

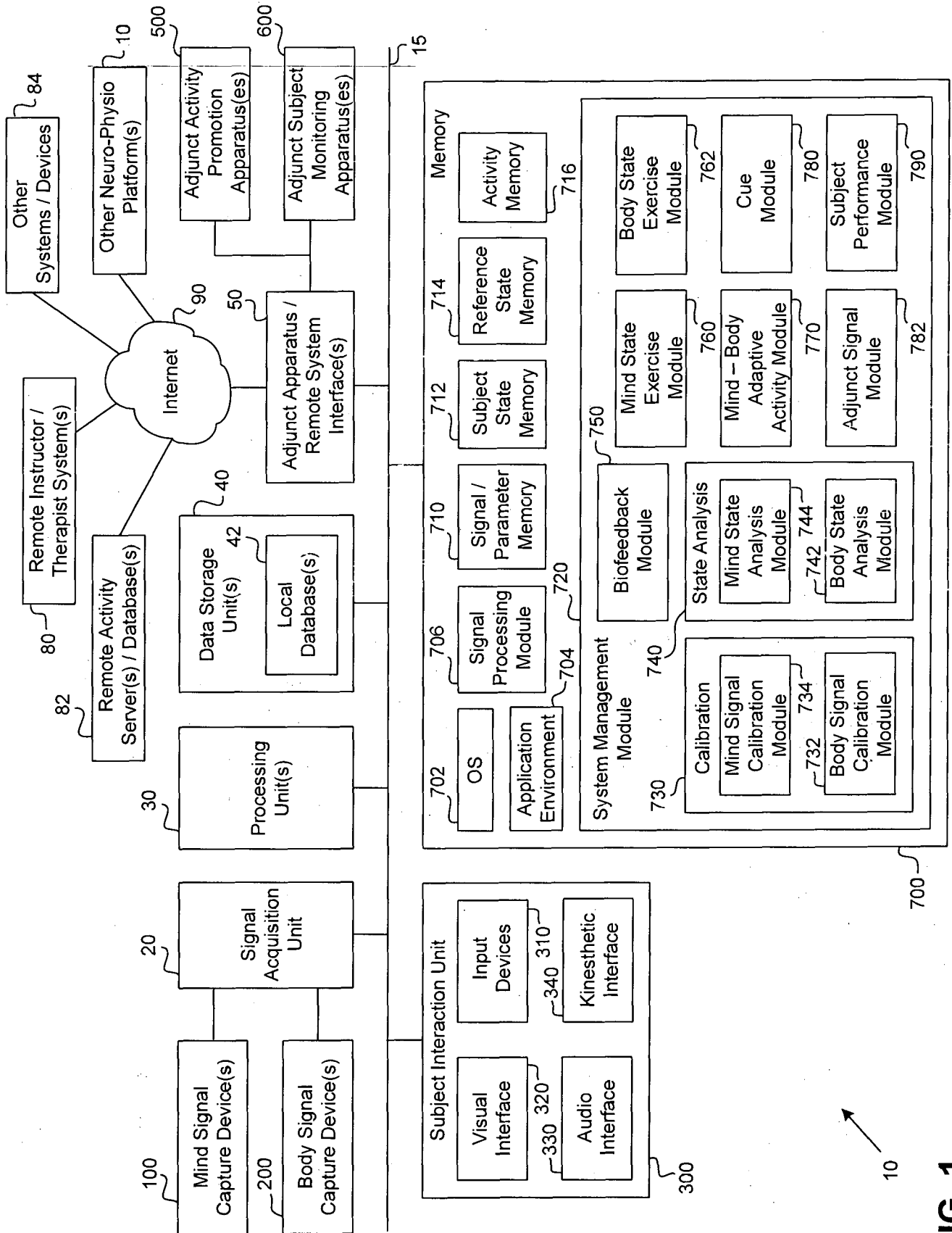


FIG. 1

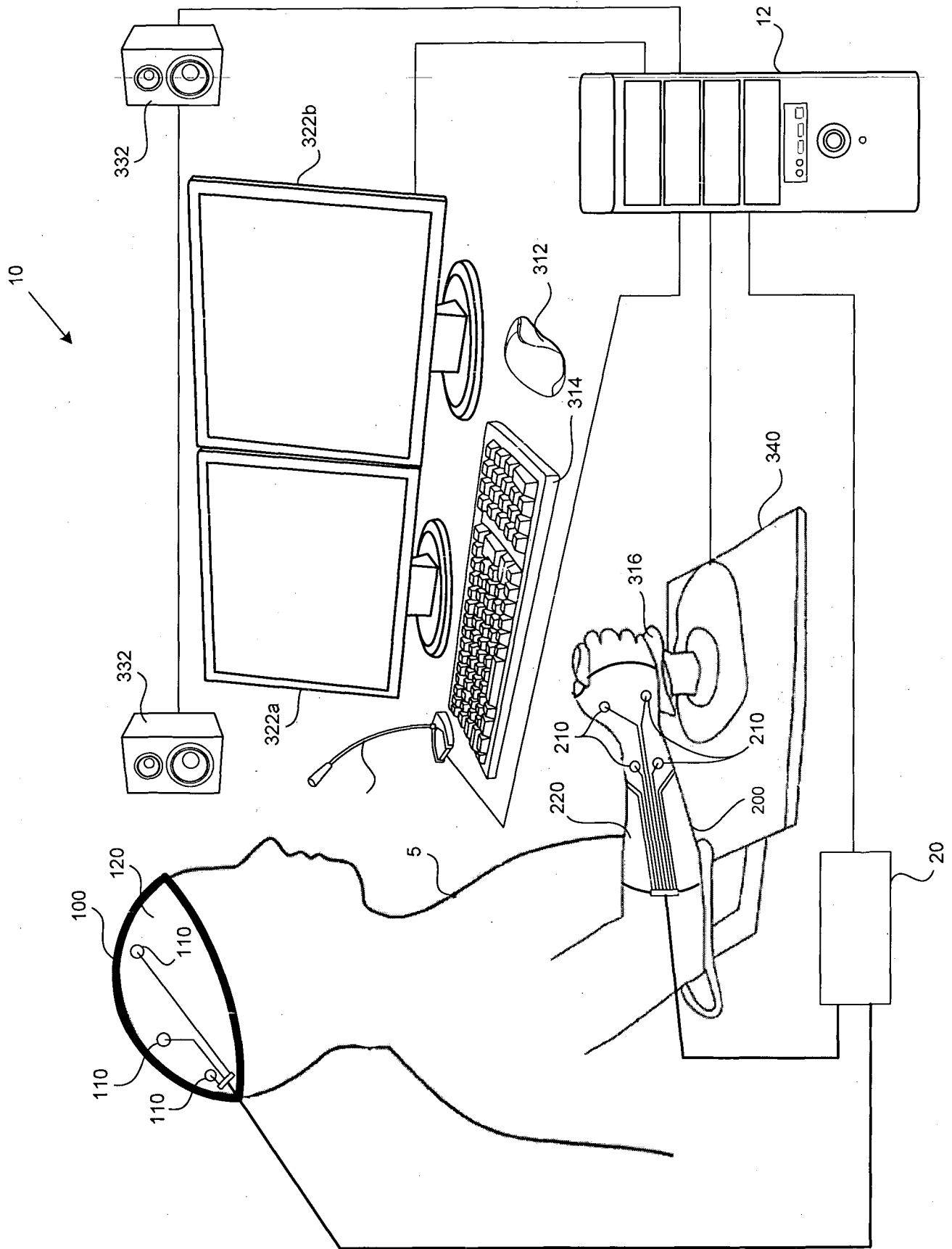


FIG. 2A

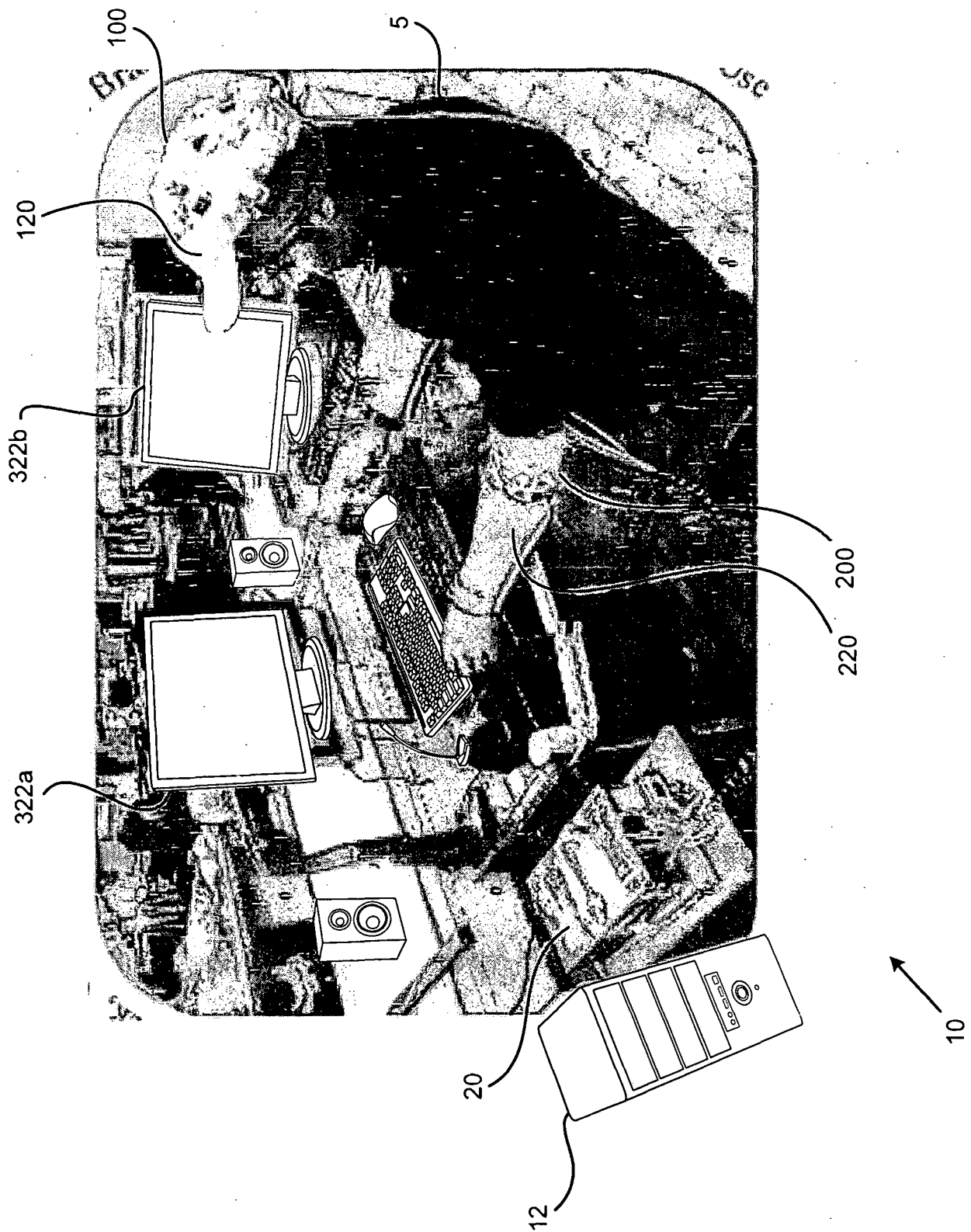
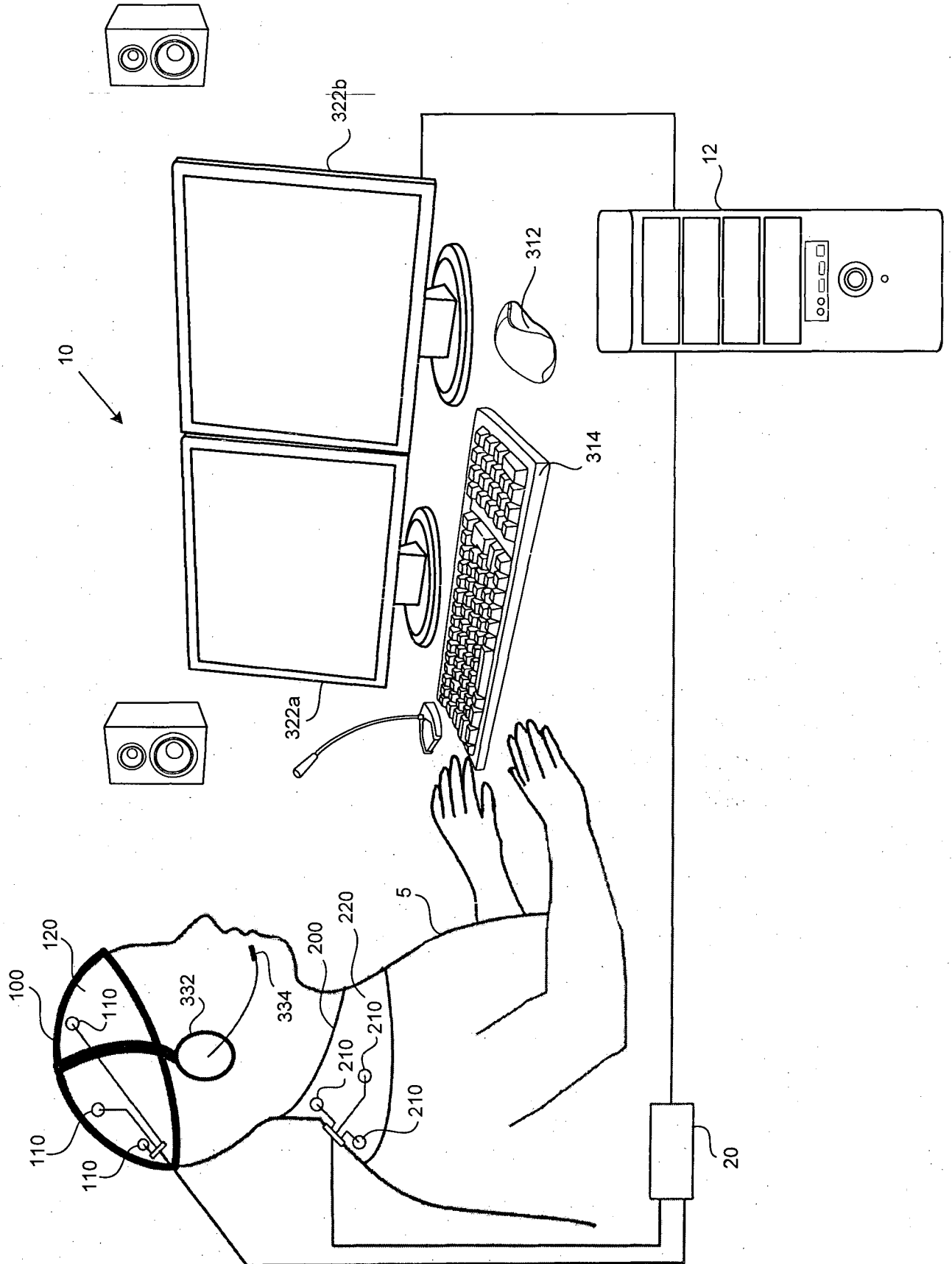


