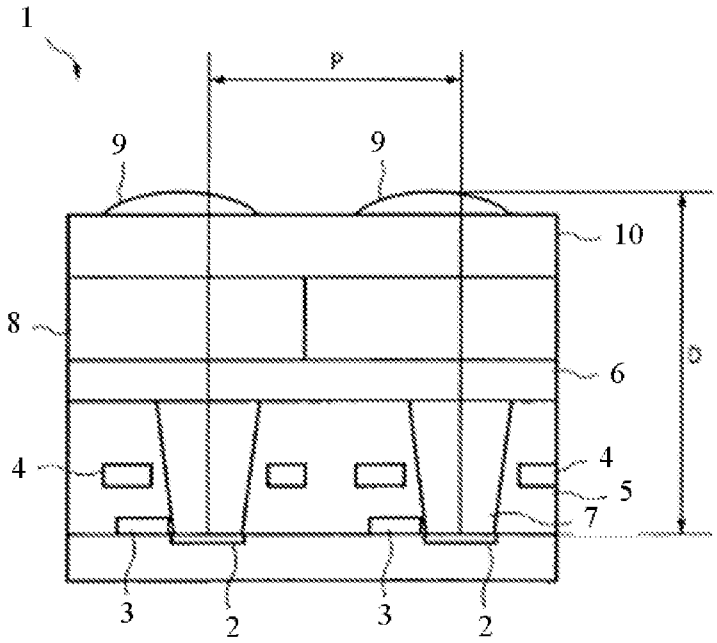


FIG. 1A
Prior Art

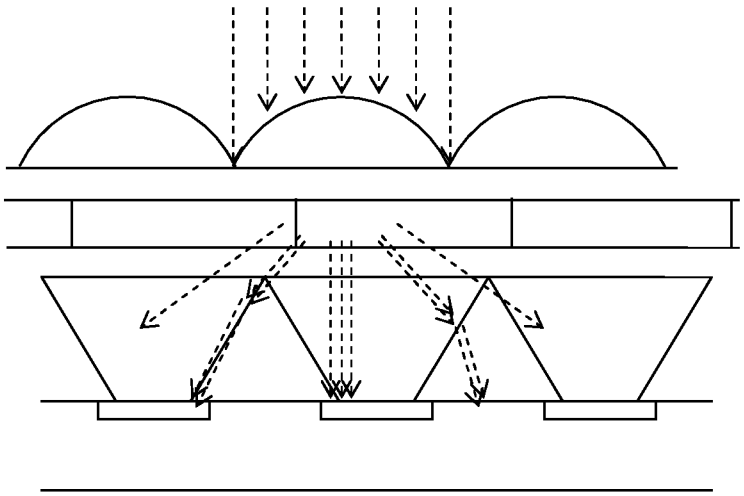


FIG. 1B
Prior Art

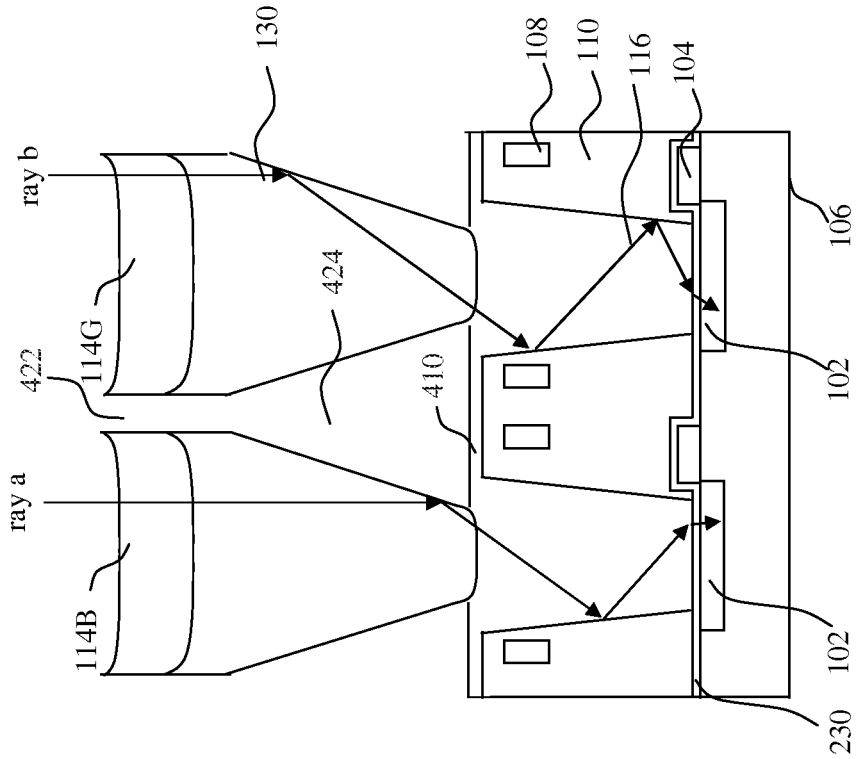

ray b
ray a
130
422
114G
114B
424
410
108
110
116
104
106
102
102
230

FIG. 5

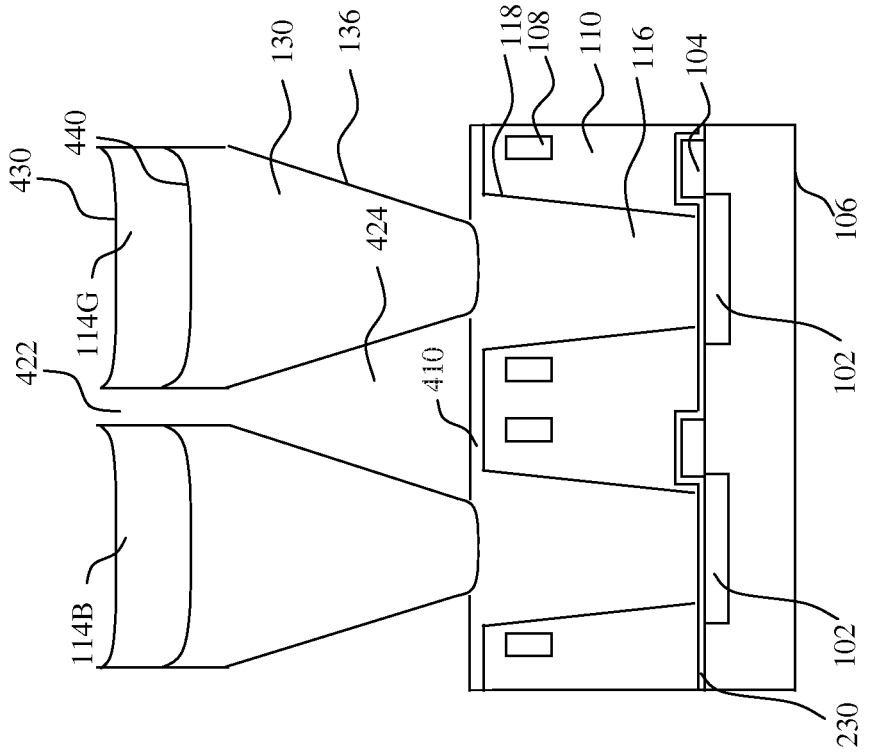

430
440
422
114G
114B
130
136
424
410
118
108
110
116
104
106
102
102
230

FIG. 2

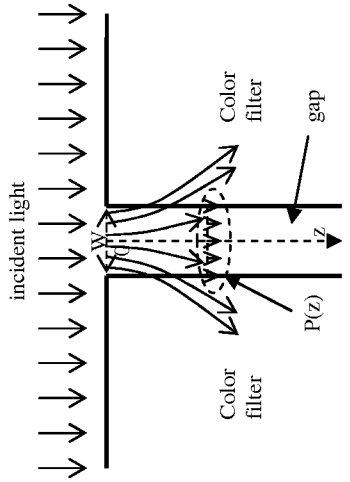


FIG. 3A

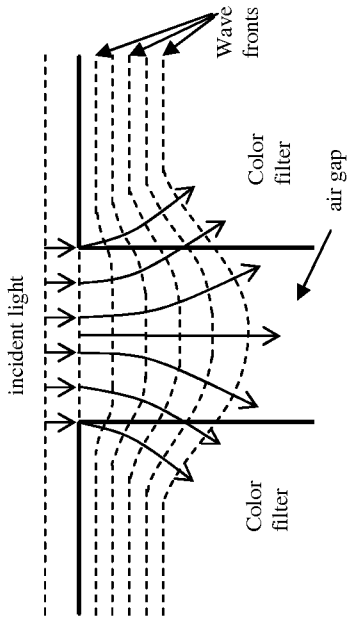


FIG. 3B

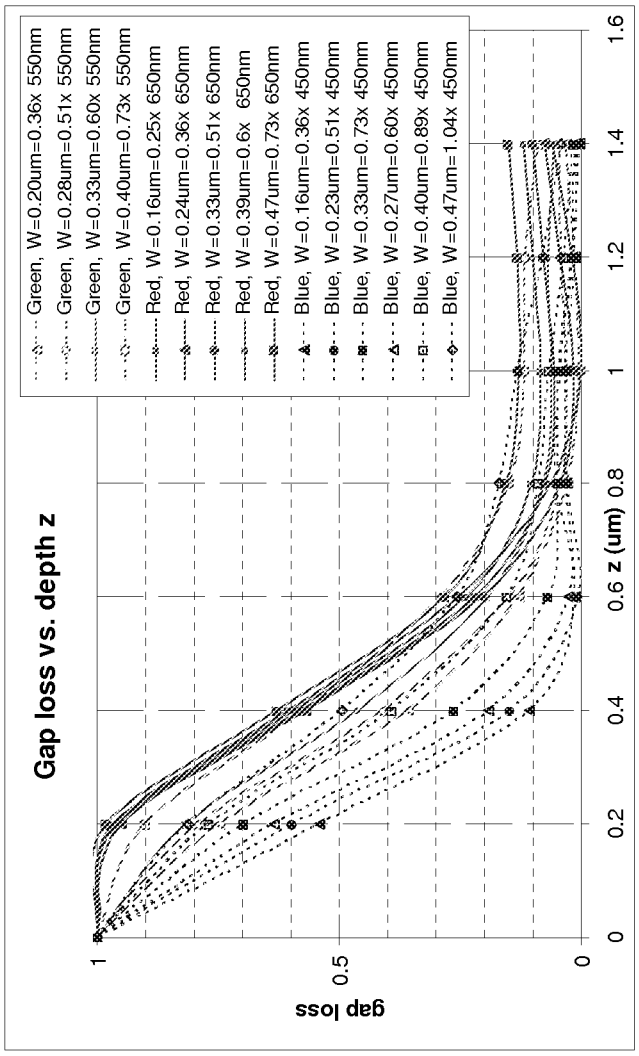


FIG. 3C

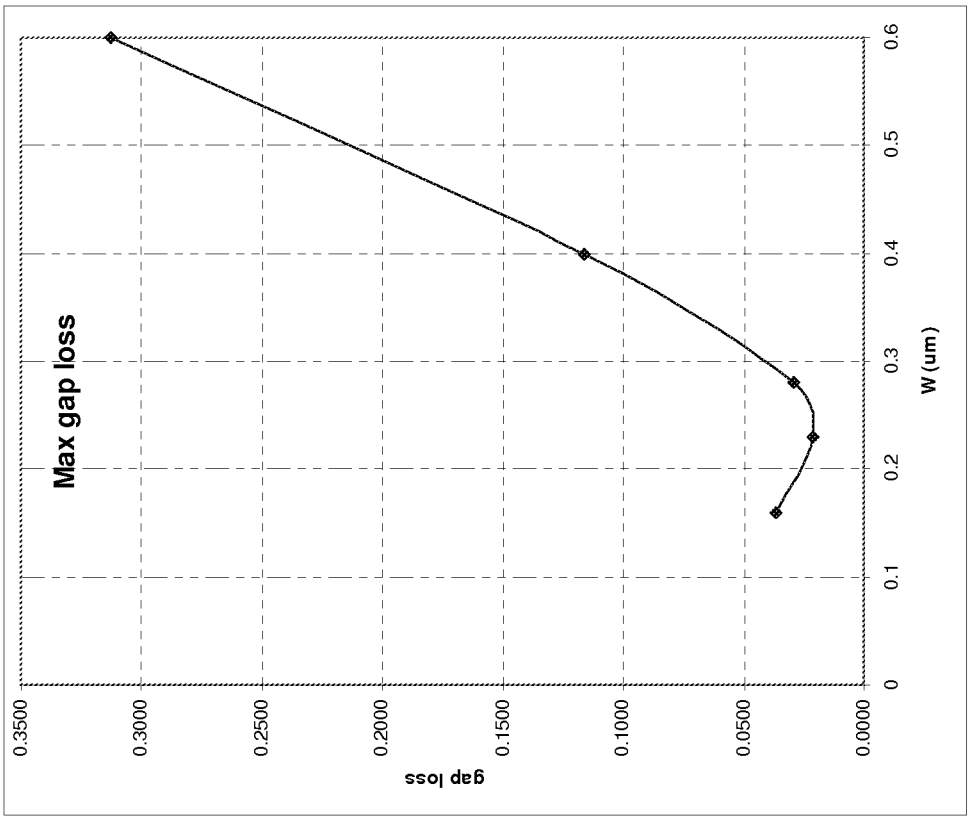

Max gap loss
gap loss
W (um)
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
0
0.1
0.2
0.3
0.4
0.5
0.6

FIG. 3E

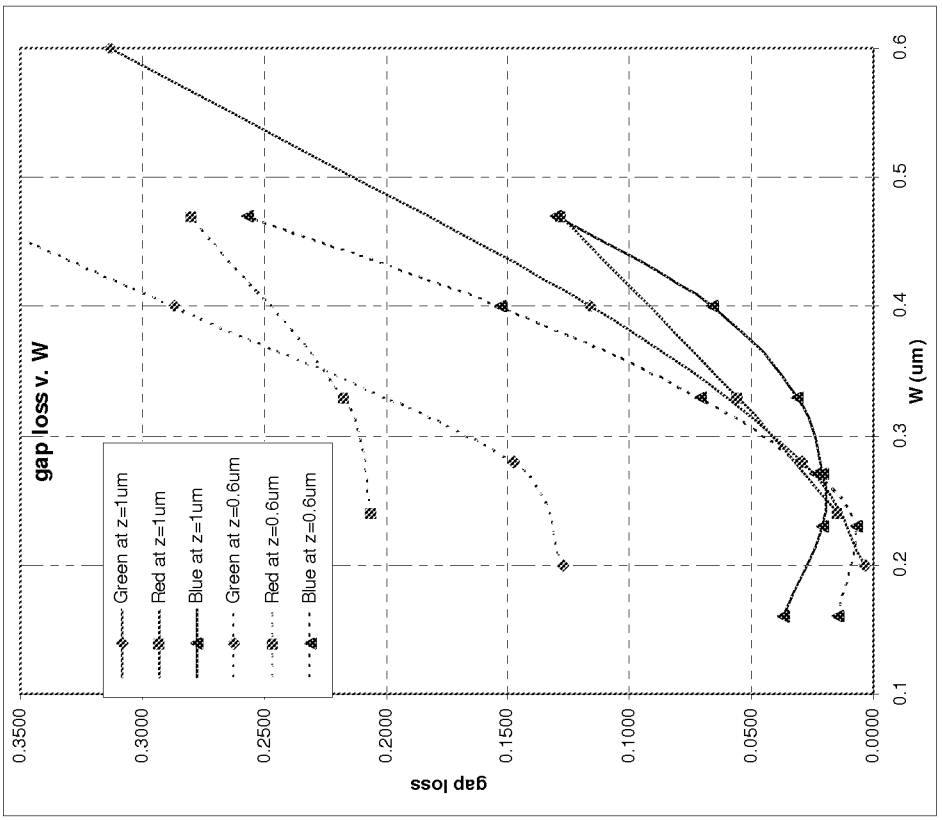

gap loss v. W
Green at z=1um
Red at z=1um
