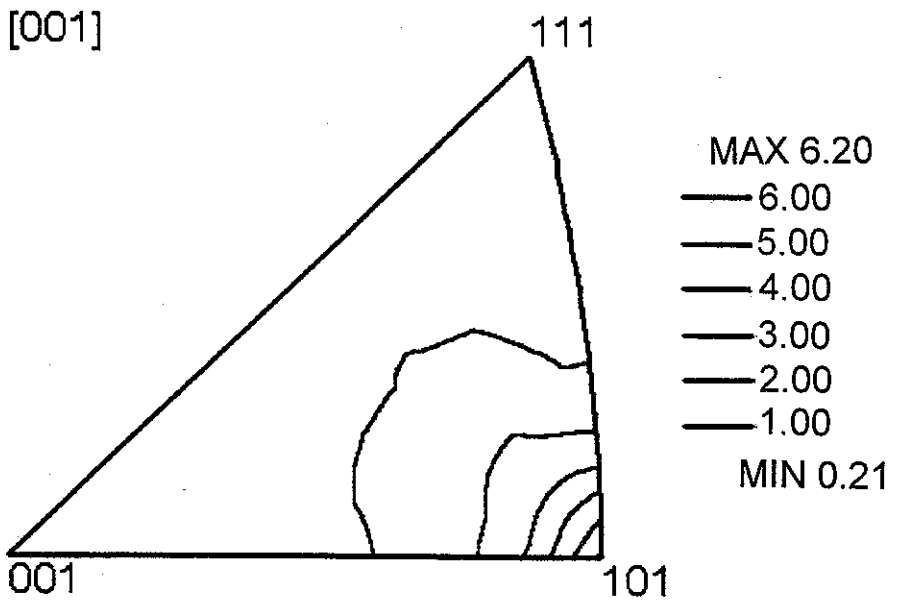


FIG. 1

10 DEC 2004

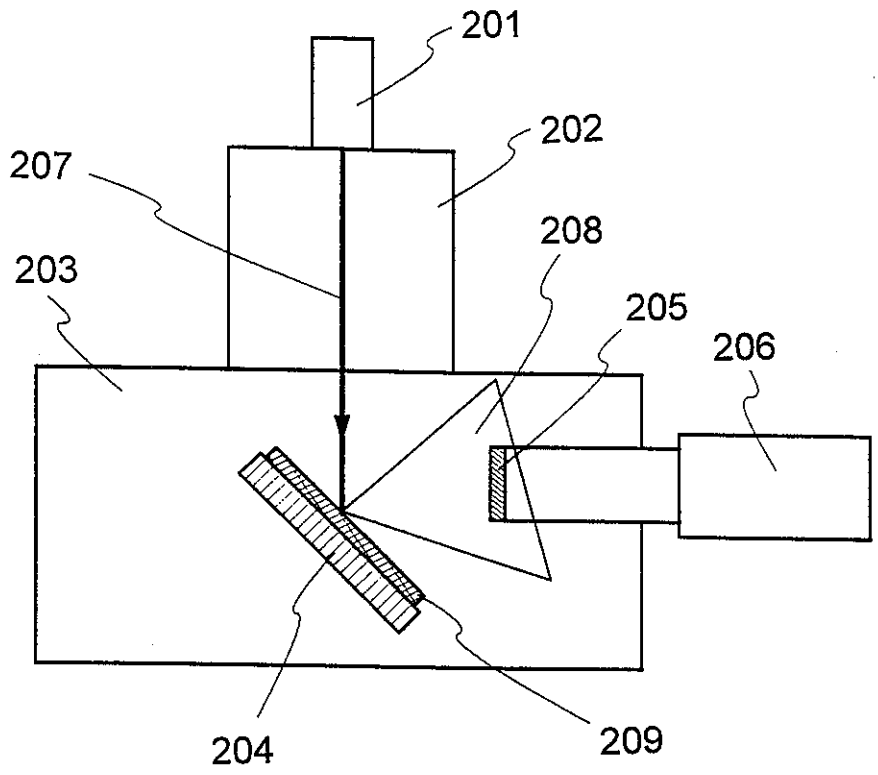


FIG. 2

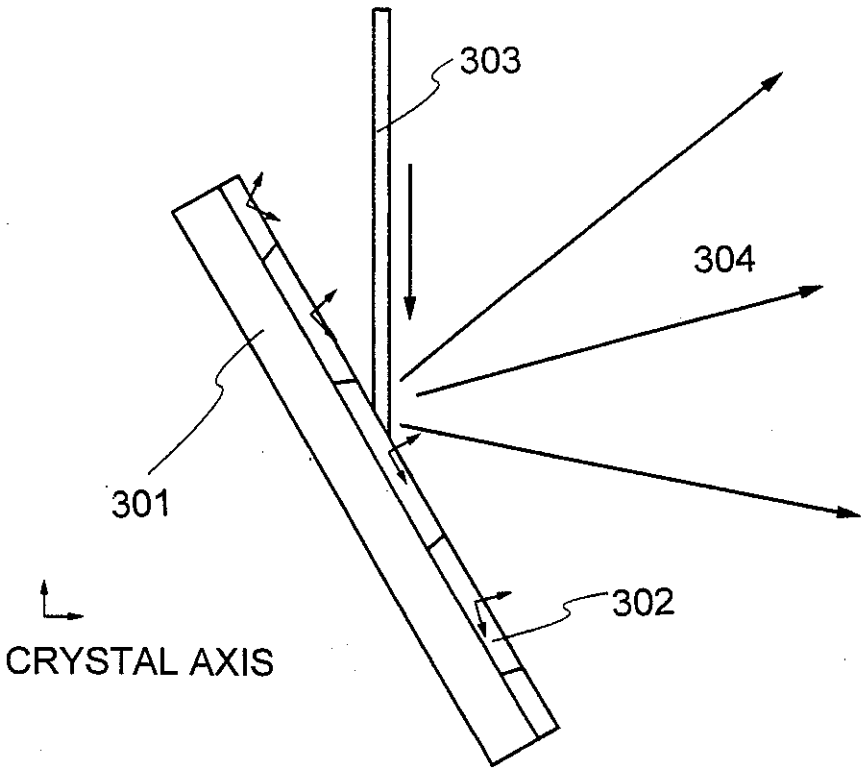


FIG. 3

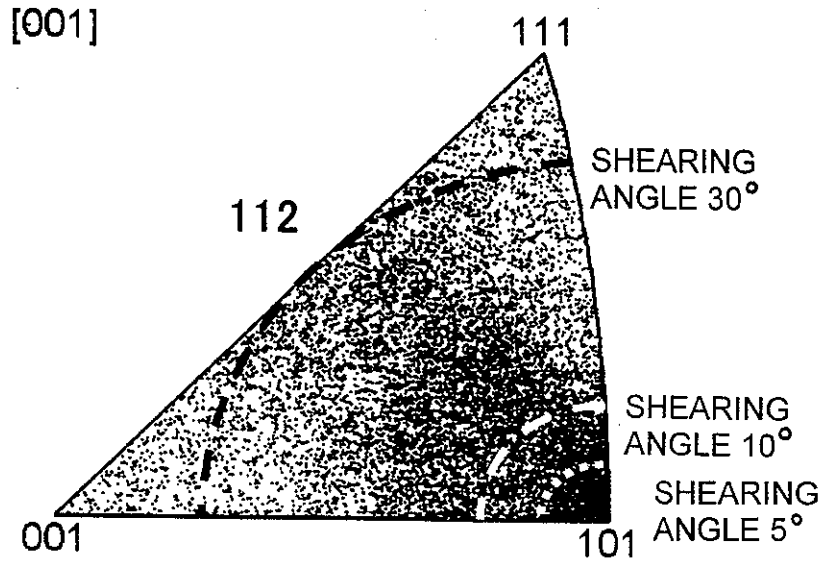

[001]
111
SHEARING
ANGLE 30°
112
SHEARING
ANGLE 10°
SHEARING
ANGLE 5°
001
101

FIG. 4A

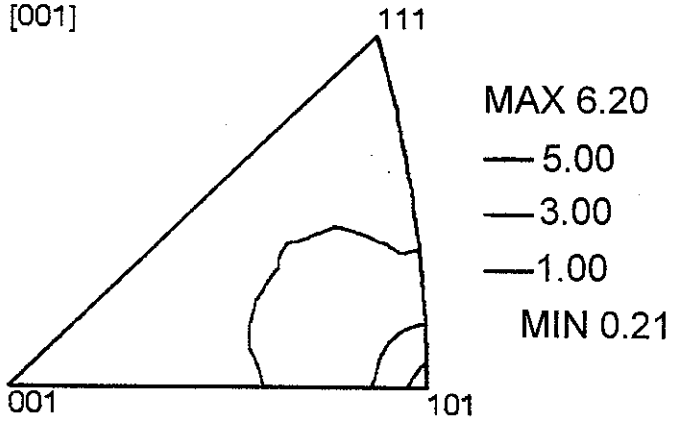

[001]
111
MAX 6.20
5.00
3.00
1.00
MIN 0.21
001
101

FIG. 4B

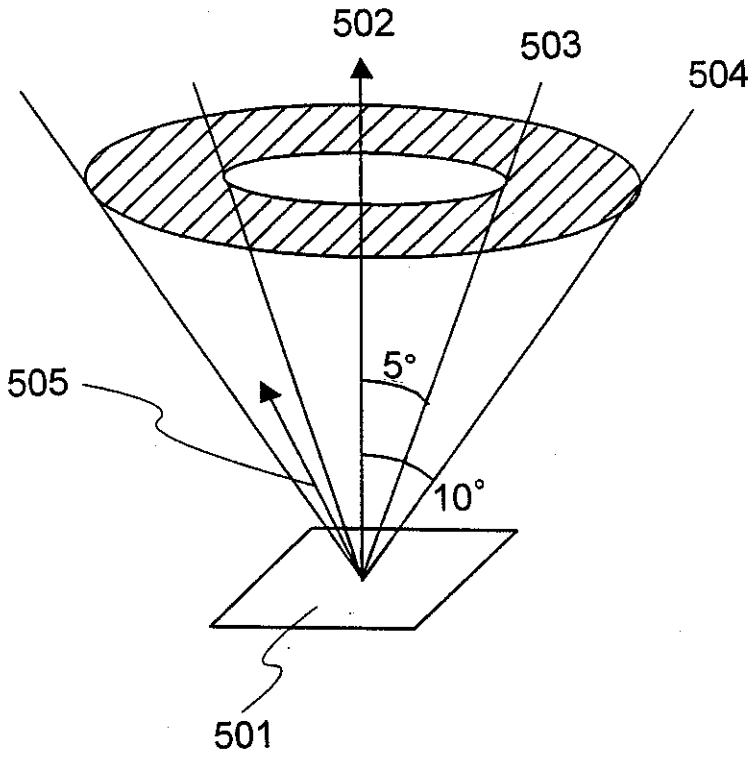


FIG. 5

