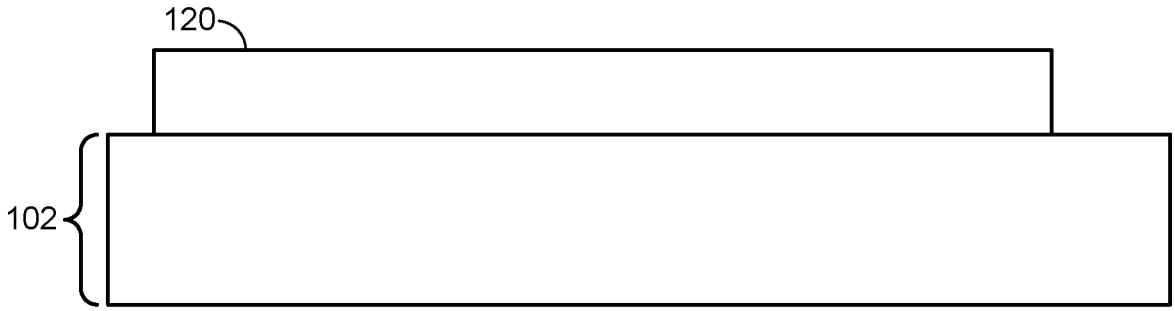


FIG. 1A

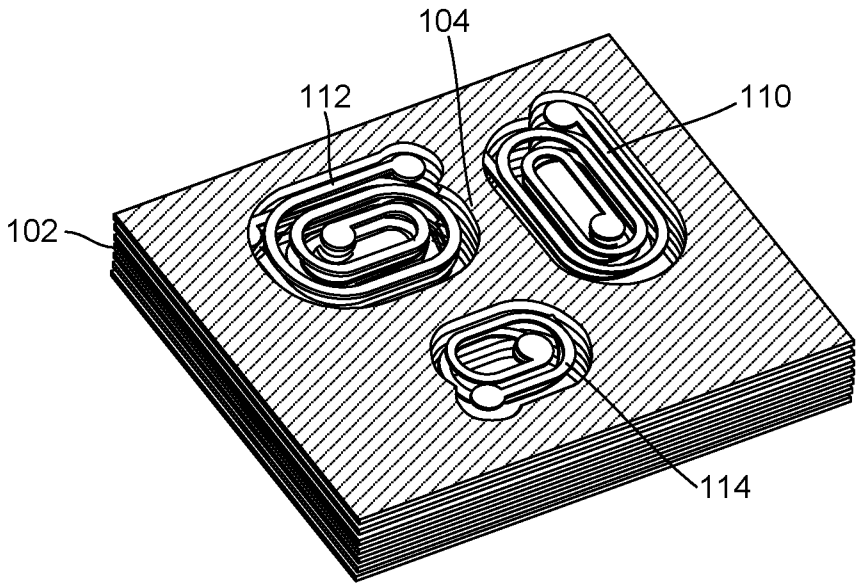


FIG. 1B

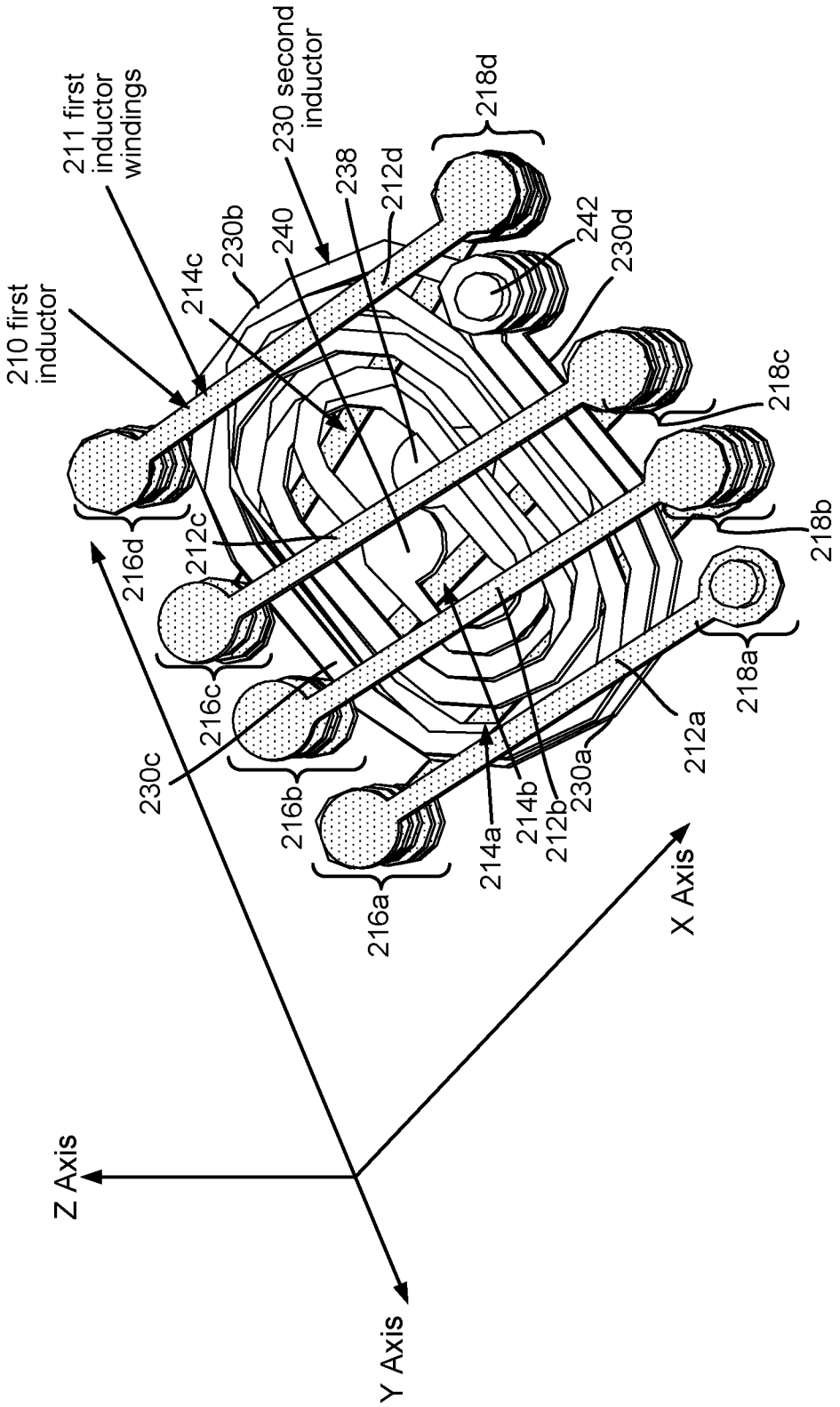

210 first inductor
211 first inductor windings
230 second inductor
214c
230b
240
238
212d
218d
242
230d
218c
218b
216d
212c
216c
230c
216b
214a
214b
212b
230a
212a
218a
216a
X Axis
Z Axis
Y Axis

