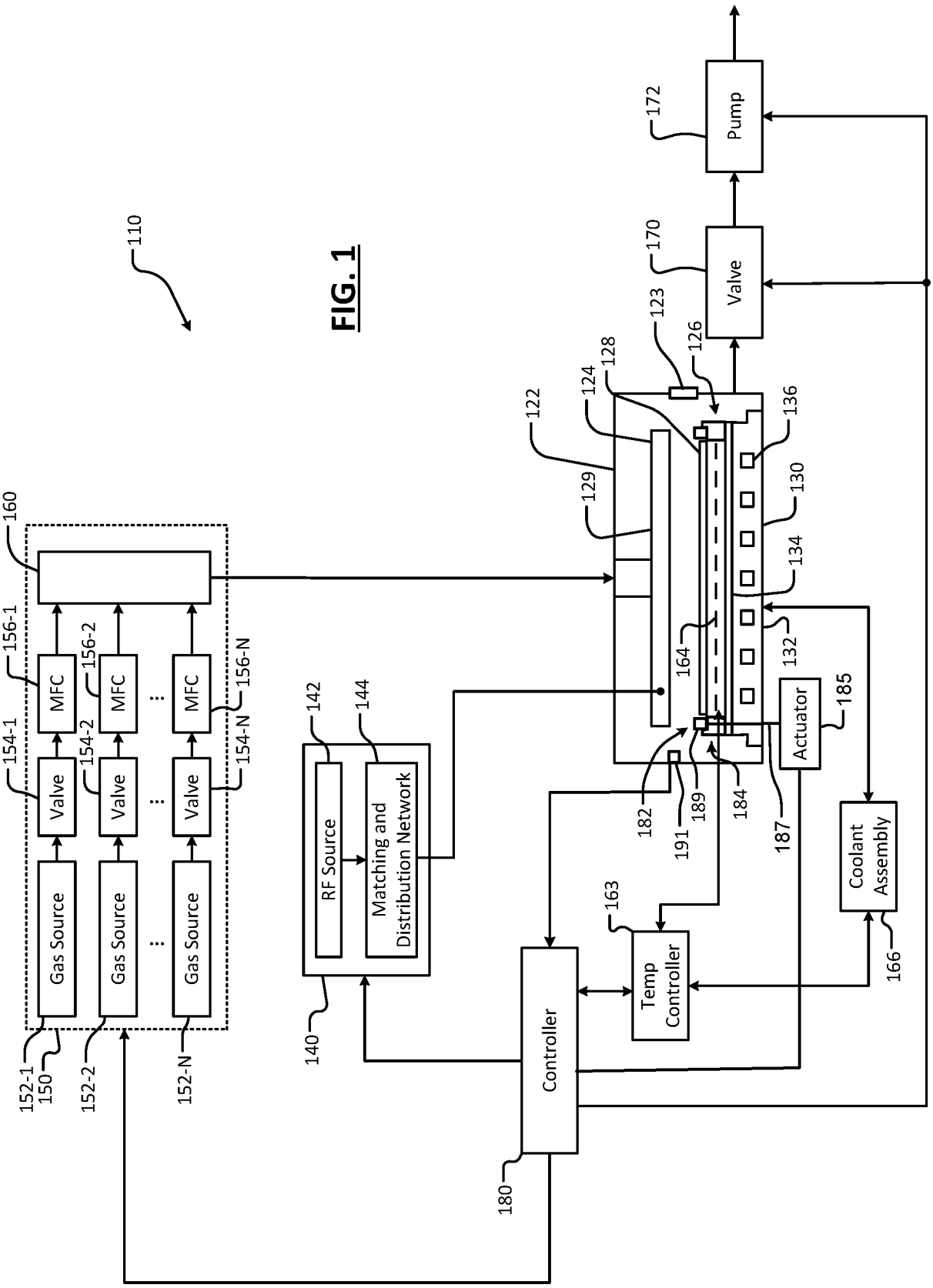

110
160
156-1
156-2
156-N
154-1
154-2
154-N
MFC
MFC
MFC
Valve
Valve
Valve
Gas Source
Gas Source
Gas Source
152-1
150
152-2
152-N
142
144
RF Source
Matching and Distribution Network
140
180
Controller
163
Temp Controller
166
Coolant Assembly
185
Actuator
187
182
191
189
184
164
132
134
130
136
122
129
124
128
123
126
170
Valve
172
Pump

