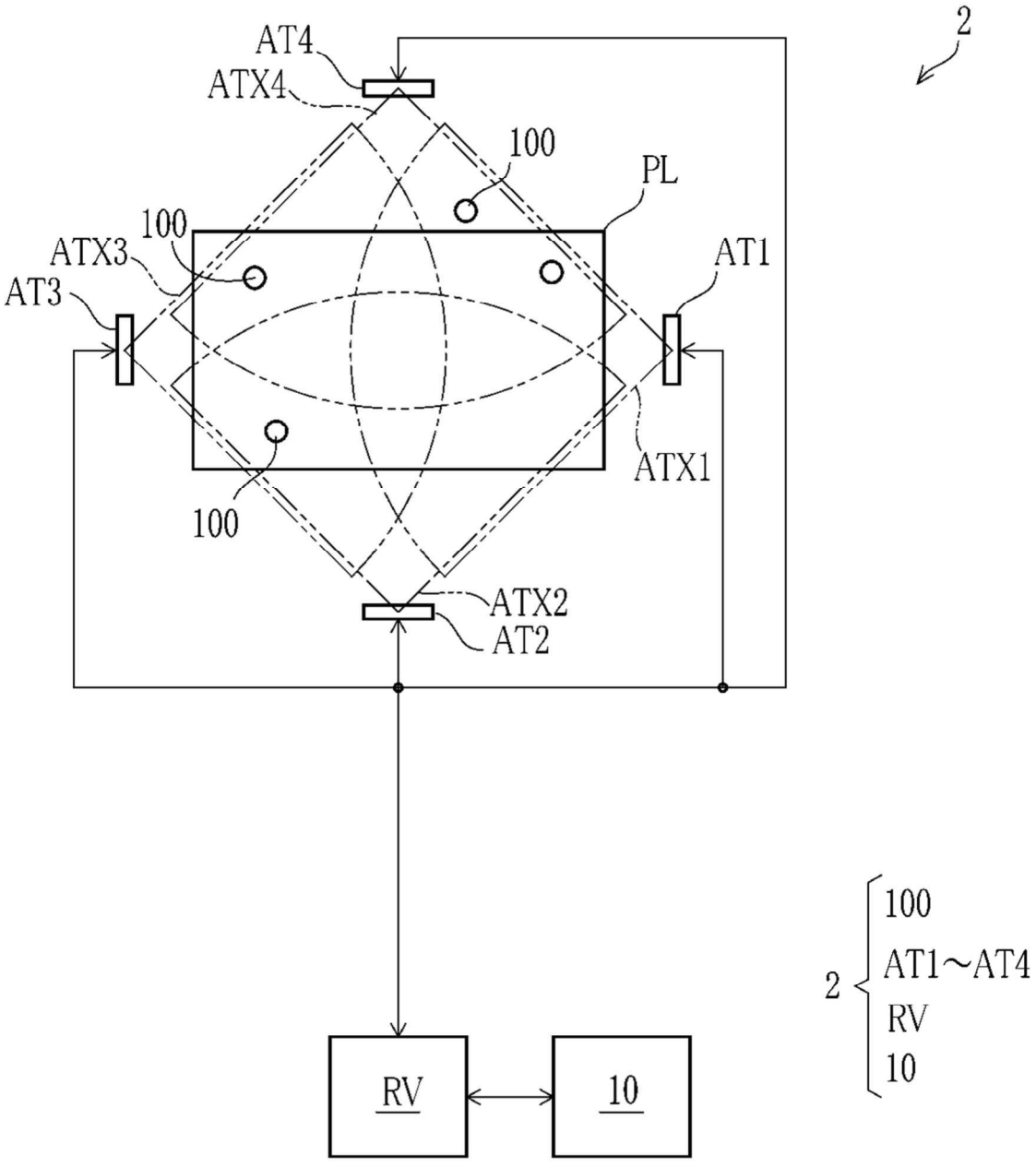
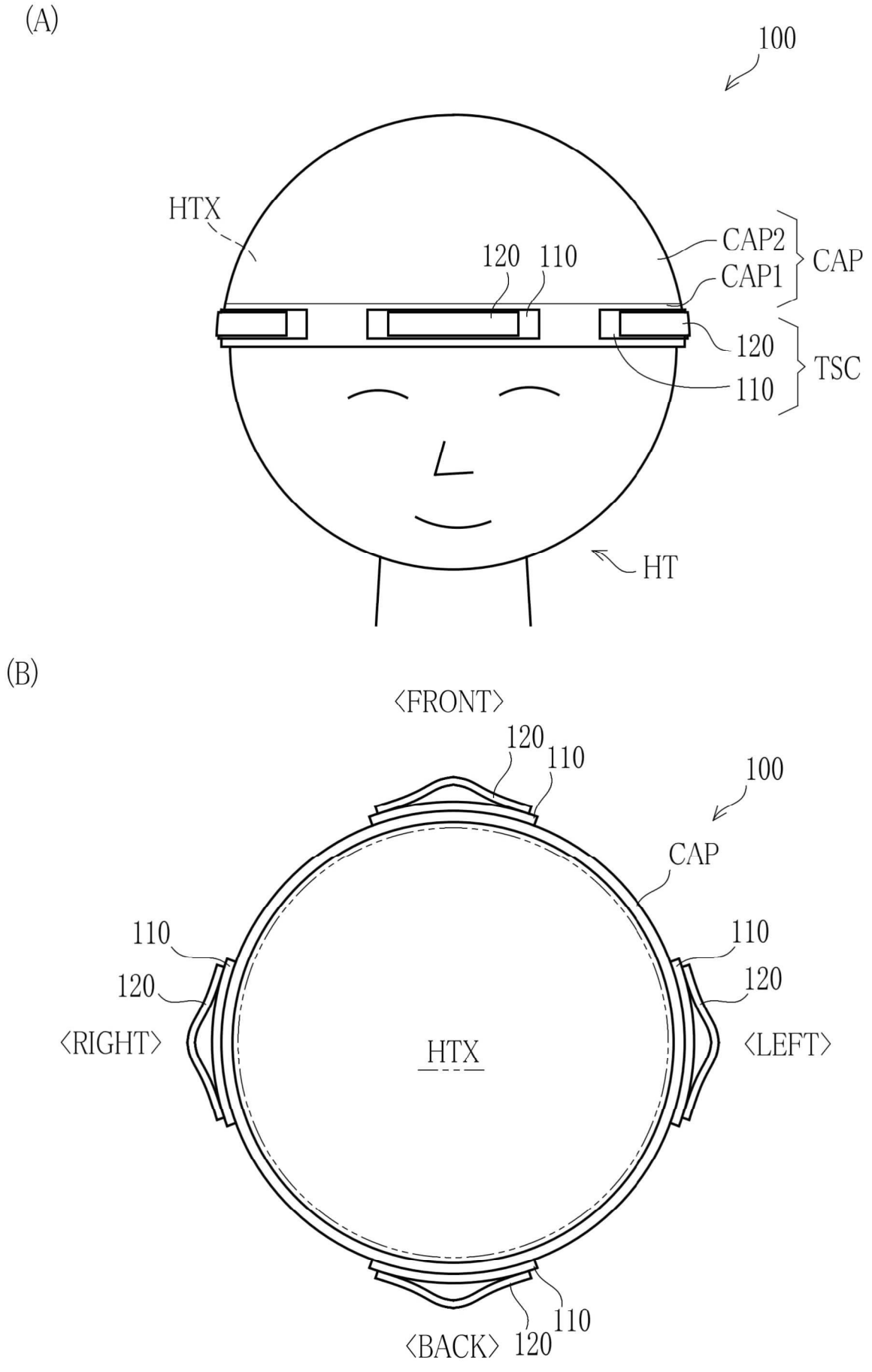
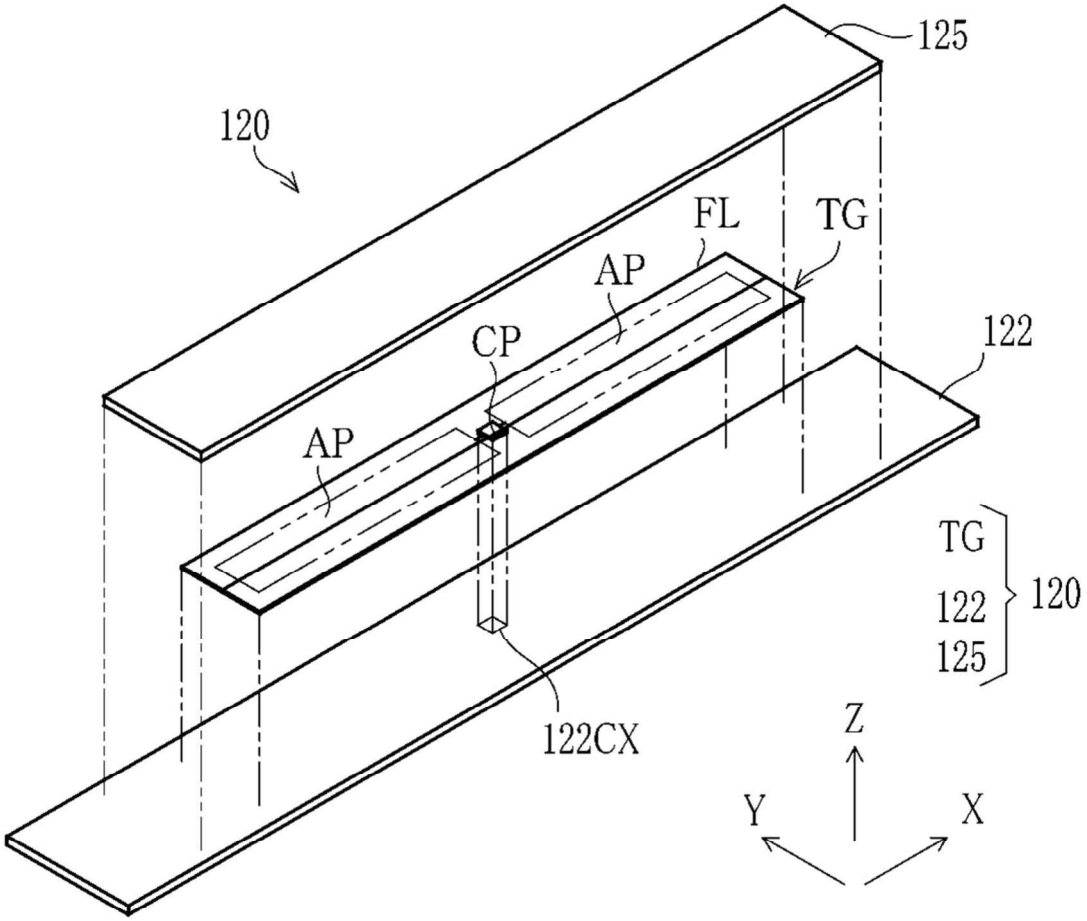
[Fig. 1]


2
AT4
ATX4
100
PL
100
ATX3
AT3
AT1
ATX1
100
ATX2
AT2
RV
10
2
100
AT1~AT4
RV
10

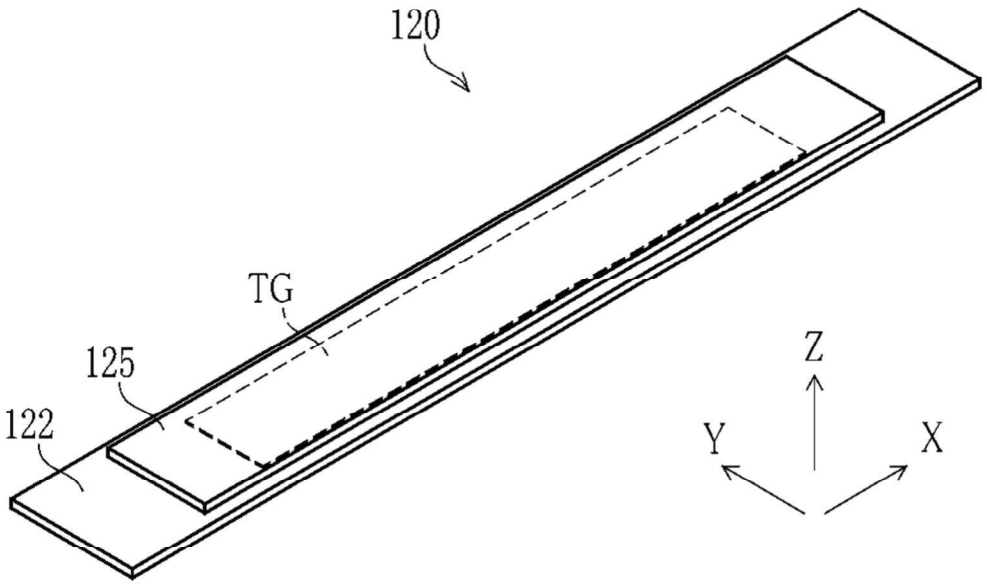
[Fig. 2]


