FIG. 1

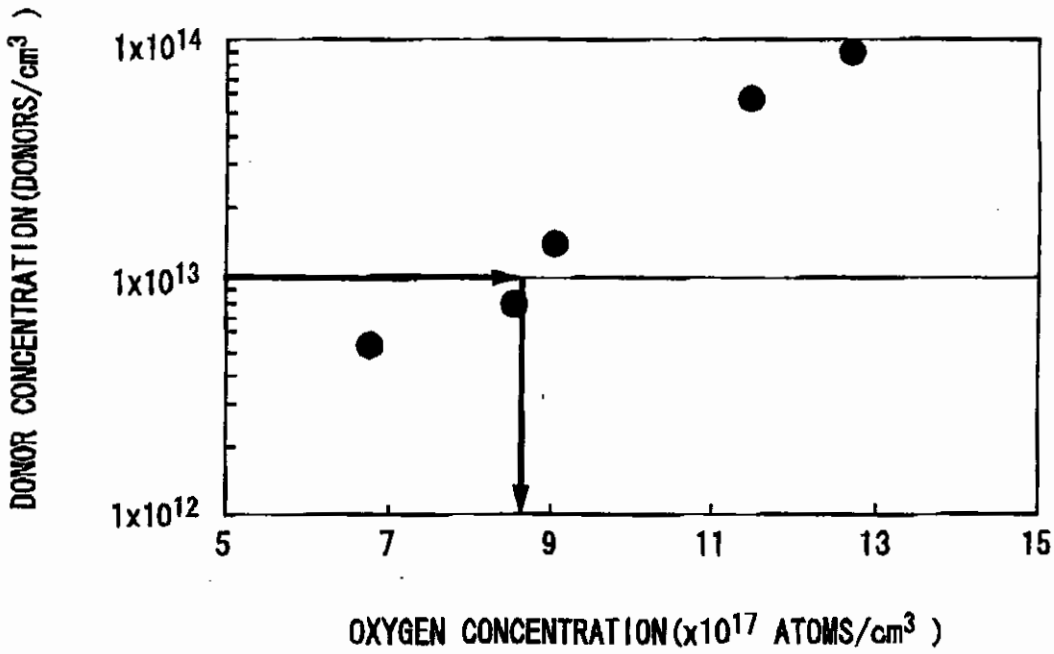

DONOR CONCENTRATION (DONORS/cm3 )
1x10^14
1x10^13
1x10^12
5
7
9
11
13
15
OXYGEN CONCENTRATION (x10^17 ATOMS/cm3 )

