

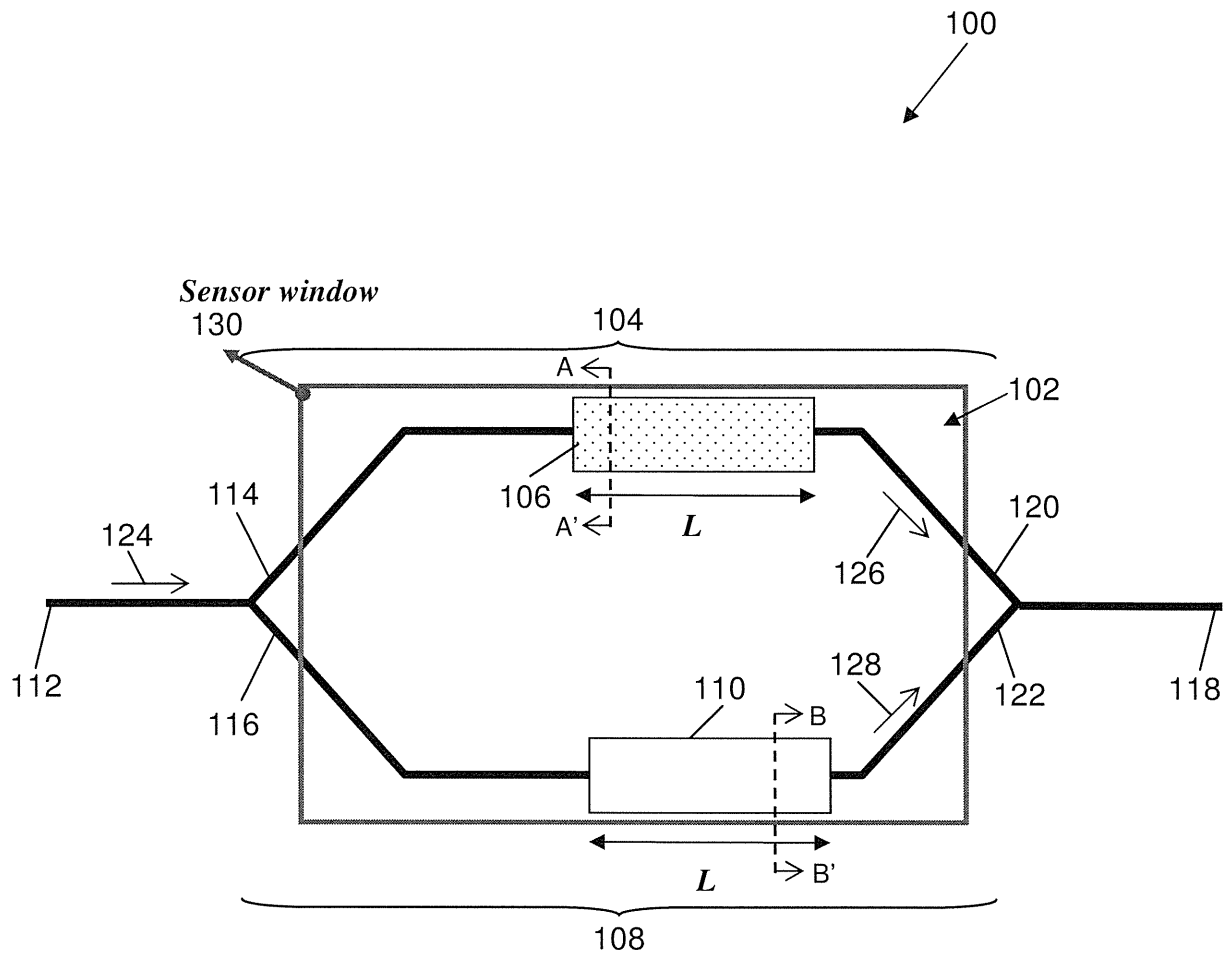


Figure 1

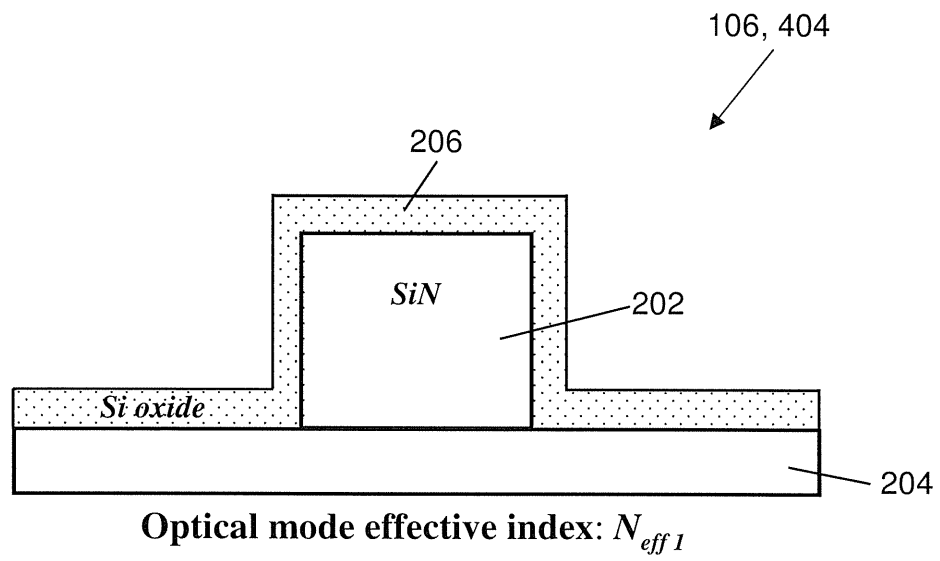


Figure 2

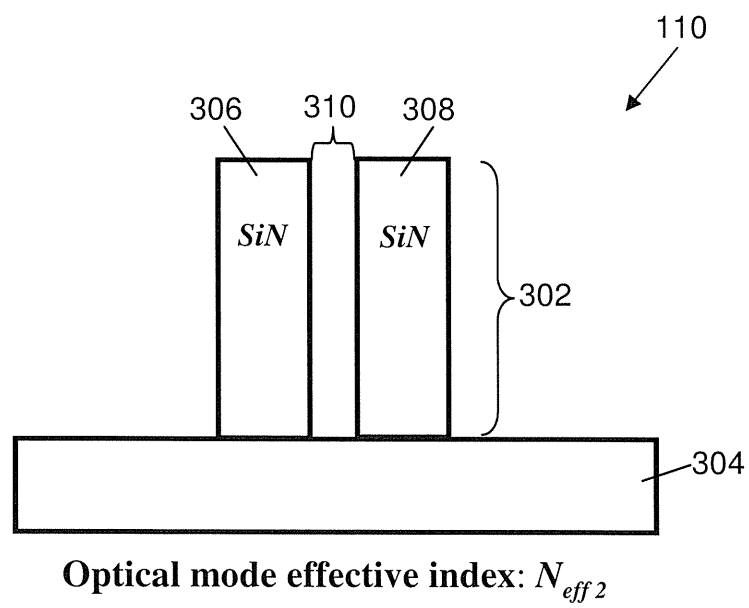


Figure 3

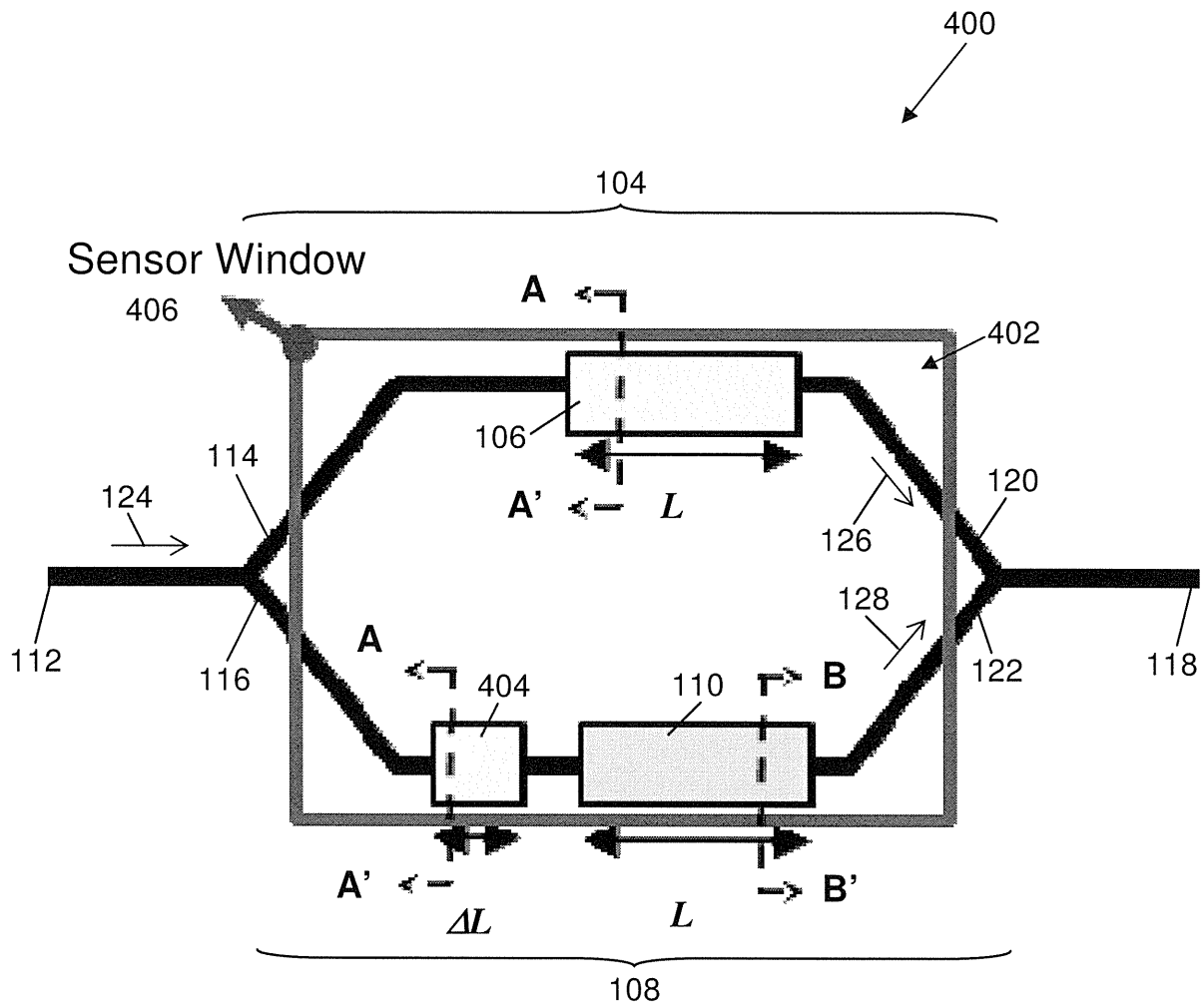


Figure 4

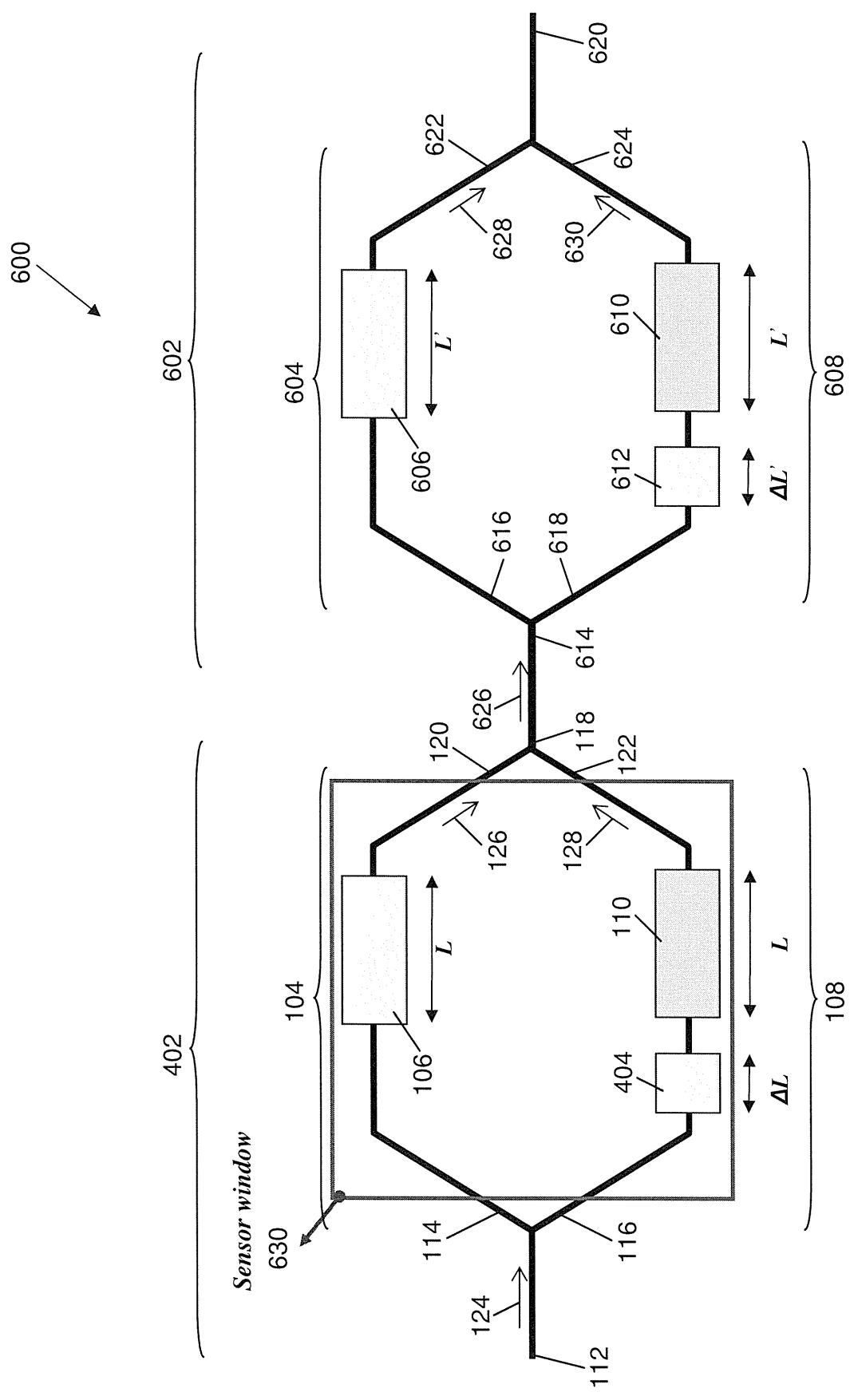


Figure 6

700
↙

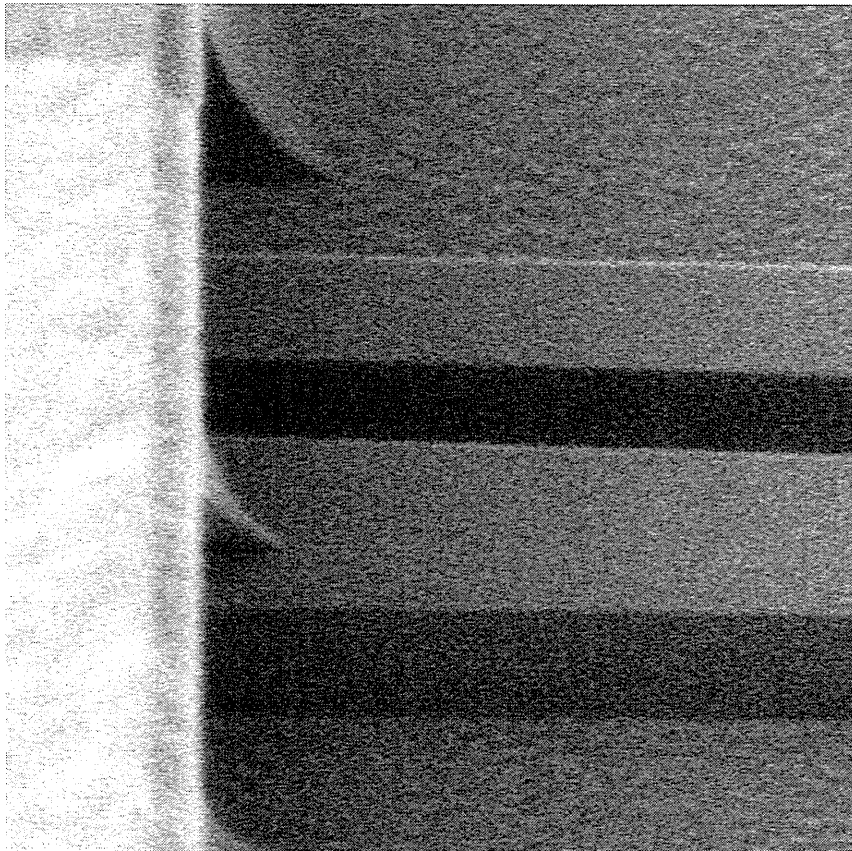


Figure 7

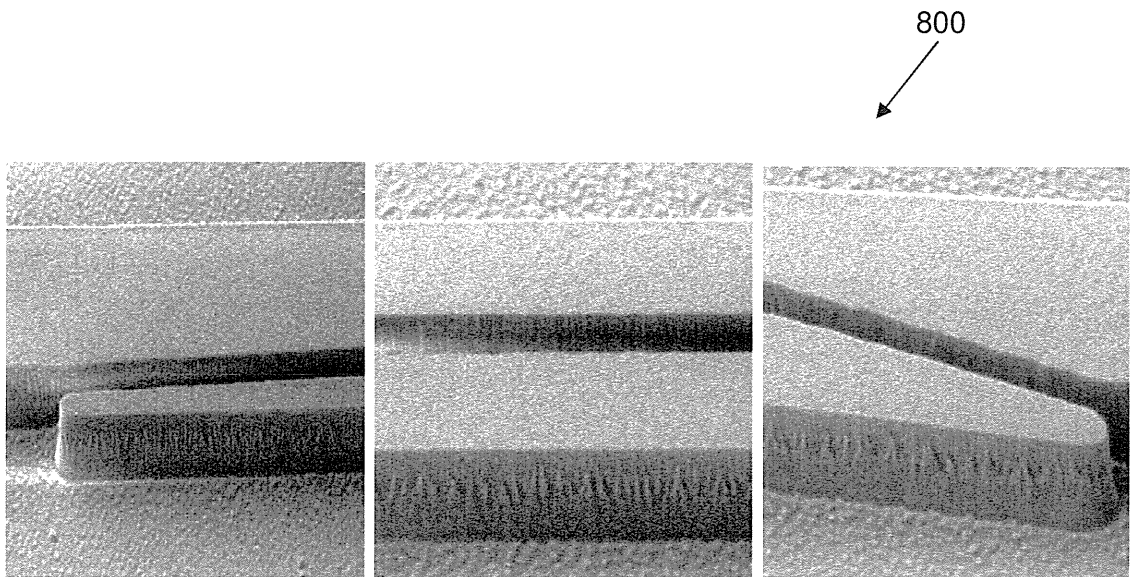


Figure 8a

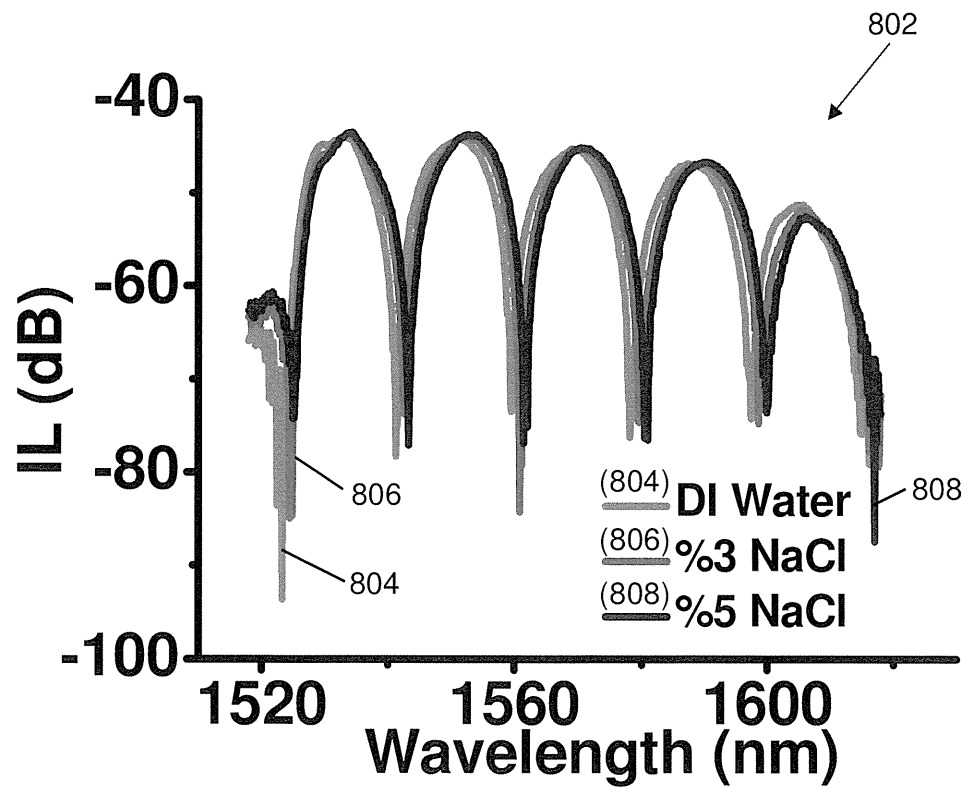


Figure 8b

900
↙

