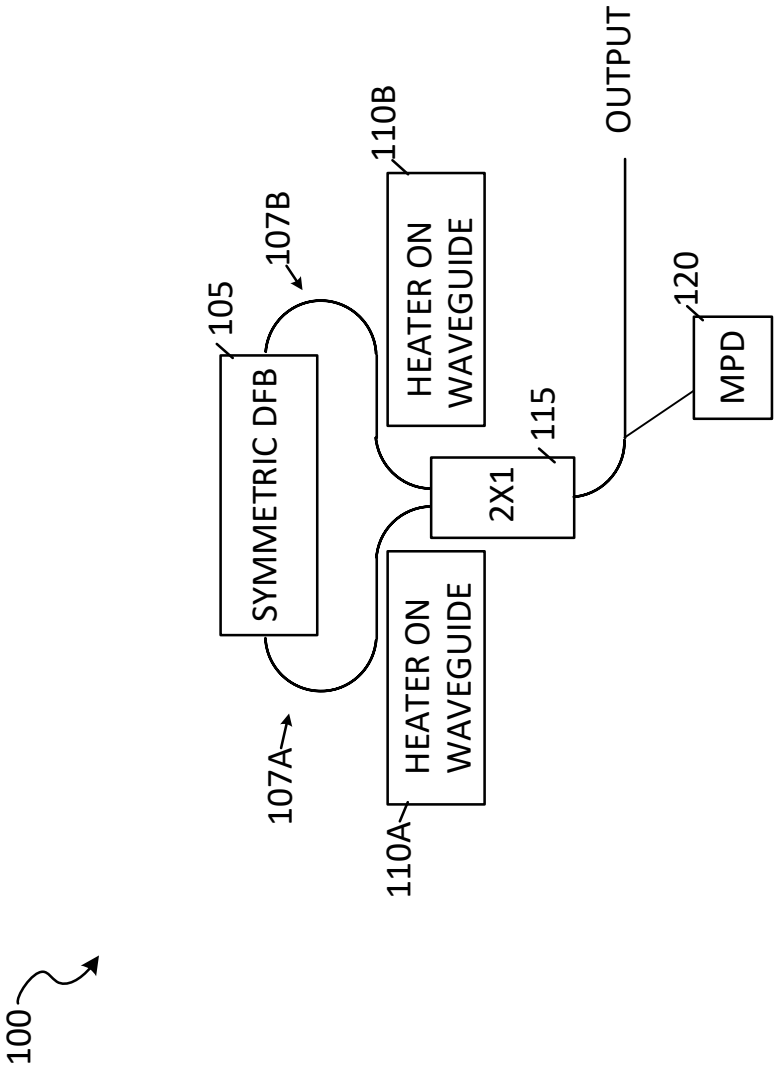

100
105
SYMMETRIC DFB
107B
107A
110B
HEATER ON WAVEGUIDE
110A
HEATER ON WAVEGUIDE
115
2X1
OUTPUT
120
MPD

FIG. 1

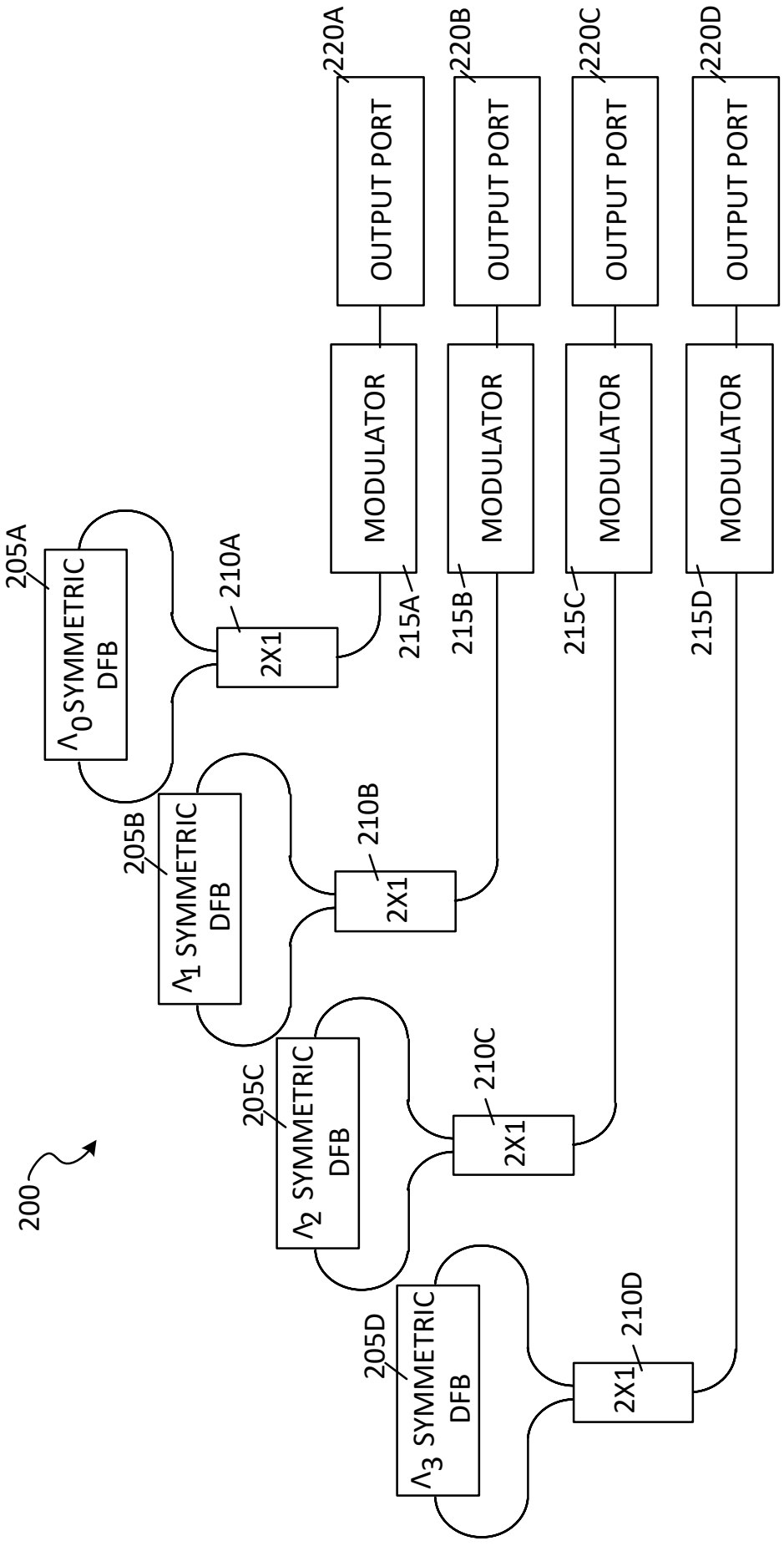

200
205A
Λ_0 SYMMETRIC DFB
205B
Λ_1 SYMMETRIC DFB
205C
Λ_2 SYMMETRIC DFB
205D
Λ_3 SYMMETRIC DFB
210A
2X1
210B
2X1
210C
2X1
210D
2X1
215A
215B
215C
