FIG.1

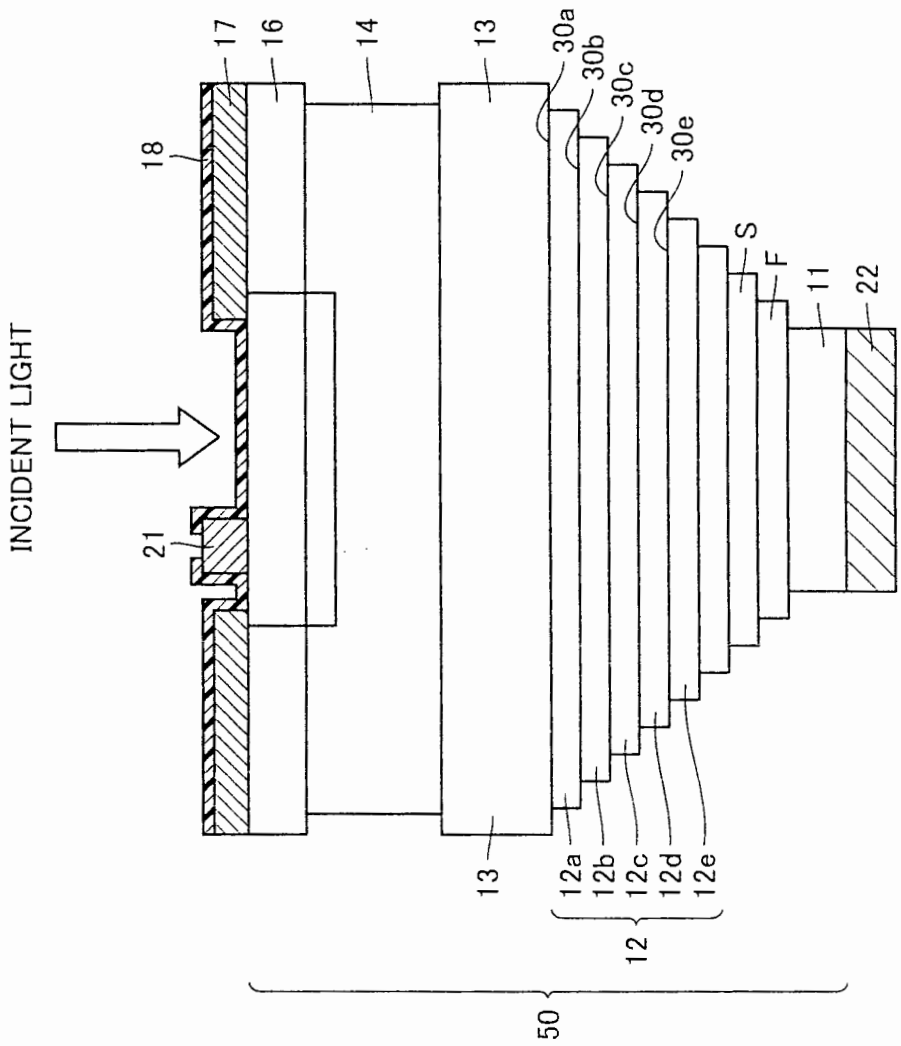

INCIDENT LIGHT
17
16
14
13
30a
30b
30c
30d
30e
S
F
11
22
18
21
13
12a
12b
12c
12d
12e
12
50

