FIG. 1

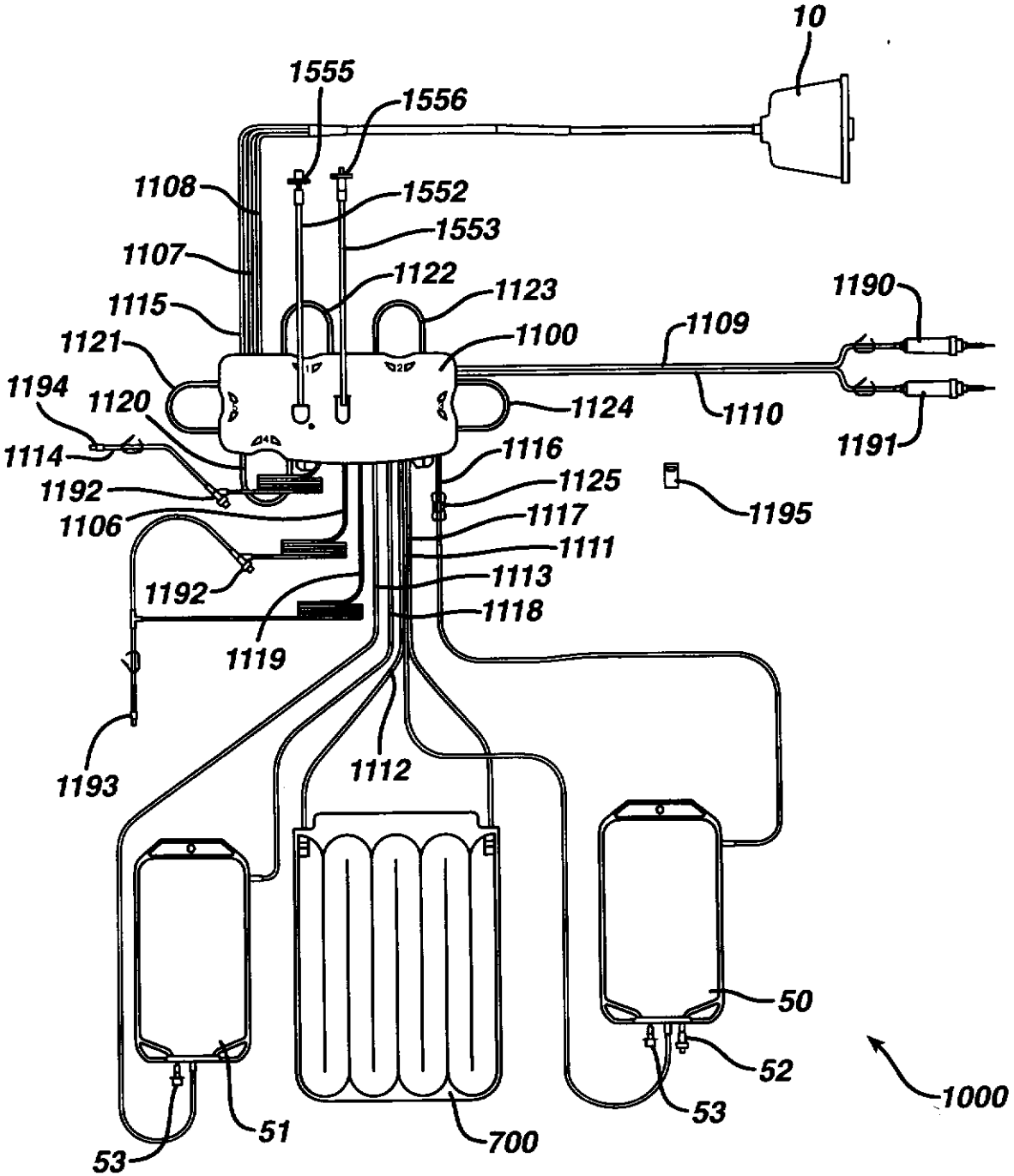
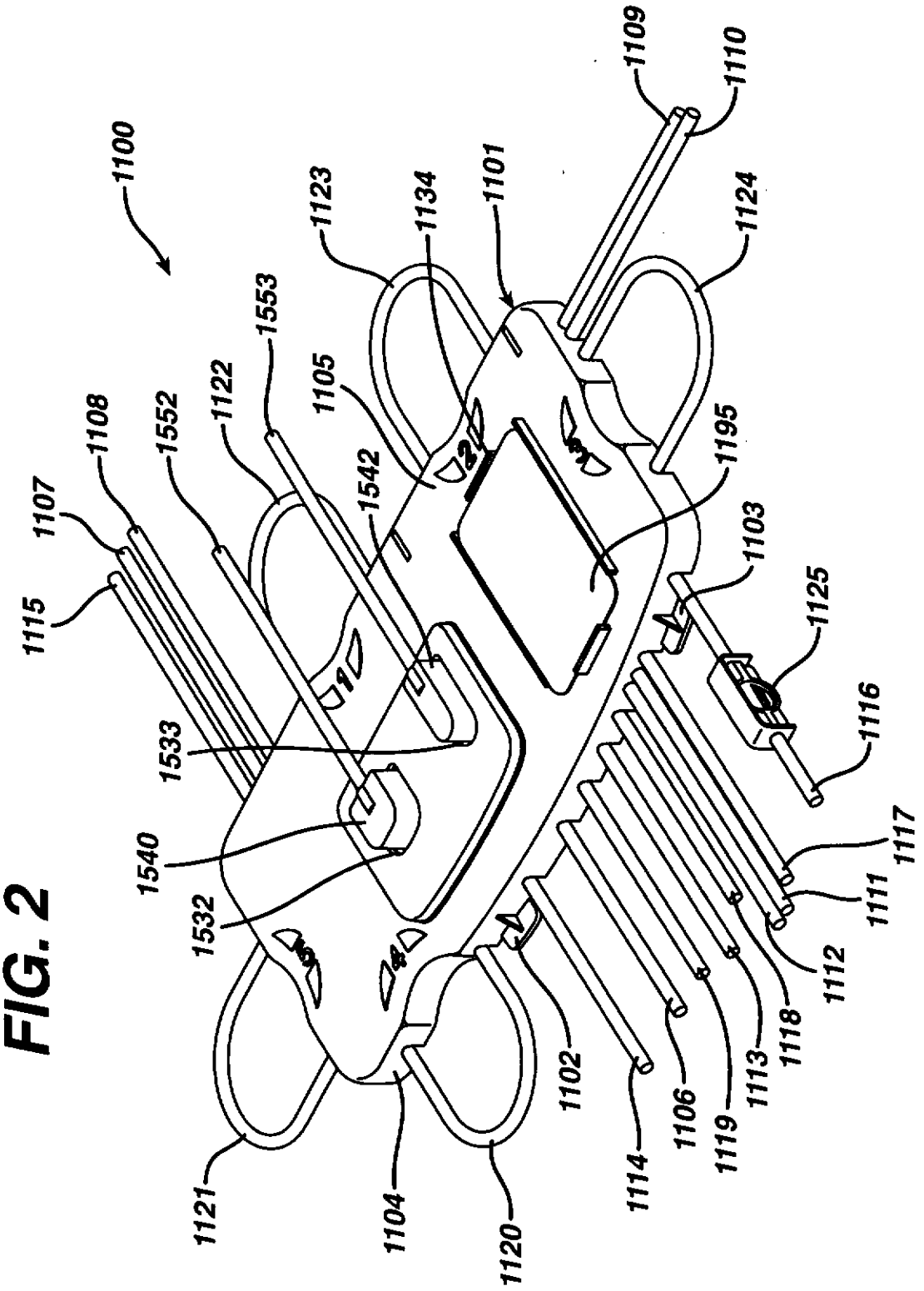

10
1555
1556
1108
1552
1553
1107
1122
1123
1190
1115
1109
1121
1100
1194
1120
1124
1110
1191
1114
1116
1125
1192
1195
1106
1117
1111
1192
1113
1118
1119
1193
1112
50
52
53
1000
51
53
700

FIG. 2


1100
1101
1102
1103
1104
1105
1106
1107
1108
1109
1110
1111
1112
1113
1114
1115
1116
1117
1118
1119
1120
1121
1122
1123
1124
1125
1532
1533
1534
1540
1542
1552
1553
1195

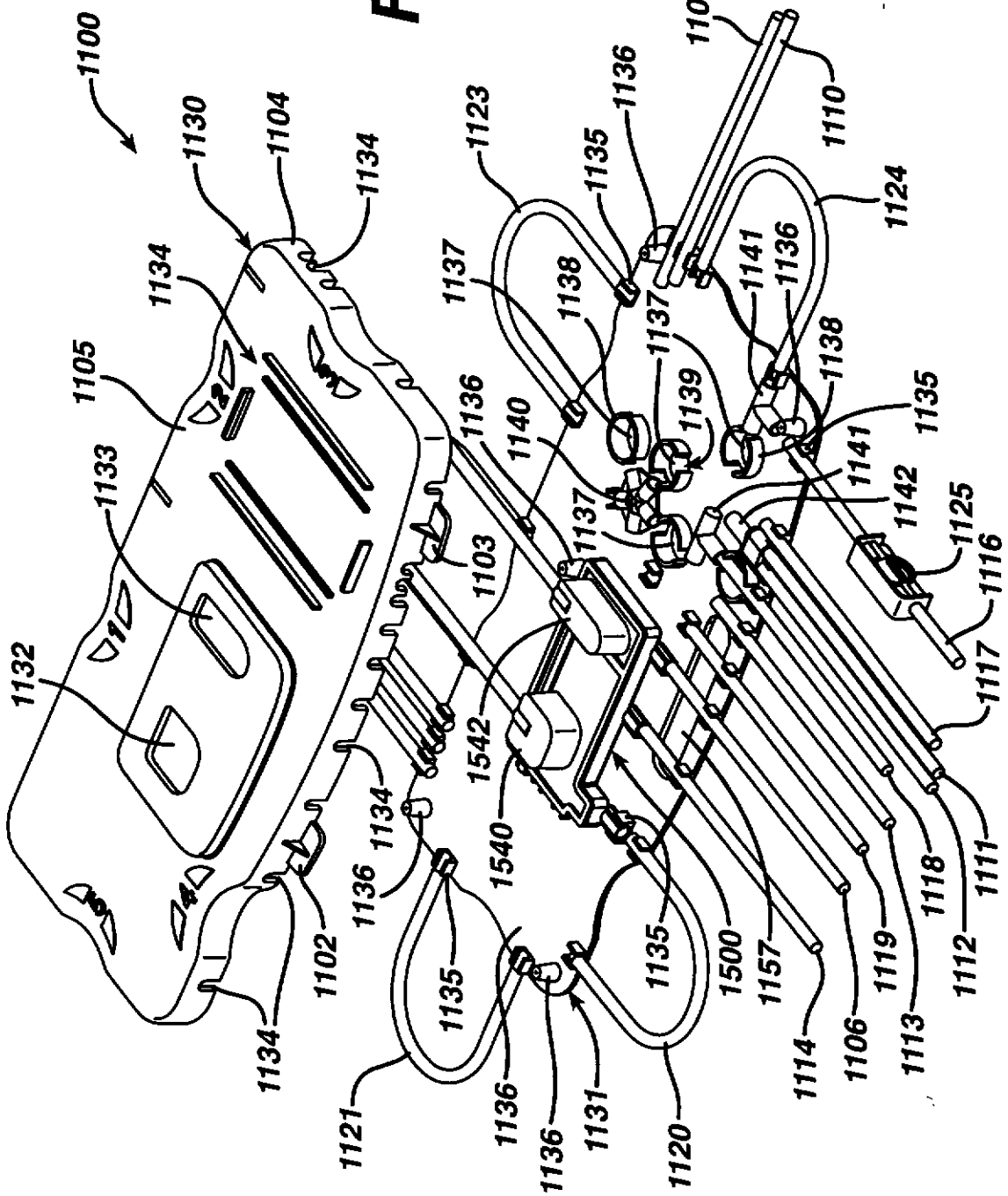

1100
1130
1104
1134
1105
1133
1132
1102
1134
1121
1135
1136
1134
1136
1131
1136
1120
1135
1500
1157
1114
1106
1119
1113
1118
1112
1111
1117
1116
1125
1142
1141
1135
1138
1136
1141
1124
1110
1109
1136
1135
1123
1137
1138
1137
1139
1140
1136
1103
1542
1540
1137

FIG. 3

FIG. 4

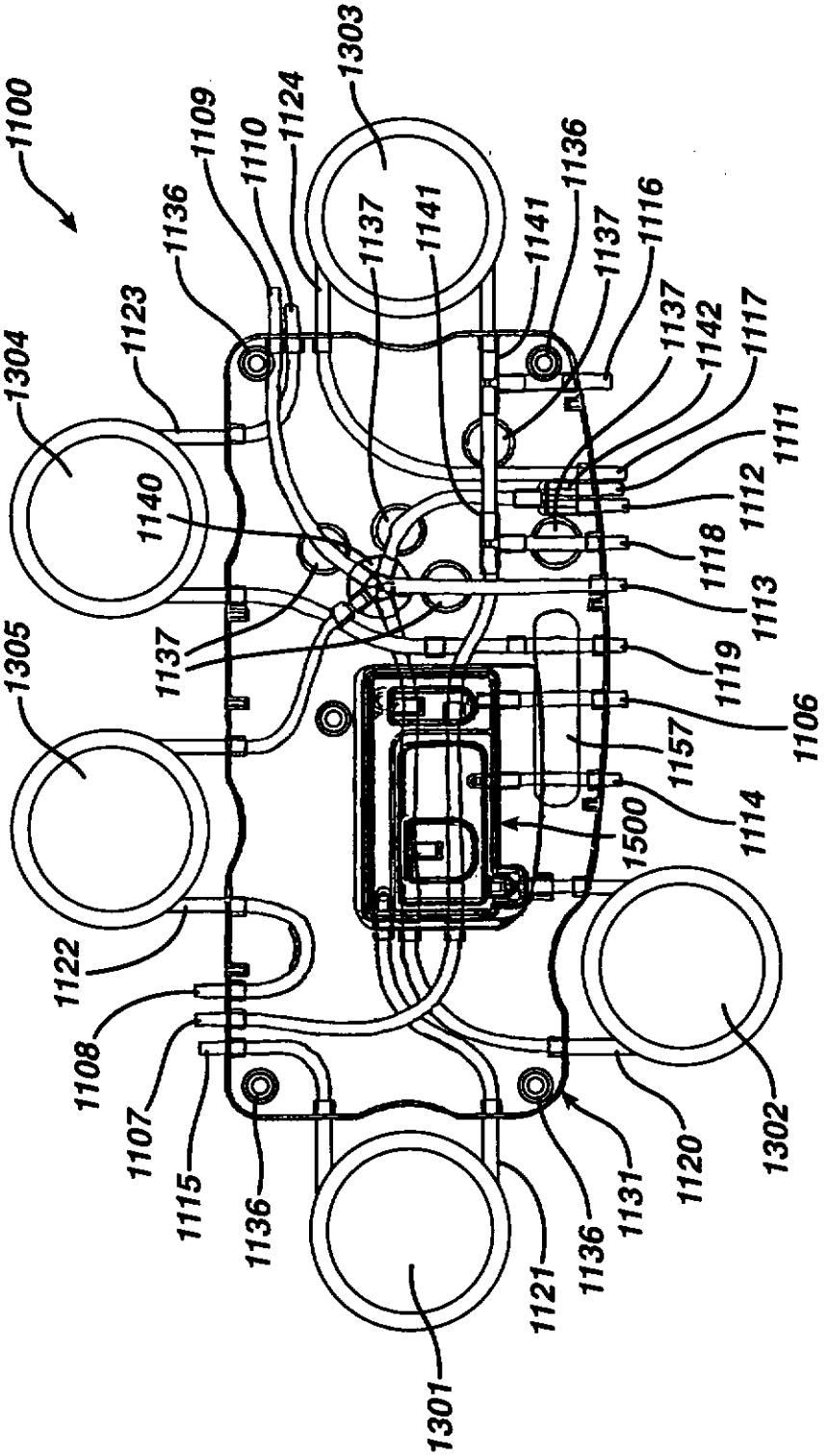

1100
1303
1109
1110
1124
1136
1123
1304
1140
1137
1141
1136
1137
1116
1137
1142
1117
1111
1112
1118
1113
1119
1106
1157
1114
1500
1305
1137
1122
1108
1107
1115
1136
1121
1136
1131
1120
1302
1301

