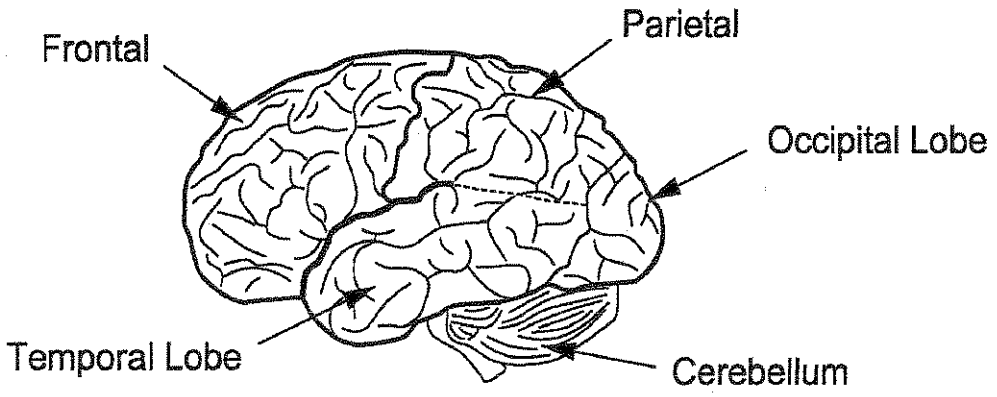

Frontal
Parietal
Occipital Lobe
Temporal Lobe
Cerebellum

FIG. 1A

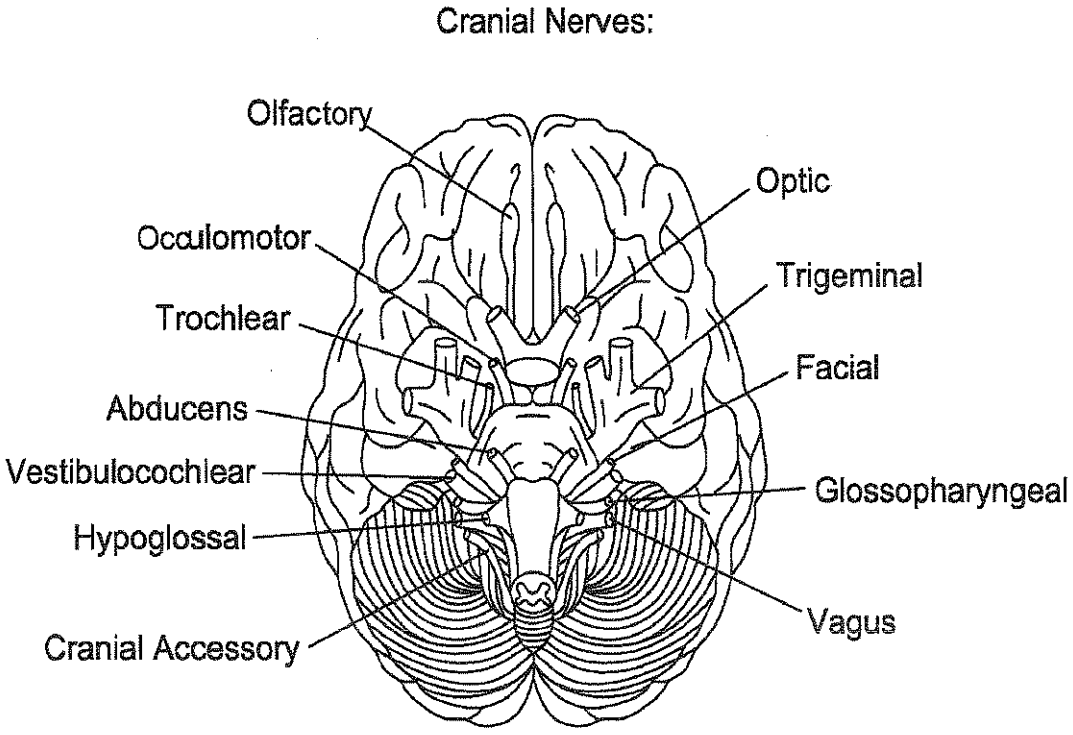

Cranial Nerves:
Olfactory
Optic
Oculomotor
Trigeminal
Trochlear
Facial
Abducens
Vestibulocochlear
Glossopharyngeal
Hypoglossal
Vagus
Cranial Accessory

