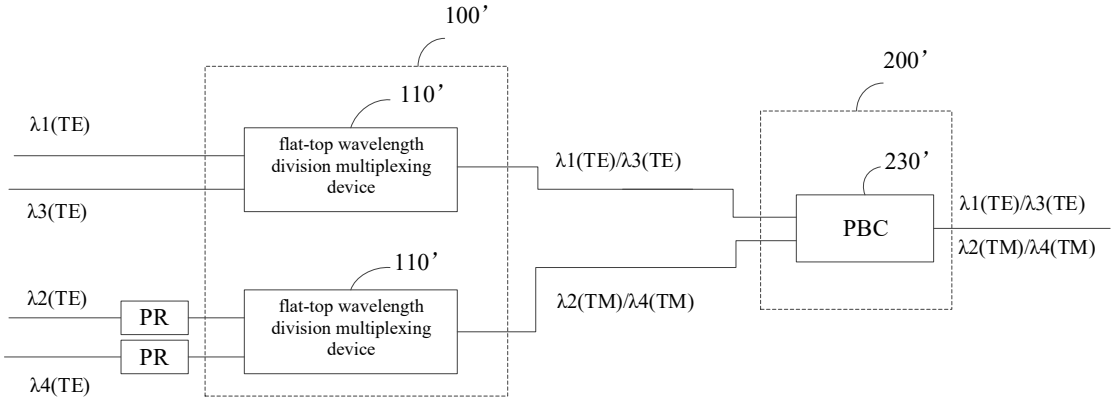
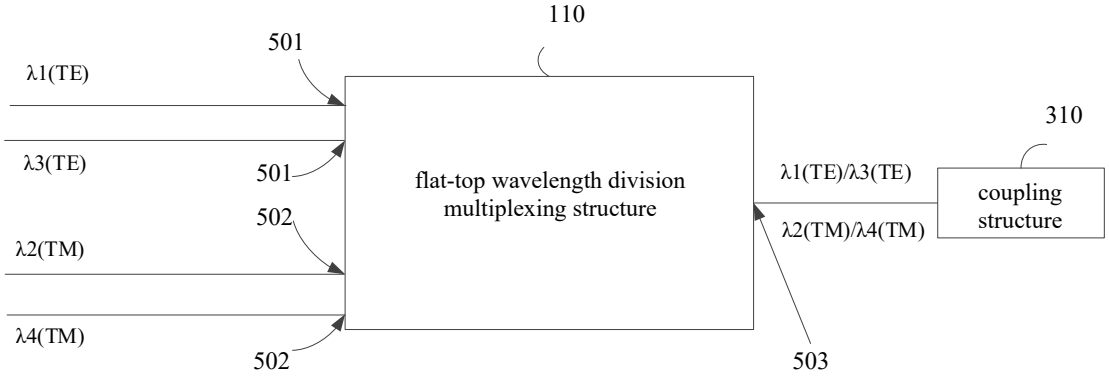
[FIG. 1]



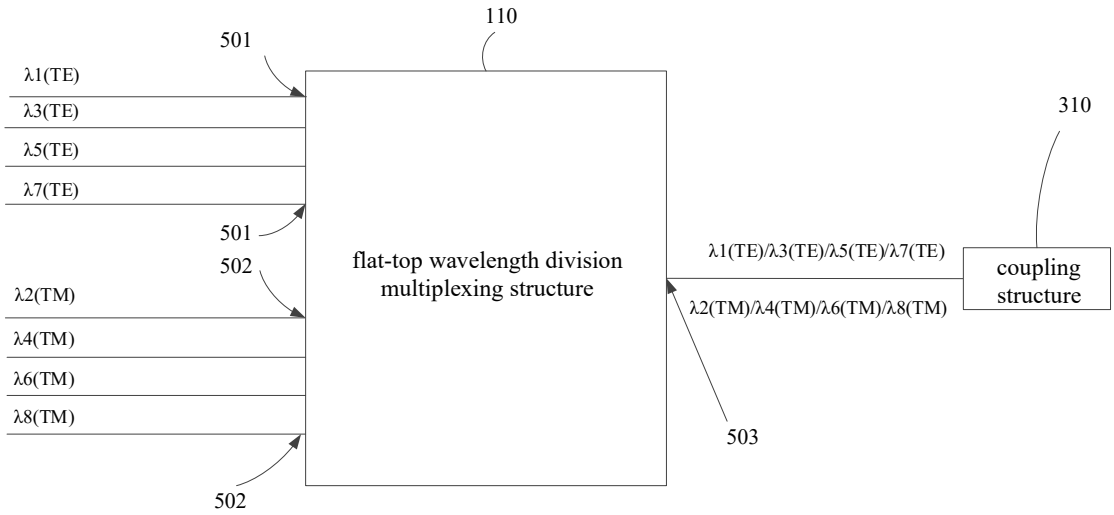
[FIG. 2]

