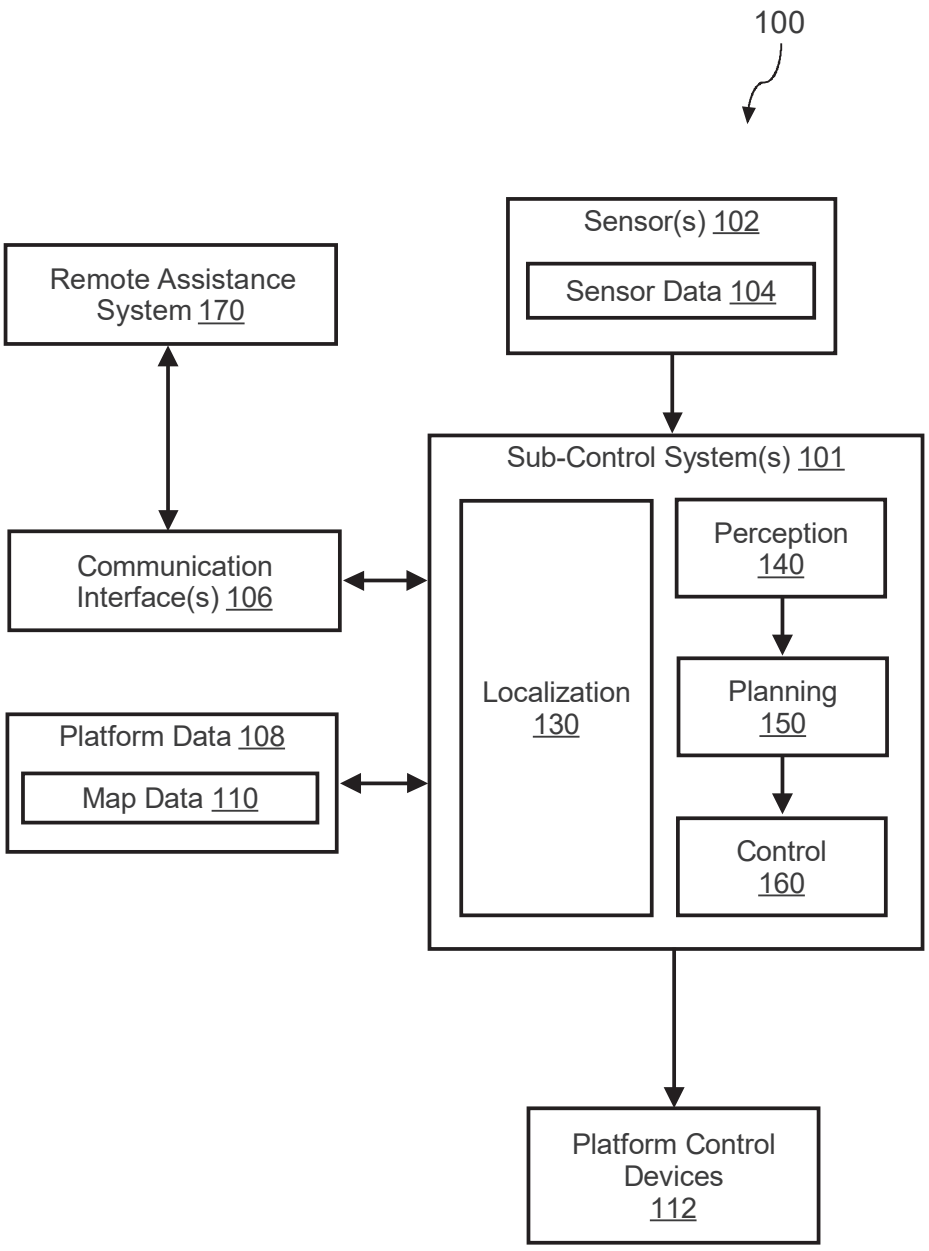

100
Sensor(s) 102
Sensor Data 104
Remote Assistance System 170
Sub-Control System(s) 101
Communication Interface(s) 106
Localization 130
Perception 140
Planning 150
Control 160
Platform Data 108
Map Data 110
Platform Control Devices 112