FIG.2

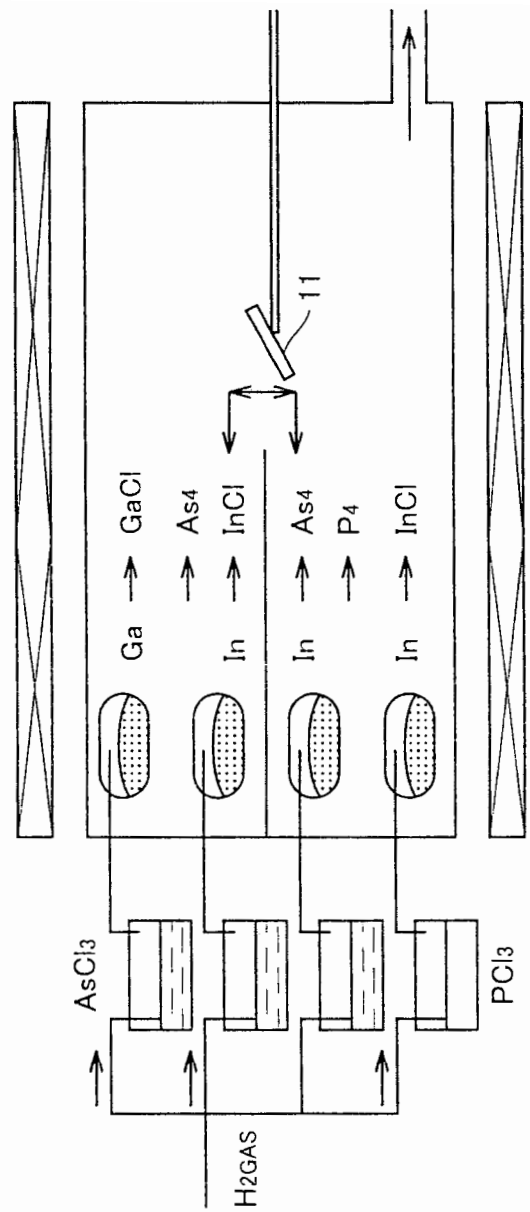


FIG.3

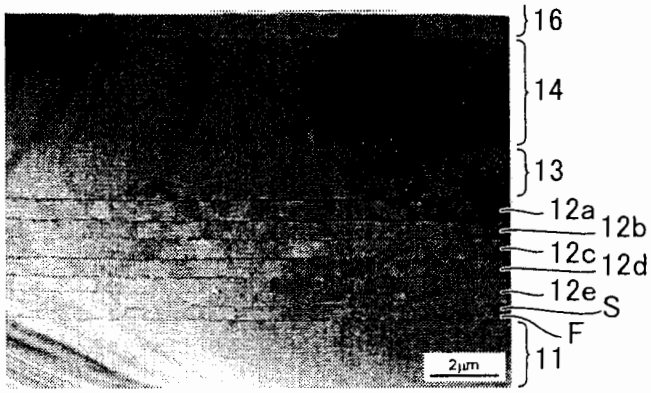


FIG.4

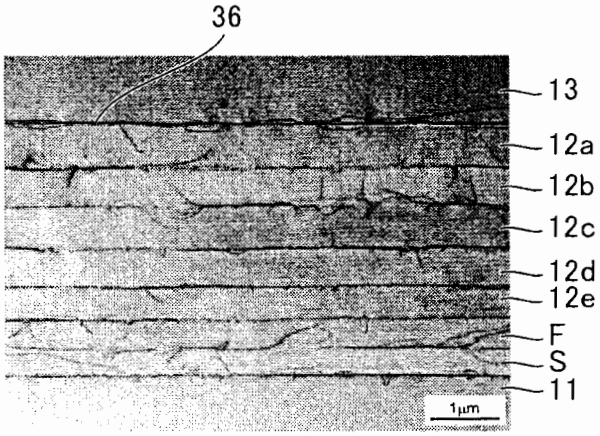


FIG.5

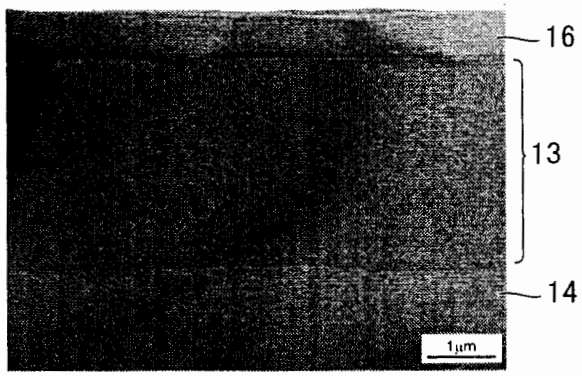


FIG.6

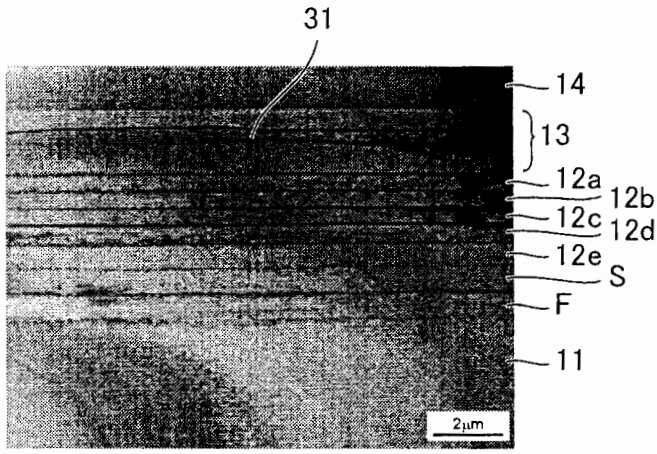


