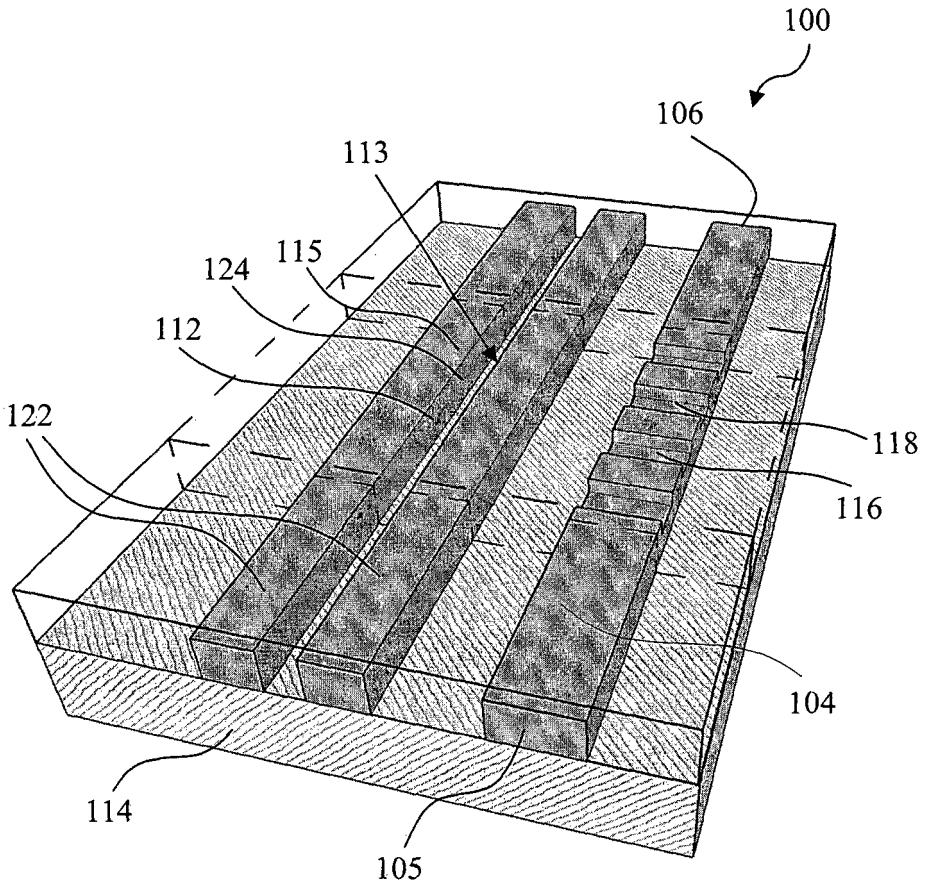

100
106
113
115
124
112
122
118
116
104
114
105

FIG. 1A

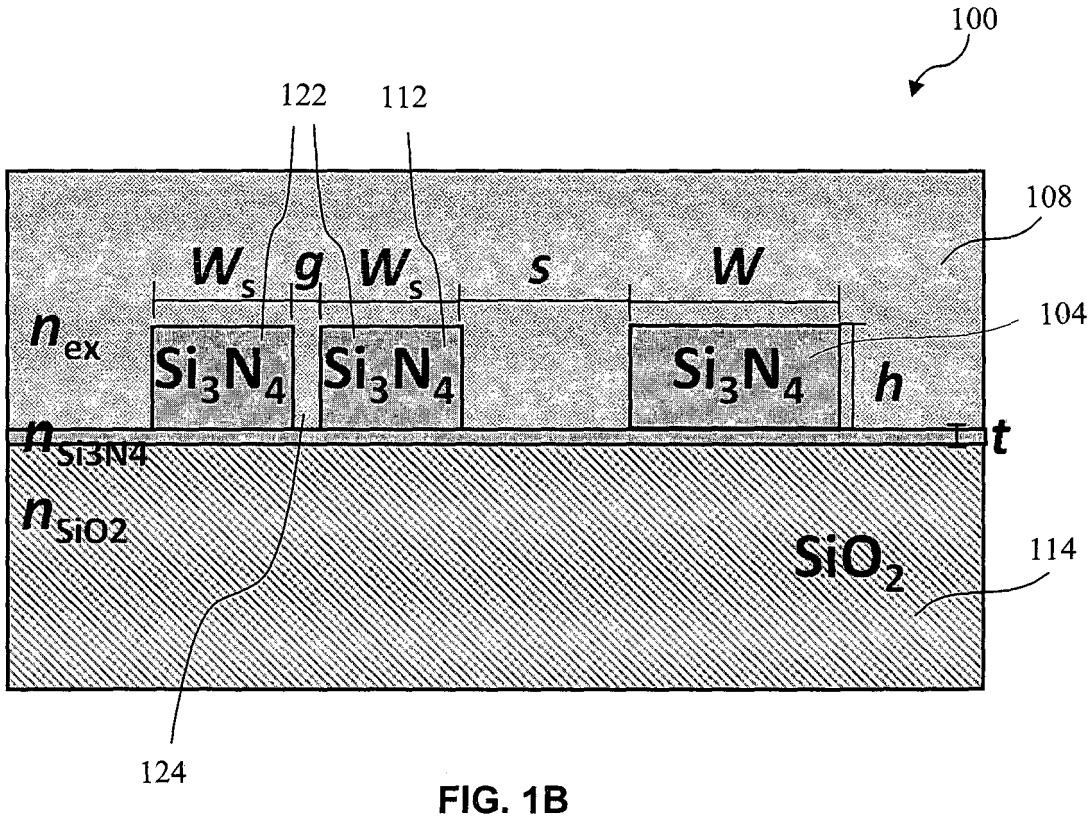

100
122
112
108
W_s
g
W_s
s
W
104
n_{ex}
Si_3N_4
Si_3N_4
Si_3N_4
h
t
n_{Si3N4}
n_{SiO2}
SiO_2
114
124