215D
MODULATOR
MODULATOR
MODULATOR
MODULATOR
220A
220B
220C
220D
OUTPUT PORT
OUTPUT PORT
OUTPUT PORT
OUTPUT PORT

FIG. 2

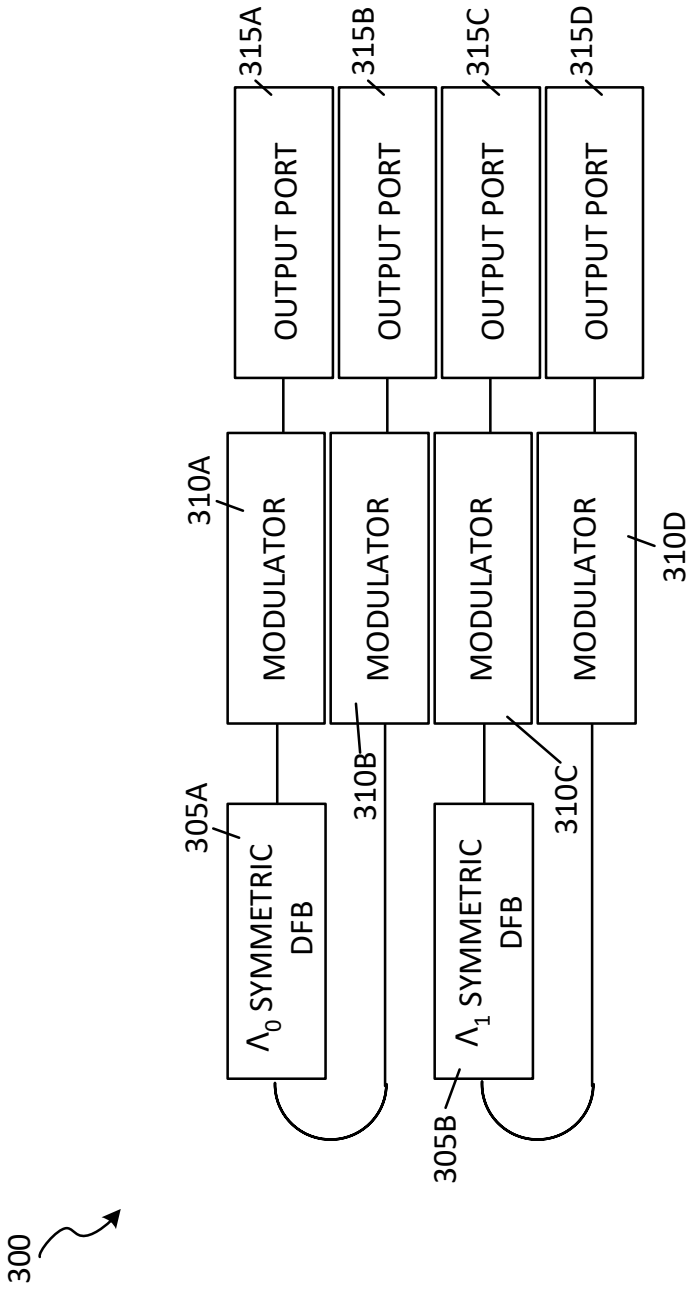

300
305A
Λ_0 SYMMETRIC DFB
305B
Λ_1 SYMMETRIC DFB
310A
MODULATOR
310B
MODULATOR
310C
MODULATOR
310D
MODULATOR
315A
OUTPUT PORT
315B
OUTPUT PORT
315C
OUTPUT PORT
315D
OUTPUT PORT