FIG.7

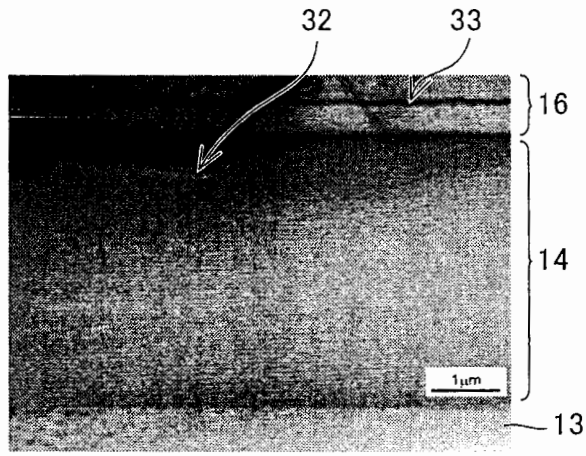


FIG.8

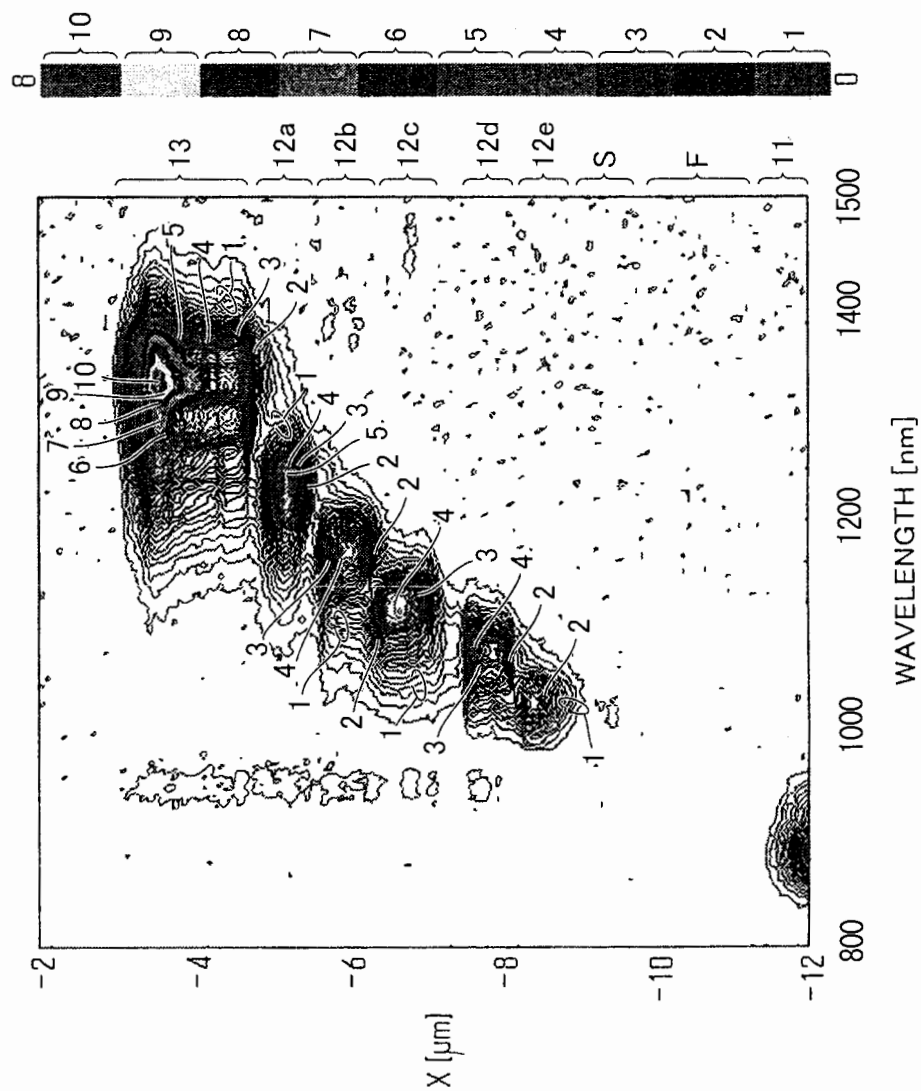

8
10
9
8
7
6
5
4
3
2
1
0
13
12a
12b
12c
12d
12e
S
F
11
X [μm]
-2
-4
-6
-8
-10
-12
800
1000
1200
1400
1500
WAVELENGTH [nm]