FIG. 5

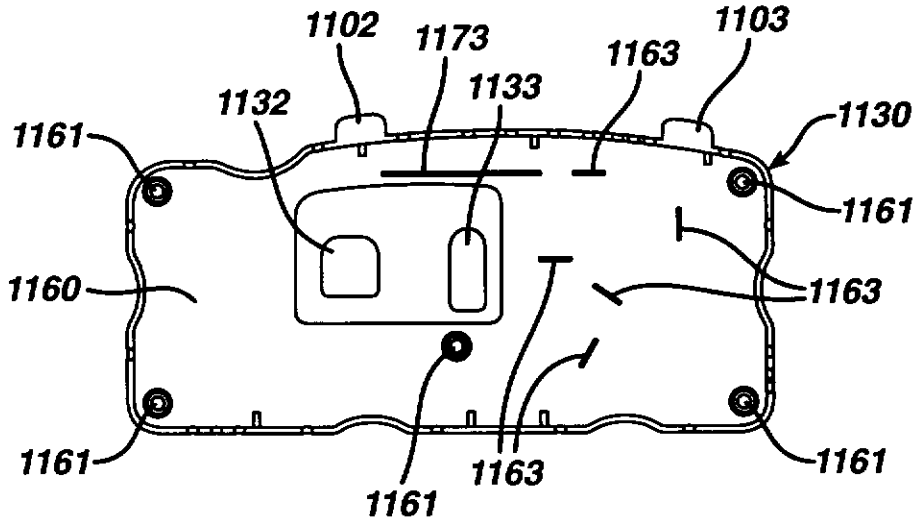

1102
1173
1133
1163
1103
1132
1130
1161
1161
1160
1163
1161
1163
1161
1161

FIG. 6

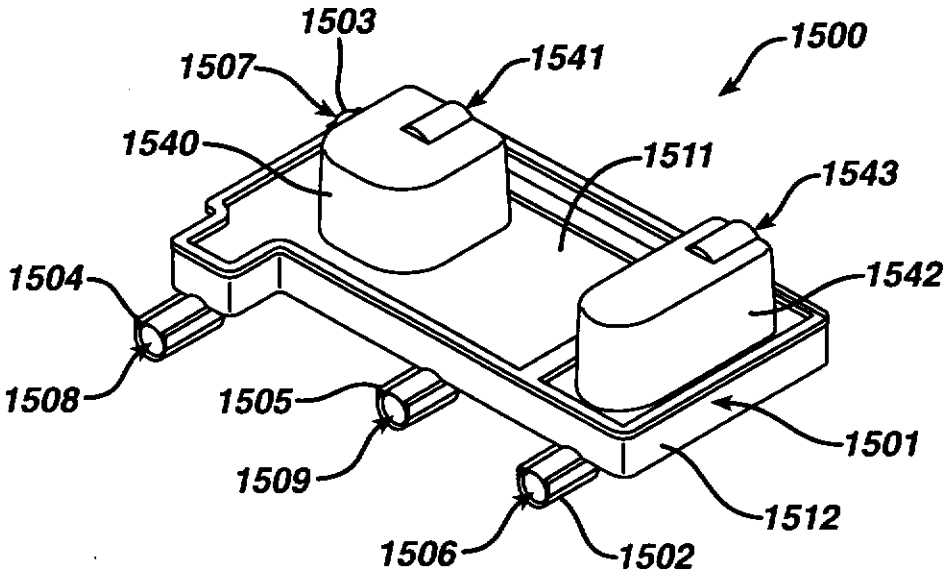

1503
1507
1541
1500
1540
1511
1543
1504
1542
1508
1505
1501
1509
1512
1506
1502

FIG. 7

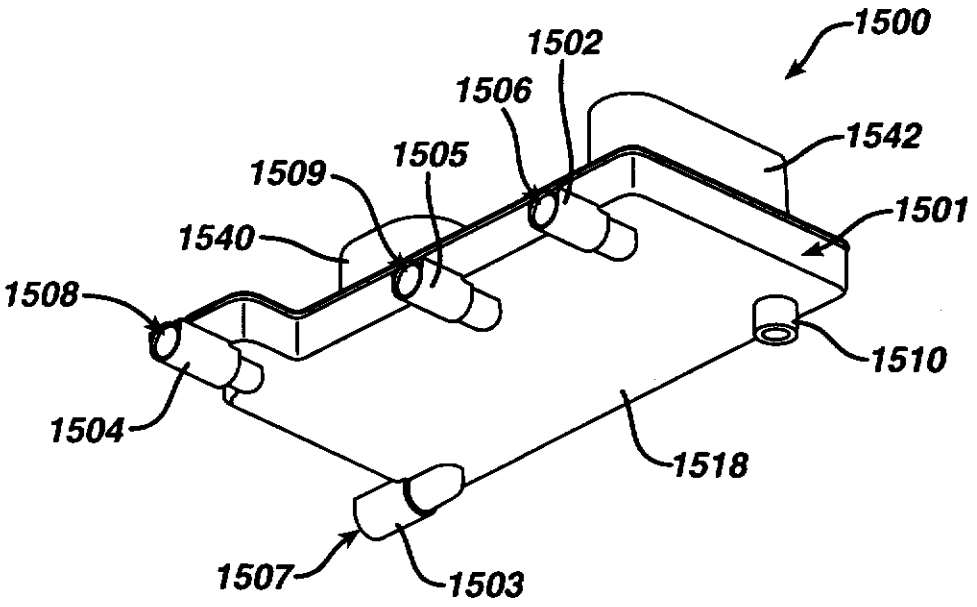

1500
1502
1506
1542
1509
1505
1501
1540
1508
1510
1504
1518
1507
1503

FIG. 8

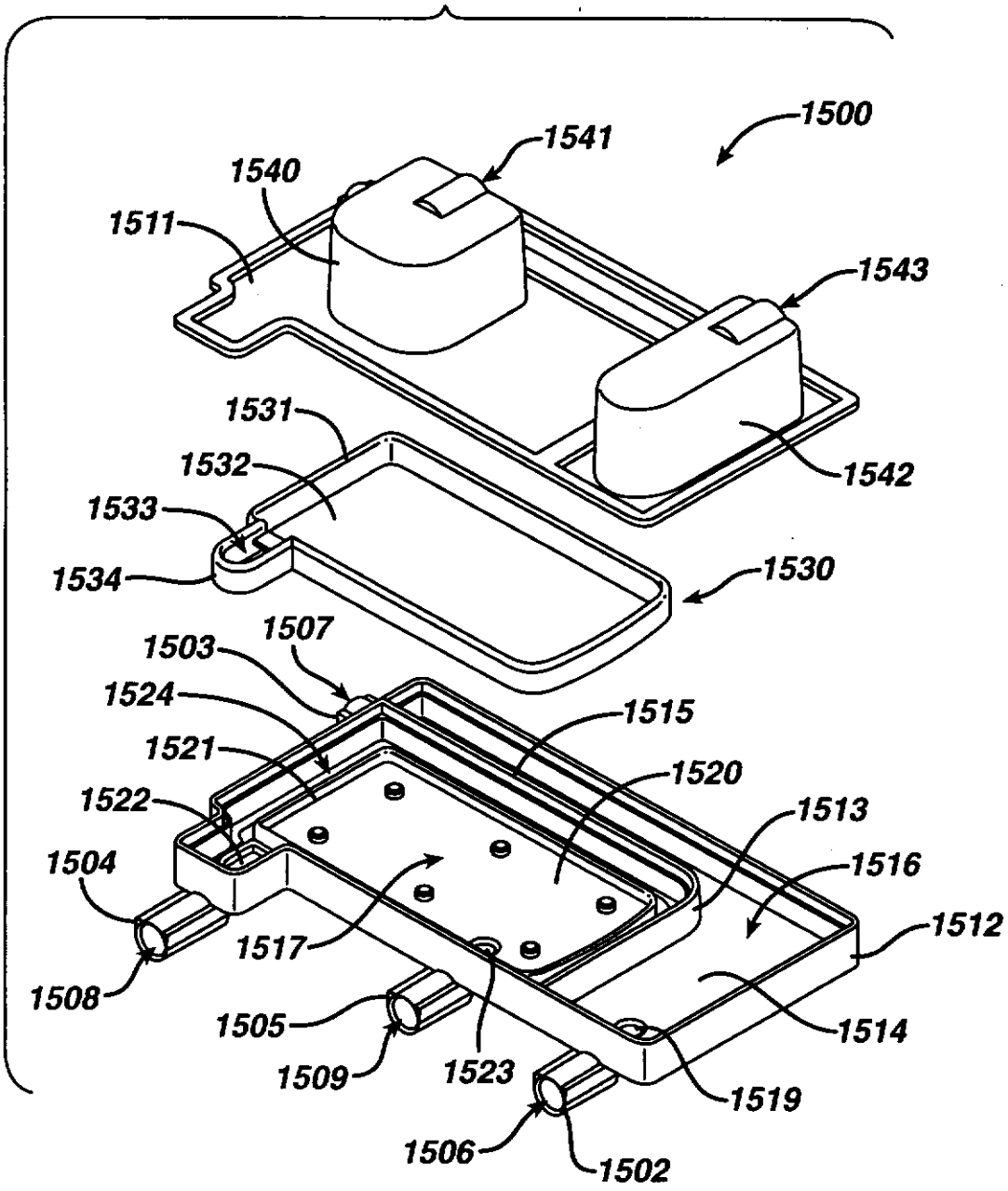

1500
1541
1540
1511
1543
1531
1532
1533
1542
1534
1530
1503
1507
1524
1515
1521
1520
1522
1513
1504
1516
1512
1517
1508
1505
1514
1509
1523
1519
1506
1502

FIG. 9

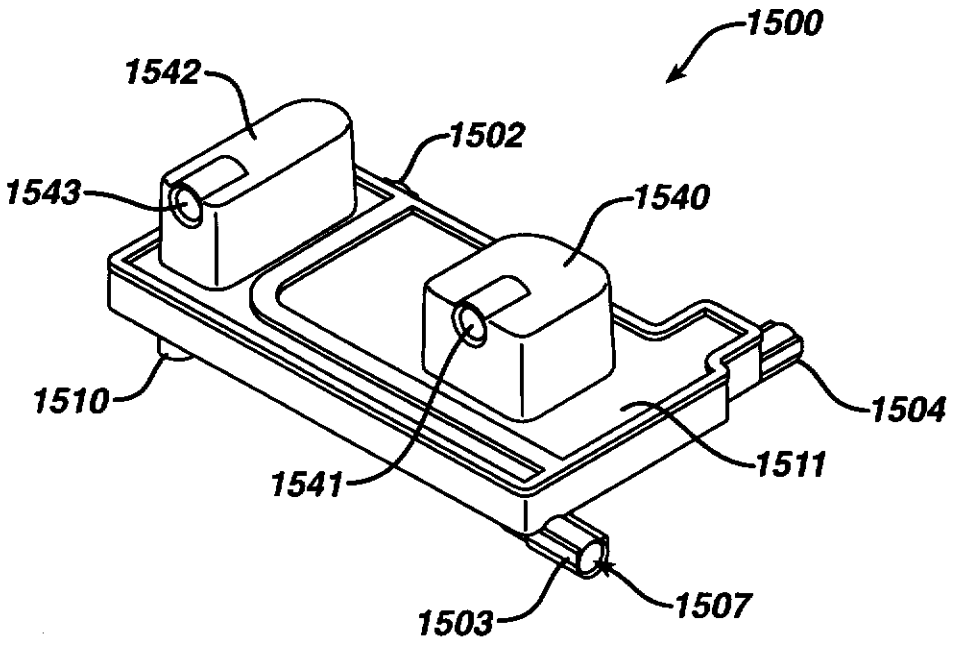


FIG. 10

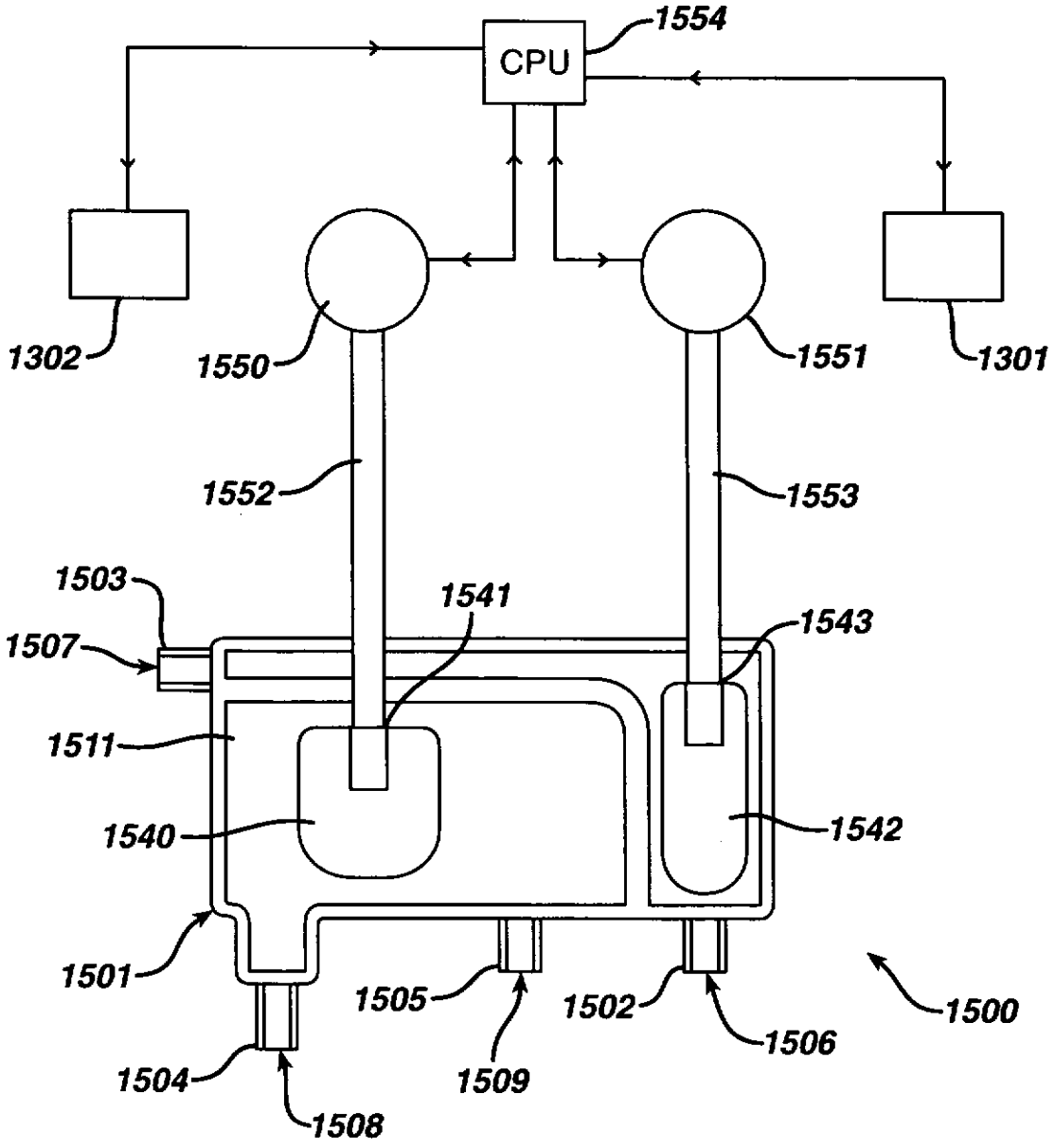

CPU
1554
1302
1550
1551
1301
1552
1553
1503
1541
1543
1507
1511
1540
1542
1501
1505
1502
1500
1504
1509
1506
1508

FIG. 11

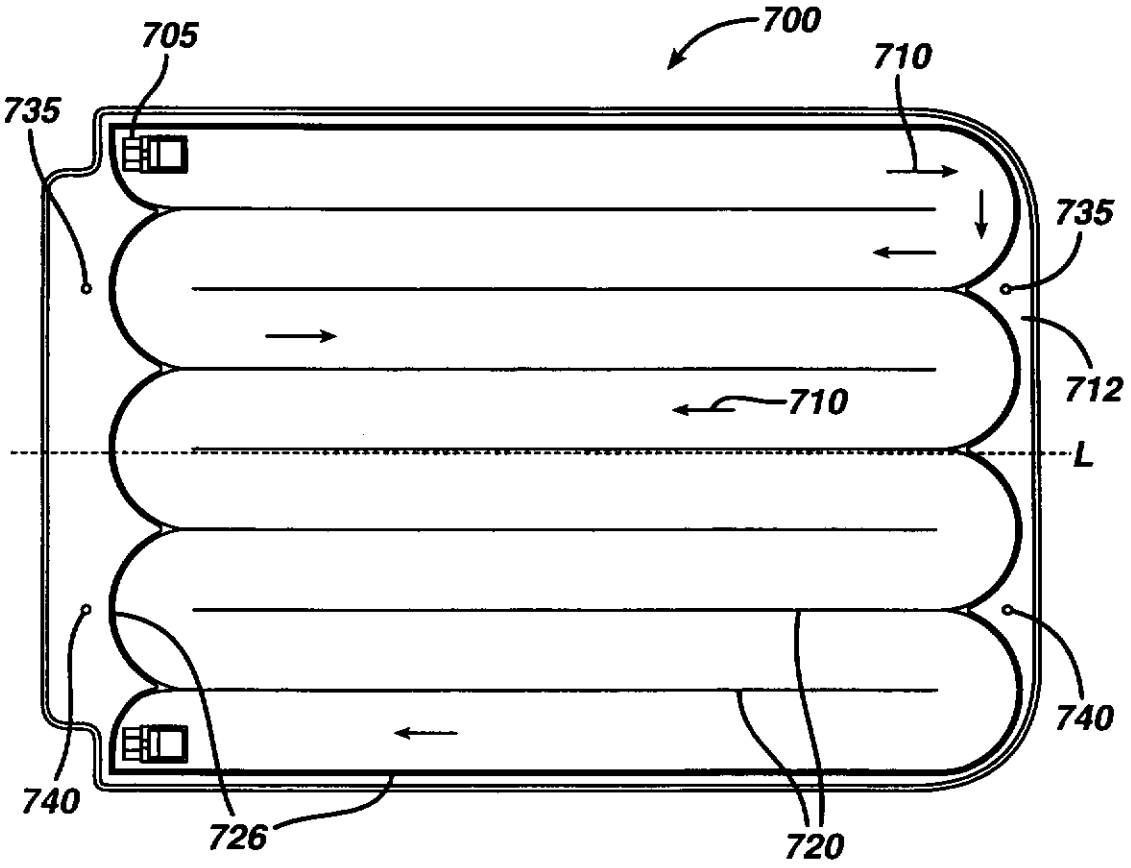


FIG. 12

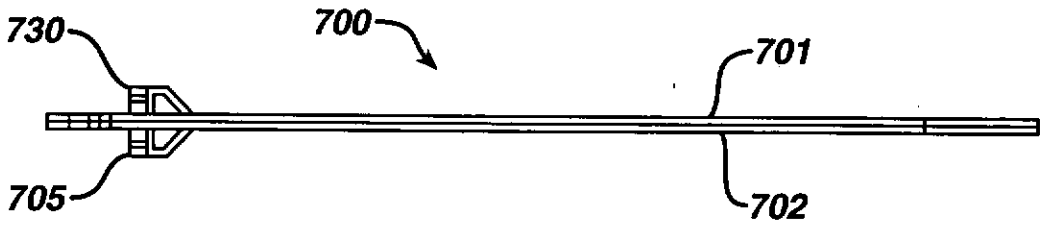
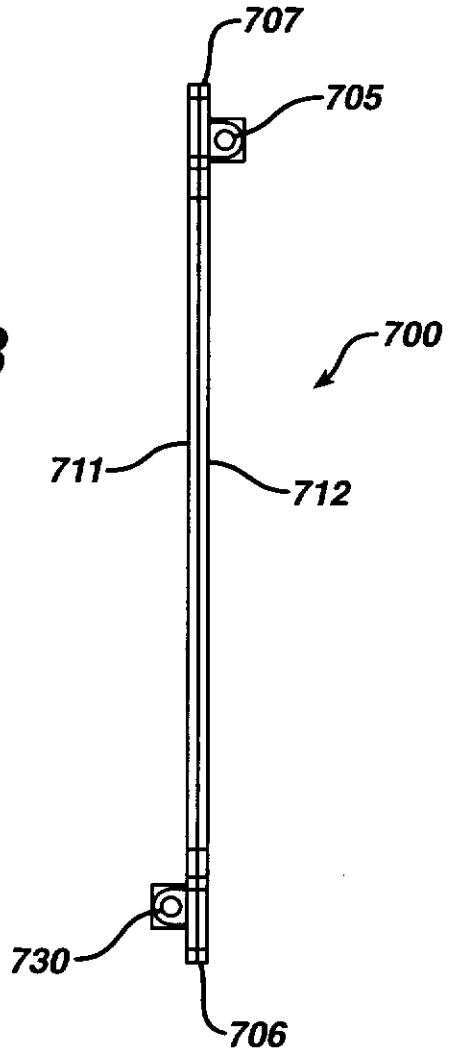


