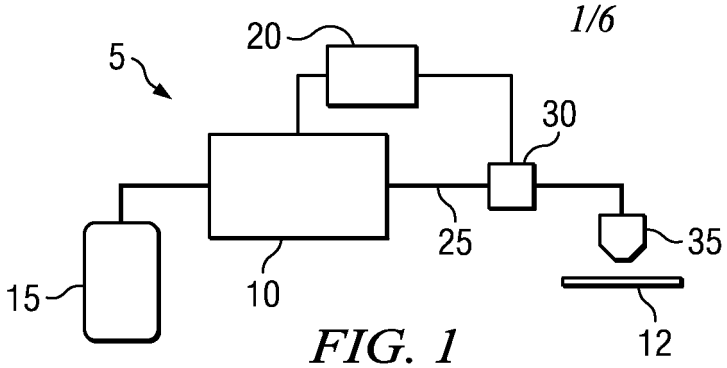

20
5
30
25
35
15
10
12

FIG. 1

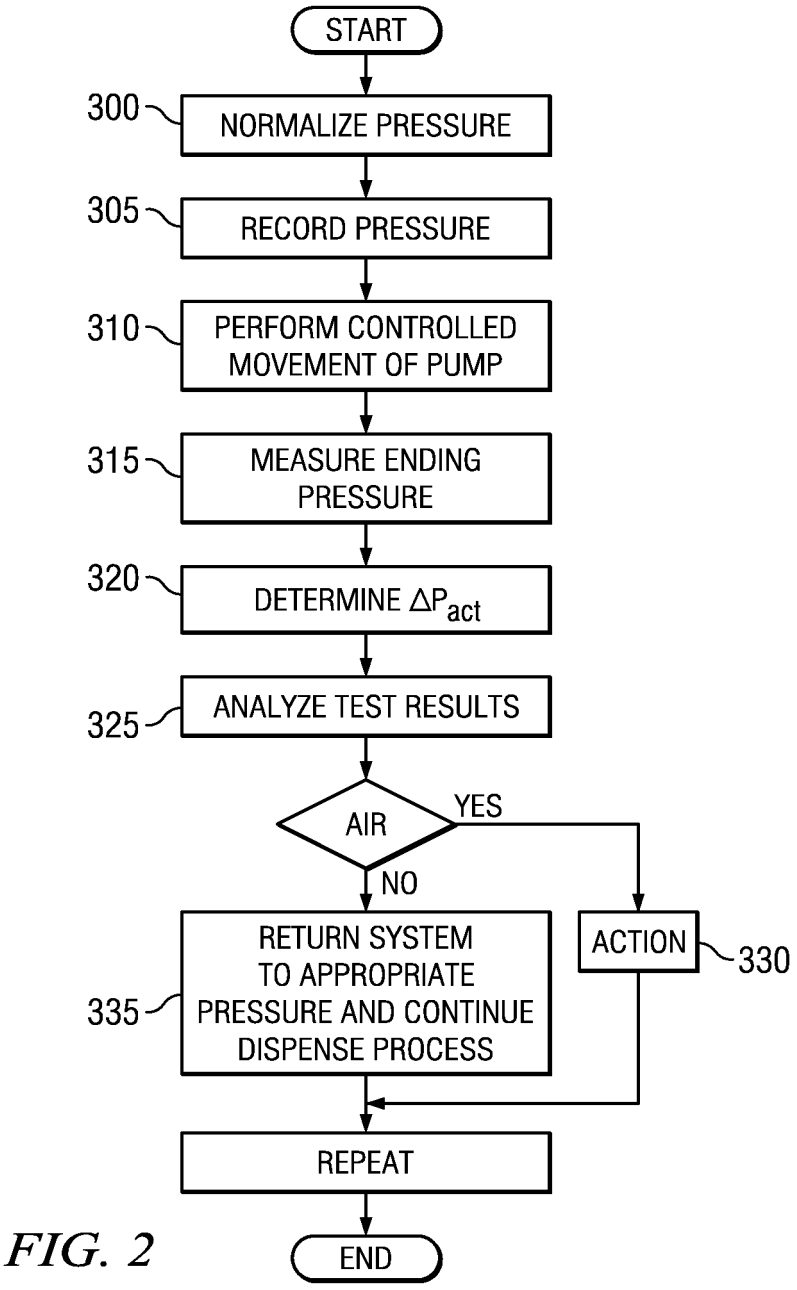

START
300
NORMALIZE PRESSURE
305
RECORD PRESSURE
310
PERFORM CONTROLLED MOVEMENT OF PUMP
315
MEASURE ENDING PRESSURE
320
DETERMINE ΔP_{act}
325