Blue at z=1um
Green at z=0.6um
Red at z=0.6um
Blue at z=0.6um
gap loss
W (um)
0.3500
0.3000
0.2500
0.2000
0.1500
0.1000
0.0500
0.0000
0.1
0.2
0.3
0.4
0.5
0.6

FIG. 3D

gap width (um)						
0.2	0.25	0.3	0.35	0.4	0.45	0.5
2.5%	2.1%	4.0%	7.0%	12%	17%	22%

FIG. 3F

pitch (um)	gap width (um)						
	0.2	0.25	0.3	0.35	0.4	0.45	0.5
1.8	21%	26%	31%	35%	40%	44%	48%
2.2	17%	21%	25%	29%	33%	37%	40%
2.8	14%	17%	20%	23%	27%	30%	33%
4	10%	12%	14%	17%	19%	21%	23%
5.6	7.0%	8.7%	10%	12%	14%	15%	17%

FIG. 3G

pitch (um)	gap width (um)						
	0.2	0.25	0.3	0.35	0.4	0.45	0.5
1.8	0.52%	0.54%	1.2%	2.5%	4.6%	7.2%	10.3%
2.2	0.43%	0.45%	1.0%	2.1%	3.8%	6.1%	8.7%
2.8	0.34%	0.36%	0.81%	1.6%	3.1%	4.9%	7.0%
4	0.24%	0.25%	0.58%	1.2%	2.2%	3.5%	5.0%
5.6	0.18%	0.18%	0.42%	0.85%	1.6%	2.5%	3.7%