FIG. 1

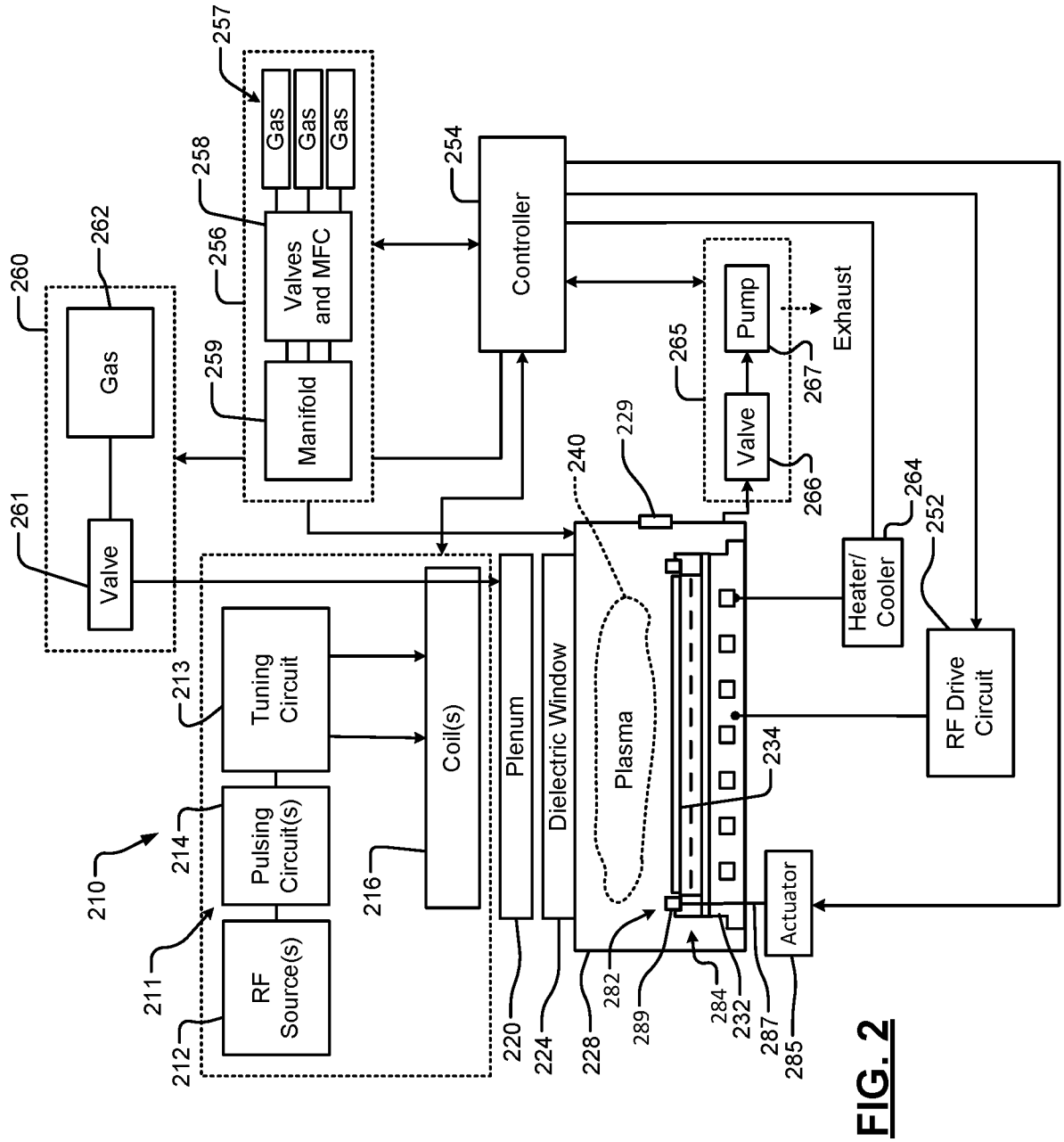

Gas
Gas
Gas
Valves and MFC
Manifold
Controller
Pump
Exhaust
Valve
Gas
Valve
Tuning Circuit
Pulsing Circuit(s)
RF Source(s)
Coil(s)
Plenum
Dielectric Window
Plasma
Heater/ Cooler
RF Drive Circuit
Actuator
210
211
212
213
214
216
220
224
228
229
232
234
240
252
254
256
257
258
259
260
261
262
264
265
266
267
282
284
285
287
289