ANALYZE TEST RESULTS
AIR
YES
NO
ACTION
330
335
RETURN SYSTEM TO APPROPRIATE PRESSURE AND CONTINUE DISPENSE PROCESS
REPEAT
END

FIG. 2

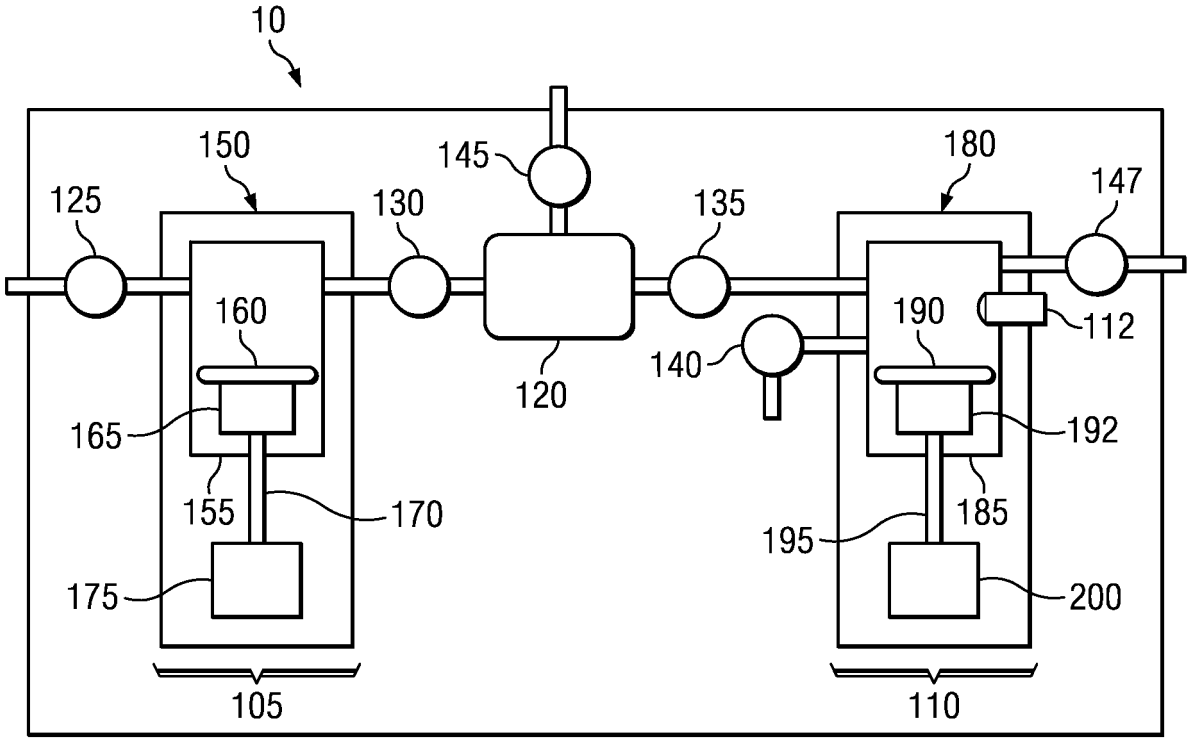

10
150
145
180
147
125
130
135
160
190
112
120
140
165
192
155
170
185
195
175
200
105
110