1000

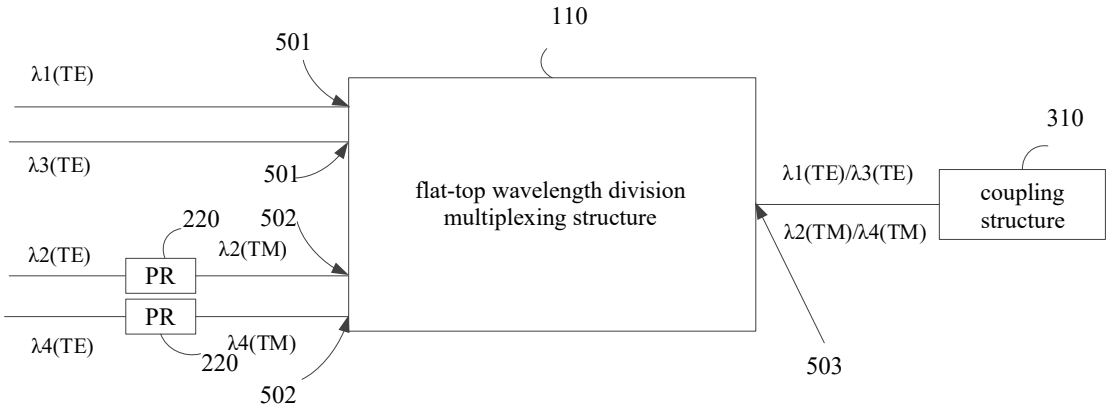


[FIG. 3]

