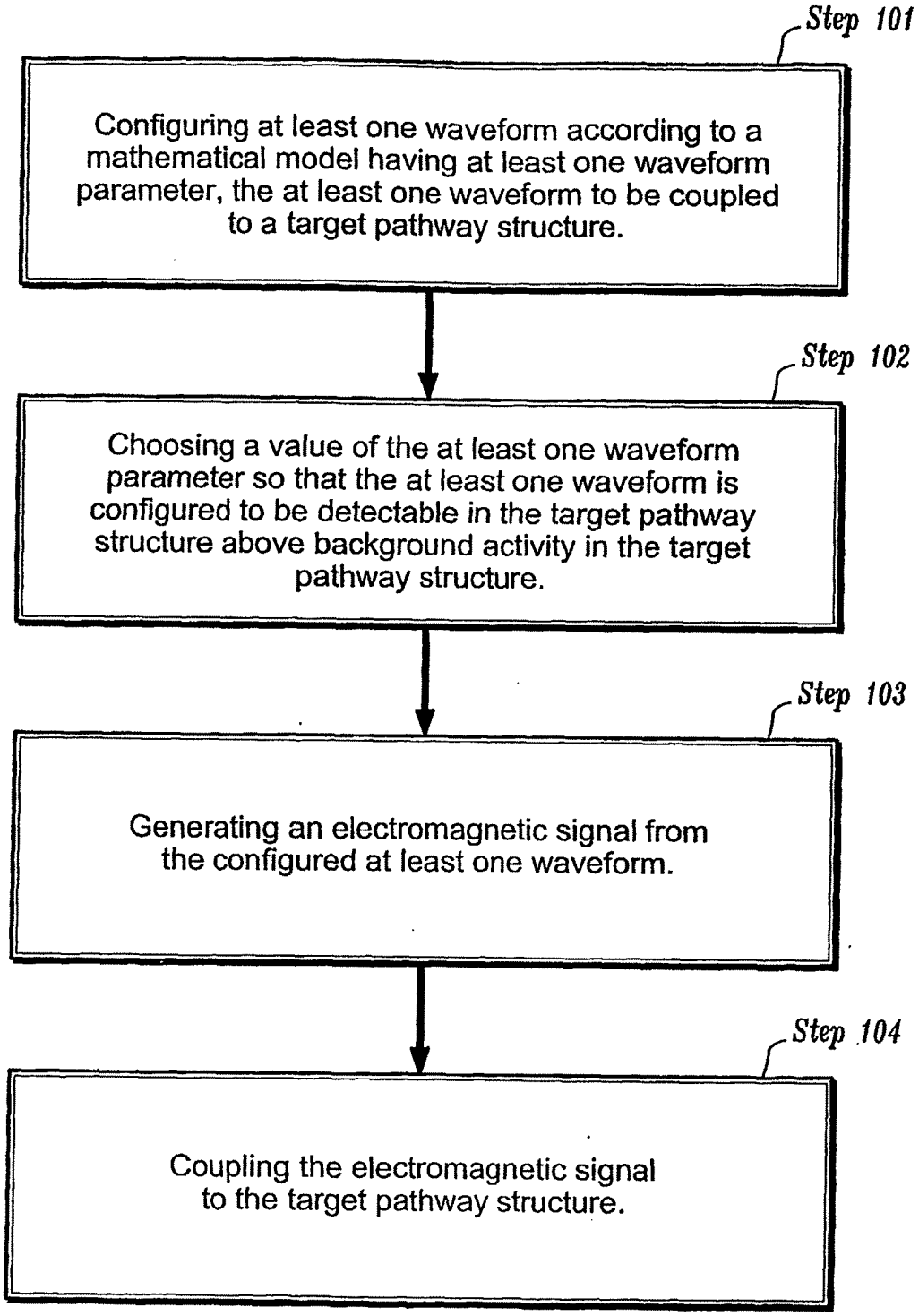

Step 101
Configuring at least one waveform according to a mathematical model having at least one waveform parameter, the at least one waveform to be coupled to a target pathway structure.
Step 102
Choosing a value of the at least one waveform parameter so that the at least one waveform is configured to be detectable in the target pathway structure above background activity in the target pathway structure.
Step 103
Generating an electromagnetic signal from the configured at least one waveform.
Step 104
Coupling the electromagnetic signal to the target pathway structure.

