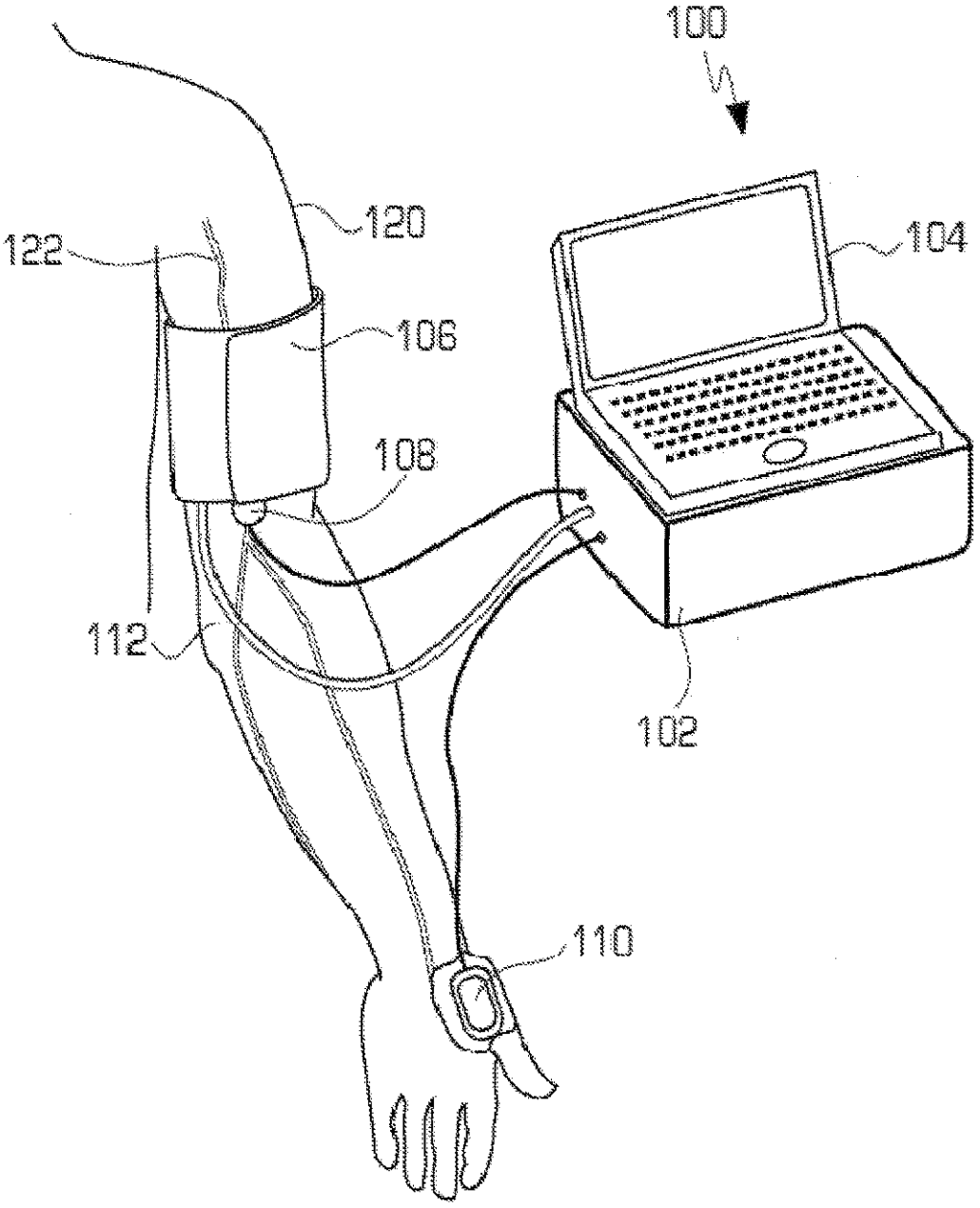


FIG. 1

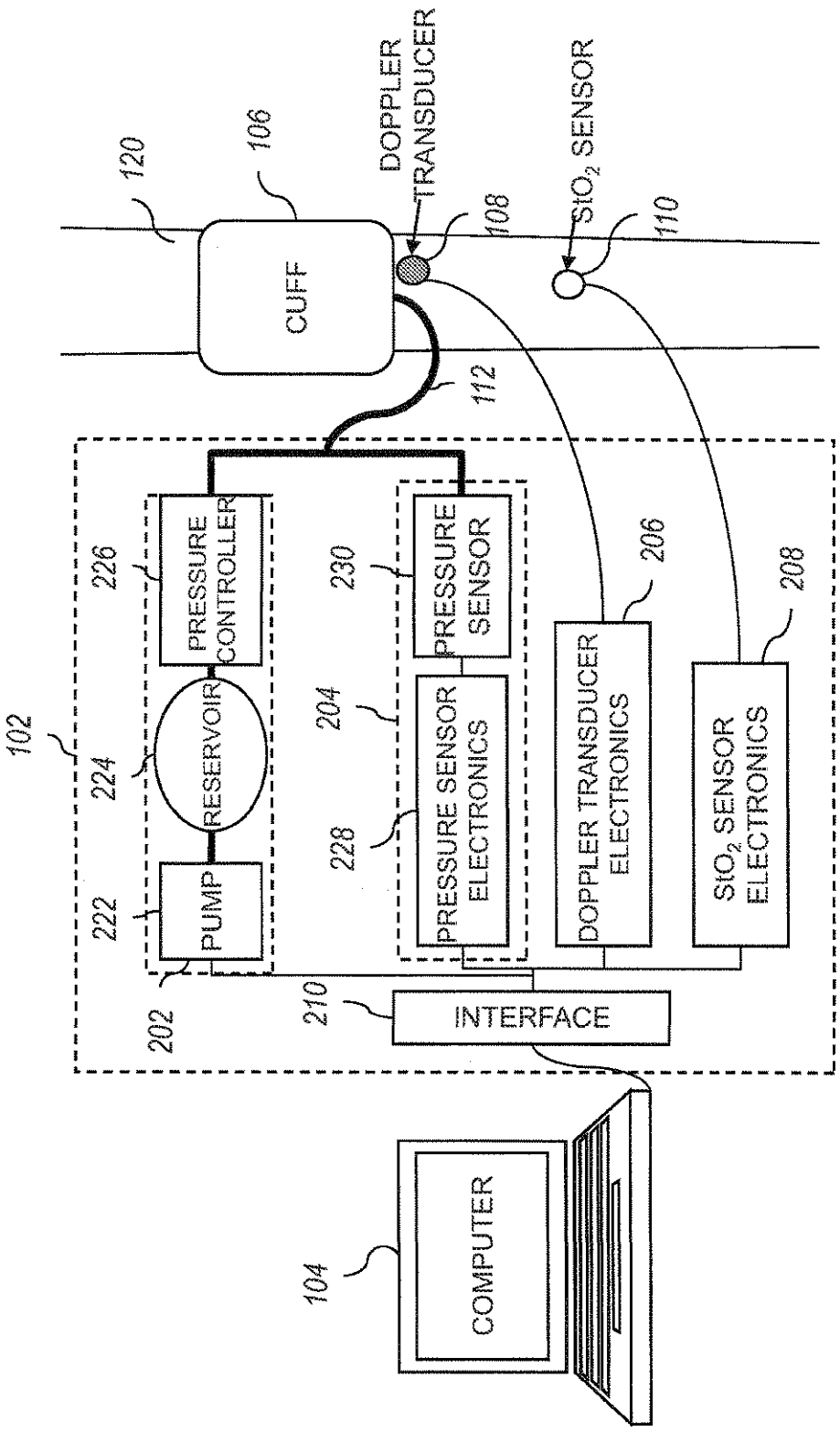

120
106
DOPPLER TRANSDUCER
108
StO_2 SENSOR
110
CUFF
112
102
226
PRESSURE CONTROLLER
230
PRESSURE SENSOR
206
208
224
RESERVOIR
204
PRESSURE SENSOR ELECTRONICS