FIG. 2C



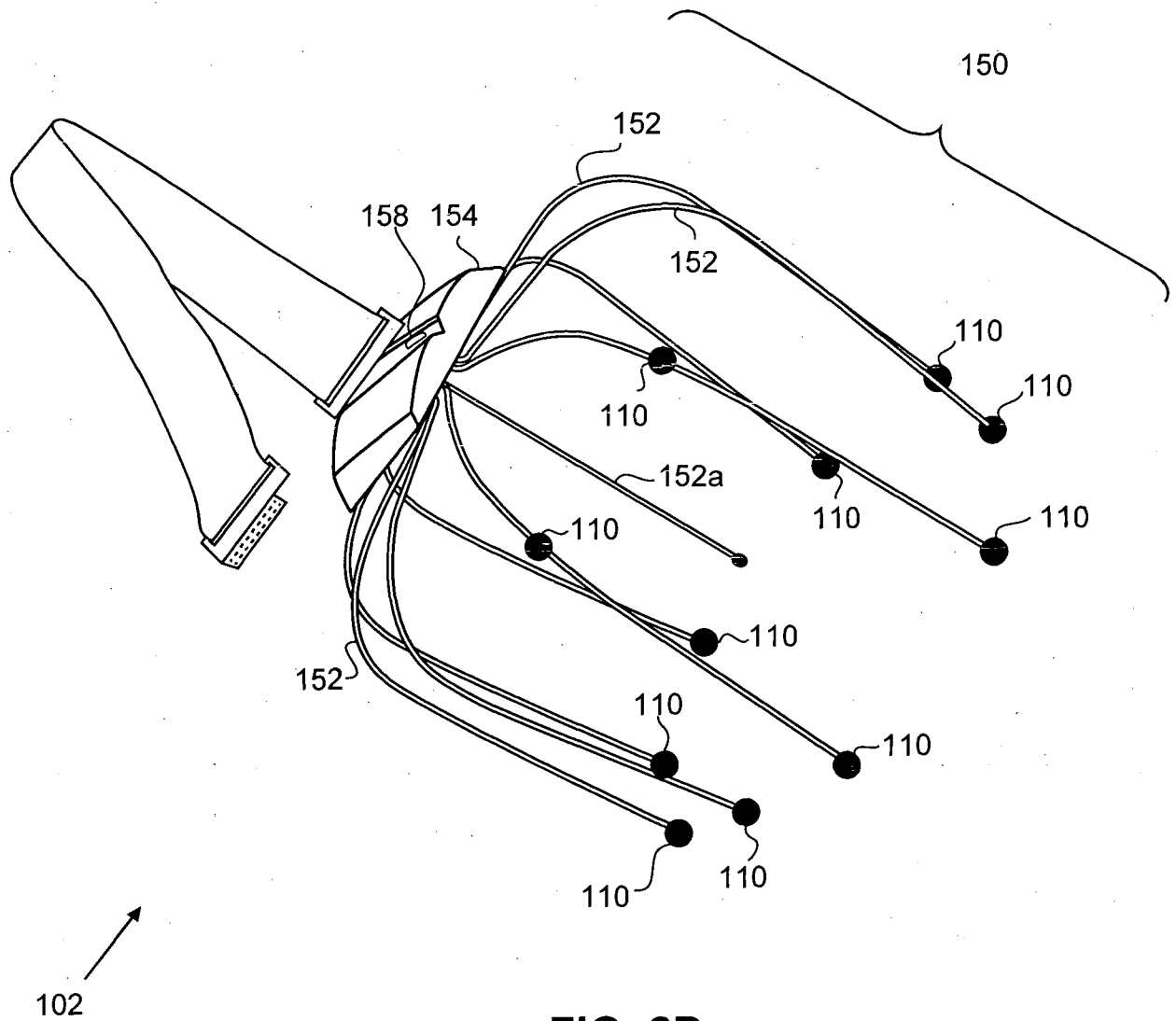


FIG. 2D

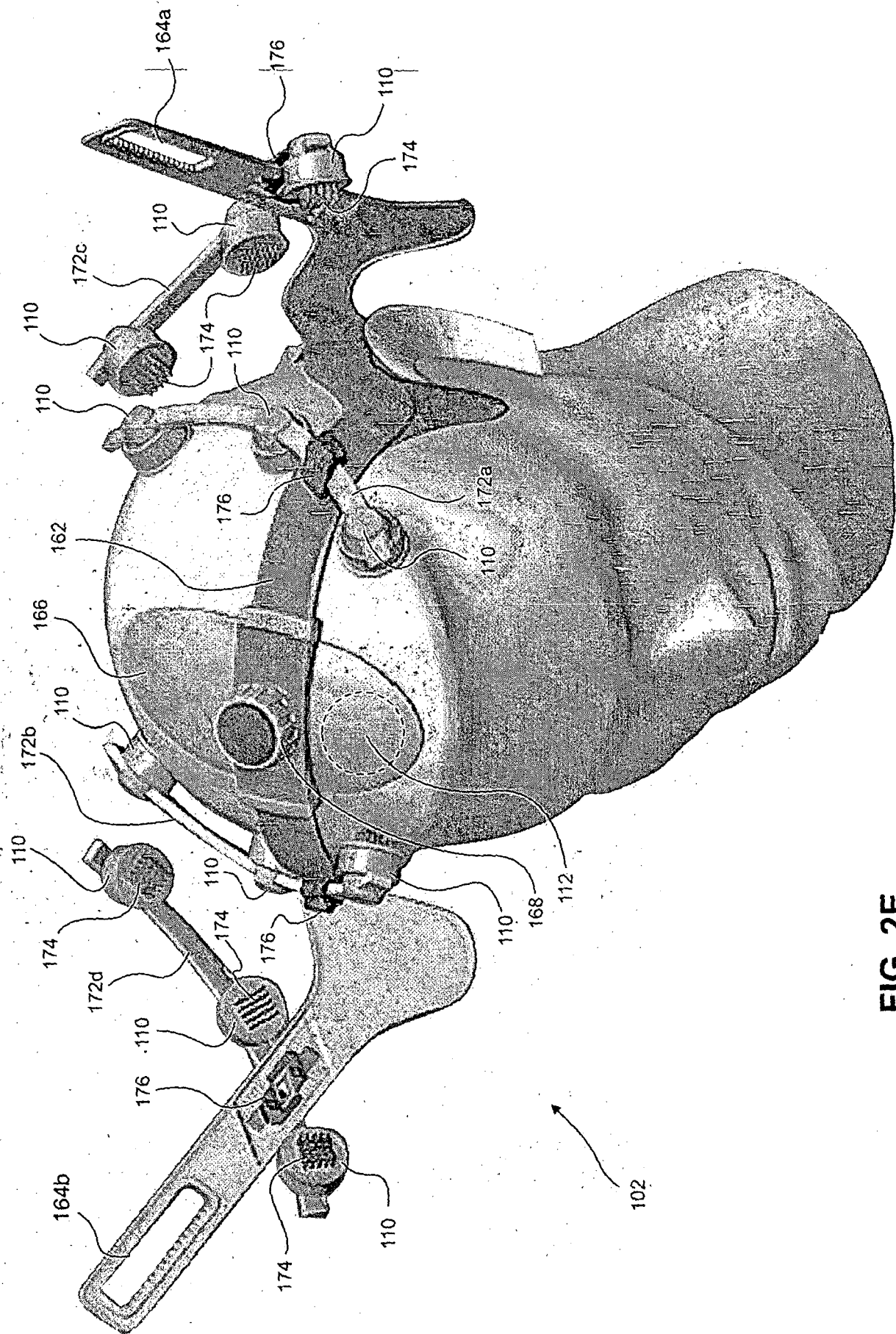


FIG. 2E

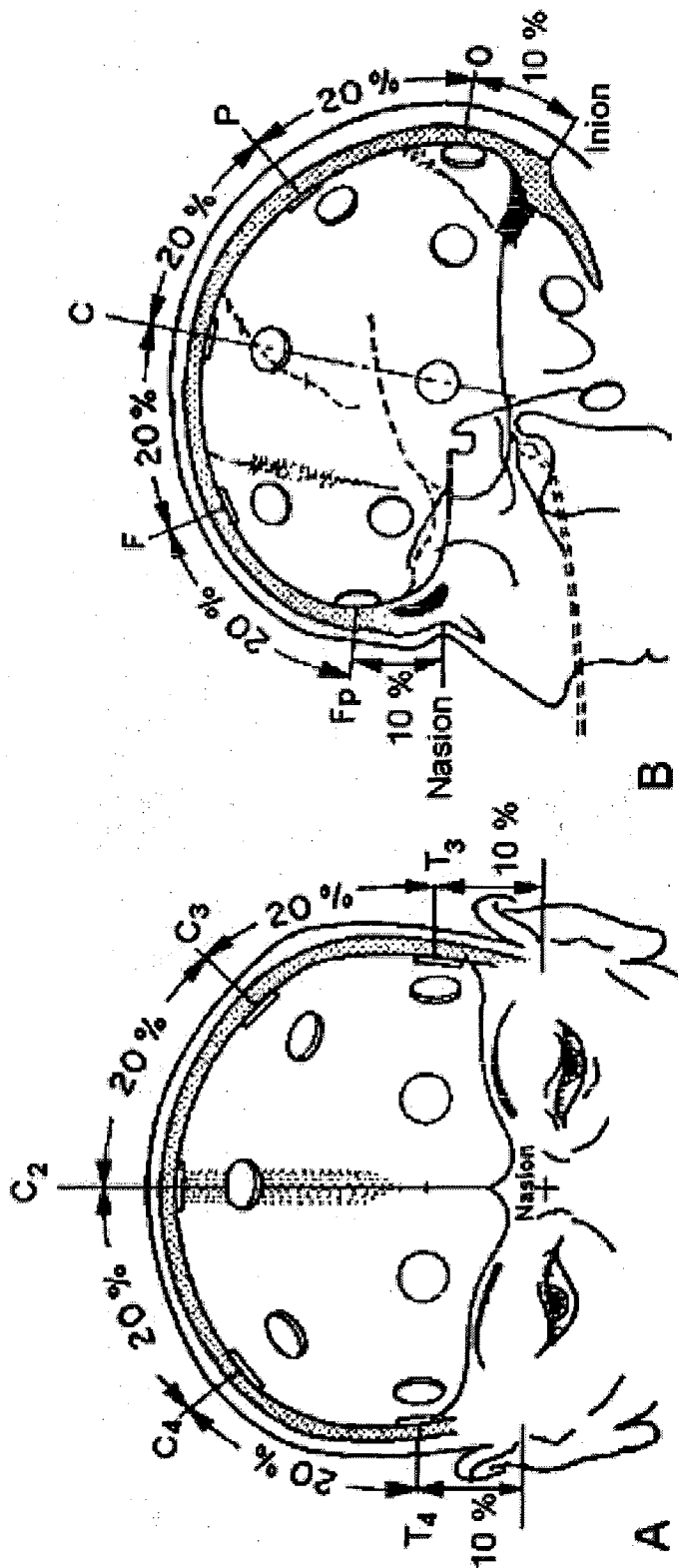


FIG. 2F

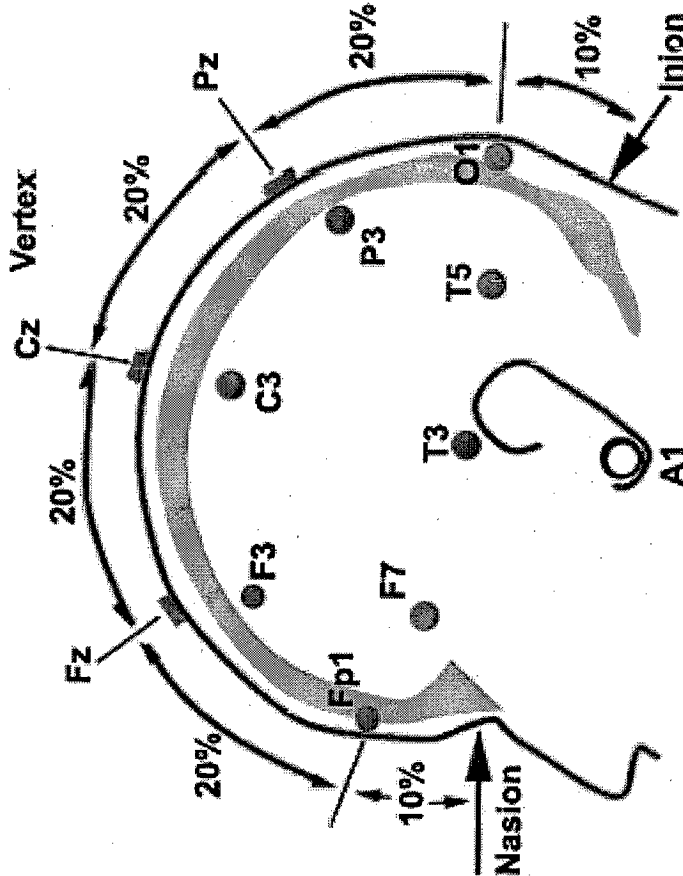


FIG. 2G

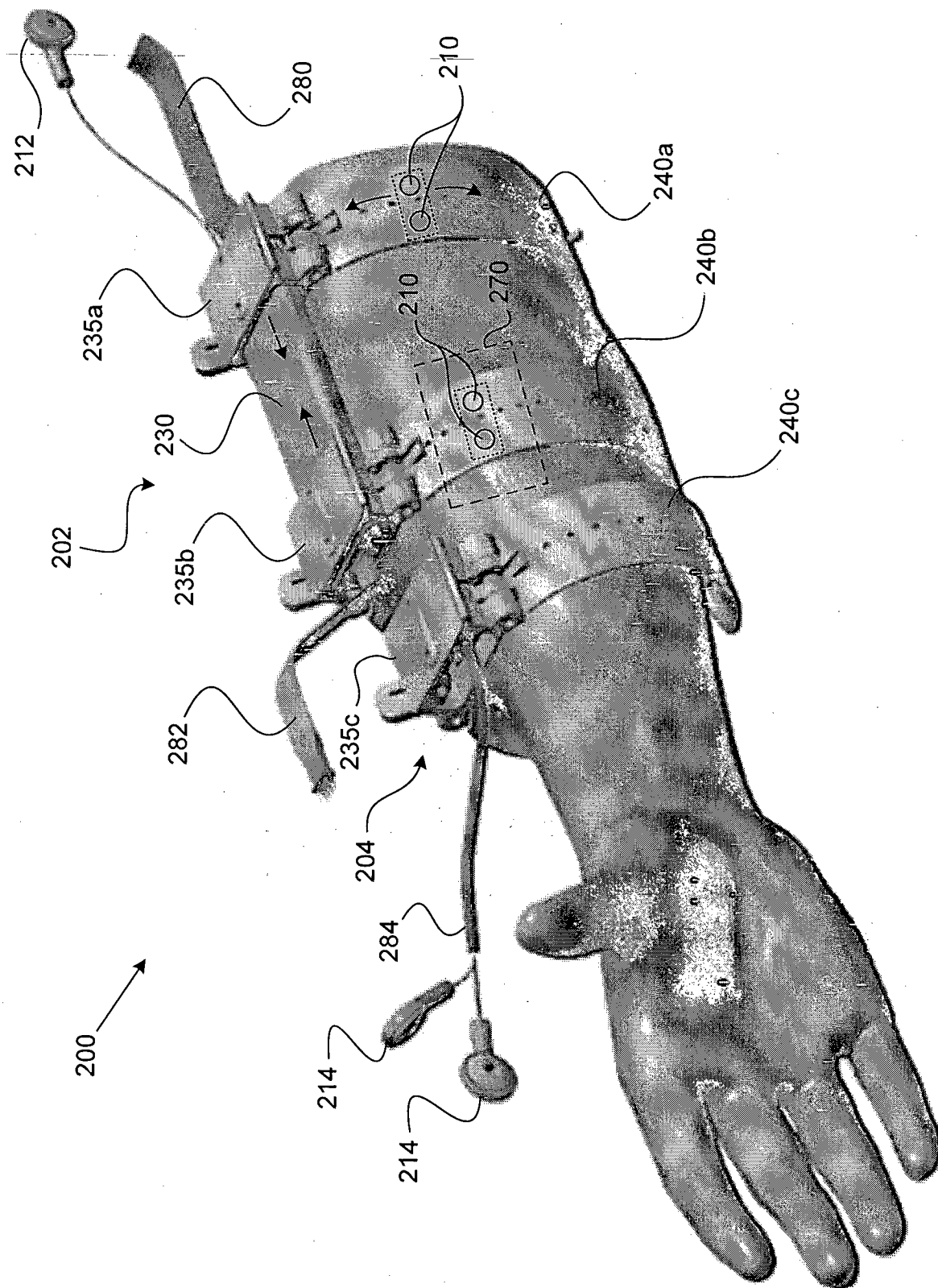
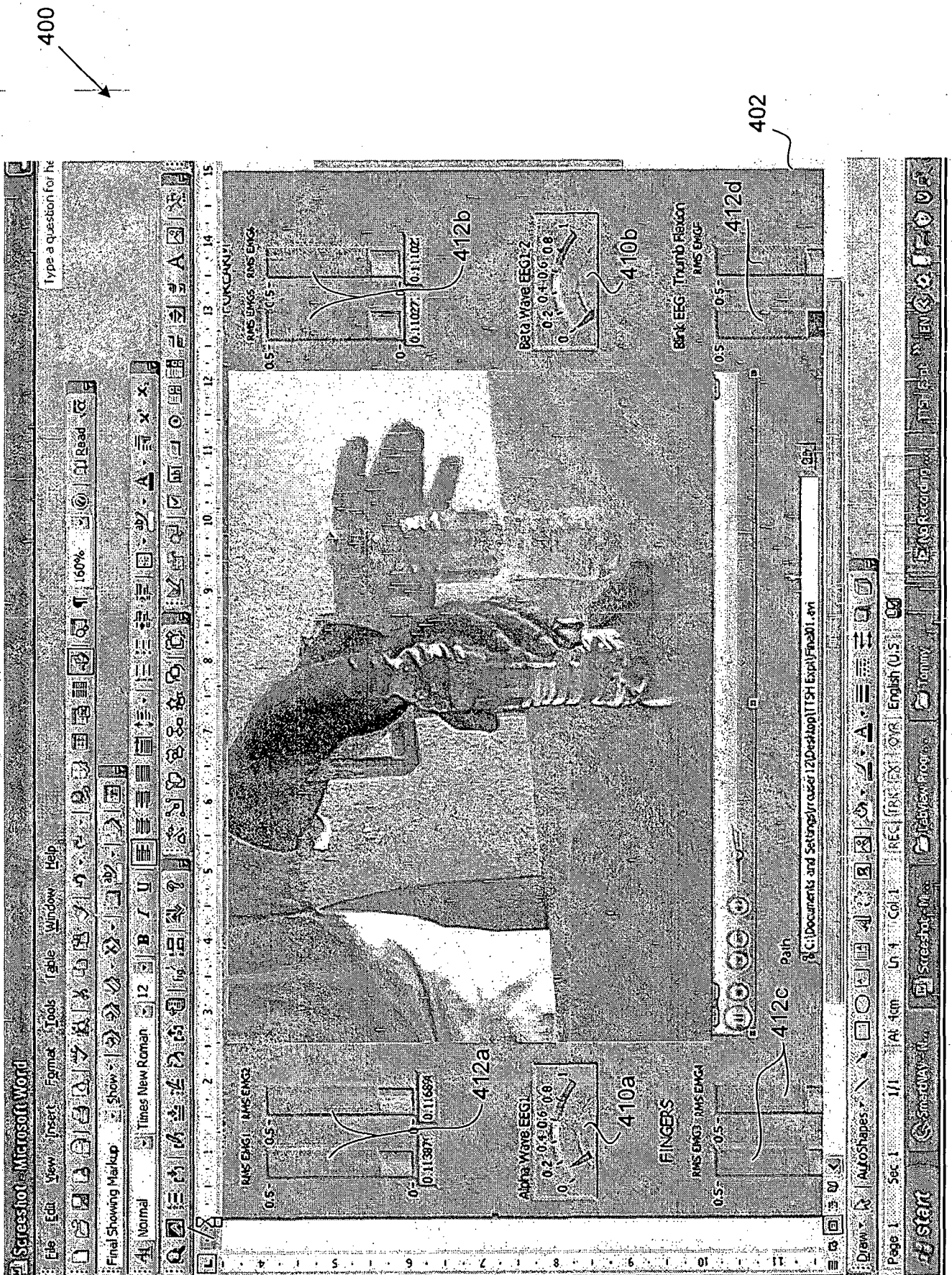


FIG. 2H

FIG. 3A



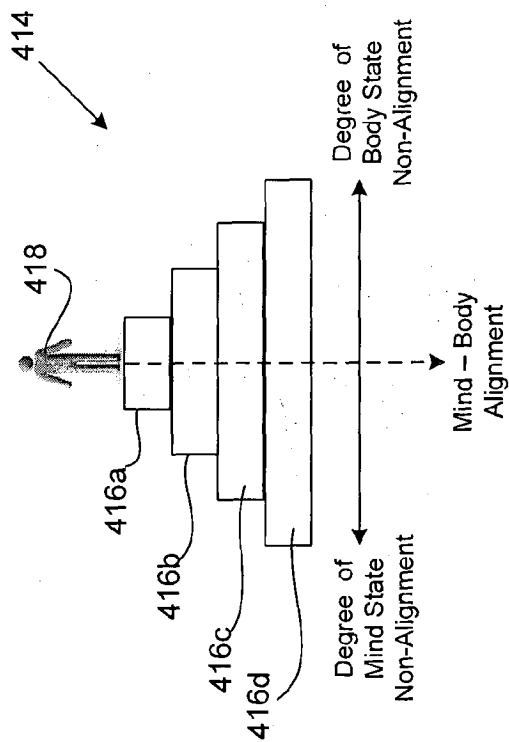


FIG. 3B

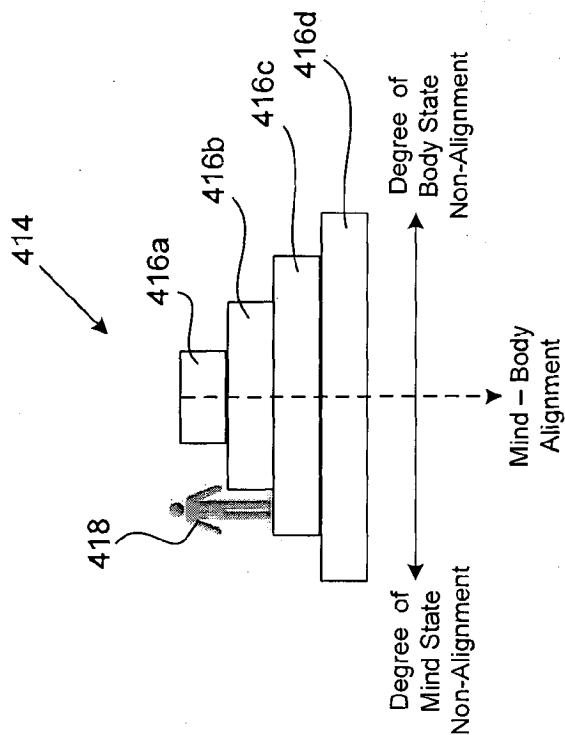


FIG. 3C

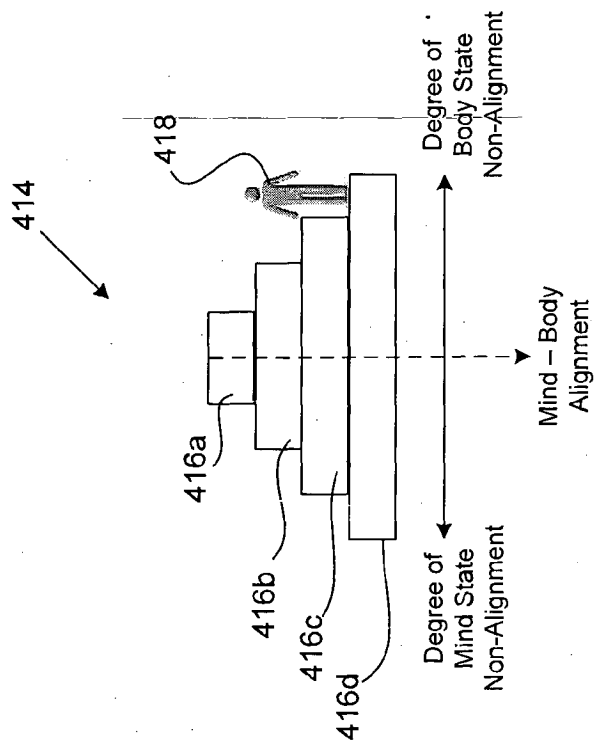


FIG. 3D

FIG. 4A

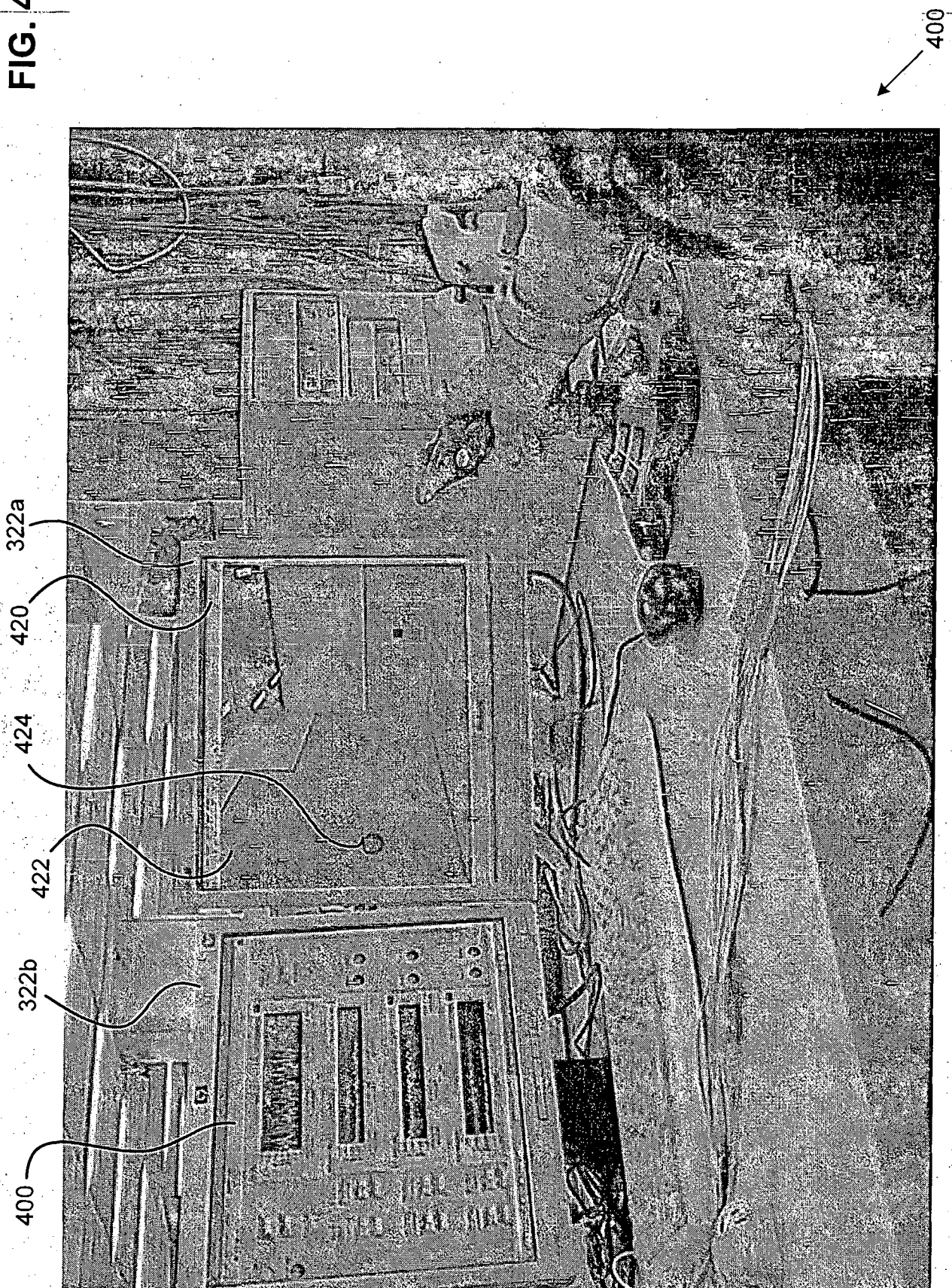
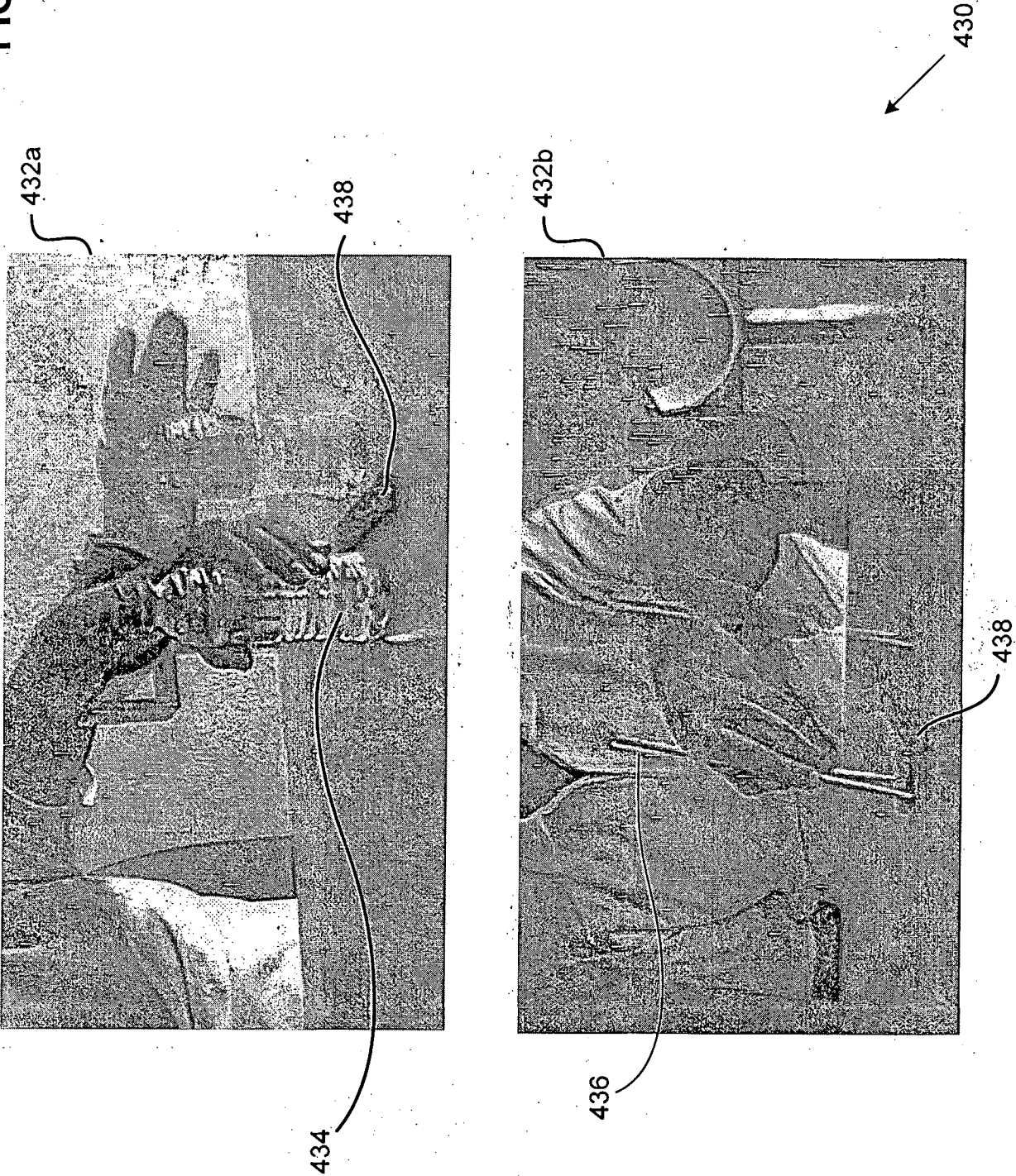