FIG. 3H

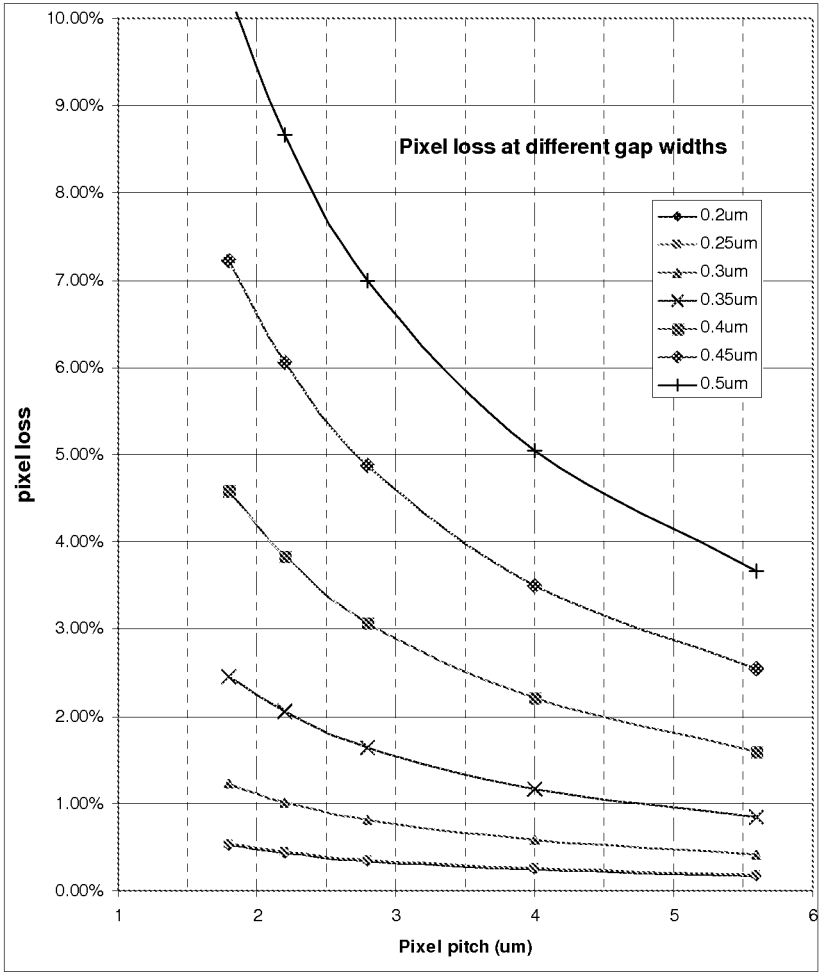


FIG. 3I

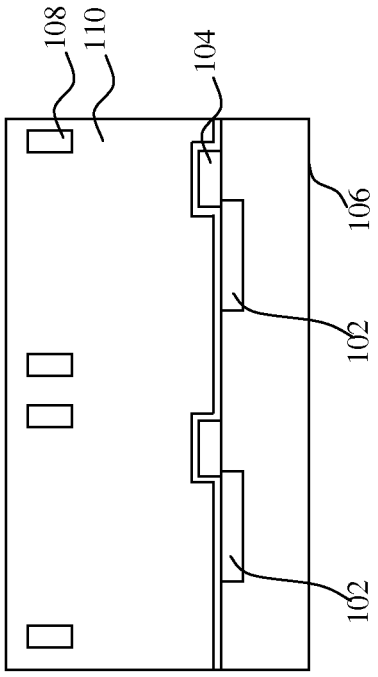


FIG. 4A

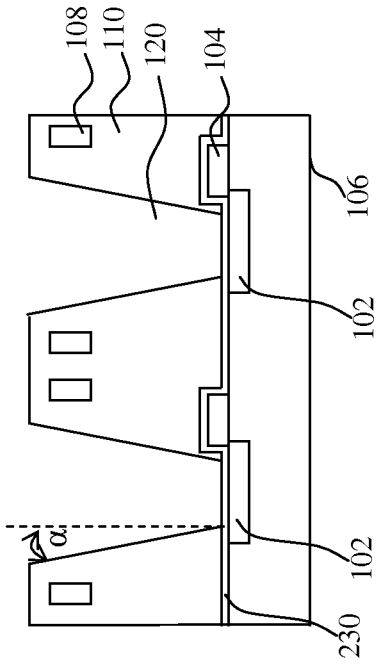


FIG. 4B

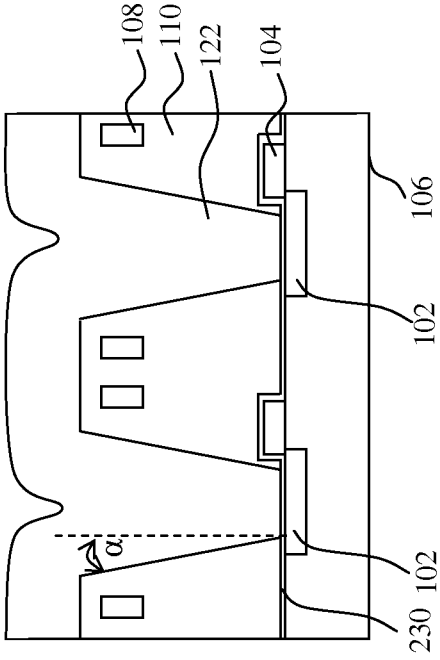


FIG. 4C

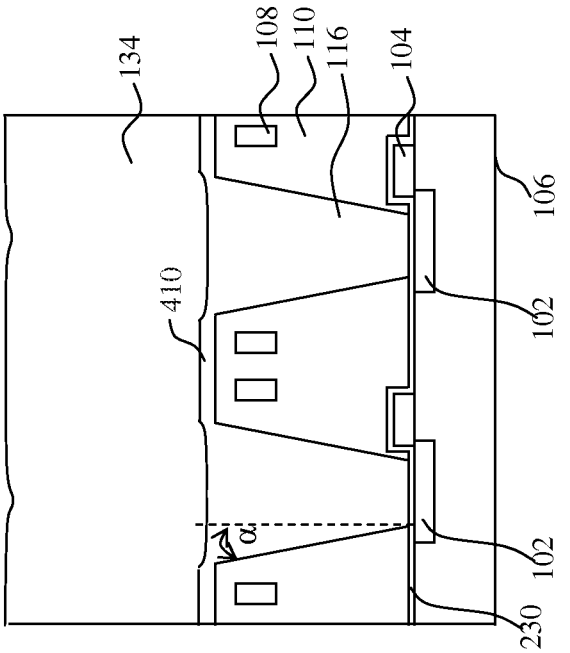


FIG. 4D

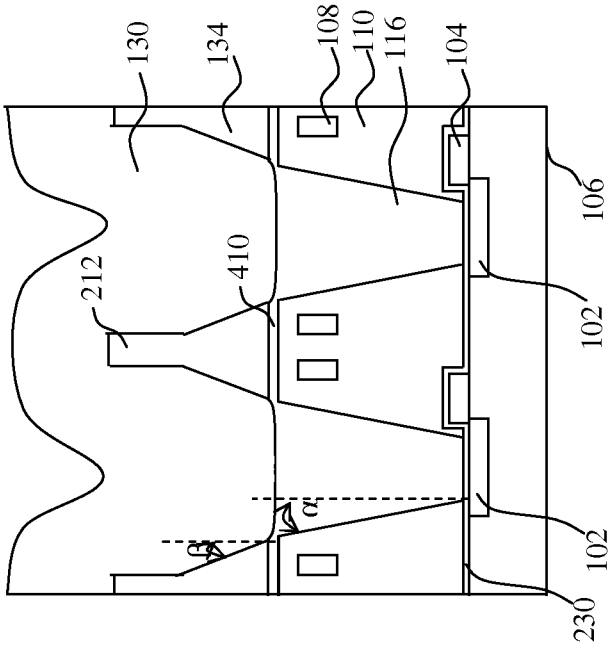


FIG. 4F

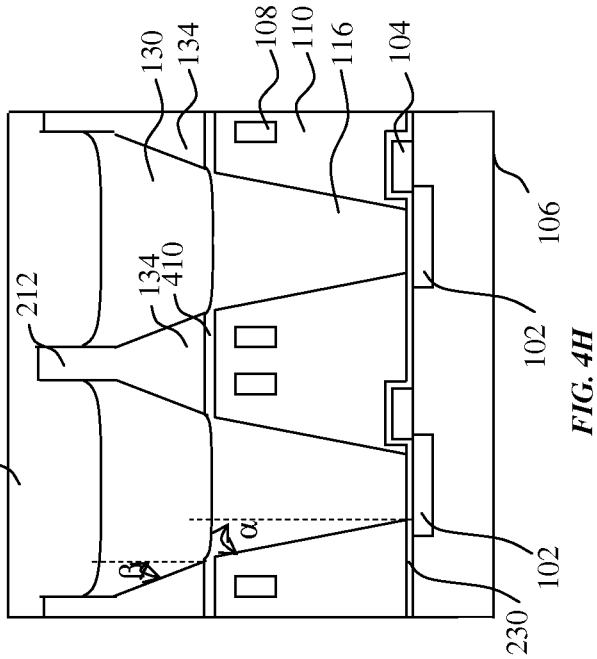


FIG. 4H

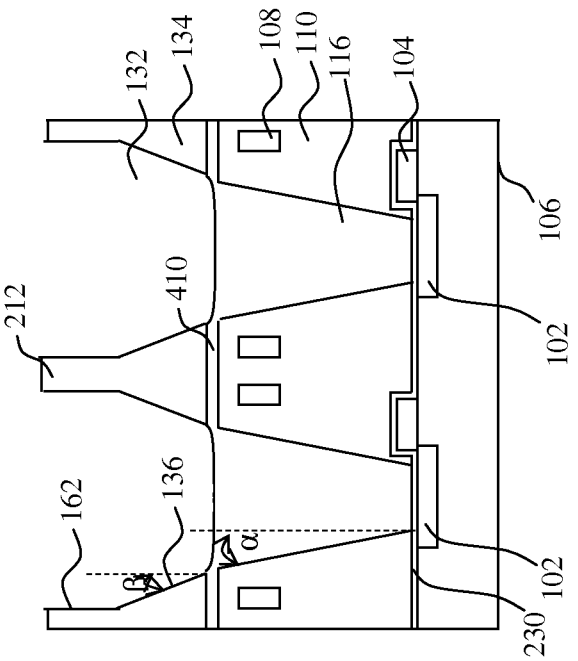


FIG. 4E

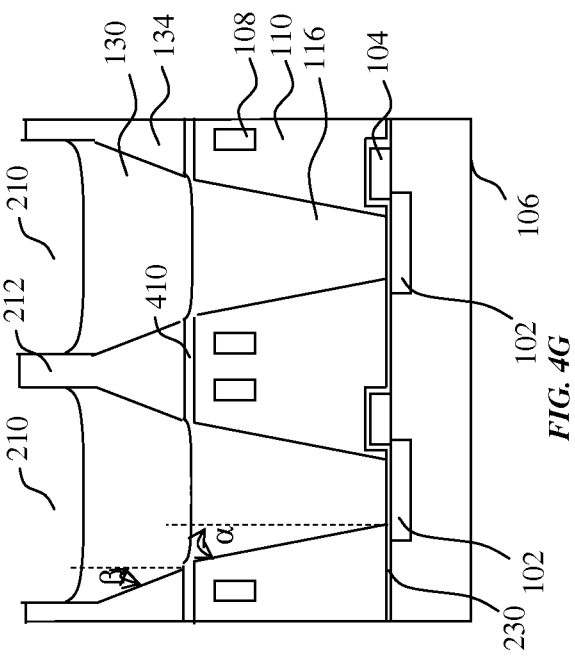


FIG. 4G

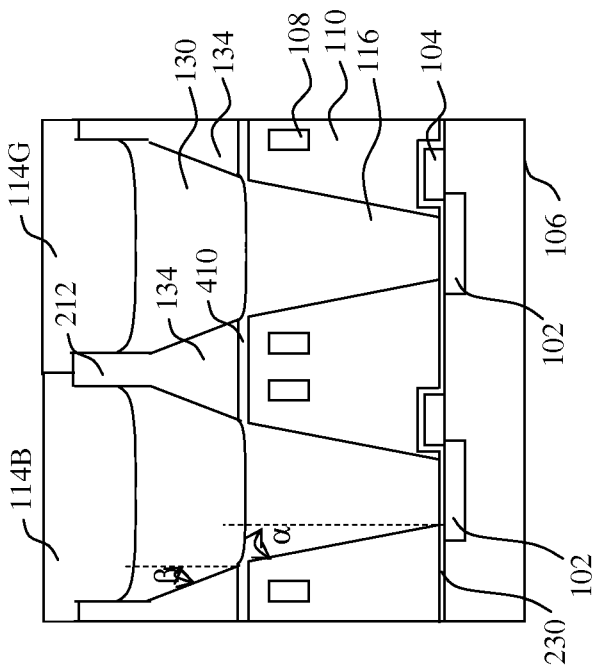


FIG. 4J

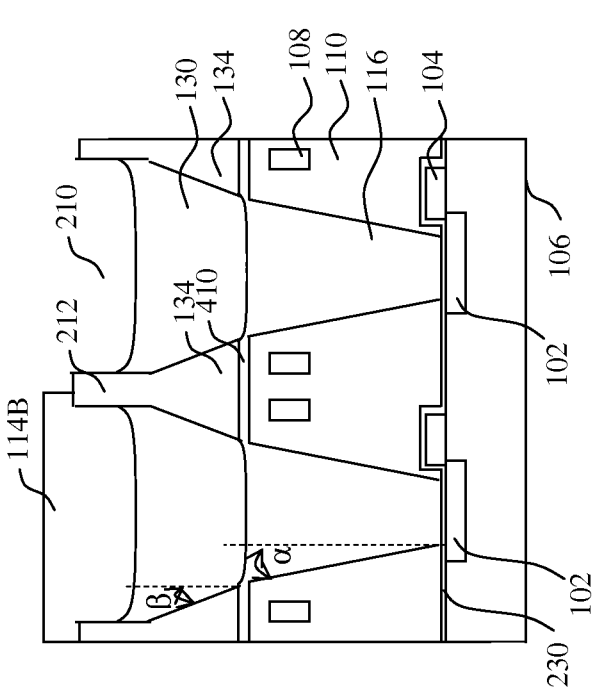