(A)
100
HTX
120
110
CAP2
CAP1
CAP
120
110
TSC
HT
(B)
〈FRONT〉
120
110
100
CAP
110
120
110
120
〈RIGHT〉
HTX
〈LEFT〉
〈BACK〉
120
110

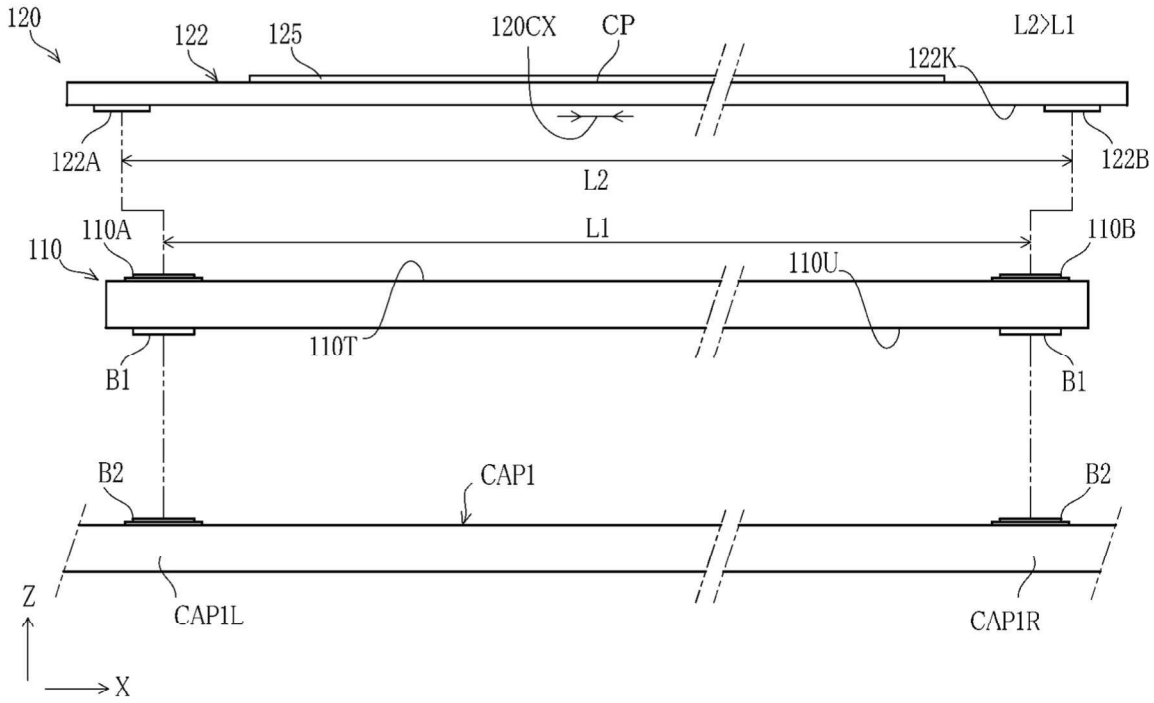
[Fig. 3]



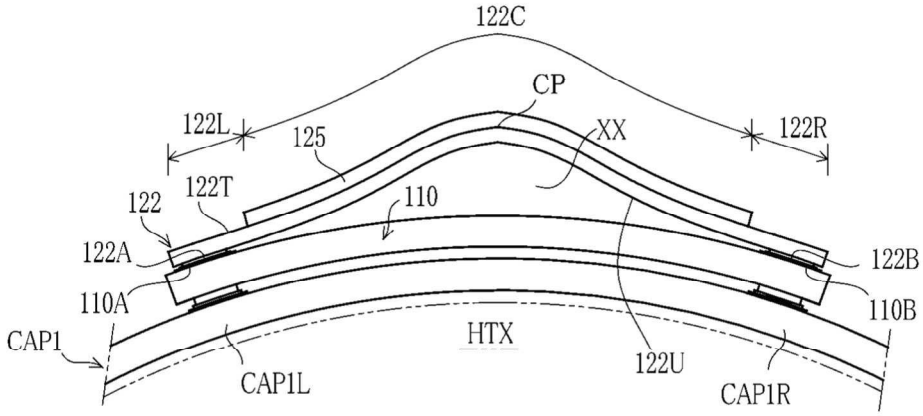
[Fig. 4]



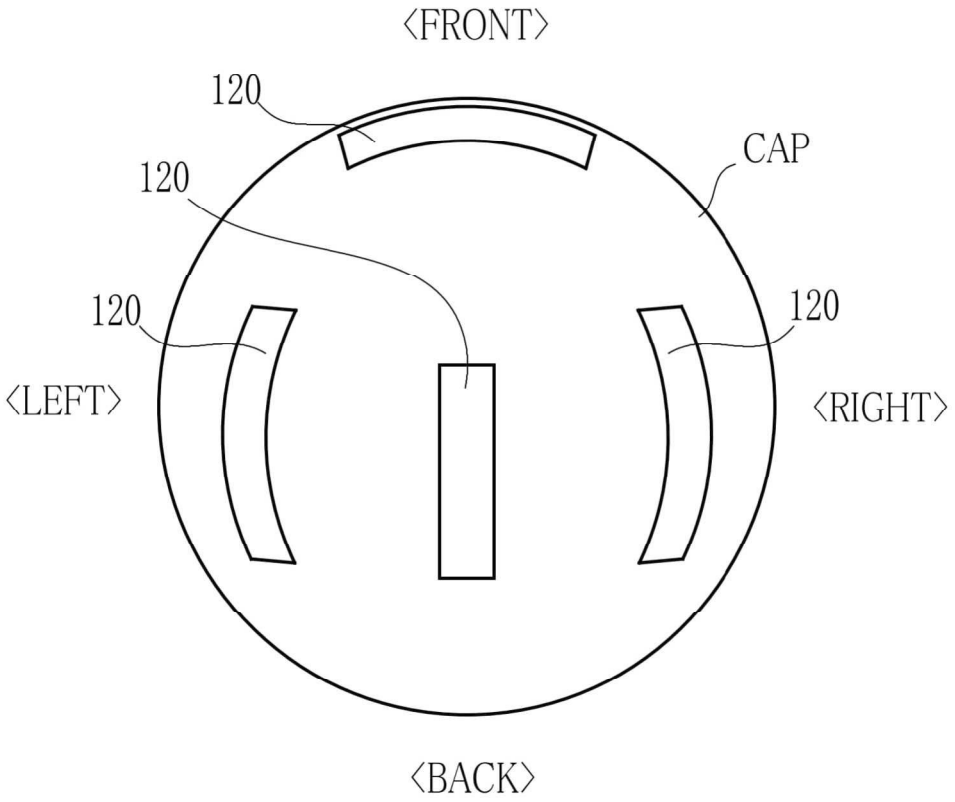
[Fig. 5]


120
122
125
120CX
CP
L2>L1
122K
122A
122B
L2
110A
L1
110B
110
110U
110T
B1
B1
B2
CAP1
B2
Z
CAP1L
CAP1R
X

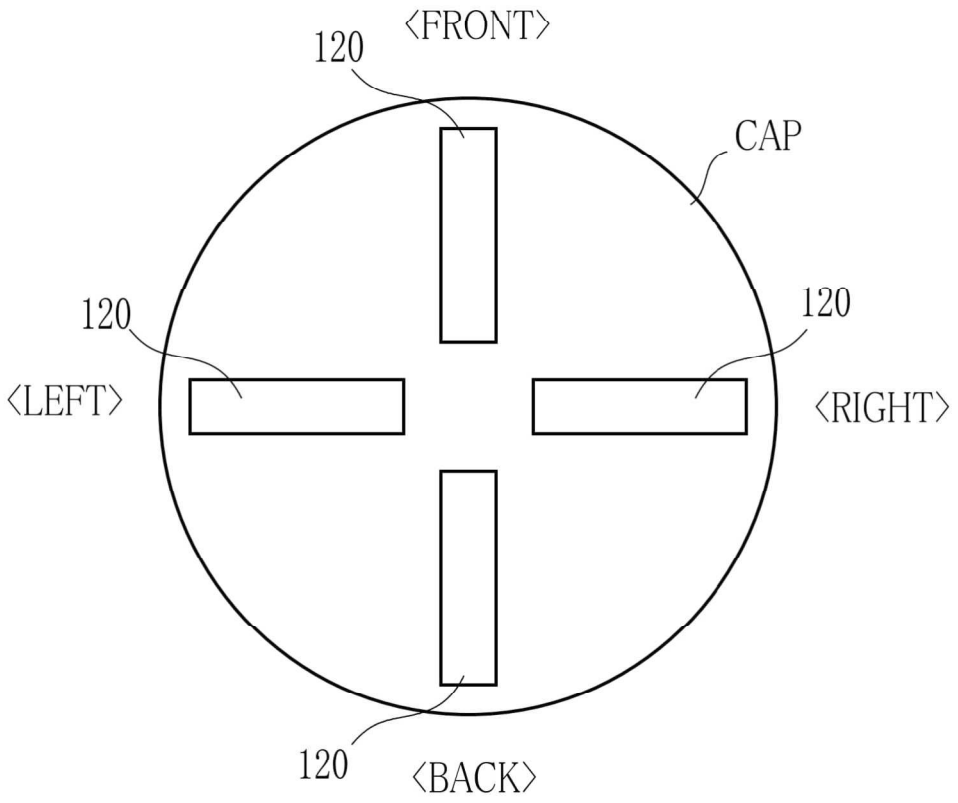
[Fig. 6]


122C
CP
122L
125
XX
122R
122T
122
110
122A
122B
110A
110B
CAP1
HTX
122U
CAP1L
CAP1R

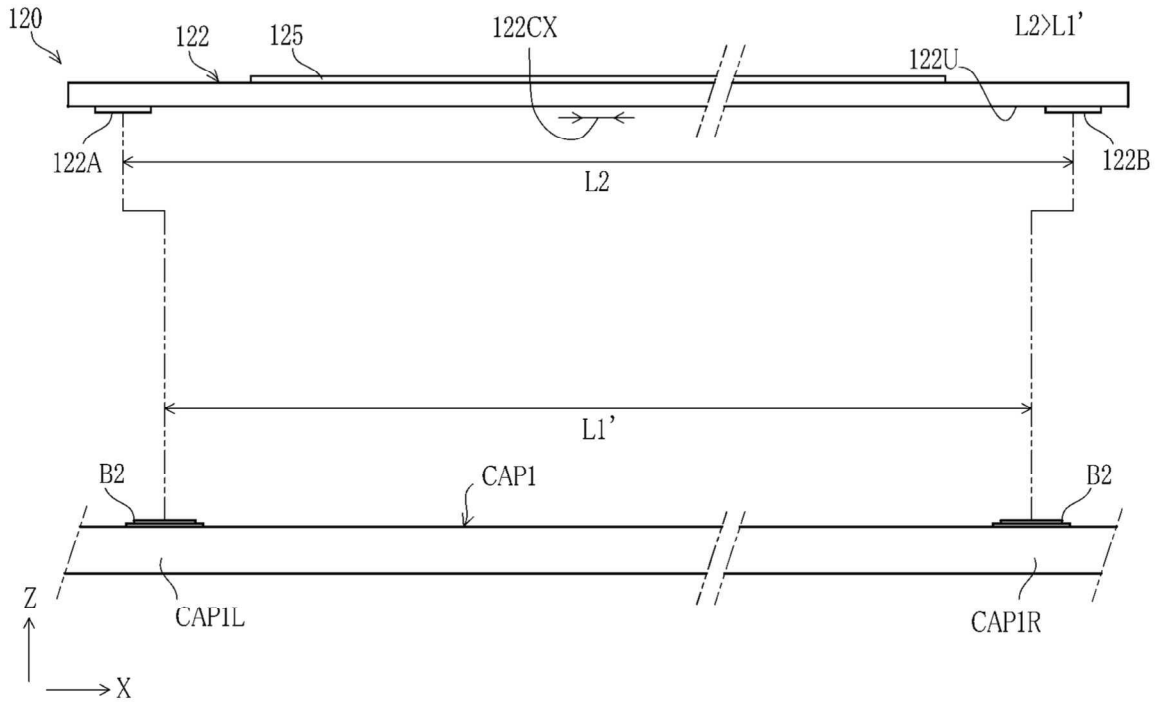
[Fig. 7A]