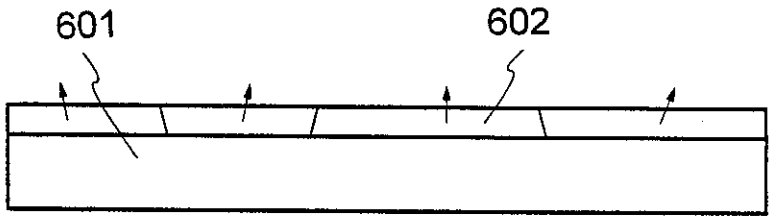


FIG. 6

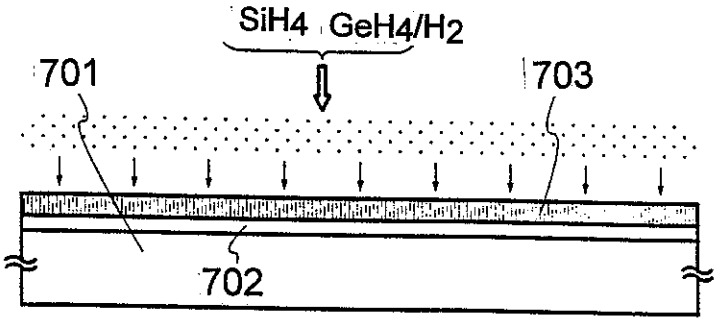


FIG. 7A

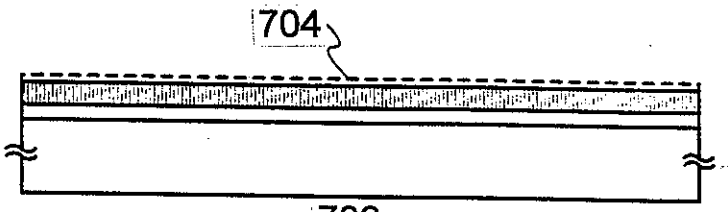


FIG. 7B

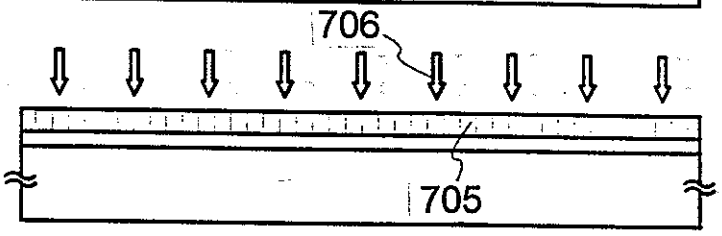


FIG. 7C

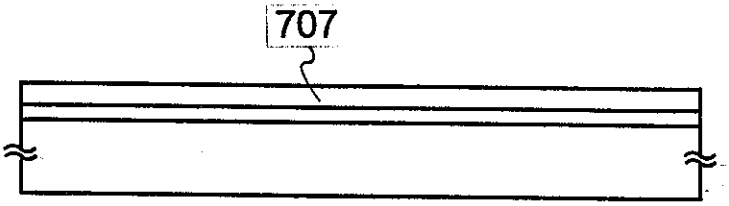


FIG. 7D

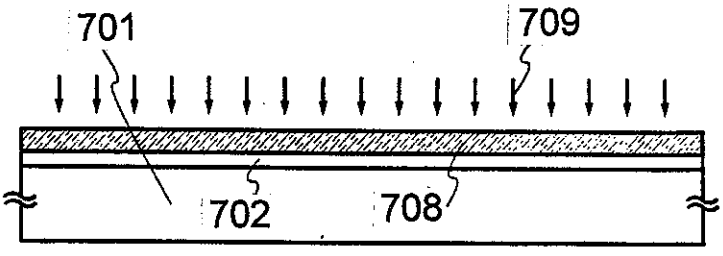


FIG. 8A

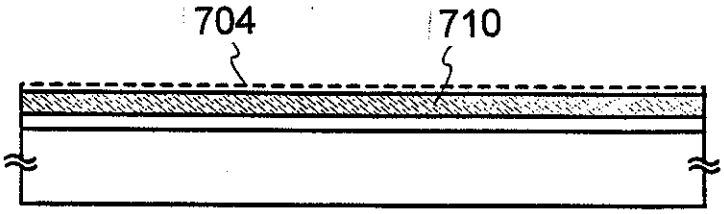


FIG. 8B

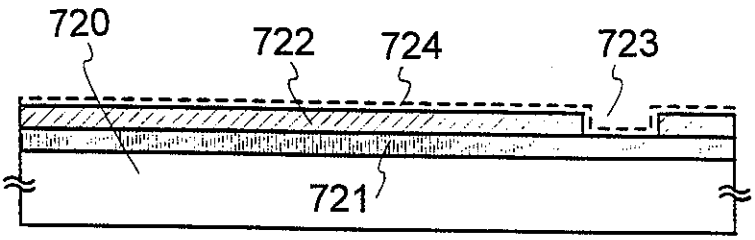


FIG. 9A

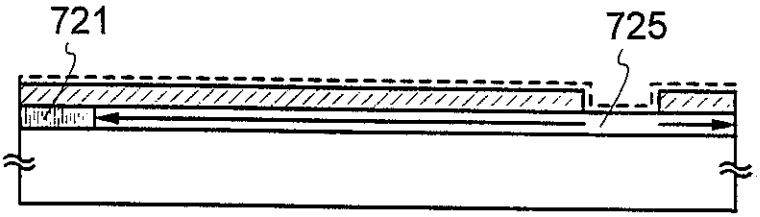


FIG. 9B