FIG. 4I

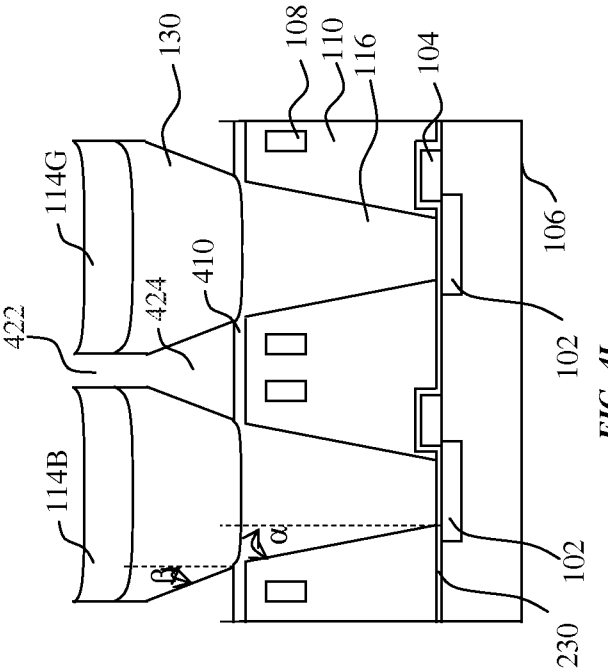


FIG. 4L

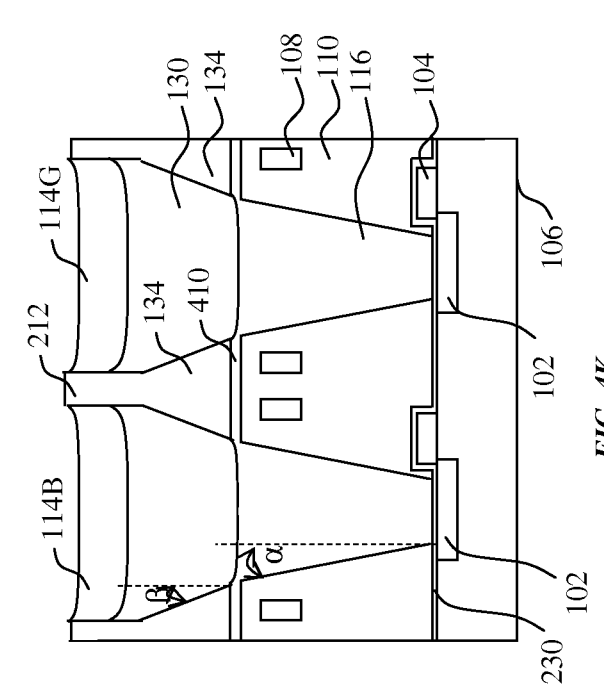


FIG. 4K

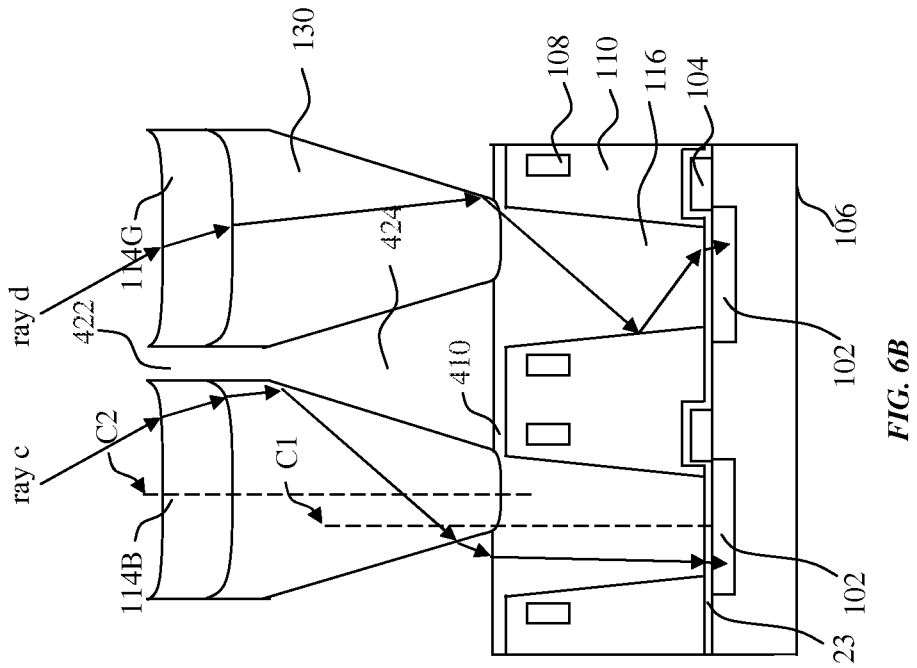

ray d
ray c
114G
114B
422
C2
C1
130
424
410
108
110
116
104
106
102
102
23

FIG. 6B

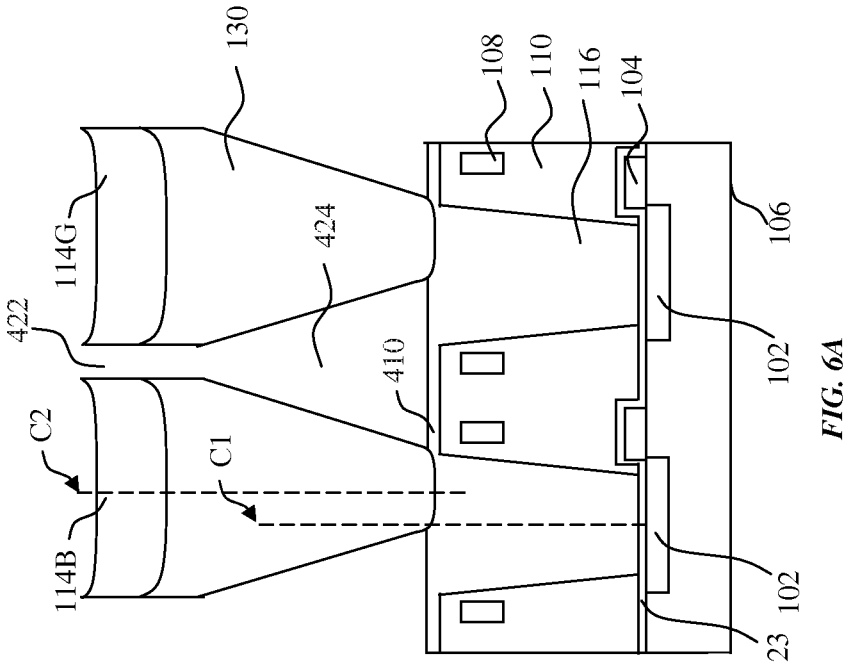

114G
114B
422
C2
C1
130
424
410
108
110
116
104
106
102
102
23

FIG. 6A

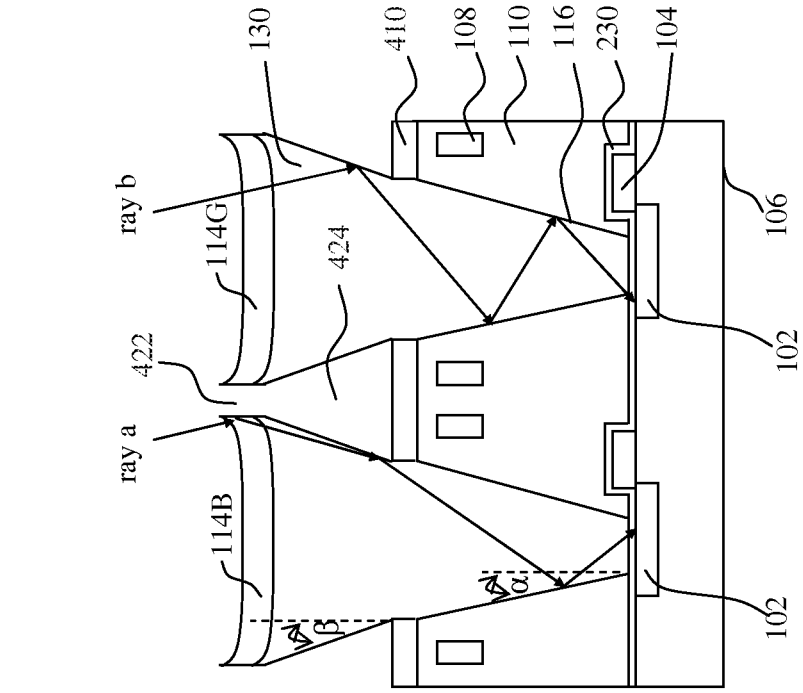

ray b
ray a
114G
114B
422
424
130
410
108
110
116
230
104
106
102
102
α
β

FIG. 8

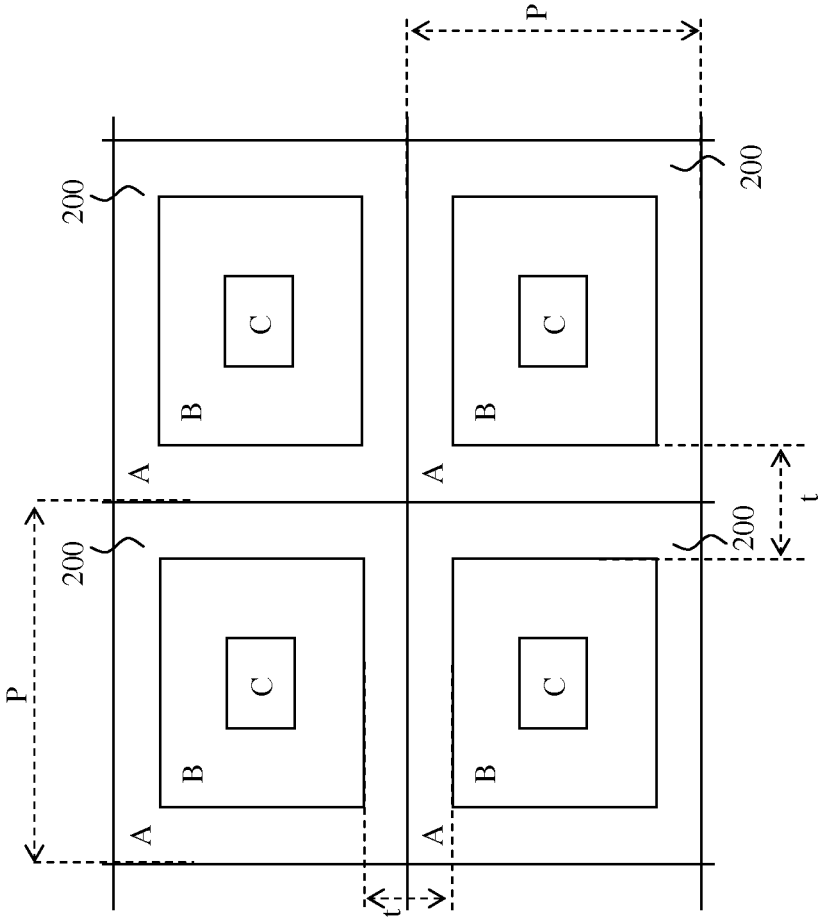

P
P
200
200
200
200
A
A
A
A
B
B
B
B
C
C
C
C