FIG. 13



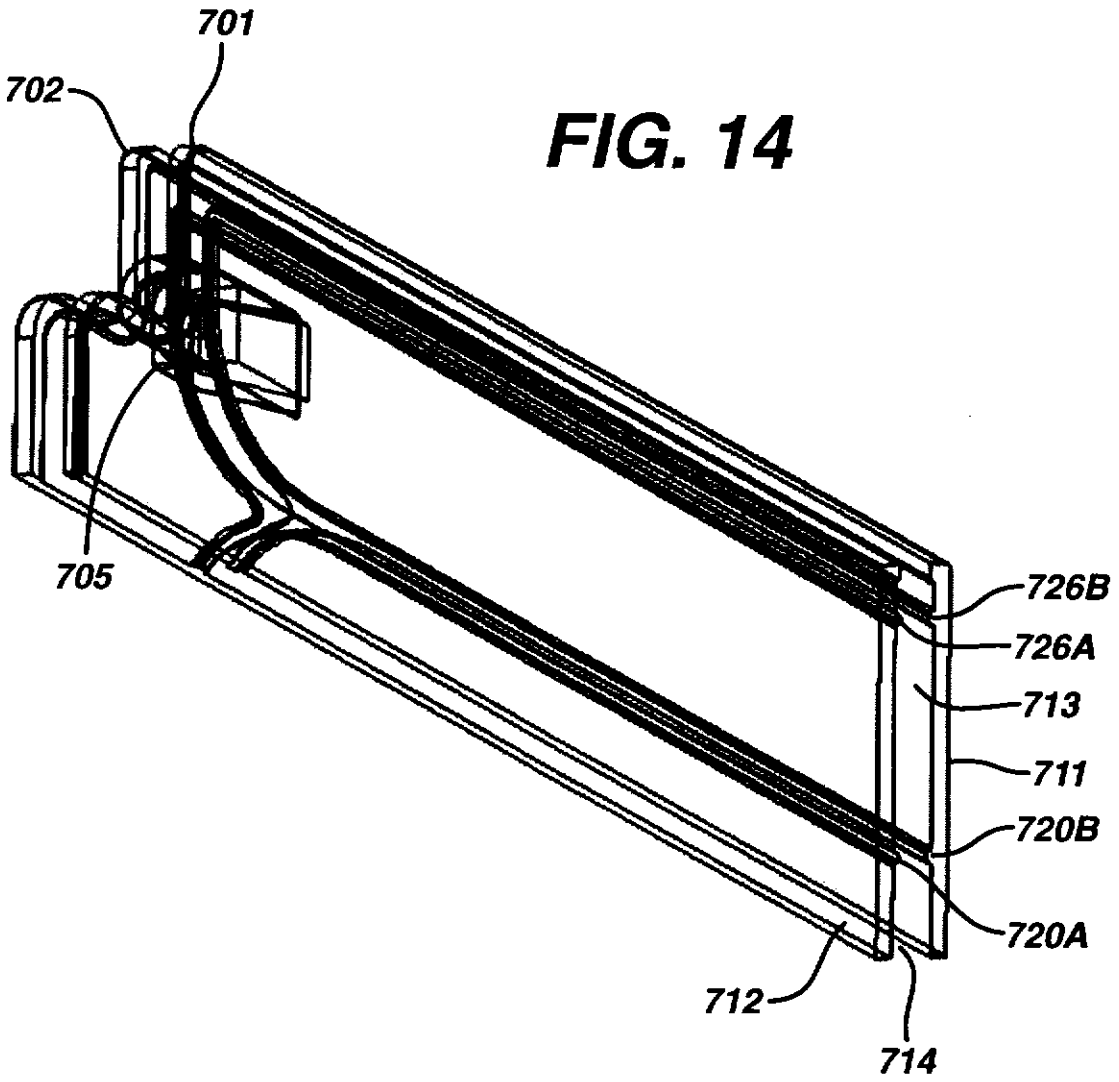


FIG. 14

FIG. 15

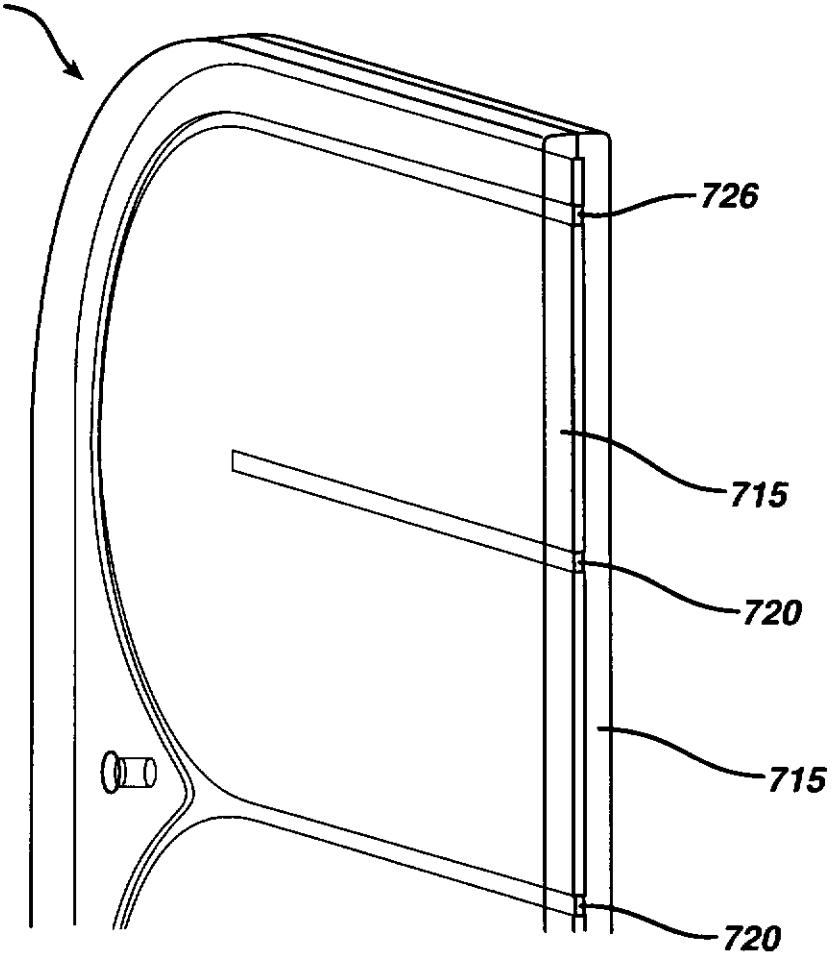


FIG. 16

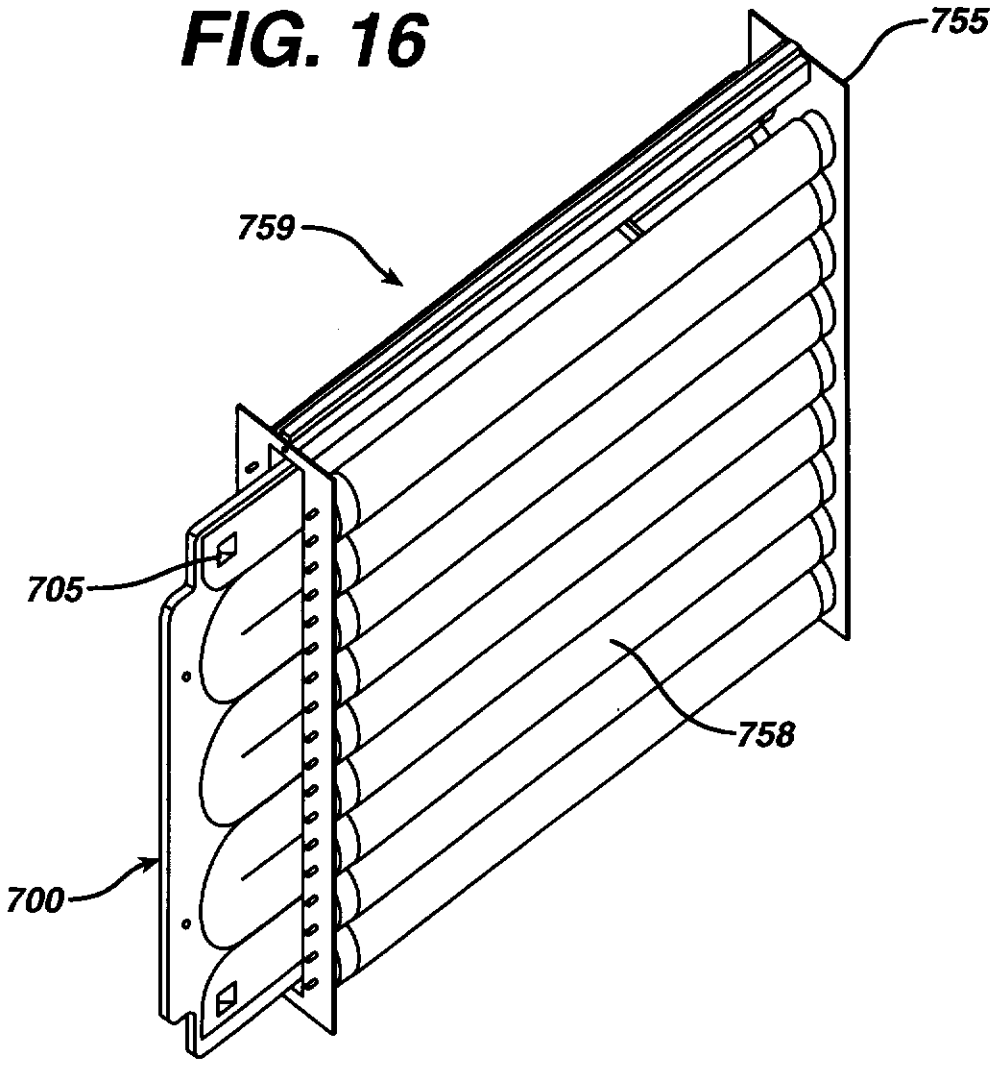


FIG. 17

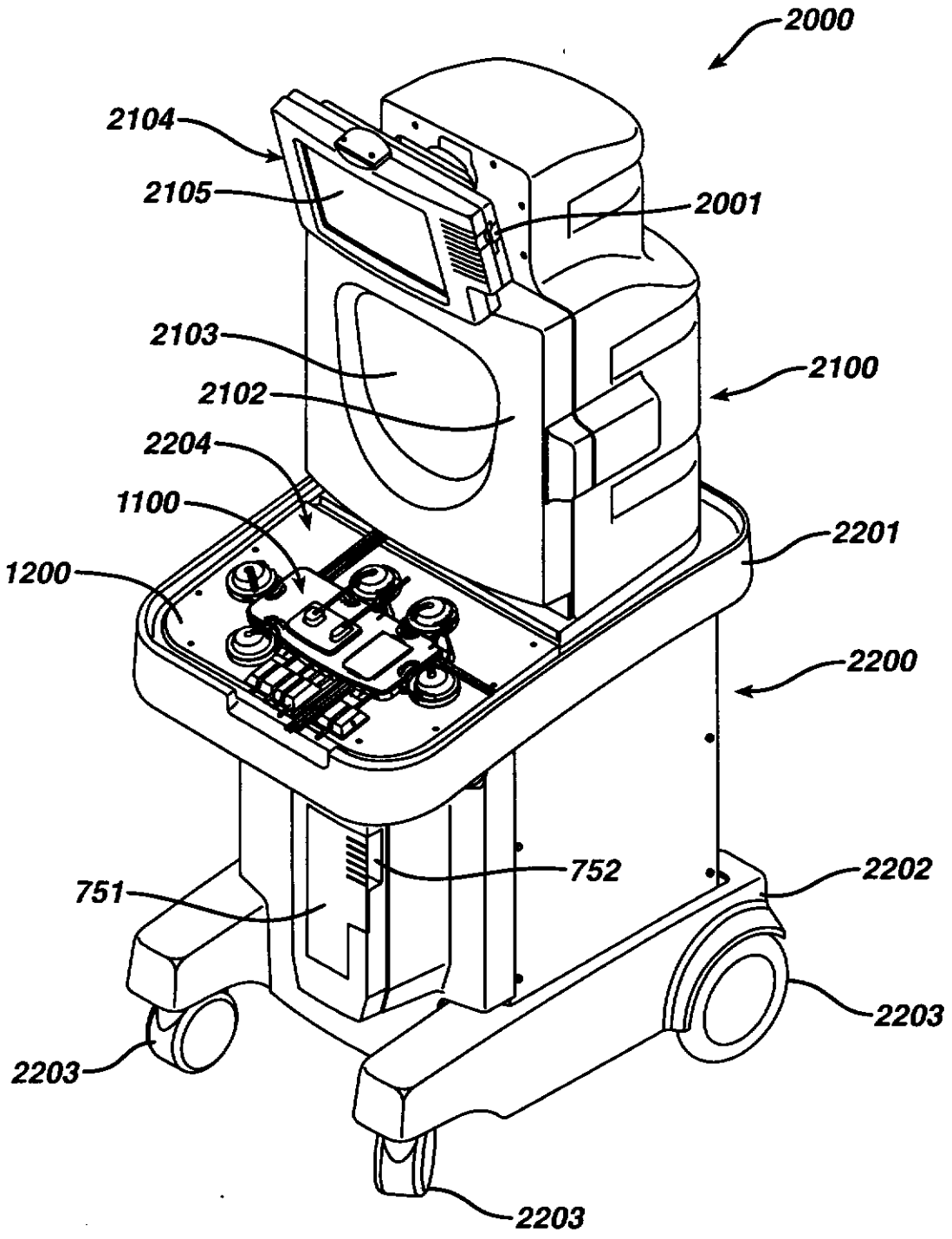

2000
2104
2105
2001
2103
2100
2102
2204
1100
2201
1200
2200
752
2202
751
2203
2203
2203

FIG. 18

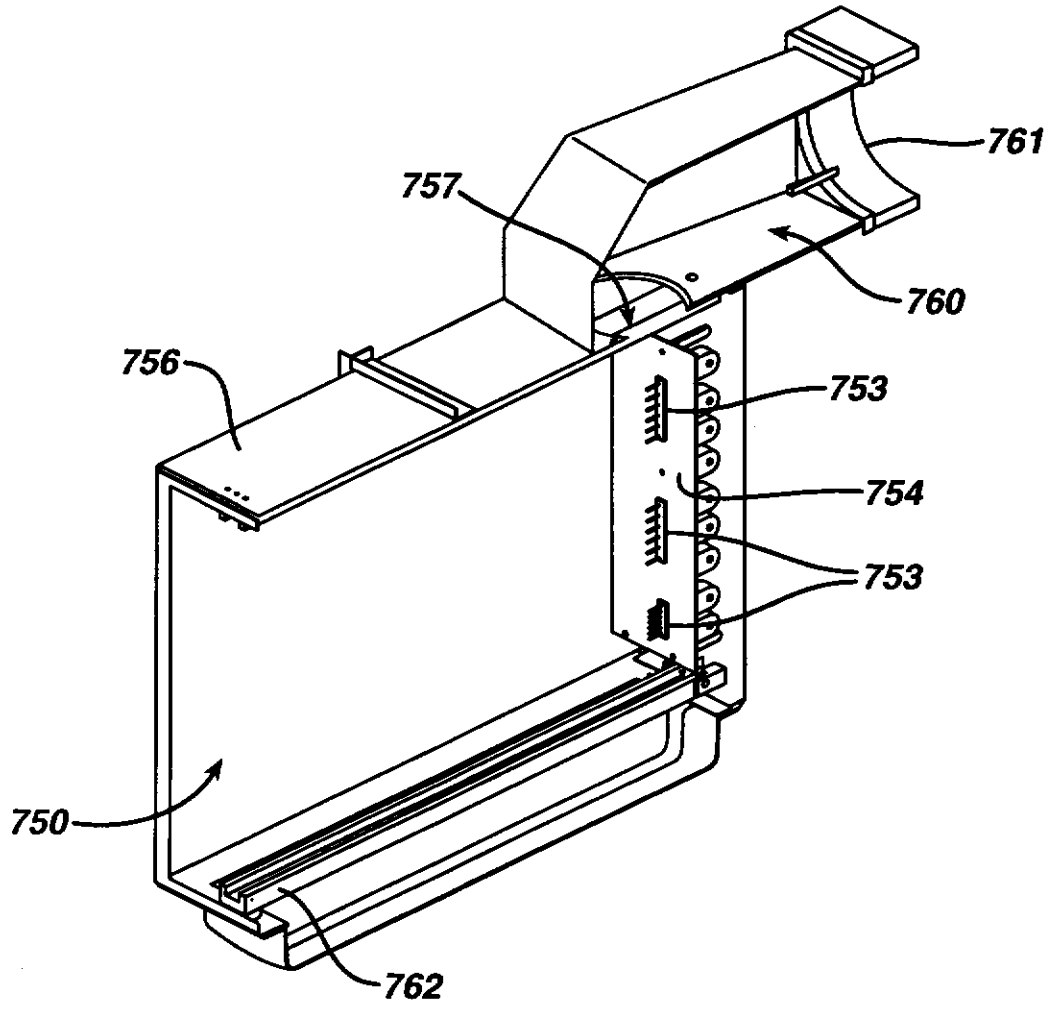
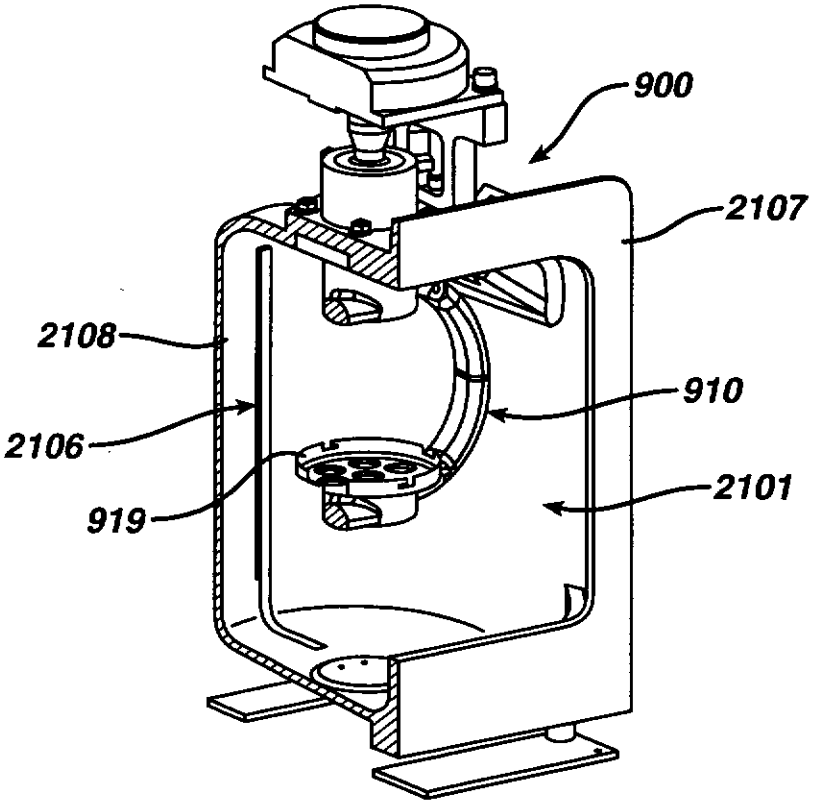


FIG. 19



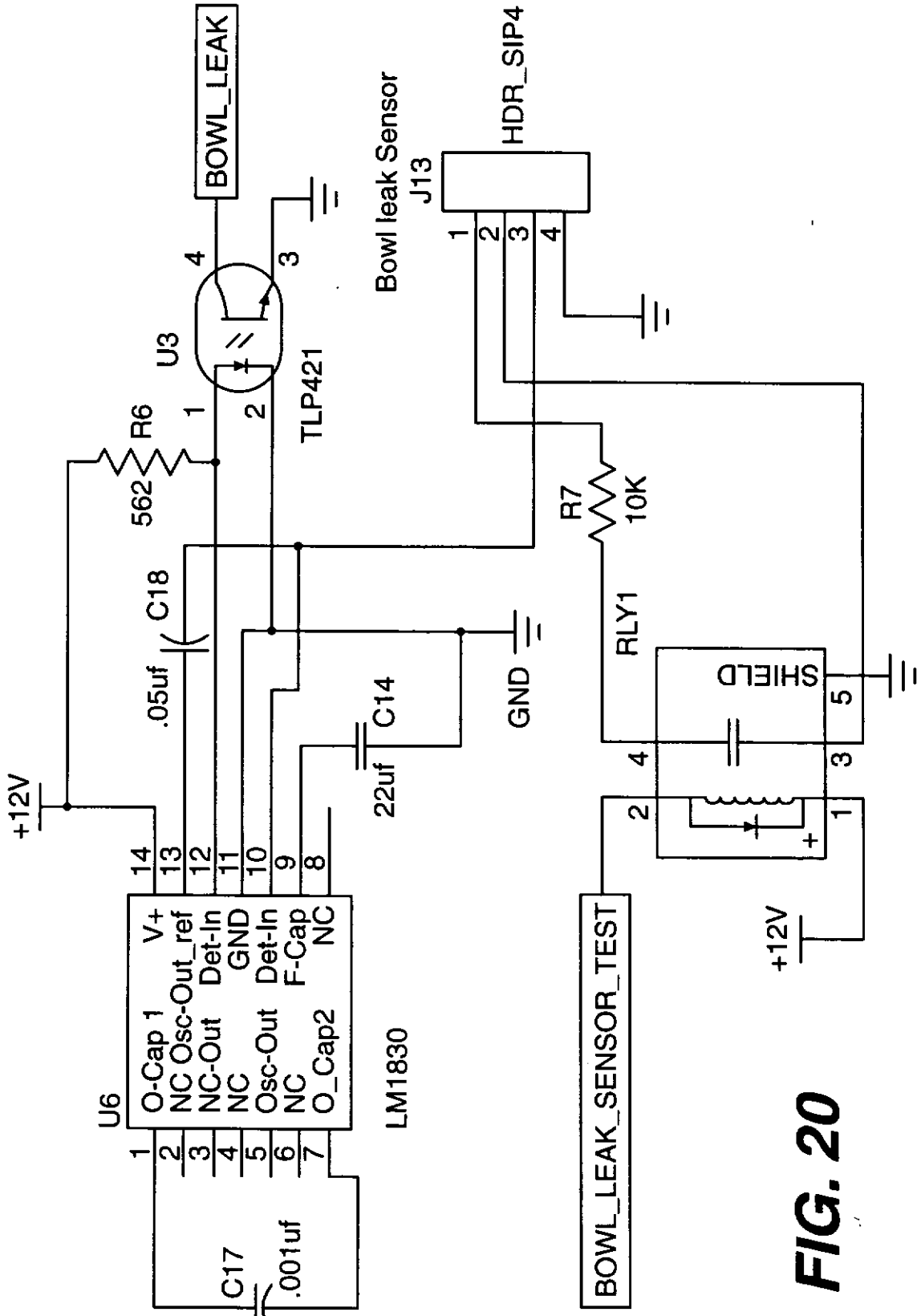

BOWL_LEAK
U3
TLP421
R6
562
C18
.05uf
C14
22uf
GND
+12V
U6
LM1830
O-Cap 1
NC
NC-Out
NC
Osc-Out
NC
O_Cap2
Osc-Out
NC-Out
V+
Det-In
GND
Det-In
F-Cap
NC
C17
.001uf
Bowl leak Sensor
J13
HDR_SIP4
R7
10K
RLY1
SHIELD
BOWL_LEAK_SENSOR_TEST
+12V

