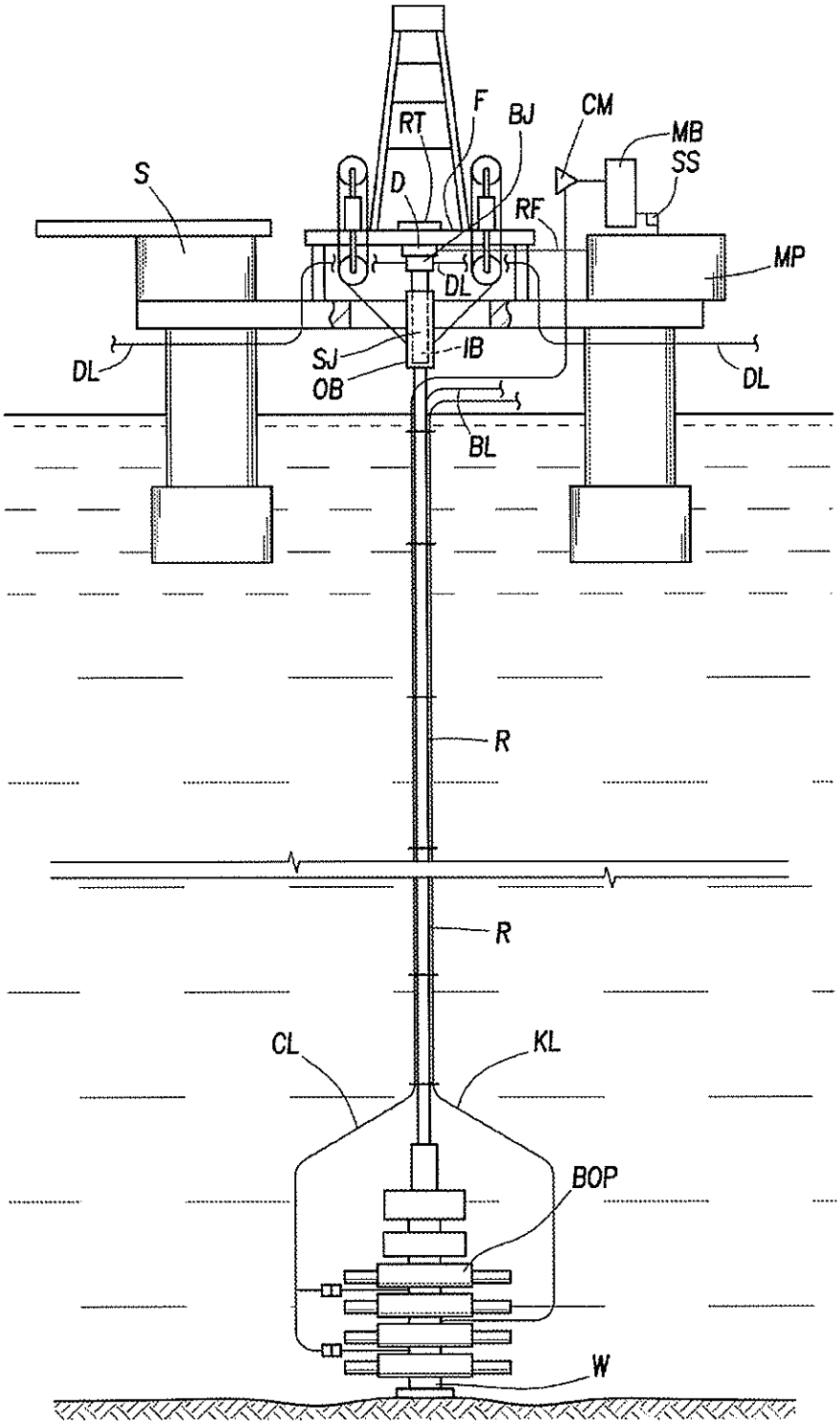


FIG. 1
(PRIOR ART)

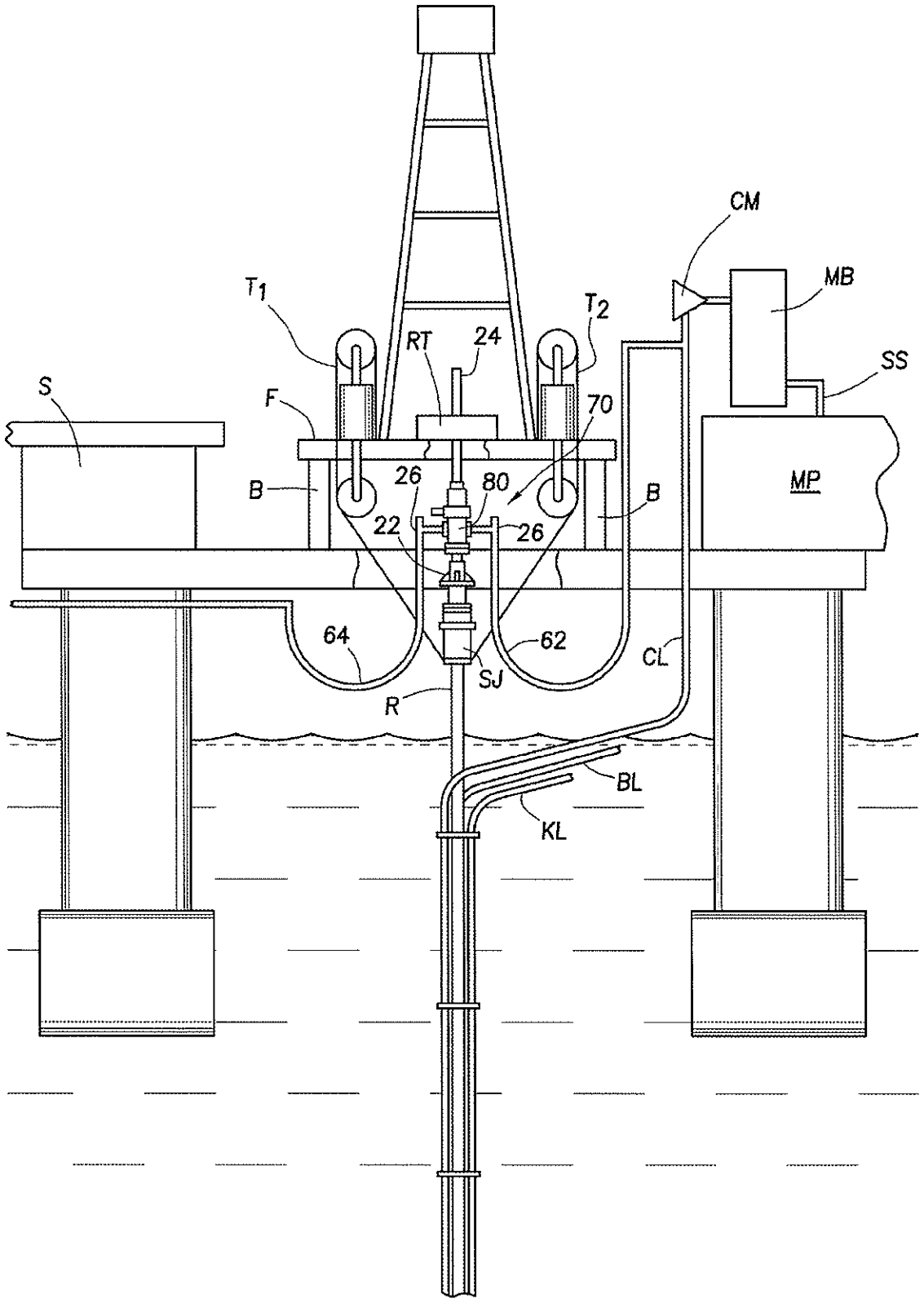


FIG.2
(PRIOR ART)

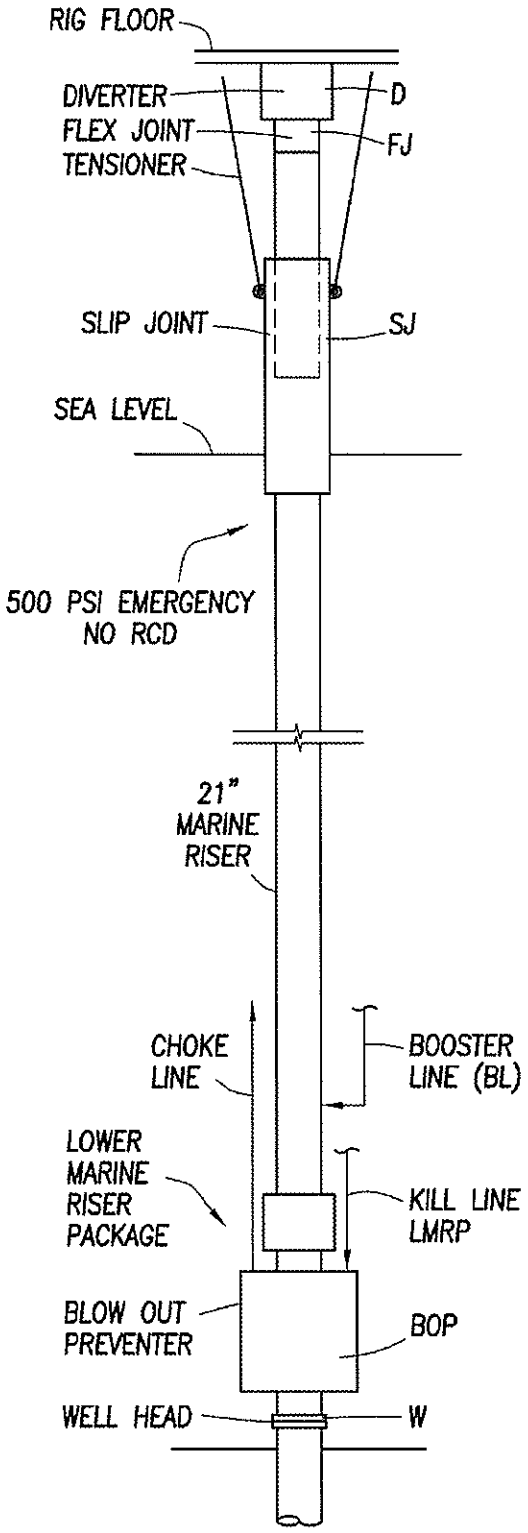

RIG FLOOR
DIVERTER
D
FLEX JOINT
FJ
TENSIONER
SLIP JOINT
SJ
SEA LEVEL
500 PSI EMERGENCY
NO RCD
21"
MARINE
RISER
CHOKE
LINE
BOOSTER
LINE (BL)
LOWER
MARINE
RISER
PACKAGE
KILL LINE
LMRP
BLOW OUT
PREVENTER
BOP
WELL HEAD
W

FIG.3a

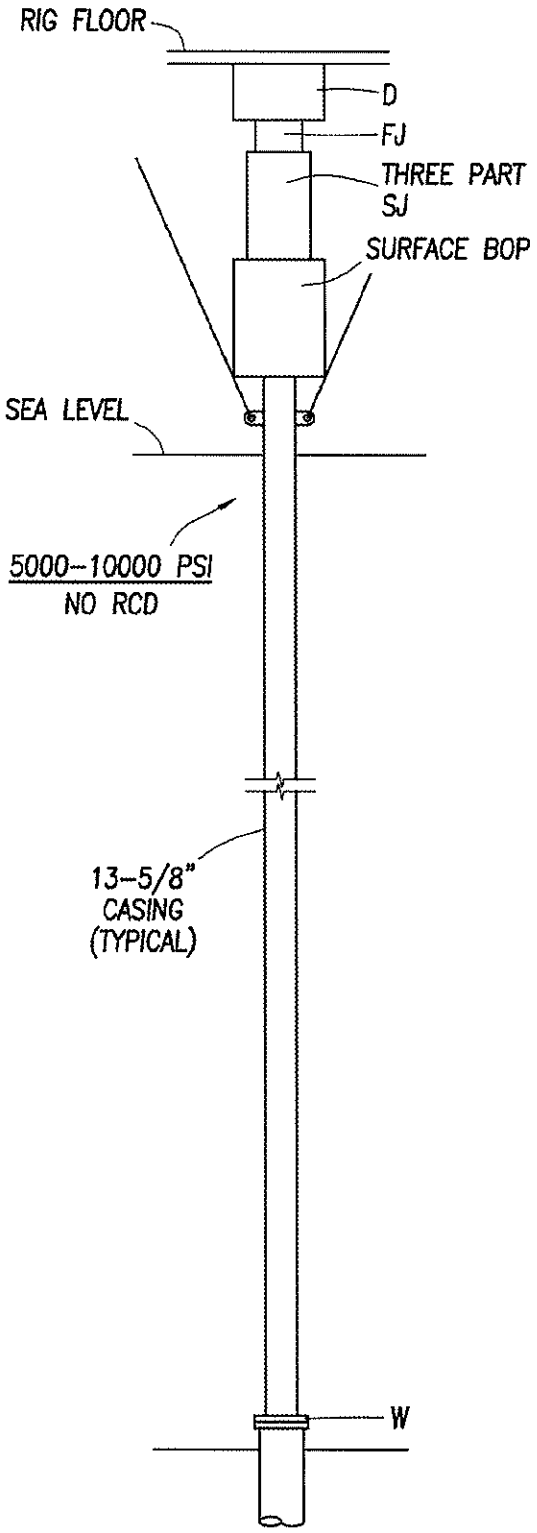

RIG FLOOR
D
FJ
THREE PART
SJ
SURFACE BOP
SEA LEVEL
5000-10000 PSI
NO RCD
13-5/8"
CASING
(TYPICAL)
W

FIG.3b

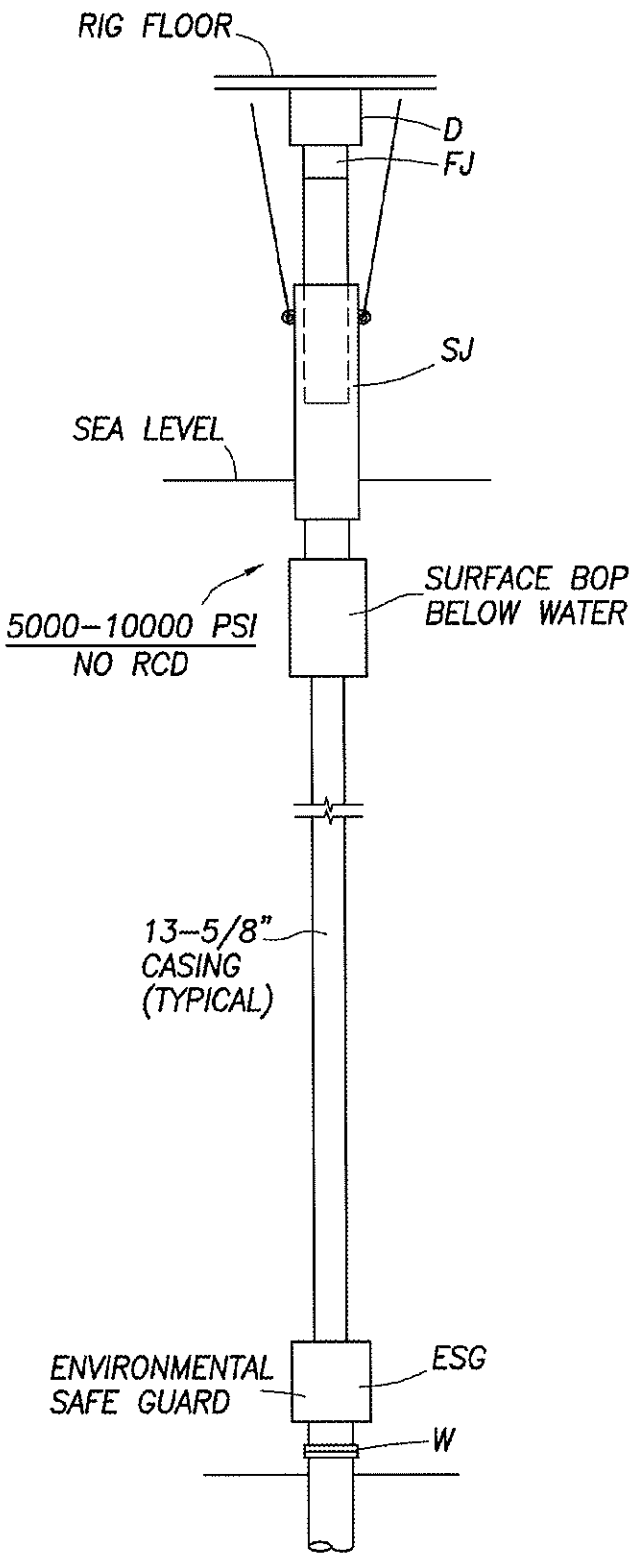

RIG FLOOR
D
FJ
SJ
SEA LEVEL
SURFACE BOP
BELOW WATER
5000–10000 PSI
NO RCD
13–5/8"
CASING
(TYPICAL)
ENVIRONMENTAL
SAFE GUARD
ESG
W