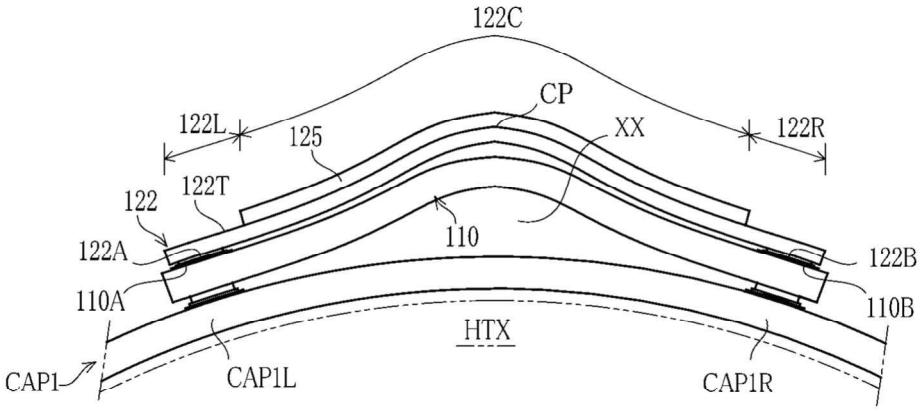
[Fig. 7B]



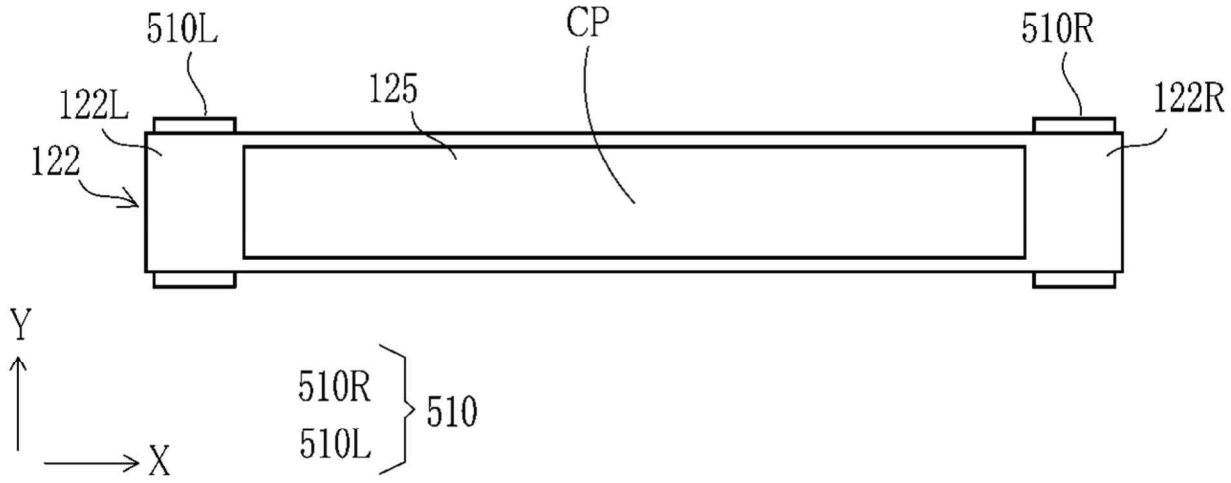
[Fig. 8A]


120
122
125
122CX
L2>L1'
122U
122A
L2
122B
L1'
B2
CAP1
B2
Z
X
CAP1L
CAP1R

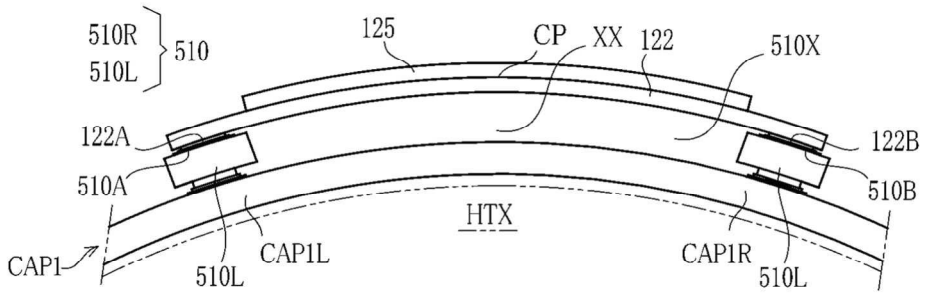
[Fig. 8B]


122C
CP
122L
125
XX
122R
122
122T
110
122A
122B
110A
110B
HTX
CAP1
CAP1L
CAP1R

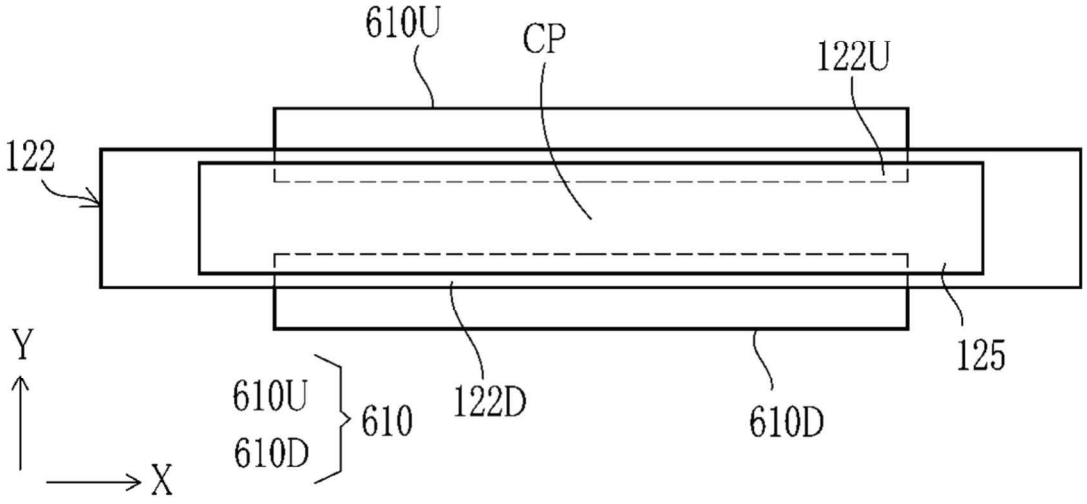
[Fig. 8C]



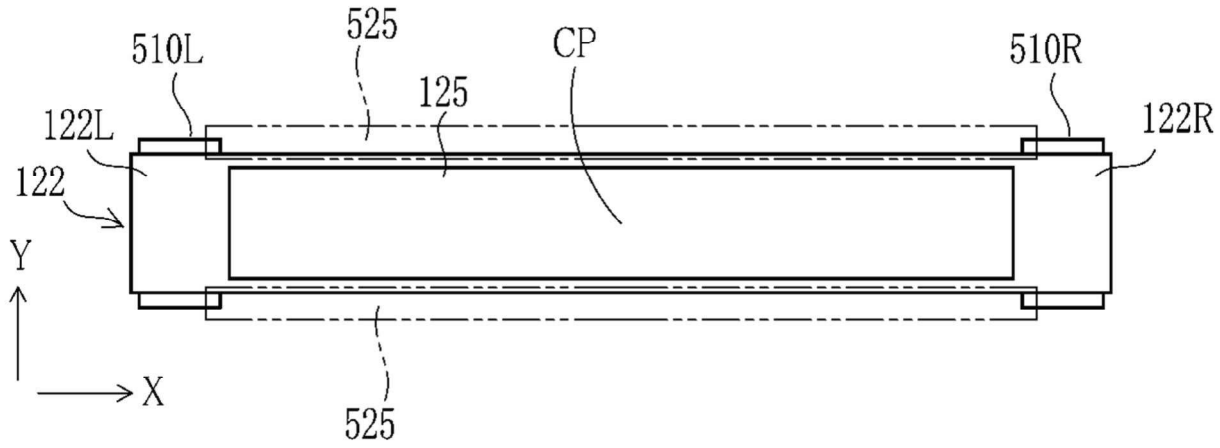
[Fig. 8D]


510R
510L
510
125
CP
XX
122
510X
122A
122B
510A
510B
HTX
CAP1
510L
CAP1L
CAP1R
510L

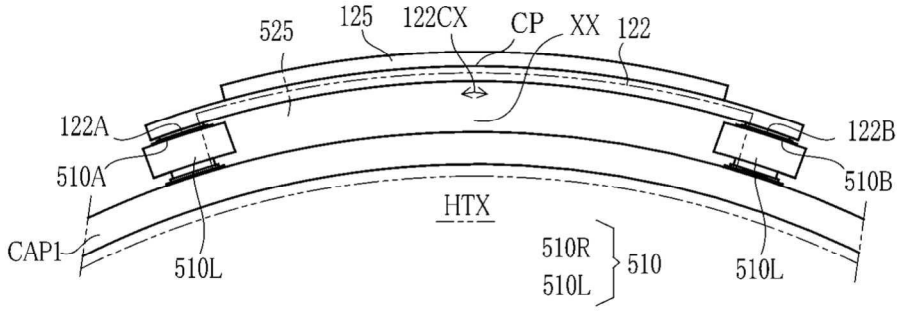
[Fig. 8E]



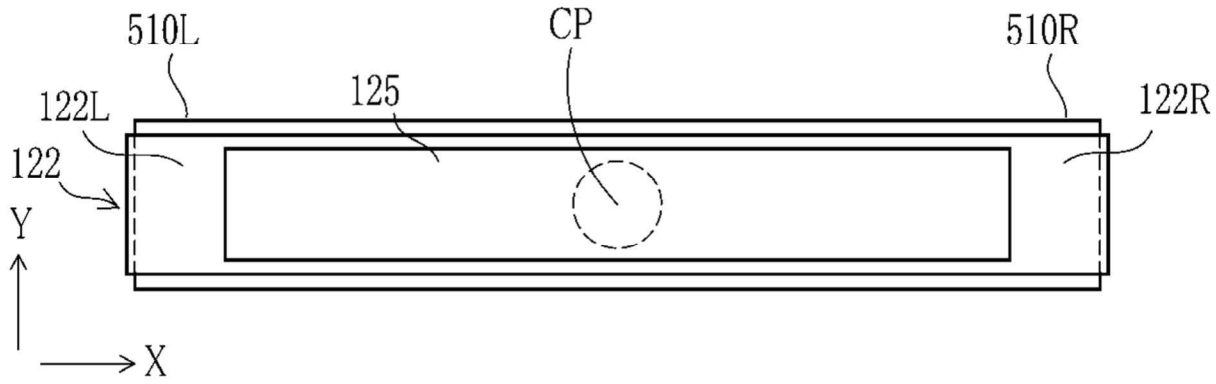
[Fig. 8F]



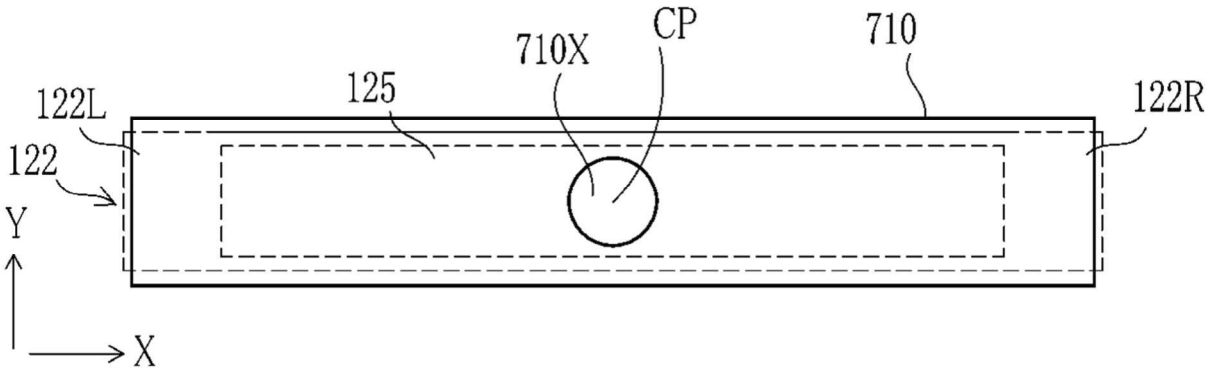
[Fig. 8G]