FIG. 20

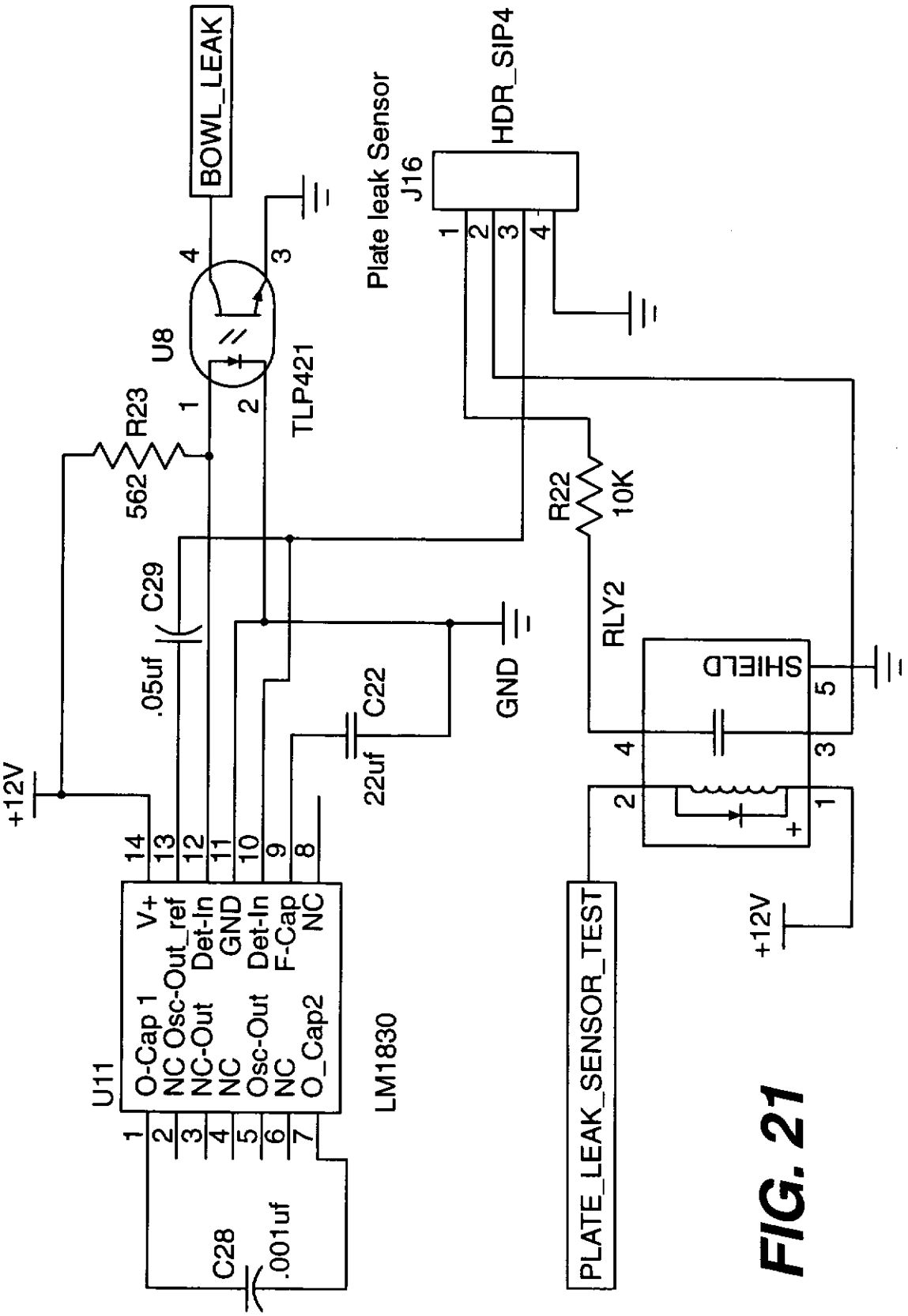

BOWL_LEAK
HDR_SIP4
Plate leak Sensor
J16
U8
TLP421
R23
562
R22
10K
C29
.05uf
C22
22uf
GND
RLY2
SHIELD
+12V
U11
LM1830
O-Cap 1
NC
NC-Out
NC
Osc-Out
NC
O_Cap2
V+
Osc-Out_ref
Det-In
GND
Det-In
F-Cap
NC
C28
.001uf
PLATE_LEAK_SENSOR_TEST

FIG. 21

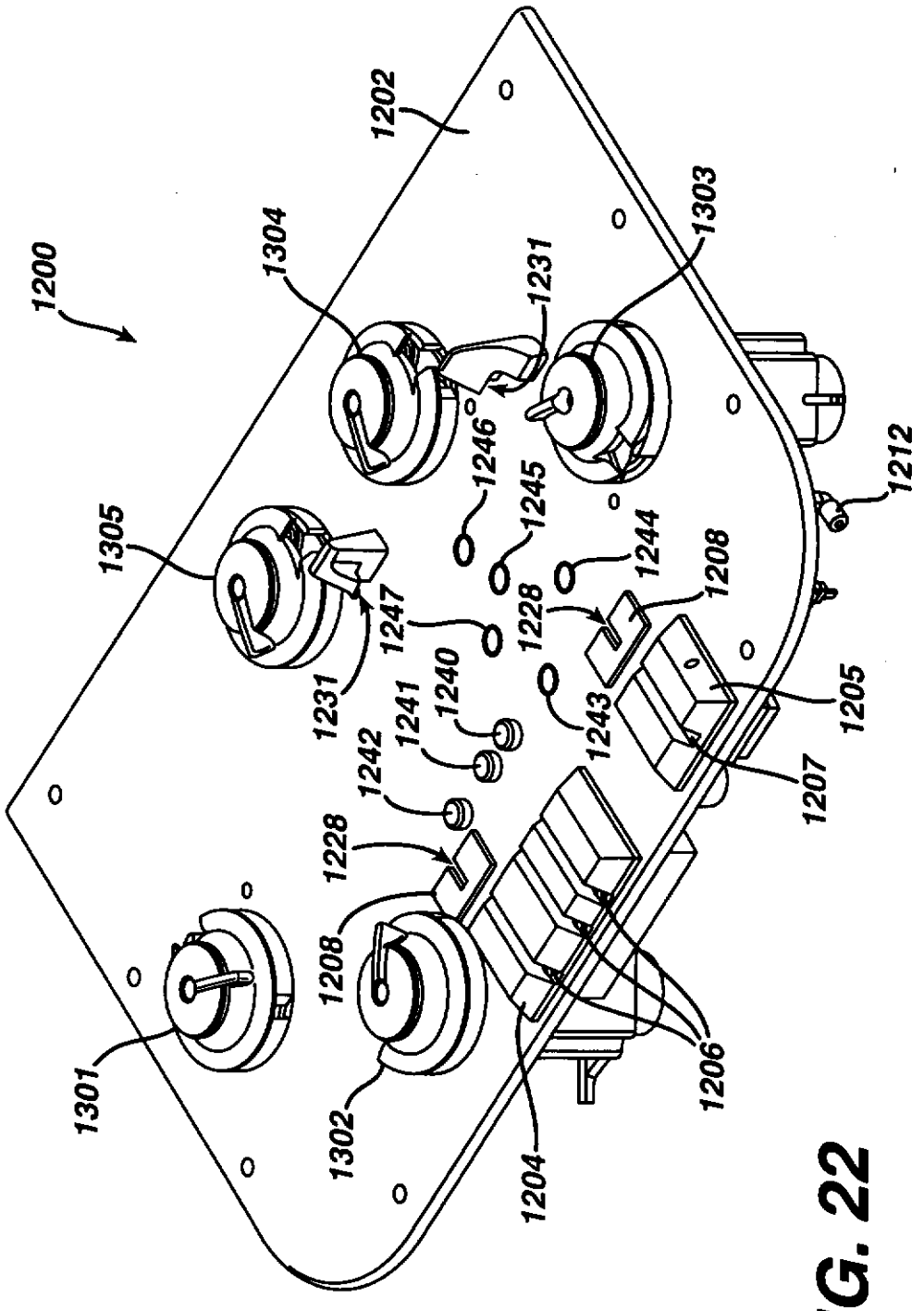

1200
1202
1304
1303
1231
1246
1245
1244
1212
1305
1247
1228
1208
1231
1241
1240
1243
1205
1242
1207
1228
1208
1301
1302
1204
1206

FIG. 22

FIG. 23

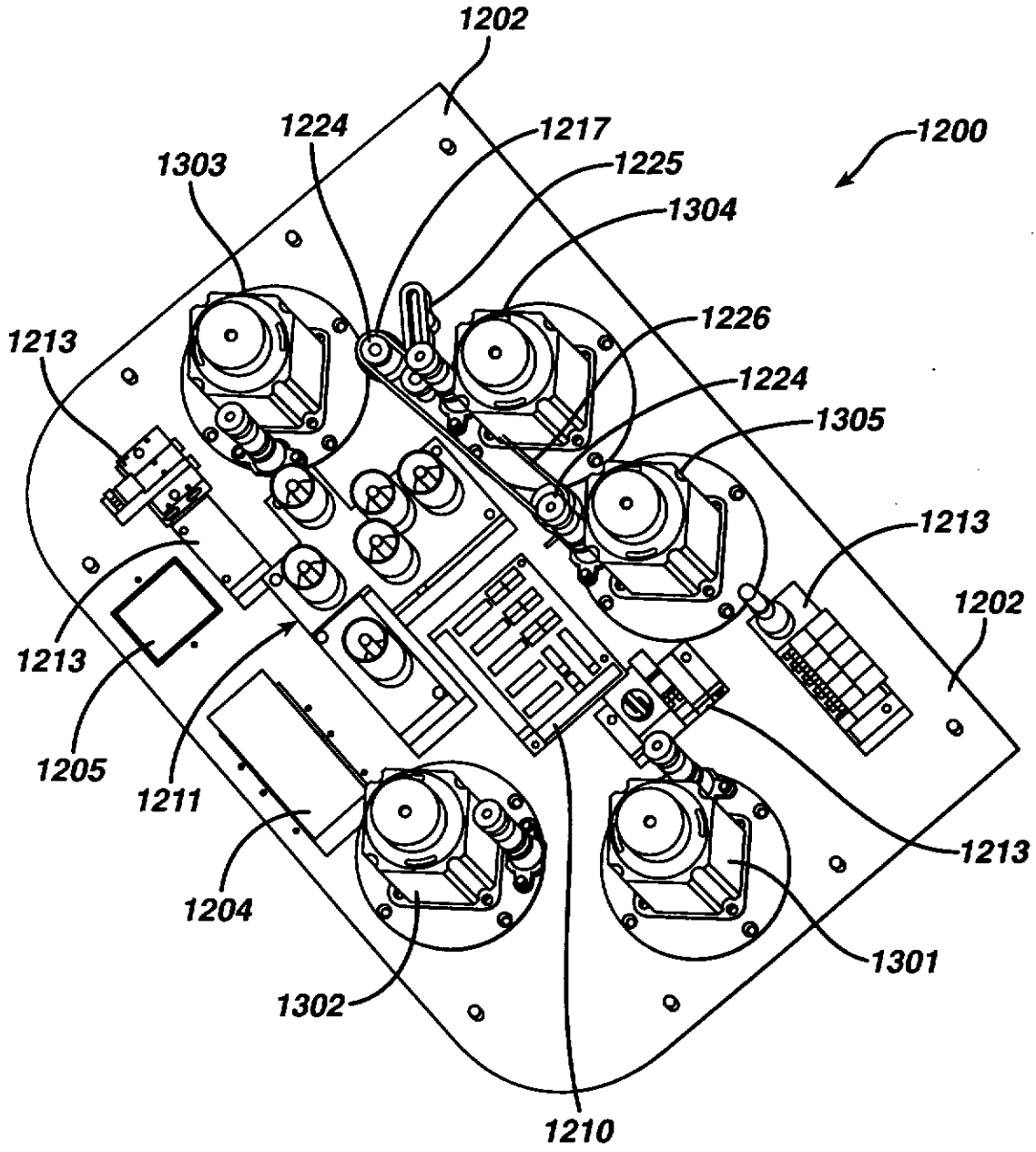
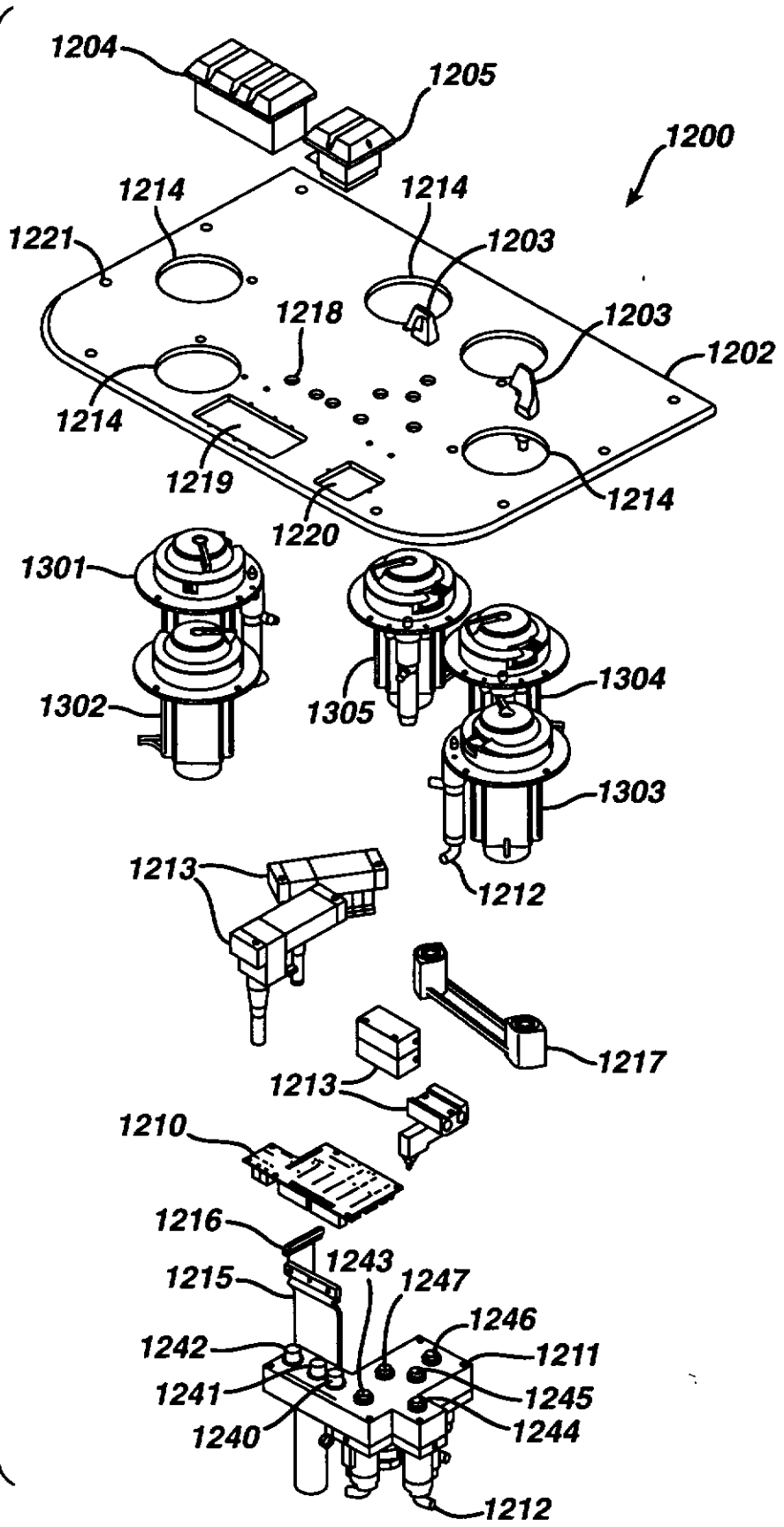

1202
1224
1217
1200
1303
1225
1304
1213
1226
1224
1305
1213
1202
1213
1205
1211
1213
1204
1301
1302
1210

FIG. 24


1204
1205
1200
1214
1214
1221
1203
1218
1203
1202
1214
1219
1220
1214
1301
1302
1305
1304
1303
1212
1213
1217
1213
1210
1216
1243
1247
1215
1246
1242
1211
1241
1245
1240
1244
1212

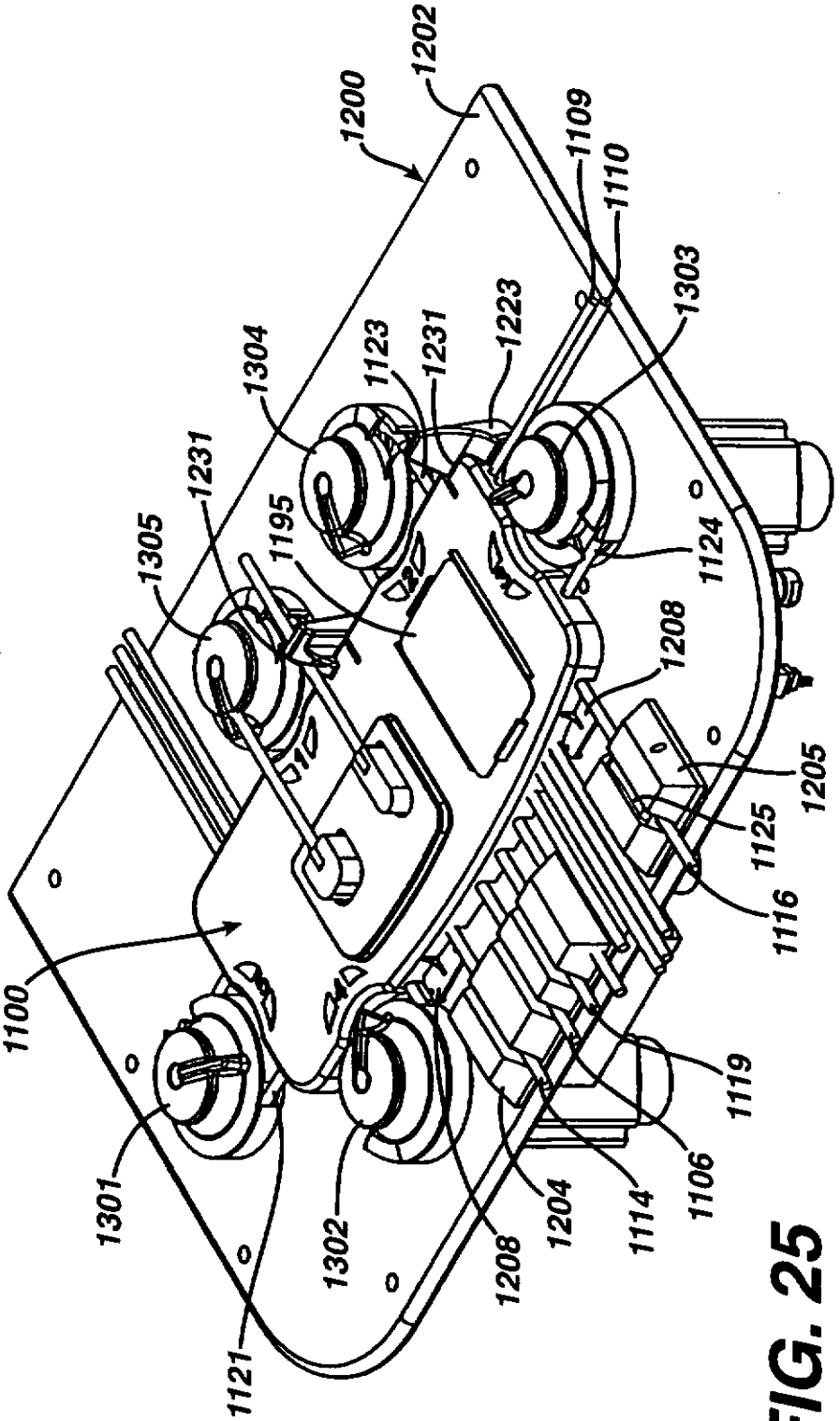

1202
1200
1109
1110
1303
1304
1123
1231
1223
1231
1195
1305
1124
1208
1205
1125
1116
1100
1119
1301
1106
1114
1204
1302
1208
1121