FIG. 1

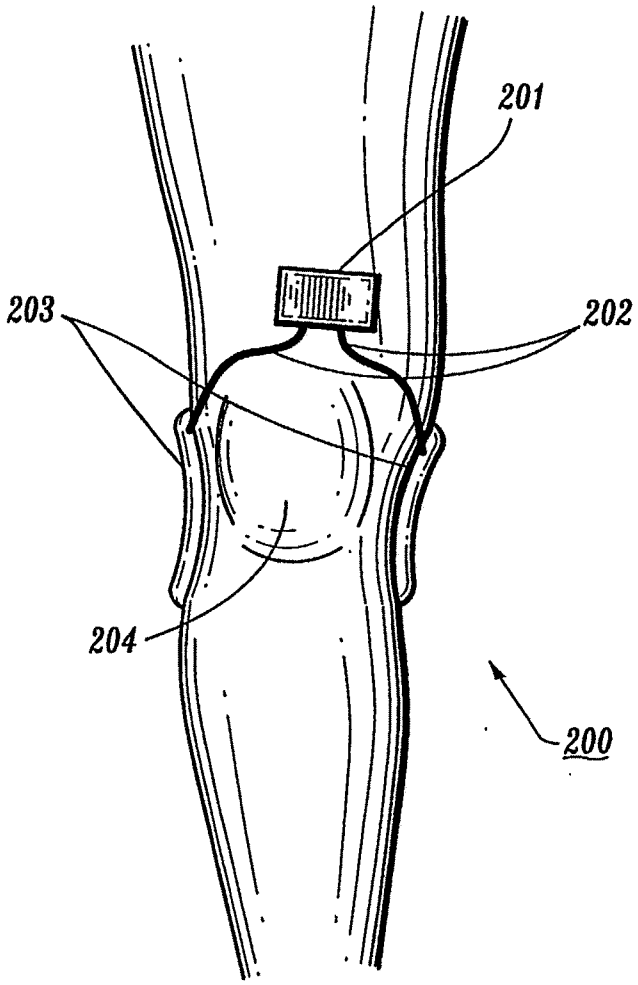


FIG. 2

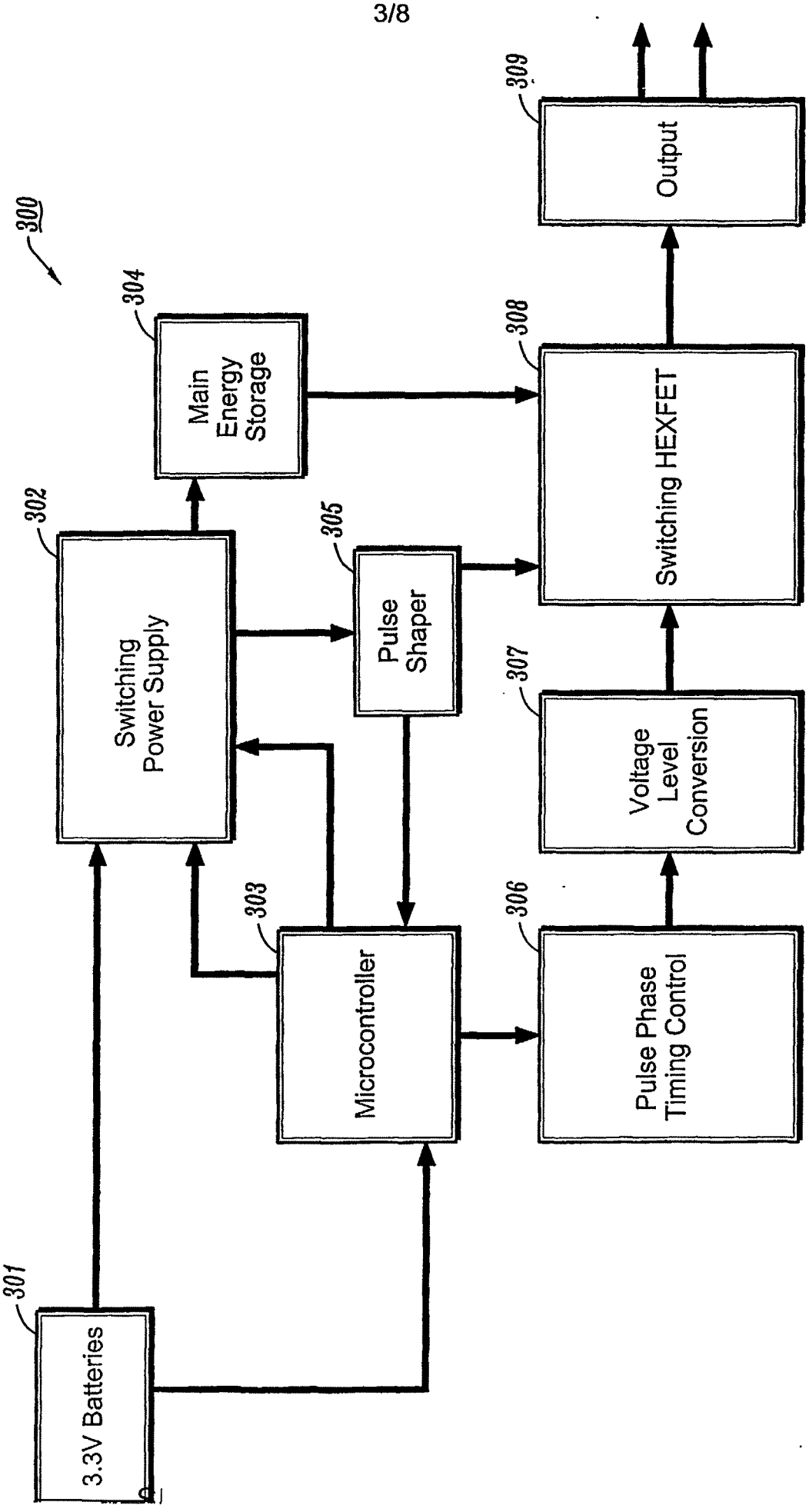

300
301
3.3V Batteries
302
Switching Power Supply
303
Microcontroller
304
Main Energy Storage
305
Pulse Shaper
306
Pulse Phase Timing Control
307
Voltage Level Conversion
308
Switching HEXFET
309
Output