FIG. 4B



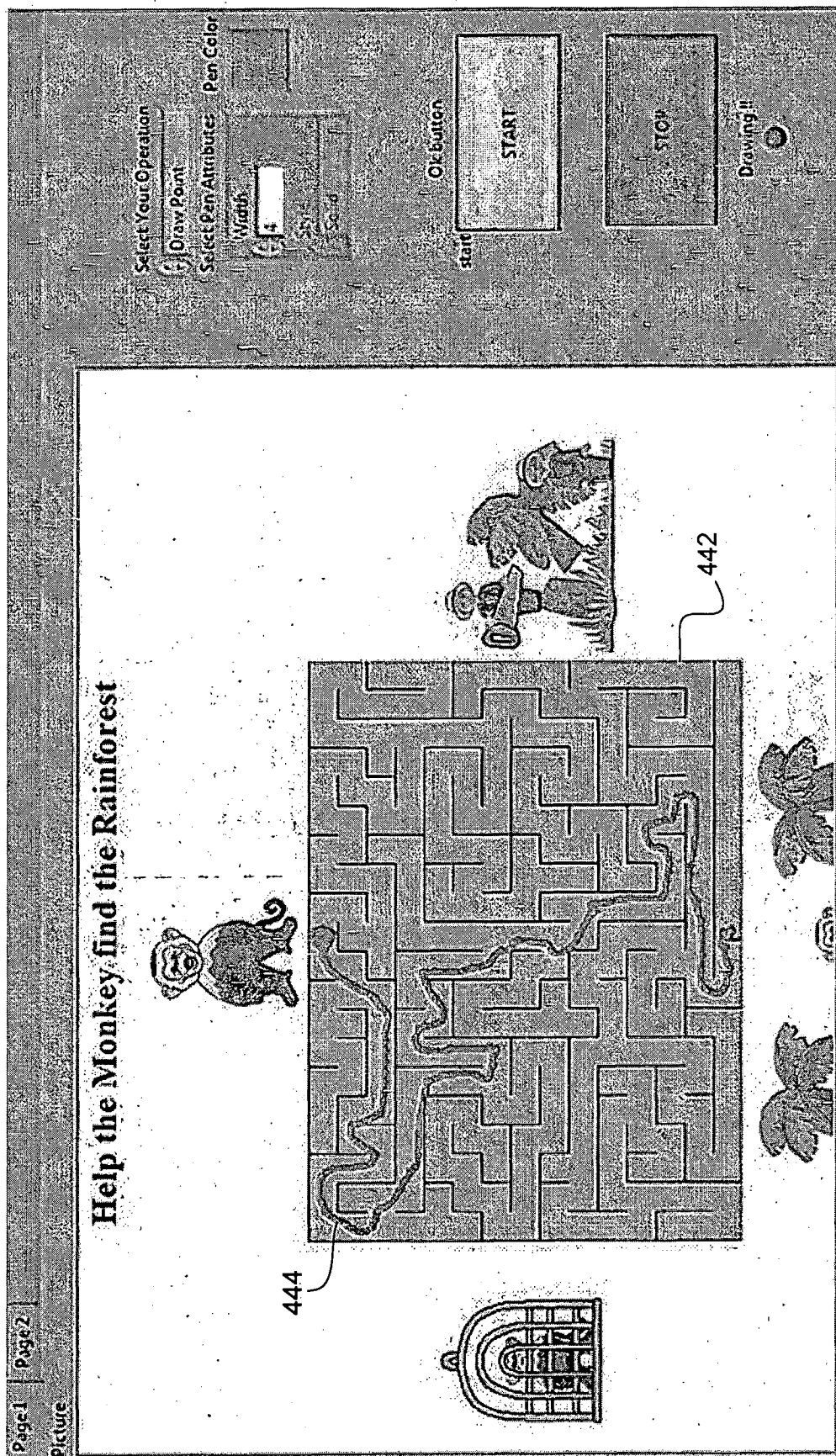


FIG. 5A

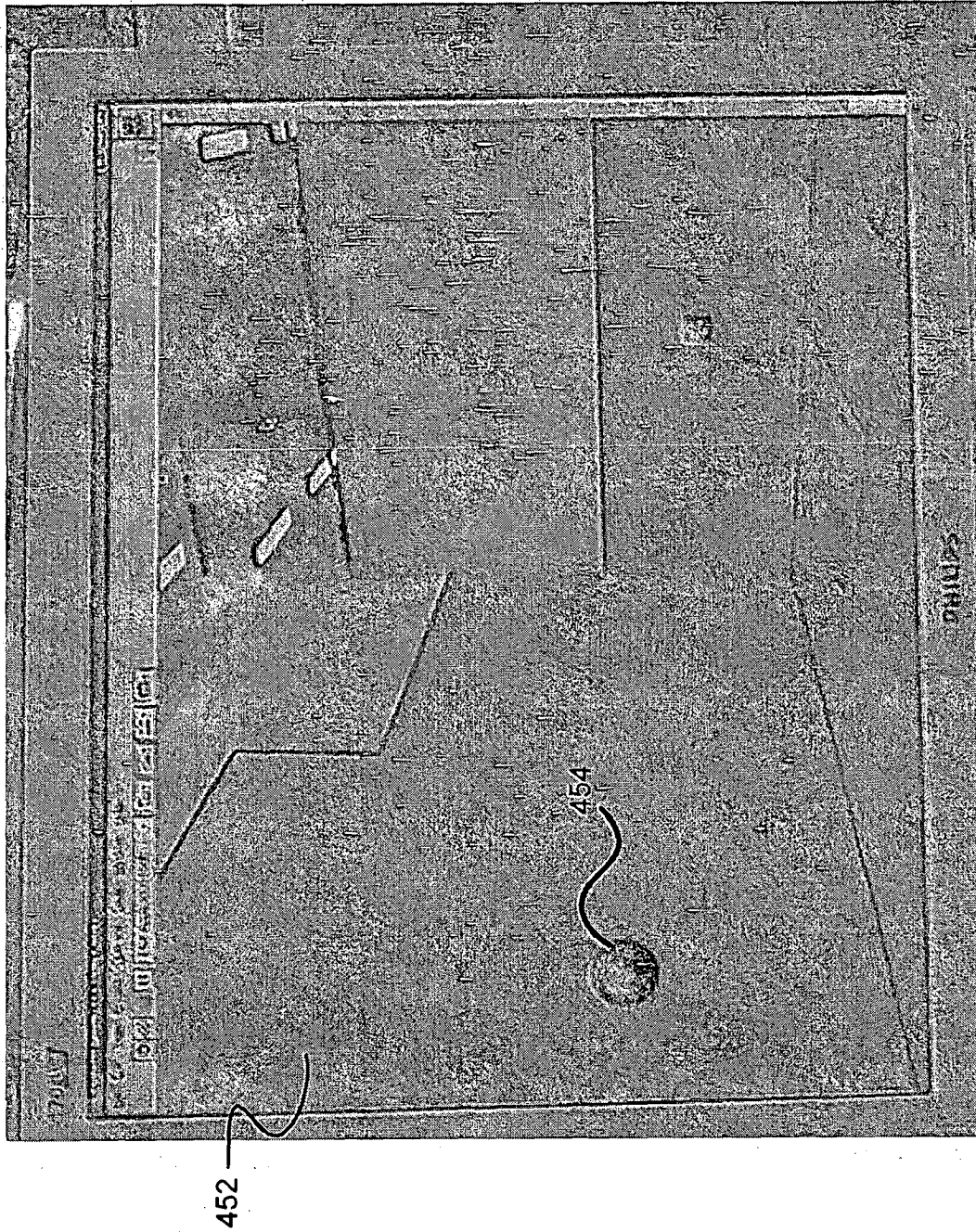


FIG. 5B

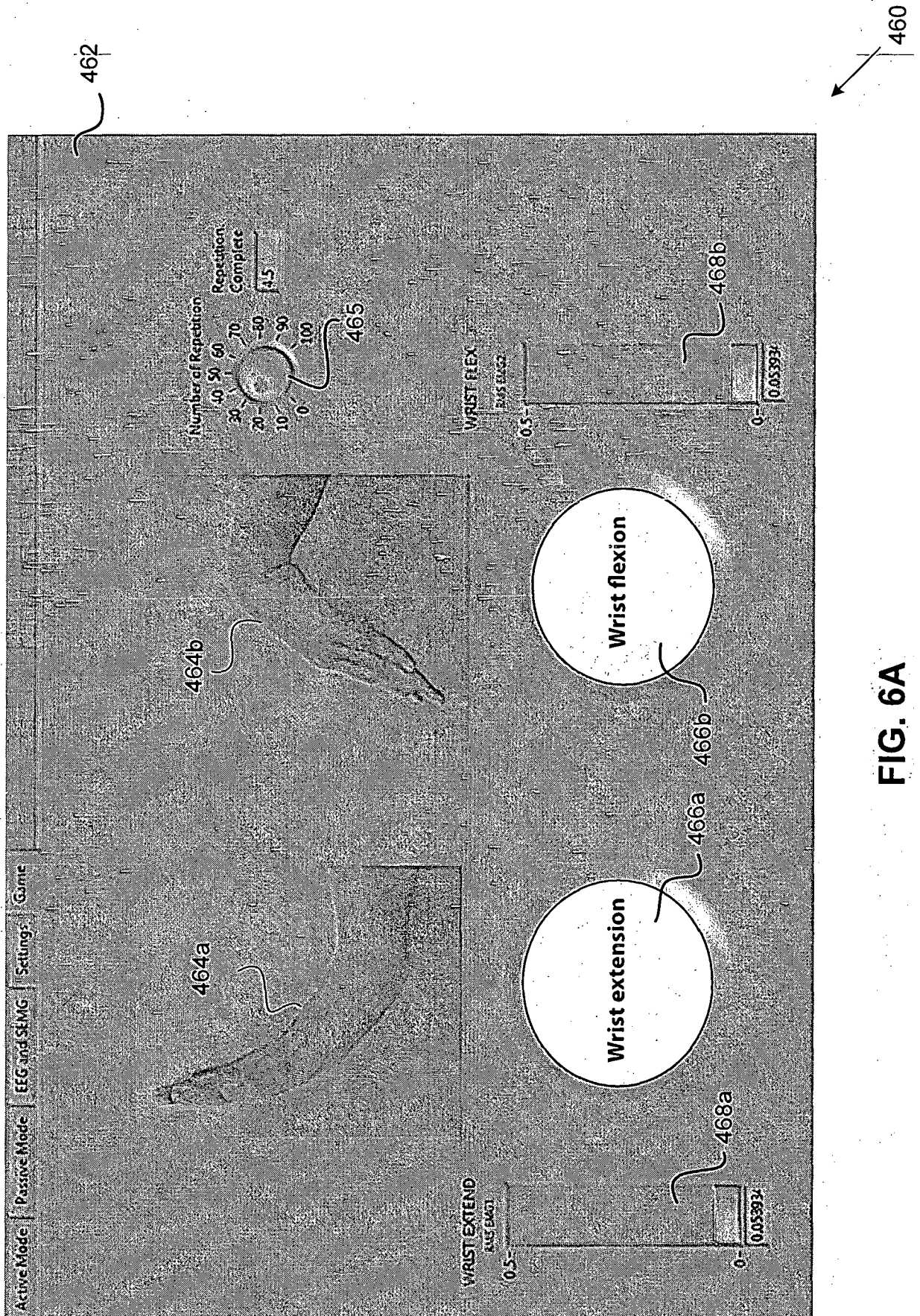


FIG. 6A

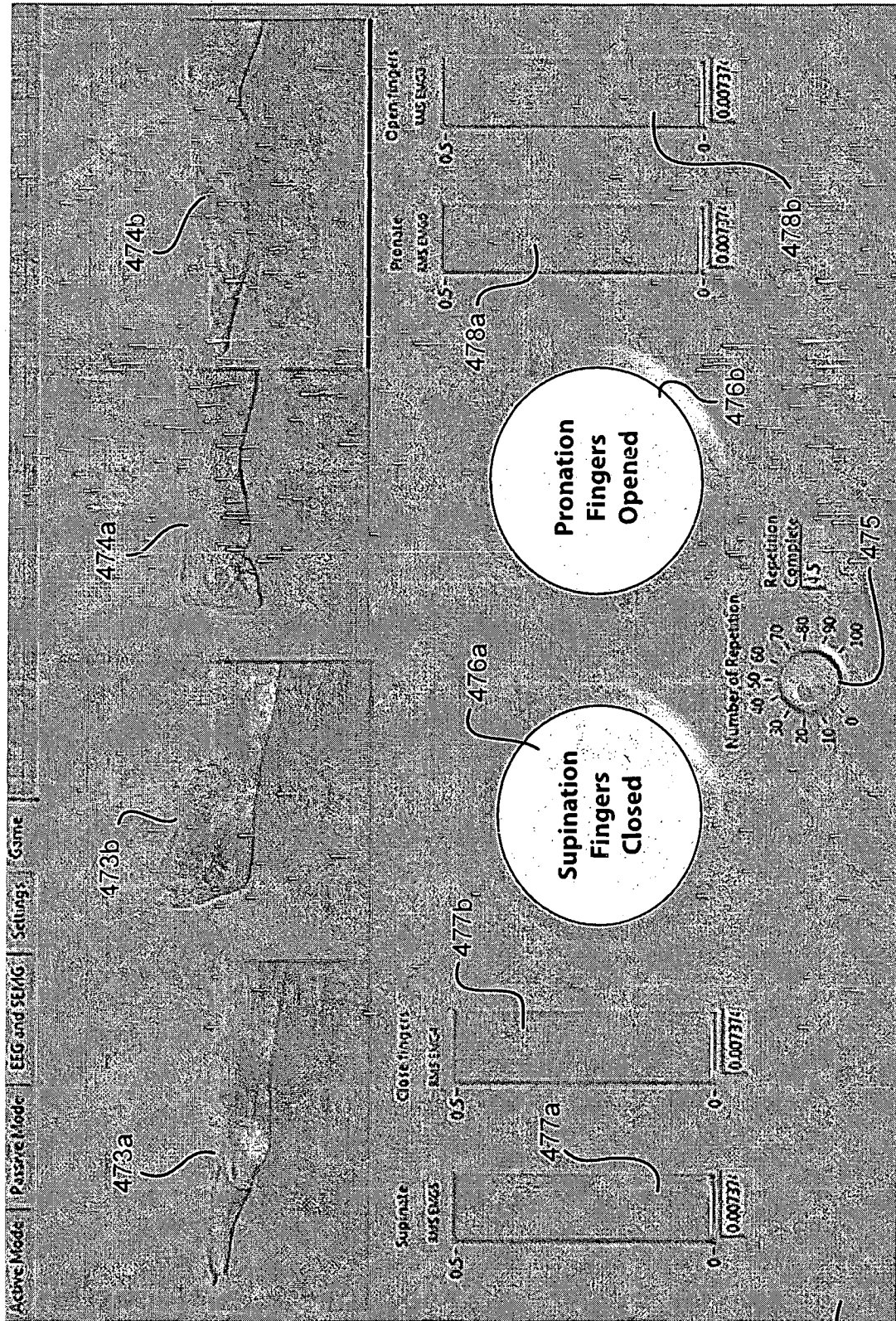


FIG. 6B

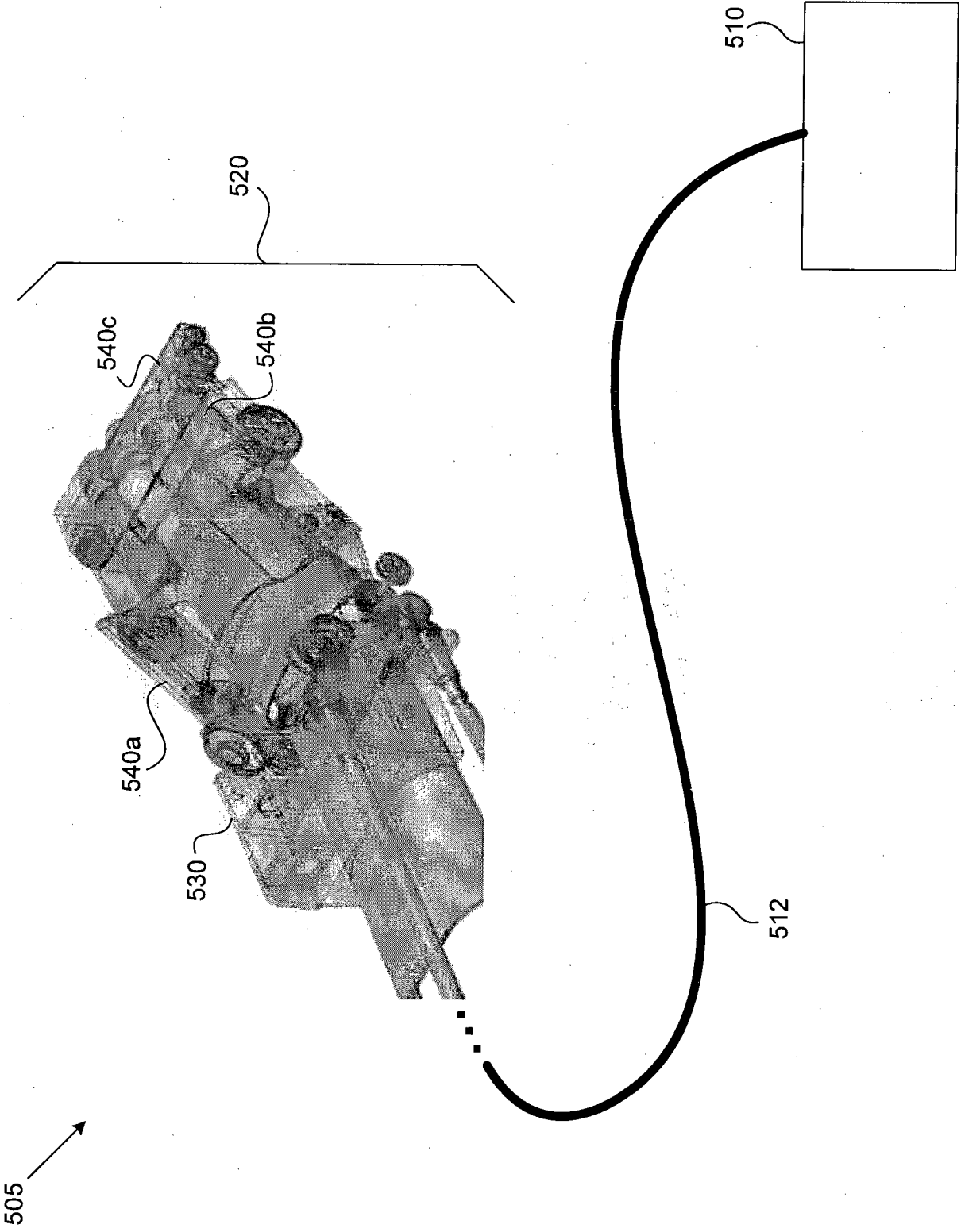


FIG. 7A

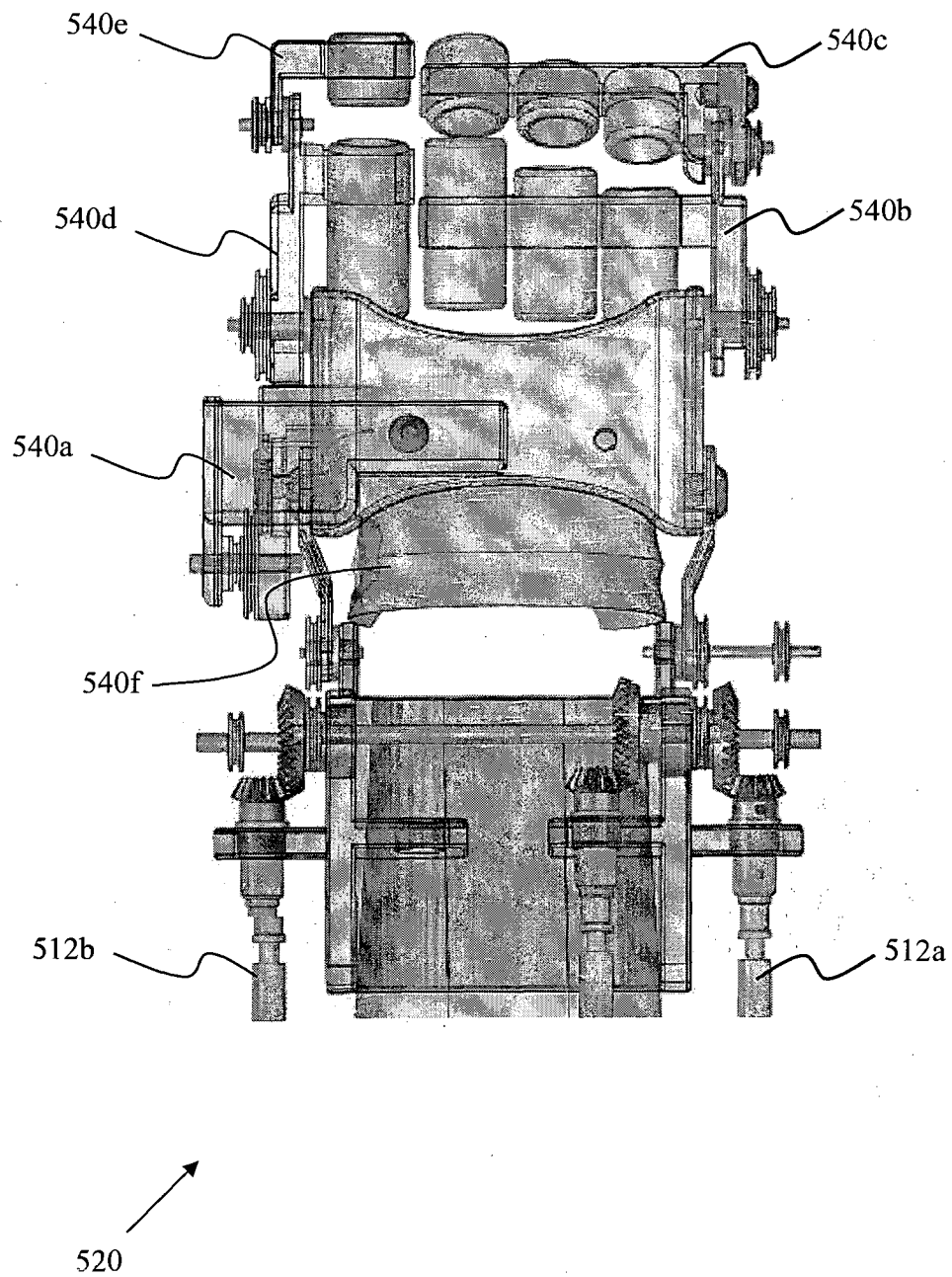


FIG. 7B

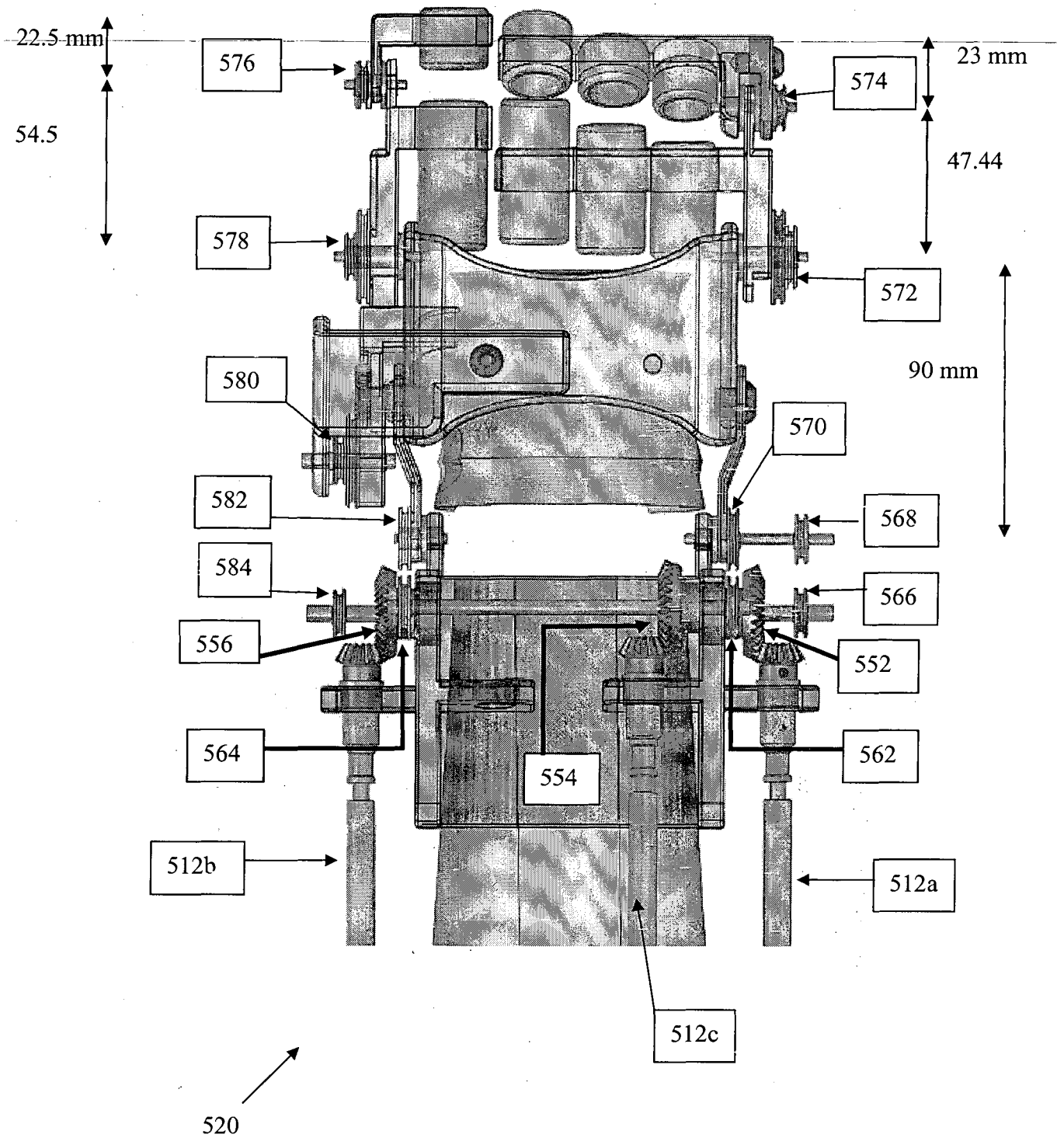