FIG. 25

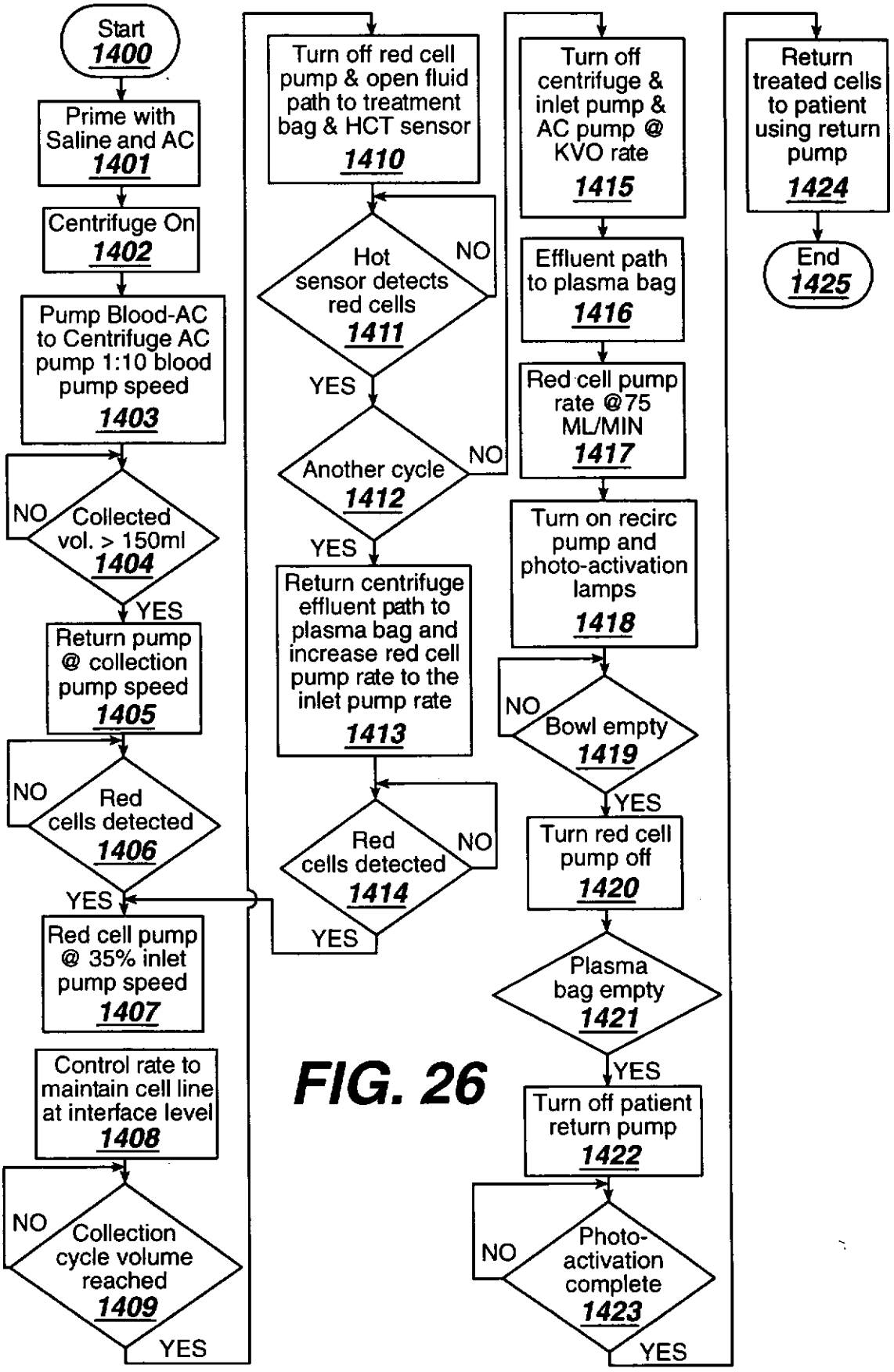

Start
1400
Prime with Saline and AC
1401
Centrifuge On
1402
Pump Blood-AC to Centrifuge AC pump 1:10 blood pump speed
1403
Collected vol. > 150ml
1404
NO
YES
Return pump @ collection pump speed
1405
Red cells detected
1406
NO
YES
Red cell pump @ 35% inlet pump speed
1407
Control rate to maintain cell line at interface level
1408
Collection cycle volume reached
1409
NO
YES
Turn off red cell pump & open fluid path to treatment bag & HCT sensor
1410
Hot sensor detects red cells
1411
NO
YES
Another cycle
1412
NO
YES
Return centrifuge effluent path to plasma bag and increase red cell pump rate to the inlet pump rate
1413
Red cells detected
1414
NO
YES
Turn off centrifuge & inlet pump & AC pump @ KVO rate
1415
Effluent path to plasma bag
1416
Red cell pump rate @75 ML/MIN
1417
Turn on recirc pump and photo-activation lamps
1418
Bowl empty
1419
NO
YES
Turn red cell pump off
1420
Plasma bag empty
1421
YES
Turn off patient return pump
1422
Photo-activation complete
1423
NO
YES
Return treated cells to patient using return pump
1424
End
1425

FIG. 26

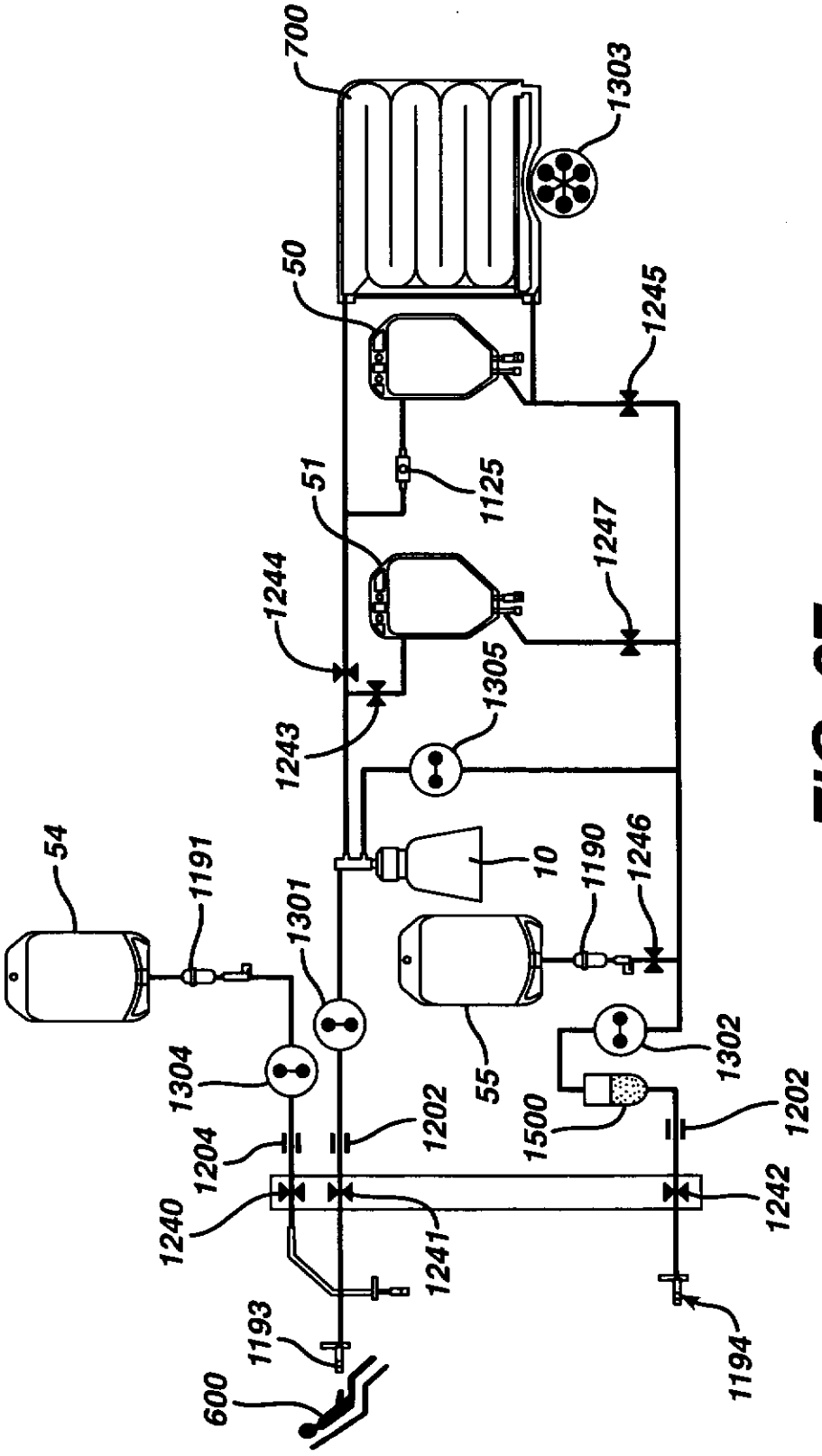

700
1303
50
1245
51
1125
1247
1244
1305
1243
54
1191
1301
10
1190
1246
55
1302
1304
1202
1500
1202
1204
1240
1241
1242
1193
600
1194

FIG. 27

FIG. 28

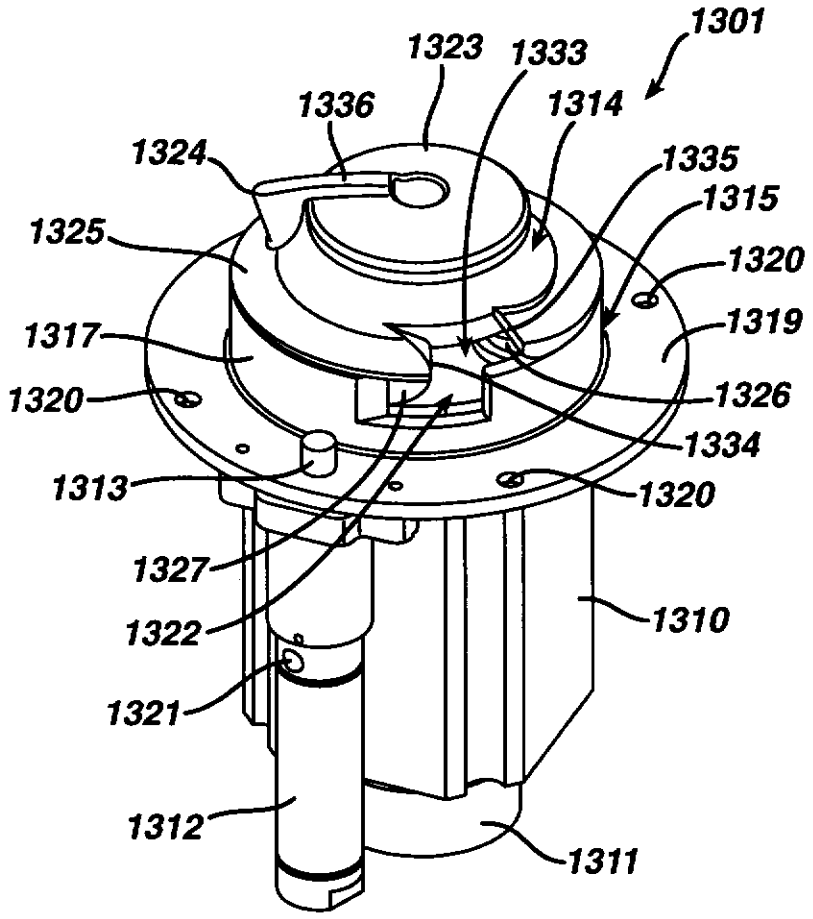

1301
1323
1333
1336
1314
1324
1335
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1321
1312
1311

FIG. 29

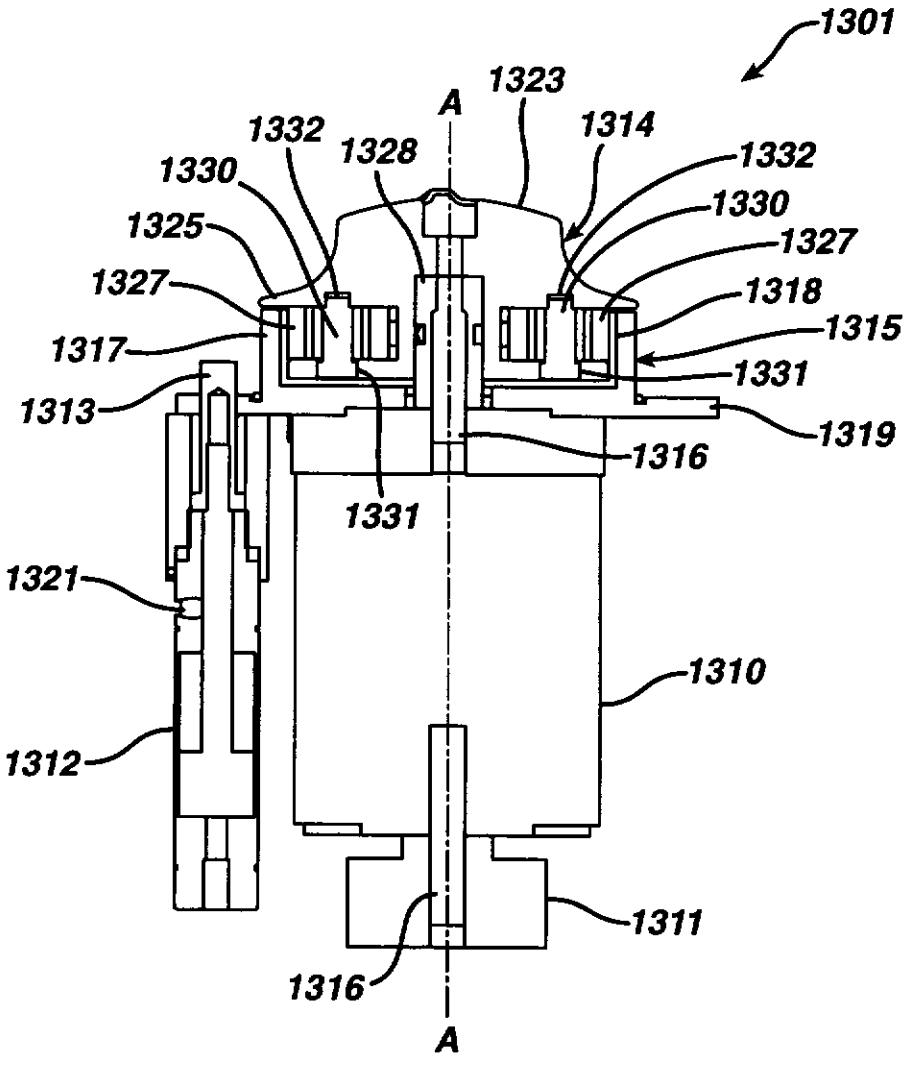

1301
A
1323
1314
1332
1328
1330
1332
1330
1325
1327
1327
1318
1317
1315
1313
1331
1319
1316
1331
1321
1310
1312
1311
1316
A

FIG. 30

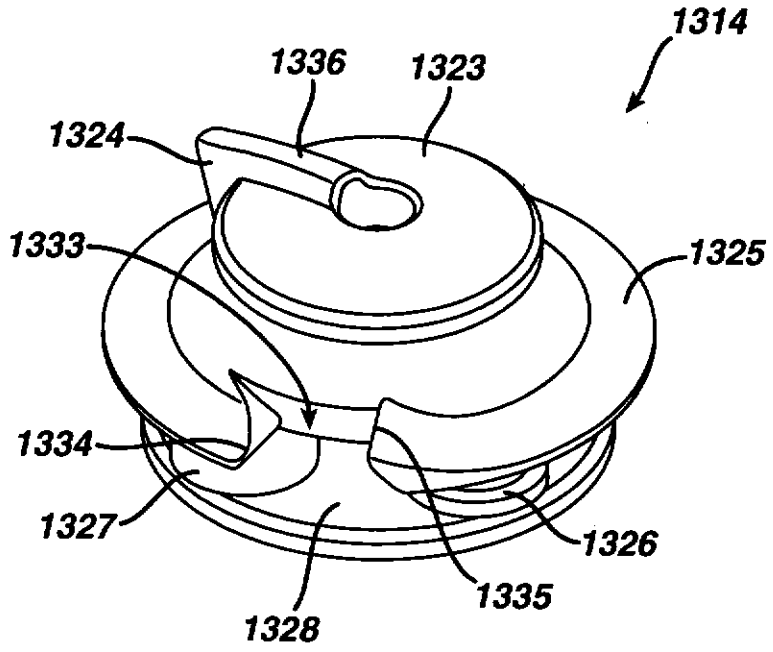

1314
1336
1323
1324
1333
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1334
1327
1326
1335
1328

FIG. 31

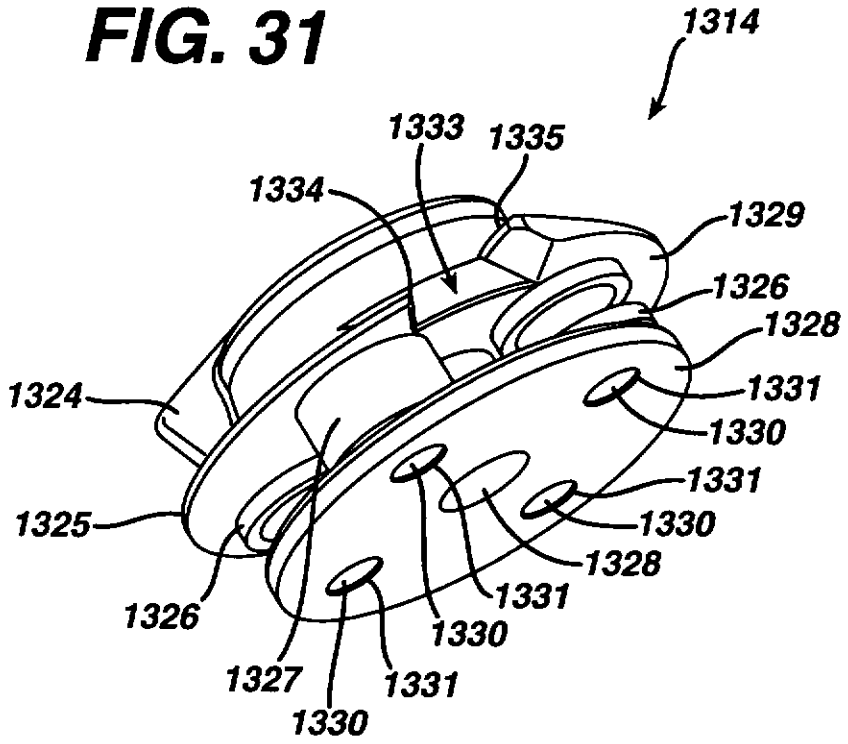

1314
1333
1335
1334
1329
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1324
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1331
1325
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1328
1326
1331
1330
1327
1331
1330

FIG. 32

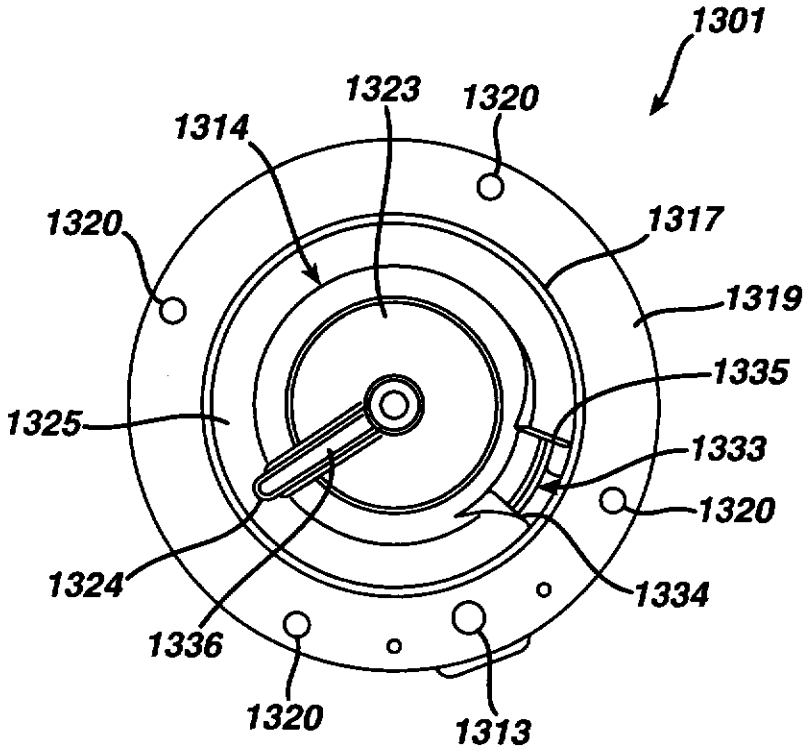
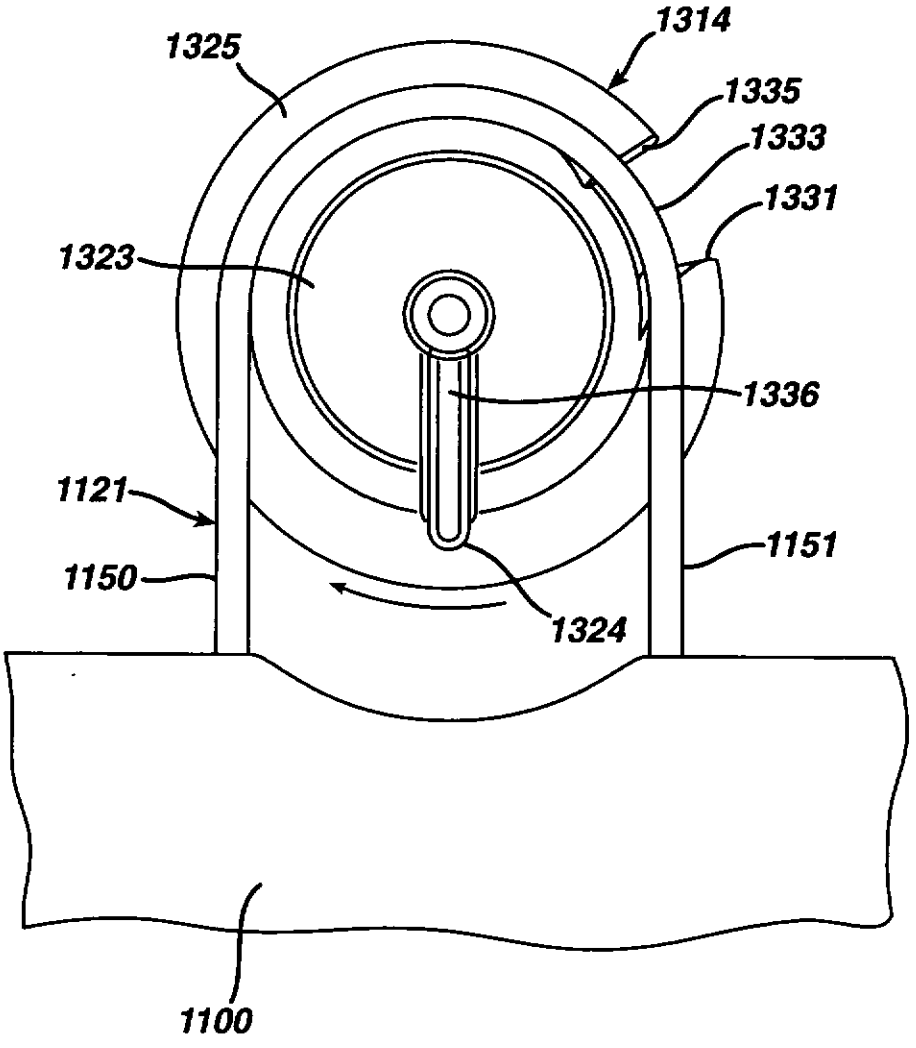