FIG. 3

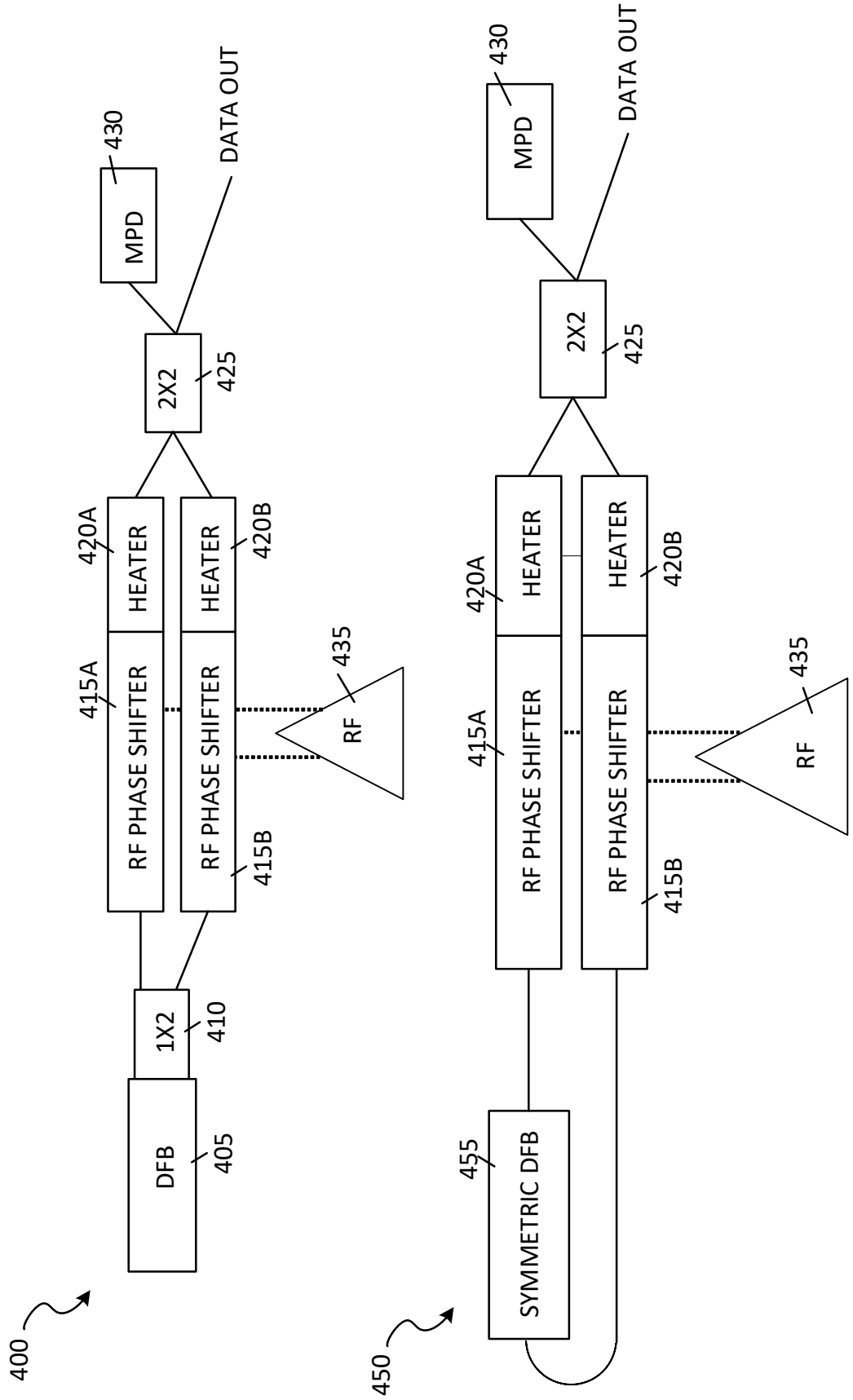

400
DFB
405
1X2
410
RF PHASE SHIFTER
415A
RF PHASE SHIFTER
415B
HEATER
420A
HEATER
420B
2X2
425
MPD
430
DATA OUT
RF
435
450
SYMMETRIC DFB
455

FIG. 4

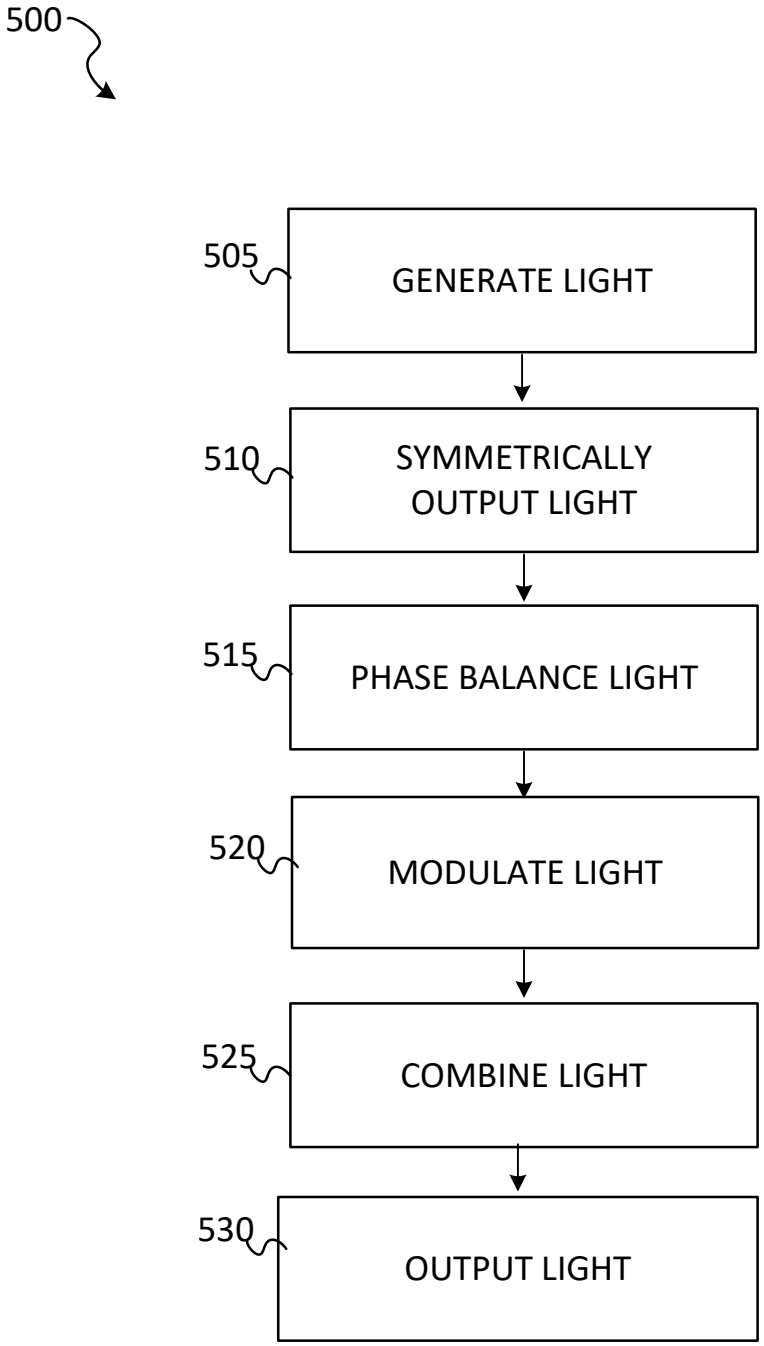

500
505
GENERATE LIGHT
510
SYMMETRICALLY OUTPUT LIGHT
515
PHASE BALANCE LIGHT
520
MODULATE LIGHT
525
COMBINE LIGHT
530
OUTPUT LIGHT