DOPPLER TRANSDUCER ELECTRONICS
StO_2 SENSOR ELECTRONICS
222
PUMP
228
202
210
INTERFACE
104
COMPUTER

FIG. 2

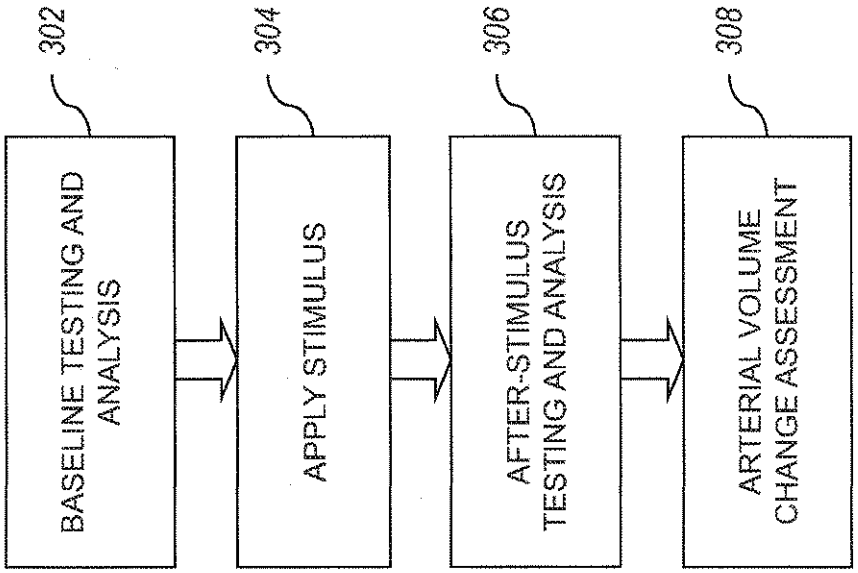

302
BASELINE TESTING AND ANALYSIS
304
APPLY STIMULUS
306
AFTER-STIMULUS TESTING AND ANALYSIS
308
ARTERIAL VOLUME CHANGE ASSESSMENT