FIG. 2

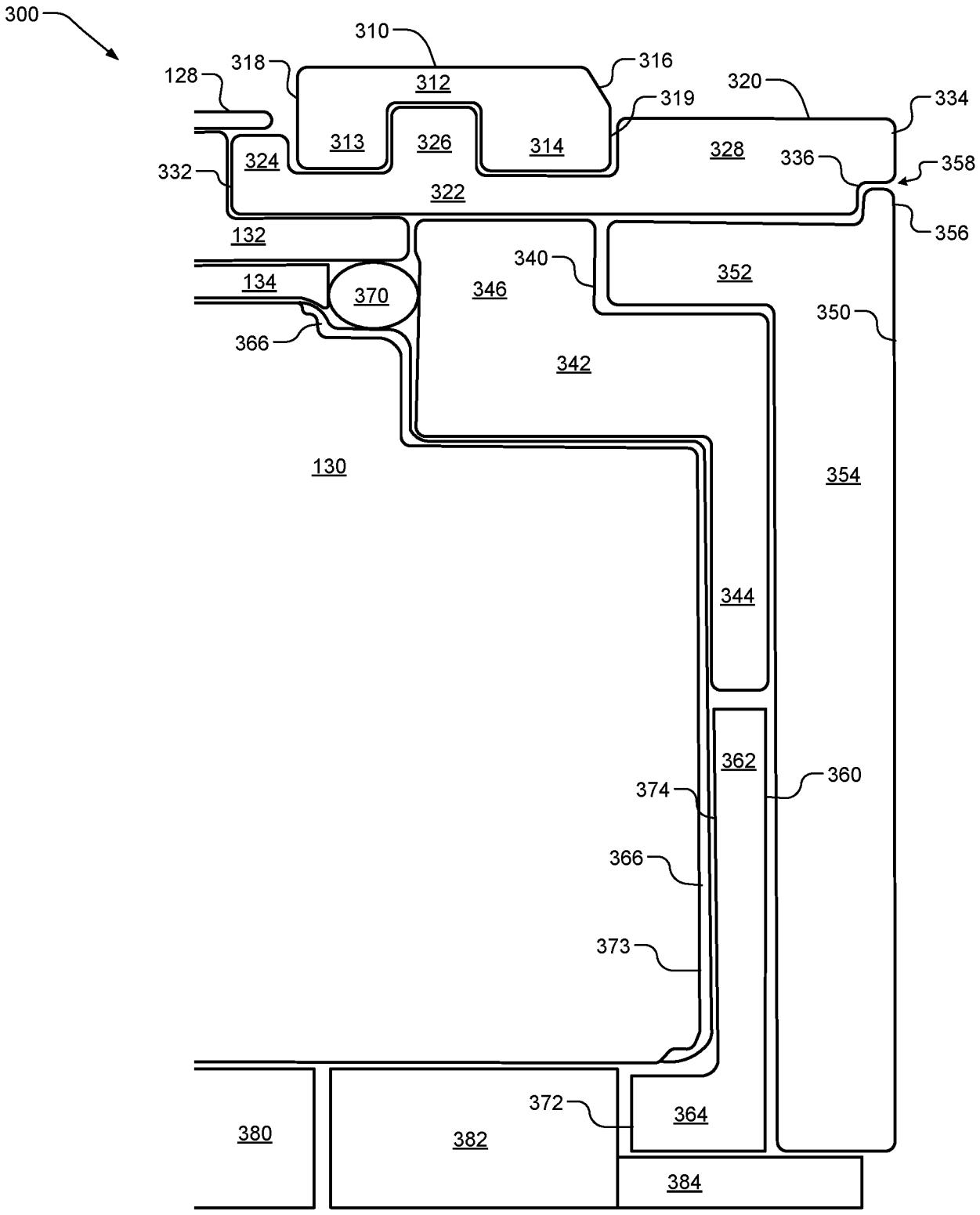

300
310
318
316
128
312
320
319
334
313
326
314
328
336
358
324
332
322
356
132
340
352
134
370
346
350
366
342
130
354
344
362
360
374
366
373
372
364
380
382
384