525
125
122CX
CP
XX
122
122A
122B
510A
510B
HTX
CAP1
510L
510R
510L
510
510L

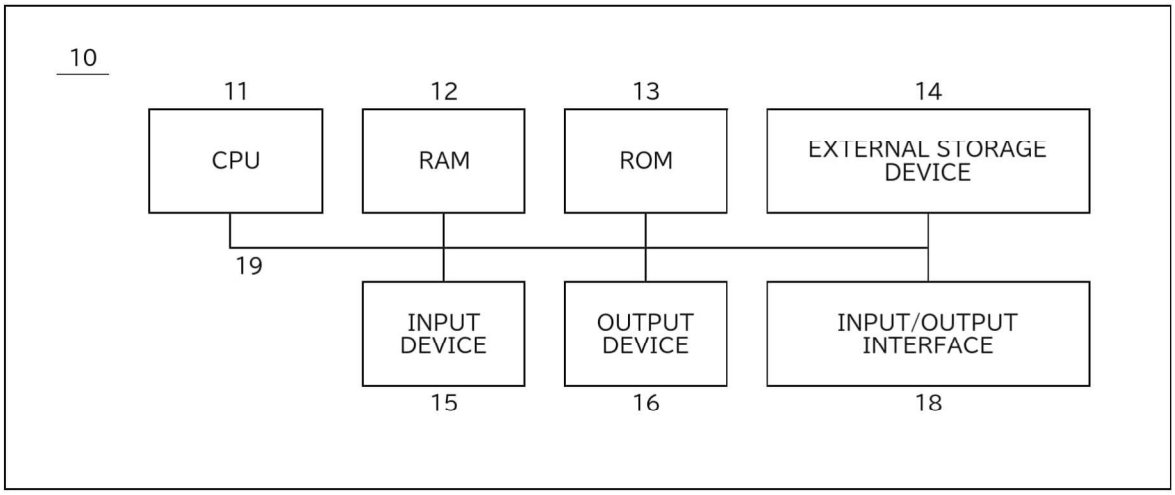
[Fig. 8H]



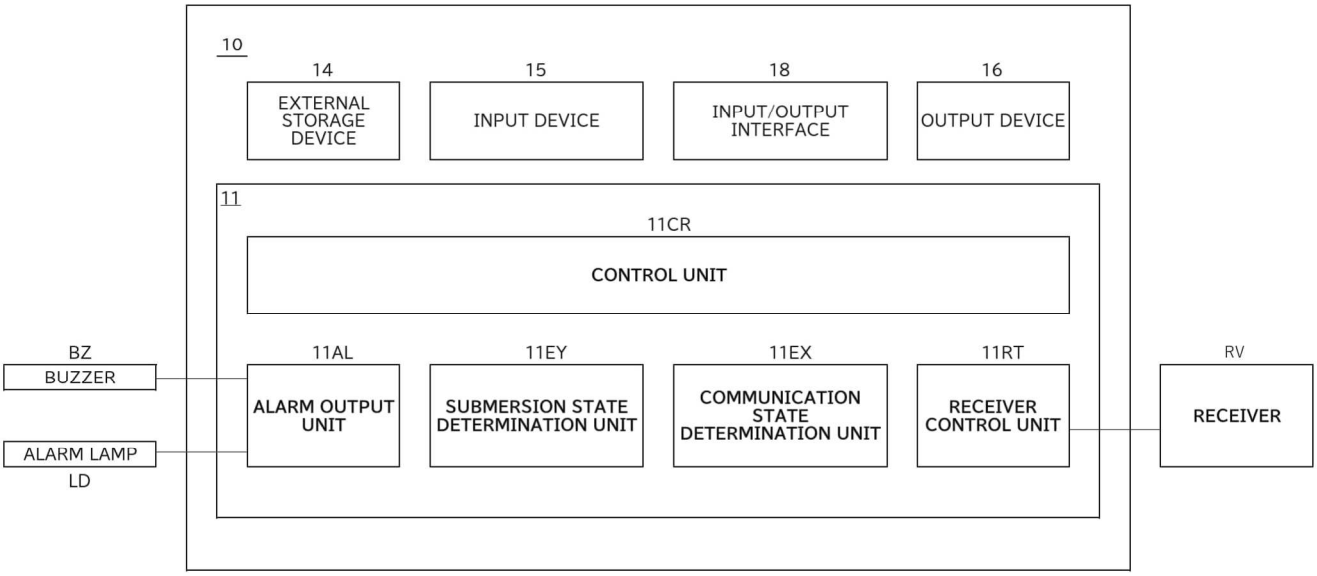
[Fig. 8I]



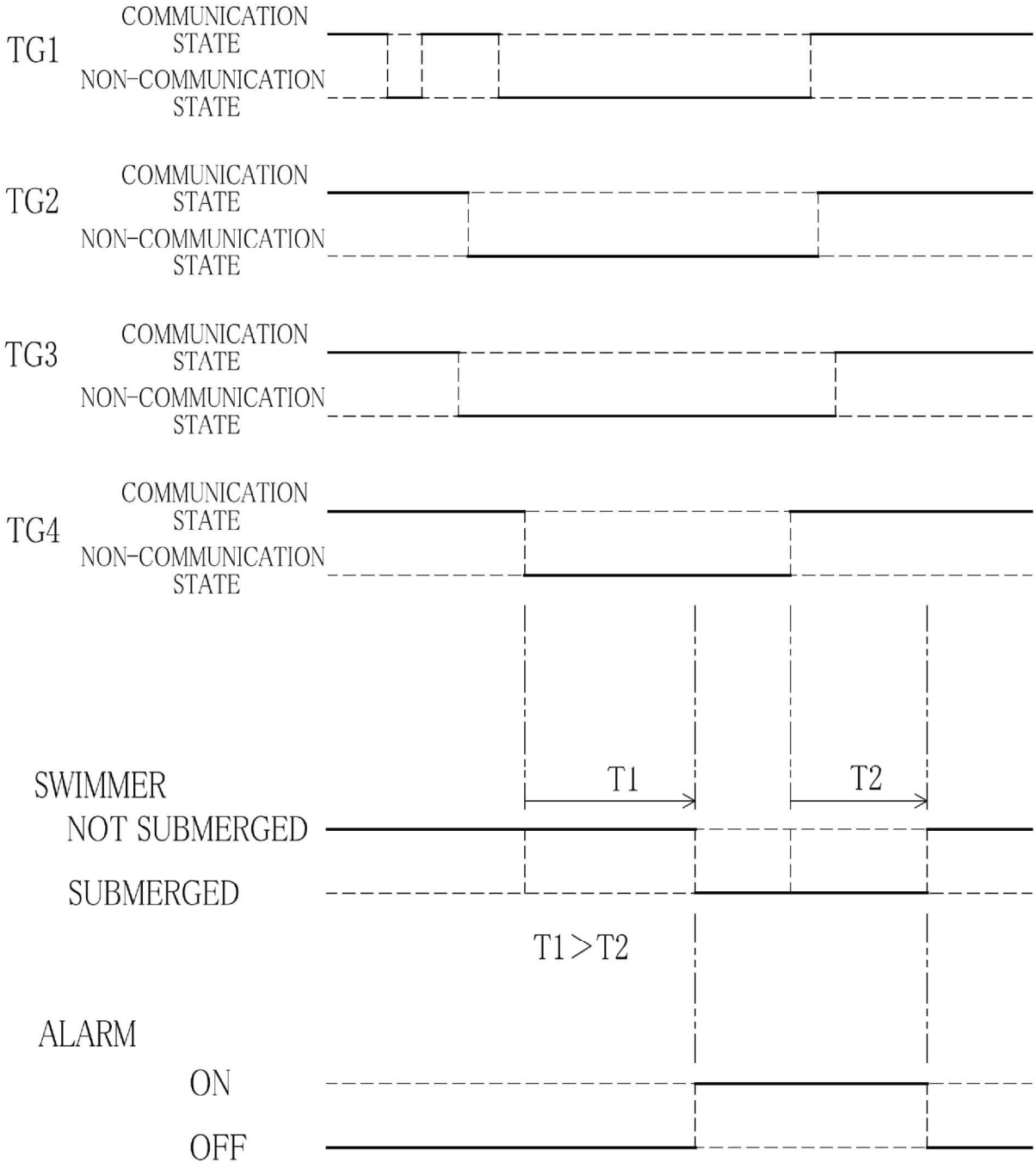
[Fig. 9]


10
11
CPU
12
RAM
13
ROM
14
EXTERNAL STORAGE DEVICE
19
INPUT DEVICE
15
OUTPUT DEVICE
16
INPUT/OUTPUT INTERFACE
18

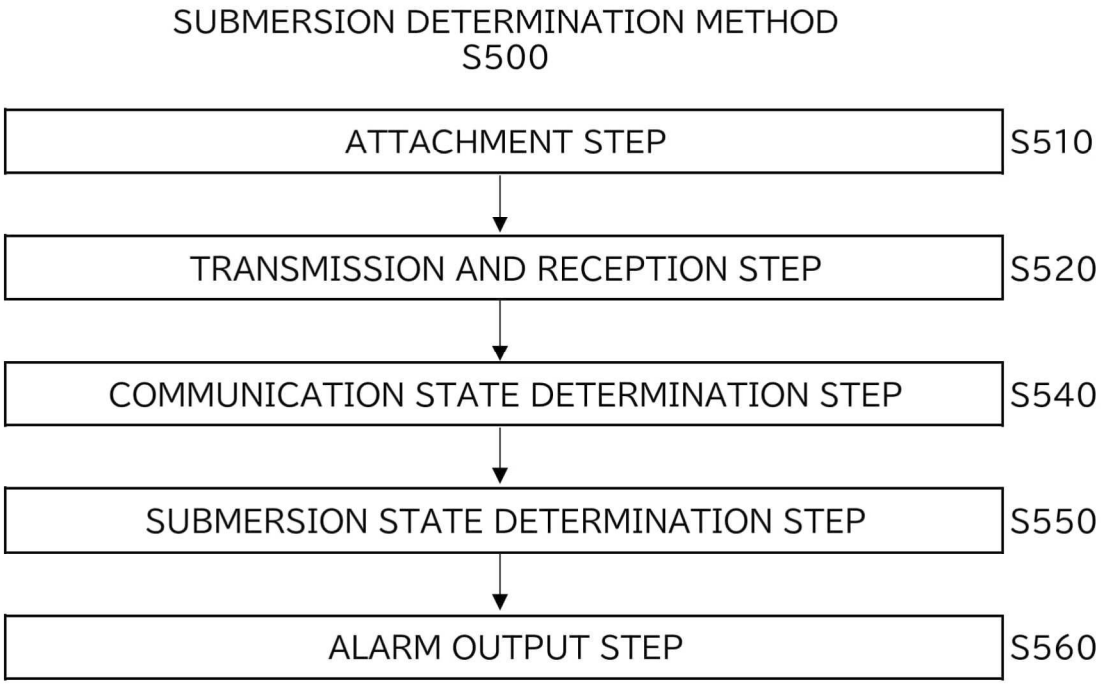
[Fig. 10]


10
14
EXTERNAL STORAGE DEVICE
15
INPUT DEVICE
18
INPUT/OUTPUT INTERFACE
16
OUTPUT DEVICE
11
11CR
CONTROL UNIT
BZ
BUZZER
ALARM LAMP
LD
11AL
ALARM OUTPUT UNIT
11EY
SUBMERSION STATE DETERMINATION UNIT
11EX
COMMUNICATION STATE DETERMINATION UNIT
11RT
RECEIVER CONTROL UNIT
RV
RECEIVER

[Fig. 11]


TG1
COMMUNICATION STATE
NON-COMMUNICATION STATE
TG2
COMMUNICATION STATE
NON-COMMUNICATION STATE
TG3
COMMUNICATION STATE
NON-COMMUNICATION STATE
TG4
COMMUNICATION STATE
NON-COMMUNICATION STATE
T1
T2
SWIMMER
NOT SUBMERGED
SUBMERGED
T1>T2
ALARM
ON
OFF

[Fig. 12]