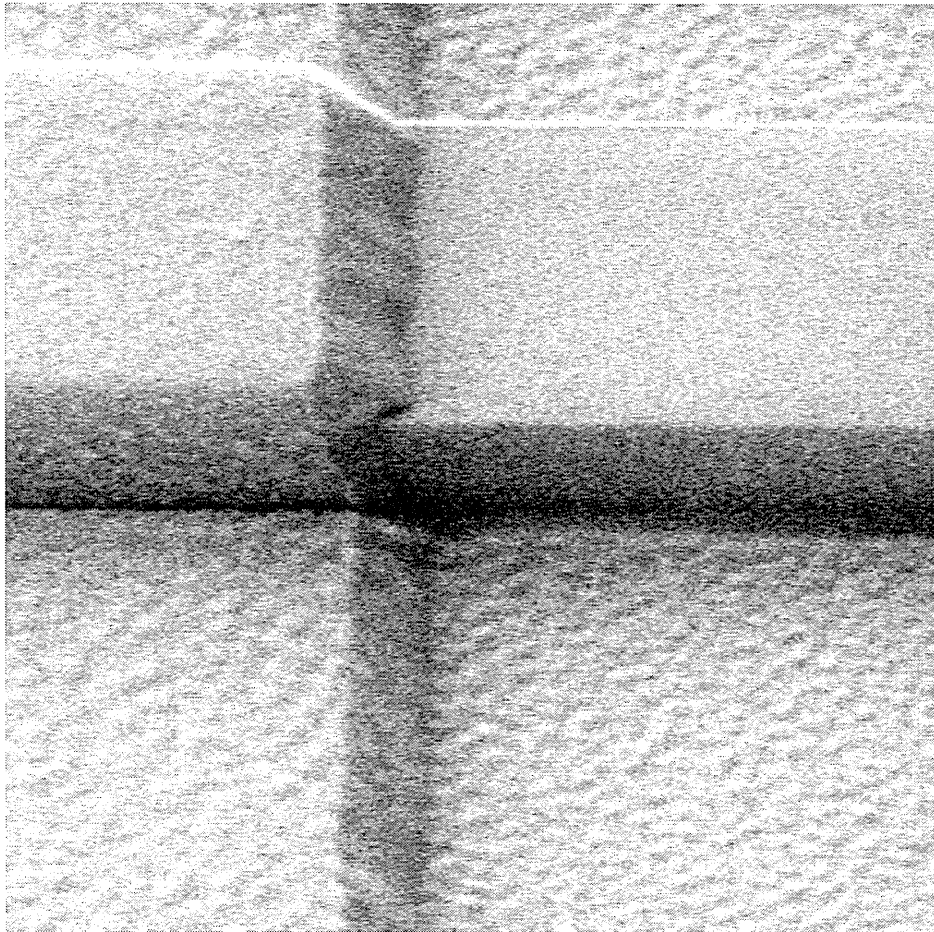


Figure 9

1000
↙

1002	1004	1006	1008	1010	
Cladding layer	Simulated Group index of silicon nitride strip waveguide (n_{g_strip})	Simulated Group index of silicon nitride slot waveguide (n_{g_slot})	Simulated Group index difference ($n_{g_strip} -$ n_{g_slot})	Measured Group index difference ($n_{g_strip} -$ n_{g_slot})	
<i>Air cladding</i> ($n_{air}=1.0$)	2.0600	1.5410	0.5210	0.5309	1012