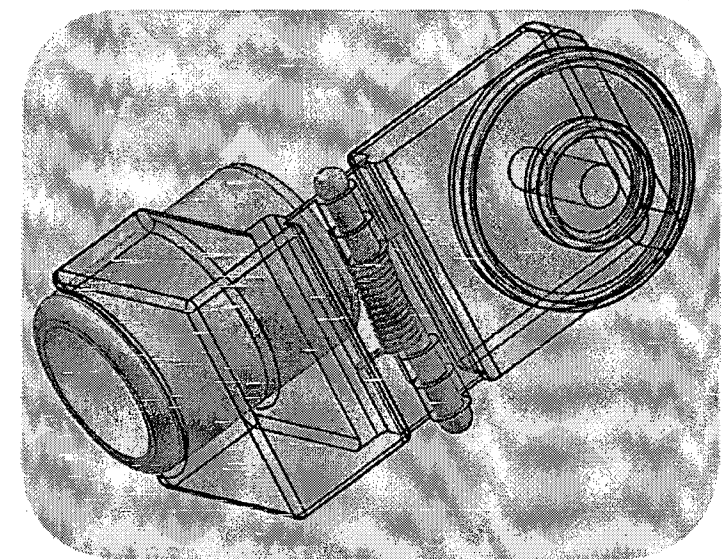


FIG. 7C



542

FIG. 7D

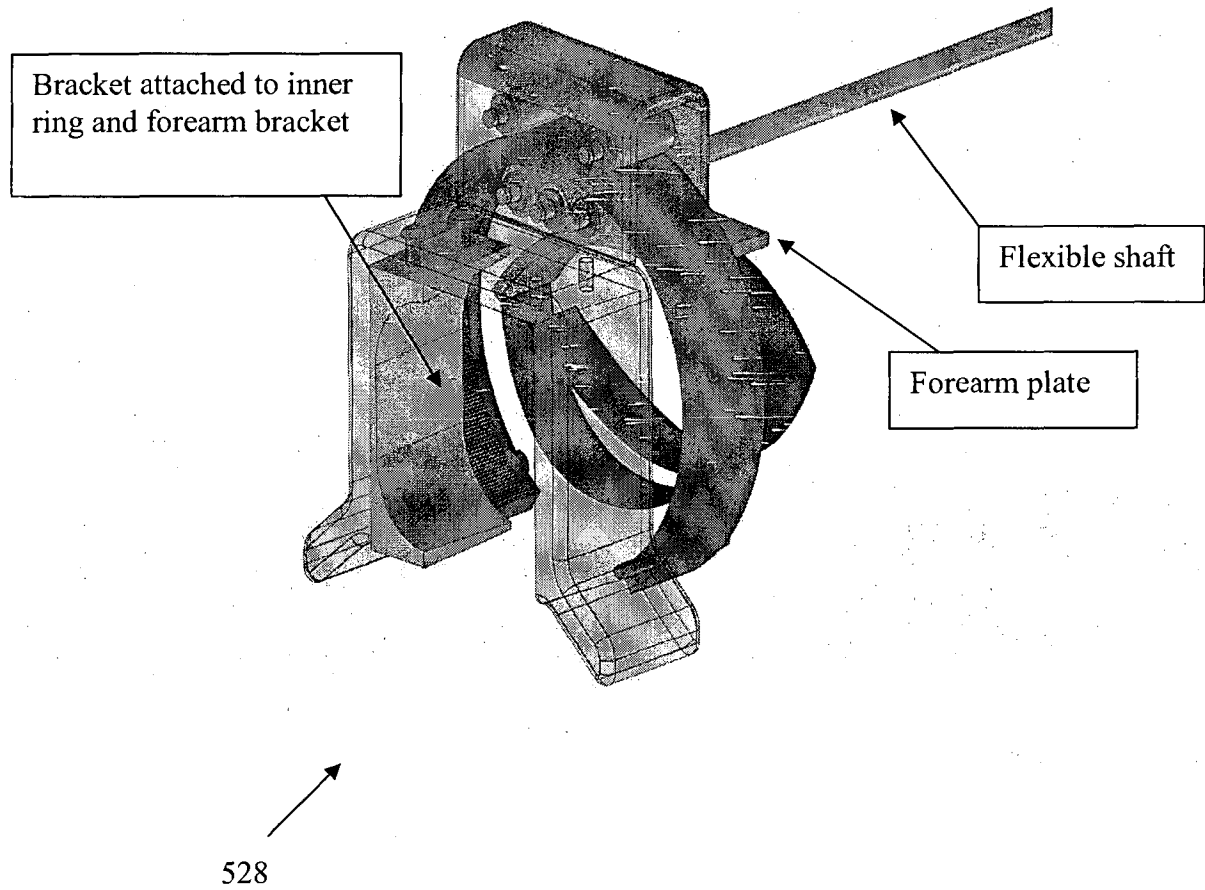


FIG. 7E

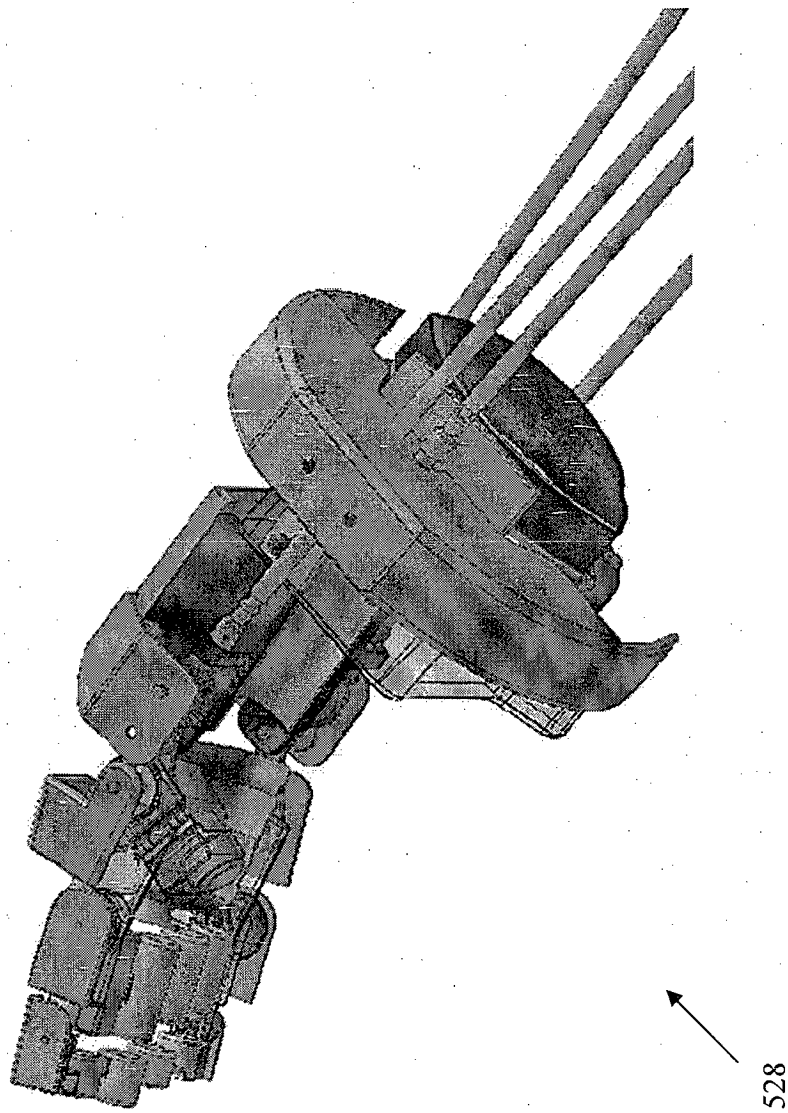


FIG. 7F

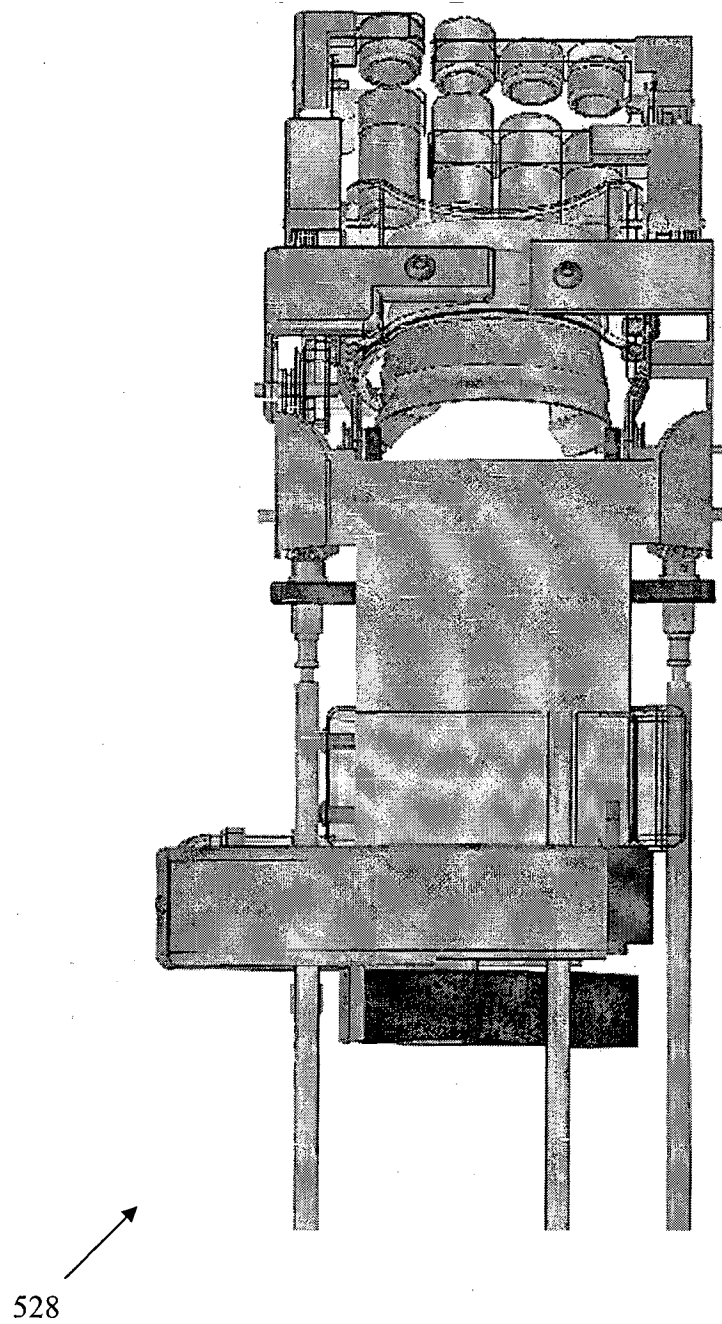


FIG. 7G

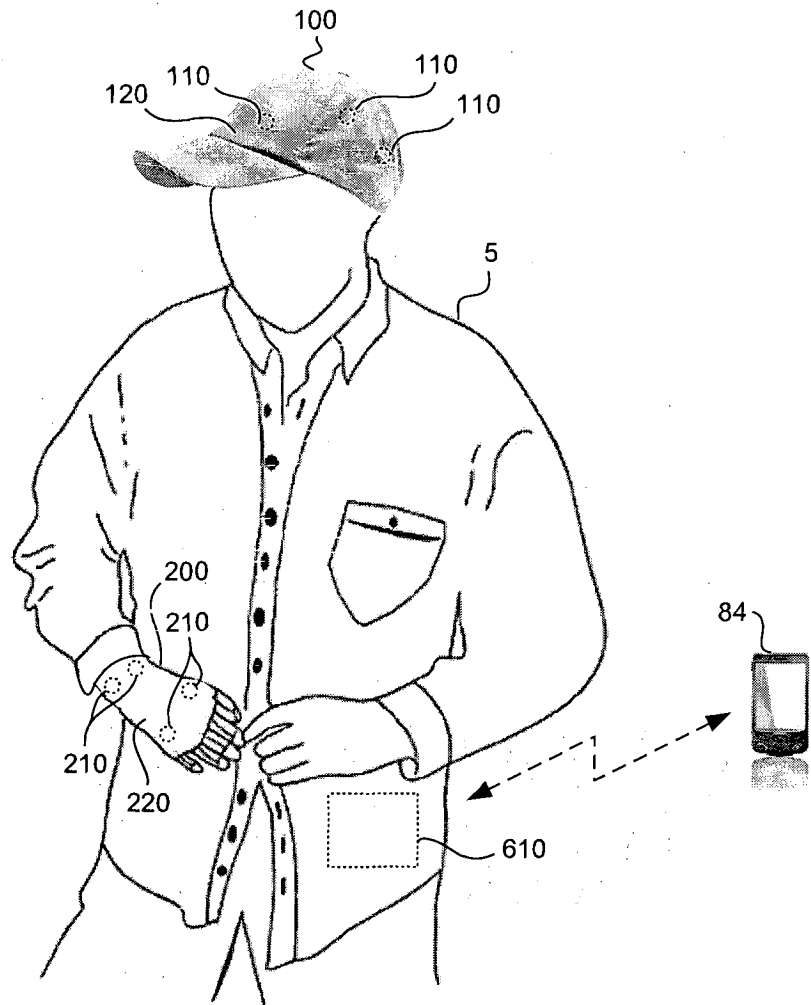


FIG. 8A

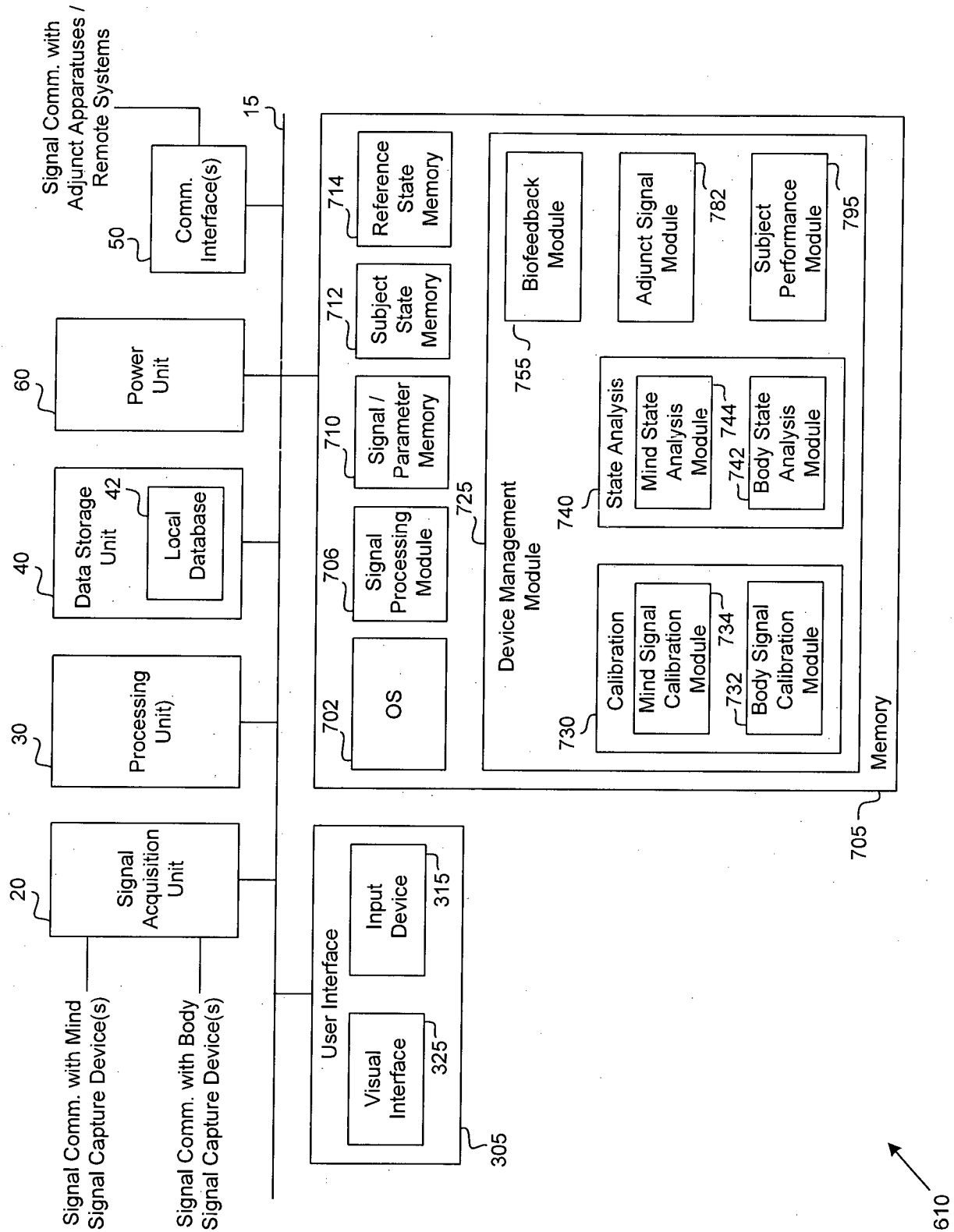
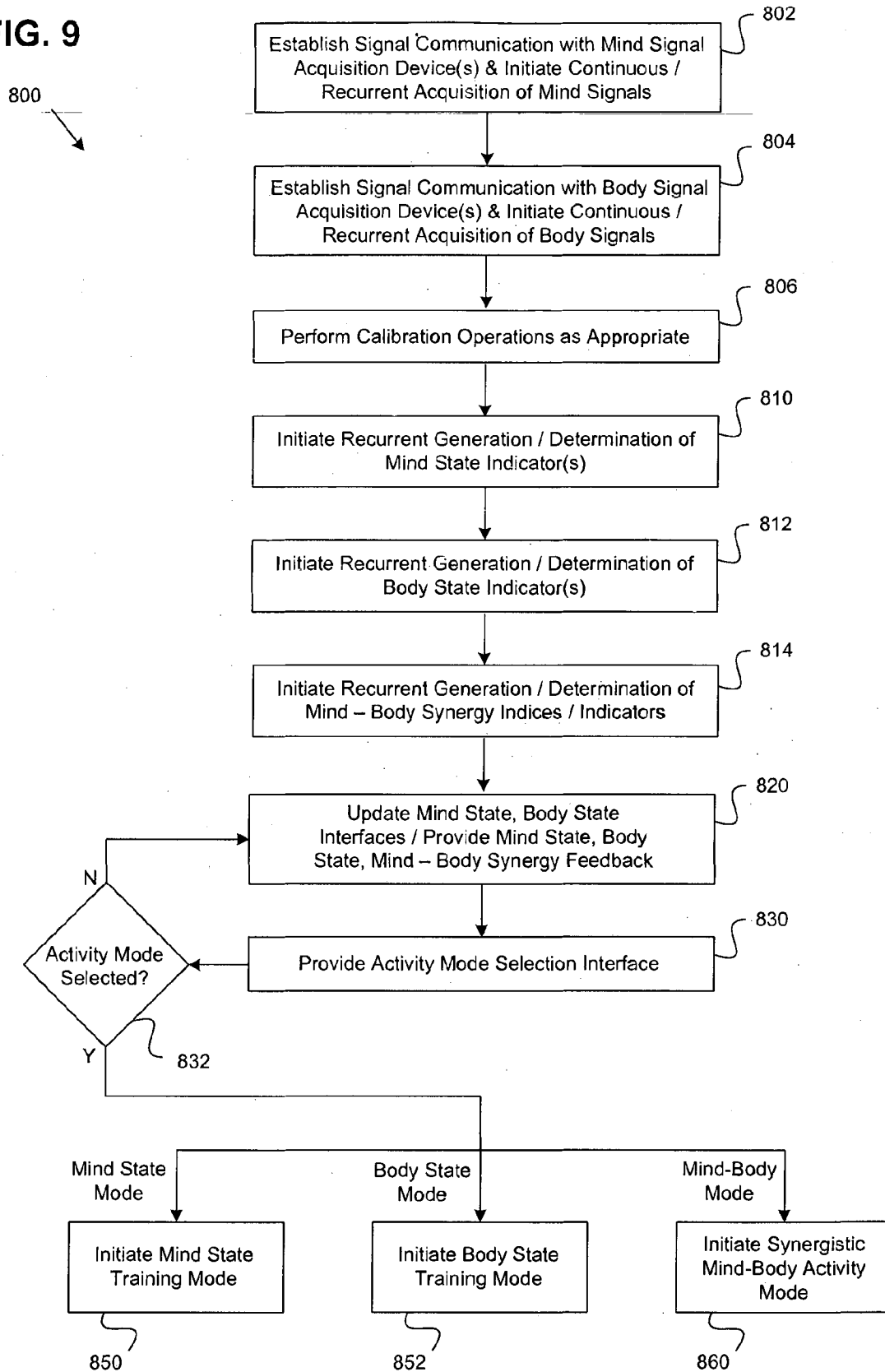