FIG. 3

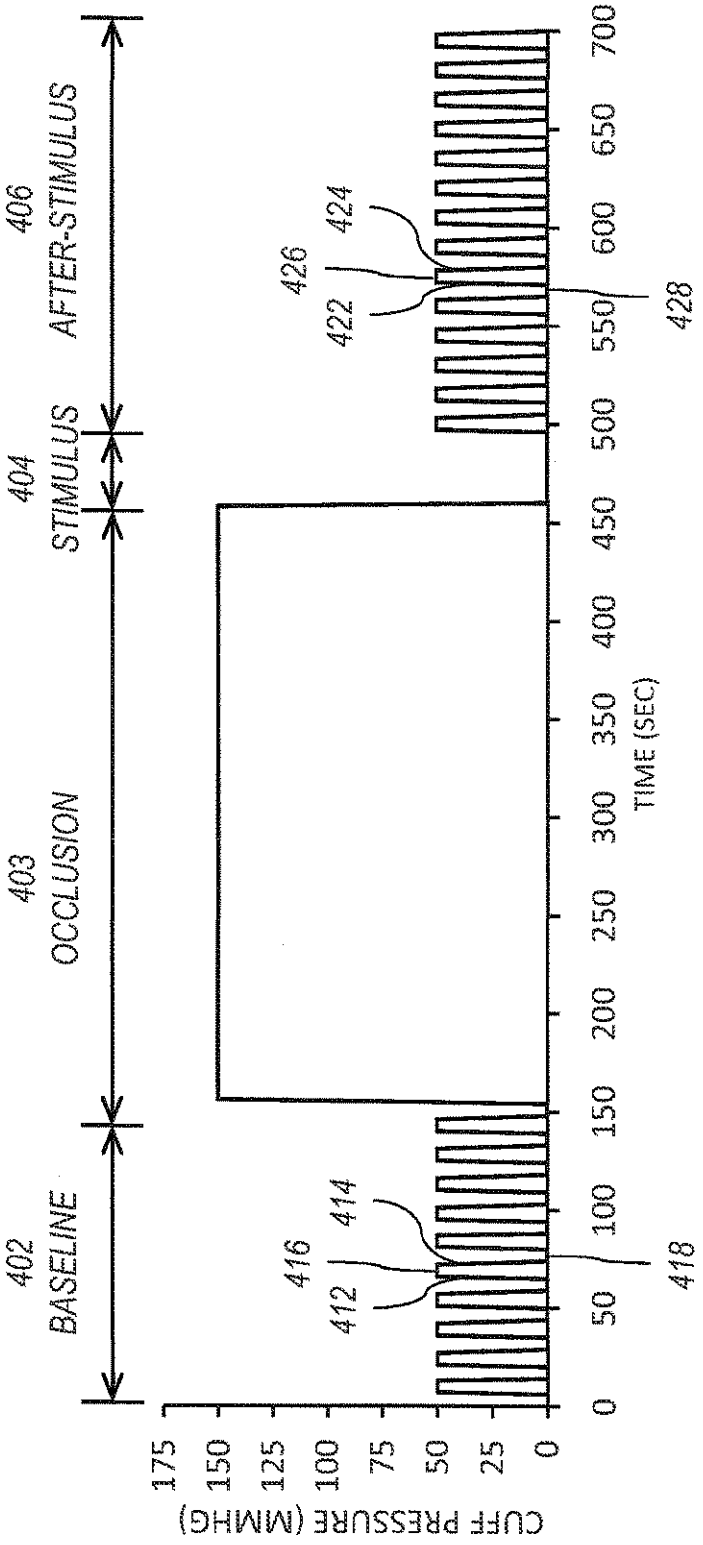

402
BASELINE
403
OCCLUSION
404
STIMULUS
406
AFTER-STIMULUS
412
414
416
418
422
424
426
428
CUFF PRESSURE (MMHG)
TIME (SEC)
0
25
50
75
100
125
150
175
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700

FIG. 4

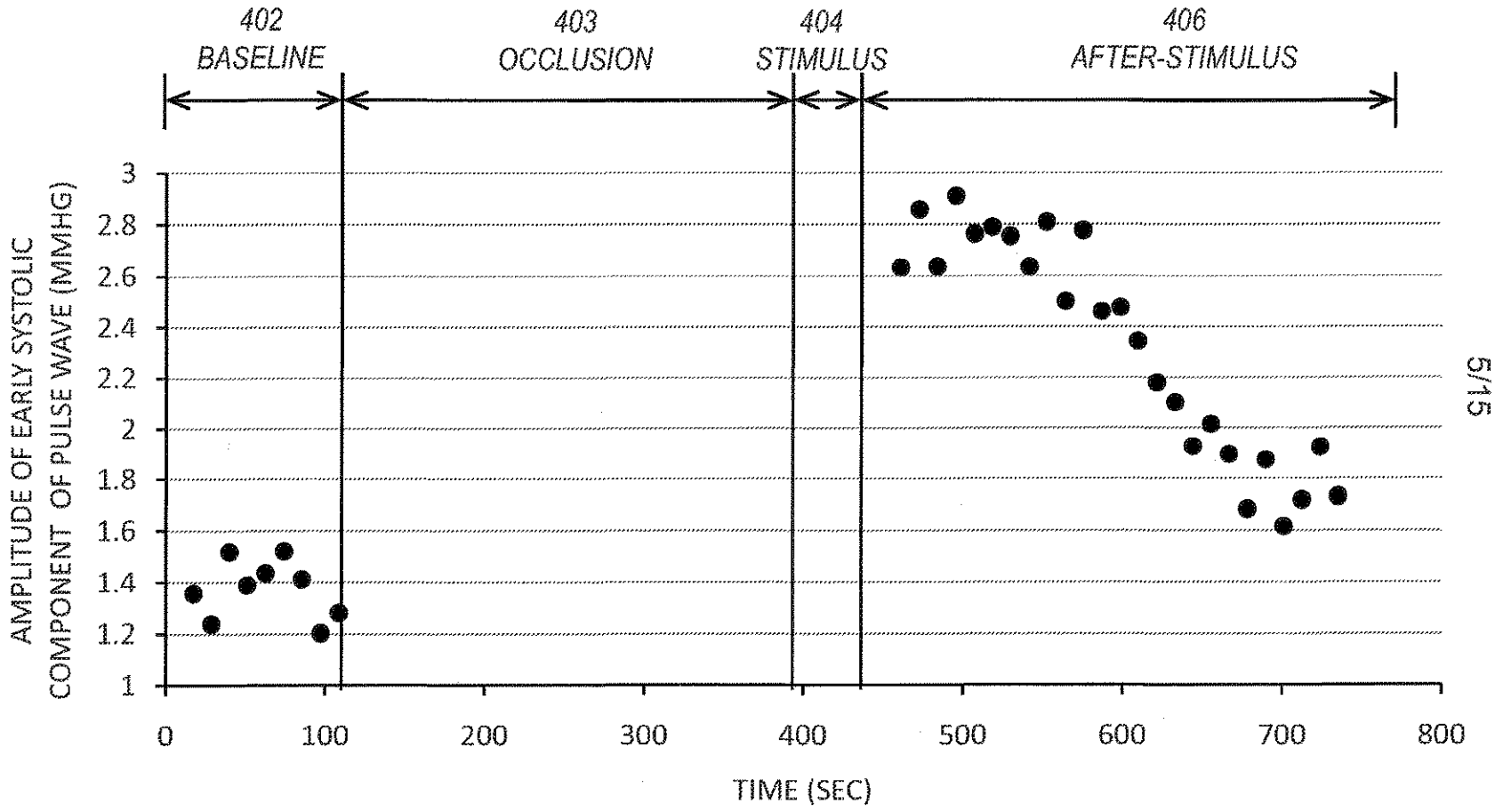

402
BASELINE
403
OCCLUSION
404
STIMULUS
406
AFTER-STIMULUS
AMPLITUDE OF EARLY SYSTOLIC COMPONENT OF PULSE WAVE (MMHG)
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0
100
200
300
400
500
600
700
800
TIME (SEC)