FIG. 3

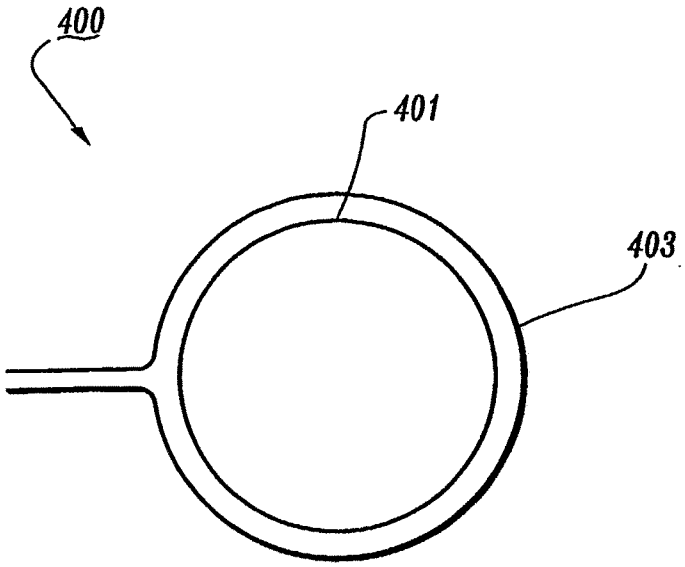


FIG. 4A

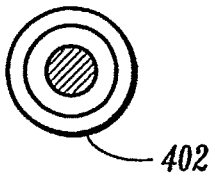


FIG. 4B

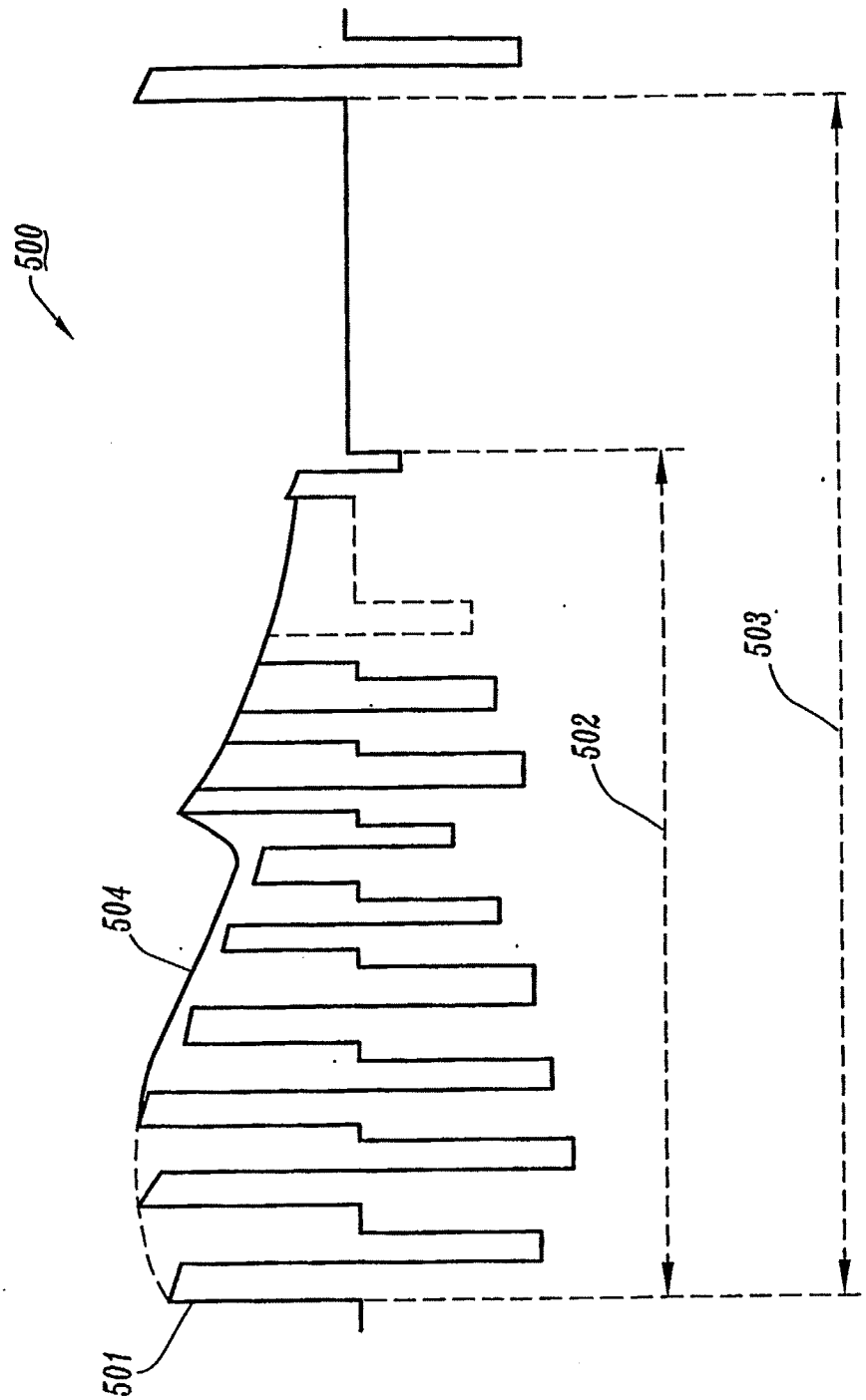