FIG. 8B

FIG. 9

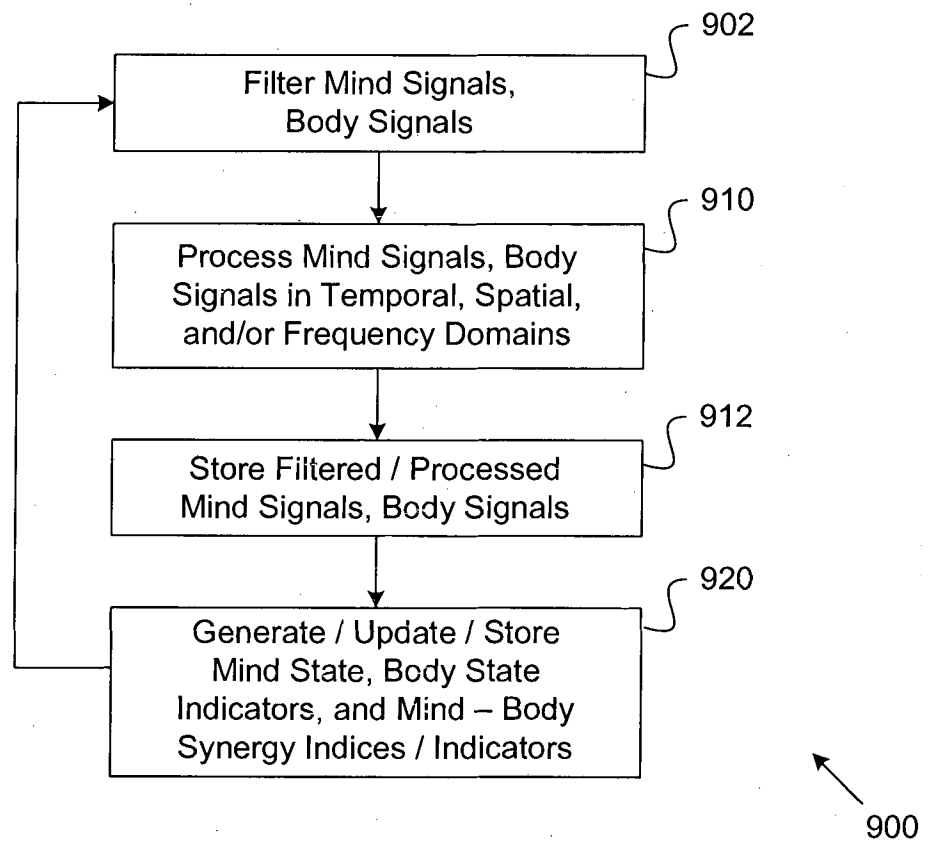
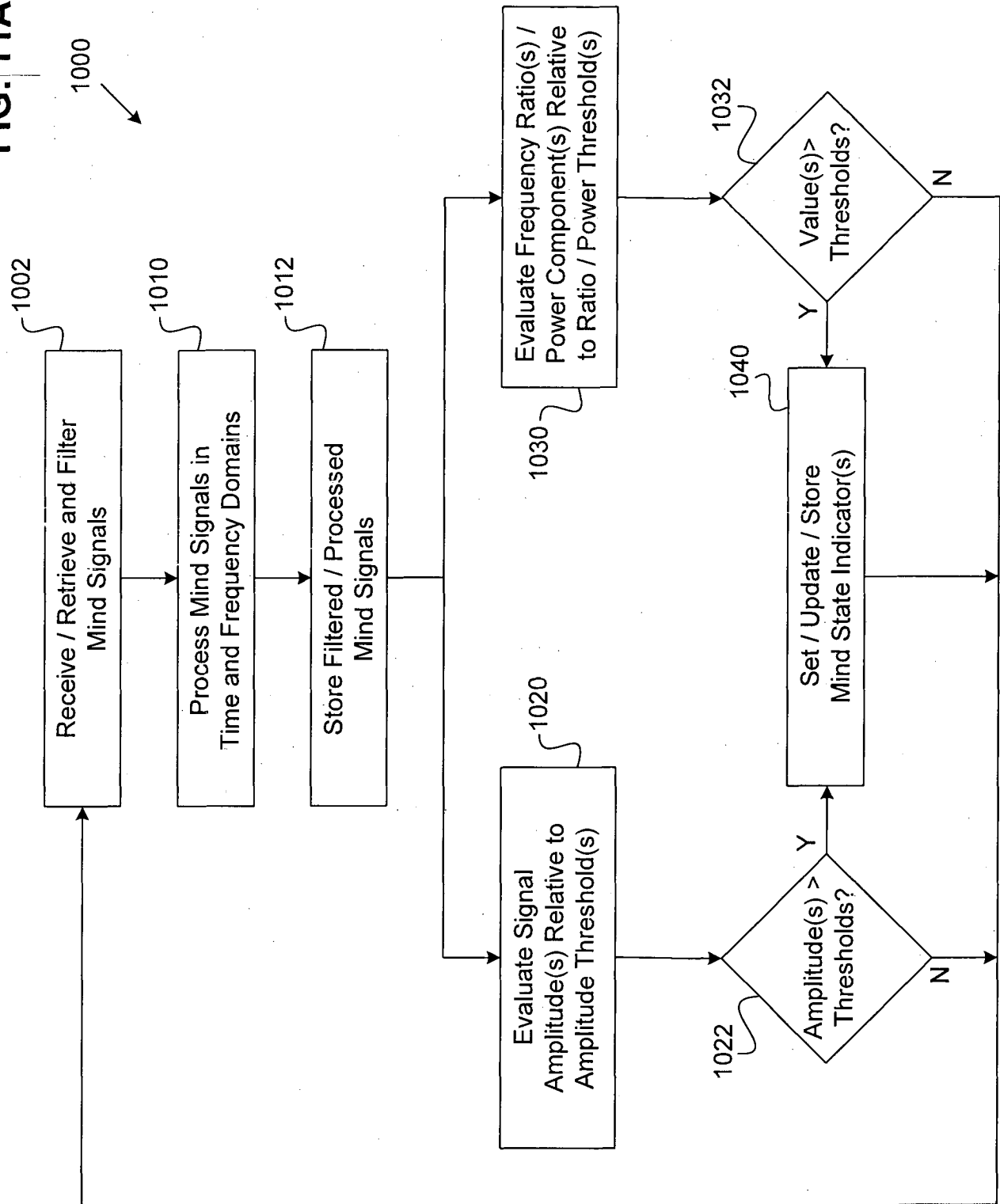
**FIG. 10**

FIG. 11A



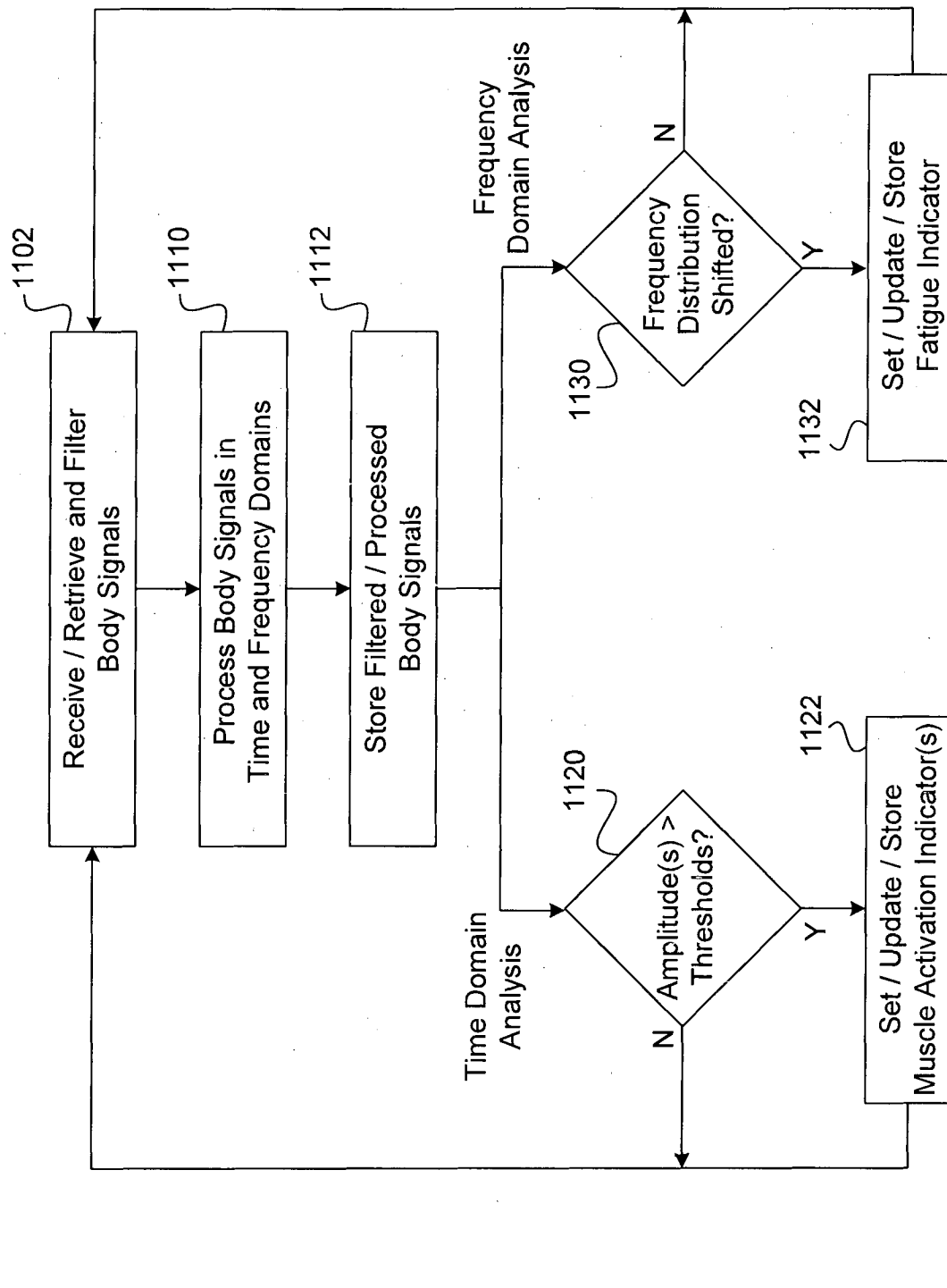
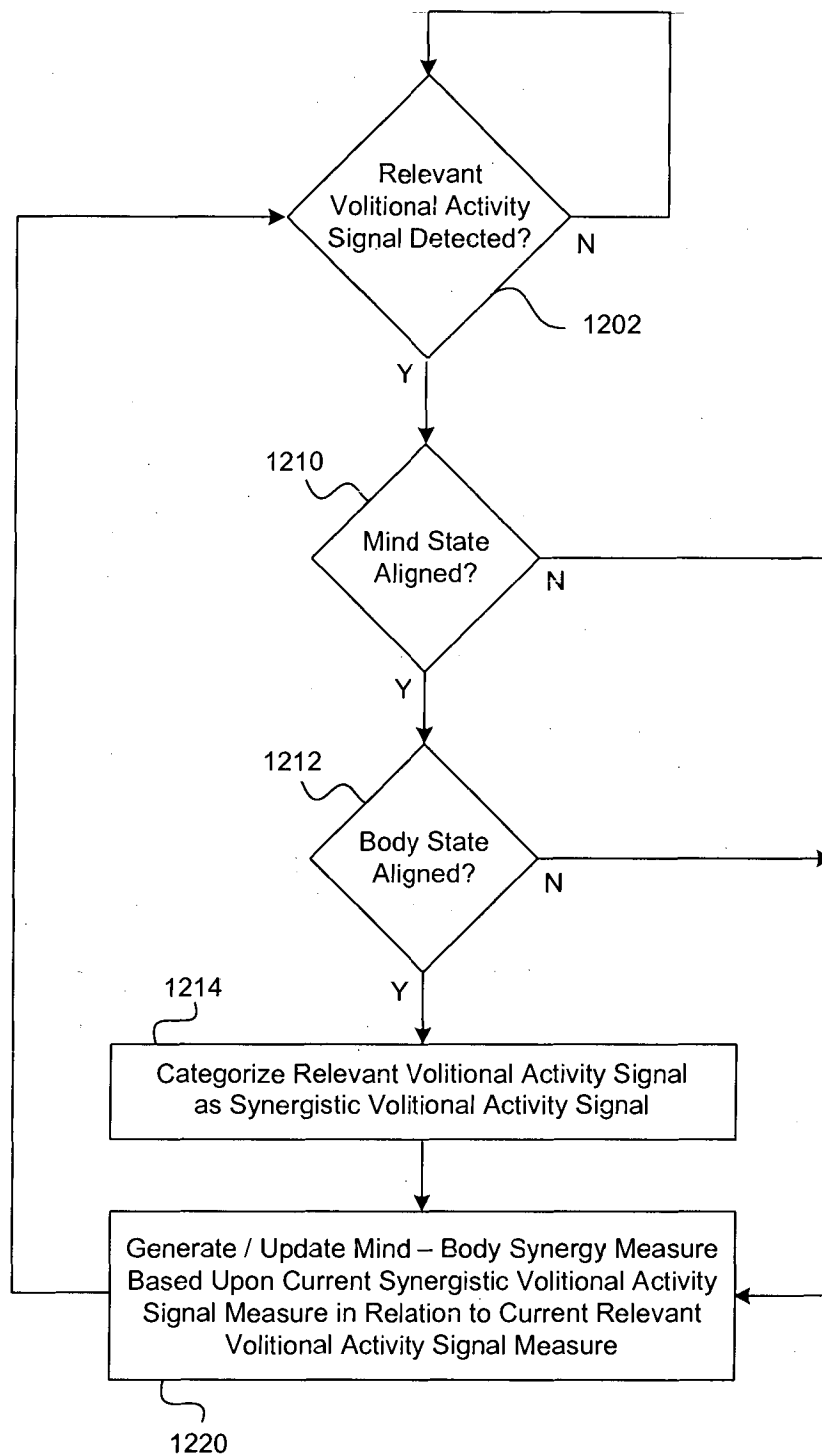