FIG. 5

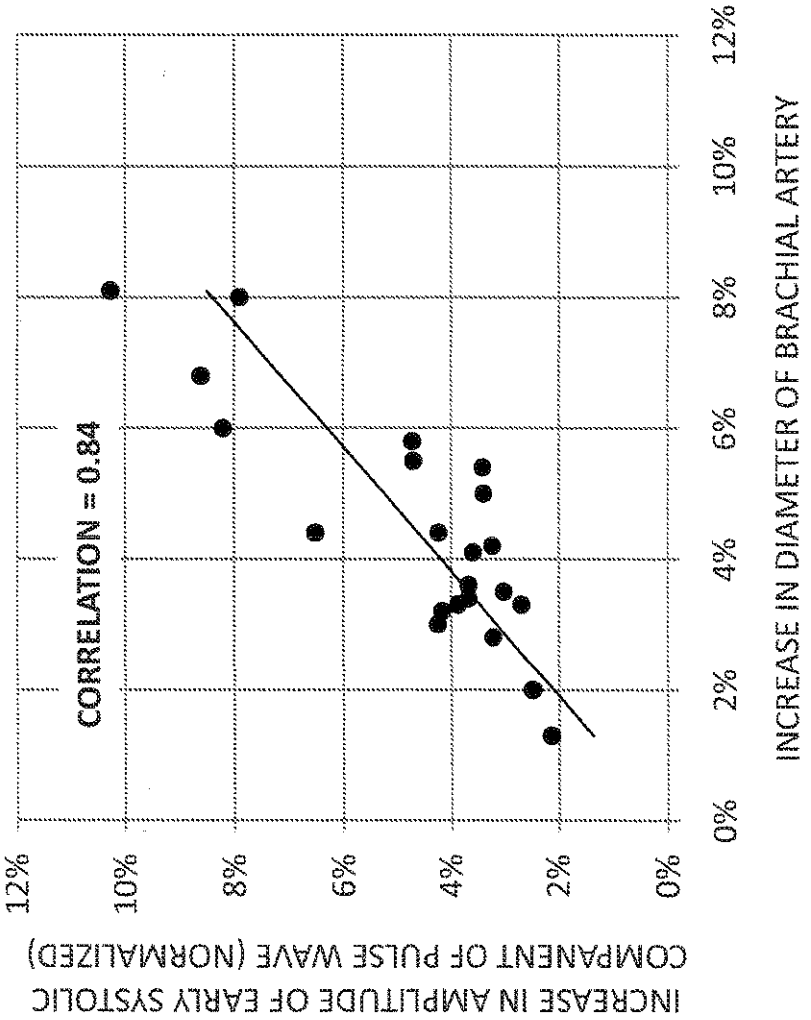

CORRELATION = 0.84
INCREASE IN AMPLITUDE OF EARLY SYSTOLIC COMPANENT OF PULSE WAVE (NORMALIZED)
INCREASE IN DIAMETER OF BRACHIAL ARTERY
0%
2%
4%
6%
8%
10%
12%

FIG. 6

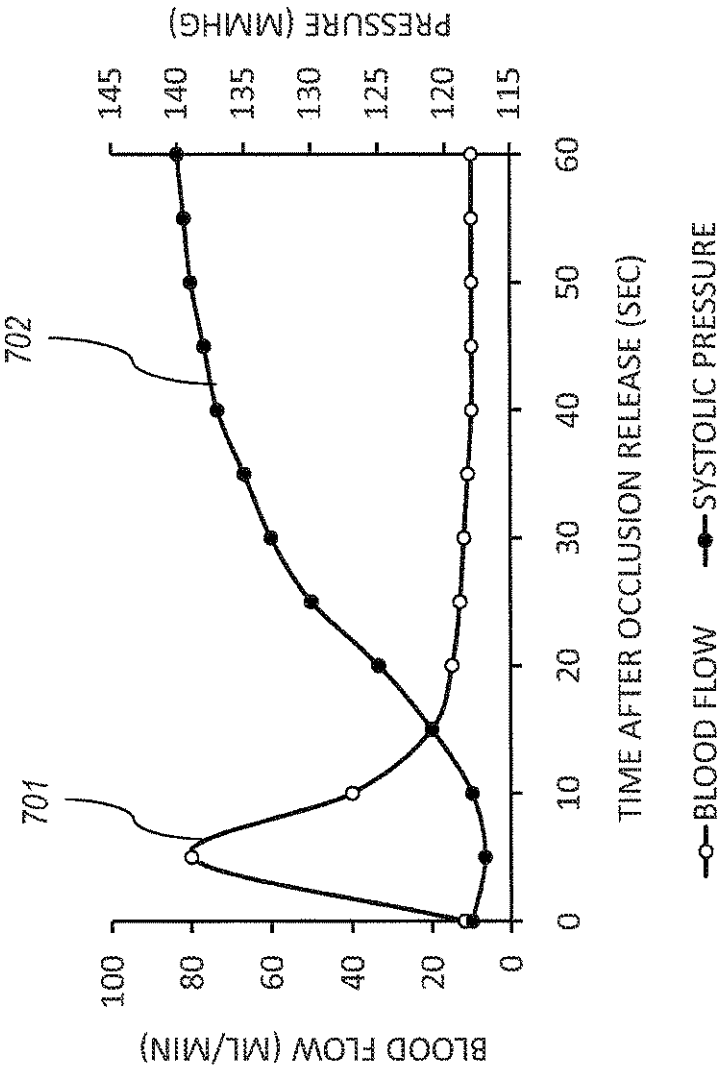

BLOOD FLOW (ML/MIN)
PRESSURE (MMHG)
TIME AFTER OCCLUSION RELEASE (SEC)
BLOOD FLOW
SYSTOLIC PRESSURE
701
702
0
20
40
60
80
100
115
120
125
130
135
140
145
0
10
20
30
40
50
60

FIG. 7

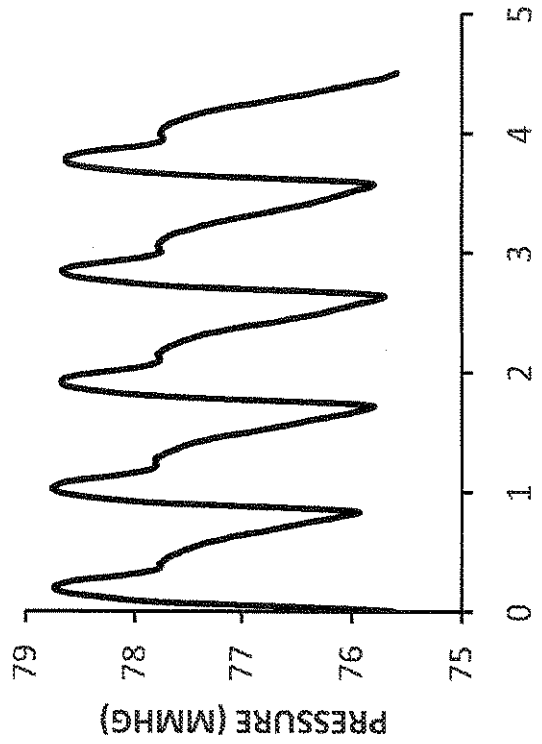

PRESSURE (MMHG)
79
78
77
76
75
0
1
2
3
4
5
TIME (SEC)