FIG. 5

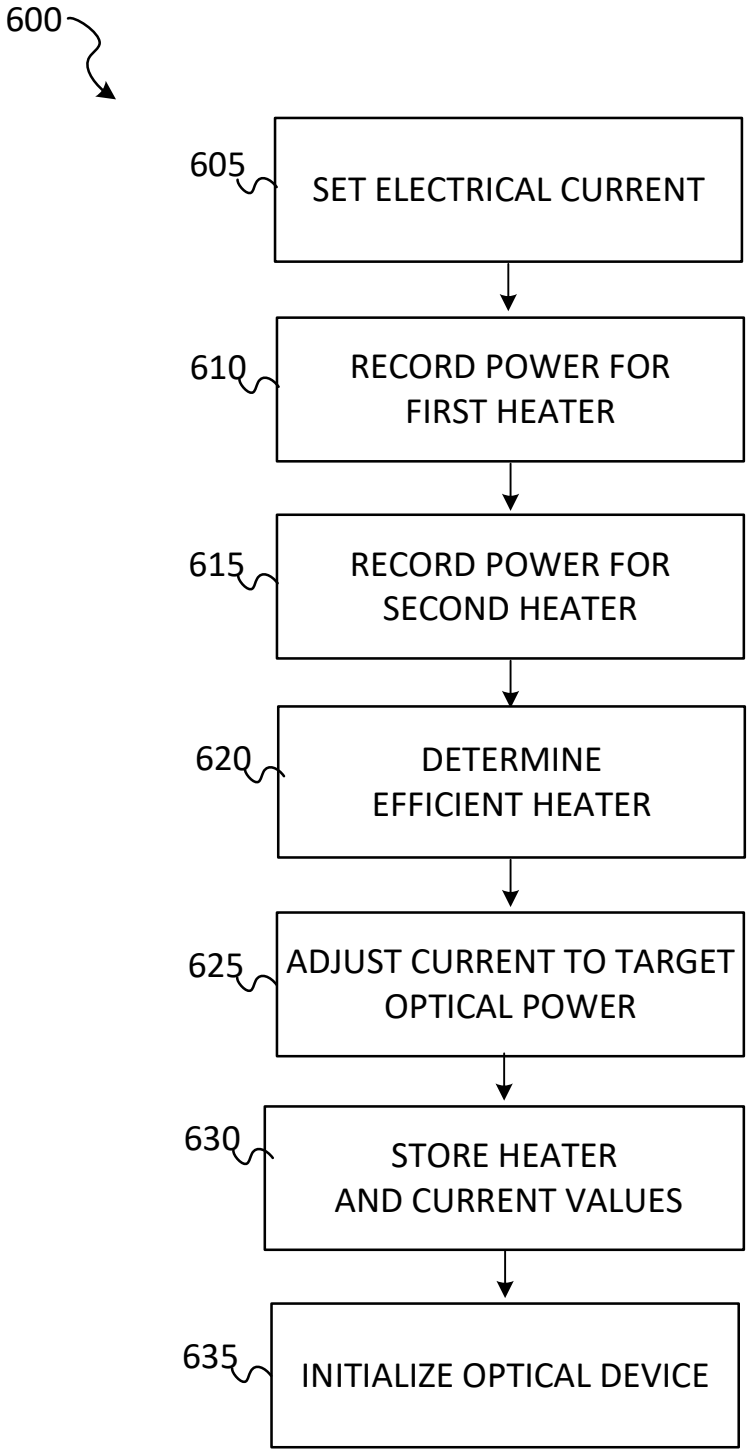

600
605
SET ELECTRICAL CURRENT
610
RECORD POWER FOR FIRST HEATER
615
RECORD POWER FOR SECOND HEATER
620
DETERMINE EFFICIENT HEATER
625
ADJUST CURRENT TO TARGET OPTICAL POWER
630
STORE HEATER AND CURRENT VALUES
635
INITIALIZE OPTICAL DEVICE