<i>Water cladding</i> ($n_{water}=1.311$ 9)	2.0299	1.7700	0.2599	0.2609	1014
<i>Oxide cladding</i> ($n_{oxide}=1.46$)	2.0000	1.8100	0.1900	0.1827	1016

Figure 10

1100
↙

1102 /	1104 /	1106 /	1108 /	1110 /	1112 /
Width of the strip waveguide (cross section AA') W_{strip}	Simulated Group index of silicon nitride strip waveguide ($n_{\text{g_strip}}$)	Simulated thermal optic coefficient ($\partial n_{\text{g_strip}}/\partial T$)	Simulated Group index of silicon nitride slot waveguide ($n_{\text{g_slot}}$)	Simulated thermal optic coefficient ($\partial n_{\text{g_slot}}/\partial T$)	$\Delta L(\mu\text{m})$ for a giving $L=1\text{mm}$
$W_{\text{strip}}=1.00\mu\text{m}$	2.0276	3.40e-5	1.7700	2.00e-5	411.765
$W_{\text{strip}}=0.70\mu\text{m}$	1.9754	2.90e-5	1.7700	2.00e-5	310.345
$W_{\text{strip}}=0.55\mu\text{m}$	1.8845	2.45e-5	1.7700	2.00e-5	183.673
$W_{\text{strip}}=0.50\mu\text{m}$	1.8380	2.30e-5	1.7700	2.00e-5	130.435

1114
1116
1118
1120

Figure 11

1200
↙

Width of the strip waveguide (cross section AA') W_{strip}	FSR1 (nm) of the sensing MZI with $L_{\text{sen}}=7\text{mm}$	$\Delta L_{\text{sen}}(\mu\text{m})$ for a giving $L_{\text{sen}}=7\text{mm}$ in the sensing MZI	FSR2 (nm) of the reference MZI	L_{ref} (mm) in the reference MZI
$W_{\text{strip}}=1.00\mu\text{m}$	0.54	2,882.355	0.52	25.2884
			0.54	24.3518
			0.56	23.4821