FIG. 2A

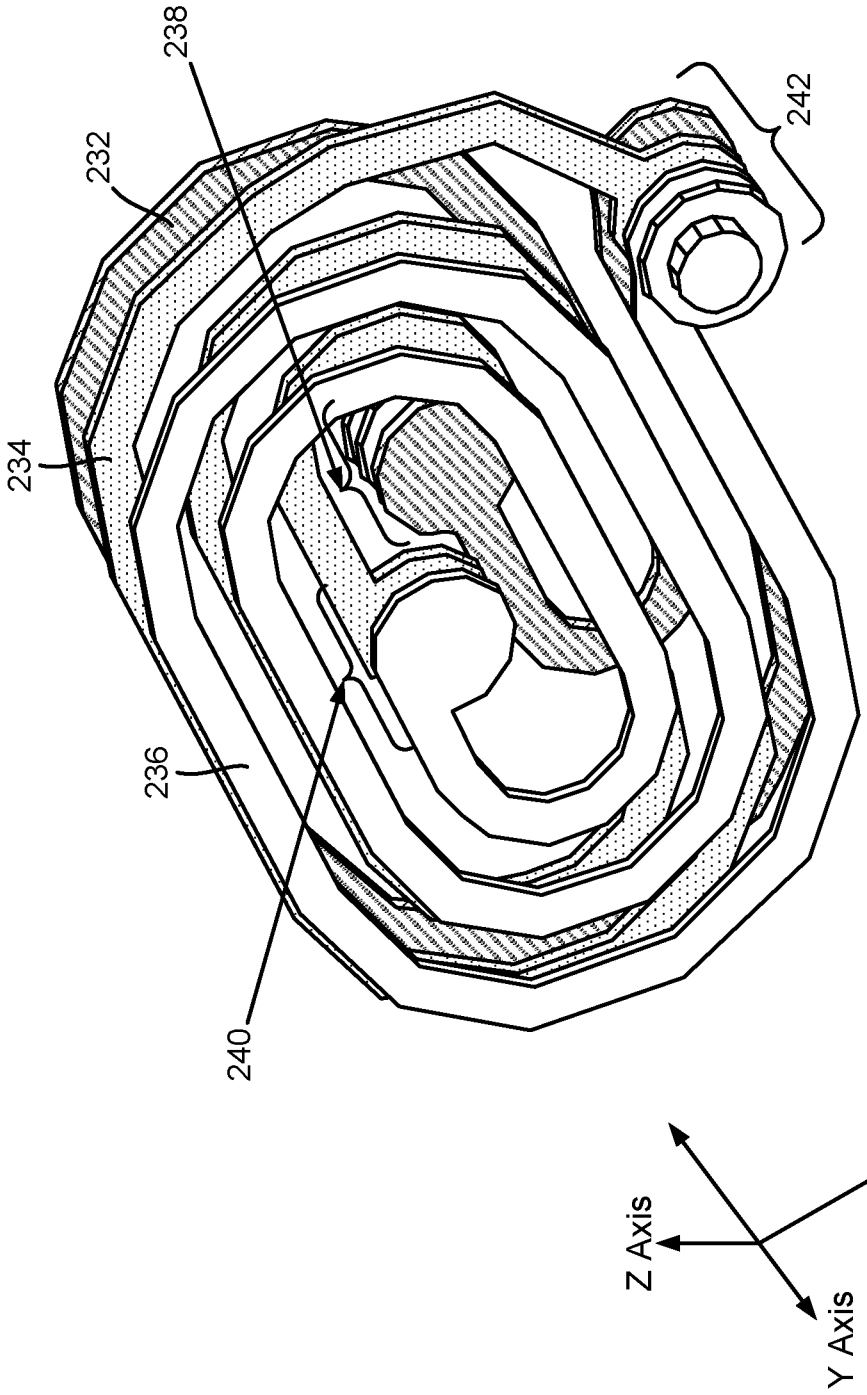


FIG. 2B

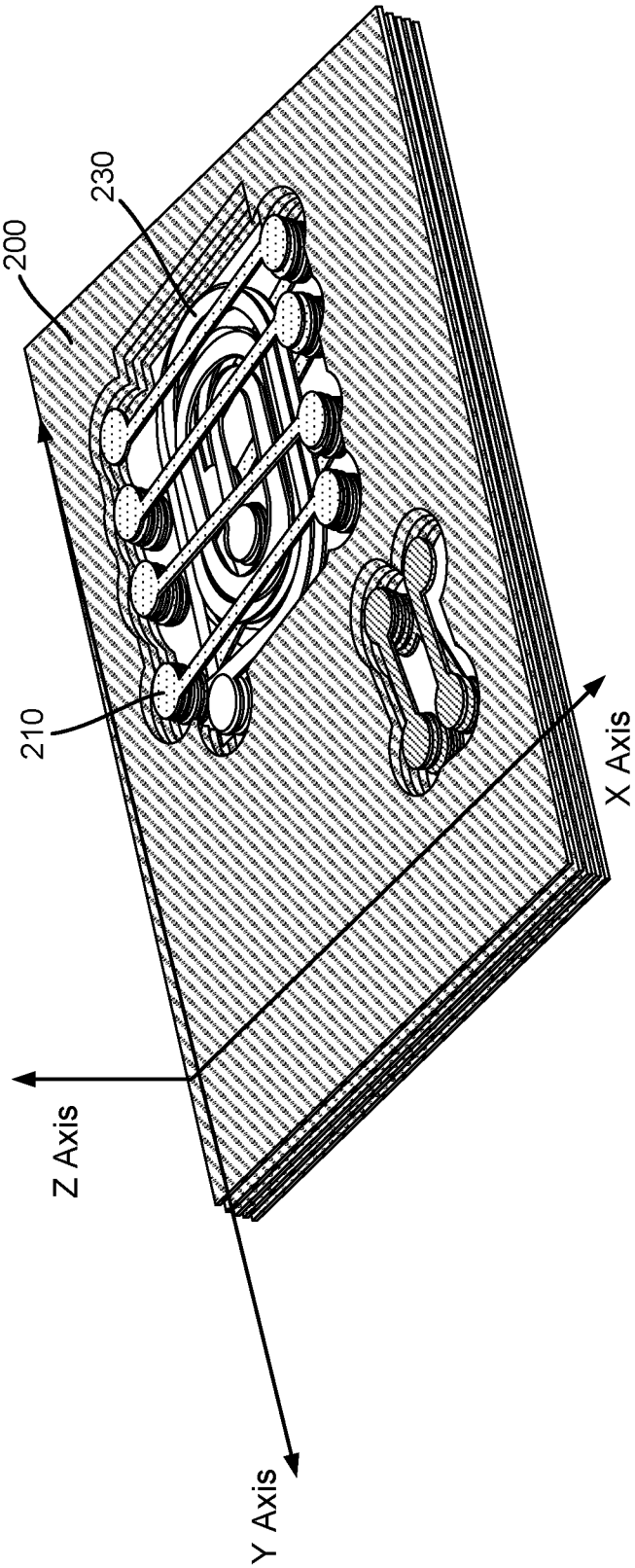


FIG. 2C

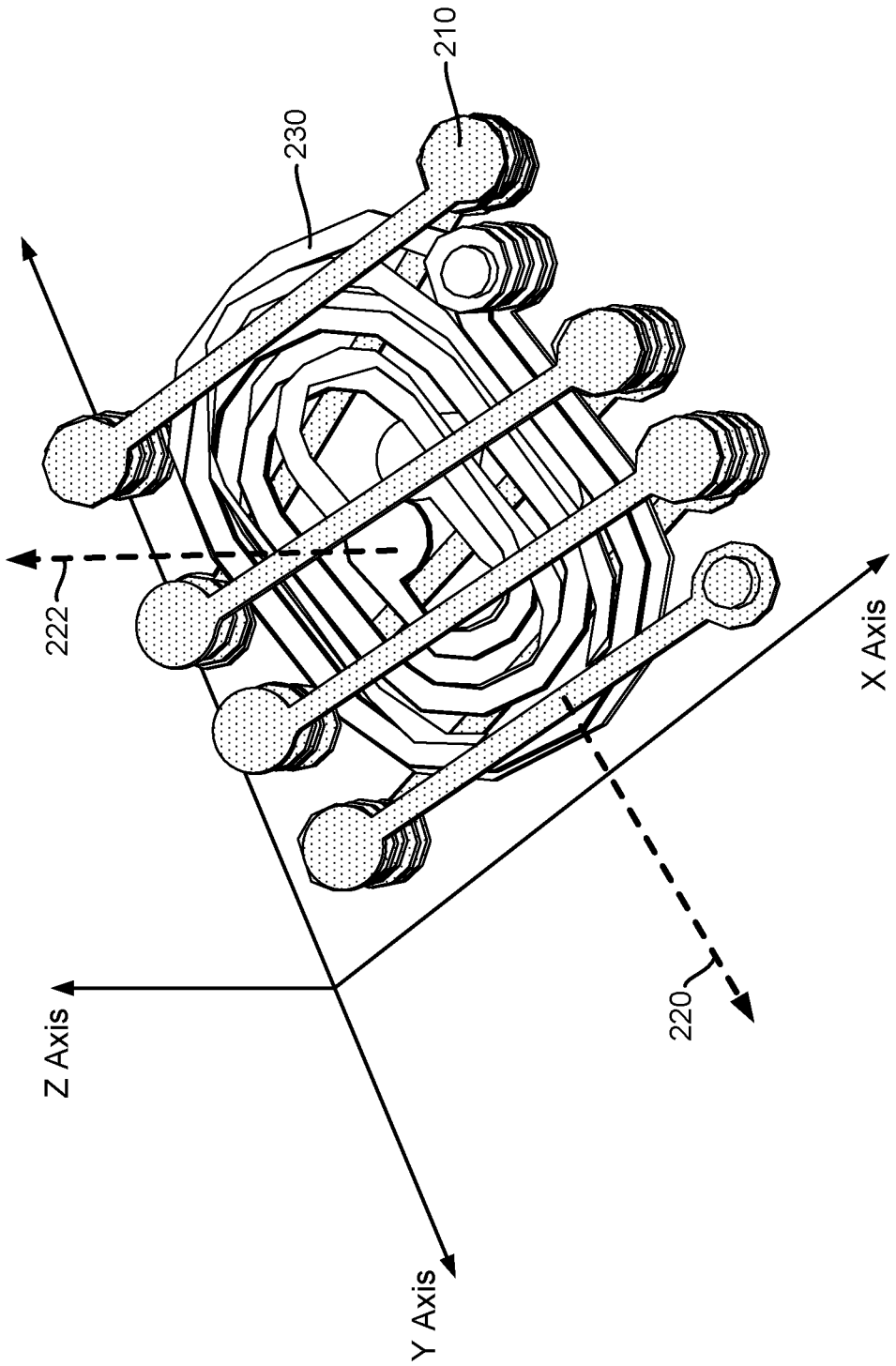


FIG. 2D

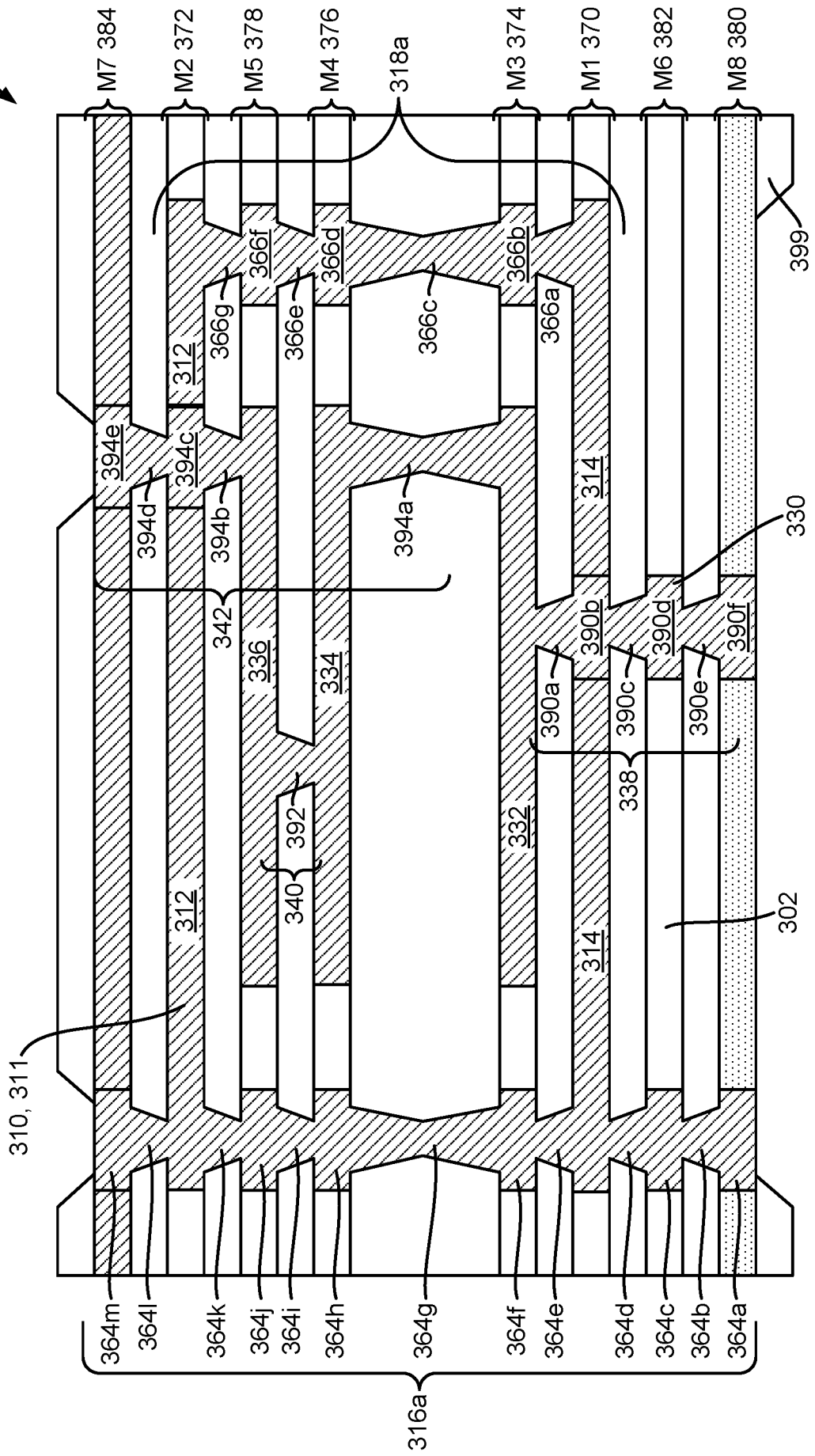

300
M7 384
M2 372
M5 378
M4 376
318a
M3 374
M1 370
M6 382
M8 380
399
366f
366d
366b
366g
366e
366c
366a
312
394e
394c
394d
394b
394a
314
330
342
336
334
390b
390d
390f
390a
390c
390e
338
392
340
332
312
314
302
310, 311
364m
364l
364k
364j
364i
364h
364g
364f
364e
364d
364c
364b
364a
316a