FIG.9

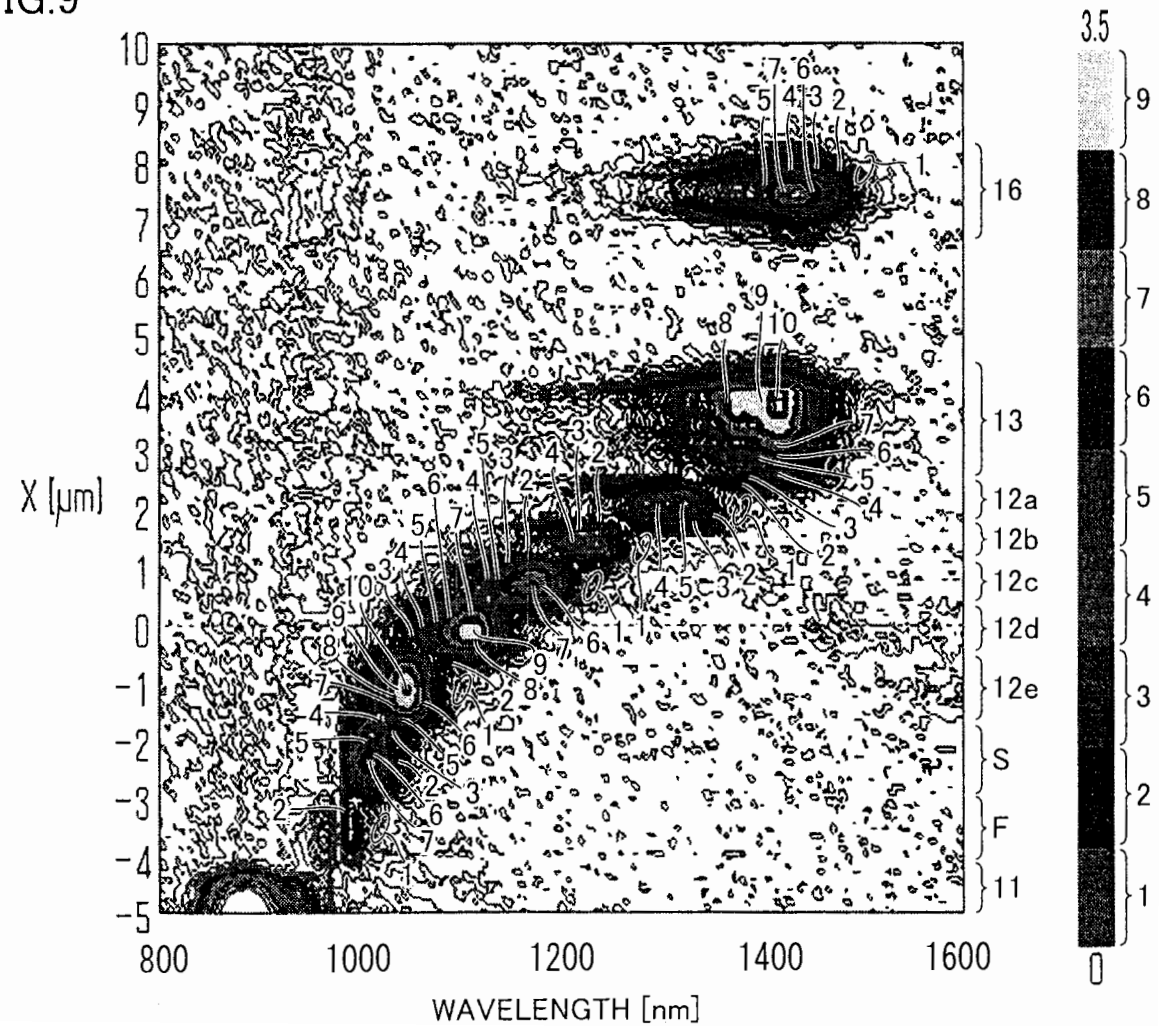

X [μm]
WAVELENGTH [nm]
800
1000
1200
1400
1600
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
16
13
12a
12b
12c
12d
12e
S
F
11
3.5
9
8
7
6
5
4
3
2
1
0