FIG. 1B

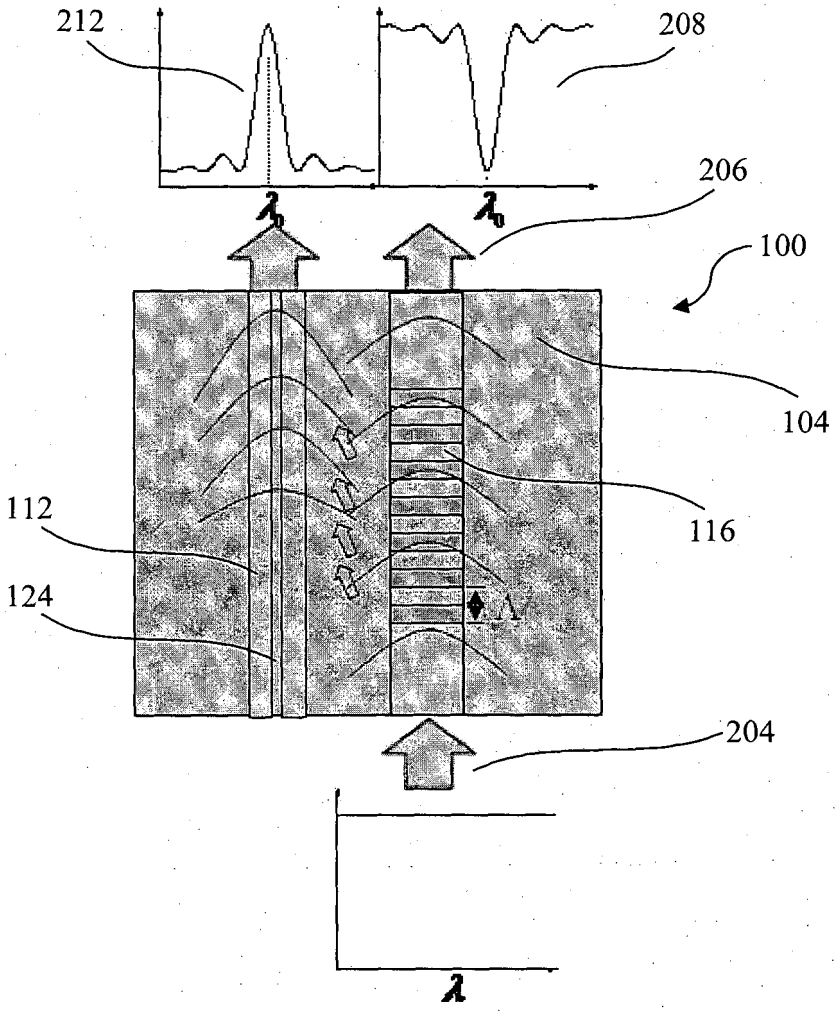


FIG. 2

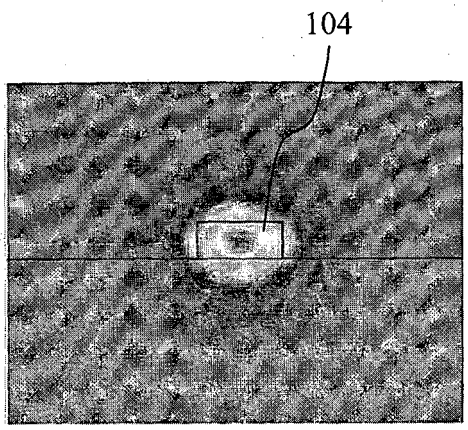


FIG. 3A

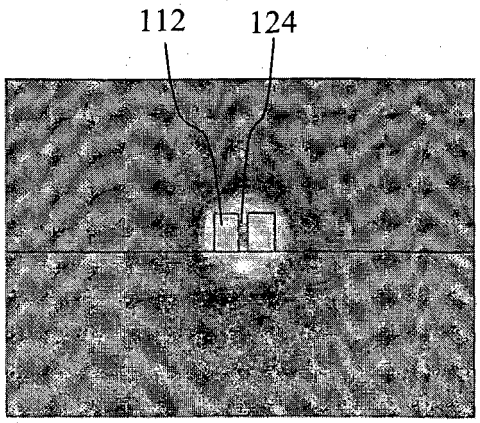


FIG. 3B

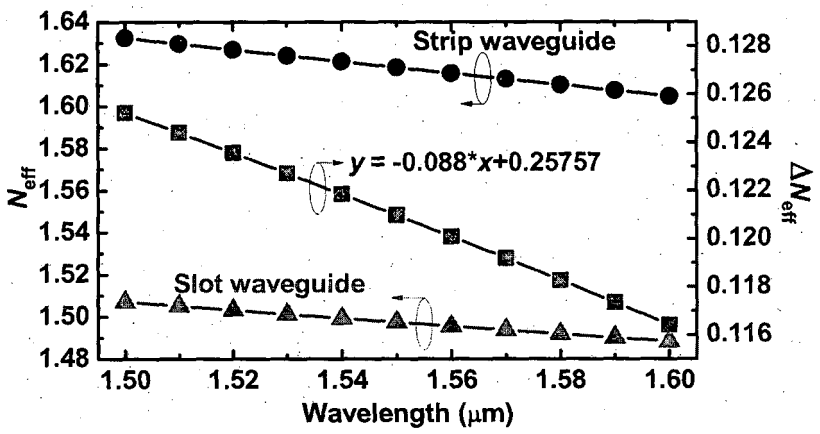


FIG. 3C

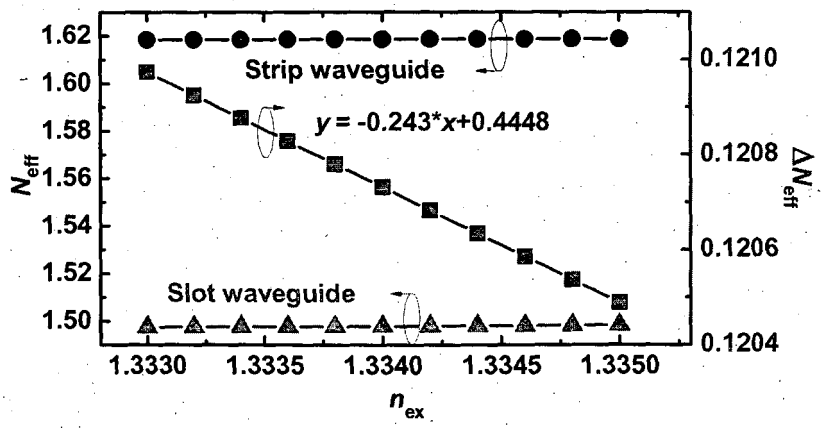


FIG. 3D