FIG. 1

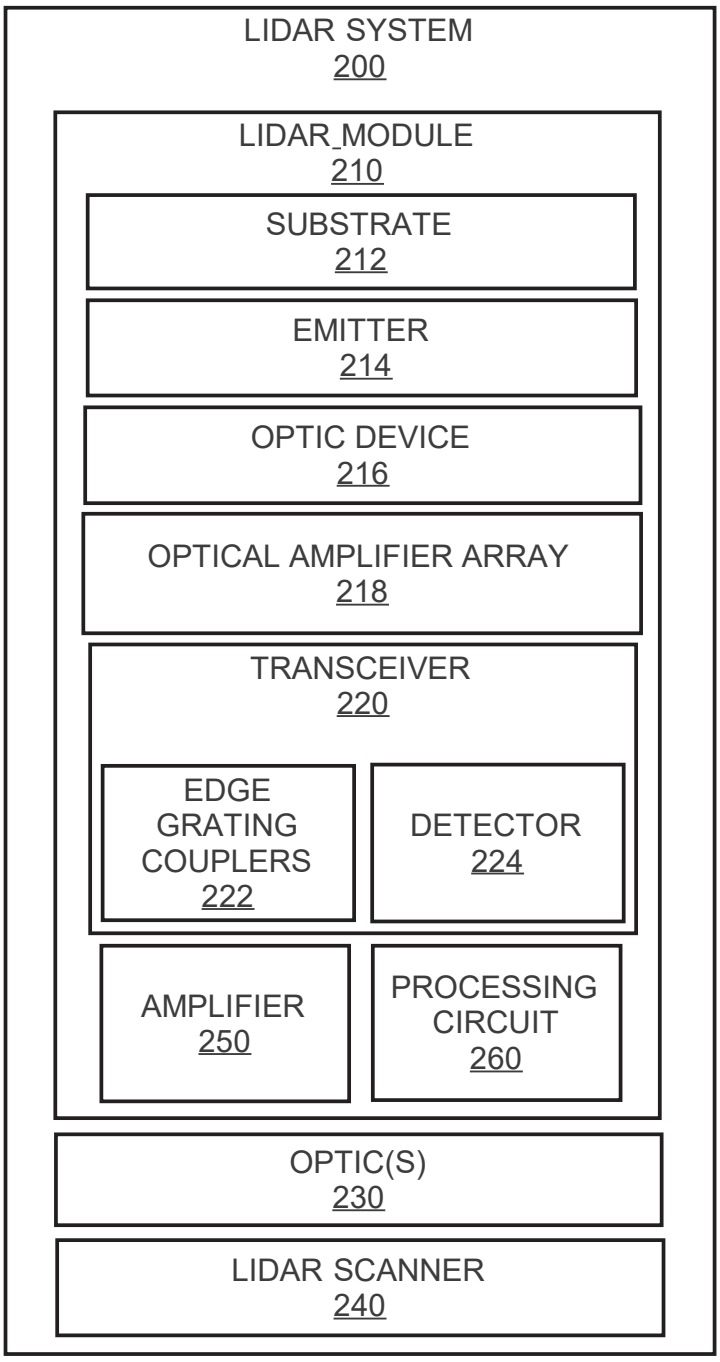

LIDAR SYSTEM
200
LIDAR_MODULE
210
SUBSTRATE
212
EMITTER
214
OPTIC DEVICE
216
OPTICAL AMPLIFIER ARRAY
218
TRANSCEIVER
220
EDGE GRATING COUPLERS
222
DETECTOR
224
AMPLIFIER
250
PROCESSING CIRCUIT
260
OPTIC(S)
230
LIDAR SCANNER
240