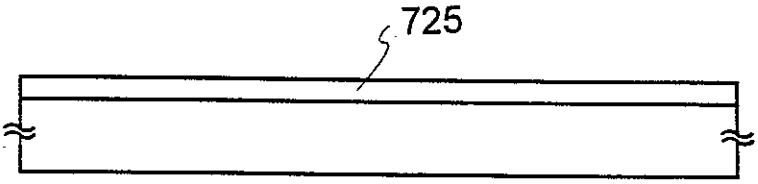


FIG. 9C

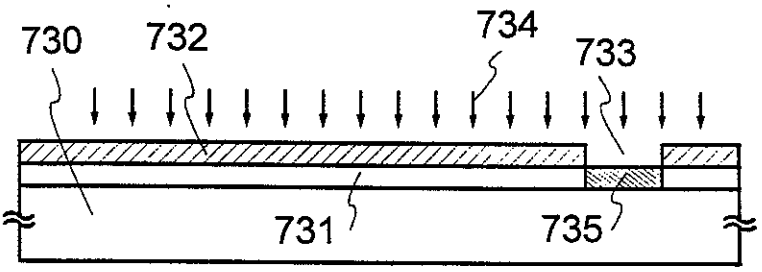


FIG. 10A

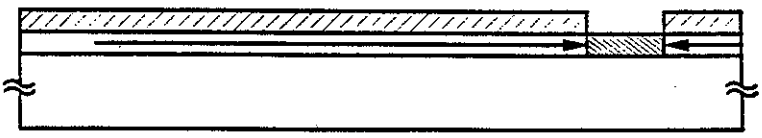


FIG. 10B

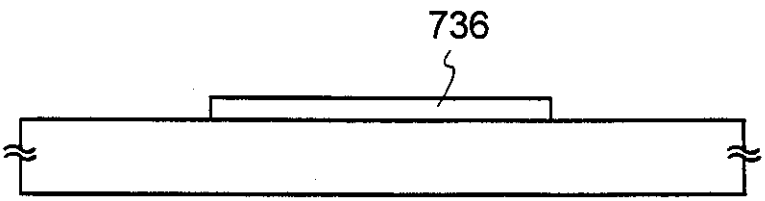


FIG. 10C

FIG. 11A

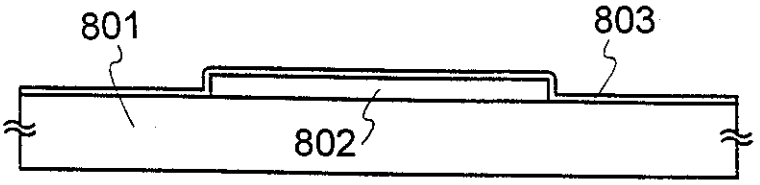


FIG. 11B

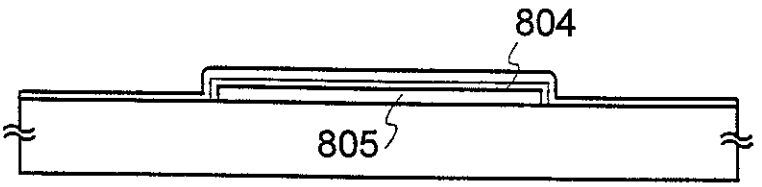


FIG. 12A

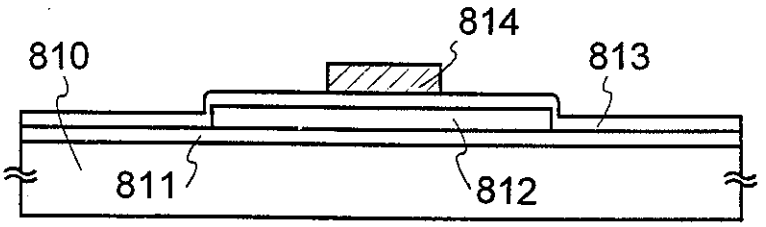


FIG. 12B

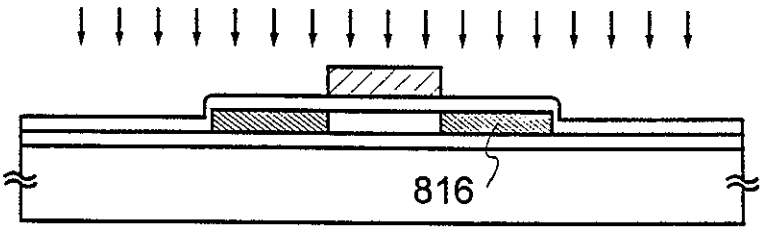
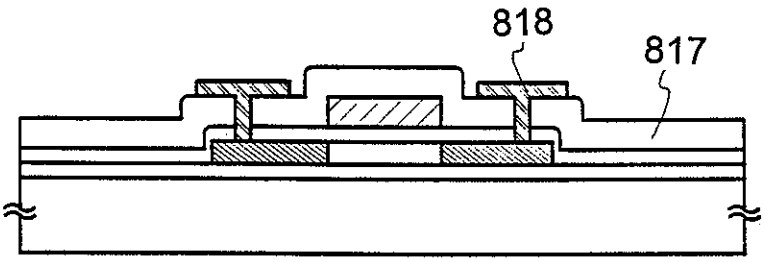


