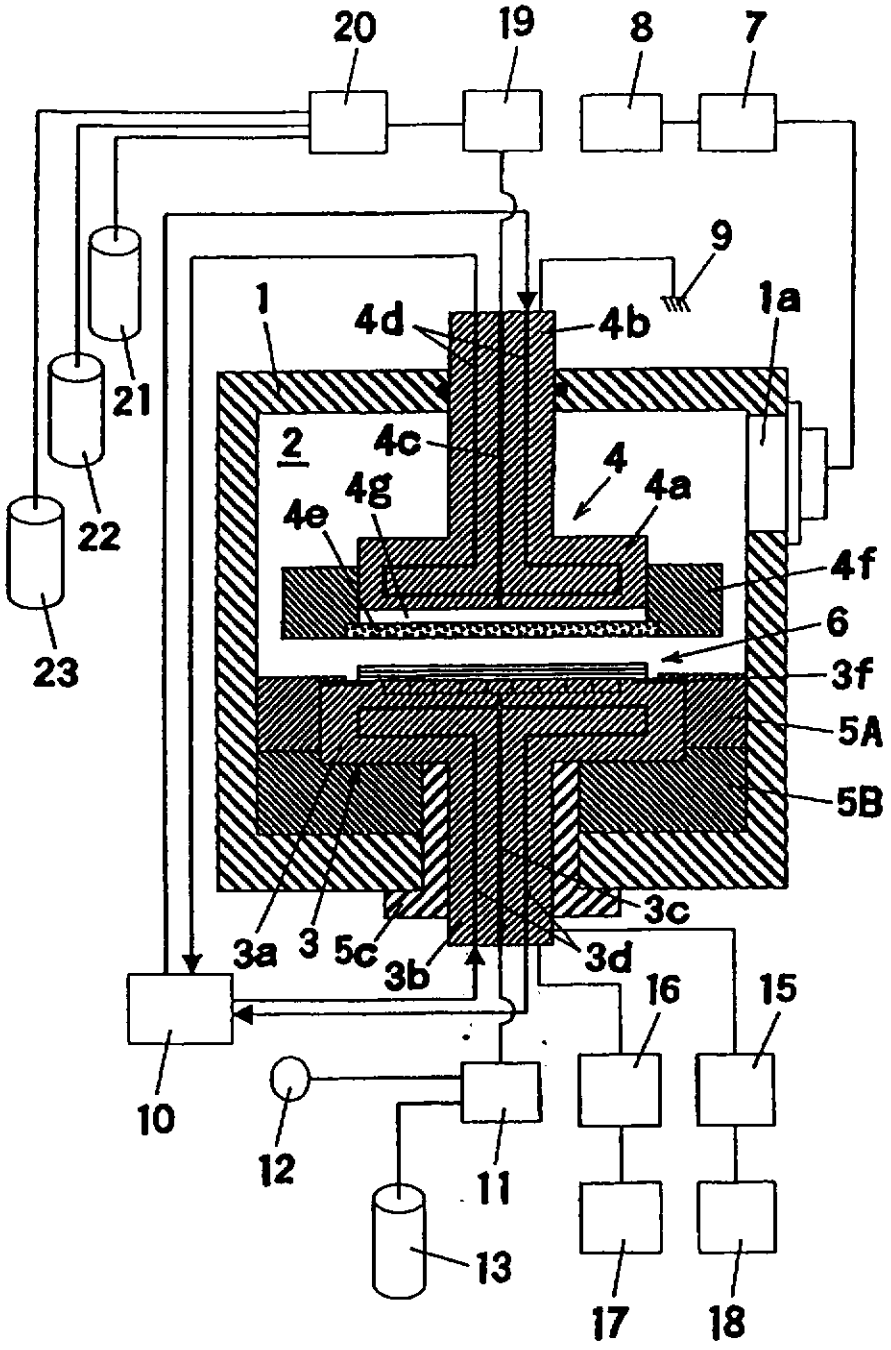

20
19
8
7
9
1
4d
4b
1a
21
2
4c
4
4g
4a
4e
22
4f
6
23
3f
5A
5B
3c
3a
3
5c
3b
3d
16
15
10
12
11
13
17
18