FIG. 3

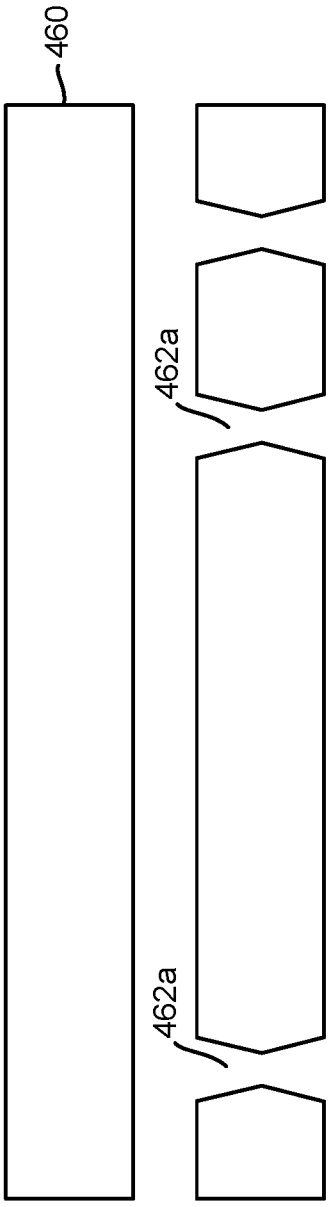


FIG. 4A

FIG. 4B

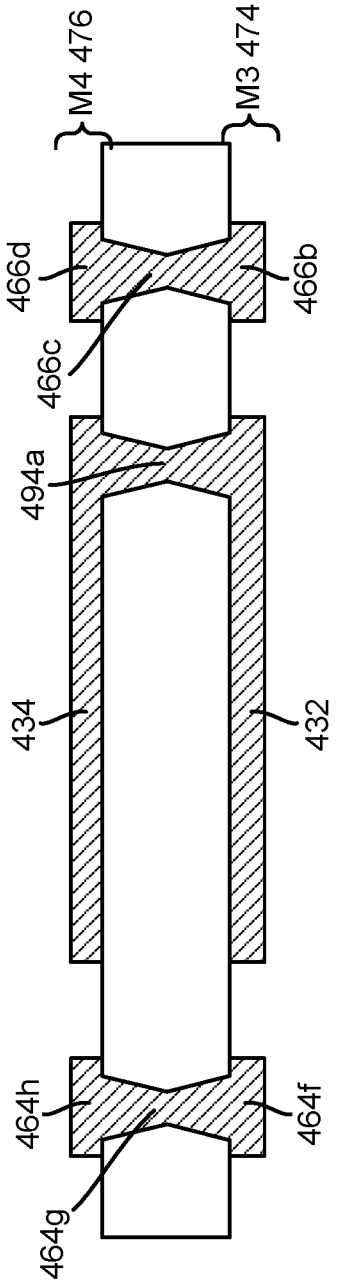


FIG. 4C

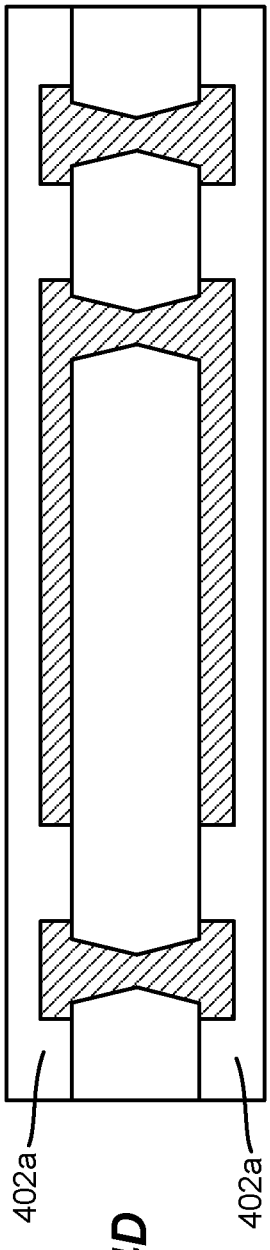


FIG. 4D

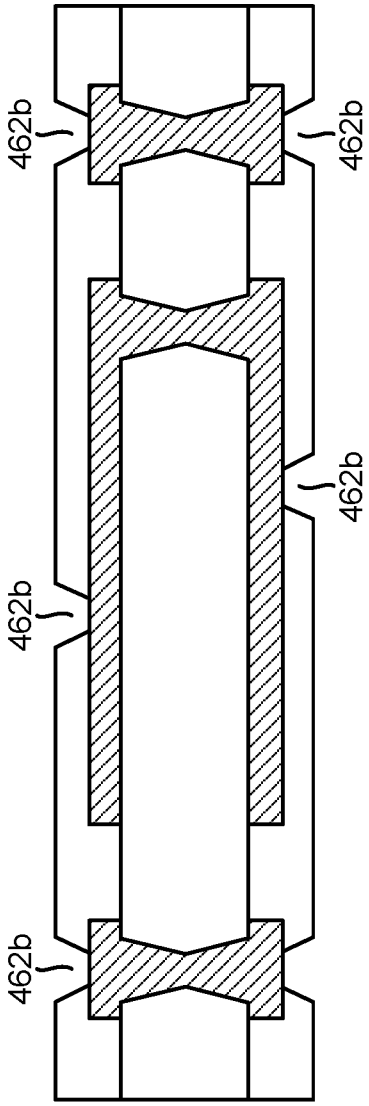


FIG. 4E