FIG. 8b

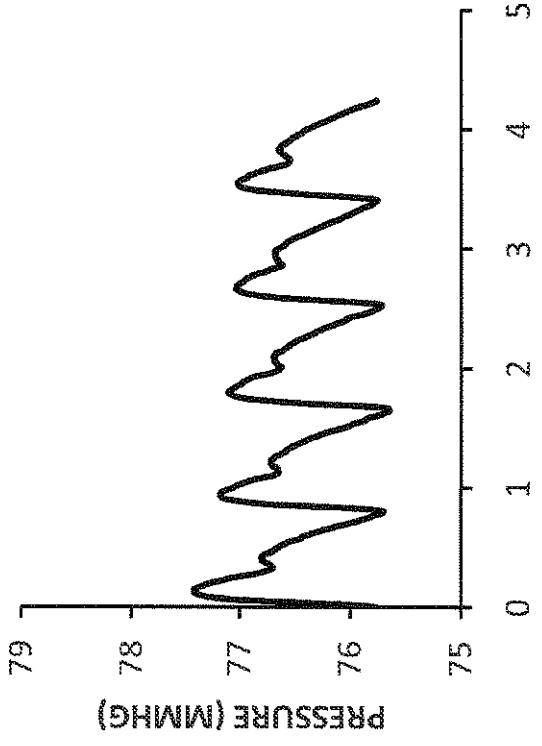

PRESSURE (MMHG)
79
78
77
76
75
0
1
2
3
4
5
TIME (SEC)

FIG. 8a

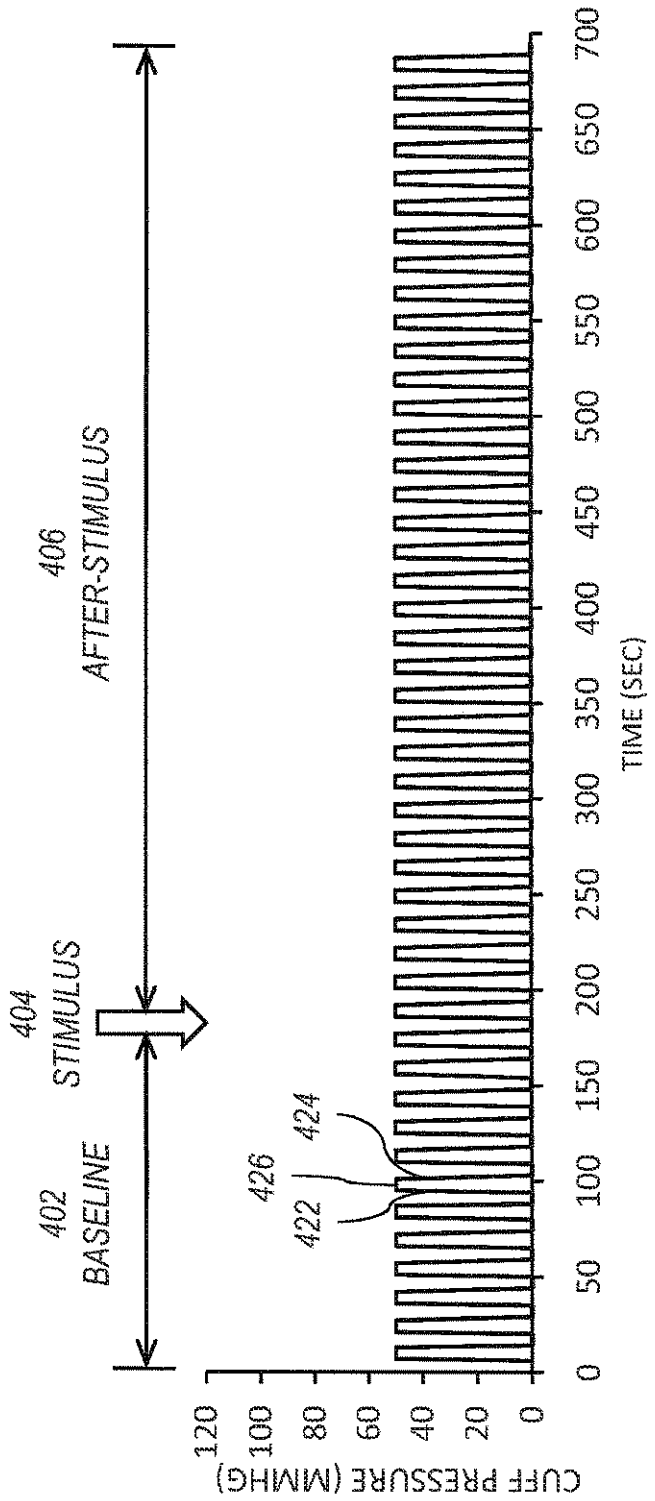

402
BASELINE
404
STIMULUS
406
AFTER-STIMULUS
422
424
426
CUFF PRESSURE (MMHG)
120
100
80
60
40
20
0
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
TIME (SEC)