FIG. 3

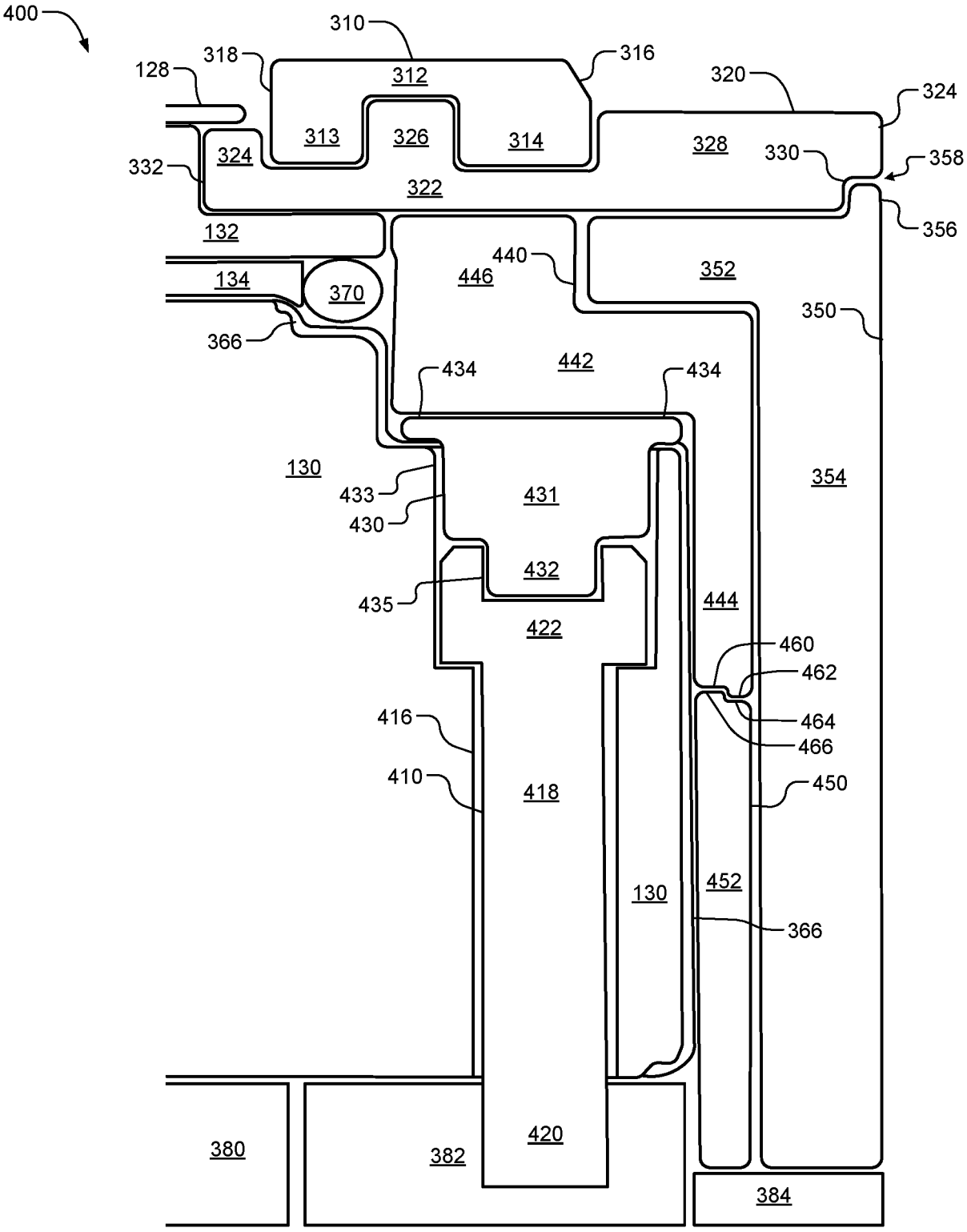

400
310
318
316
128
312
320
324
313
326
314
328
330
358
332
324
322
356
132
440
352
134
370
446
350
366
434
442
434
130
354
433
431
430
432
435
444
422
460
462
416
464
466
410
418
450
130
452
366
380
382
420
384