t
t

FIG. 7

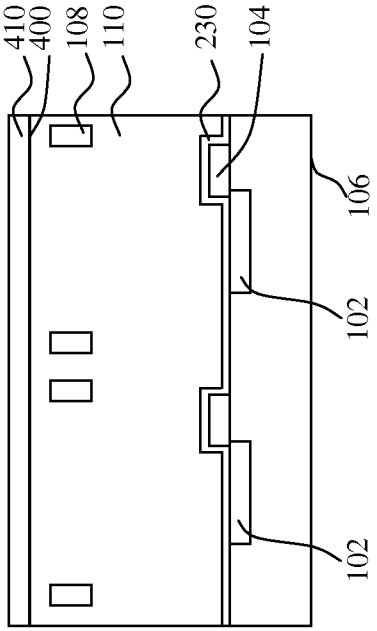


FIG. 9B

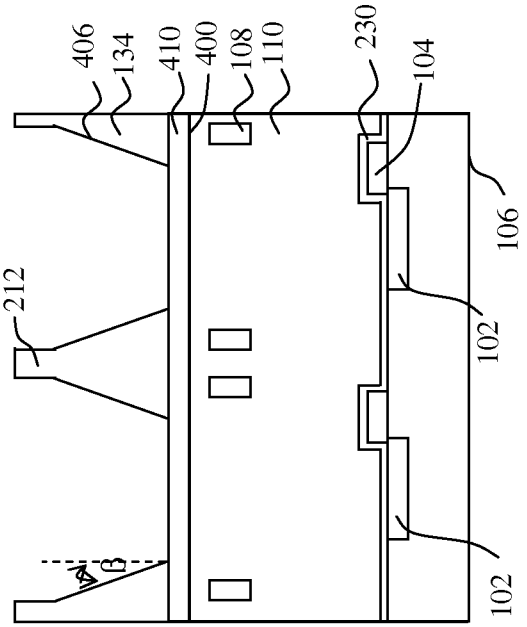


FIG. 9D

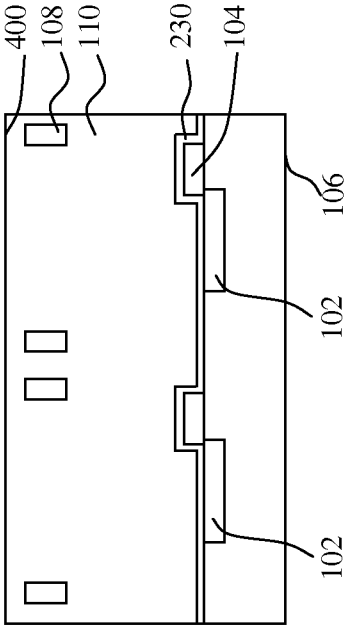


FIG. 9A

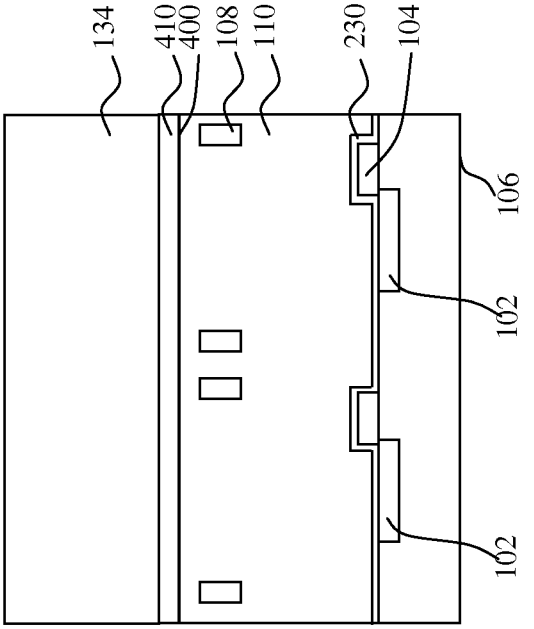


FIG. 9C

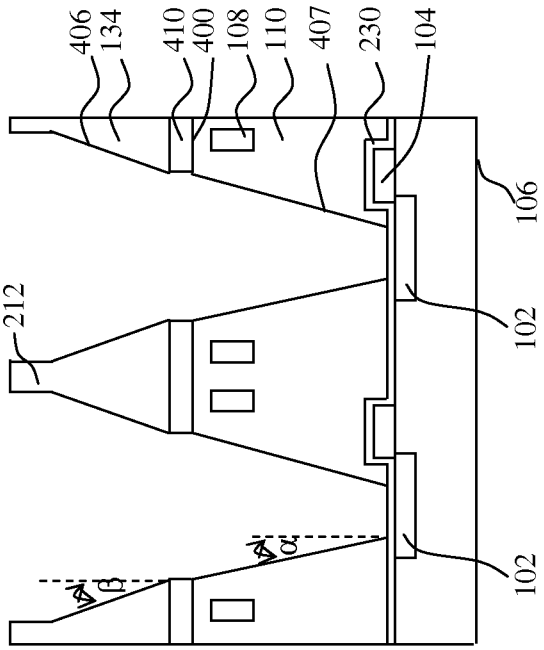


FIG. 9F

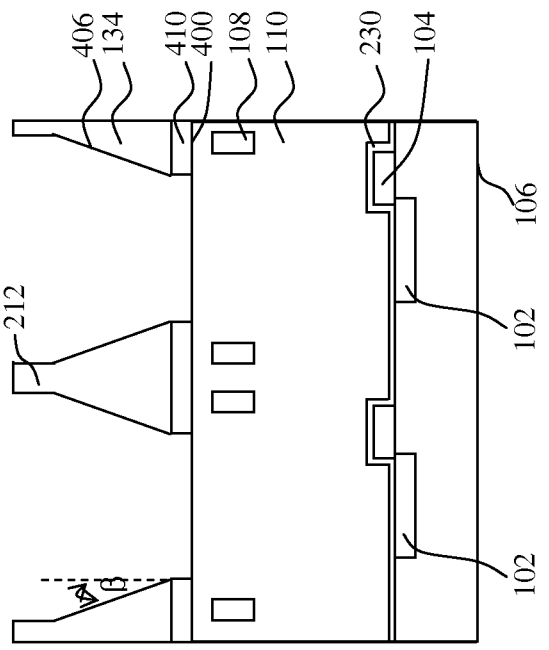


FIG. 9E

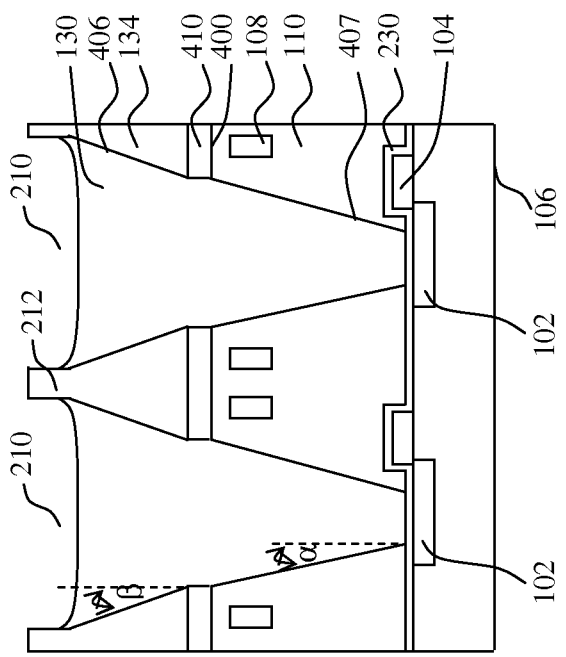


FIG. 9H

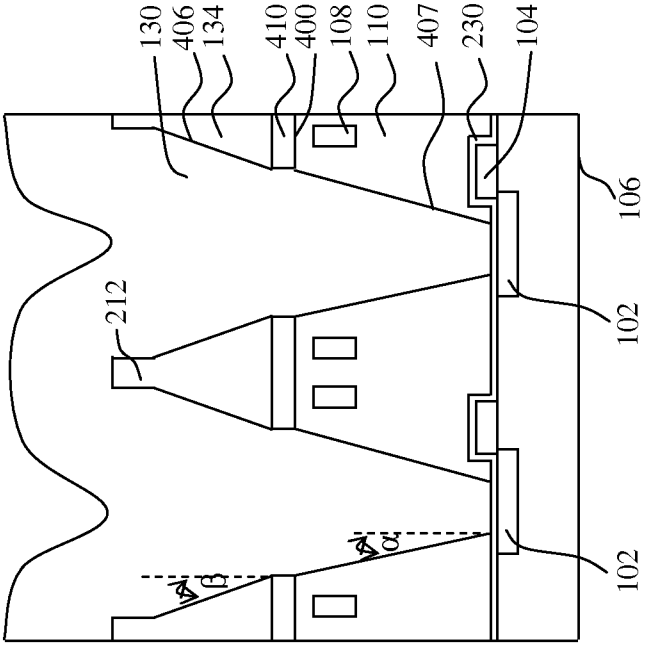


FIG. 9G

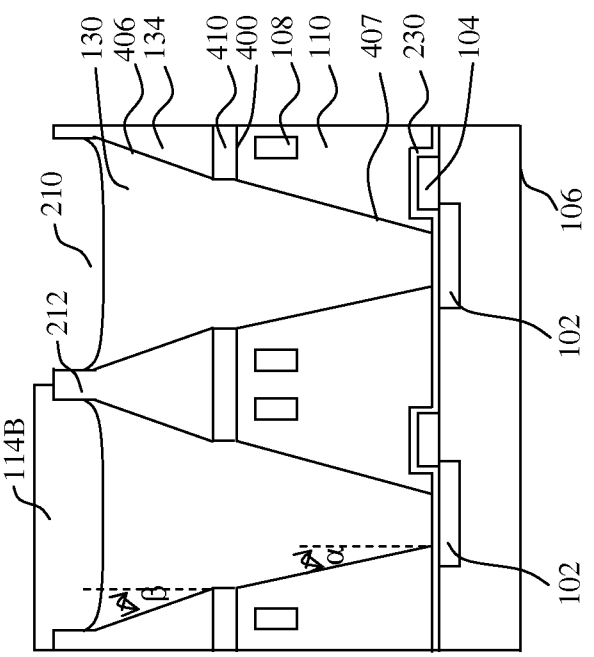


FIG. 9J

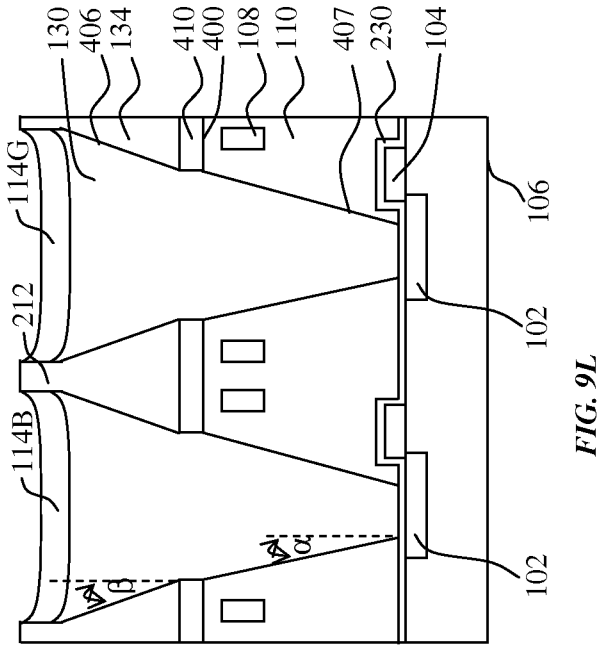


FIG. 9L

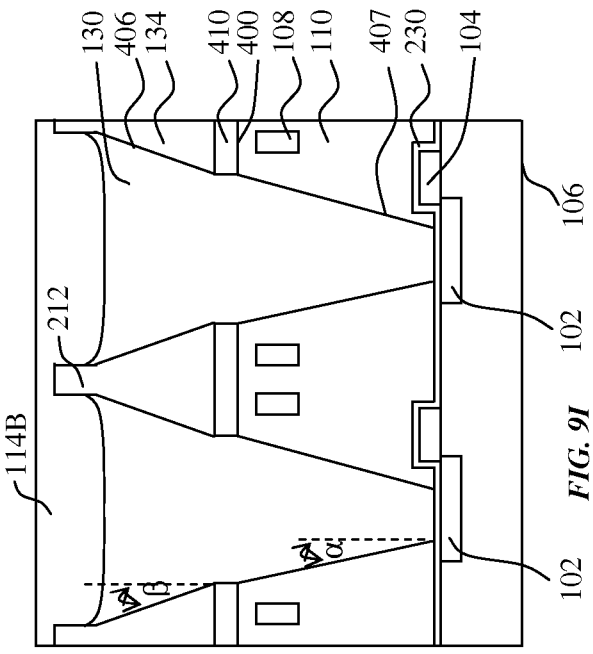