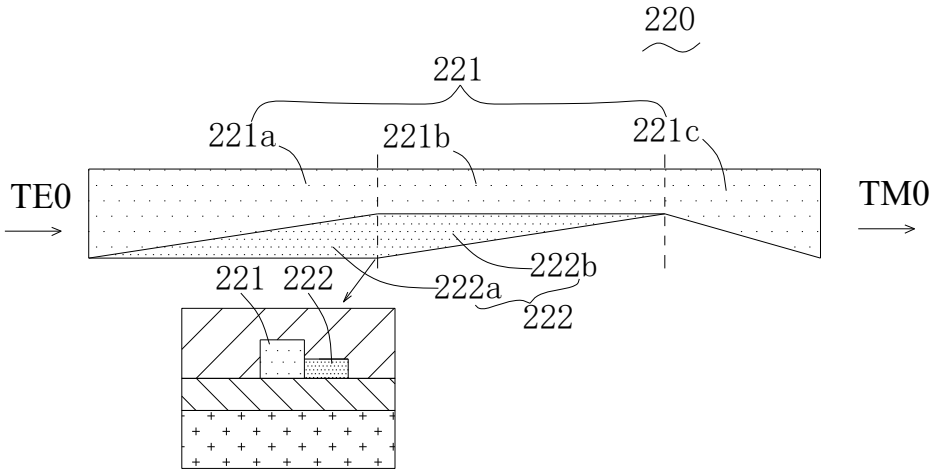
1000



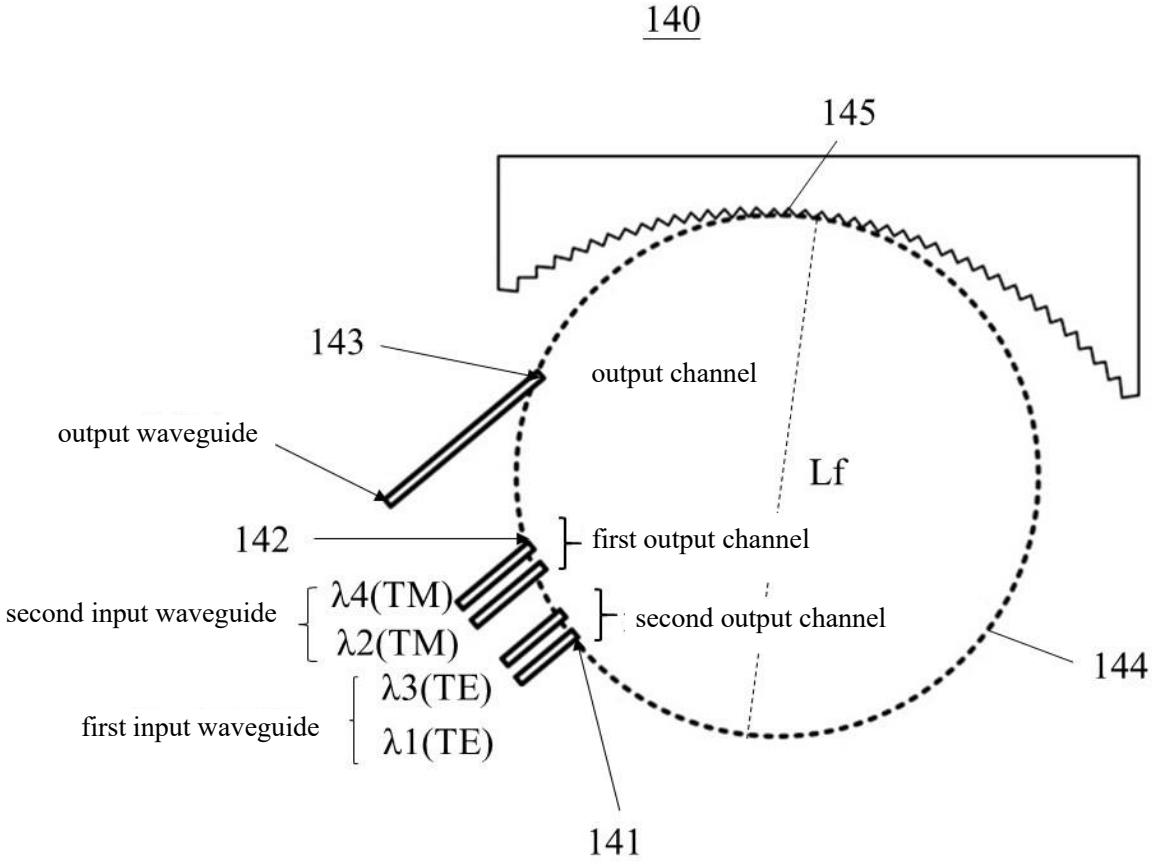
[FIG. 4]


1000
110
501
λ1(TE)
λ3(TE)
501
flat-top wavelength division multiplexing structure
λ1(TE)/λ3(TE)
λ2(TM)/λ4(TM)
310
coupling structure
220
502
λ2(TE)
λ2(TM)
PR
PR
λ4(TE)
λ4(TM)
220
502
503

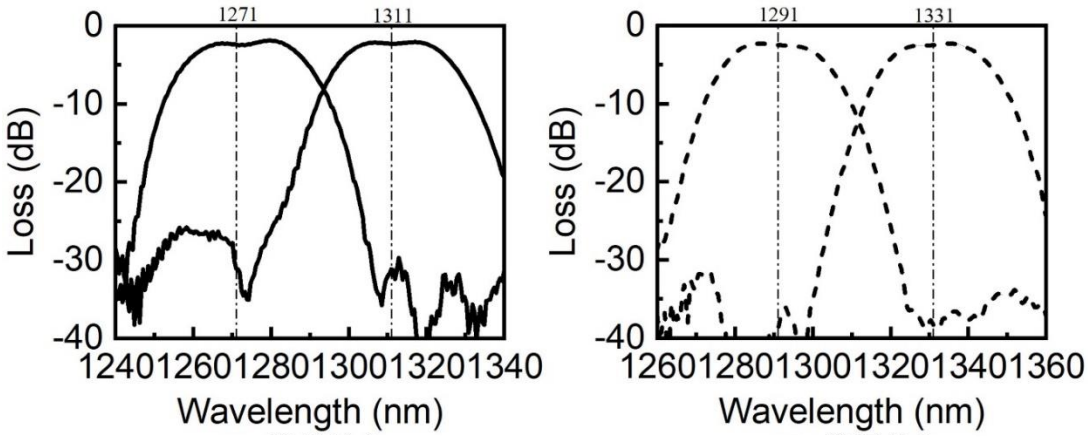
[FIG. 5]


220
221
221a
221b
221c
TE0
TM0
221
222
222b
222a
222

[FIG. 6]