FIG. 2

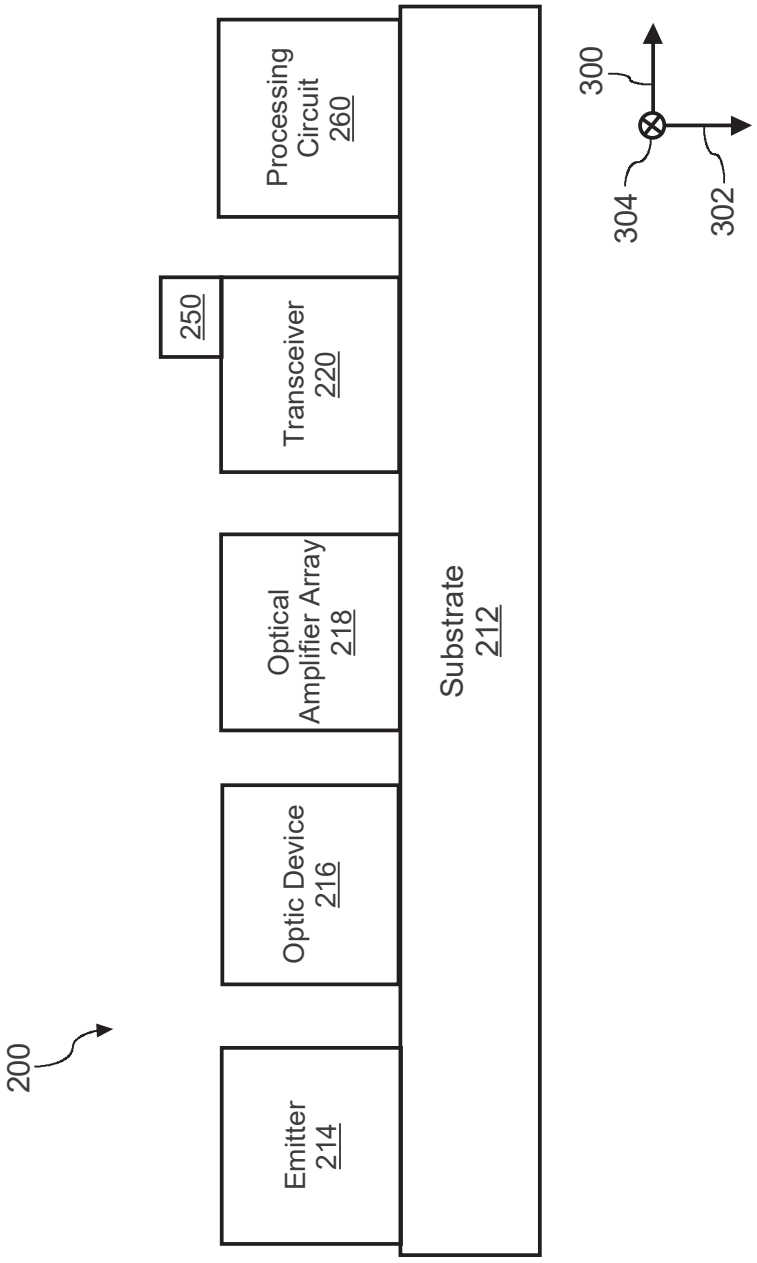

200
Emitter
214
Optic Device
216
Optical
Amplifier Array
218
Substrate
212
250
Transceiver
220
Processing
Circuit
260
300
304
302