FIG. 9

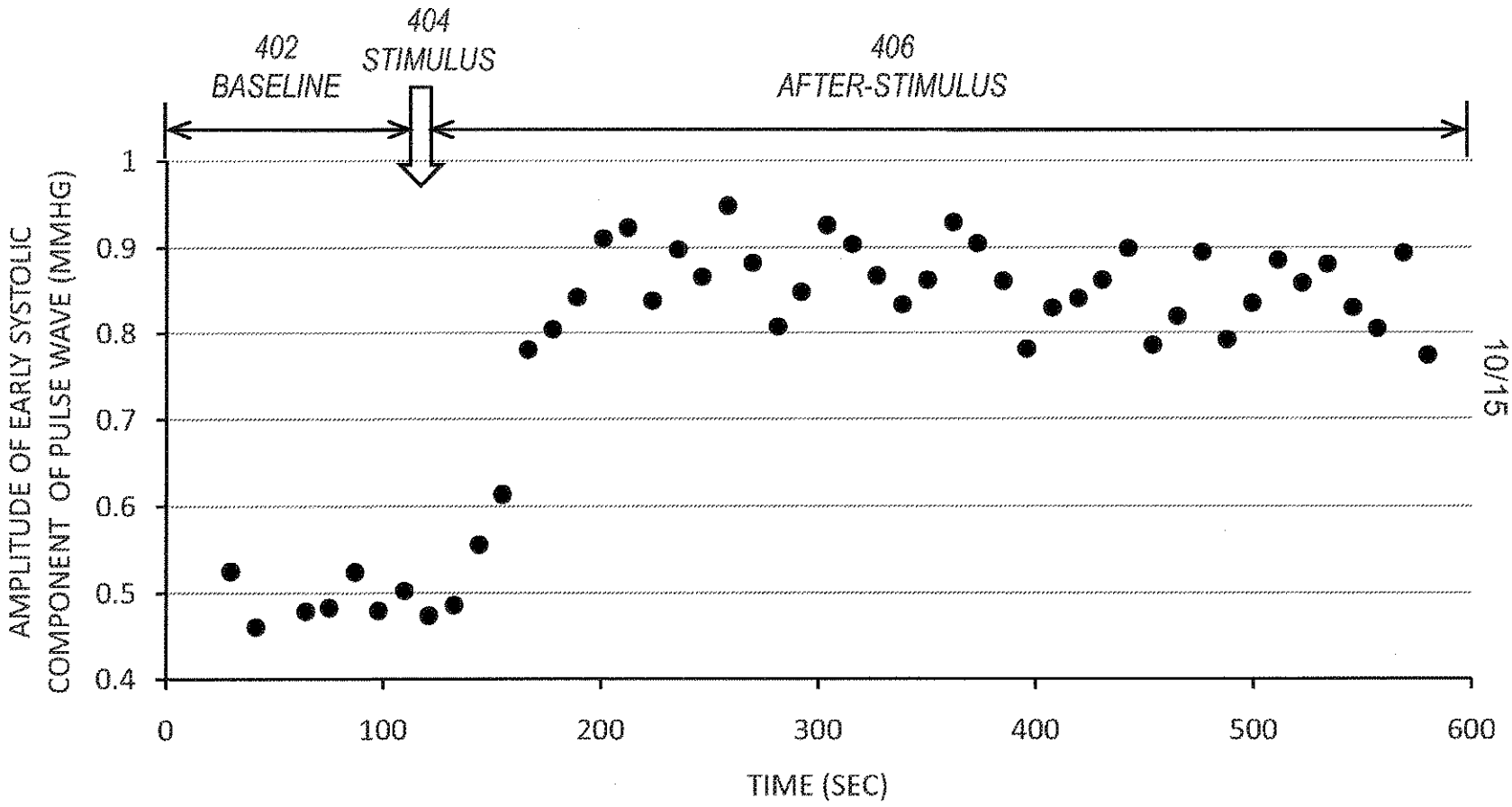

402
BASELINE
404
STIMULUS
406
AFTER-STIMULUS
AMPLITUDE OF EARLY SYSTOLIC COMPONENT OF PULSE WAVE (MMHG)
1
0.9
0.8
0.7
0.6
0.5
0.4
0
100
200
300
400
500
600
TIME (SEC)
10/15

FIG. 10

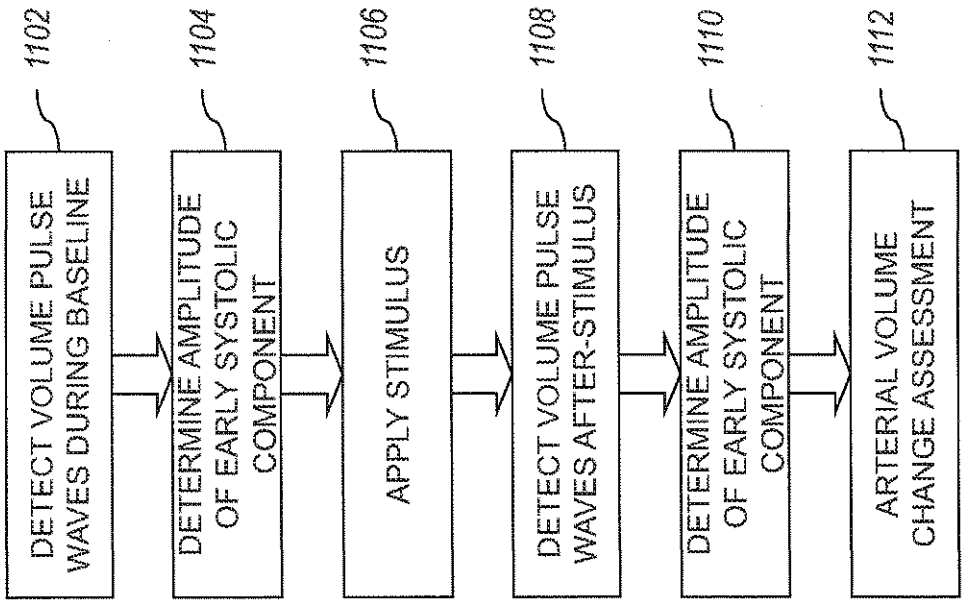

1102
DETECT VOLUME PULSE WAVES DURING BASELINE
1104
DETERMINE AMPLITUDE OF EARLY SYSTOLIC COMPONENT
1106
APPLY STIMULUS
1108
DETECT VOLUME PULSE WAVES AFTER-STIMULUS
1110
DETERMINE AMPLITUDE OF EARLY SYSTOLIC COMPONENT
1112
ARTERIAL VOLUME CHANGE ASSESSMENT