FIG. 1B

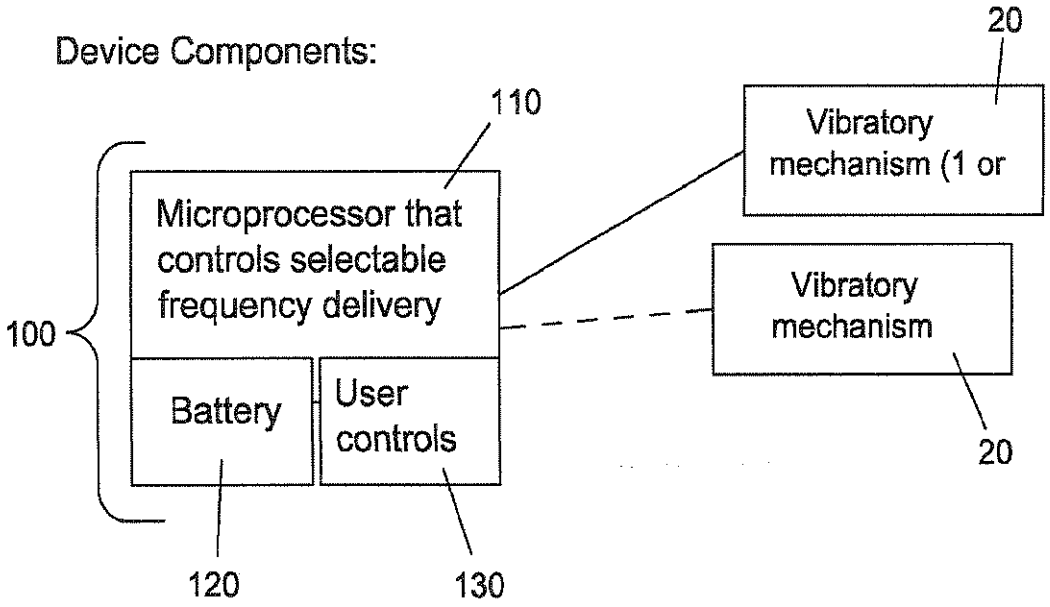

Device Components:
110
20
Vibratory mechanism (1 or
Microprocessor that controls selectable frequency delivery
Vibratory mechanism
100
Battery
User controls
20
120
130