FIG.3c

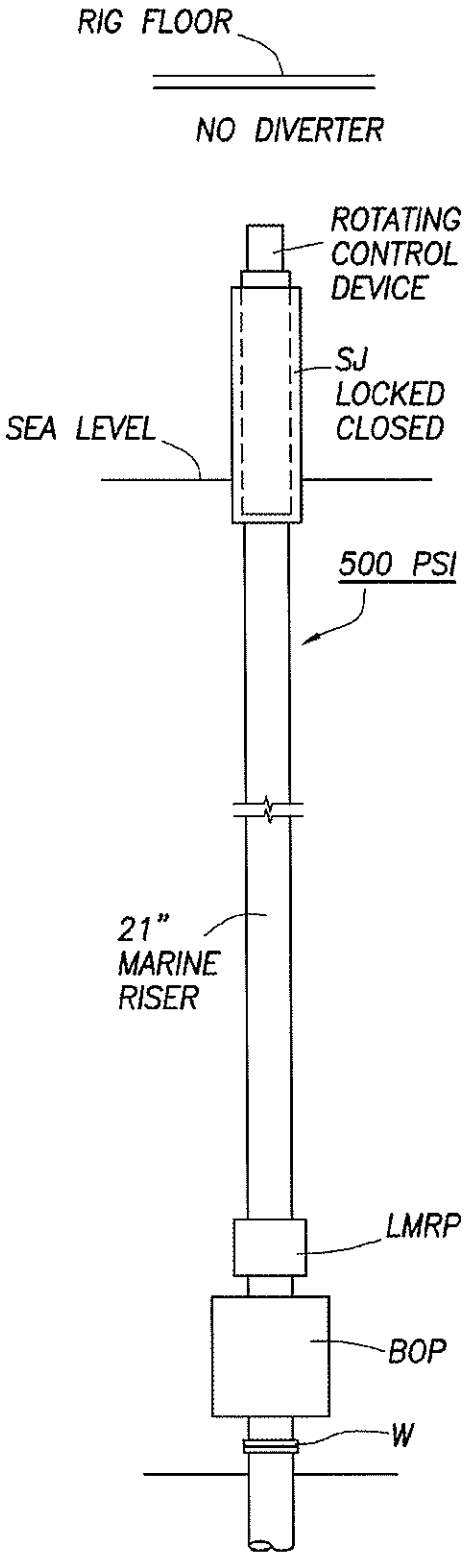

RIG FLOOR
NO DIVERTER
ROTATING
CONTROL
DEVICE
SJ
LOCKED
CLOSED
SEA LEVEL
500 PSI
21"
MARINE
RISER
LMRP
BOP
W

FIG.3d

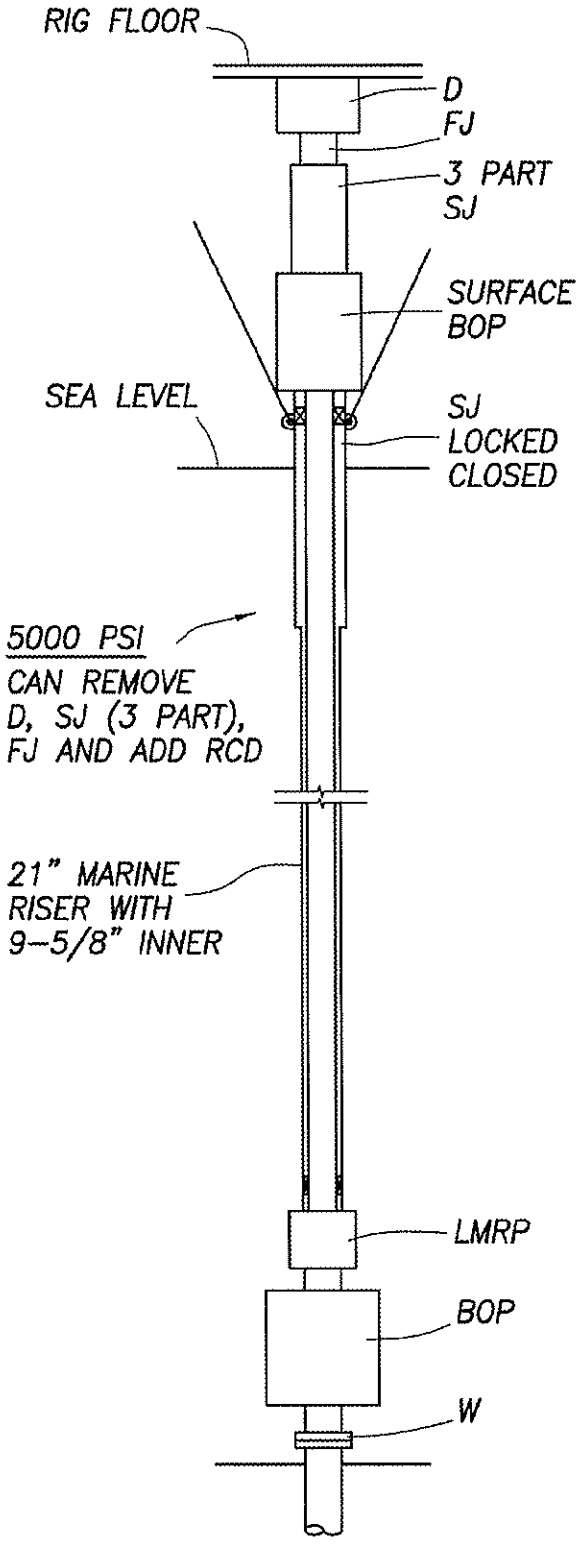

RIG FLOOR
D
FJ
3 PART
SJ
SURFACE
BOP
SEA LEVEL
SJ
LOCKED
CLOSED
5000 PSI
CAN REMOVE
D, SJ (3 PART),
FJ AND ADD RCD
21" MARINE
RISER WITH
9-5/8" INNER
LMRP
BOP
W

FIG.3e

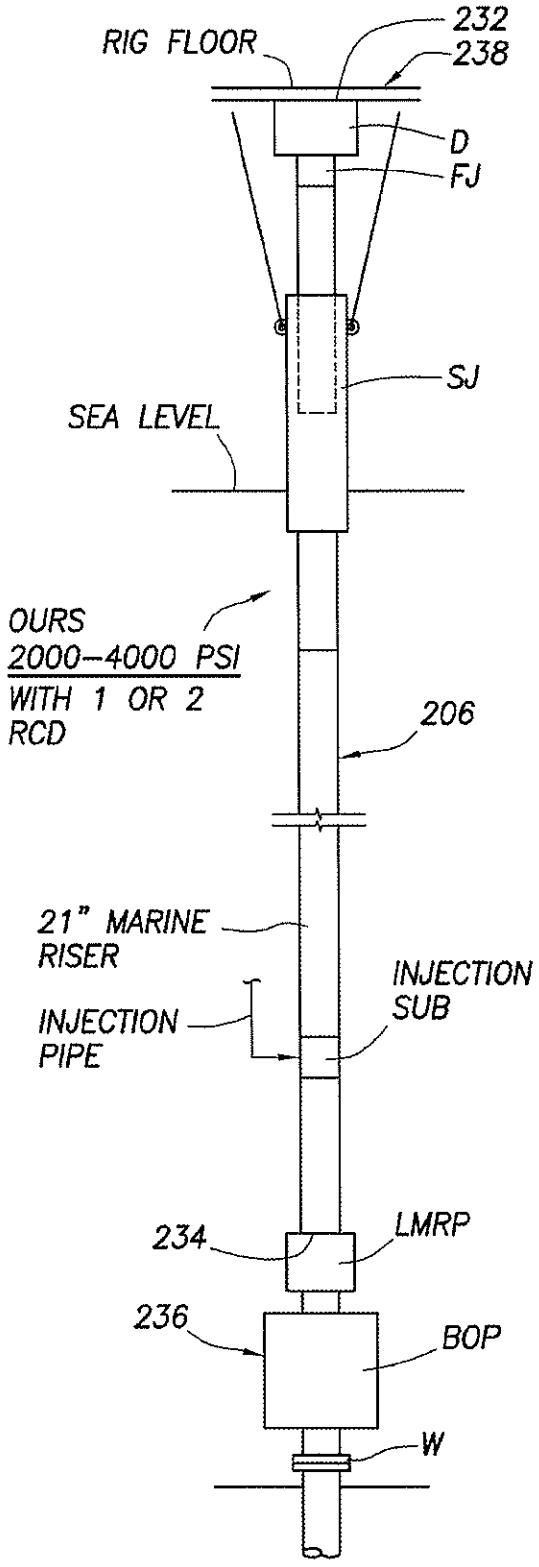

RIG FLOOR
232
238
D
FJ
SJ
SEA LEVEL
OURS
2000-4000 PSI
WITH 1 OR 2
RCD
206
21" MARINE
RISER
INJECTION
SUB
INJECTION
PIPE
234
LMRP
236
BOP
W

FIG.3f

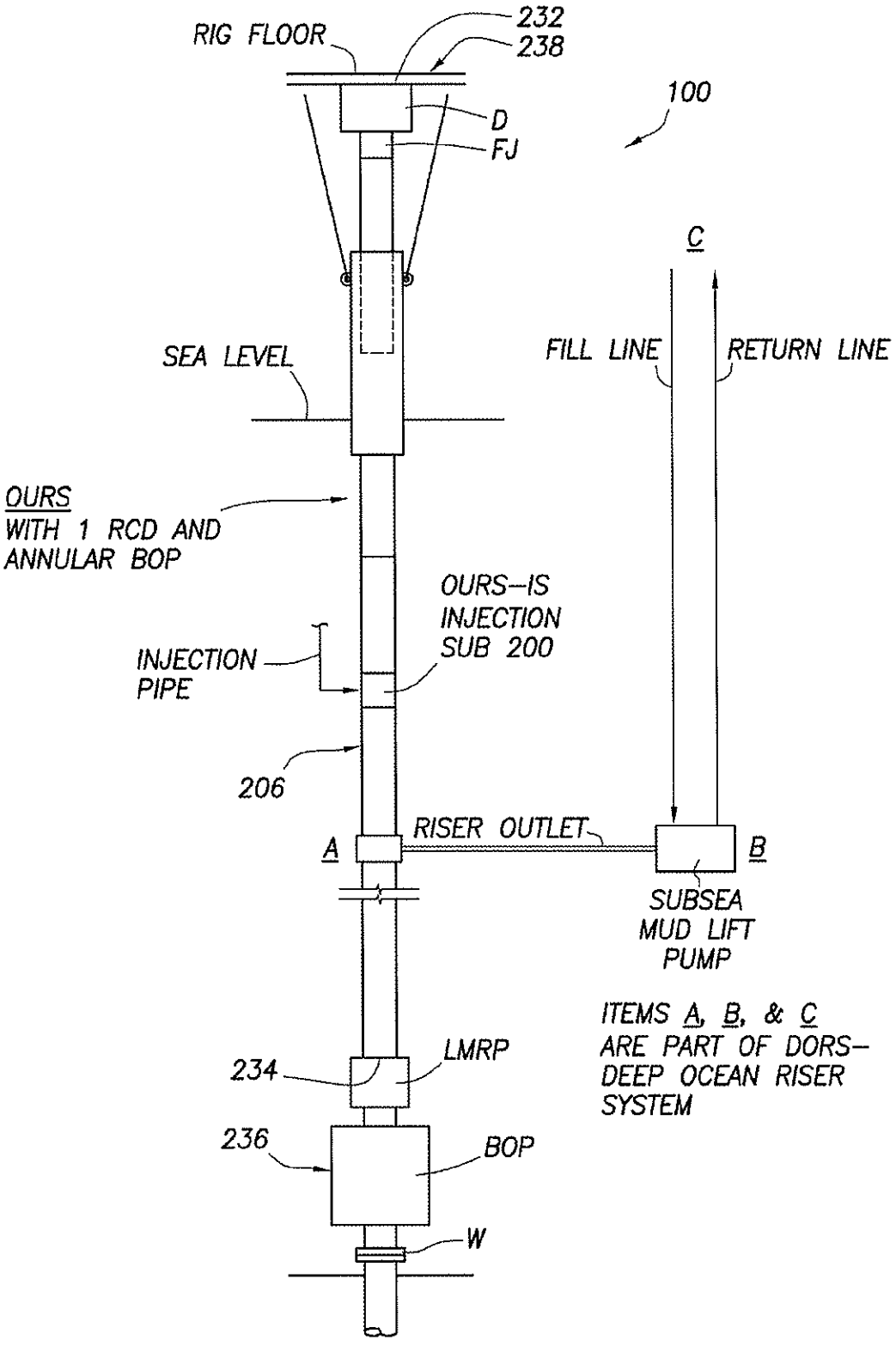

RIG FLOOR
232
238
100
D
FJ
C
SEA LEVEL
FILL LINE
RETURN LINE
OURS
WITH 1 RCD AND
ANNULAR BOP
OURS–IS
INJECTION
SUB 200
INJECTION
PIPE
206
RISER OUTLET
A
B
SUBSEA
MUD LIFT
PUMP
ITEMS A, B, & C
ARE PART OF DORS–
DEEP OCEAN RISER
SYSTEM
LMRP
234
236
BOP
W

FIG.3g

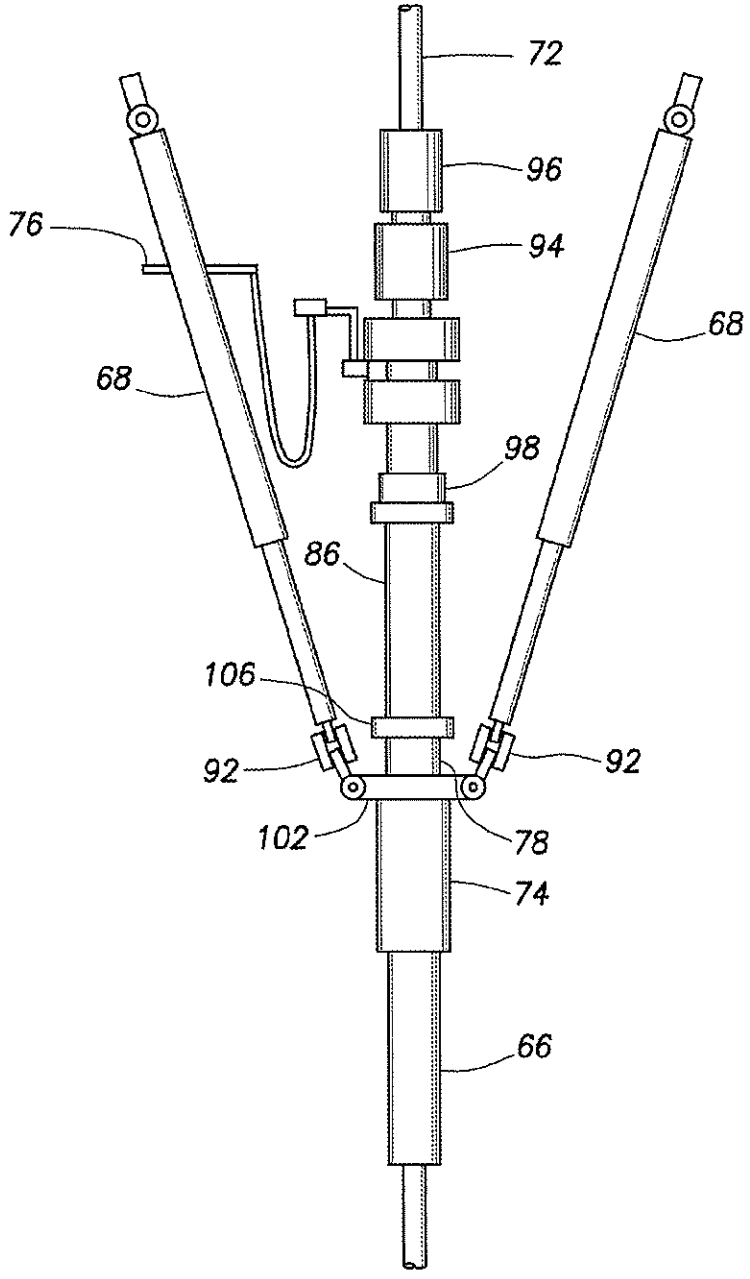


FIG.4
(PRIOR ART)

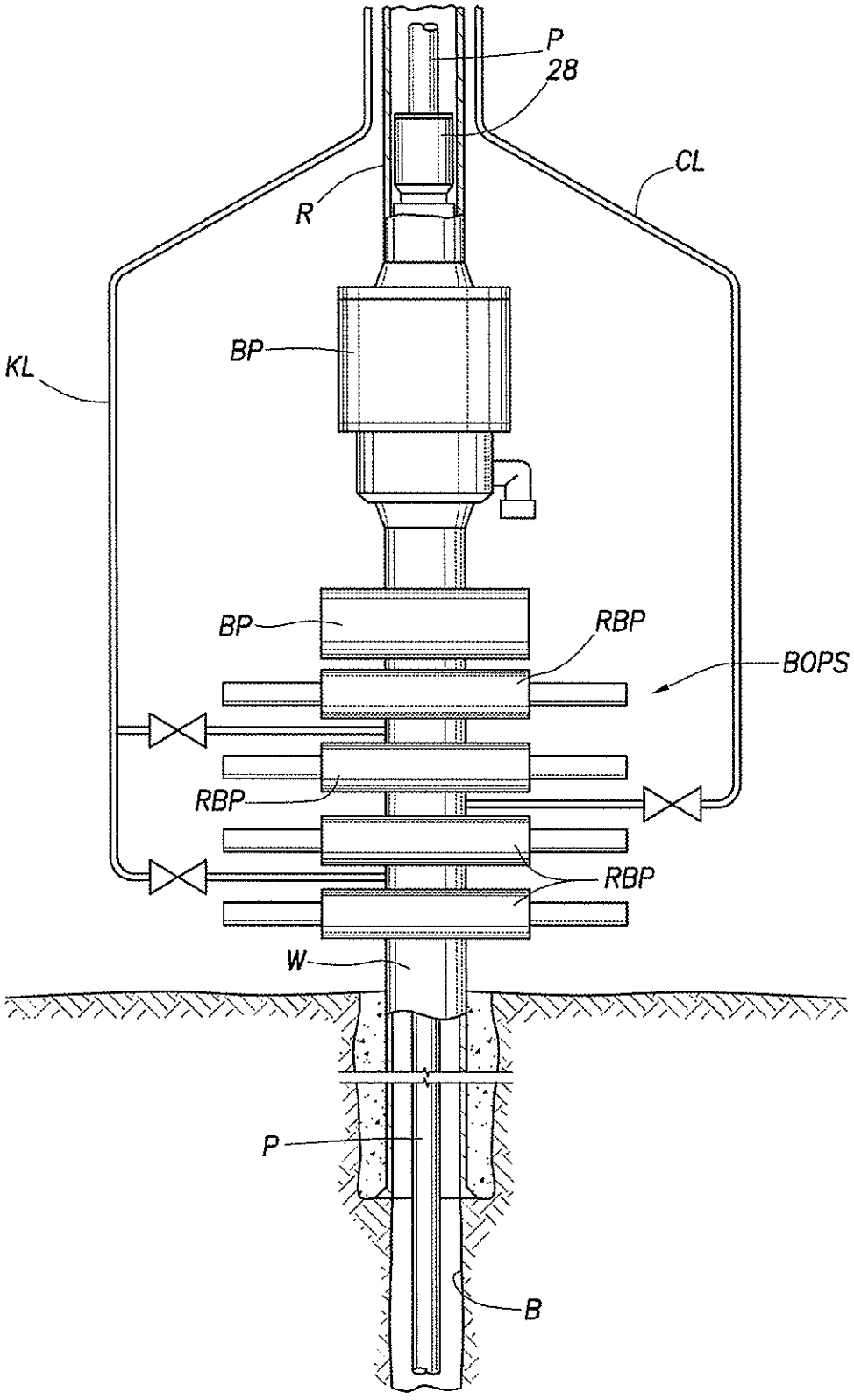


FIG.5
(PRIOR ART)