FIG. 12C



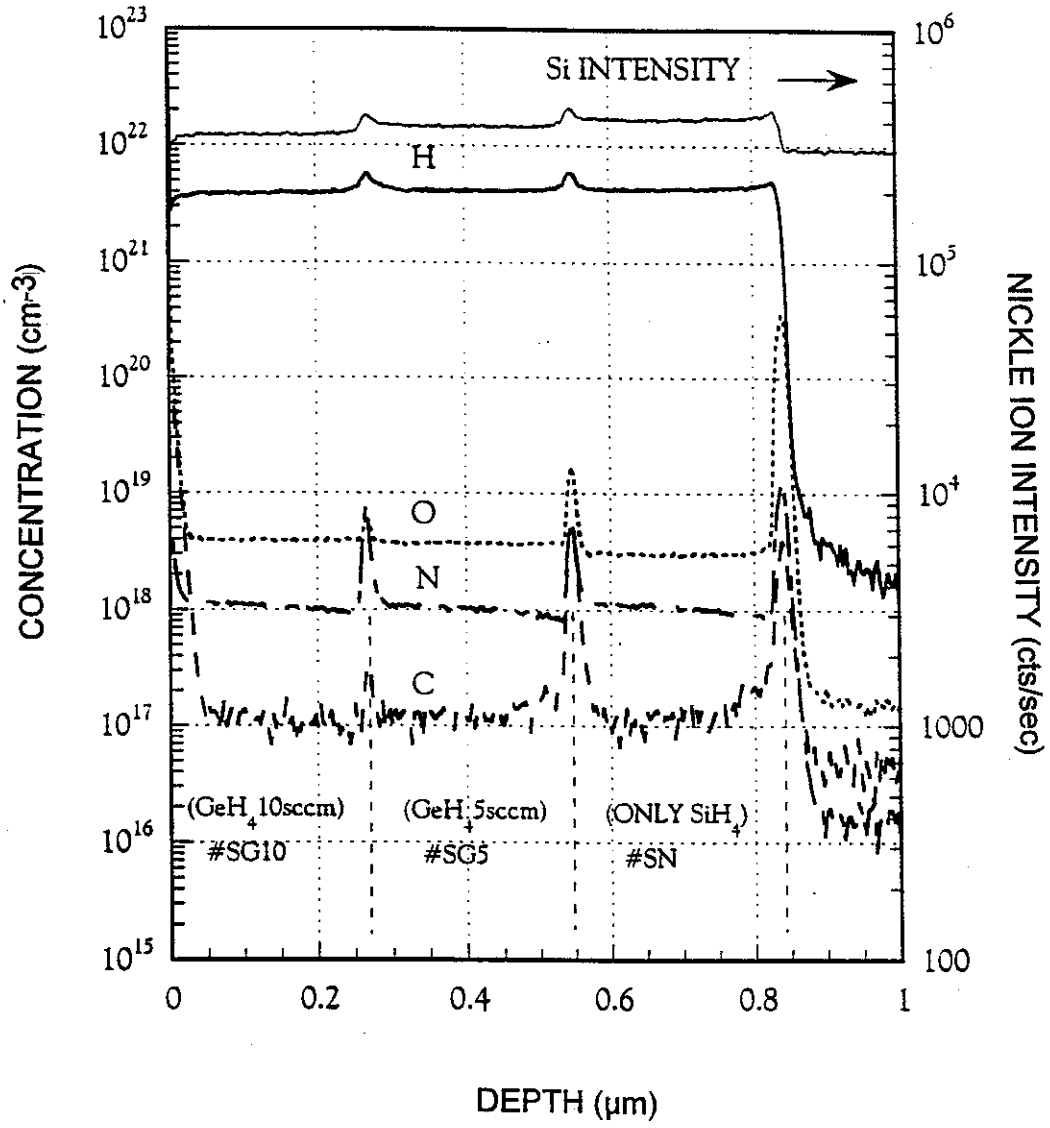

Si INTENSITY
H
O
N
C
(GeH4 10sccm)
#SG10
(GeH4 5sccm)
#SG5
(ONLY SiH4)
#SN
CONCENTRATION (cm-3)
NICKLE ION INTENSITY (cts/sec)
DEPTH (μm)
10^23
10^22
10^21
10^20
10^19
10^18
10^17
10^16
10^15
10^6
10^5
10^4
1000
100
0
0.2
0.4
0.6
0.8
1