SUBMERSION DETERMINATION METHOD
S500
ATTACHMENT STEP
S510
TRANSMISSION AND RECEPTION STEP
S520
COMMUNICATION STATE DETERMINATION STEP
S540
SUBMERSION STATE DETERMINATION STEP
S550
ALARM OUTPUT STEP
S560

[Fig. 13]

(A) TAG DB

IDENTIFIER OF RF TAG	IDENTIFIER OF SWIMMER	SWIMMER NAME	ATTACHMENT POSITION
TAG001	USR001	ICHIRO YAMADA	FACE (FOREHEAD)
TAG002	USR001	ICHIRO YAMADA	BACK SIDE OF HEAD
TAG003	USR001	ICHIRO YAMADA	LEFT SIDE OF HEAD
TAG004	USR001	ICHIRO YAMADA	RIGHT SIDE OF HEAD
TAG005	USR002	JIRO YAMAMOTO	FACE (FOREHEAD)
TAG006	USR002	JIRO YAMAMOTO	BACK SIDE OF HEAD
TAG007	USR002	JIRO YAMAMOTO	LEFT SIDE OF HEAD
TAG008	USR002	JIRO YAMAMOTO	RIGHT SIDE OF HEAD
TAG009	USR003	SABURO FUJII	FACE (FOREHEAD)
TAG010	USR003	SABURO FUJII	BACK SIDE OF HEAD
TAG011	USR003	SABURO FUJII	LEFT SIDE OF HEAD
TAG012	USR003	SABURO FUJII	RIGHT SIDE OF HEAD
TAG013	USR004	RYOKO YOSHIKAWA	FACE (FOREHEAD)
TAG014	USR004	RYOKO YOSHIKAWA	BACK SIDE OF HEAD
TAG015	USR004	RYOKO YOSHIKAWA	LEFT SIDE OF HEAD
TAG016	USR004	RYOKO YOSHIKAWA	RIGHT SIDE OF HEAD

(B) ANTENNA DB

IDENTIFIER OF ANTENNA	INSTALLATION LOCATION OF ANTENNA
AT1	(OMITTED)
AT2	(OMITTED)
AT3	(OMITTED)
AT4	(OMITTED)

[Fig. 14A]

TRANSMISSION LOG

TRANSMISSION TIME OF POLLING SIGNAL	IDENTIFIER OF RECEIVER	PROCESSING REQUEST	RECORDING TIME
10:00:00	(OMITTED)	(OMITTED)	(OMITTED)
10:00:01	(OMITTED)	(OMITTED)	(OMITTED)
10:00:02	(OMITTED)	(OMITTED)	(OMITTED)
10:00:03	(OMITTED)	(OMITTED)	(OMITTED)

[Fig. 14B]

RECEPTION LOG

RECORDING TIME	IDENTIFIER OF RECEIVER	RESPONSE SIGNAL RECEPTION TIME	IDENTIFIER OF ANTENNA	SIGNAL STRENGTH OF RESPONSE SIGNAL	IDENTIFIER OF RF TAG
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG001
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG002
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG003
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG004
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG005
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG006
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG007
10:00:01	(OMITTED)	10:00:01	AT1	(OMITTED)	TAG008
. . .	. . .	. . .	. . .	. . .	. . .
10:00:01	(OMITTED)	NO SIGNAL RECEPTION	AT2	-	-
10:00:01	(OMITTED)	10:00:01	AT2	(OMITTED)	TAG002
10:00:01	(OMITTED)	10:00:01	AT2	(OMITTED)	TAG003
10:00:01	(OMITTED)	10:00:01	AT2	(OMITTED)	TAG004
. . .	. . .	. . .	. . .	. . .	. . .
10:00:01	(OMITTED)	10:00:01	AT3	(OMITTED)	TAG001
10:00:01	(OMITTED)	10:00:01	AT3	(OMITTED)	TAG002
10:00:01	(OMITTED)	10:00:01	AT3	(OMITTED)	TAG003
10:00:01	(OMITTED)	10:00:01	AT3	(OMITTED)	TAG004
. . .	. . .	. . .	. . .	. . .	. . .
10:00:02	(OMITTED)	10:00:02	AT4	(OMITTED)	TAG001
10:00:02	(OMITTED)	10:00:02	AT4	(OMITTED)	TAG002
10:00:02	(OMITTED)	10:00:02	AT4	(OMITTED)	TAG003
10:00:02	(OMITTED)	10:00:02	AT4	(OMITTED)	TAG004
. . .	. . .	. . .	. . .	. . .	. . .
10:00:12	(OMITTED)	NO SIGNAL RECEPTION	AT4	-	-
10:00:12	(OMITTED)	NO SIGNAL RECEPTION	AT4	-	-
10:00:12	(OMITTED)	NO SIGNAL RECEPTION	AT4	-	-
10:00:12	(OMITTED)	NO SIGNAL RECEPTION	AT4	-	-

[Fig. 15]

COMMUNICATION STATE DETERMINATION LOG

IDENTIFIER OF RF TAG	STATUS COMMUNICATION STATE/ NON-COMMUNICATION STATE	DETERMINATION TIME
TAG001	COMMUNICATION STATE	10:00:01
TAG002	COMMUNICATION STATE	10:00:01
TAG003	COMMUNICATION STATE	10:00:01
TAG004	COMMUNICATION STATE	10:00:01
TAG005	COMMUNICATION STATE	10:00:01
TAG006	COMMUNICATION STATE	10:00:01
TAG007	COMMUNICATION STATE	10:00:01
TAG008	COMMUNICATION STATE	10:00:01
TAG009	COMMUNICATION STATE	10:00:01
TAG010	COMMUNICATION STATE	10:00:01
TAG011	COMMUNICATION STATE	10:00:01
TAG012	COMMUNICATION STATE	10:00:01
⋮	⋮	⋮
TAG001	COMMUNICATION STATE	10:00:02
TAG002	COMMUNICATION STATE	10:00:02
TAG003	COMMUNICATION STATE	10:00:02
TAG004	COMMUNICATION STATE	10:00:02
⋮	⋮	⋮
TAG001	COMMUNICATION STATE	10:00:10
TAG002	NON-COMMUNICATION STATE	10:00:10
TAG003	NON-COMMUNICATION STATE	10:00:10
TAG004	NON-COMMUNICATION STATE	10:00:10
⋮	⋮	⋮
TAG001	COMMUNICATION STATE	10:00:11
TAG002	NON-COMMUNICATION STATE	10:00:11
TAG003	NON-COMMUNICATION STATE	10:00:11
TAG004	NON-COMMUNICATION STATE	10:00:11
⋮	⋮	⋮
TAG001	NON-COMMUNICATION STATE	10:00:12
TAG002	NON-COMMUNICATION STATE	10:00:12
TAG003	NON-COMMUNICATION STATE	10:00:12
TAG004	NON-COMMUNICATION STATE	10:00:12

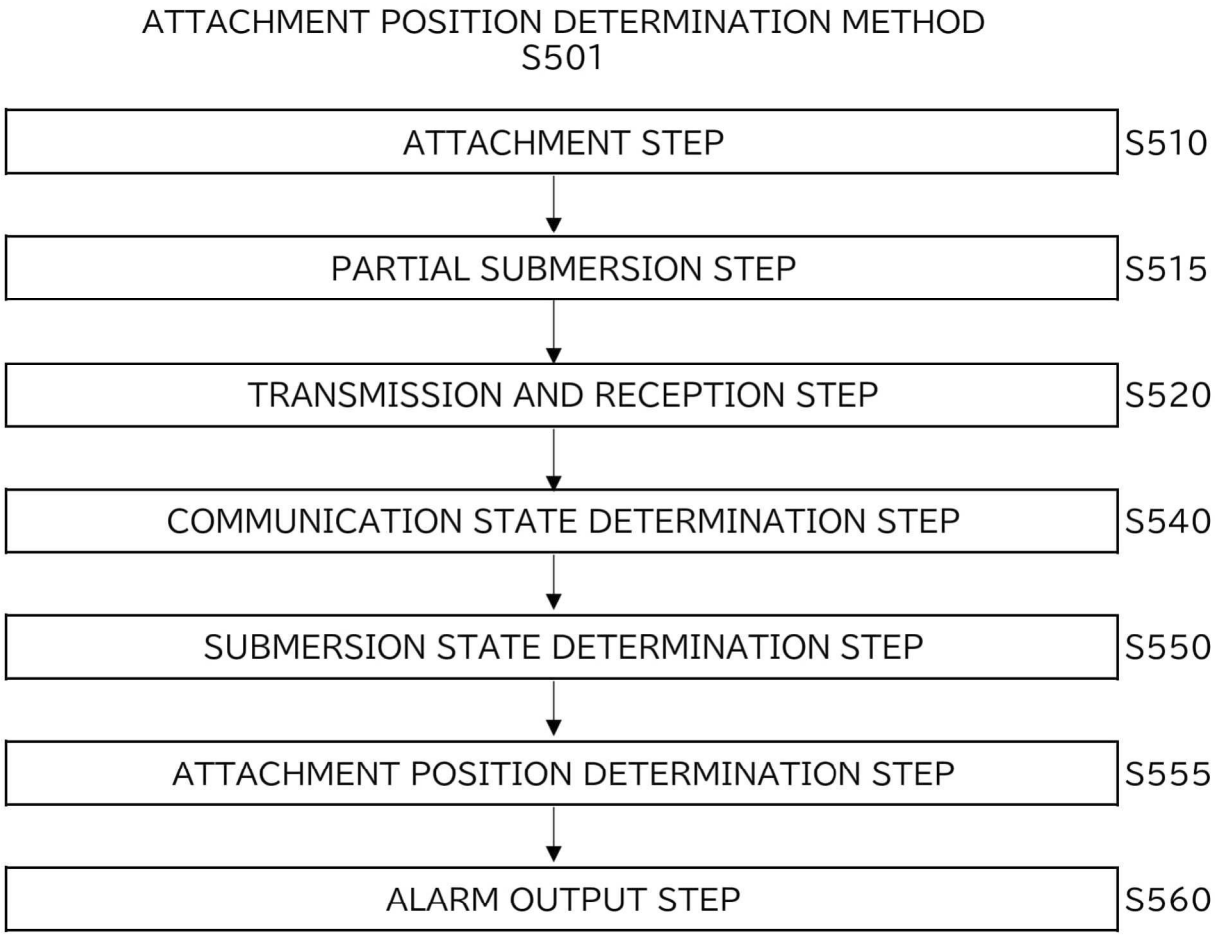
[Fig. 16]