FIG.10

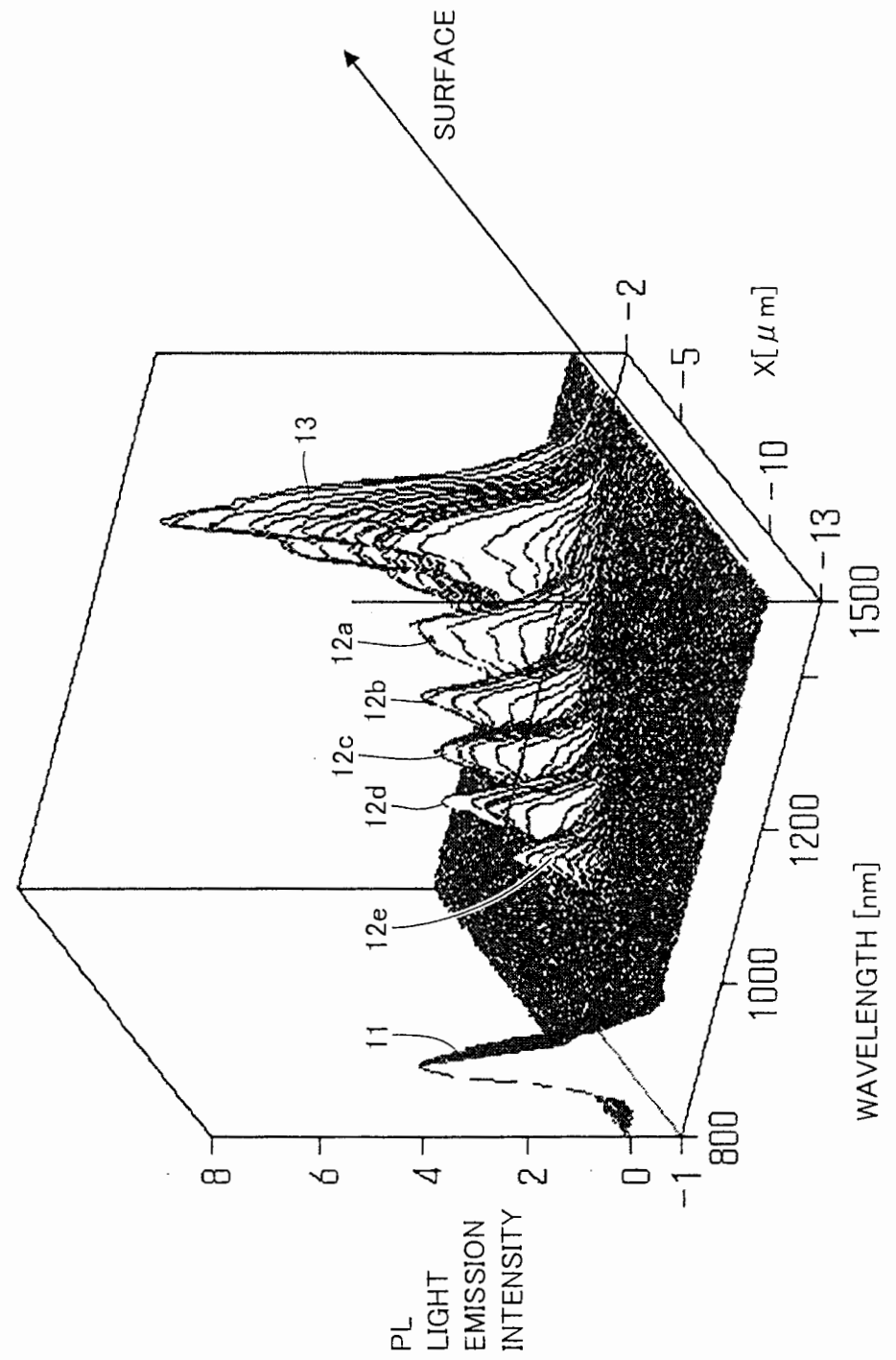

SURFACE
-2
-5
-10
-13
X[μm]
13
12a
12b
12c
12d
12e
11
8
6
4
2
0
-1
PL
LIGHT
EMISSION
INTENSITY
800
1000
1200
1500
WAVELENGTH [nm]