FIG. 11B

**FIG. 11C**

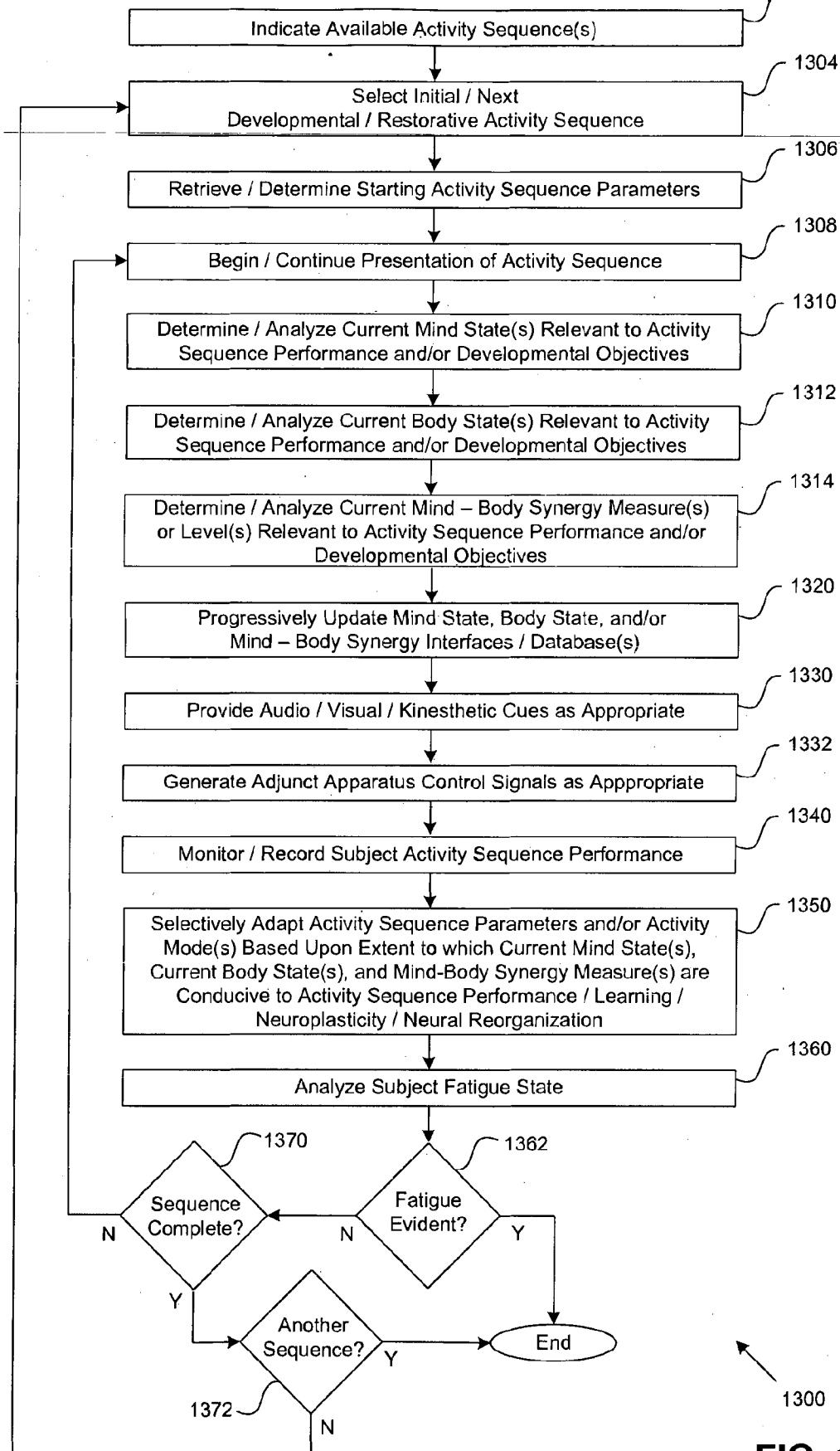


FIG. 12

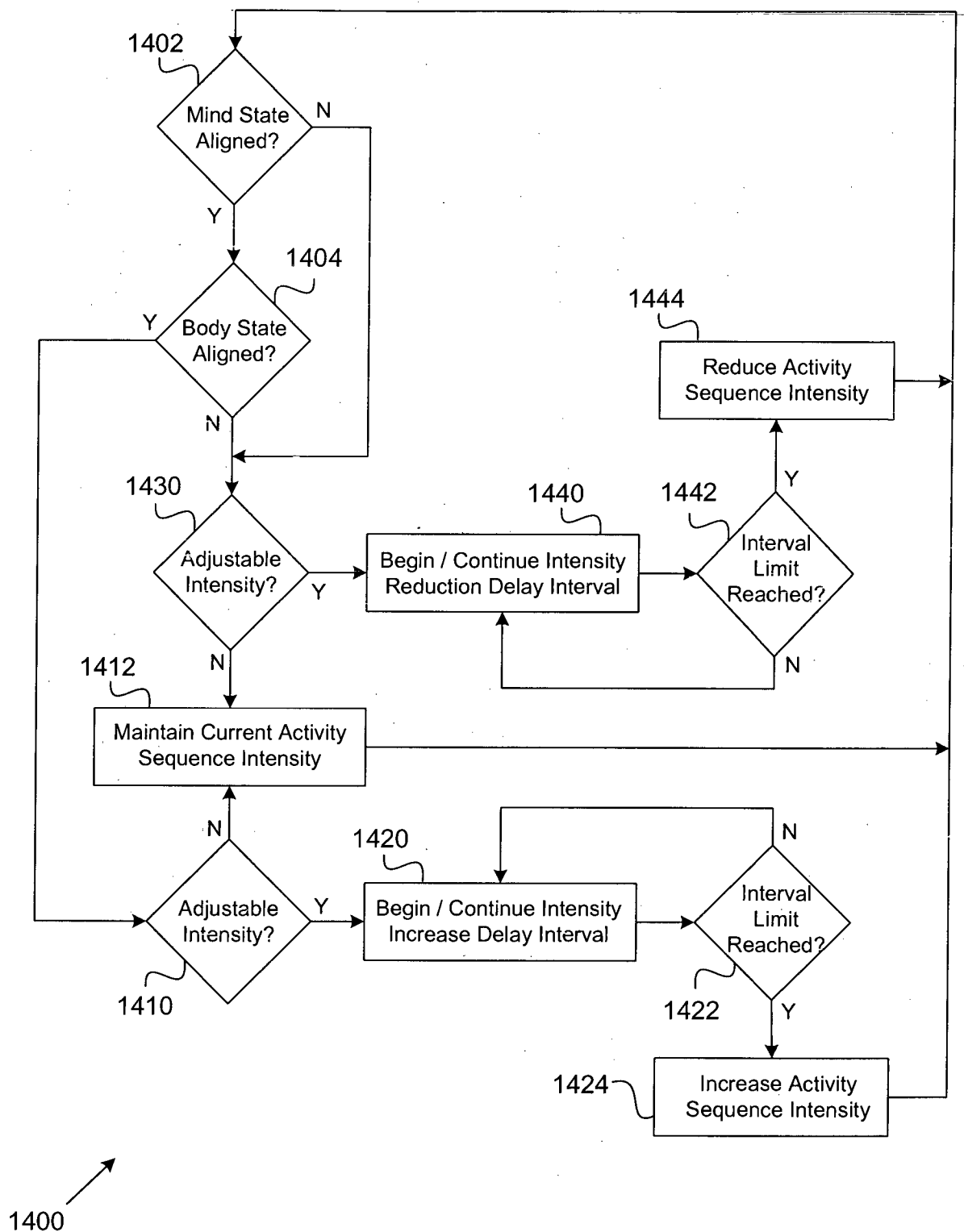


FIG. 13

FIG. 14

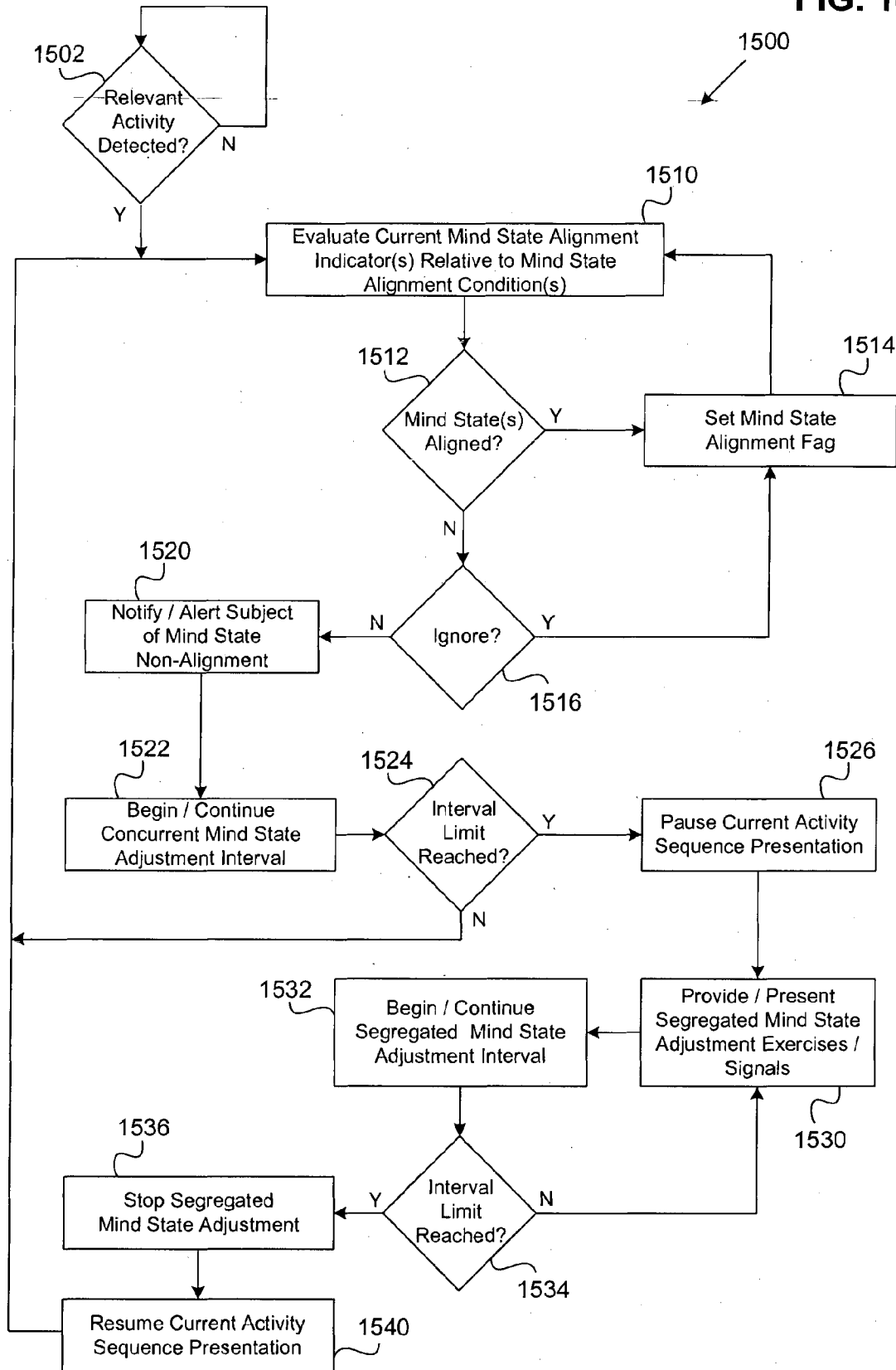
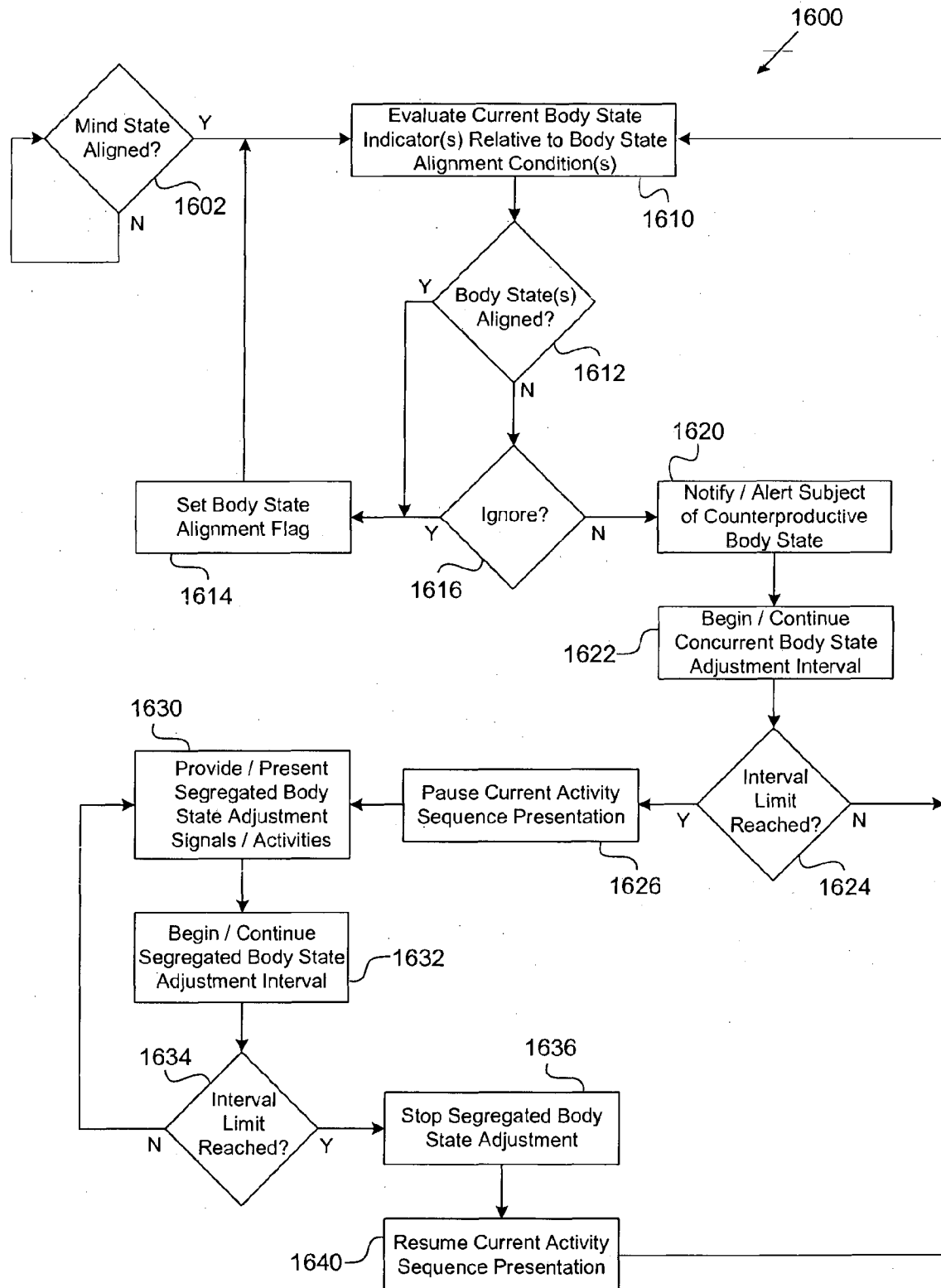


FIG. 15



THOUGHTS

MIND STATE

BIOFEEDBACK TIME

+

0

sec

CUE PLAYTIME

+

0

sec

BIOFEEDBACK OPTIONS

☐ VISUAL
☐ AUDIO
☐ KINESTHETIC

CUE OPTIONS

☒ VIDEO/AUDIO
☐ GAMES
☐ SCRIPT
☐ METRONOME

TEMPORARY IGNORE

OFF
 ☒ ON

VIDEO/AUDIO FILE PATH:

File Name:

Patient's Folder Path:

SAVE

FIG. 16A

PURPOSE

**CO-CONTRACTION
OR**

BIOFEEDBACK TIME

± 0

sec

CUE PLAYTIME

± 0

sec

BIOFEEDBACK OPTIONS

☐ VISUAL
☐ AUDIO
☐ KINESTHETIC

CUE OPTIONS

☒ VIDEO/AUDIO
☐ GAMES
☐ SCRIPT
☐ METRONOME

TEMPORARY IGNORE

OFF
 ☐
ON
 ☒

VIDEO / AUDIO FILE PATH:

FIG. 16B

ENERGY

AUTO INTENSITY OFF

ON

CHANGE TO HIGH INTENSITY - WAIT

0

 sec

CHANGE TO LOW INTENSITY - WAIT

0

 sec

SELEC
T

THRESH
OLD

HIGH
☐

NORMAL
☒

LOW
☐

DIFFICULT
☐

MEDIUM
☒

EASY
☐

OUTPUT

VIDEO
☐

MOTOR 1 (m)
☐

MOTOR 2 (m)
☐

MOTOR 3 (m)
☐

MOTOR 4 (m)
☐

FES

FES

Patient's Fesker Path:

Onyapite Learning Model with FES Just Therapist Address

File Name:

0

SAVE

CLOSE

INTENS	SPEED	REPETITION	VIDEO	M1	M2	M3	M4
HIGH	0	0	0	0	0	0	0
NORM	0	0	0	0	0	0	0
LOW	0	0	0	0	0	0	0
REPETITION	0	0	0	0	0	0	0

FIG. 16C

38/60

ACTION

All Videos Sequence

Video Name	Duration
Introduction	0.46
Relaxation Explanation	1.15
Relaxation	2.83
Isometric Contraction	2.35
Small Extensions Explanation	1.05
Small Extensions (E)	1.6
Small Extensions (F)	1.6
Wrist Extension Explanation	1.35
Wrist Extension (E)	2.07
Wrist Extension (F)	2.07
Finger Extension Explanation	1.4
Finger Extension (E)	2.15

Repetition **1**

Therapy Sequence

Video Name	Duration

Total Duration **0**

File Name:

Therapy Sequence Folder Path:

Diagnosing Learning Model with FES (FES) Therapist Admin Sequence

SAVE

Preview

PREVIEW

Diagram illustrating a sequence of actions:

```

graph TD
    A[Head] --> B[Hand]
    B --> C[Hand with Lightning Bolt]
    C --> D[Hand with Upward Arrow]
    D --> E[Hand with Lightning Bolt (FES)]
    E --> A
    
```

FES

File Name:

Patient's Folder Path:

Diagnosing Learning Model with FES (FES) Therapist Admin Sequence

SAVE

FIG. 16D

1	2	3	4	5	6	7	8	9	10	11	12
Type	Action Code	Start Time (s)	Duration (s)	Total Duration (s)	Duration (min)	End Time (s)	Primary Agonist	Primary Antagonist	Secondary Agonist	Secondary Antagonist	Action/Task Name
S	INT-R	0	28	28	0.46	28	NA	NA	NA	NA	Introduction
S	REL-R	32	69	97	1.15	101	NA	NA	NA	NA	Relaxation
S	REL-R	101	170	267	2.83	271	NA	NA	NA	NA	Isometric Contraction Explanation
S	IC-ER	272	81	348	1.35	353	NA	NA	NA	NA	Isometric Contraction
S	IC-R	354	141	489	2.35	495	Wrist extensor	Wrist flexor	NA	NA	Small Extensions (E)
S	SE-ER	496	63	552	1.05	559	NA	NA	NA	NA	Small Extensions (F)
S	SE-R	560	96	648	1.60	656	Finger extensor	Finger flexor	NA	NA	Wrist Extension Explanation
S	SFR	560	96	648	1.60	656	Finger flexor	Finger extensor	NA	NA	Wrist Extension (E)
S	WE-ER	657	81	729	1.35	738	Wrist extensor	Wrist flexor	NA	NA	Wrist Extension (F)
S	WE-R	739	124	863	2.07	863	Wrist flexor	Wrist extensor	NA	NA	Finger Extension Explanation
S	WFR	739	124	863	2.07	863	Wrist flexor	Wrist extensor	NA	NA	Finger Extension (E)
S	FE-ER	864	84	937	1.40	948	NA	NA	NA	NA	Finger Extension (F)
S	FE-R	949	129	1066	2.15	1078	Finger extensor	Finger flexor	NA	NA	Pronation Supination Explanation
S	FF-R	949	129	1066	2.15	1078	Finger flexor	Finger extensor	NA	NA	Pronation Supination (P)
S	PRO-ER	1079	99	1165	1.65	1178	NA	NA	NA	NA	Pronation Supination (S)
S	PRO-R	1179	156	1321	2.60	1335	Pronator	Supinator	NA	NA	Wrist & Fingers Explanation
S	SUP-R	1179	156	1321	2.60	1335	Supinator	Pronator	NA	NA	Wrist & Fingers
C	OG-R	1336	70	1391	1.17	1406	NA	NA	NA	NA	Fingers & Forearm Rotation Explanation
C	OG-R	1407	119	1510	1.98	1526	Wrist extensor	Wrist flexor	Finger extensor	Finger flexor	Fingers & Forearm Rotation
C	FFR-ER	1527	84	1594	1.40	1611	NA	NA	NA	NA	Picking Up a Pen Explanation
C	FFR-R	1612	114	1708	1.90	1726	Finger extensor	Finger flexor	Wrist extensor	Wrist flexor	Picking Up a Pen
C	TIPEN-ER	1727	127	1835	2.12	1854	NA	NA	NA	NA	Grasping a Bottle Explanation
T	TIPEN-R	1855	152	1987	2.53	2007	Finger extensor	Finger flexor	Wrist extensor	Wrist flexor	Grasping a Bottle
T	T2BOT-ER	2008	94	2081	1.57	2102	Wrist extensor	Wrist flexor	NA	NA	Flipping the Pages Explanation
T	T2BOT-R	2103	204	2285	3.40	2307	Wrist flexor	Wrist extensor	Finger extensor	Finger flexor	Flipping the Pages
T	T3PG-ER	2308	103	2388	1.72	2411	NA	NA	NA	NA	The Use of Chopsticks Explanation
T	T3PG-R	2412	98	2486	1.63	2510	Finger extensor	Finger flexor	Supinator	Pronator	The Use of Chopsticks
T	T4CHP-ER	2511	35	2571	1.42	2596	NA	NA	NA	NA	End
T	T4CHP-R	2597	167	2738	2.78	2764	Finger extensor	Finger flexor	Wrist extensor	Wrist flexor	
C	END	2765	59	2797	0.98	2824	NA	NA	NA	NA	

FIG. 16E

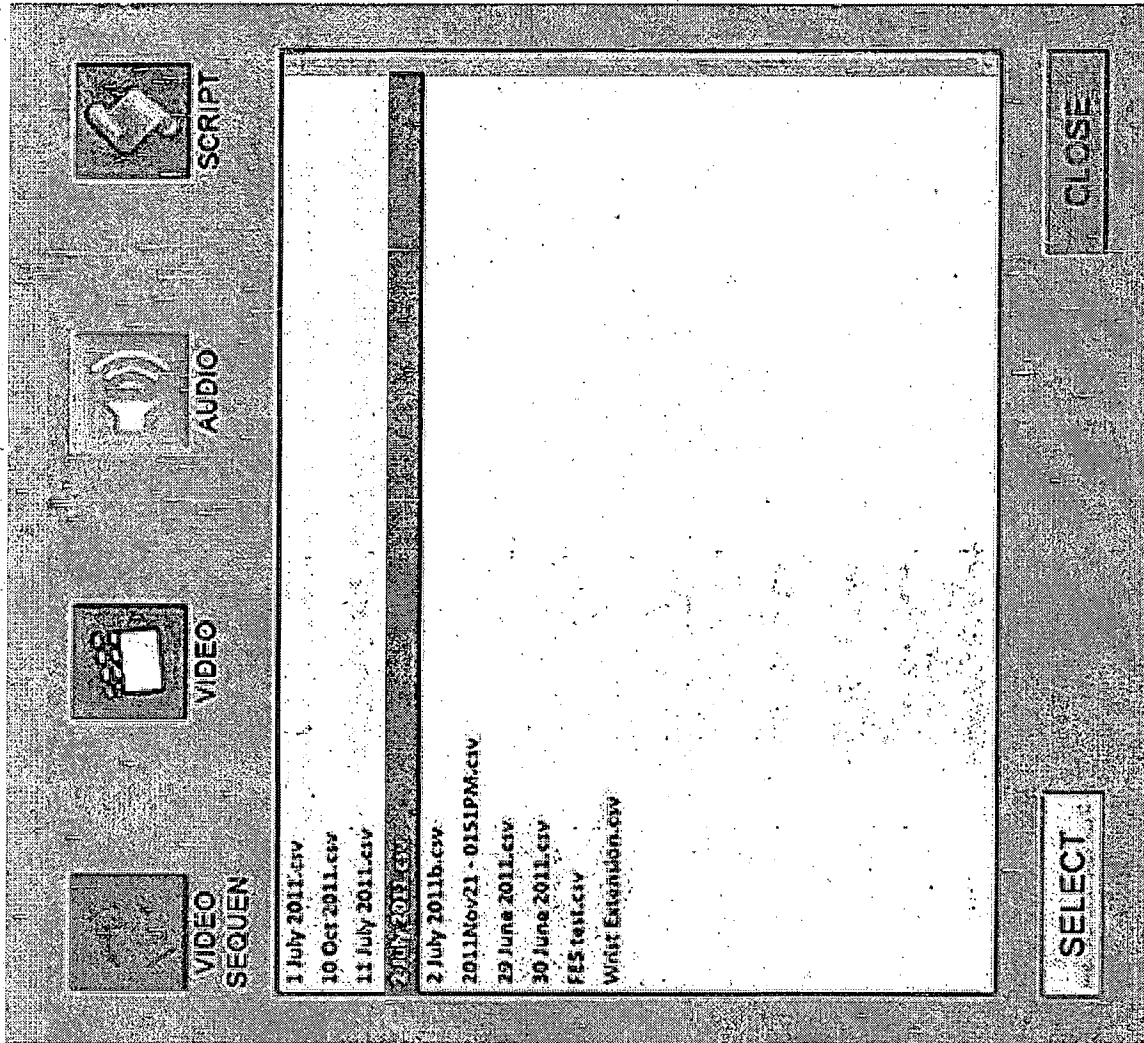


FIG. 16F

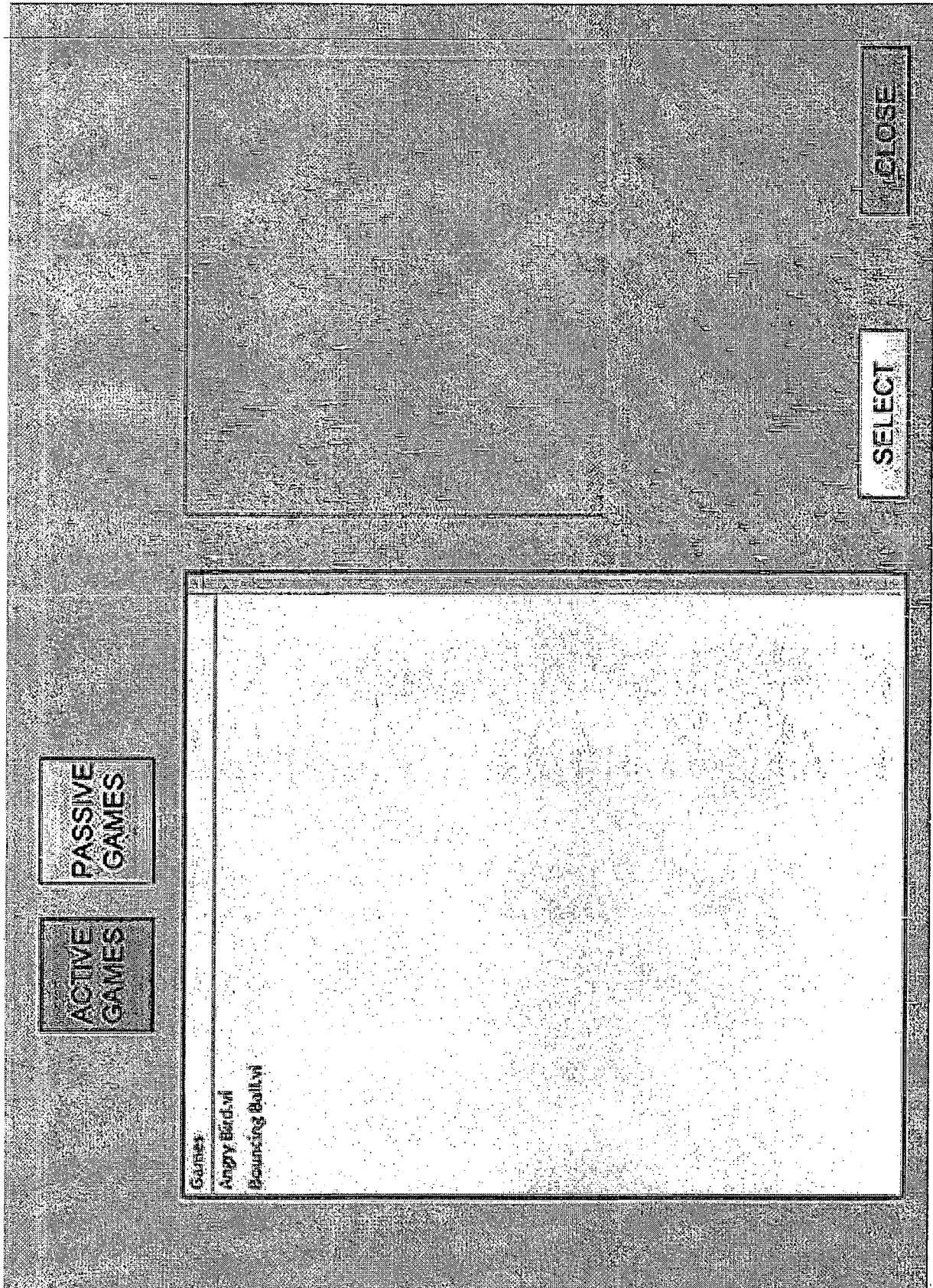


FIG. 16G

EFFECT

EEG CHANNEL	SEMG CHANNEL
CHANNEL 1 [F4(Right hemisphere)]	CHANNEL 1 [Pronator]
CHANNEL 2 [C4(Right hemisphere)]	CHANNEL 2 [Supinator]
CHANNEL 3 [P4(Right hemisphere)]	CHANNEL 3 [Wrist extensor]
CHANNEL 4 [O2(Right hemisphere)]	CHANNEL 4 [Wrist flexor]
CHANNEL 5 [F3(Left hemisphere)]	CHANNEL 5 [Finger extensor]
CHANNEL 6 [C3(Left hemisphere)]	CHANNEL 6 [Finger flexor]
CHANNEL 7 [P3(Left hemisphere)]	CHANNEL 7 [Thumb flexor]
CHANNEL 8 [O1(Left hemisphere)]	CHANNEL 8 [NA]

File Name: _____

Patient's Folder Path: _____

D:\Synthesia Learning Module\arch FES\my\Three sport diagrams\ _____

SAVE

FIG. 16H

FES

FES ENABLE OFF ON

THRESHOLD ± 2 %

PULSE WIDTH ± 200 US

CURRENT ± 20 MA

STIMULATION ± 2 sec

SEMG CHANNEL

HANNEL 1		CHANNEL	
HANNEL 1	[Pronator]	CHANNEL 1	[Finger extensor]
HANNEL 2	[Supinator]	CHANNEL 6	[Finger flexor]
HANNEL 3	[Wrist extensor]	CHANNEL 7	[Thumb flexor]
HANNEL 4	[Wrist flexor]	CHANNEL 8	[NA]

File Name:

Patient's Folder Path:

D:\Spinal Cord Learning Model with FES Therapeutic System\

SAVE

RESET

```

graph TD
    A[Patient Setup] --> B[Stimulation]
    B --> C[Data Collection]
    C --> D[Data Analysis]
    D --> E[Report Generation]
    
```

FIG. 161

[illegible]

FIG. 17A

[illegible]