FIG. 4

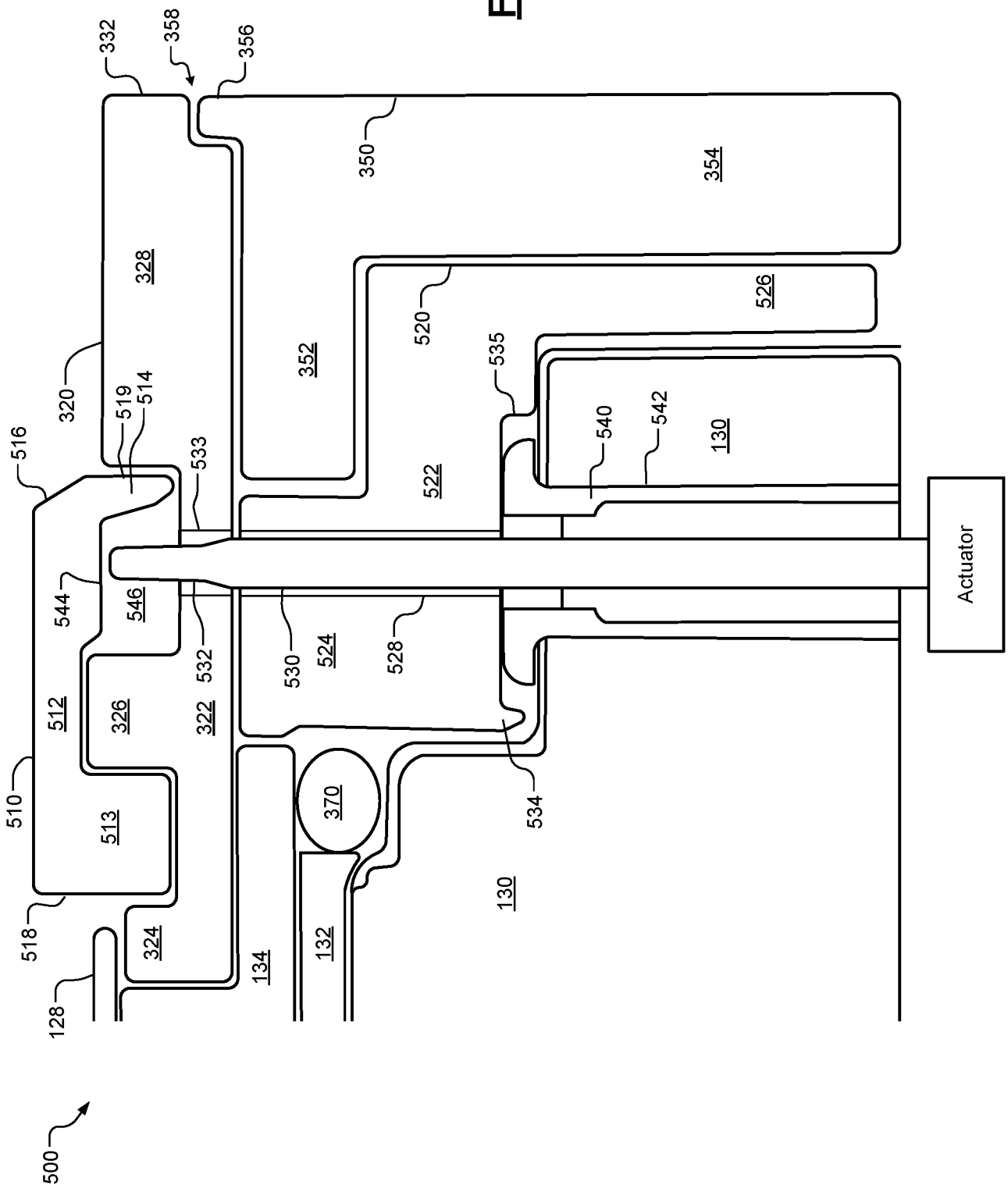
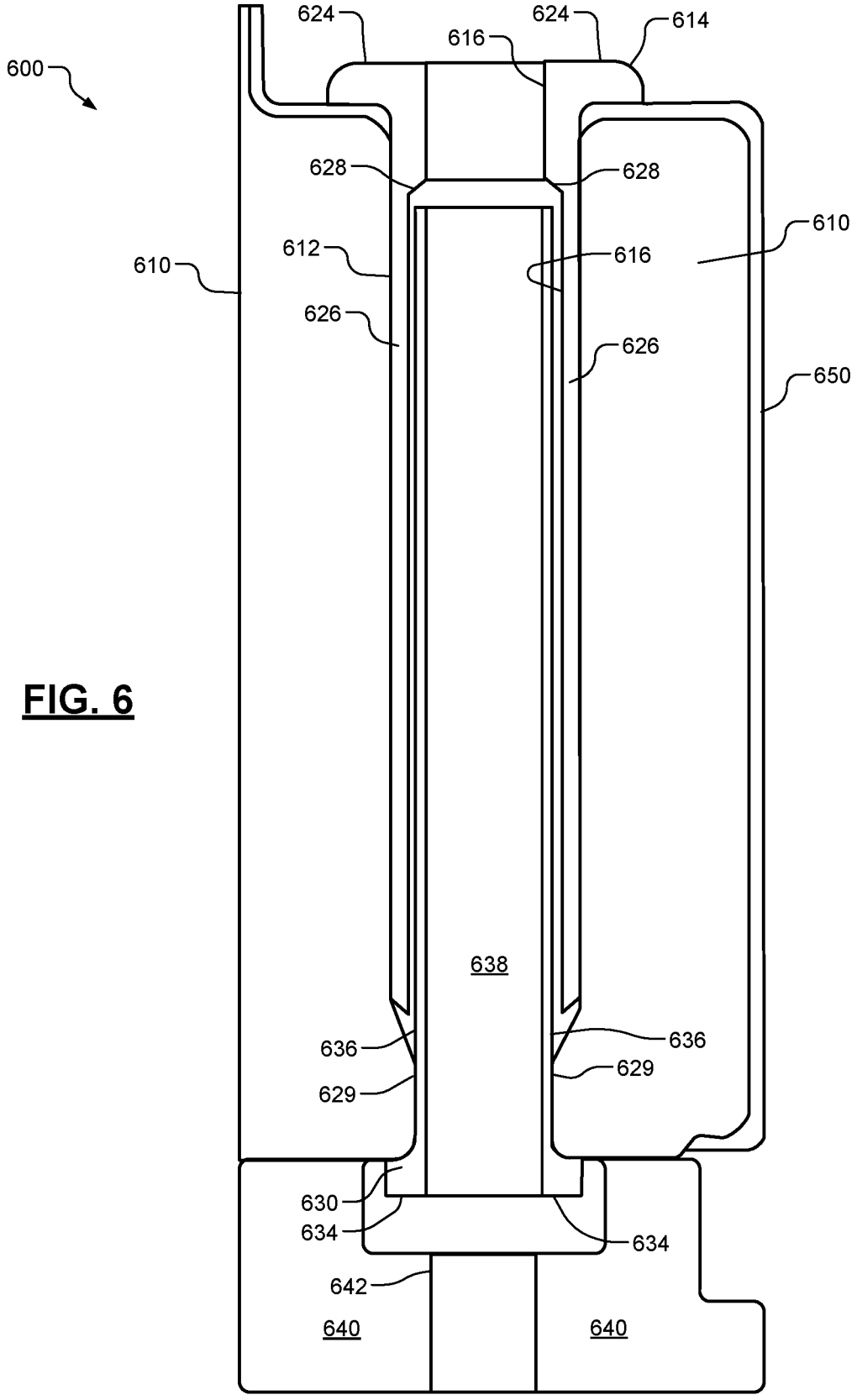

332
358
356
350
354
328
520
526
352
535
320
519
514
516
533
540
542
130
522
Actuator
544
546
532
530
524
528
512
326
322
510
513
370
534
130
518
324
134
132
128
500