FIG. 3

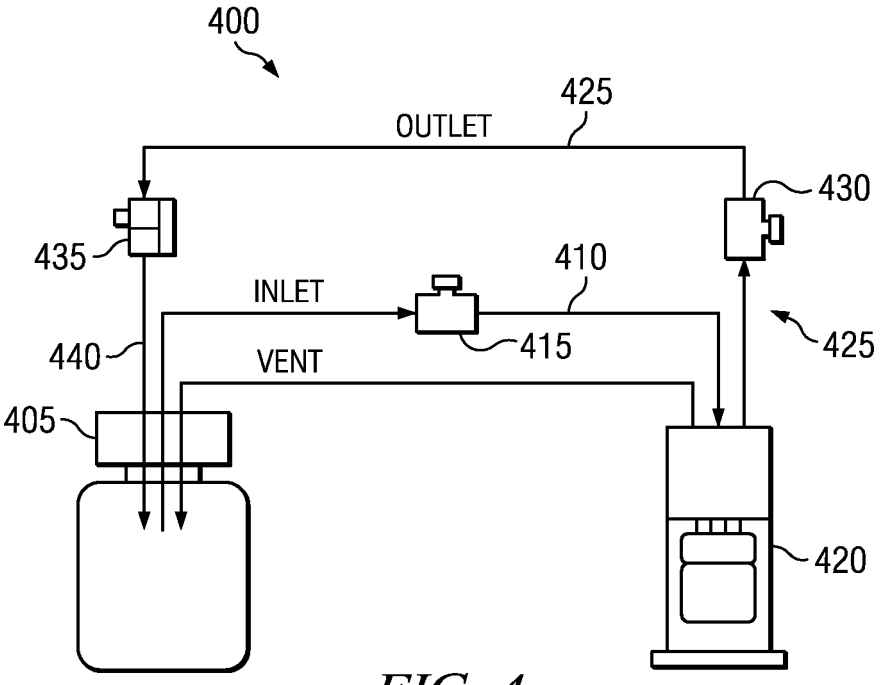

400
425
OUTLET
430
435
410
INLET
415
425
440
VENT
405
420

FIG. 4

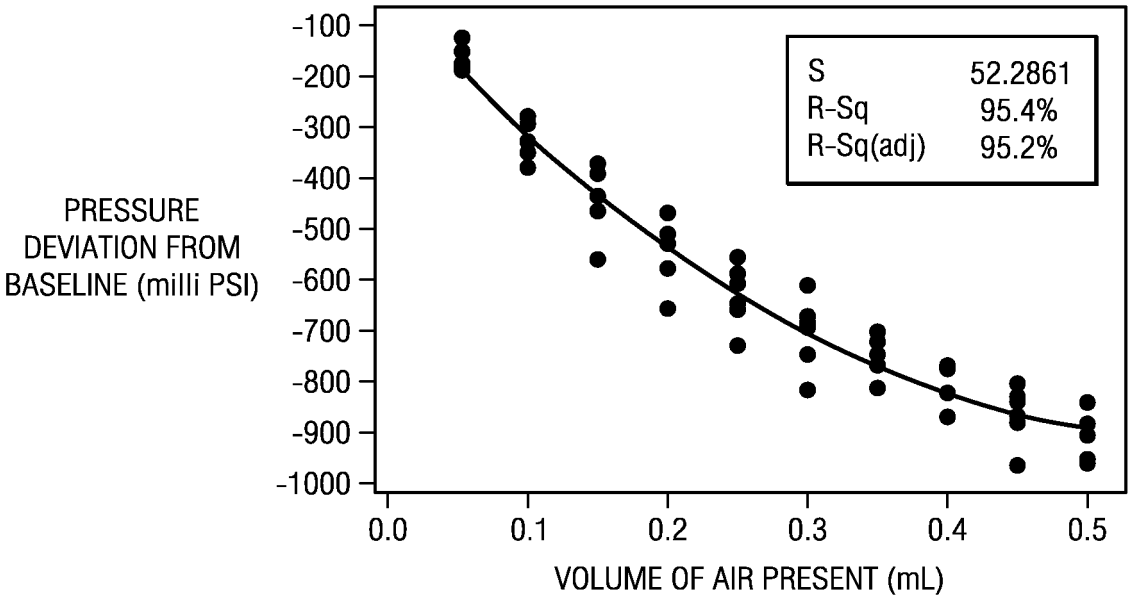

PRESSURE DEVIATION FROM BASELINE (milli PSI)
-100
-200
-300
-400
-500
-600
-700
-800
-900
-1000
S 52.2861
R-Sq 95.4%
R-Sq(adj) 95.2%
0.0
0.1
0.2
0.3
0.4
0.5
VOLUME OF AIR PRESENT (mL)