SUBMERSION STATE DETERMINATION LOG

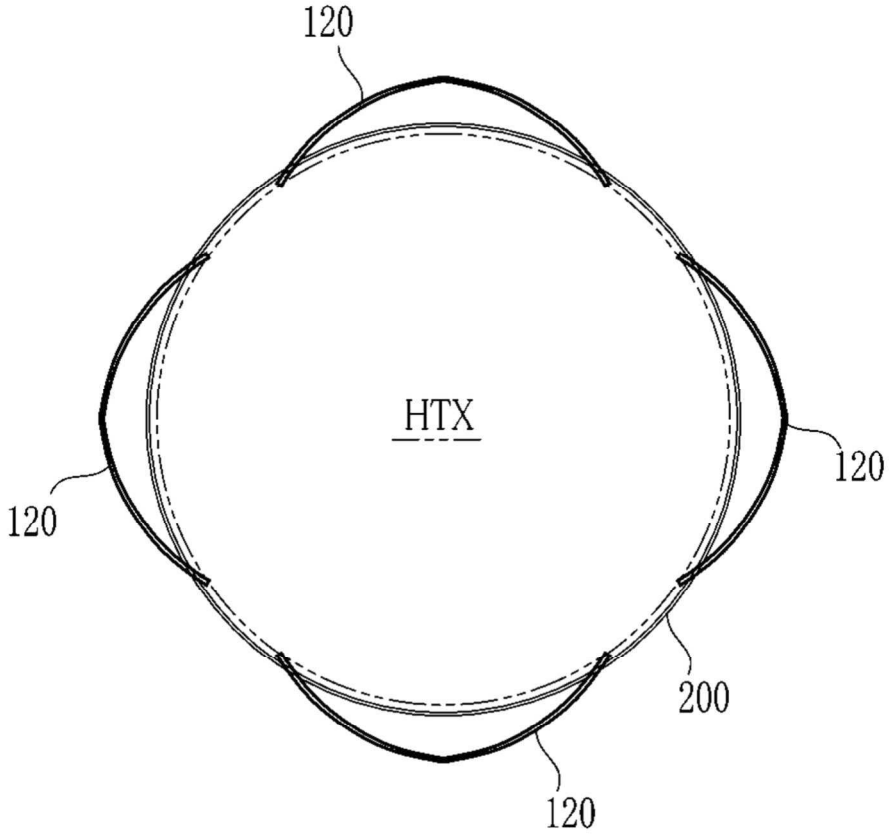
IDENTIFIER OF SWIMMER	SUBMERSION DETERMINATION RESULT ※1	DETERMINATION TIME	IDENTIFIER OF ASSOCIATED RF TAG	STATUS COMMUNICATION STATE or NON-COMMUNICATION STATE	IDENTIFIER OF ASSOCIATED RF TAG	STATUS COMMUNICATION STATE or NON-COMMUNICATION STATE	IDENTIFIER OF ASSOCIATED RF TAG	STATUS COMMUNICATION STATE or NON-COMMUNICATION STATE	IDENTIFIER OF ASSOCIATED RF TAG	STATUS COMMUNICATION STATE or NON-COMMUNICATION STATE
USR001	OK	10:00	TAG001	COMMUNICATION STATE	TAG002	COMMUNICATION STATE	TAG003	COMMUNICATION STATE	TAG004	COMMUNICATION STATE
USR001	OK	10:00	TAG001	COMMUNICATION STATE	TAG002	COMMUNICATION STATE	TAG003	COMMUNICATION STATE	TAG004	COMMUNICATION STATE
・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・	・ ・ ・
USR001	OK	10:00	TAG001	COMMUNICATION STATE	TAG002	NON-COMMUNICATION STATE	TAG003	NON-COMMUNICATION STATE	TAG004	NON-COMMUNICATION STATE
USR001	OK	10:00	TAG001	COMMUNICATION STATE	TAG002	NON-COMMUNICATION STATE	TAG003	NON-COMMUNICATION STATE	TAG004	NON-COMMUNICATION STATE
USR001	OK	10:00	TAG001	NON-COMMUNICATION STATE	TAG002	NON-COMMUNICATION STATE	TAG003	NON-COMMUNICATION STATE	TAG004	NON-COMMUNICATION STATE
USR001	NG	10:00	TAG001	NON-COMMUNICATION STATE	TAG002	NON-COMMUNICATION STATE	TAG003	NON-COMMUNICATION STATE	TAG004	NON-COMMUNICATION STATE

OK:A STATE OF NOT BEING SUBMERGED
NG:SUBMERSION STATE

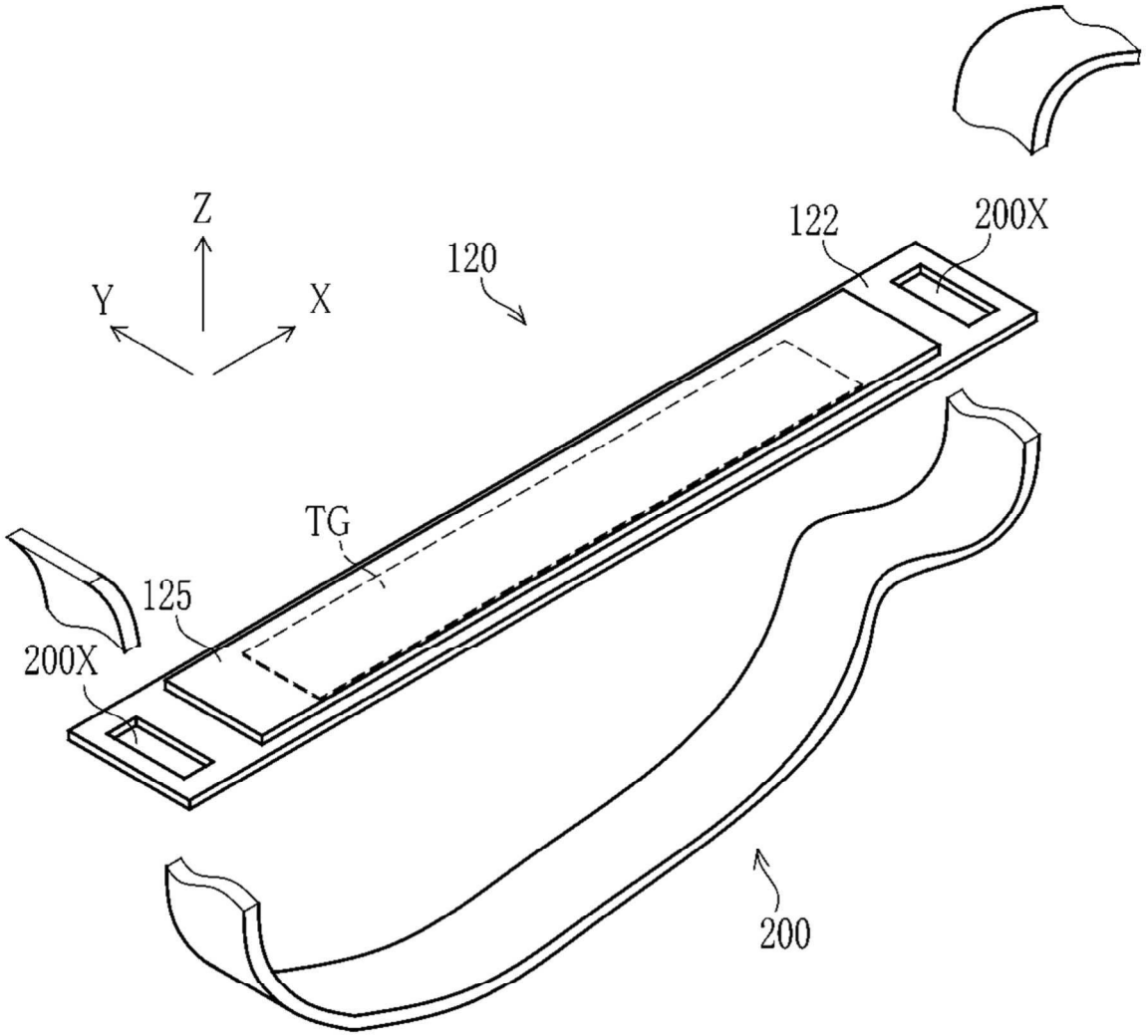
[Fig. 17]


ATTACHMENT POSITION DETERMINATION METHOD
S501
ATTACHMENT STEP
S510
PARTIAL SUBMERSION STEP
S515
TRANSMISSION AND RECEPTION STEP
S520
COMMUNICATION STATE DETERMINATION STEP
S540
SUBMERSION STATE DETERMINATION STEP
S550
ATTACHMENT POSITION DETERMINATION STEP
S555
ALARM OUTPUT STEP
S560

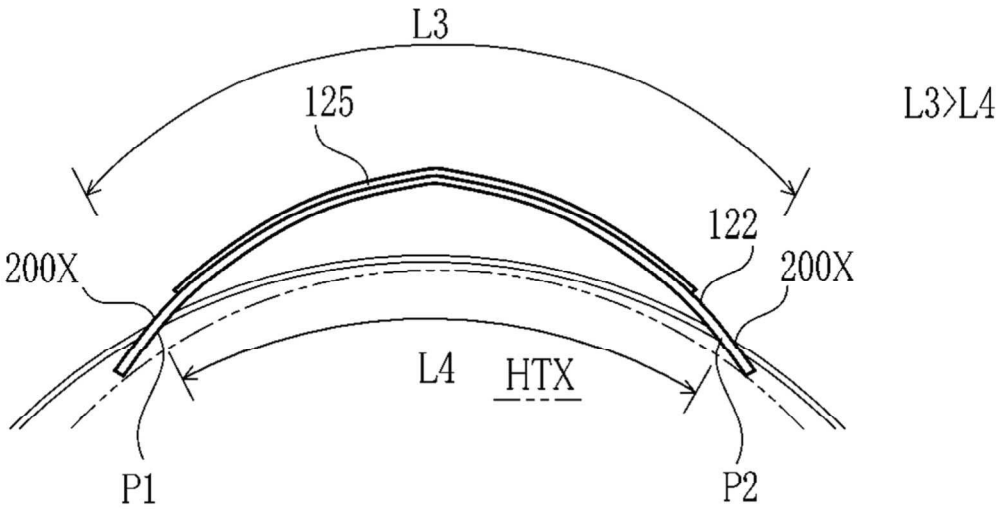
[Fig. 18]



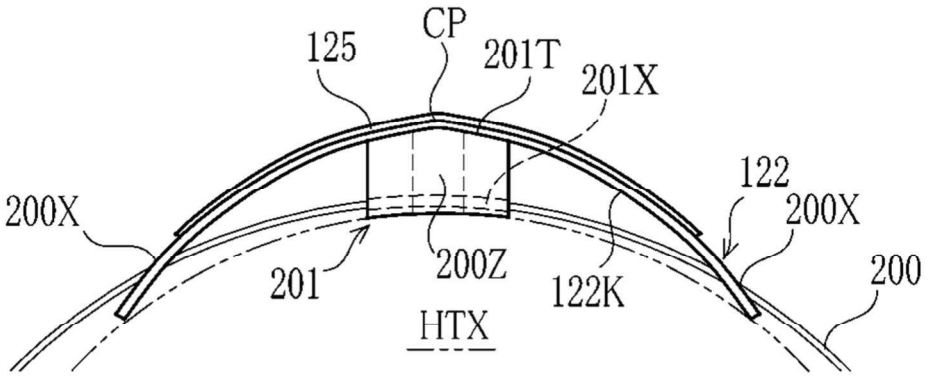
[Fig. 19]



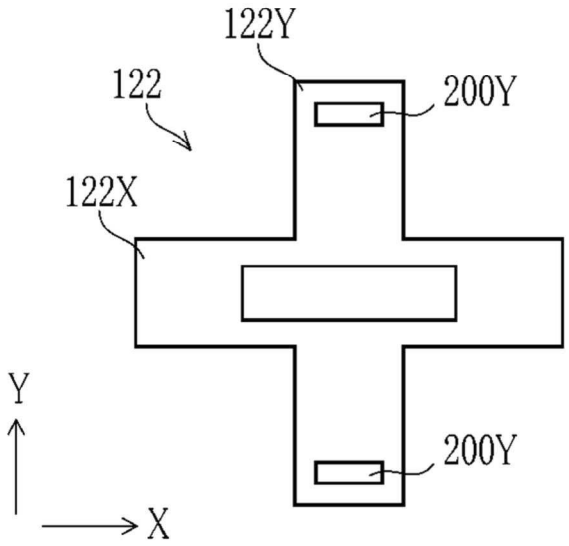
[Fig. 20]



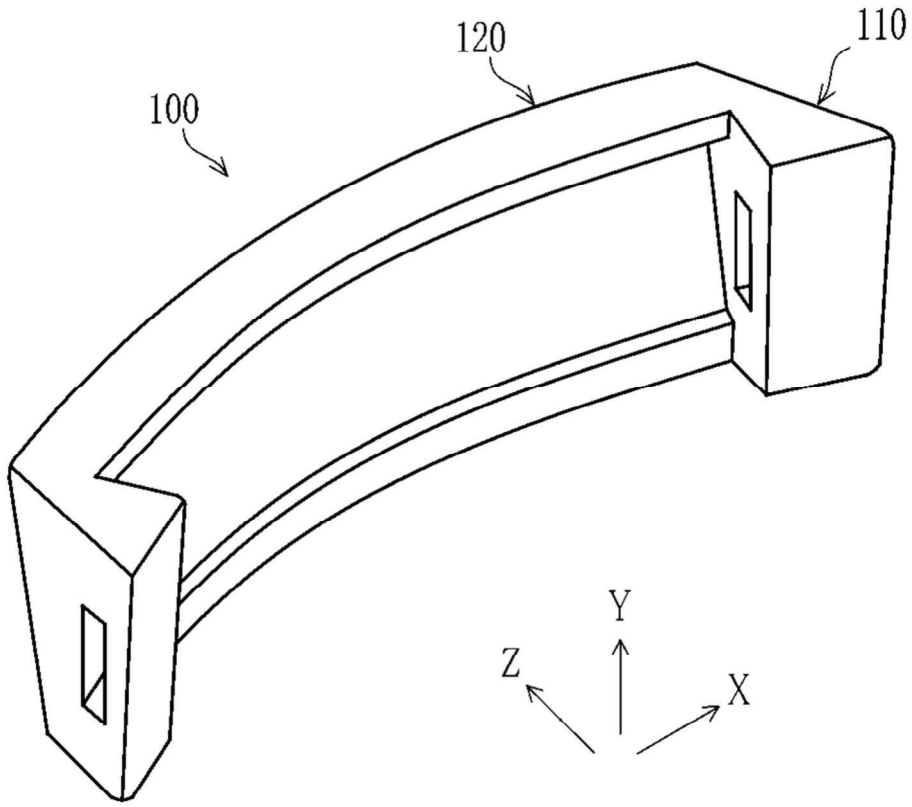
[Fig. 21]