FIG. 17B

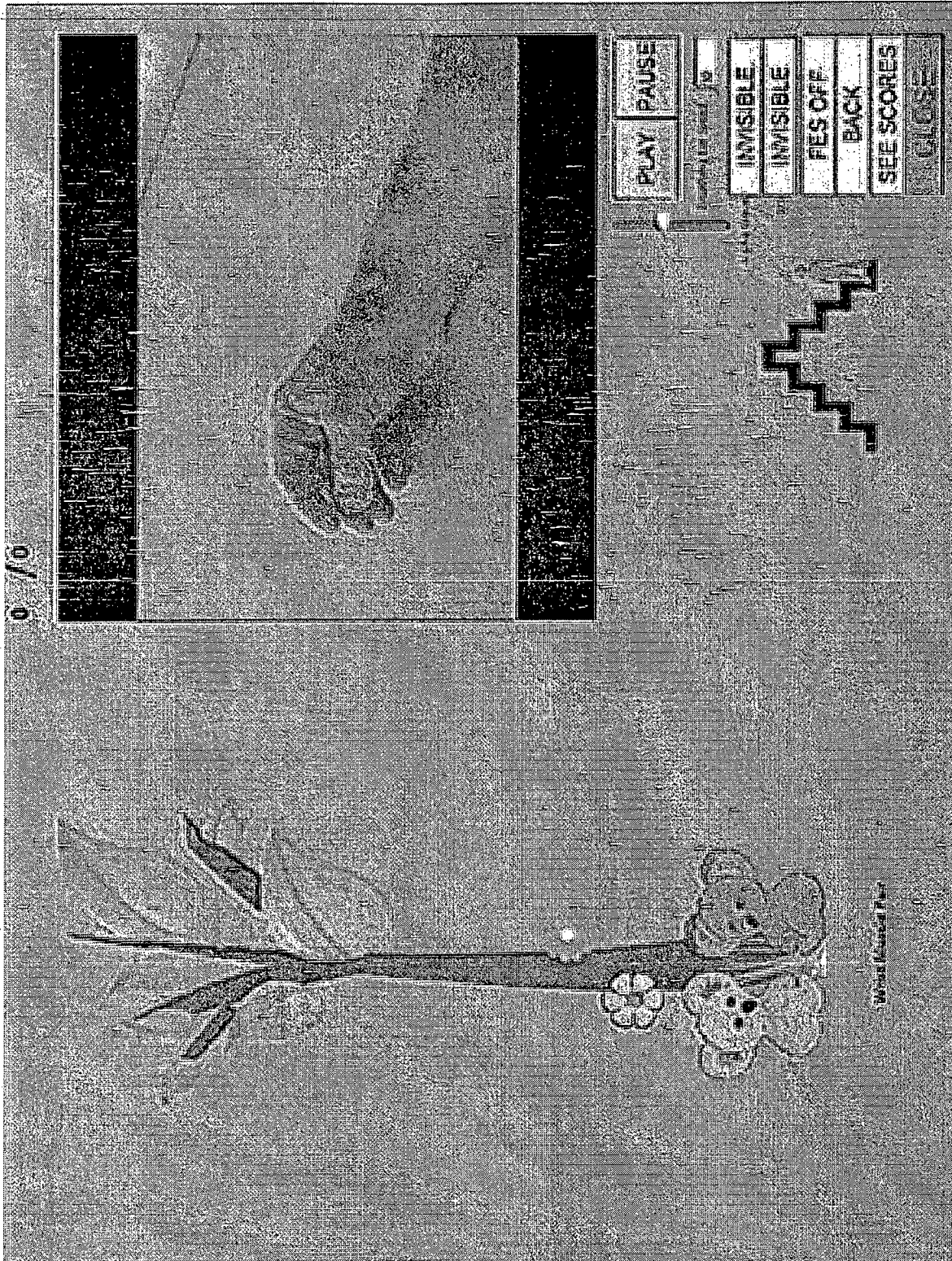


FIG. 18A

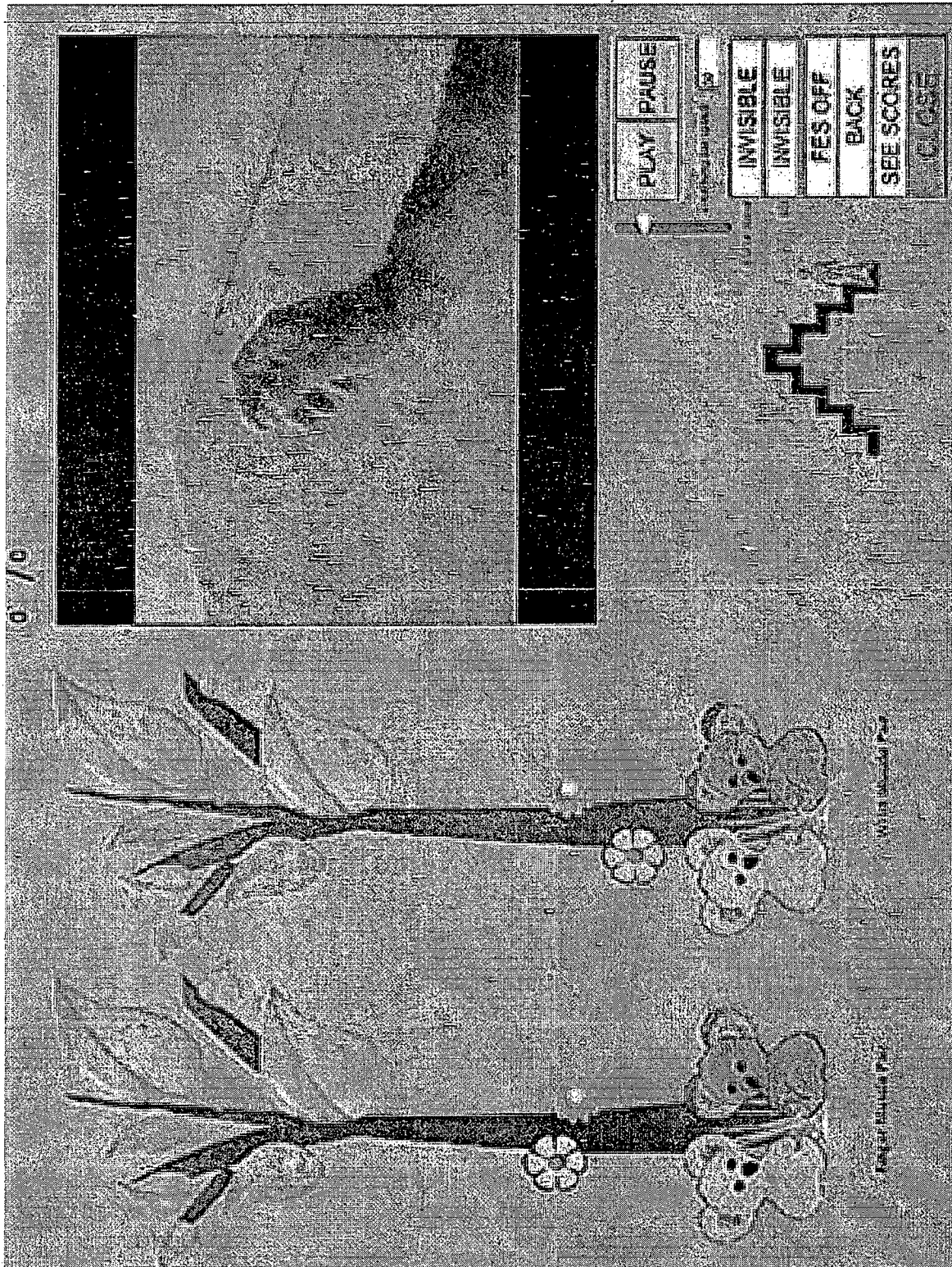


FIG. 18B



FIG. 18C

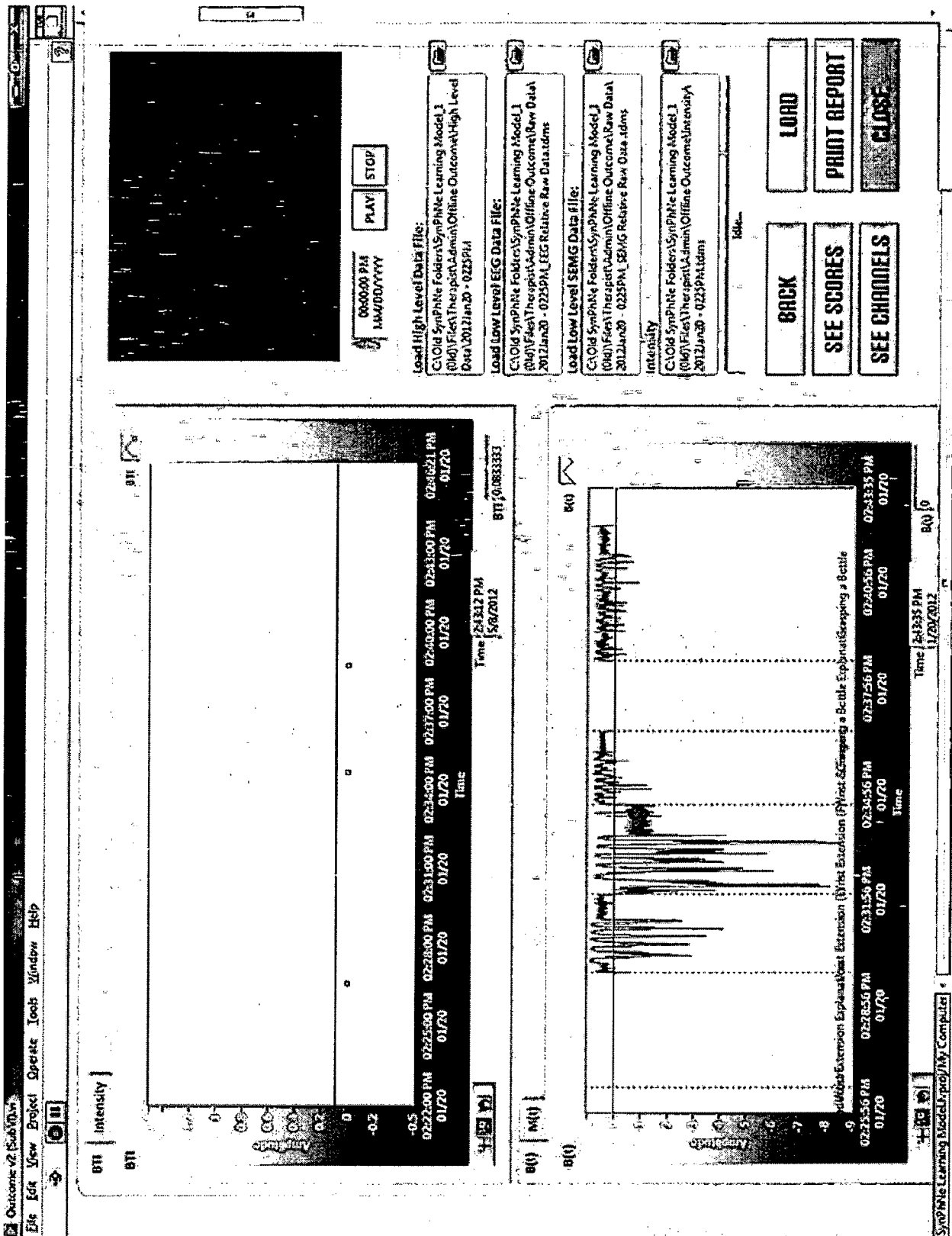


FIG. 19A

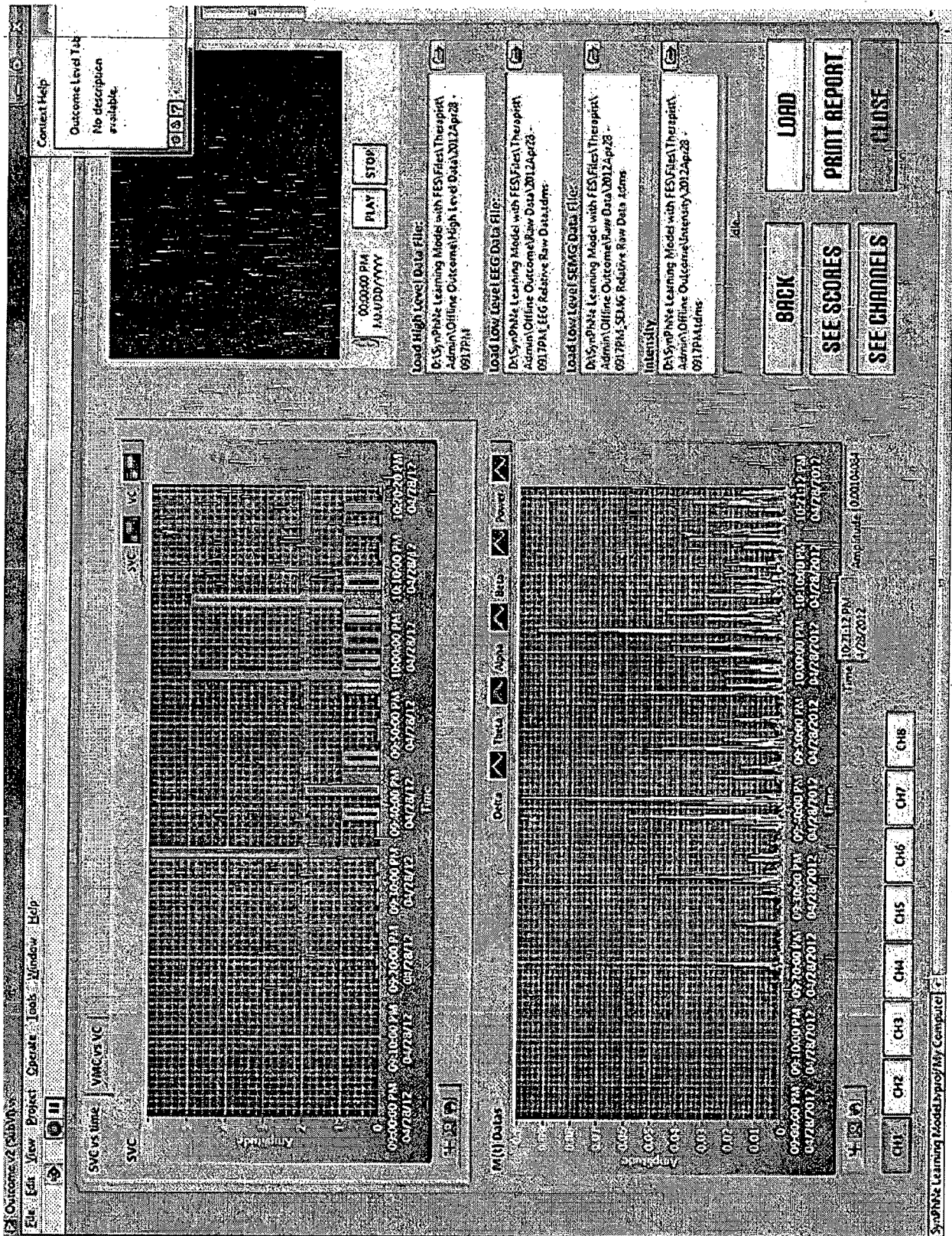


FIG. 19B

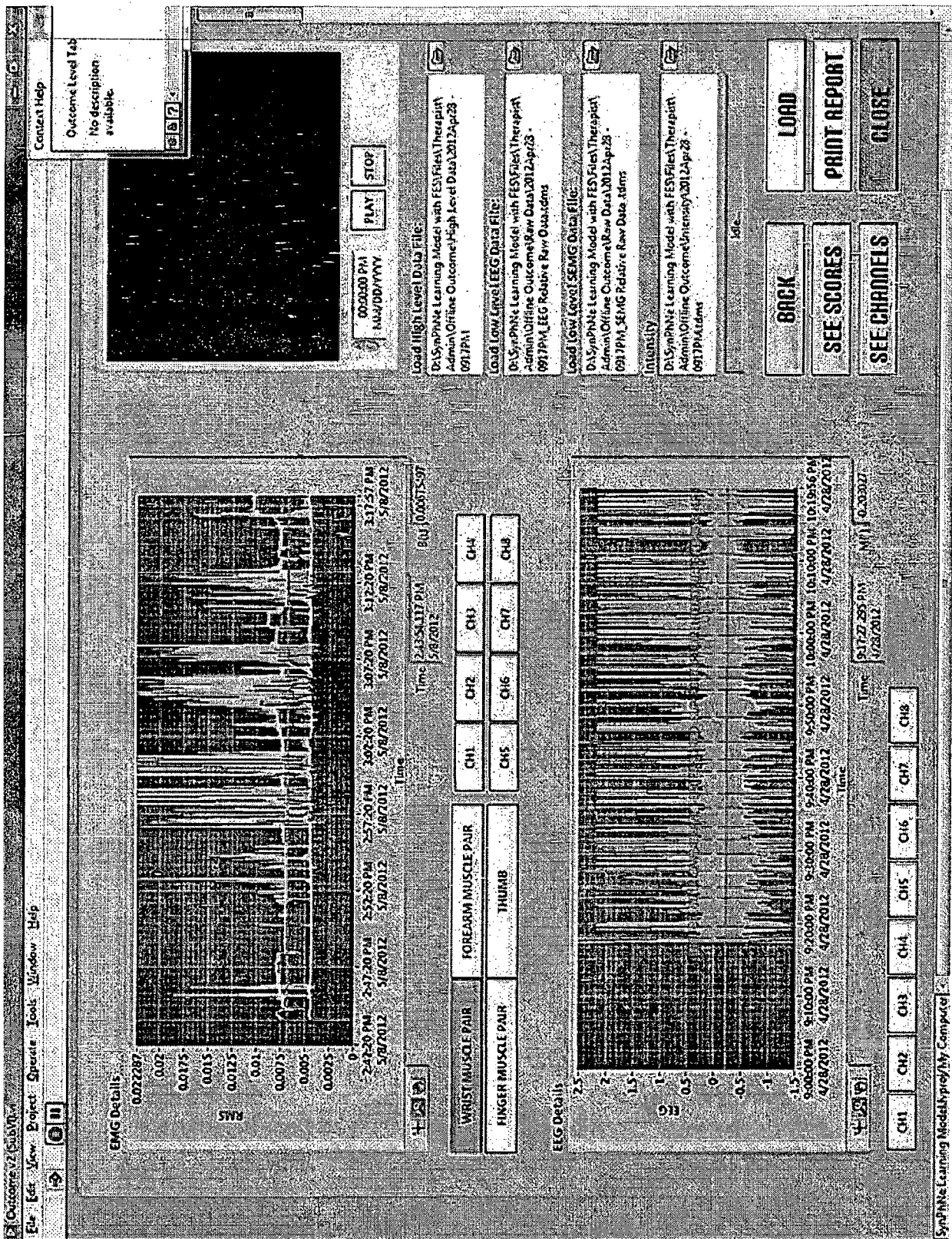


FIG. 19C

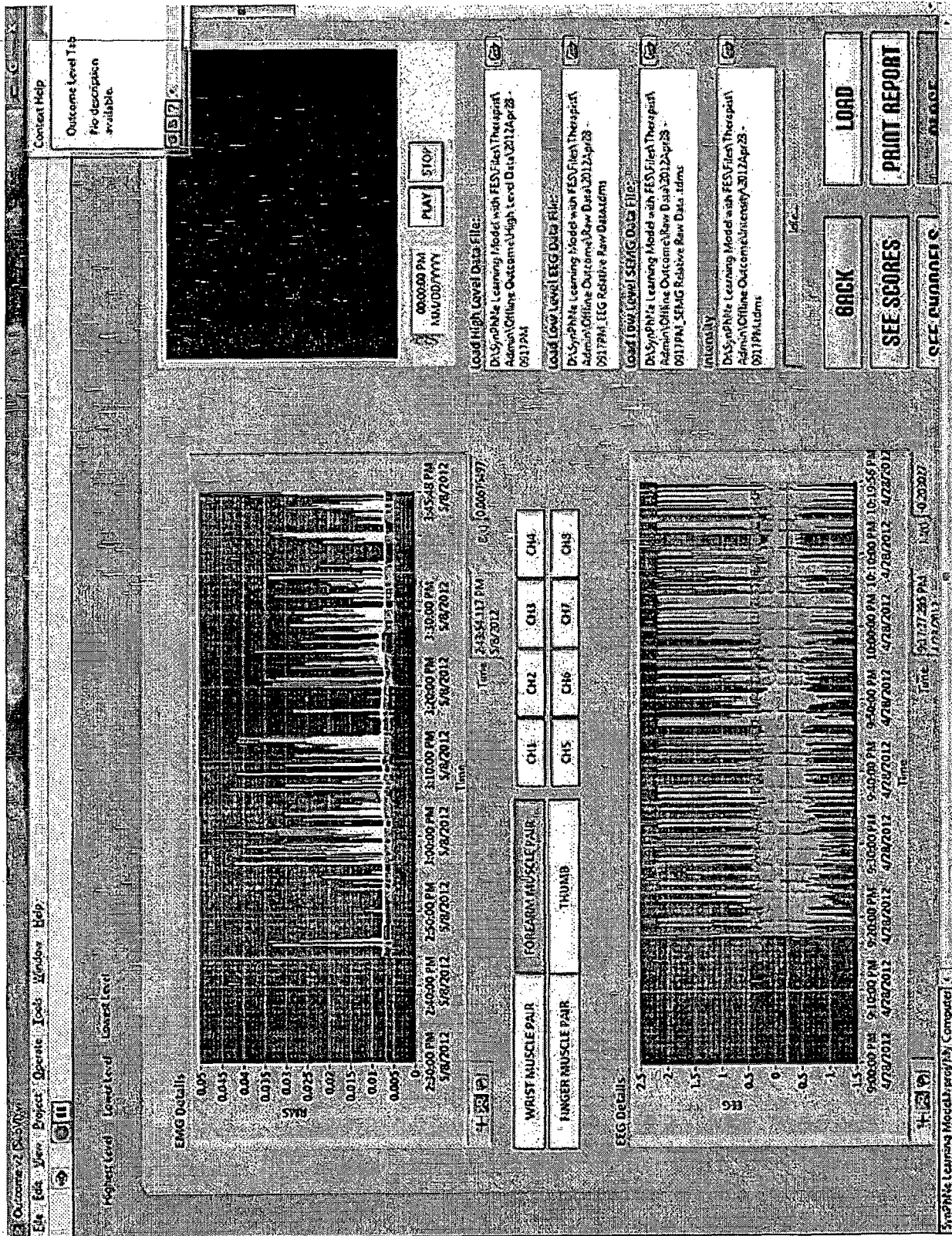


FIG. 19D

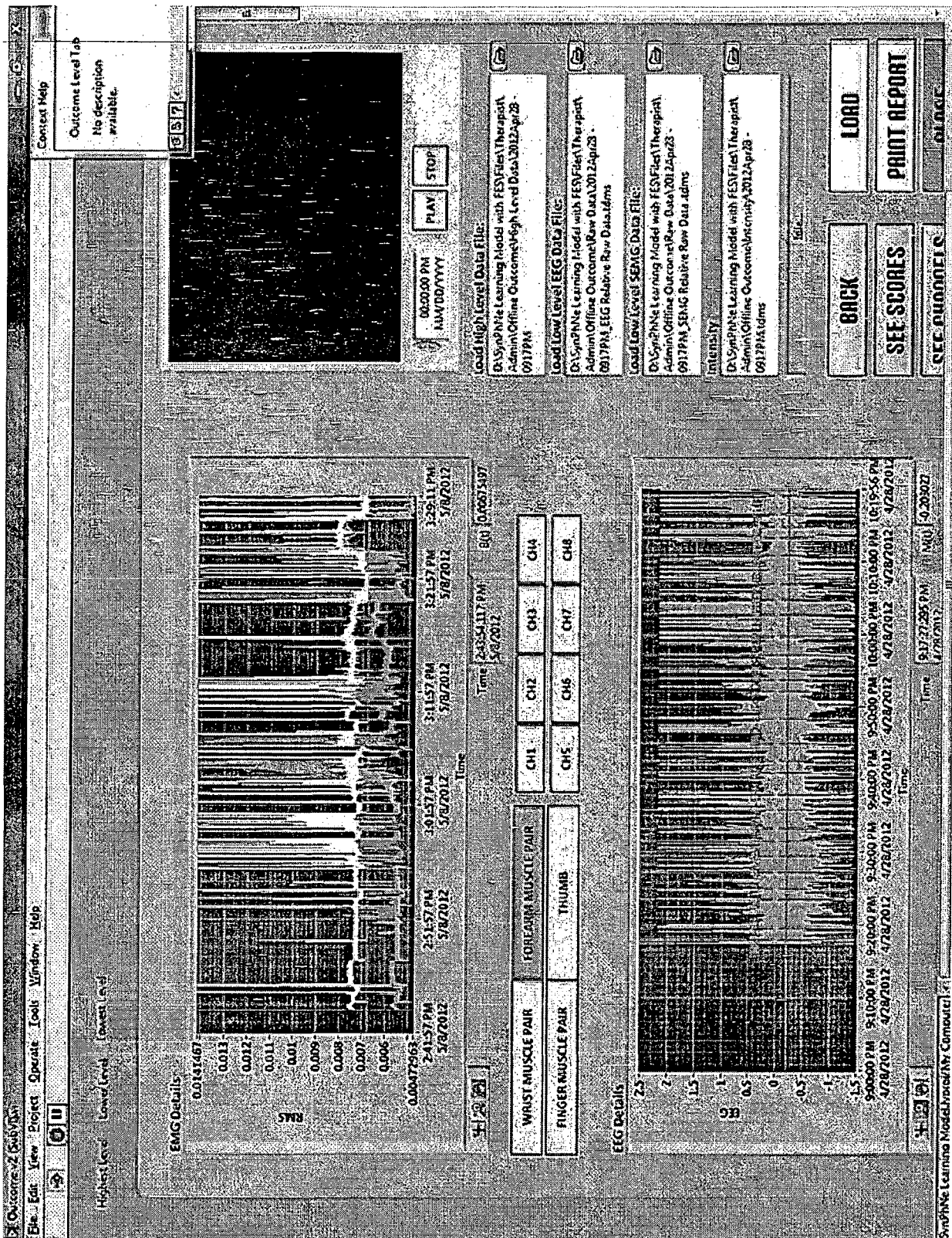


FIG. 19E

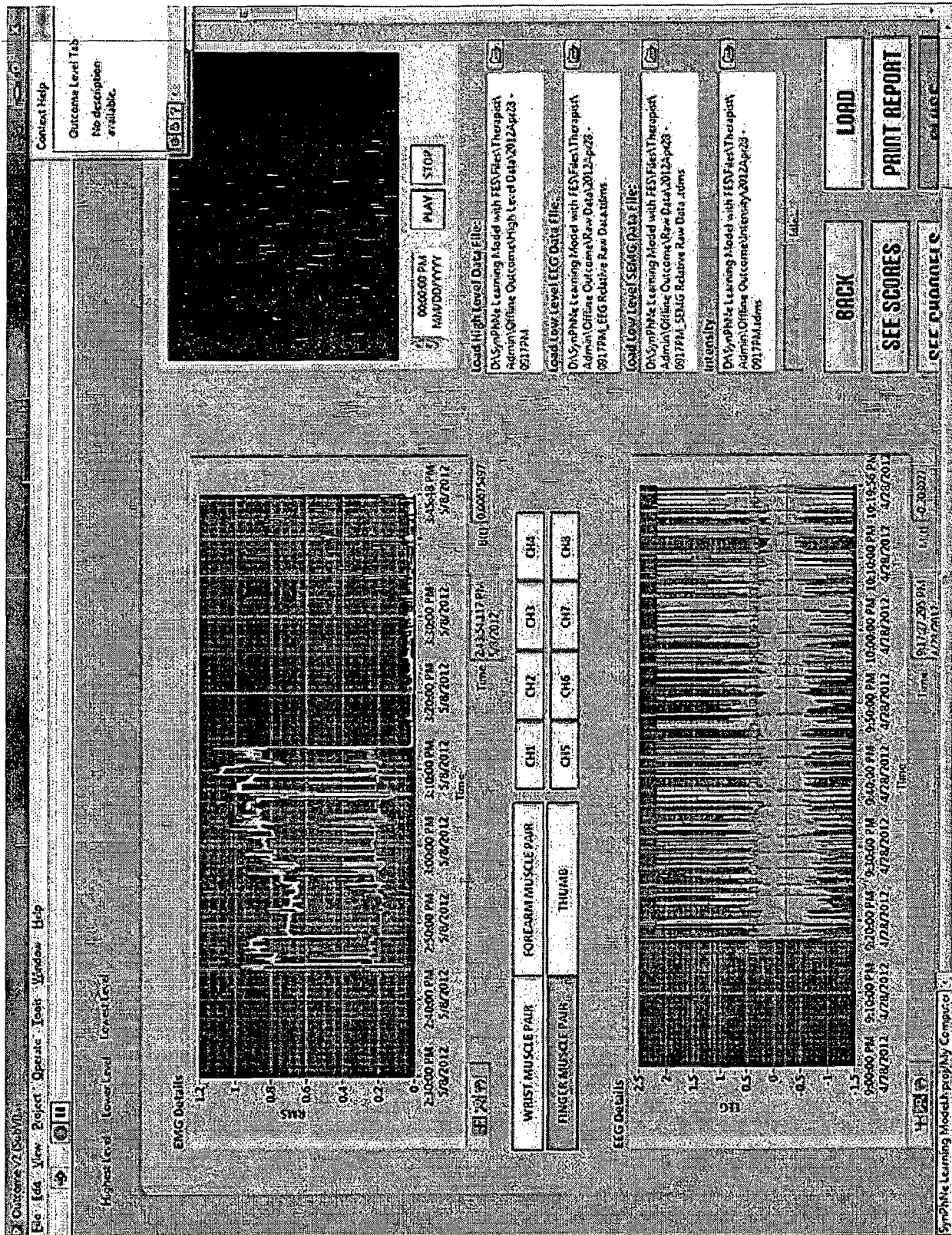


FIG. 19F

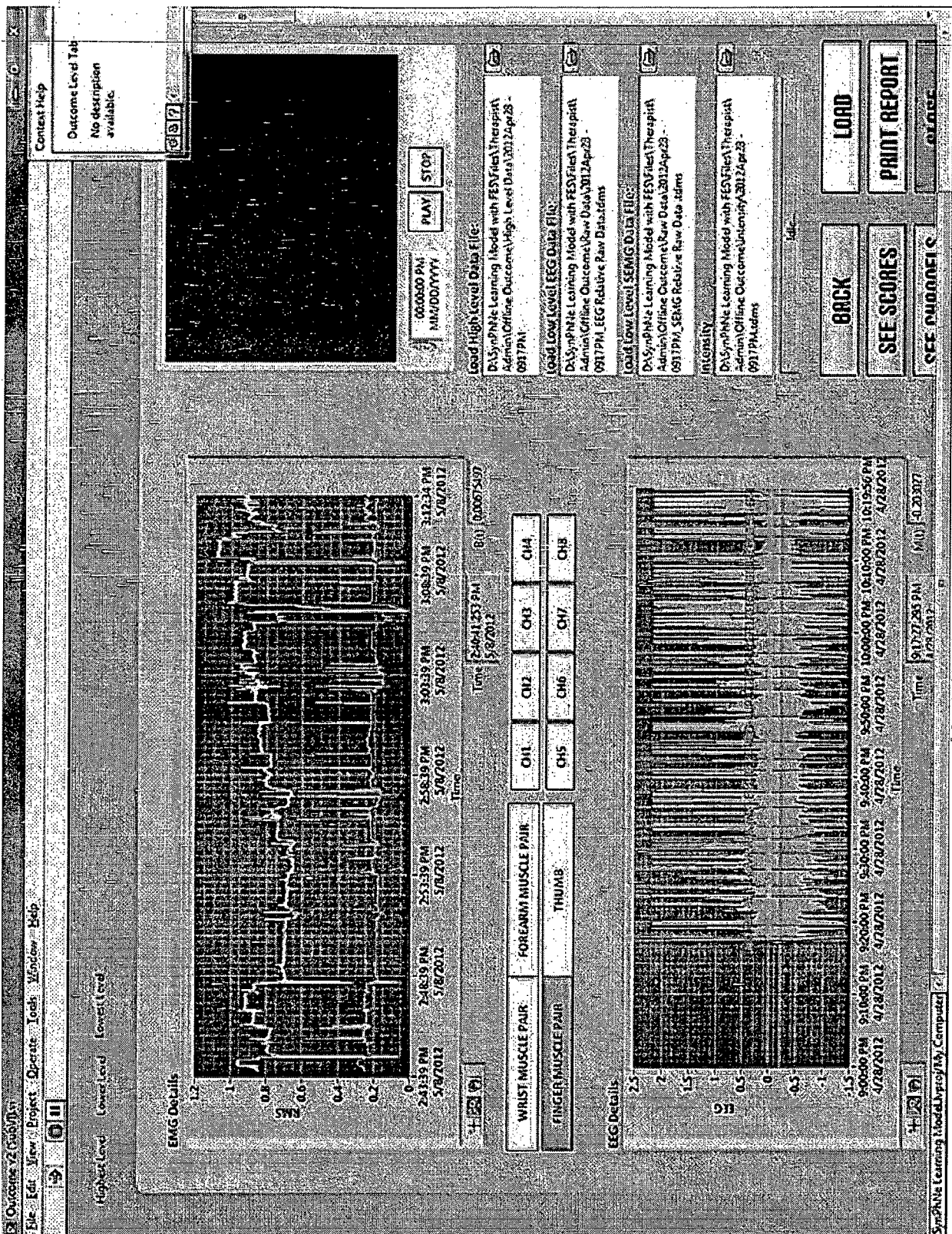


FIG. 19G

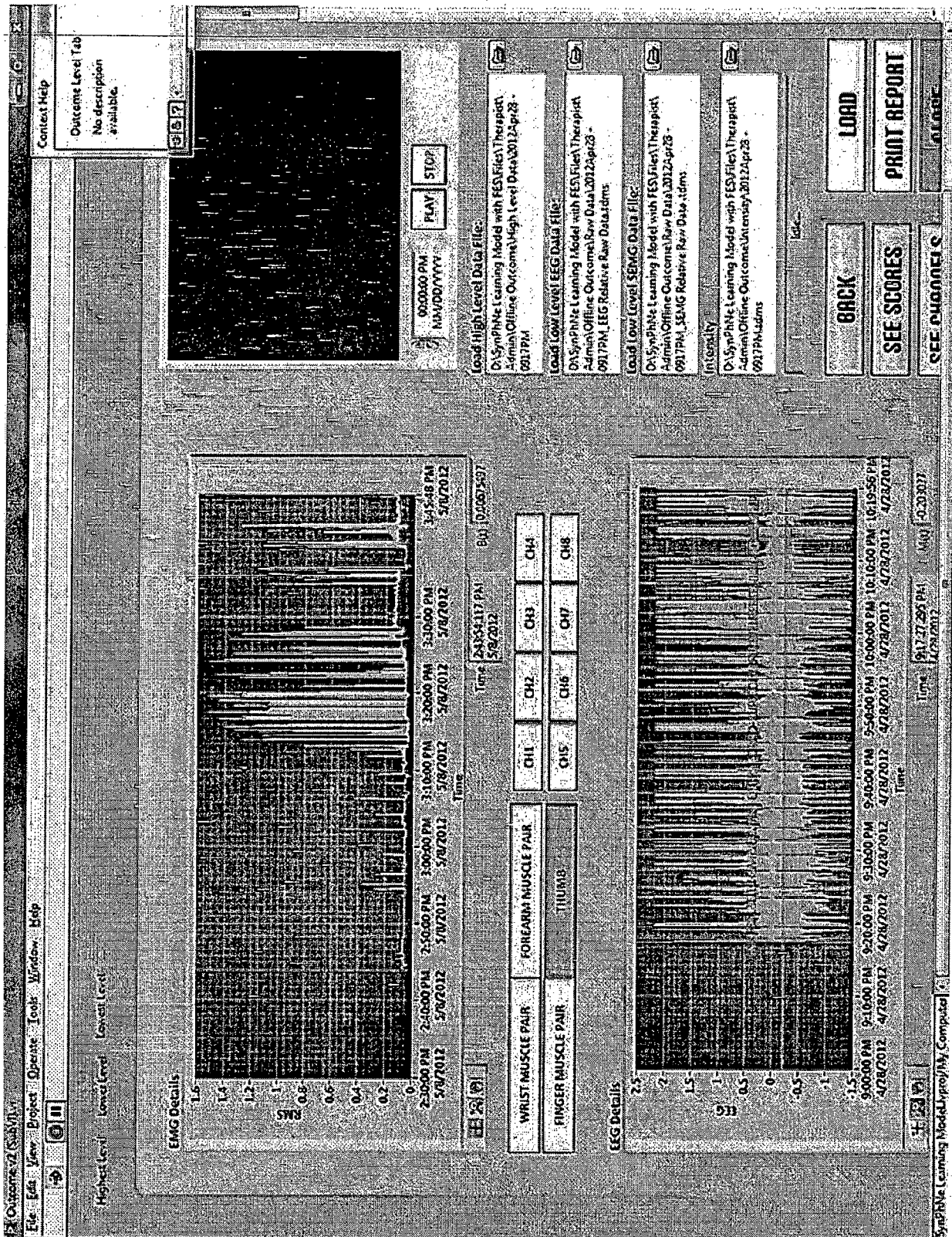


FIG. 19H

SynPhNe Report

Client Name: Admin
Date: 4/28/2012 Time: 10:21:17 PM

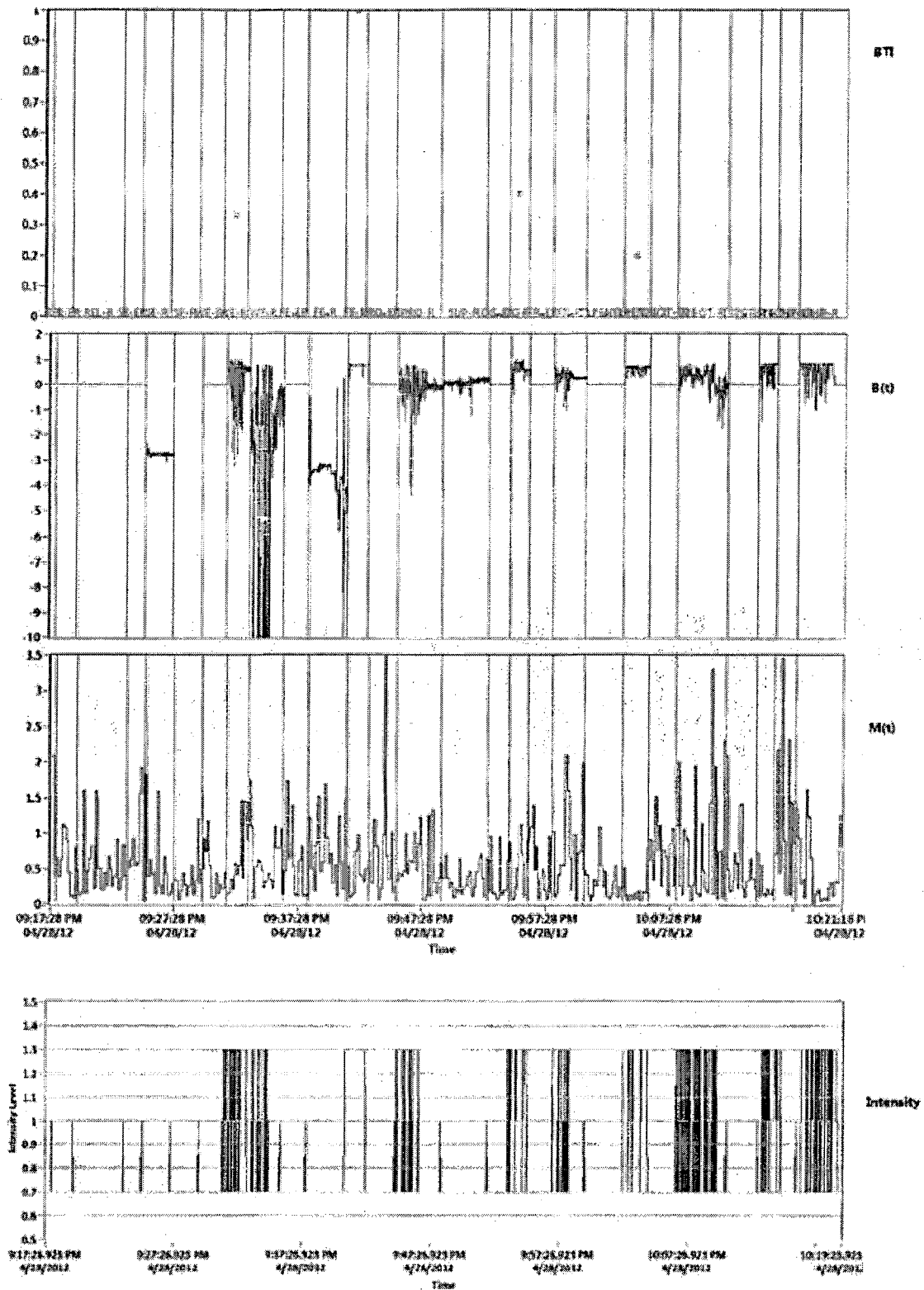
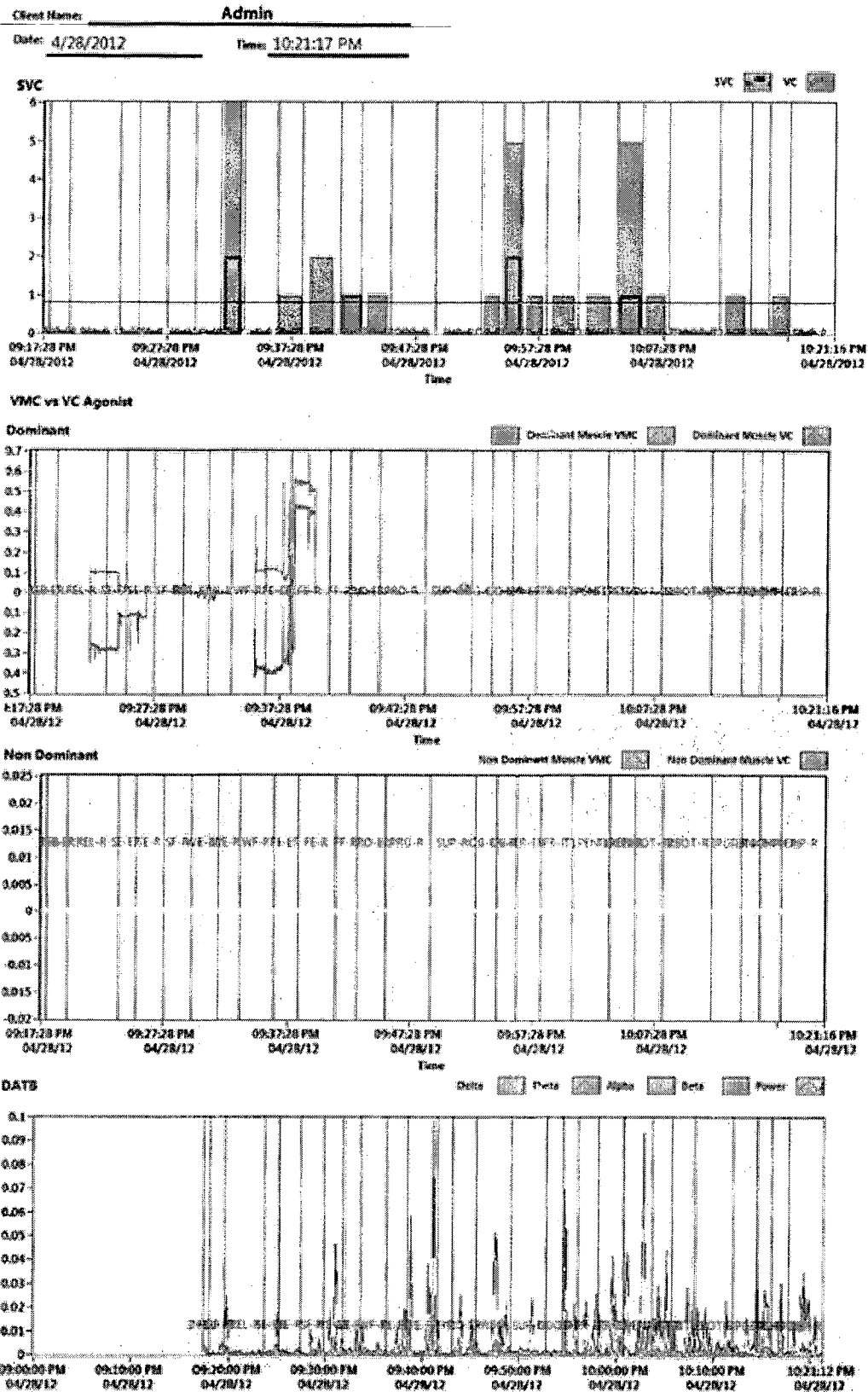


FIG. 20A

SynPhNe Report



SynPhNe Report

Client Name: Admin
 Date: 4/28/2012 Time: 10:21:17 PM

Settings:

Threshold: ☐ 20 ☒ 40 ☐ 60

FES Threshold: 5 % FES: ON

Intensity: ☒ Normal ☐ Low ☐ High ☐ Auto

Summary:

Total Time: 63.8 min

Total Expected Reps: 75

Total Successful Reps: 20

Playlist: _____

Average Intensity: 1

Routine	Reps	Successful
INT-R	0	0
REL-ER	0	0
REL-R	5	0
SE-ER	0	0
SE-R	5	0