FIG. 3

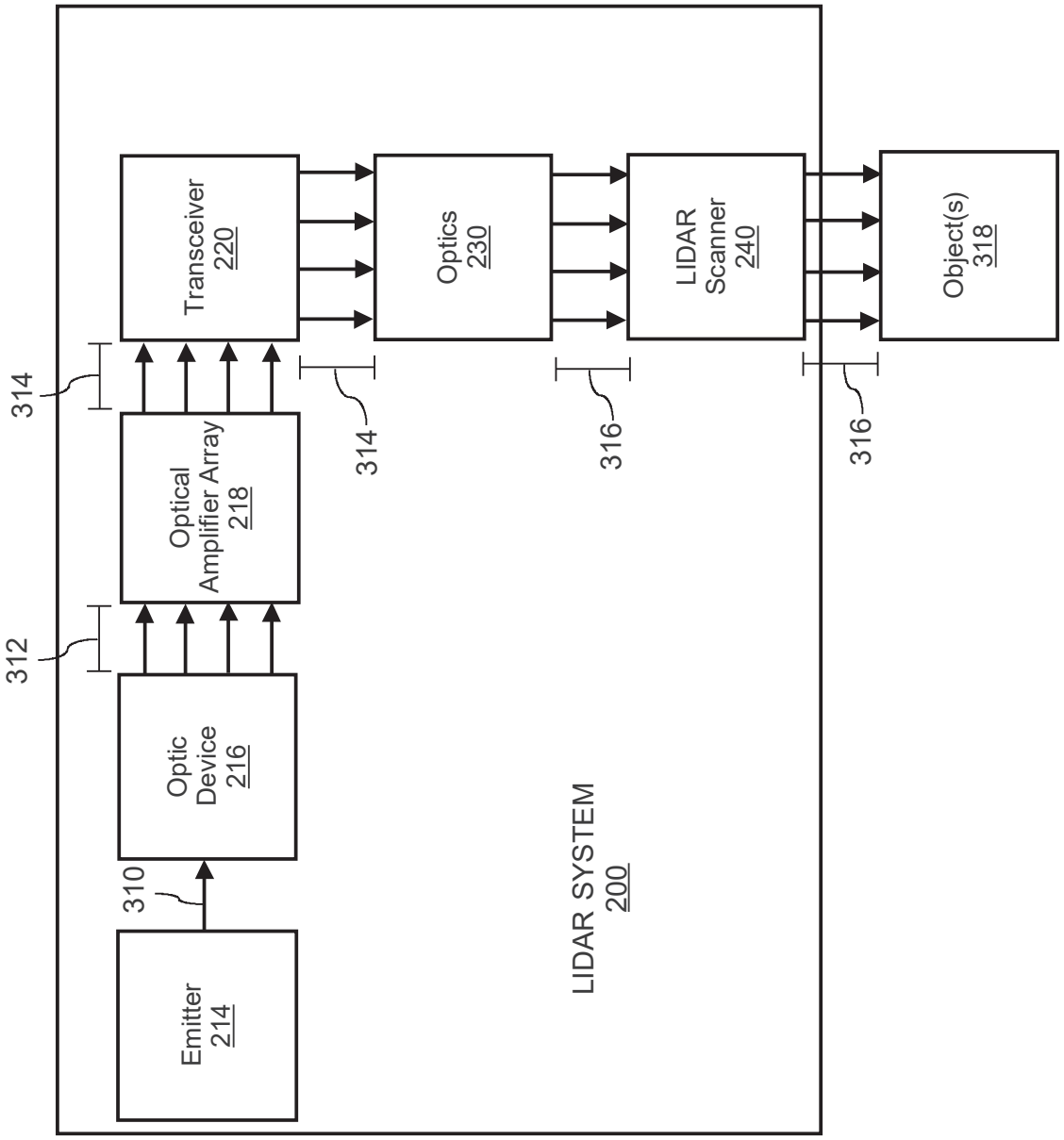

LIDAR SYSTEM
200
Emitter
214
Optic
Device
216
Optical
Amplifier Array
218
Transceiver
220
Optics
230
LIDAR
Scanner
240
Object(s)
318
310
312
314
314
316
316