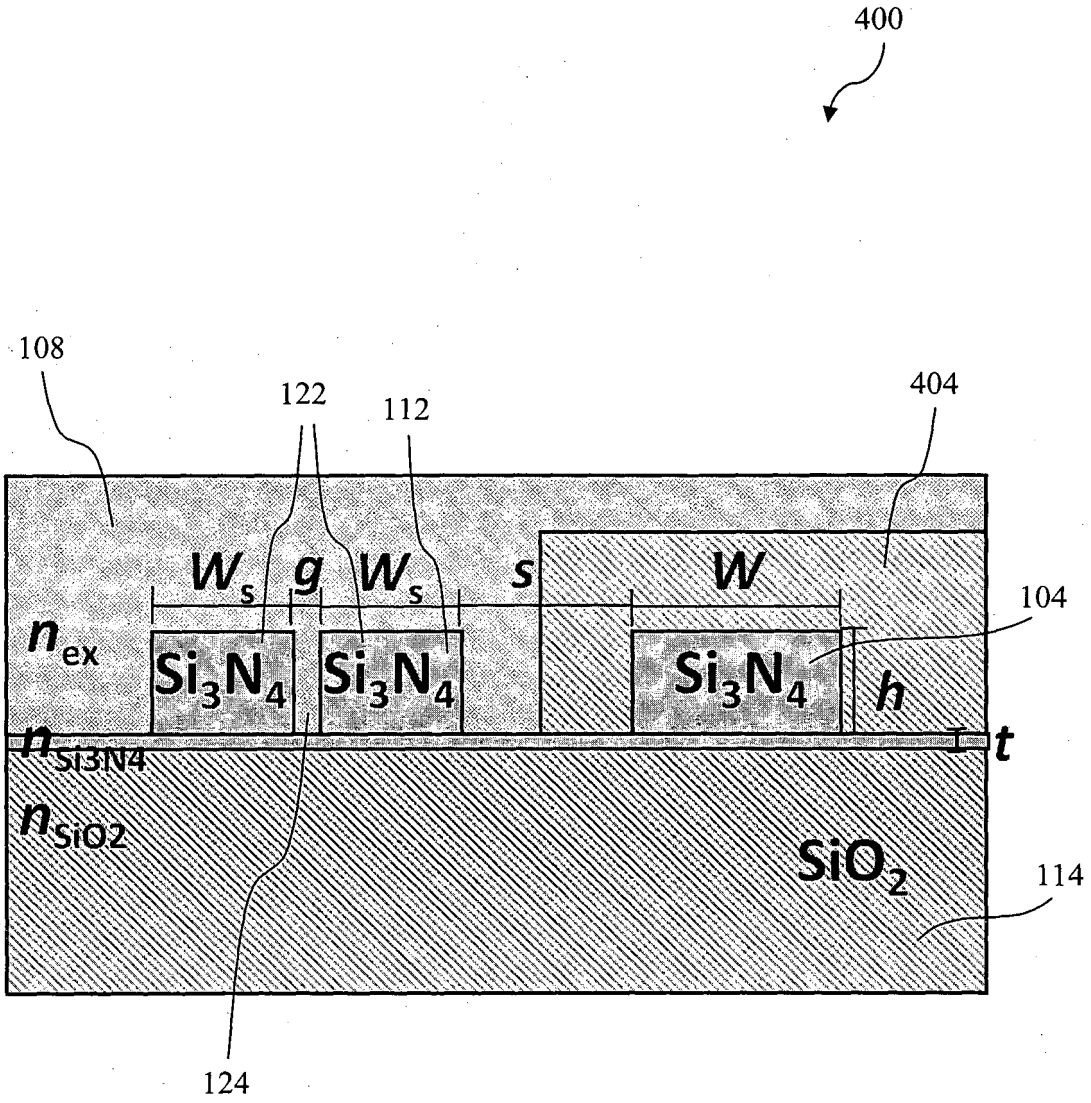

400
108
122
112
404
W_s
g
W_s
s
W
104
n_{ex}
Si_3N_4
Si_3N_4
Si_3N_4
h
t
n_{Si3N4}
n_{SiO2}
SiO_2
114
124

FIG. 4

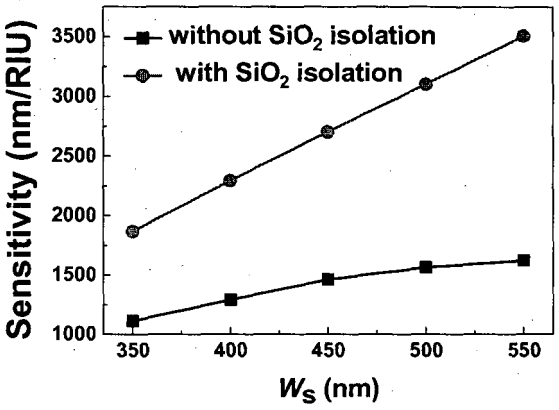


FIG. 5A

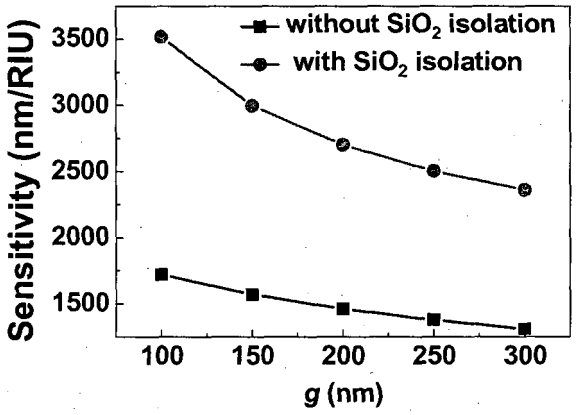


FIG. 5B