Figure 12

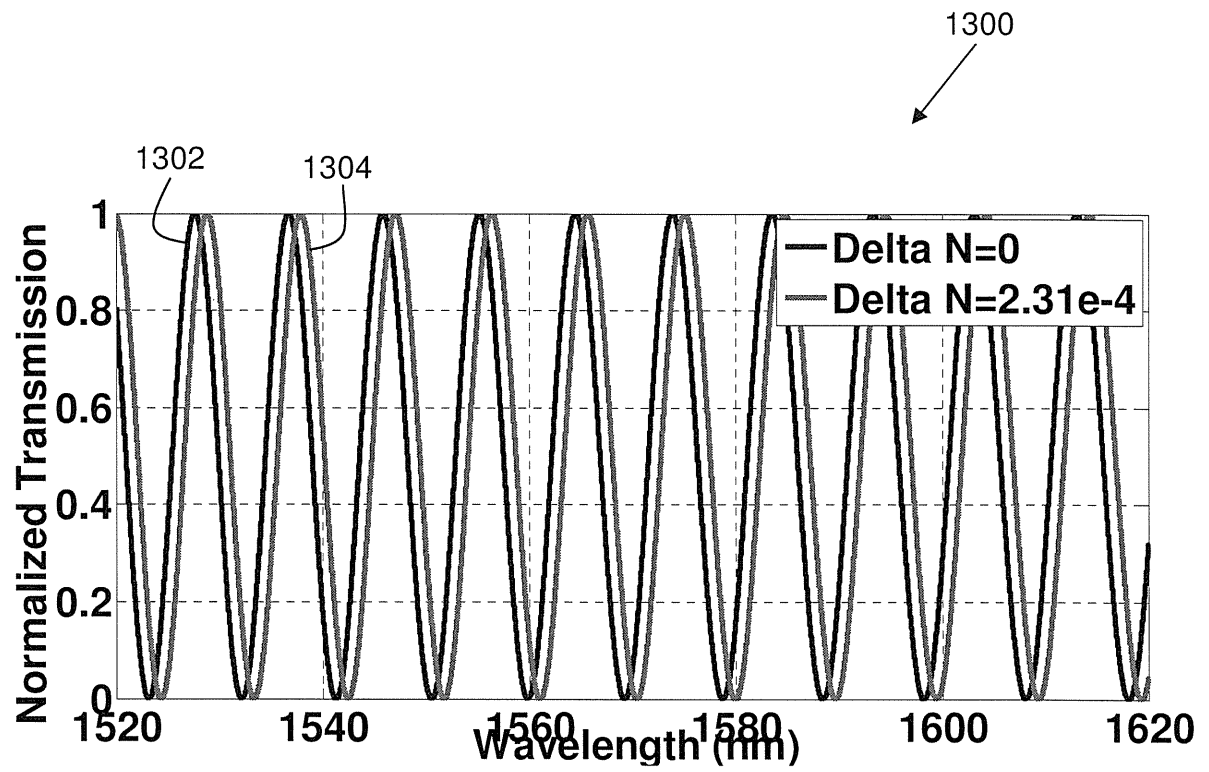


Figure 13

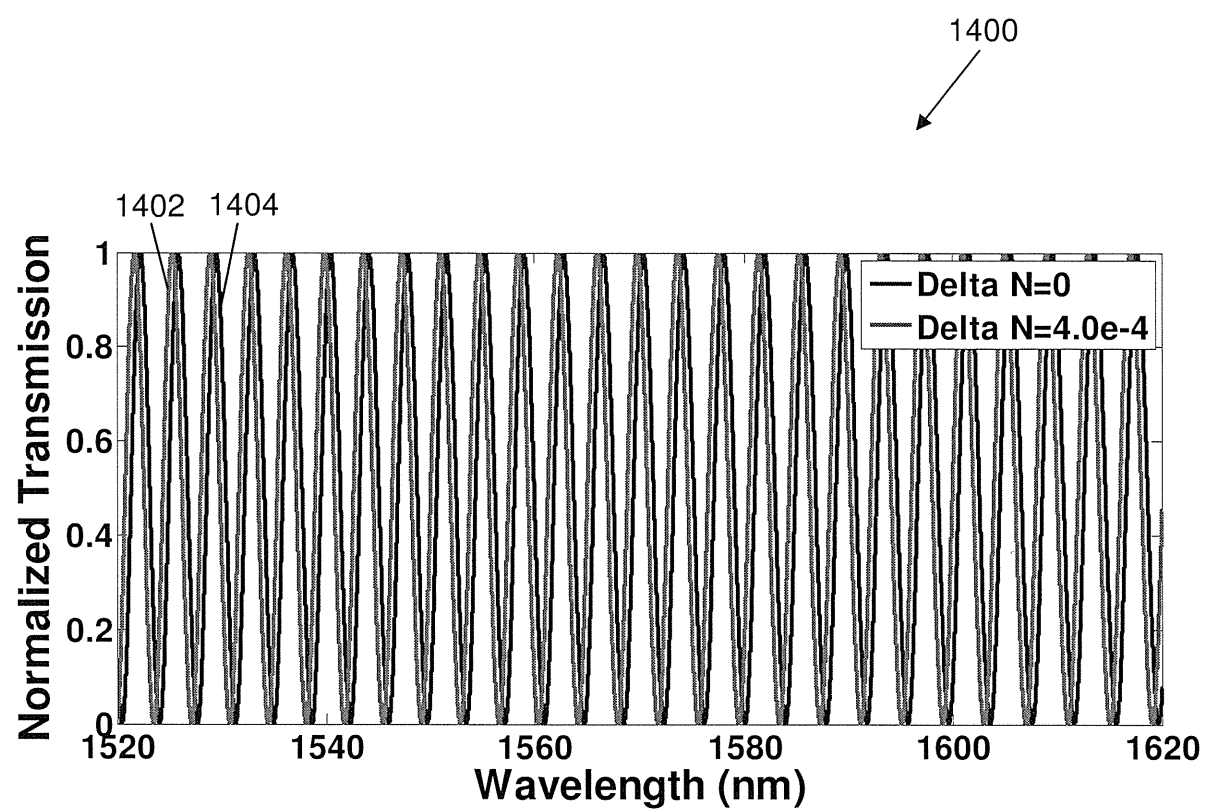


Figure 14