FIG. 4

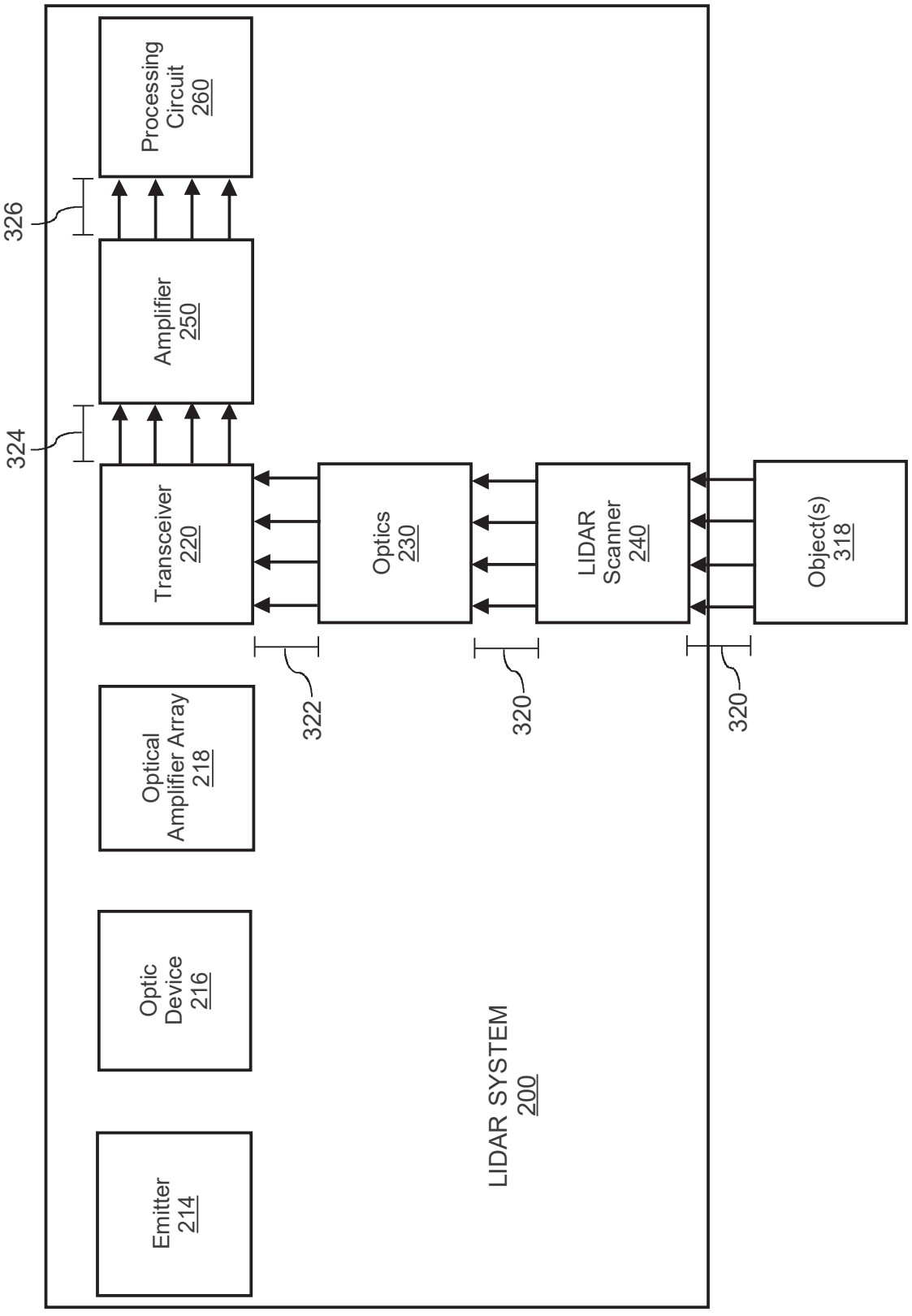

LIDAR SYSTEM
200
Emitter
214
Optic
Device
216
Optical
Amplifier Array
218
Transceiver
220
Optics
230
LIDAR
Scanner
240
Object(s)
318
Amplifier
250
Processing
Circuit
260
322
320
320
324
326