FIG. 13

10 DEC 2004

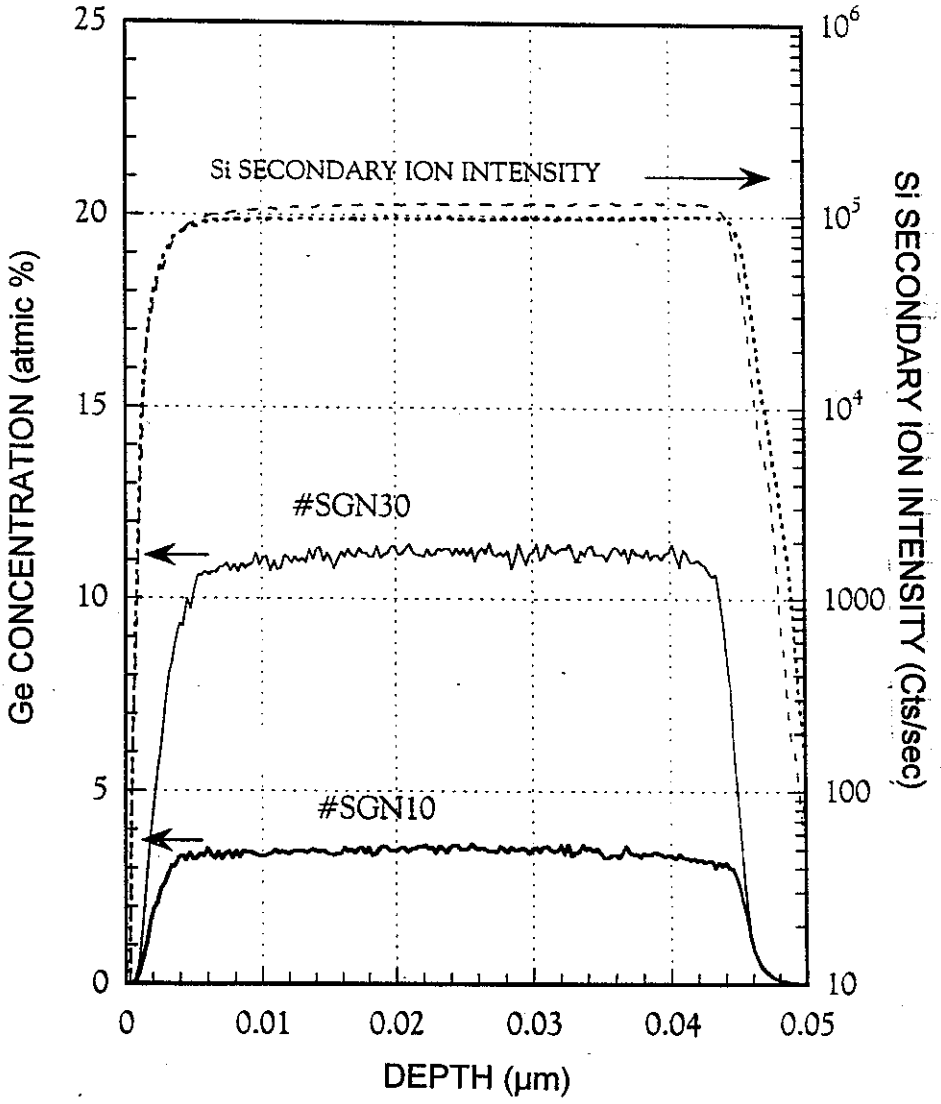


FIG. 14

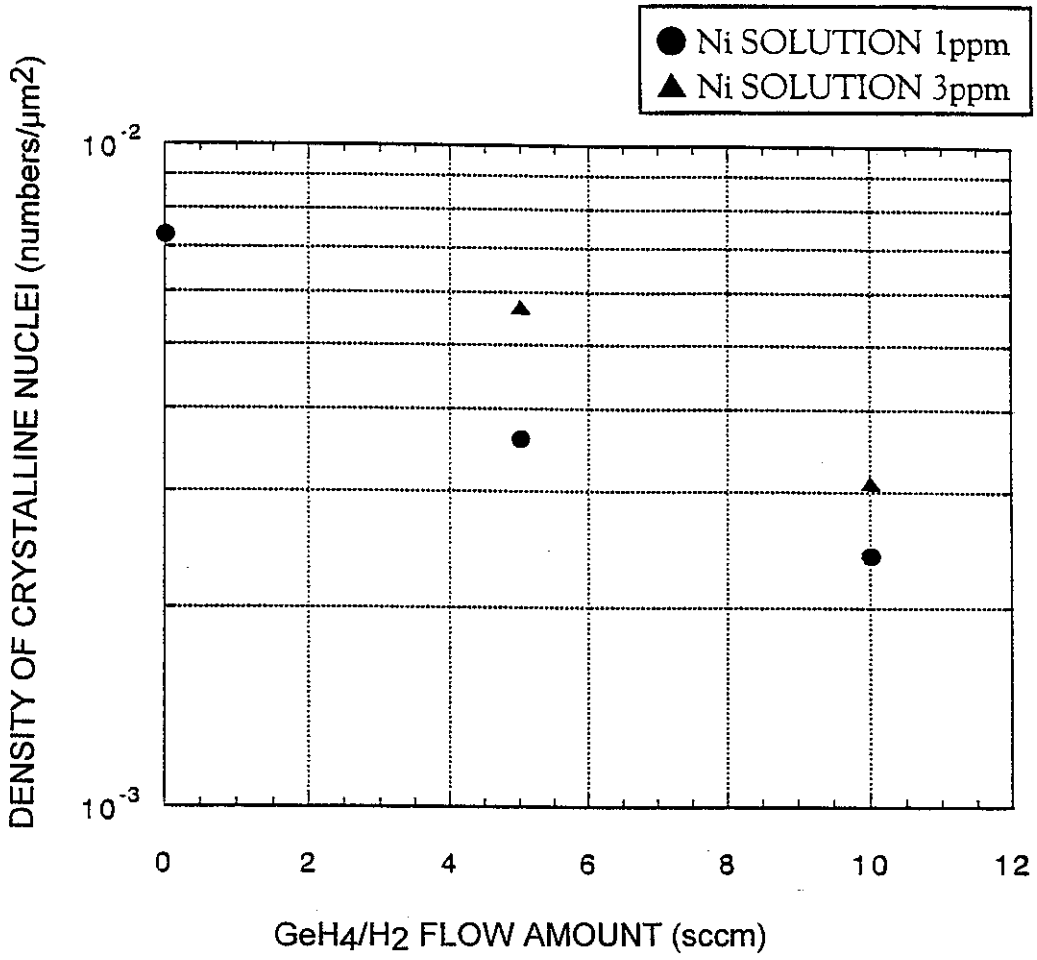

● Ni SOLUTION 1ppm
▲ Ni SOLUTION 3ppm
DENSITY OF CRYSTALLINE NUCLEI (numbers/μm2)
10-2
10-3
0
2
4
6
8
10
12
GeH4/H2 FLOW AMOUNT (sccm)