1301
1323
1320
1314
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1317
1319
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1325
1333
1320
1324
1334
1336
1320
1313

FIG. 33



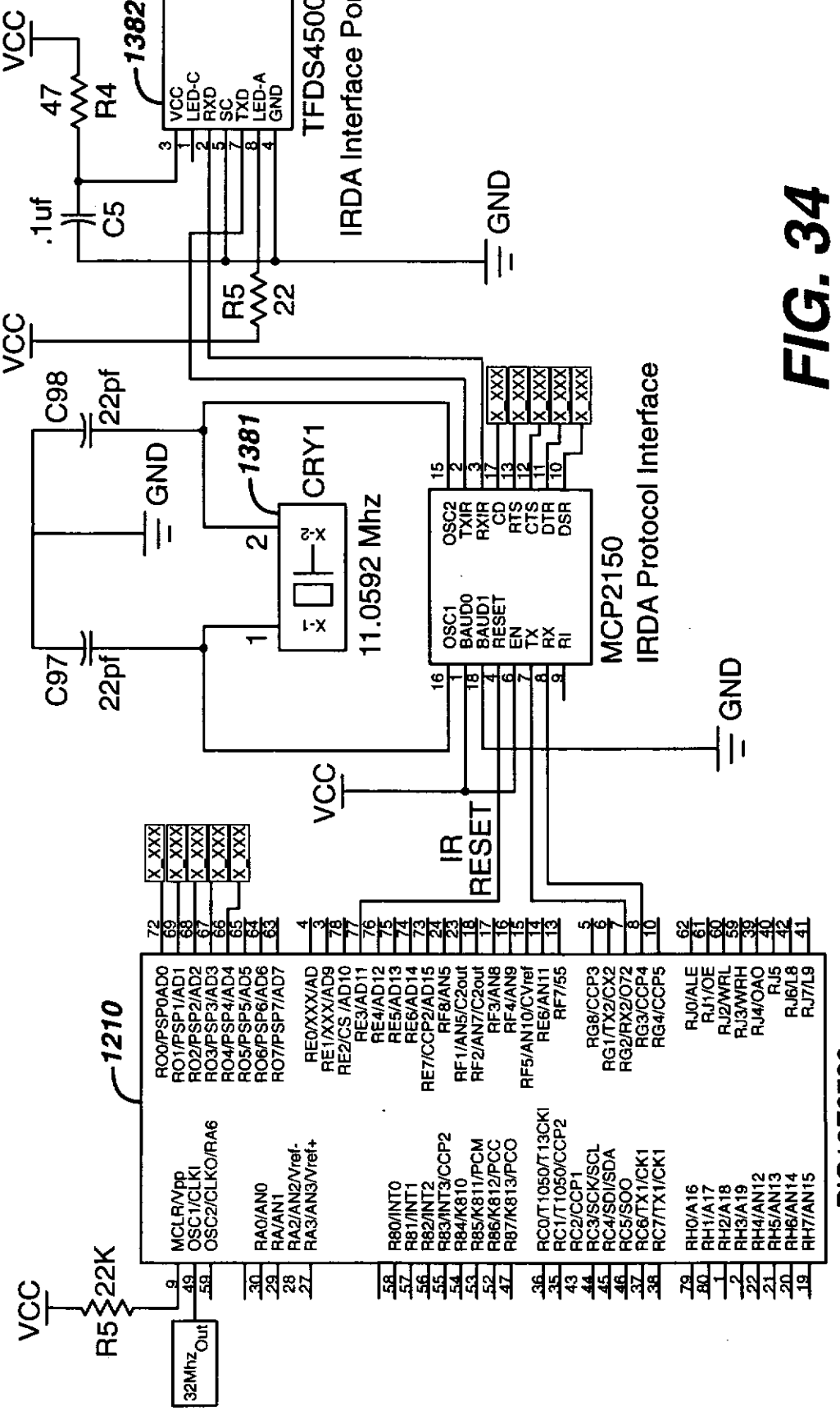

VCC
47
R4
1382
VCC
LED-C
RXD
SC
TXD
LED-A
GND
TFDS4500
IRDA Interface Port
.1uf
C5
GND
R5
22
VCC
C98
22pf
GND
1381
CRY1
11.0592 Mhz
C97
22pf
OSC2
TXIR
RXIR
CD
RTS
CTS
DTR
DSR
OSC1
BAUD0
BAUD1
RESET
EN
TX
RX
RI
MCP2150
IRDA Protocol Interface
GND
VCC
IR
RESET
1210
MCLR/Vpp
OSC1/CLKI
OSC2/CLKO/RA6
RA0/AN0
RA/AN1
RA2/AN2/Vref-
RA3/AN3/Vref+
R80/INT0
R81/INT1
R82/INT2
R83/INT3/CCP2
R84/K810
R85/K811/PCM
R86/K812/PCC
R87/K813/PCO
RC0/T1050/T13CKI
RC1/T1050/CCP2
RC2/CCP1
RC3/SCK/SCL
RC4/SDI/SDA
RC5/SOO
RC6/TX1/CK1
RC7/TX1/CK1
RH0/A16
RH1/A17
RH2/A18
RH3/A19
RH4/AN12
RH5/AN13
RH6/AN14
RH7/AN15
RO0/PSP0AD0
RO1/PSP1/AD1
RO2/PSP2/AD2
RO3/PSP3/AD3
RO4/PSP4/AD4
RO5/PSP5/AD5
RO6/PSP6/AD6
RO7/PSP7/AD7
RE0/XXX/AD
RE1/XXX/AD9
RE2/CS /AD10
RE3/AD11
RE4/AD12
RE5/AD13
RE6/AD14
RE7/CCP2/AD15
RF8/AN5
RF1/AN5/C2out
RF2/AN7/C2out
RF3/AN8
RF4/AN9
RF5/AN10/CVref
RE6/AN11
RF7/55
RG8/CCP3
RG1/TX2/CX2
RG2/RX2/O72
RG3/CCP4
RG4/CCP5
RJ0/ALE
RJ1/OE
RJ2/WRL
RJ3/WRH
RJ4/OAO
RJ5
RJ6/L8
RJ7/L9
PIC18F8720
System CPU
VCC
R5
22K
32Mhz Out

FIG. 34

FIG. 35

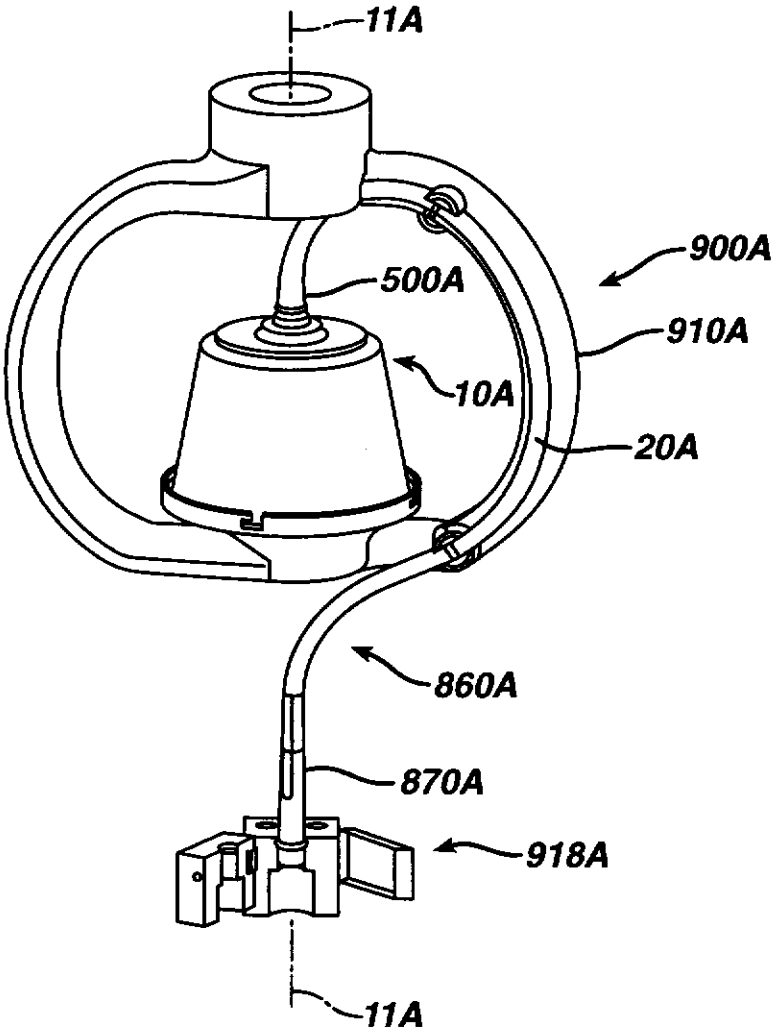


FIG. 36

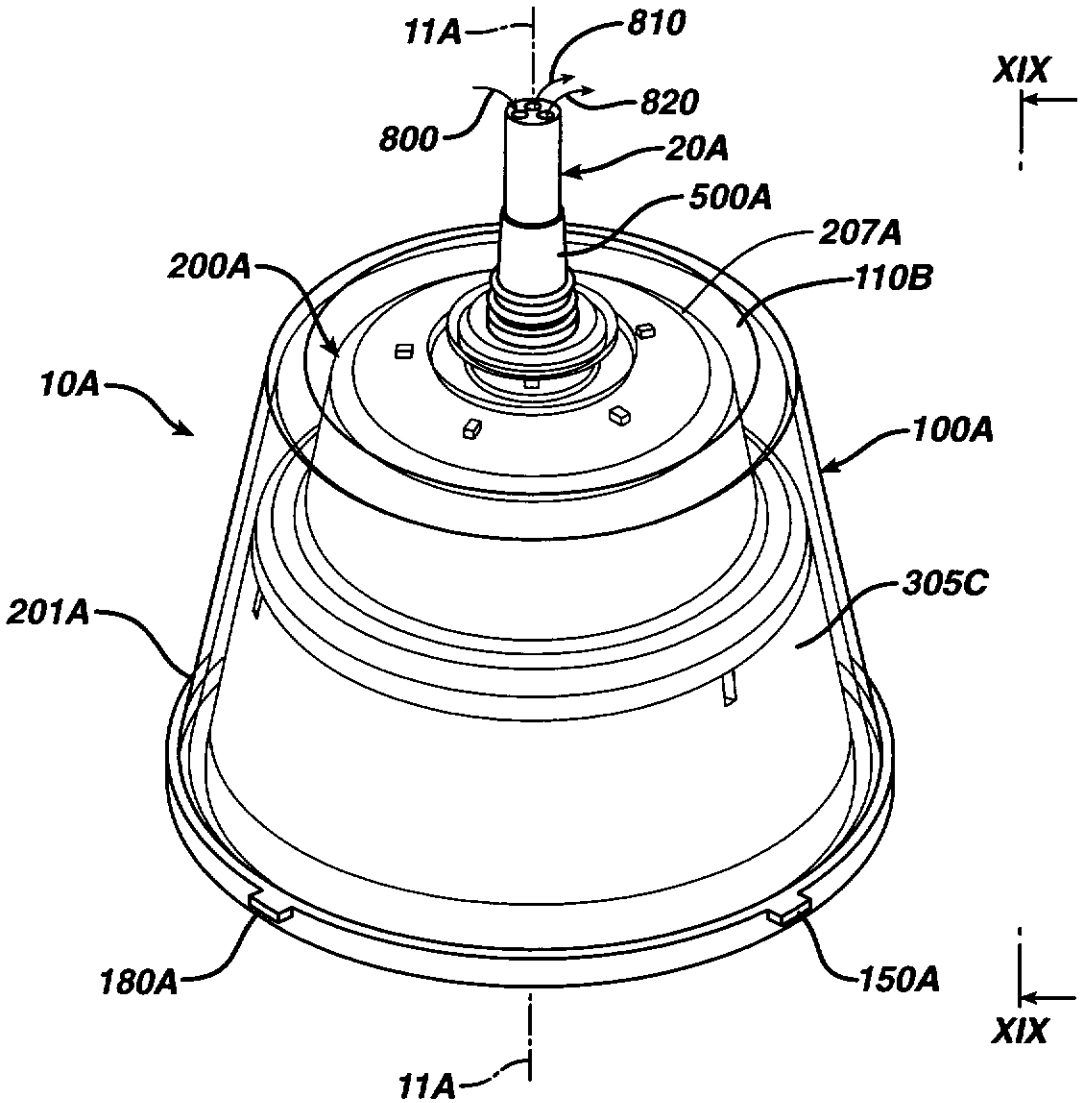

11A
810
820
800
20A
500A
207A
200A
110B
10A
100A
305C
201A
180A
150A
11A
XIX
XIX

FIG. 37

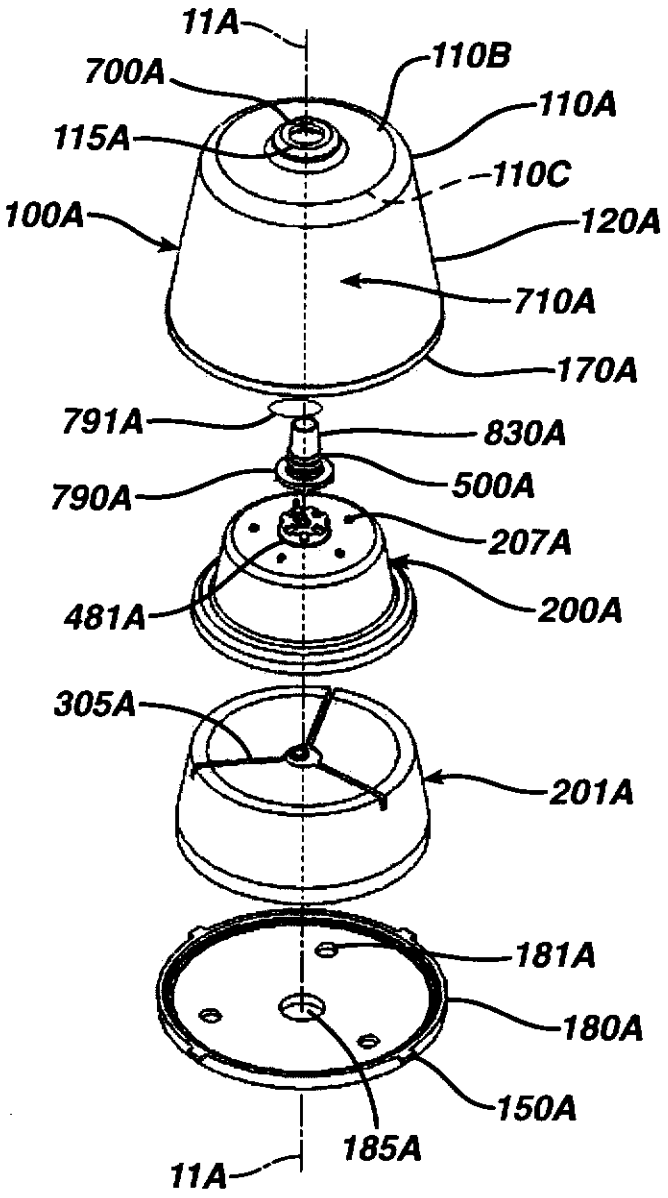

11A
700A
110B
110A
115A
110C
100A
120A
710A
170A
791A
830A
790A
500A
207A
481A
200A
305A
201A
181A
180A
150A
185A
11A

FIG. 38

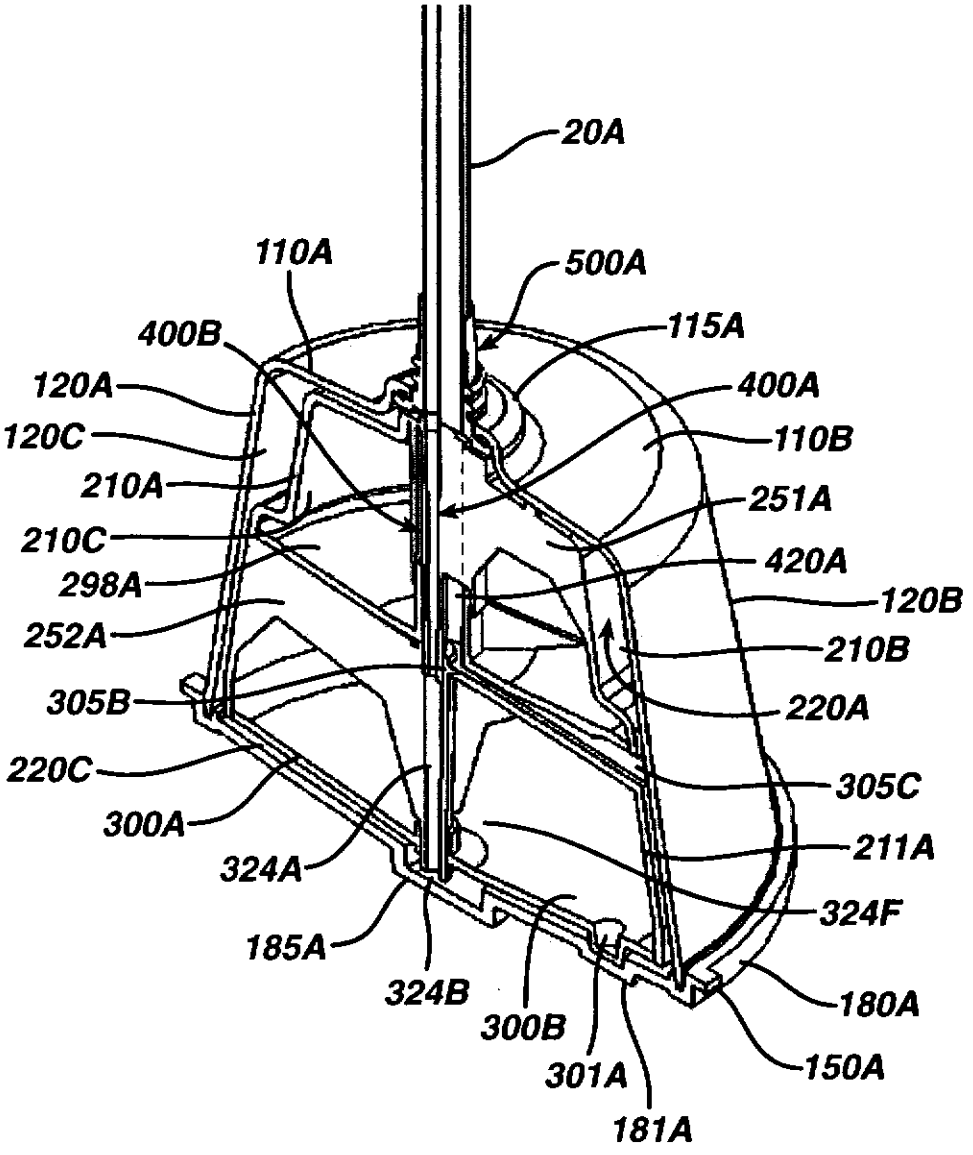

20A
110A
500A
400B
115A
120A
400A
120C
110B
210A
251A
210C
420A
298A
120B
252A
210B
305B
220A
220C
305C
300A
211A
324A
324F
185A
180A
324B
300B
150A
301A
181A