FIG. 5

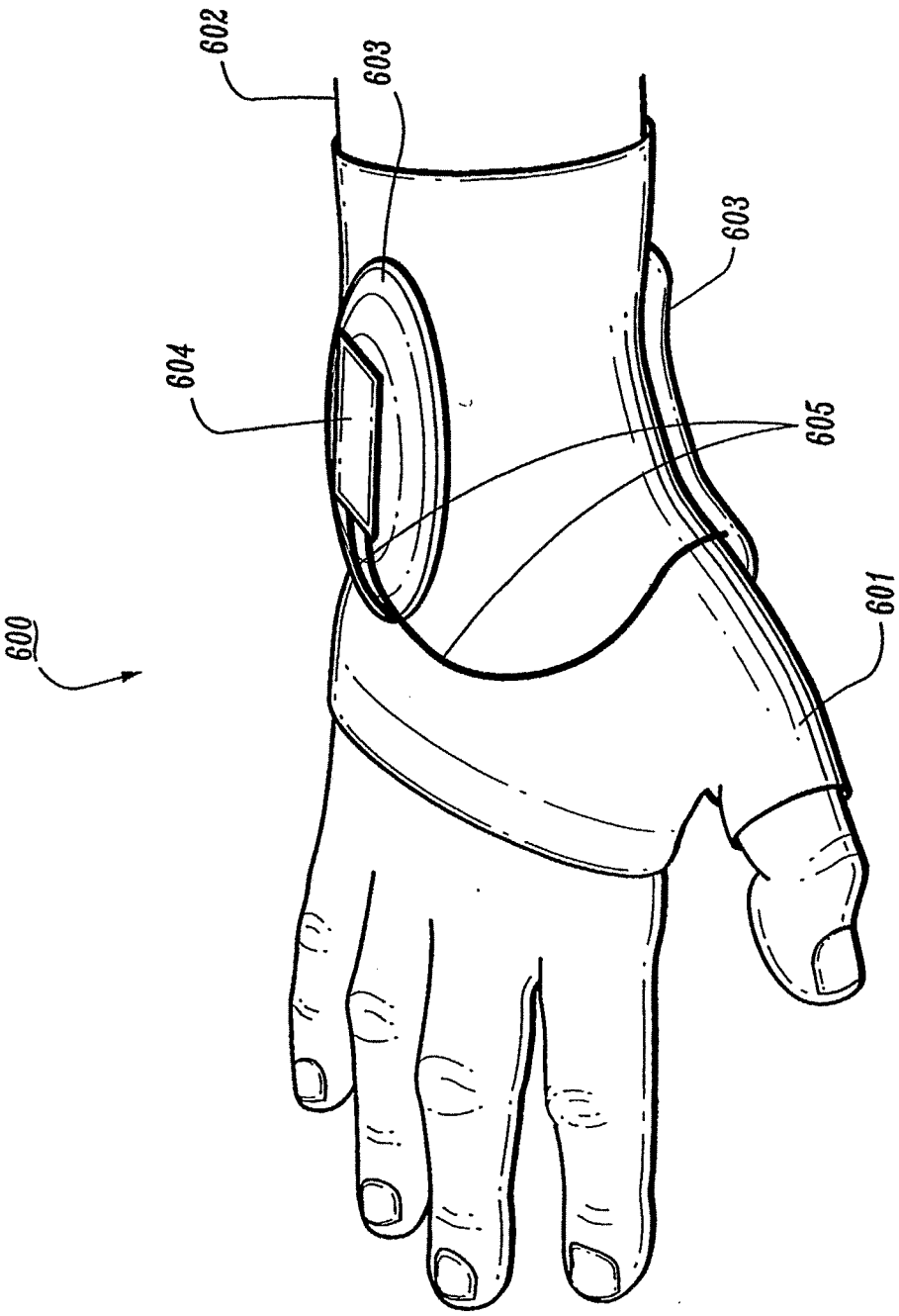


FIG. 6

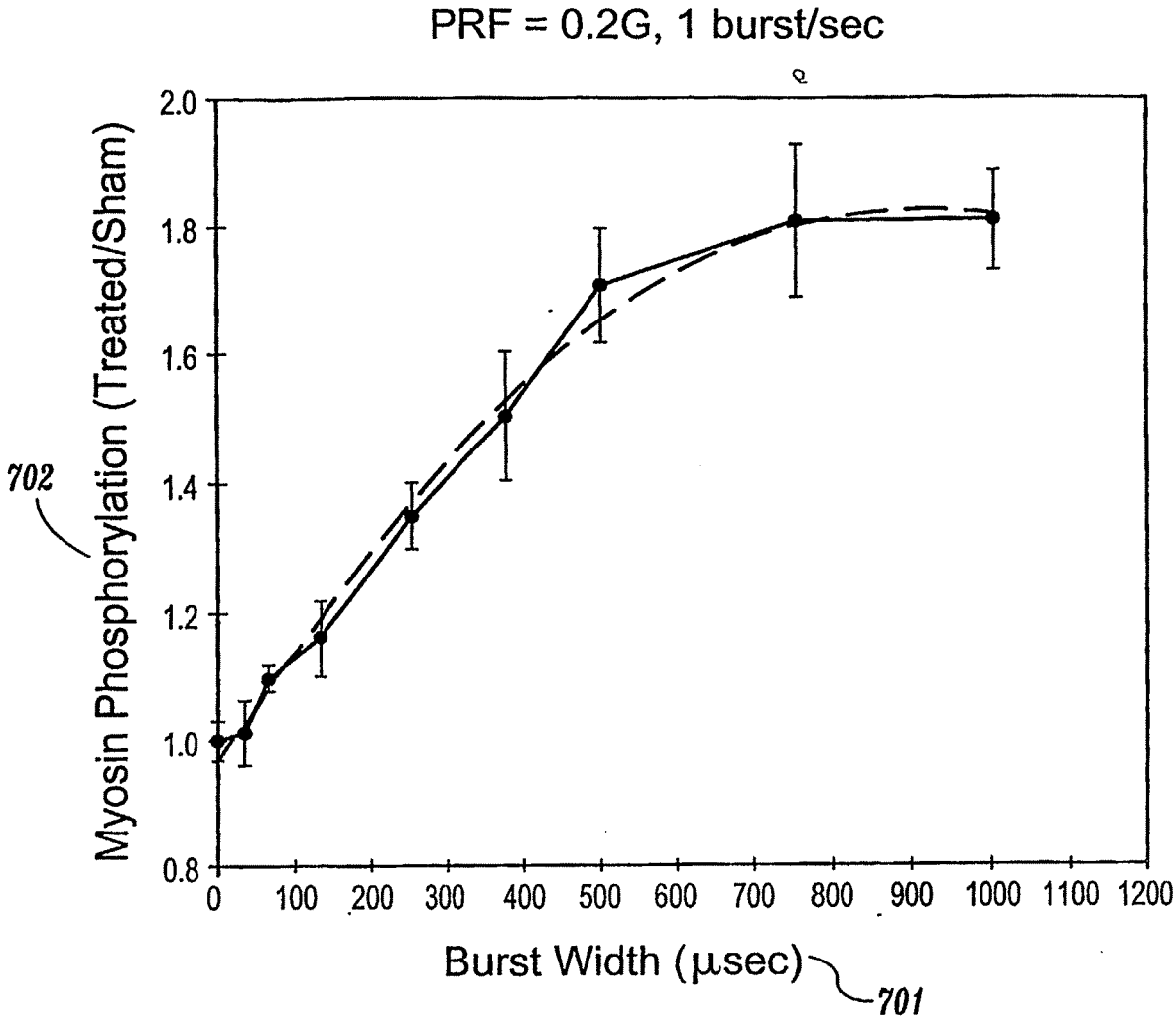

PRF = 0.2G, 1 burst/sec
Myosin Phosphorylation (Treated/Sham)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
Burst Width (µsec)
702
701