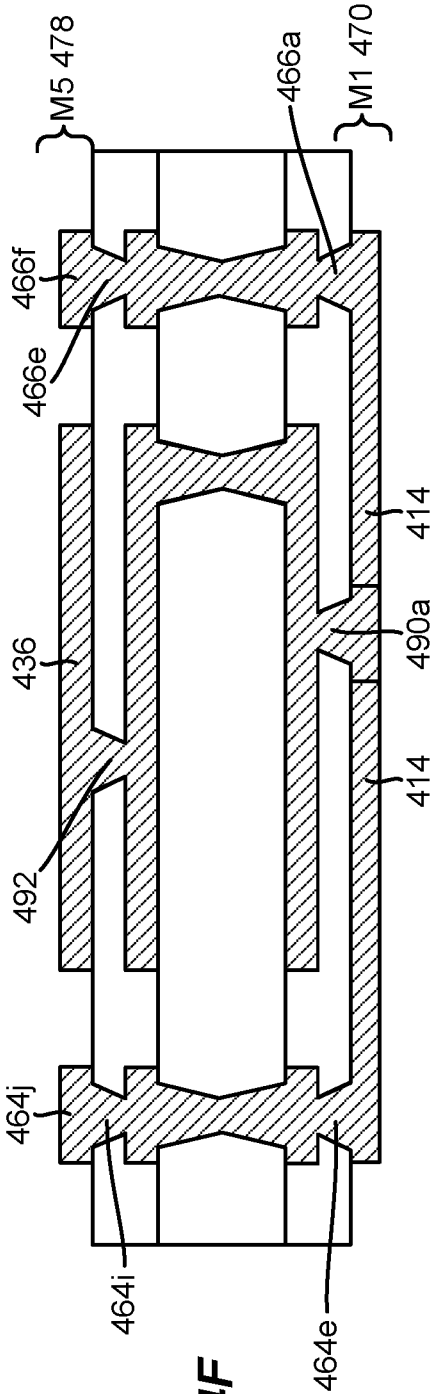


FIG. 4F

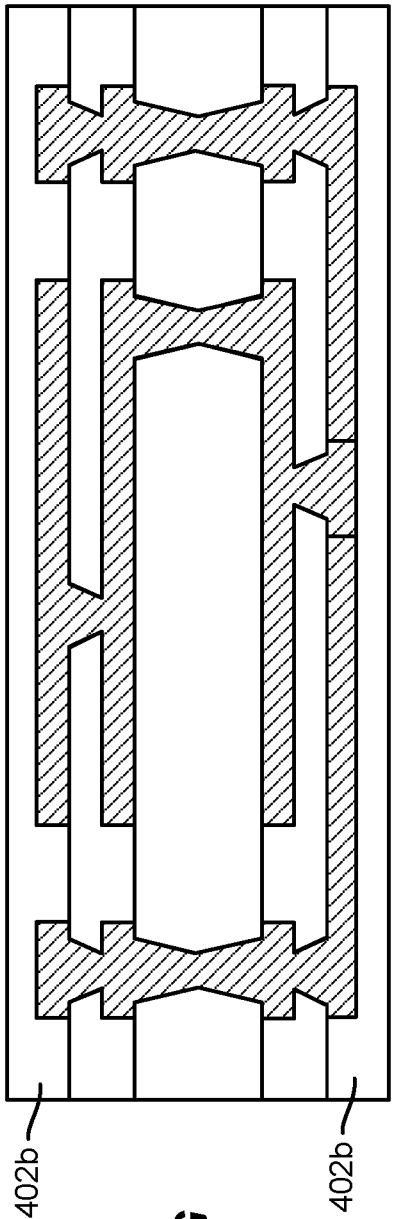


FIG. 4G

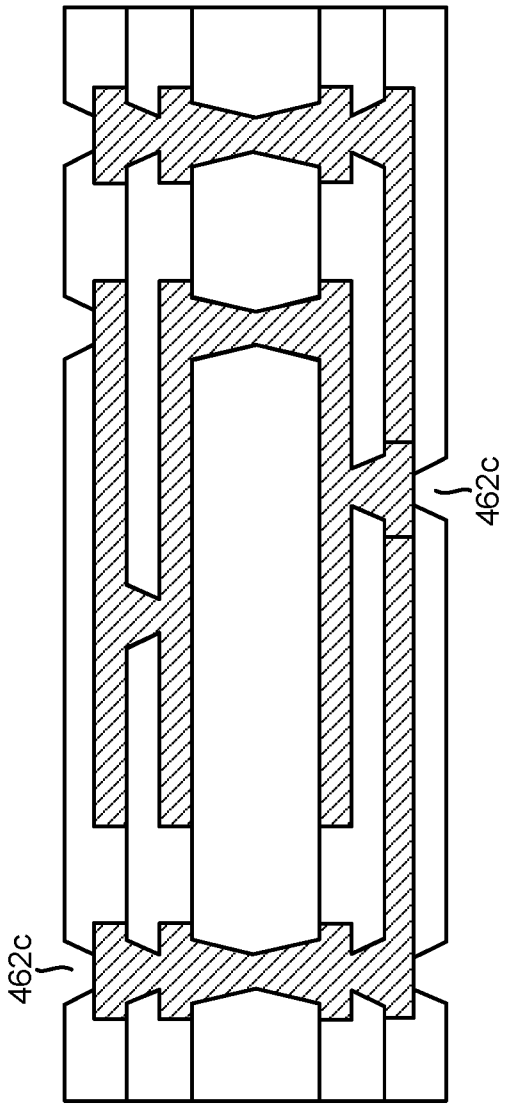

462c
462c

FIG. 4H

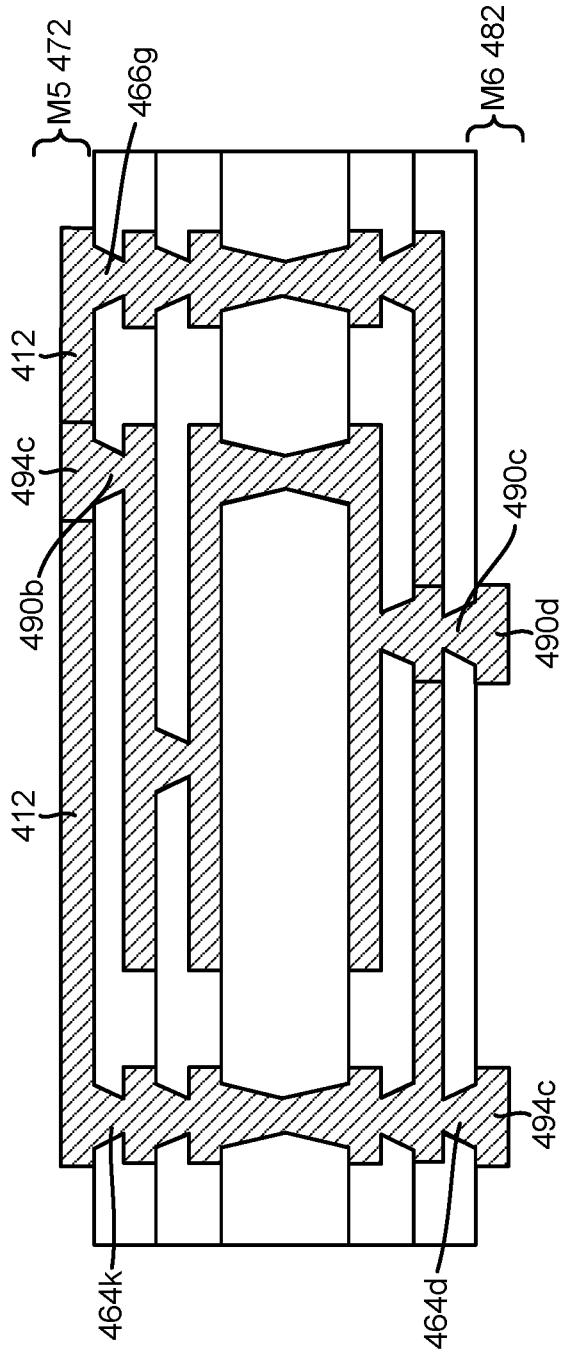

M5 472
466g
M6 482
412
494c
490b