FIG. 5

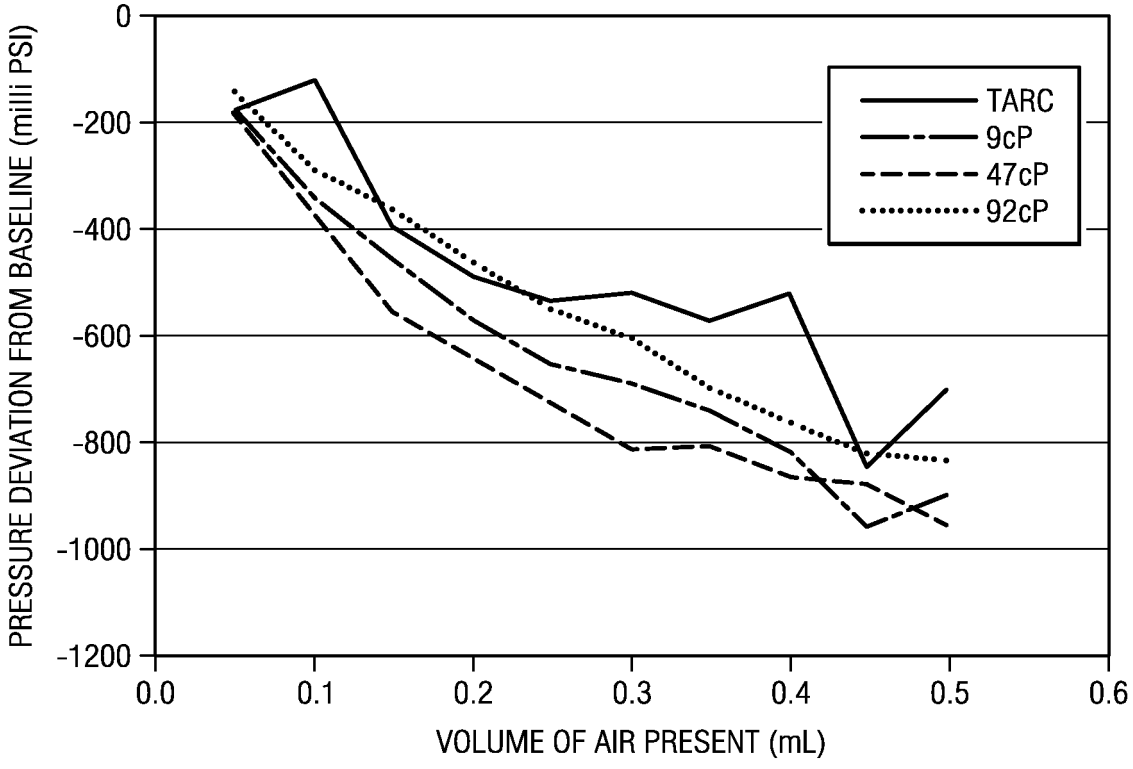

PRESSURE DEVIATION FROM BASELINE (milli PSI)
0
-200
-400
-600
-800
-1000
-1200
TARC
9cP
47cP
92cP
0.0
0.1
0.2
0.3
0.4
0.5
0.6
VOLUME OF AIR PRESENT (mL)