FIG.11

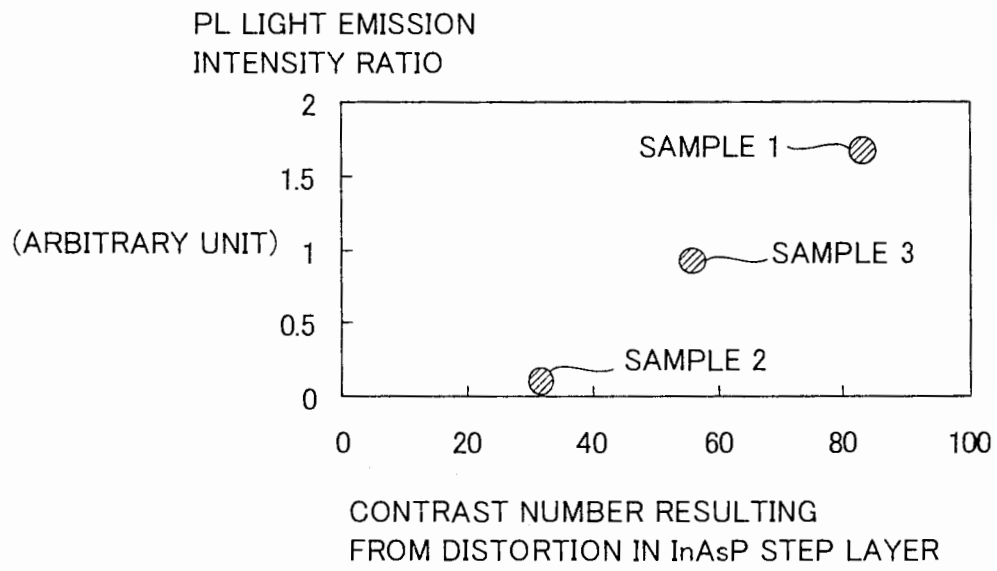

PL LIGHT EMISSION
INTENSITY RATIO
(ARBITRARY UNIT)
2
1.5
1
0.5
0
SAMPLE 1
SAMPLE 3
SAMPLE 2
0
20
40
60
80
100
CONTRAST NUMBER RESULTING
FROM DISTORTION IN InAsP STEP LAYER