490c
490d
412
494c
464k
464d

FIG. 4I

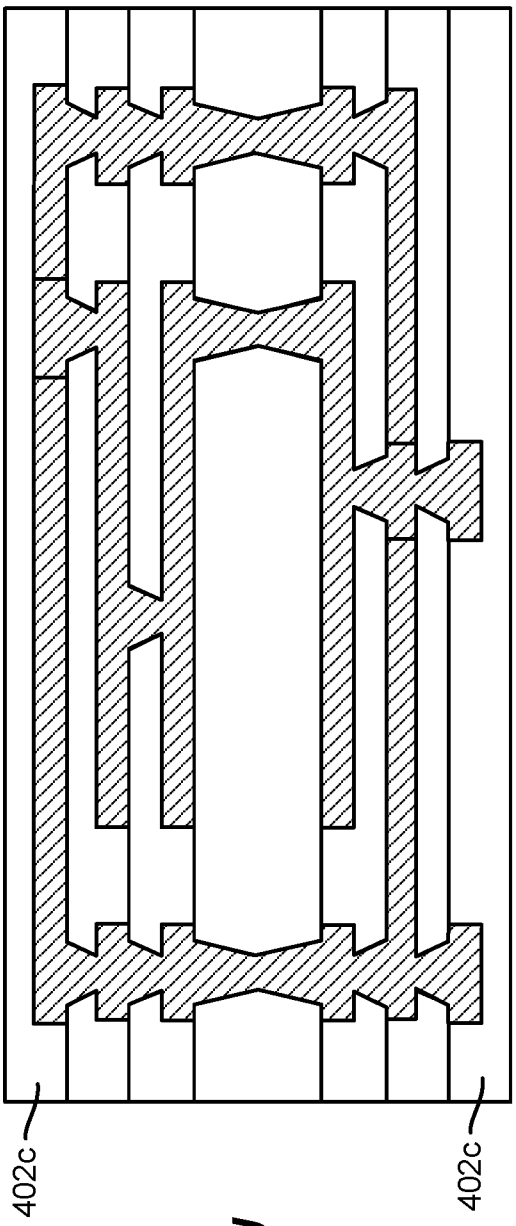


FIG. 4J

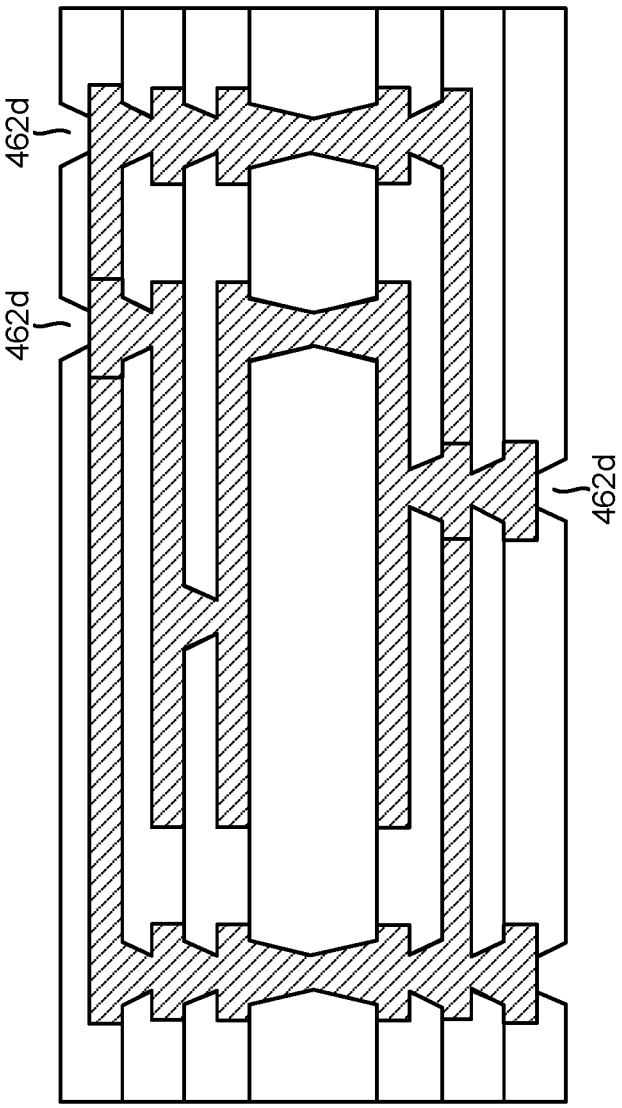


FIG. 4K

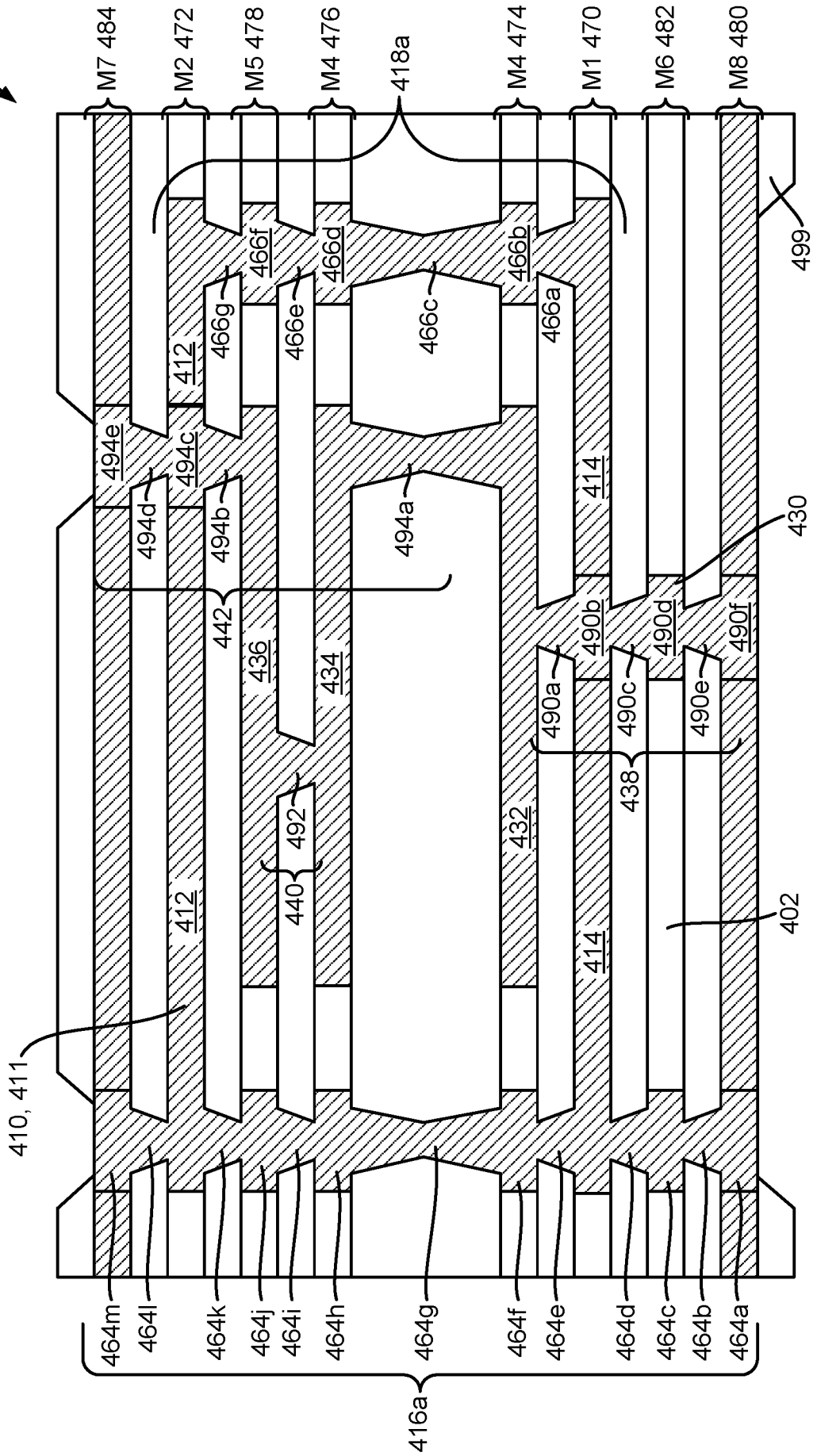

400
M7 484
M2 472
M5 478
M4 476
418a
M4 474
M1 470
M6 482
M8 480
499
466f
466d
466b
466g
466e
466c
466a
412
494e
494c
494d
494b
494a
414
430
442
436
434
490b
490d
490f
490a
490c
490e
438
492
440
432
402
410, 411
464m
464l
464k
464j
464i
464h
464g
464f
464e
464d
464c
464b
464a
416a