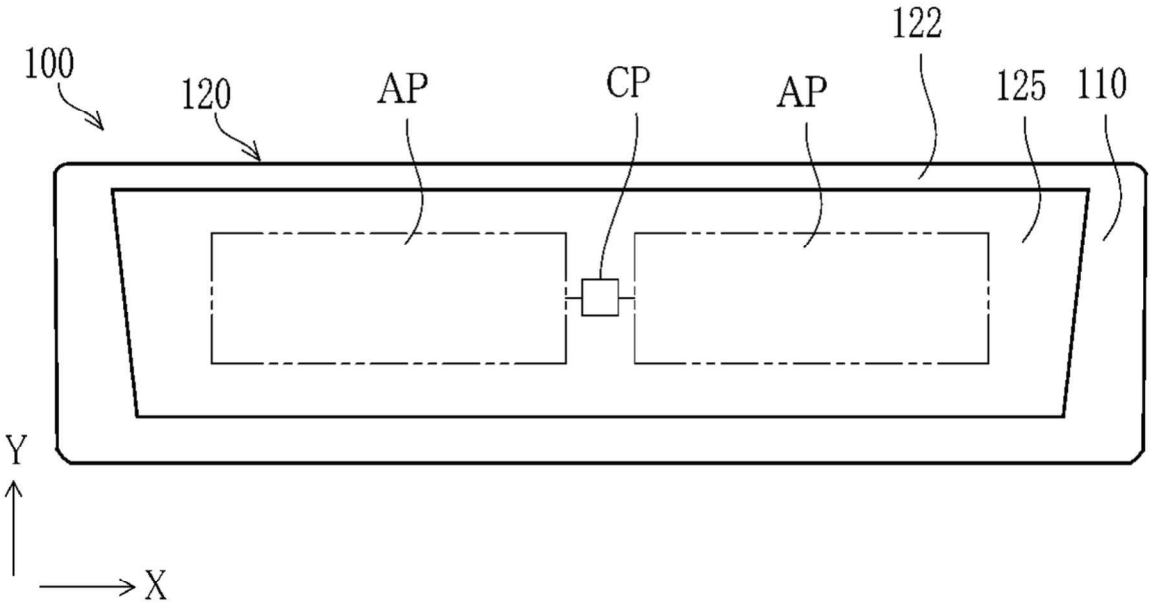
[Fig. 22]



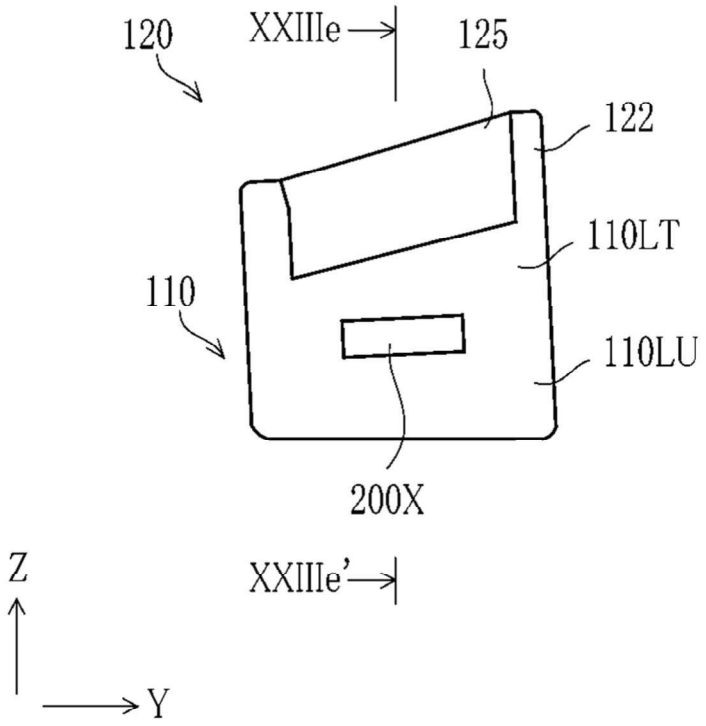
[Fig. 23A]



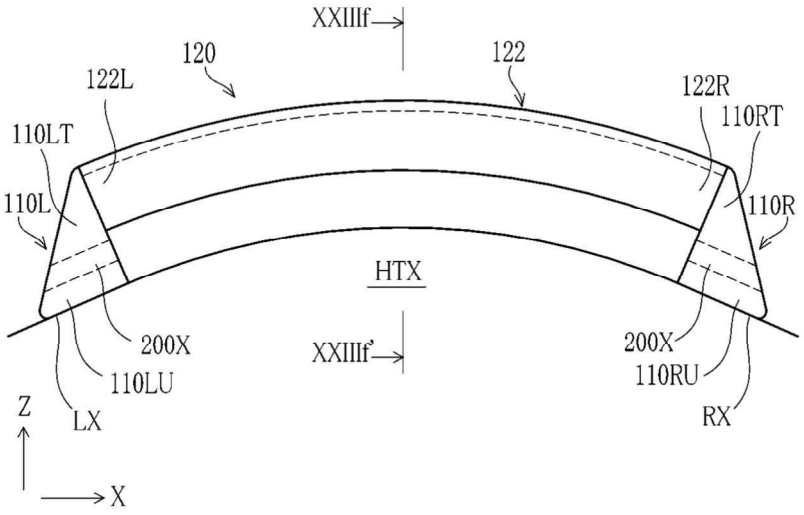
[Fig. 23B]



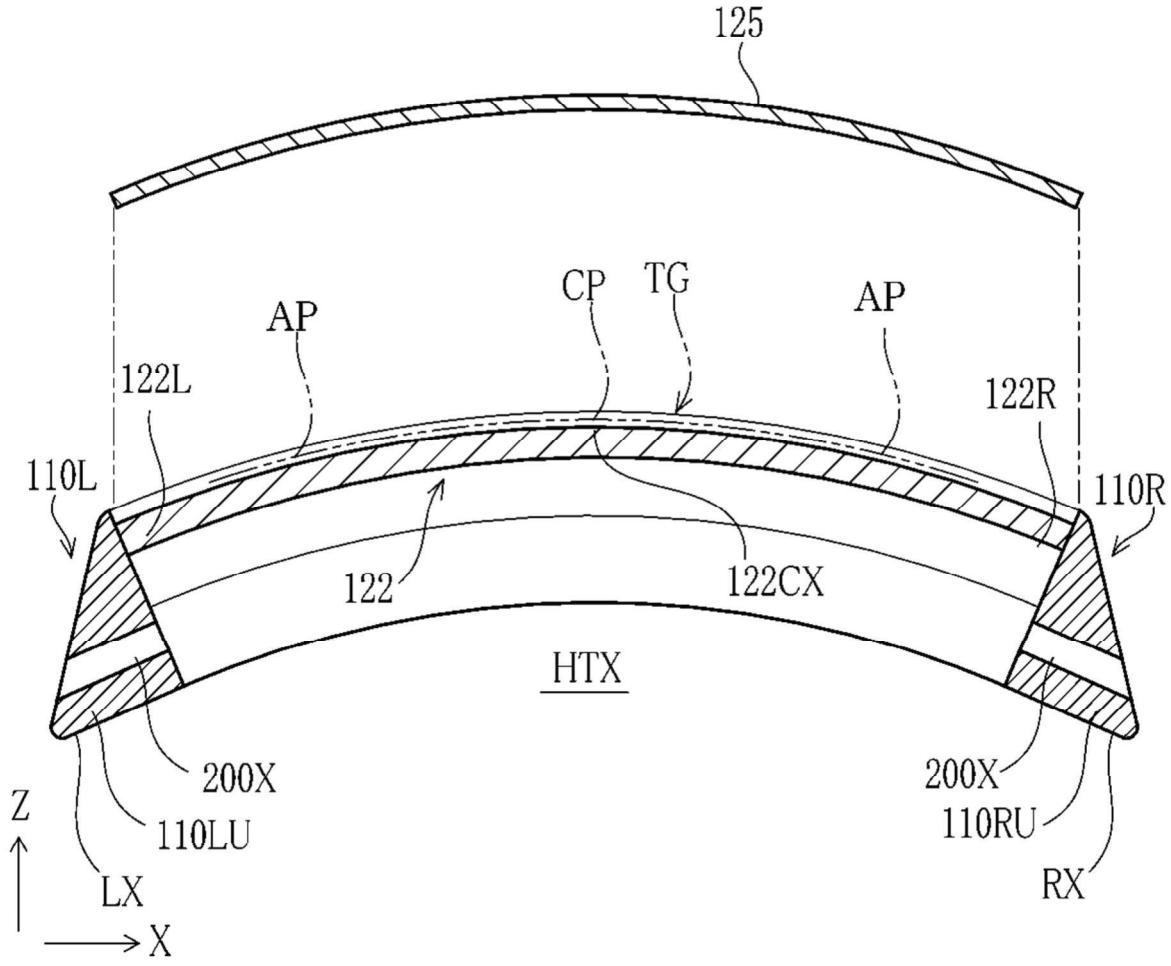
[Fig. 23C]



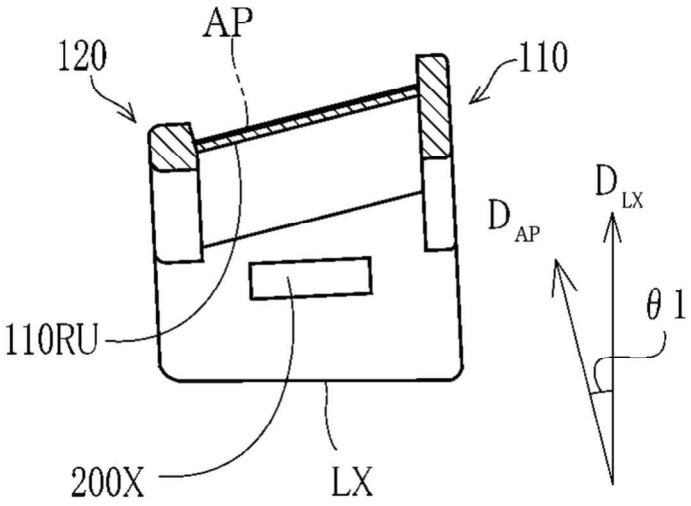
[Fig. 23D]


XXIIIf
120
122
122L
122R
110RT
110LT
110L
110R
HTX
XXIIIf'
200X
200X
110LU
110RU
LX
RX
Z
X

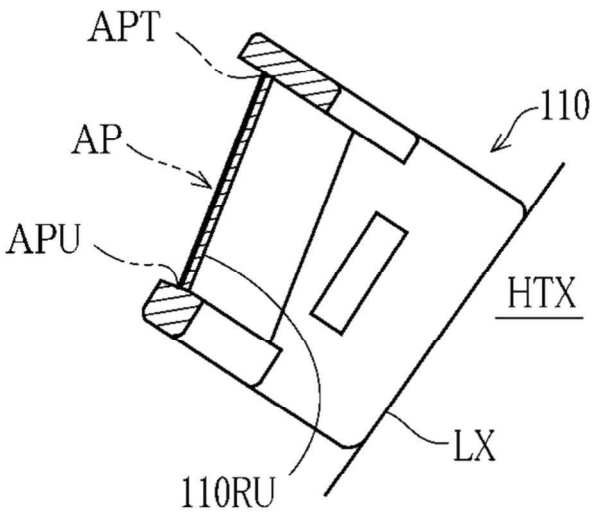
[Fig. 23E]