FIG. 5


600
624
624
614
616
628
628
610
612
616
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626
626
650
638
636
636
629
629
630
634
634
642
640
640

FIG. 6

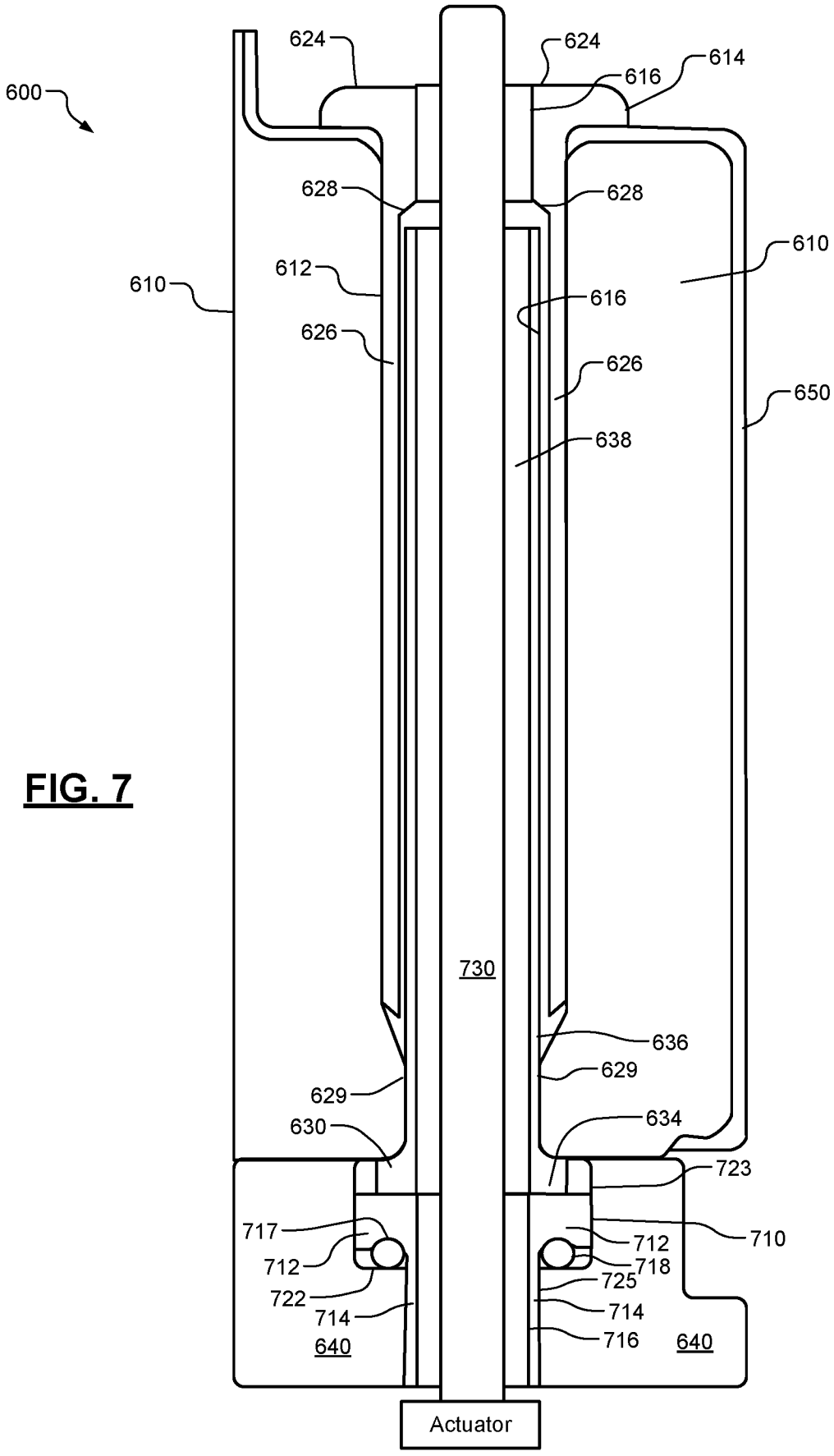
600
624
624
614
616
628
628
610
610
612
616
626
626
650
638
730
636
629
629
630
634
723
717
710
712
712
718
722
725
714
714
716
640
640
Actuator