FIG. 39A

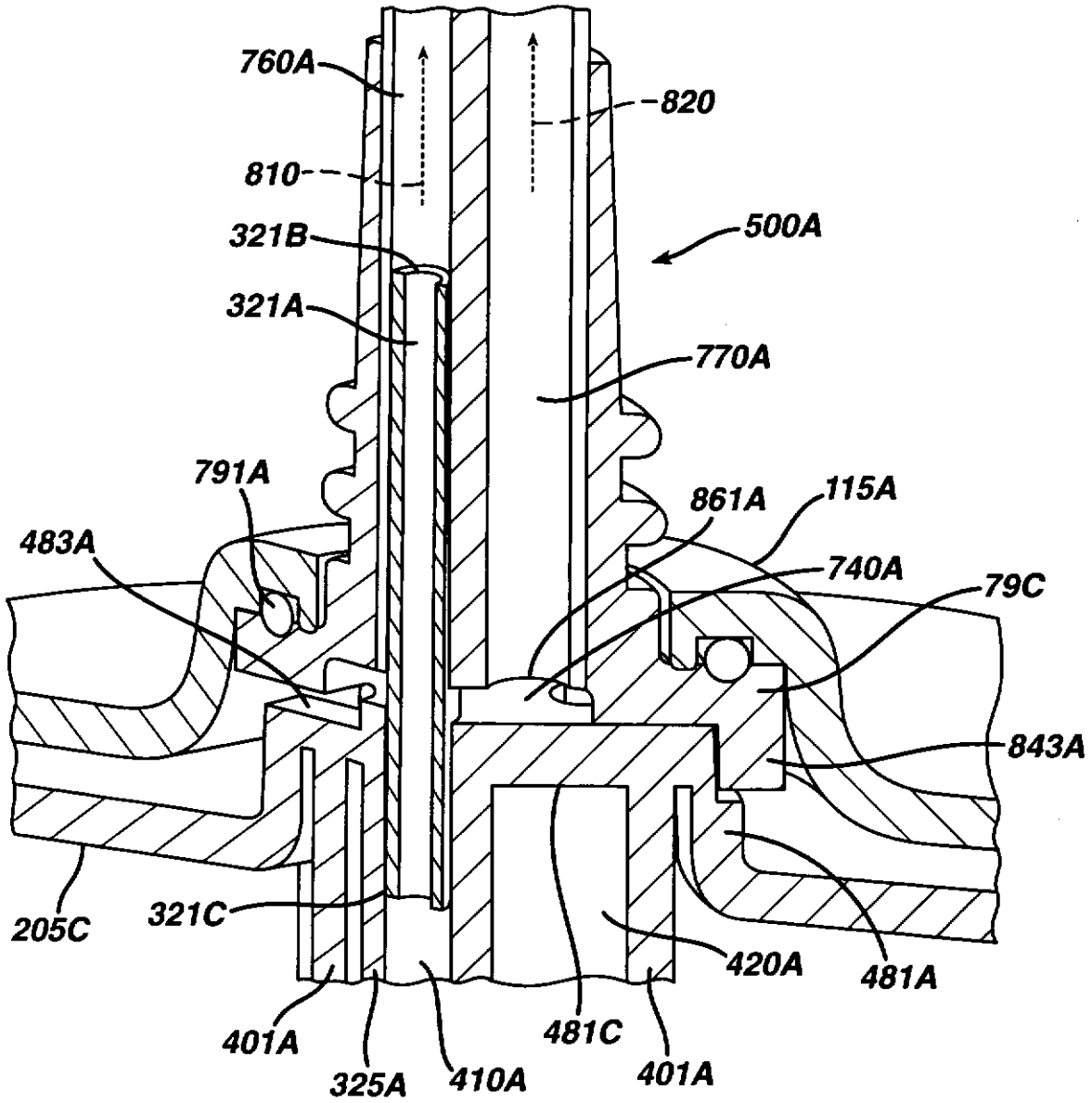

760A
820
810
500A
321B
321A
770A
791A
861A
115A
483A
740A
79C
843A
205C
321C
420A
481A
401A
481C
325A
410A
401A

FIG. 39B

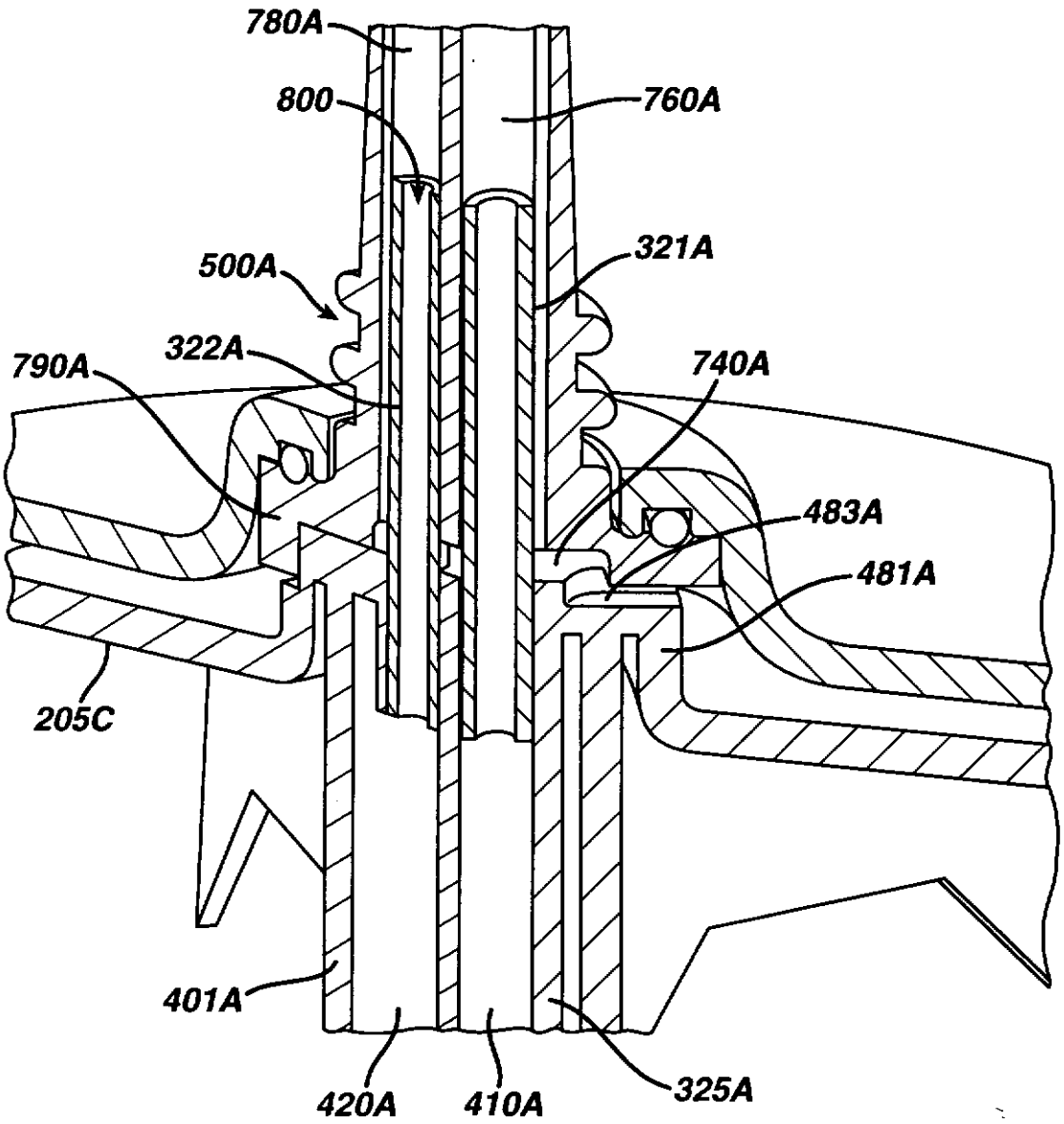

780A
800
760A
500A
321A
322A
790A
740A
483A
481A
205C
401A
420A
410A
325A

FIG. 40

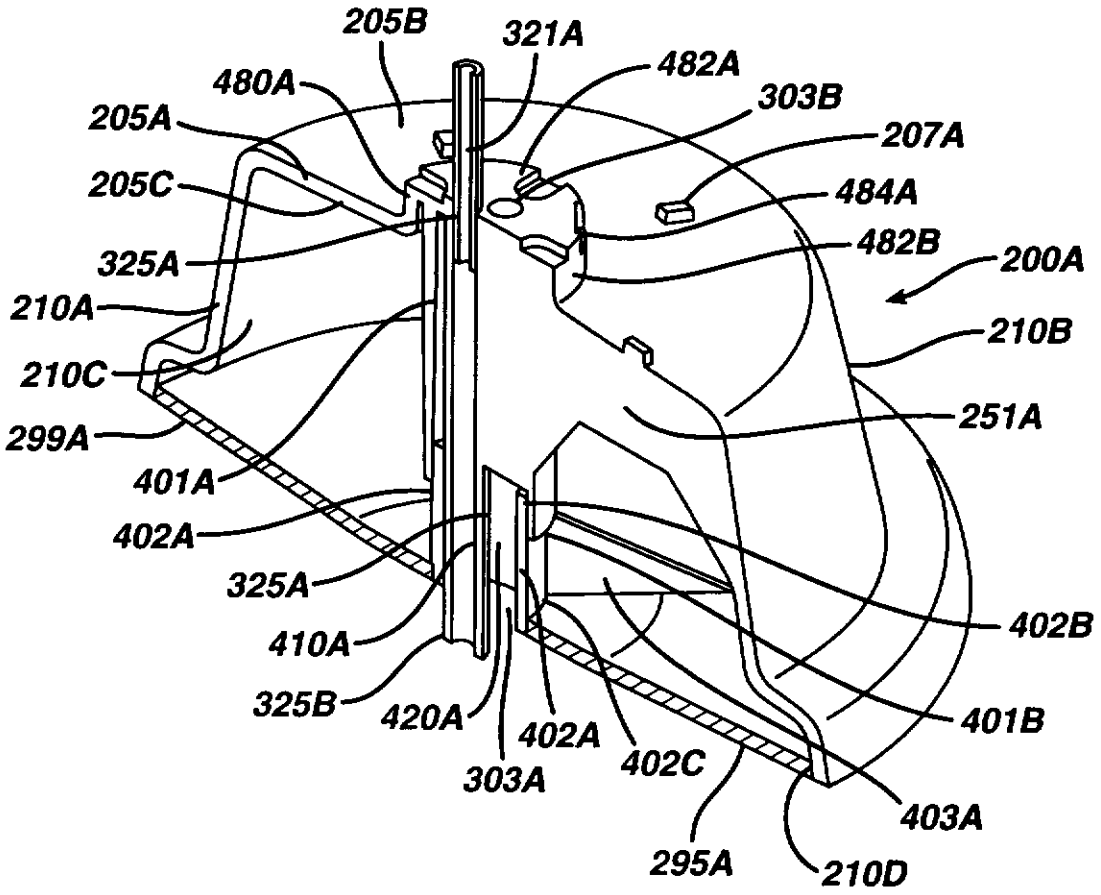

205B
321A
482A
480A
303B
205A
207A
205C
484A
325A
482B
200A
210A
210B
210C
251A
299A
401A
402A
325A
402B
410A
401B
325B
420A
402A
402C
303A
403A
295A
210D

FIG. 41

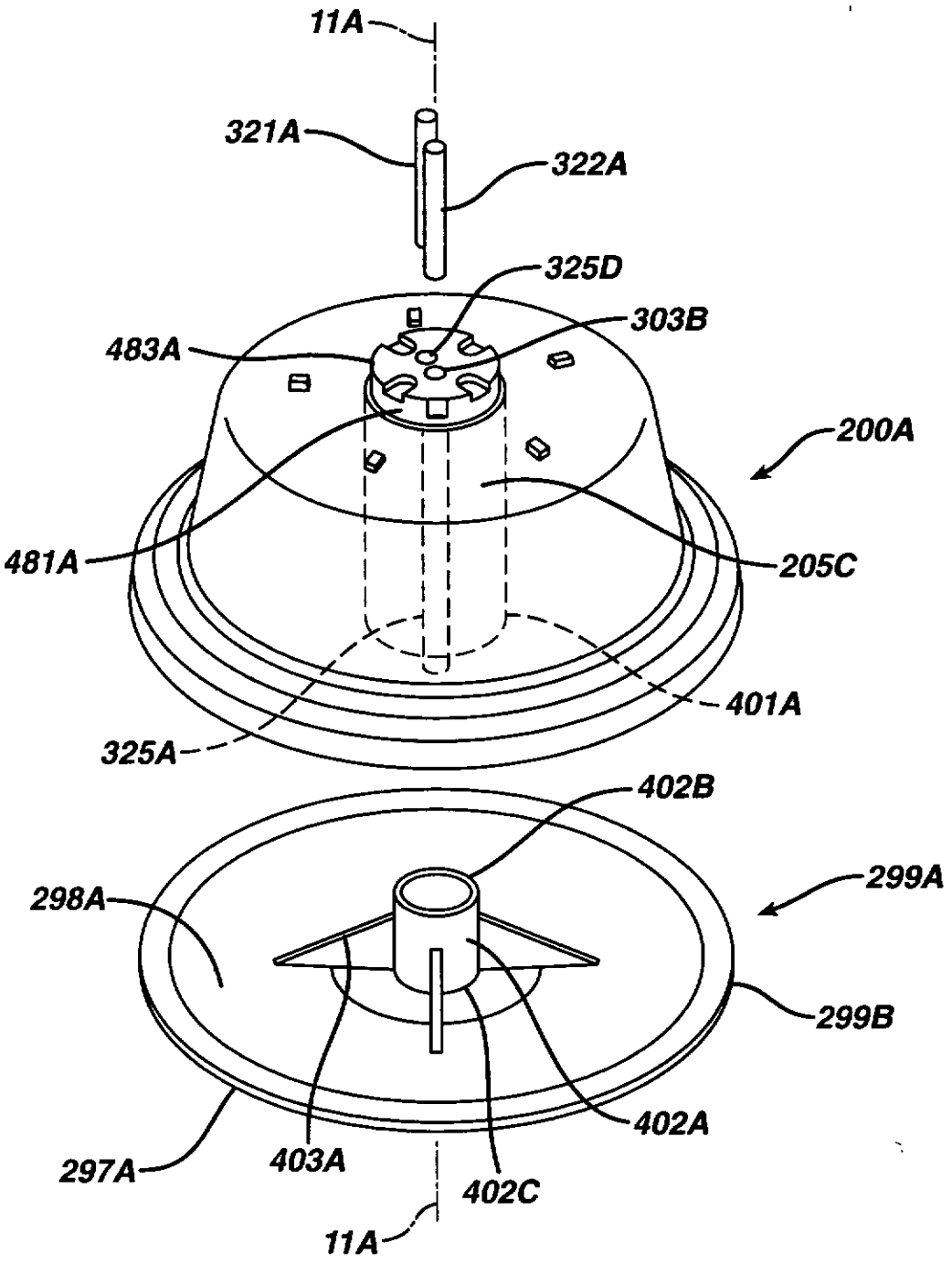
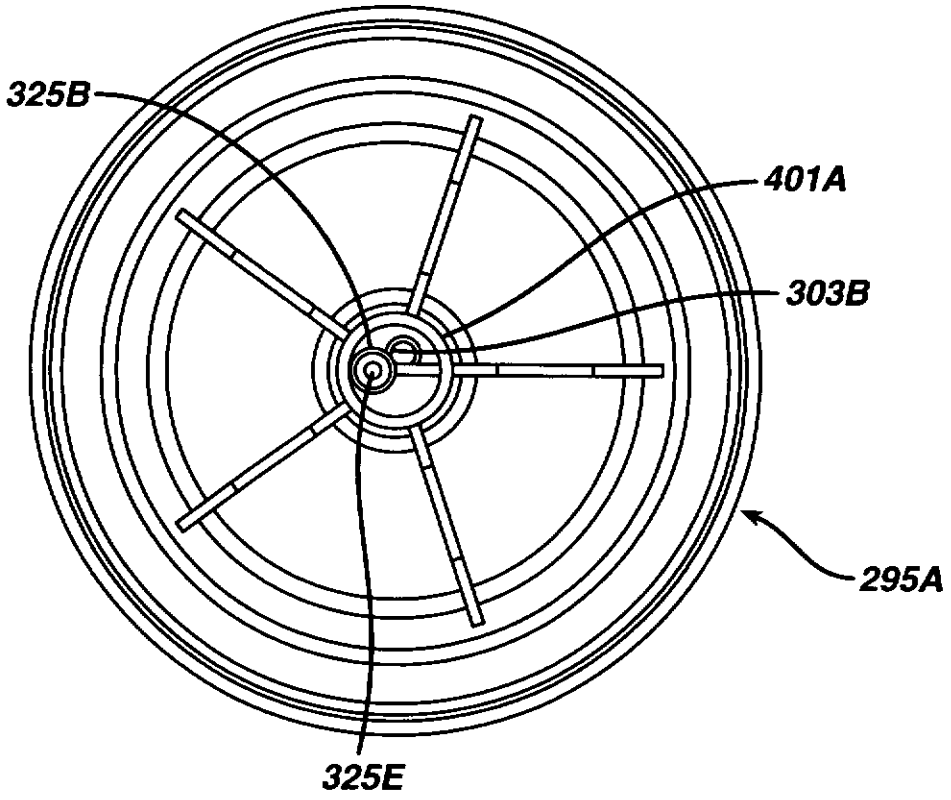

11A
321A
322A
325D
303B
483A
200A
481A
205C
401A
325A
402B
299A
298A
299B
402A
297A
403A
402C
11A

FIG. 42



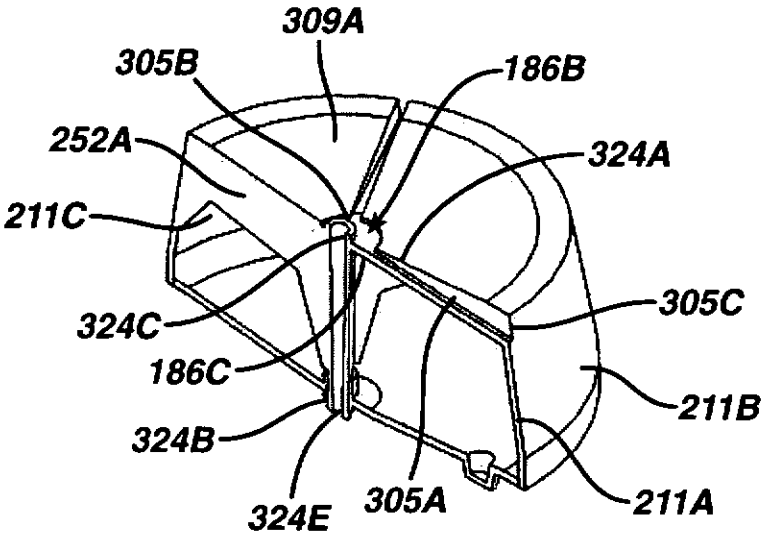


FIG. 43A

FIG. 43B

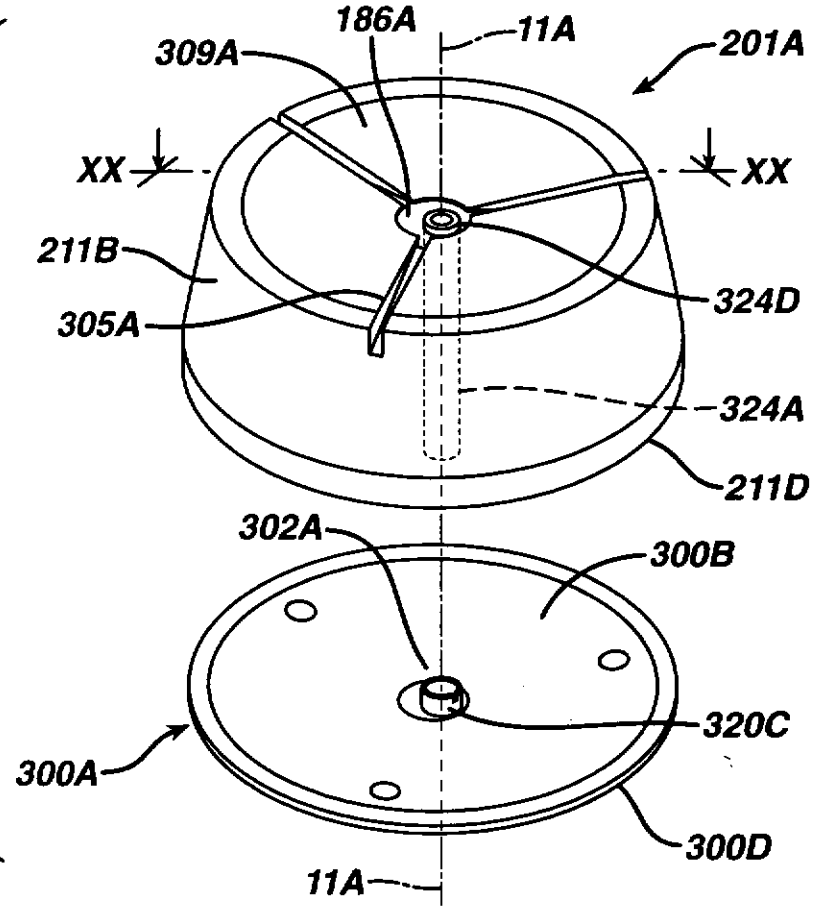
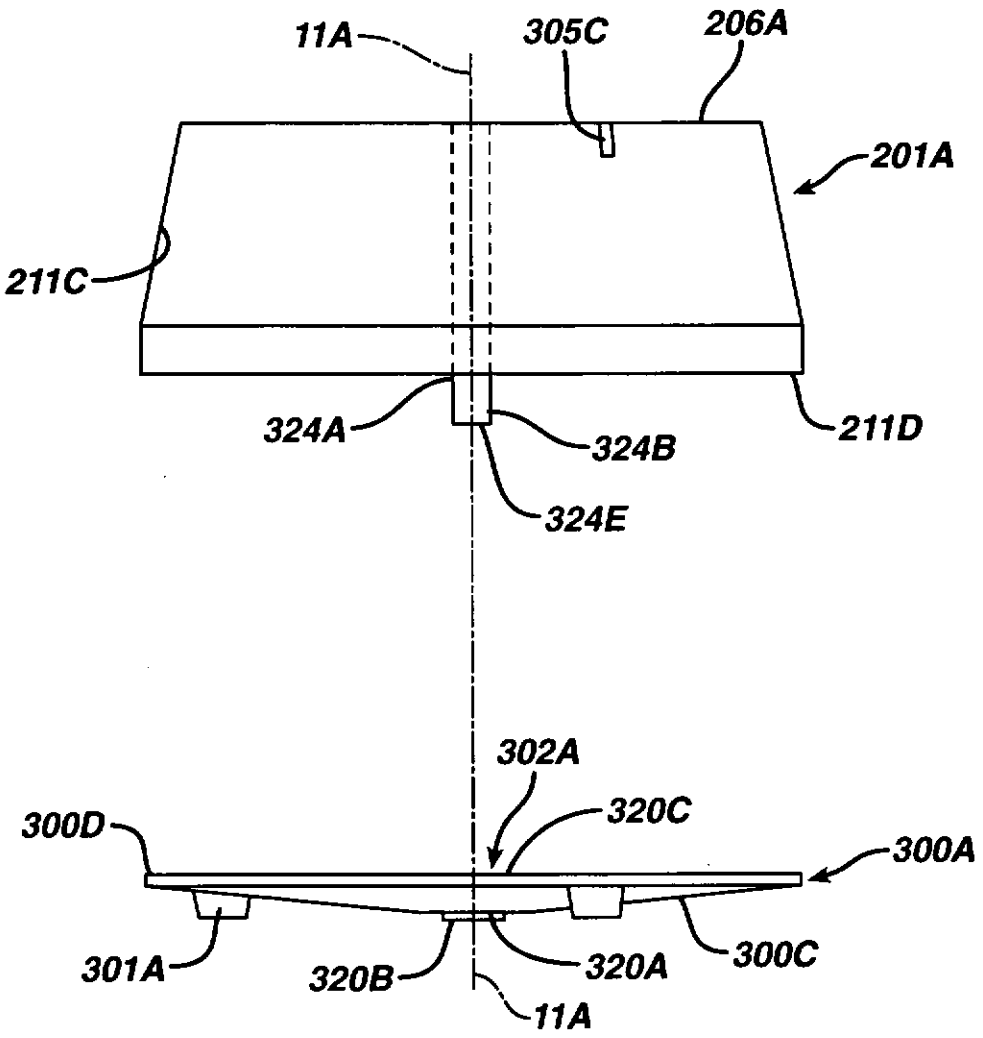