FIG. 5

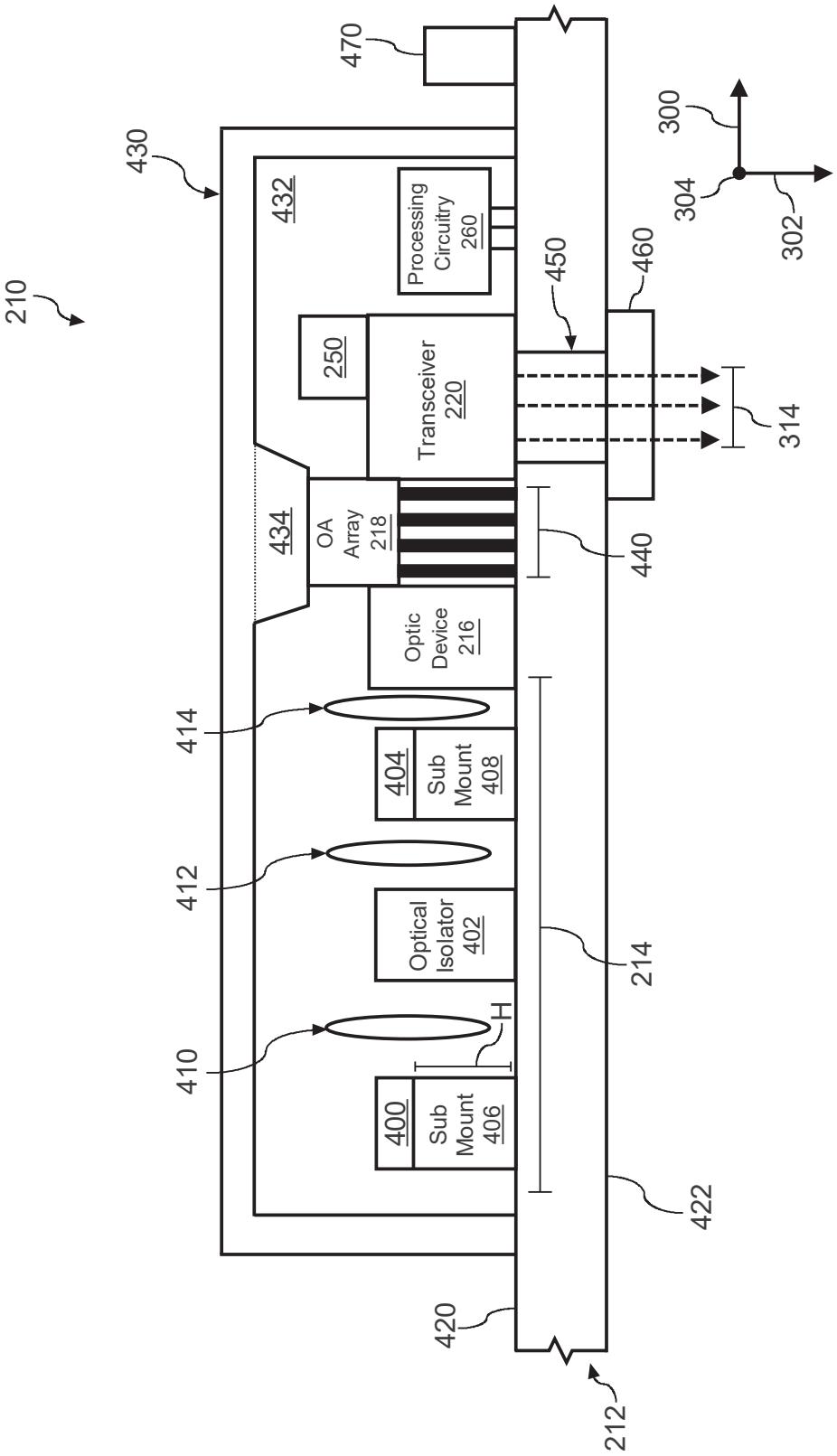

210
470
430
432
Processing Circuitry 260
300
304
302
450
460
250
Transceiver 220
314
434
OA Array 218
440
Optic Device 216
414
404
Sub Mount 408
412
Optical Isolator 402
214
H
410
400
Sub Mount 406
422
420
212