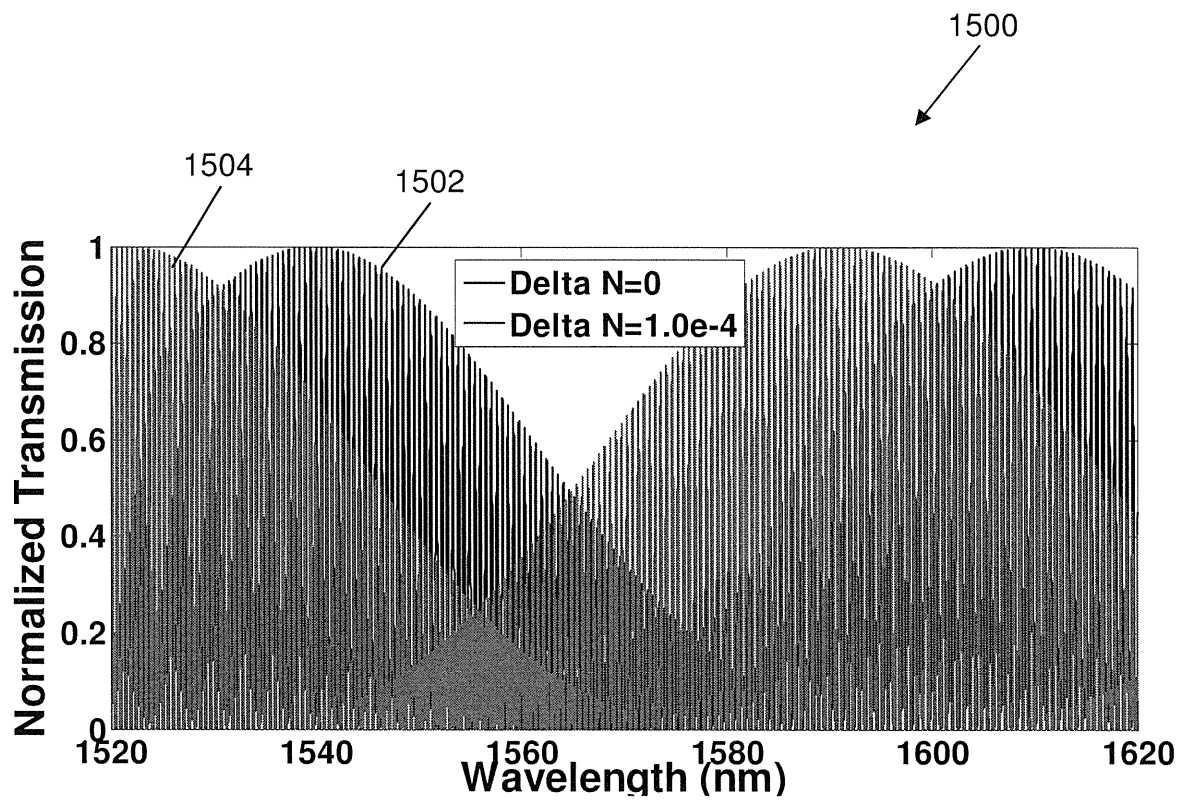


Figure 15

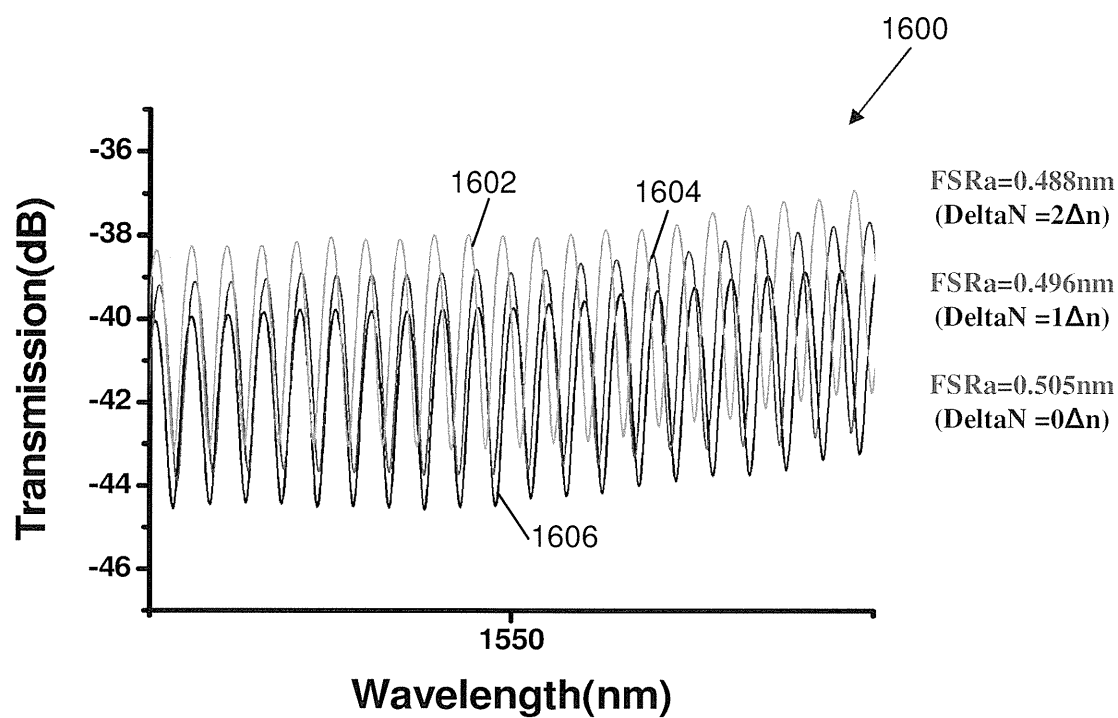


Figure 16

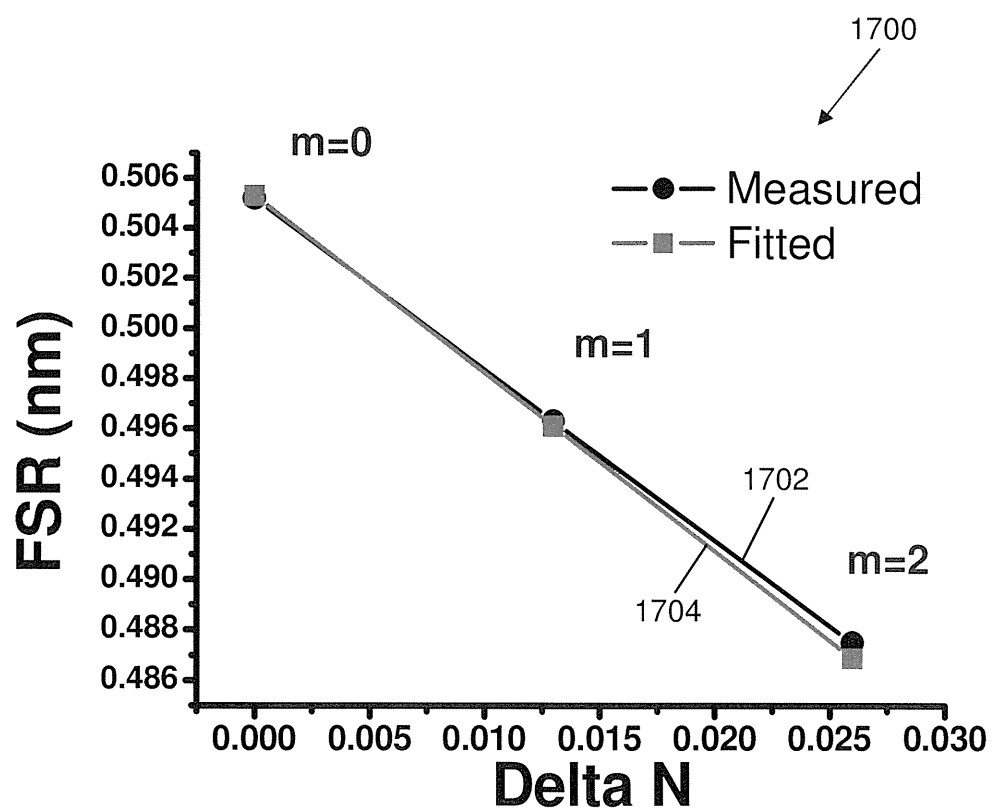