FIG. 15

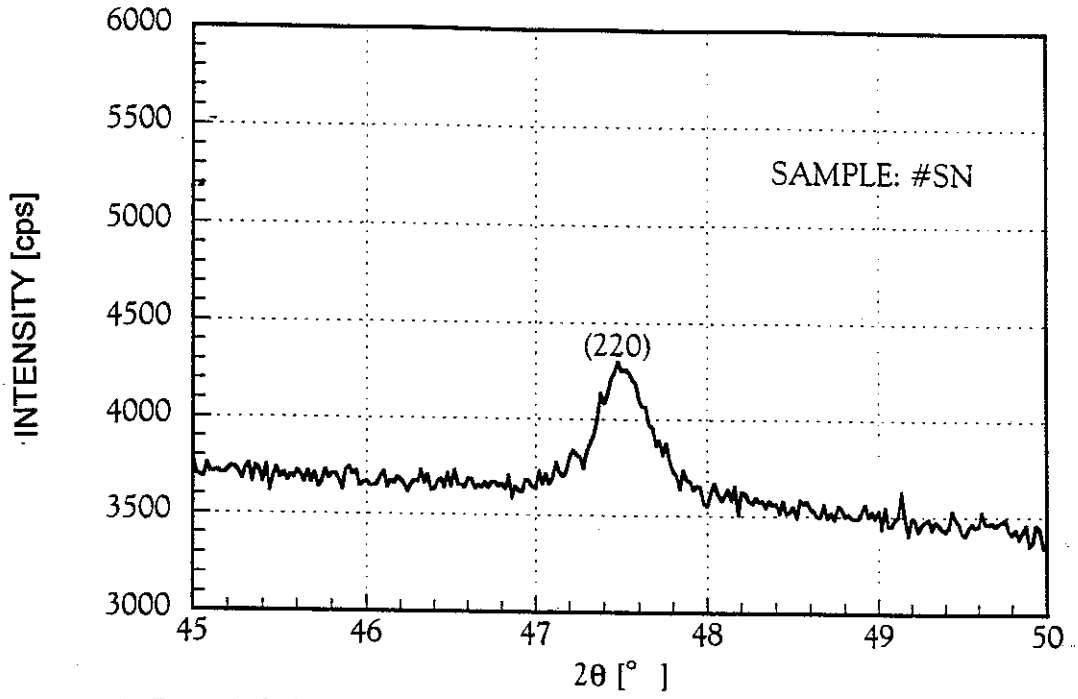


FIG. 16A

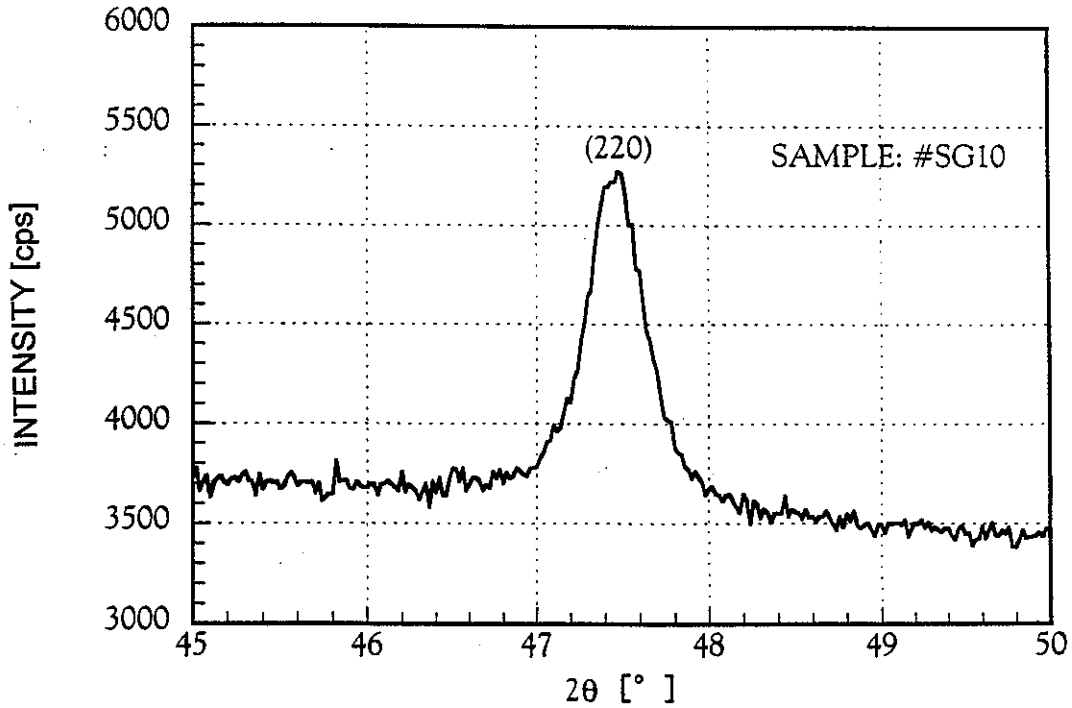


FIG. 16B

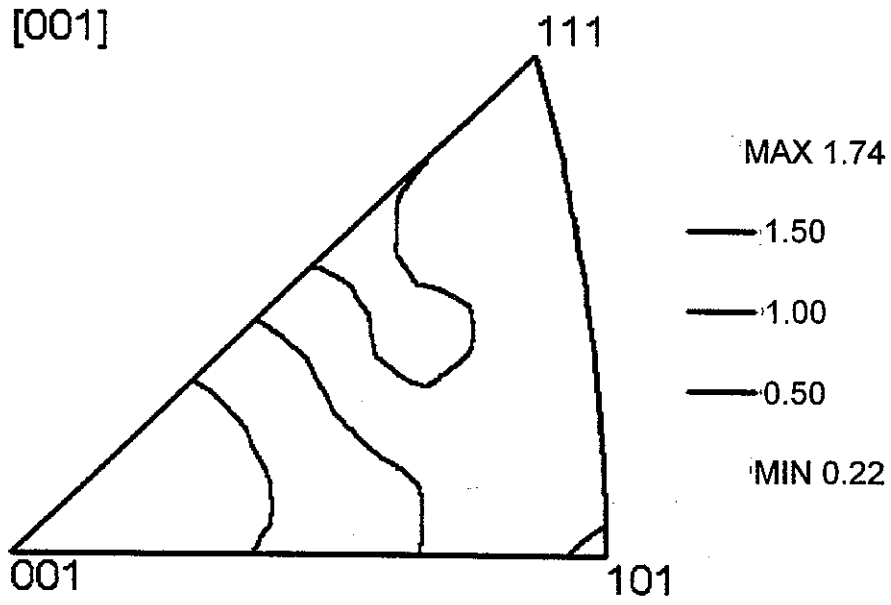


FIG. 17

10 DEC 2004

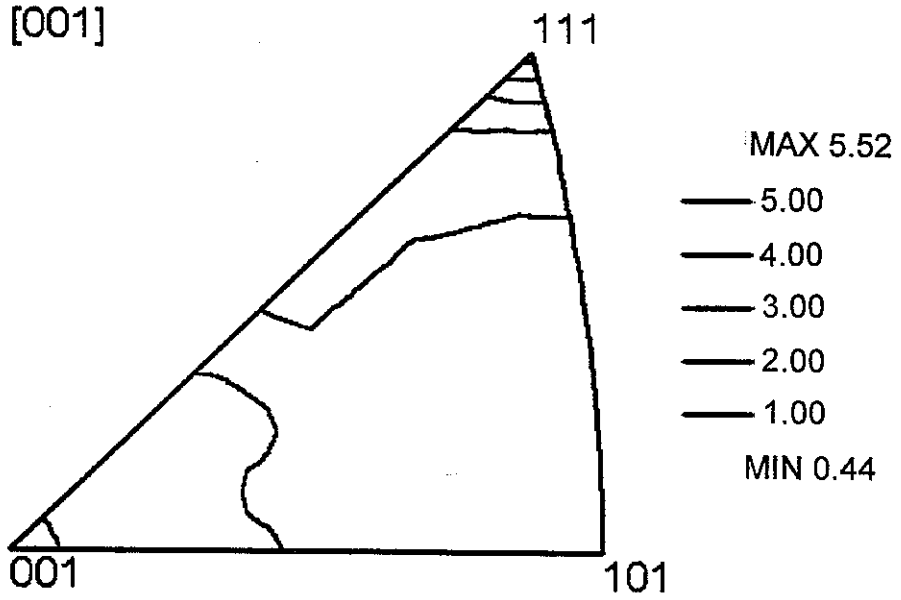


FIG. 18

10 DEC 2004

FIG. 19A

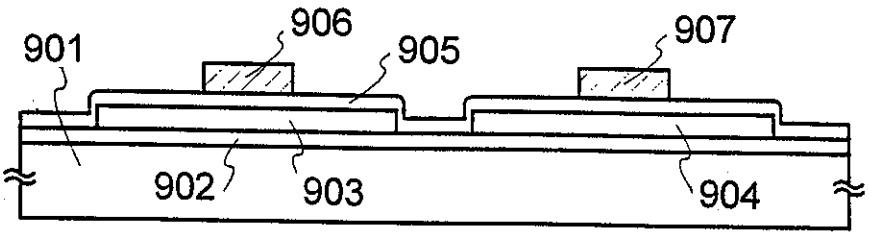


FIG. 19B

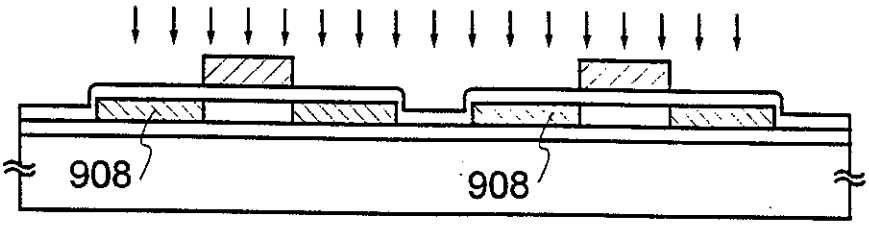


FIG. 19C

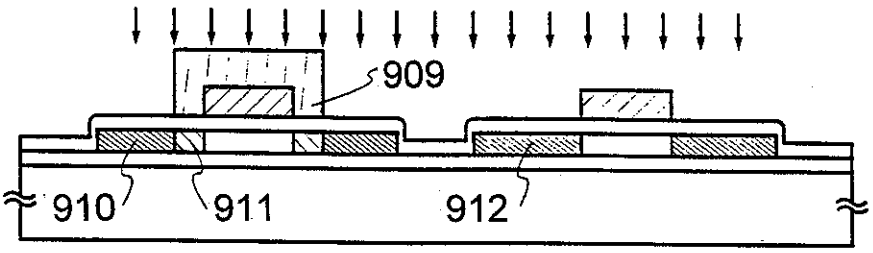


FIG. 19D

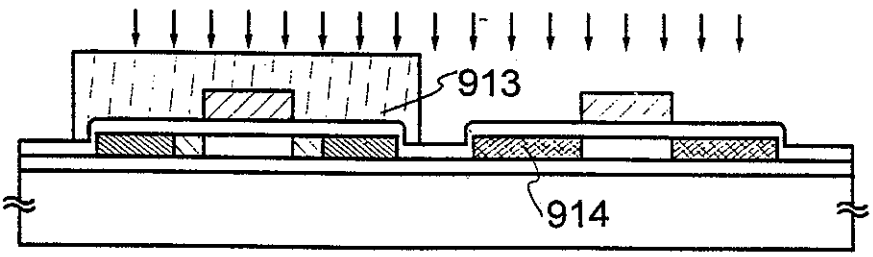
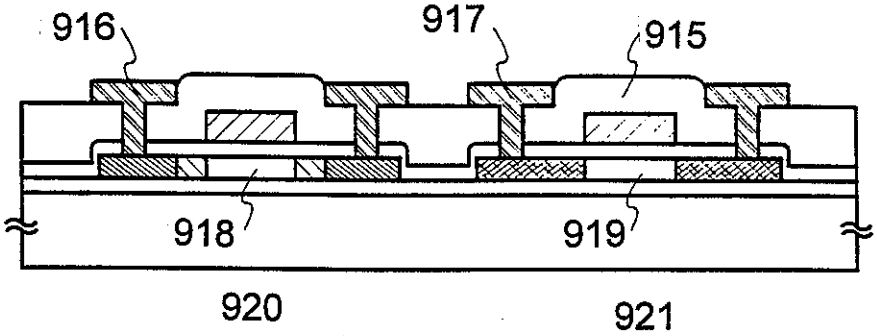