FIG. 4L

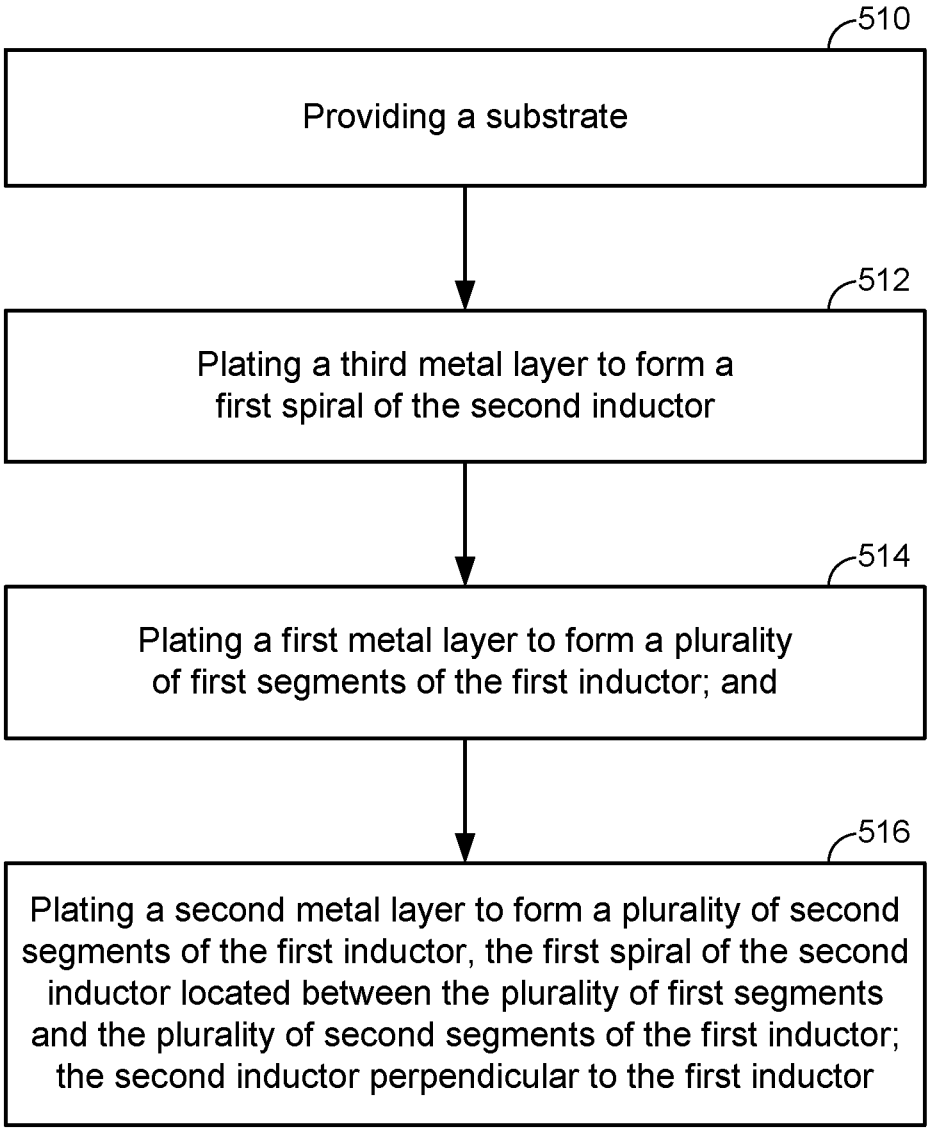

510
Providing a substrate
512
Plating a third metal layer to form a first spiral of the second inductor
514
Plating a first metal layer to form a plurality of first segments of the first inductor; and
516
Plating a second metal layer to form a plurality of second segments of the first inductor, the first spiral of the second inductor located between the plurality of first segments and the plurality of second segments of the first inductor; the second inductor perpendicular to the first inductor

FIG. 5

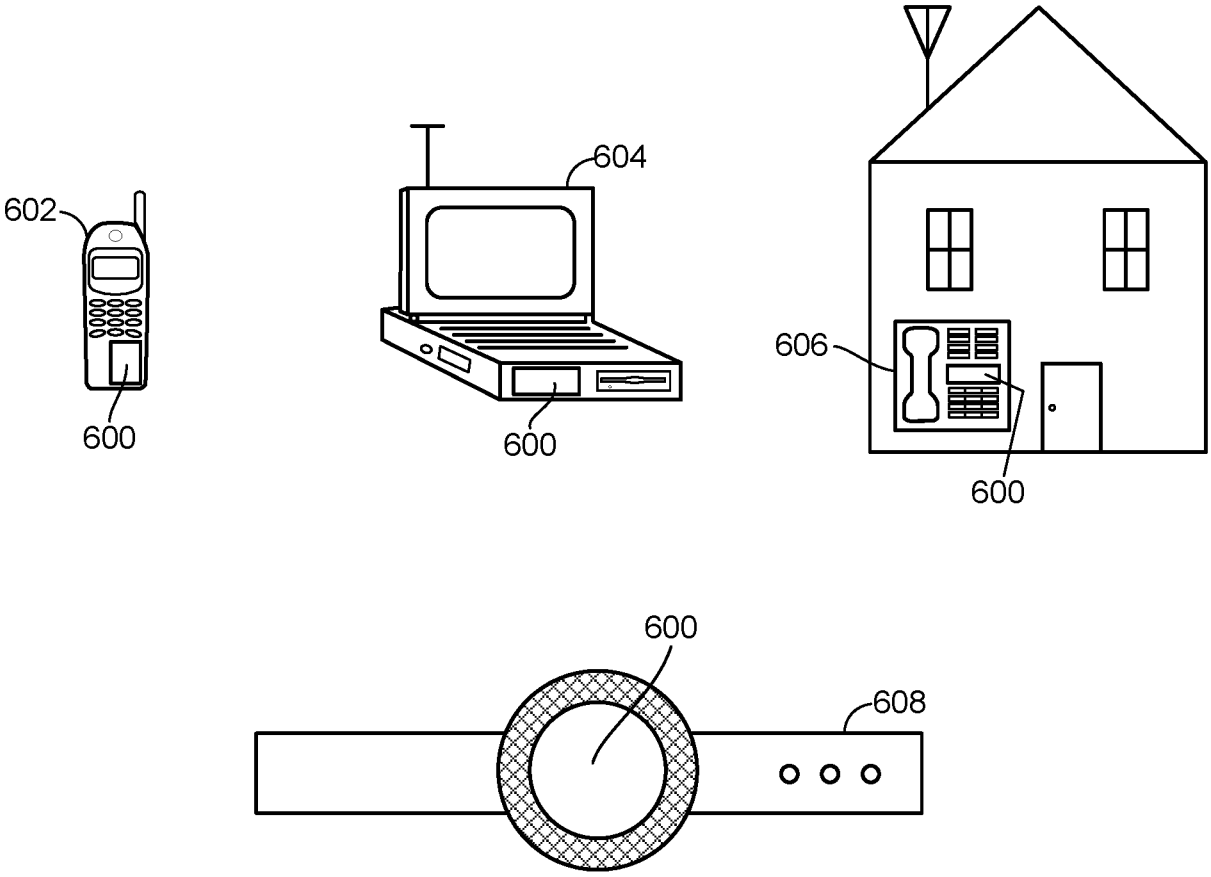


FIG. 6