FIG. 2

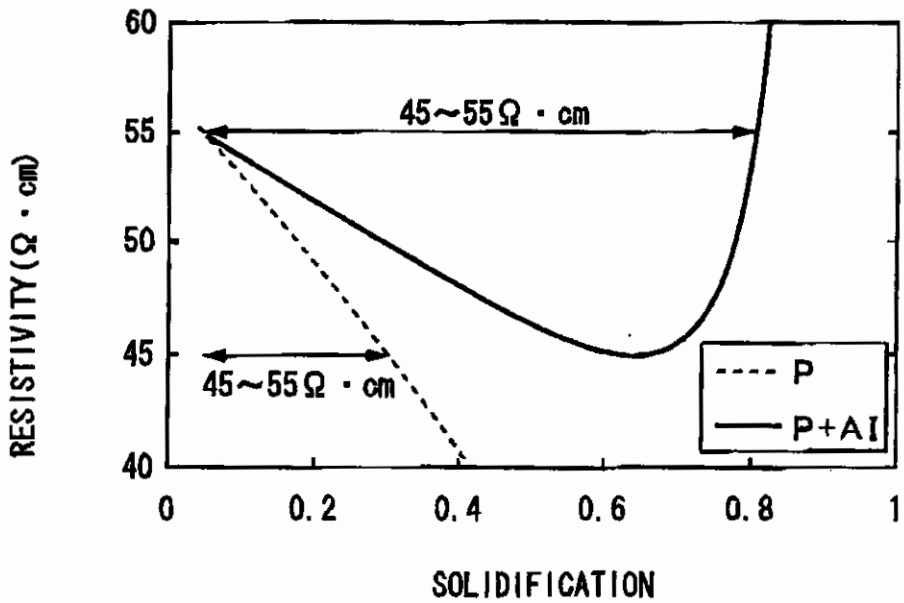

60
55
50
45
40
0
0.2
0.4
0.6
0.8
1
45~55Ω・cm
45~55Ω・cm
P
P+Al
RESISTIVITY (Ω・cm)
SOLIDIFICATION

FIG. 3

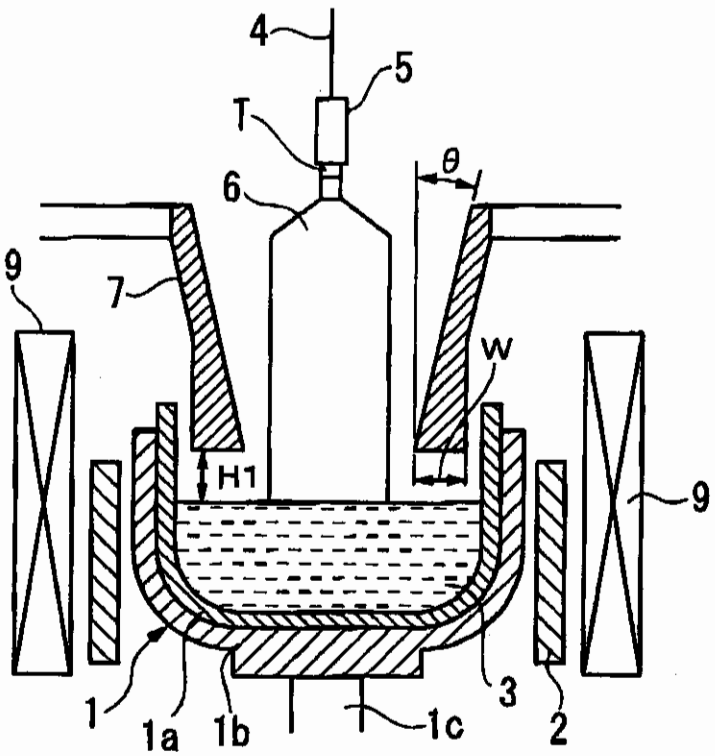
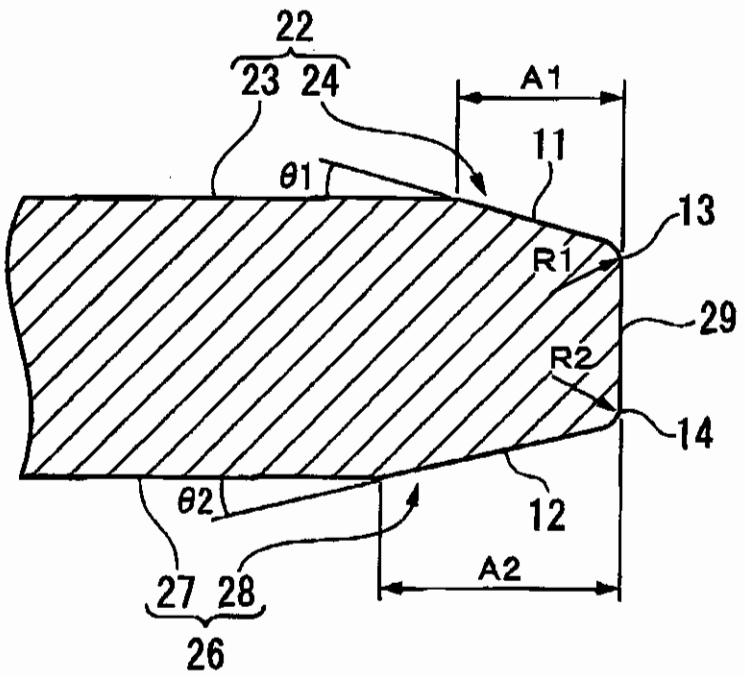

4
5
T
θ
6
9
7
W
H1
9
1
1a
1b
1c
3
2

FIG. 4


22
23 24
A1
11
θ1
13
R1
29
R2
14
θ2
12
A2
27 28
26