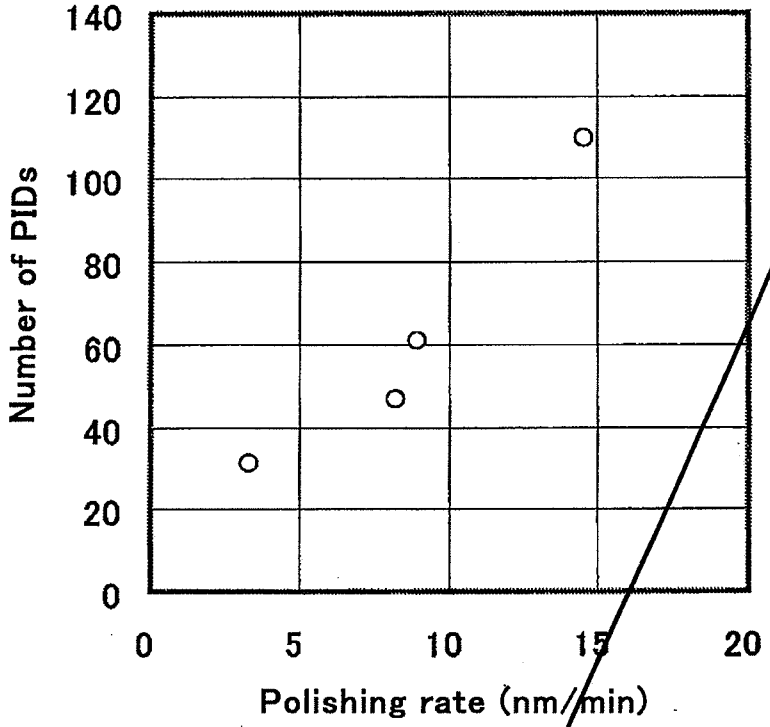
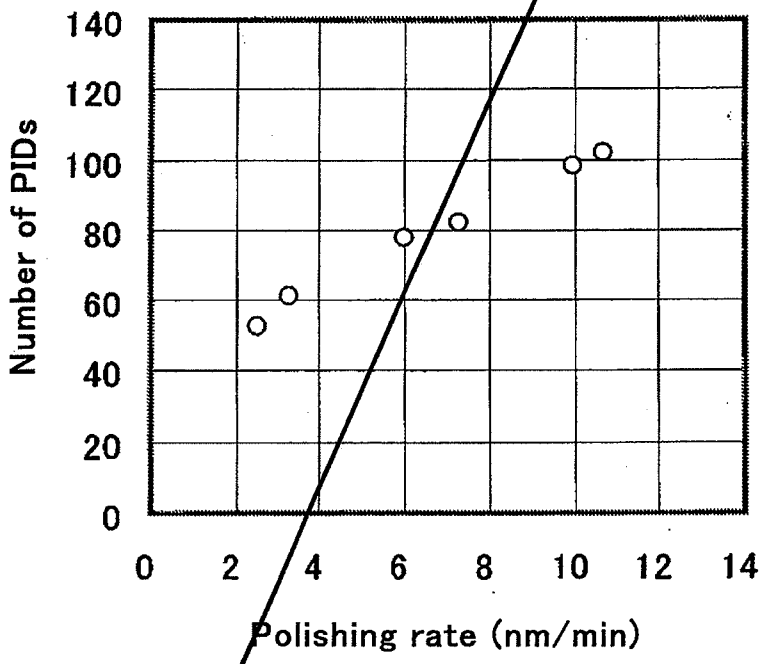
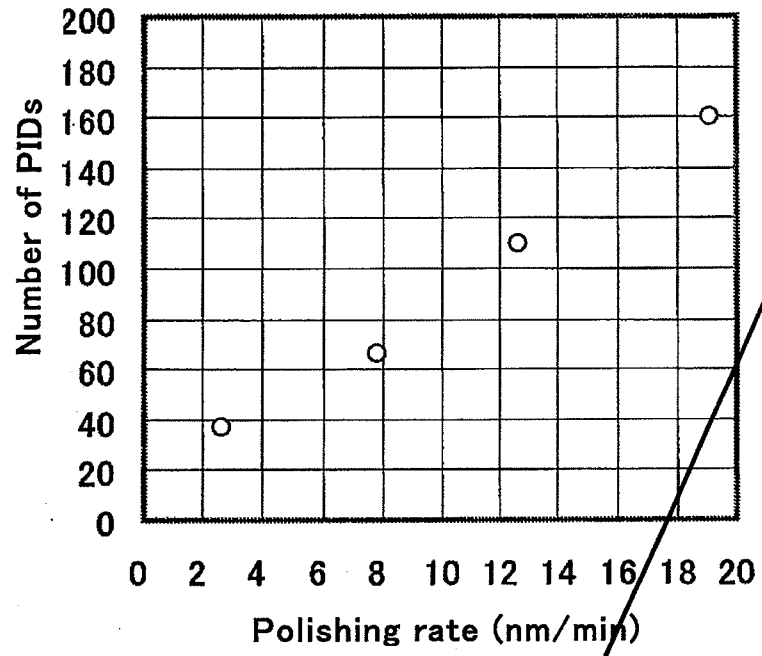
[Fig. 1]