FIG. 2

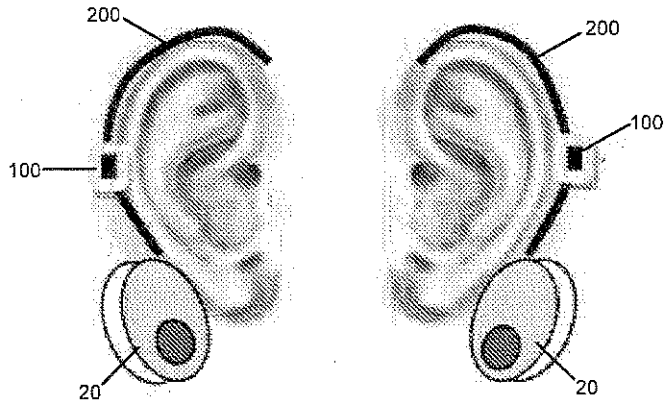

200
100
20
200
100
20

FIG. 3

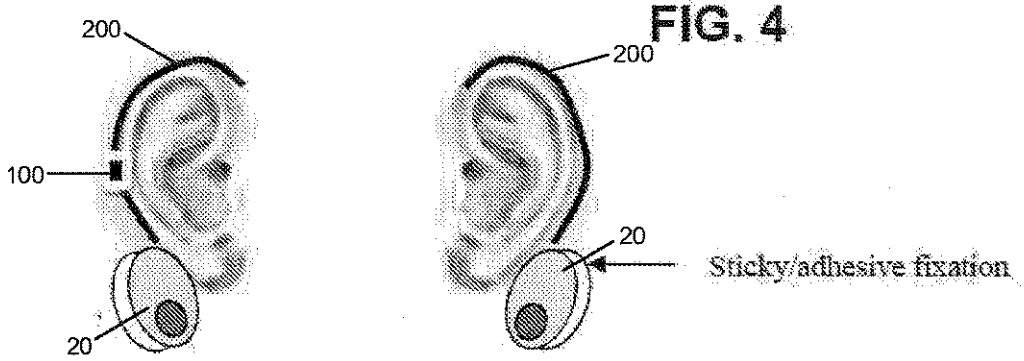

200
100
20
200
20
Sticky/adhesive fixation

FIG. 4

FIG. 5A

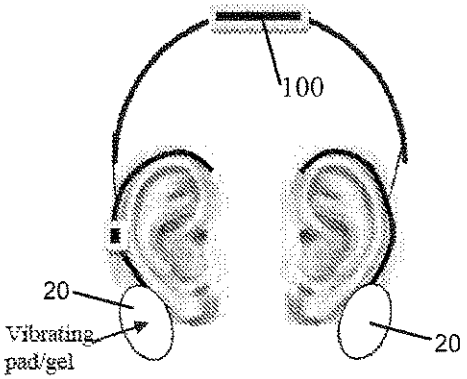


FIG. 5B

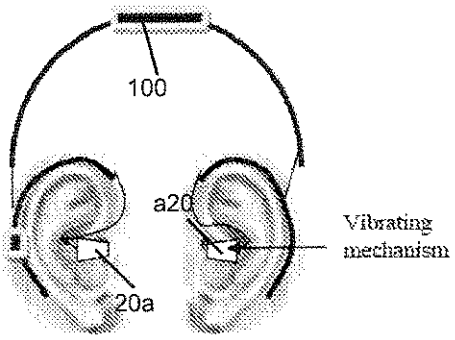


FIG. 6A

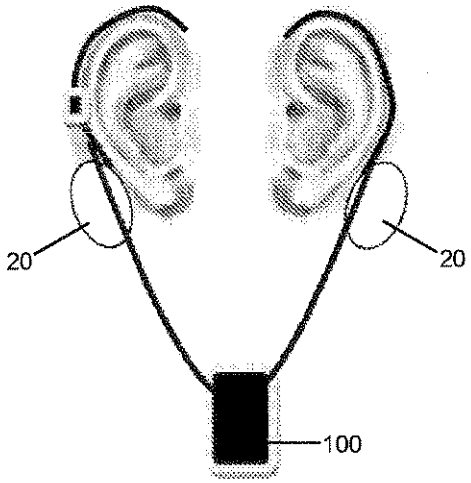


FIG. 6B