FIG. 11

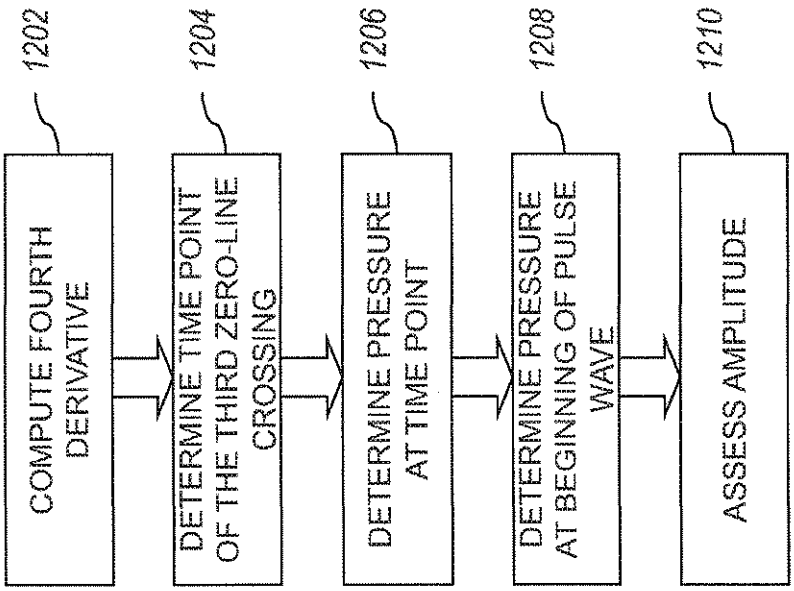

1202
COMPUTE FOURTH DERIVATIVE
1204
DETERMINE TIME POINT OF THE THIRD ZERO-LINE CROSSING
1206
DETERMINE PRESSURE AT TIME POINT
1208
DETERMINE PRESSURE AT BEGINNING OF PULSE WAVE
1210
ASSESS AMPLITUDE

FIG. 12

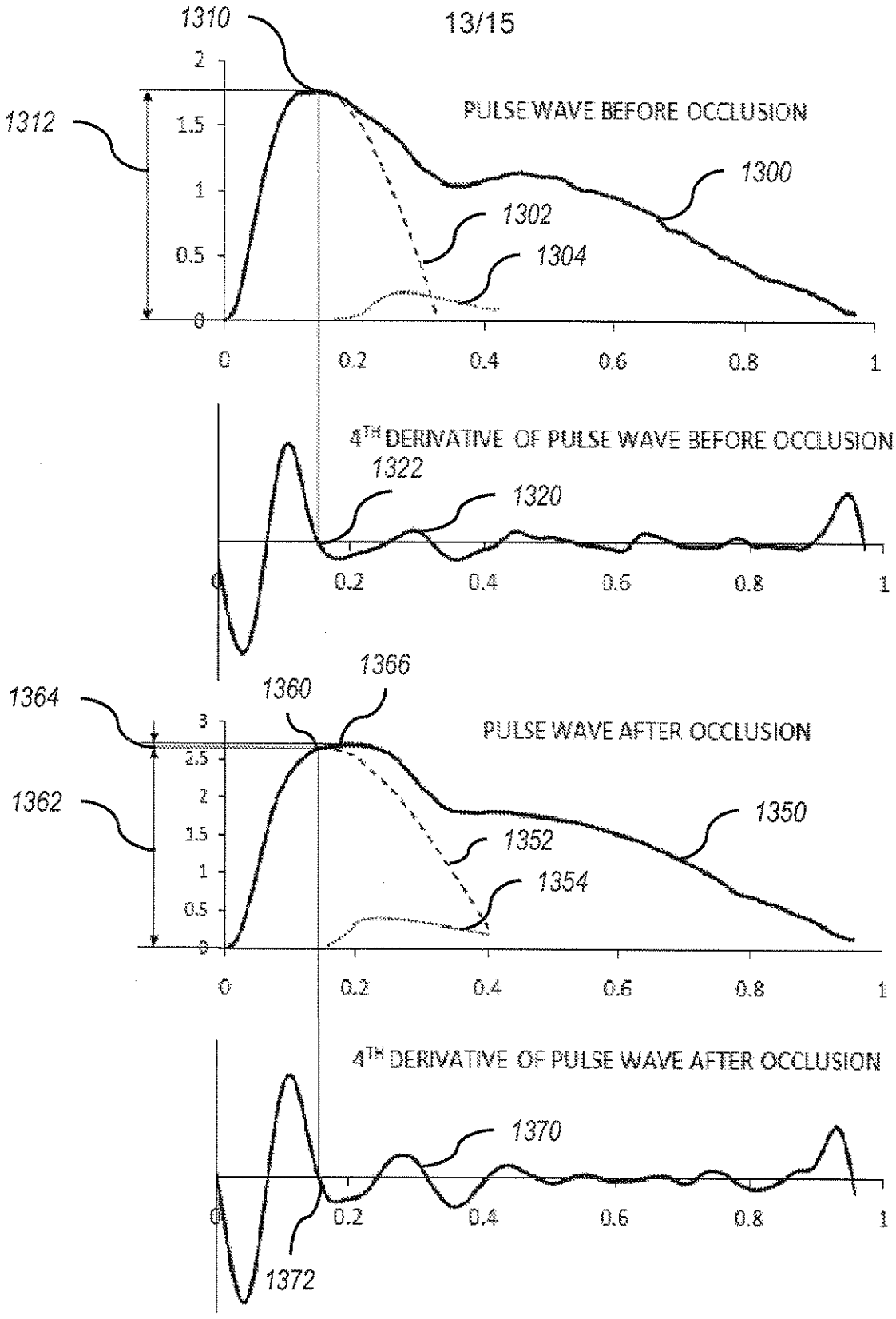

1310
1312
PULSE WAVE BEFORE OCCLUSION
1300
1302
1304
4TH DERIVATIVE OF PULSE WAVE BEFORE OCCLUSION
1322
1320
1364
1360
1366
1362
PULSE WAVE AFTER OCCLUSION
1350
1352
1354
4TH DERIVATIVE OF PULSE WAVE AFTER OCCLUSION
1370
1372