FIG. 2

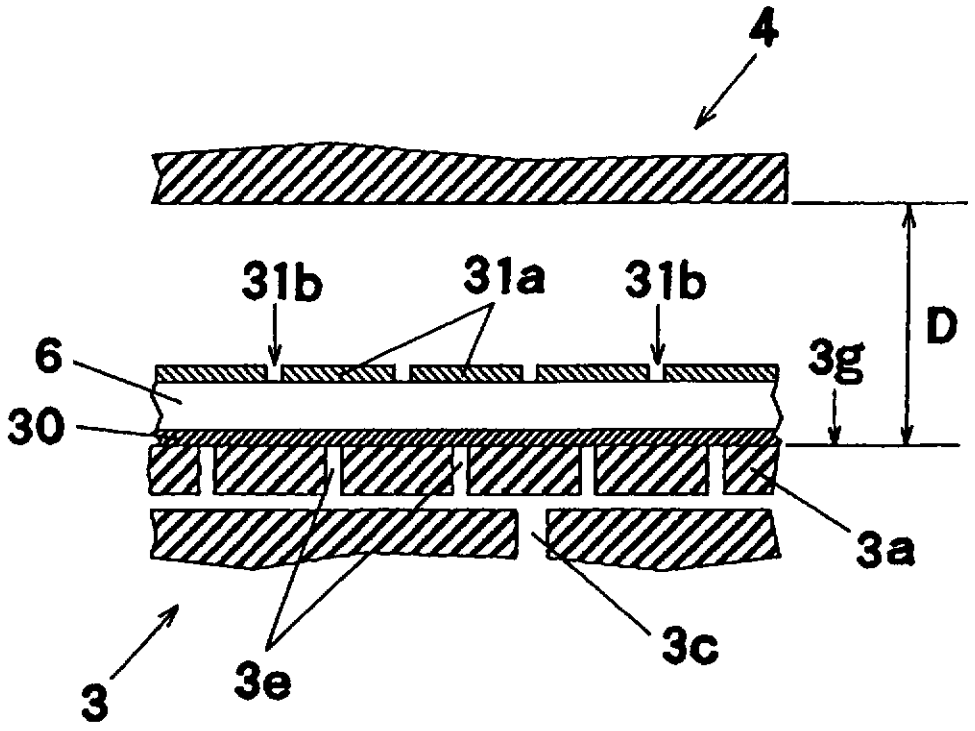


FIG. 3 (a)

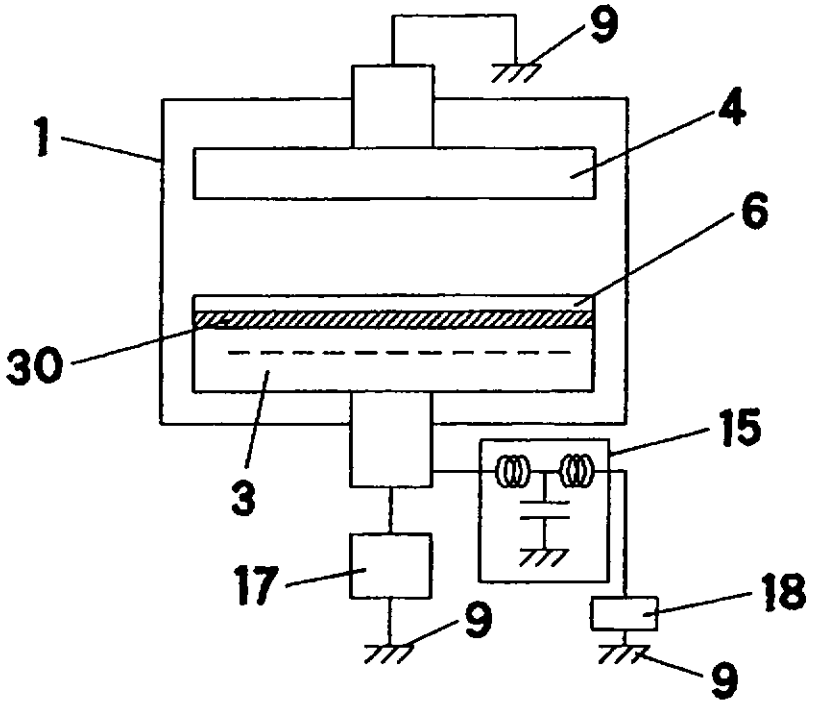


FIG. 3 (b)