SF-R	5	0
WE-ER	0	0
WE-R	5	6
WF-R	5	0
FE-ER	0	0
FE-R	5	2
FF-R	5	1
PRO-ER	0	0
PRO-R	5	0
SUP-R	5	0
OG-ER	0	0
OG-R	5	5
FFR-ER	0	0
FFR-R	5	1
T1PEN-ER	0	0
T1PEN-R	5	5
T2BOT-ER	0	0
T2BOT-R	5	0
T3PG-ER	0	0
T3PG-R	5	0
T4CHP-ER	0	0
T4CHP-R	5	0

Abbreviation	Full Name
INT-R	Introduction
REL-ER	Relaxation Explanation
REL-R	Relaxation
SE-ER	Small Extensions Explanation
SE-R	Small Extensions (E)
SF-R	Small Extensions (F)
WE-ER	Wrist Extension Explanation
WE-R	Wrist Extension (E)
WF-R	Wrist Extension (F)
FE-ER	Finger Extension Explanation
FE-R	Finger Extension (E)
FF-R	Finger Extension (F)
PRO-ER	Pronation Supination Explanation
PRO-R	Pronation Supination (P)
SUP-R	Pronation Supination (S)
OG-ER	Wrist & Fingers Explanation
OG-R	Wrist & Fingers
FFR-ER	Fingers & Forearm Rotation Explanation
FFR-R	Fingers & Forearm Rotation
T1PEN-ER	Picking Up a Pen Explanation
T1PEN-R	Picking Up a Pen
T2BOT-ER	Grasping a Bottle Explanation
T2BOT-R	Grasping a Bottle
T3PG-ER	Flipping the Pages Explanation
T3PG-R	Flipping the Pages
T4CHP-ER	The Use of Chopsticks Explanation
T4CHP-R	The Use of Chopsticks
END	End

75 20

FIG. 20C