FIG. 9I

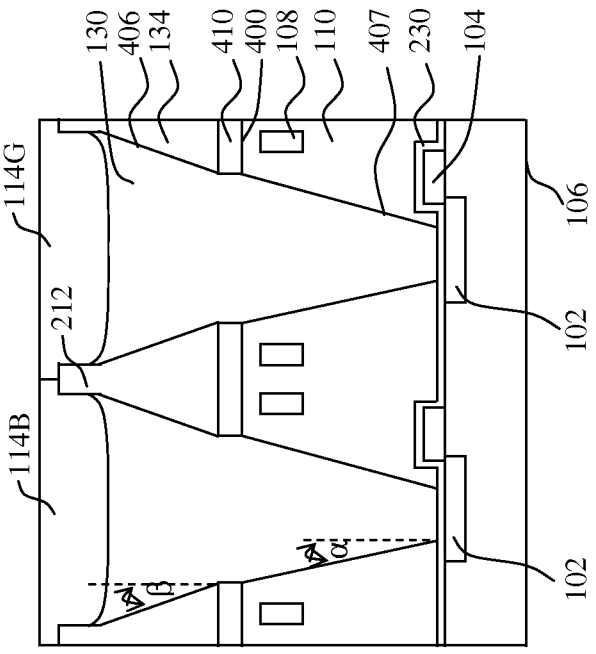


FIG. 9K

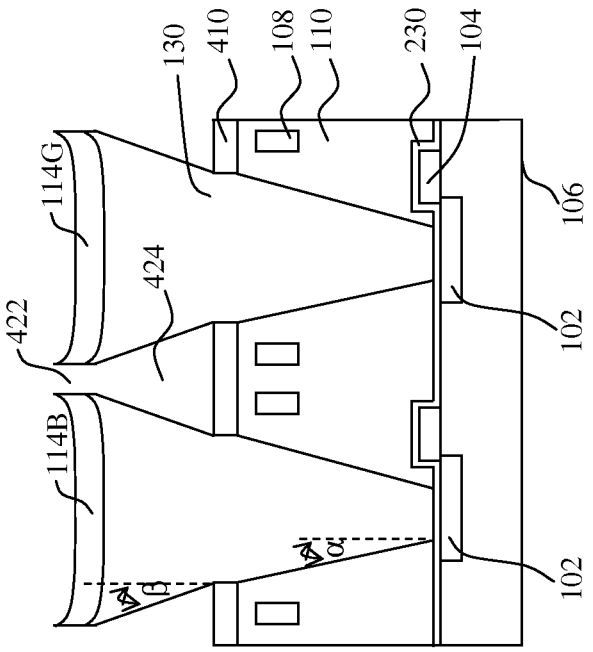


FIG. 9M

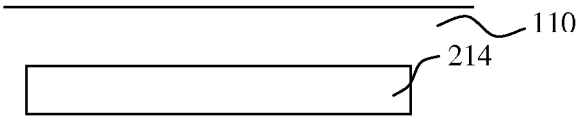


FIG. 10A

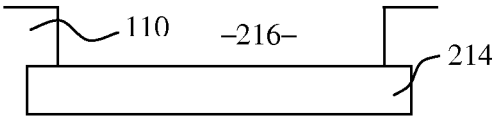


FIG. 10B

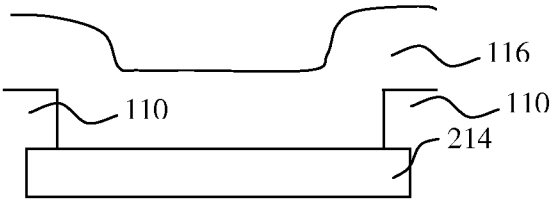


FIG. 10C



FIG. 10D

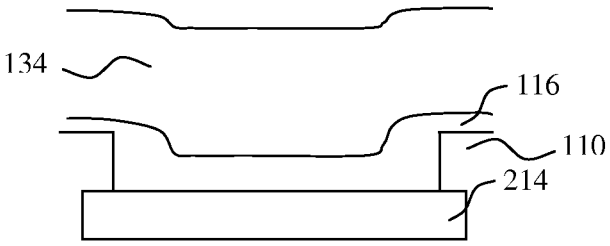


FIG. 10E

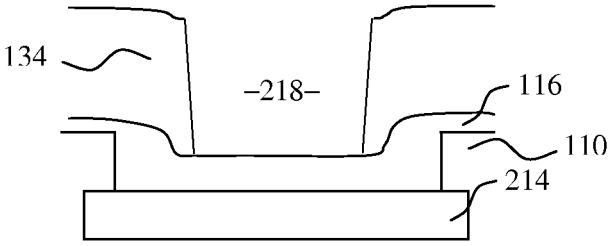


FIG. 10F

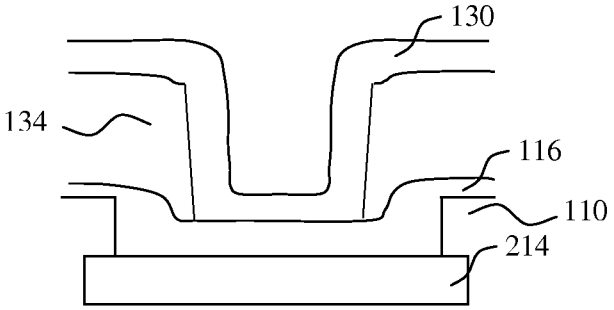


FIG. 10G

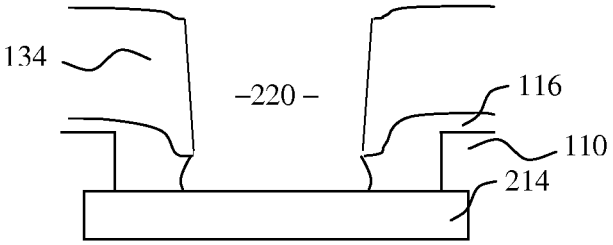


FIG. 10H

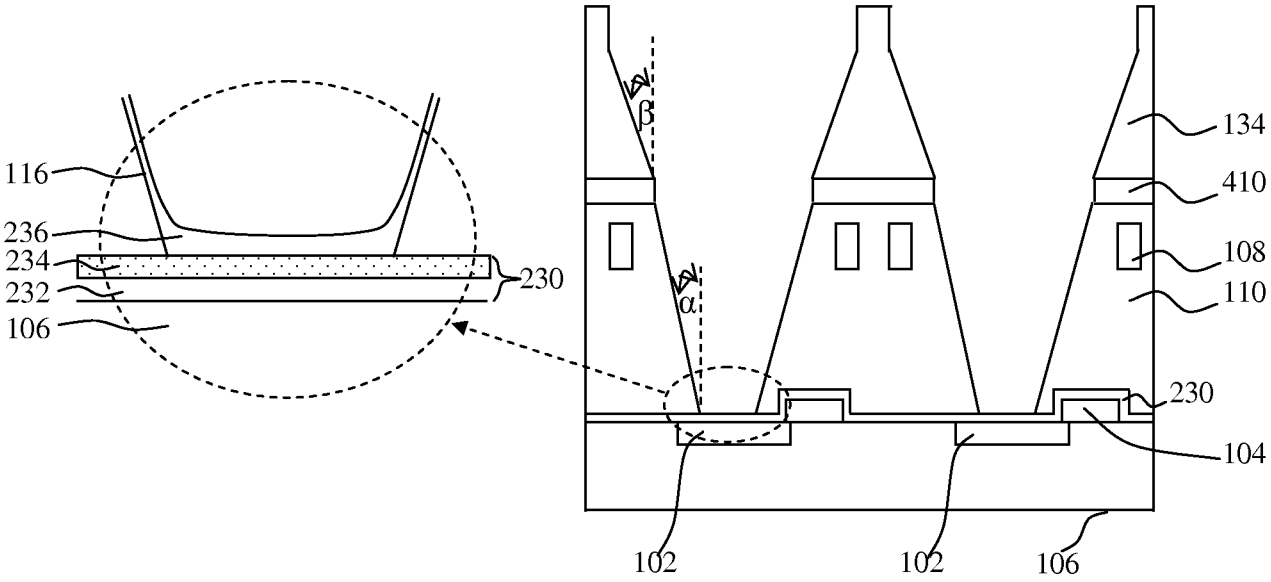


FIG. 11