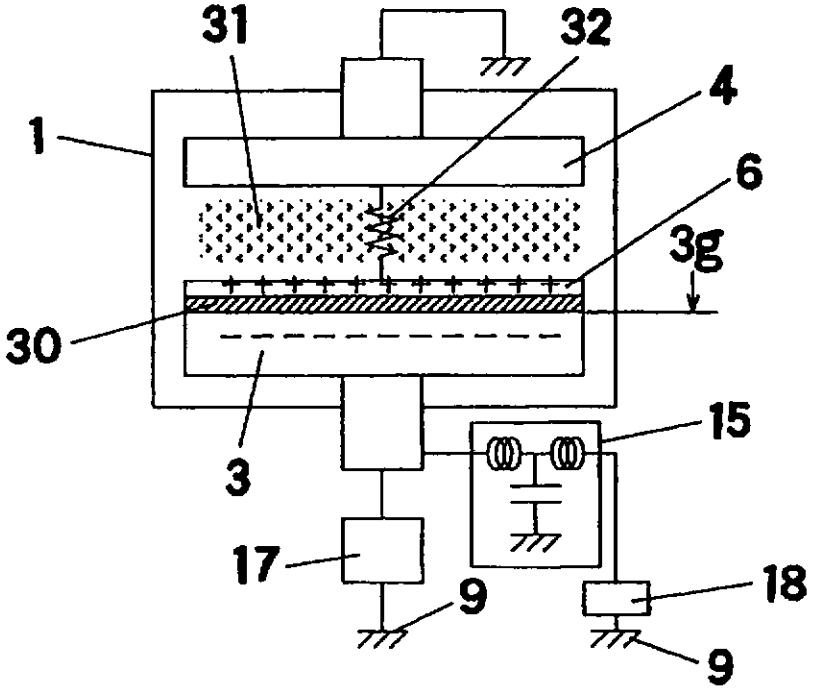


FIG. 4

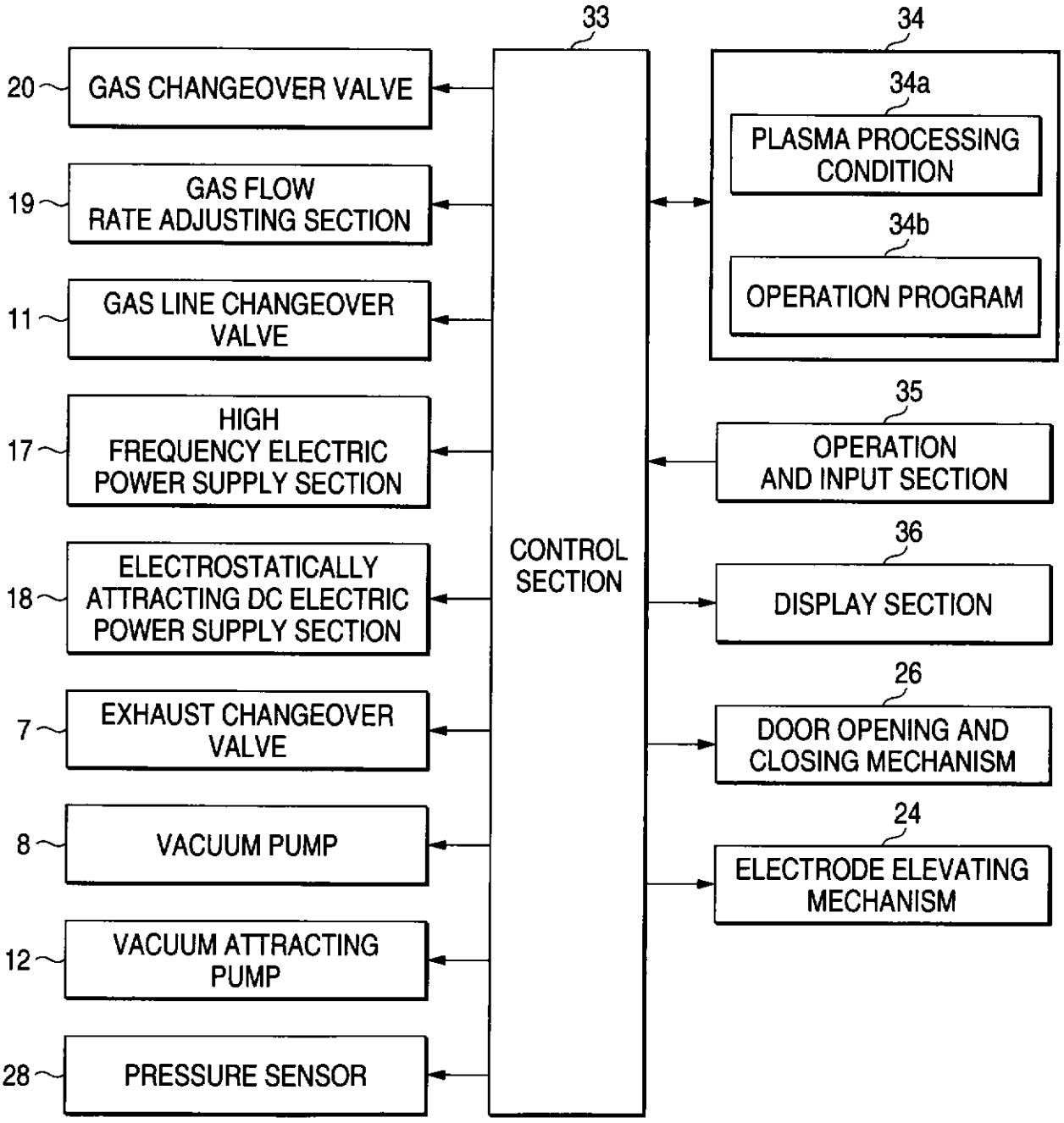

33
34
20
GAS CHANGEOVER VALVE
34a
PLASMA PROCESSING CONDITION
19
GAS FLOW RATE ADJUSTING SECTION
34b
OPERATION PROGRAM
11
GAS LINE CHANGEOVER VALVE
35
17
HIGH FREQUENCY ELECTRIC POWER SUPPLY SECTION
OPERATION AND INPUT SECTION
36
18
ELECTROSTATICALLY ATTRACTING DC ELECTRIC POWER SUPPLY SECTION
CONTROL SECTION
DISPLAY SECTION
26
7
EXHAUST CHANGEOVER VALVE
DOOR OPENING AND CLOSING MECHANISM
24
8
VACUUM PUMP
ELECTRODE ELEVATING MECHANISM
12
VACUUM ATTRACTING PUMP
28
PRESSURE SENSOR

FIG. 5 (a)



FIG. 5 (b)