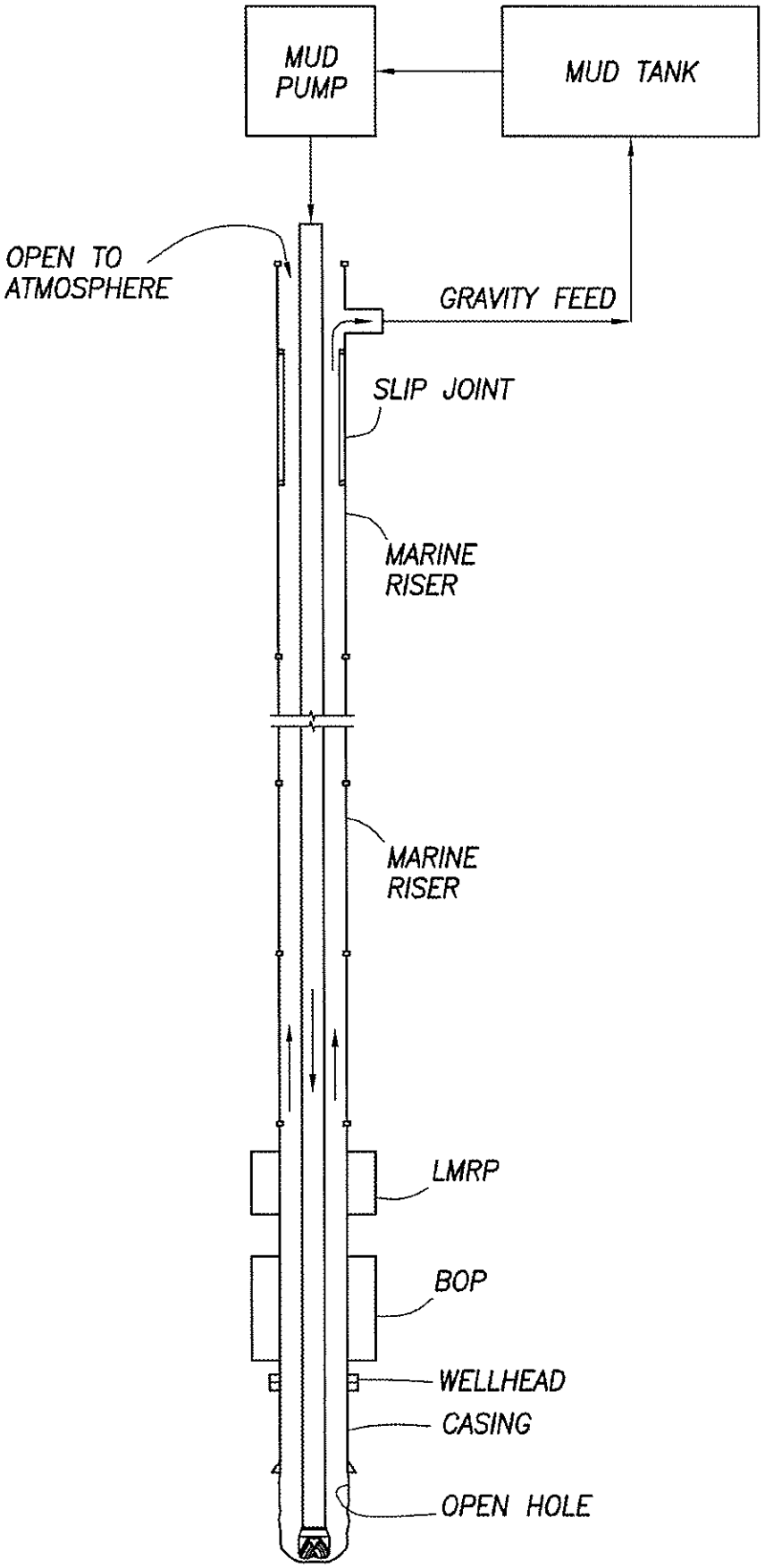

MUD PUMP
MUD TANK
OPEN TO ATMOSPHERE
GRAVITY FEED
SLIP JOINT
MARINE RISER
MARINE RISER
LMRP
BOP
WELLHEAD
CASING
OPEN HOLE

FIG.6A

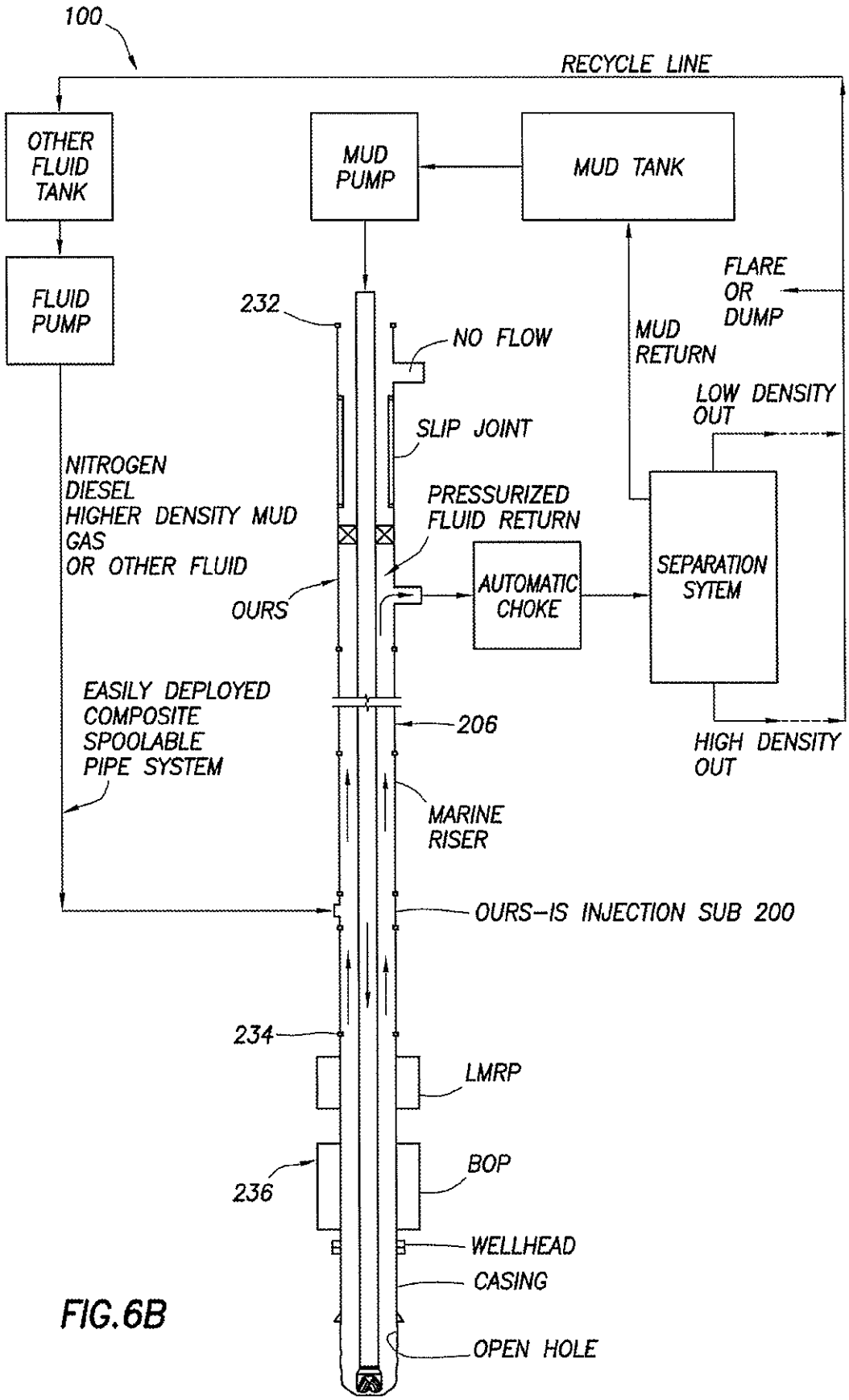

100
RECYCLE LINE
OTHER FLUID TANK
MUD PUMP
MUD TANK
FLUID PUMP
232
NO FLOW
FLARE OR DUMP
MUD RETURN
LOW DENSITY OUT
SLIP JOINT
NITROGEN
DIESEL
HIGHER DENSITY MUD
GAS
OR OTHER FLUID
PRESSURIZED FLUID RETURN
OURS
AUTOMATIC CHOKE
SEPARATION SYTEM
EASILY DEPLOYED COMPOSITE SPOOLABLE PIPE SYSTEM
206
HIGH DENSITY OUT
MARINE RISER
OURS–IS INJECTION SUB 200
234
LMRP
236
BOP
WELLHEAD
CASING
OPEN HOLE

FIG.6B

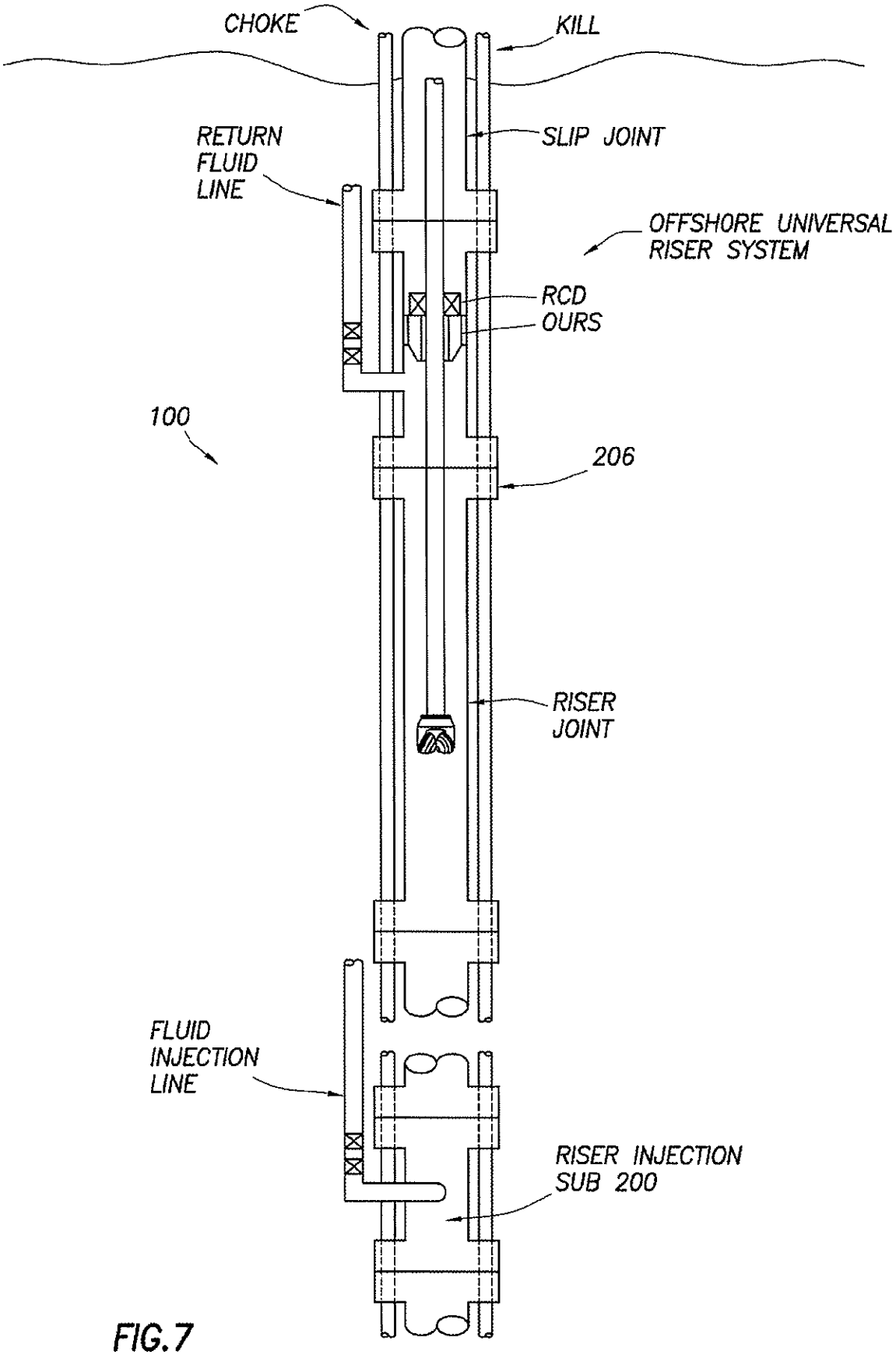

CHOKE
KILL
RETURN FLUID LINE
SLIP JOINT
OFFSHORE UNIVERSAL RISER SYSTEM
RCD OURS
100
206
RISER JOINT
FLUID INJECTION LINE
RISER INJECTION SUB 200