140
120
100
80
60
40
20
0
Number of PIDs
0
5
10
15
20
Polishing rate (nm/min)

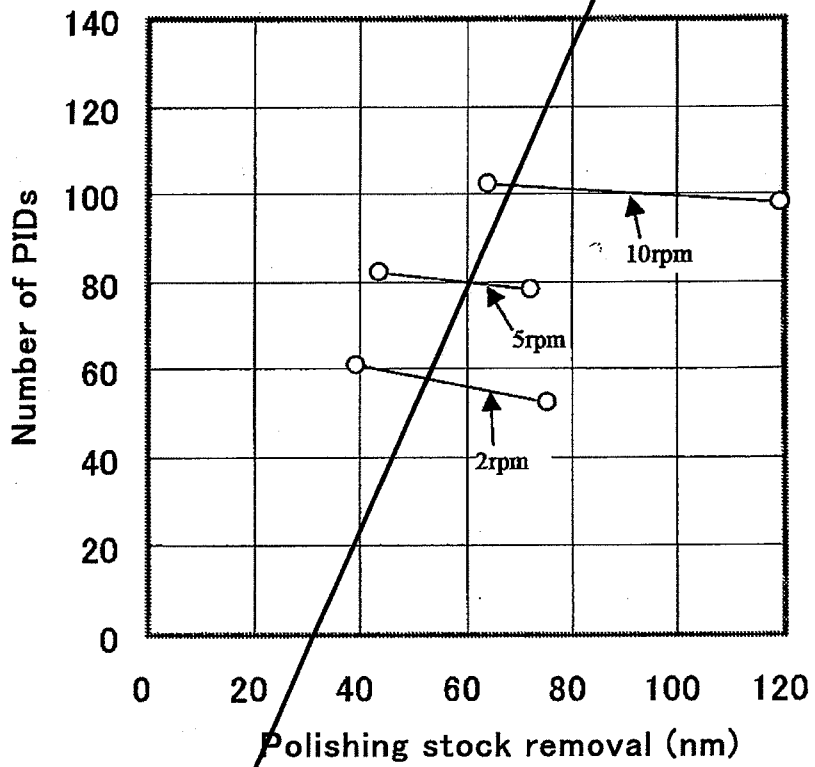
[Fig. 2]


140
120
100
80
60
40
20
0
Number of PIDs
0
2
4
6
8
10
12
14
Polishing rate (nm/min)

[Fig. 3]


Number of PIDs
200
180
160
140
120
100
80
60
40
20
0
0 2 4 6 8 10 12 14 16 18 20
Polishing rate (nm/min)