FIG. 19E



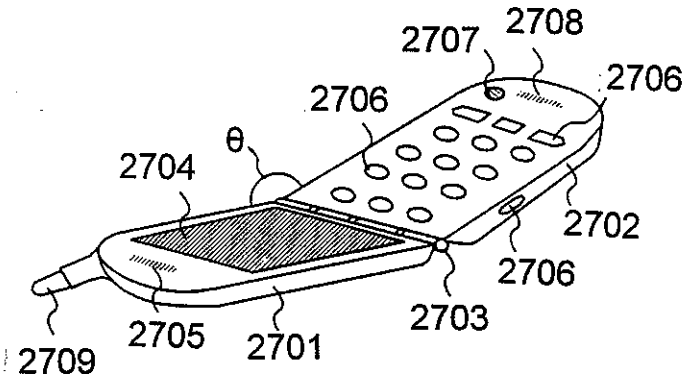


FIG. 20A

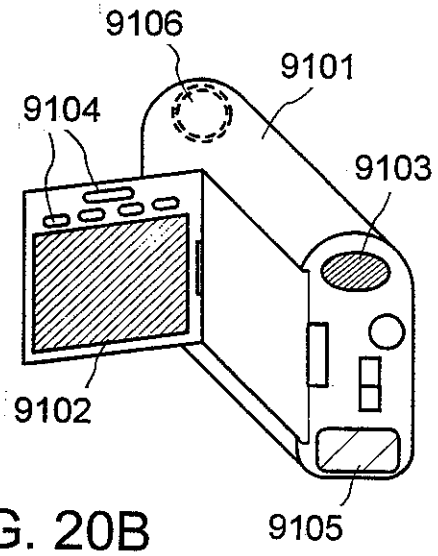


FIG. 20B

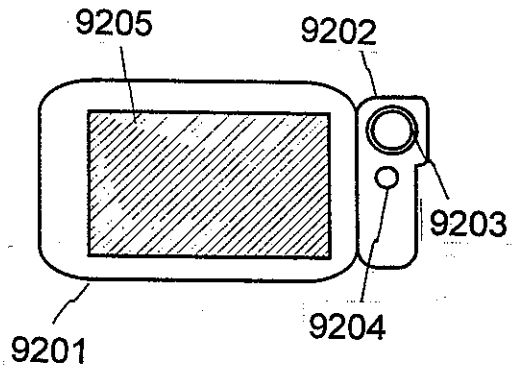


FIG. 20C

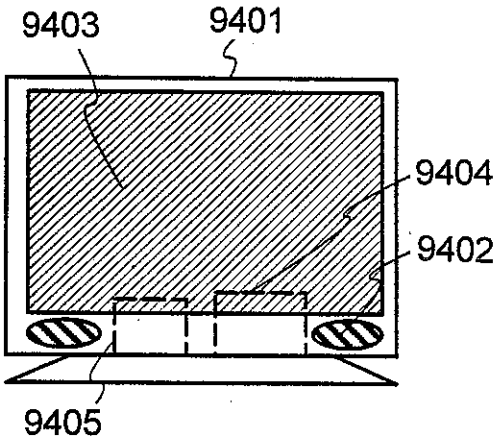


FIG. 20D

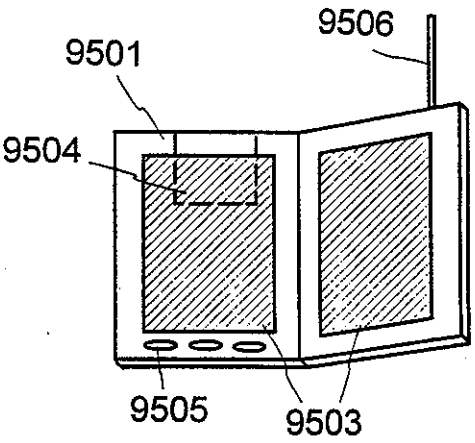


FIG. 20E

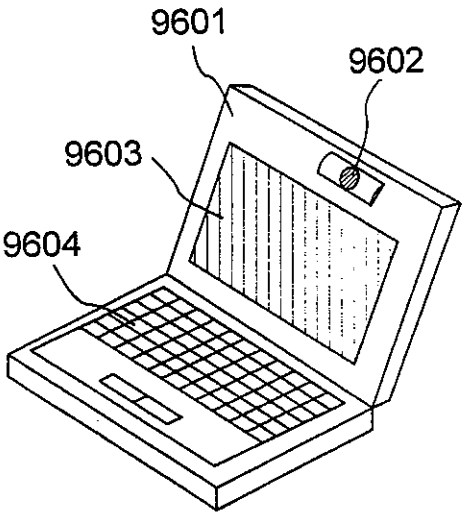


FIG. 21A

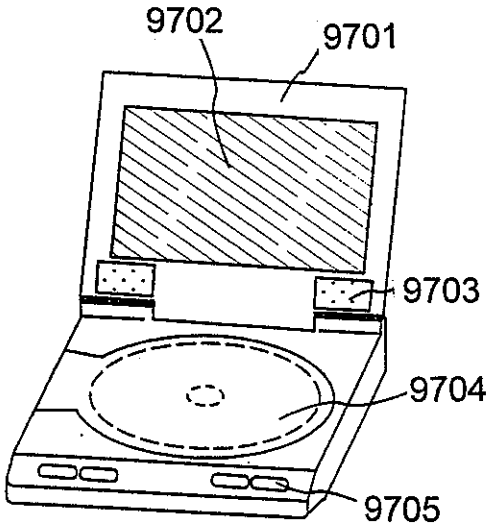


FIG. 21B

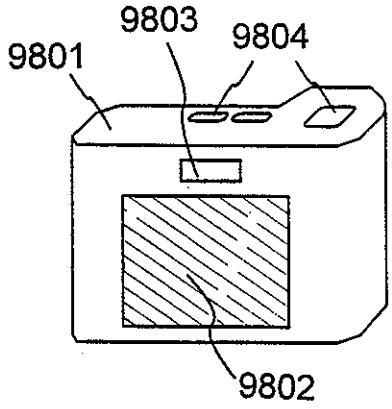


FIG. 21C

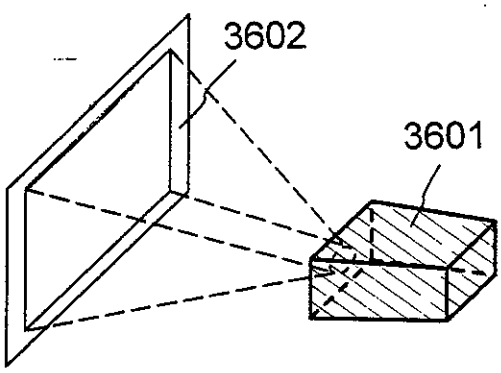


FIG. 22A