FIG.7

FIG.8

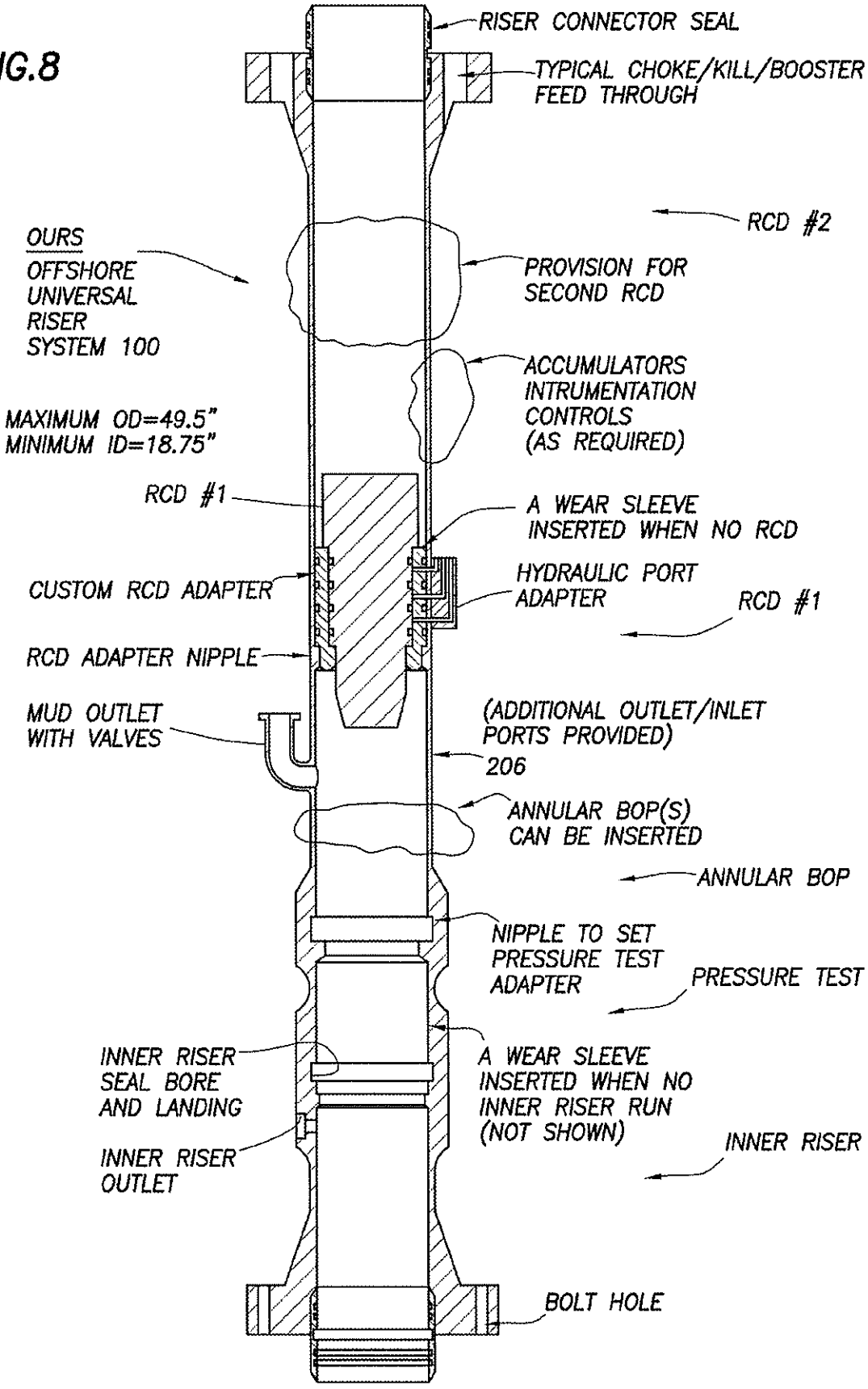
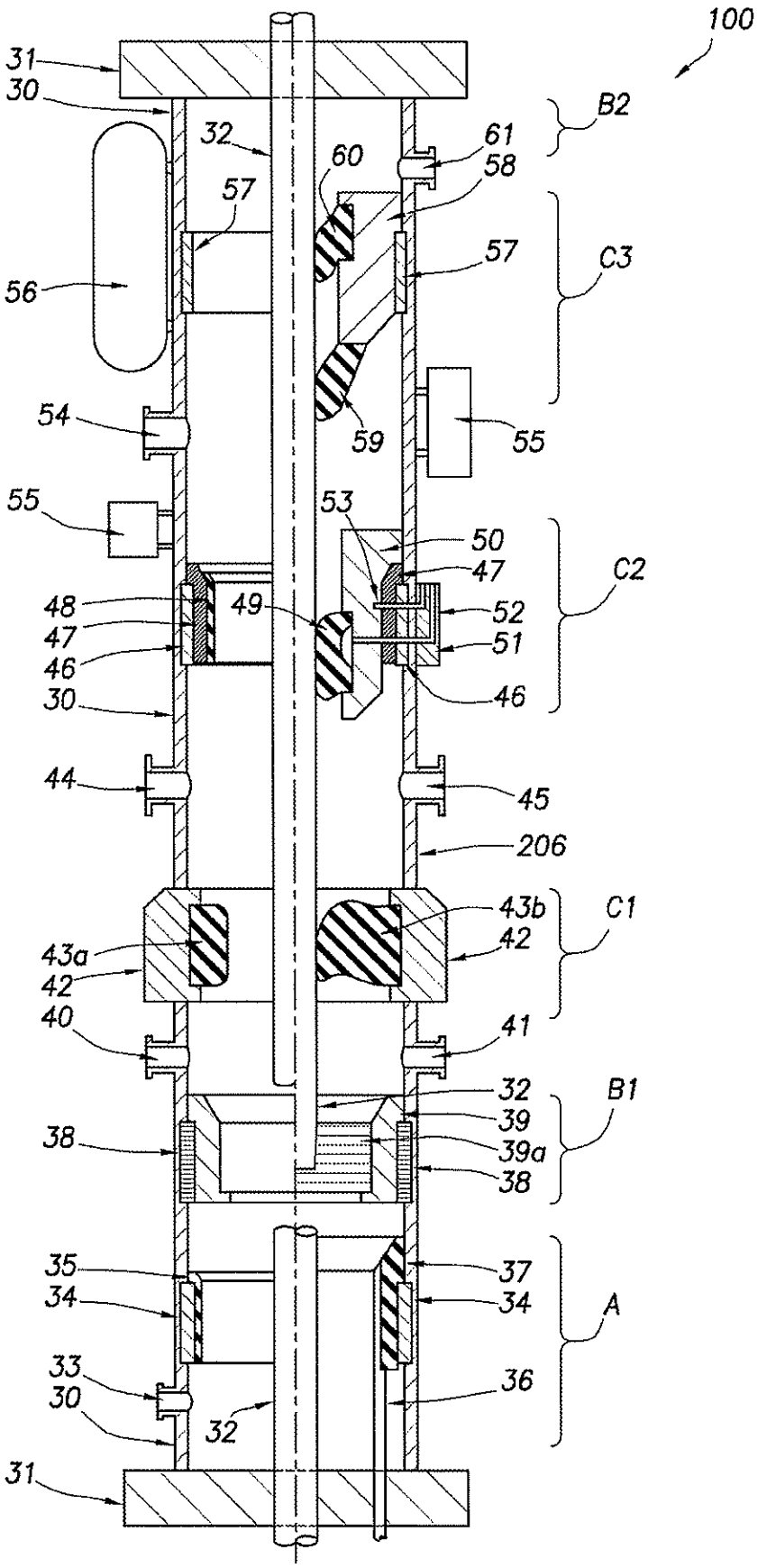

RISER CONNECTOR SEAL
TYPICAL CHOKE/KILL/BOOSTER FEED THROUGH
RCD #2
OURS
OFFSHORE UNIVERSAL RISER SYSTEM 100
PROVISION FOR SECOND RCD
ACCUMULATORS INTRUMENTATION CONTROLS (AS REQUIRED)
MAXIMUM OD=49.5"
MINIMUM ID=18.75"
RCD #1
A WEAR SLEEVE INSERTED WHEN NO RCD
HYDRAULIC PORT ADAPTER
CUSTOM RCD ADAPTER
RCD #1
RCD ADAPTER NIPPLE
MUD OUTLET WITH VALVES
(ADDITIONAL OUTLET/INLET PORTS PROVIDED)
206
ANNULAR BOP(S) CAN BE INSERTED
ANNULAR BOP
NIPPLE TO SET PRESSURE TEST ADAPTER
PRESSURE TEST
INNER RISER SEAL BORE AND LANDING
A WEAR SLEEVE INSERTED WHEN NO INNER RISER RUN (NOT SHOWN)
INNER RISER
INNER RISER OUTLET
BOLT HOLE

FIG.9


100
31
30
32
61
60
58
57
B2
57
C3
56
54
59
55
55
53
50
47
C2
48
49
52
47
51
46
46
30
44
45
206
43b
C1
43a
42
42
40
41
32
B1
39
38
39a
38
35
37
34
34
A
33
36
30
32
31

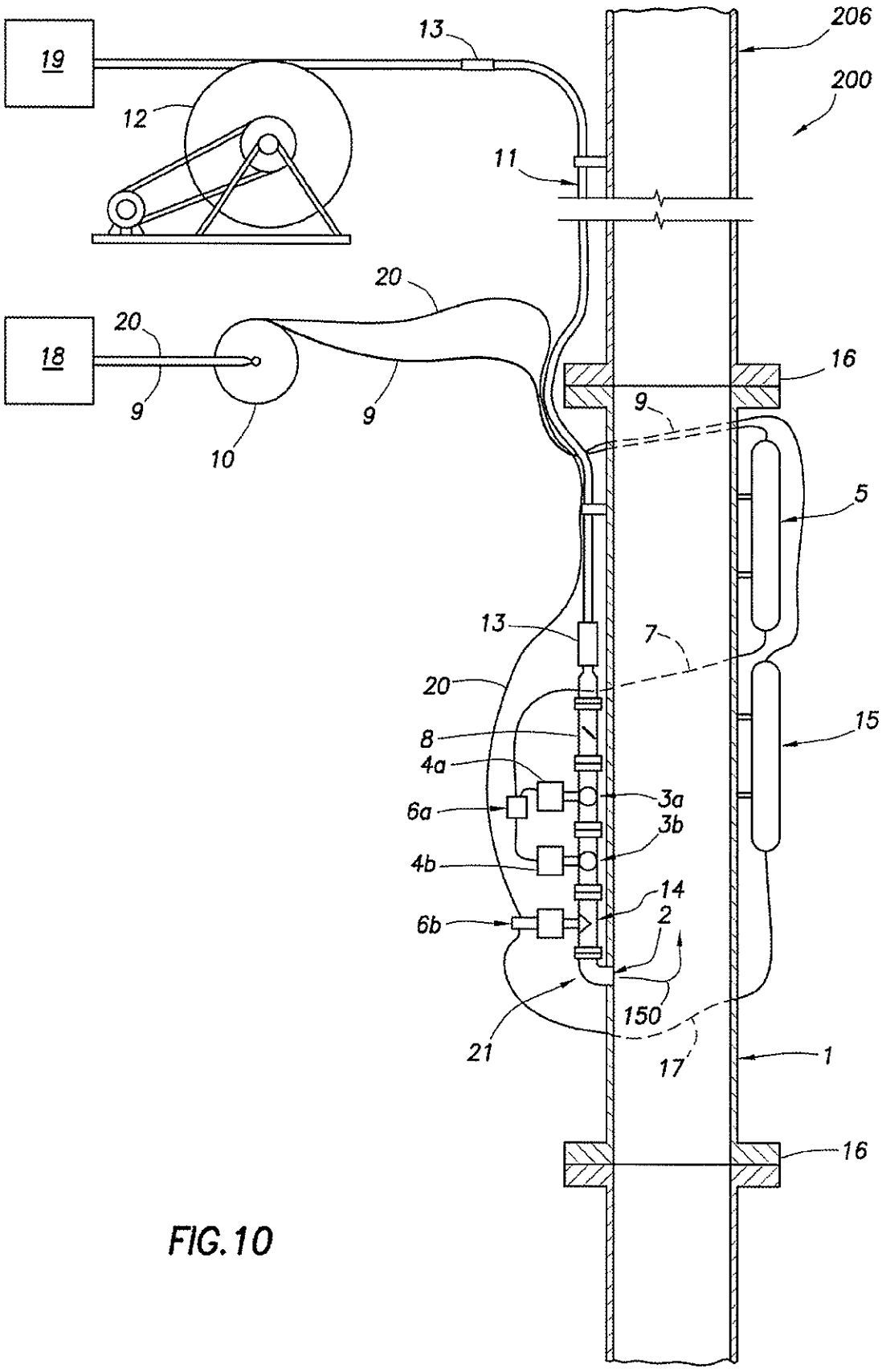

19
13
206
200
12
11
20
18
20
16
9
9
9
10
5
13
7
20
15
8
4a
3a
6a
3b
4b
14
6b
2
150
21
17
1
16

FIG. 10

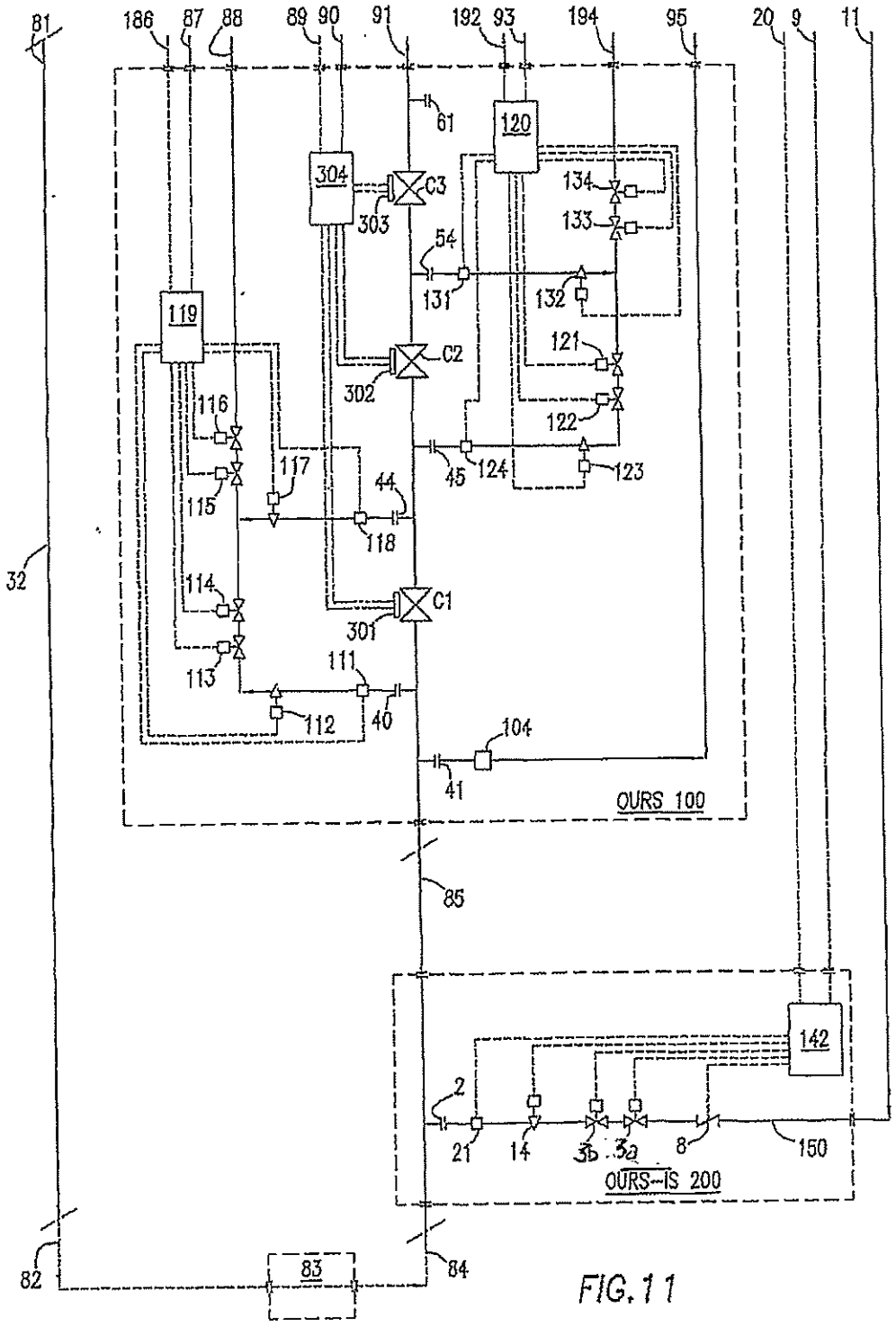

81
186
87
88
89
90
91
192
93
194
95
20
9
11
61
120
304
C3
303
54
131
134
133
132
119
121
C2
302
122
116
117
44
45
124
123
115
118
32
114
C1
301
111
113
112
40
104
41
OURS 100
85
142
2
21
14
3b
3a
8
150
OURS--IS 200
82
83
84