FIG. 6

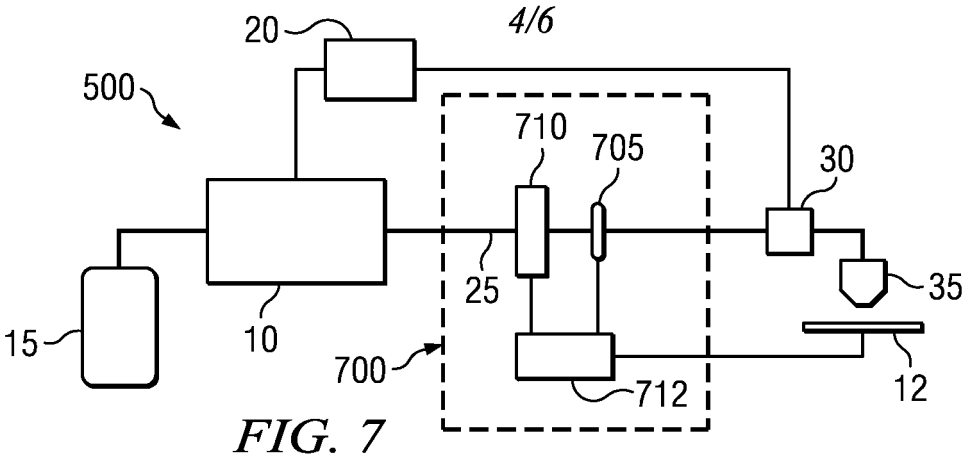

20
500
710
705
30
25
35
15
10
700
712
12

FIG. 7

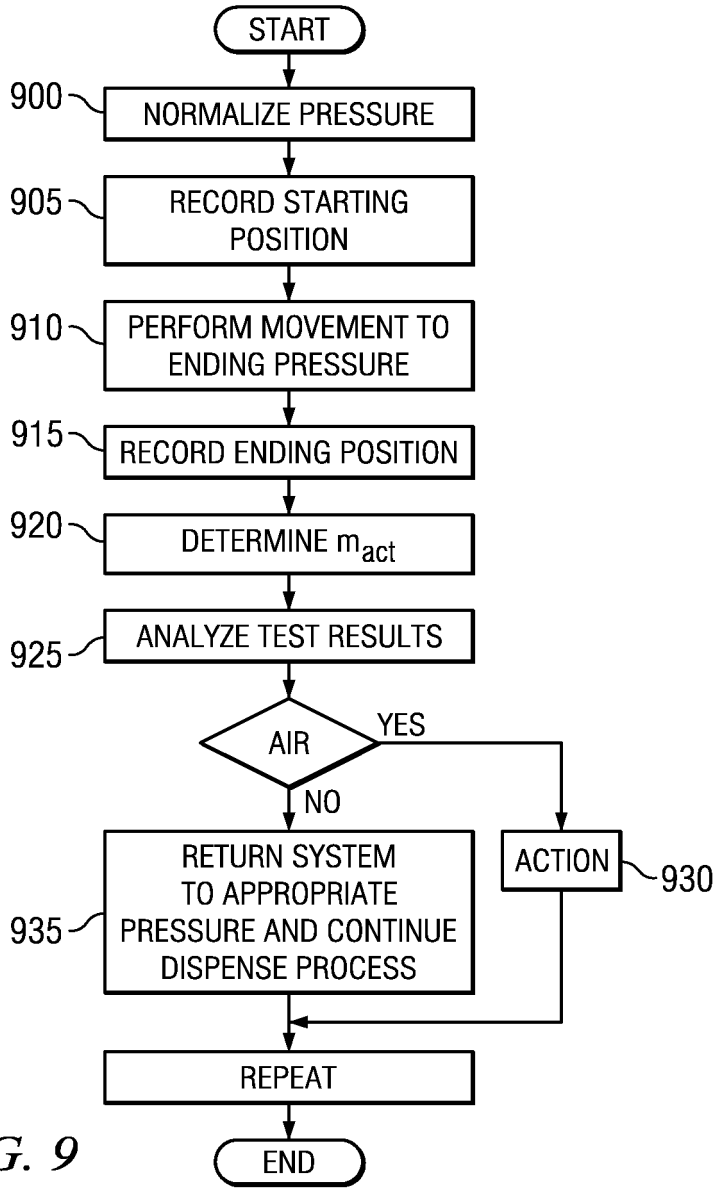

START
900
NORMALIZE PRESSURE
905
RECORD STARTING POSITION
910
PERFORM MOVEMENT TO ENDING PRESSURE
915
RECORD ENDING POSITION
920
DETERMINE m_{act}
925
ANALYZE TEST RESULTS
AIR
YES
NO
RETURN SYSTEM TO APPROPRIATE PRESSURE AND CONTINUE DISPENSE PROCESS
935
ACTION
930
REPEAT
END