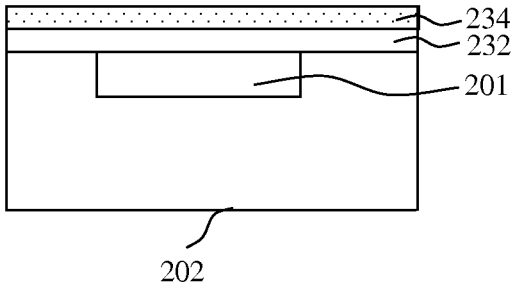


FIG. 12A

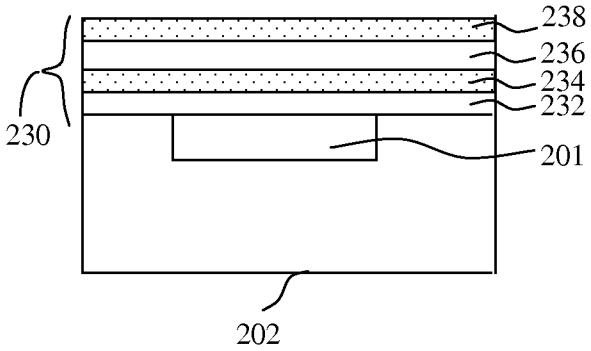


FIG. 12B

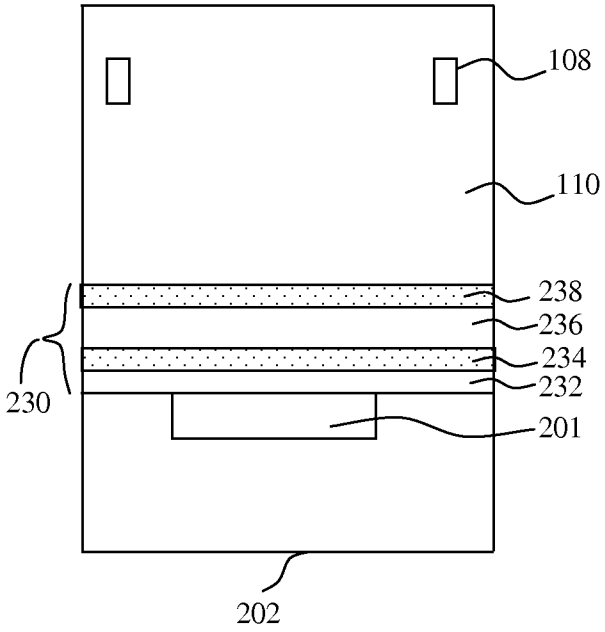


FIG. 12C

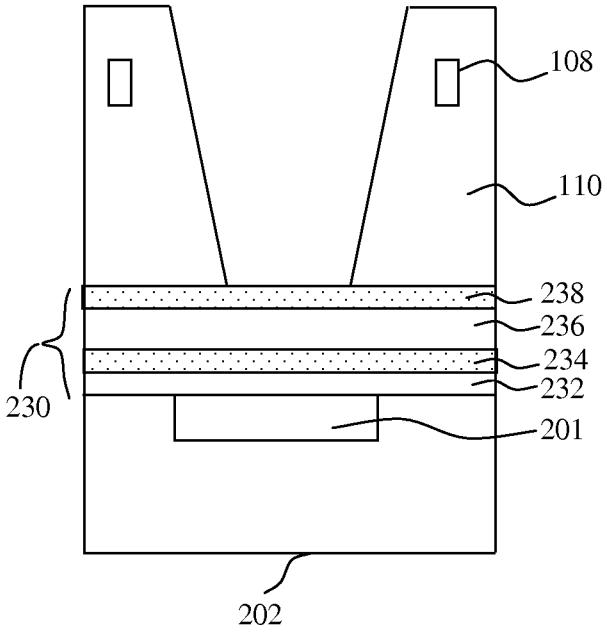


FIG. 12D

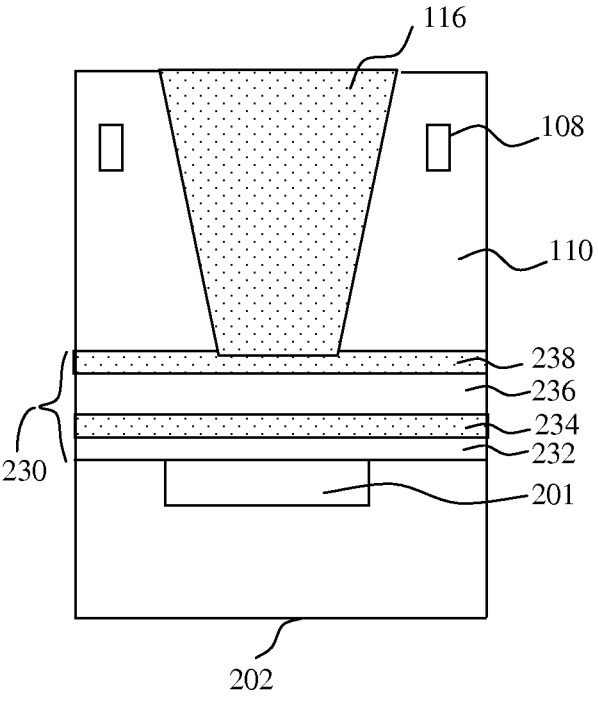


FIG. 12E

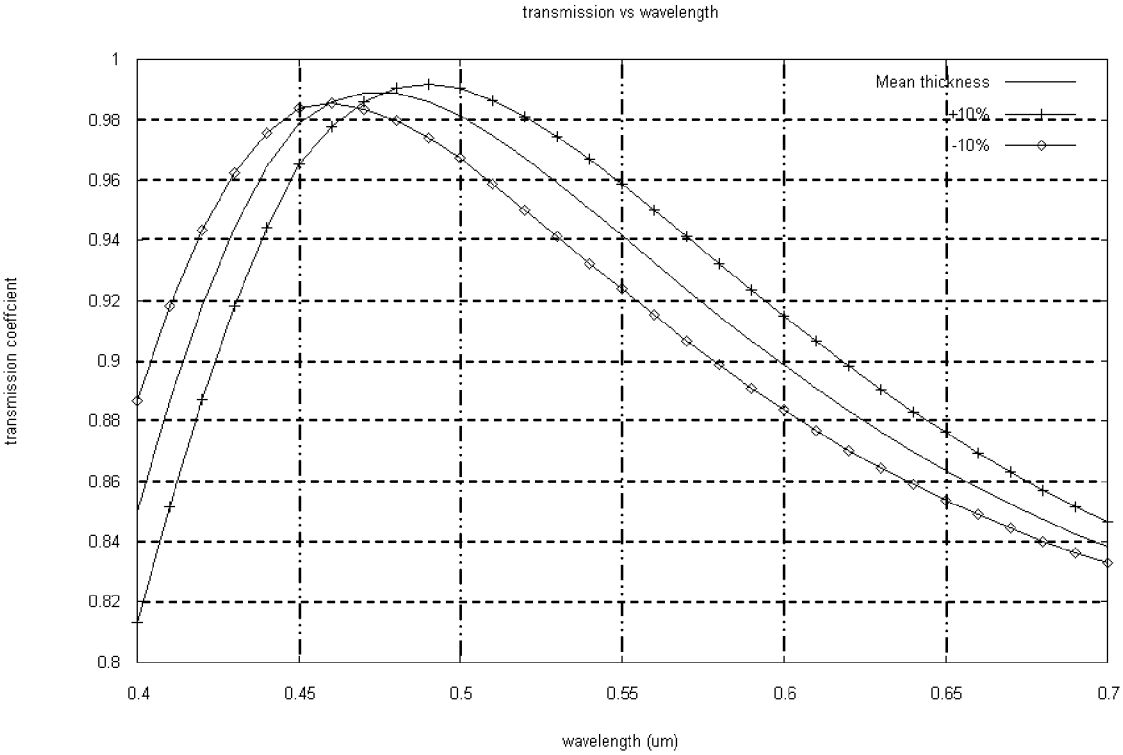


FIG. 13A

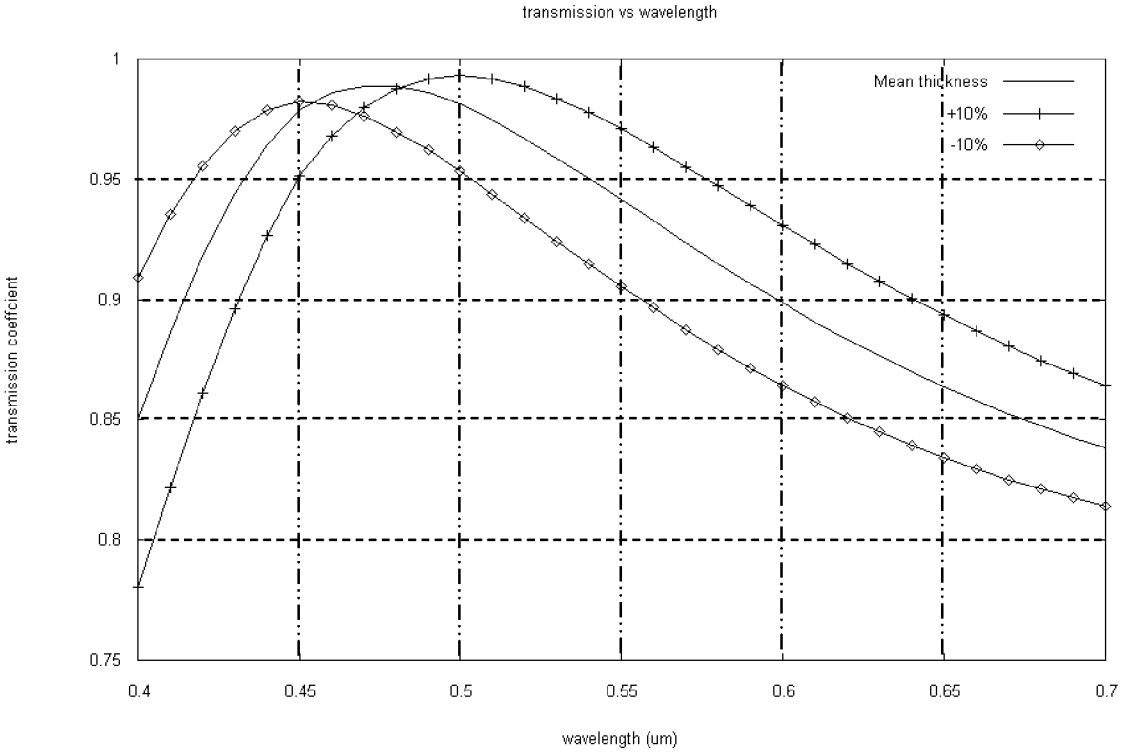


FIG. 13B

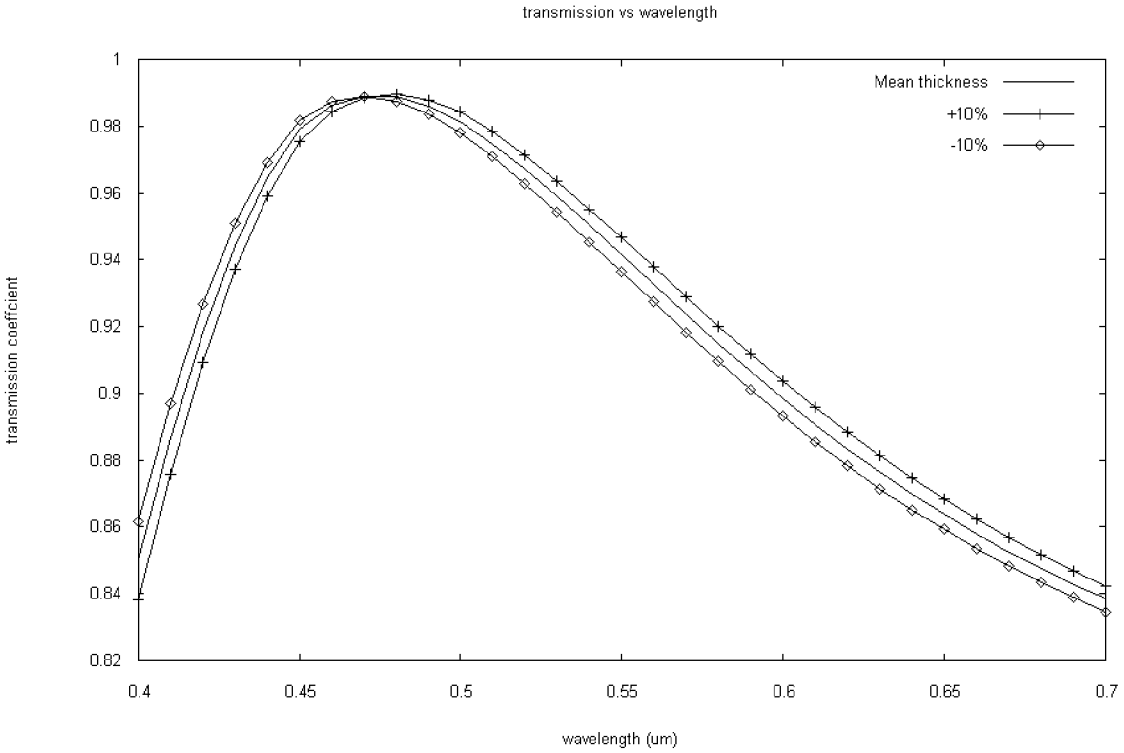

transmission vs wavelength
Mean thickness
+10%
-10%
transmission coefficient
wavelength (um)
1
0.98
0.96
0.94
0.92
0.9
0.88
0.86
0.84
0.82
0.4
0.45
0.5
0.55
0.6
0.65
0.7