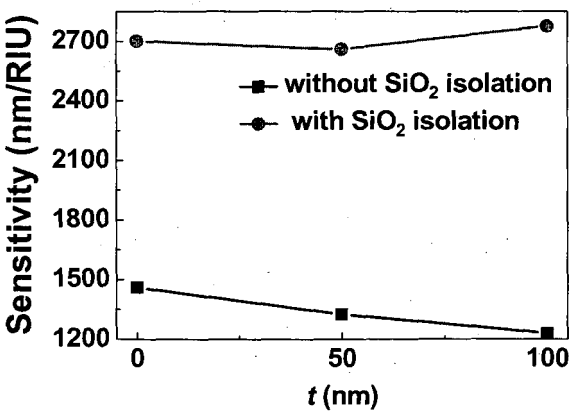


FIG. 5C

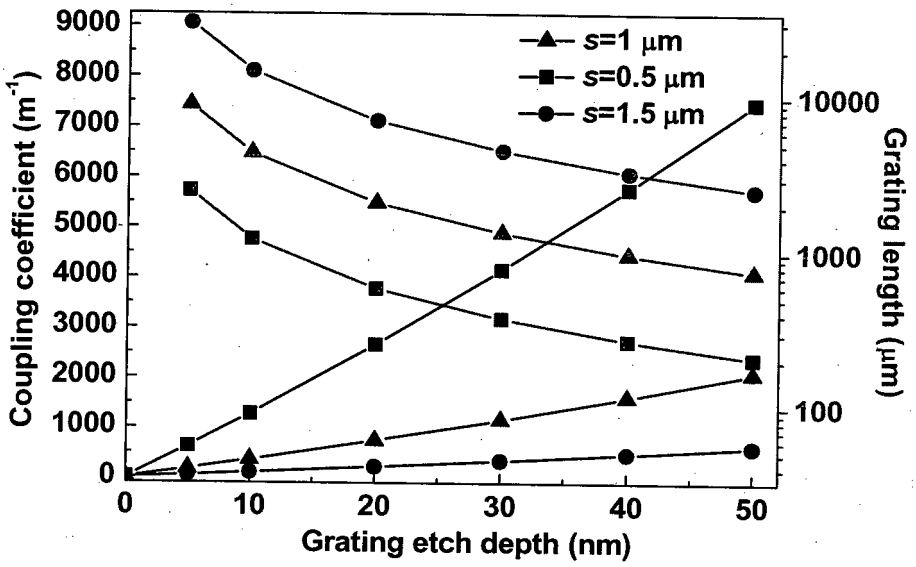

9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Coupling coefficient (m-1)
0
10
20
30
40
50
Grating etch depth (nm)
s=1 μm
s=0.5 μm
s=1.5 μm
10000
1000
100
Grating length (μm)