FIG. 9

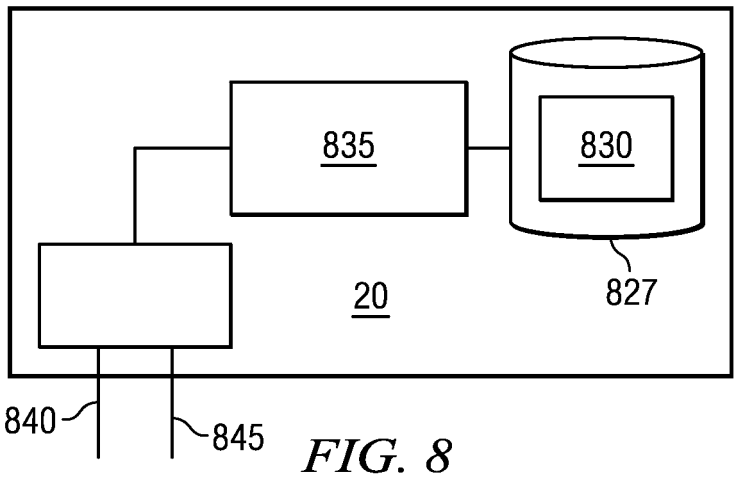

835
830
20
827
840
845

FIG. 8

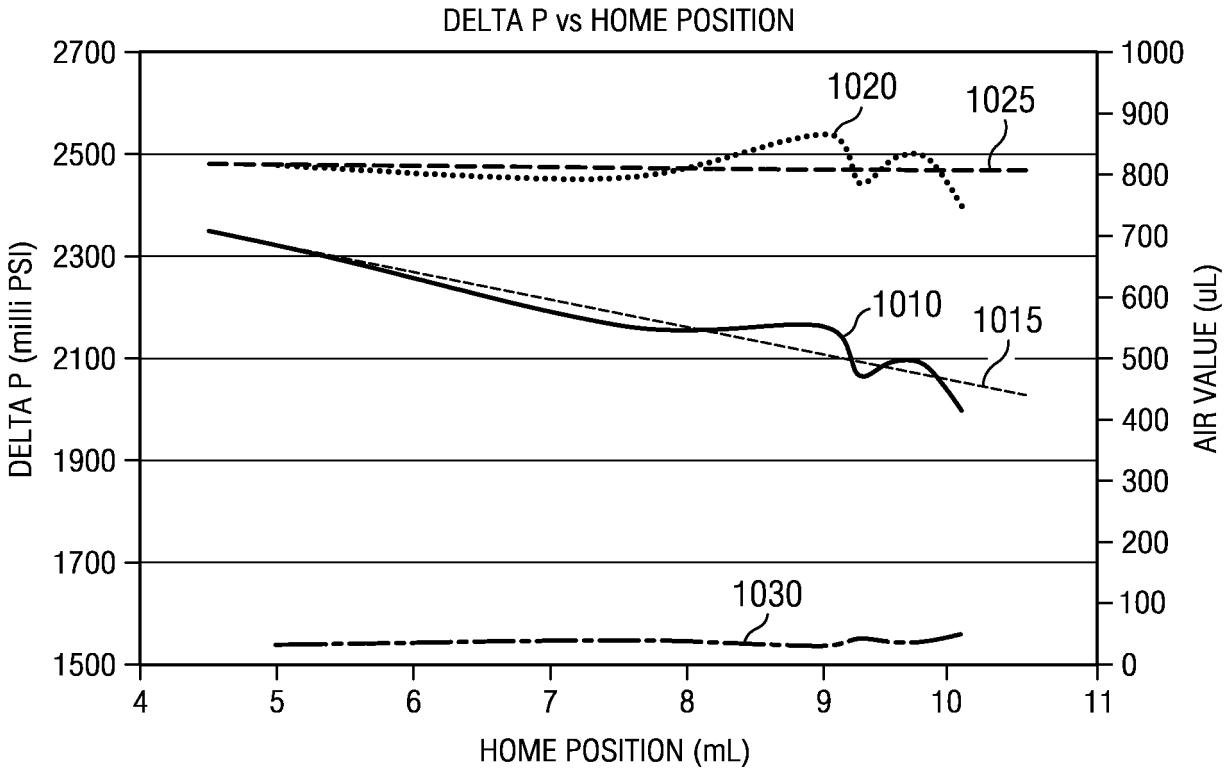

DELTA P vs HOME POSITION
DELTA P (milli PSI)
AIR VALUE (uL)
HOME POSITION (mL)
2700
2500
2300
2100
1900
1700
1500
1000
900
800
700
600
500
400
300
200
100
0
4
5
6
7
8
9
10
11
1020
1025
1010
1015
1030
UNCORRECTED DELTA P (mPSI)
CALCULATED AIR VALUE (uL)
LINEAR (CORRECT DELTA P (mPSI))
CORRECT DELTA P (mPSI)
LINEAR (UNCORRECTED DELTA P (mPSI))

FIG. 10

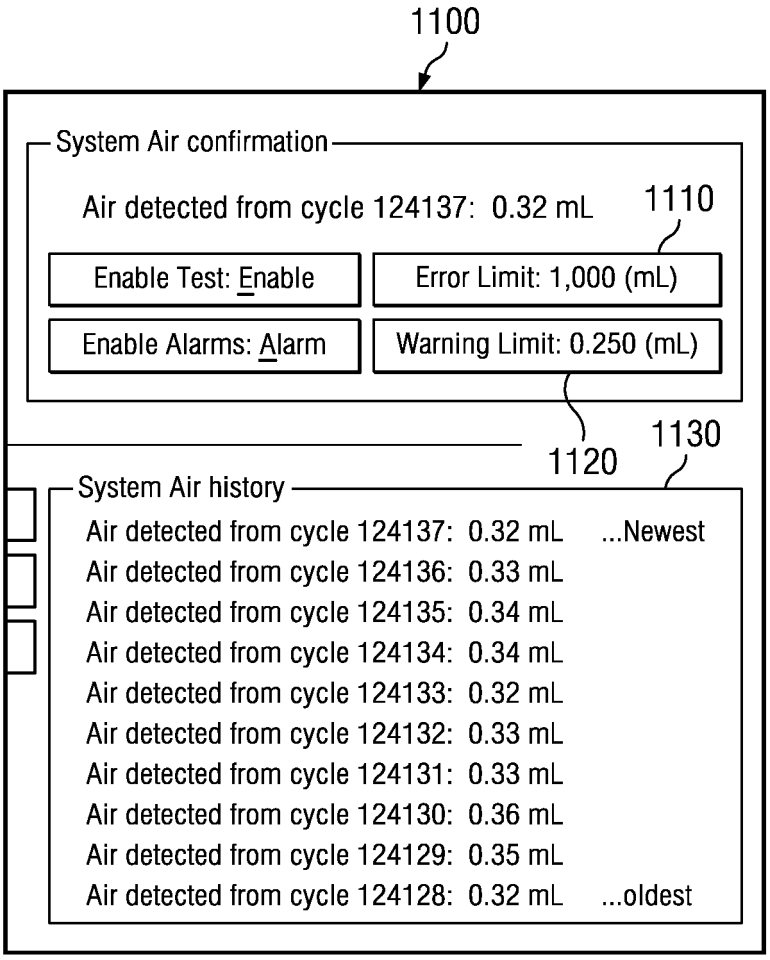

1100
System Air confirmation
Air detected from cycle 124137: 0.32 mL
1110
Enable Test: Enable
Error Limit: 1,000 (mL)
Enable Alarms: Alarm
Warning Limit: 0.250 (mL)
1120
1130
System Air history
Air detected from cycle 124137: 0.32 mL ...Newest
Air detected from cycle 124136: 0.33 mL
Air detected from cycle 124135: 0.34 mL
Air detected from cycle 124134: 0.34 mL
Air detected from cycle 124133: 0.32 mL
Air detected from cycle 124132: 0.33 mL
Air detected from cycle 124131: 0.33 mL
Air detected from cycle 124130: 0.36 mL
Air detected from cycle 124129: 0.35 mL
Air detected from cycle 124128: 0.32 mL ...oldest

FIG. 11