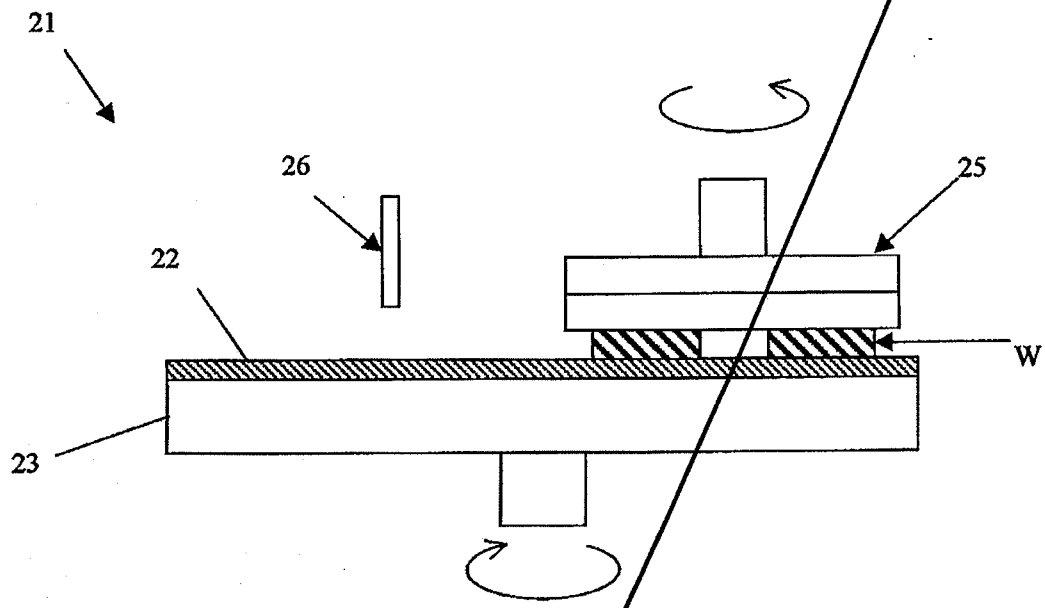
[Fig. 4]


Number of PIDs
140
120
100
80
60
40
20
0
0 20 40 60 80 100 120
Polishing stock removal (nm)
10rpm
5rpm
2rpm

[Fig. 5]

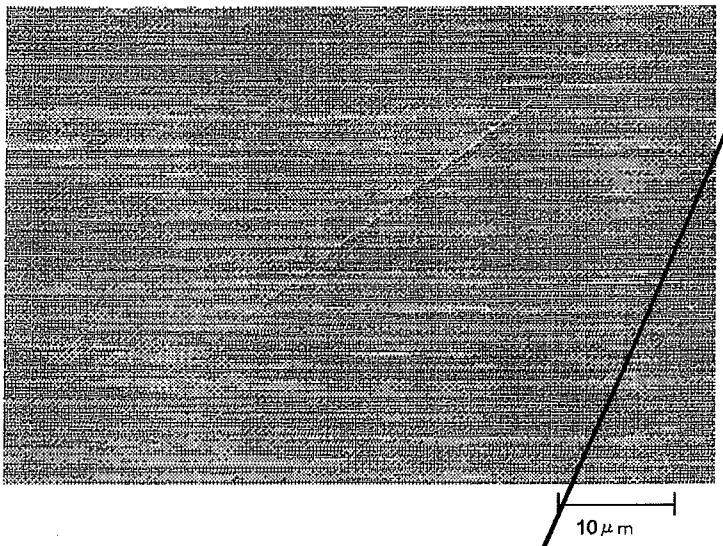
(a)
(b)
(c)
(d)
(e)
After primary polishing
During secondary polishing
After secondary polishing
During final polishing
After final polishing
Particle for polishing
Foreign matter
PID caused due to primary polishing
PID caused due to secondary polishing
PID caused due to secondary polishing
PID caused due to final polishing
Si wafer
Si wafer
Si wafer
Si wafer

[Fig. 6]

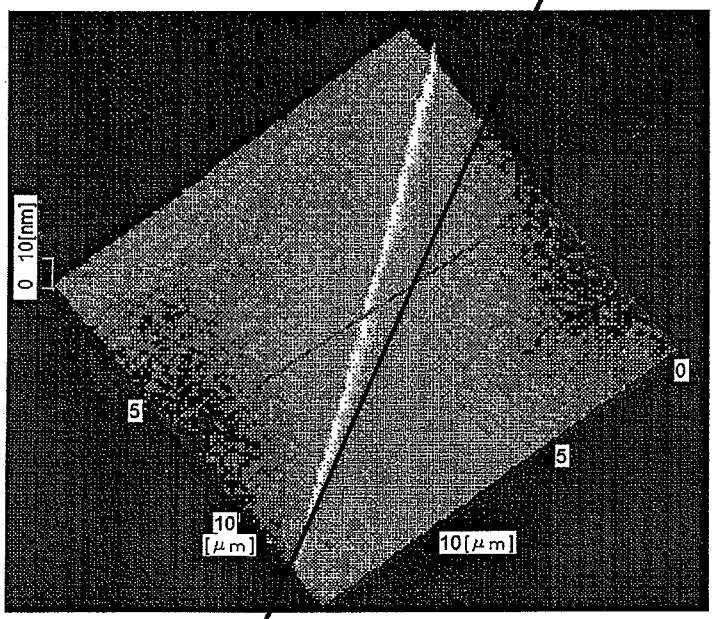


[Figs. 7]