Figure 17

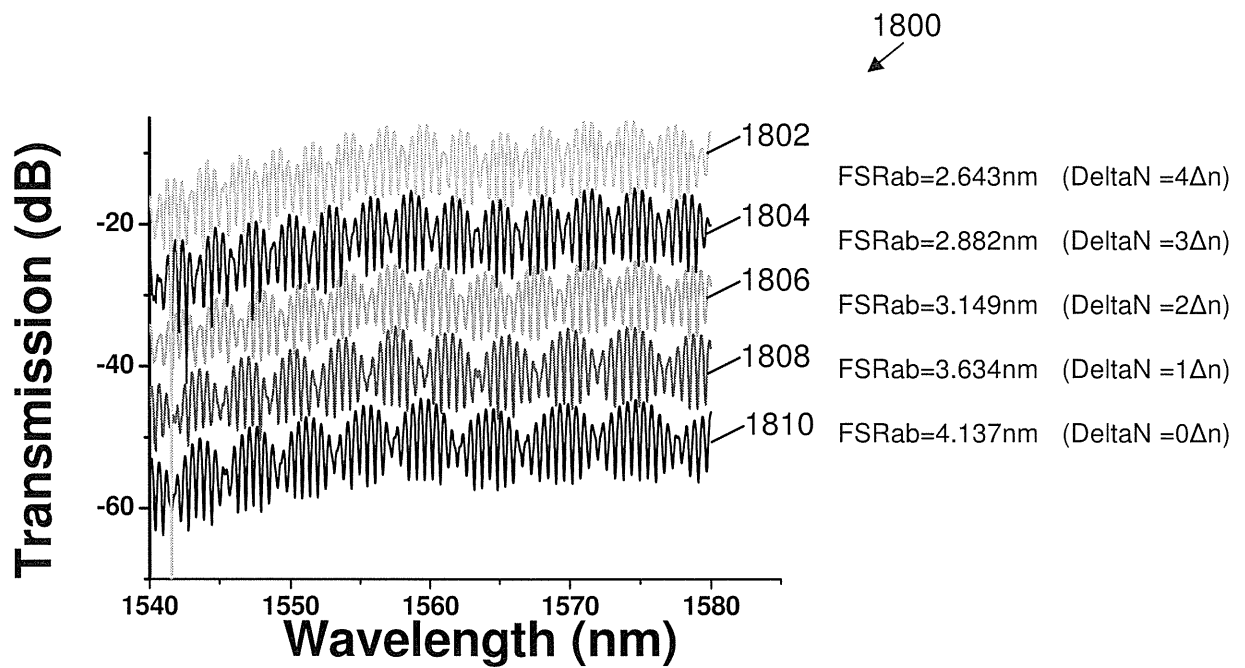


Figure 18

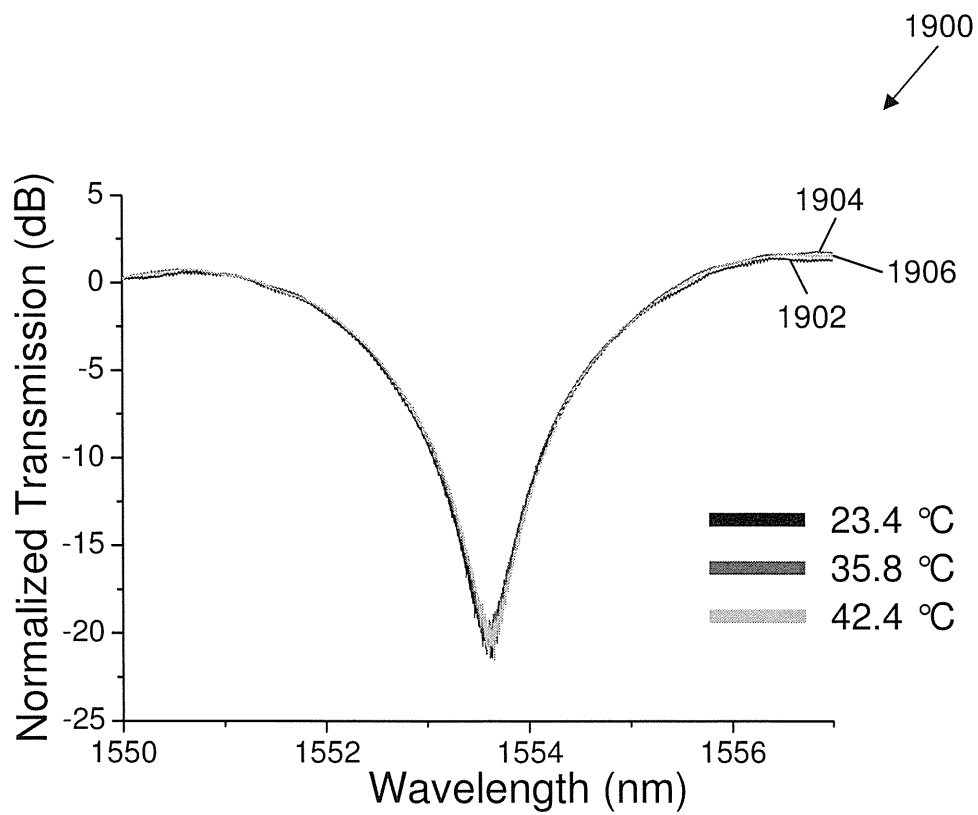


Figure 19