FIG. 13C

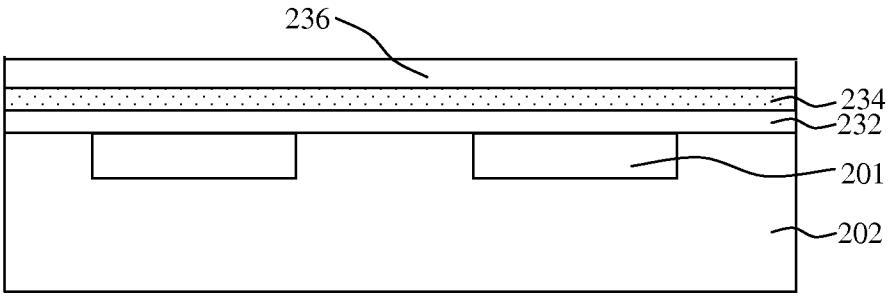


FIG. 14A

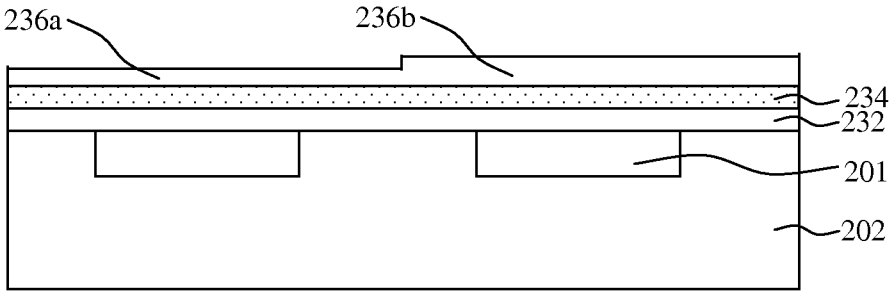


FIG. 14B

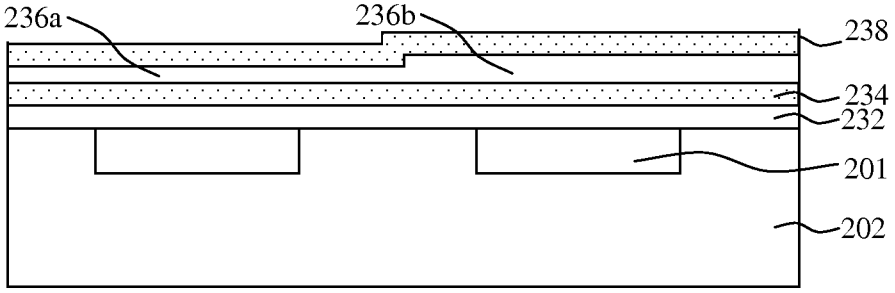


FIG. 14C

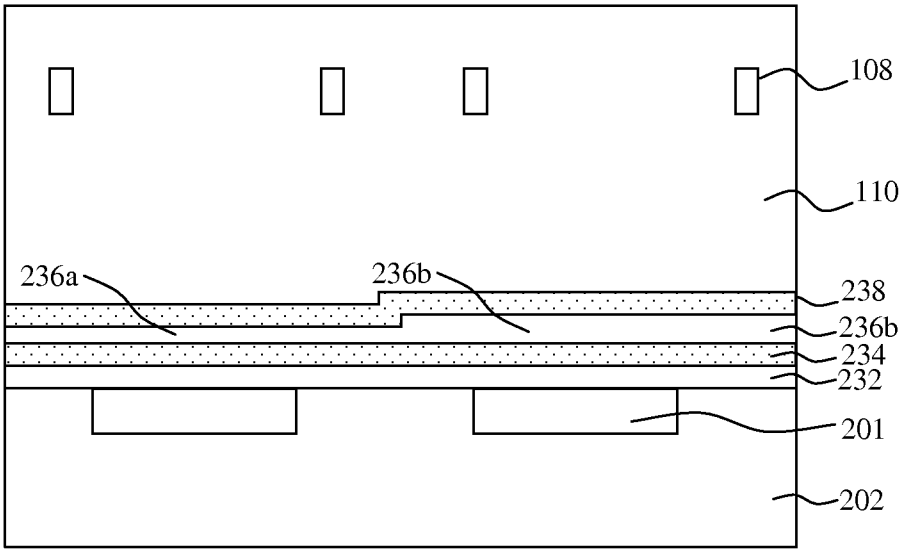


FIG. 14D

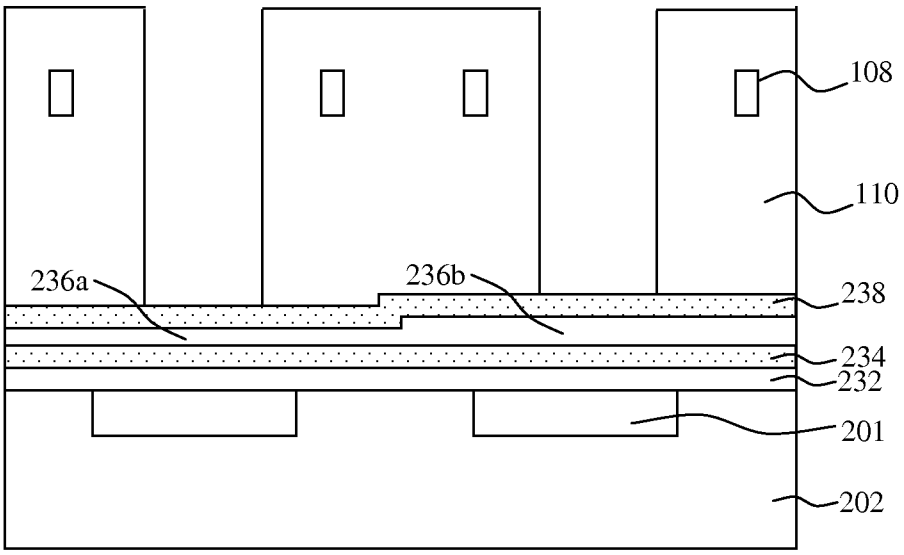


FIG. 14E

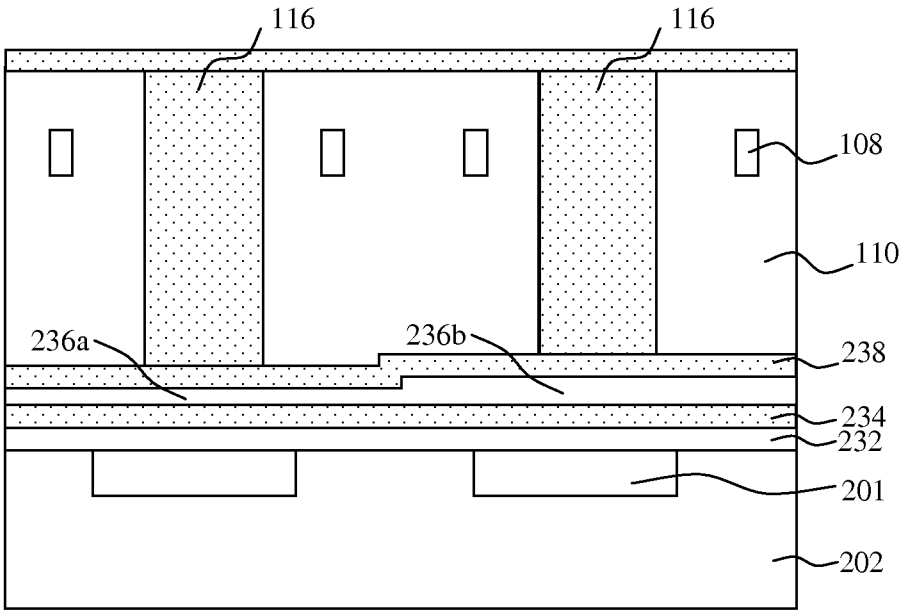


FIG. 14F

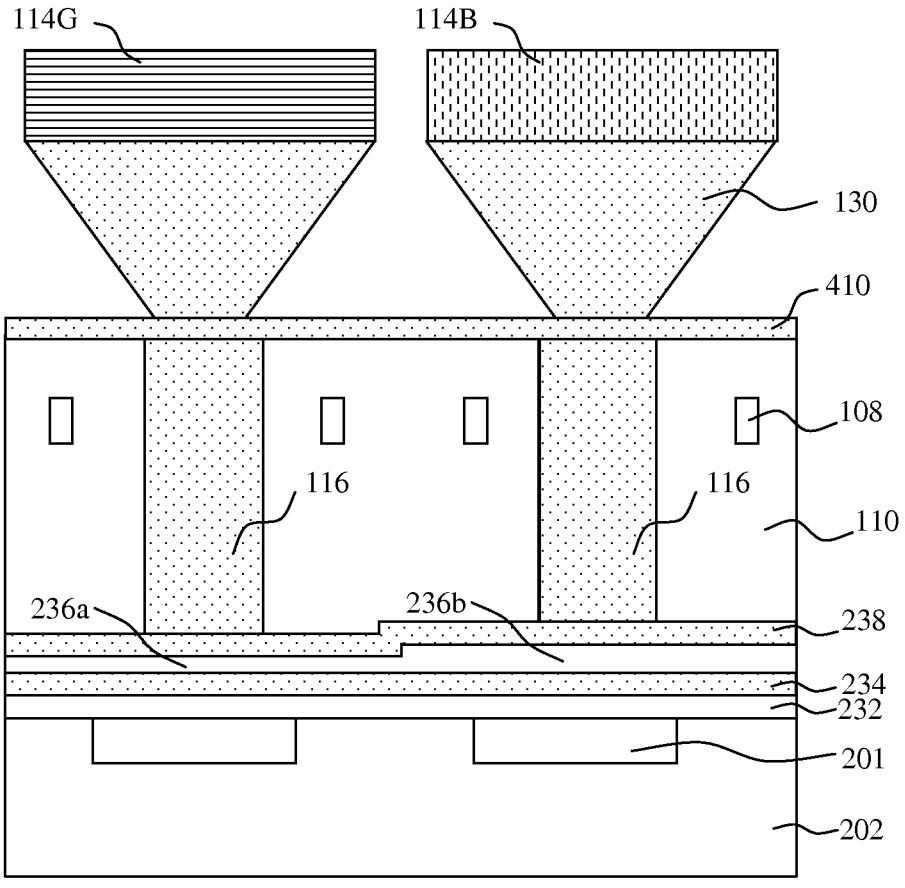


FIG. 14G

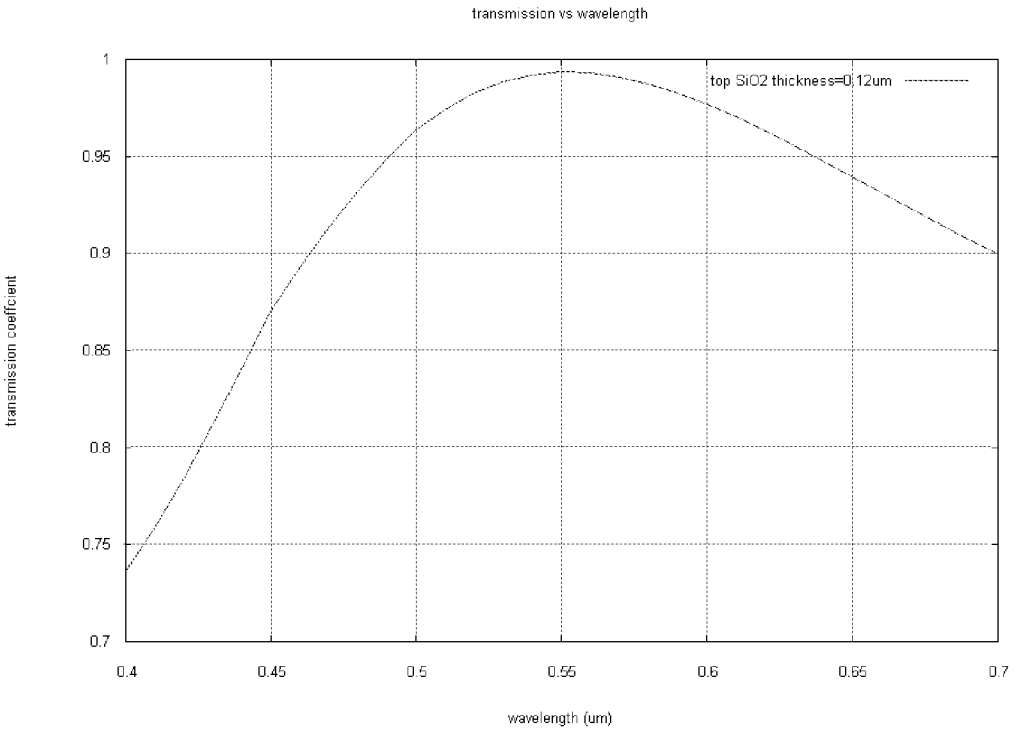


FIG. 15A

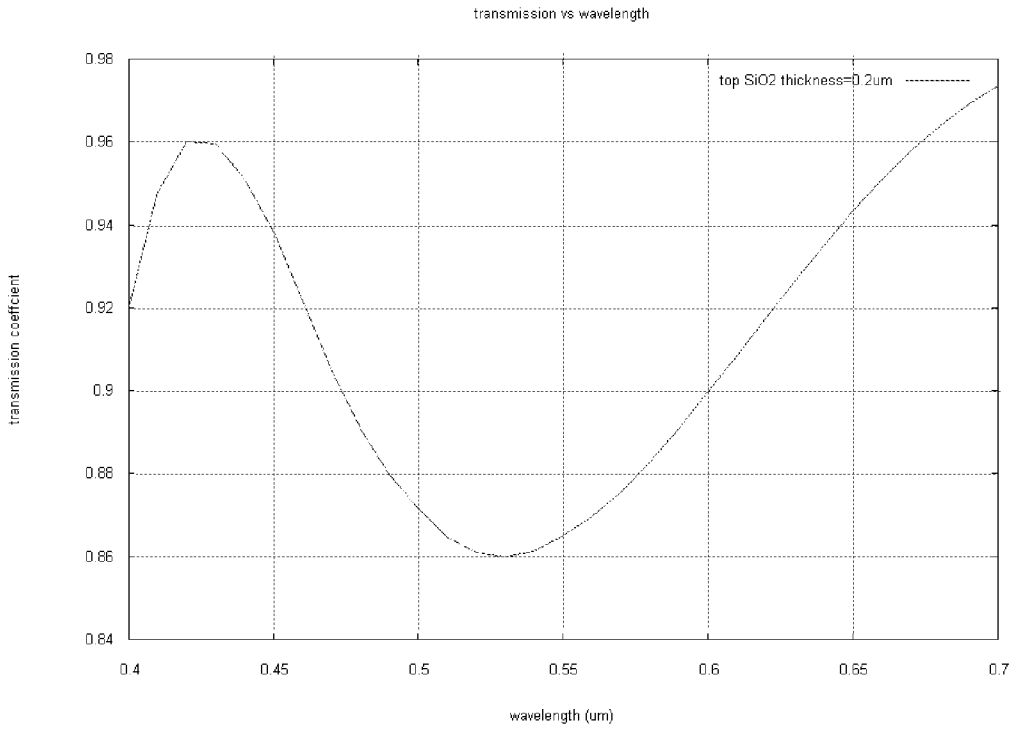


FIG. 15B