125
AP
CP
TG
AP
122L
122R
110L
110R
122
122CX
HTX
200X
200X
110LU
110RU
Z
LX
RX
X

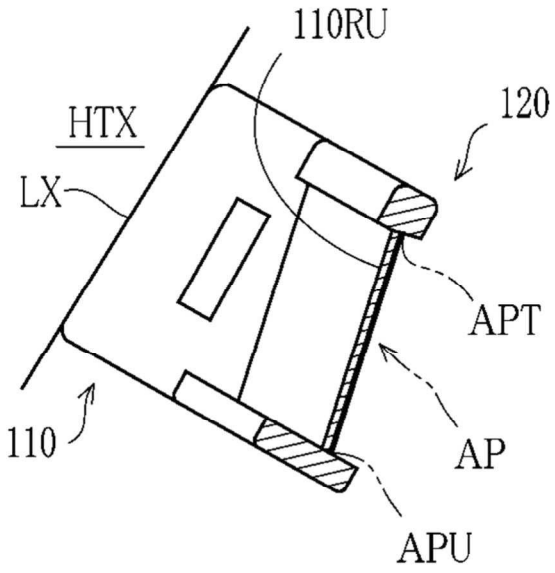
[Fig. 23F]



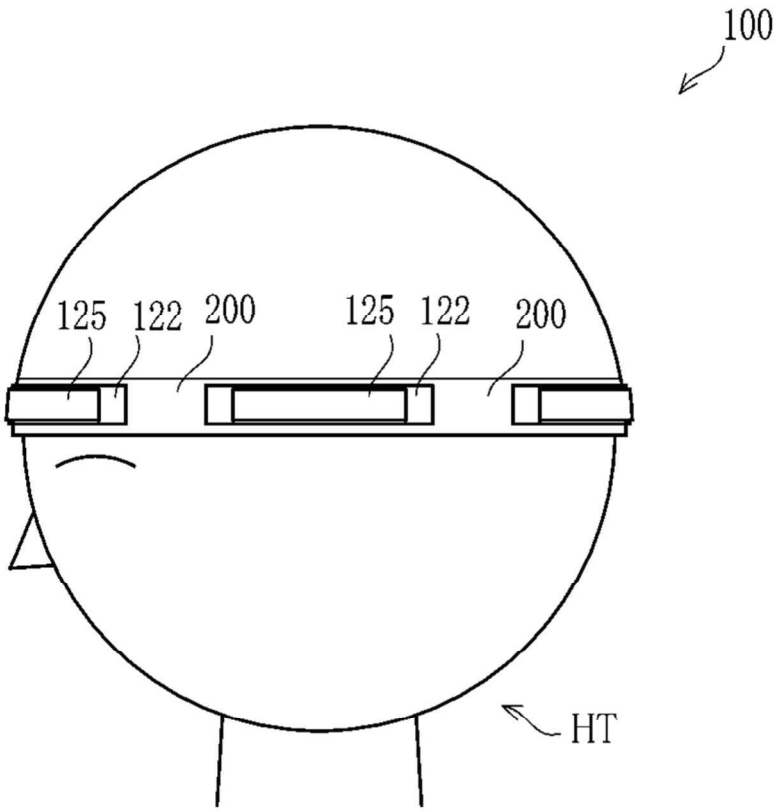
[Fig. 23G]



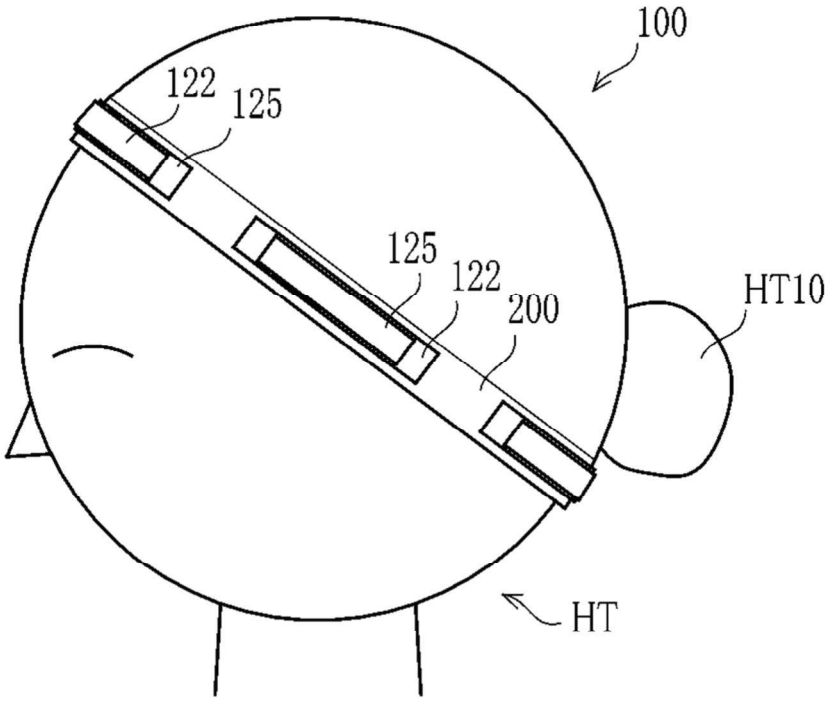
[Fig. 23H]



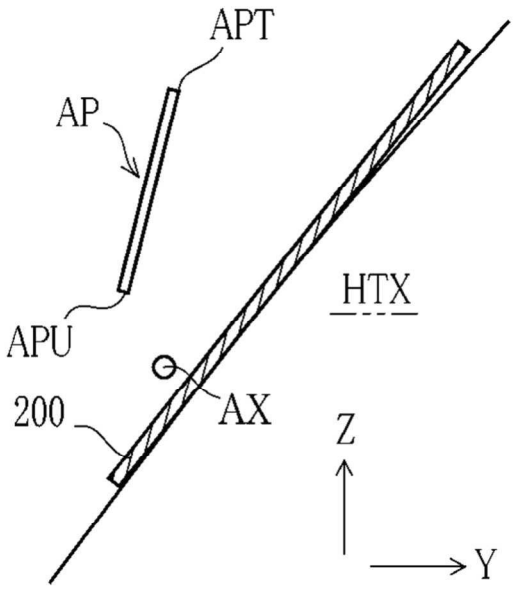
[Fig. 24A]



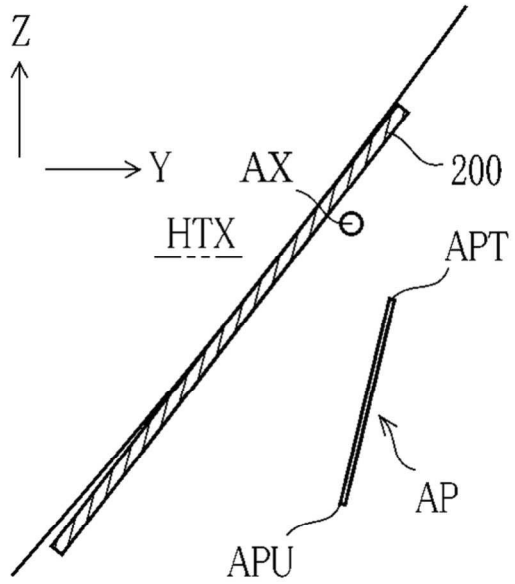
[Fig. 24B]



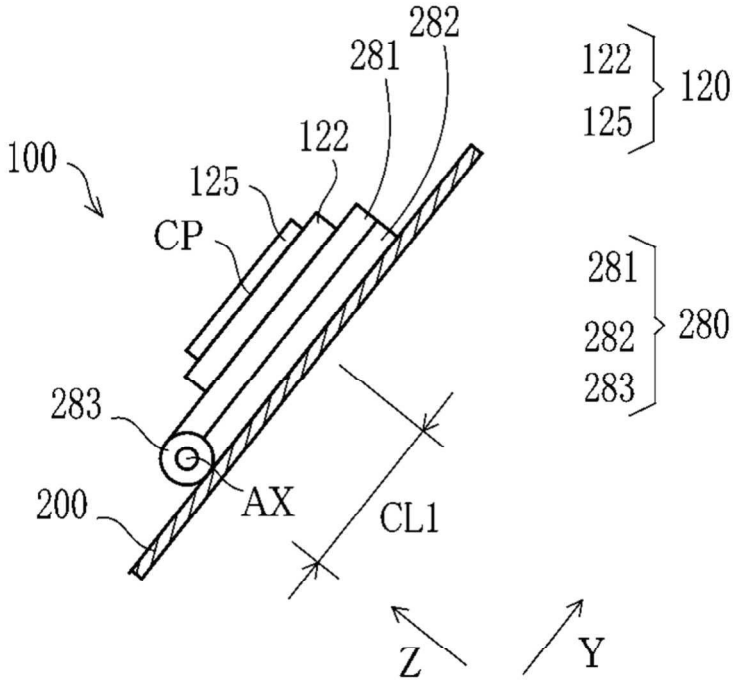
[Fig. 24C]



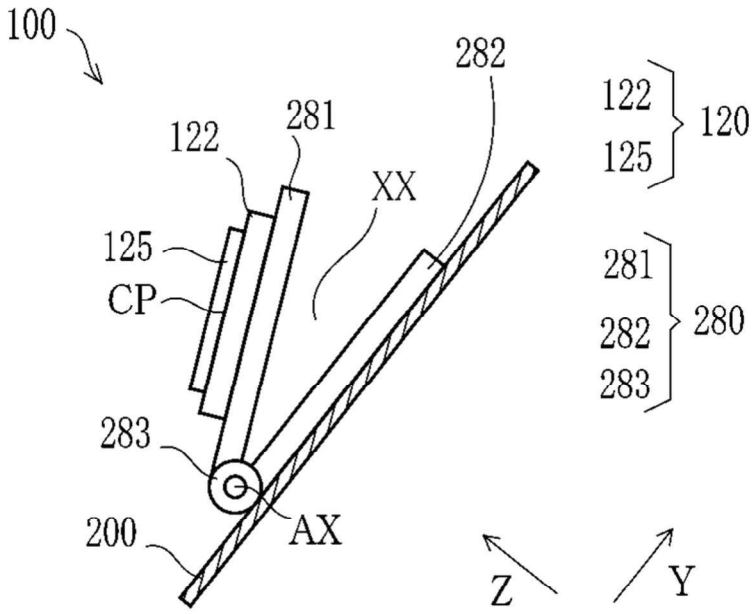
[Fig. 24D]



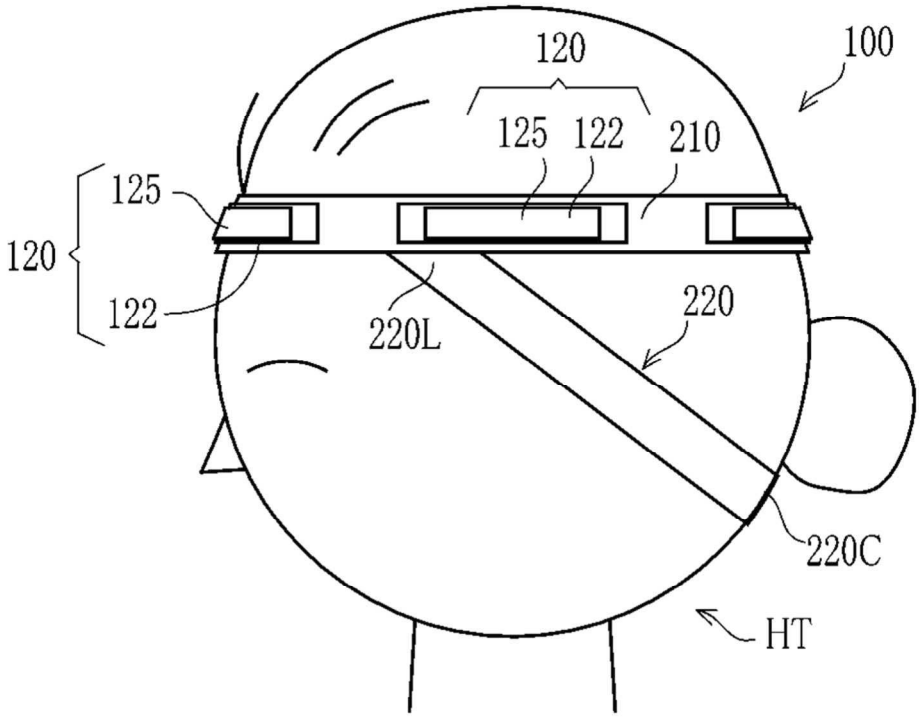
[Fig. 25A]


282
281
122
125
100
CP
283
200
AX
CL1
Z
Y
122
125
120
281
282
283
280

[Fig. 25B]


100
282
281
122
XX
125
CP
283
AX
200
122
125
120
281
282
283
280
Z
Y

[Fig. 26A]



[Fig. 26B]