FIG. 11

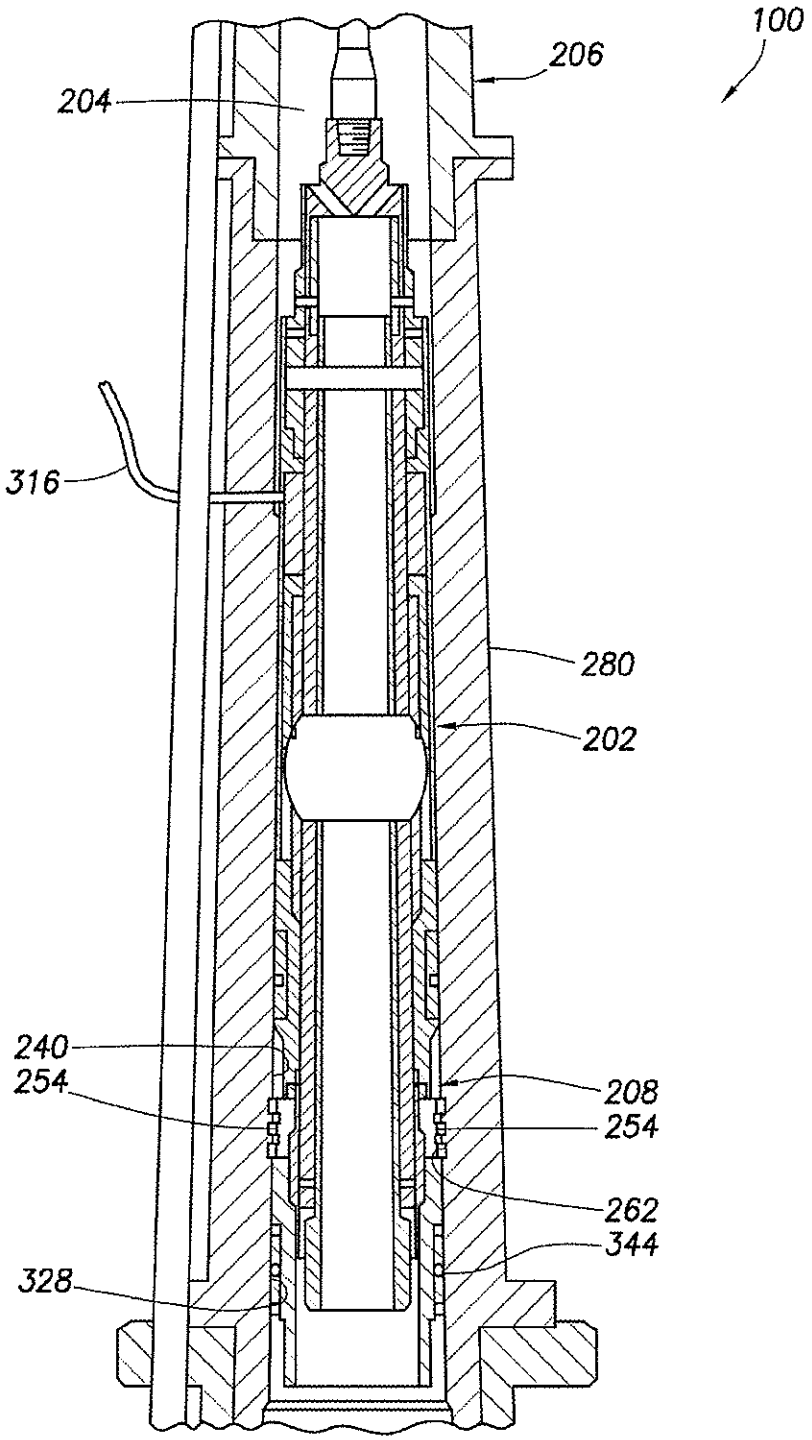


FIG. 12

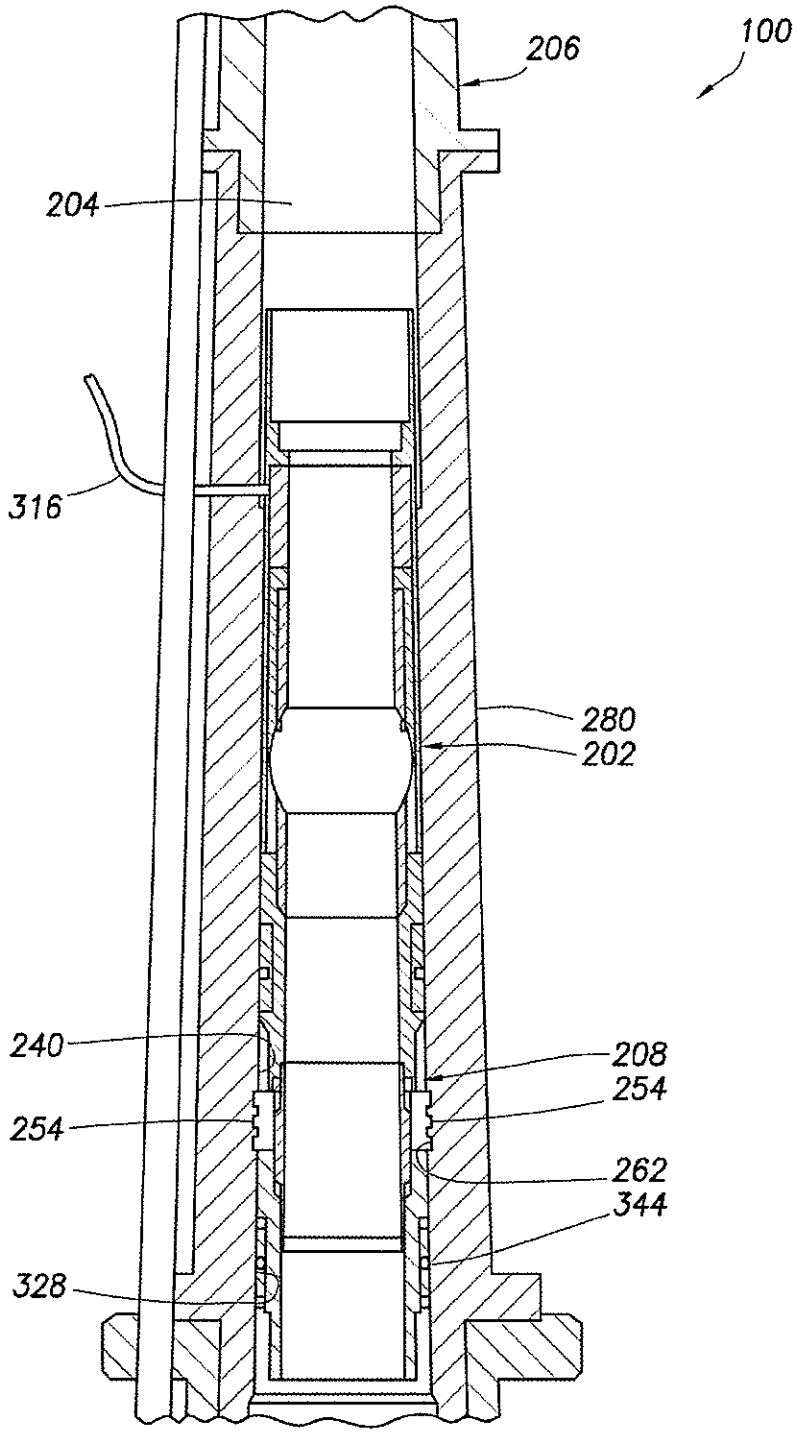


FIG. 13

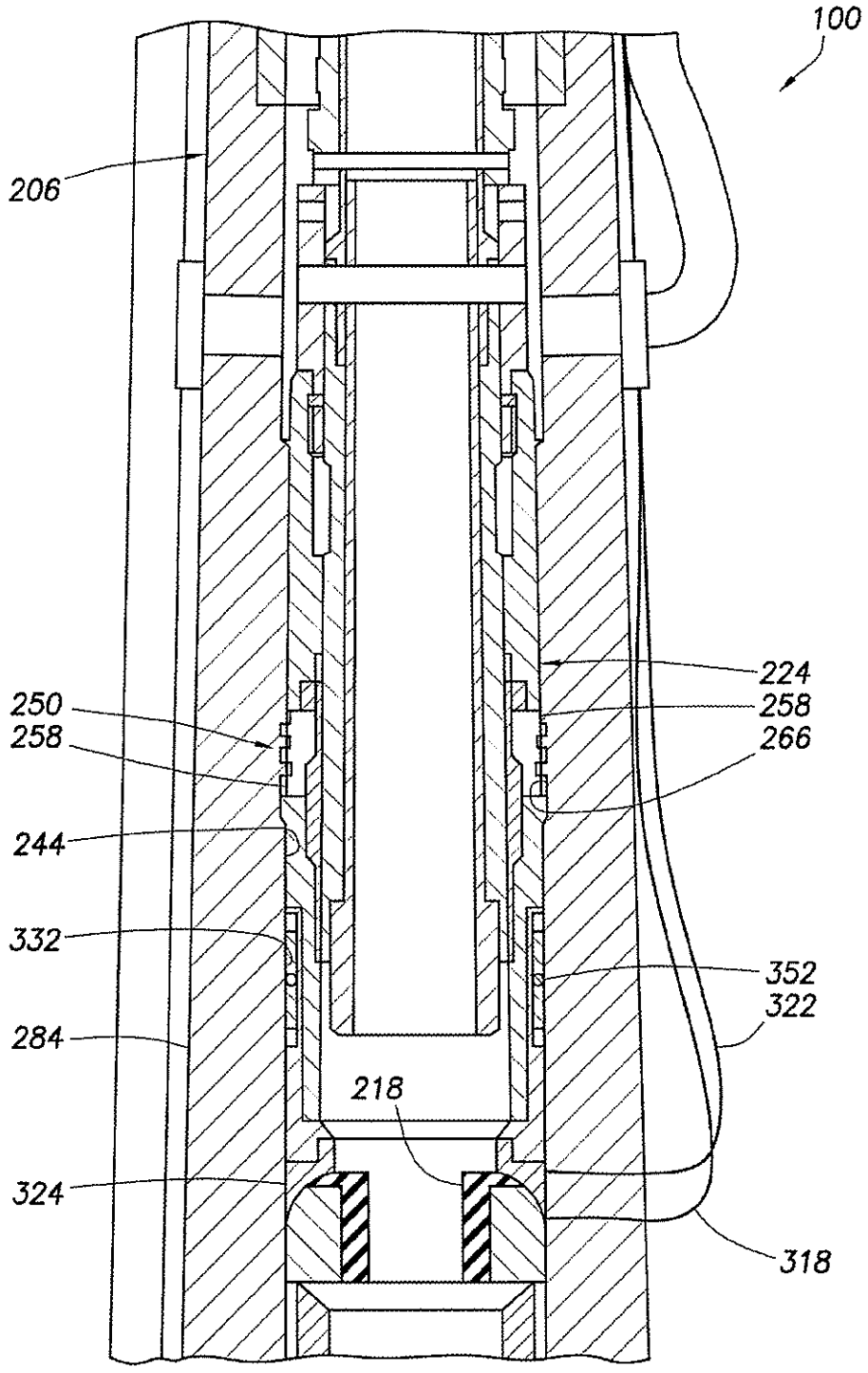


FIG. 14

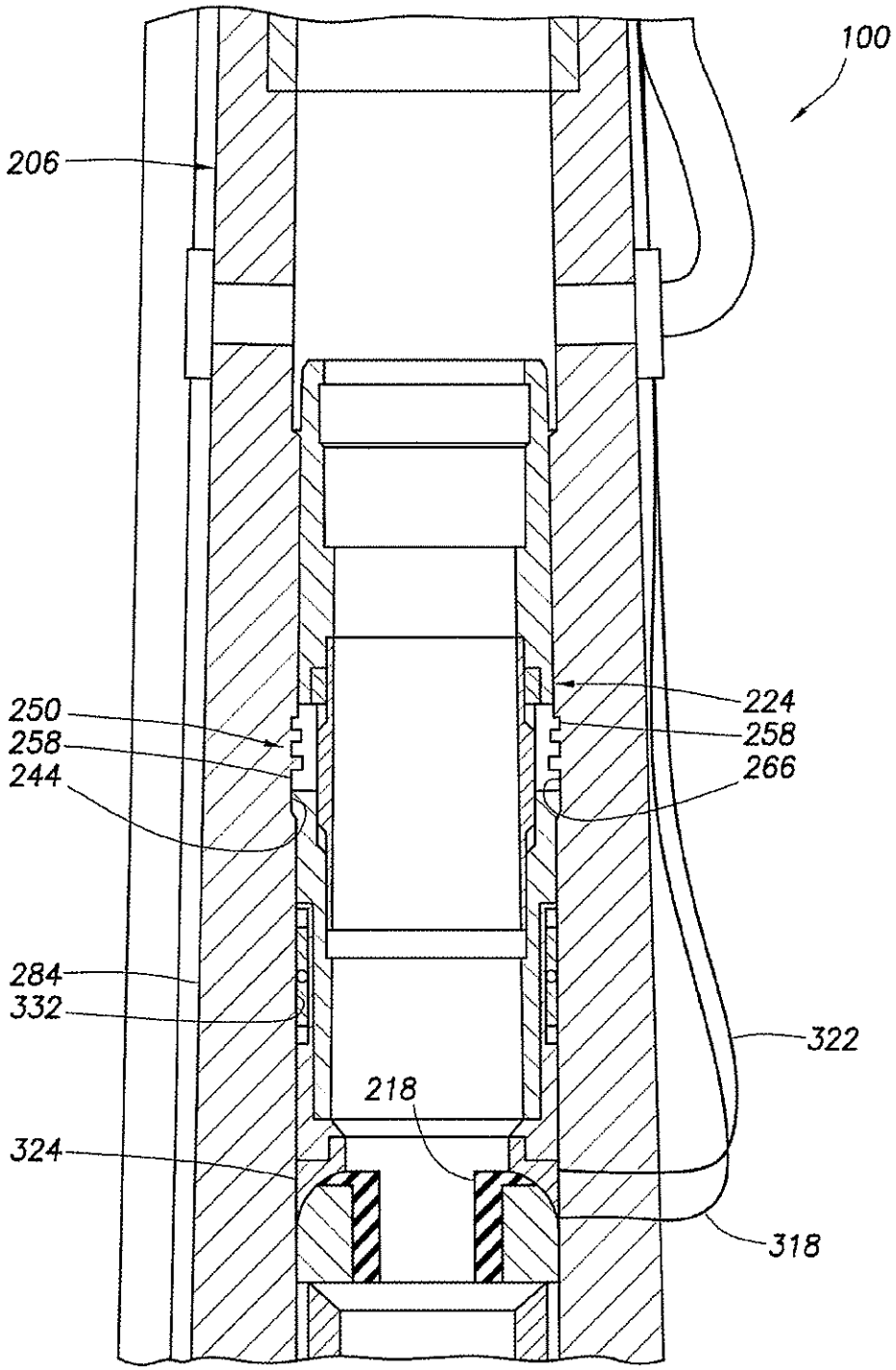


FIG. 15

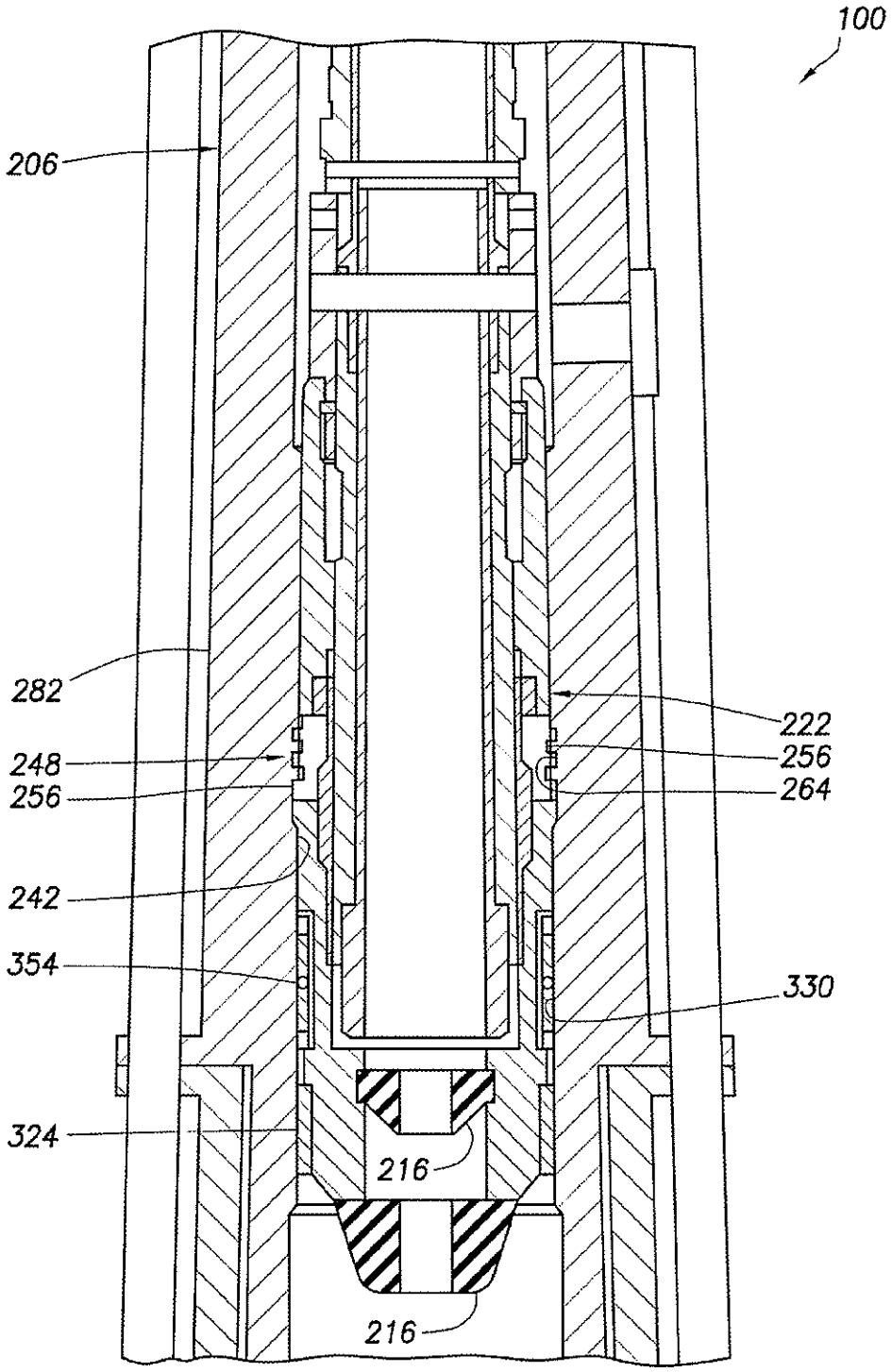


FIG. 16