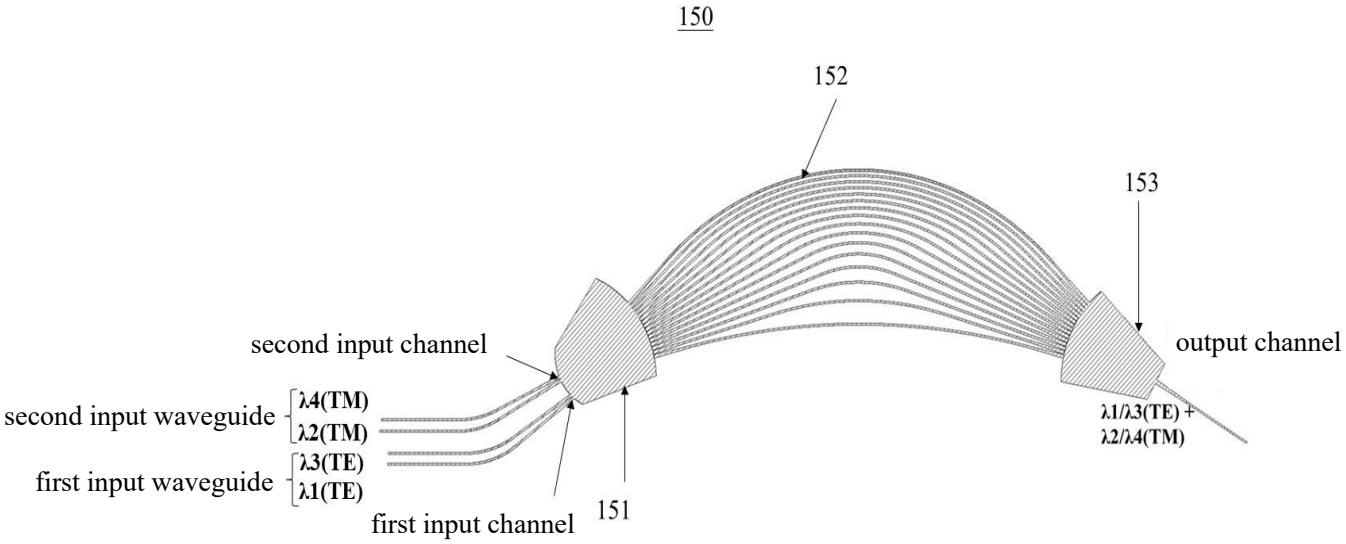
[FIG. 7]



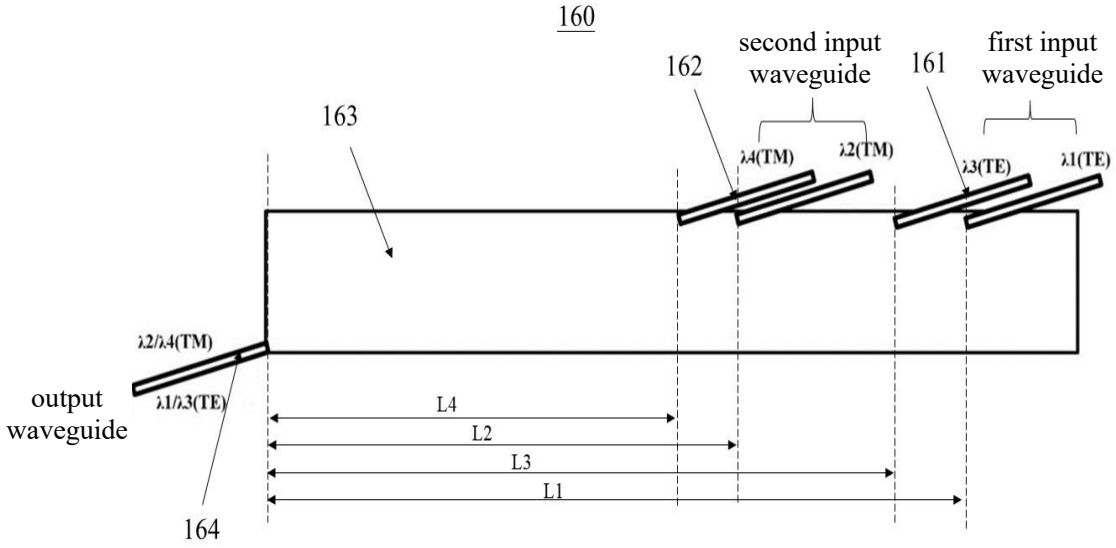
TE polarization input

TM polarization input

[FIG. 8]


150
152
153
second input channel
output channel
second input waveguide
λ4(TM)
λ2(TM)
first input waveguide
λ3(TE)
λ1(TE)
λ1/λ3(TE) +
λ2/λ4(TM)
first input channel
151

[FIG. 9]


160
162
second input waveguide
161
first input waveguide
163
λ4(TM)
λ2(TM)
λ3(TE)
λ1(TE)
λ2/λ4(TM)
output waveguide
λ1/λ3(TE)
L4
L2
L3
L1
164