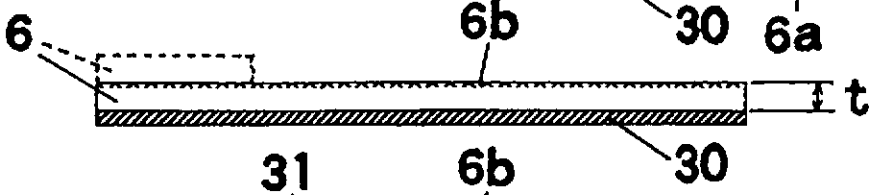


FIG. 5 (c)

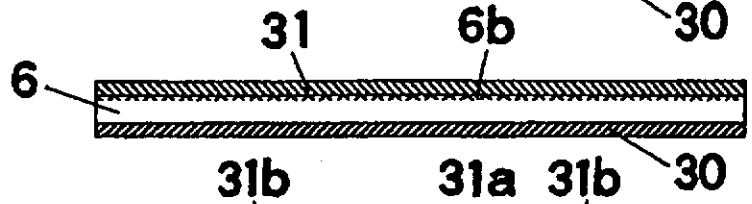


FIG. 5 (d)

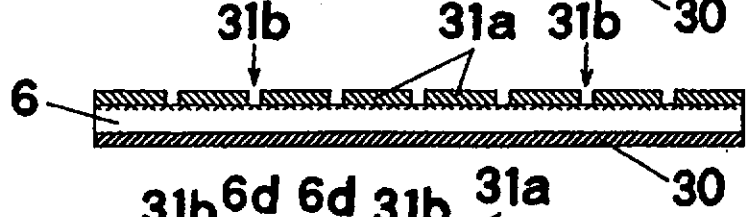


FIG. 5 (e)

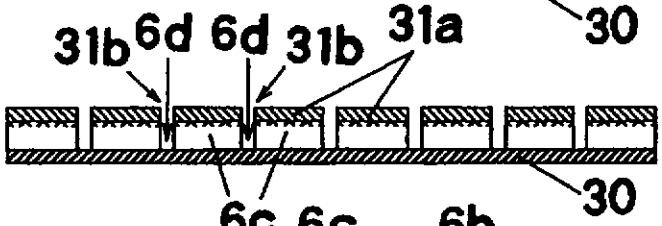


FIG. 5 (f)

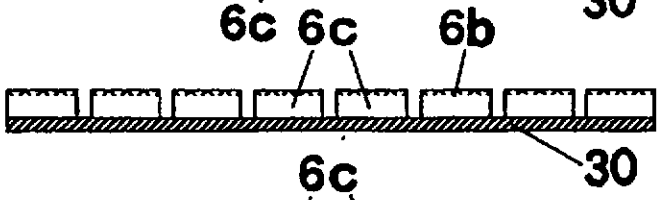


FIG. 5 (g)

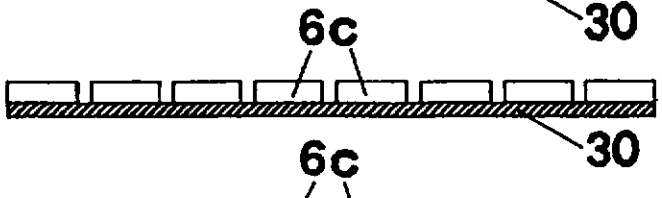


FIG. 5 (h)