FIG. 6

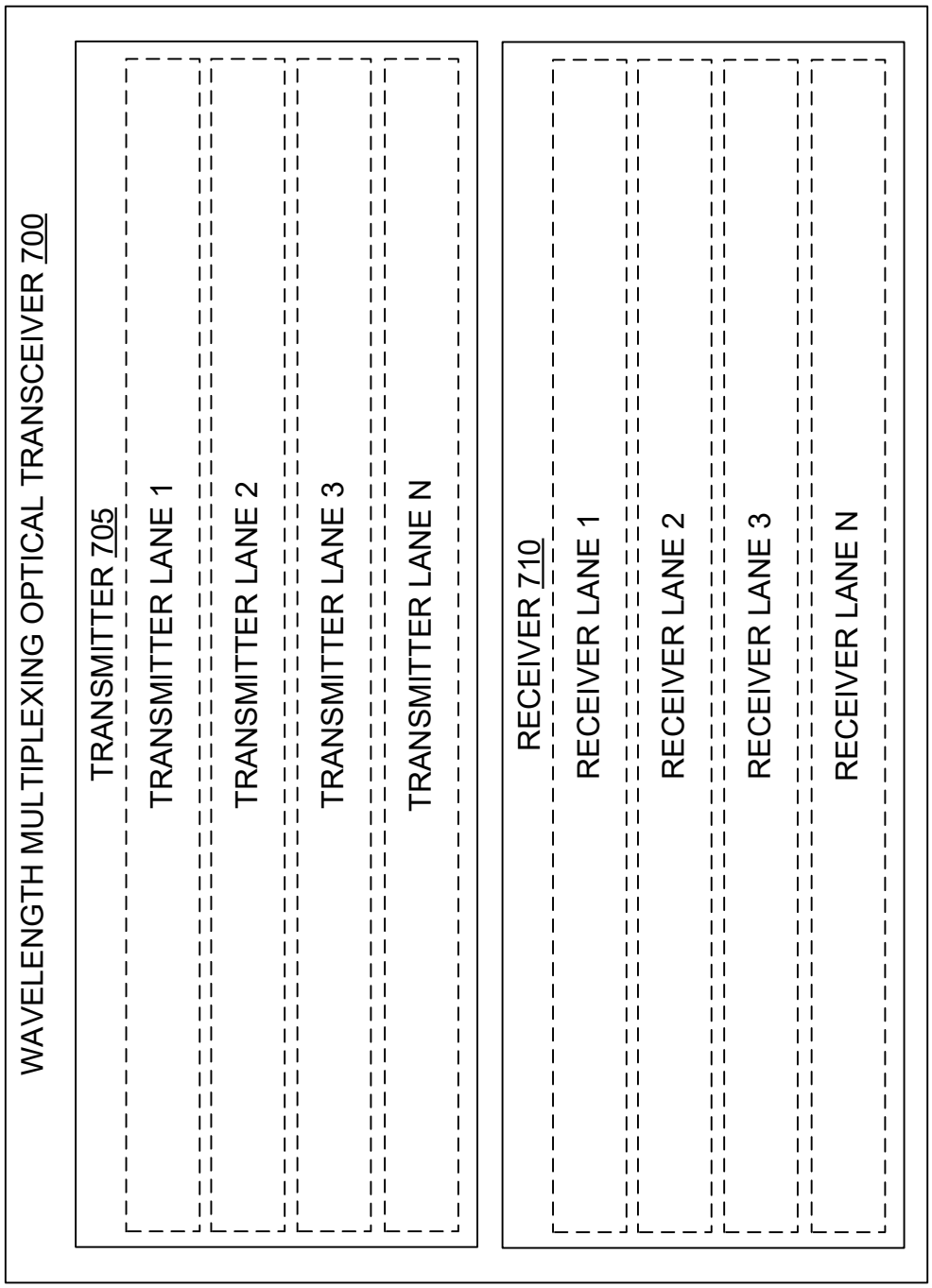

WAVELENGTH MULTIPLEXING OPTICAL TRANSCEIVER 700
TRANSMITTER 705
TRANSMITTER LANE 1
TRANSMITTER LANE 2
TRANSMITTER LANE 3
TRANSMITTER LANE N
RECEIVER 710
RECEIVER LANE 1
RECEIVER LANE 2
RECEIVER LANE 3
RECEIVER LANE N