FIG. 13

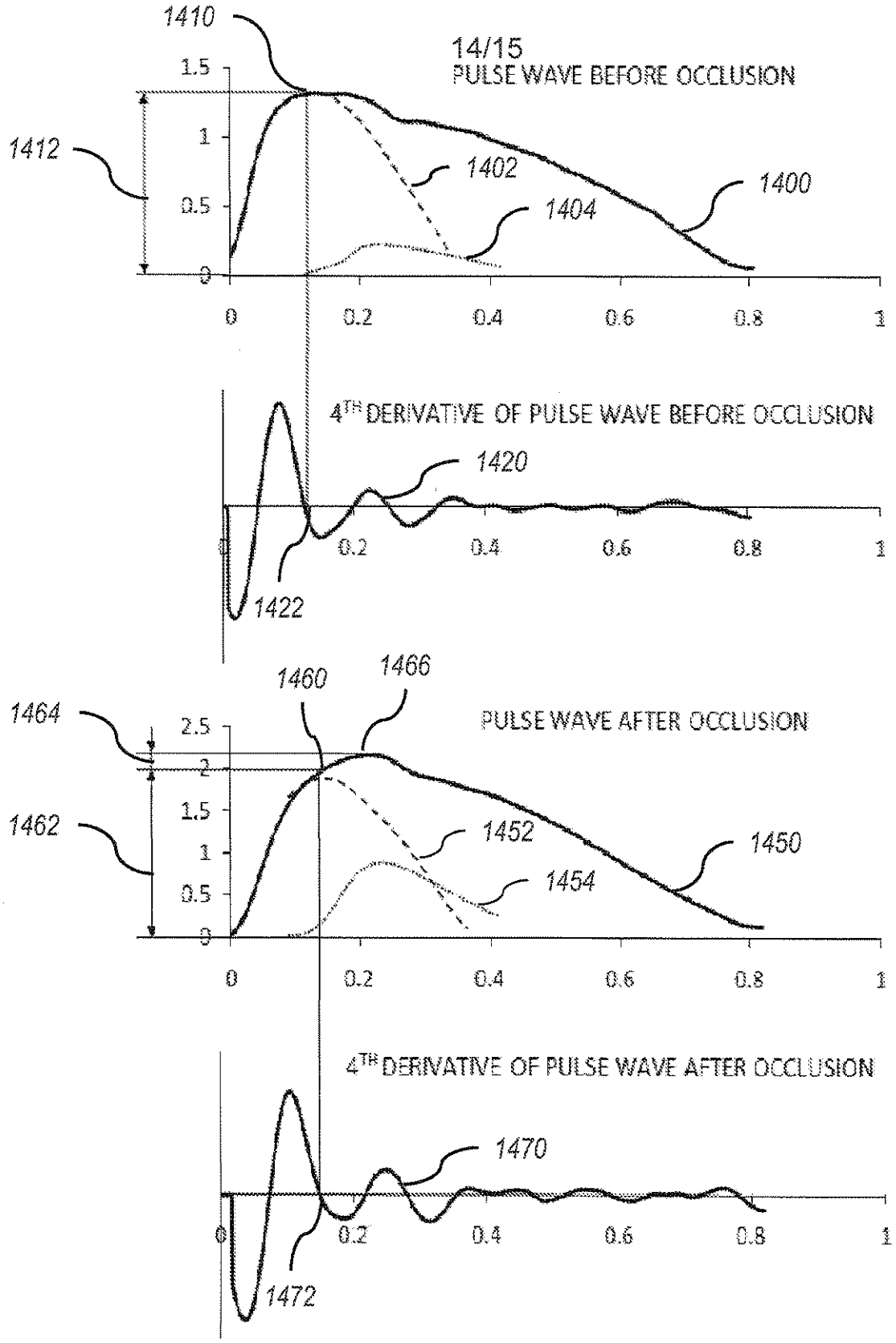

1410
14/15
PULSE WAVE BEFORE OCCLUSION
1412
1402
1400
1404
1.5
1
0.5
0
0
0.2
0.4
0.6
0.8
1
4TH DERIVATIVE OF PULSE WAVE BEFORE OCCLUSION
1420
1422
1460
1466
1464
PULSE WAVE AFTER OCCLUSION
1462
1452
1450
1454
2.5
2
1.5
1
0.5
0
4TH DERIVATIVE OF PULSE WAVE AFTER OCCLUSION
1470
1472

FIG. 14

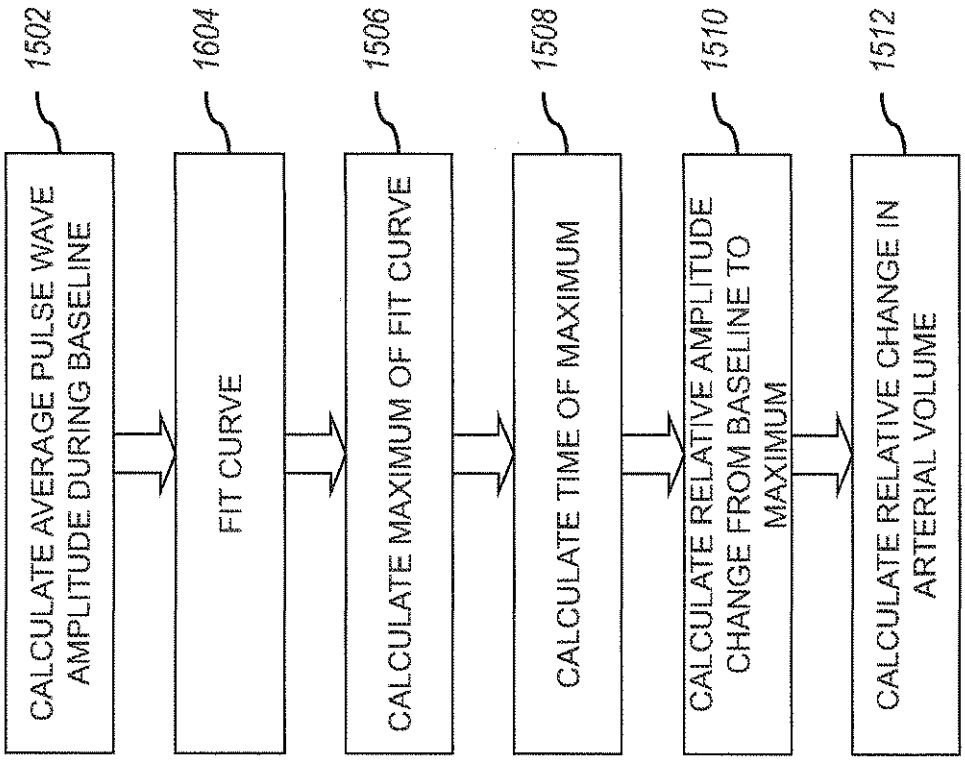

1502
CALCULATE AVERAGE PULSE WAVE AMPLITUDE DURING BASELINE
1604
FIT CURVE
1506
CALCULATE MAXIMUM OF FIT CURVE
1508
CALCULATE TIME OF MAXIMUM
1510
CALCULATE RELATIVE AMPLITUDE CHANGE FROM BASELINE TO MAXIMUM
1512
CALCULATE RELATIVE CHANGE IN ARTERIAL VOLUME

FIG. 15