FIG. 44


11A
305C
206A
201A
211C
211D
324A
324B
324E
302A
320C
300D
300A
301A
320B
320A
300C
11A

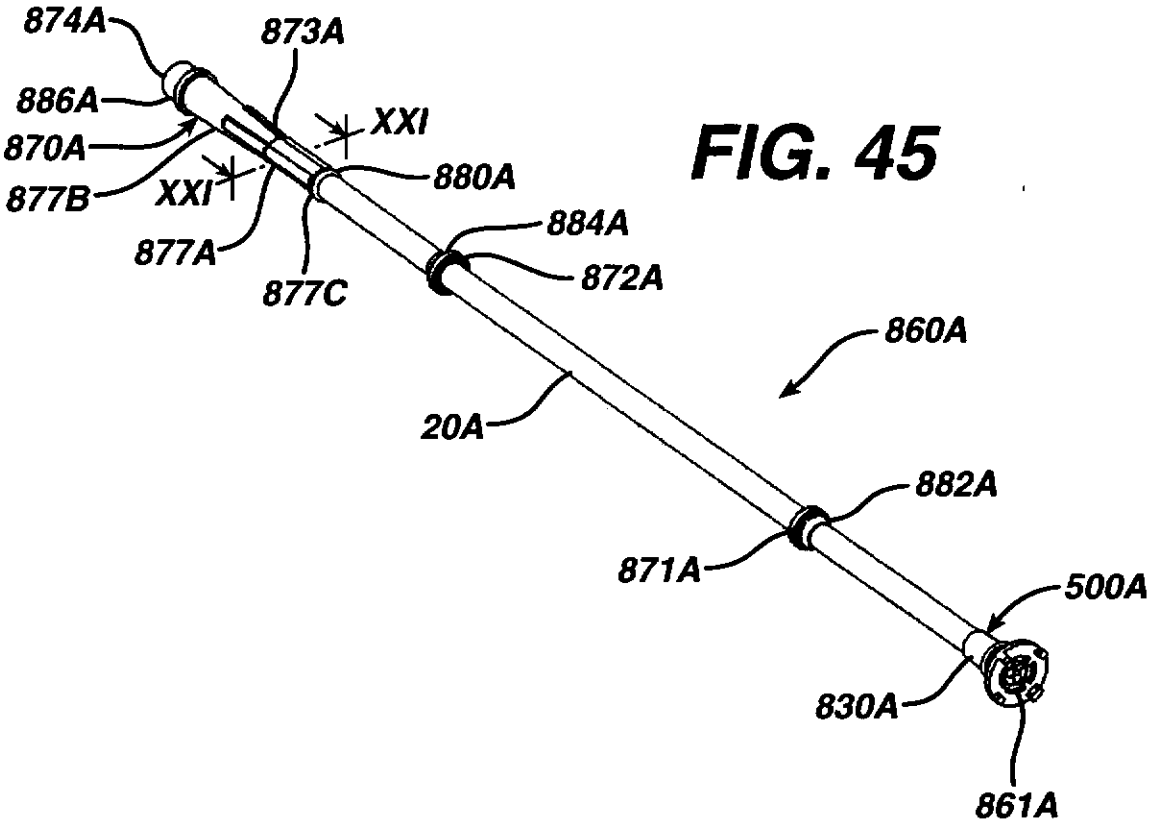

874A
873A
886A
XXI
870A
880A
877B
XXI
884A
877A
872A
877C
860A
20A
882A
871A
500A
830A
861A

FIG. 45

FIG. 46

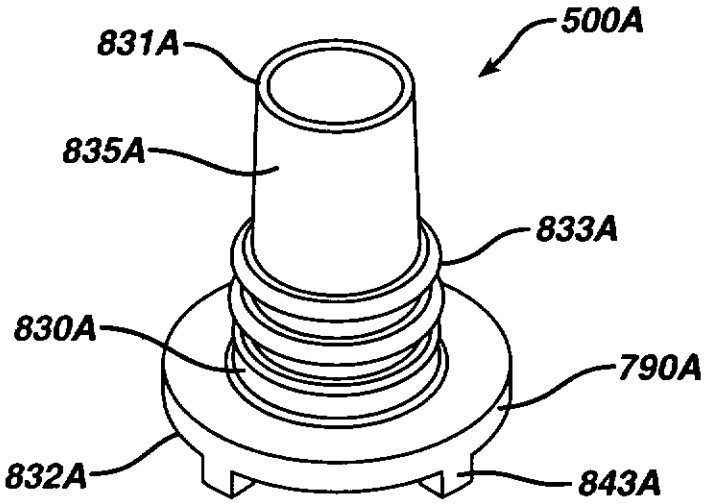

831A
500A
835A
833A
830A
790A
832A
843A

FIG. 47

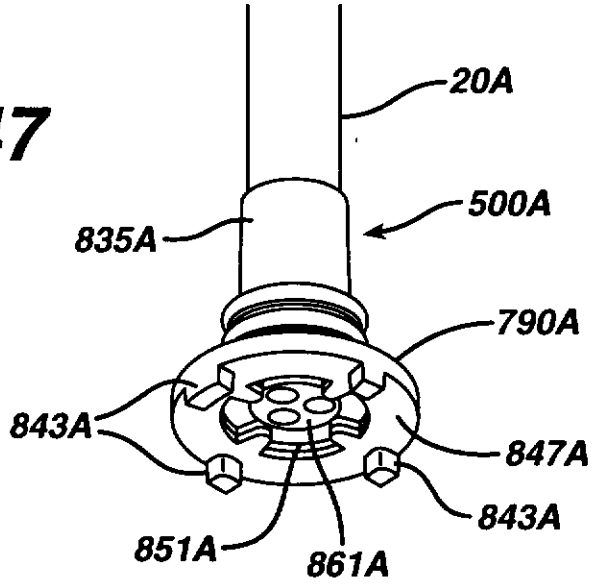

20A
500A
835A
790A
843A
847A
843A
851A
861A

FIG. 48

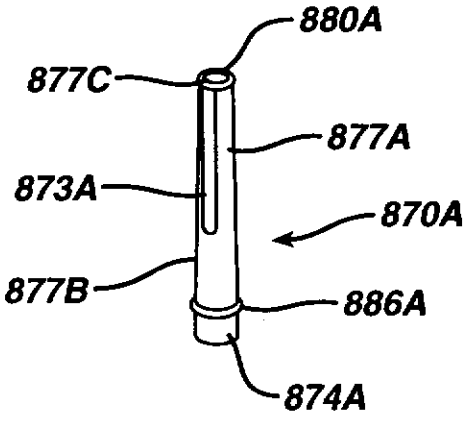

880A
877C
877A
873A
870A
877B
886A
874A

FIG. 49

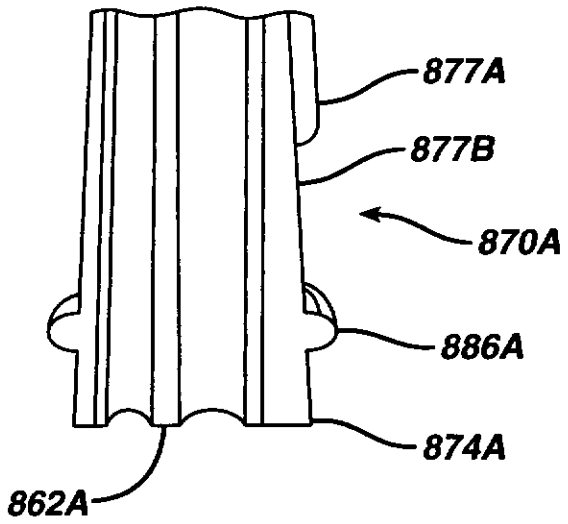

877A
877B
870A
886A
874A
862A

FIG. 50

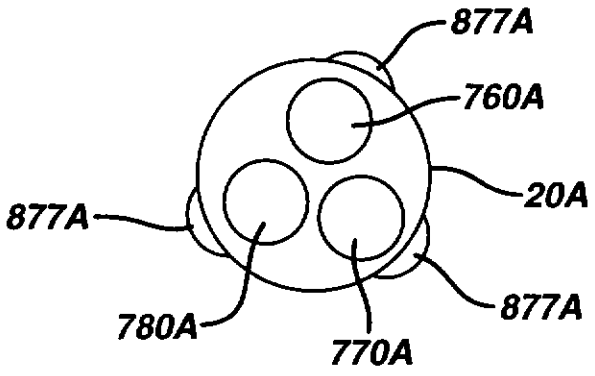

877A
760A
20A
877A
877A
780A
770A

FIG. 51

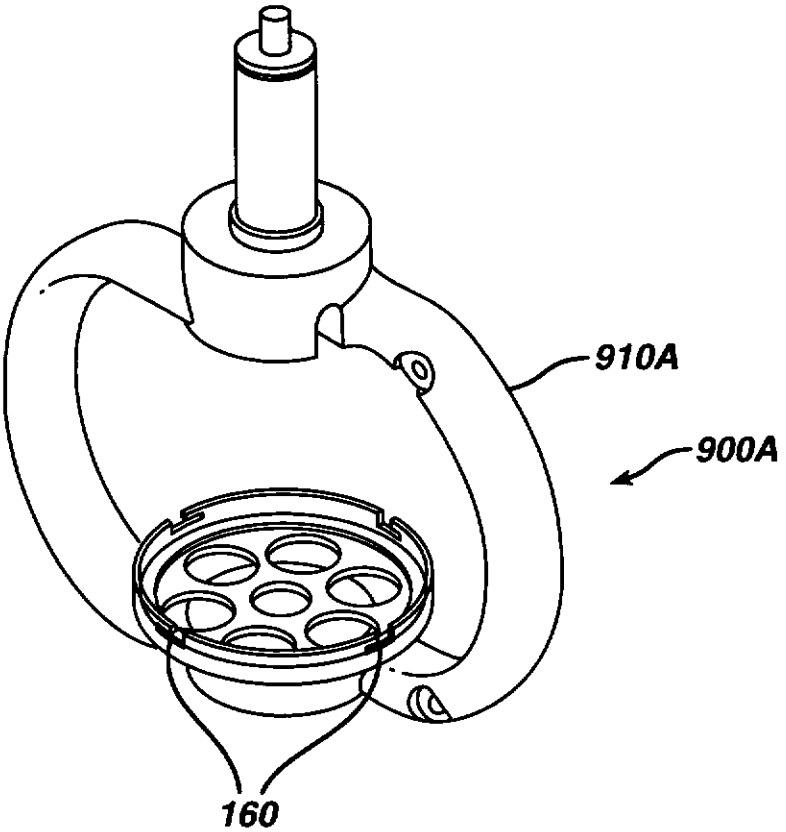


FIG. 52

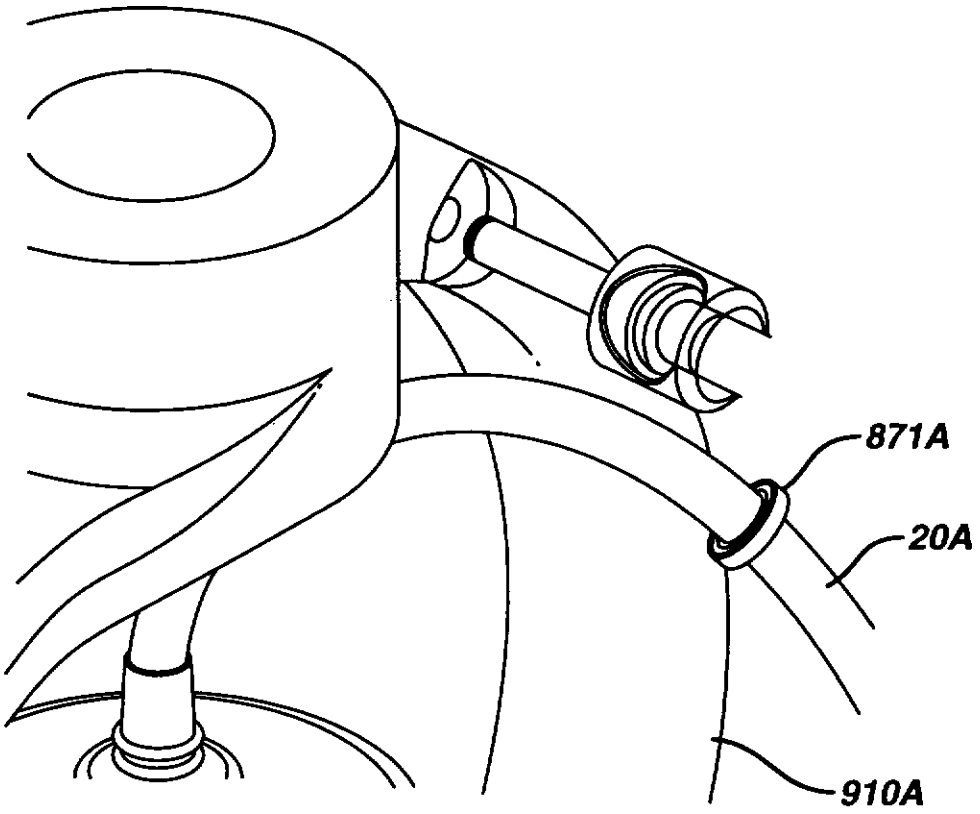


FIG. 53

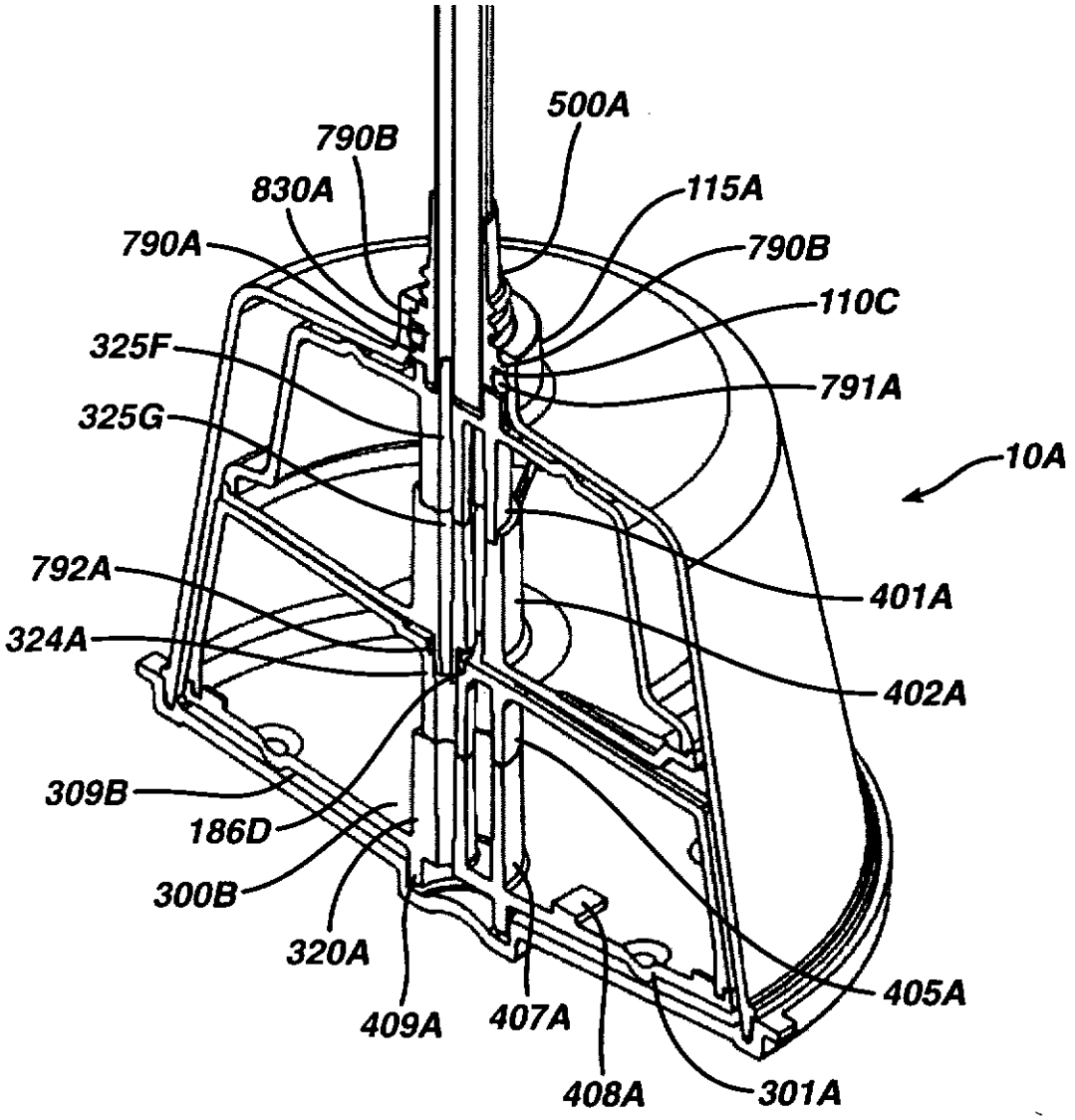

500A
790B
830A
115A
790A
790B
110C
325F
791A
325G
10A
792A
401A
324A
402A
309B
186D
300B
320A
405A
409A
407A
408A
301A

FIG. 54

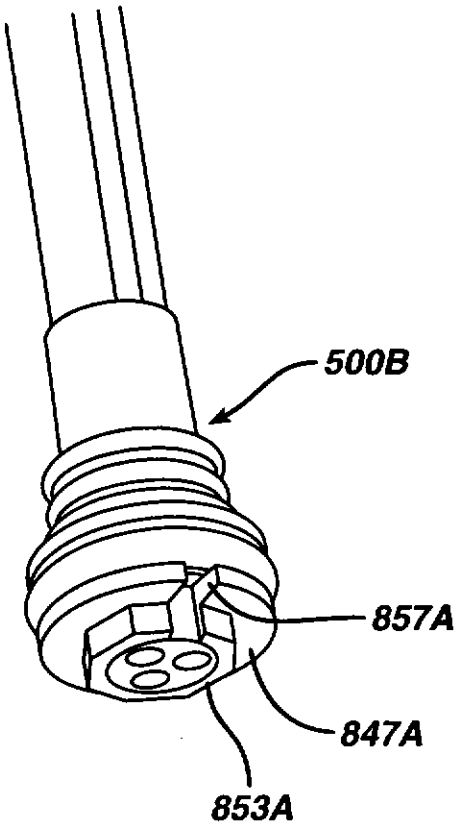


FIG. 55