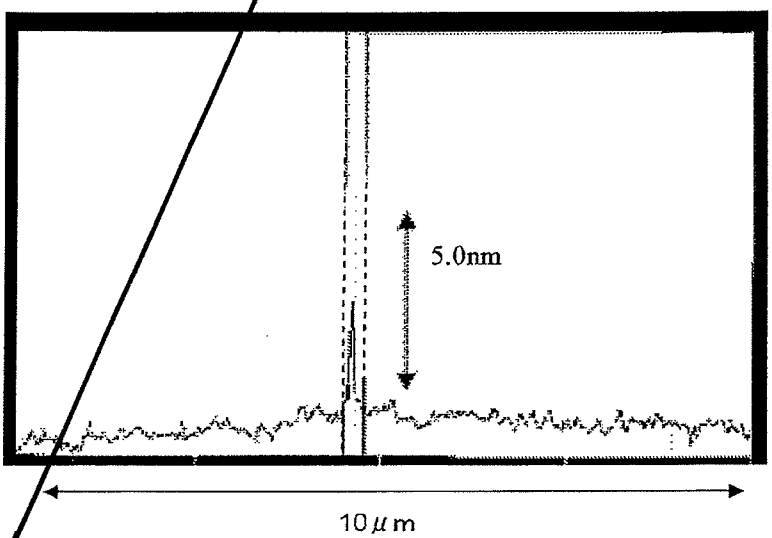
(a)



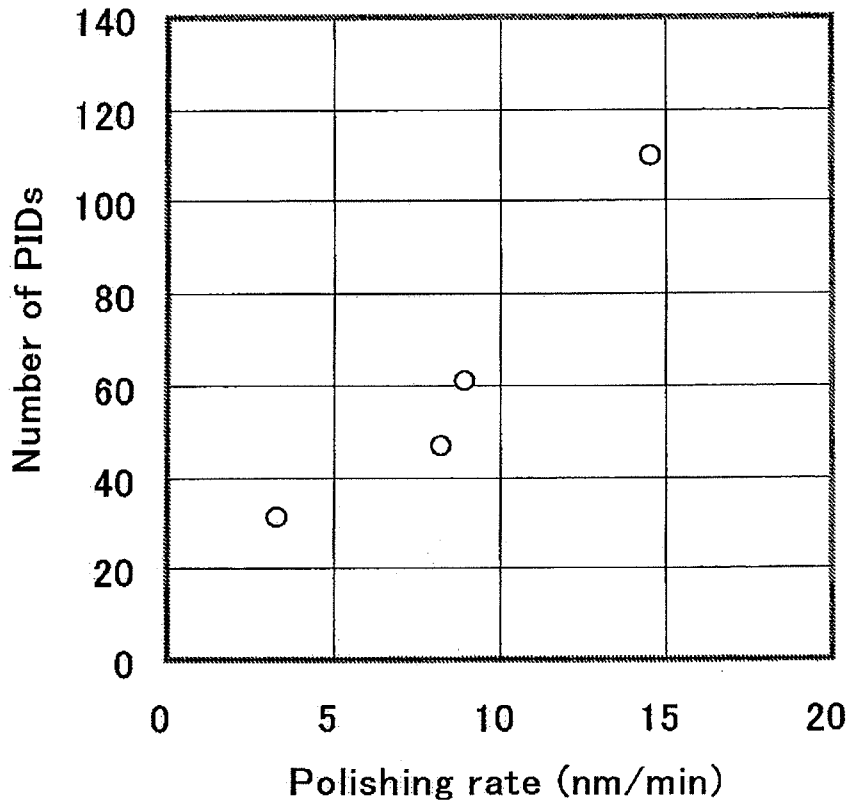
(b)