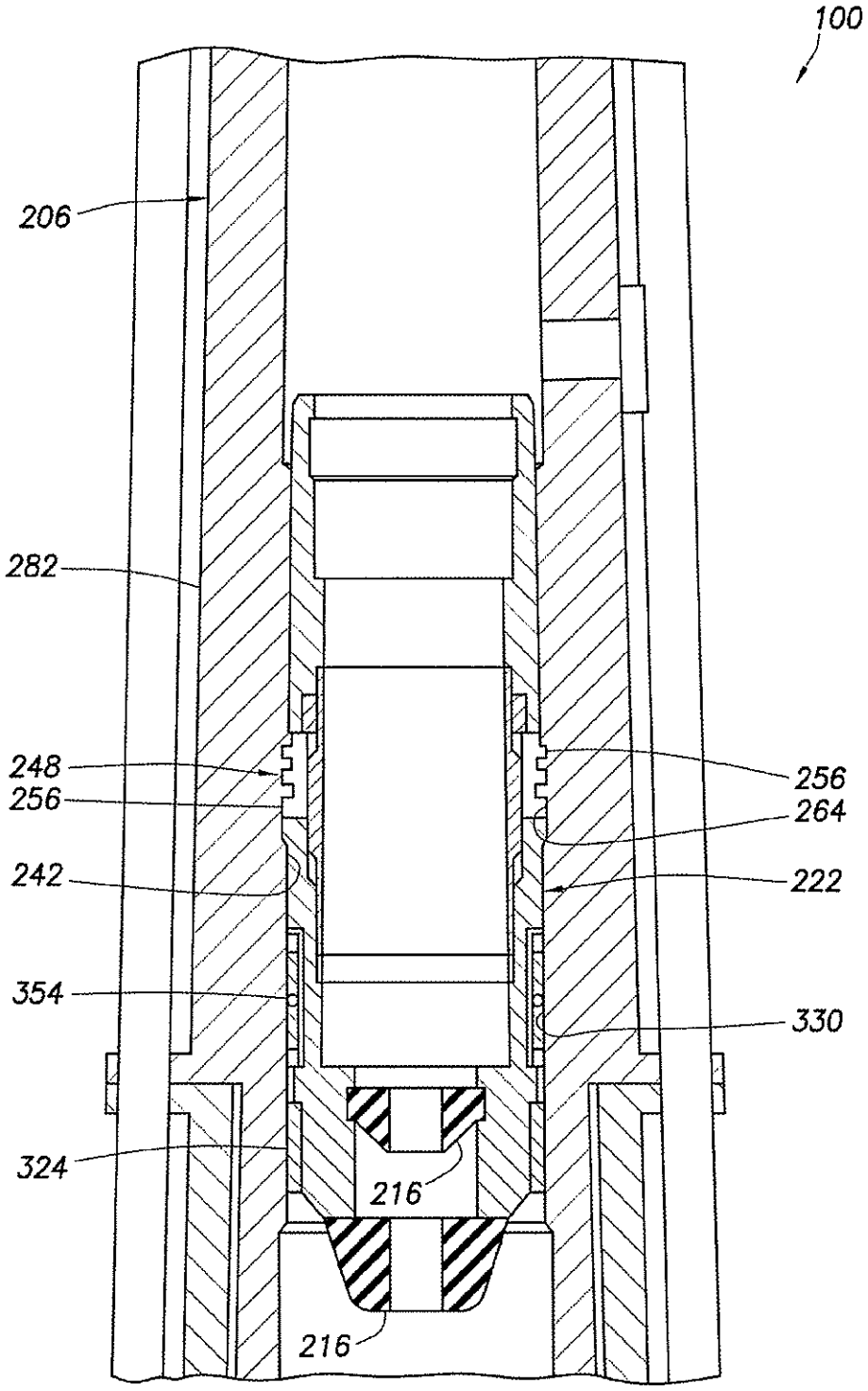


FIG. 17

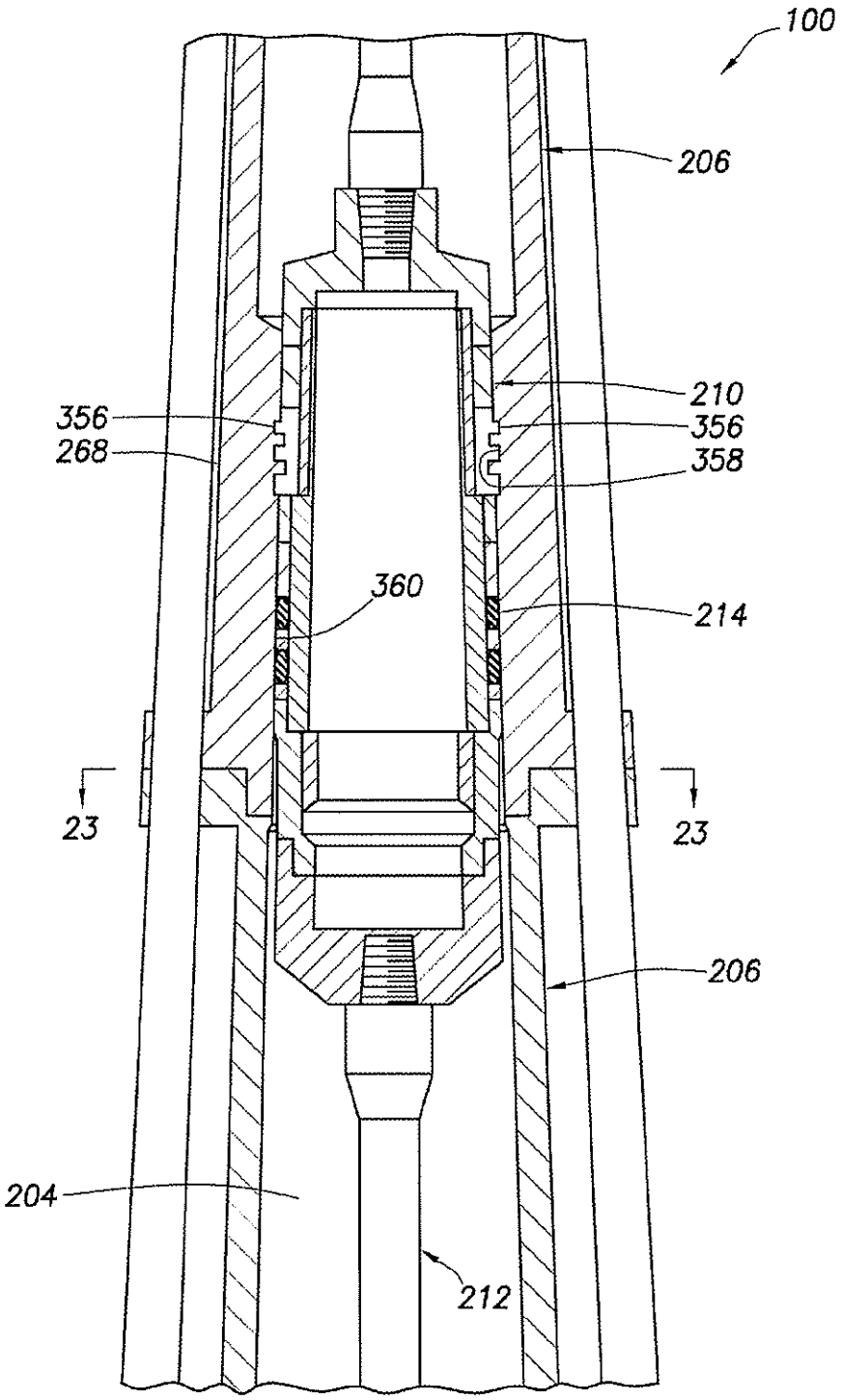
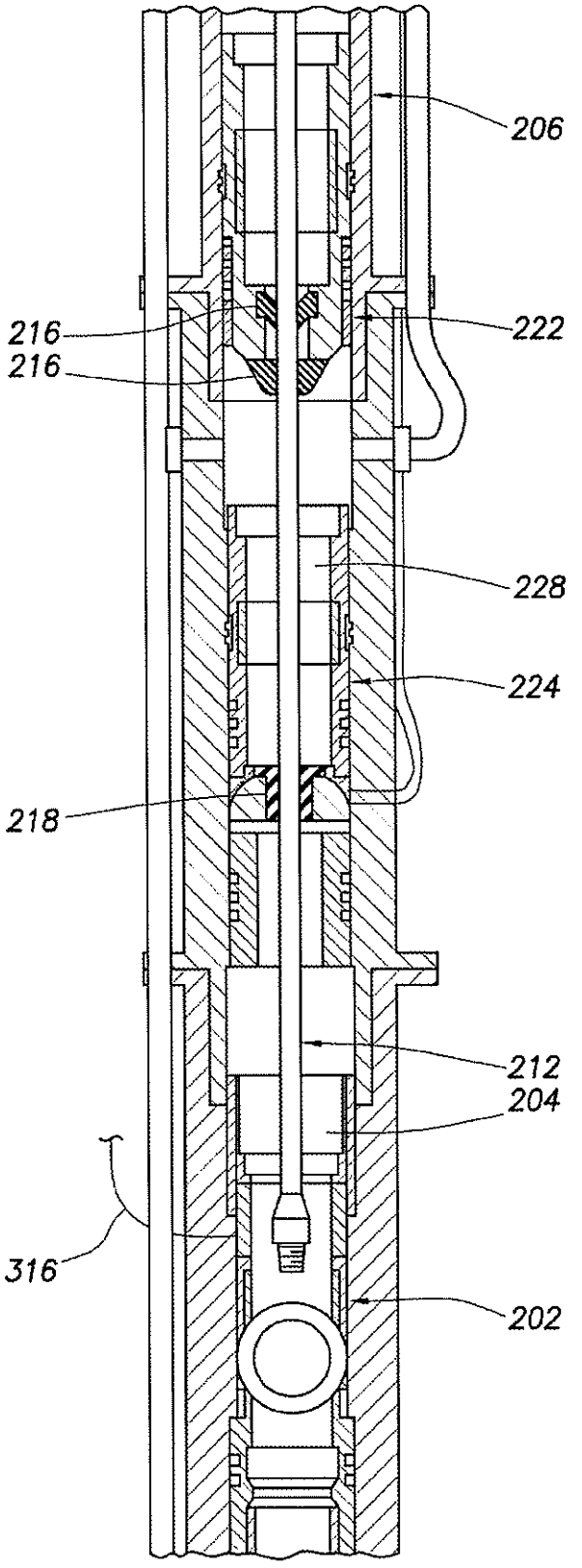


FIG. 18

FIG.19



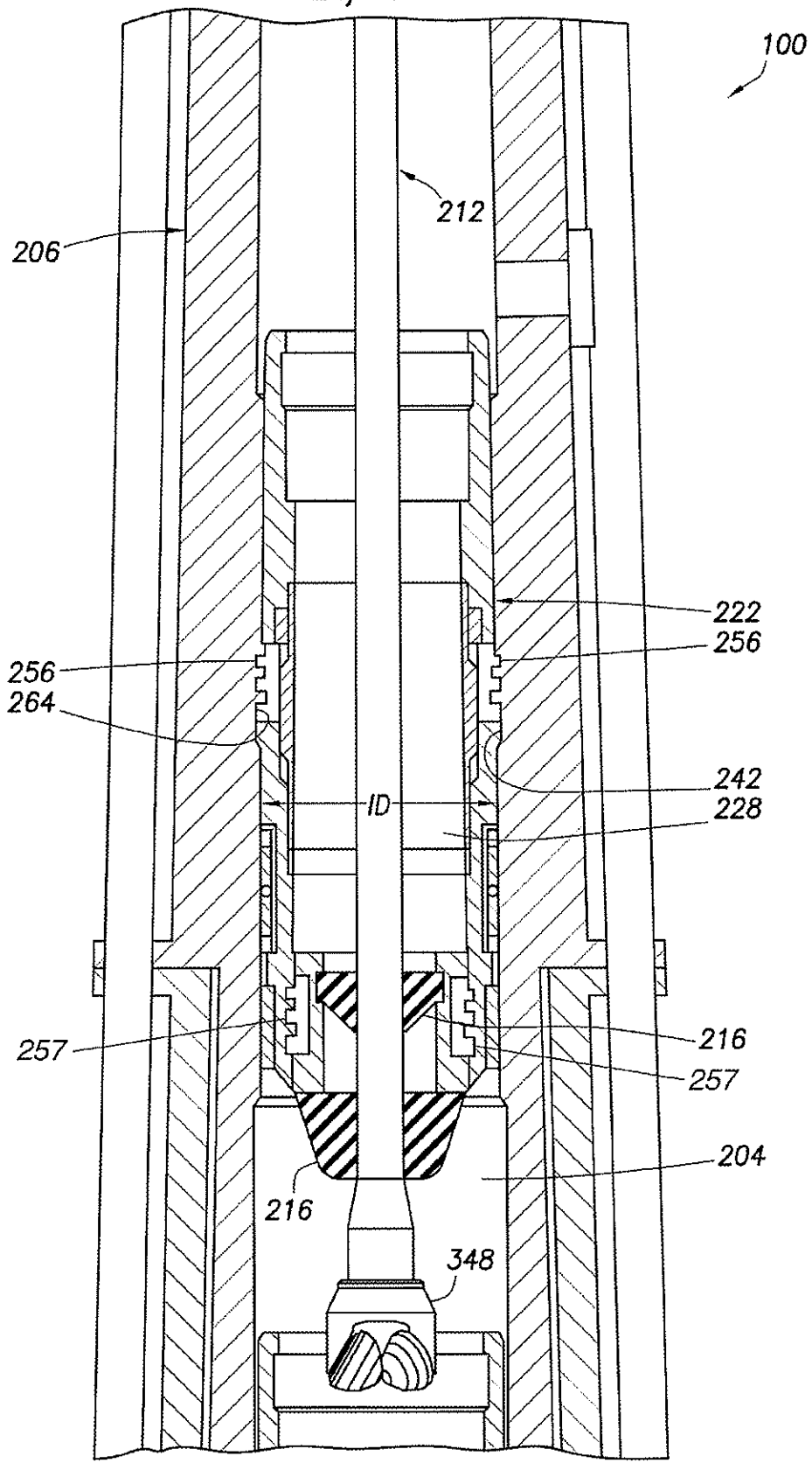


FIG.20

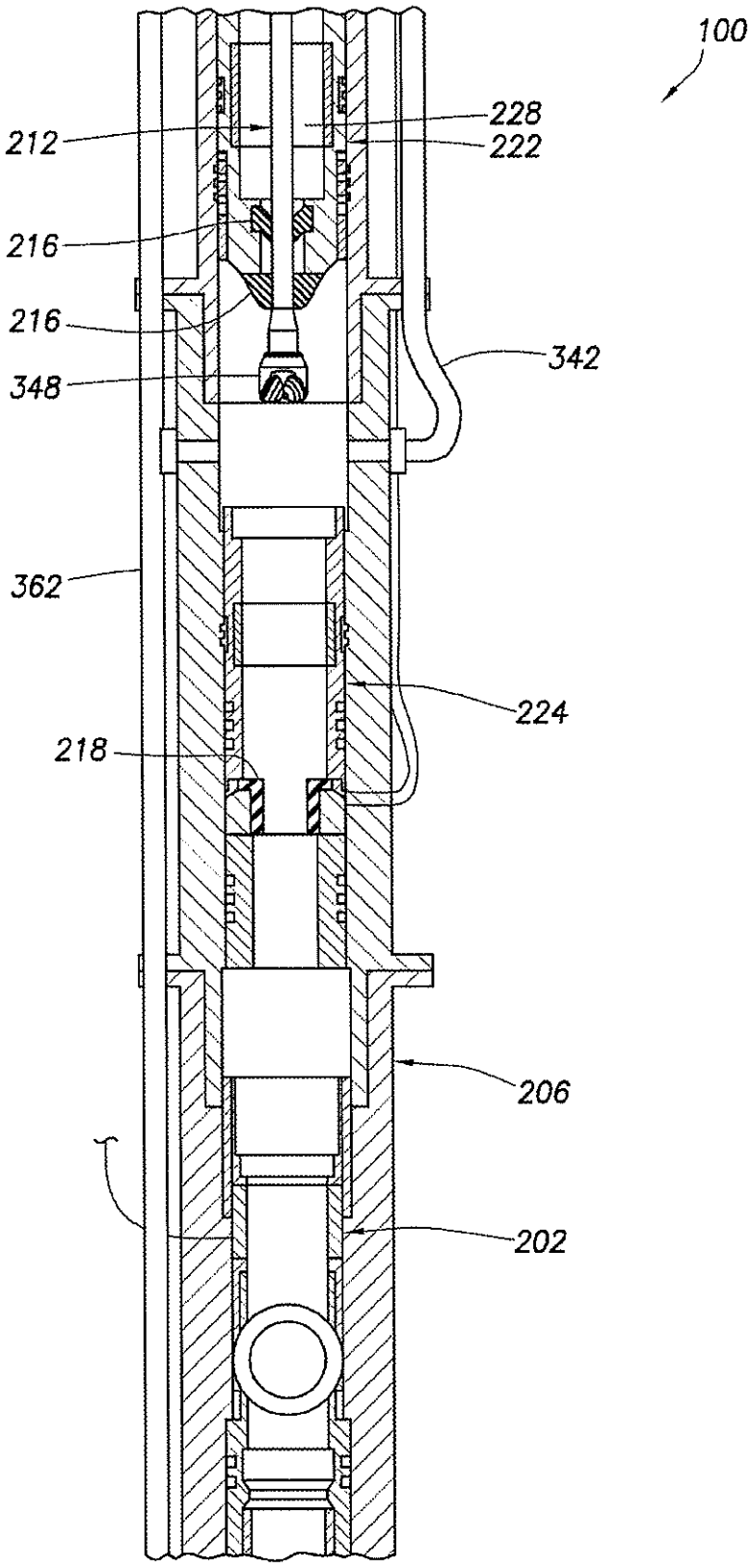
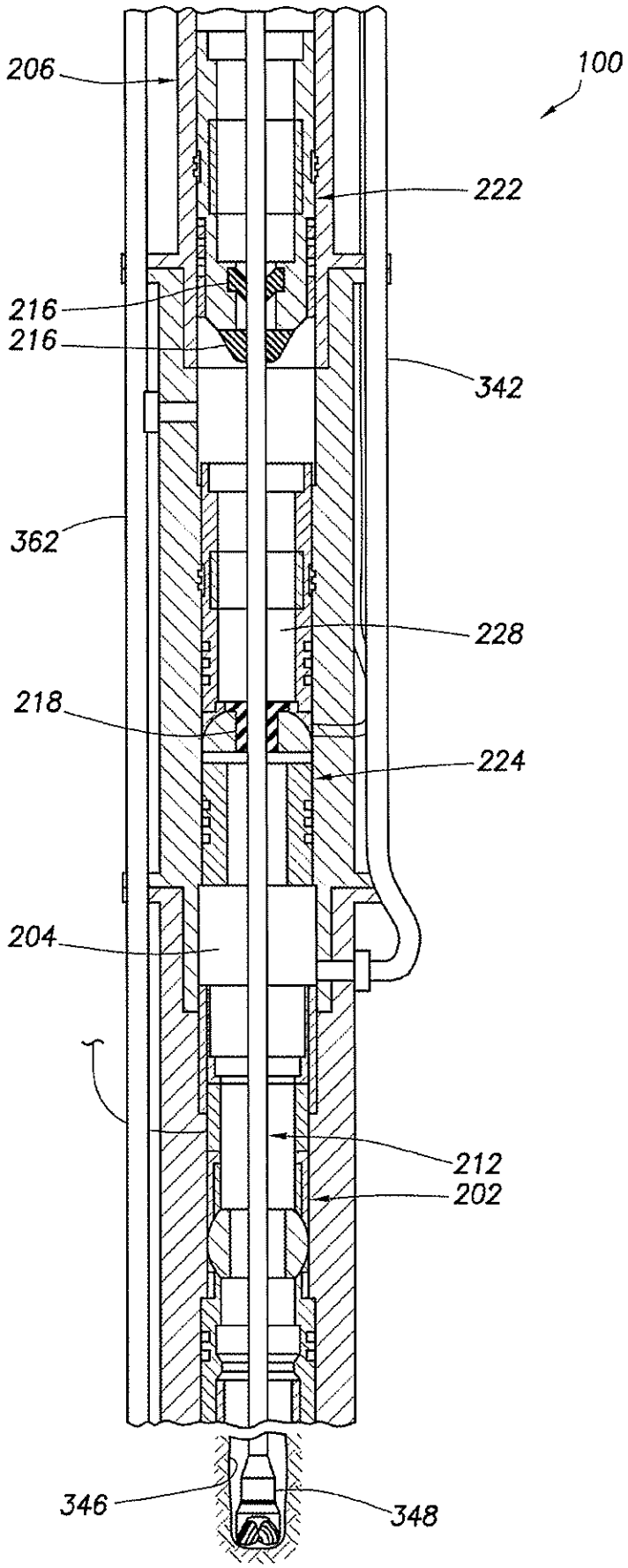