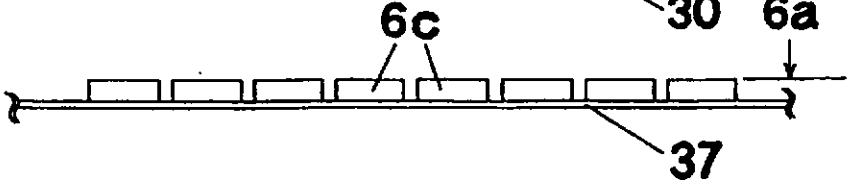


FIG. 6

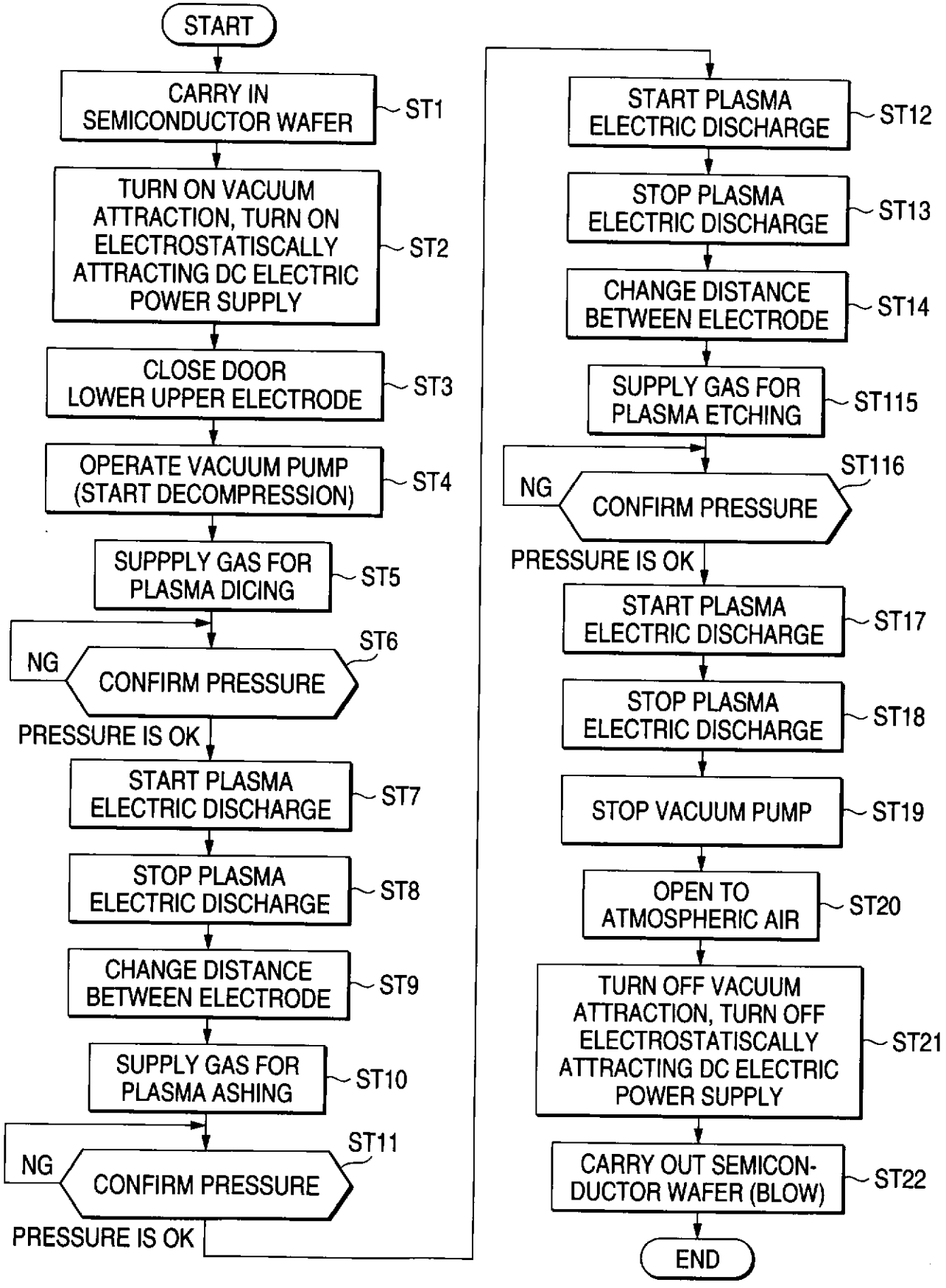

START
CARRY IN SEMICONDUCTOR WAFER
ST1
TURN ON VACUUM ATTRACTION, TURN ON ELECTROSTATISCALLY ATTRACTING DC ELECTRIC POWER SUPPLY
ST2
CLOSE DOOR LOWER UPPER ELECTRODE
ST3
OPERATE VACUUM PUMP (START DECOMPRESSION)
ST4
SUPPPLY GAS FOR PLASMA DICING
ST5
NG
CONFIRM PRESSURE
ST6
PRESSURE IS OK
START PLASMA ELECTRIC DISCHARGE
ST7
STOP PLASMA ELECTRIC DISCHARGE
ST8
CHANGE DISTANCE BETWEEN ELECTRODE
ST9
SUPPLY GAS FOR PLASMA ASHING
ST10
NG
CONFIRM PRESSURE
ST11
PRESSURE IS OK
START PLASMA ELECTRIC DISCHARGE
ST12
STOP PLASMA ELECTRIC DISCHARGE
ST13
CHANGE DISTANCE BETWEEN ELECTRODE
ST14
SUPPLY GAS FOR PLASMA ETCHING
ST115
NG
CONFIRM PRESSURE
ST116
PRESSURE IS OK
START PLASMA ELECTRIC DISCHARGE
ST17
STOP PLASMA ELECTRIC DISCHARGE
ST18
STOP VACUUM PUMP
ST19
OPEN TO ATMOSPHERIC AIR
ST20
TURN OFF VACUUM ATTRACTION, TURN OFF ELECTROSTATISCALLY ATTRACTING DC ELECTRIC POWER SUPPLY
ST21
CARRY OUT SEMICONDUCTOR WAFER (BLOW)
ST22
END