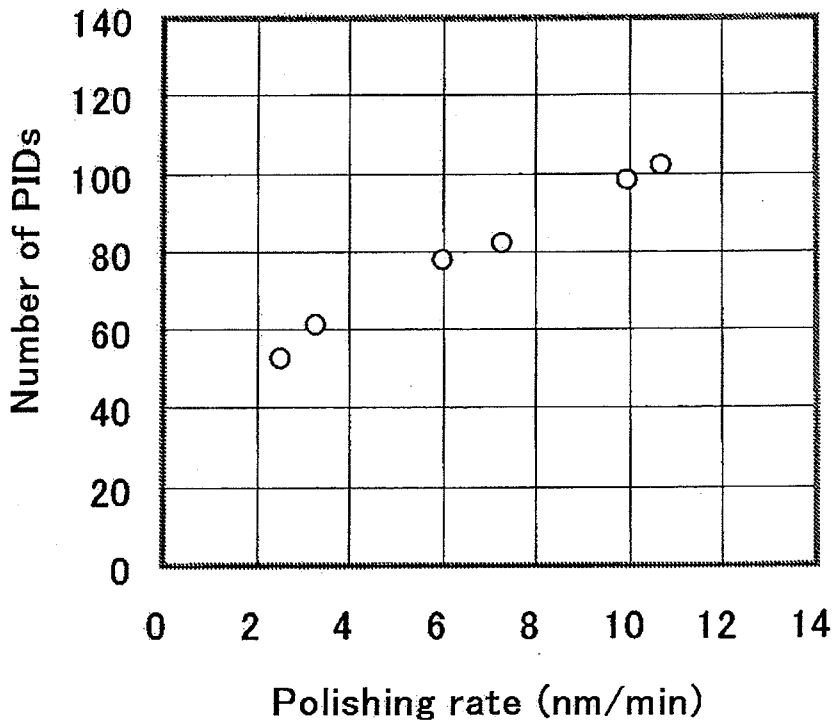
(c)



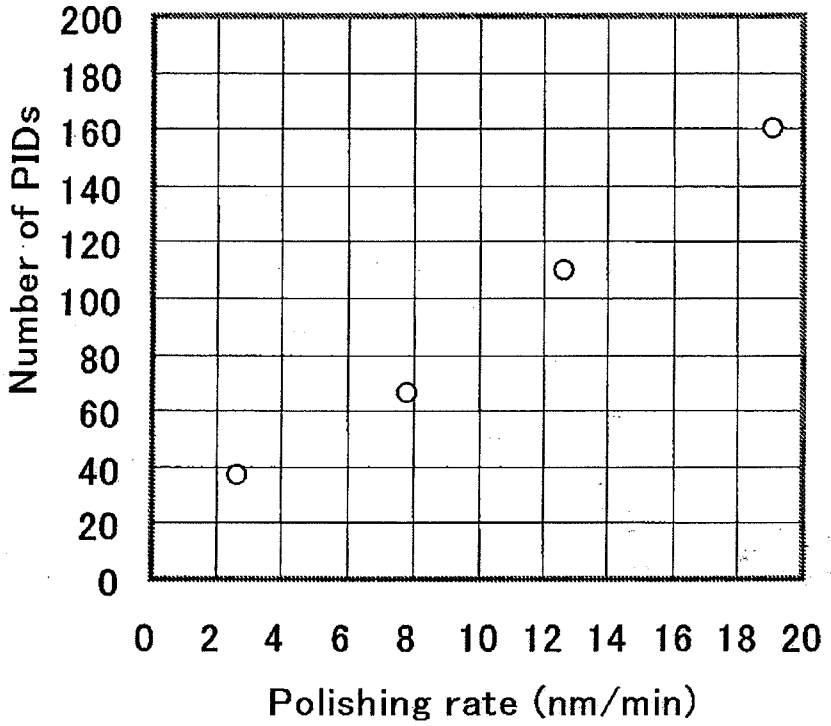
[FIG. 1]


140
120
100
80
60
40
20
0
Number of PIDs
0
5
10
15
20
Polishing rate (nm/min)