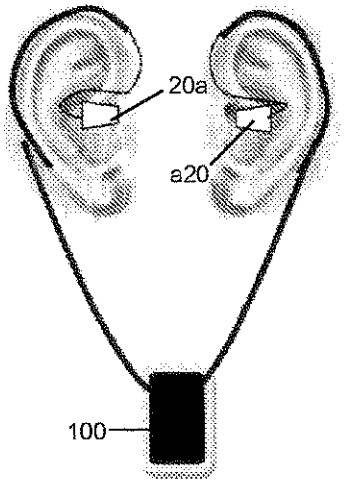


FIG. 7A

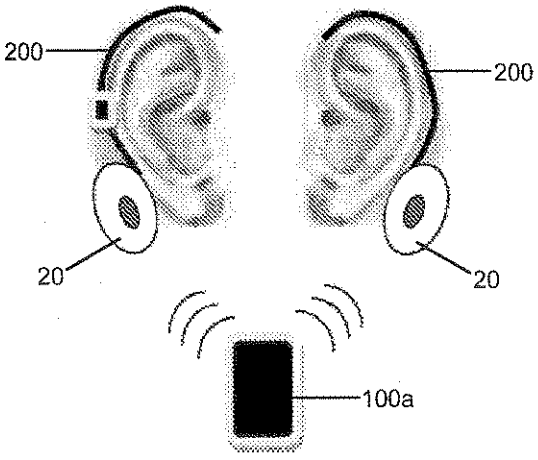
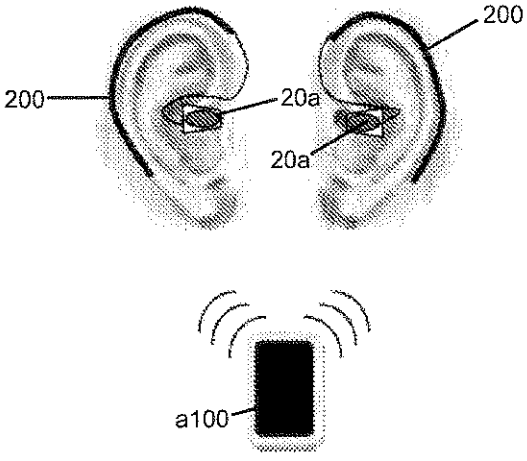


FIG. 7B



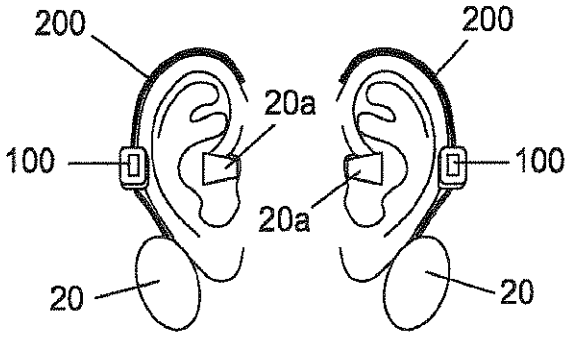


FIG. 8A

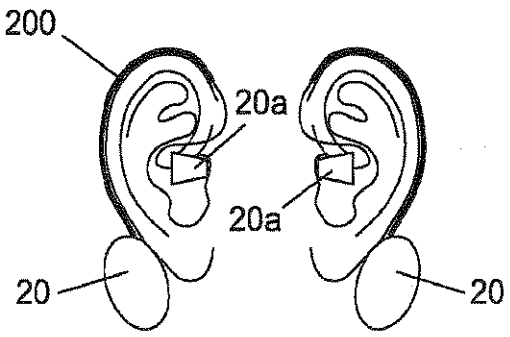


FIG. 8B

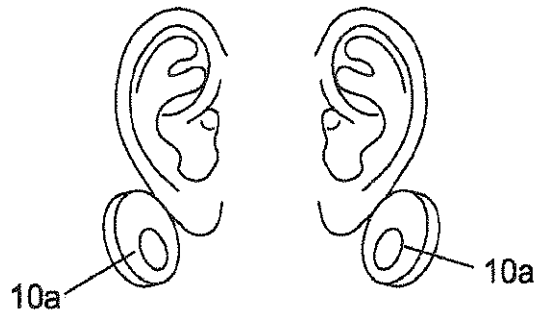


FIG. 9

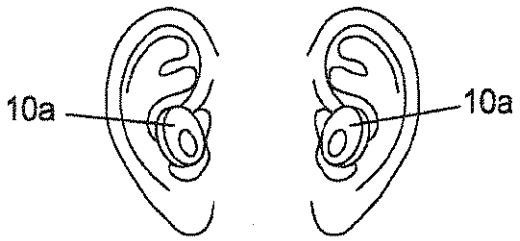


FIG. 10

Minimally Invasive:

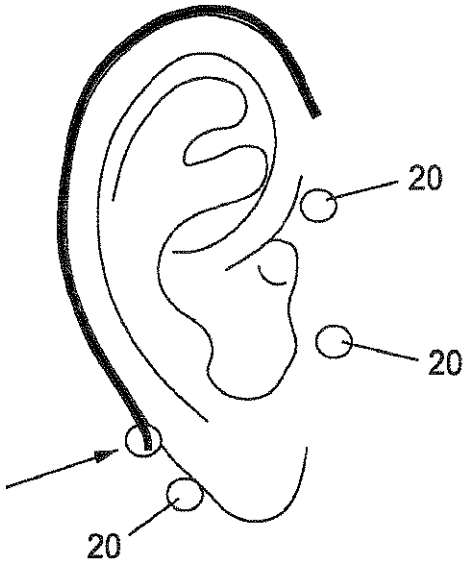


FIG. 11

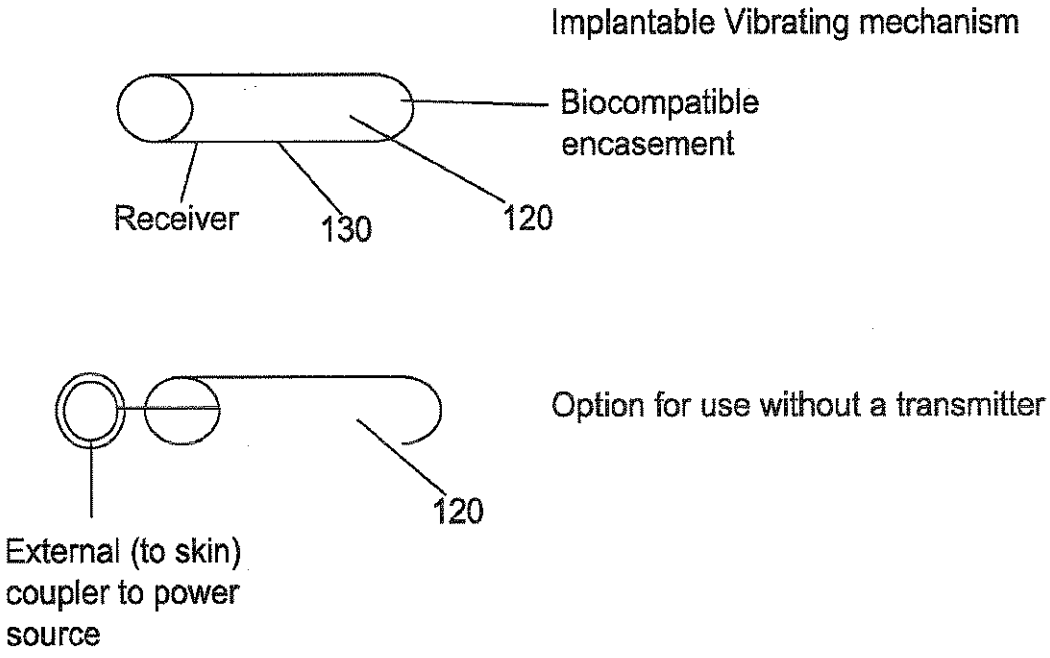

Implantable Vibrating mechanism
Biocompatible encasement
Receiver
130
120
120
Option for use without a transmitter
External (to skin) coupler to power source