FIG. 7

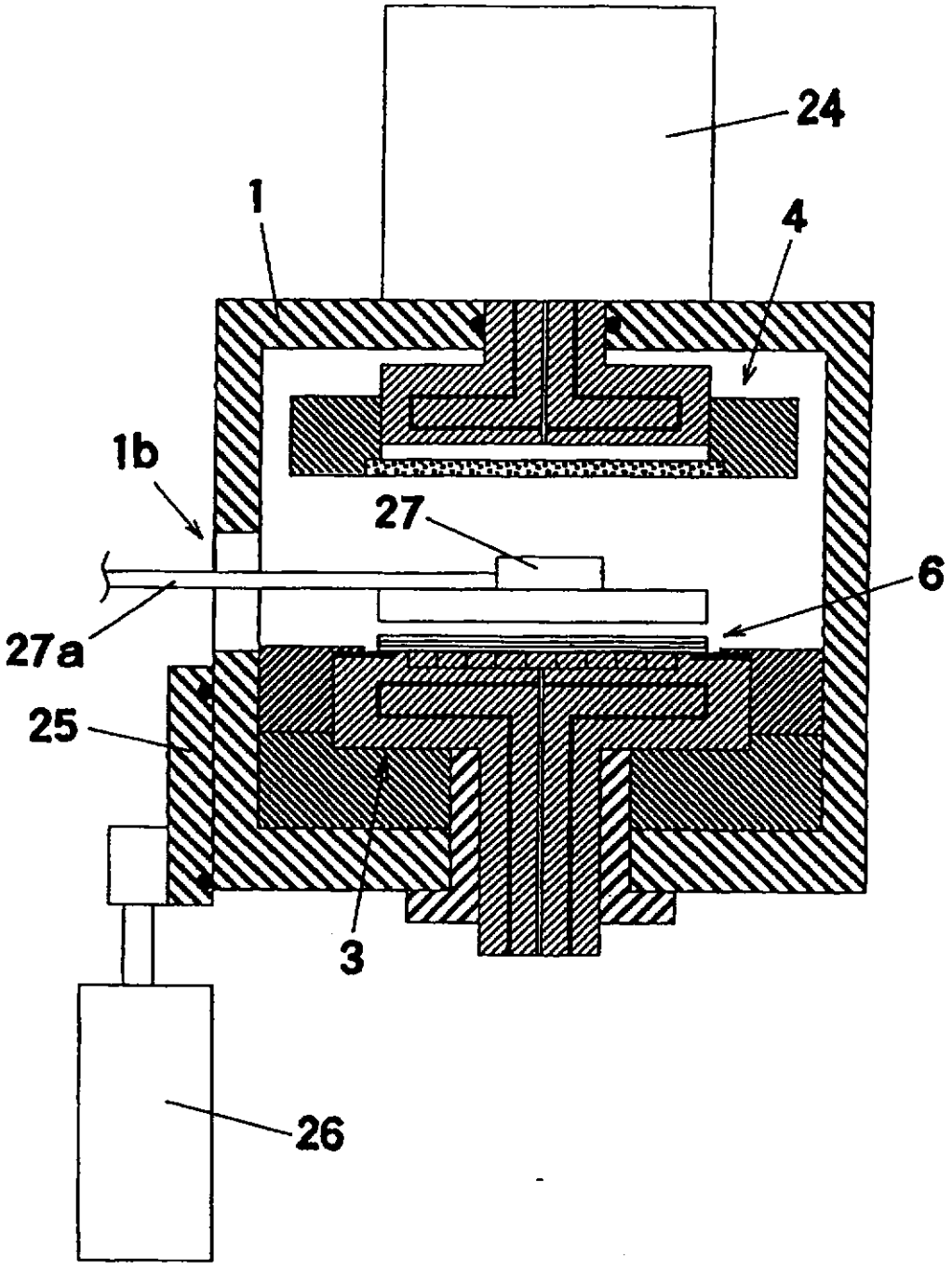


FIG. 8

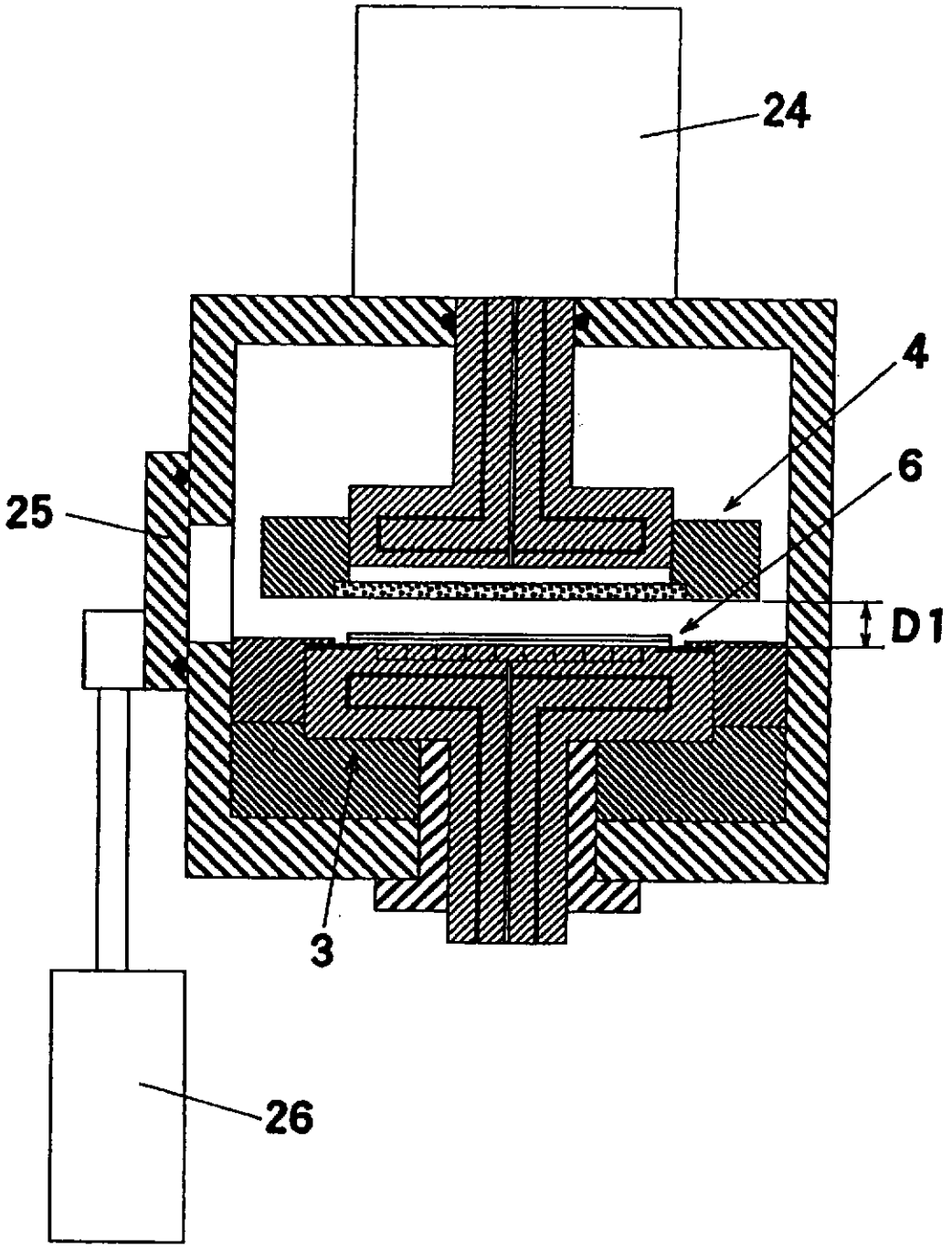


FIG. 9