FIG.12

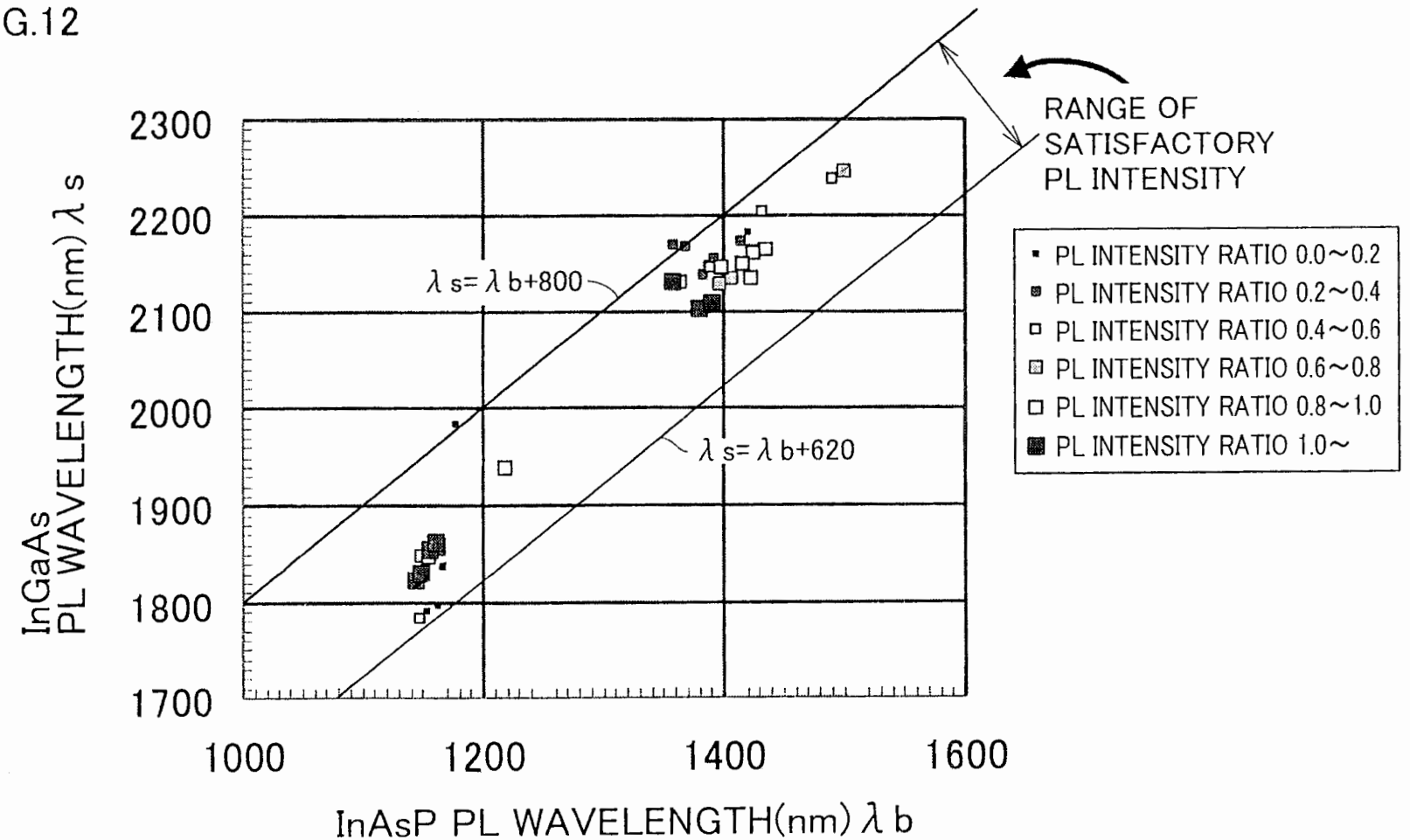

RANGE OF
SATISFACTORY
PL INTENSITY
PL INTENSITY RATIO 0.0～0.2
PL INTENSITY RATIO 0.2～0.4
PL INTENSITY RATIO 0.4～0.6
PL INTENSITY RATIO 0.6～0.8
PL INTENSITY RATIO 0.8～1.0
PL INTENSITY RATIO 1.0～
λ s= λ b+800
λ s= λ b+620
InGaAs
PL WAVELENGTH(nm) λ s
2300
2200
2100
2000
1900
1800
1700
1000
1200
1400
1600
InAsP PL WAVELENGTH(nm) λ b

FIG.13

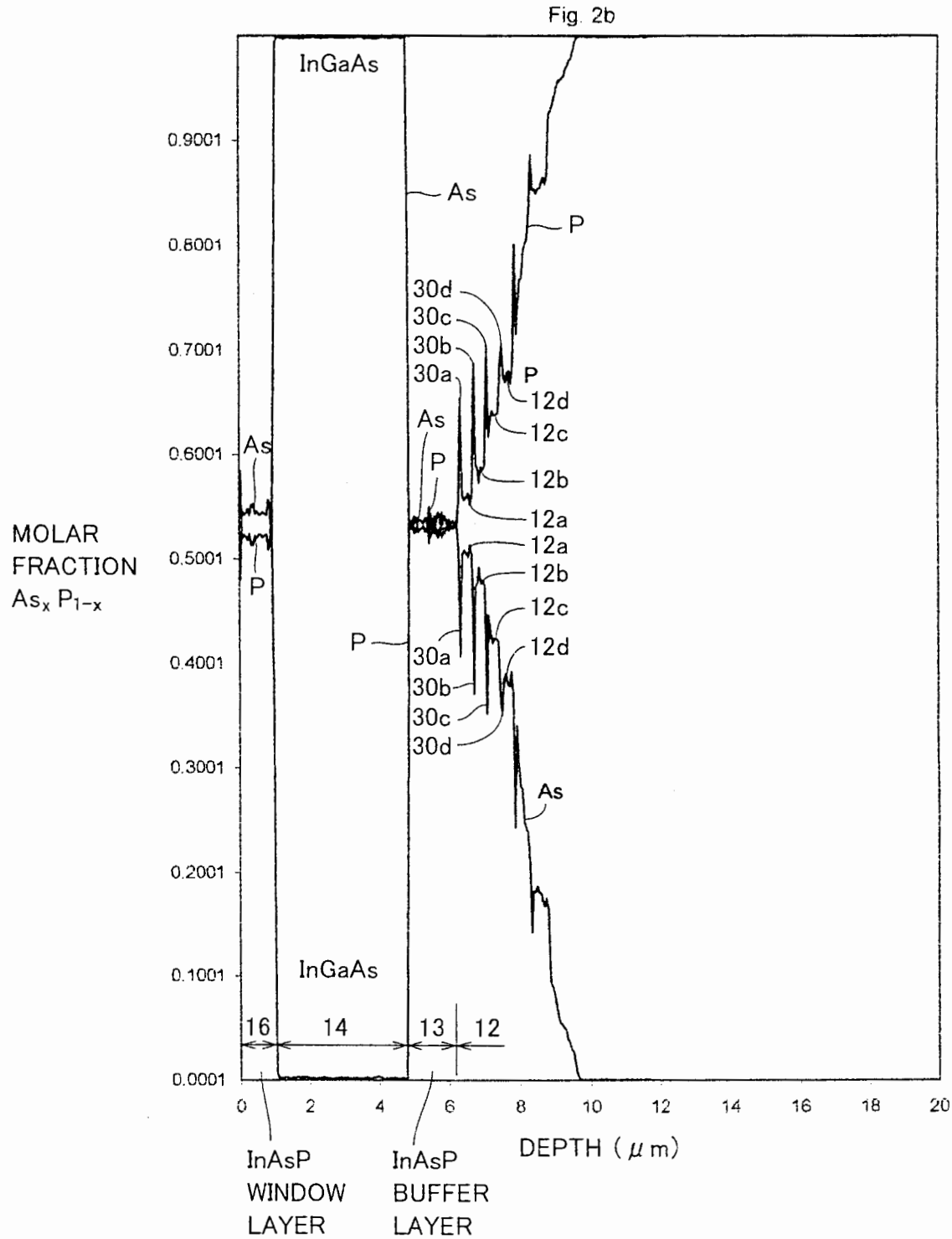