FIG. 12

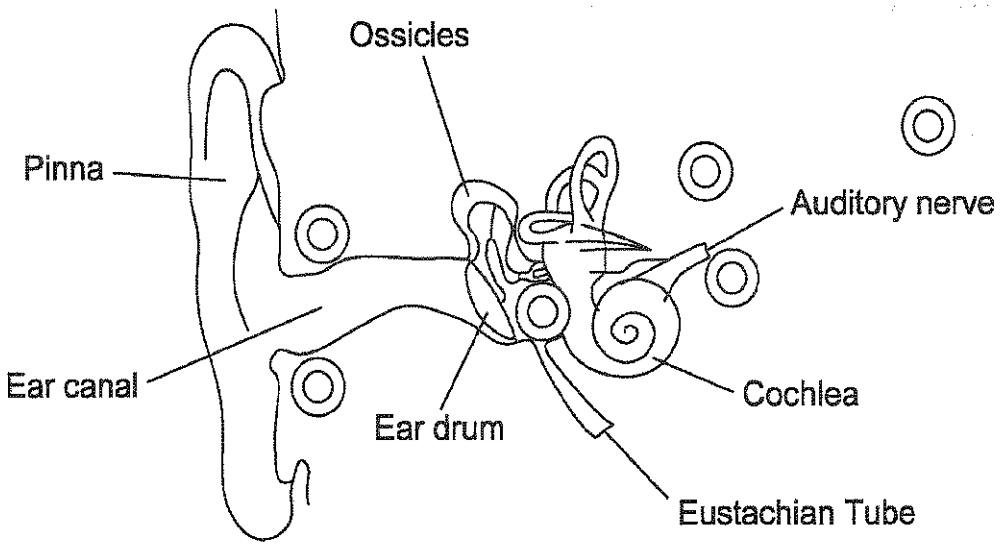

Ossicles
Pinna
Auditory nerve
Ear canal
Ear drum
Cochlea
Eustachian Tube

FIG. 13

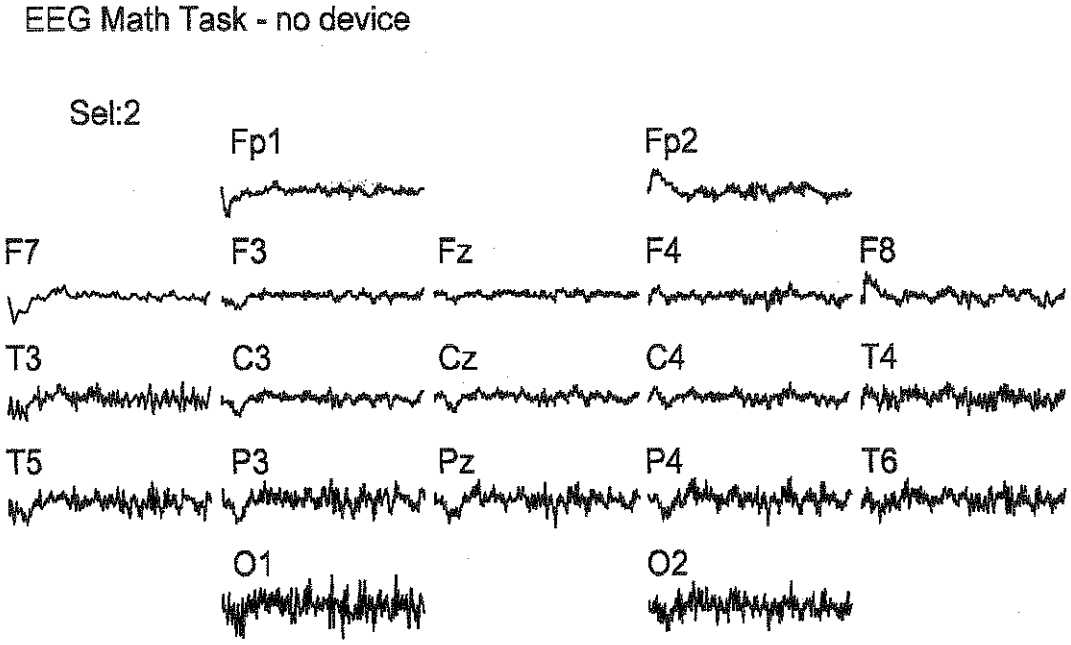

EEG Math Task - no device
Sel:2
Fp1
Fp2
F7
F3
Fz
F4
F8
T3
C3
Cz
C4
T4
T5
P3
Pz
P4
T6
O1
O2