FIG. 6

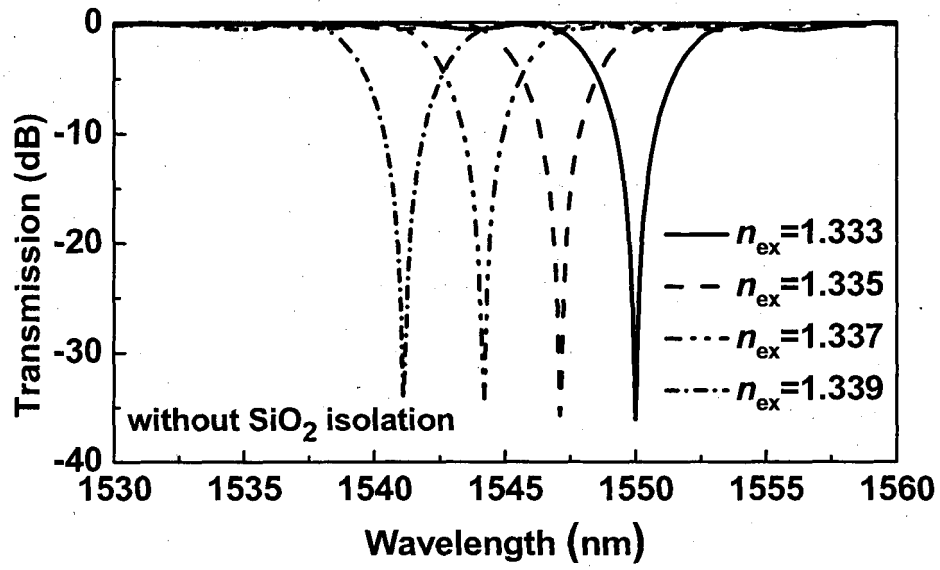


FIG. 7A

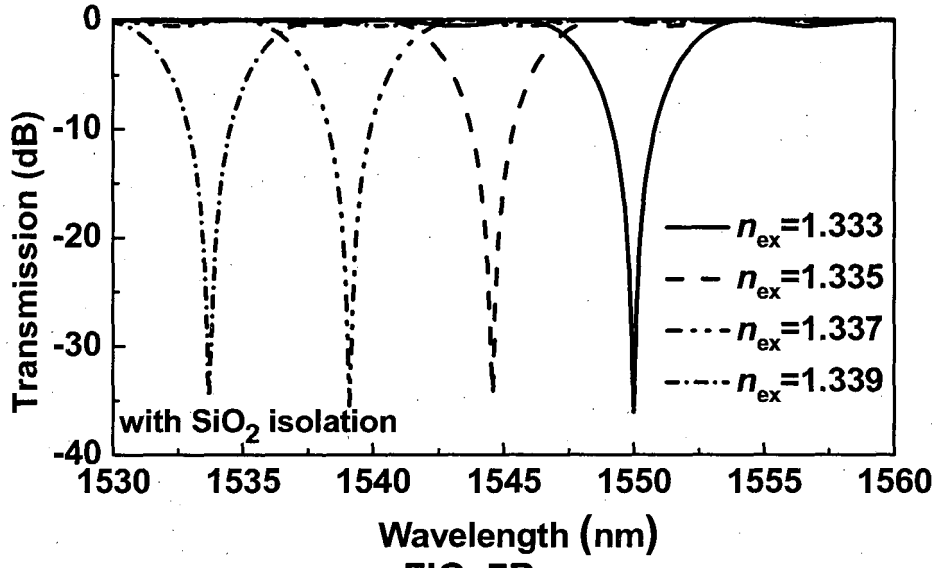


FIG. 7B

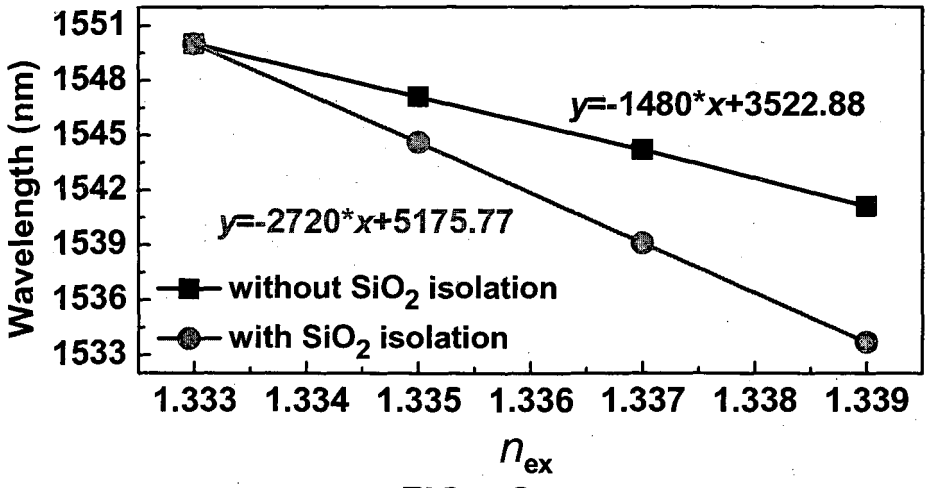


FIG. 7C

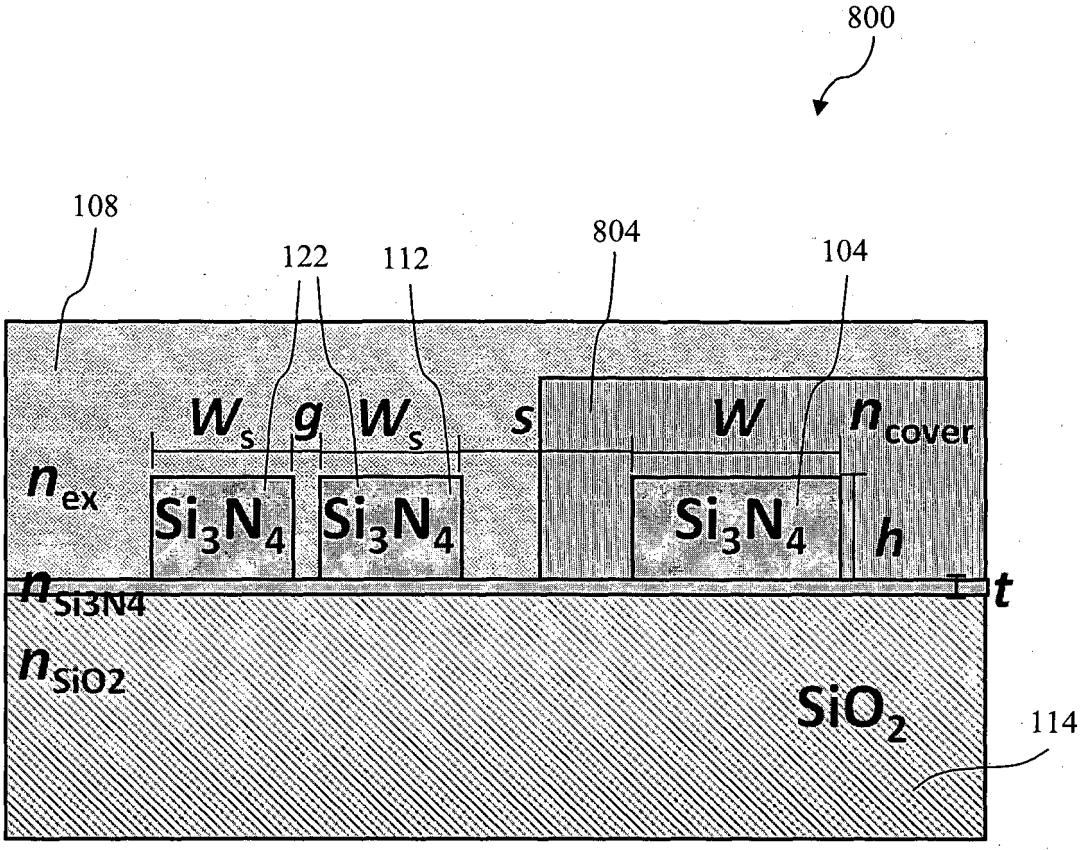

800
108
122
112
804
104
W_s
g
W_s
s
W
n_{cover}
n_{ex}