FIG. 7

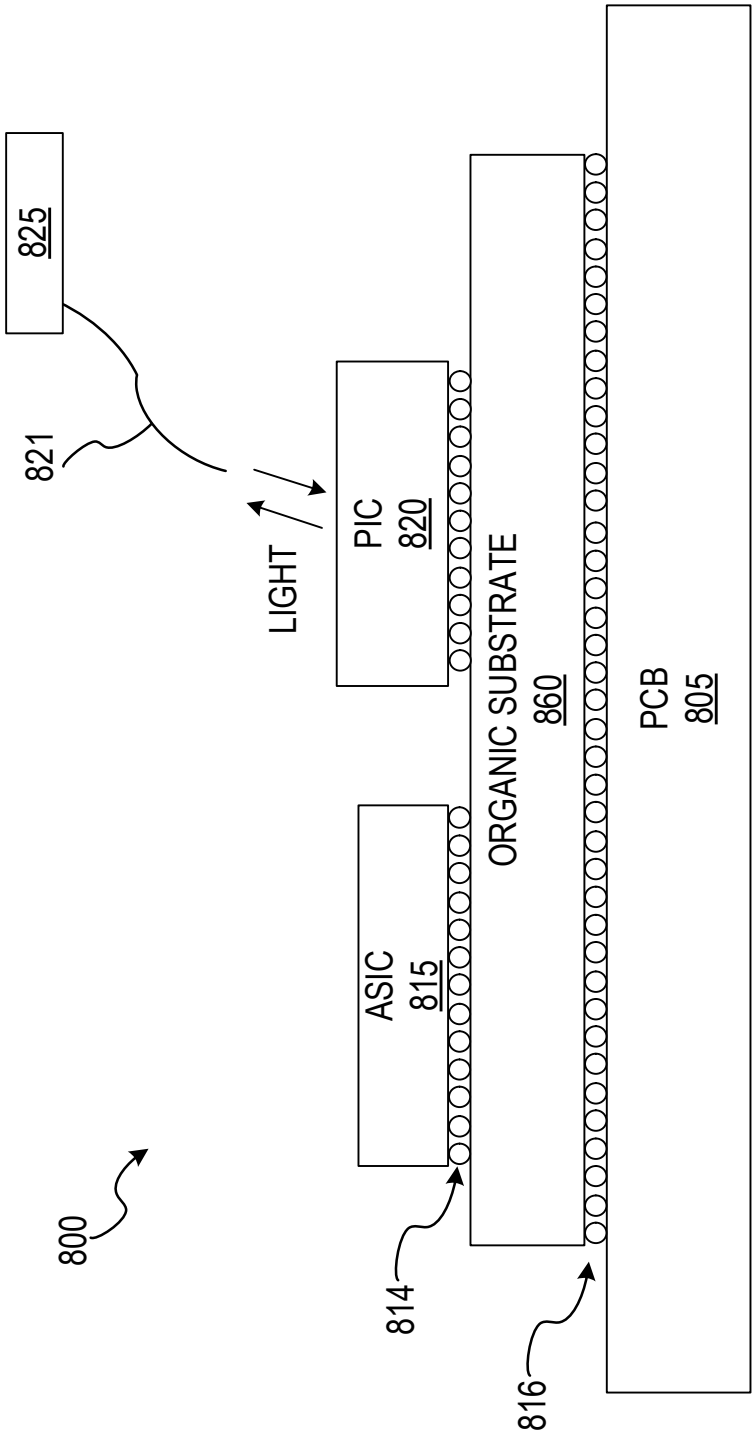

825
821
LIGHT
PIC
820
ORGANIC SUBSTRATE
860
PCB
805
ASIC
815
800
814
816

FIG. 8

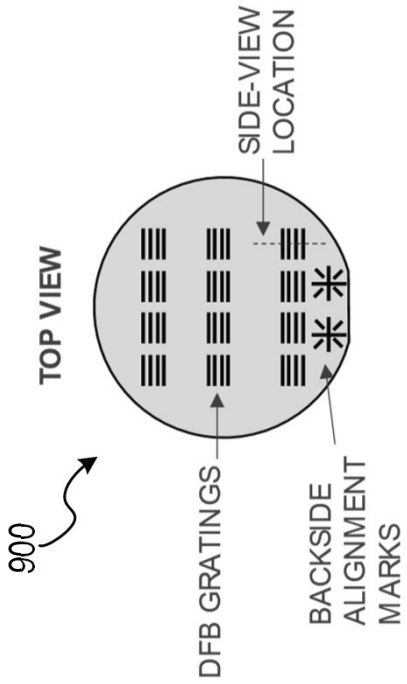

900
TOP VIEW
SIDE-VIEW LOCATION
DFB GRATINGS
BACKSIDE ALIGNMENT MARKS

FIG. 9A

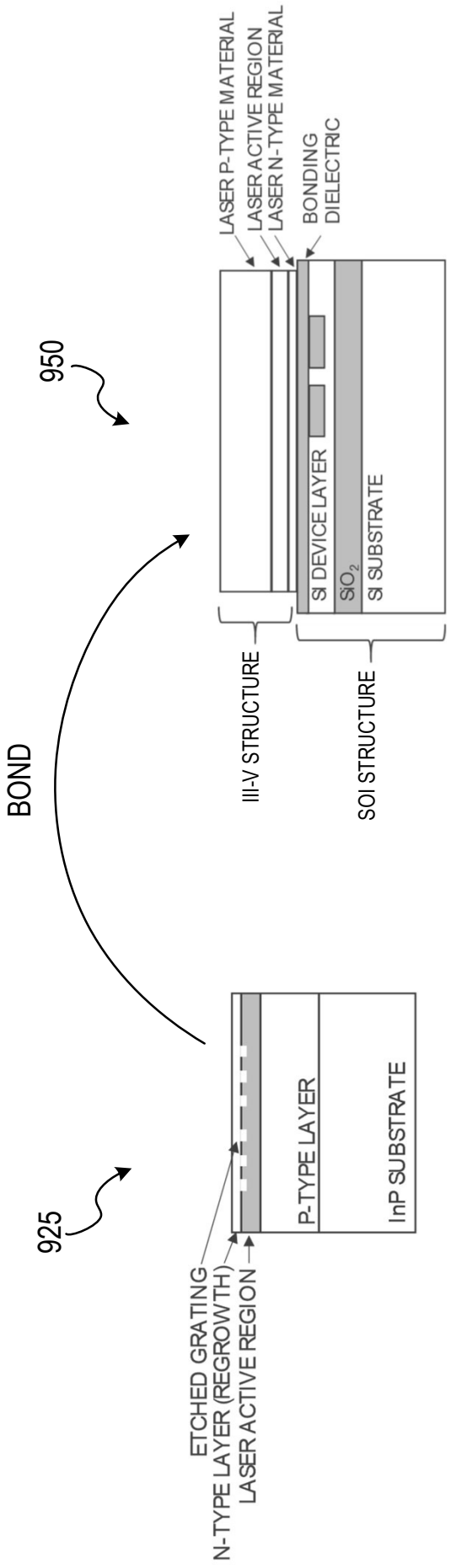

925
950
BOND
ETCHED GRATING
N-TYPE LAYER (REGROWTH)
LASER ACTIVE REGION
P-TYPE LAYER
InP SUBSTRATE
LASER P-TYPE MATERIAL
LASER ACTIVE REGION
LASER N-TYPE MATERIAL
BONDING DIELECTRIC
SI DEVICE LAYER
SiO_2
SI SUBSTRATE
III-V STRUCTURE
SOI STRUCTURE