FIG. 14

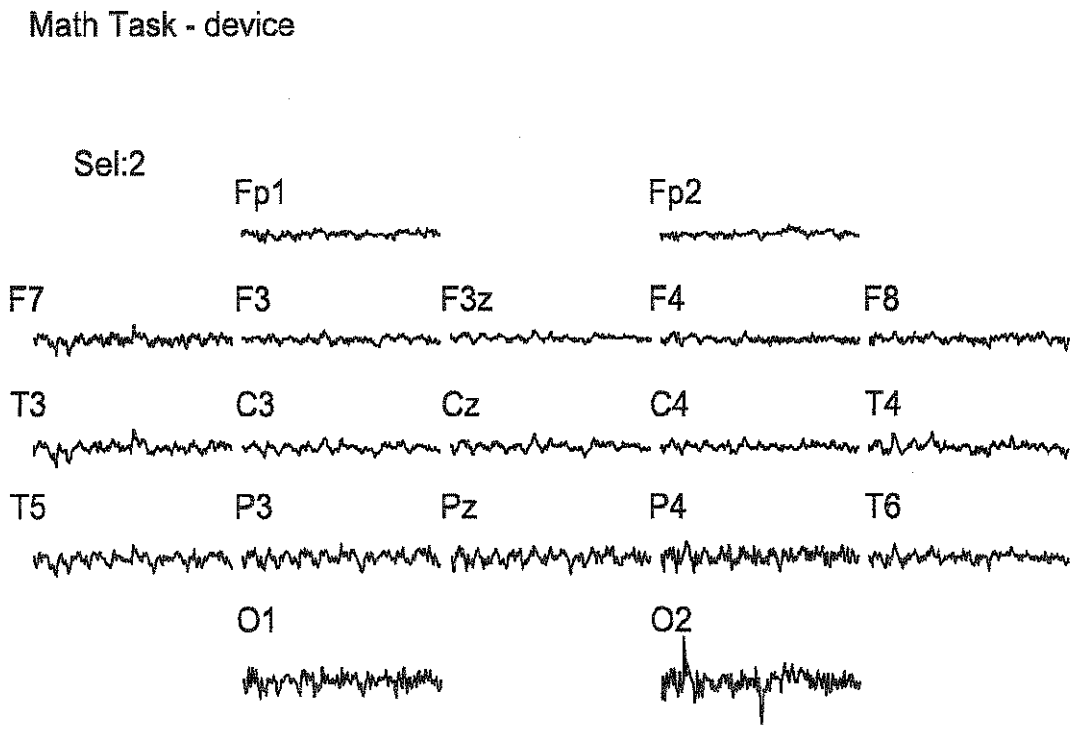

Math Task - device
Sel:2
Fp1
Fp2
F7
F3
F3z
F4
F8
T3
C3
Cz
C4
T4
T5
P3
Pz
P4
T6
O1
O2