FIG.21

FIG.22



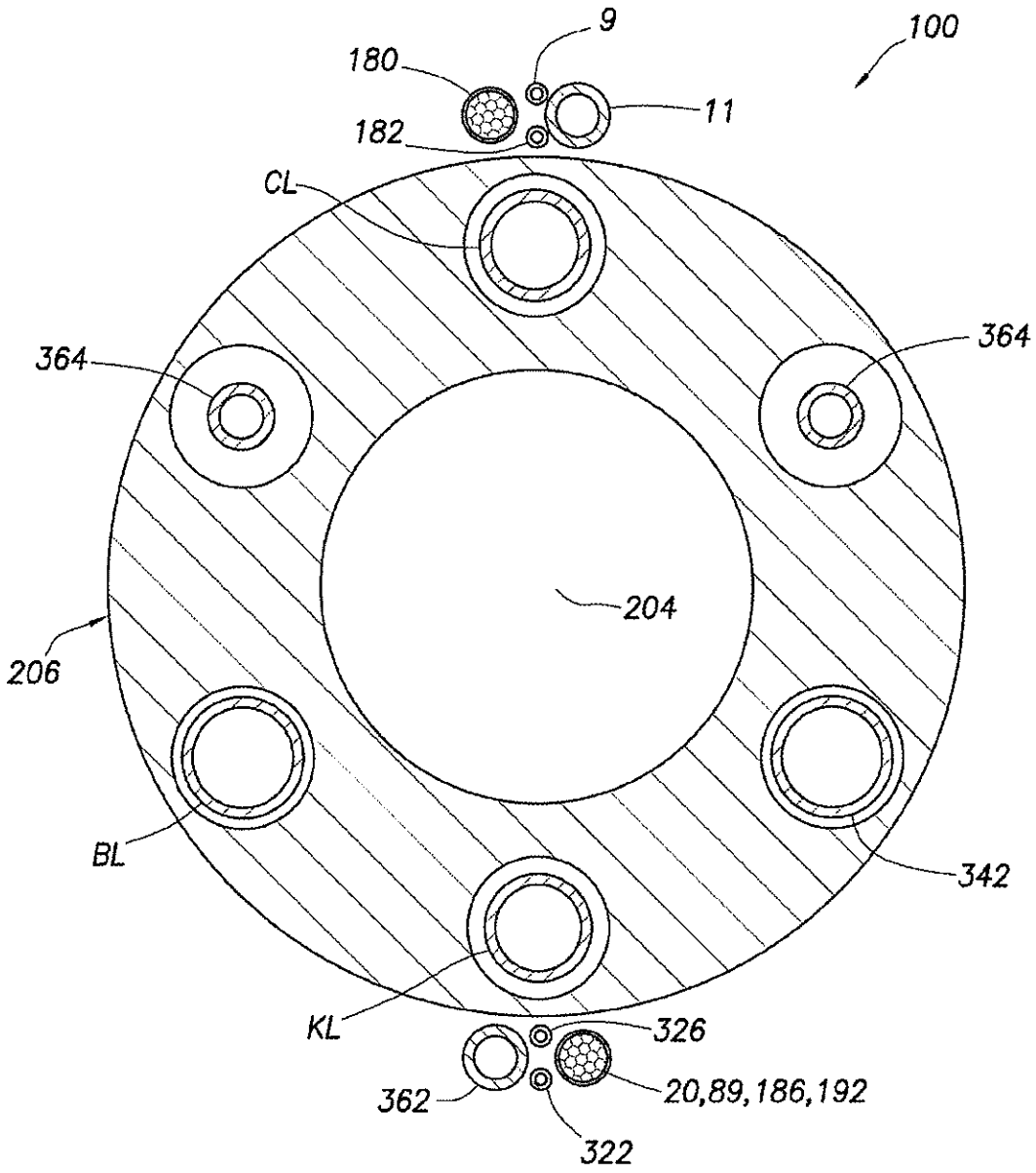

9
100
180
11
182
CL
364
364
204
206
BL
342
KL
326
362
20,89,186,192
322

FIG.23

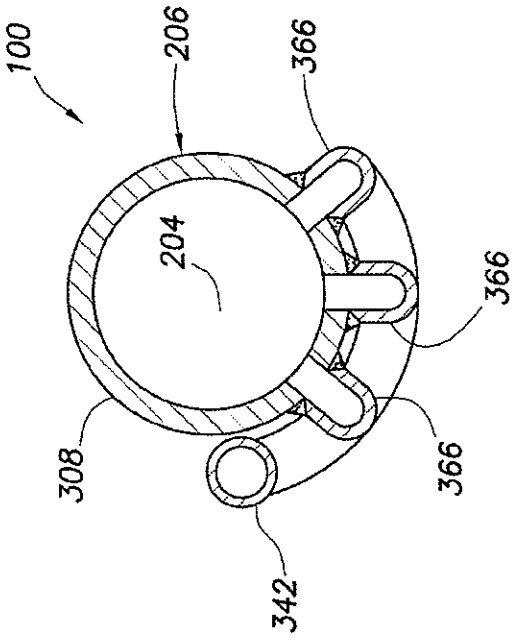

100
206
366
204
366
308
366
342

FIG.25

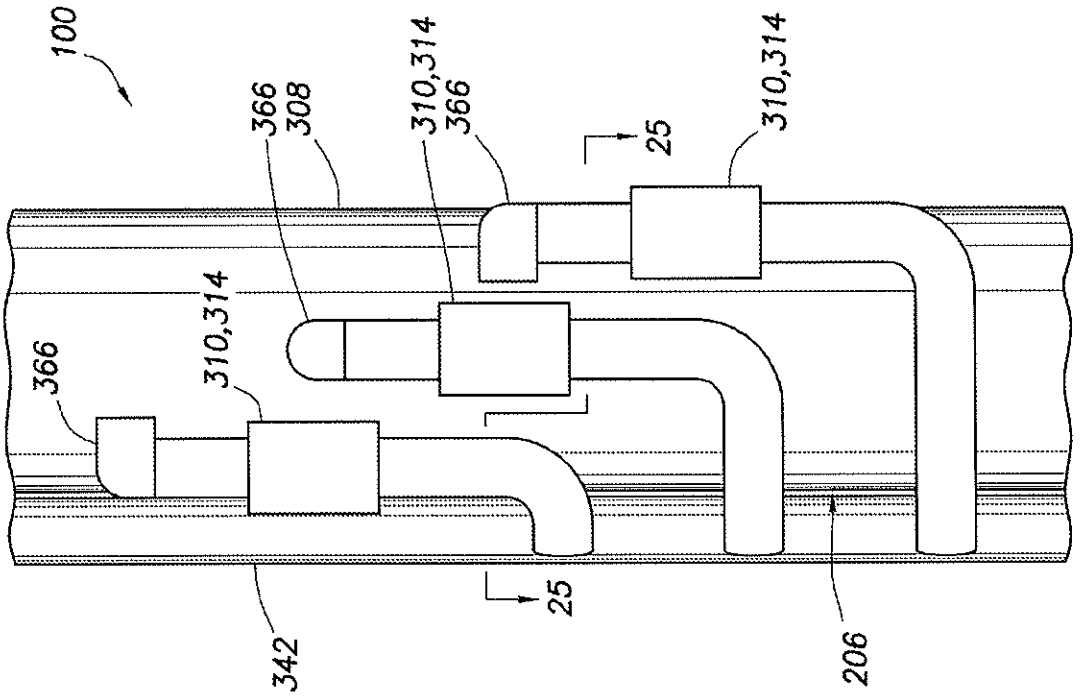

100
366
308
310,314
366
25
310,314
310,314
366
25
342
206

FIG.24

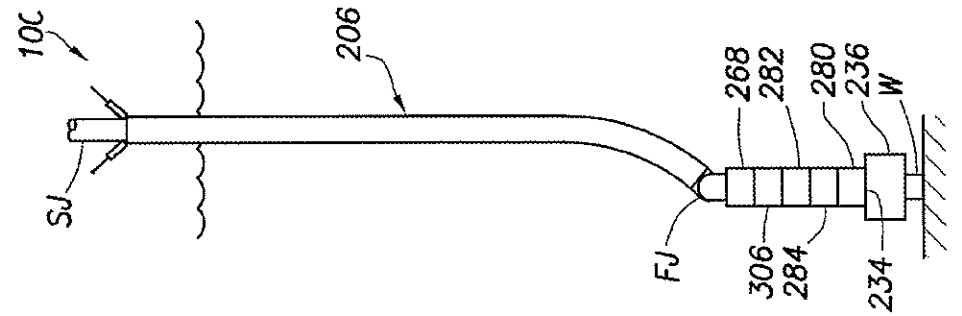


FIG.26E

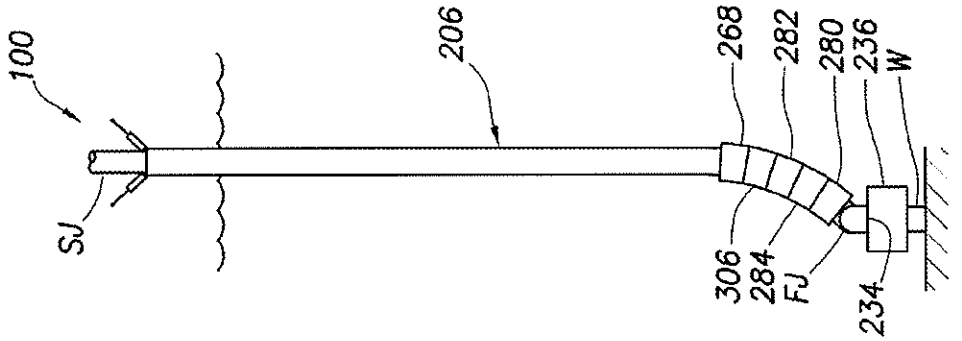


FIG.26D

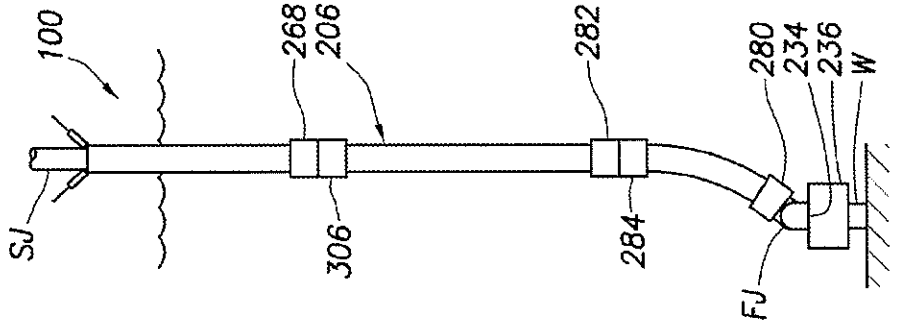


FIG.26C

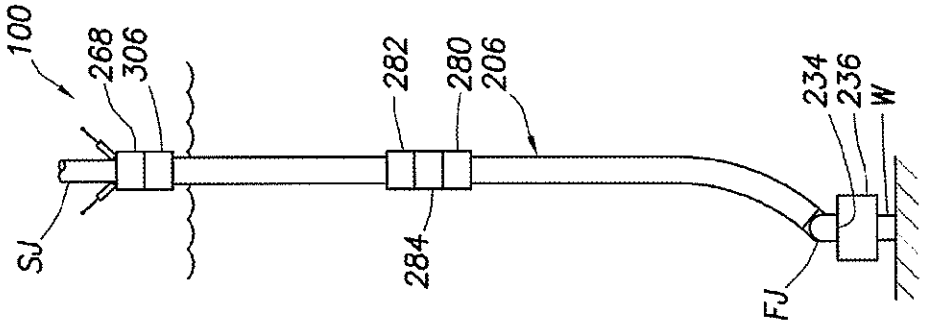


FIG.26B

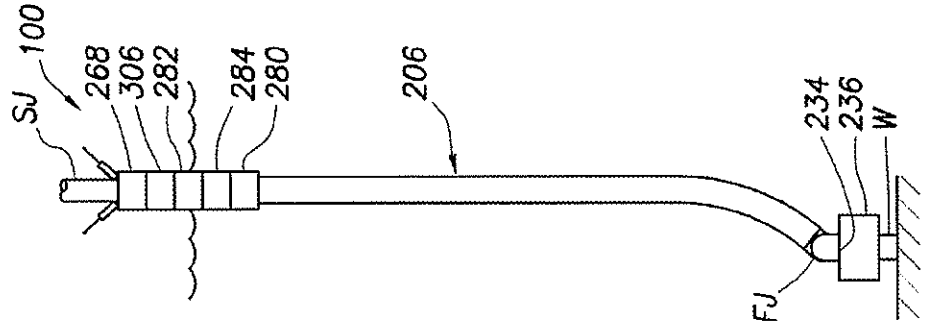


FIG.26A

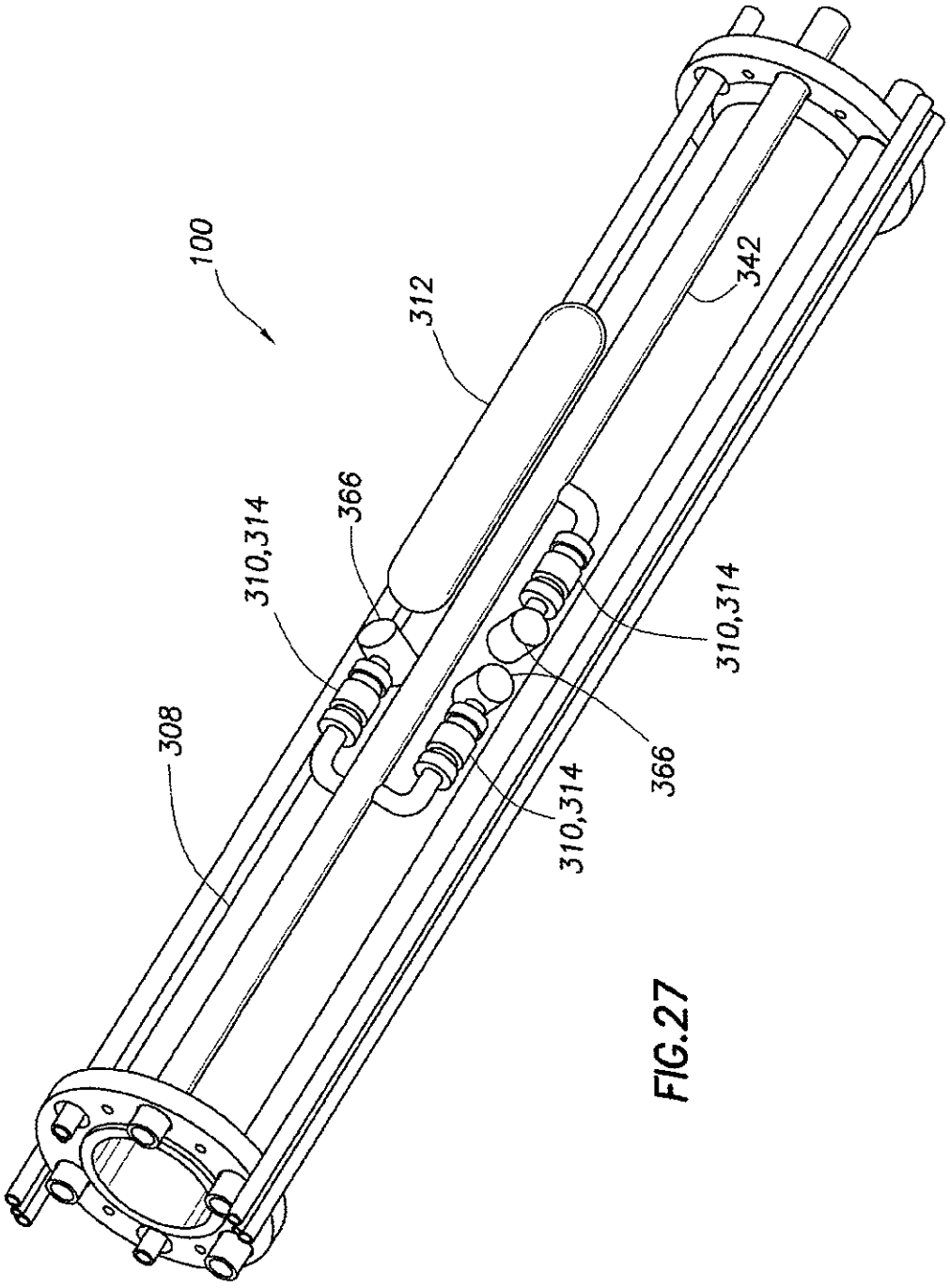


FIG.27

FIG.28