FIG. 9B

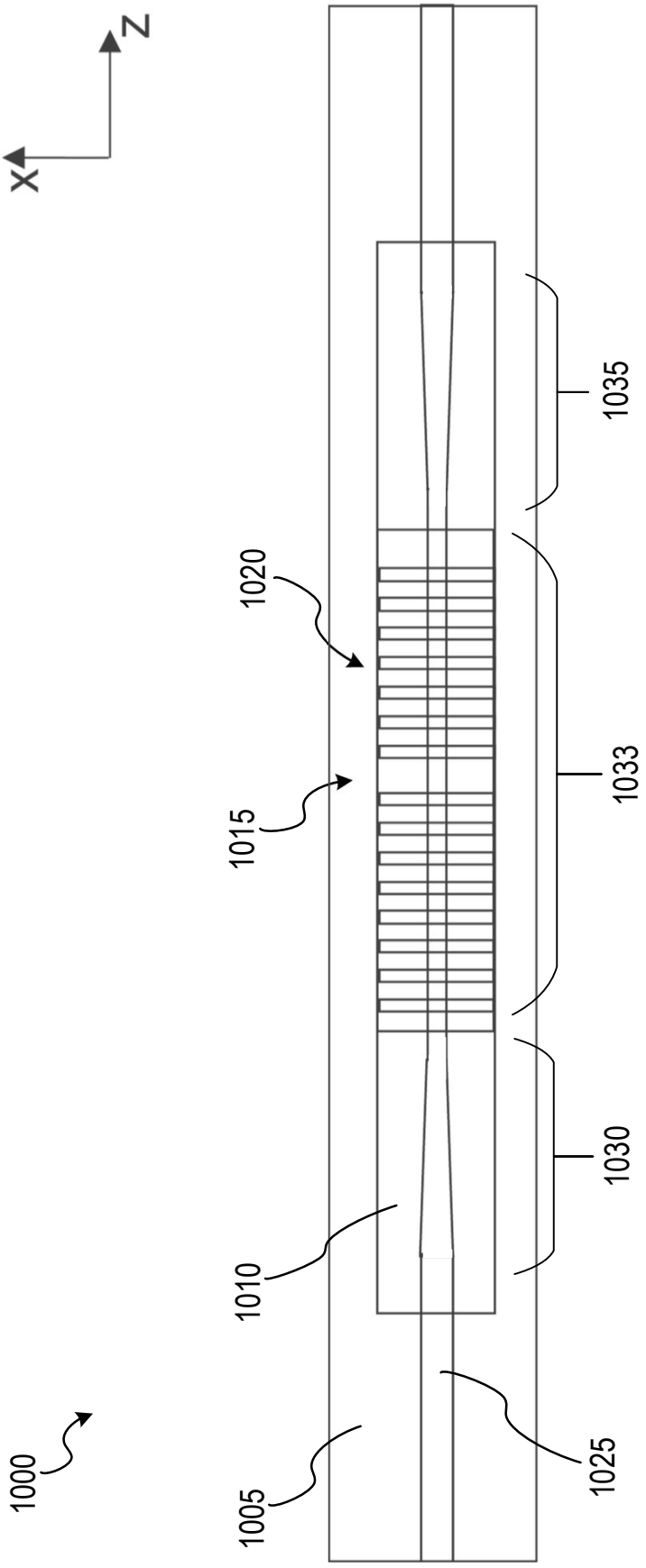


FIG. 10A

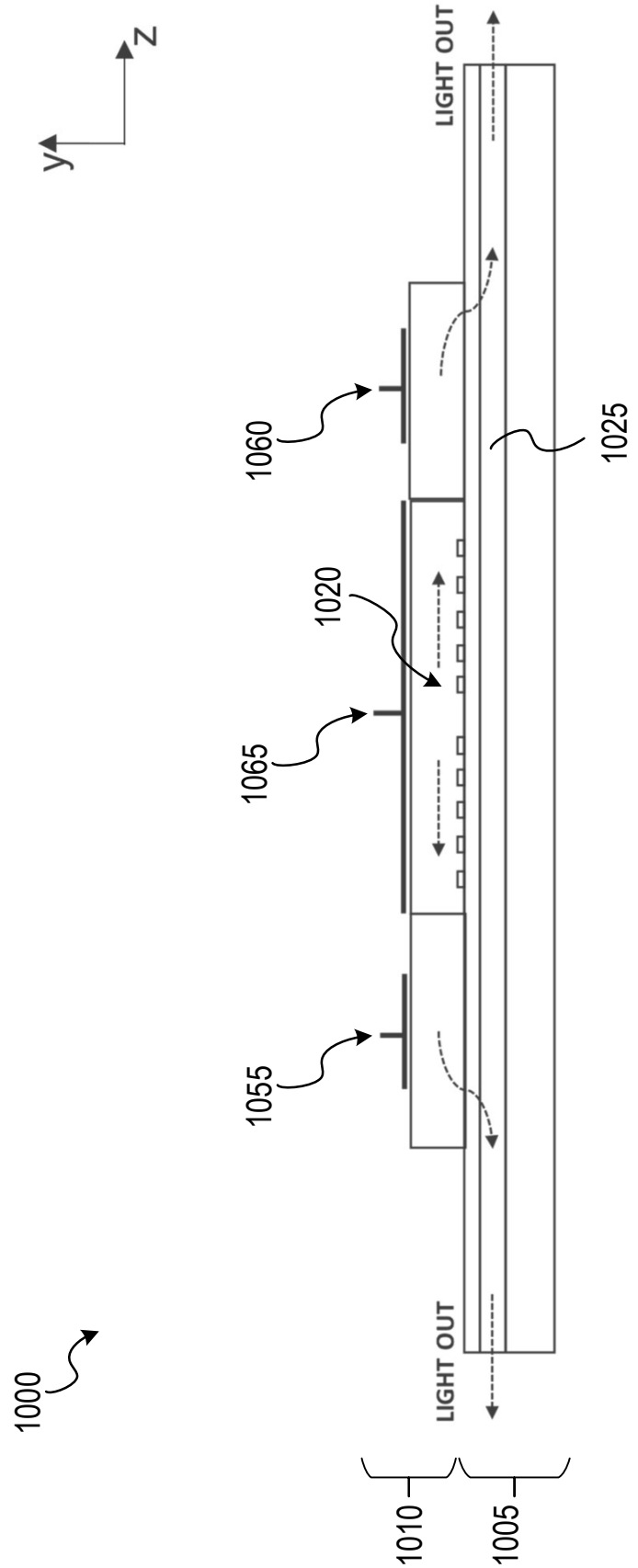

z
y
LIGHT OUT
1060
1025
1020
1065
1055
LIGHT OUT
1000
1010
1005

FIG. 10B

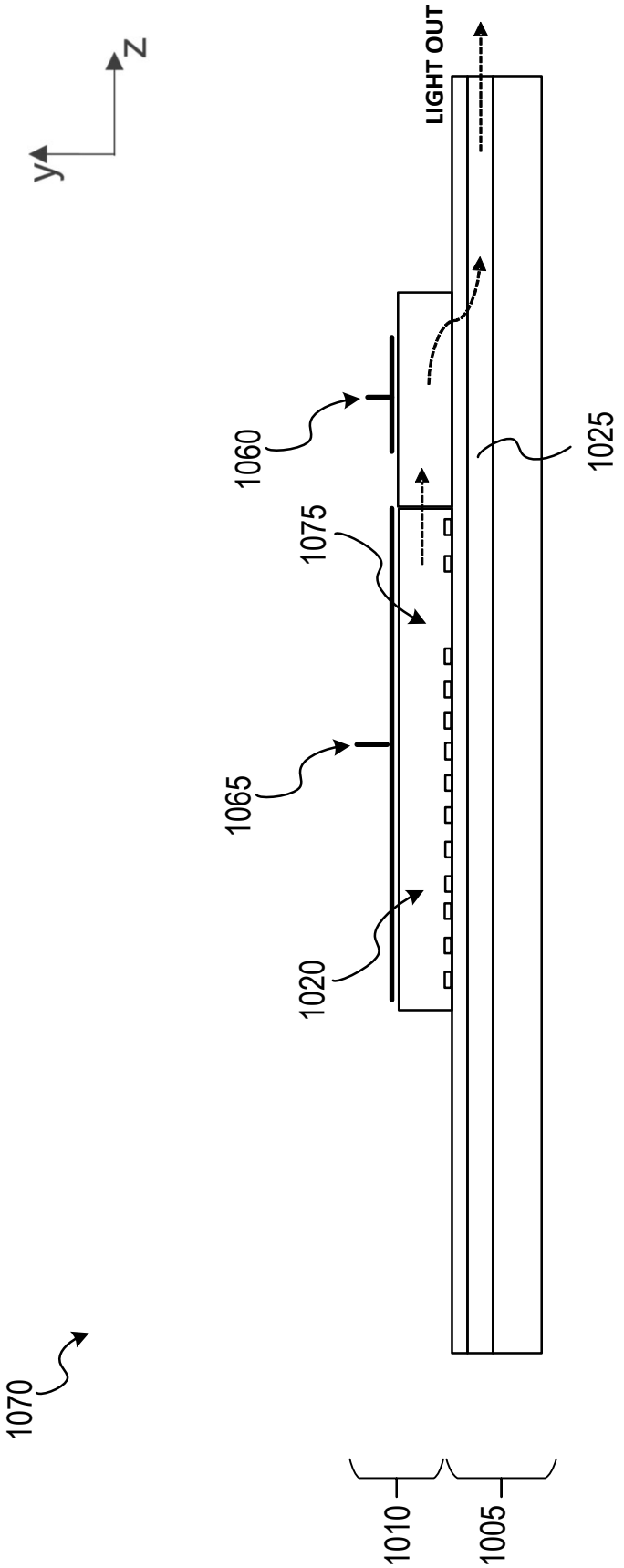


FIG. 10C

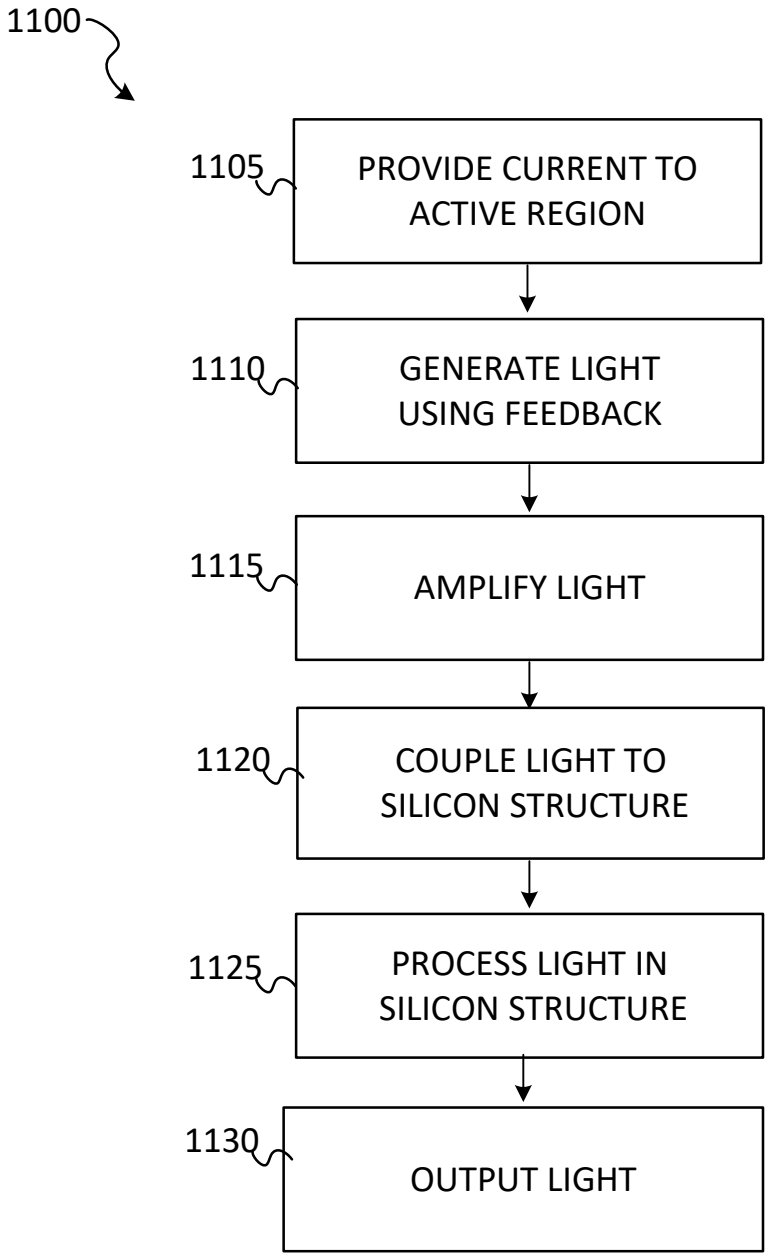

1100
1105
PROVIDE CURRENT TO ACTIVE REGION
1110
GENERATE LIGHT USING FEEDBACK
1115