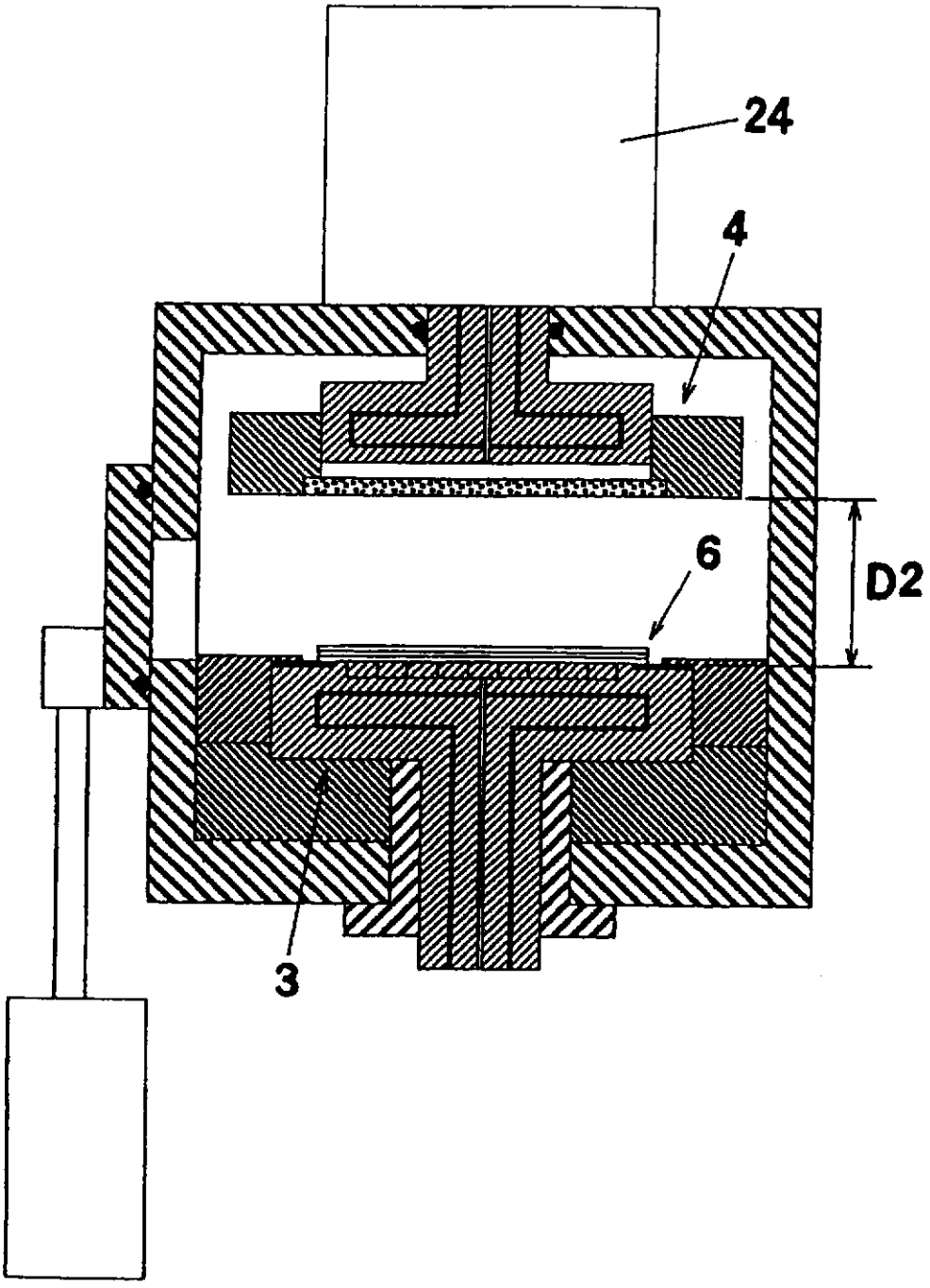


FIG. 10

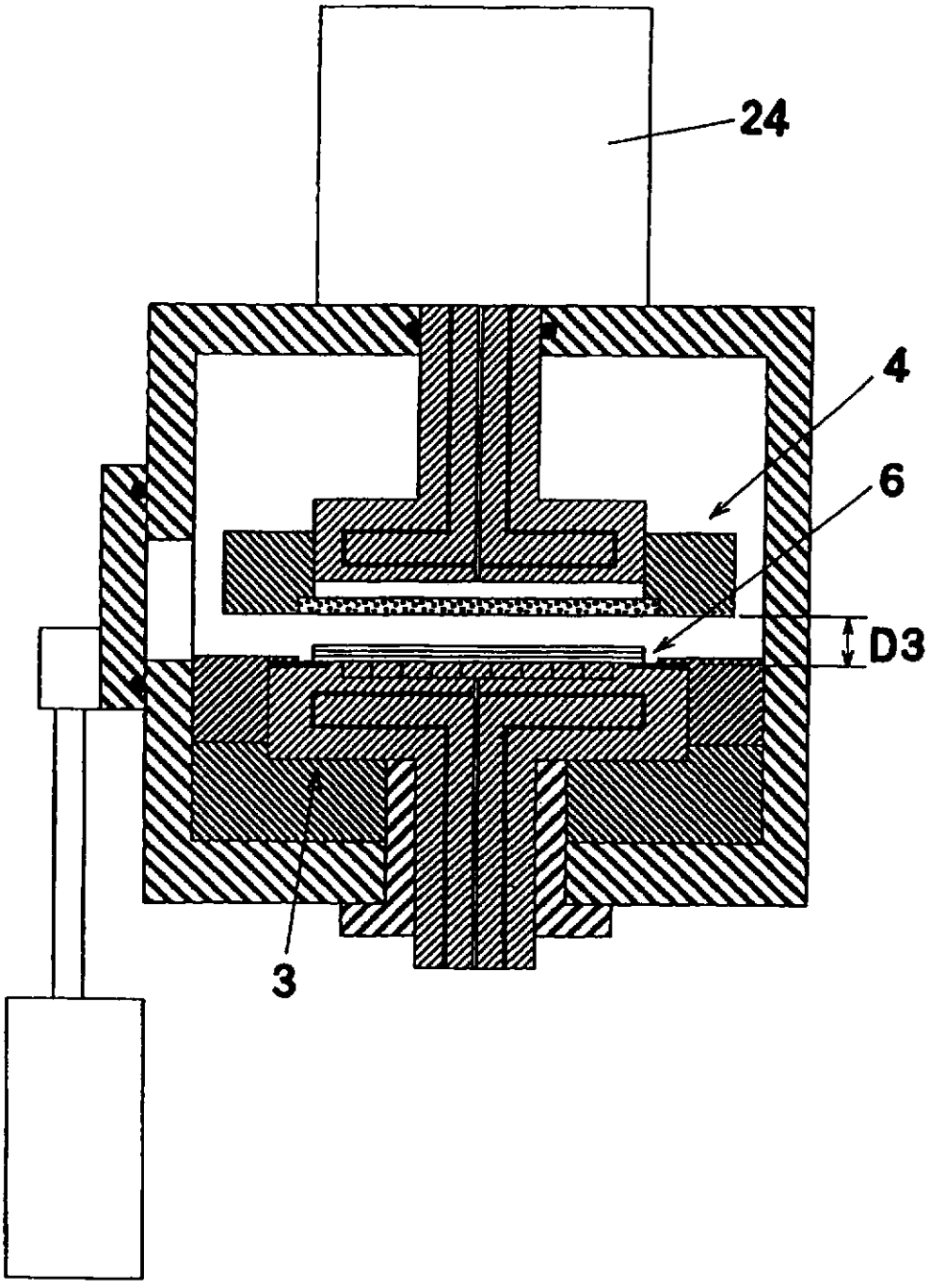


FIG. 11

PROCESS	RF POWER (W)	PRESSURE (Pa)	DISTANCE BETWEEN ELECTRODE (mm)
PLASMA DICING	500-3000	5-300	5-50
⇩ ASHING	100-1000	5-100	50-100
⇩ PLASMA STRESS RELIEF	500-3000	300-2000	5-20