FIG. 7

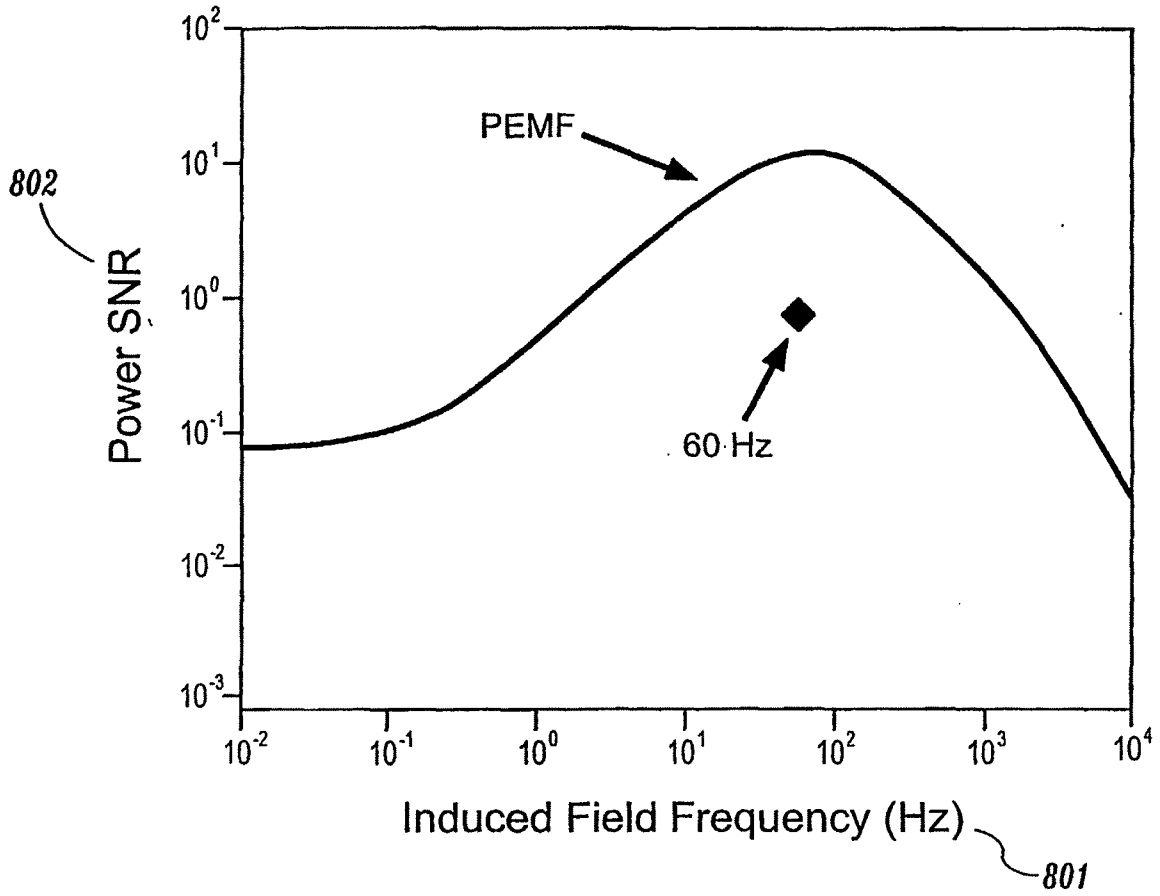

802
Power SNR
10^2
10^1
10^0
10^{-1}
10^{-2}
10^{-3}
PEMF
60 Hz
10^{-2}
10^{-1}
10^0
10^1
10^2
10^3
10^4
Induced Field Frequency (Hz)
801

FIG. 8