AMPLIFY LIGHT
1120
COUPLE LIGHT TO SILICON STRUCTURE
1125
PROCESS LIGHT IN SILICON STRUCTURE
1130
OUTPUT LIGHT

FIG. 11

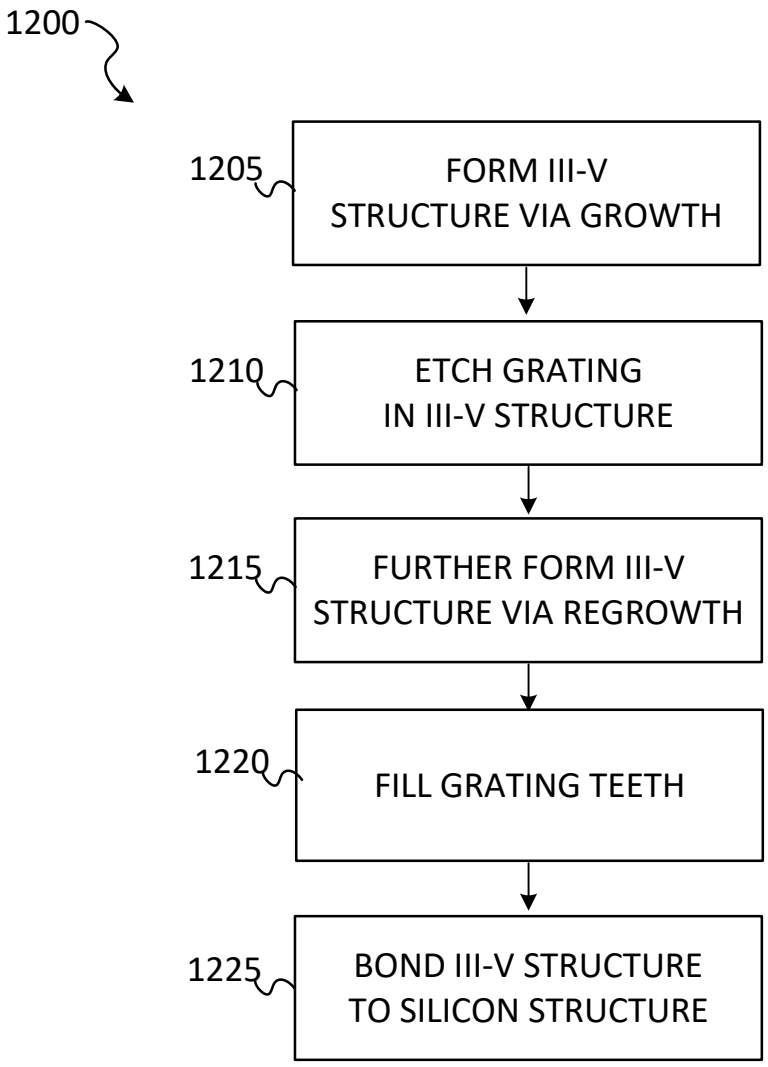

1200
1205
FORM III-V STRUCTURE VIA GROWTH
1210
ETCH GRATING IN III-V STRUCTURE
1215
FURTHER FORM III-V STRUCTURE VIA REGROWTH
1220
FILL GRATING TEETH
1225
BOND III-V STRUCTURE TO SILICON STRUCTURE

FIG. 12