FIG. 15

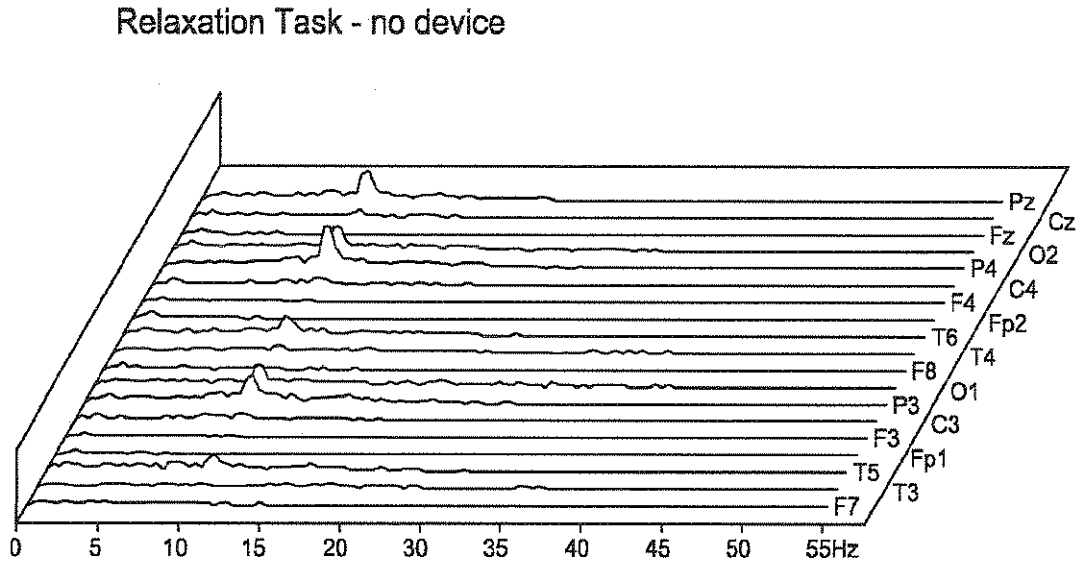

Relaxation Task - no device
Pz
Cz
Fz
O2
P4
C4
F4
Fp2
T6
T4
F8
O1
P3
C3
F3
Fp1
T5
T3
F7
0
5
10
15
20
30
35
40
45
50
55Hz

FIG. 16

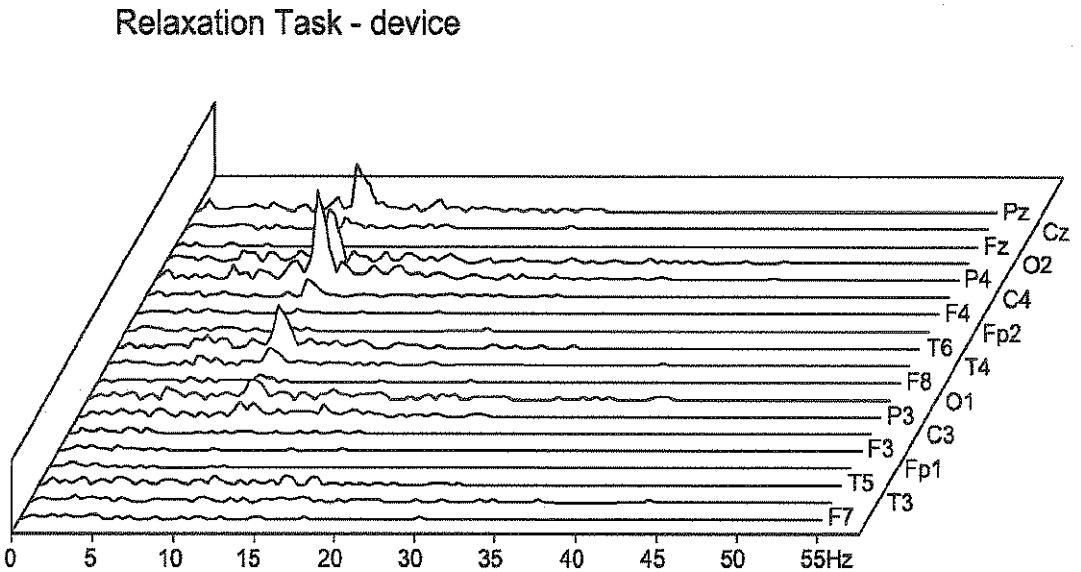

Relaxation Task - device
Pz
Cz
Fz
O2
P4
C4
F4
Fp2
T6
T4
F8
O1
P3
C3
F3
Fp1
T5
T3
F7
0
5
10
15
20
30
35
40
45
50
55Hz

FIG. 17