Si_3N_4
Si_3N_4
Si_3N_4
h
t
n_{Si3N4}
n_{SiO2}
SiO_2
114

FIG. 8A

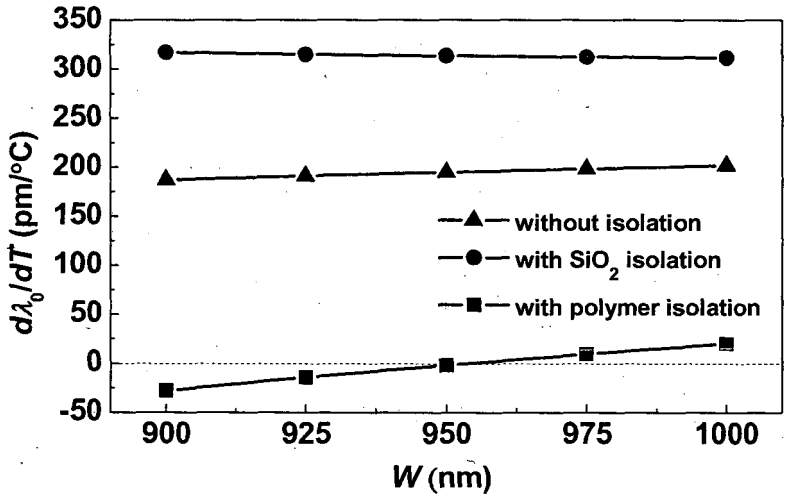

350
300
250
200
150
100
50
0
-50
900
925
950
975
1000
$d\lambda_0/dT$ (pm/°C)
W (nm)
without isolation
with SiO_2 isolation
with polymer isolation