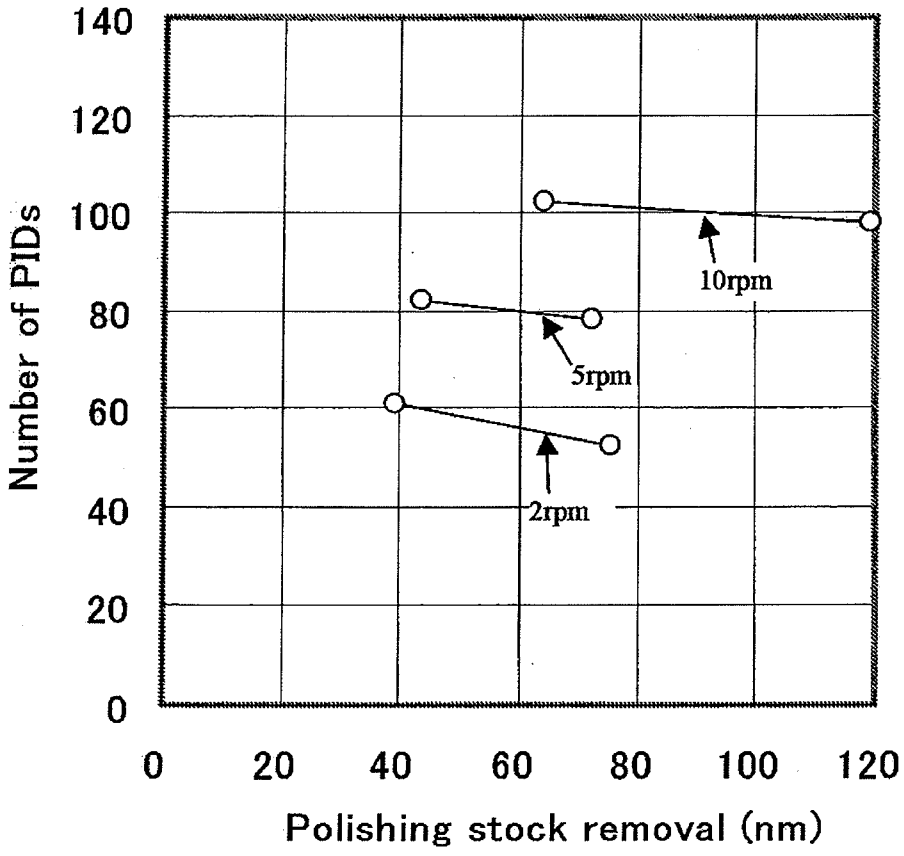
[FIG. 2]


140
120
100
80
60
40
20
0
Number of PIDs
0
2
4
6
8
10
12
14
Polishing rate (nm/min)

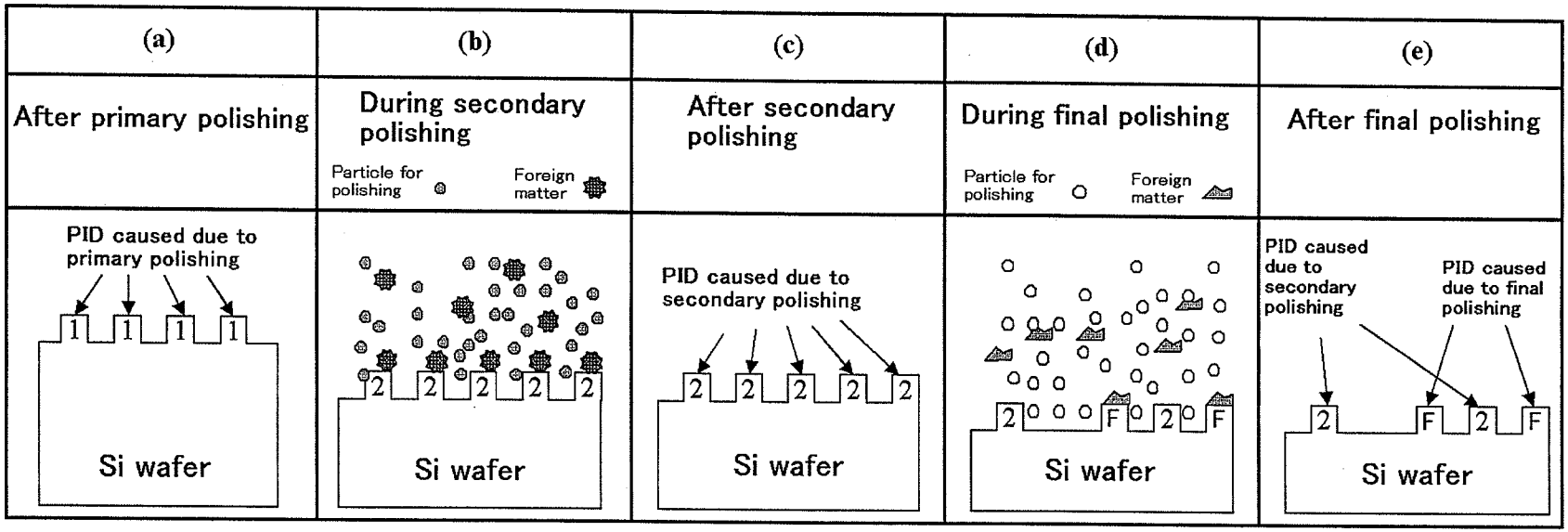
[FIG. 3]