FIG. 6

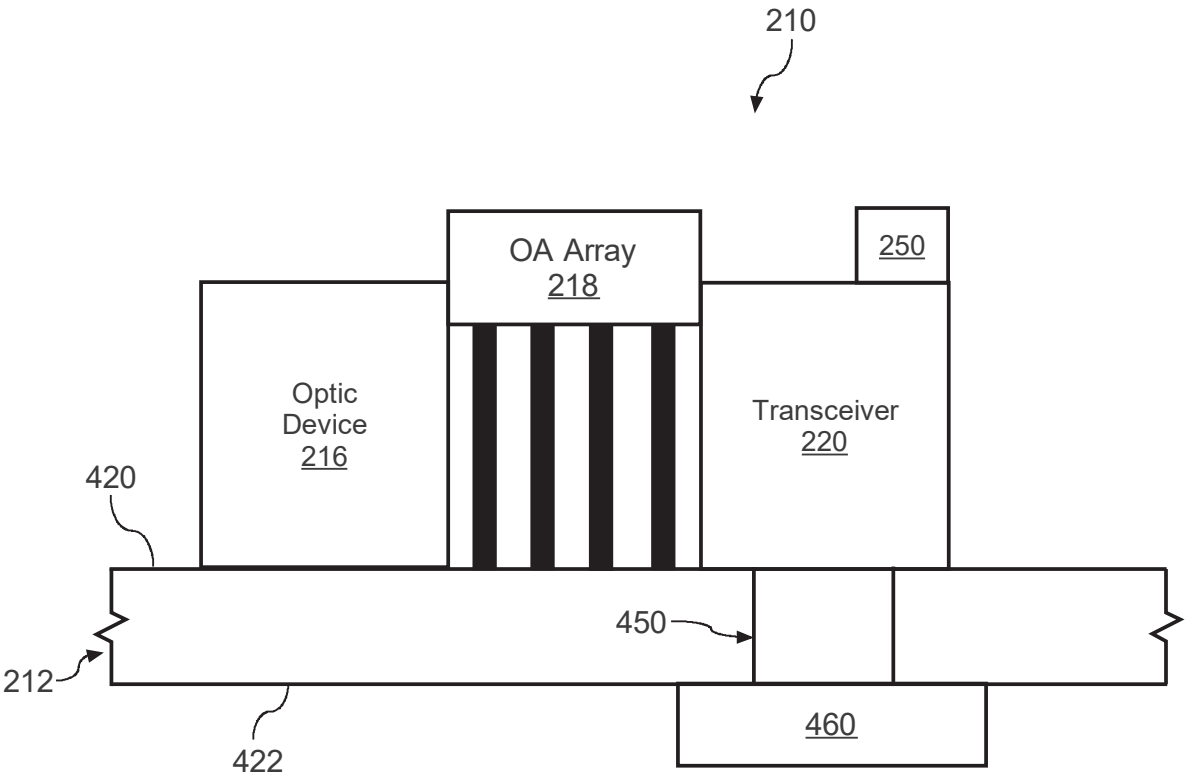

210
OA Array
218
250
Optic
Device
216
Transceiver
220
420
450
212
422
460

FIG. 7

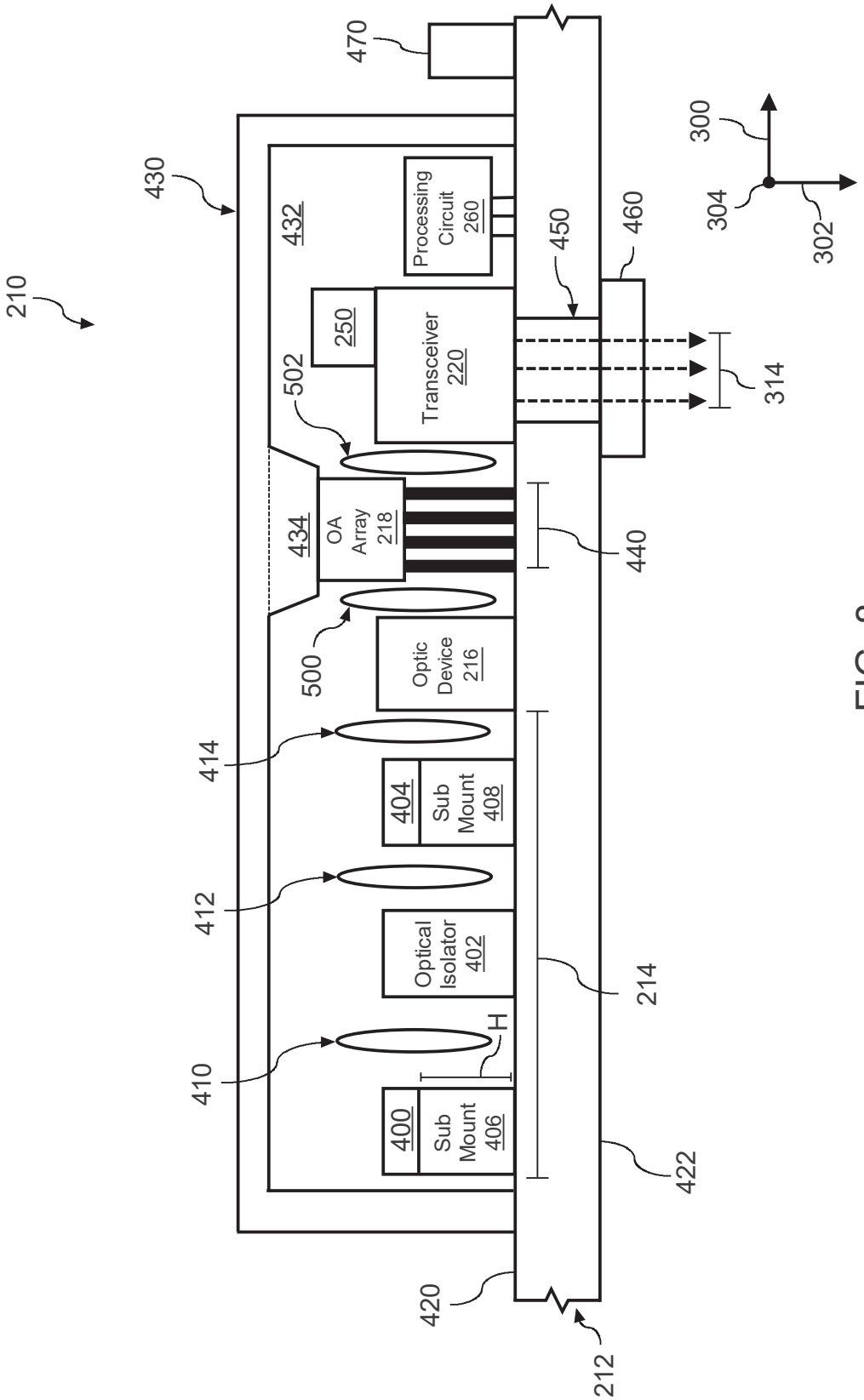

210
470
430
432
Processing Circuit 260
450
460
300
304
302
250
Transceiver 220
502
314
434
OA Array 218
440
500
Optic Device 216
414
404
Sub Mount 408
412
Optical Isolator 402
214
H
410
400
Sub Mount 406
422
420
212