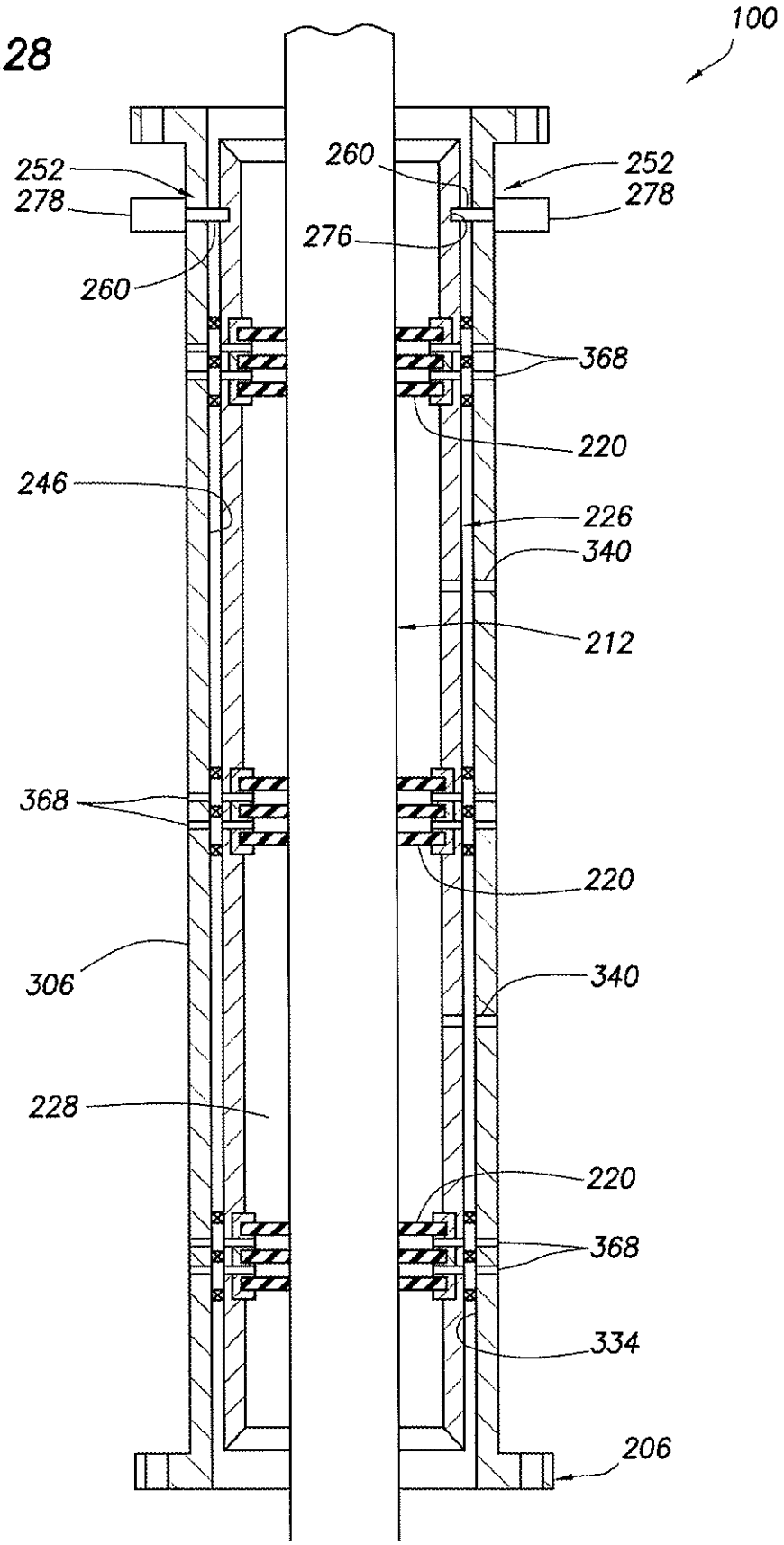
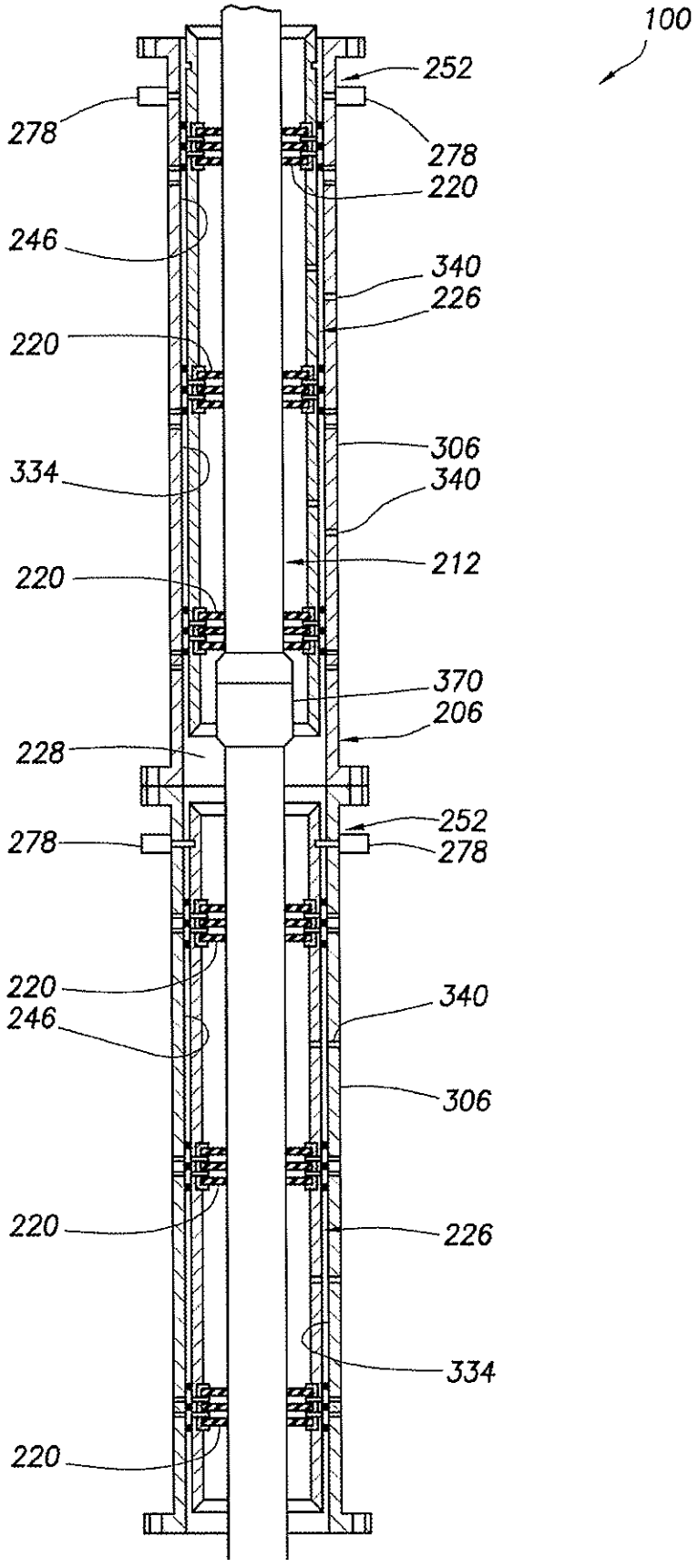

100
252
278
260
276
252
278
260
368
220
246
226
340
212
368
220
306
340
228
220
368
334
206

FIG.29


100
252
278
278
220
246
340
226
220
306
334
340
212
220
370
206
228
252
278
278
220
340
246
306
220
226
334
220

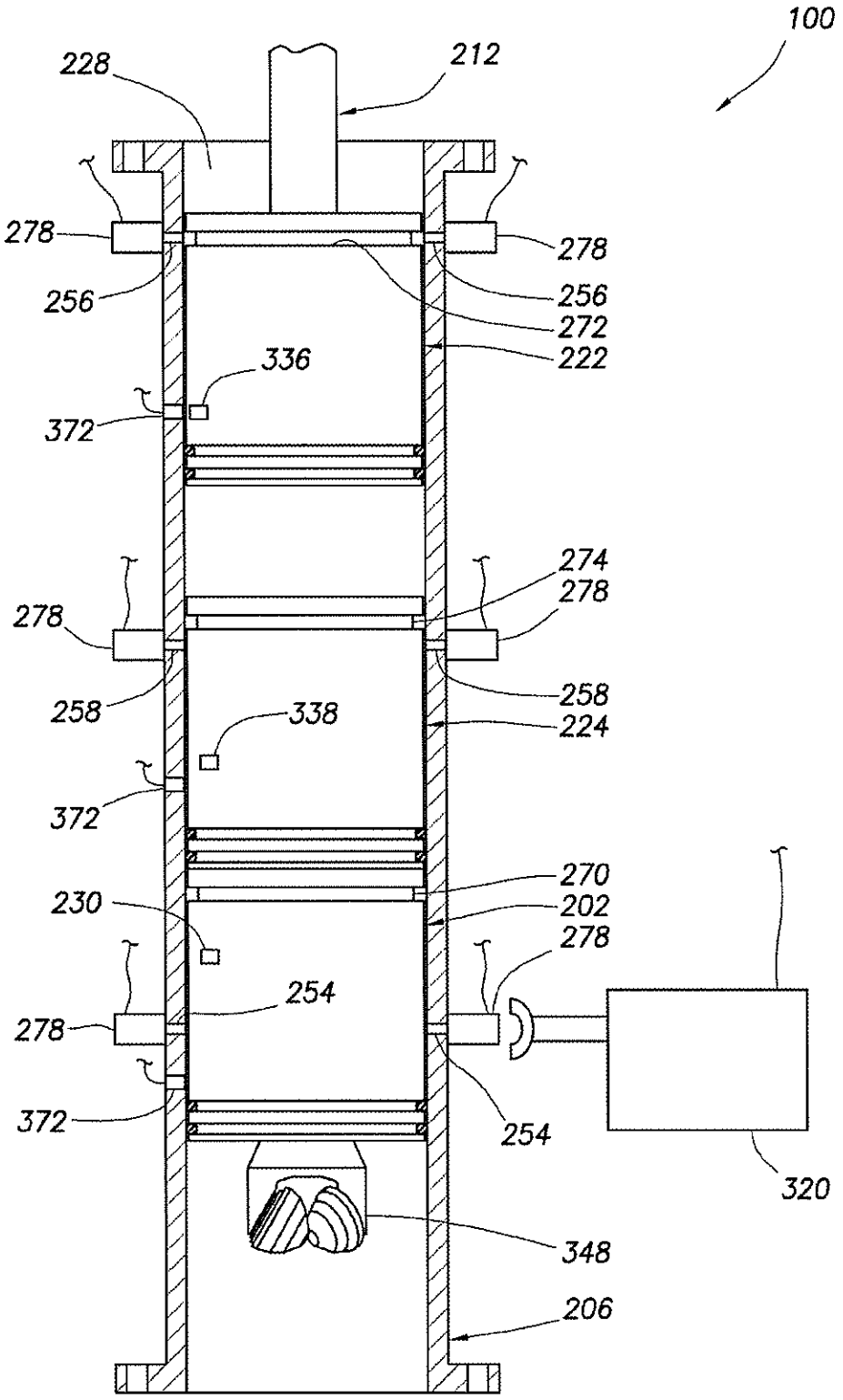

100
228
212
278
278
256
256
272
222
336
372
274
278
278
258
258
338
224
372
270
230
202
278
254
278
254
372
320
348
206

FIG.30

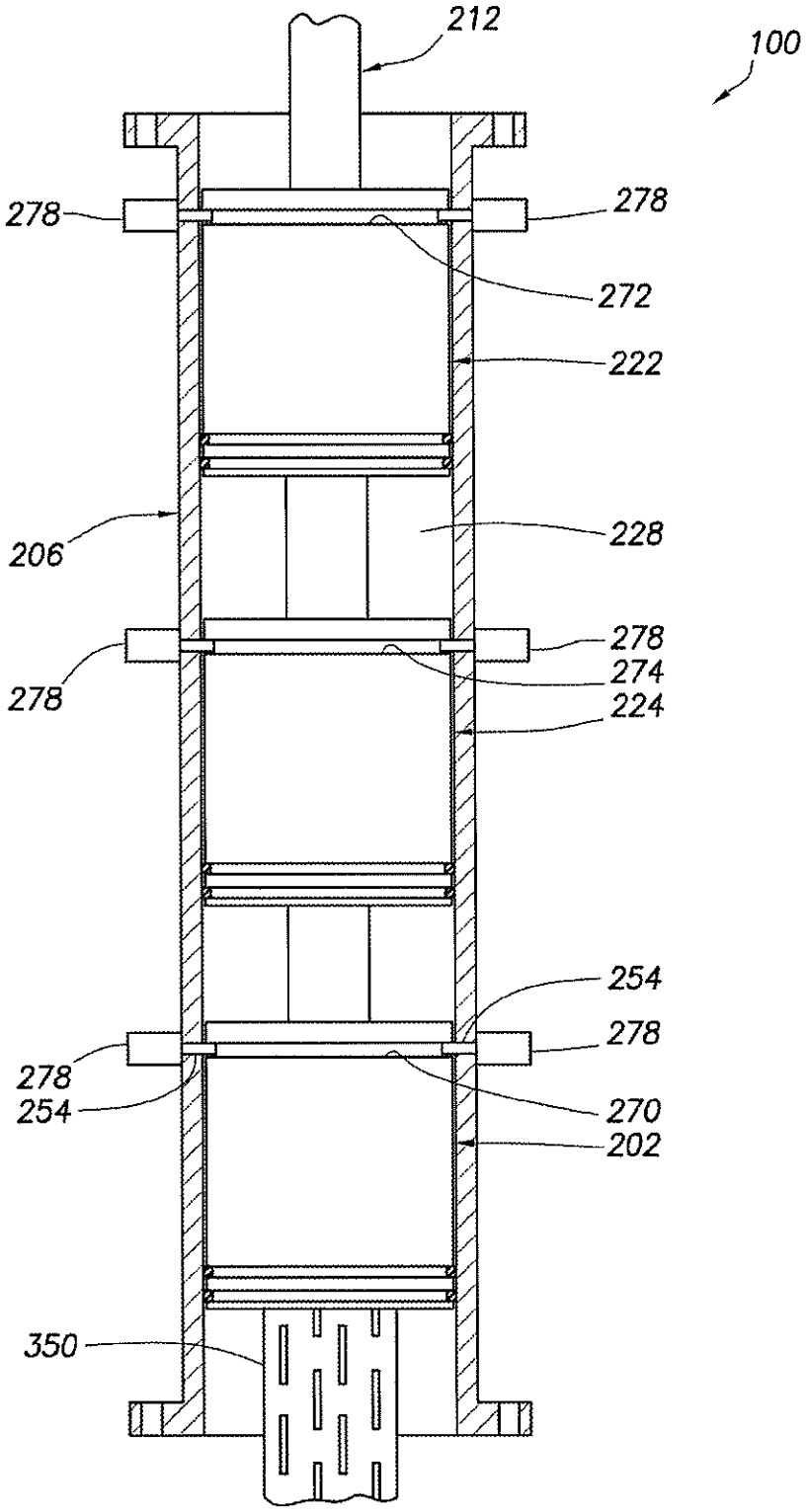

212
100
278
278
272
222
206
228
278
278
274
224
254
278
278
254
270
202
350

FIG.31

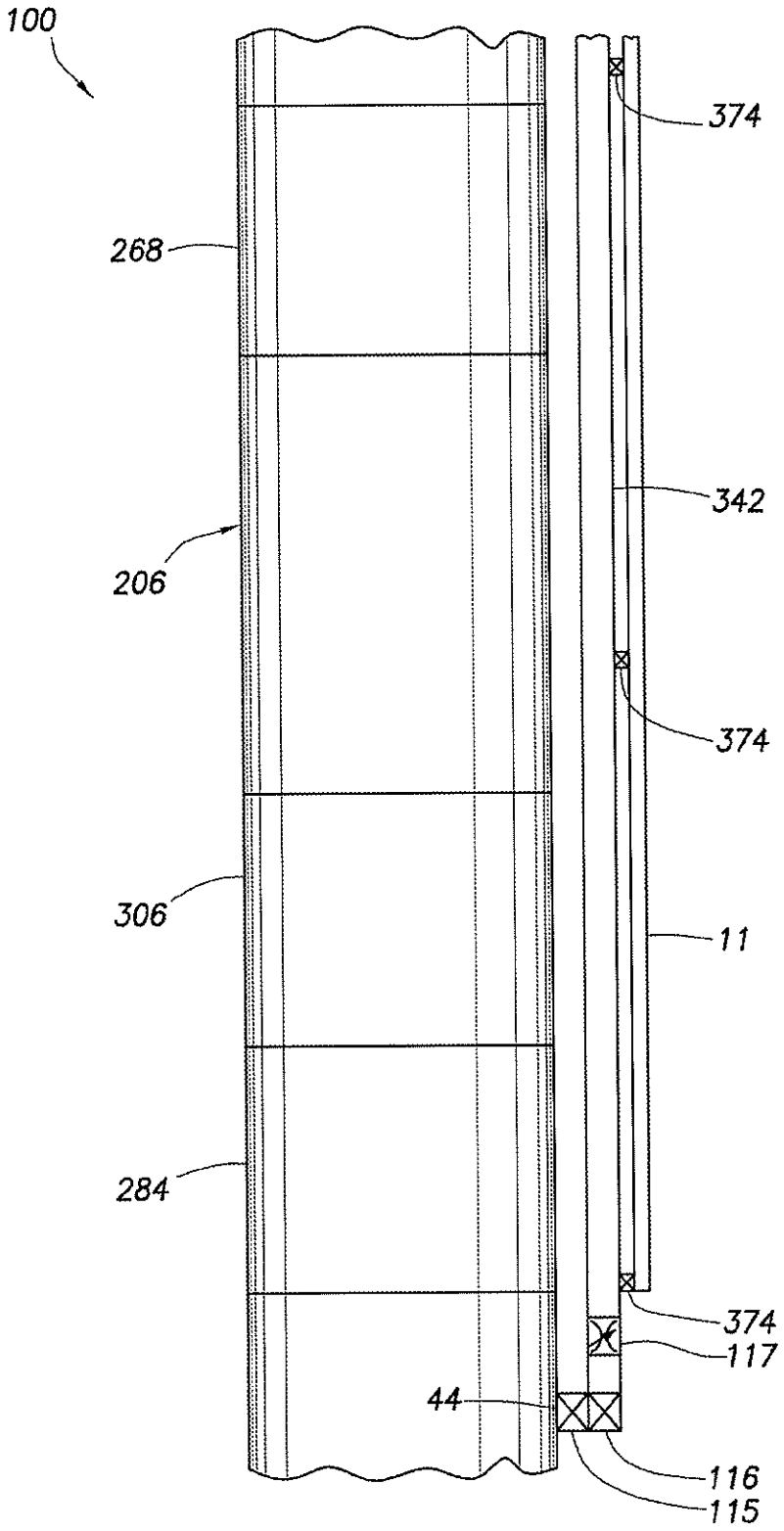


FIG.32