Number of PIDs
200
180
160
140
120
100
80
60
40
20
0
0 2 4 6 8 10 12 14 16 18 20
Polishing rate (nm/min)

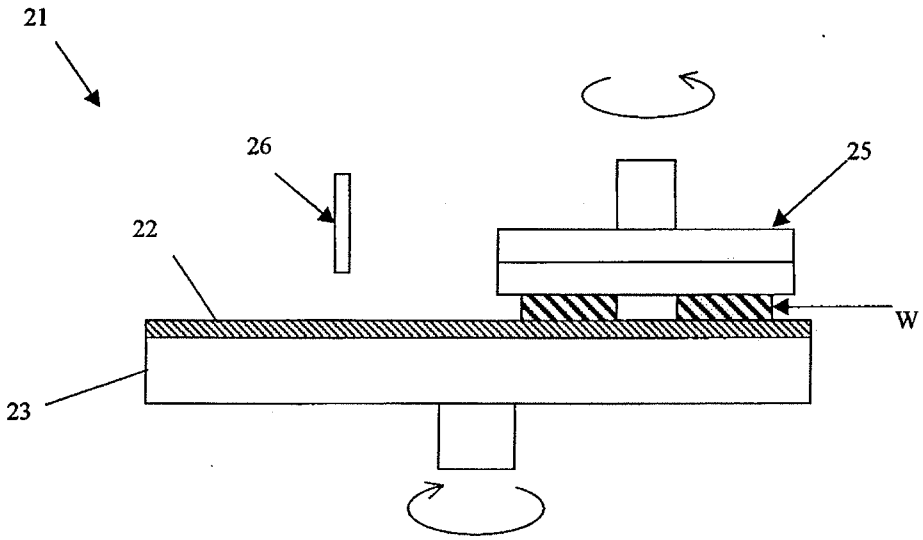
[FIG. 4]


Number of PIDs
140
120
100
80
60
40
20
0
0 20 40 60 80 100 120
Polishing stock removal (nm)
10rpm
5rpm
2rpm

[FIG. 5]

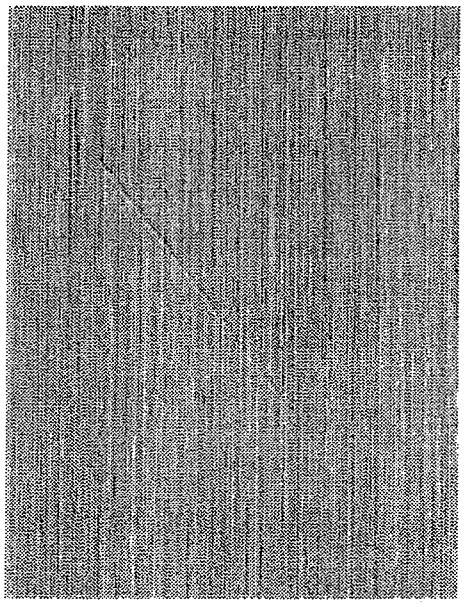

(a)
After primary polishing
PID caused due to primary polishing
1
Si wafer
(b)
During secondary polishing
Particle for polishing
Foreign matter
2
Si wafer
(c)
After secondary polishing
PID caused due to secondary polishing
2
Si wafer
(d)
During final polishing
Particle for polishing
Foreign matter
2
F
Si wafer
(e)
After final polishing
PID caused due to secondary polishing
PID caused due to final polishing
2
F
Si wafer

[FIG. 6]



[FIG. 7]

(a)



(b)