FIG. 8

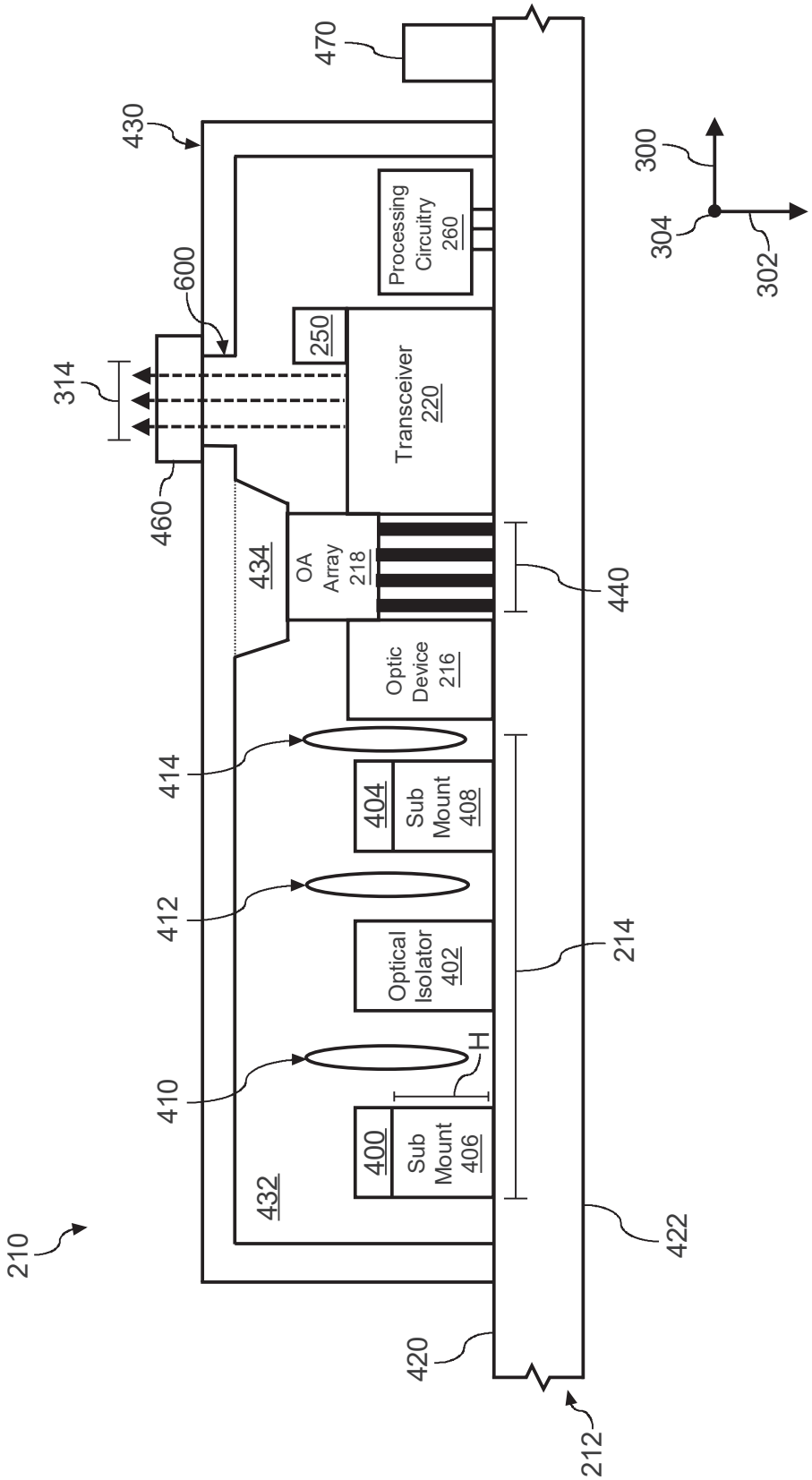

470
430
600
314
460
434
OA Array 218
Transceiver 220
250
Processing Circuitry 260
440
Optic Device 216
414
404
Sub Mount 408
412
Optical Isolator 402
214
410
H
400
Sub Mount 406
432
210
420
212
422
300
304
302

FIG. 9