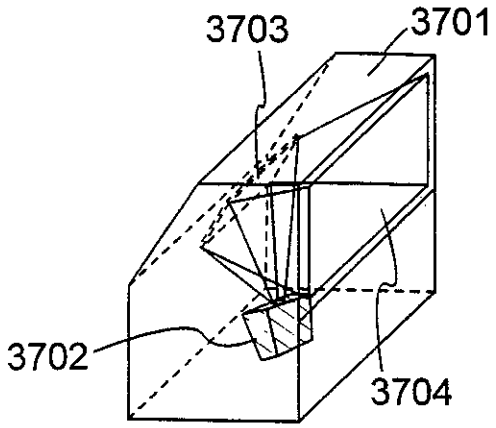


FIG. 22B

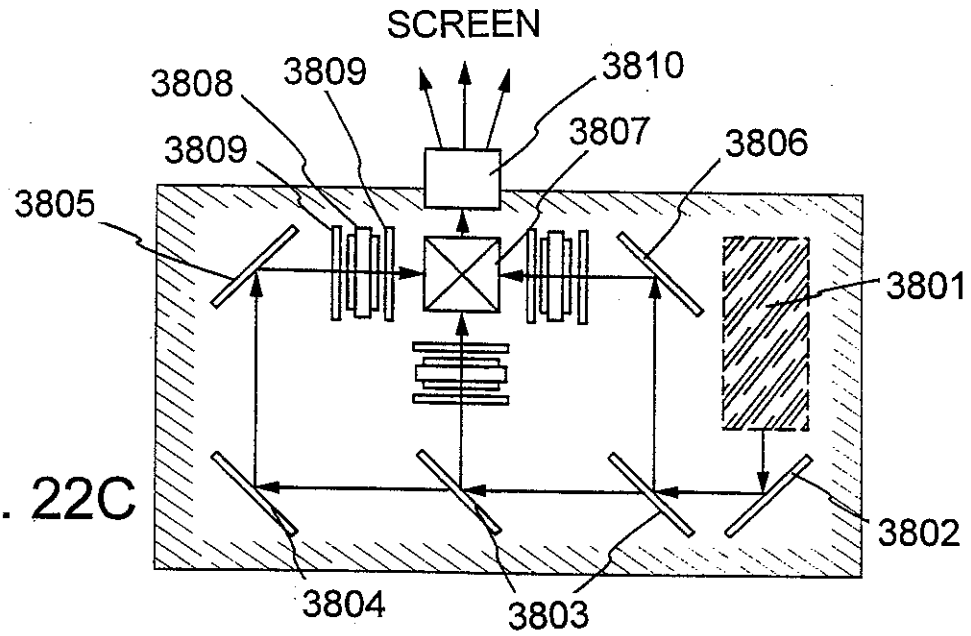


FIG. 22C

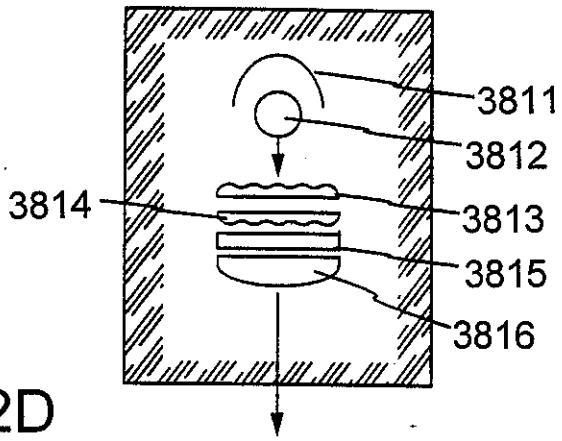


FIG. 22D

FIG. 23A

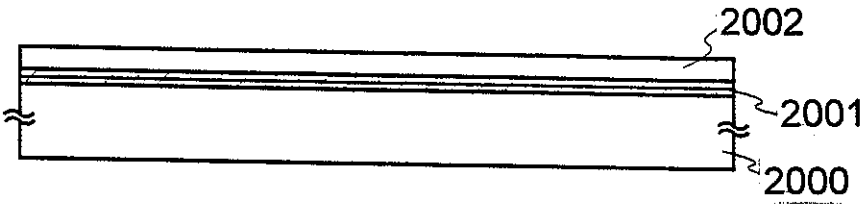


FIG. 23B

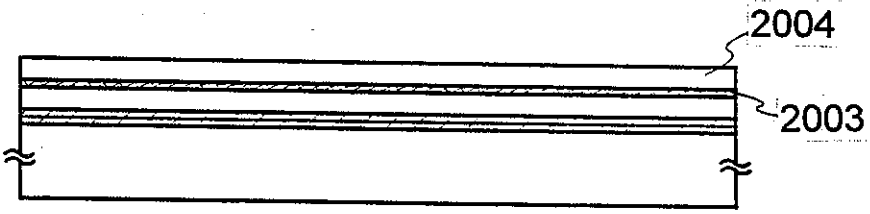


FIG. 23C

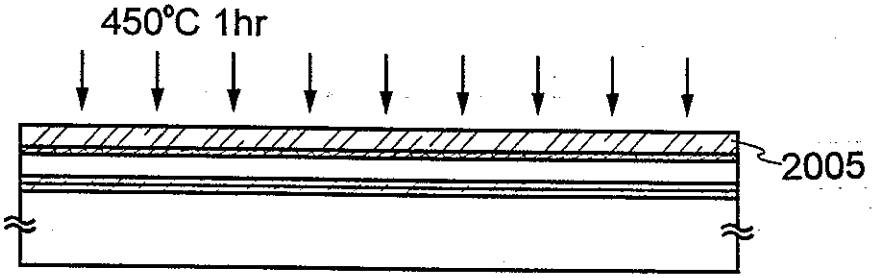


FIG. 23D

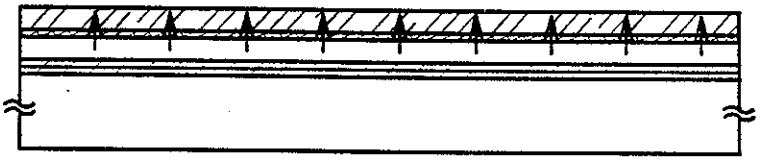
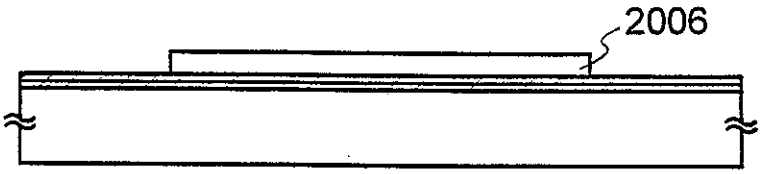


FIG. 23E



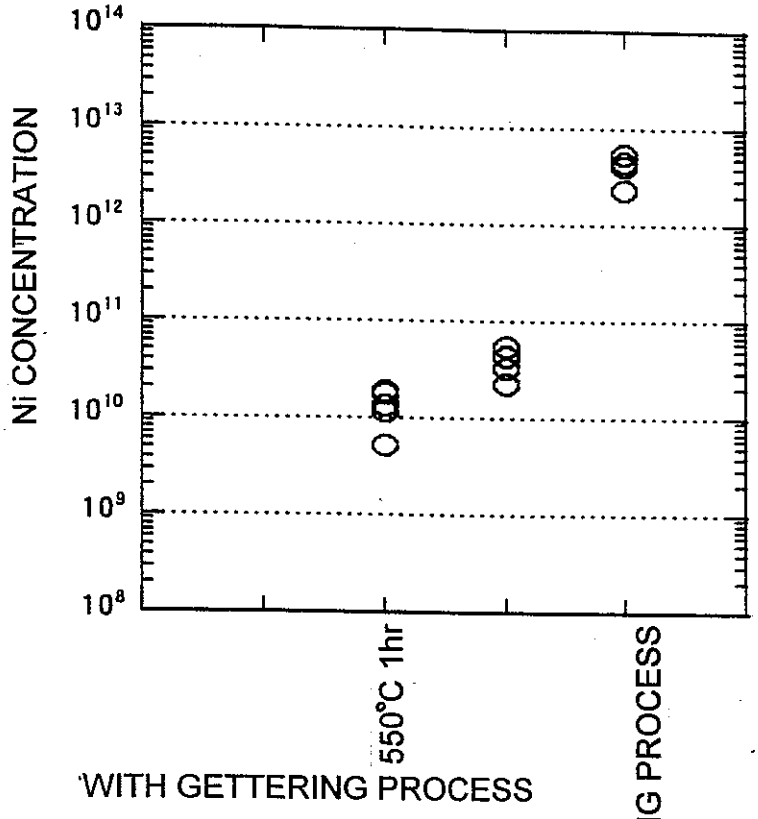


FIG. 24A

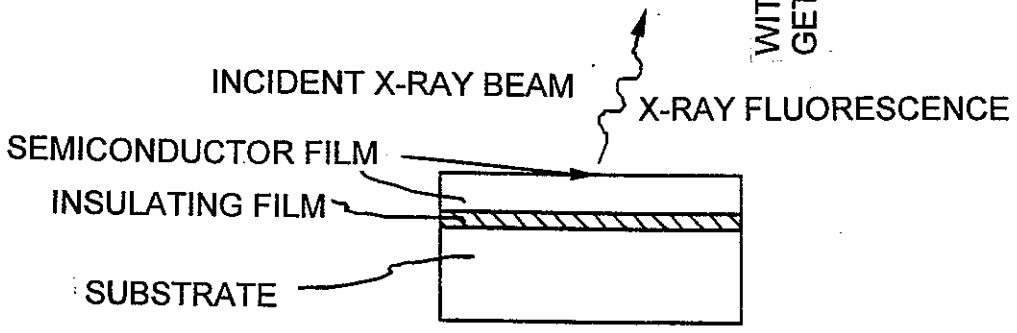


FIG. 24B