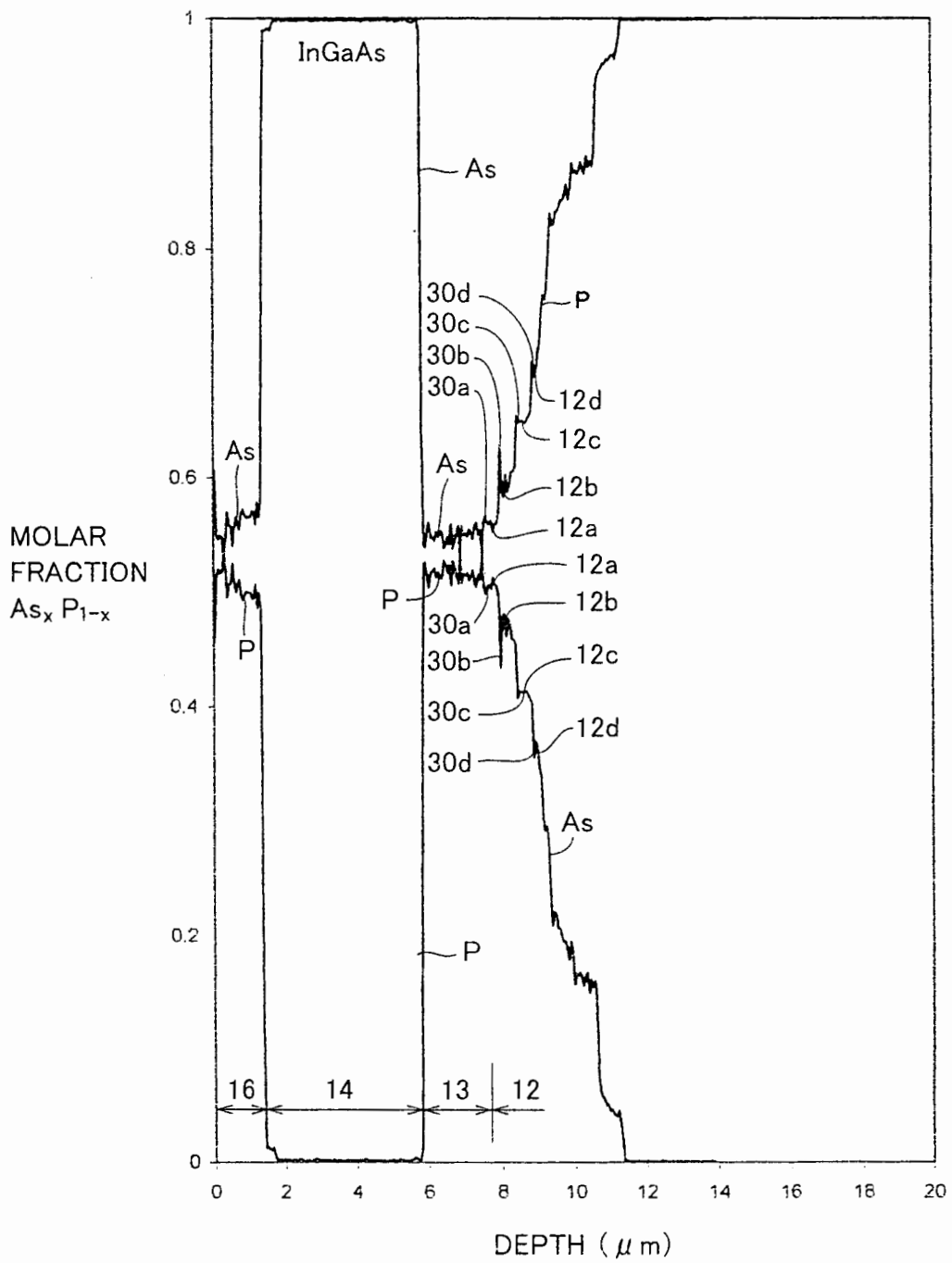

Fig. 2b
InGaAs
0.9001
0.8001
0.7001
0.6001
0.5001
0.4001
0.3001
0.2001
0.1001
0.0001
As
P
30d
30c
30b
30a
12d
12c
12b
12a
MOLAR FRACTION
$As_x P_{1-x}$
InGaAs
16
14
13
12
0
2
4
6
8
10
12
14
16
18
20
DEPTH (μ m)
InAsP WINDOW LAYER
InAsP BUFFER LAYER

FIG.14


MOLAR FRACTION
$As_x P_{1-x}$
InGaAs
As
P
30d
30c
30b
30a
12d
12c
12b
12a
16
14
13
12
DEPTH (μm)
0
0.2
0.4
0.6
0.8
1
0
2
4
6
8
10
12
14
16
18
20