FIG. 8B

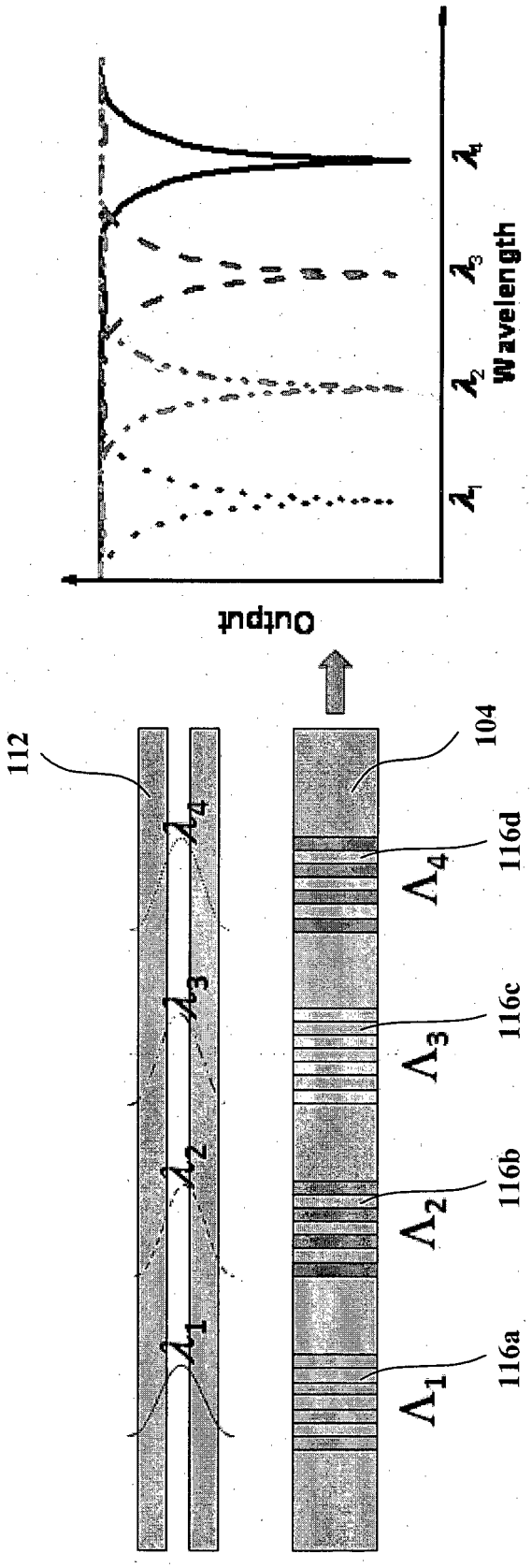

Output
Wavelength
λ1
λ2
λ3
λ4
112
104
116a
116b
116c
116d
Λ1
Λ2
Λ3
Λ4
900

FIG. 9

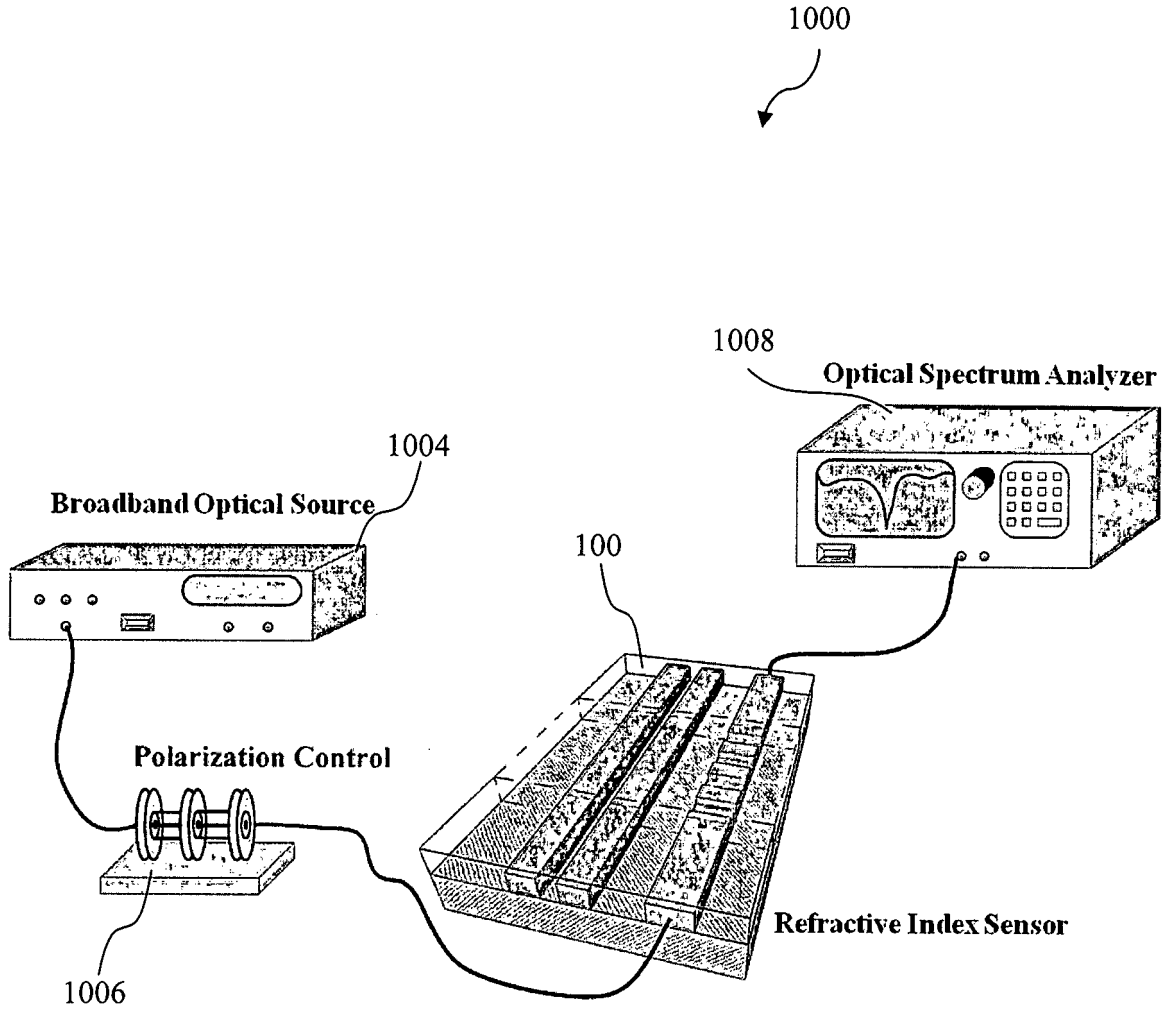

1000
1008
Optical Spectrum Analyzer
1004
Broadband Optical Source
100
Polarization Control
Refractive Index Sensor
1006