FIG. 7

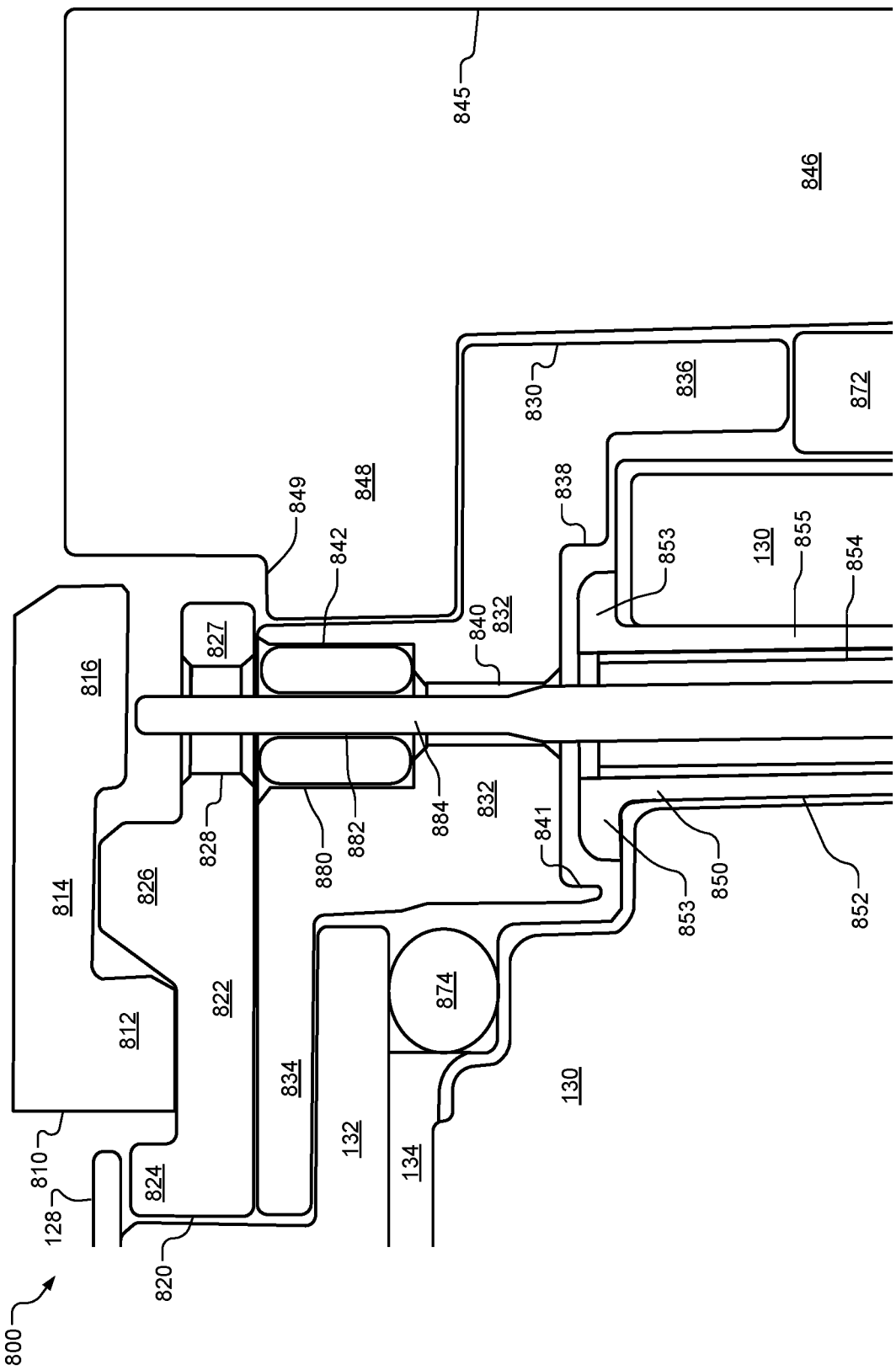
800
128
810
820
824
812
814
816
826
822
827
828
834
132
134
130
874
880
882
884
832
841
840
832
842
849
848
845
846
830
836
872
838
853
130
855
854
853
850
852

FIG. 8