FIG. 10

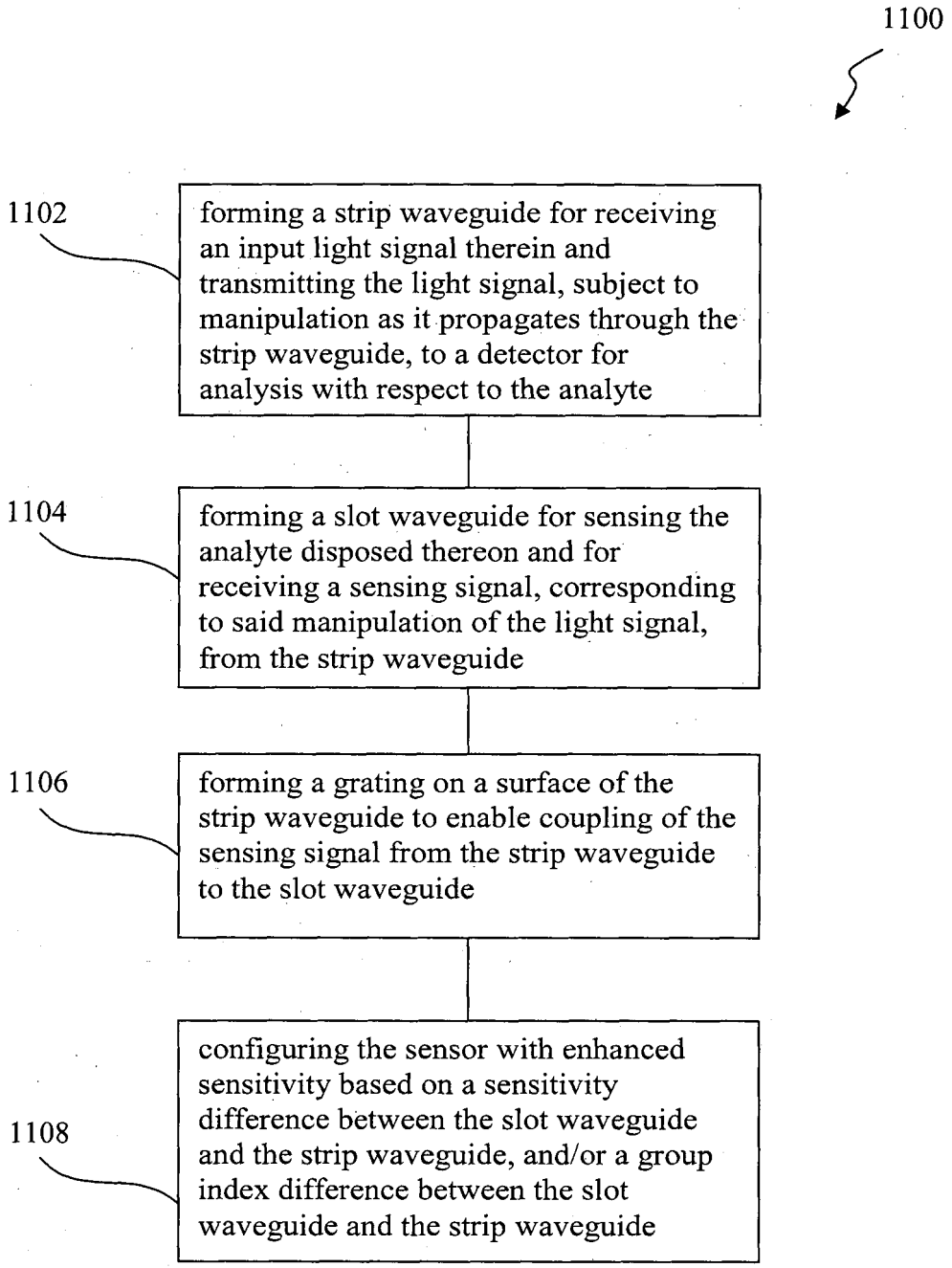

1100
1102
forming a strip waveguide for receiving an input light signal therein and transmitting the light signal, subject to manipulation as it propagates through the strip waveguide, to a detector for analysis with respect to the analyte
1104
forming a slot waveguide for sensing the analyte disposed thereon and for receiving a sensing signal, corresponding to said manipulation of the light signal, from the strip waveguide
1106
forming a grating on a surface of the strip waveguide to enable coupling of the sensing signal from the strip waveguide to the slot waveguide
1108
configuring the sensor with enhanced sensitivity based on a sensitivity difference between the slot waveguide and the strip waveguide, and/or a group index difference between the slot waveguide and the strip waveguide

FIG. 11